



5489

5489 H

Service Manual

Service Manual for the Pfaff 5489

Please note:

The illustrations in this Manual show the Pfaff 5489-814/01 single-needle, two-thread chainstitch, high-speed sewing machine, whereas the adjusting instructions apply to the Pfaff 5489-814/01 single- and double-needle machines.

Deviating, or additional adjustments for machines with floating presser foot (No. 91-055 660-91) are listed on page 37, and for H machine versions on page 38 of the Annex. The machine version is indicated on the model plate on the arm standard.

Tools, gauges and other equipment needed for adjusting the Pfaff 5489:

1 set of screwdrivers with blades from 2 to 10 mm wide

1 set of hexagon allen keys ranging from 1.5 to 6.0 mm

1 set of spanners from 7 to 14 mm wide

1 spanner, 22 mm wide

1 metal rule

1 C-clamp, part No. 08-880137-00

1 adjustment pin (5 mm dia.), part No. 13-030341-05

1 gauge, part No. 61-111642-19

1 gauge, part No. 61-111643-06

1 packet of needles

Needle system: 4463-35
for H version UY 128 GAS

Spacing washers: 0.3, 0.5, 0.8 or 1.2 mm thick

Thread and material for testing purposes

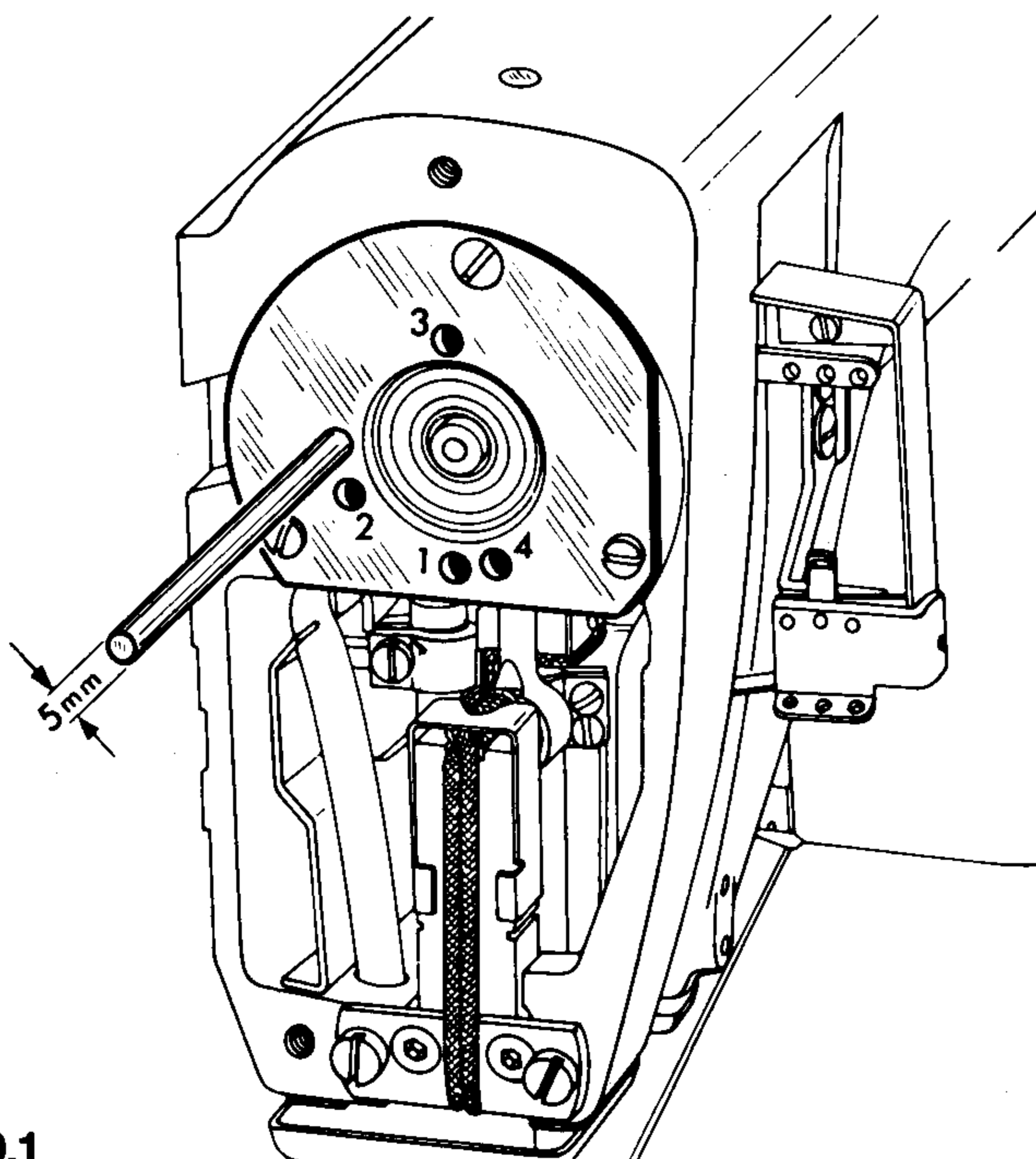
1 Preparations for adjustment

1.1 Remove the belt guard.

1.2 Take out the two face cover screws and remove the face cover.

Note:

This machine is equipped with a bearing plate with four holes in it. By inserting a pin in one of these holes and pushing it into a recess behind the bearing plate the machine can be blocked with the needle bar at a certain position.

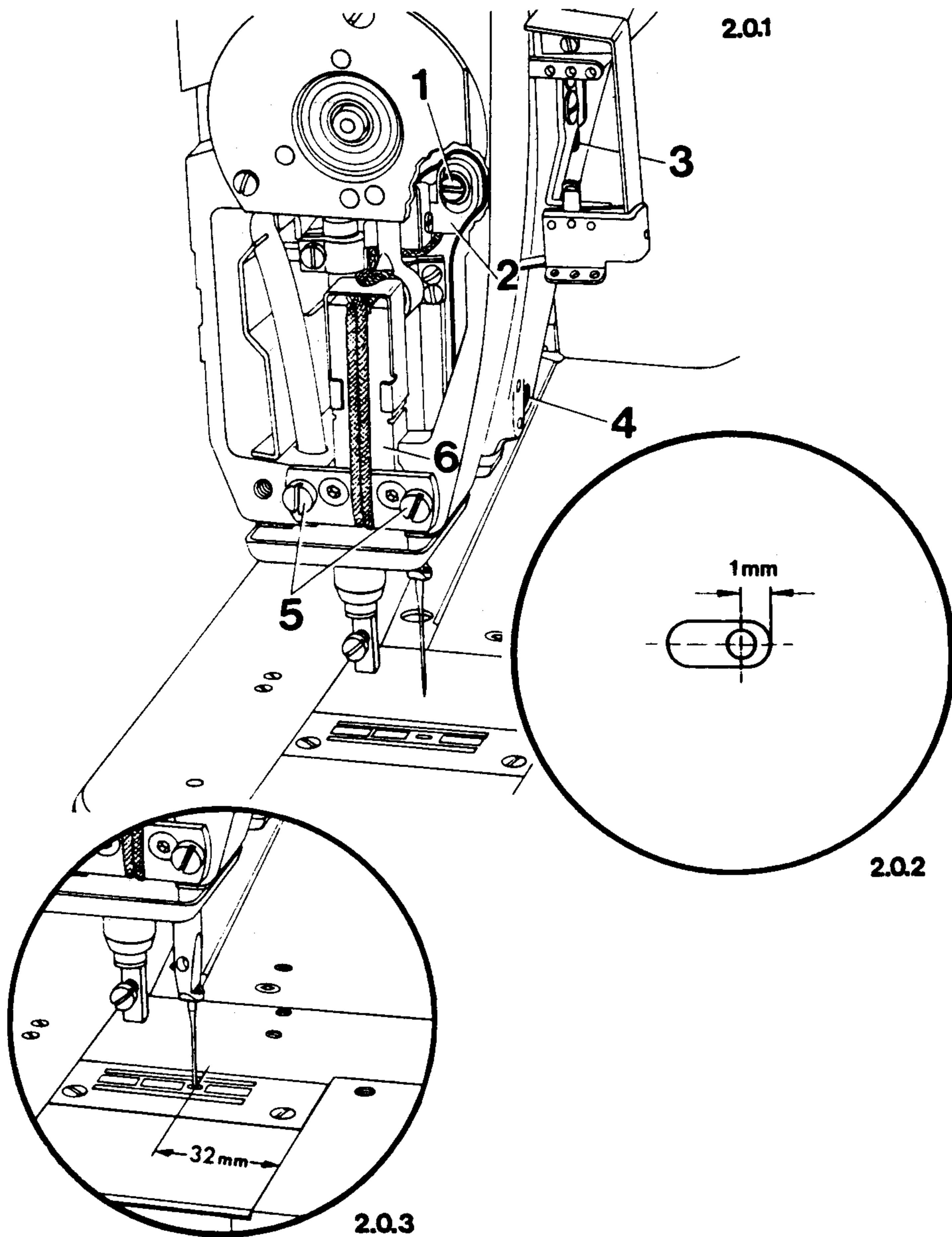


1.0.1

Position of needle in needle hole

Setting:

The needle is to stitch into the needle hole centre crosswise to sewing direction, and between needle hole and needle centre there should be a clearance of 1 mm (i. e., the distance to the needle plate is approx. 32 mm).



- 2.1 Turn the balance wheel to bring the needle bar to top dead center and remove the presser foot.
- 2.2 Insert a new needle (note needle system) and push it into the needle bar as far as it will go, making sure its long groove faces toward you.
- 2.3 Remove cap screw 1 from the eye of needle bar frame 2.
- 2.4 Loosen screw 3 of the eccentric guide stud.
- 2.5 Also loosen screw 4 of the lug on the needle bar frame.
- 2.6 Loosen both screws 5 of guide 6 by two or three turns.
- 2.7 Turn the balance wheel until the needle point is immediately above the needle hole.
- 2.8 **Adjust the position of needle bar frame 2 so that the needle is centered in the needle hole in crosswise direction.**
- 2.9 Tighten screw 4 just lightly.
- 2.10 **Displace needle bar frame in sewing direction in such a way that the clearance between needle plate and needle centre is roughly 1 mm, i. e., the distance to the needle plate is approx. 32 mm (Figs. 2.0.2 and 2.0.3).**
- 2.11 In this position, also tighten screw 3 a little.
- 2.12 Now securely tighten screw 4.
- 2.13 Insert cap screw 1 together with its washer and turn it into the eccentric guide stud a few turns.
- 2.14 Pull cap screw 1 outwards to bring the eccentric guide stud into contact with the reverse side of needle bar frame 2. Then securely tighten screw 3.
- 2.15 Also tighten cap screw 1 securely.
- 2.16 Loosen screw 3 again, turn the balance wheel a few turns to make sure that no twist has occurred in the needle bar frame, then tighten screw 3 again.
- 2.17 Tighten both screws 5 again, making sure that guide 6 is parallel to the needle bar.
- 2.18 Check this adjustment (see "Setting").

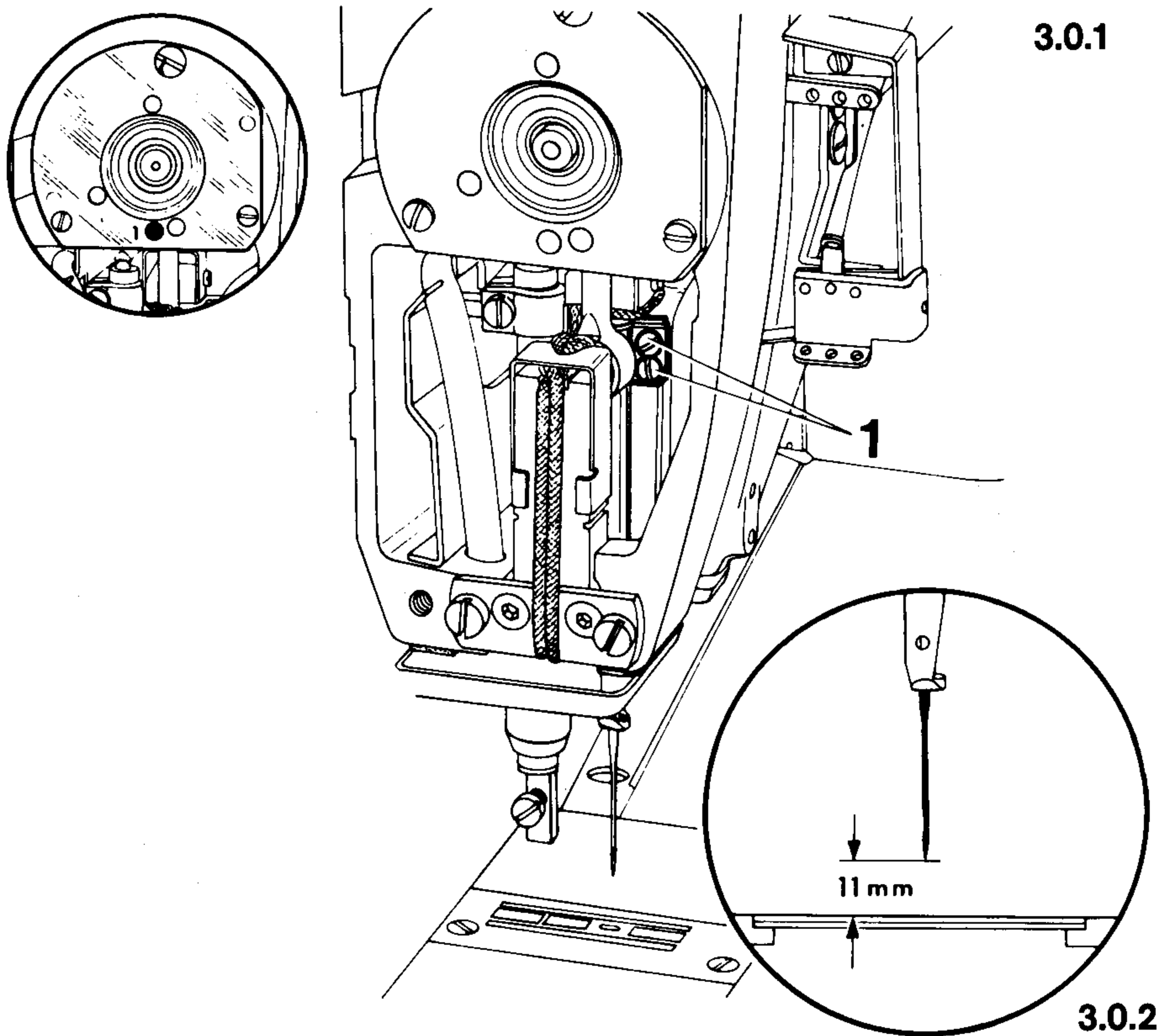
3 Preliminary adjustment of needle bar height

Setting:

With the needle bar at top dead center (pin in hole 1) the needle point should be positioned **11 mm** above the needle plate (see Fig. 3.0.2).

Note:

On H machine versions the clearance between needle plate and needle point should be set at approx. 12.5 mm.



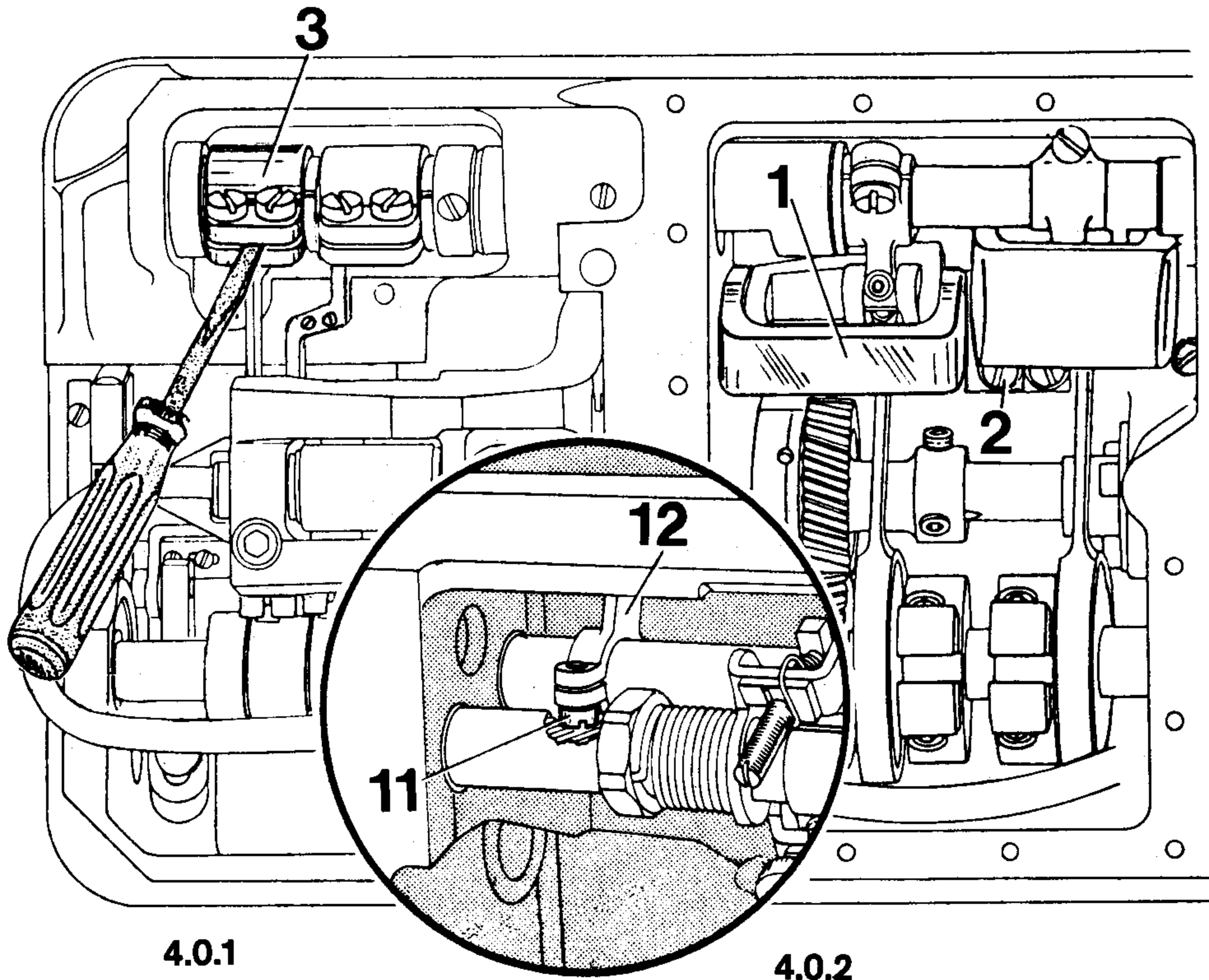
- 3.1 Bring the needle bar to top dead center.
- 3.2 Insert the pin in hole 1 of the bearing plate (to block the machine).
- 3.3 Loosen clamp screw 1 (see Fig. 3.0.1) in the needle bar connecting stud.
- 3.4 **Move the needle bar up or down until the needle point is positioned 11 mm above the needle plate** (see Fig. 3.0.2).
- 3.5 Securely tighten both clamp screws 1.
- 3.6 Pull the pin out of the hole in the bearing plate.

4 Zeroing the feed

4.1 Zeroing the main feed

Setting:

With the stitch length set at "0", the main feed dog **must not move** when the balance wheel is turned.

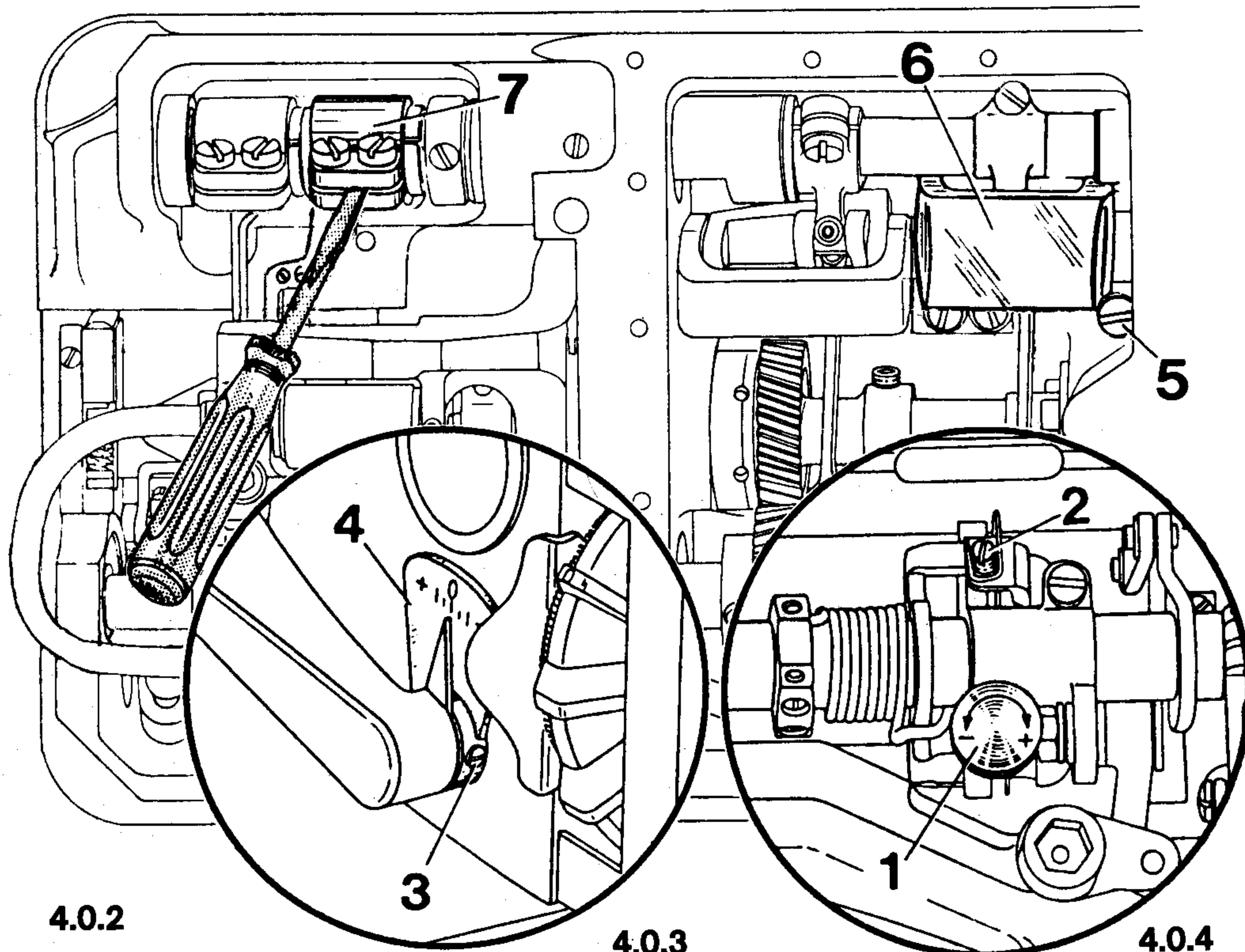


- 4.1.1 Loosen clamp screw 11 (Fig. 4.0.2) of stop crank 12.
- 4.1.2 Set the stitch length at "0" on the feed regulator.
- 4.1.3 Remove the 16 screws of the gear cover, catching any oil which may run out, and take off the cover with the gasket.
- 4.1.4 Remove the lubrication pad from the gearcase.
- 4.1.5 Loosen clamp screw 2 just enough to allow crank 1 to turn on its shaft.
- 4.1.6 In order to show the feed zero condition more clearly, insert a screwdriver in the slot of feed drive crank 3.
- 4.1.7 Rotate the balance wheel and turn crank 1 at the same time until the feed dog (i. e. the screwdriver in the feed drive crank) no longer moves.
- 4.1.8 In this position tighten clamp screw 2.
- 4.1.9 Carry out a check (see "Setting") and remove the screwdriver.

4.2 Zeroing the differential feed

Setting:

When the stitch length is set at "0" and the balance wheel is turned, the differential feed must not move.

