

745 - 34 Speedpocket

Sewing unit for runstitching of rectangular piped pockets

Operating Instructions

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Installation Instructions

2

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Instructions for programming DAC

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Foreword

This instruction manual is intended to help the user to become familiar with the machine and take advantage of its application possibilities in accordance with the recommendations.

The instruction manual contains important information on how to operate the machine securely, properly and economically. Observation of the instructions eliminates danger, reduces costs for repair and down-times, and increases the reliability and life of the machine.

The instruction manual is intended to complement existing national accident prevention and environment protection regulations.

The instruction manual must always be available at the machine/sewing unit.

The instruction manual must be read and applied by any person that is authorized to work on the machine/sewing unit. This means:

- Operation, including equipping, troubleshooting during the work cycle, removing of fabric waste,
- Service (maintenance, inspection, repair) and/or
- Transport.

The user also has to assure that only authorized personnel work on the machine.

The user is obliged to check the machine at least once per shift for apparent damages and to immediately report any changes (including the performance in service), which impair the safety.

The user company must ensure that the machine is only operated in perfect working order.

Never remove or disable any safety devices.

If safety devices need to be removed for equipping, repairing or maintaining, the safety devices must be remounted directly after completion of the maintenance and repair work.

Unauthorized modification of the machine rules out liability of the manufacturer for damage resulting from this.

Observe all safety and danger recommendations on the machine/unit! The yellow-and-black striped surfaces designate permanent danger areas, eg danger of squashing, cutting, shearing or collision.

Besides the recommendations in this instruction manual also observe the general safety and accident prevention regulations!

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.



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1. General notes

The service instruction manual on hand describes the setting of the sewing unit 745-34 in an appropriate sequence.



ATTENTION !

Some of the setting positions are interdependent. Therefore it is absolutely necessary to carry out the individual settings following the described order.

The operations described in the service instructions must only be executed by qualified staff and correspondingly instructed persons respectively!



Danger of breakage !

Before the sewing unit is put into operation again after having been disassembled the necessary adjustments have to be carried out according to the service instructions.

Before any adjusting operations of parts involved in the stitch formation are made:

- Insert a new needle without any damage.



Caution: Danger of injury !

Before repair, converting and maintenance work is done:

- Switch the main switch off and disconnect the sewing unit from the pneumatic supply system.

Exception:

Adjusting operations carried out with the help of test or setting programs.

Adjusting operations and function tests when the sewing unit is running

- Carry out adjusting operations and function tests of the running sewing unit only under observation of all safety measures and with utmost caution.

Adjusting operations in the needle zone

- Parts which can lead to injuries have to be removed before carrying out the adjusting operations.

Exception:

The parts are absolutely necessary for the adjusting operations.

1.1 Gauges

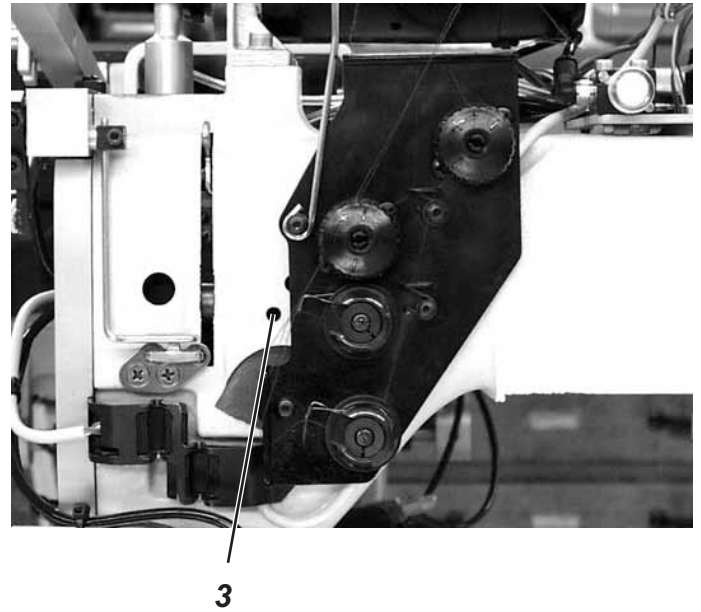
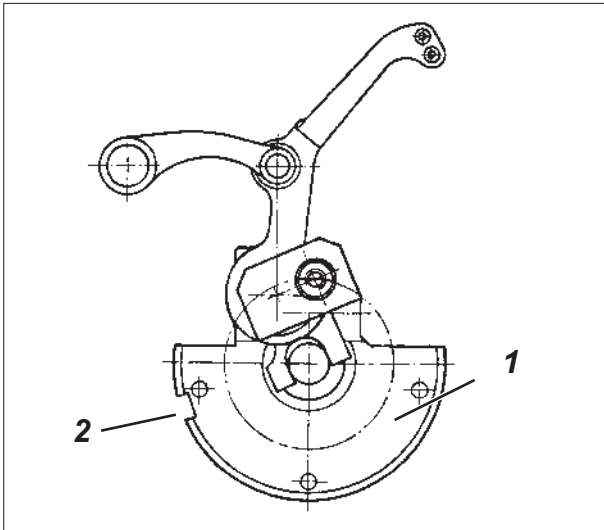
The gauges listed below allow a precise setting and testing of the sewing unit.

The locking peg 1 belongs to the standard accessories of the sewing unit. It serves to stake out the position **A** (looping stroke).

The setting gauges marked with *) are available on inquiry.

Position	Setting gauge	Order No.	Use
1	Locking peg	0211 000700	Looping stroke position
2 *)	Gauge	0246 002591	Crank pin to arm shaft
3 *)	Gauge	0244 001001	Height of hook shaft
4 *)	Measuring bridge	0212 004942	Height of needle holder
5 *)	Measuring pin	0216 001070	Height of needle holder
6 *)	Adjusting pin	0244 001014	Lateral hook distance

1.2 Groove in the arm shaft crank



The arm shaft crank 1 is provided with a groove 2 (5 mm).
The machine head can be staked out with the locking peg through drill-hole 3.
Now the machine head is in looping stroke position (position A).

2. Sewing machine head

2.1 Raising the sewing machine head

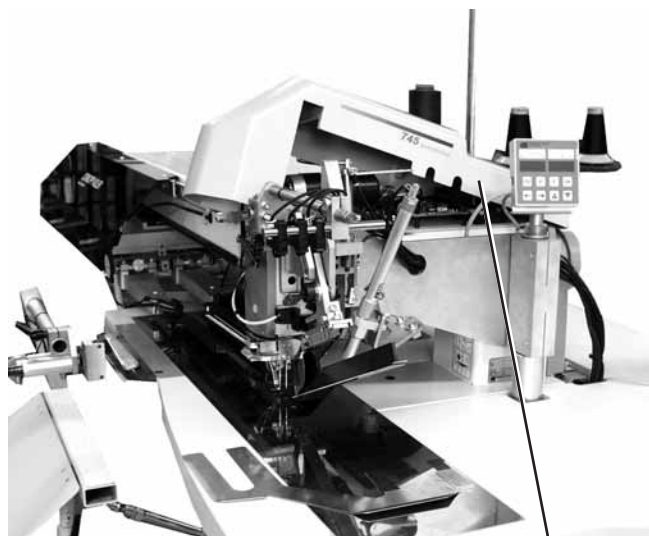
For maintenance work the machine head can be raised.
For this purpose the transport carriage must be in its rear position.



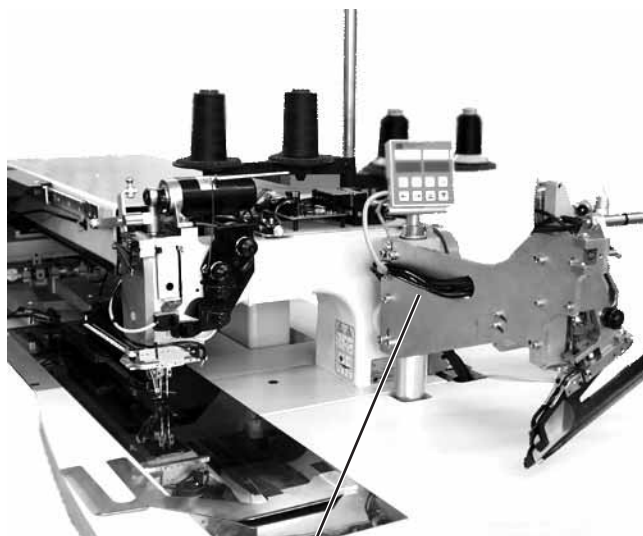
Caution: Danger of injury !

Switch the main switch off.

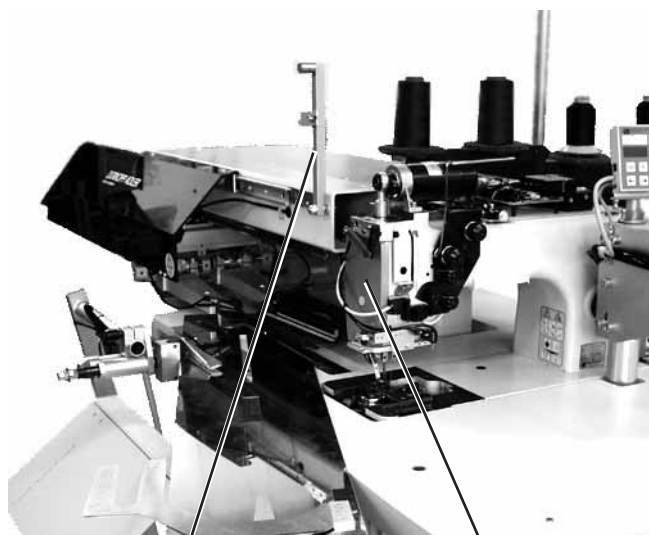
Raise the machine head only with the main switch switched off.



1



3



4

5



6

Raising the machine head

- Remove the covering cap 1.
For this purpose lift the covering cap at the front and at the back so that the arrest is released. Lift the covering cap carefully.
- Swivel the folding station 3 out by 90°.
- Swing the locking peg 4 upwards.
- Lift the fabric sliding sheet 6 at the front and swing it to the left.
- Lift the machine head in the area of head cover 5 and raise it carefully.
Pawl 2 snaps in additionally.
The area underneath the machine table is accessible for cleaning.



Caution: Danger of injury !

Do not reach into the table top cutout when the machine head is raised.

Swinging the machine head back

- Hold the machine head in the area of head cover 5.
- Release pawl 2.
- Swing the machine head back carefully.



Attention: Danger of breakage!

Hold the machine head tight until it finally rests on.

3

- Insert the fabric sliding sheet
- Swivel the locking lever 4 downwards.
- Swing the folding station 3 back carefully and let it catch in the locking lever.
- Put on the covering cap 1 and let it snap in again.



2

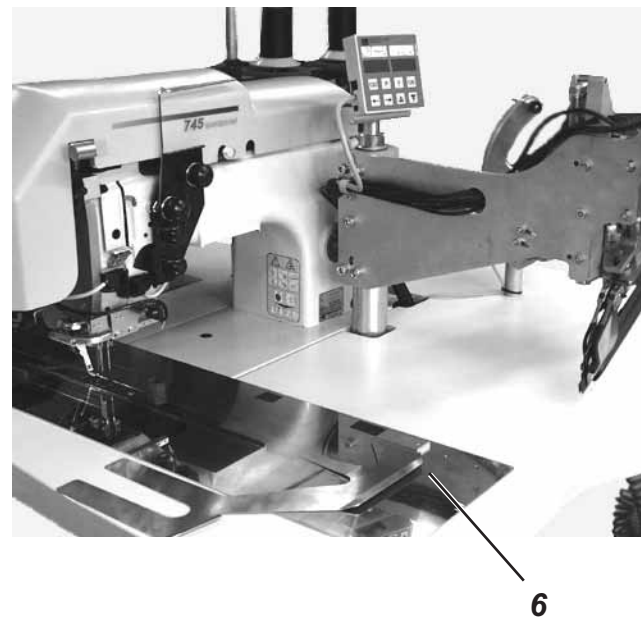
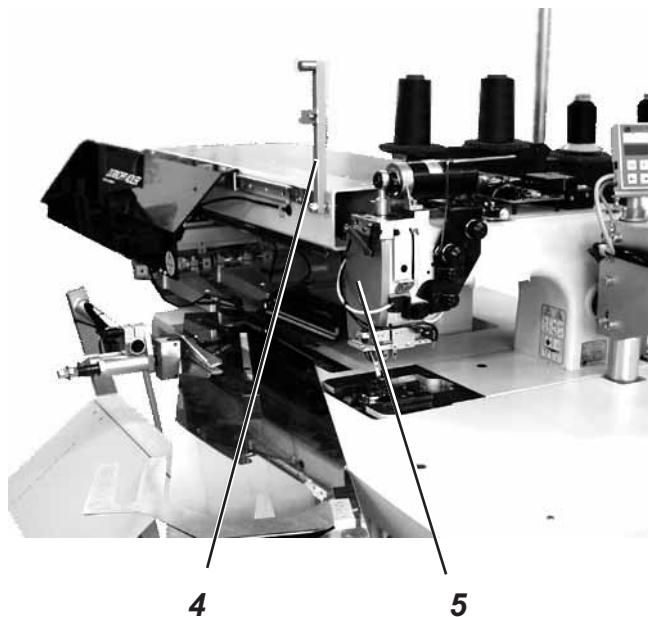
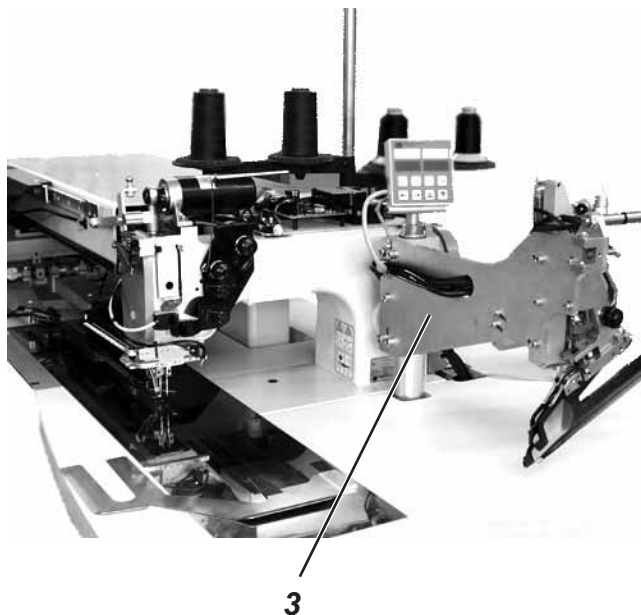
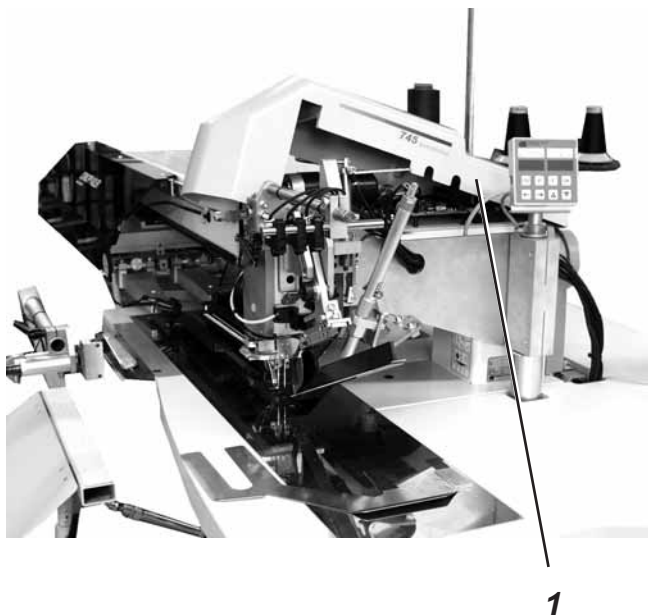
2.2 Removing / Installing the sewing machine head

