

8967

Spezialnähmaschine

Serviceanleitung

[Instructions for service](#)

Instructions de service

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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.

General safety instructions

Part 3: Service Manual Cl. 8967

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1. General



ATTENTION !

The tasks described in the service manual may only be conducted by authorized specialists or appropriately trained personnel!



Caution Risk of Injury !

During repair, conversion and maintenance work turn off the main switch and disconnect the machine from the pneumatic supply lines.

Conduct adjustment work and function testing on the running machine only with utmost caution while strictly adhering to all safety regulations.

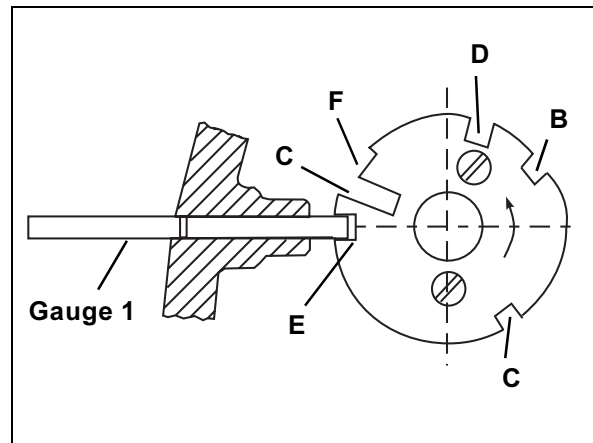
This service manual describes adjustments to the sewing machine in a practical order.

Here it should be noted that various adjustment positions are interdependent. Therefore it is essential that the adjustments be conducted in the prescribed order.

For all adjustments to seam building components a new, flawless needle must be used.

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1.1 Adjustment Aids



The machine head is equipped with a built-in adjustment disc, which makes possible a quick and accurate adjustment of all elements.

The adjustment disc has 5 slots.

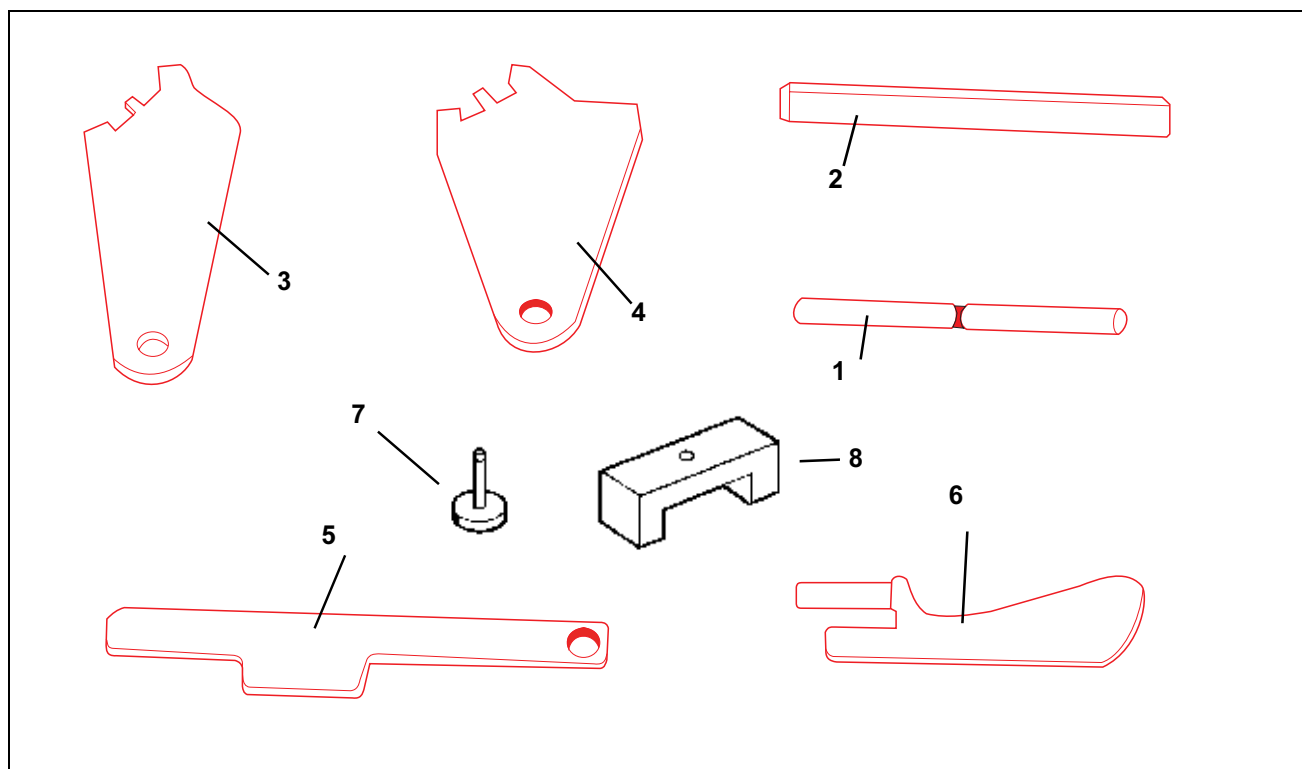
The individual setting positions are held by a timing pin. It is included in the accessory package and belongs to the gauge set delivery scope

- Turn the handwheel to the position described for that adjustment.
- Insert the gauge 4 into the hole of the machine arm.
- Turn the handwheel back and forth slightly until the pin locks in the appropriate hole.

Slot **A** is the deepest, the slots **B, C, D, E, F** have the same depth.

Slot Position	Setting	
E	Needle bar at lower dead center	<ul style="list-style-type: none"> - Clearance transport foot bar - pressure foot bar - Timing of the advancing movement of the transport foot - Timing of the advancing movement of the transporter Needle bar height with gauge
A	Needle bar 2 mm behind the lower dead center	<ul style="list-style-type: none"> - Position of the adjustment disc on the arm shaft - Loop stroke - Needle bar height without gauge - Clearance hook - needle
F	Slightly behind the loop stroke	- Synchronizer (1st position)
D	Thread lever slightly before lower dead center	- Timing of the stroke movement of the transport foot
C	Thread lever at the upper dead center	<ul style="list-style-type: none"> - Position of the guide curve of the thread trimmer - Synchronizer (2nd position)
B	Needle bar slightly before upper dead center	- Timing of the advancing movement of the transport foot (with gauge)

1.2 Set of Gauges



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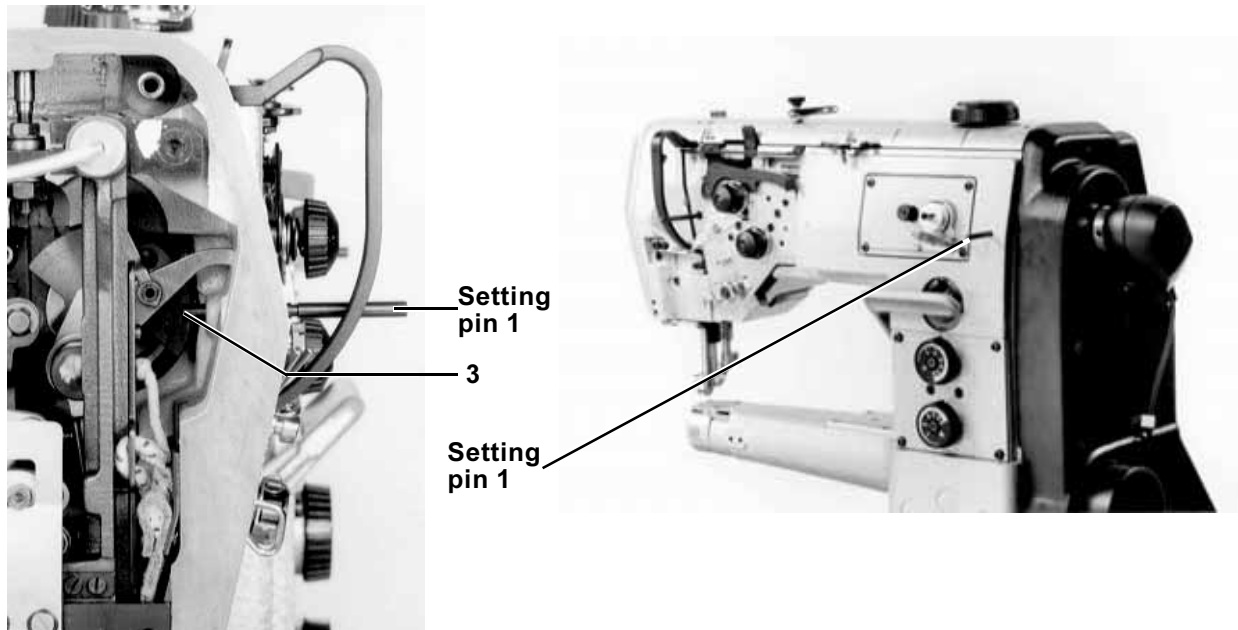
The gauges listed in the following enable an accurate setting and testing of the machine .