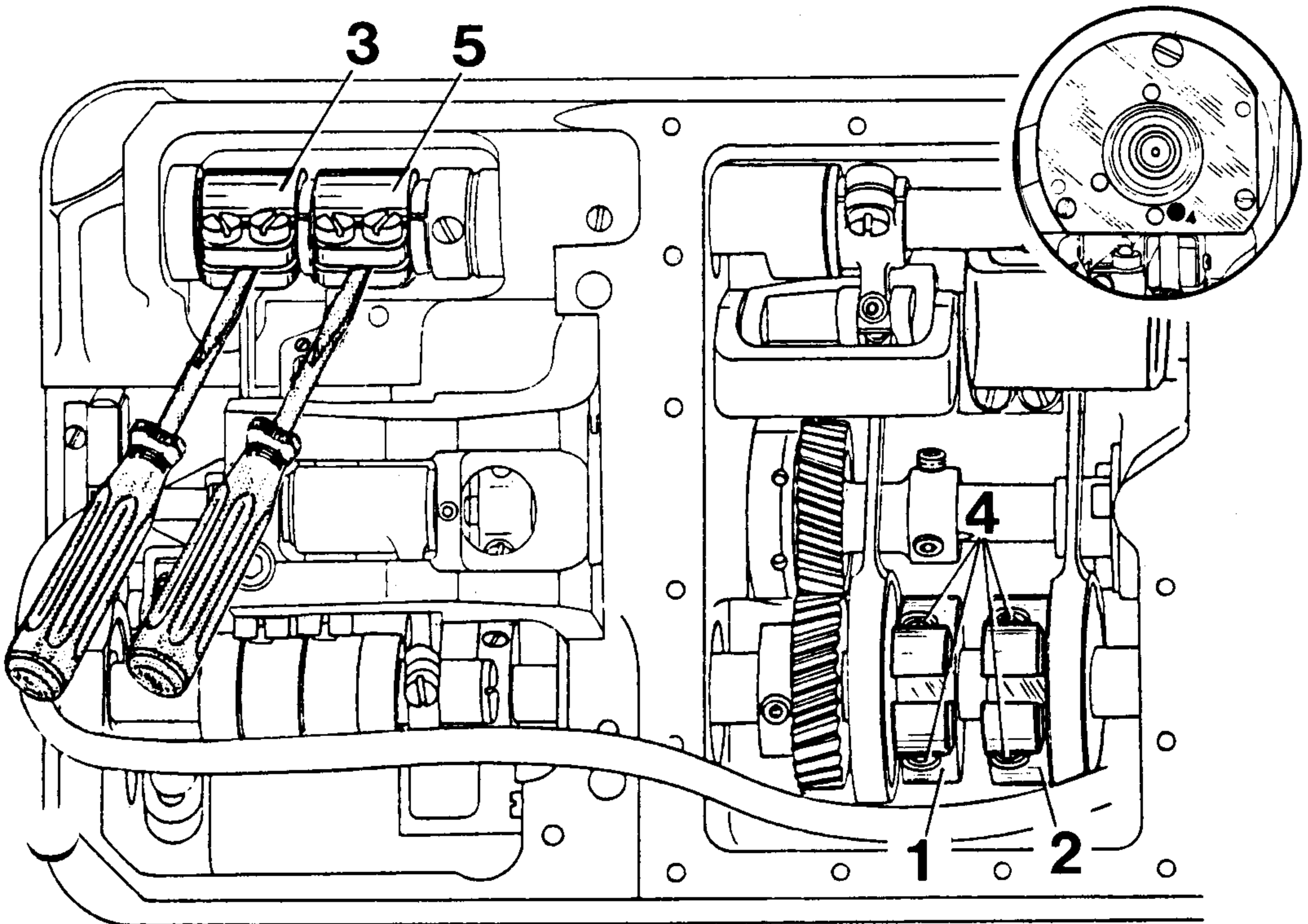


- 4.2.1 Unscrew regulating screw 1 a few turns.
- 4.2.2 Unscrew stop screw 2 up to its stop.
- 4.2.3 Set the longest stitch and move the reverse-feed lever to its top position.
- 4.2.4 Turn regulating screw 1 in again until the reverse-feed lever just begins to move downwards.
- 4.2.5 Unscrew the regulating screw by half a turn.
- 4.2.6 Set the stitch length at "0" and loosen screw 3 (Fig. 4.0.3).
- 4.2.7 Position graduation scale 4 so that the zero mark is in line with the end of the pointer.
- 4.2.8 Retain this position and tighten screw 3.
- 4.3 Loosen clamp screw 5 in feed regulator crank 6 (Fig. 4.0.2) just enough to allow the regulator crank to be moved on its shaft.
- 4.3.1 To allow more accurate adjustment, insert a screwdriver in the clamp slot of the differential feed crank 7 (see Fig. 4.0.1).
- 4.3.2 Turn the balance wheel and adjust feed regulator crank 6 so that the feed dog (i. e. the screwdriver in crank 7) no longer moves.
- 4.3.3 Tighten screw 5 in feed regulator crank 6.
- 4.3.4 Carry out a check (see "Setting").

5 Feed driving motion

Setting:

With the stitch length set at its maximum and the needle bar positioned **0.8 mm before top dead center** (pin in hole 4) the feed dogs **must not move** when the reverse-feed control is operated.



5.0.1

- 5.1 Loosen the four retaining screws **4** in feed drive eccentrics **1** and **2**.
- 5.2 Move the needle bar to the position **0.8 mm before t.d.c.** and block the machine in this position by inserting the adjustment pin in hole "4".
- 5.3 Set the longest stitch.
- 5.4 For more accurate adjustment insert a screwdriver in the clamp slot of feed drive cranks **3** and **5**.
- 5.5 Move the reverse-feed lever up and down, and turn feed drive eccentrics **1** and **2** so that the cutouts in the eccentrics are visible and the feed dogs (i. e. the screwdrivers) no longer move.
- 5.6 In this position, tighten the screws in feed drive eccentrics **1** and **2**.
- 5.7 Remove the adjustment pin from the bearing plate and tighten the screws **4** in feed drive eccentrics **1** and **2**.
- 5.8 Carry out a check (see "Setting").

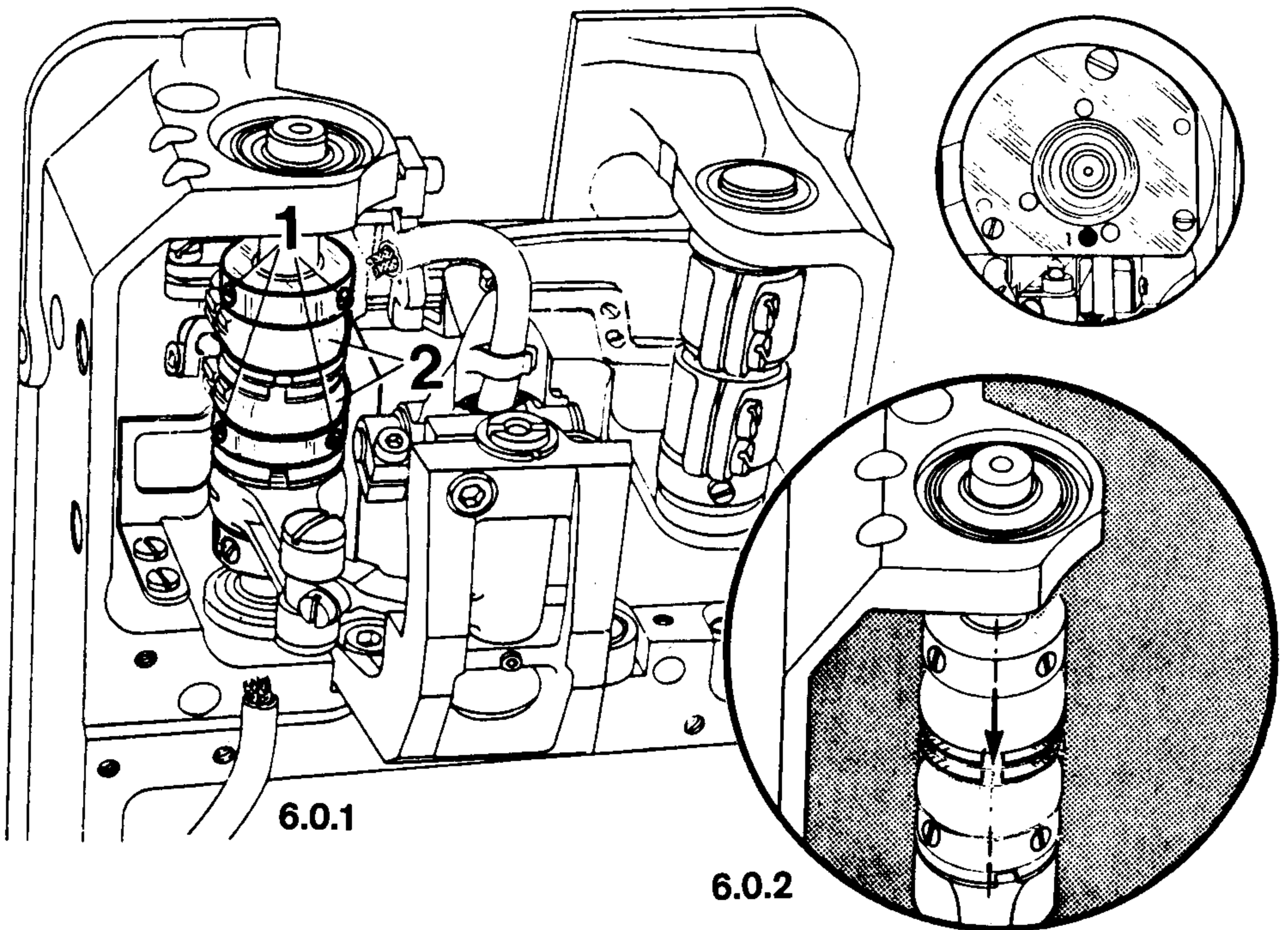
6

Feed lifting motion

For H machine versions please refer to page 38.

Setting:

In t. d. c. of the needle bar (adjustment pin in hole "1") the cutouts in feed lift eccentrics 2 must face downwards (see arrow in Fig. 6.0.2).



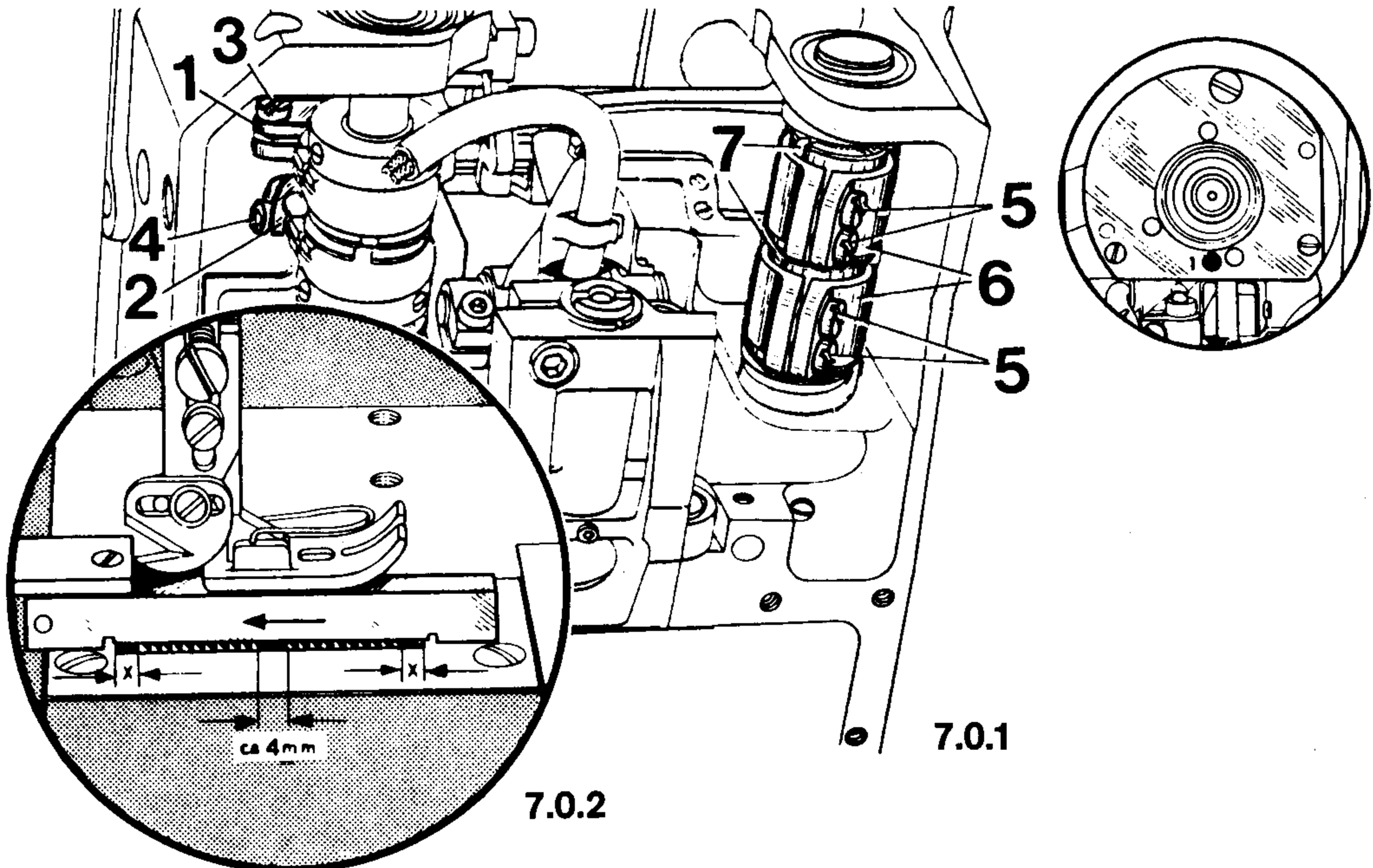
- 6.1 Loosen the four retaining screws 1 of the two feed lift eccentrics 2.
- 6.2 Set the needle bar at t. d. c. and block the machine in this position by inserting the adjustment pin in hole "1".
- 6.3 **Turn feed lift eccentric 2 so that the cutouts are facing downwards** (see arrow in Fig. 6.0.2).
- 6.4 In this position, tighten the accessible screw 1.
- 6.5 Pull the pin out of the hole in the bearing plate.
- 6.6 Also tighten the second screw 1.
- 6.7 Check this adjustment (see "Setting").

7 Feed dog height

For H machine versions please refer to page 39.

Setting:

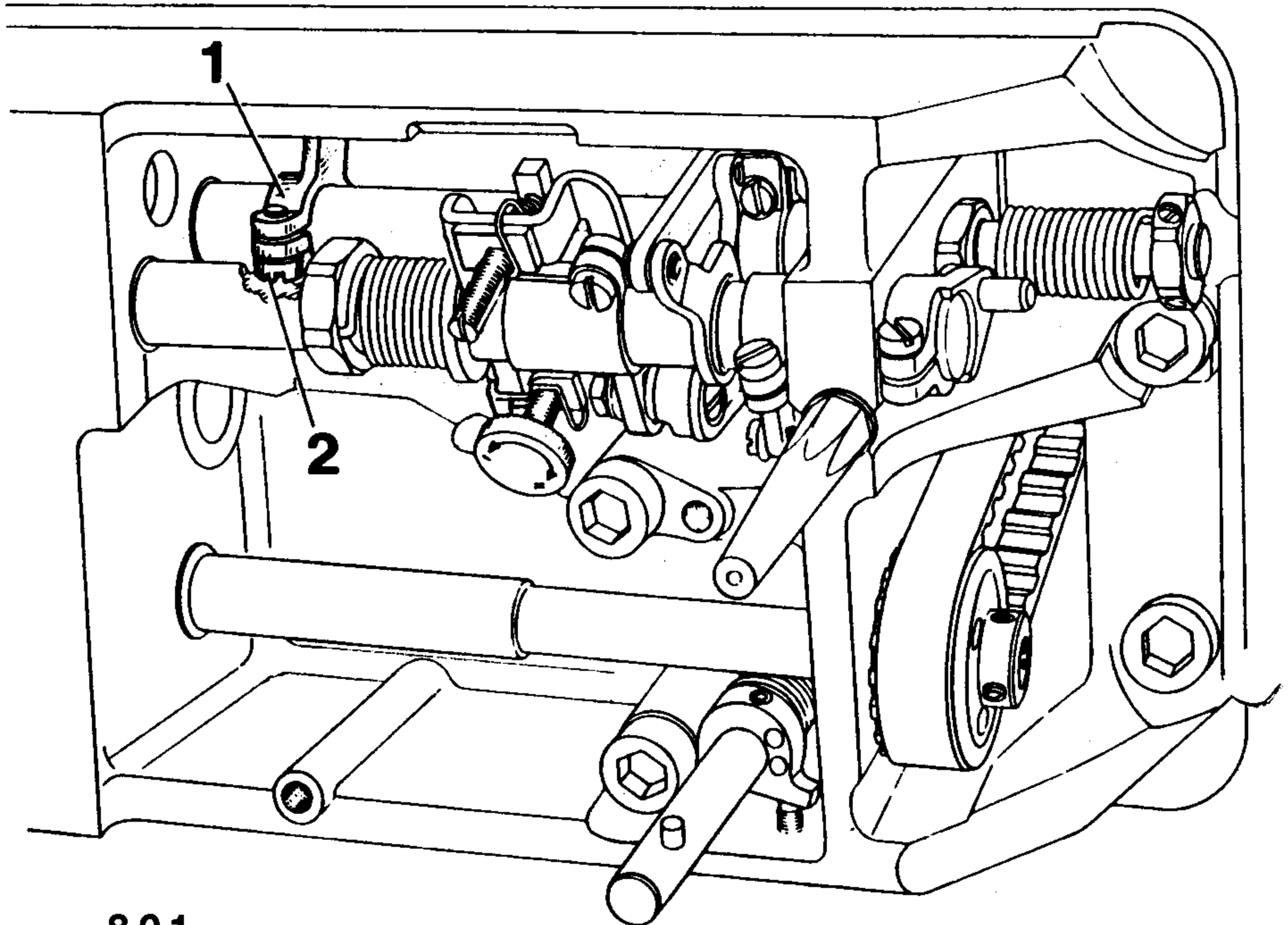
With the machine set for the longest stitch and the needle bar at t. d. c. (adjustment hole "1") the feed dogs must be in the middle of the feed slots and be against the gauge throughout their lengths (see Fig. 7.0.2). The distance between the two feed dogs must be about 4 mm.



- 7.1 Make sure that the longest stitch is set and move the needle bar to t. d. c.
- 7.2 Insert the adjustment pin in hole "1" of the bearing plate (to block the machine).
- 7.3 Loosen clamp screws 3 and 4 of the feed lift eccentrics 1 and 2.
- 7.4 Loosen the four clamp screws 5 in feed drive eccentrics 6.
- 7.5 Place adjustment gauge No. 61-111642-19 with its cutout over the middle of the feed slots. The arrow on the gauge must point in feeding direction (see Fig. 7.0.2).
- 7.6 Lower the presser foot onto the gauge.
- 7.7 **Set the feed dogs in the middle of the feed slots, so that the distance between the feed dogs is about 4 mm.**
- 7.8 Press the feed bars upwards to move the feed dogs against the gauge, and hold them there.
- 7.9 **Turn eccentric bushes 7 situated under feed drive cranks 6 so that the feed dogs are against the gauge throughout their lengths.**
- 7.10 Making sure that the feed dogs are in the middle of their slots, tighten the four clamp screws 5 of the feed drive eccentrics 6.
- 7.11 Making sure that the feed dogs are against the gauge throughout their lengths, tighten clamp screws 3 and 4 of feed lift cranks 1 and 2.

Setting:

When the reverse-feed control is fully pressed, the stitch length should be 1.5 mm.

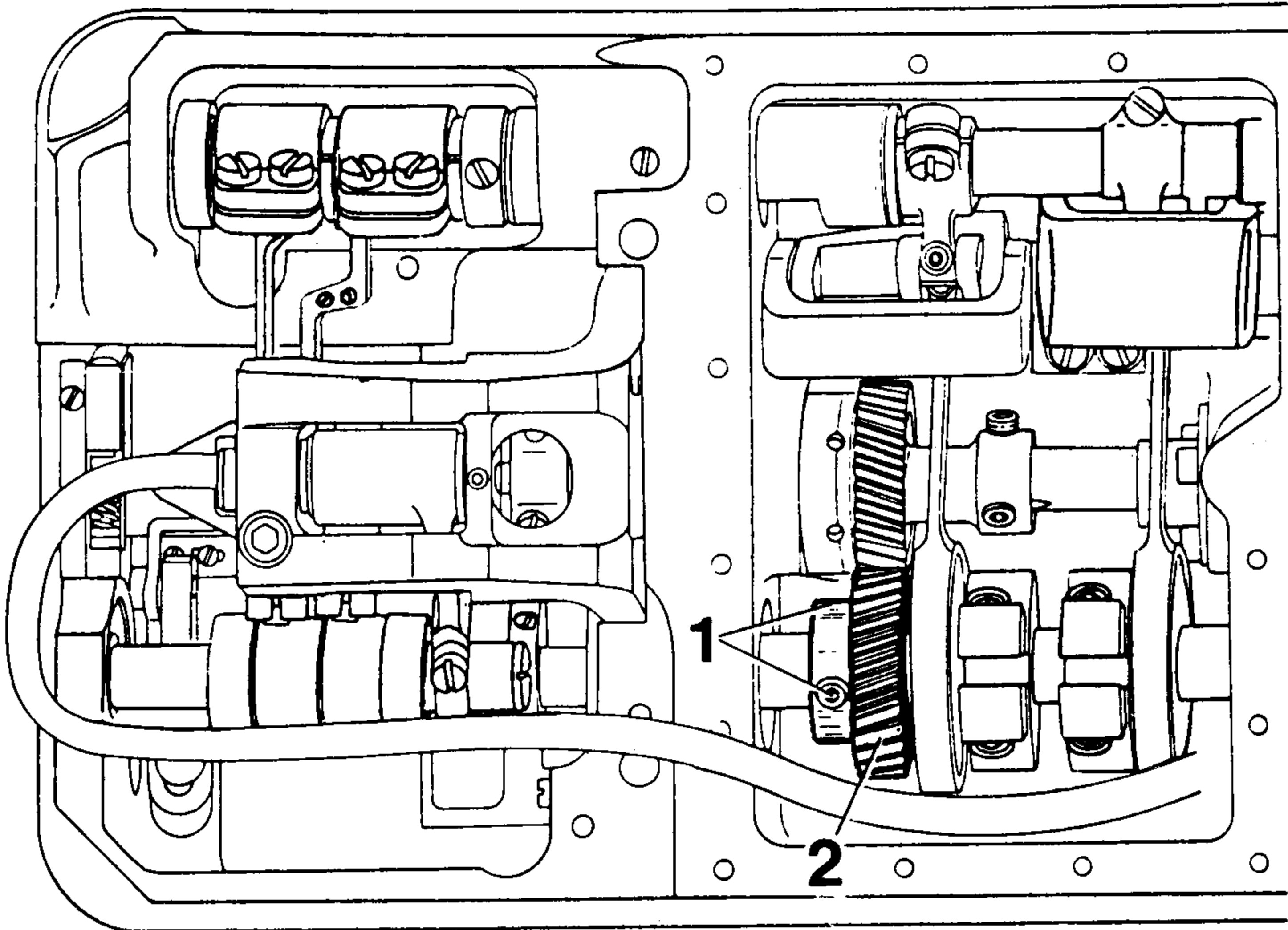
**8.0.1**

- 8.1 Set the stitch length at "1.5".
- 8.2 **Turn stop crank 1 until it contacts the bedplate and tighten clamp screw 2 in this position.**
- 8.3 Set the machine for its longest stitch and check this adjustment (see "Setting").

9 Timing the looper (preliminary adjustment)

Setting:

When the needle bar reaches bottom dead center, the looper should be at its **right** point of reversal.