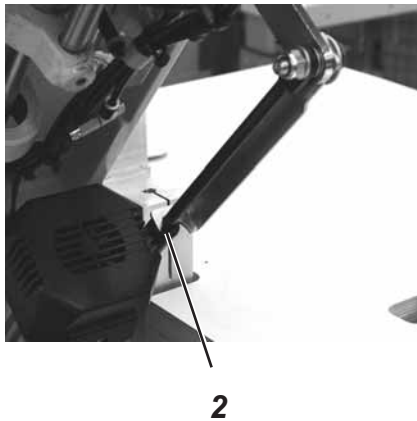
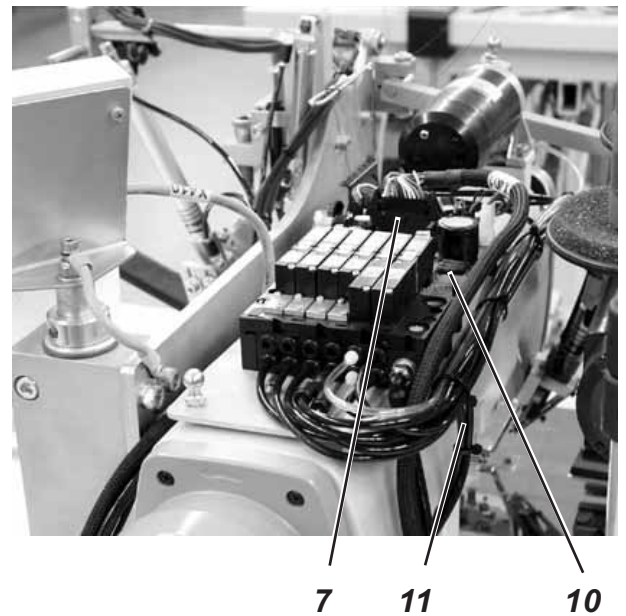
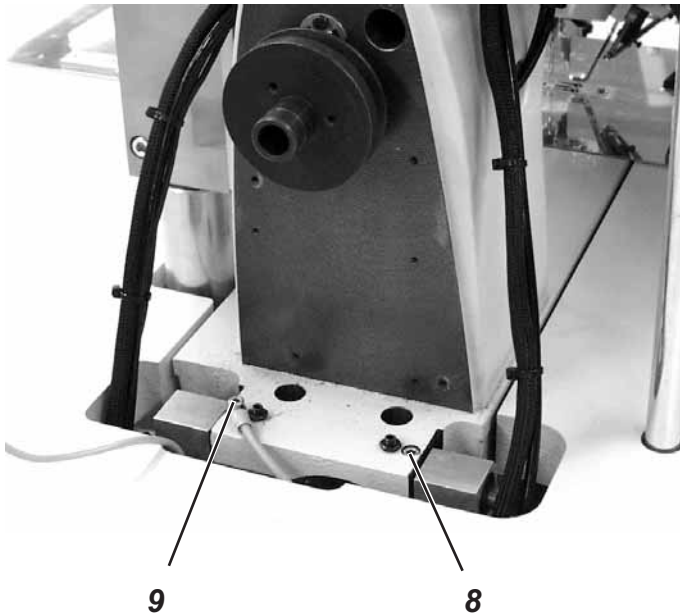
For repair work or an easier change to another needle distance the machine head can be removed.
For this purpose the transport carriage must be in its rear position.



Caution: Danger of injury!

Switch the main switch off and disconnect from the pneumatic net.
Remove and install the machine head only with the main switch switched off.





Removing the machine head

- Remove the covering cap 1.
For this purpose lift the covering cap at the front and at the back so that the arrest is released. Lift the covering cap carefully.
- Swivel the folding station 3 out by 90°.
- Swing the locking lever 4 upwards.
- Lift the fabric sliding sheet 6 at the front and swing it to the left.
- Pull off plug 7 from the circuit board.
- Pull off the main pneumatic hose 11 from the solenoid valve block 10.
- Loosen the gas shock absorber connection 2.
- Unscrew screws 8 and 9.
- Pull off the plug from the motor at the control cabinet and disconnect the plug connection from the proximity switch.
- Lift out the machine head carefully with an appropriate auxiliary tool.

Installing the machine head

- Carefully insert the machine head into the cutout for the head with an appropriate auxiliary tool.
- Screw the machine head tight with the screws 8 and 9.
- Re-establish the gas shock absorber connection 2.
- Connect the pneumatic hose 11 to the solenoid valve block 10.
- Put plug 7 on the circuit board again.
- Insert the fabric sliding sheet.
- Swing the locking lever 4 downwards.
- Swing the folding station 3 back and let it catch.
- Put on the covering cap 1 and let it snap in.

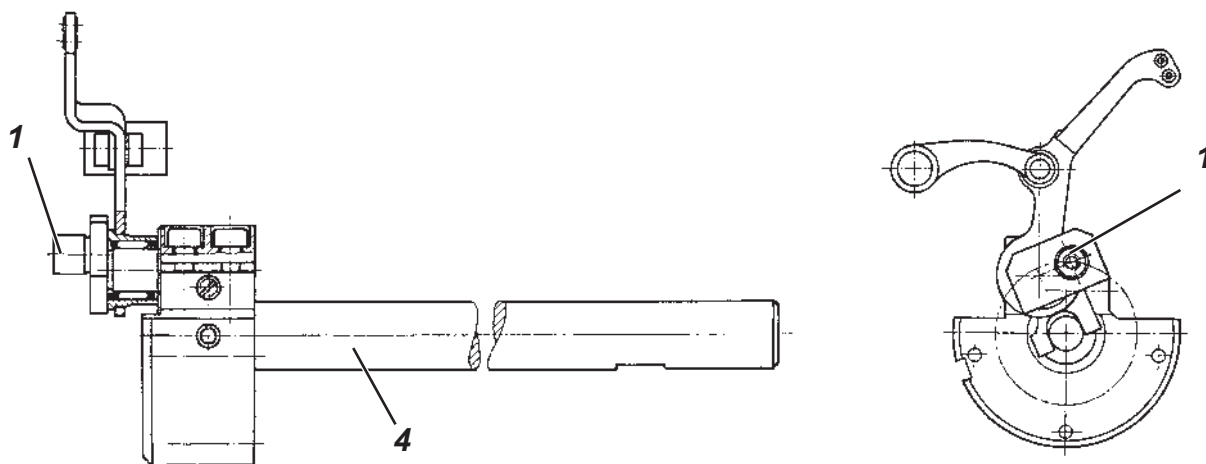
2.3 Crank pin at the arm shaft

The distance between the eccentric crank pin 1 and the arm shaft 4 determines the needle bar stroke and thus the upper dead centre of the needle bars.

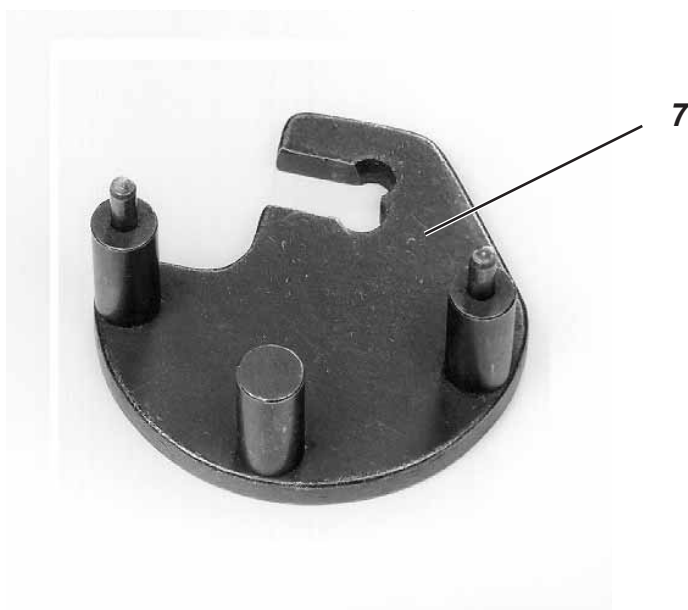


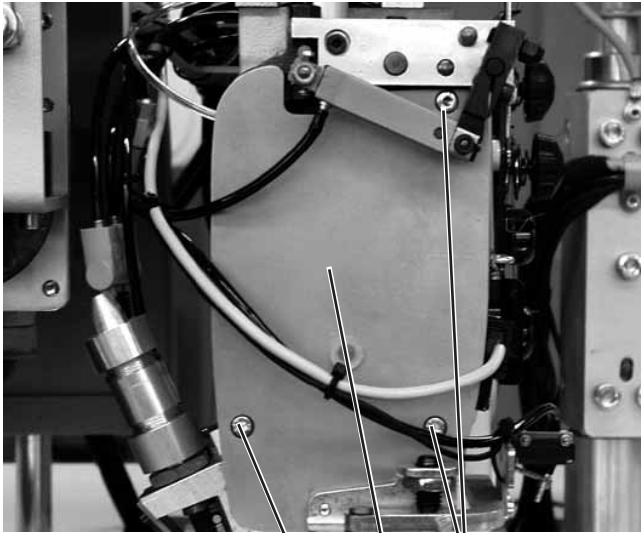
ATTENTION !

The crank pin 1 has been precisely set by the manufacturer!
After exchanging the thread lever the crank pin 1 has to be readjusted.



The adjustment of the crank pin 1 is done with the gauge 7
(Order No. 0246 002591).
It is not necessary to remove crank and arm shaft for the adjustment.





8 9 8



11 10



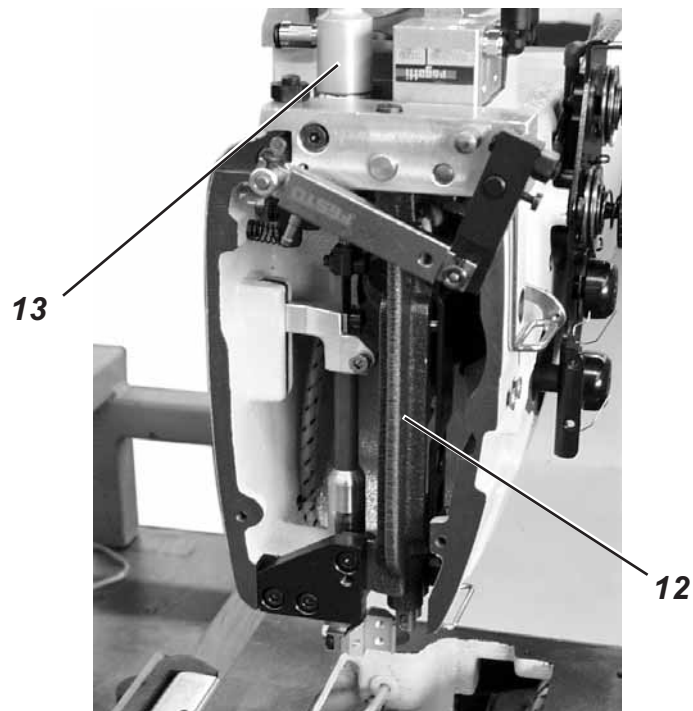
Caution: Danger of injury !

Switch the main switch off.