The setting pin 1 is a standard enclosure in the accessory package of every machine . With it the handwheel positions **A** to **F** necessary for adjustments can be arrested.

Gauges	Order no.	Settings
Gauge 3	491 79995	- Timing of the stroke movement of the pressure foot
Gauge 4	491 79994	- Timing of the advancing movement of the pressure foot
Gauge 2	742 52082	- 0-setting of the lower stitch actuator
Setting pin 1	791 8110	- Arresting the handwheel in the desired positions
Gauge 5	491 79996	- Stroke adjustment range of the pressure feet
Gauge 6	491 79997	- 0-setting of the upper stitch actuator
Gauge 7	0272 001240	- Needle bar height at E
Gauge 8	0891 003901	- Needle bar height at E

2. Adjusting the Machine Head

2.1 Adjustment Disc to the Arm Shaft Crank



The deepest slot **(A)** of the adjustment disc must be in line with the groove 3 in the arm shaft crank.

Only in this position are all other settings made with the adjustment disc correct.



Caution Risk of Injury!

Turn off main switch before adjusting.

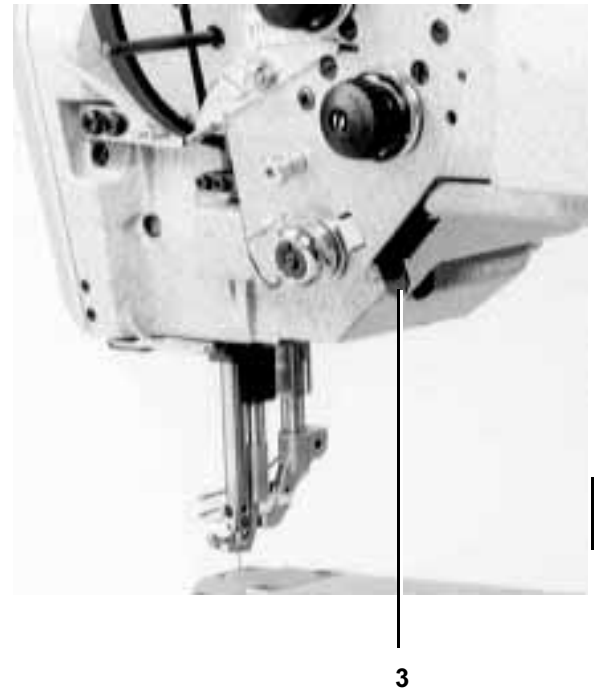
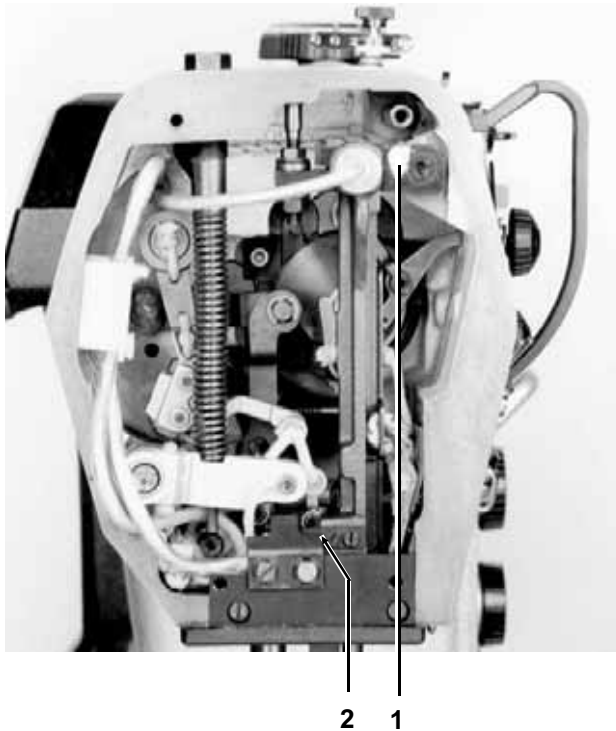
- Insert setting pin 1 of the gauge set through the hole in the housing into the groove 3 of the arm shaft crank.
- With a second setting pin (or 5 mm drill bit) check to see if the setting pin 1 locks into the deepest hole (position **A**) of the adjustment disc in this position.

Setting:

- Screw off the arm cover
- Push the timing belt to the left on the belt pulley and loosen the screws.
For this procedure use a round pin and turn the handwheel.
- Insert the setting pin 1 of the gauge set through the hole in the housings into the groove 3 of the arm shaft crank.
- Arrest the adjustment disc in the deepest position.
- Press the timing belt pulley to the right against the setting pin and screw the screws fast.
- Remove the setting pins.
- Turn the handwheel until the timing belt again lies in the middle of the timing belt pulley.

2.2 Needle Bar Link

2.2.1 General Information



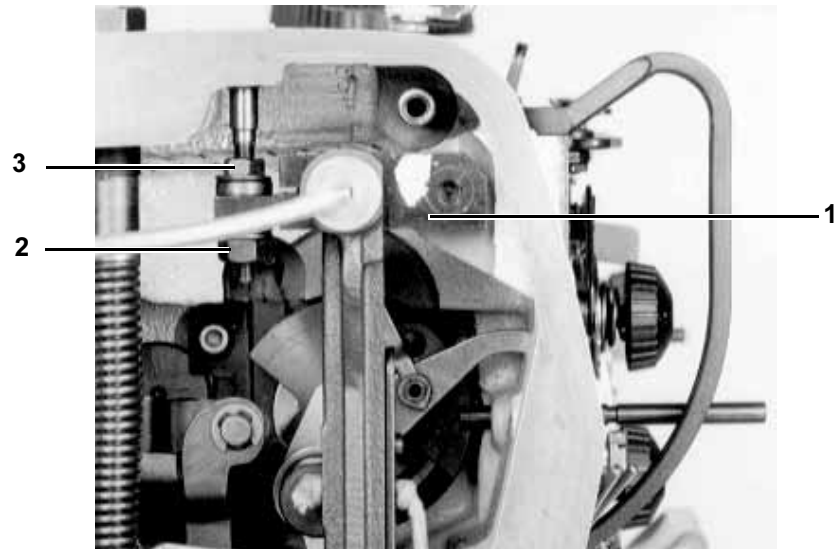
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The screw 1 which is secured against turning by yellow paint and adhesive must lie in the arm.

The guide bolt 2 (in the link) and the right guide bolt 3 in the arm have been set at the factory so that the link can move easily and without play.

The positions of the two guide bolts may **not** be altered.

2.2.2 Setting the Link Holder



The link holder 1 must be parallel to the lower edge of the arm head.

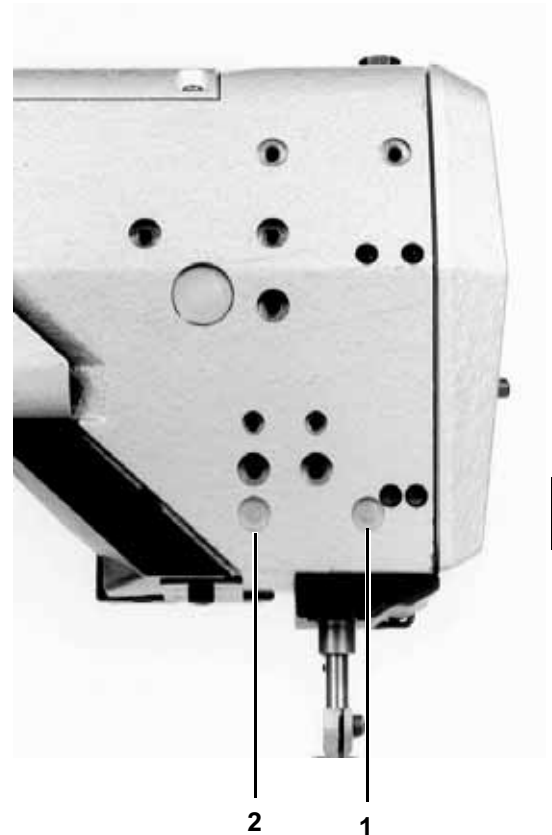
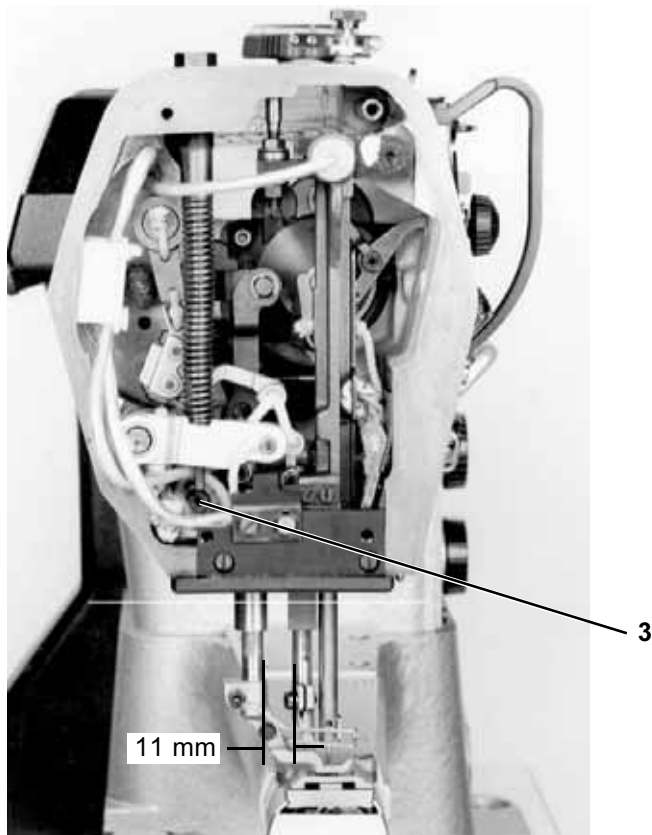


Caution Risk of Injury!