9.0.1

- 9.1 Turn the balance wheel in sewing direction until the point of the advancing looper is at the right-hand side of the needle.
- 9.2 In this position, attach C-clamp No. 08-880137-00 on the needle bar so that it contacts the needle bar frame (thus blocking the upward motion of the needle bar).
- 9.3 Turn the balance wheel in the opposite direction until the C-clamp contacts the needle bar frame again.
- 9.4 In this position, the looper point should again be at the right-hand side of the needle.
- 9.5 If it is not, loosen both screws **1** (Fig. 9.0.1) in the gearcase so that gear **2** can just be turned by hand.
- 9.6 Remove the C-clamp and **turn gear 2 to the required position.**
- 9.7 Repeat steps 9.1 to 9.4 inclusive.
- 9.8 After these adjustments, remove the C-clamp again and tighten both screws **1**.
- 9.9 Check this adjustment (see "Setting").

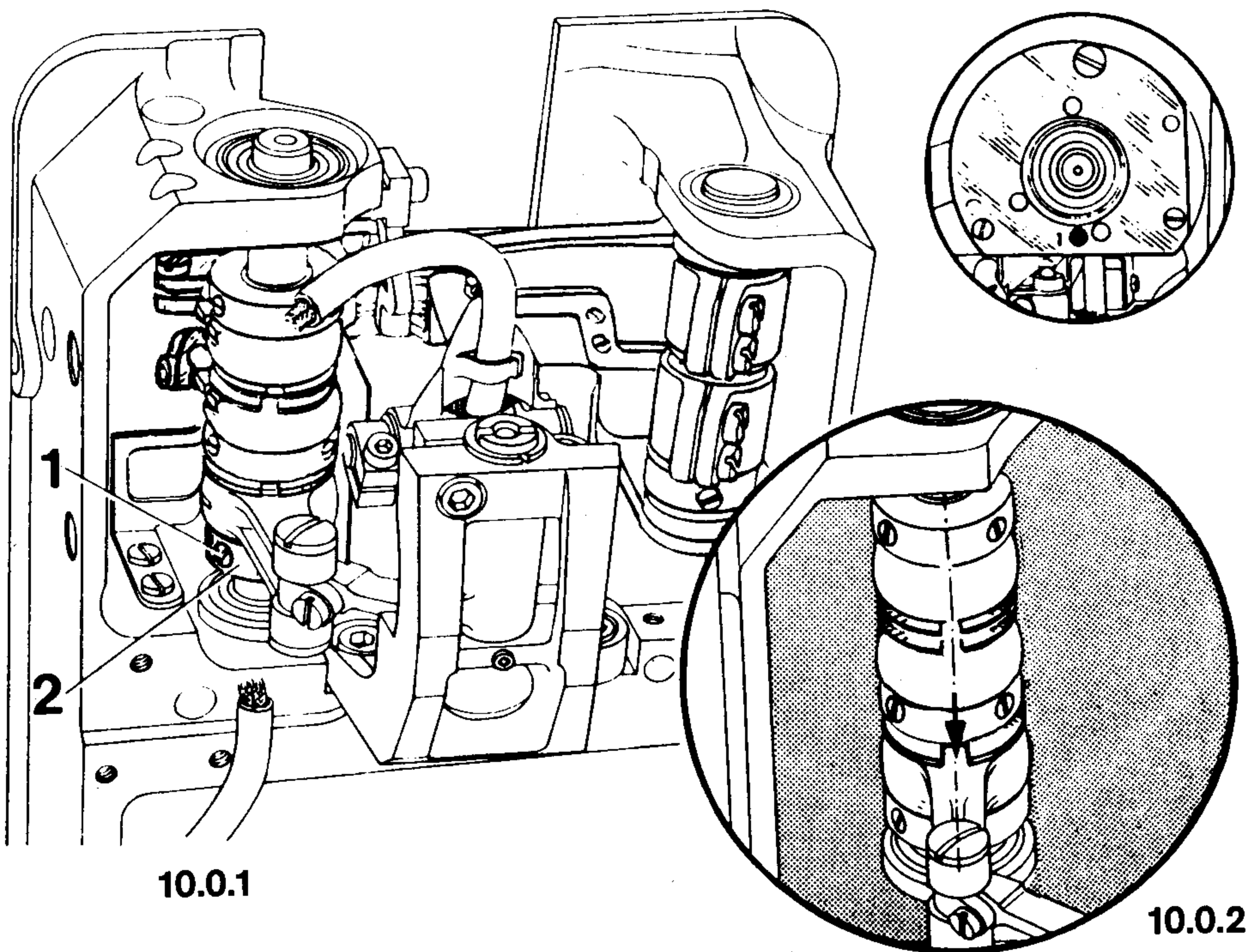
10

Looper avoiding motion

For H machine versions please refer to page 41.

Setting:

With the needle bar at top dead center (pin in hole 1) the slot in the avoiding motion eccentric should be positioned exactly below the center line of the shaft (see arrow in Fig. 10.0.2).



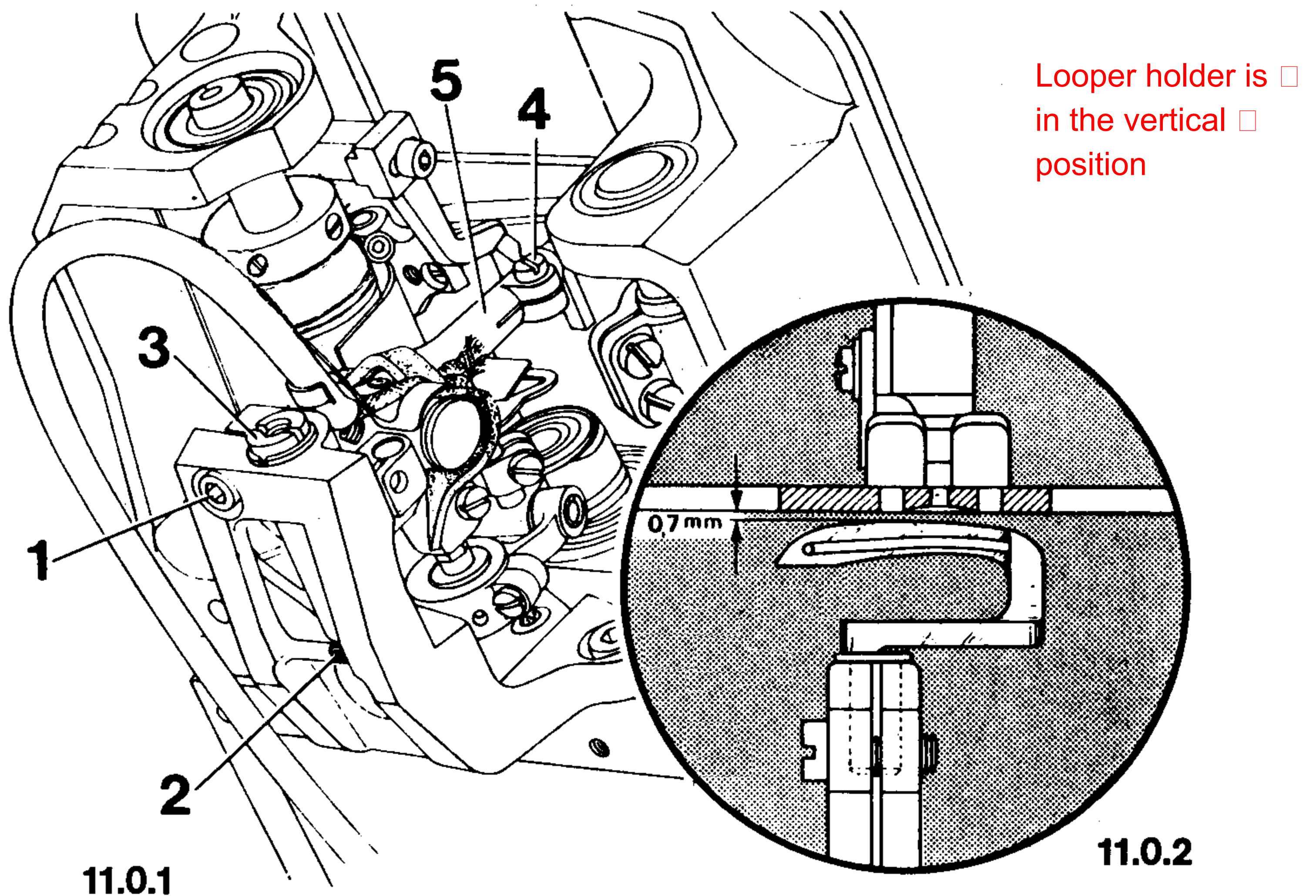
- 10.1 Loosen both screws 1 (Fig. 10.0.1) of avoiding motion eccentric 2.
- 10.2 Turn the balance wheel to bring the needle bar to top dead center.
- 10.3 Insert the pin in hole 1 of the bearing plate (to block the machine).
- 10.4 **Turn avoiding motion eccentric 2 so that its slot points vertically downwards** (see Fig. 10.0.2).
- 10.5 In this position, tighten the accessible screw 1.
- 10.6 Pull the pin out of the hole in the bearing plate.
- 10.7 Also tighten the second screw 1.
- 10.8 Check this adjustment (see "Setting").

11 Looper height

For H machine versions please refer to page 40.

Setting:

When the looper holder is in its vertical position, there should be a clearance of **0.7 mm** between the highest point of the looper and the underside of the needle plate on single-needle machines (see Fig. 11.0.2).
On two-needle machines, there should be a clearance of **1.0 mm** between the **front** looper and the needle plate.



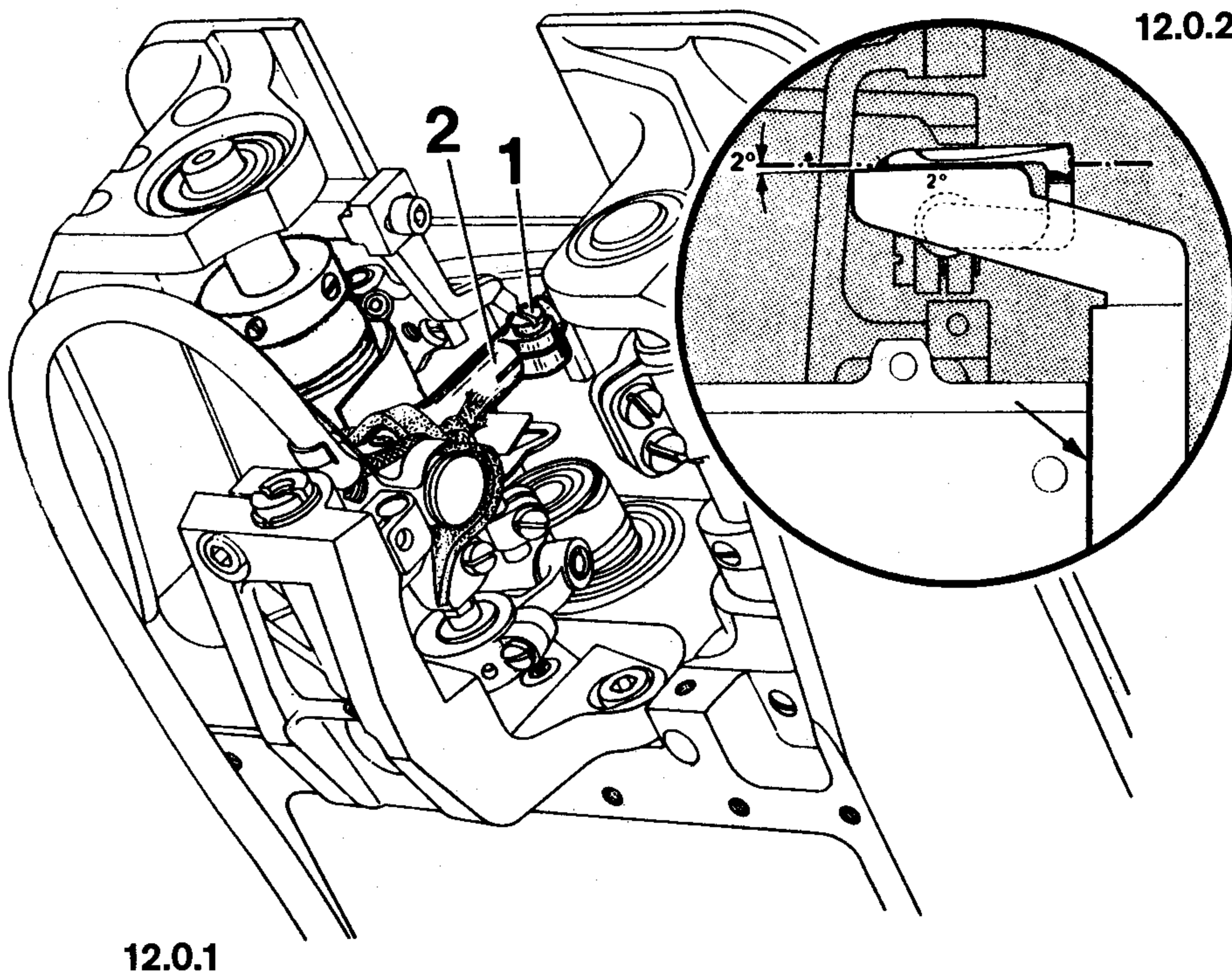
- 11.1 Remove bed slide, cover plate, needle plate and feed dog.
 - 11.2 Place the needle bar in position again and operate the presser bar lifter to lower the presser foot onto the needle plate.
 - 11.3 Turn balance wheel until the looper holder is vertical.
 - 11.4 Loosen clamp screw 1 (Fig. 11.0.1) and screw 2 of eccentric bearing stud 3.
 - 11.5 **Turn eccentric bearing stud 3 until there is a clearance of 0.7 mm (Fig. 11.0.2) between the highest point of the looper and the underside of the needle plate (or a clearance of 1.0 mm between front looper and needle plate on two-needle machines).**
 - 11.6 In this position, tighten clamp screw 1 and screw 2.
- Continued on next page.

- 11.7 If a clearance of 0.7 mm (or 1.0 mm on two-needle machines) cannot be obtained, proceed as follows:
- 11.7.1 Raise the presser foot and remove the needle plate.
- 11.7.2 Loosen clamp screw **4** (Fig. 11.0.1) in looper holder **5** and take off the looper (do not lose spacing washer).
- 11.7.3 Fit an appropriate spacing washer (see inside front cover) on the looper neck and push the looper into looper holder **5** again as far as it will go.
- 11.7.4 Set the looper blade roughly parallel to the front edge of the bedplate (preliminary adjustment) and tighten clamp screw **4**.
- 11.7.5 Replace the needle plate and operate the presser bar lifter to lower the presser foot onto the needle plate.
- 11.7.6 Check that there is a clearance of 0.7 mm (or 1.0 mm on two-needle machines) between the highest point of the looper and the underside of the needle plate when the looper holder is in its vertical position.
- 11.8 If necessary, repeat steps 11.3 to 11.6 inclusive.
- 11.9 Check this adjustment (see "Setting").

12 Looper angle

Setting:

The surface of the looper with the thread groove should be at an angle of 2° to the imaginary center line of the bedplate (see Fig. 12.0.2).



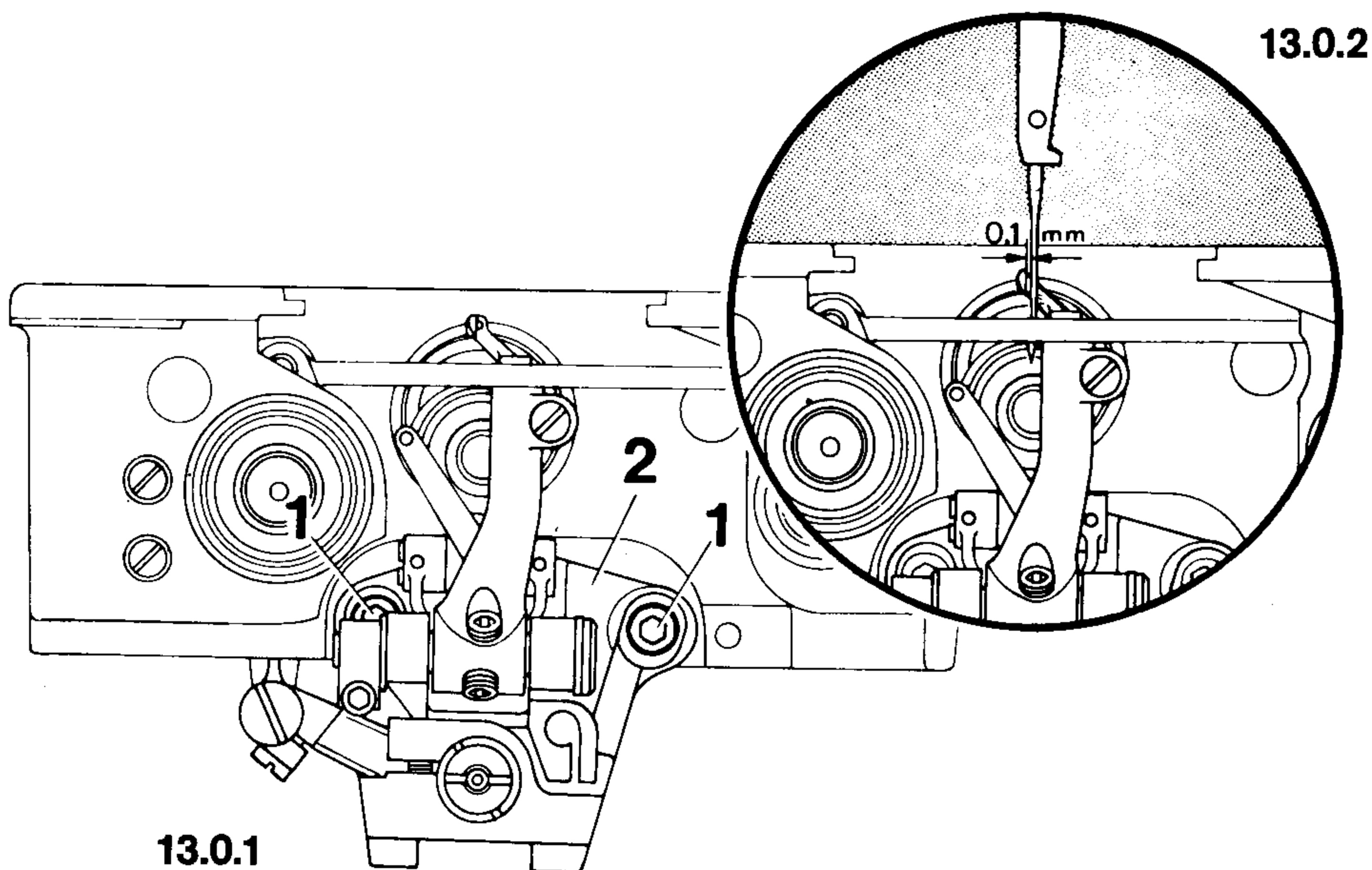
- 12.1 Raise the presser foot with the lifting lever.
- 12.2 With the needle plate and feed dog removed, loosen clamp screw 1 (Fig. 12.0.1) on looper carrier 2.
- 12.3 Turn the balance wheel to set looper carrier 2 vertical.
- 12.4 **Place adjustment gauge No. 61-111643-06 against the left edge of the cover plate support (see arrow in Fig. 12.0.2), push it against the looper and bring the grooved looper surface into contact with the gauge.**
- 12.5 In this position, tighten clamp screw 1.
- 12.6 Remove the gauge.

13

Looper-to-needle clearance in sewing direction (preliminary adjustment)

Setting:

In sewing direction there should be a clearance of **0.1 mm** between looper point and needle (see Fig. 13.0.2).



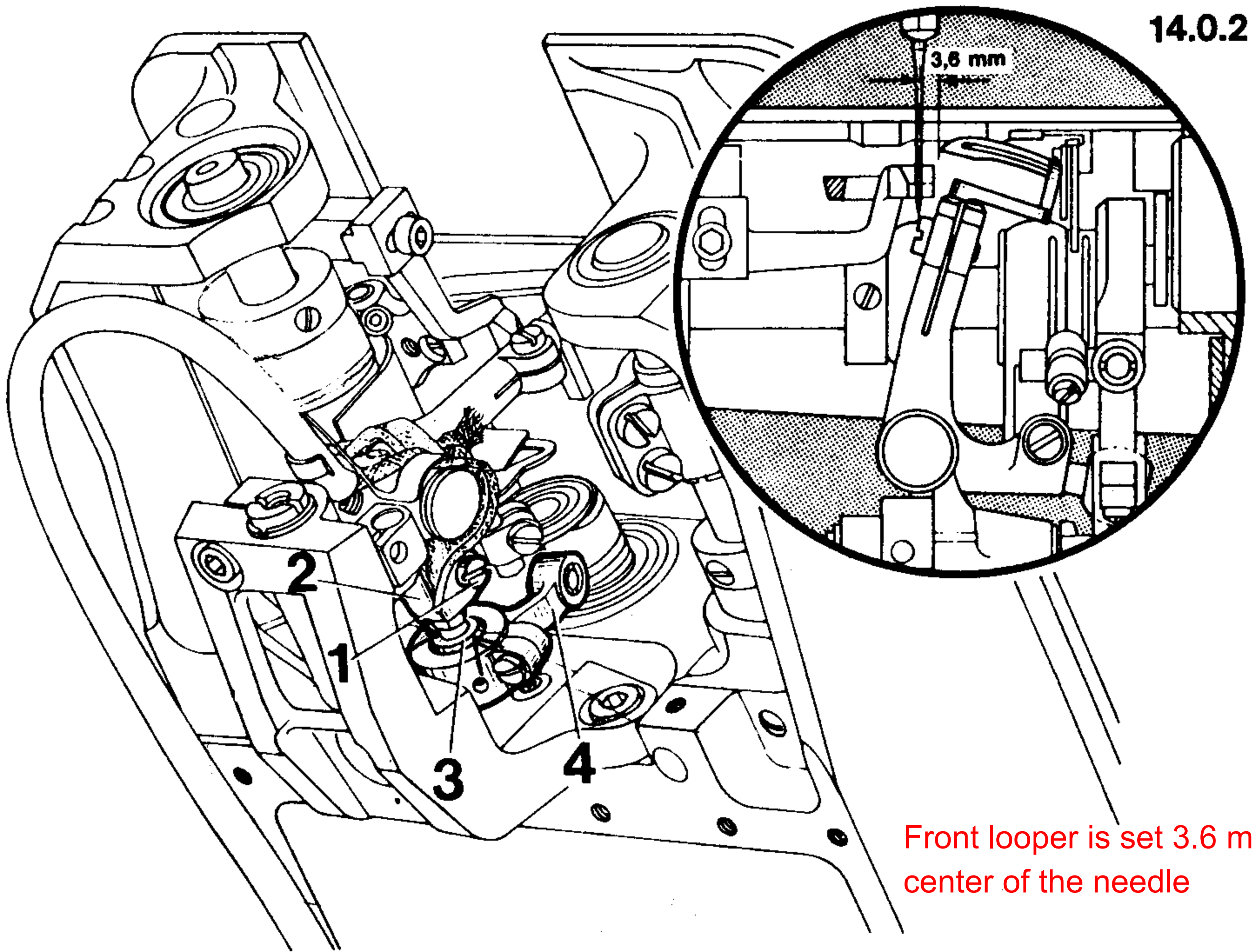
- 13.1 Check to make sure that the needle guard does not deflect the needle, then turn the balance wheel until the point of the advancing looper is in line with the left side of the needle.
- 13.2 Slightly loosen both screws 1 (Fig. 13.0.1) of looper assembly 2.
- 13.3 **Adjust the position of the looper assembly so that there is a clearance of 0.1 mm between looper point and needle.**
- 13.4 In this position, tighten both screws 1.
- 13.5 If a clearance of 0.1 mm cannot be obtained the setting of eccentric bearing stud 3 (Fig. 11.0.1) should be corrected. In this case repeat check of step 9.

14 Looper clearance to needle in looper direction

Setting:

When the looper is at its right point of reversal, there should be a clearance of **3.6 mm** between looper point and center line of needle.