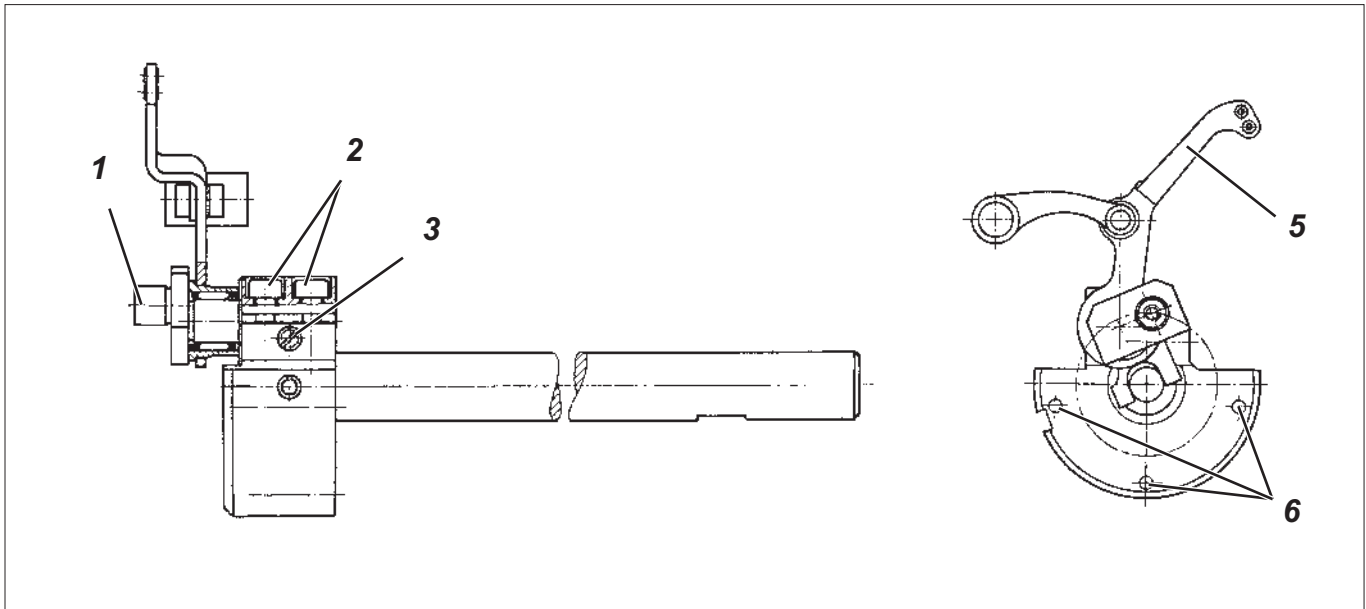
Adjust the crank pin only with the main switch switched off.

- Remove the head cover 9 after loosening the fastening screws 8.
- Swivel the thread tension plate 10 sideways after loosening the fastening screws 11.

3



- Remove the needle bar linkage 12 (see chapter 2.4.1).
- Remove the switching cylinder 13 for the center knife drive (see chapter 2.6.2).



13

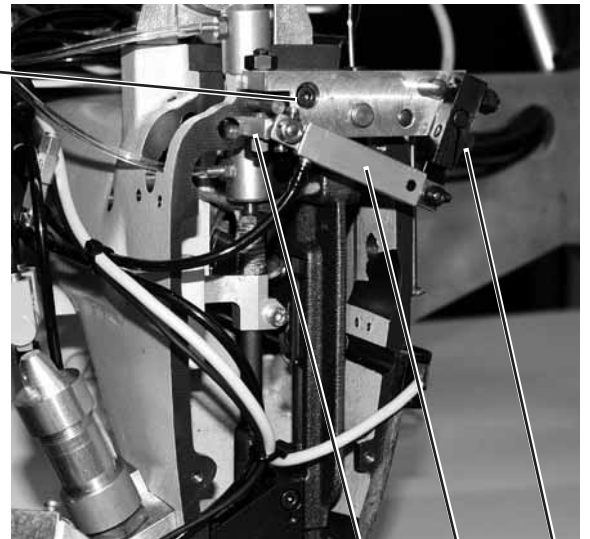
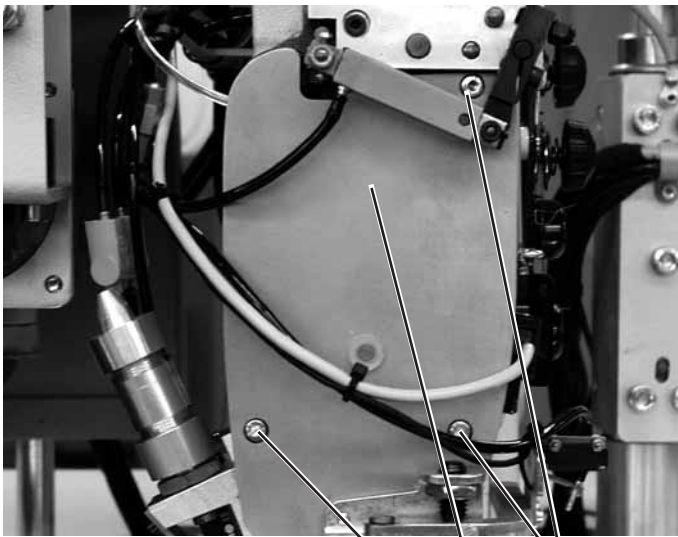


7

- Detach the needle bar tie rod from the crank pin 1 after unscrewing its fastening screws (**ATTENTION left-hand thread**) and pull it off with the needle cage.
- Turn the handwheel until the Allen screws 2 point downward. In this position the screws are accessible.
- Loosen the Allen screws 2.
- Loosen the support bolt 3.
The screw is accessible through drill-hole 13.
- Put the pivots of gauge 7 in the insertion bores 6.
- Turn the crank pin 1 in such a way that it reaches in the cutout of the gauge.
- Press the crank pin 1 on.
The thread lever 5 must have a minimum axial backlash for the lubrication.
- Tighten Allen screws 2 and support bolt 3.
- Remove gauge 7.
- Turn the handwheel and check the free movement of the upper shaft.
- Put the needle bar tie rod with the needle cage on the crank pin 1 and tighten the fastening screws. (**ATTENTION left-hand thread**).
- Mount and adjust the needle bar linkage (see chapter 2.4.1).
- Mount the switching cylinder for the center knife drive (see chapter 2.6.2).

2.4 Needle bar linkage

2.4.1 Removing the needle bar linkage

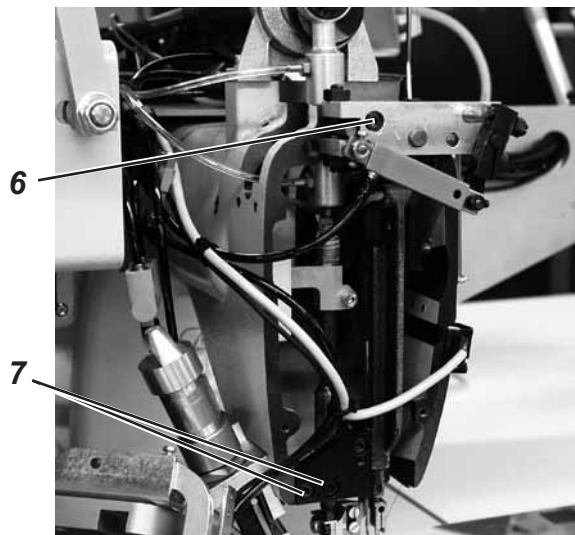


Caution: Danger of injury!

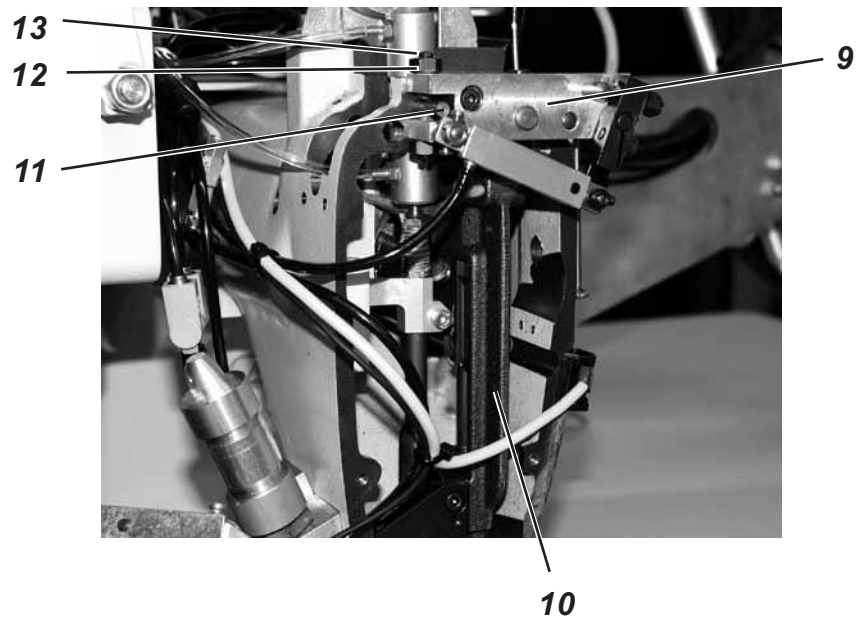
Switch the main switch off.

Remove the needle bar linkage only with the sewing unit switched off.

- Unscrew the screws 1 and take off the head cover 2.
- Loosen the screws 3 and 5 and pull off the thread puller 4.



- Unscrew screws 7.
- Unscrew screw 6.



- Loosen the counternut 12.
- Loosen the adjusting screw 13 a bit.



ATTENTION !

Do not loosen both adjusting screws 13.
With the two adjusting screws 13 the correct height of the linkage frame has been set by the manufacturer.

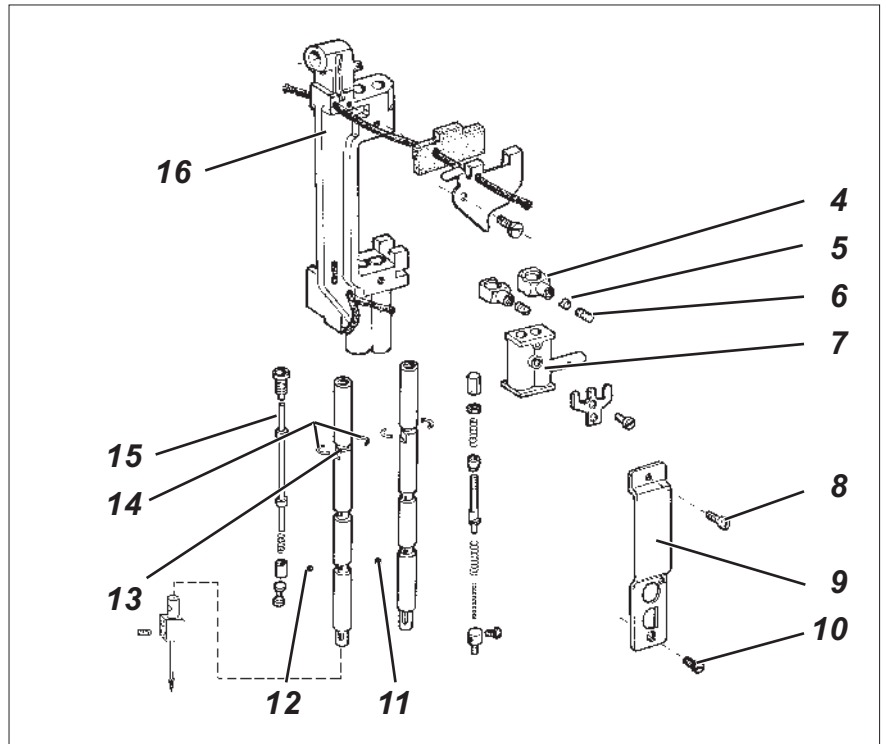
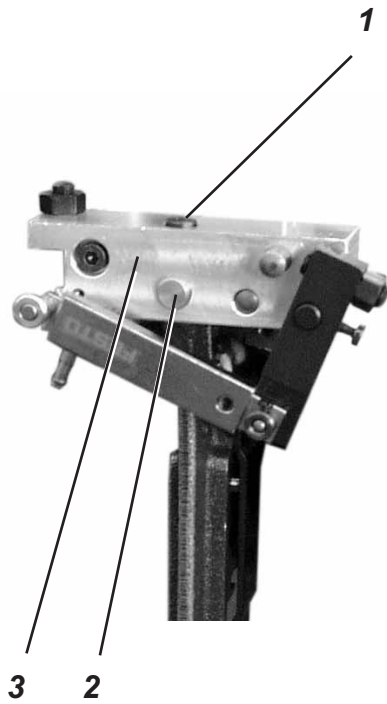


ATTENTION !

Avoid damage to the oil wick when taking off the needle bar.
Note the position of the oil wick for the subsequent assembly.

- Carefully remove the support plate 9 with the needle bar linkage 10 from the stop pin 11.
This is facilitated by slight turning motions.

2.4.2 Removing a needle bar from the linkage



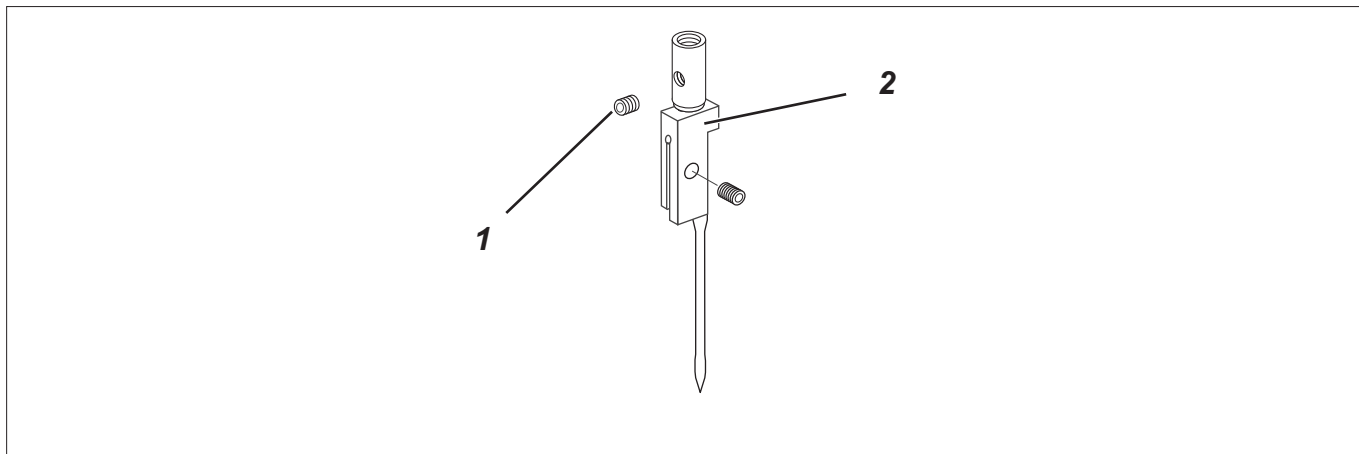
- Loosen the clamping screw 1.
- Pull out the bearing bolt 2
- Pull off the support plate 3 from the needle bar linkage.
- Unscrew the screws 8 and 10.
- Remove the guide rail 9.
- Actuate both decoupling bars 15 and push the yoke 7 downwards to half the needle bar stroke.
- Unscrew the safety bolt 6 of the clamping ring 4 as well as the fastening screw 5 located below.
- Remove the two securing halves 14. They are located in the annular slot 13 and become visible after pushing down the clamping ring 4.
- Shift the switching block in such a way that the two decoupling bars 15 are not actuated.
- Shift the yoke 7 slowly up the needle bar until the three upper coupling balls 12 come out.

