

69-373 / 69-373H**Spezialnaehmaschine**

Serviceanleitung

D

Service Instructions

GB

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General safety instructions

The non-observance of the following safety instructions can cause bodily injuries or damages to the machine.

1. The machine must only be commissioned in full knowledge of the instruction book and operated by persons with appropriate training.
2. Before putting into service also read the safety rules and instructions of the motor supplier.
3. The machine must be used only for the purpose intended. Use of the machine without the safety devices is not permitted. Observe all the relevant safety regulations.
4. When gauge parts are exchanged (e.g. needle, presser foot, needle plate, feed dog and bobbin) when threading, when the workplace is left, and during service work, the machine must be disconnected from the mains by switching off the master switch or disconnecting the mains plug.
5. Daily servicing work must be carried out only by appropriately trained persons.
6. Repairs, conversion and special maintenance work must only be carried out by technicians or persons with appropriate training.
7. For service or repair work on pneumatic systems, disconnect the machine from the compressed air supply system (max. 7-10 bar). Before disconnecting, reduce the pressure of the maintenance unit. Exceptions to this are only adjustments and functions checks made by appropriately trained technicians.
8. Work on the electrical equipment must be carried out only by electricians or appropriately trained persons.
9. Work on parts and systems under electric current is not permitted, except as specified in regulations DIN VDE 0105.
10. Conversion or changes to the machine must be authorized by us and made only in adherence to all safety regulations.
11. For repairs, only replacement parts approved by us must be used.
12. Commissioning of the sewing head is prohibited until such time as the entire sewing unit is found to comply with EC directives.
13. The line cord should be equipped with a country-specific mains plug. This work must be carried out by appropriately trained technicians (see paragraph 8).



It is absolutely necessary to respect the safety instructions marked by these signs.

Danger of bodily injuries !

Please note also the general safety instructions.



Service Instructions**Cl. 69-373**

(Edition 02/2008)

Cl. 69-373H

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GB

1. General

These service instructions describe the adjustments that can be made to the class **69** special sewing machine.

69-373 Single-needle, lockstitch, free-arm sewing machine with bottom feed, needle feed and alternating top feed.

69-373-H like the class 69-373, additionally with bottom feed stroke.



ATTENTION!

The tasks described in the present service instructions may only be carried out by qualified staff or other appropriately trained persons!



Caution: Danger of injury!

Always turn off the main switch before any repair, conversion and maintenance work and separate the machine from the pneumatic supply line.

Any adjustment work and function testing with the machine running is to be conducted only under observance of all safety measures and with the greatest possible caution.

GB

The present service instructions describe the setting of the sewing machine in a logical order.
Please remember that various setting positions are dependent on each other. Thus it is essential that the settings be made in the order described.

For all adjustments of parts involved in the stitch formation, a new undamaged needle must be inserted.

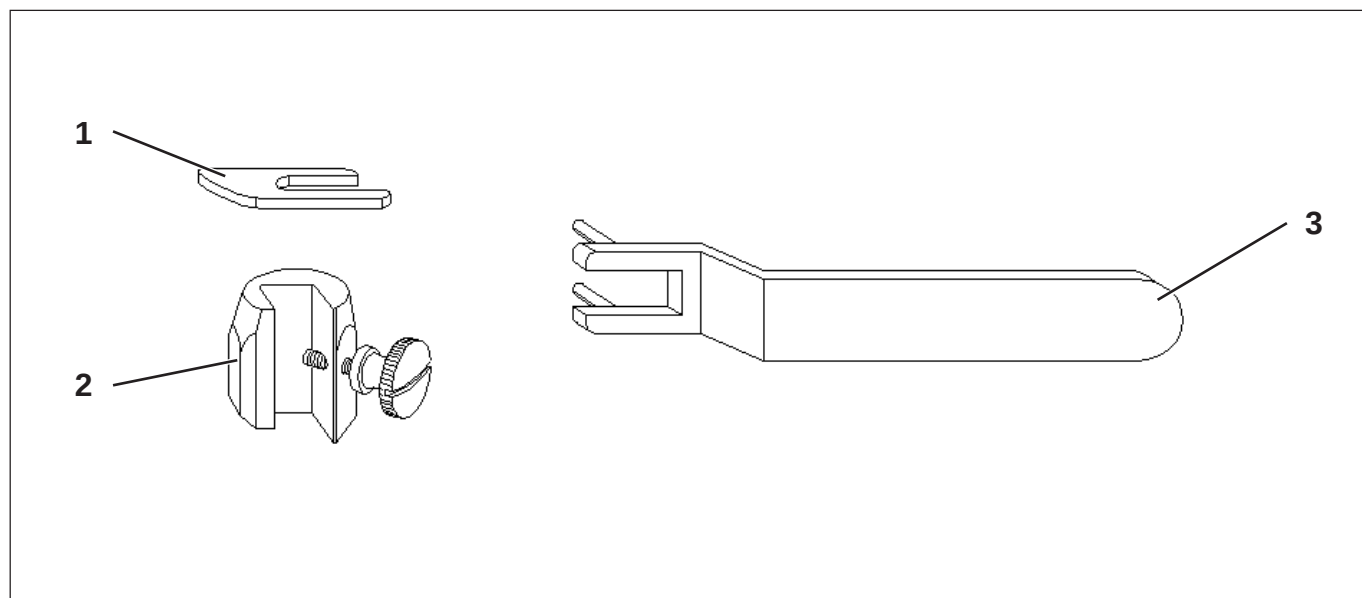
When adjusting the cutting devices all the cutting tools must also be replaced.



ATTENTION!

All parts marked with colors were set at the factory and should only be loosened by skilled personnel.

1.1 Gauge set

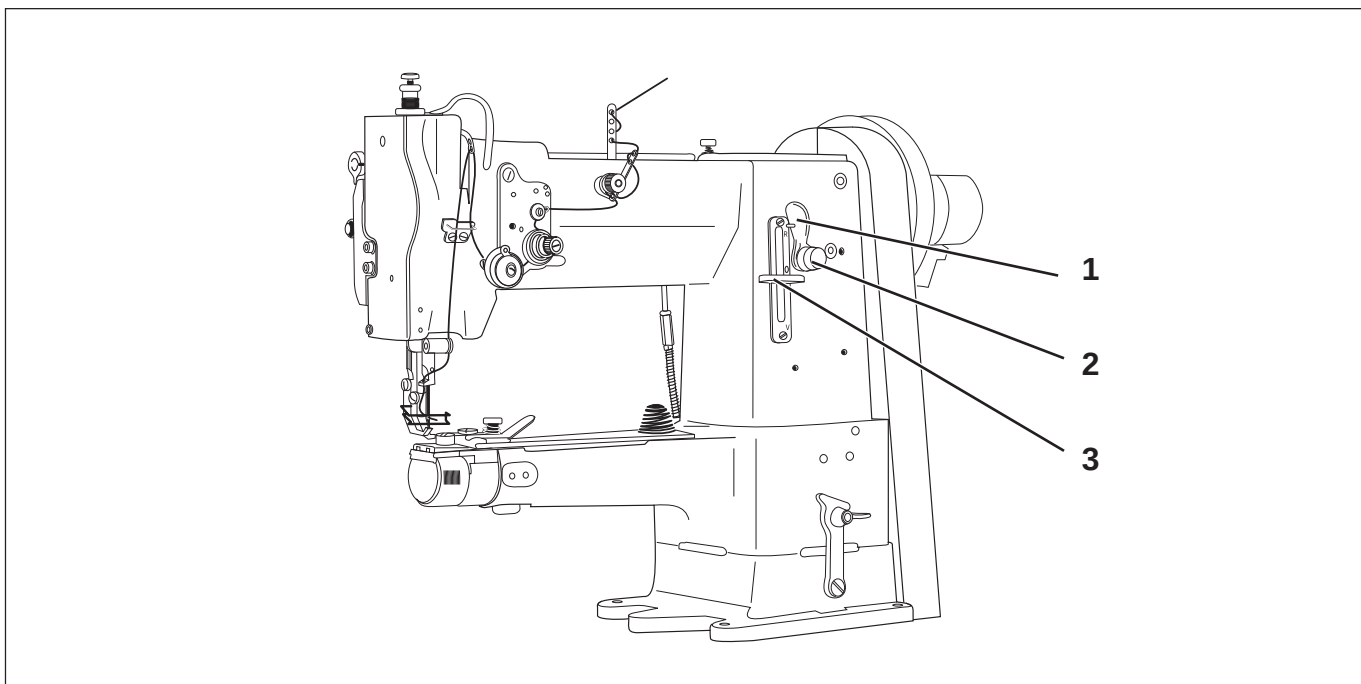


You can use the setting gauges included in the gauge set to check and adjust accurately the sewing machine.

Pos.	Setting gauge	Order no.	Use
1	Gauge	0981 150003	Loop stroke
2	Block	0981 150002	Loop stroke
3	Special wrench	0981 160402	Stitch uniformity

2. Zero position, feeding with sewing equipment

2.1 Checking the zero position (position of the stitch regulator link)



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Caution: Danger of injury!

Turn off the main switch.

Check the zero position of the stitch regulator only when the sewing machine is switched off.

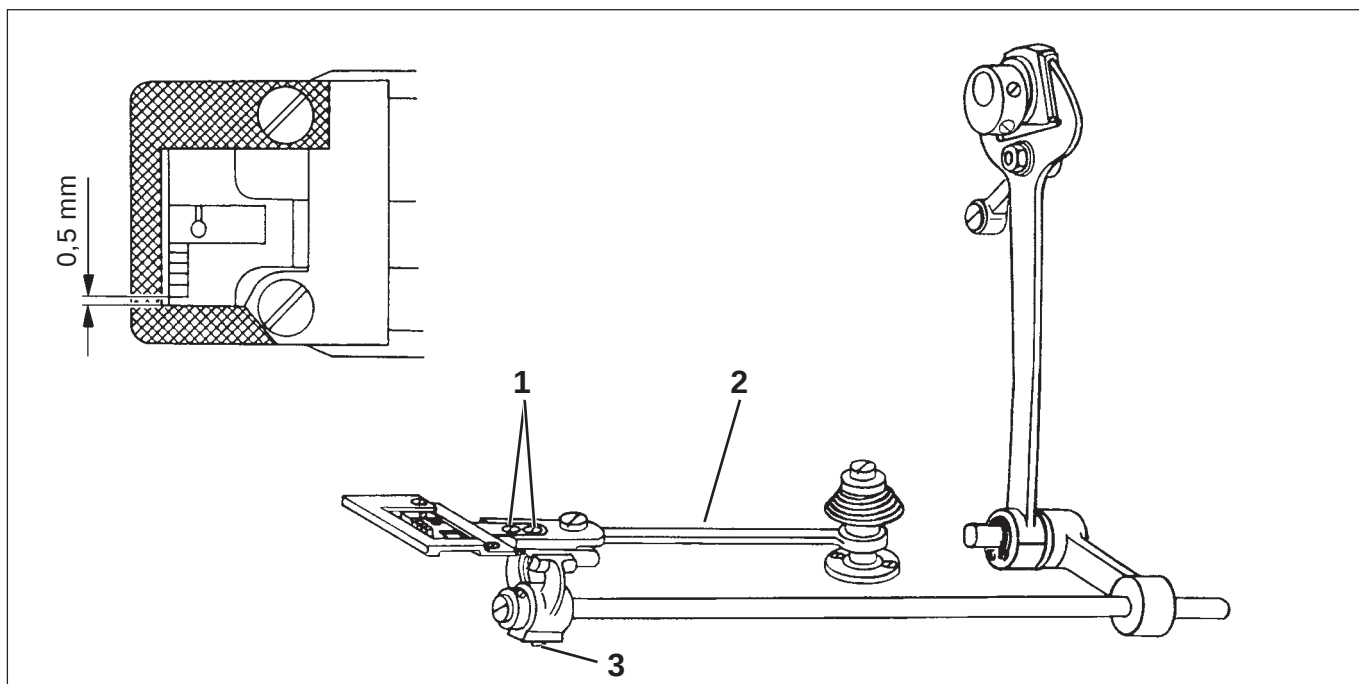
Rule and control

In the zero position of the stitch regulator lever, the feed dog and the needle should not make any advancing motion when the handwheel is moved.

- Set the stitch regulator lever 3 to “0”.
Loosen the butterfly nut 1.
Turn the adjusting screw 2.
Tighten the butterfly nut 1.
- Turn the handwheel.
The needle and feed dog should not make any advancing motion.

2.2 Setting of the bottom feed

2.2.1 Position of the feed dog in the throat plate cutout



Caution: Danger of injury!

Turn off the main switch.

Check and set the position of the feed dog only when the sewing machine is switched off.

Rule and control

Sideways:

The feed dog must lie centric in the throat plate cutout.

In the feeding direction:

At the maximum stitch length, the minimum clearance of the feed dog to the front and rear edges of the throat plate cutout must be approx. 0.5 mm.

The clearance is required so that the feed dog does not hit against the throat plate during sewing.

- Set the stitch regulator lever to “max.”
- Turn the handwheel and check the position of the feed dog.

Adjustment

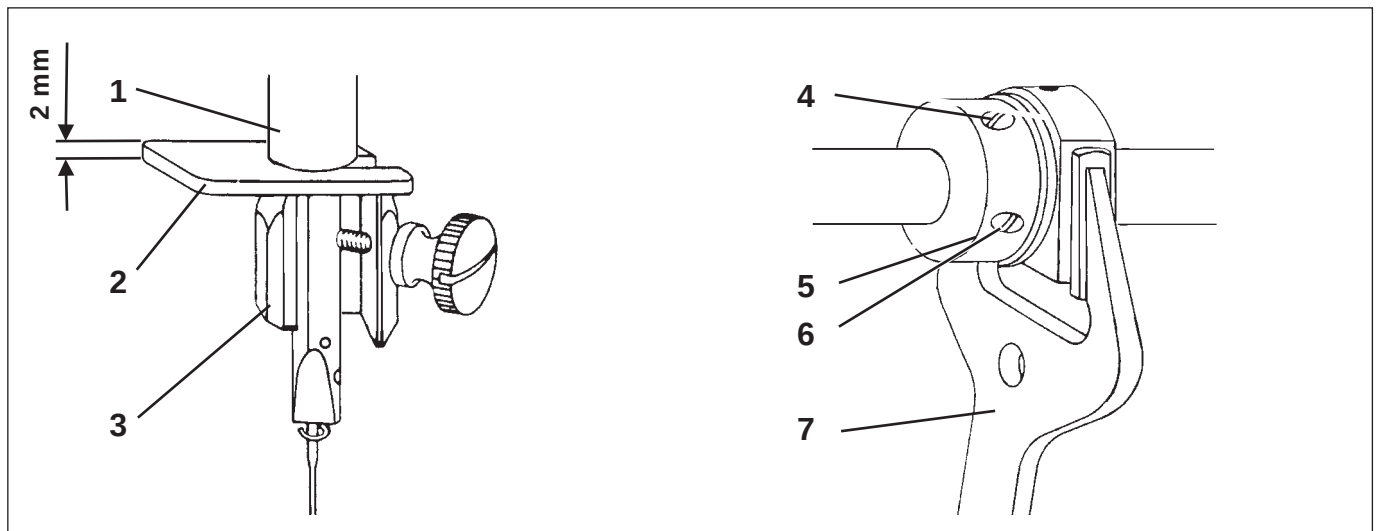
Sideways:

- Loosen screws 1.
- Slide the feed dog axially until it lies centric in the throat plate cutout.
- Tighten screws 1 again.

In the feeding direction:

- Tilt back the machine head.
- Loosen the threaded pin 3 on the fork.
- Push the feed dog lever 2 forward (to the operator side), with the feed dog screwed on, until a clearance of 0.5 mm is obtained.
- Tighten the threaded pin 3 again.

2.2.2 Advancing movement of the feed dog



Caution: Danger of injury!

Turn off the main switch.

Check and set the advancing movement of the feed dog only when the sewing machine is switched off.

GB

Rule and control

When the stitch regulator lever is operated and set to have the greatest sewing length, both the needle and the feed dog should not move.

- Set the stitch regulator lever to “max.”.
- Bring the needle bar 1 to the loop stroke position.

Turn the handwheel to put the needle bar into its lowest position.
Fix the loop stroke gauge 2 with the block 3 against the needle bar rocker.

Tighten the screw of the block 3.

Pull out the loop stroke gauge 2.

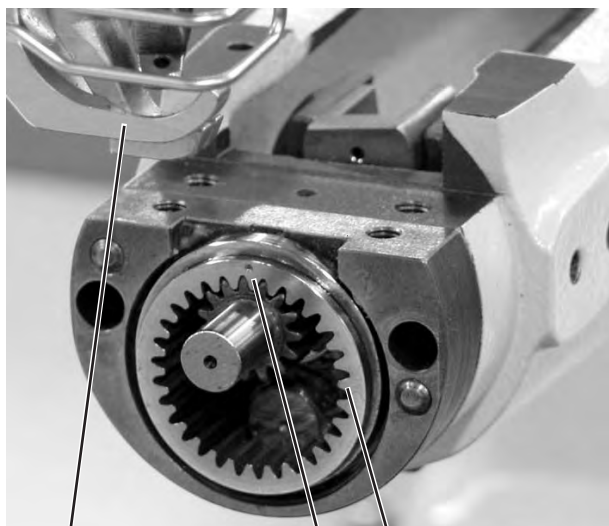
Turn the handwheel until the block 3 lays onto the needle bar rocker.

- Move the stitch regulator lever up and down.
During this movement, both the needle and the feed dog should not move.

Adjustment

- Loosen screws 4 and 6.
- Turn thrust cam 5 on the shaft until the zero position of the feed dog and the needle is reached.
- Align the thrust cam 5 axially on the shaft.
The fork 7 must lie centric to the run surface of the cam sliding ring.
- Tighten screws 4 and 6 again.
- Remove the block 3.

2.2.3 Lifting movement of the feed dog (only with the class 69-373H)



3 2 1



6 5 4



Caution: Danger of injury!

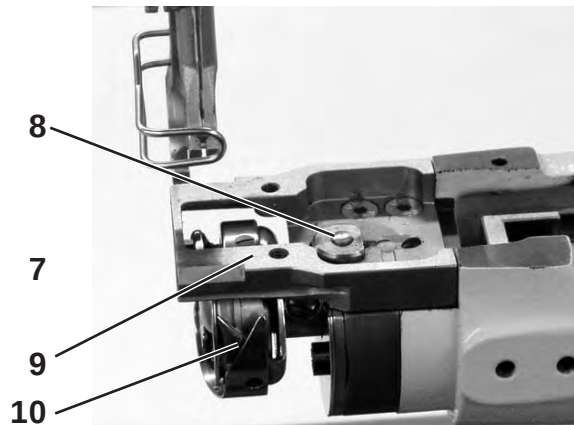
Turn off the main switch.

Check and set the lifting movement of the feed dog only when the sewing machine is switched off.

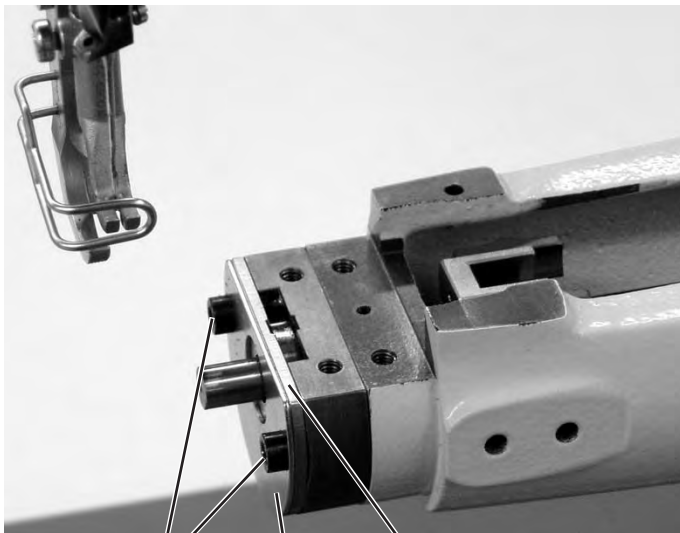
Rule and control

In loop stroke position the marking 2 on the toothed wheel 1 should point to the top.

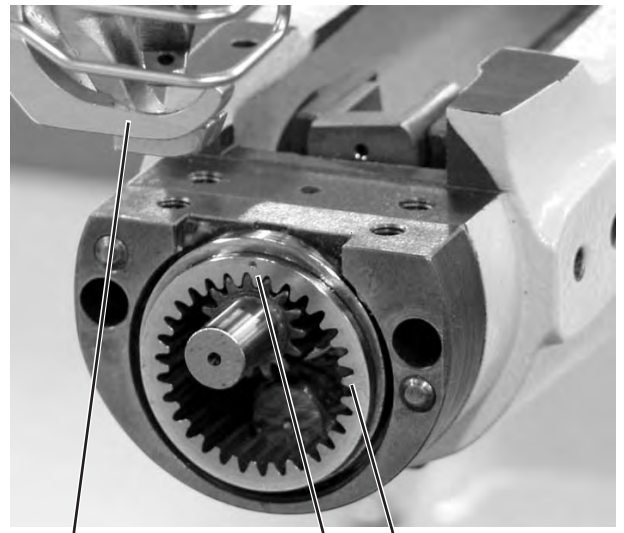
- Lift the sewing feet 3.
- Pull off the cover 6 to the left.
- Unscrew the cover plate 4.
- Remove the throat plate 5 and upper feed foot.



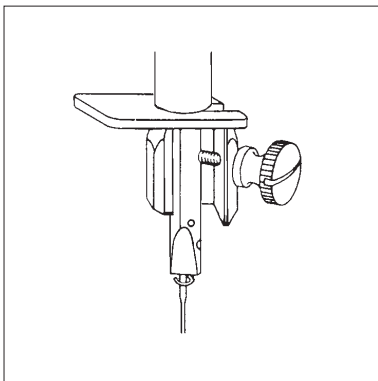
- Remove the upper feed food holder 7.
- Remove the pin 8.
- Unscrew the bed plate 9.
- Unscrew the hook 10.



13 12 11



3 2 1

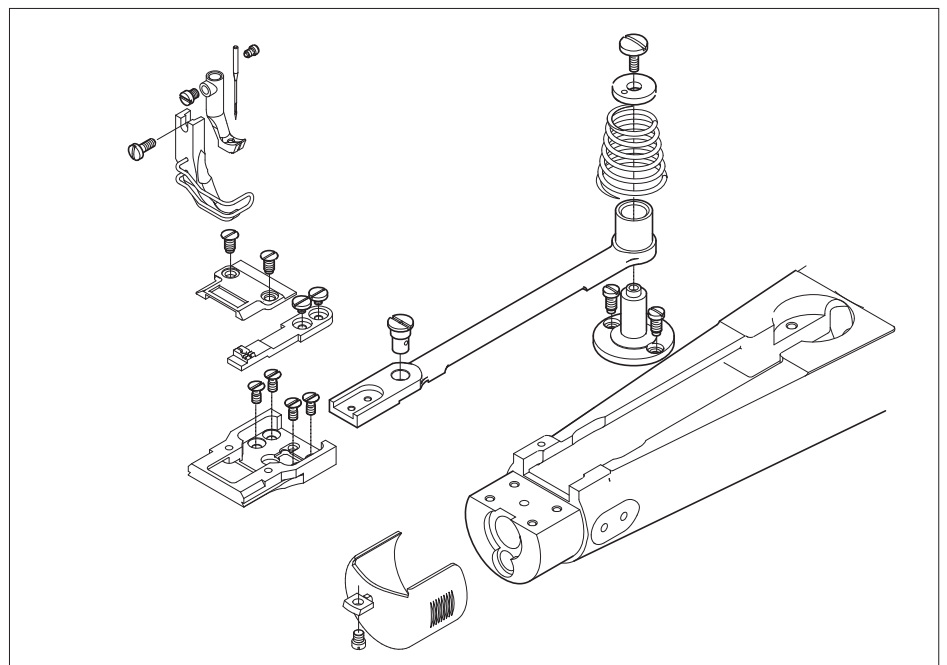


- Unscrew screws 13.
- Remove the cover 12 and the dirt wiper 11. The toothed belt 1 is now accessible.
- Bring the machine into loop stroke position (see chapter 2.2.2).
- Pull off the toothed wheel 1 and put it on again so that the marking 2 points to the top.

GB

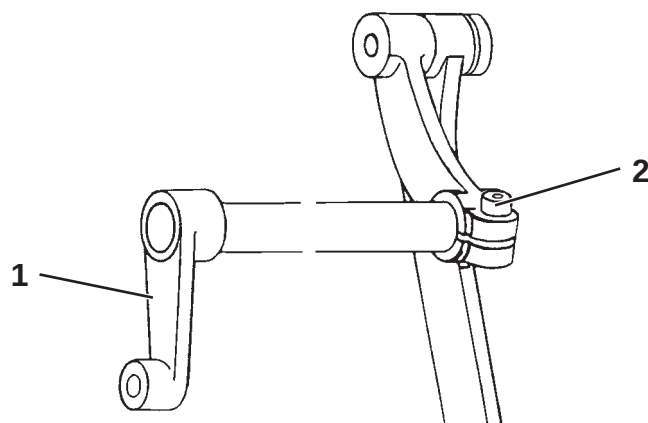
Reassembling

- Reassemble the machine again in inverted sequence.



- Set the hook as described in chapter 6.

2.3 Synchronous run of the needle and bottom feed



Caution: Danger of injury!

Turn off the main switch.

Check and set the synchronous run only when the sewing machine is switched off.

Rule and control

The needle must penetrate the middle of the needle hole.

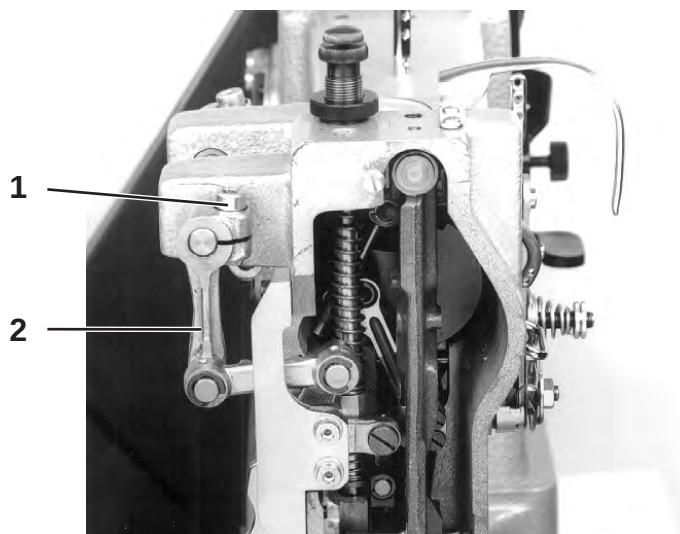
- Turn the handwheel in the sense of direction and check the penetration of the needle into the needle hole.

Adjustment

- Screw off the arm cover.
- Loosen screw 2.
- Align the needle bar with the rocker 1.
- Tighten screw 2 again.
- Screw on the arm cover again.

2.4 Setting of the upper feed

2.4.1 Stroke of the upper feed and the material presser foot



Caution: Danger of injury!

Turn off the main switch.

Check and set the stroke of the upper feed and the material presser foot only when the sewing machine is switched off.

GB

Rule and control

The stroke of material presser foot and upper feed should be equal.

- Check the stroke of the upper feed and material presser foot through turning the handwheel.

In the highest position, both of them should have the same clearance to the throat plate.

Adjustment

- Loosen screw 1.
- Turn the upper feed lever 2 on the shaft.

To the rear = increase the stroke of the upper feed foot

To the front = decrease the stroke of the upper feed foot

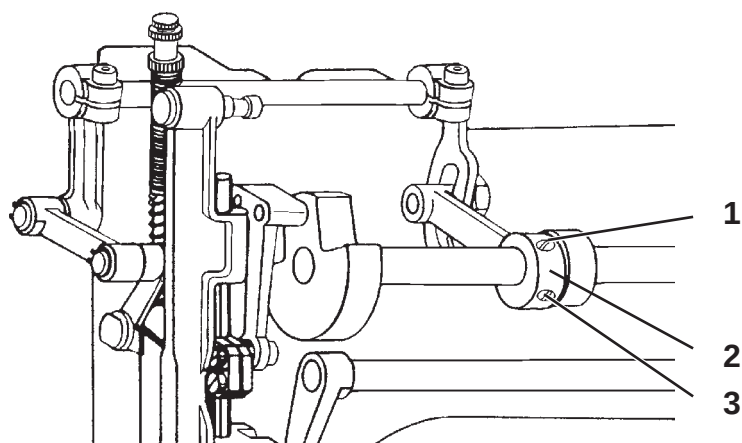
- Tighten the screw 1 again.

Hint

Once the stroke of the upper feed foot is correct, the material presser foot setting will also be correct.

Both movements are executed by the same cam.

2.4.2 Advancing movement of the upper feed foot



Caution: Danger of injury!

Turn off the main switch.

Check and set the advancing movement of the upper feed foot only when the sewing machine is switched off.

Rule and control

The upper feed foot should reach the top edge of the feed dog at the same time as the descending needle.

- Check the movement of the upper feed foot by turning the handwheel.

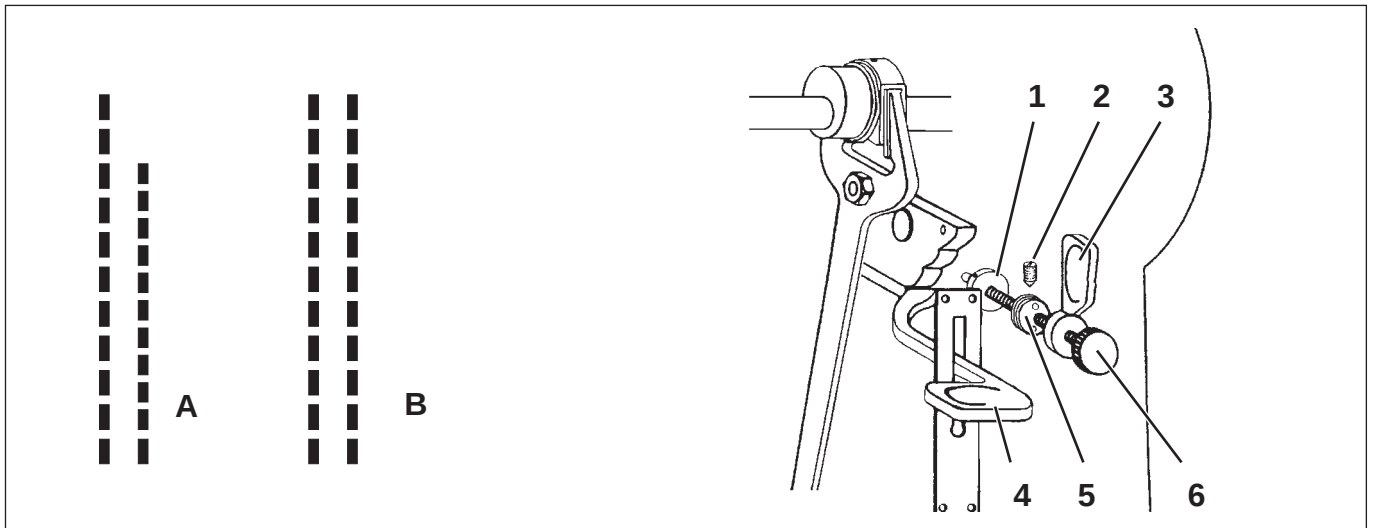
Adjustment

- Loosen screws 1 and 3.
- Turn cam 2.

When the descending needle reaches the feed dog, the upper feed foot must also reach the feed dog.

- Tighten the screws 1 and 3 again.

2.5 Stitch regulator (equal stitch length for forward and reverse stitching)



Caution: Danger of injury!

Turn off the main switch.

Check and set the stitch uniformity of forward and reverse stitching only when the sewing machine is switched off.

GB

Rule and control

The stitch length for forward and reverse sewing must be equal.

Use the special wrench (order no. 0981 160402) from the gauge set to perform the setting.