Rotate pin 3 to the front position, not the back position



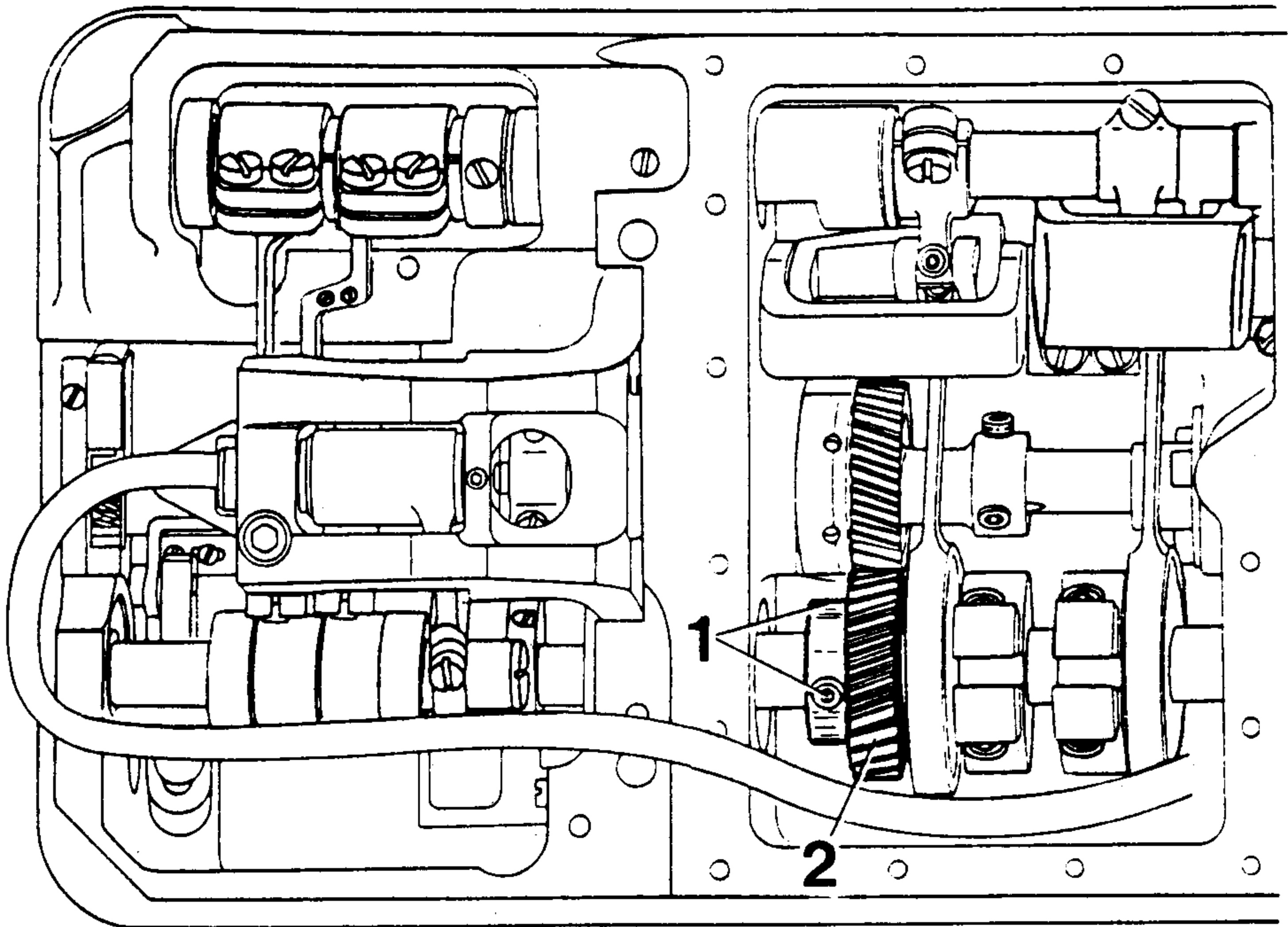
14.0.1

14.0.2

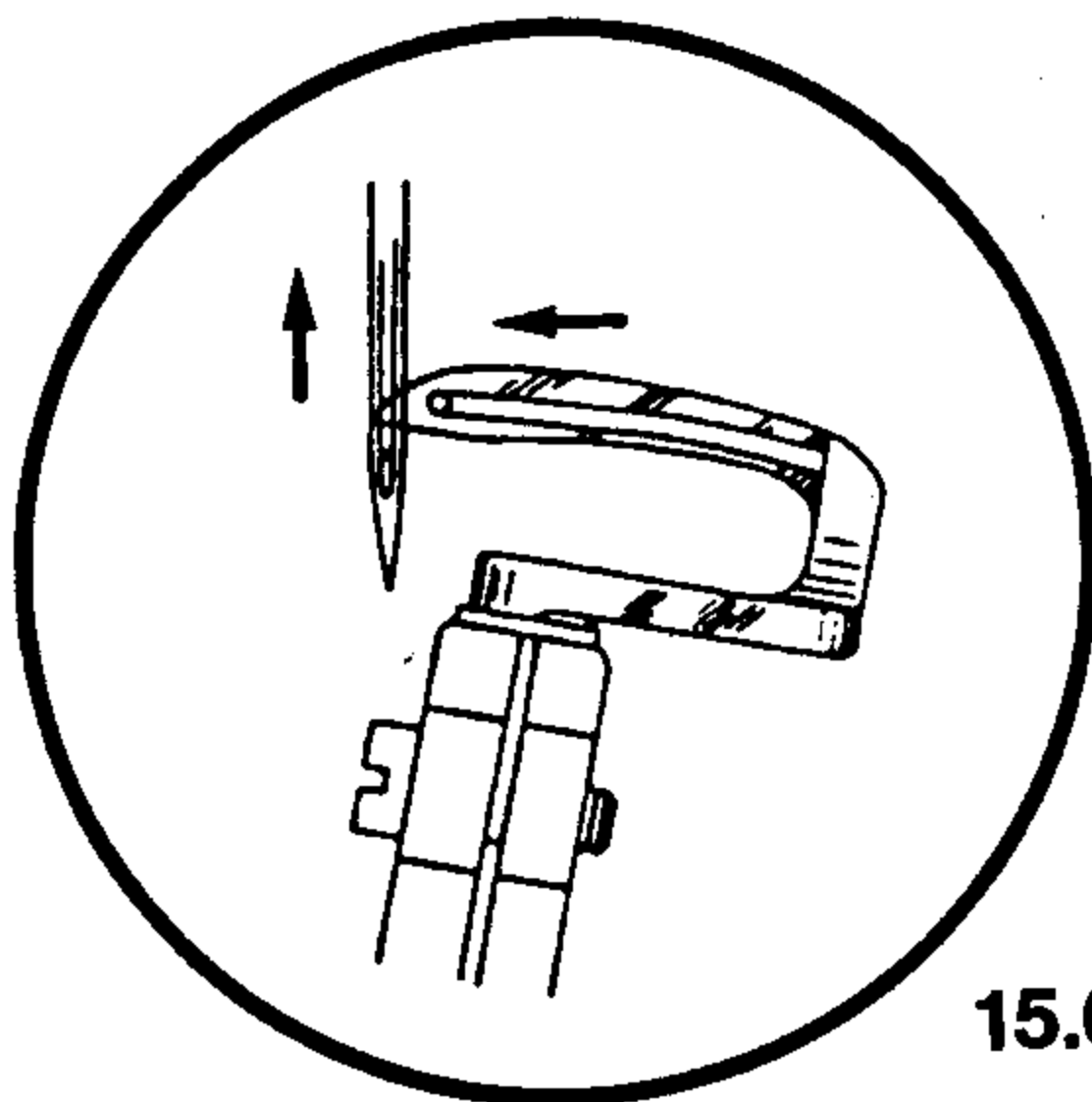
- 14.1 Turn the balance wheel to bring the looper to its right point of reversal.
- 14.2 Loosen clamp screw 1 (Fig. 14.0.1) in looper holder 2.
- 14.3 **Place the 3.6-mm blade of gauge No. 91-111 643-06 against the needle with its notch facing in the direction of feed (the number must be visible).**
- 14.4 **Make sure that driving link 4 is vertical and, with the aid of a 6-mm open-ended spanner, turn eccentric ball stud 3 until the looper point contacts the right side of the blade.**
- 14.5 Tighten clamp screw 1 securely.
- 14.6 Check this adjustment (see "Setting").

Setting:

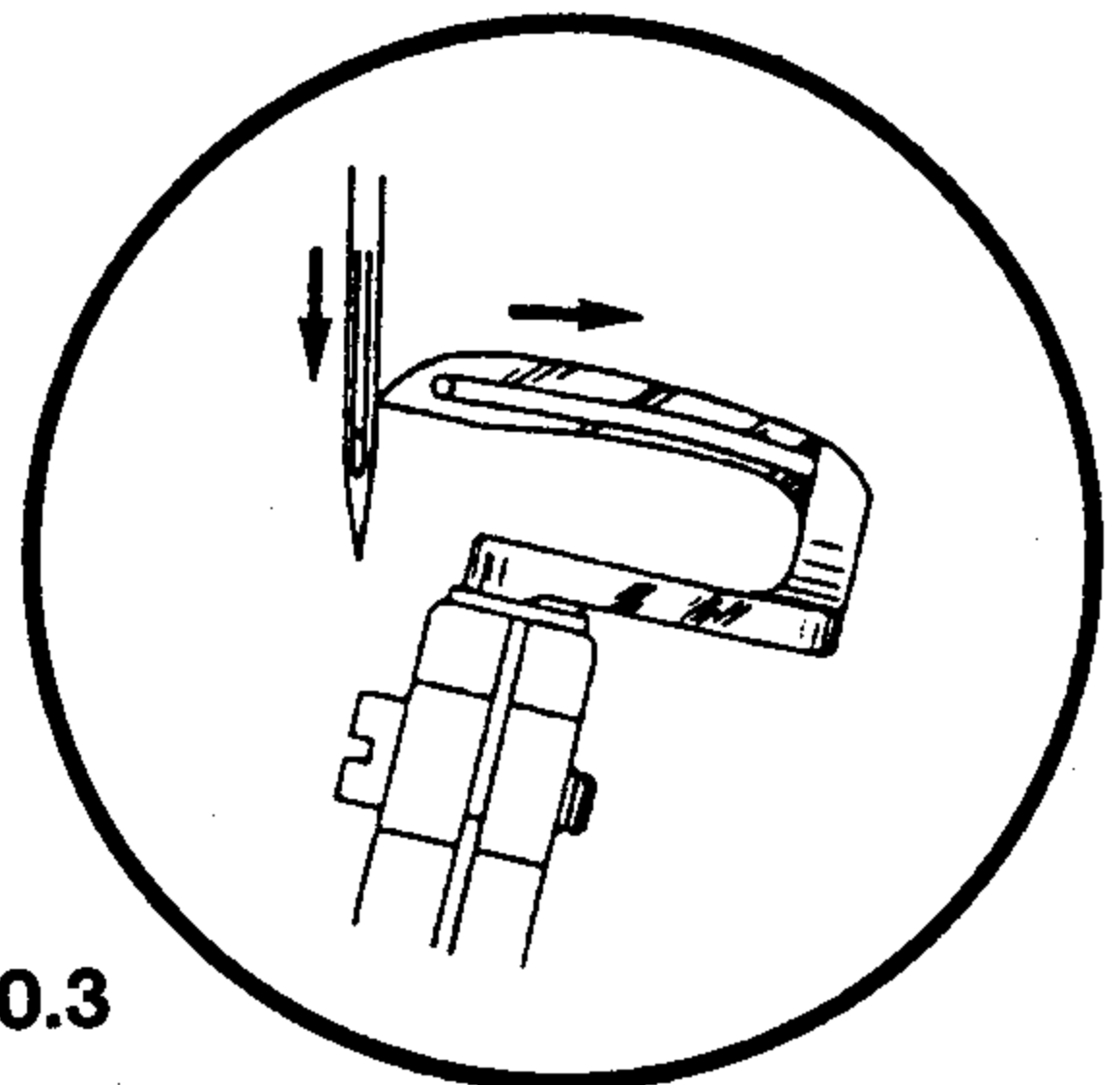
When, as you turn the balance wheel, the point of the advancing looper is exactly at the left side of a No. 80 needle (Fig. 15.0.2) and the upward motion of the needle bar is blocked by a C-clamp, the looper point should be exactly at the right side of the needle (Fig. 2) after the balance wheel has been turned in the opposite direction until the C-clamp contacts the needle bar frame (Fig. 15.0.3).



15.0.1



15.0.2



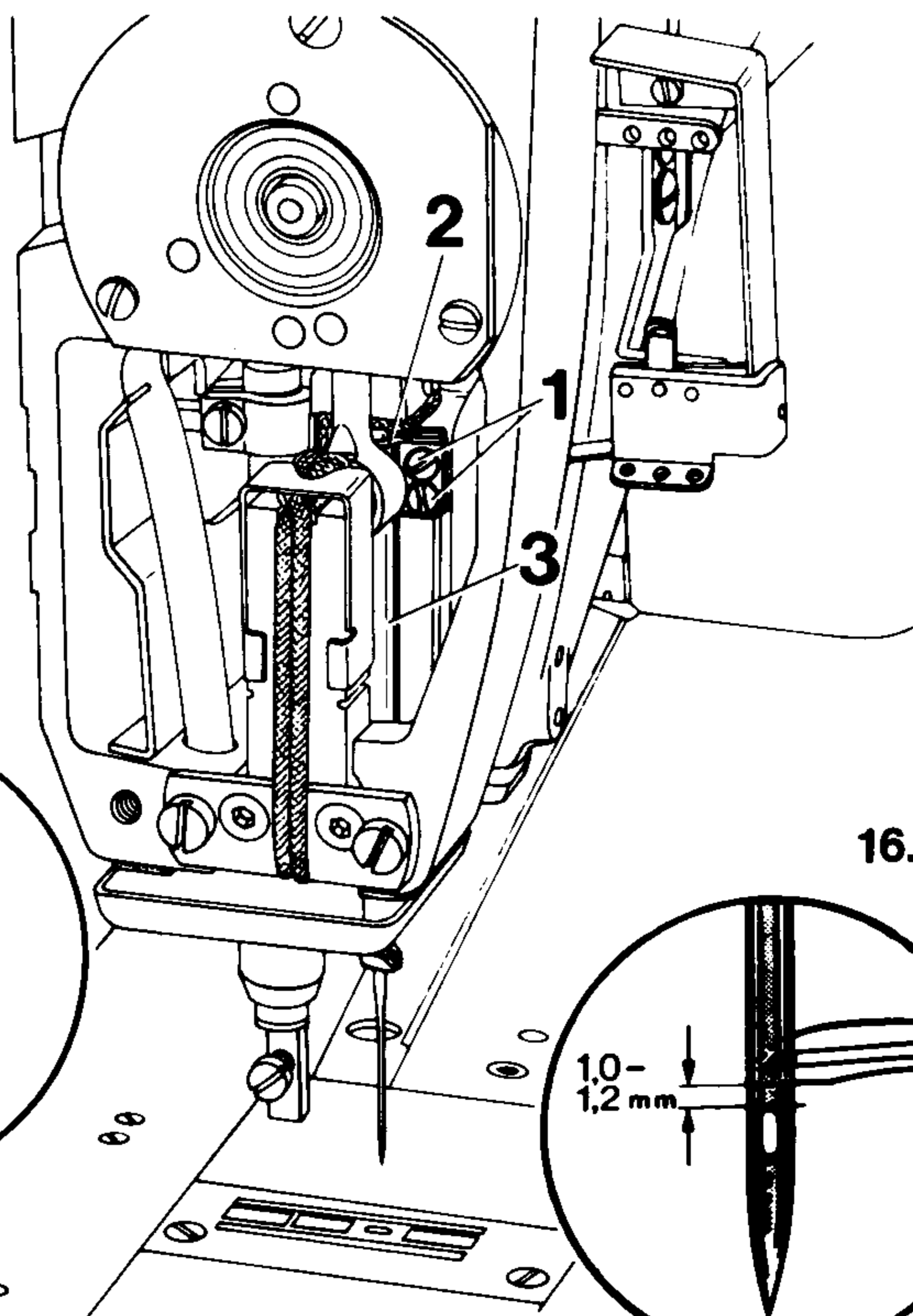
15.0.3

- 15.1 Insert a new No. 80/100 needle. Turn the balance wheel until the point of the advancing looper is exactly at the left side of the needle (Fig. 15.0.2).
- 15.2 In this position, attach C-clamp No. 08-880137-00 to the needle bar so that it contacts the needle bar frame (thus blocking the upward motion of the needle bar).
- 15.3 Turn the balance wheel in the opposite direction until the C-clamp contacts the needle bar frame again.
- 15.4 In this position, the looper point should be exactly at the right side of the needle (Fig. 15.0.3).
- 15.5 If it is not, loosen screws 1 (Fig. 15.0.1) so that gear 2 can just be turned by hand.
- 15.6 Remove the C-clamp and turn gear 2 to the required position.
- 15.7 Afterwards tighten both screws 1.
- 15.8 Check this adjustment and if necessary, repeat the above adjusting steps.

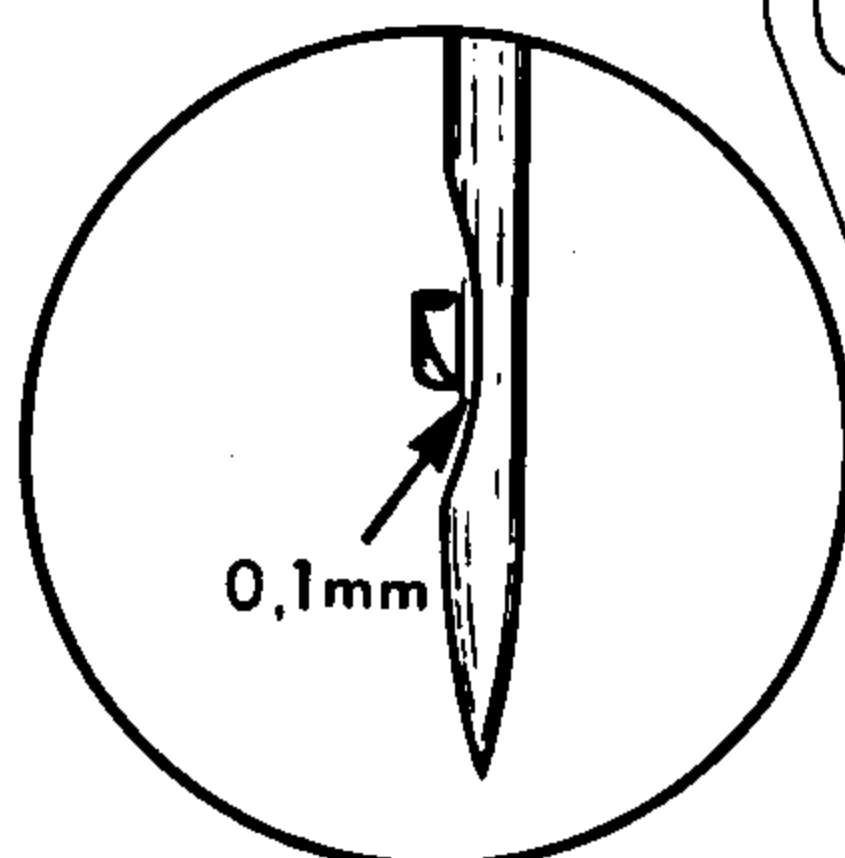
Setting:

When the point of the advancing looper is in line with the left side of the needle, the bottom edge of the looper should be positioned 1.0 to 1.2 mm above the top of the needle eye. In this position, there should be a clearance of 0.1 mm between looper and needle (see Fig. 16.0.3).

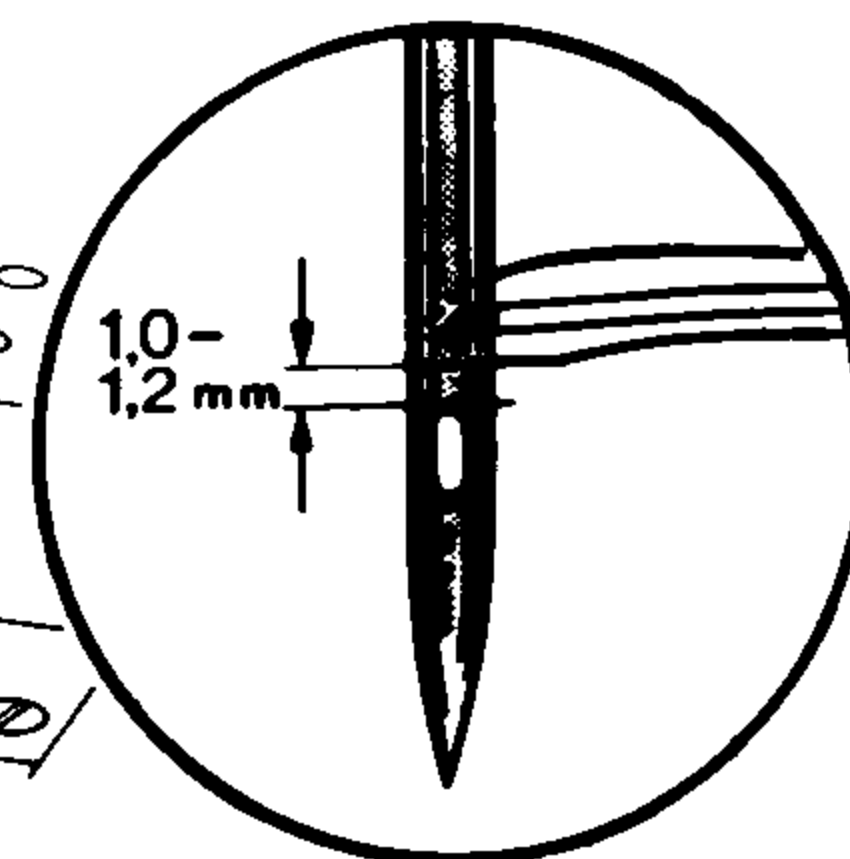
16.0.1



16.0.3



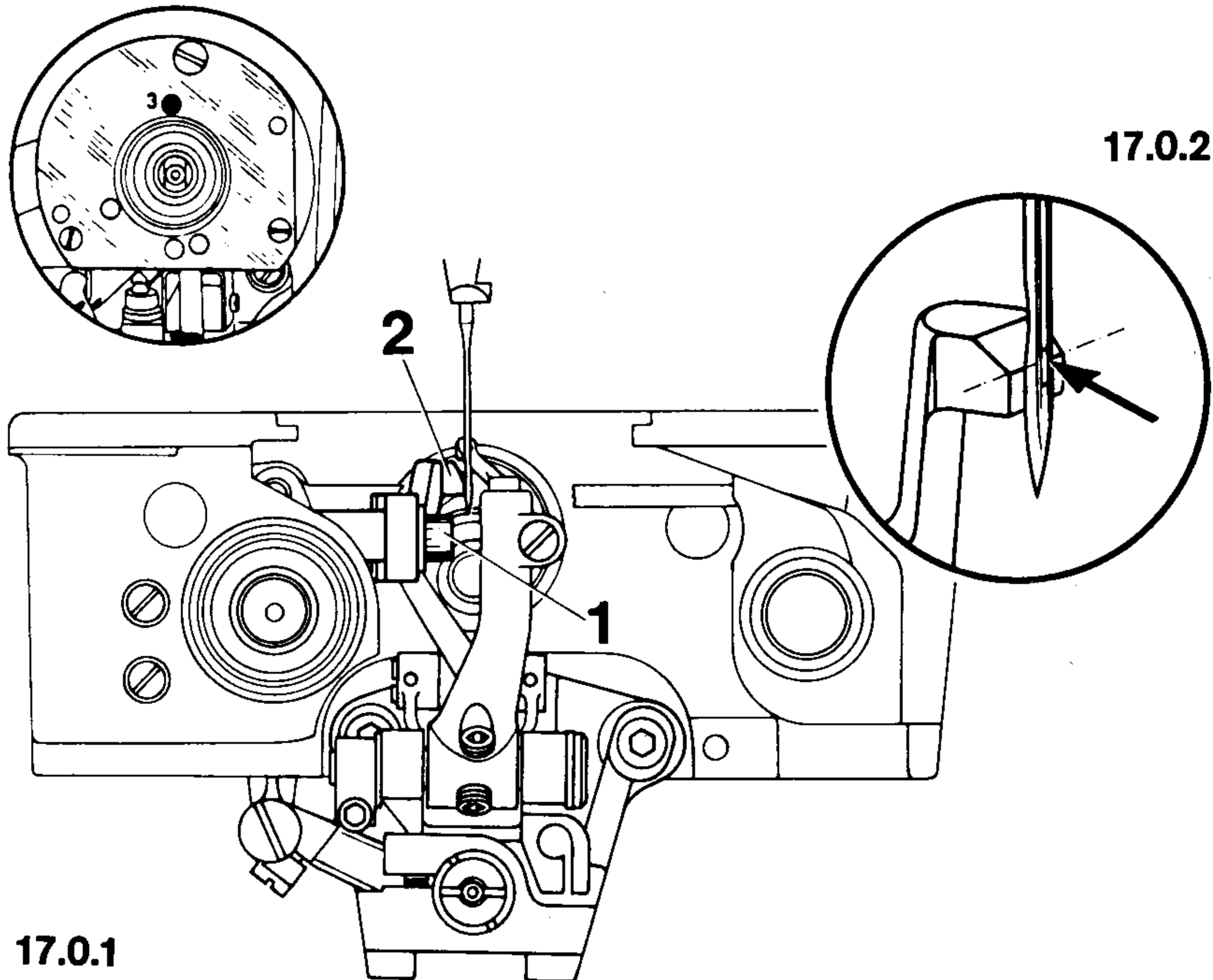
16.0.2



- 16.1 Turn the balance wheel in sewing direction until the point of the advancing looper is in line with the left side of the needle.
- 16.2 In this position, loosen both clamp screws 1 (Fig. 16.0.1) in needle bar connecting stud 2.
- 16.3 Move needle bar 3 up or down until there is a clearance of 1.0 to 1.2 mm between the top of the needle eye and the bottom edge of the looper (see Fig. 16.0.2). Make sure the needle bar is not turned during the adjustment.
- 16.4 In this position, tighten both clamp screws 1 and check whether there is a 0.1 mm clearance between looper and needle (see Fig. 16.0.3). For correction see steps 12.2 to 12.4.
- 16.5 Check this adjustment (see "Setting").

Setting:

With the needle bar at bottom dead center (pin in hole 3), the vertical surface of the needle guard should cover the needle eye by roughly $2/3$ (see arrow in Fig. 17.0.2).

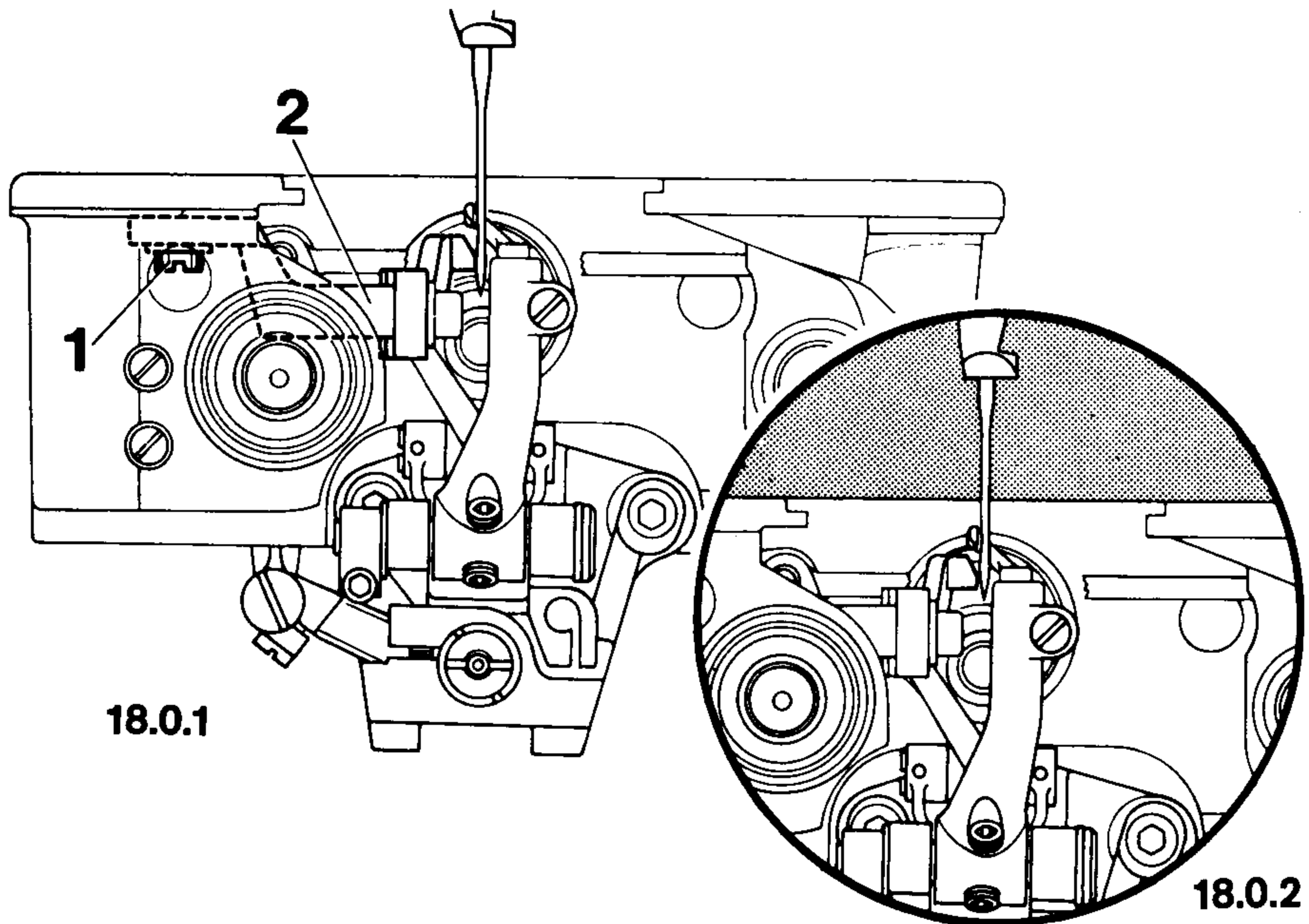


When the point of the advancing looper is in line with the right side of the needle, the needle guard should have just touched the needle.

- 17.1 Turn the balance wheel to bring the needle bar to bottom dead center.
- 17.2 Insert the pin in hole 3 of the bearing plate (to block the machine).
- 17.3 Loosen screw 1 of rear needle guard 2.
- 17.4 **Adjust needle guard 2 so that its vertical surface covers roughly $2/3$ of the needle eye.**
- 17.5 In this position, tighten screw 1.
- 17.6 Pull the pin out of the hole in the bearing plate.
- 17.7 Check this adjustment (see "Setting").

Setting:

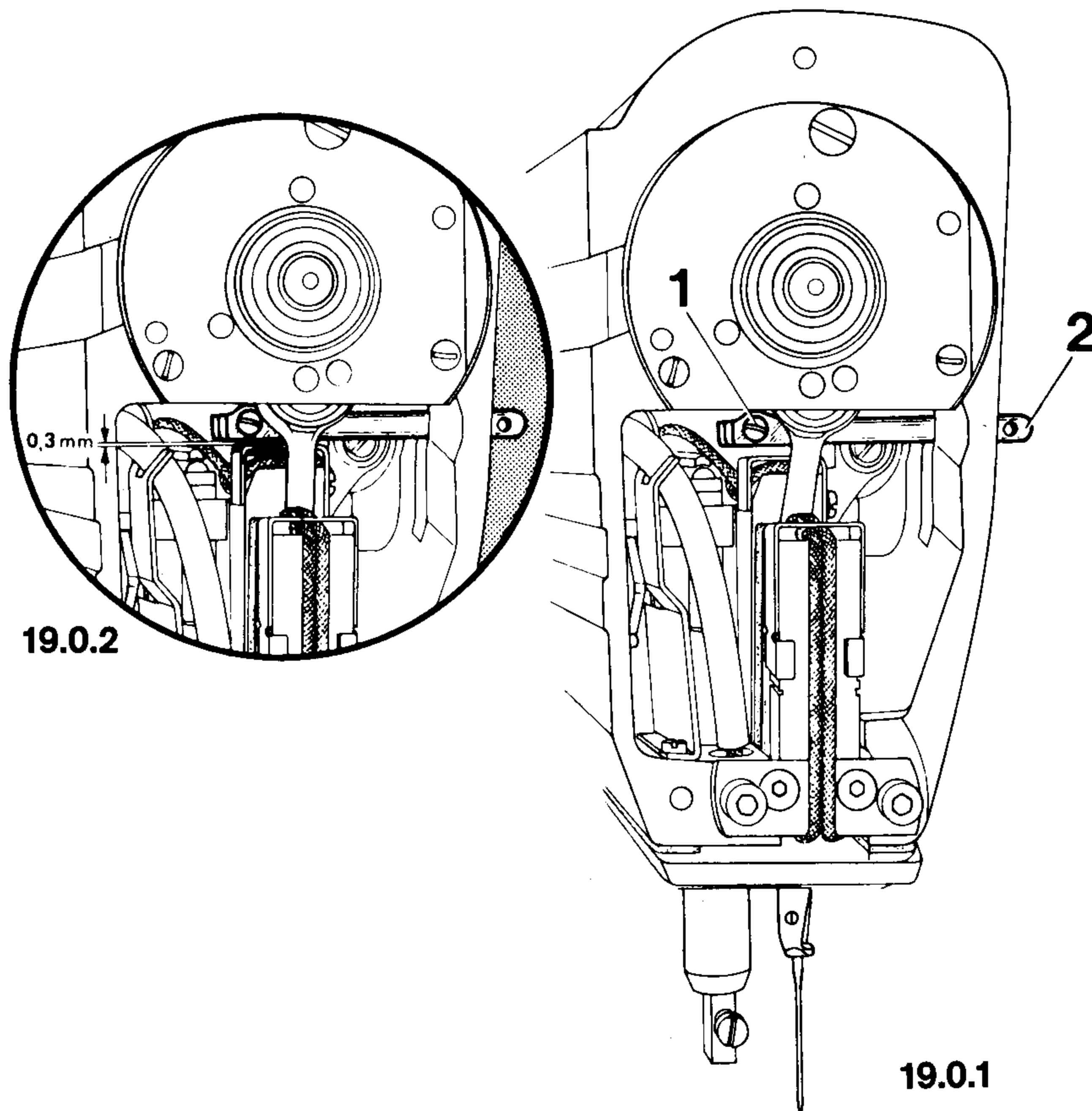
The needle should still contact the rear needle guard lightly when the point of the advancing looper is in line with the right side of the needle.



- 18.1 Turn the balance wheel until the point of the advancing looper is in line with the right side of the needle.
- 18.2 Loosen screw 1 of the rear needle guard bracket 2.
- 18.3 **Position bracket 2 so that the needle guard contacts the needle without deflecting it.**
- 18.4 In this position, tighten screw 1.
- 18.5 Check this adjustment (see "Setting").

Setting:

The take-up lever should be positioned on the needle bar so that it moves freely in the middle of its slot and does not strike the top and bottom ends of this slot. Furthermore, with the needle bar at bottom dead center, there should be a clearance of **0.3 mm** between the bottom edge of the take-up lever and the top edge of the needle bar frame.



- 19.1 Turn the balance wheel until clamp screw 1 in take-up lever 2 is accessible.
- 19.2 Loosen clamp screw 1 a little.
- 19.3 Turn the balance wheel to bring the needle bar to bottom dead center.
- 19.4 **In this position there should be a clearance of 0.3 mm between the bottom edge of the take-up lever and the top edge of the needle bar frame. Use a metal rule (3 mm thick) for this adjustment.**
- 19.5 **Make sure that take-up lever 2 is centered in its slot and tighten clamp screw 1.**

20 Needle thread regulator

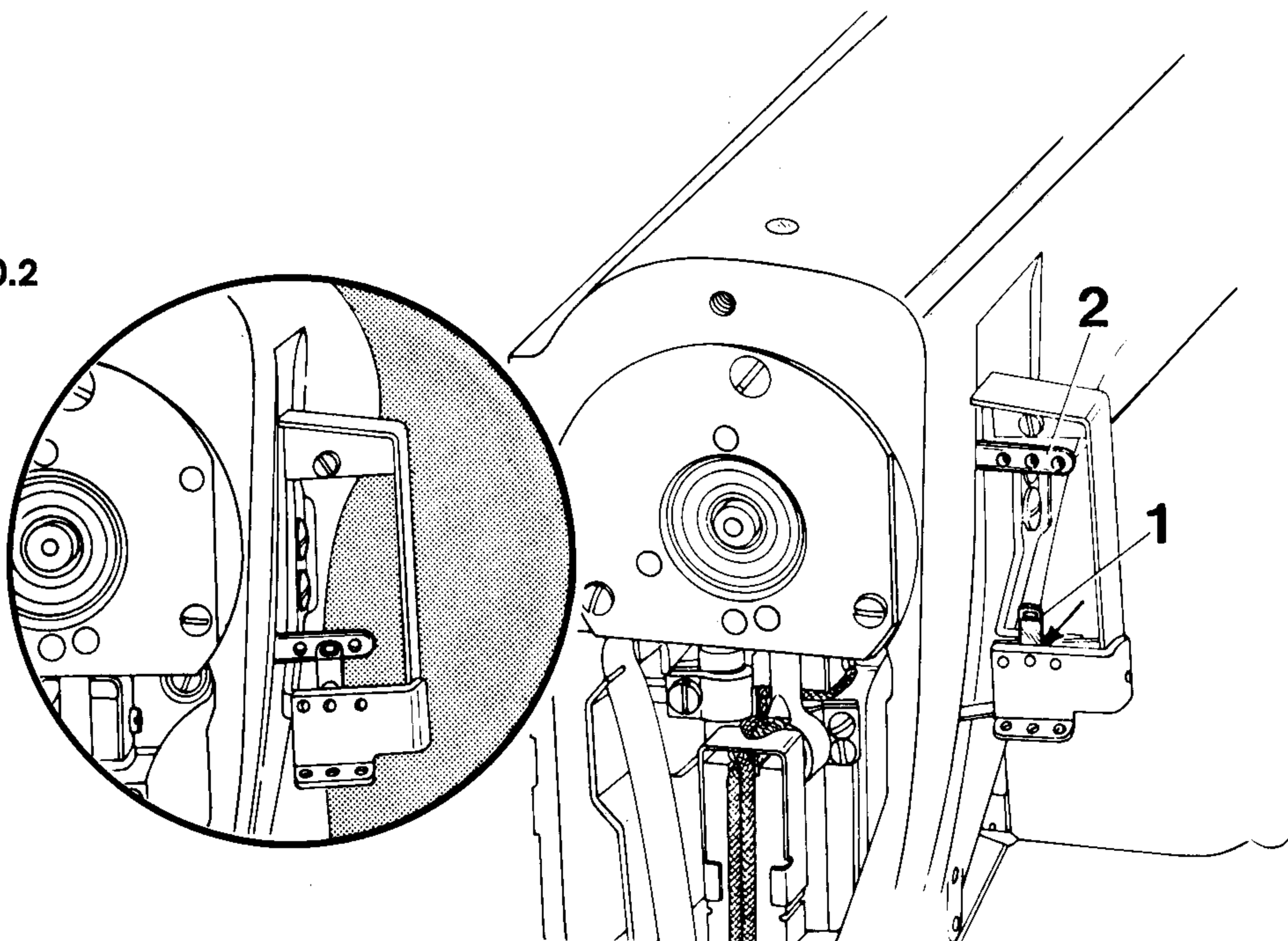
Setting:

With the needle bar at bottom dead center, the eye of needle thread regulator 1 should be in line with the middle hole of take-up lever 2.

Note:

This basic setting may have to be modified, depending on the type of thread and material used.

20.0.2



20.0.1

- 20.1 Turn the balance wheel to bring the needle bar to bottom dead center.
- 20.2 Loosen the screw (see arrow in Fig. 20.0.1) of needle thread regulator 1.
- 20.3 **Adjust needle thread regulator 1 so that its eye is level with the middle hole of take-up lever 2.**
- 20.4 In this position, tighten the screw (see arrow in Fig. 20.0.1).

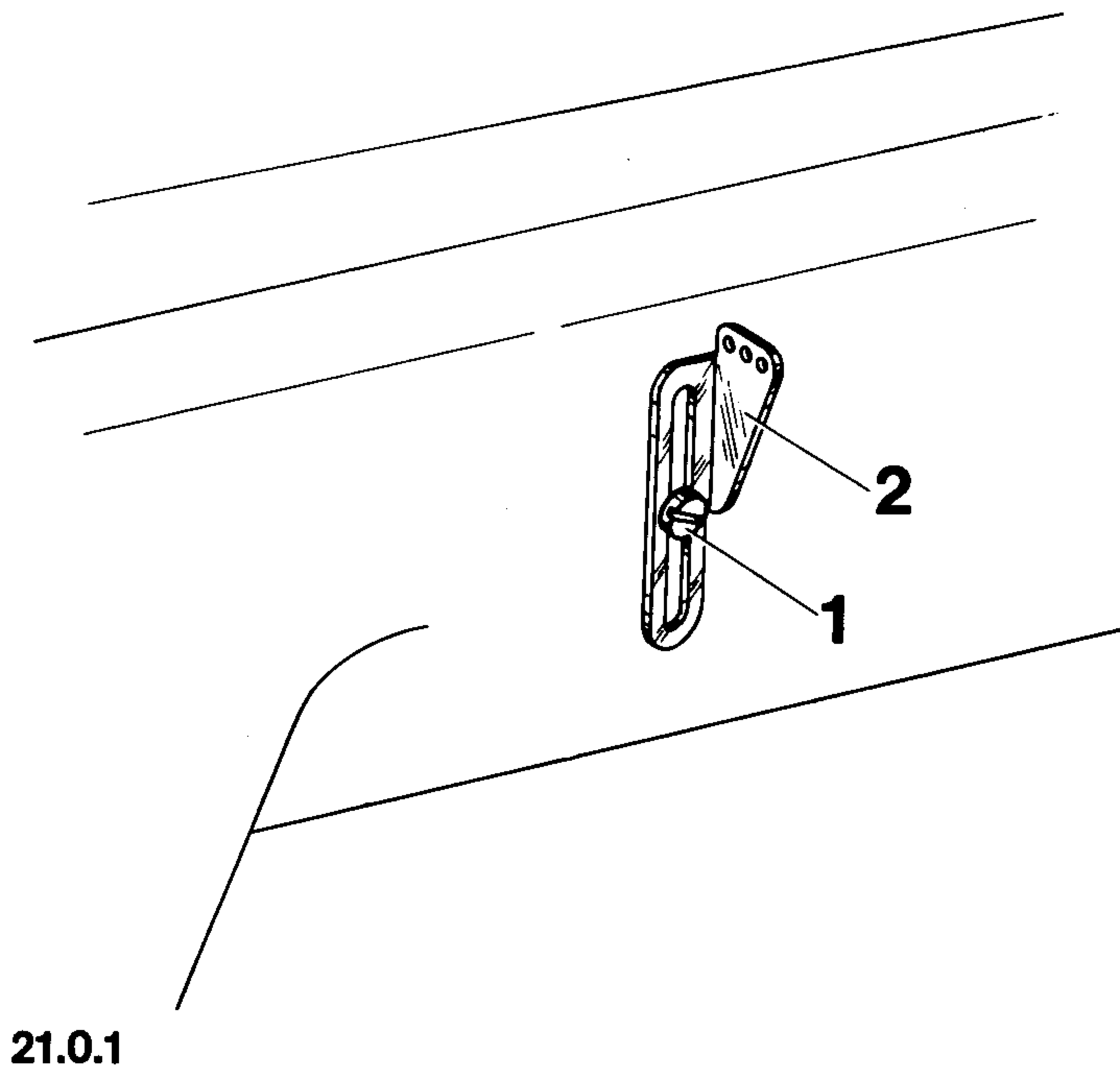
21 Adjustable thread guide

Setting:

The adjustable thread guide should be fixed in the middle of its elongated hole.

Note:

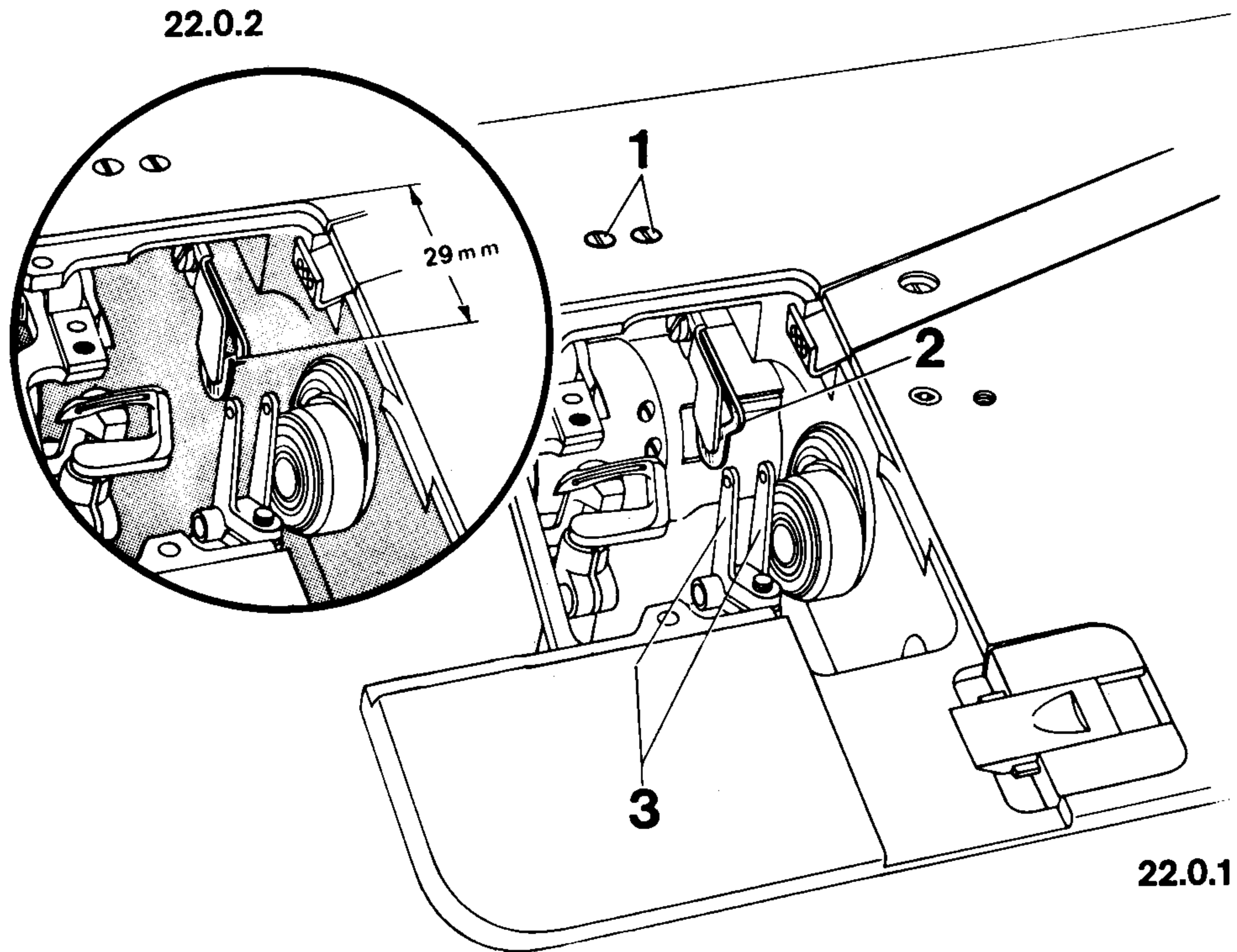
This basic setting may have to be modified, depending on the type of thread and the stitch length used.