ATTENTION !Take care that the balls do not get lost - they are under spring pressure.

- Pull the needle bar downward out of the linkage 16.

ATTENTION !The three lower balls 11 can drop out of the ball holes of the needle bar.

2.4.3 Disassembly of a needle bar

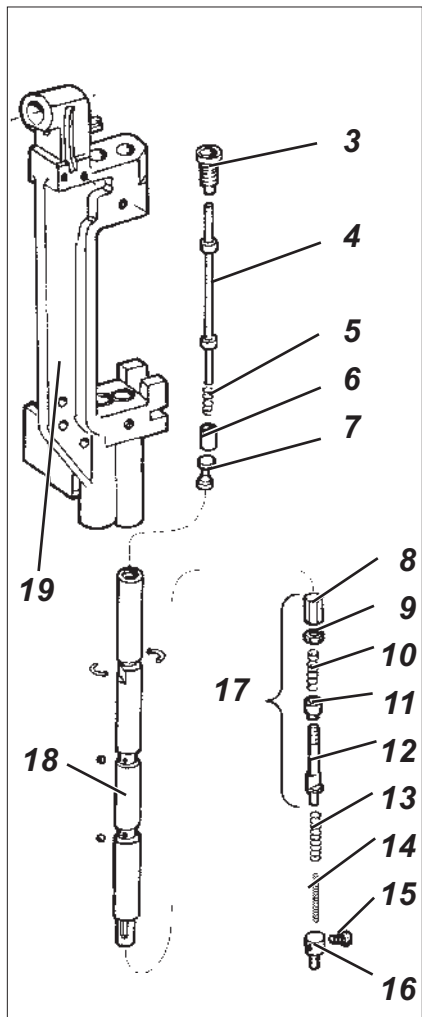


- Remove the linkage 16 and the needle bar as described under 2.4.1.
- Screw off the screw 1 and unscrew the needle holder 2.
- Unscrew the screw 15 and loosen the spring counter bearing 16.

ATTENTION ! The spring counter bearing is under spring pressure. Before loosening the screw 15 support the spring counter bearing with a pin $\varnothing$ 4 mm inserted in the needle bar from below.

- Take off the parts located in the needle bar one after the other from below.

2.4.4 Assembly of a needle bar



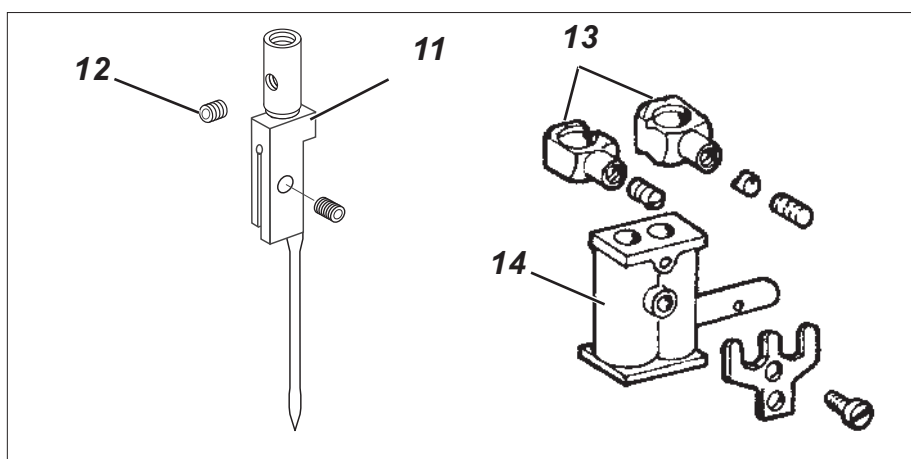
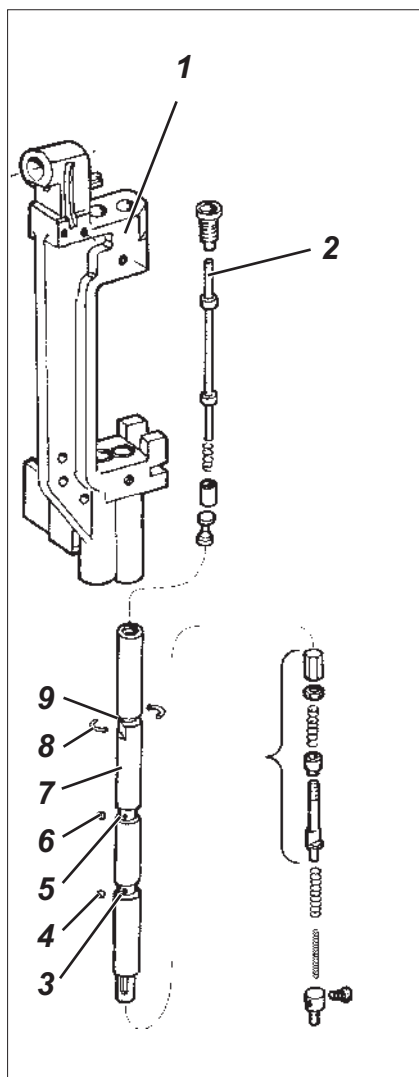
- Screw the locking screw 3 tightly into the needle bar.
- Pre-assemble the lower coupling bar 17 in the sequence as per the illustration opposite.
- Tighten nut 9 and counter-rotate the acorn nut 8 in such a way that there is a distance of 30.5 mm between the lower edge of taper socket 11 and the top edge of acorn nut 8.

Note

This dimension has to be observed in any case so that the retaining force of the coupling necessary for the needle penetration is achieved.

- Put spring 5 and bush 6 on the thinner shaft extension of the decoupling bar 4.
- Push the thicker shaft extension of the decoupling bar 4 into the needle bar 18 from below until it emerges on top of locking screw 3.
- Push the following parts into the needle bar: first the conical bolt 7 with the cylindrical part showing upwards, then the pre-assembled coupling bar 17 and finally spring 13 with spring 14 as well as spring counter bearing 16.
- Screw the spring counter bearing 16 tight by means of screw 15.
- Press down the decoupling bar 4 repeatedly and check whether the bars inside the needle bar are movable freely and flexibly.

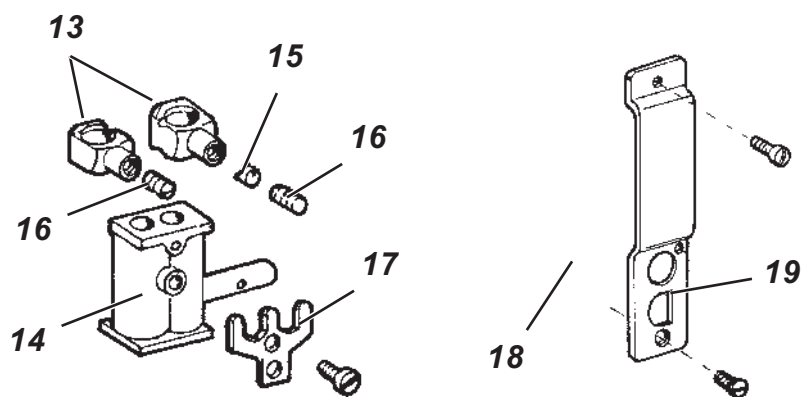
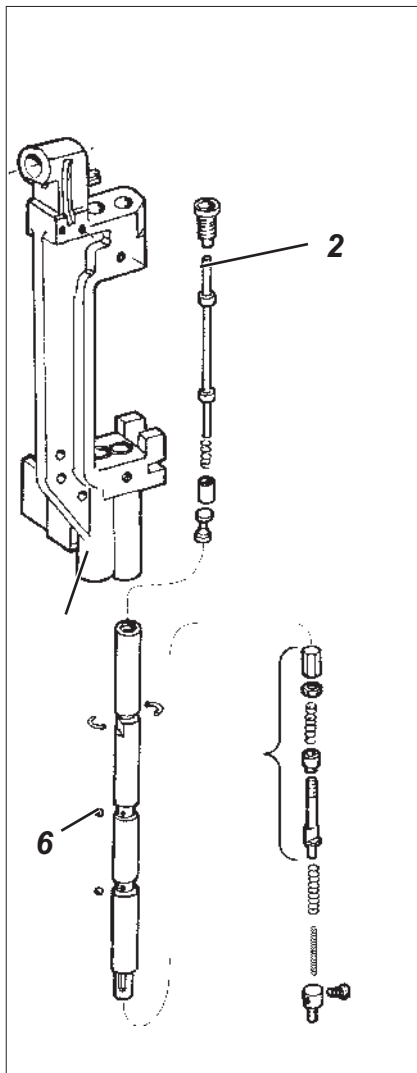
2.4.5 Installation of the needle bars in the needle bar linkage



- Insert the needle bar 7 in the linkage 10 from below.
- Insert the needle bar in yoke 14 and clamping ring 13. The thin side of the clamping ring must point to the other needle bar and its indentation must point upwards.
- Push up the needle bar so that the three lower ball holes 3 are still below the linkage.
- Insert three balls 4 in the lower ball holes 3. Use some grease to avoid that the balls drop out.
- Push the needle bar upwards so that the lower balls disappear and the upper ball holes 5 become visible.
- Insert the three balls 6 in the upper ball holes 5.
- Hold the needle bar tight and press the decoupling bar 2 into the needle bar.
- Simultaneously pull the yoke 14 down half over the upper balls 6.

ATTENTION ! Now the needle bar and the yoke must not be shifted any more because otherwise the balls being under spring pressure might come out.

- Push the clamping ring 13 down the needle bar until the annular slot 9 lies exposed.
- Place the two securing halves 8 in the annular slot. Push the clamping ring 13 upward as far as it will go so that the securing halves lie in the indentation.
- Press the yoke 14 upward against the clamping ring 13 as far as it will go so that the needle bar is coupled with the yoke.
- Screw in needle holder 11 and fasten by means of screw 12.
- Turn the needle bar in such a way that the fronts of both needle holders are at the same level.



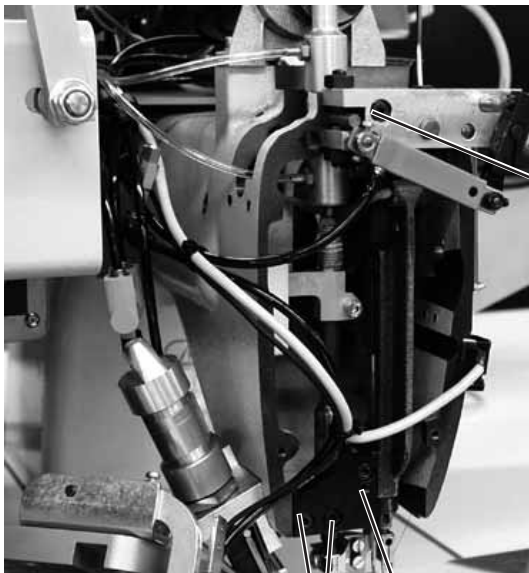
- Fasten the clamping ring 13 on the needle bar. Please observe that both clamping rings 13 with their round extensions are guided in clevis 17 fastened on the yoke. After tightening the fastening screw 15 the safety bolt 16 has to be tightened, too.
- Screw on the guide rail 19. It avoids turning of a disconnected needle bar.

ATTENTION !

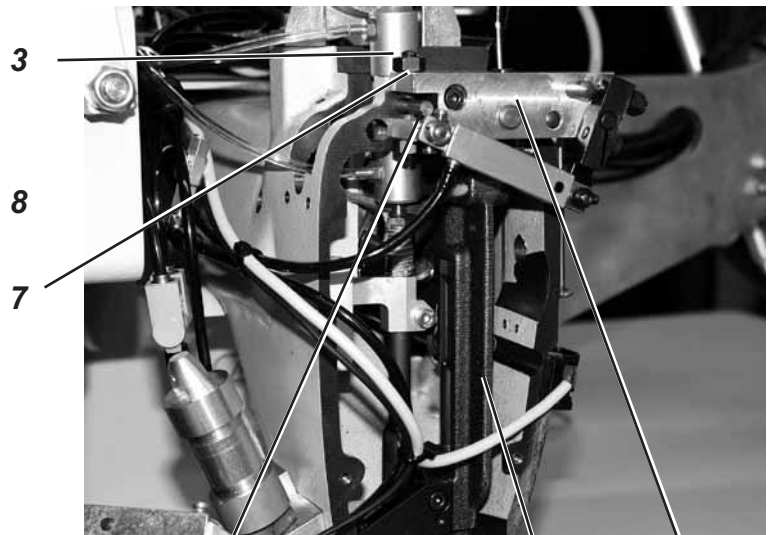
When the needle bar linkage is removed and the needle bar is disconnected, the yoke 14 must not be pushed down too far. The upper balls 6 might come out unintentionally.

- **Note:**
The precise needle height as to the hook has to be adjusted after the installation of the linkage according to chapter 2.5.4 "Height of the needle holders".

2.4.6 Installation of the needle bar linkage



2 1



6 5 4

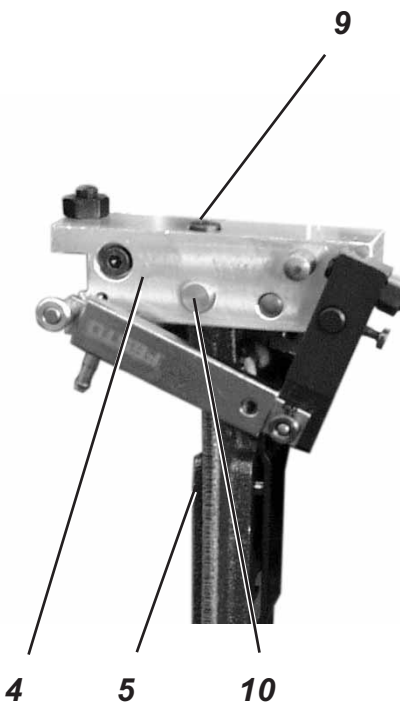


Caution: Danger of injury !

Switch the main switch off.

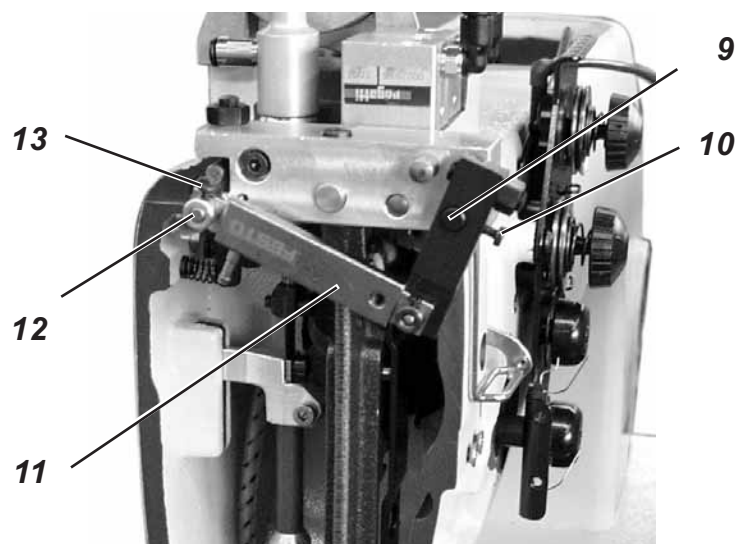
Mount the needle bar linkage only with the sewing unit switched off.

3



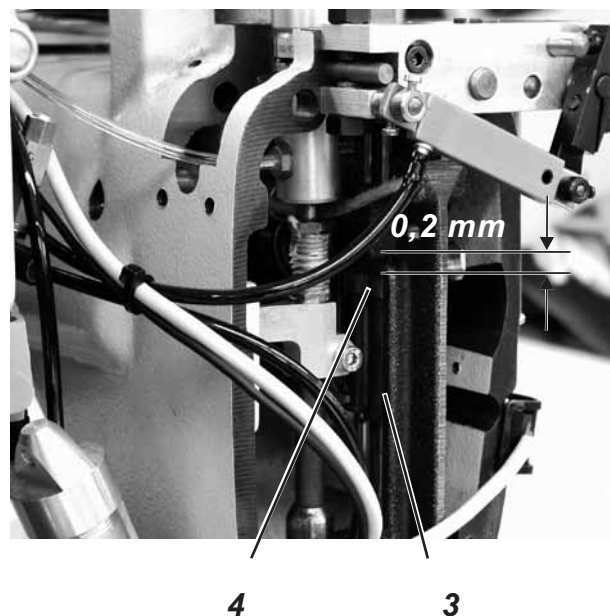
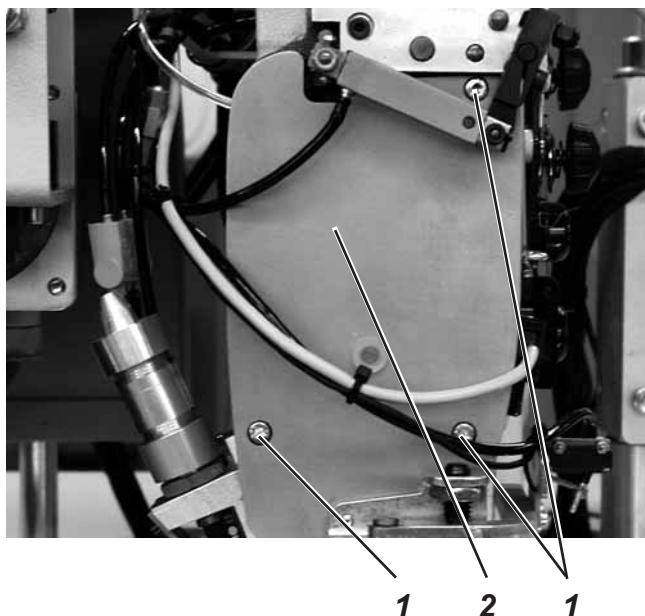
4 5 10

- Push the support plate 4 on the needle bar linkage 5.
- Press the bearing bolt 10 into the support plate and the needle bar linkage.
- Tighten the clamping screw 9.
The needle bar linkage must be close to the support plate 4, but must be freely movable nevertheless.
- Carefully push the support plate 4 with the needle bar linkage 5 on the stop pin 6.
- Insert the fastening screw 8 and tighten slightly.
- Put the adjusting screw 3 (height of needle bar linkage) next to the stop pin 6 and secure with counternut 7.
- Tighten the guide plate 1 with the two screws 2.
- Insert the needle and align the needle bar linkage as to the throat plate.
- Tighten screws 8.
- Check the height of the needle bar linkage (see chapter 2.4.7).



- Push the thread puller 11 on the pins 9 and 12 and tighten with screws 10 and 13.
- Adjust the thread puller (see chapter 2.10).

2.4.7 Height of the needle bar linkage



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the height of the needle bar linkage only with the sewing unit switched off.

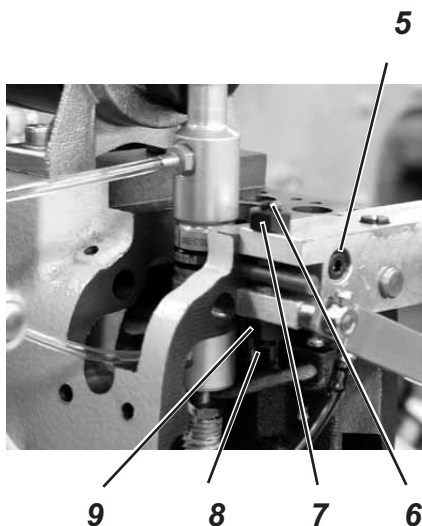
Standard checking

If the two needle bars in the top dead centre are engaged, there must be a distance of 0.2 mm between the yoke 4 and the needle bar linkage 3.

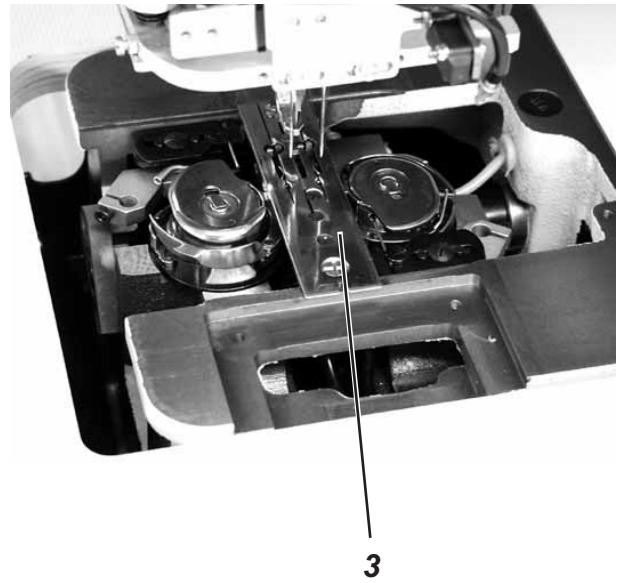
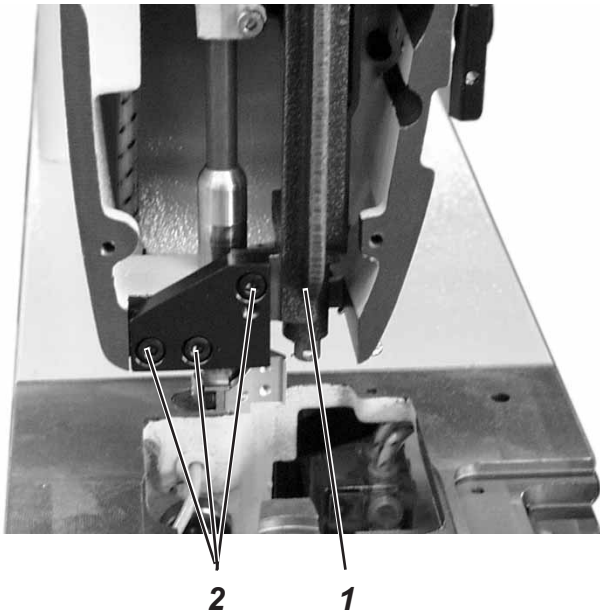
- Unscrew the screws 1 and take off the head cover 2.
- Check the distance of 0.2 mm between yoke 4 and needle bar linkage 3.

Correction

- Unscrew the screws 1 and take off the head cover 2.
- Slightly loosen screw 5 at the support plate.
- Loosen the counternuts 7 and 9.
- Set the linkage height with the screws 6 and 8 in such a way that there is a distance of 0.2 mm between linkage 3 and yoke 4.
- Tighten the counternuts 7 and 9.
- Tighten screw 5 at the support plate.
- Mount the head cover again.



2.4.8 Aligning the needle bar linkage to the throat plate



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the alignment of the needle bar linkage only with the sewing unit switched off.

Standard checking

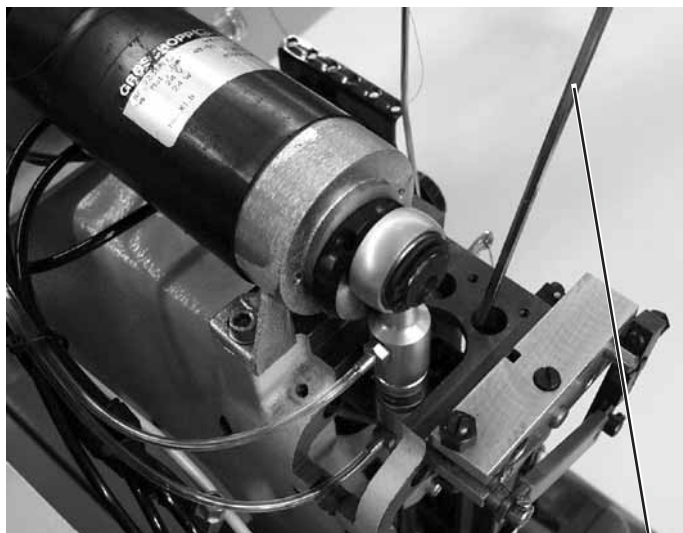
The needles should penetrate in the centre of the holes of throat plate 3.

- Insert new needles.
- Slowly move the needle bars down by handwheel.
- Check the position of the needles in the needle hole.

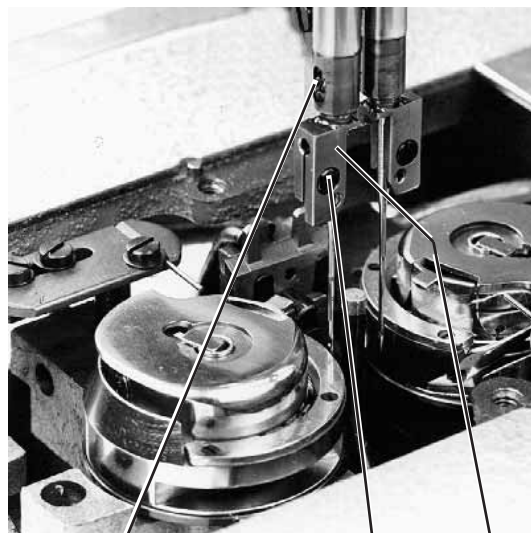
Correction

- Loosen the screws 2.
- Shift the needle bar linkage laterally in such a way that the needles are in the centre of the needle holes.
- Tighten the screws 2.

2.4.9 Exchanging the needle holder



1



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Caution: Danger of injury !

Switch the main switch off.

Check and exchange the needle holder only with the sewing unit switched off.

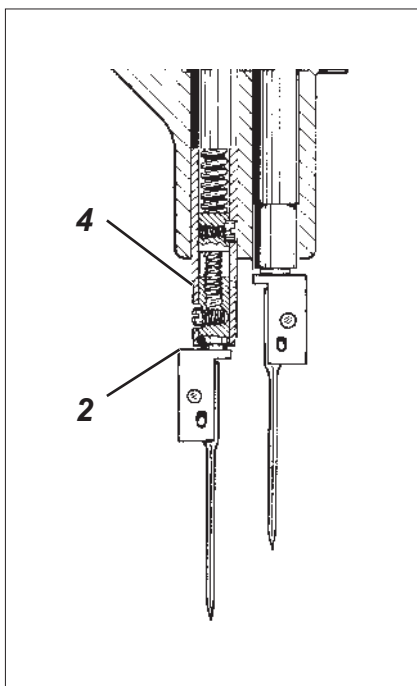


ATTENTION !

For changing a needle holder the needle bar in question must be in position "down".

The other needle bar has to be disconnected.

3

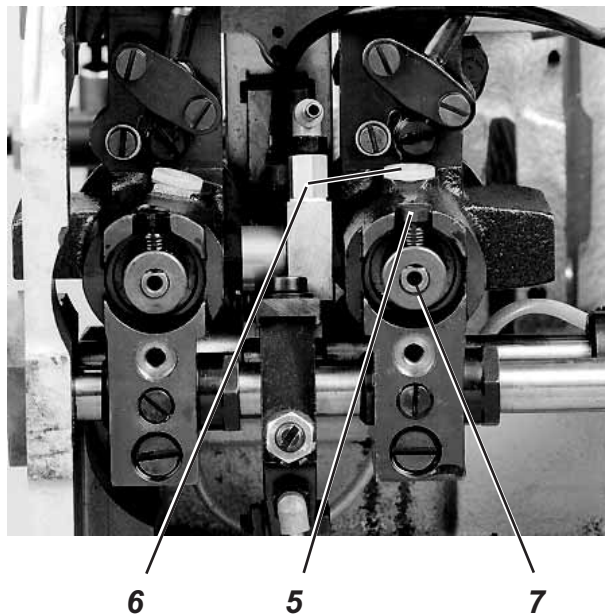
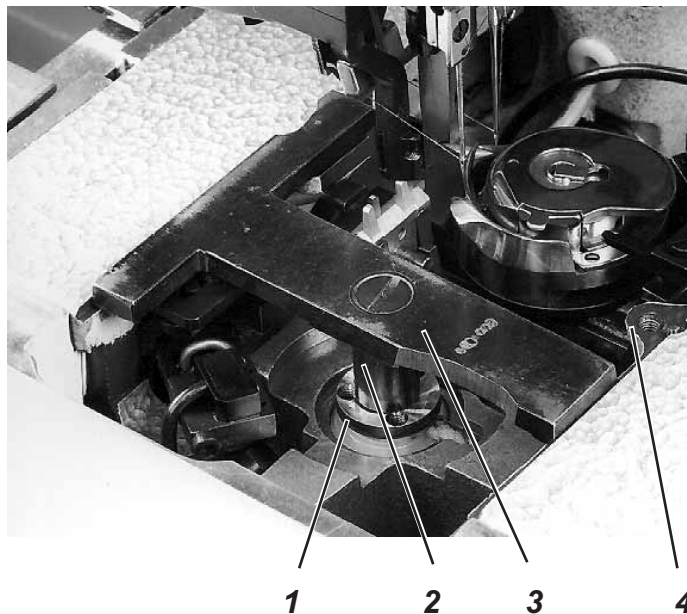


- Loosen the screw 3.
- Remove the needle from needle holder 2.
- Press down the switch bar of the needle bar with an Allen key 1 and hold it pressed.
- Switch the needle bar off by turning the handwheel.
- Keep on turning the handwheel.
The actuated needle bar switches off.
- Keep on turning the handwheel until the needle bar is in position "down".
- Loosen the screw 4.
- Unscrew the needle holder 2 from the needle bar.
- Screw in a new needle holder.
- Adjust the height of the needle holder (see chapter 2.5.4).
- Tighten the screw 3.
- Check the penetration of the needle into the needle hole.
- Check lateral distance of the needle to the hook (see chapter 2.5.5).

The exchange of the second needle holder is done likewise.

2.5 Hook

2.5.1 Hook shaft height



Standard checking

The distance between the throat plate support 4 and the flange surface 1 of the hook shaft must amount to 17.7 mm.

The exact height of the hook shafts is set by means of gauge 3 (order number 0244 001001).



Caution: Danger of injury !

Switch the main switch off.

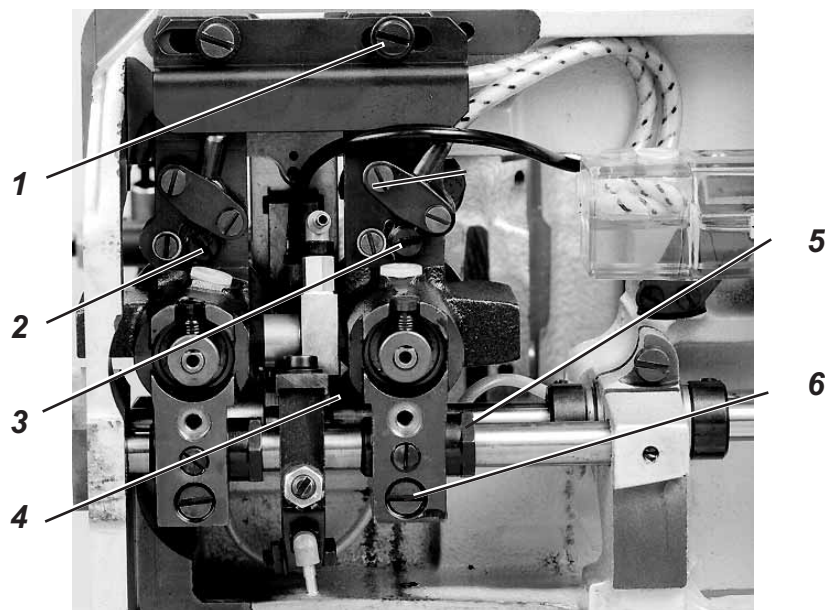
Check and adjust the hook shaft height only with the sewing unit switched off.

- Remove the throat plate.
- Remove both hooks (see chapter 2.5.7).
- Place the gauge 3 on the throat plate support 4. The measuring bush 2 of the gauge must reach over the hook shaft journal.
- Check whether the flange surface 1 of the hook shaft abuts on the measuring bush 2 of the gauge.

Correction

- Swing the machine head upwards (see chapter 2.1).
- Remove the plastic stoppers 6.
- Loosen the screws under the plastic stoppers.
- Loosen the screws 5.
- Push the flange surface 1 of the hook shaft under the measuring bush 2 of the gauge. For this purpose put a screwdriver under the flange surface 1. If the hook shaft stands too high, push it downward by a slight knocking on the flange surface 1.
- Tighten the screws under the plastic stoppers 6 in this position.
- Push the bush 7 against the hook shaft as far as it will go.
- Tighten the screws 5 on the surfaces of bush 7.
- Mount hook and throat plate again (see chapter 2.5.7).

2.5.2 Gear clearance of the hook drive



Standard checking

The gear clearance between worm and worm wheel should be as small as possible. The free movement must, however, remain guaranteed.

The gear clearance has to be reset after every adjustment of the hook drive in axial direction (alteration of the needle distance).



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the gear clearance only with the sewing unit switched off.

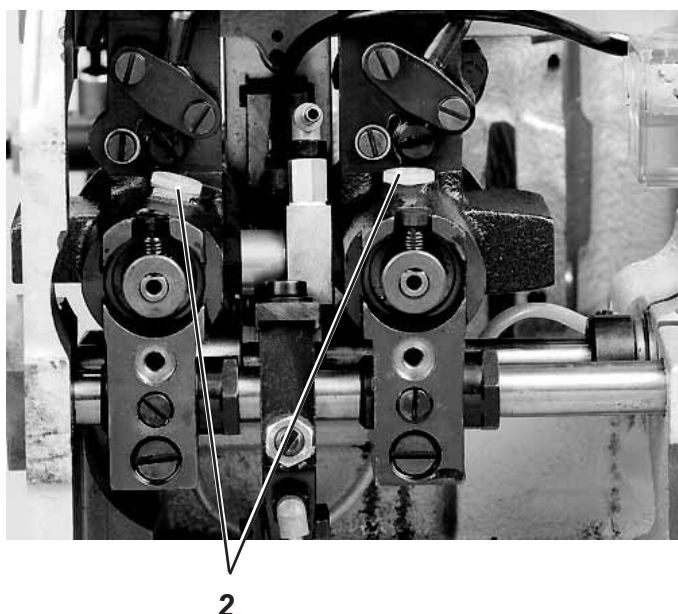
3

- Check the gear clearance while turning the hook slightly.

Correction

- Loosen screw 6.
- Loosen screw 1 slightly.
- Loosen the clamping screws of the worm wheel 4 slightly.
- Shift the worm wheel 4 axially.
The distance between the worm wheel 4 and the inner side of the hook case must amount to 0.3 mm.
At the right hook case the distance must be on the right of the worm wheel and at the left hook case on the left of the worm wheel.
- Measure the distance with a feeler gauge.
- Adjust the gear clearance by turning the eccentric bush 5.
The gear clearance between worm wheel and worm should be small, but still palpable.
Increasing the gear clearance: Turn bush 5 upwards.
Reducing the gear clearance: Turn bush 5 downwards.
- Check the looping stroke (chapter 2.5.3) and the distance between hook tip and needle (see chapter 2.5.5). Correct, if necessary.
- Tighten screws 1 and 6.

2.5.3 Looping stroke



Standard checking

The looping stroke is the way of the needle bars from the bottom dead centre to the point where the hook tips 3 are at the level of the middle of needle 4.

The looping stroke is 2 mm.

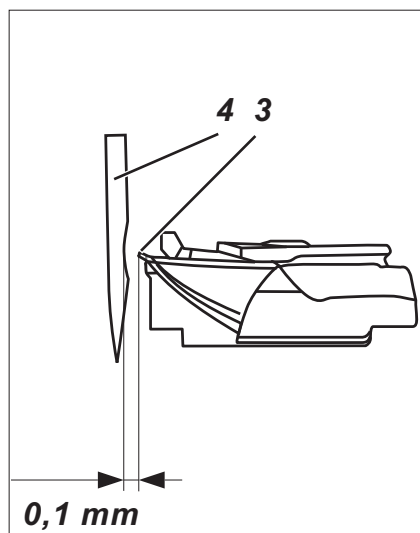
It is set with the locking peg (order number 0211 000700).



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the looping stroke only with the sewing unit switched off.

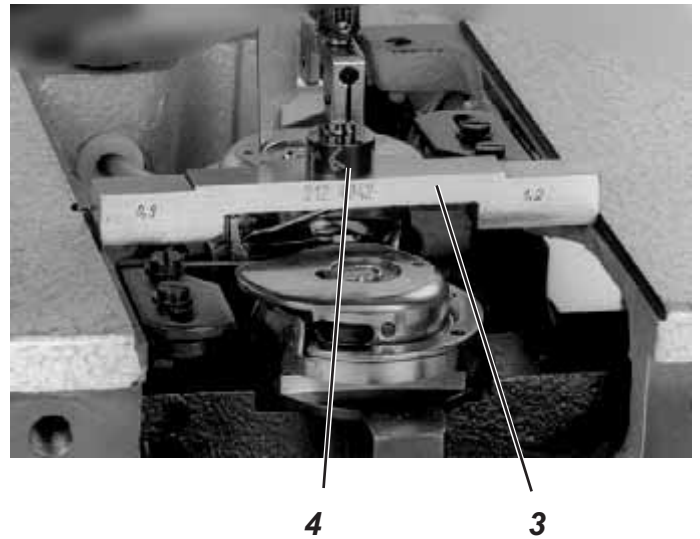
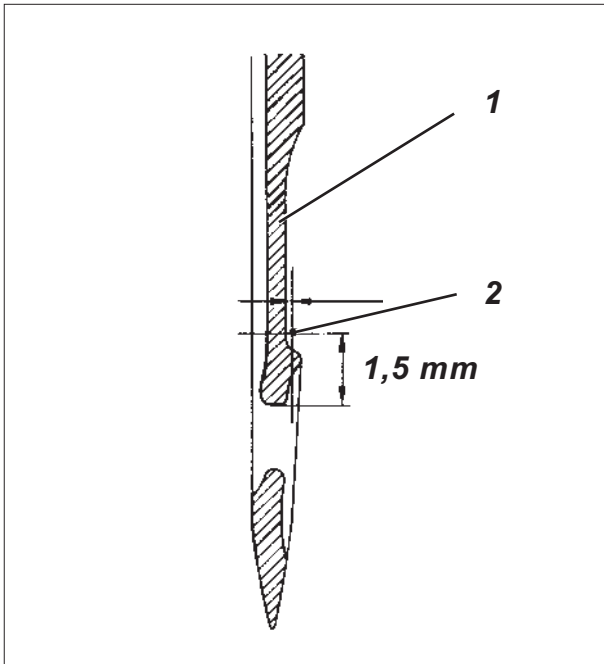


- Remove the throat plate.
- Remove the bobbin case top parts 1 with the bobbins.
- Bring the machine head in **looping stroke** position by handwheel and stake it out with the locking peg.
- Check the position of the hook tips to the needles.

Correction

- Remove throat plate, bobbin case top parts and bobbins.
- Swing the sewing machine head upwards.
- Remove the plastic stoppers 2.
- Loosen the screws under the plastic stoppers.
- Lock the machine in looping stroke position.
- Turn the hook manually until the hook tips are at the level of the middle of the needle.
- Tighten the first of the screws located under the plastic stoppers 2.
- Remove the locking peg.
- Keep on turning the machine and tighten the second screw.
- Press the plastic stoppers 2 into the drill-holes again.

2.5.4 Height of the needle holders



Standard checking

In looping stroke position the distance between the top edge of the needle's eye and the hook tip 2 must amount to 1.5 mm.

The setting is done by means of the measuring bridge 3 (order number 0212 004942) and the measuring pin 4 (order number 0216 001070).



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the height of the needle holders only with the sewing unit switched off.

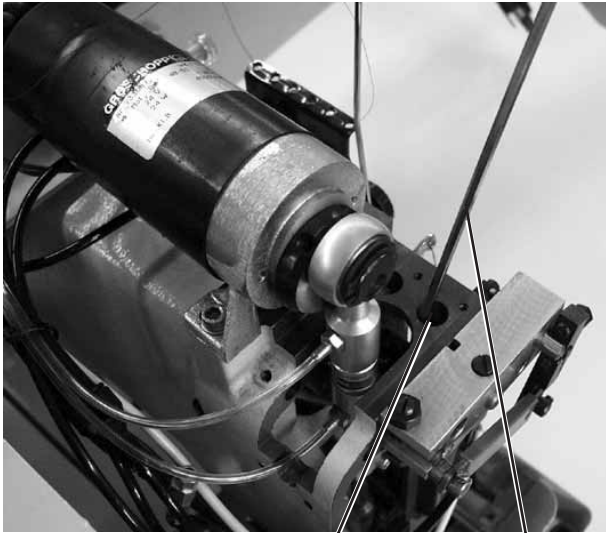


Caution: Danger of injury !

Danger of cuts.

Do not reach into the center knife area when working at the needle holders.

- Remove the throat plate.
- Move the needle bar in looping stroke position.
- Put the locking peg through the drill-hole in the machine arm. The locking peg must snap in the groove of the arm shaft crank.
- Check the position of the needles to the hook tips.



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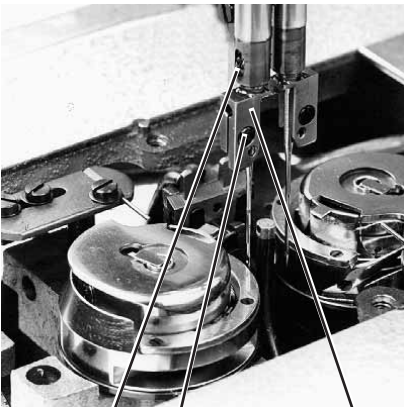
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Correction

- Remove the throat plate.
- Remove the needles from the needle holders.

Hint

For turning the needle holders one needle bar each has to be disconnected.



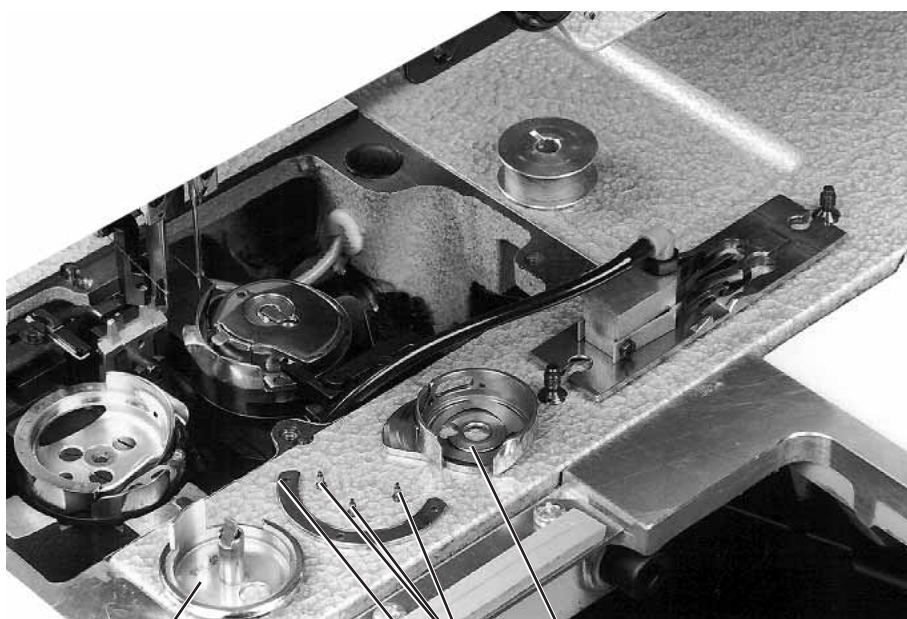
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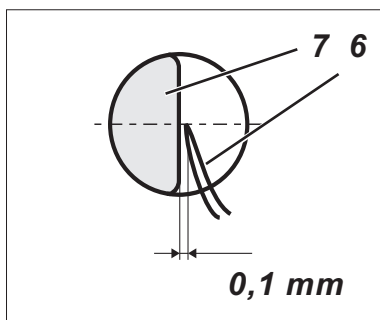
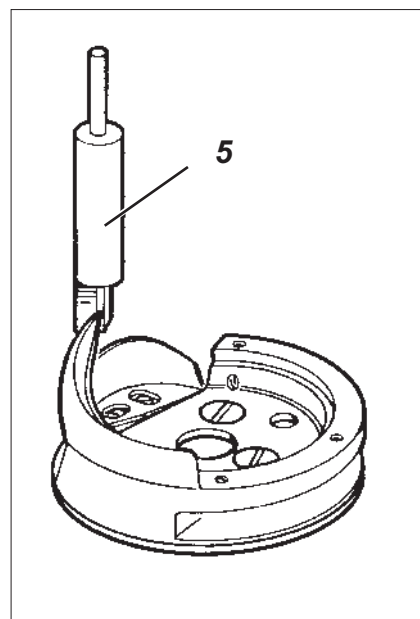
9

- Move the needle bars by handwheel nearly up to the top dead centre.
- Press the switch bar down through drill-hole 6 with an Allen key 5 and hold it pressed.
- Continue turning the handwheel.
The switch bar pressed down switches the needle bar off.
- Release the switch bar.
- Push the adjusting pin 4 into the needle holder as far as it will go.
- Tighten the screw 7.
- Place the measuring bridge 3 on the throat plate support.
- Move the needle bar in looping stroke position and stake it out with the locking peg.
It should be possible to move the measuring bridge under the adjusting pin 4 with the smallest possible clearance.
- Unscrew screw 8.
- Set the height of the needle holder 9 correspondingly.
For this purpose turn the needle holder. A complete rotation (360°) is possible.
- Align the needle holders.
The fronts of the needle holders must point to the front and be at the same level.
- Insert screw 8 in the needle holder and tighten.
- Remove the locking peg and the adjusting pin.
- Reconnect the needle bar.
For this purpose move the needle bar by handwheel above the top dead centre (switch bar not actuated).
- Adjust the second needle holder likewise.

2.5.5 Distance between hook tips and needles



1 2 3 4



Standard checking

In looping stroke position the distance between the hook tips 6 and the needles 7 should amount to 0.1 mm. The set distance allows to work with needle sizes Nm 90 to Nm 110.

When changing between these needle sizes a correction of the distance between the hook tips and the needles is not necessary. After changing the needle only the needle protection has to be readjusted (see chapter 2.5.6).

The distance between hook tips and needle is set by means of the adjusting pin 5 (order number 0244 001014).



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the distance between hook tips and needles only with the sewing unit switched off.

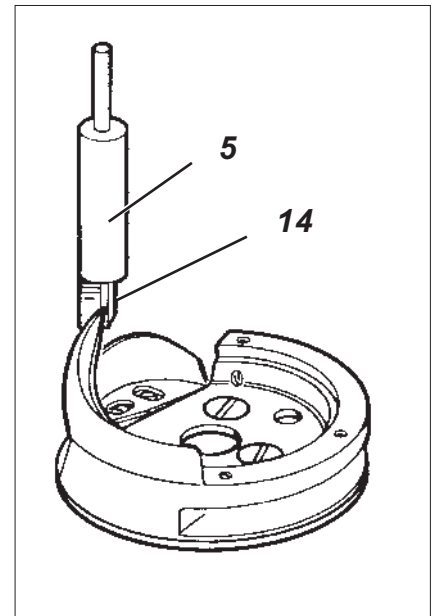
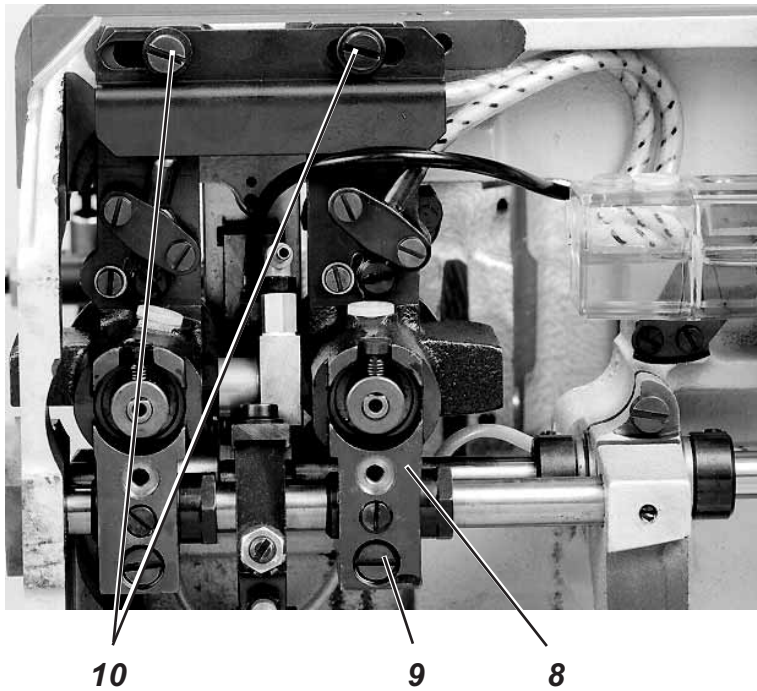
- Remove the throat plate.
- Move the needle bar in looping stroke position.
- Put the locking peg through the drill-hole in the machine arm. The locking peg must snap in the groove of the arm shaft crank.
- Check the distance between hook tips and needles.

Correction

- Remove the throat plate.
- Remove the bobbin case top part 4 with bobbin.
- Unscrew the fastening screws 3 of the hook cover 2.
- Take off the hook cover 2.
- Take the bobbin case bottom part 1 out of the hook. Slightly turn the handwheel back and forth for this purpose.

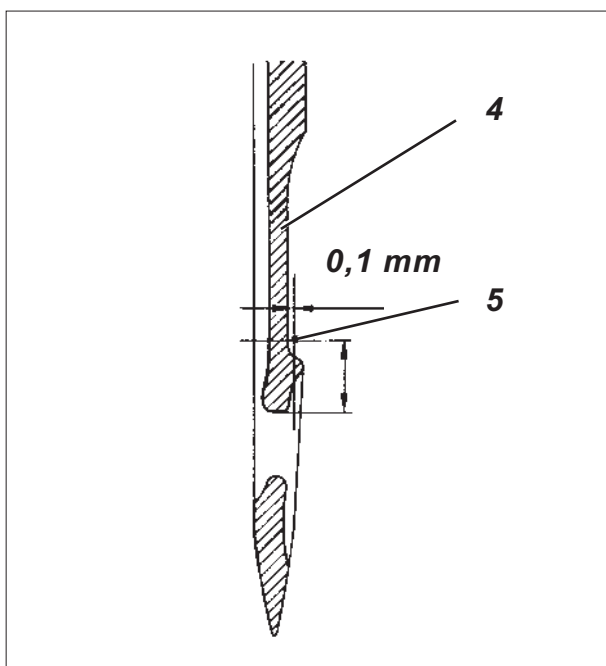
ATTENTION!

Do not use force when removing the bobbin case bottom part 1.



- Loosen screw 12.
- Reset the needle protection 11 by turning the eccentric bolt 13.
- Remove the needle from the needle holder.
- Push the adjusting pin 5 into the needle holder as far as it will go.
- Swing the machine head upwards.
- Loosen screws 9 and 10.
- Shift the hook support 8 laterally.
The hook tip should slightly touch the measuring surface 14 of the adjusting pin 5, but must not displace it.
- Tighten screws 10.
- Tighten screws 9.
- Mount the bobbin case bottom parts and the hook cover.
- Screw on the throat plate.

2.5.6 Needle protection



Standard checking

The needle protection 1 avoids that the needle 4 is deflected into the path of the hook tip 5.

Before the hook tip 5 reaches the needle, the needle point must abut on the needle protection 1.

It must not be possible to push the needle into the path of the hook tip 5.

When the hook tip is at the level of the middle of the needle, there must be a distance of 0.1 mm between the hollow groove of the needle and the hook tip 5.



Caution: Danger of injury !

Switch the main switch off.

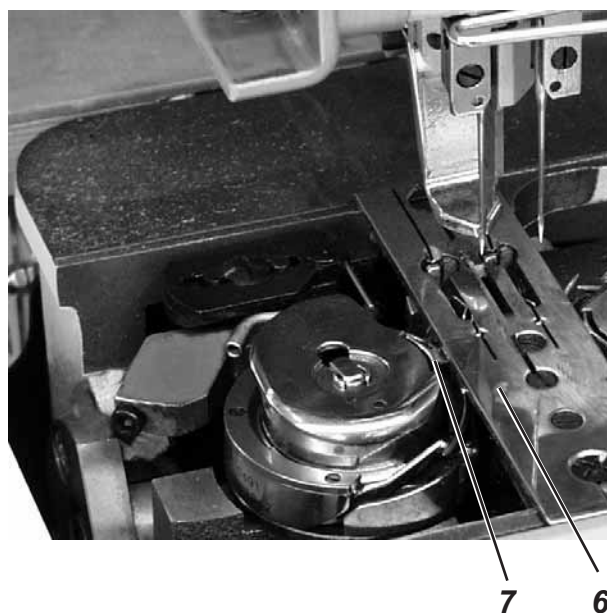
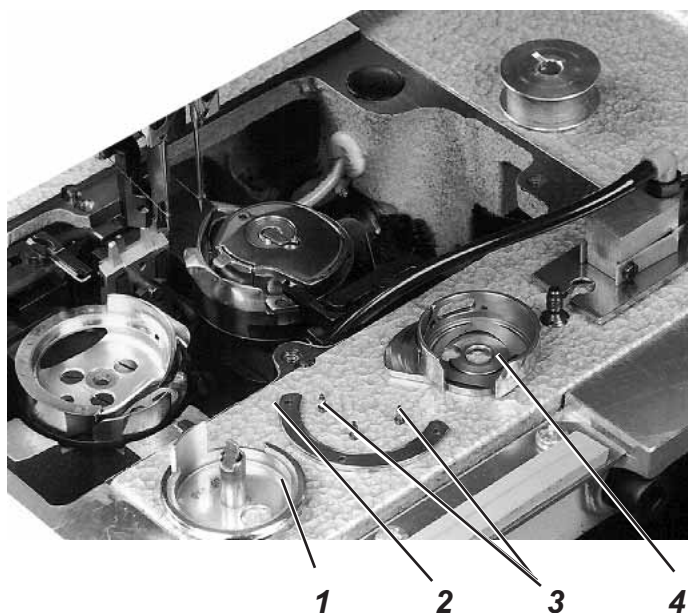
Check and adjust the needle protection only with the sewing unit switched off.

- Move the needle in the hook tip area and check whether it abuts on the needle protection.

Correction

- Screw off the throat plate.
- Remove the hook cover and the bobbin case bottom parts (see chapter 2.5.5).
- Loosen screw 2.
- Adjust the needle protection 1 by turning the eccentric bolt 3.
- Tighten screw 2.
- Mount the bobbin case bottom parts and the hook cover.
- Screw on the throat plate.

2.5.7 Exchanging the hook



Caution: Danger of injury !

Switch the main switch off.

Exchange the hook only with the sewing unit switched off.

- Remove the throat plate 6 after loosening the fastening screws.
- Remove the bobbin case top part 1 with bobbin.
- Unscrew the fastening screws 2 of the hook cover 3.
- Take off the hook cover 3.
- Take the bobbin case bottom part 4 out of the hook.
- Slightly turn the handwheel back and forth for this purpose.

ATTENTION !

Do not use force when removing the bobbin case bottom part.

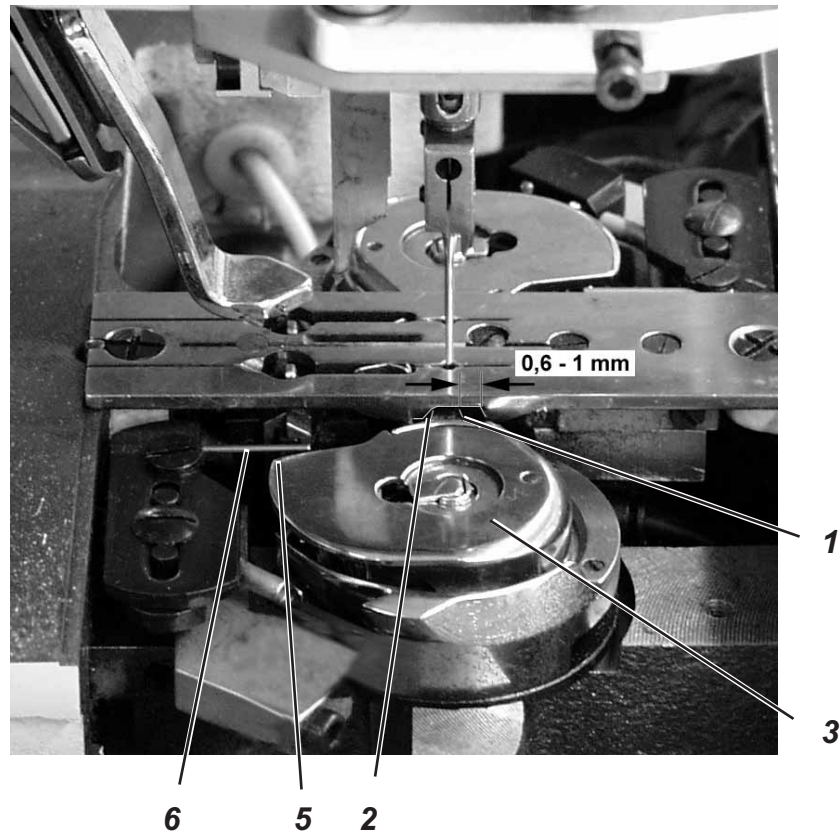
- Unscrew the fastening screws 5 of the hook.
- Lift and remove the hook from the hook shaft.
- Put a new hook on the hook shaft.
The position of the hook on the hook shaft is determined by the arrangement of the drill-holes in the hook bottom.
Thus it is guaranteed that following the looping stroke the hook tip is at the level of the middle of the needle again.
- Insert the bobbin case bottom part 4 in the hook.

ATTENTION!

The holding lug 7 of the bobbin case bottom part must reach into the gap of the throat plate.

- Put on the hook cover 3 and fasten with the screws 2.
- Screw on the throat plate 3.

2.5.8 Bobbin case holding wire



3

Function

The bobbin case holding wire 6 holds the bobbin case top and bottom parts in a certain position against the rotary motion of the hook.

The needle thread loop guided around the hook is pulled between the springy holding wire 6 and the edge 5 of the bobbin case top part.

The holding wire 6 guarantees the unhindered passage of the thread via the lug of the bobbin case bottom part and through the gap of the throat plate.



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the bobbin case holding wire only with the sewing unit switched off.

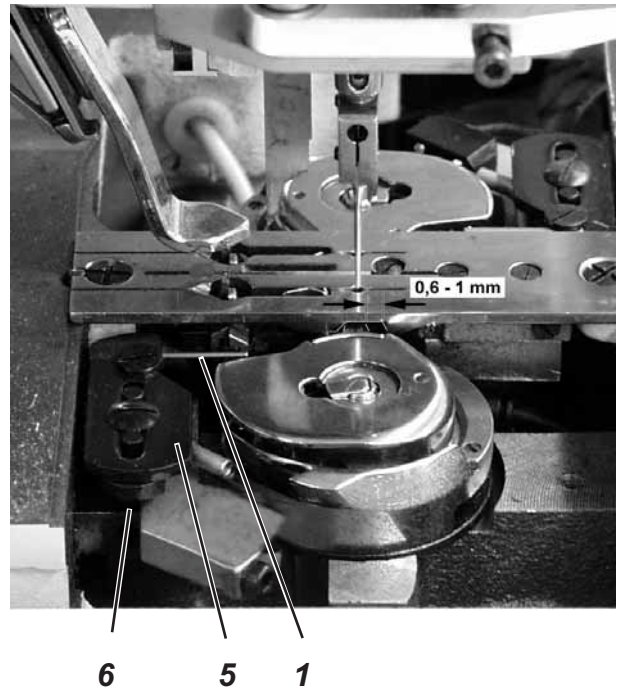
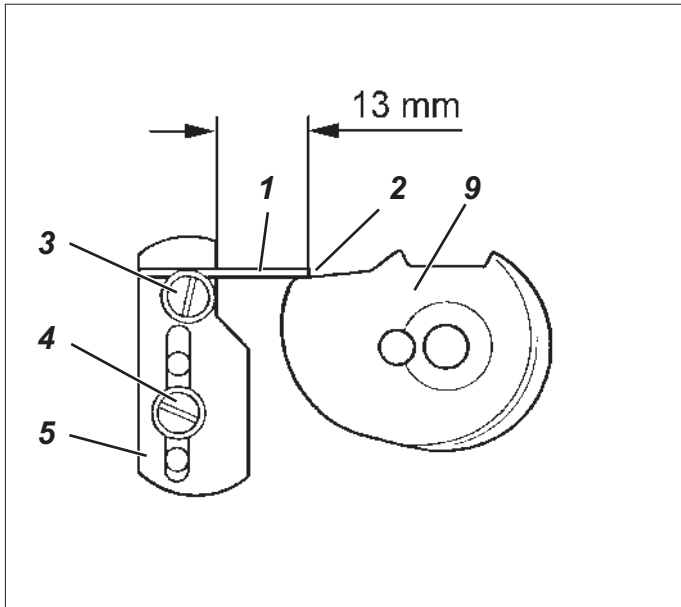
Standard checking

Between the edge 1 of the holding lug and the edge of the throat plate cutout there must be a thread passage slot of 0.6 mm to 1 mm.

In this position the edge 2 of the bobbin case top part is approximately parallel to the throat plate.

The holding wire 6 must project from the plate 8 by 13 mm and abut precisely in front of the edge 5 of the bobbin case top part 3.

- Turn the bobbin case top part 3 against the holding wire 6 and check the distance between the holding lug 1 and the throat plate cutout.
- Measure the length of the holding wire 6.



Correction

- Loosen the clamping screw 3.
- Adjust the holding wire 1.
The holding wire must project from the plate 5 by 13 mm.
- Tighten the clamping screw 3.
- Loosen screw 6.
- Adjust the height of plate 5.
The holding wire 1 must abut in front of the edge 2 of the bobbin case top part 9.



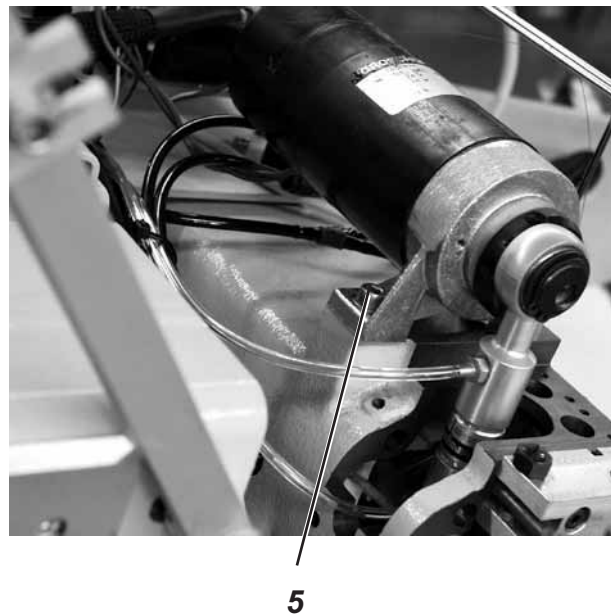
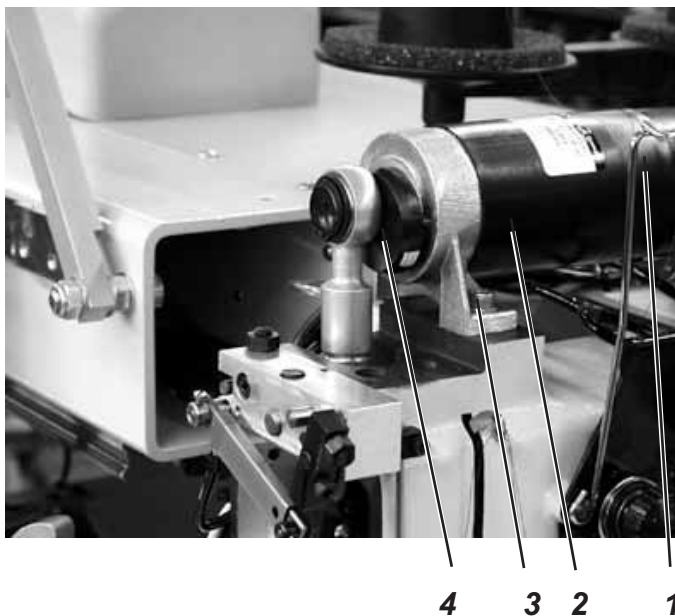
ATTENTION !

During the rotary motion of the hook the back of the hook must not hit the holding wire 1.
Adjust the height of plate 5 correspondingly.

- Tighten screw 6.
- Loosen screw 4.
- Shift the plate 5.
The distance between the holding lug 7 and the edge of the throat plate cutout must amount to 0.6 mm to 1 mm.
- Tighten screw 4.

2.6 Center knife

2.6.1 Removing / Installing the driving motor

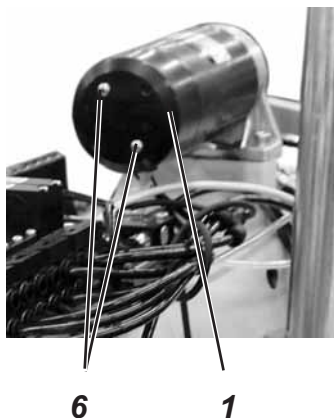


Caution: Danger of injury !

Switch the main switch off

Remove and install the driving motor only with the sewing unit switched off.

3



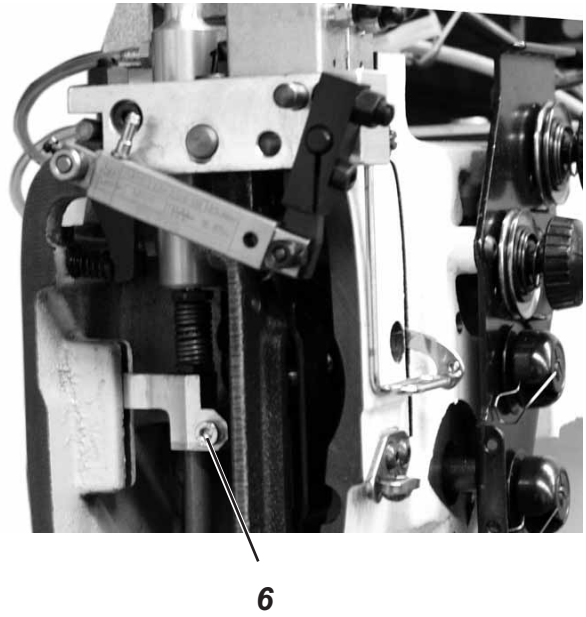
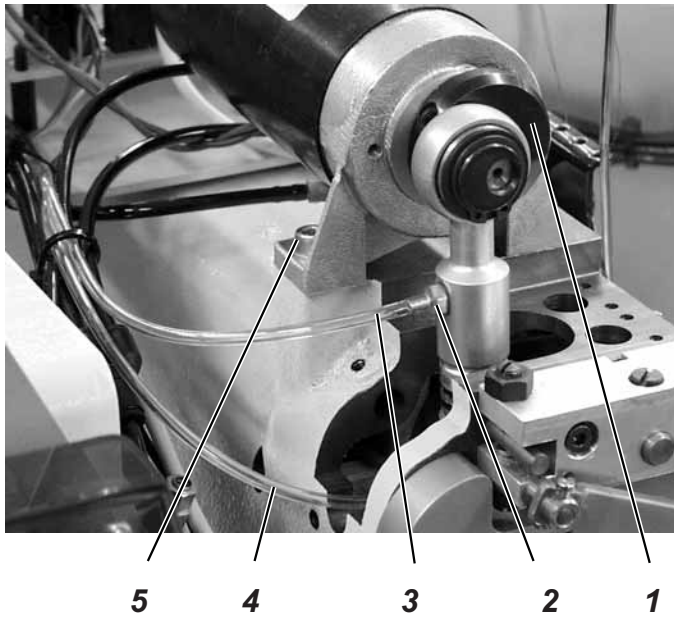
Removing the driving motor

- Unscrew the screws 6 at the driving motor and pull off cover 1.
- Loosen the electrical connection at the motor.
- Loosen the screws at the eccentric 4.
- Unscrew the motor fastening screws 3 and 5.
- Pull the driving motor 2 to the back out of the eccentric 4.

Installing the driving motor

- Push the driving motor 2 into the eccentric 4 (with the shaft to the front).
- Align the motor in parallel position to the upper shaft and in central position to the center knife guide.
- