

# 1570 1590 Sewing Machine

**Adjustment Manual** 

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This Adjustment Manual is valid for all models and subclasses listed in the chaper "Specifications".

For further information and Adjustment manual, please consult the machine venders.

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#### Adjustment



Please observe all notes from Chapter 1 Safety of the instruction manual! In particular care must be taken to see that all protective devices are refitted properly after adjustment, see Chapter 1.06 Danger warnings of the instruction manual!

If not otherwise stated, the machine must be disconnected from the electrical power supply. Danger of injury due to unintentional starting of the machine!

Notes on adjustment

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.

Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.

The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed. Screws, nuts indicated in brackets () are fastenings for machine parts, which must be

loosened before adjustment and tightened again afterwards.

#### 1.01 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of open-ended wrenches with opening sizes from 7 to 13 mm
- 1 set of allen keys from 1.5 to 6 mm
- 1 clamp (Order No. 08-880 137-00)
- 1 metal rule (Order No. 08-880 218-00)
- 1 gauge (Order No. 08-880 136-01)
- Sewing thread and test material

#### 1.02 Abbreviations

TDC = top dead center BDC = bottom dead center

#### 1.03 Explanation of the symbols

In this adjustment manual, symbols emphasize operations to be carried out or important information. The symbols used have the following meaning:



Note, information



Service, repair, adjustment, maintenance (work to be carried out by qualified staff only)

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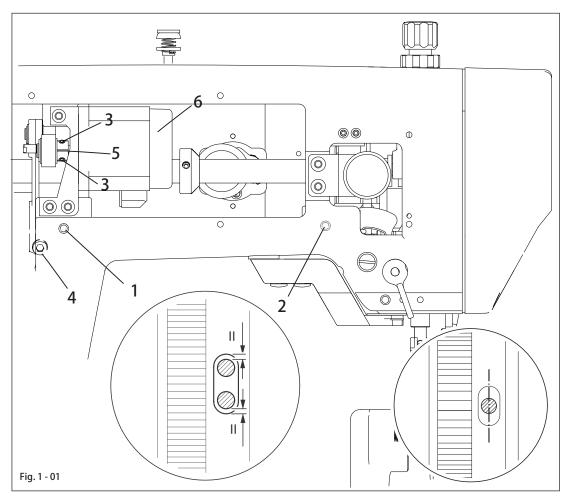
#### 1.04 Adjusting the basic machine

1.04.01 Needle position in sewing direction (on the model 1571 and 1591)

Requirement

1. The needle should be positioned in the centre of the needle hole, as seen in the direction of sewing.

2. With the stitch length set at "5", in its front and rear point of reversal the needle should be the same distance from the inside edges of the needle hole.





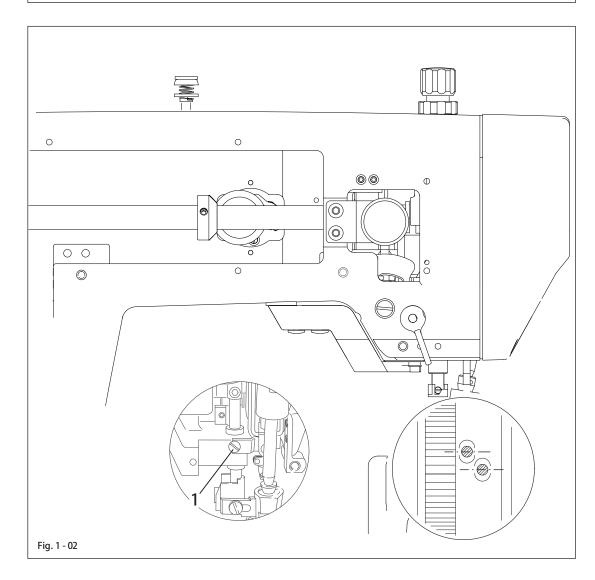
- Adjust needle bar (screws 1 and 2) according to the requirement.
- Loosen screws 3 and 4.
- Switch on the machine and Select the corresponding parameters to turn the motor 6 to the zero position.
- Turn the eccentric shaft so that the narrow groove faces us, and then tighten one of the screws (screw 3).
- Turn off the machine and tighten the other screw(screw3).
- Turn the handwheel until the needle bar reaches the lowest point.
- Adjust the needle bar frame so that the needle can be positioned in the centre of the needle hole, and then tighten the screw 4.



- Check: switch on the machine and sew a stitch ,check needle front and rear position.
- Screws 2 are accessible through the holes on the back of the housing.

#### 1.04.02 Needle position in sewing direction (on the model 1574)

Requirement The needle should be positioned in the centre of the needle hole as seen in the direction of sewing.



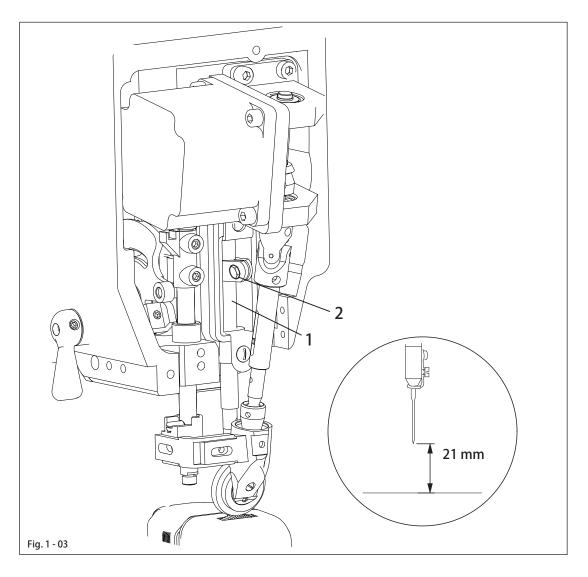
• Adjust needle bar (screws 1 and 2) according to therequirement.



### 1.04.03 Preliminary adjustment of the needle height

#### Requirement

When the needle bar is at TDC, there must be a clearance of approx. 21 mm between the needle point and the needle plate.





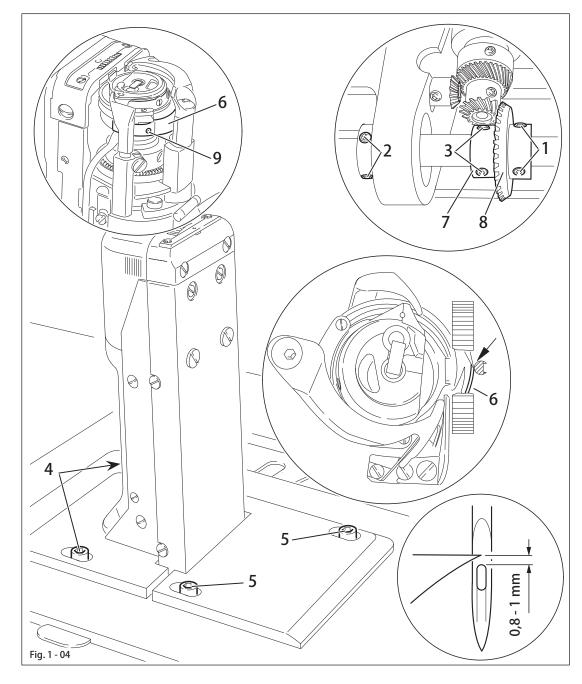
• Adjust needle bar 1( screw 2), without turning it, according to the requirement.

#### 1.04.04 Needle rise, hook clearance, needle height and needle guard (on the model1571)

#### Requirement

With the needle bar positioned 2.0 mm after BDC and the stitch length set at " 0 "

- 1. the hook point must be at needle centre with a hook-to-needle clearance of 0.05 to 0.1 mm;
- 2. the top of the needle eye must be 0.8 to 1.0 mm below the hook point;
- 3. the needle guard 6 must touch the needle lightly.

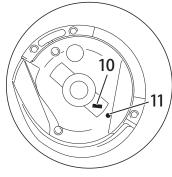


- Set stitch length at " 0 ".
- Loosen both screws 1, 2, 3, 4 and 5.
- Adjust the needle bar positioned 2.0 mm after BDC.