Turn off main switch before adjusting.

- Set the screws 2 and 3 in such a way that the link holder 1 is parallel to the lower edge of the arm head.

2.2.3 Clearance Transport Foot Bar to the Material Pressing Bar



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The clearance between the transport foot bar and material pressing bar be 11 mm with the machine arrested in position **E** (needle bar at lower dead center).



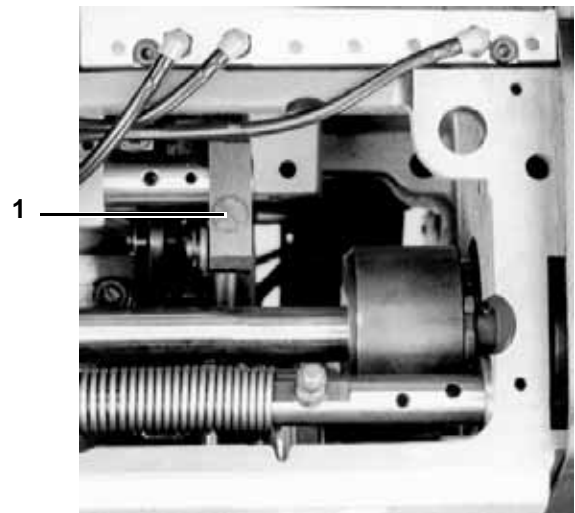
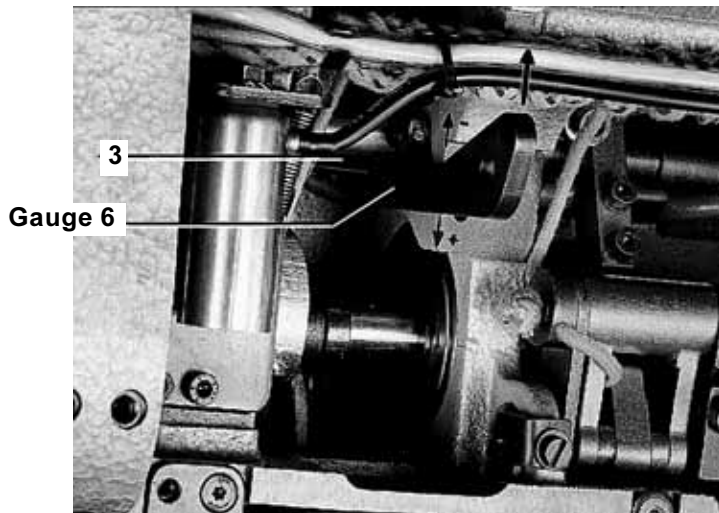
Caution Risk of Injury!

Turn off main switch before adjusting.

- Arrest the handwheel in position **E** (needle bar at lower dead center).
- Remove plugs 1 and 2 and loosen the screws behind them.
- Set the clearance accordingly with cam 3.

2.3 Stitch Actuator

2.3.1 0-Setting of the Stitch Actuators for the Top Transport



The needle and the transport foot should make the smallest possible advance when the corresponding adjustment wheel is set to a stitch length of " 0 ".



Caution Risk of Injury!

Turn off main switch before adjusting.

- Set the stitch length to " 0 ".
- Arrest the pressure feet in the raised position.
- Turn the handwheel.

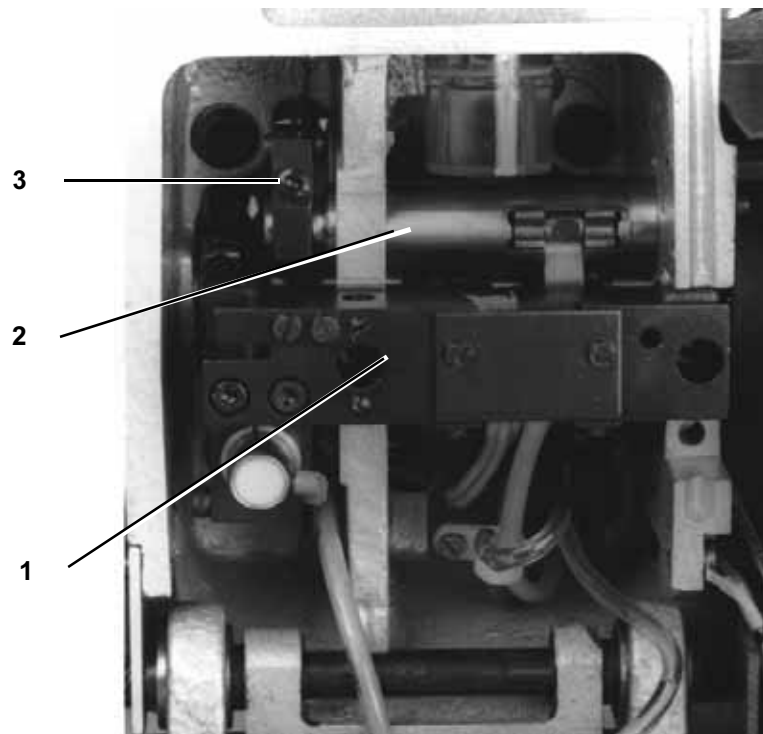
Pre-setting with the Gauge:

- Loosen screw 1.
- Insert gauge 6 in the hole of the link 3 and press against surface on the arm.
- Turn the link 3 in the direction (+) or (-) until the transport is as far as possible " 0 ".
- Tighten screw 1 again.

Fine Adjustment:

- Loosen screw 1.
- Insert pin into the hole of the link 3 and turn accordingly.
Direction + , if advance must be increased.
Direction - , if advance must be decreased.
- Tighten screw 1.

2.3.2 0-Setting of the Stitch Actuators for the Bottom Transport



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The transporter should make the smallest possible advancing movement when the corresponding adjustment wheel is set at a stitch length of "0".



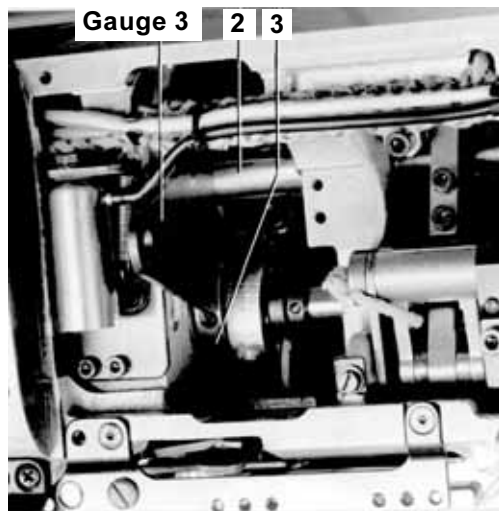
Caution Risk of Injury!

Turn off main switch before adjusting.

- Set the stitch length to " 0 ".
- Arrest the pressure feet in the raised position.
- Turn the handwheel.

- Loosen screw 3.
- Insert gauge 2 in link 2.
- Set the pin parallel to the bracket 1.
- Tighten screw 3.

2.3.3 Timing of the Advancing Movement of the Transport Foot



The pressure foot should not move when with the greatest possible stitch length and the machine arrested in position **E** (needle bar at lower dead center) the stitch actuator lever is operated.



Caution Risk of Injury!

Turn off main switch before adjusting.