- 21.1 Loosen screw 1 of thread guide 2.
- 21.2 **Adjust thread guide 2 so that screw 1 is positioned in the middle of the elongated hole.**
- 21.3 Make sure that thread guide 2 is vertical and tighten screw 1.

Setting:

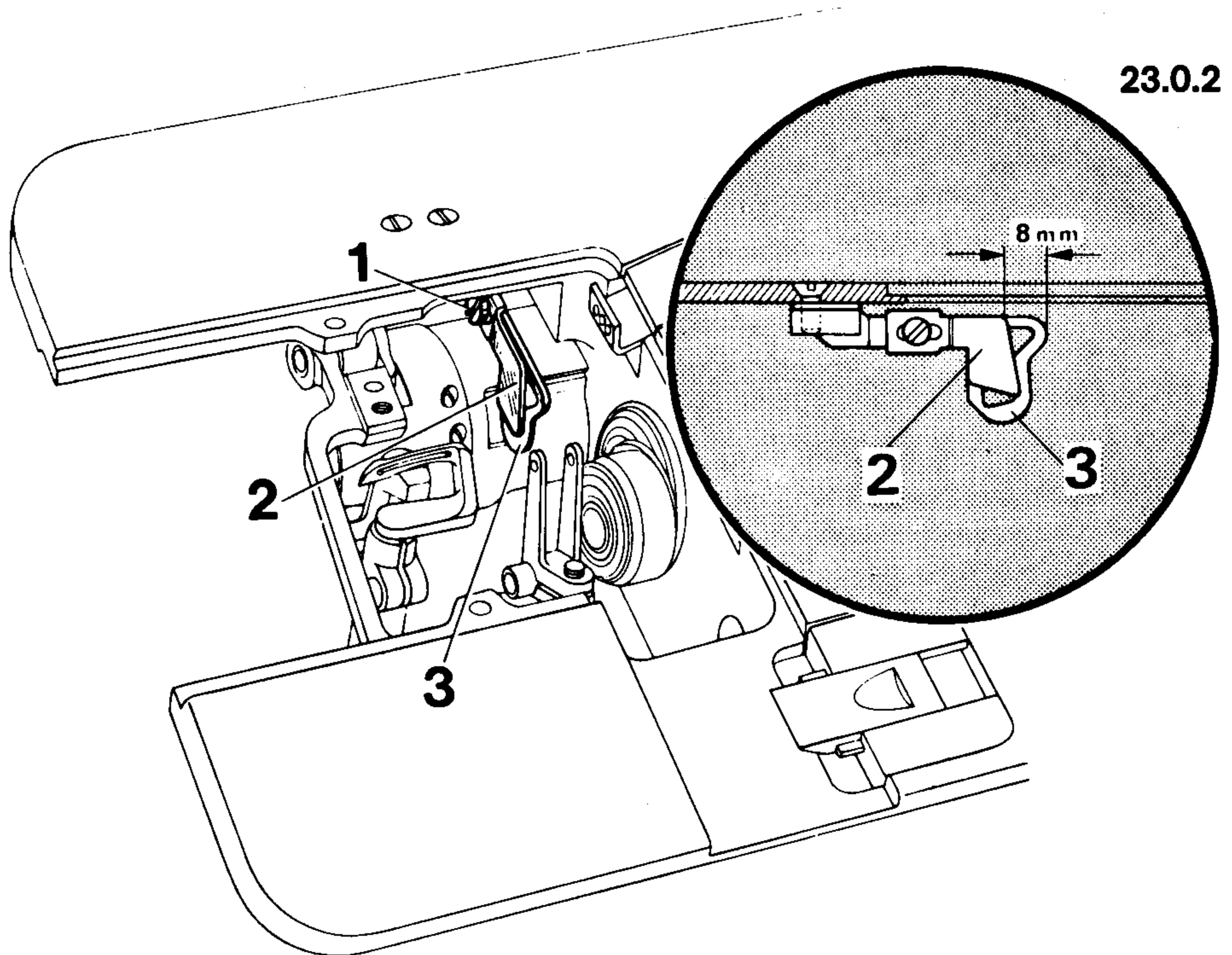
The distance between the front edge of primary looper thread regulator 2 and the rear edge of the needle plate cutout should be 29 mm.



- 22.1 Loosen both screws 1 of thread regulator 2.
- 22.2 **Adjust thread regulator 2 lengthwise so that there is a distance of 29 mm between its front edge and the rear edge of the needle plate cutout.**
- 22.3 Make sure that thread regulator 2 is positioned roughly in the middle of thread puller fingers 3 and tighten both screws 1.
- 22.4 Check this adjustment (see "Setting").

Setting:

The front edge of the secondary looper thread regulator 2 should be abt. **8.0 mm** from the front edge of primary looper thread regulator 3.



23.0.1

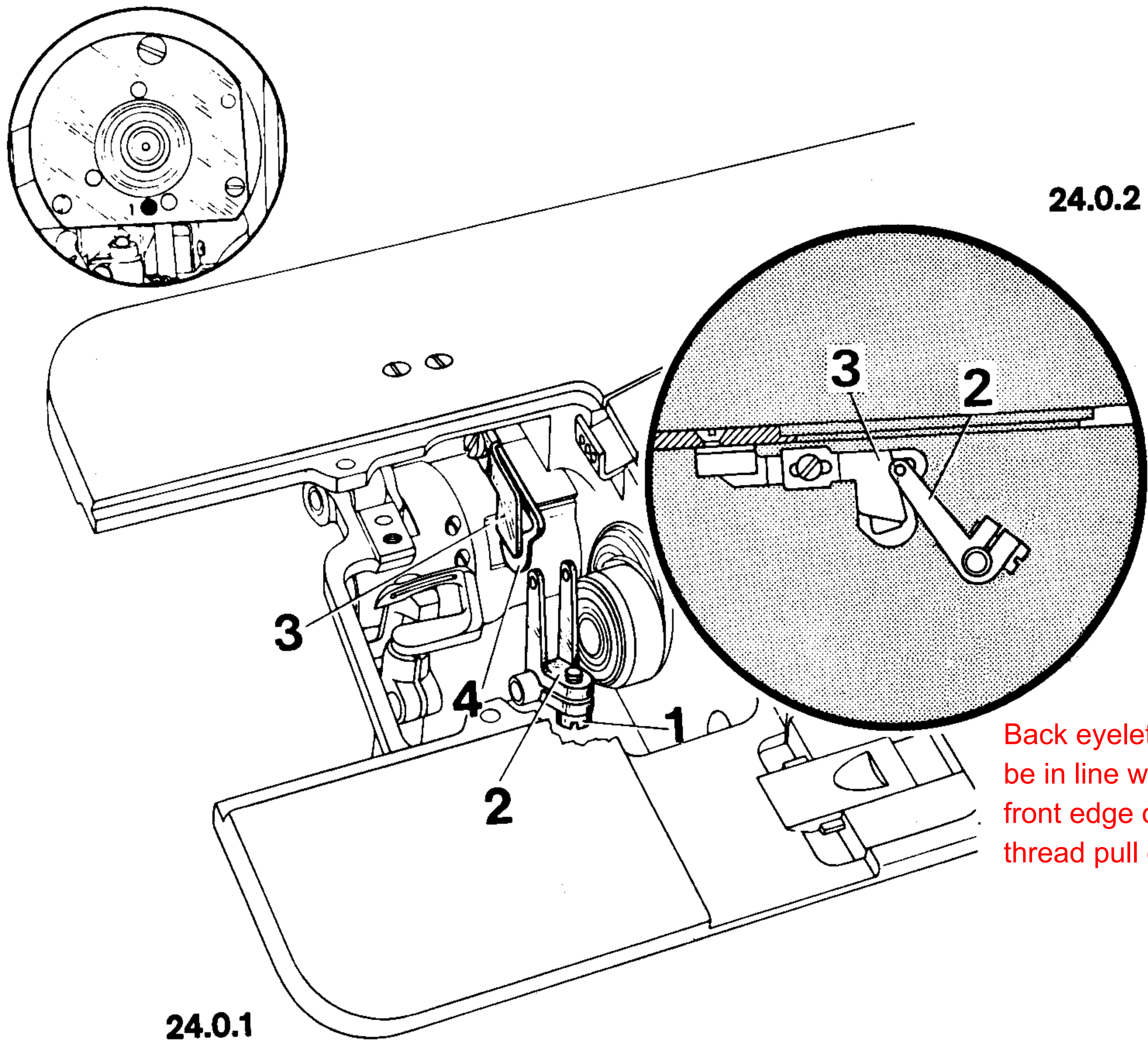
23.0.2

- 23.1 Loosen screw 1 of secondary looper thread regulator 2.
- 23.2 **Adjust thread regulator 2 lengthwise so that its front edge is 8.0 mm from the front edge of thread regulator 3.**
- 23.3 In this position, tighten screw 1.
- 23.4 Check this adjustment (see "Setting").

24 **Looper thread puller**

Setting:

With the needle bar at top dead center (pin in hole 1), both eyes of looper thread puller 2 should be exactly at the front edge of secondary looper thread regulator 3.

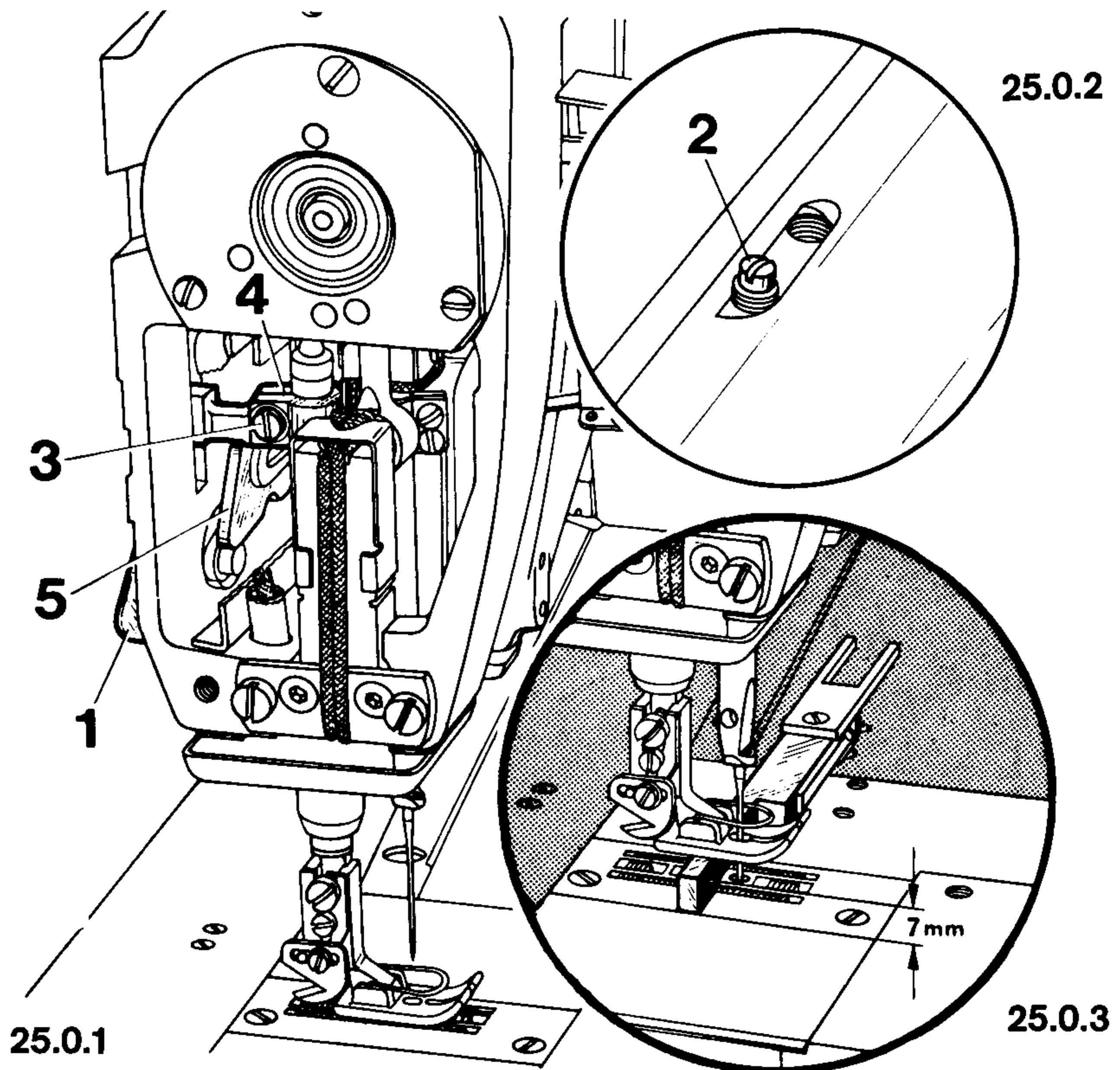


- 24.1 Loosen clamp screw 1 just enough to allow thread puller 2 to be turned on its stud by hand.
- 24.2 Turn the balance wheel to bring the needle bar to top dead center.
- 24.3 Insert the pin in hole 1 of the bearing plate (to block the machine).
- 24.4 **Turn thread puller 2 on its stud so that its two eyes are exactly at the front edge of thread regulator 3.**
- 24.5 Make sure the fingers of thread puller 2 are equidistant from primary looper thread regulator 4, then tighten clamp screw 1.
- 24.6 Pull the pin out of the hole in the bearing plate.
- 24.7 Check this adjustment (see "Setting").

Clearance between presser foot and needle plate

Setting:

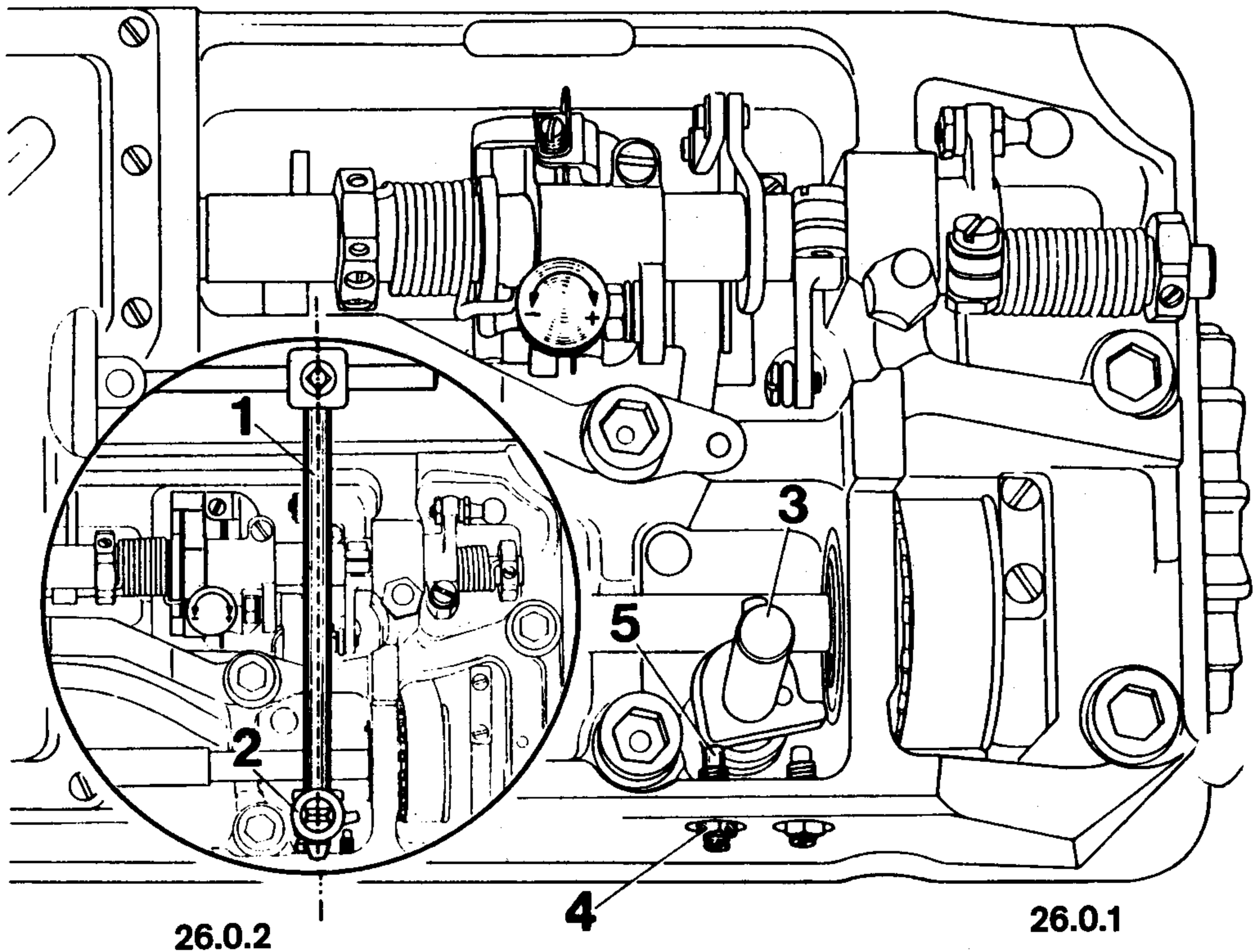
With the presser bar lifter 1 raised, there should be a clearance of 7.0 mm between presser foot and needle plate.



- 25.1 Screw on the feed dog and the needle plate, making sure the feed dog moves freely in its slots.
- 25.2 Screw on the presser foot and lower it onto the needle plate by means of presser bar lifter 1.
- 25.3 Turn out regulating screw 2 to reduce the pressure on the presser bar so that it is just sufficient to hold the presser foot down on the needle plate.
- 25.4 Push the 7-mm-thick blade of the gauge under the presser foot from the rear until it is positioned under the presser foot fulcrum.
- 25.5 Loosen clamp screw 3 of presser bar lifting bracket 4 and raise presser bar lifter 1.
- 25.6 Turn the balance wheel until the needle enters the needle hole in the presser foot.
- 25.7 **Adjust the presser foot laterally until the needle is centered in the needle hole of the presser foot.**
- 25.8 **Push presser bar lifting bracket 4 down until it contacts the raised presser bar lifter 5, and tighten clamp screw 3.**
- 25.9 Remove the gauge from under the presser foot and lower the foot onto the needle plate.
- 25.10 Check this adjustment (see "Setting").
- 25.11 During the sewing test regulate the presser foot pressure by means of regulating screw 2.

Setting:

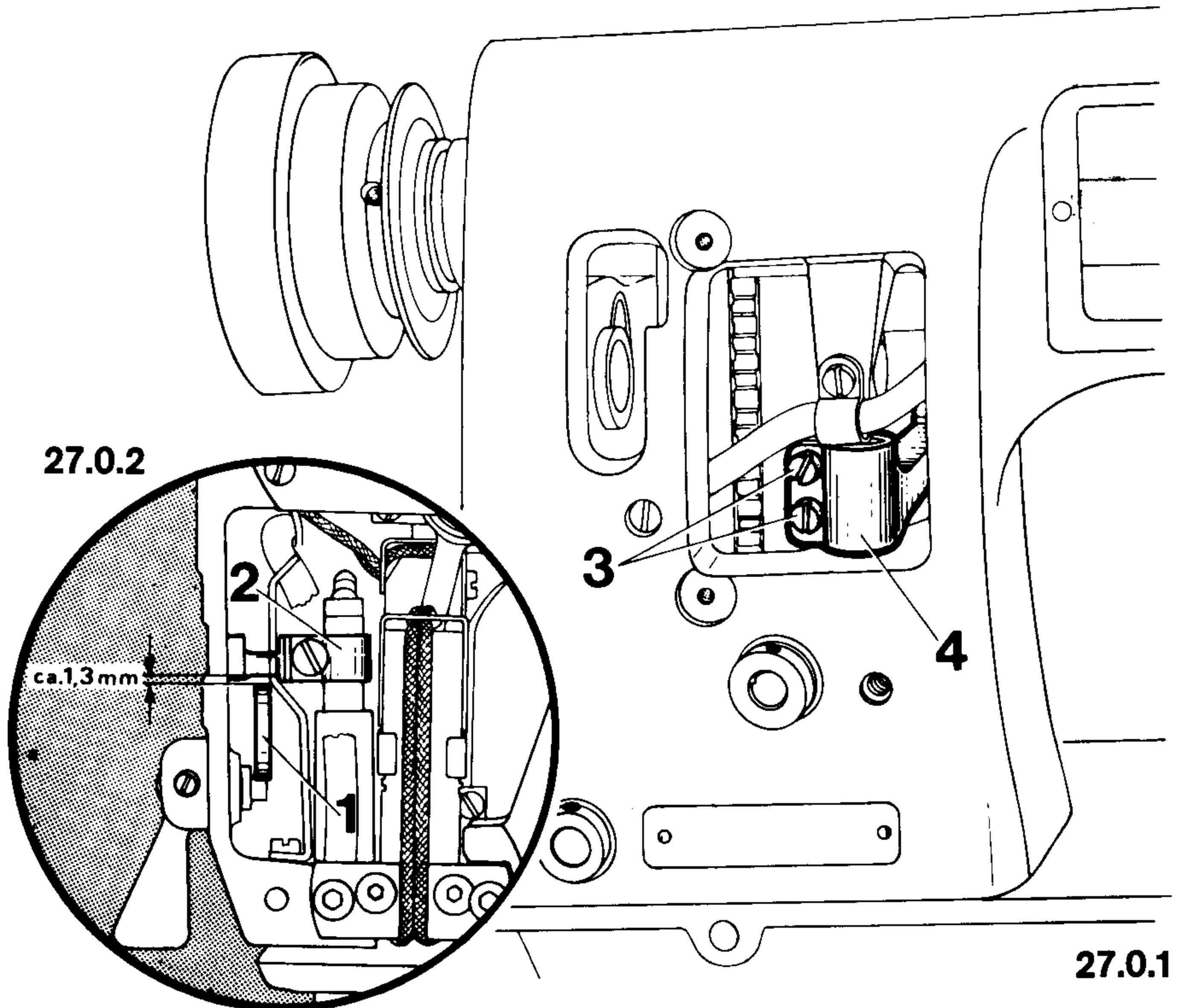
When in its rest position, knee lever connecting rod 1 should be roughly at right angles to the front edge of the bedplate.



- 26.1 Raise the presser foot by means of the presser bar lifter.
- 26.2 Push knee lever connecting rod 1 together with coupling sleeve 2 onto knee lever shaft 3 and turn it until it snaps into position.
- 26.3 Loosen locknut 4 of stop screw 5.
- 26.4 **Turn stop screw 5 until knee lever connecting rod 1 is roughly at right angles to the front edge of the bedplate.**
- 26.5 In this position, lock stop screw 5 in place by nut 4.
- 26.6 Pull knee lever connecting rod 1 out of coupling sleeve 2 again.

Setting:

When the presser foot is resting on the needle plate and the feed dog is beneath the needle plate, there should be a clearance of abt. 1.3 mm between lifting lever 1 and lifting collar 2.