- Set hook point at needle centre, making sure that the needle is not deflected by needle guard 6.
- Adjust needle height according to Requirement 2.
- Adjust hook post according to Requirement 1 and tighten screws 4 and 5.
- Making sure that there is some play in the bevel gear, tighten screws 1.
- With retaining collar 7 touching bevel gear 8 tighten screws 2 and 3.
- Adjust needle guard 6 (screw 9) according to requirement 3.



When the hook is changed, make sure that the markings 10 and 11 are both on one side.

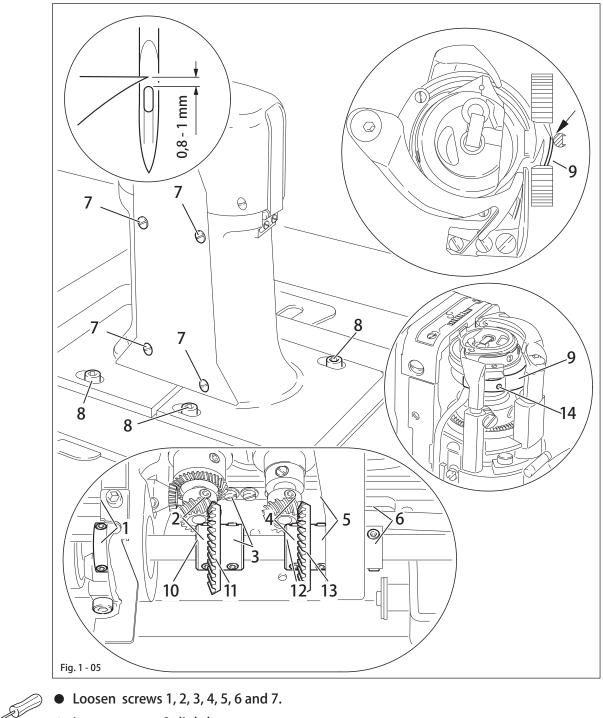


#### 1.04.05 Needle rise, hook clearance, needle height and needle guard (on the model1574)

#### Requirement

On both hooks with the needle rise positioned 2.4 mm after BDC of the needle bar.

- 1. the hook point must be at needle centre with a hook-to-needle clearance of 0.05 to 0.1 mm;
- 2. the top of the needle eye must be 0.8 to 1.0 mm below the hook points;
- 3. the needle guard 9 must touch the needle lightly.

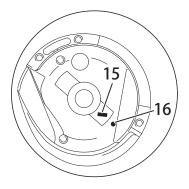


- Loosen screws 8 slightly.
- Adjust the needle bar positioned 2.4 mm after BDC.

- Set both hook points at needle centre, making sure that the needles are not deflected by needle guard 9.
- Adjust needle height according to Requirement 2.
- Adjust both hook posts according to Requirement 1 and tighten screws 8.
- Tighten screws 1 and 6.
- Making sure that there is some play in the bevel gear, tighten screws 3 and 5.
- With retaining collar 10 touching bevel gear 11 tighten screws 2.
- With retaining collar 12 touching bevel gear13 tighten screws 4.
- Tighten screws 7 on both sides of the post.
- Adjust needle guard 9 (screw 14) on both hooks according to Requirement 3.



When a hook is changed, make sure that the markings 15 and 16 are both on one side.

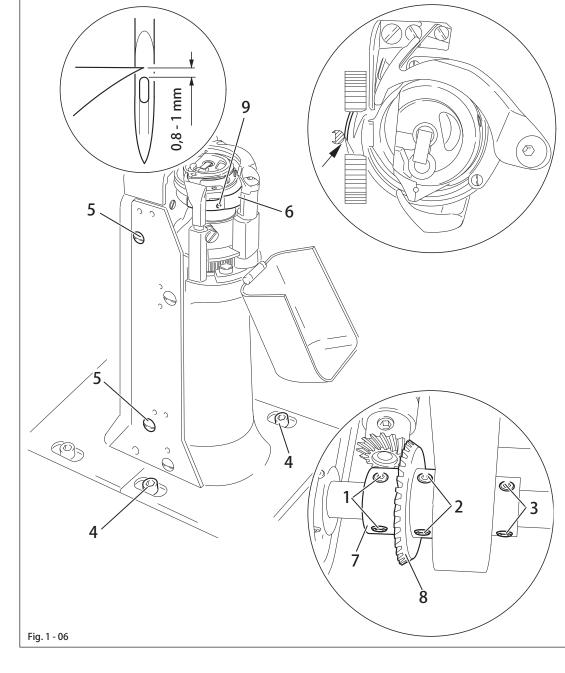


#### 1.04.06 Needle rise, hook clearance, needle height and needle guard (on the model1591)

#### Requirement

With the needle bar position 2.0 mm after BDC and the stitch length set at "0"

- 1. the hook point must be at needle centre with a hook-to-needle clearance of 0.05 to 0.1 mm;
- 2. the top of the needle eye must be 0.8 to 1.0 mm below the hook point;
- 3. the needle guard 6 must touch the needle lightly.

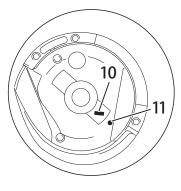


- Set stitch length at " 0 ".
- Loosen screws 1, 2, 3, 4 and 5.
- Adjust the needle bar positioned 2.0 mm after BDC.

- Set hook point at needle centre, making sure that the needle is not deflected by needle guard 6.
- Adjust needle height according to Requirement 2.
- Adjust hook post according to Requirement 1 and tighten screws 4.
- Making sure that there is some play in the bevel gear, tighten screws 2.
- With retaining collar 7 touching bevel gear 8 tighten screws 1.
- Screws 5 remain loosened for further adjustments.
- Adjust needle guard 6 (screw 9) according to Requirement 3.



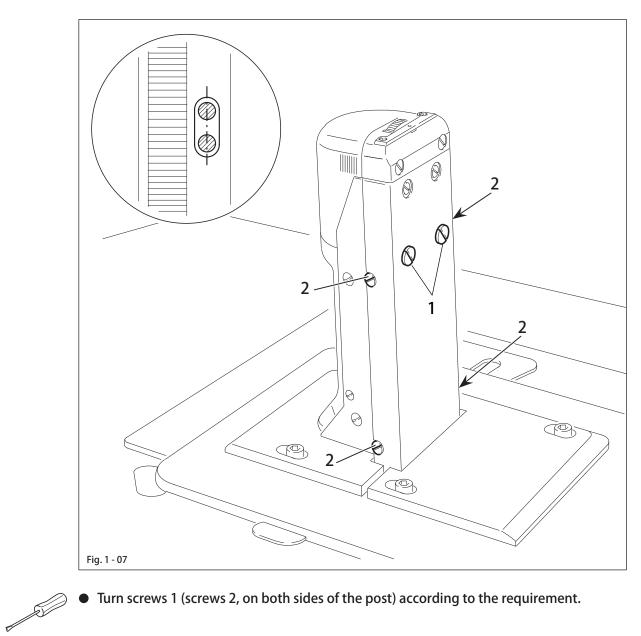
When the hook is changed, make sure that the markings 10 and 11 are both on one side.

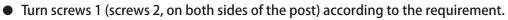


#### Needle position crosswise to sewing direction (on the model 1571) 1.04.07

#### Requirement

When the stitch length is set at its maximum, the needle must be positioned in the centre of the needle hole when entering and coming out of the needle plate.

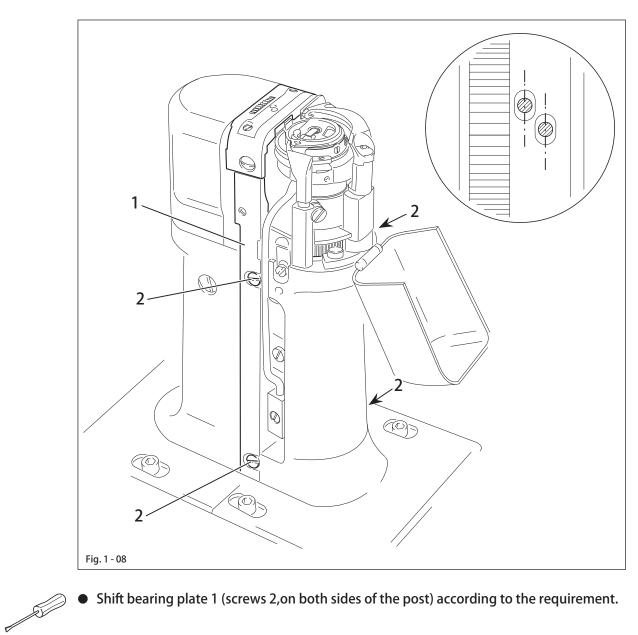




#### Needle position crosswise to sewing direction (on the model 1574) 1.04.08

#### Requirement

As seen crosswise to the sewing direction, the needles must penetrate in the centre of their needle holes.

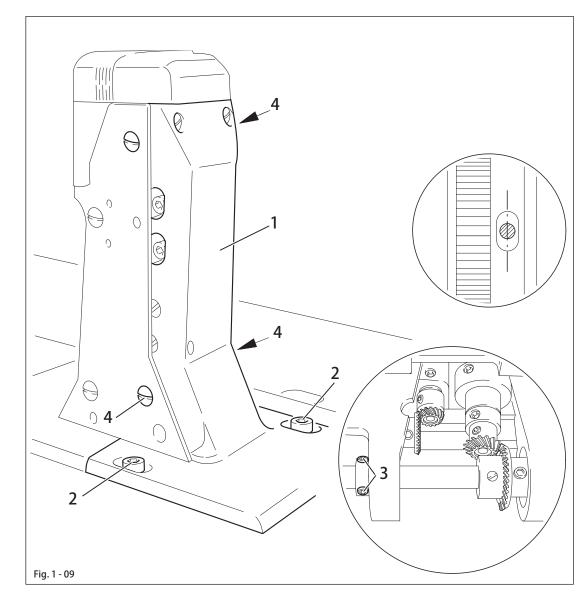


• Shift bearing plate 1 (screws 2,on both sides of the post) according to the requirement.

1.04.09 Needle position crosswise to sewing direction (on the model 1591)

Requirement

As seen crosswise to the sewing direction, the needle must penetrate in the centre of the needle hole.



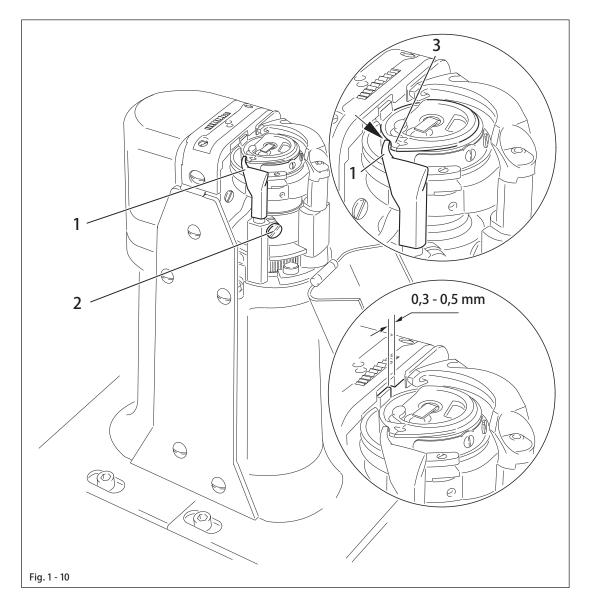


• Adjust feed wheel post 1(screw 2, 3 and 4) according to the requirement.

#### 1.04.10 Height and stroke of the bobbin case opener

#### Requirement

- 1. The top edges of the bobbin case opener 1 and bobbin case base 3 should be on one level.
- 2. When the bobbin case opener 1 has deflected the bobbin case to its furthest point, the catch of the bobbin case should be 0.3 0.5 mm from the back edge of the needle plate recess.





- Adjust bobbin case opener 1(screw 2) in accordance with requirement1.
- Turn the balance wheel until the bobbin case opener has deflected the bobbin case to its furthest point.
- Adjust bobbin case opener 1(screw 2) in accordance with requirement 2.

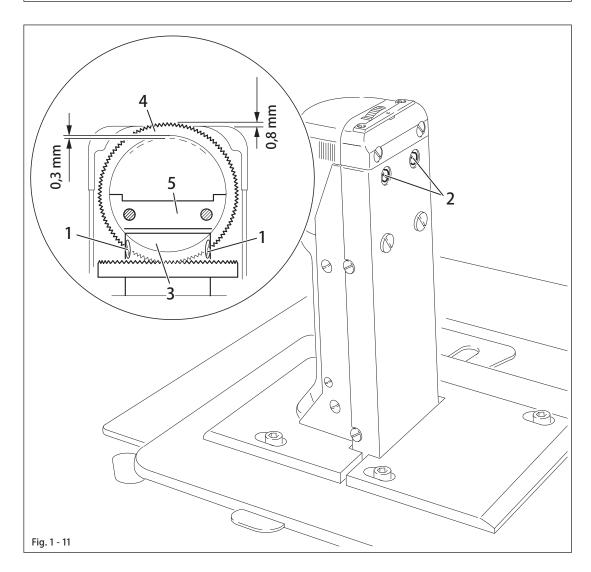


On the model 1574 these adjustments must be repeated on the right post. Depending on the thread size, a variation of the setting in Requirement 2 is permitted.

#### 1.04.11 Height of the feed wheel (on the model 1571)

#### Requirement

- 1. When pressure is applied to the feed wheel 4, it should protrude from the needle plate by tooth height (approx. 0.8 mm)
- 2. When no pressure is applied to the feed wheel 4, it should have a vertical play of approx. 0.3 mm.



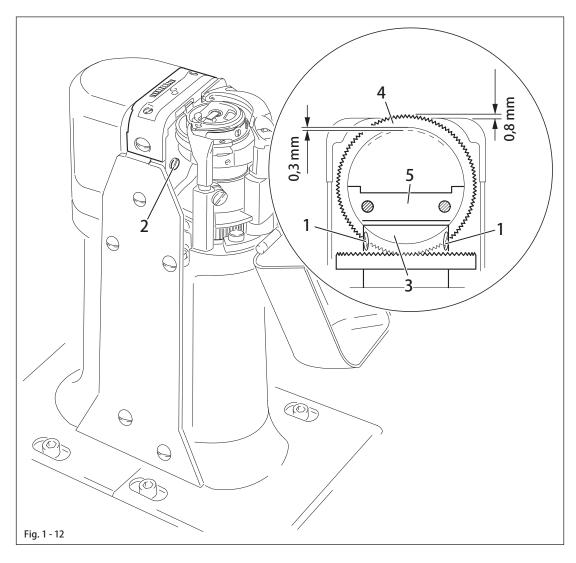


- Swing out the roller presser.
- Loosen screws 1 and 2.
- Adjust drive wheel 3 according to requirement 1, taking care to see that the teeth of drive wheel 3 and feed wheel 4 lock into each other properly.
- Tighten screws 1.
- Adjust guide 5 according to requirement 2 and tighten screws 2.

1.04.12 Height of the feed wheel (on the model 1574)

#### Requirement

- 1. When pressure is applied to the feed wheel 4, it should protrude from the needle plate by tooth height (approx. 0.8 mm)
- 2. When no pressure is applied to the feed wheel 4, it should have a vertical play of approx. 0.3 mm.



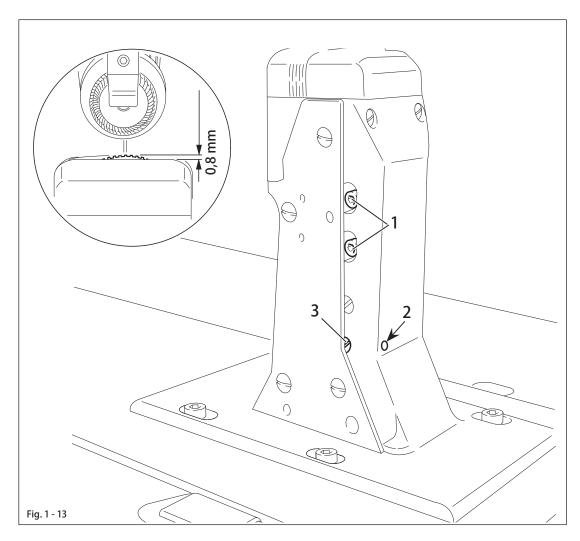


- Swing out the roller presser.
- Loosen screws 1 and 2 (two screws each).
- Adjust drive wheel 3 according to requirement 1, taking care to see that the teeth of drive wheel 3 and feed wheel 4 lock into each other properly.
- Tighten screws 1.
- Adjust guide 5 according to requirement 2 and tighten screws 2.

### 1.04.13 Height of the feed wheel (on the model 1591)

#### Requirement

The feed wheel should protrude from the needle plate by tooth height (approx. 0.8 mm)



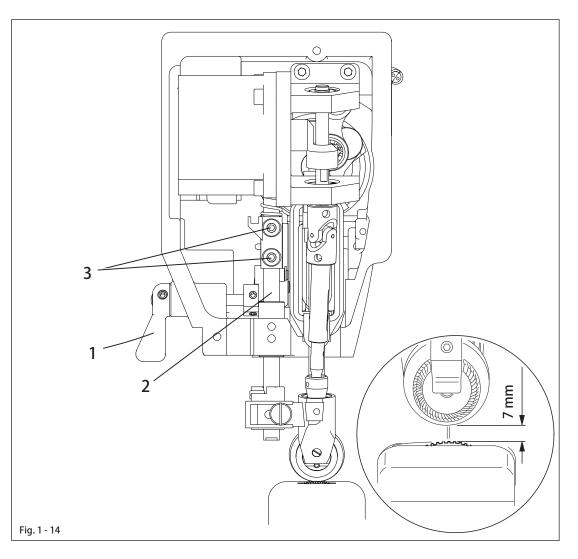


- Swing out the roller presser.
- Loosen screws 1.
- Adjust eccentric 3 (fastening screw accessible through hole 2) according to the requirement.
- Tighten screws 1.

#### 1.04.14 Clearance between roller presser and feed wheel

#### Requirement

When the presser bar lifter is raised, the clearance between the roller presser and the feed wheel must be 7 mm.





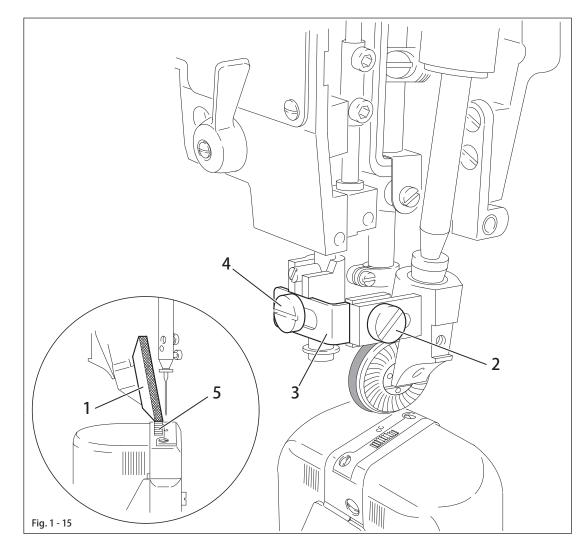
- Raise the presser bar lifter 1.
- Adjust the presser bar 2 (screws 3) according to the requirement. Make sure that the roller presser is parallel to the feed wheel.

#### 1.04.15Roller presser

#### Requirement

When the roller presser 1 is touching the feed wheel 5 it must

- 1. be parallel to feed wheel 5, as seen in the direction of sewing,
- 2. be in the centre of the needle (on model 1574 the left needle), as seen in the direction of sewing,
- 3. be as near as possible to the needle (on model 1574 the left needle), as seen crosswise to the direction of sewing.



• Raise the roller presser.

- Always observe requirement 1 for subsequent adjustments.
- Adjust roller presser 1 (screw 2) according to requirement 2.
- Lower roller presser 1 to rest on feed wheel 5.
- Adjust roller presser bracket 3 (screw 4) according to requirement 3.



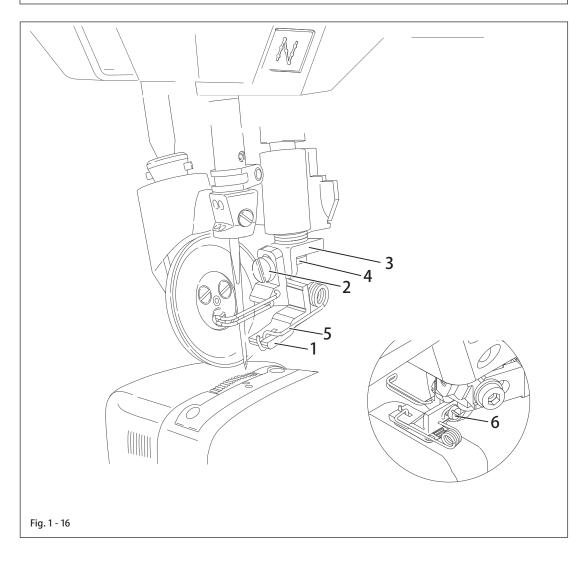
When sewing very tight curves, the roller presser 1 must be moved a little towards the operator.

1.04.16 Retainer (only on model 1574)

#### Requirement

The retainer 1 must

- 1. be as close as possible to the needle, as seen in the direction of sewing and
- 2. be in the centre of the needle, as seen crosswise to the direction of sewing.
- 3. When the roller presser is lowered, the clearance between the retainer 1 and the sewing material should be 0.2 0.3 mm.



- Adjust retainer 1 (screw 2) according to requirement 3.
- Adjust bracket 3 (screw 4) according to requirement 1.
- Adjust retainer 1 (screw 6) according to requirement 2.

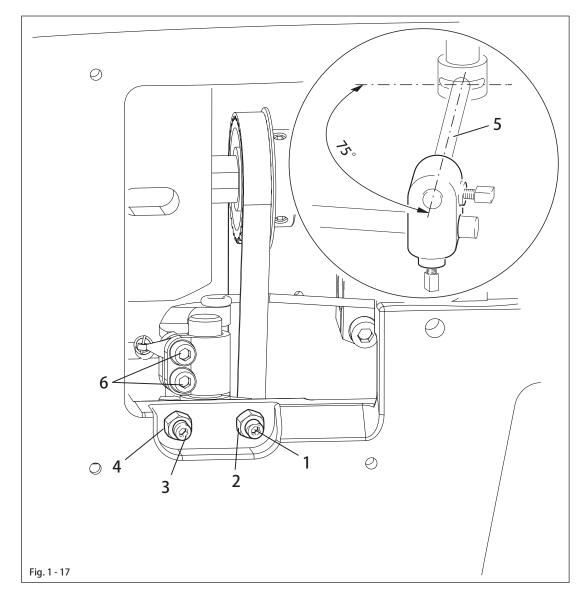


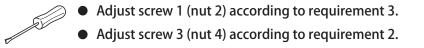
The retainer 1 can be adjusted as required according to requirement 2.

#### 1.04.17 Knee lever

#### Requirement

- 1. Before the roller presser rises, the knee lever must still have a slight play.
- 2. When the knee lever is raised as far as possible, the lever for the roller presser must drop automatically.
- 3. Knee lever bar 5 must be at an angle of approx. 75  $^\circ\;$  to the bedplate.



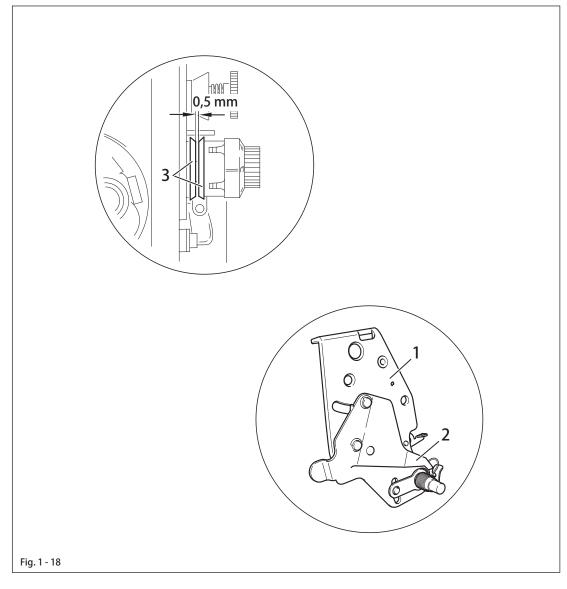


• Set bar 5 (Screws 6) according to requirement 3.

#### 1.04.18 Needle thread tension release

#### Requirement

- 1. When the presser bar lifter is raised, the tension discs 3 should be pressed at least 0.5 mm apart.
- 2. When the roller presser is lowered, the tension must be fully effective.



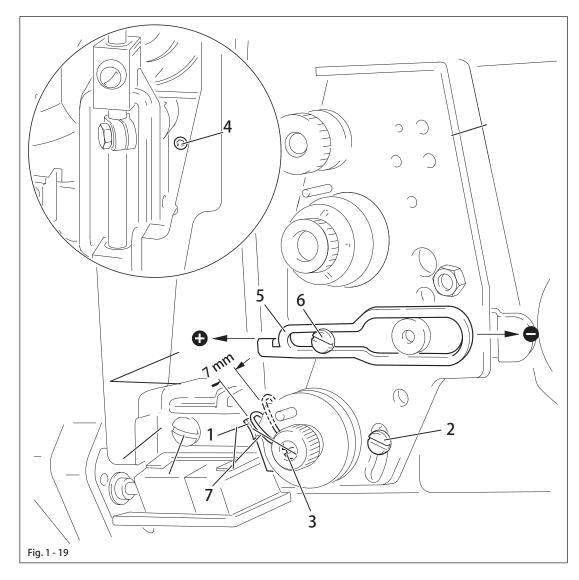


• Unscrew the tension mounting plate 1 and align pressure plate 2 according to the requirement.

#### 1.04.19 Thread check spring (model 1571 and 1591)

#### Requirement

- 1. The movement of thread check spring 7 should be completed when the needle point penetrates the fabric (spring stroke approx. 7 mm).
- 2. When the largest thread loop is formed while the thread is passed around the hook, the thread check spring 7 should rise slightly from its support





- Adjust support 1 (screw 2) according to requirement 1.
- To adjust the spring tension turn screw 3 (screw 4).
- Adjust the thread regulator 5 (screw 6) according to requirement 2.



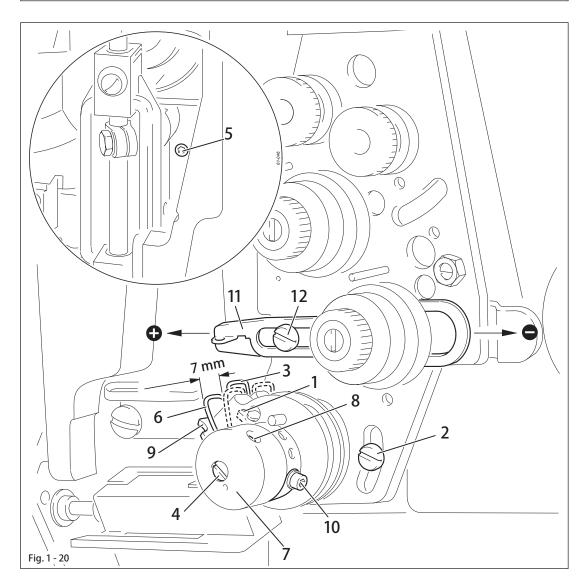
For technical reasons it may be necessary to deviate from the specified spring stroke or spring tension.

Move the thread regulator 5 (screw 6) towards "+ " (= more thread) or "-" (= less thread).

1.04.20 Thread check springs (model 1574)

#### Requirement

- 1. The movement of thread check springs 3 and 6 should be completed when the needle points penetrate the fabric (spring stroke approx. 7 mm)
- 2. When the largest thread loop is formed while the thread is passed around the hook, the thread check springs 3 and 6 should rise slightly from supports 1 and 9.





- Adjust support 1 (screw 2) according to requirement 1.
- To adjust the spring tension of thread check spring 3 turn screw 4 (screw 5).
- To adjust the spring tension of thread check spring 6 turn bush 7(screw 8).
- Adjust support 9 (screw 10) according to requirement 1. (If the adjustment range is too low, support 9 can be screwed into another hole).
- Adjust the thread regulator 11 (screw 12) according to requirement 2.



For technical reasons it may be necessary to deviate from the specified spring stroke or spring tension.

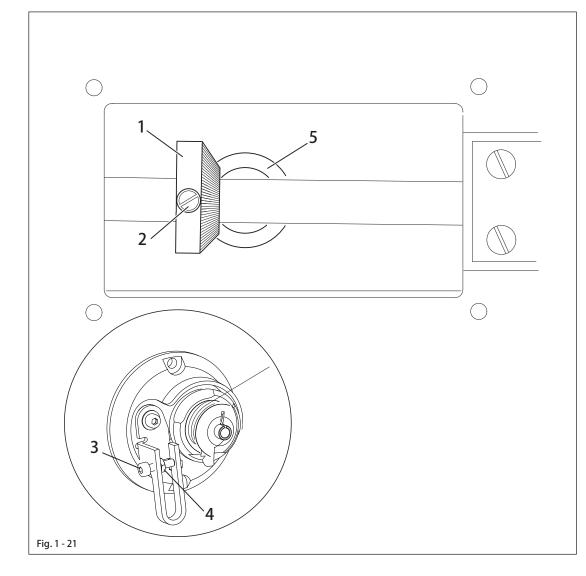
Move the thread regulator 12 (screw 12) towards "+" (= more thread) or "-" (= less thread).

#### 1.04.21 Bobbin winder

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#### Requirement

- 1. When the bobbin winder is engaged, the winding spindle must be driven reliably When the bobbin winder is disengaged, the friction wheel 5 must not be moved by drive wheel 1.
- 2. The bobbin winder must switch itself off, when the filled thread is about 1 mm from the edge of the bobbin.



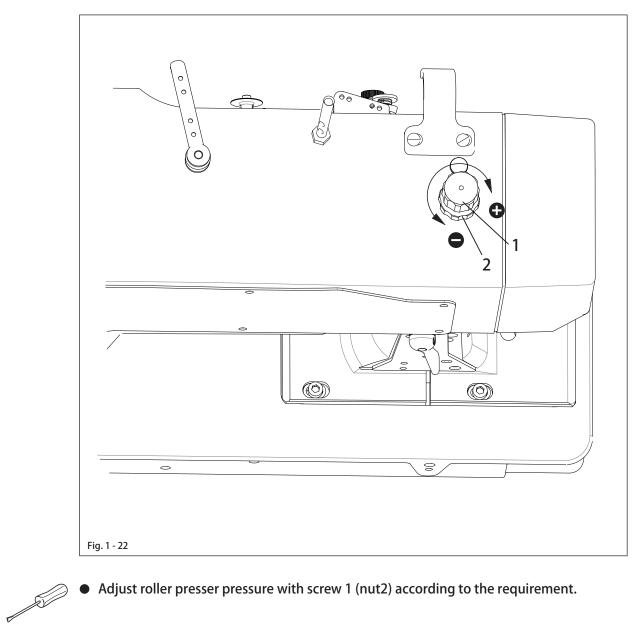


• Position bolt 3 (screw 4) according to requirement 2.

#### Pressure of roller presser 1.04.22

#### Requirement

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

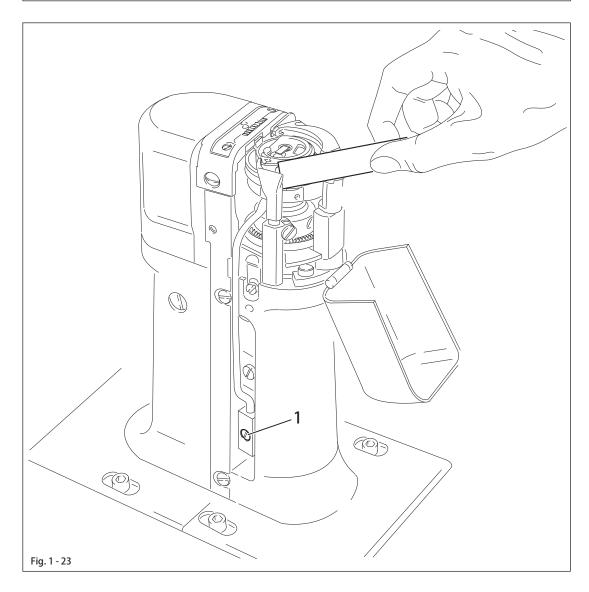


• Adjust roller presser pressure with screw 1 (nut2) according to the requirement.

#### 1.04.23 Lubrication

#### Requirement

After a running time of 10 seconds a fine line of oil should form on a strip of paper held next to the hook.





Check whether oil has been filled in and that there is no air in the oil lines.

• Let the machine run for 2-3 min.



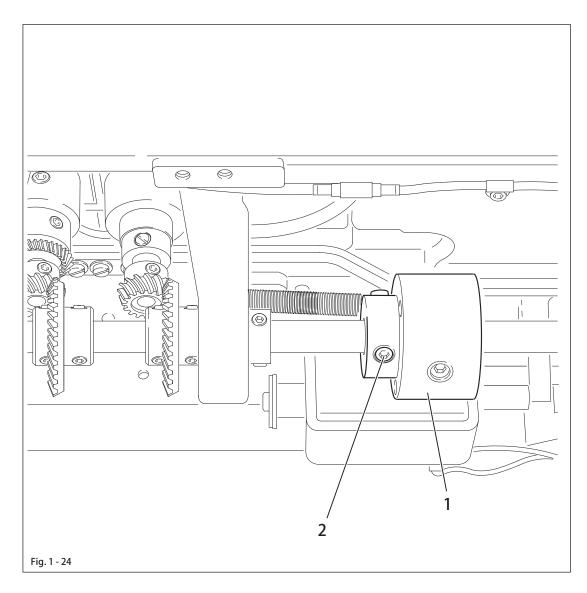
While the machine is running do not place hands in the needle or hook area! Danger of injury from moving parts!

- With the machine running hold a strip of paper on the hook and check the requirement.
- If necessary, adjust the oil flow on screw 1.

#### 1.04.24 Re-engage safety coupling



The coupling 1 is set by the manufacturer. When the thread jams, the coupling 1 disengages in order to avoid damage to the hooks. A description of how to engage the coupling follows.



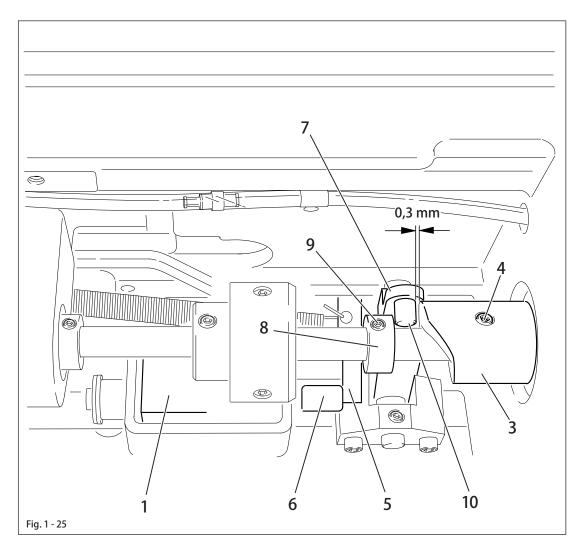
- 5
- Remove jammed thread.
- Hold coupling 1 with screw 2 and turn the balance wheel, until you feel coupling 1 snap back into place again.

#### 1.05 Adjusting the thread trimmer

1.05.01 Resting position of the roller lever / radial position of the control cam (-001)

Requirement

- 1. When the thread trimmer is in its resting position, lever 5 should be touching piston 6 and the roller of roller lever 7 should be 0.3 mm away from control cam 3.
- 2. When the take-up lever is at t.d.c., control cam 3 should just have placed roller lever 7 in its resting position and retaining collar 8 should touch the roller 10.

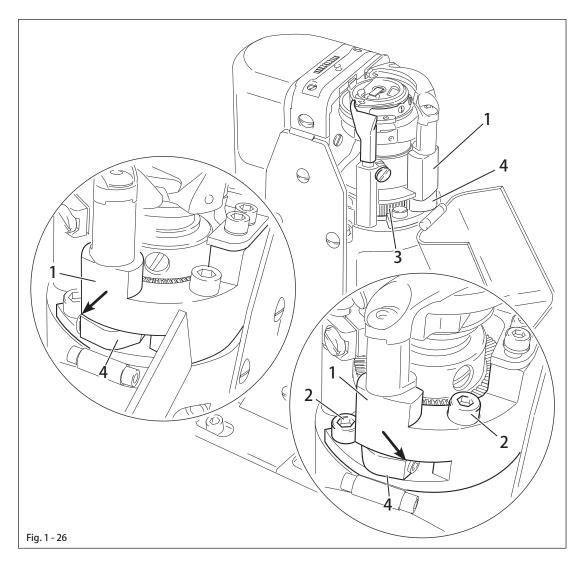


- Having made sure that piston 6 is positioned against the left stop, adjust magnet 1(2 screws) in accordance with requirement 1.
- Adjust control cam 3(screws 4) in accordance with requirement 2.
- Attach collar 8(screw 9) to roller 10.

#### 1.05.02 Position of the thread catcher holder (-001)

#### Requirement

- 1. There should be a minimum amount of play between toothed wheel 3 and toothed segment 4.
- 2. The distance between the toothed segment 4 and the outer edge of the thread catcher holder 1 should be the same size (see arrow) in both the neutral position and the front turning point position of the catcher,.



• Adjust the thread catcher holder 1 (screws 2) according to the requirements.



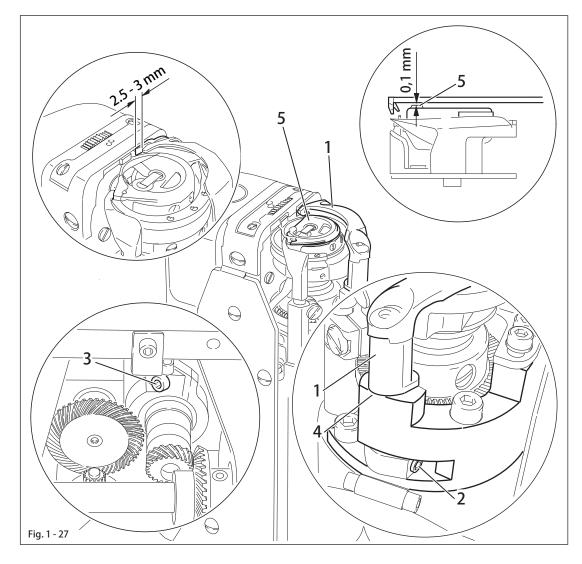
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If requirement 2 cannot be fulfilled, loosen screw 2 and move the toothed segment 4 by one tooth.

#### 1.05.03 Position of the thread catcher (-001)

#### Requirement

- 1. The bottom edge of the thread catcher 1 should be at a distance of 0.1 mm from the positioning finger of the bobbin case 5.
- 2. When the thread trimmer is in its resting position, the rear edge of thread catcher 1 should be positioned behind the edge of knife 2.5mm-3mm.





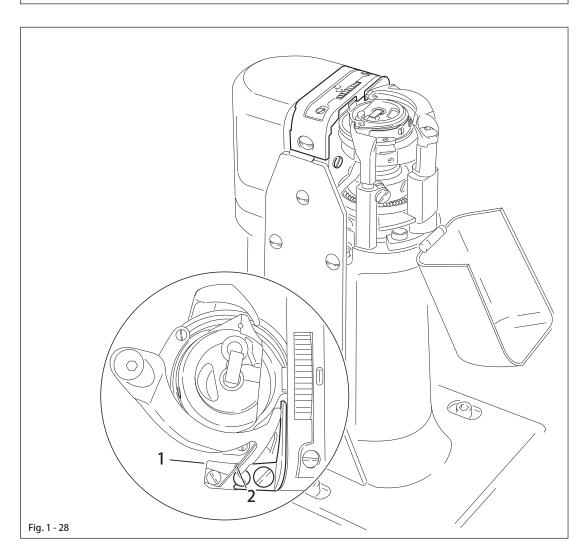
Move thread catcher 1 (screws 2, two screws) in accordance with requirement 1. Turn thread catcher 1 (screw 3) in accordance with requirement 2.



Thread catcher 1 must be parallel to the surface of the thread catcher holder 4.

### 1.05.04 Knife position and knife pressure (-001)

Requirement The knife pressure should be set as low as possible but the cutting operation should be completed safely.



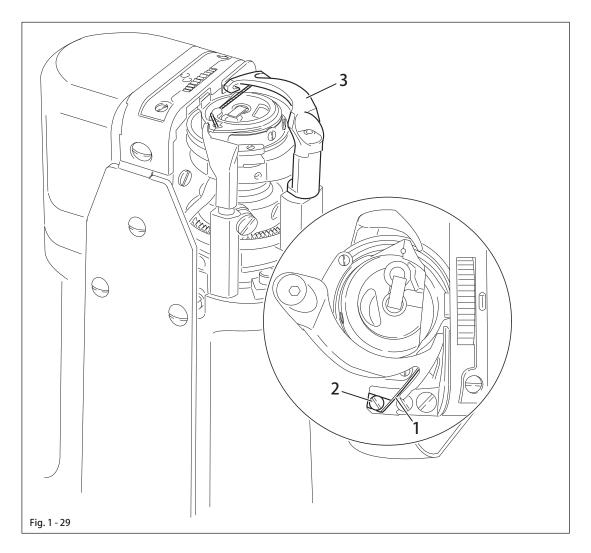


• Adjust eccentric 1 (screw 2) in accordance with the requirement.

### 1.05.05 Bobbin thread retaining spring (-001)

#### Requirement

The tension of the bobbin thread clamp spring should be as low as possible, but it should reliably hold the bobbin thread after trimming.





• Adjust bobbin thread clamp spring 1 (screws 2) in accordance with requirement.

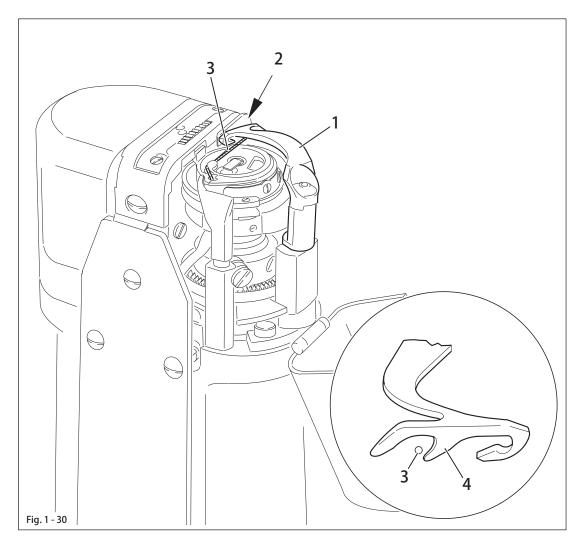
#### Control

• After the thread has been cut, sew a few stitches by turning the balance wheel, checking whether the bobbin thread is drawn out of the bobbin thread clamp spring between the 1st and 3rd stitches. If necessary, correct the tension.

#### 1.05.06 Manual cutting test

#### Requirement

- 1. When thread catcher 1 is on its forward stroke, it must not carry bobbin thread 3 forward too.
- 2. When thread catcher 3 is in its front position, bobbin thread 3 must be held reliably by hook 4.
- 3. After the trimming action, both the needle thread and the bobbin thread must be perfectly cut and bobbin thread 3 retained.



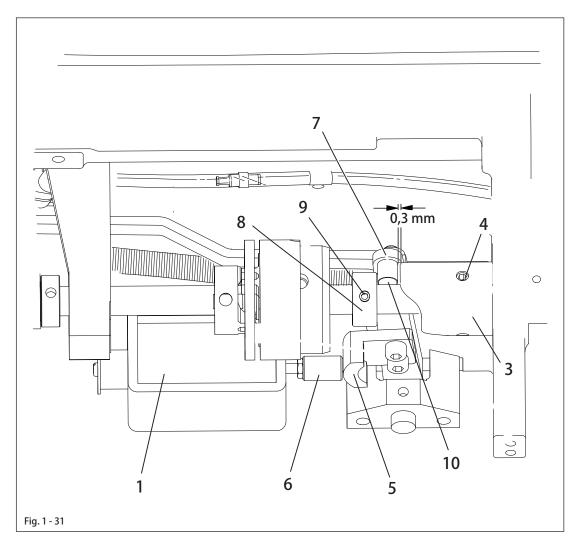
- Sew a few stitches.
- Turn off the on/off switch.
- Carry out the cutting operation manually.
- Check requirement 1 and 2, and if necessary readjust thread catcher 1 in accordance with Chapter 1.05.03 Position of the thread catcher.
- Check requirement 3, and if necessary readjust the bobbin thread retaining spring 2 in accordance with Chapter 1.05.05 Bobbin thread retaining spring.

#### 1.05 Adjusting the thread trimmer

1.05.07 Resting position of the roller lever / radial position of the control cam (-002)

#### Requirement

- 1. When the thread trimmer is in its resting position, lever 5 should be touching piston 6 and the roller of roller lever 7 should be 0.3 mm away from control cam 3.
- 2. When the take-up lever is at t.d.c., control cam 3 should just have placed roller lever 7 in its resting position and retaining collar 8 should touch the roller 10.



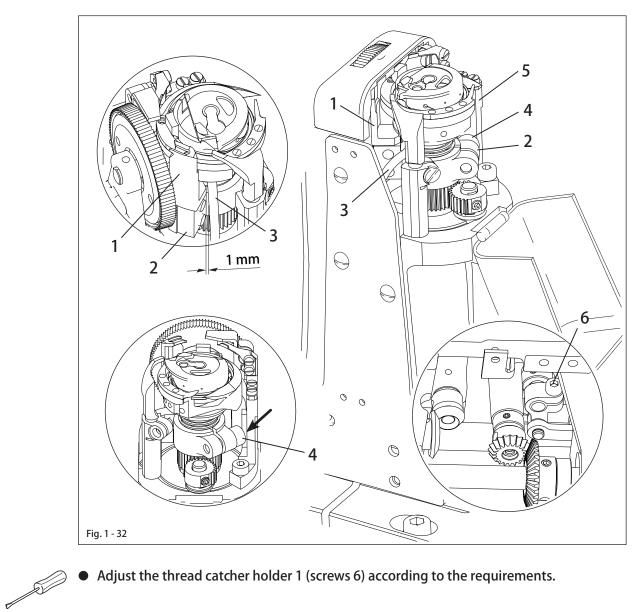


- Having made sure that piston 6 is positioned against the left stop, adjust magnet 1(2 screws) in accordance with requirement 1.
- Adjust control cam 3(screws 4) in accordance with requirement 2.
- Attach collar 8(screw 9) to roller 10.

Position of the thread catcher holder (-002) 1.05.08

#### Requirement

- 1. At the front turning point position of the thread catcher, the distance between the thread catcher holder 2 and the oil lines should be more than 1 mm.
- 2. At the front turning point position of the thread catcher, screw 4 should not interfere with stationary knife holder (see arrow).

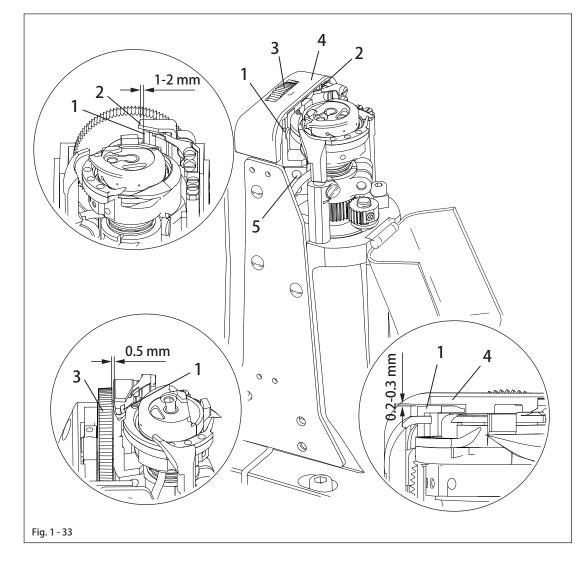


• Adjust the thread catcher holder 1 (screws 6) according to the requirements.

#### 1.05.09 Position of the thread catcher (-002)

#### Requirement

- 1. There should be a distance of 0.2-0.3 mm between the thread catcher and the needle plate.
- 2. There should be a distance of 0.4-0.5 mm between the thread catcher and the feed wheel post.
- 3. When the thread trimmer is in its resting position, the rear edge of thread catcher 1 should be positioned behind the edge of knife 1mm-2mm.



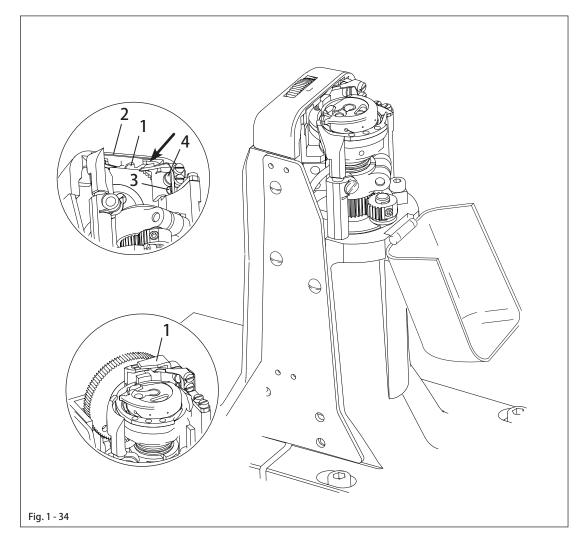


• Adjust the thread catcher 1 (screws 5, two screws) according to the requirements.

1.05.10 Knife position and knife pressure (-002)

#### Requirement

- 1. There should be a distance of 0.2-0.3 mm between the stationary knife (1) and the needle plate (2) groove (see arrow).
- 2. The knife pressure should be set as low as possible but the cutting operation should be completed safely.



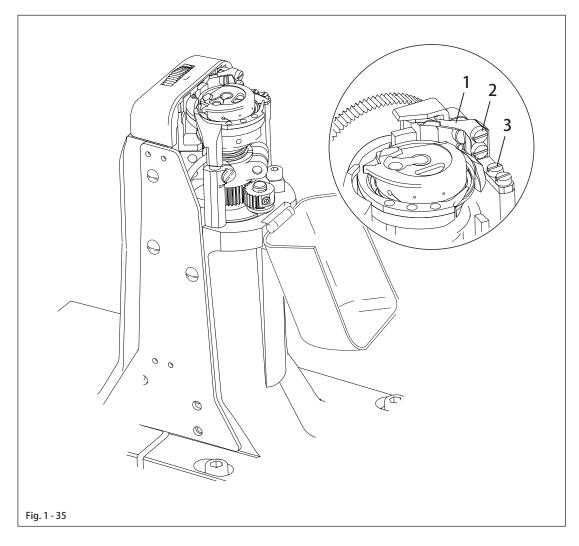


• Adjust eccentric 3 (screw 4) in accordance with the requirement.

#### 1.05.11 Bobbin thread retaining spring (-002)

#### Requirement

The tension of the bobbin thread clamp spring should be as low as possible, but it should reliably hold the bobbin thread after trimming.





• Adjust bobbin thread clamp spring 1 (screws 2 and 3) in accordance with requirement.

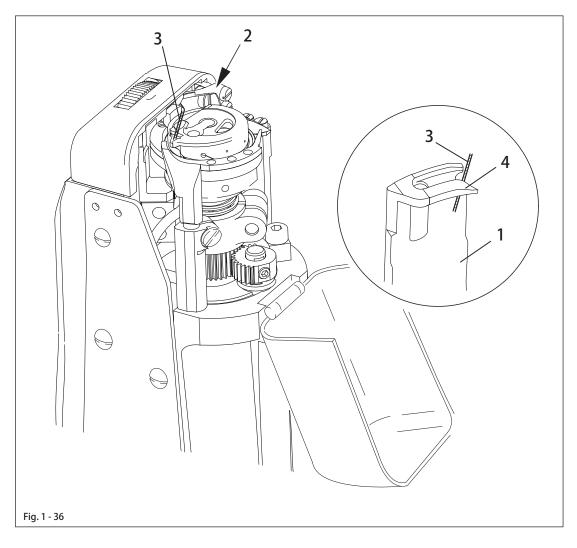
#### Control

 After the thread has been cut, sew a few stitches by turning the balance wheel, checking whether the bobbin thread is drawn out of the bobbin thread clamp spring between the 1st and 3rd stitches. If necessary, correct the tension.

#### 1.05.12 Manual cutting test (-002)

#### Requirement

- 1. When thread catcher 1 is on its forward stroke, it must not carry bobbin thread 3 forward too.
- 2. When thread catcher 3 is in its front position, bobbin thread 3 must be held reliably by hook 4.
- 3. After the trimming action, both the needle thread and the bobbin thread must be perfectly cut and bobbin thread 3 retained.

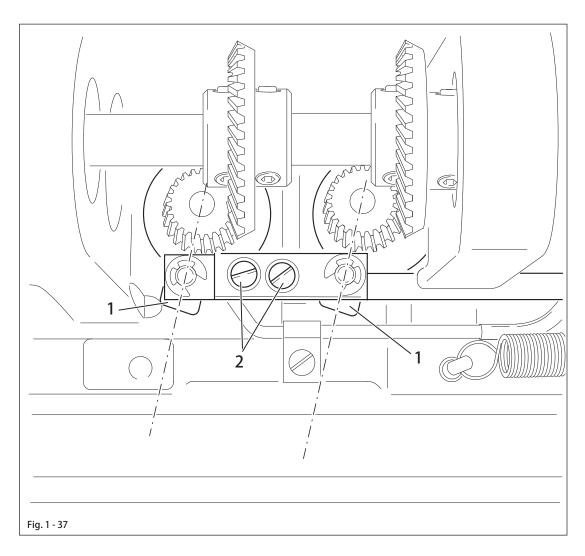


- Sew a few stitches.
- Turn off the on/off switch.
- Carry out the cutting operation manually.
- Check requirement 1 and 2, and if necessary readjust thread catcher 1 in accordance with Chapter 1.05.09 Position of the thread catcher.
- Check requirement 3, and if necessary readjust the bobbin thread retaining spring 2 in accordance with Chapter 1.05.11 Bobbin thread retaining spring.

#### 1.05.13 Linkage rod(only for the model 1574)

#### Requirement

When the thread trimmer is in its resting position, the drive levers 1 must be parallel.





• Adjust drive levers 1(screws 2) in accordance with the requirement.

#### 1.06 Electronic control debugging

#### 1.06.01 Check gear parameters

#### Requirement

- 1. Turn on the machine and enter the boot interface, click to enter the panel related interface, select the model you need and then turn off the machine and restart (if the factory model is the model you need, there is no need for this operation).
- 2. Enter machine adjustment setting, check whether the upper and lower roller gear ratio is consistent with the mechanical gear ratio (if it is not consistent, change the data).

#### 1.06.02 Main shaft motor electricity angle adjustment

#### Requirement

1. Click "Main shaft motor electricity angle adjustment" parameter, and press save after the motor rotation stops.

#### 1.06.03 Upper positioning quick adjustment

#### Requirement

1. Click on the "Upper Positioning Quick Adjustment" parameter and manually turn the handwheel counterclockwise so that the upper stop position stops where you need it to (the actual stop position) and press Save.

#### 1.06.04 Pendulum motor electricity angle adjustment

#### Requirement

- 1. Make the thin slot of the pendulum cam face upward, just lock the corresponding screw.
- 2. Make the pendulum needle bar at its lowest point and at the center of the needle hole, lock the needle bar screw.
- 3. Go back to the start-up screen and click M to enter the sewing interface, adjust the stitch length to the maximum and turn the handwheel to observe if the needle bar is within the needle hole (not in the appropriate adjustment can be made).
- 4. Use paper to test the machine stitch size and synchronization. (If there is an error, go to the advanced parameters roller parameters to adjust the upper and lower roller compensation appropriately)