- Turn the butterfly nut 3 against the stop.
- Set the stitch regulator lever 4 and the knob 6 to a forward stitch length of 3 mm.
- Tighten the butterfly nut 3.
- Place a sheet of paper under the material presser foot.
- Lower the lifting lever.
- Sew 11 forward stitches by turning the handwheel in its direction of rotation.
- Raise the stitch regulator lever 4 up to the stop (position “R”) for sewing in reverse and hold it.
- Sew 11 reverse stitches (alongside the forward stitches) by turning the handwheel in its direction of rotation.
- Check whether the stitches (forward and reverse) have the same length (see fig. B)

Adjustment

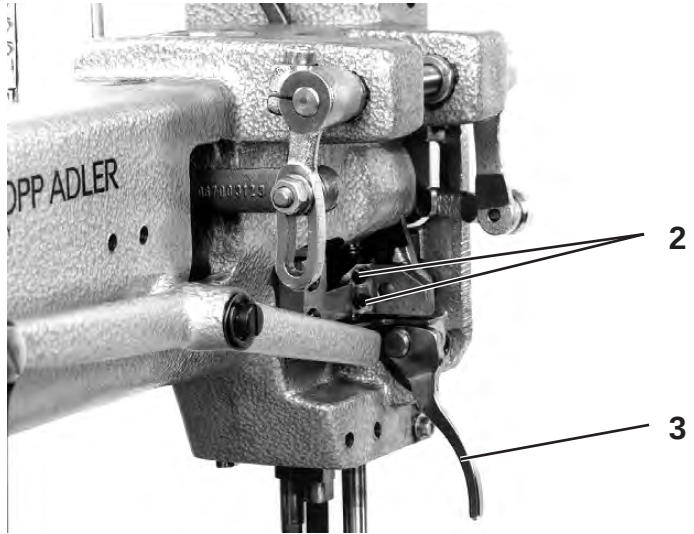
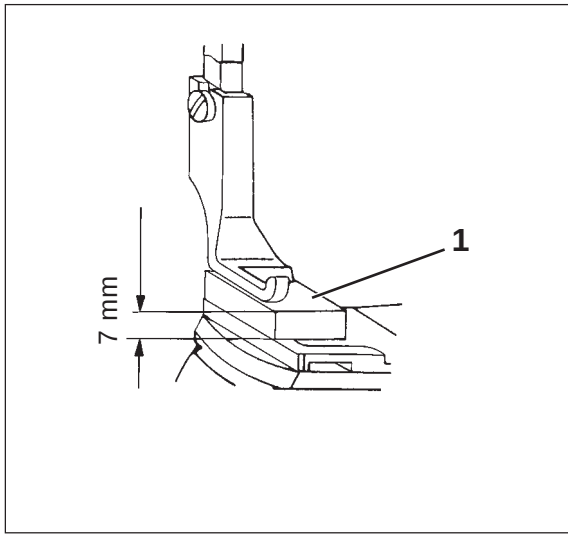
- Loosen the threaded pin 2.
The threaded pin is located inside the cast iron and is accessible from the top after the arm cover is removed.
- Turn cam 5 with the special wrench.
The cam is also located inside the cast iron.
- Tighten the threaded pin 2 again.

Maximum stitch length limitation

- Reset anew the stitch length limiter 1 accordingly.

3. Sewing foot height and sewing foot lifting

3.1 Sewing foot lift with the lifting lever



Caution: Danger of injury!

Turn off the main switch.

Check and set the height of the mechanically lifted sewing feet only when the sewing machine is switched off.

The mechanically lifted sewing feet are arrested in the top position with the lifting lever 3 (for example when winding the bobbin thread or replacing the sewing feet).

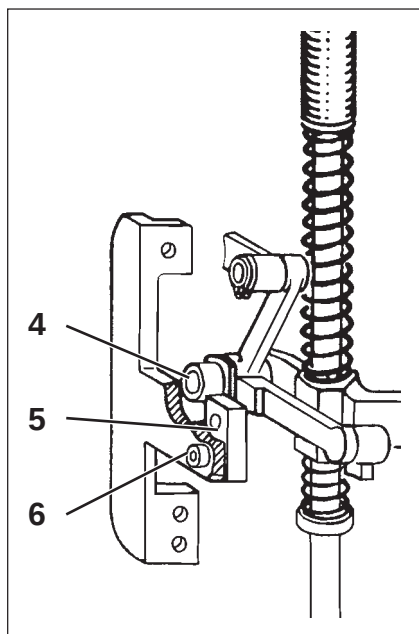
Rule and control

The distance between the material presser foot arrested in the top position with lifting lever 3 and the throat plate must amount 7 mm.

Use the block 1 (order no. 0981 130005) to perform the setting.

The roller 4 must lie tight on the sliding piece 5.

- Lift the material presser foot via the knee lever.
- Place the block 1 under the lifted material presser foot.
- Arrest the lifted sewing feet in the top position with lifting lever 3. The material presser foot must lie on the block 1.



Adjustment

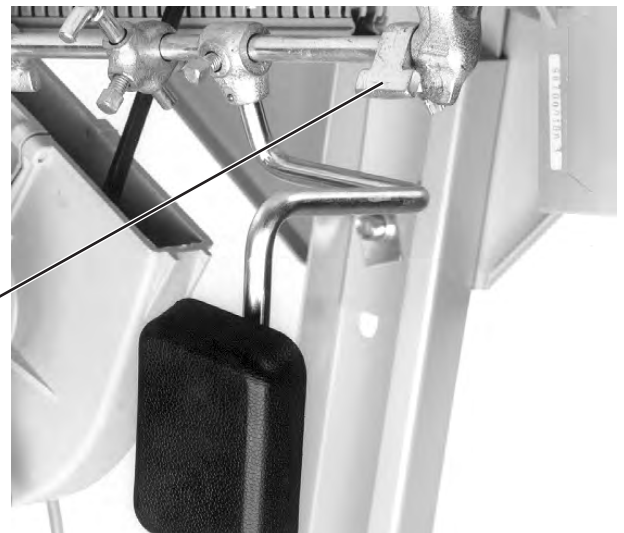
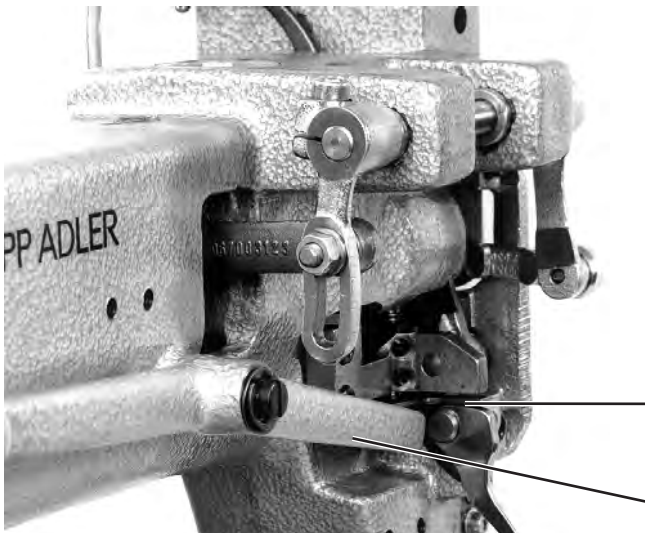
Setting the height of the cloth presser bar

- Loosen the threaded pin 2.
- Set the material presser bar higher or lower.
- Tighten the threaded pin 2 again.
- Remove the block 1.

Setting the sliding piece

- Remove the head cover.
- Loosen screws 6 (2 pieces).
- Shift the sliding piece 5 within the oblong-hole. The roller 4 must lie tight on the sliding piece 5.
- Tighten screws 6 (2 pieces) again.
- Screw on the head cover again.

3.2 Sewing foot lifting with the knee lever



Caution: Danger of injury!

Turn off the main switch.

Check and set the height of the sewing feet lifted with the knee lever only when the sewing machine is switched off.

GB



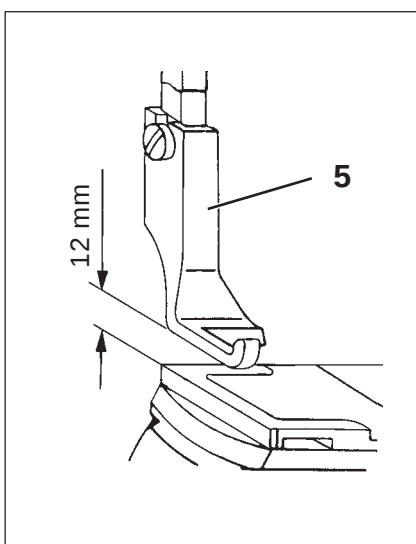
Rule and control

When both feet lie on the throat plate, there should be a clearance of 1 mm between the lifting lever 3 and the presser plate 2.

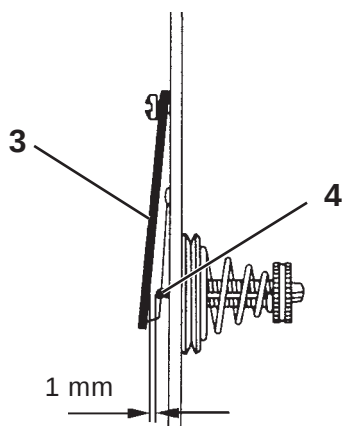
A stop limits the sewing foot lift when the knee lever is pressed completely to the right. In this position the clearance between the material presser foot 5 and the throat plate should amount 12 mm.

Adjustment

- Turn the handwheel until both feet lie on the throat plate.
- Loosen the counter nut (2 pieces) on the adjusting screw 4.
- Set the adjusting screw 4.
The clearance between the lifting lever 3 and the presser plate 2 should amount 1 mm.
- Tighten the counter nut (2 pieces) again.
- Lift the material presser feet via the knee lever until stop 1 hits against the bearing block.
In this position the clearance between the material presser foot 5 and the throat plate should amount 12 mm.
- Adjust the stop 1 accordingly.



4. Opening the thread tension



The needle thread tension is opened **mechanically**,
– when the sewing feet are lifted with the knee lever.



Caution: Danger of injury!

Turn off the main switch.

Check and set the opening of the thread tension only when the sewing machine is switched off.

Rule and control

Mechanical opening:

When the material presser foot is lowered, the clearance between the release plate 3 and the release pin 4 must be approx. 1 mm.

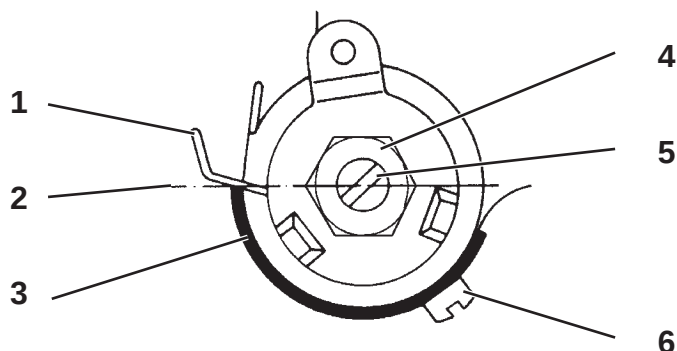
- Lower the material presser foot.
- Check the clearance between the release plate 3 and the release pin 4.

Adjustment

Mechanical opening:

- File the release pin 4 or replace it against a new release pin.

4.1 Thread controller spring



Rule and control

The thread controller spring 1 must hold the needle thread under slight tension from the highest position of the thread lever to the moment the needle's eye penetrates the sewing material.

The thread controller spring 1 may only touch on the stop when the needle has entered the sewing material up to the eye.



Caution: Danger of injury!

Turn off the main switch.

Check and set the thread controller spring only when the sewing machine is switched off.

GB

Adjustment

Spring travel

- Loosen screw 6.
- Turn the spring rest 3.
When the needle penetrates into the sewing material, the upper edge of the spring rest 3 must be positioned at the middle 2 of the thread tension.
- Tighten the screw 6 again.

Spring tension

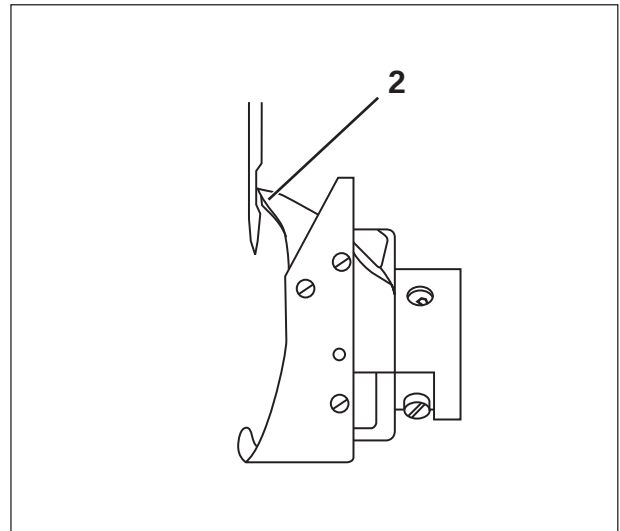
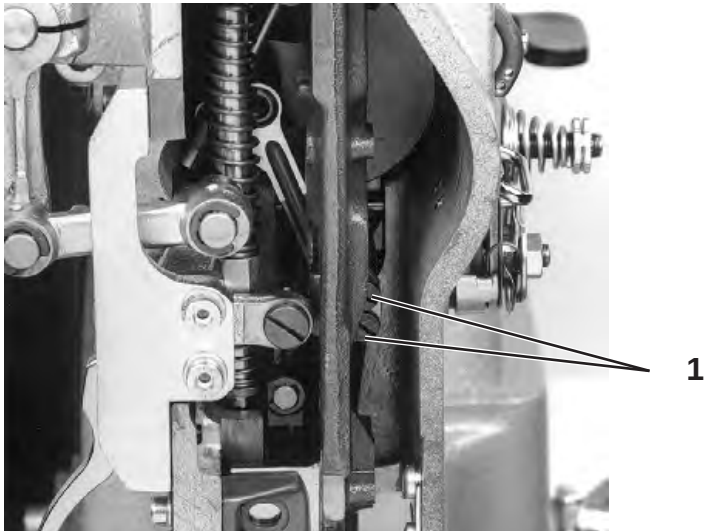
- Loosen screw 4.
- Set the spring tension by turning the tension pin 5.
- Tighten the screw 4 again.

Hint

The settings for the spring path and spring tension apply only for normal thread thicknesses.

With extremely thick or thin needle threads or sewing materials other settings may be required.

5. Needle bar height



Rule and control

In the loop stroke position the hook point 2 should be located in the middle of the needle furrow.



Caution: Danger of injury!

Turn off the main switch !

Check and set the needle bar height only when the sewing machine is switched off.

Adjustment

- Bring the needle in the loop stroke position (see Chapter 2.2.2).
- Screw off the head cover.
- Loosen the screw 1.
- Adjust the height of the needle bar.
The hook point 2 must be located in the middle of the needle furrow
- Attention!**
Do not to turn the needle bar during the adjustment.
- Tighten the screw 1 again.
- Screw on the head cover again.

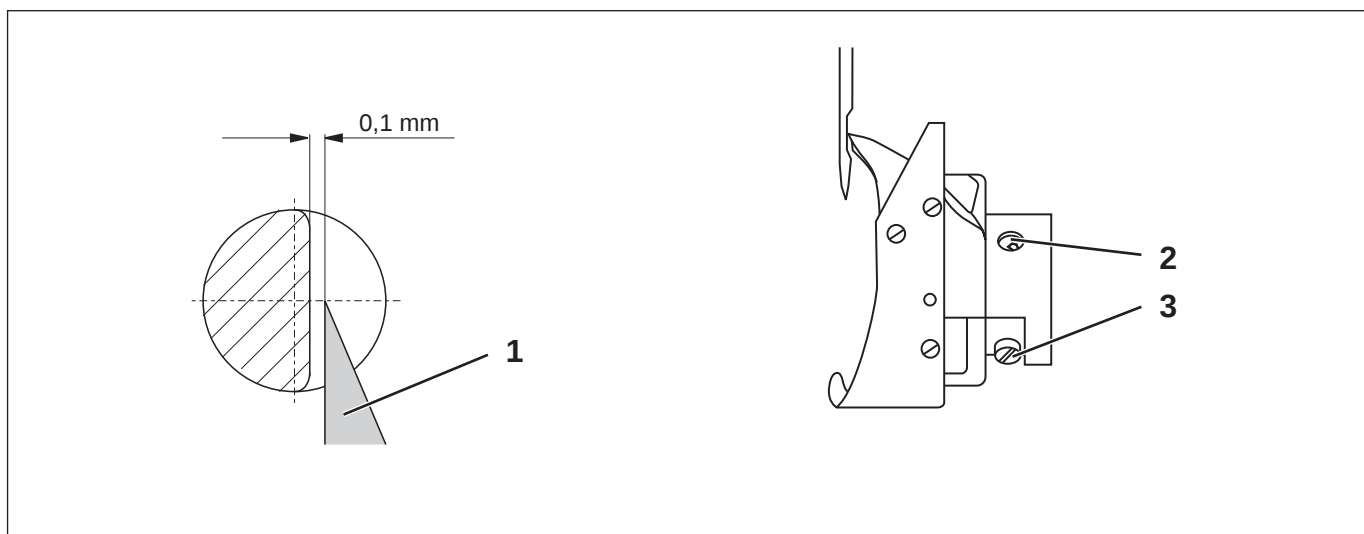
Hint

A wrong setting of the needle bar height can cause the following results:

- Damage to the hook point
- Skipped stitches and thread breakage

6. Hook settings

6.1 Loop stroke and clearance of the hook point to the needle



Caution: Danger of injury!

Turn off the main switch.

Check and set the loop stroke only when the sewing machine is switched off.

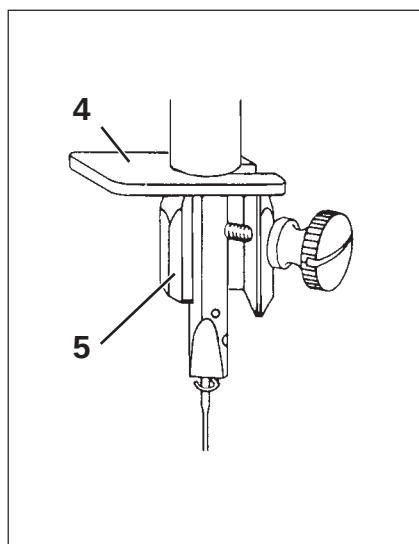
GB

Rule and control

The loop stroke (2 mm) is the run of the needle bar from the bottom dead center up to the point where the hook point 1 lies at the middle of the needle.

Use the block 5 (order no. 0981 150002) and gauge 4 (order no. 0981 150003) to perform the setting.

- Use a needle with the size Nm 90.
 - Set the stitch regulator lever to sewing length “0”.
 - Turn the handwheel to put the needle bar into its lowest position.
 - Fix the loop stroke gauge 4 with the block 5 against the needle bar rocker.
 - Tighten the screw of the block 5 and pull out the loop stroke gauge 4.
 - Turn the handwheel in its direction of rotation until block 5 hits the needle bar rocker.
- In this position, the hook point 1 must lie at the middle of the needle.



Adjustment

- Loosen screws 2 and 3 on the hook.
- Turn the hook on the hook shaft.
The hook point 1 must lie at the middle of the needle.
Thereby the clearance between hook point 1 and the furrow of the needle must be 0.1 mm.
- Tighten screws 2 and 3 again.

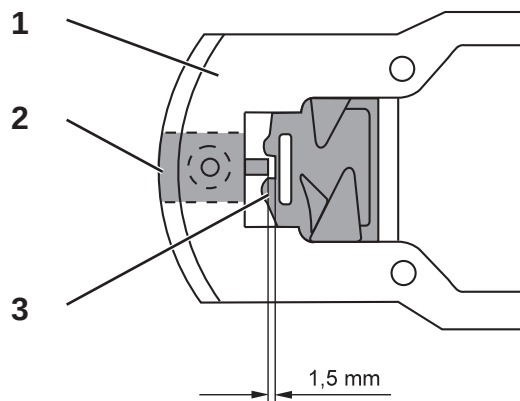


ATTENTION!

When a needle with a different size is inserted:

- Check the clearance of the hook to the needle and correct it, if necessary.

6.2 Bobbin case holder



Caution: Danger of injury!

Turn off the main switch.

Set the bobbin case holder only when the sewing machine is switched off.

Rule and control

The thickest thread that can be used should be able to move easily through the slit between the bobbin case holder 2 and the groove of the lower part of the bobbin case 3.

The gap must be approx. 1.5 mm.

The bobbin case holder 2 must still hold the lower part of the bobbin case 3 safely against turning.

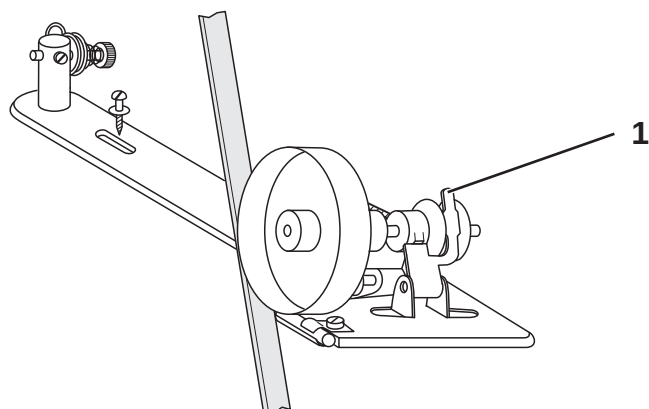
Adjustment

Aligning the bobbin case holder is only possible with a lower throat plate 1 with a separate bobbin case holder 2.

The lower throat plate with cast lug is centered via the mounting screws. An adjustment is not possible.

- Align bobbin case holder 2 so that enough gap is present.
- Polish all edges thoroughly before inserting a new bobbin case holder.

7. Bobbin winder



Rule and control

The bobbin winding operation must stop automatically when the bobbin is filled up to approx. 0.5 mm below the edge of the bobbin.



Caution: Danger of injury!

Turn off the main switch.

Set the bobbin winder only when the sewing machine is switched off.

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Adjustment

Slight changes in the bobbin fill quantity:

- Bend the release lever 1 slightly.

8. Oil lubrication

8.1 General



Caution: Danger of injury!

Oil can cause skin rashes.

Avoid longer skin contact.

After contact wash yourself thoroughly.



ATTENTION!

The handling and disposal of mineral oils is subject to legal constraints.

Deliver used oil to an authorized reception point.

Protect your environment.

Take care not to spill any oil.

Oil the sewing machine exclusively with the lubricating oil **DA-68** or equivalent oil with the following specifications:

- Viscosity at 40°C : 65 mm²/s
- Flash point: 212 °C

DA-68 can be purchased at sales branches of **DÜRKOPP ADLER AG**, under the following part number:

1 liter container: 9047 000041

5 liter container: 9047 000042

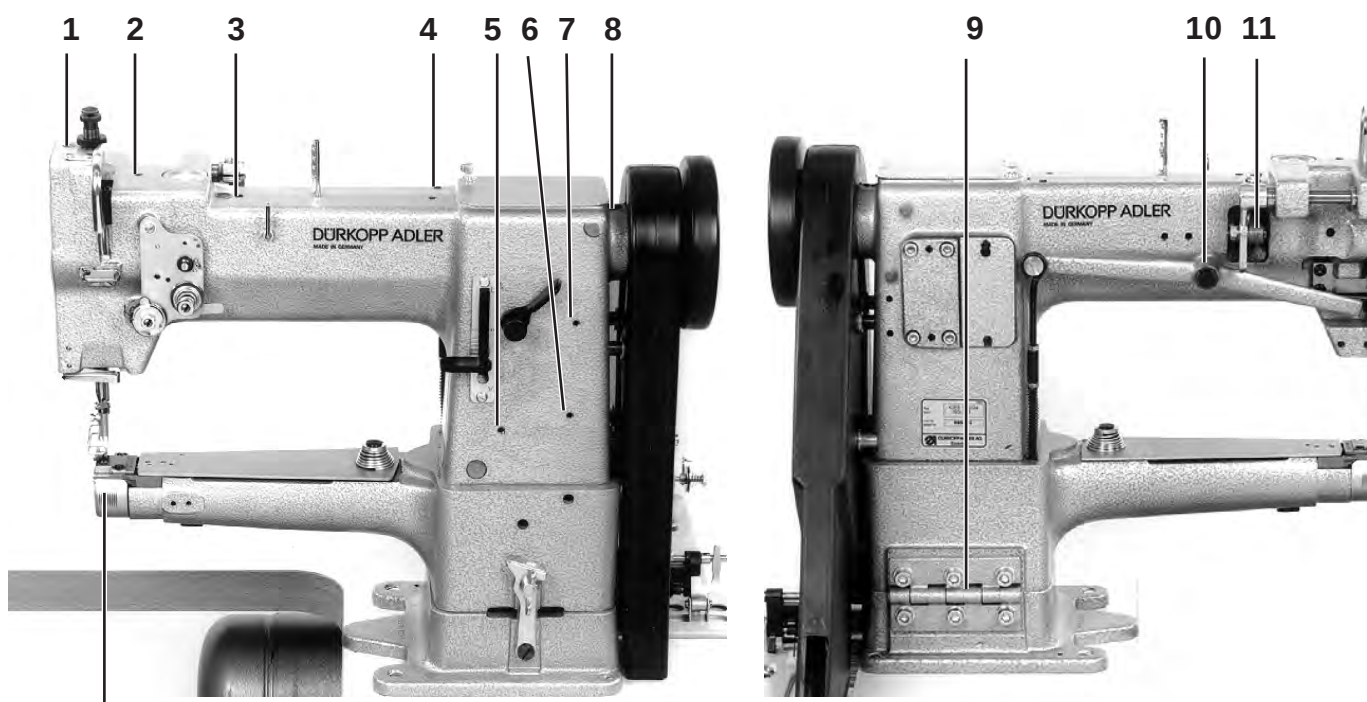
Rule and control

The lubrication of the sewing machine head occurs via oil filling points in the cast body. Additionally, the listed lubricating points are to be supplied with oil.

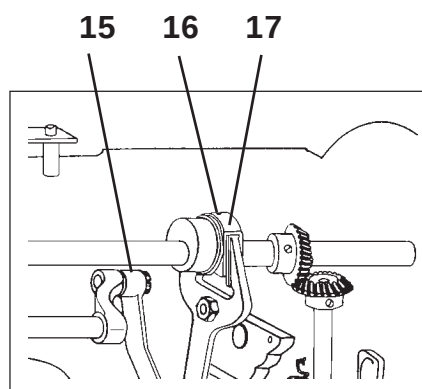
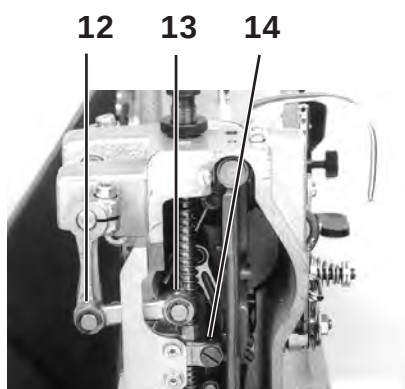
At the latest after 40 hours of operation all lubricating points shown in the following illustrations are to be lubricated.

- Remove the head cover.
- Supply all lubricating points with few drops of oil **DA-68**.
- Attach the head cover again.

8.2 Lubrication points



18



- 1 Needle bar joint
- 2 Arm shaft bearing - front
- 3 Lifting cam
- 4 Arm shaft bearing - center
- 5 Hook shaft bearing
- 6 Vertical shaft bearing - bottom
- 7 Vertical shaft bearing - top
- 8 Arm shaft bearing - rear
- 9 Hinge
- 10 Lifting lever bearing
- 11 Link lever upper feed
- 12 Connecting rod upper feed lever
- 13 Connecting rod upper feed lever
- 14 Material presser bar
- 15 Connecting rod needle bar advance
- 16 Thrust cam
- 17 Sliding surface thrust cam
- 18 Hook and feed dog area

9. Maintenance



Caution: Danger of injury!

Turn off the main switch.

You must turn off the special sewing machine before performing maintenance!

The maintenance tasks to be conducted by the operating personnel of the special sewing machine daily or weekly (cleaning and oiling) are described in the "Operating Instructions". They are in the following table only for the sake of completeness.

Necessary maintenance work	Operating hours			
	8	40	160	500
Sewing machine head				
Remove sewing dust, left-over thread and cutting residue	X			
Points to be particularly cleaned:				
- Area under the throat plate				
- Feed dog				
- Area around the hook				
- Bobbin case				
- Needle thread tension				
Lubricate the sewing machine head	X			
Check the function of the safety clutch				X
Check the condition of the toothed belt				X
Sewing drive				
Clean the motor ventilation lifter of sewing dust	X			
Check the condition and tension of the V-belt.		X		

10. Summary of all sewing machine settings



ATTENTION!

The complete setting of the special sewing machine is to be made in the order described.

No.	Subject	Chapter	Correct setting	Adjustment
1	Zero point, feed with devices Setting of the zero point (position of the stitch regulator link)	2.1	When the stitch length is set to "0", the feed dog and the needle should not make any advancing motion.	Set at the factory.
2	Bottom feed Position of the feed dog in the throat plate cutout	2.2.1	Sideways: The feed dog must lie centric in the throat plate cutout. In the feeding direction: At the maximum stitch length, the minimum clearance of the feed dog to the front and rear edges of the throat plate cutout must be approx. 0.5 mm.	Slide the feed dog axially. Turn the feed dog lever on the fork.
3	Advancing movement of the feed dog	2.2.2	When the stitch regulator lever is operated and set to have the greatest sewing length, both the needle and the feed dog should not move.	Turn the thrust cam.
4	Synchronous run of the needle and bottom feed	2.3	The needle must penetrate the middle of the needle hole.	Align the needle bar with the rocker.
5	Upper feed Stroke of the upper feed and the material presser foot	2.4.1	The stroke of material presser foot and upper feed should be equal.	Turn the upper feed lever.
6	Advancing movement of the upper feed foot	2.4.2	The upper feed foot should reach the top edge of the feed dog at the same time as the descending needle.	Turn cam.
8	Stitch regulator Stitch uniformity of forward and reverse stitching	2.5	The stitch length for forward and reverse sewing must be equal.	Turn the cam located inside the cast iron.

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No.	Subject	Chapter	Correct setting	Adjustment
9	Sewing foot height and sewing foot lifting Sewing foot lifting with the lifting lever	3.1	The distance between the lifted material presser foot and the throat plate must amount 7 mm.	Shift the material presser bar
10	Sewing foot lifting with the knee lever	3.2	When both feet lie on the throat plate, there should be a clearance of 1 mm between the lifting lever and the presser plate.	Set the adjusting screw.
11	Limitation for the sewing foot lifting	3.2	The clearance between the material presser foot and the throat plate should amount 12 mm.	Adjust the stop.
12	Opening the thread tension Mechanical opening	4.	When the thread tension is opened, the clearance between the release plate and the release pin must be approx. 1 mm.	File or replace the release pin.
13	Thread controller spring	4.1	Spring travel: The needle thread is under tension from the highest position of the thread lever to the moment the needle's eye penetrates the sewing material. Spring tension: Depending on the materials to be sewn.	Turn the whole thread tension unit Turn the tension pin.
14	Needle bar Needle bar height	5.	In the loop stroke position the hook point should be located in the middle of the needle furrow.	Adjust the height of the needle bar.
15	Hook settings Loop stroke	6.1	The loop stroke amount to 2 mm. In the loop stroke position, the hook point lies at the middle of the needle. Check using the gauge and the block.	Turn the hook.
16	Clearance of the hook point to the needle	6.1	In the loop stroke position, the clearance between hook point and the furrow of the needle must be max. 0.1 mm.	Slide the hook axially.
17	Bobbin case holder Bobbin case holder	6.2	The clearance between the bobbin case holder and the lower part of the bobbin case should amount 1.5 mm	Set the bobbin case holder.
18	Bobbin winder Bobbin fill quantity	8.	The bobbin winding operation stops automatically when the bobbin is filled up to approx. 0.5 mm below the edge of the bobbin.	Slight changes: Bend the release lever slightly