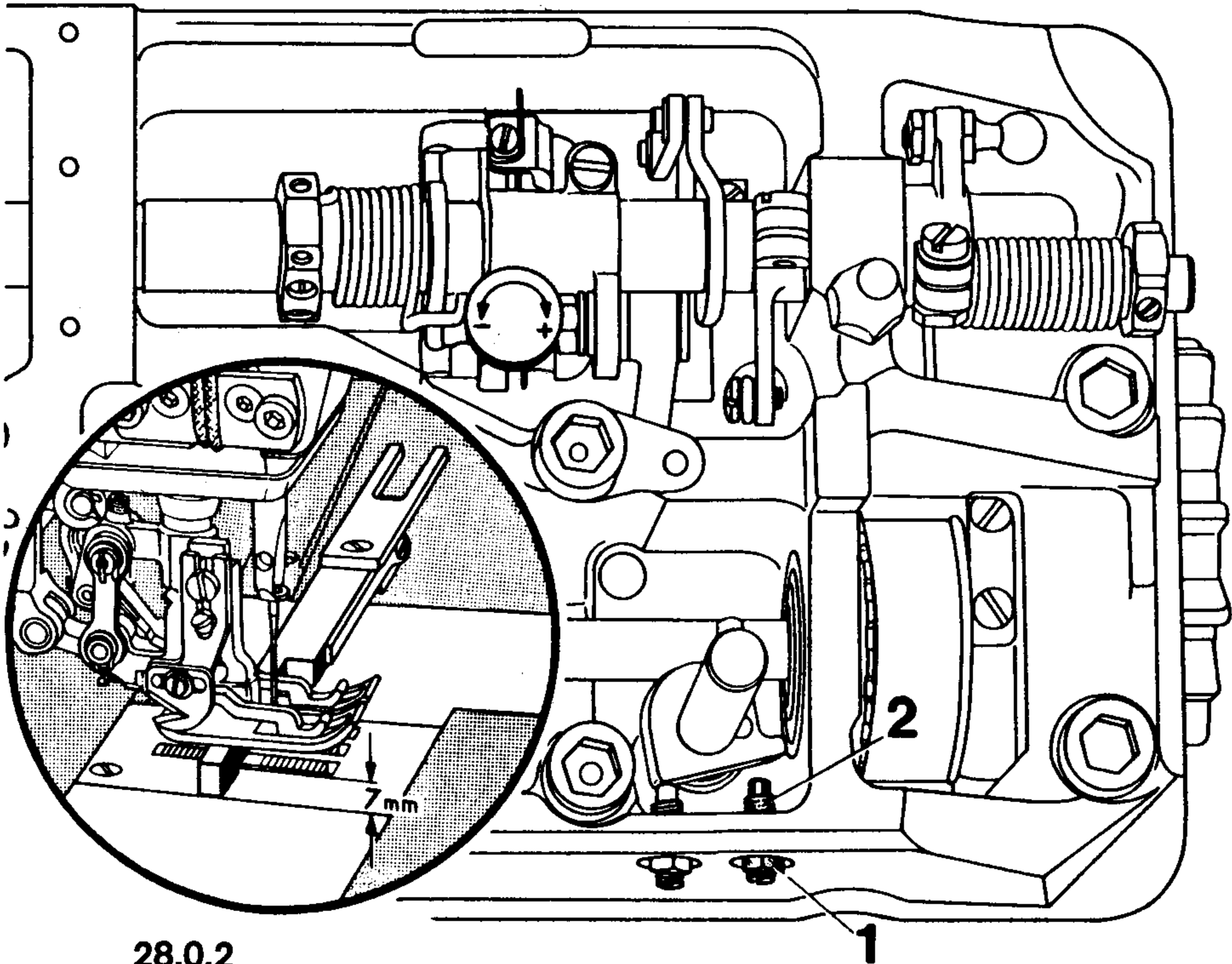


- 27.1 Turn the balance wheel to bring the feed dog below needle plate level, and lower the presser foot onto the needle plate.
- 27.2 Take out the two screws of the rear standard cover and remove the latter.
- 27.3 Loosen both clamp screws 3 of crank 4 on the knee lever shaft.
- 27.4 **Adjust crank 4 so that there is a clearance of abt. 1.3 mm between lifting lever 1 and lifting collar 2.** (Use adjustment gauge.)
- 27.5 In this position, tighten both clamp screws 3, making sure that the vertical knee lever shaft has no vertical play.
- 27.6 Remove the gauge and insert the knee lever.
- 27.7 Check this adjustment (see "Setting").
- 27.8 Remove the knee lever again.

Setting:

When the knee lever is fully operated, the presser foot should be lifted from the needle plate by a little more than 7 mm, and the presser bar lifter should drop by its own weight.

28.0.1

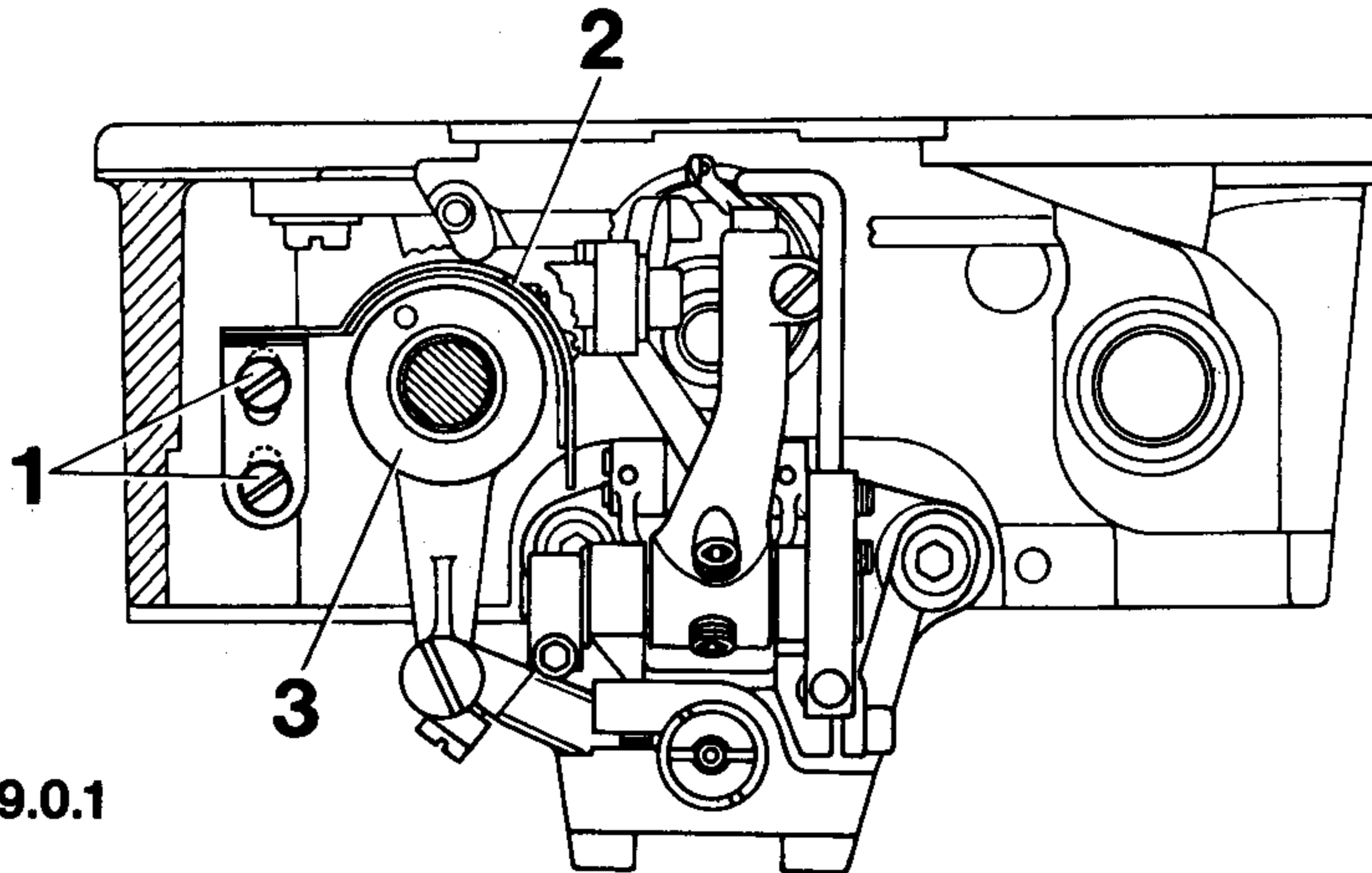


28.0.2

- 28.1 Insert the knee lever.
- 28.2 Loosen locknut 1 of stop screw 2.
- 28.3 Turn stop screw 2 out a few turns.
- 28.4 Raise the presser foot by means of the presser bar lifter.
- 28.5 Place the 7-mm-thick blade of the gauge under the presser foot and release the presser bar lifter.
- 28.6 Move the knee lever to the right until a noticeable resistance is felt, but make sure the presser foot is not lifted off the gauge.
- 28.7 **Hold the knee lever at this position and turn stop screw 2 in as far as it will go, then back out by half a turn, and lock it in place with locknut 1.**
- 28.8 Remove the gauge from under the presser foot and check this adjustment (see "Setting").

Setting:

Looper-avoiding-motion eccentric 3 must not touch guard 2 during any phase of its motion.

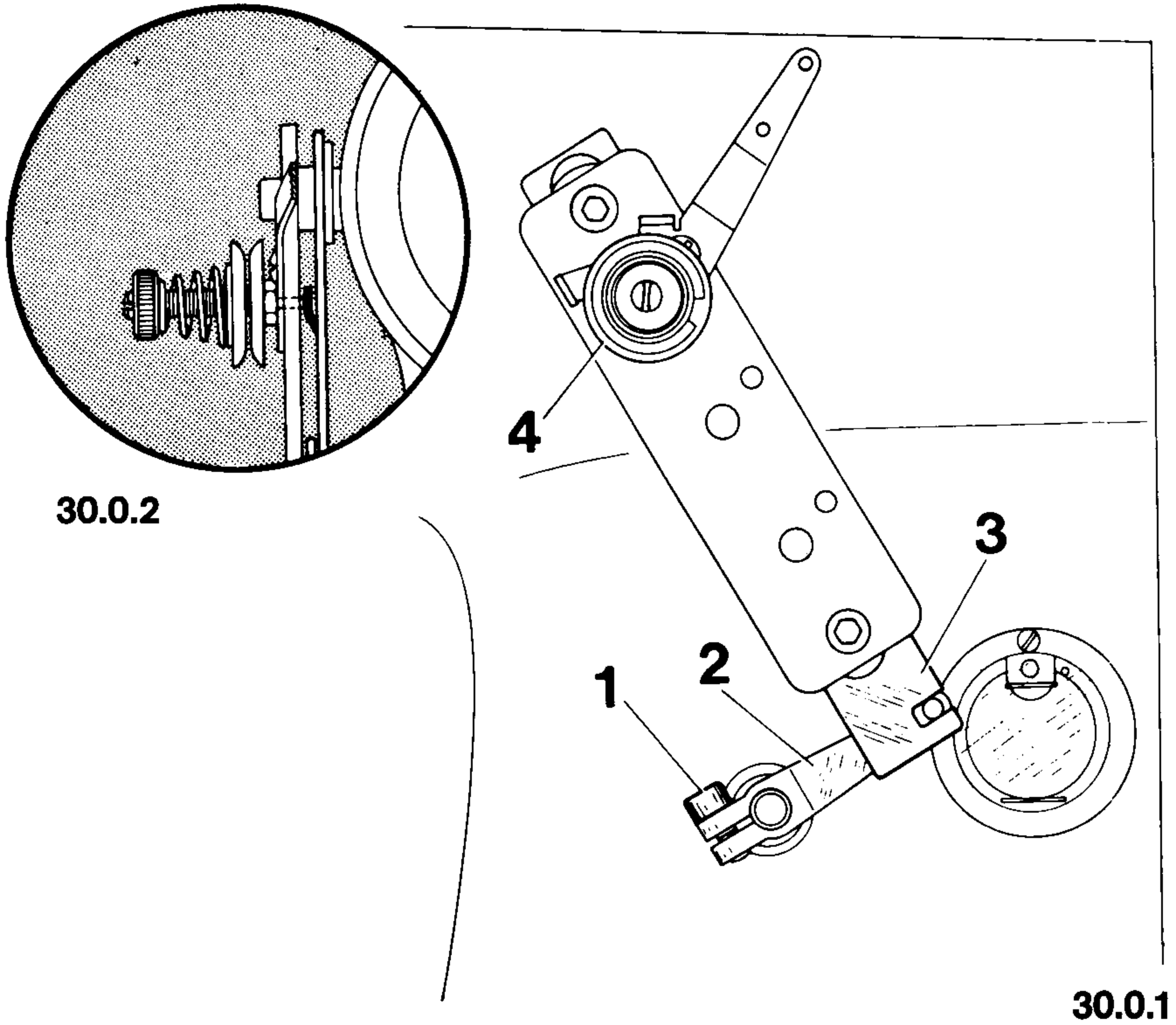


29.0.1

- 29.1 Loosen both screws 1 which are accessible through the access window.
- 29.2 **Adjust the position of guard 2 so that looper-avoiding-motion eccentric 3 does not touch it during any phase of its motion.**
- 29.3 In this position, tighten screws 1.

Setting:

When the presser foot is raised by means of the knee lever by abt. 5 mm, thread tension 4 must be released.



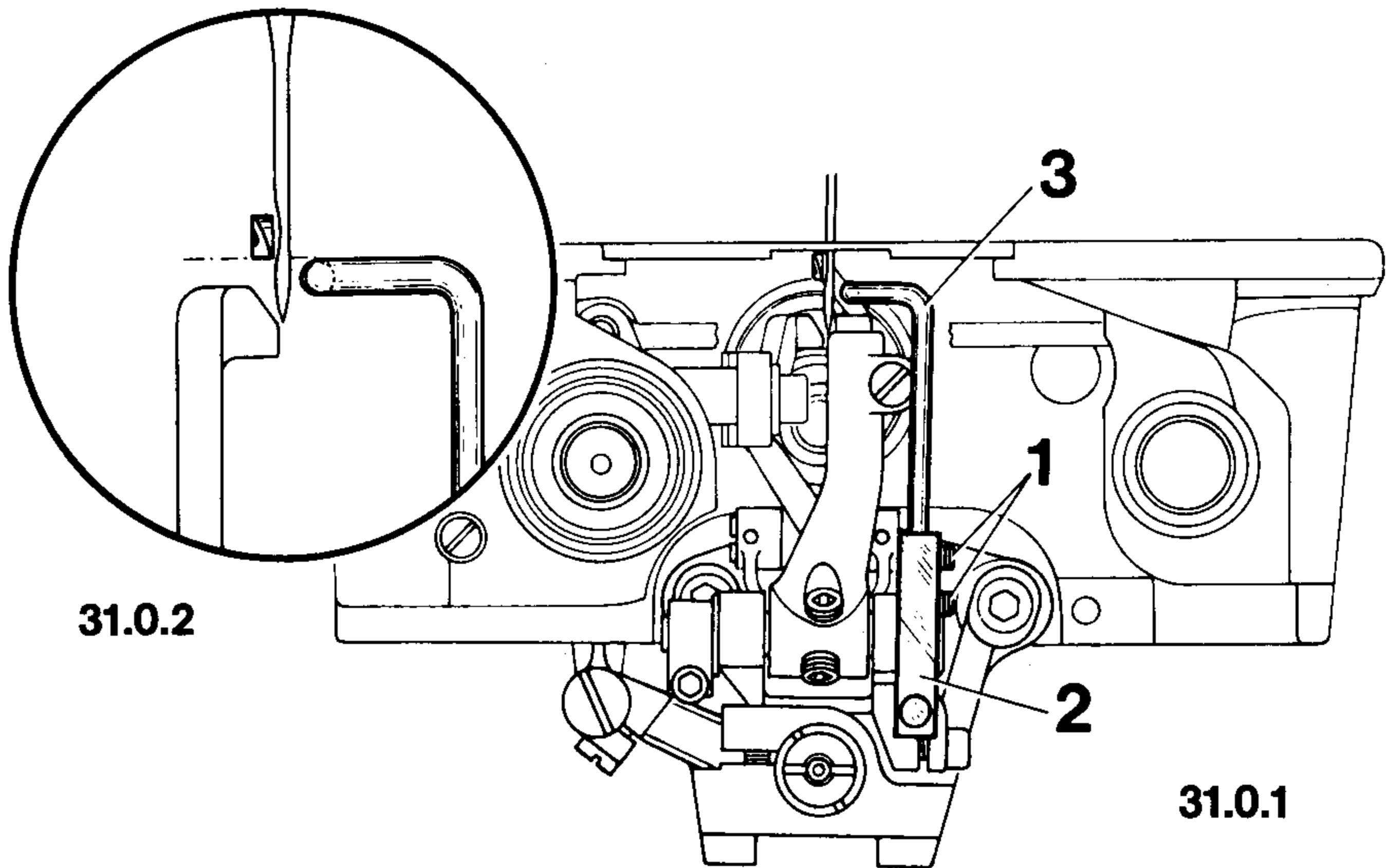
- 30.1 Loosen clamp screw 1 of tension release lever 2.
- 30.2 **Raise the presser foot by abt. 5 mm and adjust the position of tension release bracket 3 so that thread tension 4 is released.**
- 30.3 In this position, tighten clamp screw 1.

31 Front needle guard
(not standard on all machines)

31.1 Vertical adjustment

Setting:

When the point of the advancing looper is opposite the center line of the needle, the top edge of front needle guard **3** should be in line with the bottom edge of the looper point.



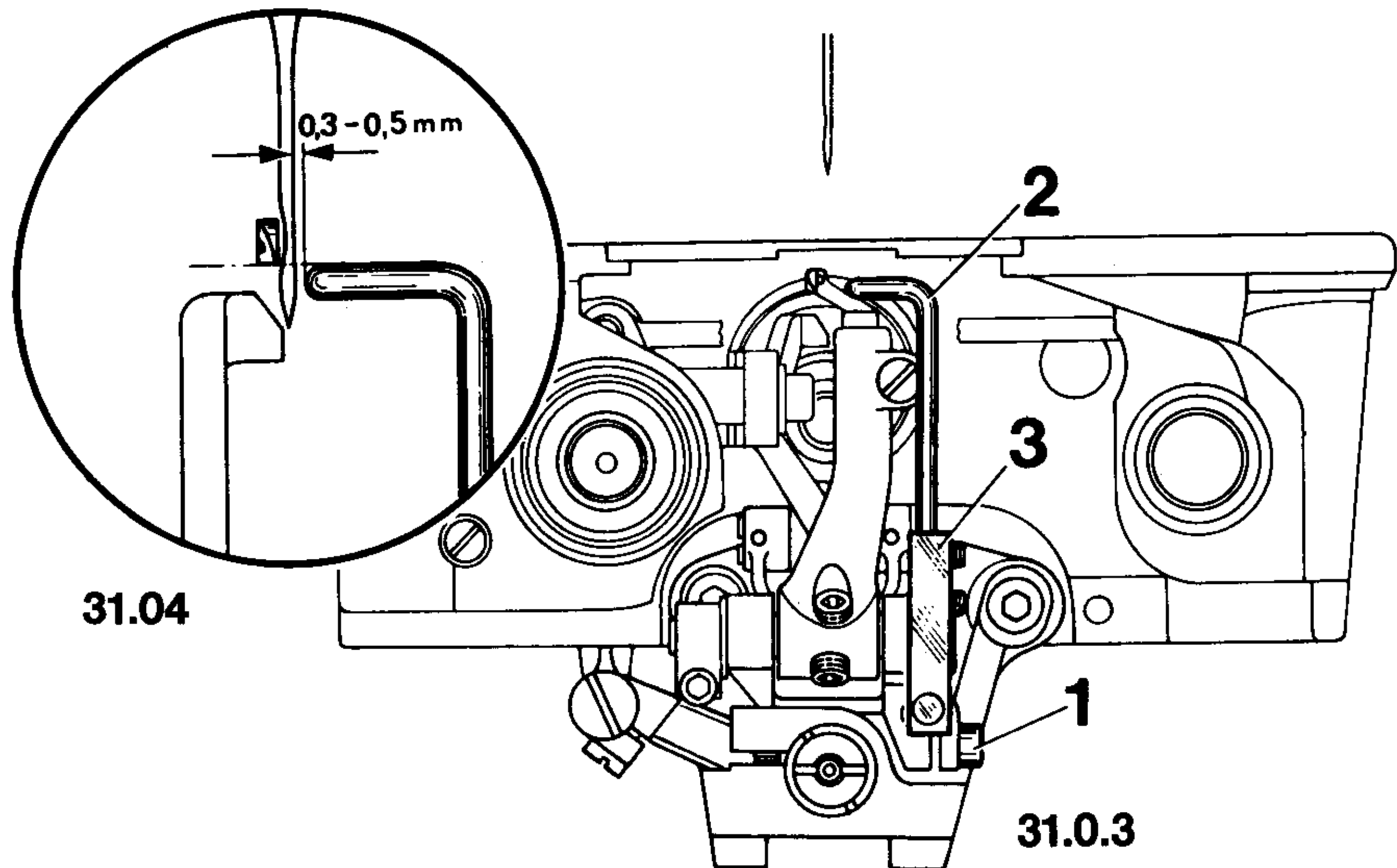
- 31.1.1 Turn the balance wheel until the point of the advancing looper is opposite the center line of the needle.
- 31.1.2 Loosen both screws **1** of needle guard bracket **2**.
- 31.1.3 **Adjust front needle guard **3** vertically so that its top edge is flush with the bottom edge of the looper point.**
- 31.1.4 In this position, tighten both screws **1**, making sure that front needle guard **3** is parallel to the looper blade.
- 31.1.5 Check this adjustment (see "Setting").

31.2

Lateral adjustment

Setting:

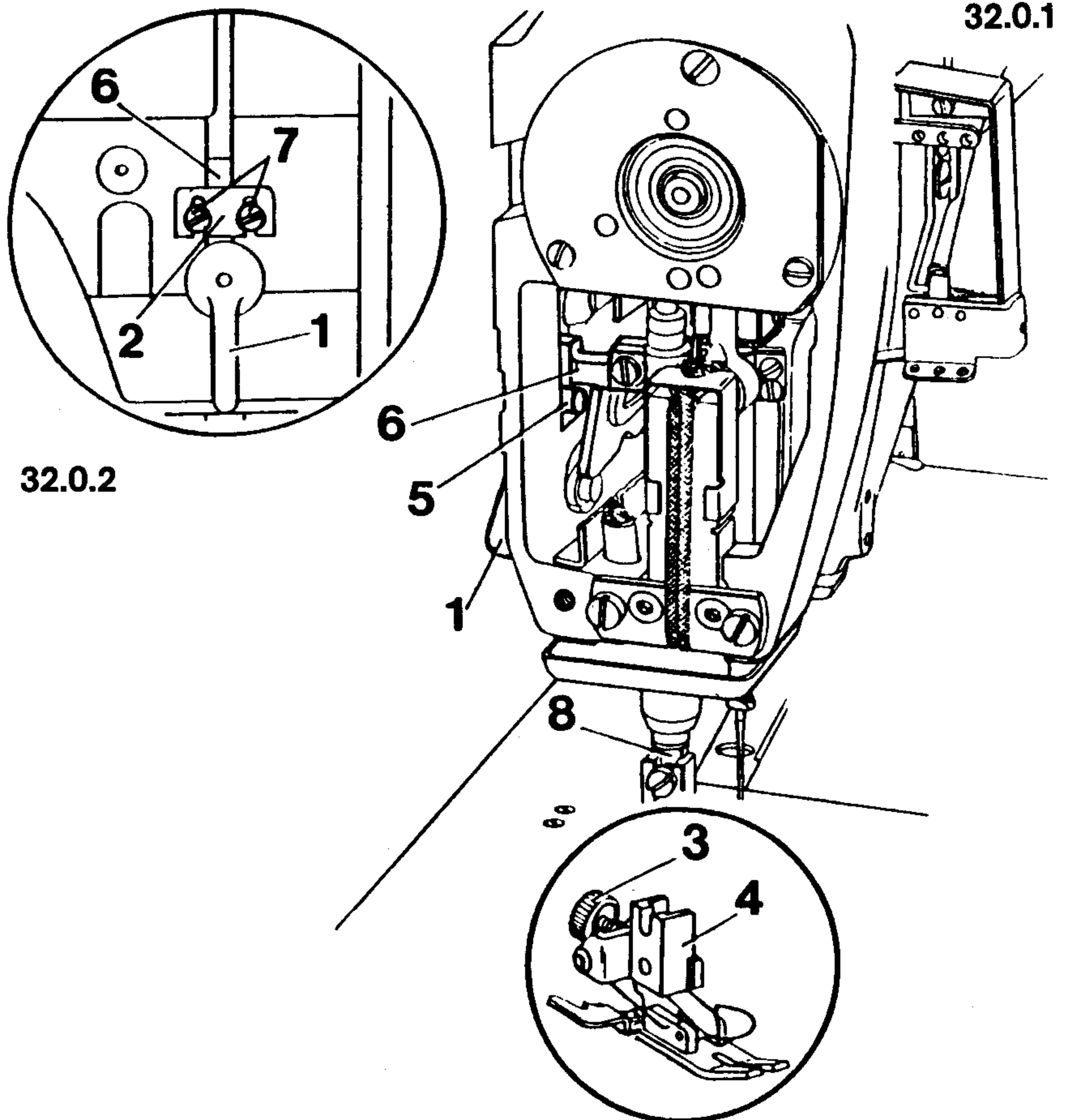
When the looper point is opposite the center line of the needle, there should be a clearance of **0.3 to 0.5 mm** between front needle guard **2** and the needle.



- 31.2.1 Turn the balance wheel to bring the looper to its left point of reversal.
- 31.2.2 Loosen clamp screw 1.
- 31.2.3 **Adjust the position of needle guard bracket 3 so that front needle guard 2 does not touch the neck of the looper when the latter is at its left point of reversal.**
- 31.2.4 In this position, tighten clamp screw 1 just lightly.
- 31.2.5 Turn the balance wheel further until the looper point is opposite the center line of the needle.
- 31.2.6 **Turn needle guard bracket 3 so that there is a clearance of 0.3 to 0.5 mm between needle guard and needle.**
- 31.2.7 In this position, tighten clamp screw 1.
- 31.2.8 Check this adjustment (see "Setting").

Setting:

When presser bar lifter 1 is raised, presser bar 8 should have risen 0.3 mm before the floating foot starts lifting clear of the needle plate.



- 32.1 Bring the take-up lever to its highest point and raise presser bar lifter 1.
- 32.2 If not fitted, lightly secure locking member 2 to the back of the machine head and push it down in its elongated holes as far as it will go.
- 32.3 Turn knurled nut 3 until its face side is flush with the end of this threaded stud.
- 32.4 Swing presser bar lifter 1 down until the entire sole of floating foot 4 is resting on the needle plate without any pressure.
- 32.5 While holding the foot in this position, push up locking member 2 so that stud 5 engages presser bar collar 6, and tighten the two screws 7.
- 32.6 Check this adjustment (see "Setting") and set the correct amount of pressure by turning in thumb nut 3.

Appendix

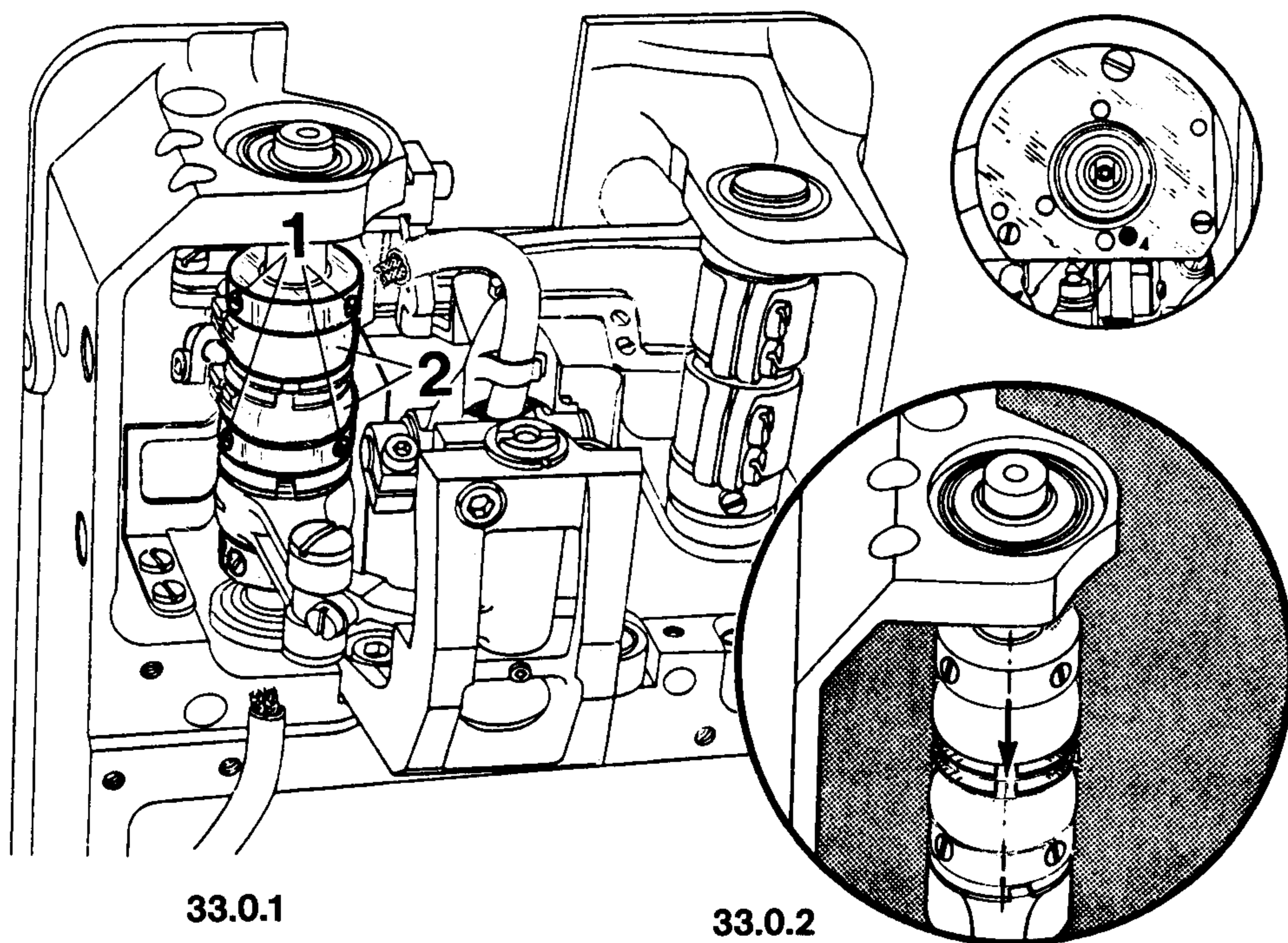
for machines in version H

The following contains differing adjustment procedures for H-machine version. All other adjustments can be found in the preceding sections of this Service Manual.

33 Feed lifting motion

Setting:

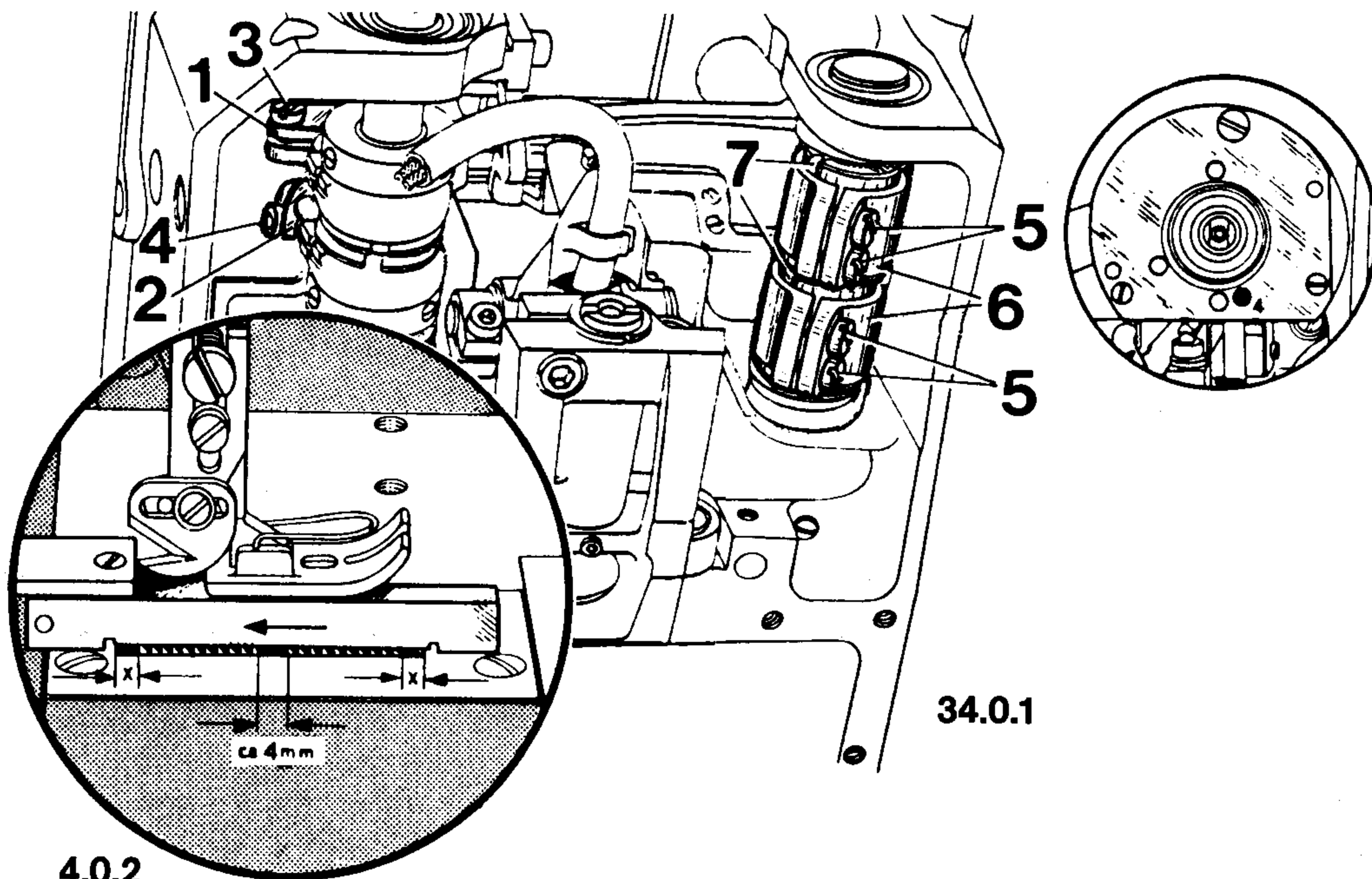
With the needle bar at a position 0.8 mm before top dead centre (pin in hole 4), the cutouts in feed lift eccentrics 2 should face downwards (see arrow in Fig. 33.0.2).



- 33.1 Loosen the four retaining screws 1 of the two feed lift eccentrics 2.
- 33.2 Turn the balance wheel to bring the needle bar to a position 0.8 mm before top dead centre.
- 33.3 Insert the pin in hole 4 of the bearing plate (to block the machine).
- 33.4 **Turn feed lift eccentrics 2 so that the cutouts are facing downwards** (see arrow in Fig. 33.0.2).
- 33.5 In this position, tighten the accessible screw 1.
- 33.6 Remove pin from the hole in the bearing plate.
- 33.7 Also tighten the second screw 1.
- 33.8 Check this adjustment (see "Setting").

Setting:

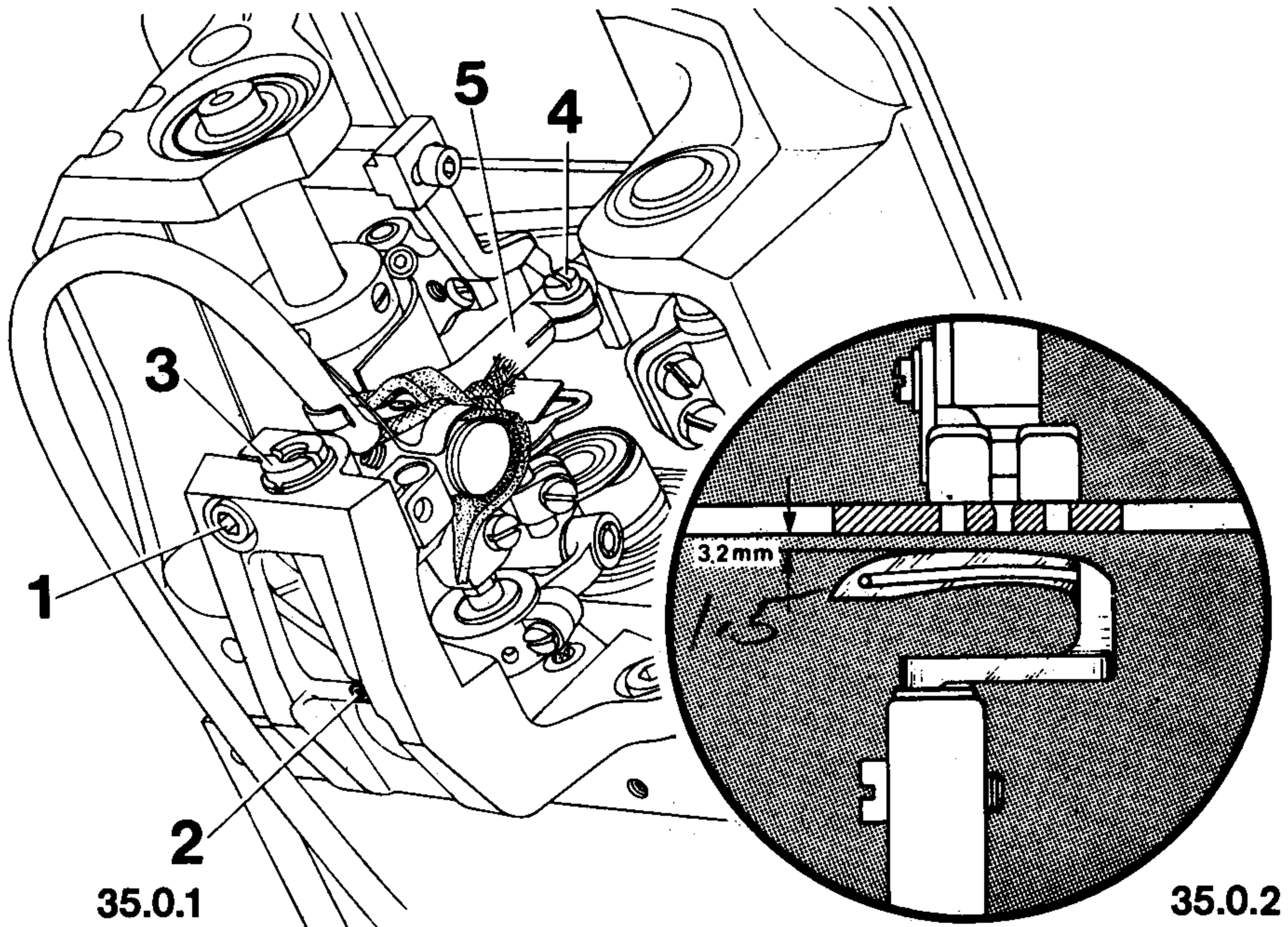
With the stitch length set at its maximum and the needle bar at a position 0.8 mm before top dead centre (pin in hole 4), the feed dogs must be in the middle of the feed slots and be against the gauge throughout their lengths (see Fig. 34.0.2). The distance between the two feed dogs must be about 4 mm.



- 34.1 Set the machine for its longest stitch.
 34.2 Bring the needle bar at a position 0.8 mm before top dead centre.
 34.3 Insert the pin in hole 4 of the bearing plate (to block the machine).
 34.4 Loosen clamp screws 3 and 4 (Fig. 34.0.1) of feed lift cranks 1 and 2.
 34.5 Loosen the four clamp screws 5 in feed drive cranks 6.
 34.6 Screw on the presser foot.
 34.7 Place adjustment gauge (No. 61-111 642-19 or 08-880179-00) on the needle plate so that its recess is centered above the feed slots and the arrow of the gauge points in feed direction (see Fig. 34.0.2).
 34.8 Lower the presser foot onto the gauge.
 34.9 **Set the feed dogs in the middle of the feed slots, so that the distance between the feed dogs is about 4 mm.**
 34.10 Press the feed bars upwards to move the feed dogs against the gauge, and hold them there.
 34.11 **Turn eccentric bushes 7 situated under feed drive cranks 6 so that the feed dogs are against the gauge throughout their lengths.**
 34.12 Making sure that the feed dogs are in the middle of their slots, tighten the four clamp screws 5 of the feed drive eccentrics 6.
 34.13 Making sure that the feed dogs are against the gauge throughout their lengths, tighten clamp screws 3 and 4 of feed lift cranks 1 and 2.

Setting:

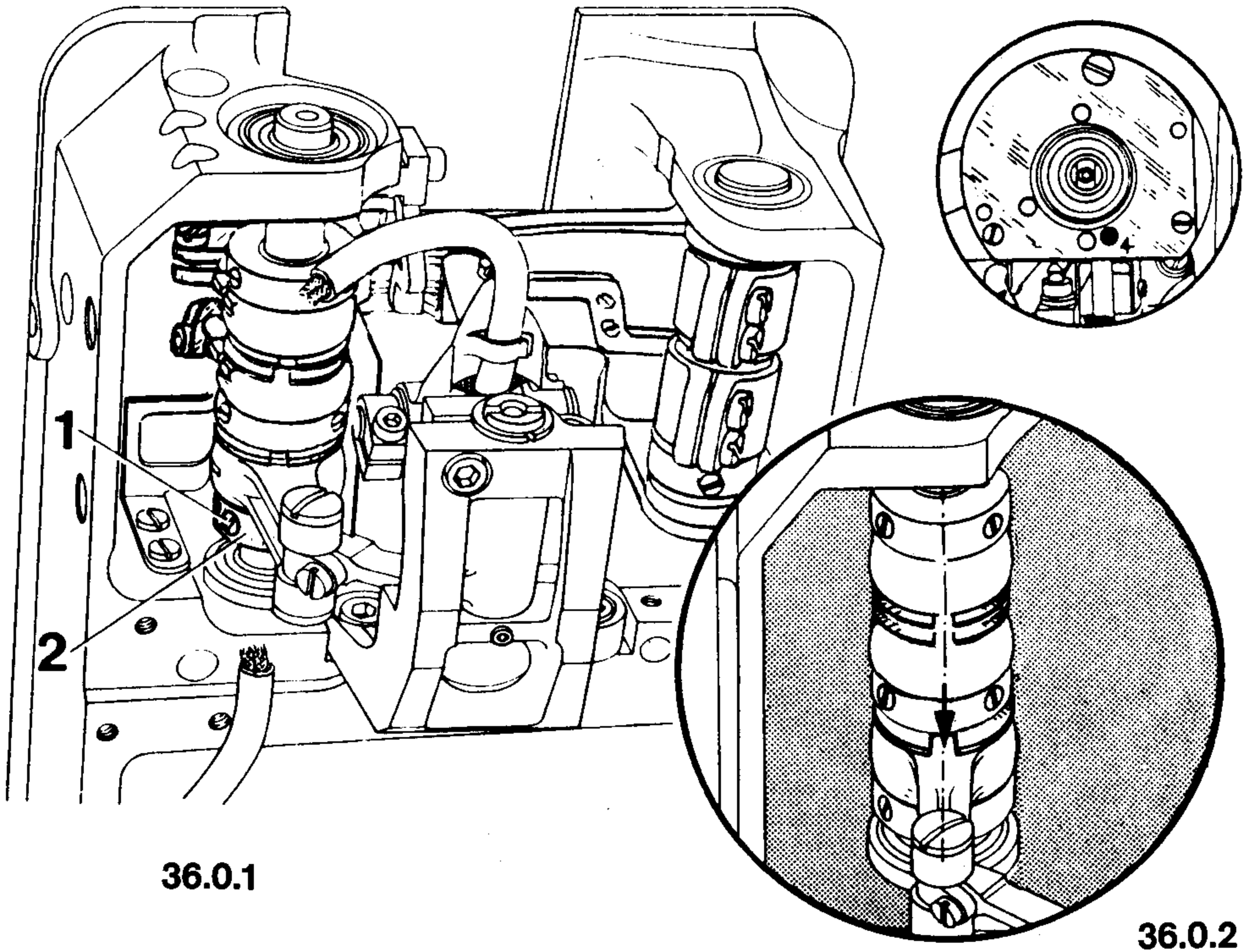
When the looper holder is in its vertical position, there should be a clearance of **3.2 mm** between the highest point of the looper and the underside of the needle plate (see Fig. 35.0.2).



- 35.1 Remove bed slide, cover plate, needle plate, and feed dog.
 35.2 Place the needle plate in position again and operate the presser bar lifter to lower the presser foot onto the needle plate.
 35.3 Turn the balance wheel until the looper holder is vertical.
 35.4 Loosen clamp screw 1 and screw 2 of eccentric bearing stud 2.
 35.5 **Turn eccentric bearing stud 3 until there is a clearance of 3.2 mm between the highest point of the looper and the underside of the needle plate (see Fig. 35.0.2).**
 35.6 In this position, tighten clamp screw 1 and screw 2.
 35.7 If the clearance of 3.2 mm cannot be obtained, proceed as follows:
 35.7.1 Raise the presser foot and remove the needle plate.
 35.7.2 Loosen clamp screw 4 in looper holder 5 and take off the looper (do not lose spacing washer).
 35.7.3 Fit an appropriate spacing washer (see inside front cover) on the looper neck and push the looper into looper holder 5 again as far as it will go.
 35.7.4 Set the looper blade roughly parallel to the front edge of the bedplate (preliminary adjustment) and tighten clamp screw 4.
 35.7.5 Replace the needle plate and operate the presser bar lifter to lower the presser foot onto the needle plate.
 35.7.6 Check that there is a clearance of 3.2 mm between the highest point of the looper and the underside of the needle plate when the looper holder is in its vertical position.
 35.8 If necessary, repeat steps 35.3 to 35.6
 35.9 Check this adjustment (see "Setting").

Setting:

With the needle bar positioned 0.8 mm before top dead centre (pin in hole 4), the slot in the avoiding motion eccentric should be positioned exactly below the centre line of the shaft (see Fig. 36.0.2).



36.0.1

36.0.2

- 36.1 Loosen both screws 1 (Fig. 36.0.1) in the collar of avoiding motion eccentric 2.
- 36.2 Turn the balance wheel to bring the needle bar to a position 0.8 mm before top dead centre.
- 36.3 Insert the pin in hole 4 of the bearing plate (to block the machine).
- 36.4 **Turn avoiding motion eccentric 2 so that its slot points vertically downwards.**
- 36.5 In this position, tighten the accessible screw 1.
- 36.6 Pull the pin out of the hole of the bearing plate.
- 36.7 Also tighten the second screw 1.
- 36.8 Check this adjustment (see "Setting").

Final worksteps

Replace the oil-soaked lubrication pad in the gearcase (large cutout to left, downwards).

Clean the gasket surface of the gearcase and the gasket of the gearcase cover.

Screw on the gearcase cover together with the machine-bed supports, tightening the cover screws crosswise.

Replace and screw on the face cover, the rear housing cover with thread tension, and the belt guard.

Thread the machine.

Replace the bed slide and the cover plate.

Place fabric under the presser foot and lower the foot onto it.

Make a sewing test and, while doing so, adjust the presser foot pressure by means of regulating screw 2 so that the fabric is fed properly even at top speed.

Contents

	page
1 Preparations for adjustment	1
2 Position of needle in needle hole	2
3 Preliminary adjustment of needle bar height	4
4 Zeroing the bottom feed	5
5 Feed driving motion	7
6 Feed lifting motion	8
7 Feed dog height	9
8 Stitch length limitation	10
9 Timing the looper (preliminary adjustment)	11
10 Looper avoiding motion	12
11 Looper height	13
12 Looper angle	15
13 Looper-to-needle clearance in sewing direction (preliminary adjustment)	16
14 Looper clearance to needle in looper direction	17
15 Timing the looper	18
16 Needle bar height and looper clearance	20
17 Height of rear needle guard	21
18 Clearance between rear needle guard and needle	22
19 Take-up lever	23
20 Needle thread regulator	24
21 Adjustable thread guide	25
22 Primary looper thread regulator	26
23 Secondary looper thread regulator	27
24 Looper thread puller	28
25 Clearance between presser foot and needle plate	29
26 Knee lever rest position	30
27 Knee lever play	31
28 Knee lever stroke limitation	32
29 Guard of looper-avoiding-motion eccentric	33
30 Tension release	34
31 Front needle guard	35
32 Floating foot	37
 Appendix for machines in version H	
33 Feed lifting motion	38
34 Feed dog height	39
35 Looper height	40
36 Looper avoiding motion	41
Final worksteps	42