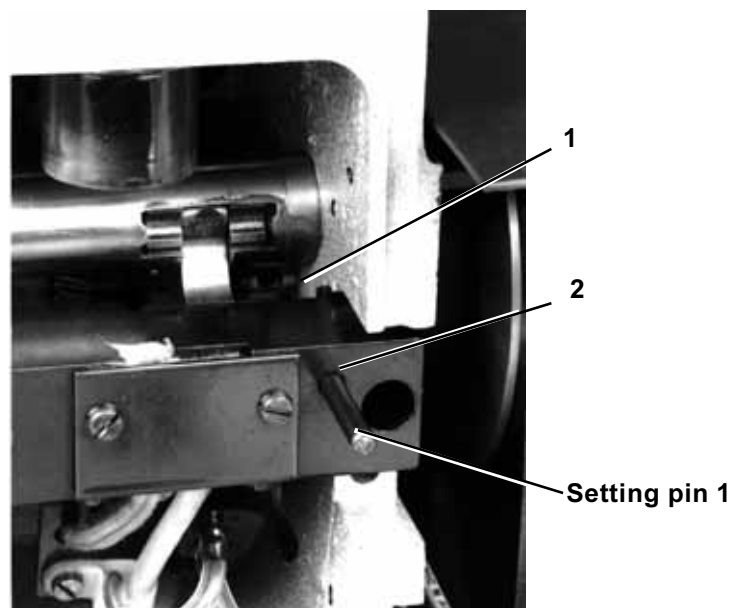
Pre-setting with Gauge:

- Loosen the screws at cam 3.
- Arrest the handwheel in position **E**.
- Insert gauge 3 into the slot of the cam 3 and then press against the stitch actuator shaft 2.
- For axial fixing of the shaft push cam 3 all the way to the left against the arm shaft bearing.
- Tighten screws.

Setting without Gauge:

- Loosen screws on cam 3.
- Arrest handwheel in position **E** (needle bar at lower dead center).
- Turn the cam on the shaft so that when moving the stitch actuator lever the transport foot makes no advancing movement.
- For axial fixing of the shaft push cam 3 all the way to the left against the arm shaft bearing.
- In the handwheel position **C** check if the slot on the cam is in the upper position. If not, turn the cam 180° on the shaft.

2.3.4 Timing of the Advancing Movement of the Transporter



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The transporter should begin parallel to the advancing movement of the transport foot.

In the low needle position and with greatest possible stitch length it should not move when the stitch actuator lever is operated.



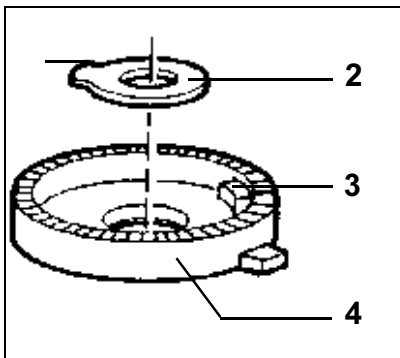
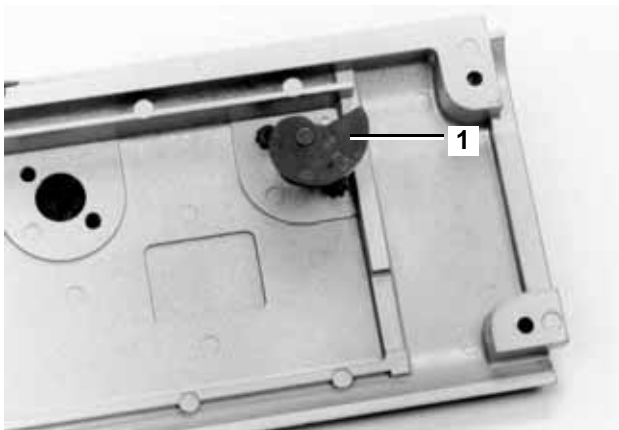
Caution Risk of Injury!

Turn off main switch before adjusting.

- Loosen the screws on the advance cam 1. (Slightly tighten the 1st screw so that the cam can still be turned on the shaft)
- Arrest the machine in position **E** (needle bar lowest point).
- Push the setting pin 1 through the hole 2 into the hole of the advance cam. Turn the advance cam accordingly.
- Pull out the setting pin.
- Tighten the screws on the advance cam.

2.4 Pressure Feet

2.4.1 Adjustment Wheel for the Pressure Foot Stroke Height



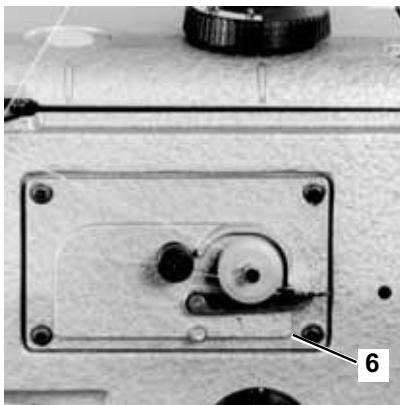
The adjustment wheel can only be turned to the right or left until the stop ring 2 reaches the corresponding cam side of the lock ring 4.
When the adjustment wheel is turned completely to the right then:

- The smallest value should be shown.
- The adjustment wheel should have the smallest play.



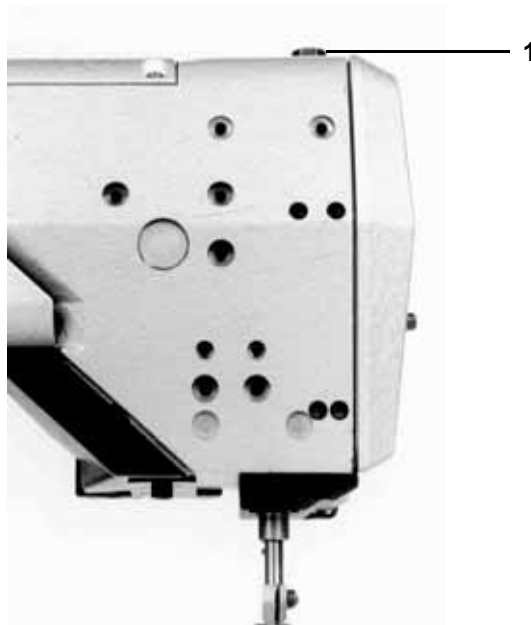
Caution Risk of Injury!

Turn off main switch before adjusting.



- Remove the tension plate 6.
- Screw off the adjustment wheel.
- Reach through the opening behind the tension plate and turn the worm 1 so that it touches the ball pin.
- Align the stop ring 2 in such a way that its right side 5 touches cam 3 of the lock ring 4.
- Screw on the adjustment wheel so that the smallest value is seen. (White arrow on the adjustment wheel)

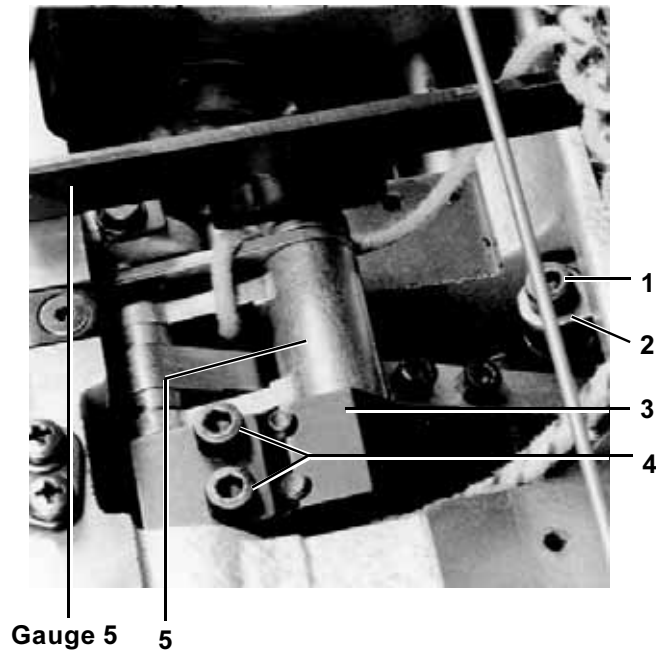
2.4.2 Pressure Foot Pressure



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The screw 1 must be screwed in as far as possible so that maximum pressure is achieved.

2.4.3 Stroke Adjustment Range, Stroke Timing and Conformation of the Strokes, Adjustment with Gauge



The pressure foot and transport foot lift in the correct relationship at all pressure foot stroke heights which can be set.

In position "2" of the adjustment wheel for the pressure foot stroke height both feet should thus conduct the following strokes.

Pressure foot: 2 mm

Transport foot: 1,8 mm

In position **D** (thread lever slightly before the lower dead center) both feet should touch.



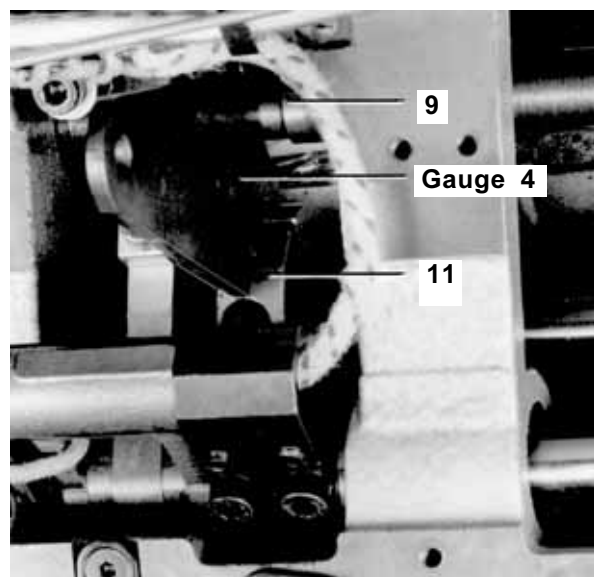
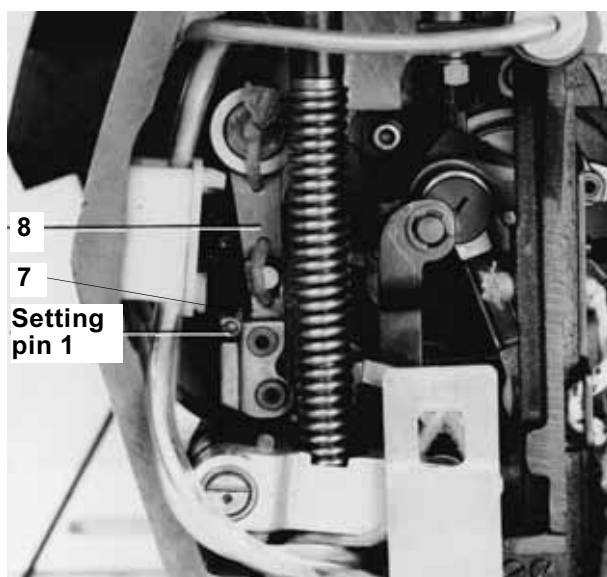
Caution Risk of Injury!

Turn off main switch before adjusting.

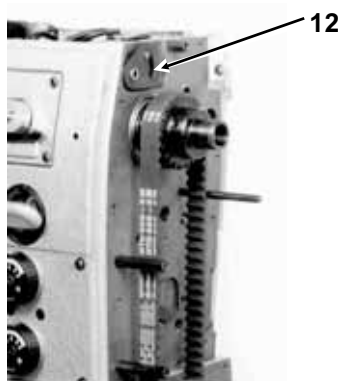
Setting with Gauge

Stroke Adjustment Range

- Loosen the screws 4 on the block 3.
- Lay the gauge 5 on the two cast walls of the arm.
- Swing block 3 until the bolt on the stroke rocker 5 touches the gauge.
- Push the block against the bush for axial fixing of the shaft.
- Tighten the screws again.
- Remove the gauge.



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Stroke Timing

- Loosen the screws on the stroke cam 11.
- Bring the handwheel into position D "thread lever slightly before lower dead center".
- Bring the linkage into the position for the highest stroke and insert a pin into the hole 12 to arrest it.
- Insert the gauge 4 into the 3 mm groove of the stroke cam 11 and then press against the link shaft 9.
- Tighten the accessible screw on the stroke cam.
- Remove the gauge and the handwheel arresting pin.
- Tighten the 2nd screw on the stroke cam.

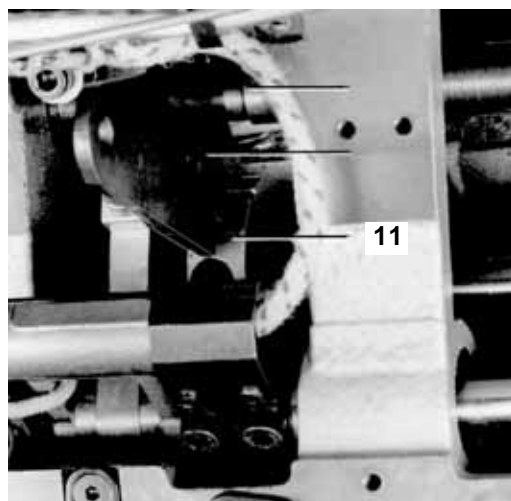
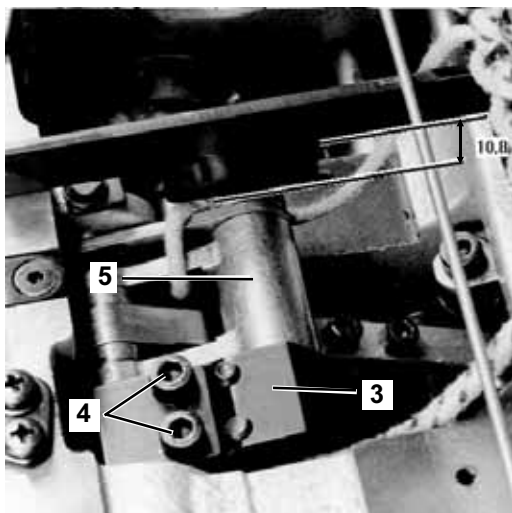
Stroke Conformation:

- Arrest the handwheel in position D "thread lever slightly before lower dead center".
- Insert the gauge set setting pin 1 into the cast hole 7.
- Loosen screw 1 on block 2 (page 18):
The raised foot will lower.
- Swing the stroke lever 8 so far to the left until the sliding pad touches setting pin 1.
- Tighten the screw on the block again.

Compensation:

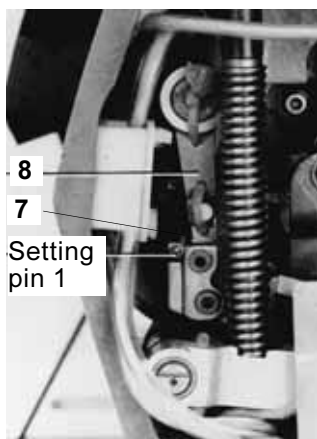
- Check if both pressure feet rest in position D "thread lever slightly before the lower dead center". If this is not the case:
Change the position of the stroke cam 11 on the shaft accordingly.

2.4.4 Stroke Adjustment Range, Stroke Timing and Conformation of the Stroke, Adjustment without Gauge



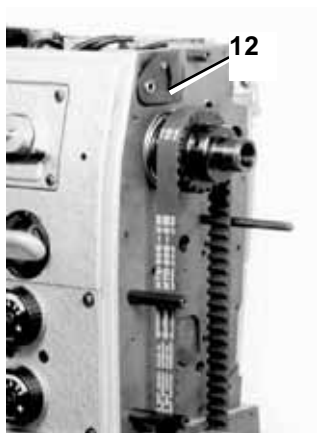
Stroke Adjustment Range:

- Loosen screws 4 and change the position of the block 3 on the shaft so that the bolt of the stroke rocker 5 has a clearance of 10,8 mm to the upper edges of the two cast walls.
- Tighten screws again.



Stroke Timing:

- Loosen the screws on stroke cam 11.
- Arrest the handwheel in position D "thread lever slightly before lower dead center".
- Change the position of the stroke cam 11 so that the following conditions are met:
The stroke lever 8 must not move when the stroke rocker 5 moves up and down.
- Tighten the accessible screw on the stroke cam.
- Remove the timing pin.
- Tighten the 2nd screw on the stroke cam.



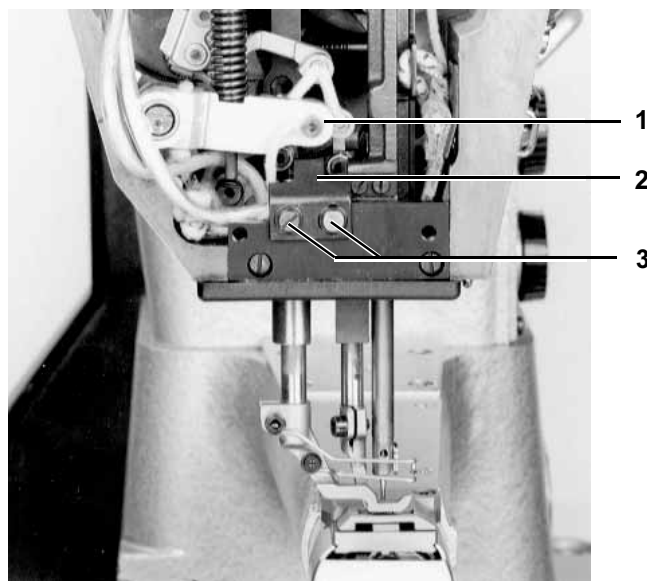
Stroke Conformation:

- Arrest the handwheel in position D "thread lever slightly before lower dead center".
- Bring the linkage into the position for the highest stroke and insert a pin into hole 12 to arrest it.
- Insert setting pin 1 from the gauge set into the cast hole 7.
- Loosen screw 1 on block 2 (page 18):
The raised foot will lower.
- Swing the stroke lever 8 to the left until the sliding pad touches setting pin 1.

Compensation:

- Check if both feet rest.

2.4.5 Setting the Safety Stop



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The safety stop 2 is to keep the pressure foot bar and material pressing bar from lowering too far after the removal of both pressure feet and thus blocking the drive mechanism.

The clearance of the lever 1 to the safety stop 2 should be 1 mm when at least one of the two pressure feet rests on the bed.



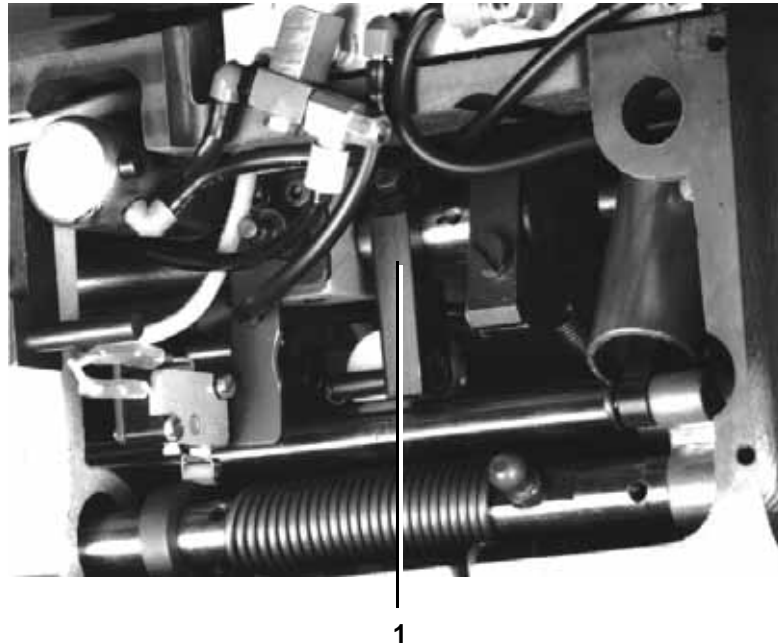
Caution Risk of Injury!

Turn off main switch before adjusting.

- Loosen screws 3 and change the position of the safety stop accordingly.

2.5 Pressure Foot Lift and Thread Tension Actuation

2.5.1 Height of the Raised Pressure Feet, Lift Limitation



The pressure feet can be raised by stepping back on the pedal.

The "free passage" between the raised pressure feet and the bed should be 17 mm.

With particularly thick pressure feet (e.g. piping feet) the "free passage" must be reduced so far that a collision with the needle bar is not possible.

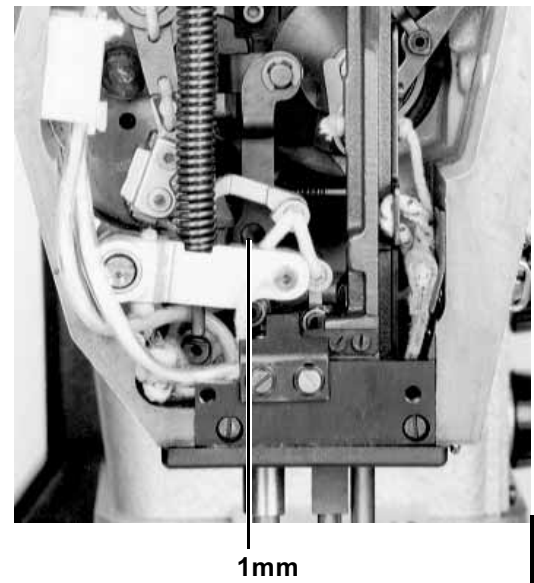
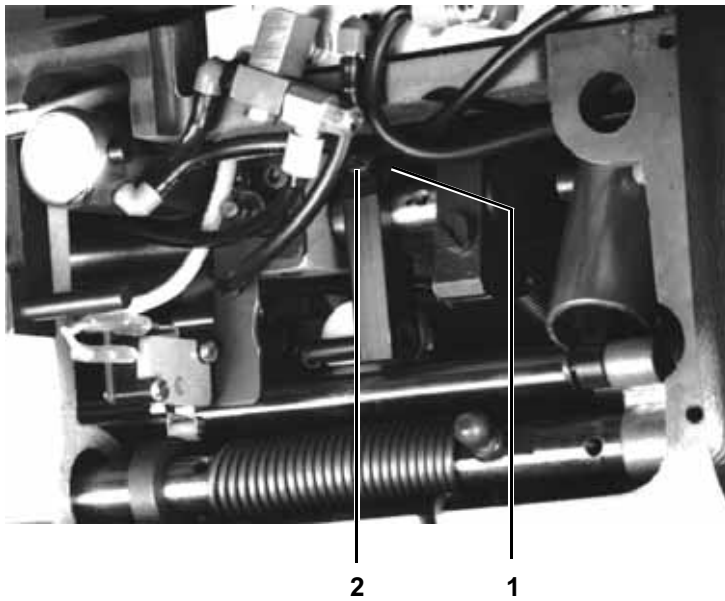


Caution Risk of Injury!

Turn off main switch before adjusting.

- Loosen the fastening screw on block 1.
- Set the pressure foot lift shaft accordingly.

2.5.2 Play in the Lift Mechanics



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The play in the lift mechanics should be 1 mm when at least one of the two pressure feet rests on the bed or the transporter.

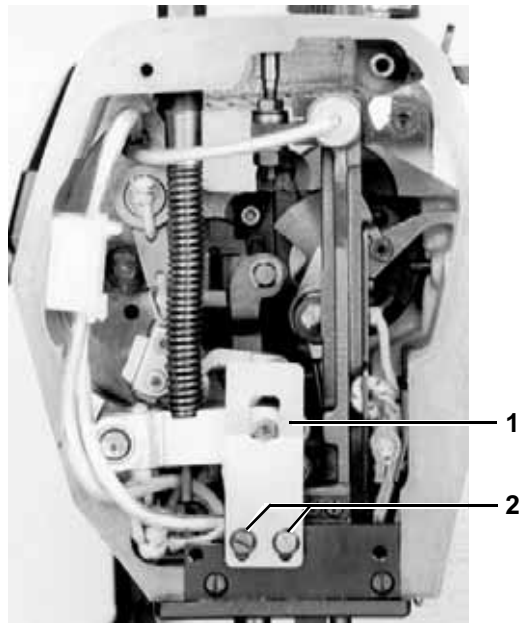


Caution Risk of Injury!

Turn off main switch before adjusting.

- Loosen the counter screw 1.
- With screw 2 set a play of 1 mm.

2.5.3 Height of the Pressure Feet arrested in the Raised Position



The pressure feet can be arrested in the raised position with the button on the top cover.

The clearance arrested, raised pressure feet to the bed should be 10 mm.

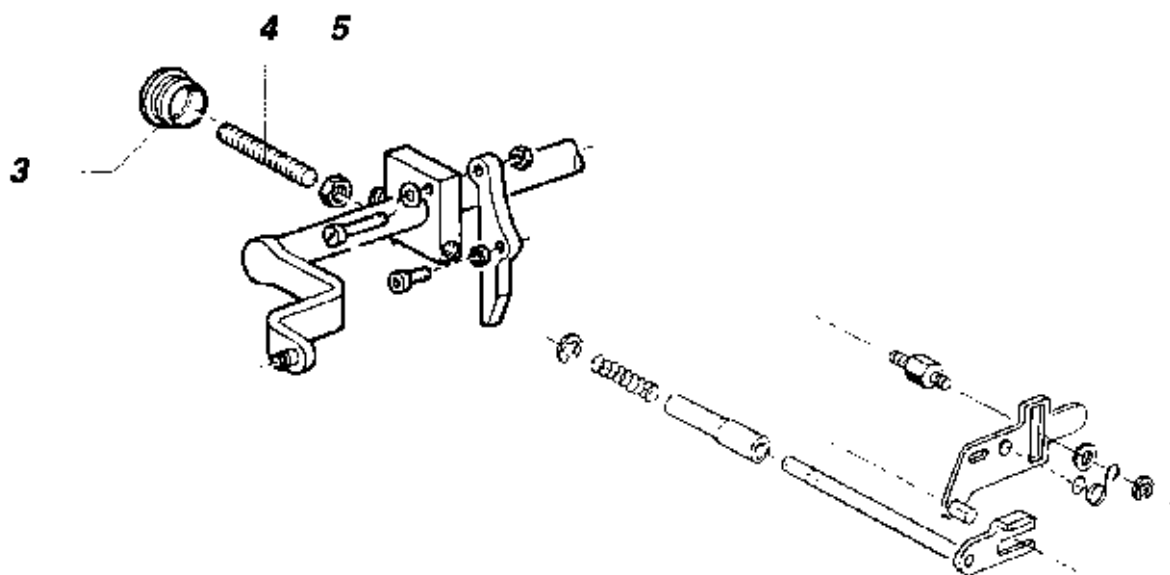
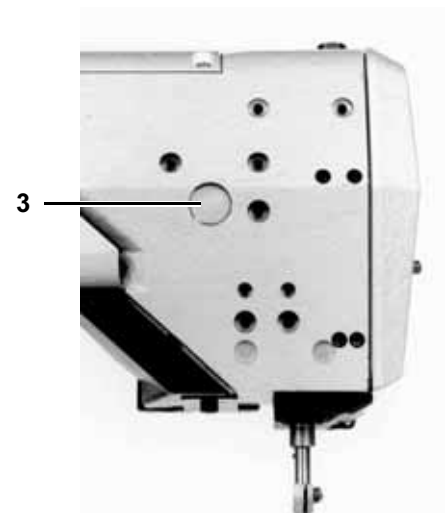


Caution Risk of Injury!

Turn off main switch before adjusting.

- Loosen screws 2 and set the position of the support plate 1 accordingly.

2.5.4 Thread Tension Lift



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The thread tension is only then raised when the pressure feet are raised if the lever 2 is in the lower position.

The thread tension must raise so far that threads with a thickness of $1\frac{1}{3}$ can be pulled unimpaired between the discs of the tension.



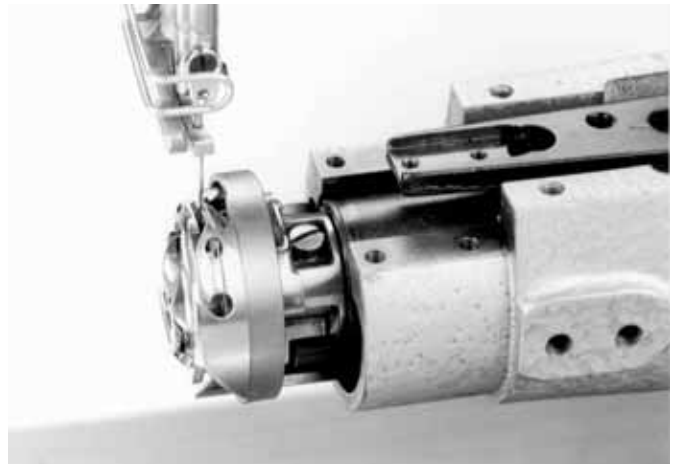
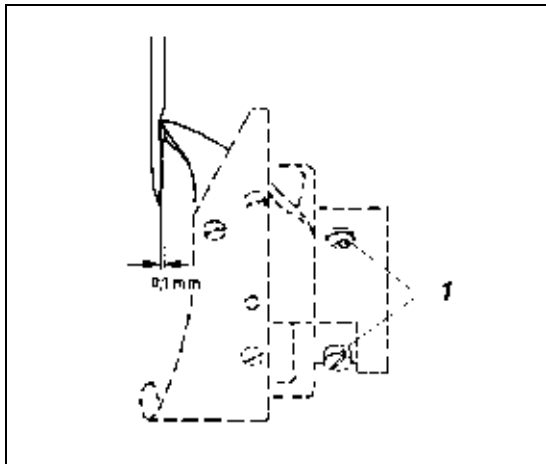
Caution Risk of Injury!

Turn off main switch before adjusting.

- Pull out the plug 3.
- Loosen the counter nut 5 and turn the set screw 4 accordingly.

2.6 Hook , Loop Stroke and Needle Bar Height

2.6.1 Loop Stroke , Clearance of the Hook Tip to the Needle



The loop stroke is the distance traveled by the needle bar from lower dead center to the point where the hook tip is at the needle end.

The loop stroke should be 2 mm.

In the loop stroke position the clearance of the hook tip to the needle should be 0,1 mm.

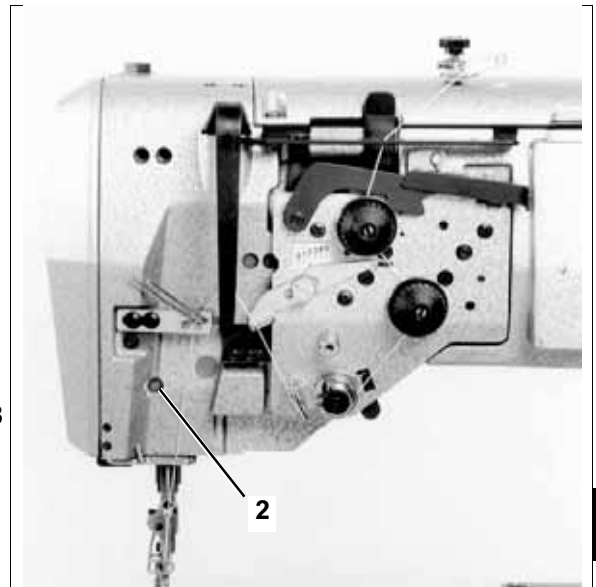
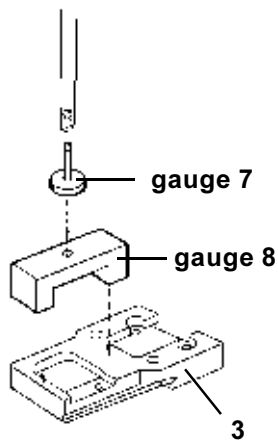
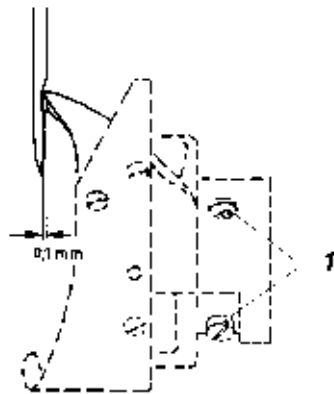


Caution Risk of Injury!

Turn off main switch before adjusting.

- Remove the skip foot, transport foot, bed and transporter.
- Loosen the screws 1 on the hook.
- Arrest the handwheel in the loop stroke position (**A**).
- Turn the hook accordingly, establish the clearance to the needle by axial repositioning of the hook.
- Tighten the accessible screw.
- Pull out the timing pin.
- Turn the handwheel so that the second screw is accessible and tighten this.

2.6.2 Needle Bar Height



GB

The needle bar height should be so adjusted that the needle point, with a set stitch length of "0" and in the loop stroke position, lies at the middle of the groove.



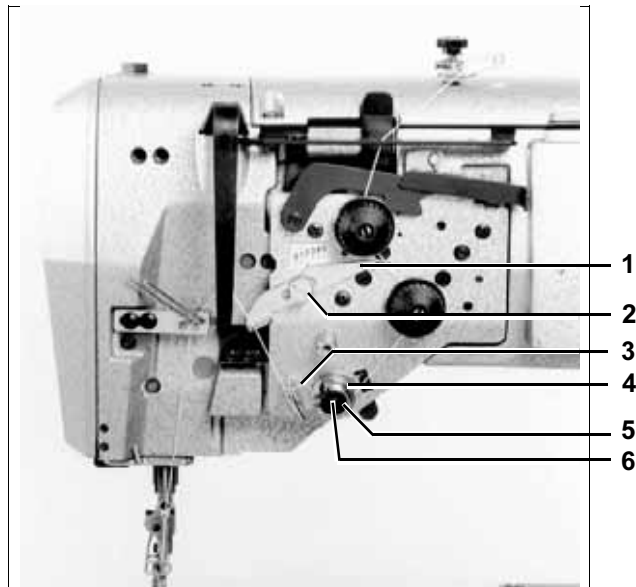
Caution Risk of Injury!

Turn off the machine before adjusting.

Setting with Gauge

- Pull plug 2 out of the hole.
- Turn the handwheel until the clamping screw on the needle bar is accessible.
- Insert a screwdriver through the hole and loosen the clamping screw for the needle bar.
- Place gauge 8 on the base plate 3.
- Arrest the handwheel in the needle-down position with the adjusting pin 1.
- Push gauge 7 into the needle seat of the needle bar.
- Slide the needle bar until gauge 7 lays onto gauge 8.
- Tighten the clamping screw again.

2.7 Thread Regulator, Thread Take-Up Lever



The position of the thread regulator is dependent on the material thickness, thread thickness and the selected stitch length.

It must be set so that the thread has a controlled run around the hook.

In the position "0" the greatest thread quantity is released such as is required for particularly great stitch lengths and thick sewing threads.

The tension of the thread take-up lever 3 should be great enough that the needle thread held under low tension from the high thread lever position until the eye of the needle enters the material.

The tension of the take-up should be lower than the needle thread tension .

The run of the take-up should be so long that it only hits the stop when the needle has entered the material up to the eye.



Caution Risk of Injury!

Turn off main switch before adjusting.

Thread Regulator

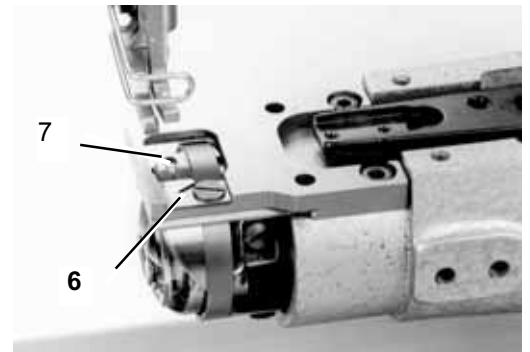
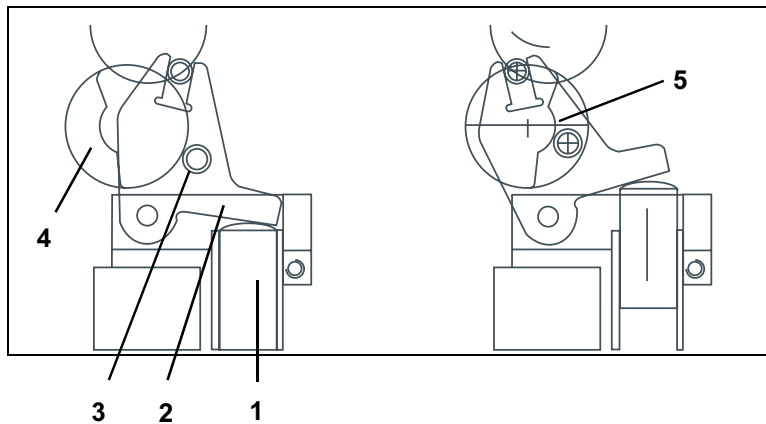
- Loosen screw 2.
- Change the position of the thread regulator 1.

Thread Take-Up Lever

- Loosen screw 6 and turn the tension bush 5 accordingly, without altering the position of the case 4.

2.8 Thread Trimmer

2.8.1 Function Sequence



GB

Stepping back on the pedal initiates the thread trimming process. It runs in 3 phases:

Phase 1:

- When reaching the first position **F** (slightly after the loop stroke) a solenoid is switched on which briefly admits compressed air to cylinder 1. Its piston presses the lever 2 up until its roller bolt 3 lies against the face of the guide curve 4. (Illustration 1)
- The thread tension is briefly opened.
- The machine runs with trimming revolutions of 150 rpm.

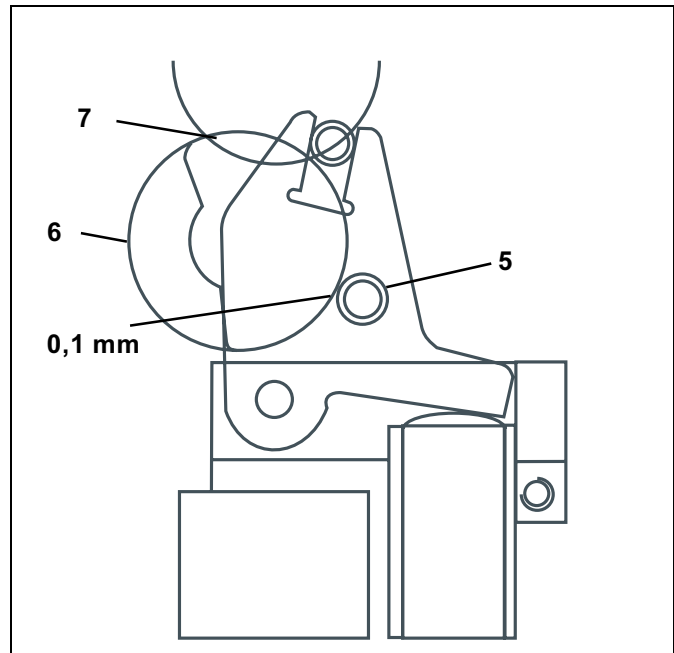
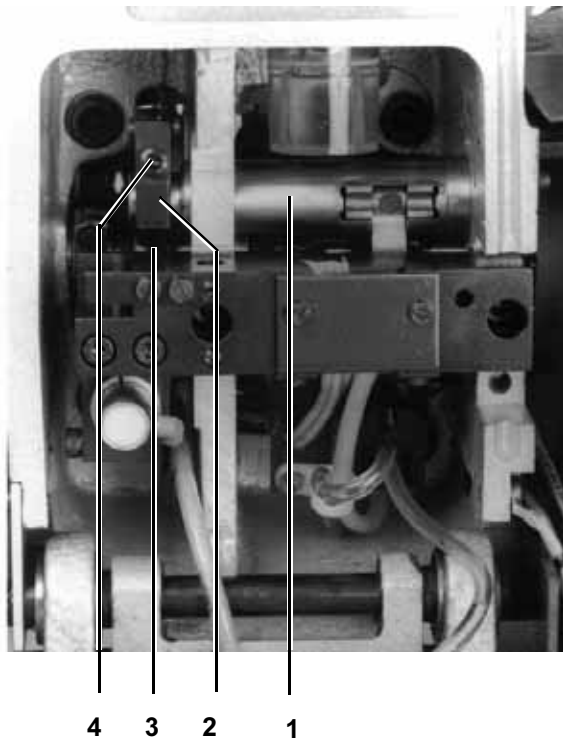
Phase 2:

- When the thread lever moves up from its lowest point the roller bolt 3 of the lever 2 runs in the opening 5 of the thread trimmer curve.
- The thread catcher 7 swings away from the counter knife 6.

Phase 3:

- When the thread lever reaches the upper dead center, the opening of the thread trimmer curve is over.
- The thread catcher swings back, thereby catching the needle and hook thread and pulls both against the counter knife. The threads are trimmed, the hook thread clamped.

2.8.2 Position of the Guide Curve



In position **C** (thread lever at upper dead center) the movement of the thread catcher to the counter knife have ended.

When the drive lever is in its initial position steht, the roller bolt should have a clearance of 0.1 mm to the face of the guide curve.

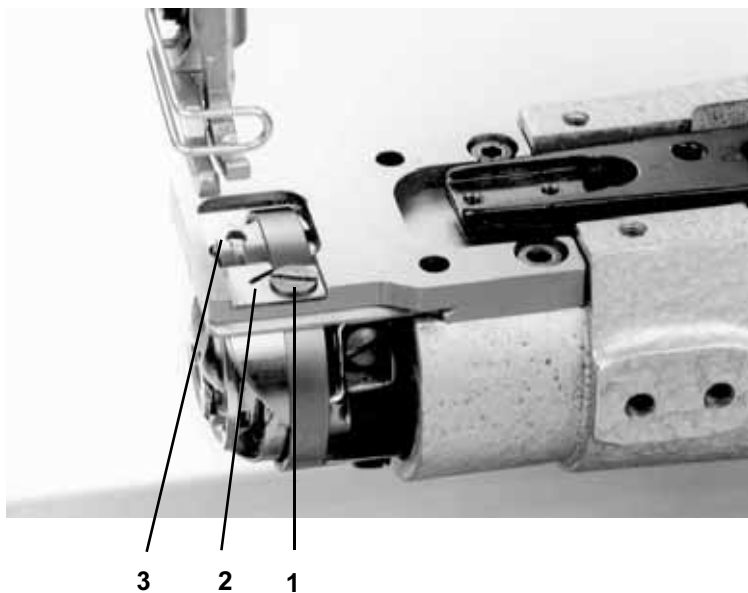


Caution Risk of Injury!

Turn off main switch before adjusting.

- Loosen screw 4 on the link 1, carefully push lever 2 to the left and tighten screw 4 again. Do not alter the position of the link.
- Loosen the screws on the guide curve 3.
- Turn the machine to position **D** (thread lever lowest point). In this position the roller bolt 5 should run in the opening 7 of the guide curve 6.
- Check if the trimming process is completed in this position (thread lever at upper dead center). Otherwise adjust the guide curve.
- Return lever 2 to its initial position.

2.8.3 Position of the Thread Catcher and Pressure of the Counter Knife to the Thread Catcher



The tip of the thread catcher 2 swung into its initial position should be below the counter knife and have a clearance of 1 mm to the trimming edge of the counter knife.

The knife should securely cut with a minimum of pressure.



Caution Risk of Injury!

Turn off main switch before adjusting.

Position of the Thread Catcher:

- Turn the handwheel until the thread lever has run halfway between the lower and upper dead center. In this position the thread catcher 3 can be swung by hand.
- Loosen screw 4.
- In its initial position set the thread catcher so that its tip has a clearance of 1 mm to the counter knife.
- Tighten screw 4 again.

Pressure of the Counter Knife:

- Loosen screw 2 of the counter knife 1.
- Adjust the counter knife.
- Conduct a manual trimming trial with thread.

2.9 Setting the Synchronizer



Before setting check if the synchronizer is properly fastened.

With the machine arrested in slot **A** (needle bar 2 mm after lower dead center) the locating mark 1 must be opposite notch 2.

Position E = 1st Position

= Needle position slightly behind the loop stroke .

Position C = 2nd Position

= Thread lever slightly before the upper dead center.



Attention!

It is essential that the timings for the 1st and 2nd positions be set as described above.

The motor manufacturer's directions give other values.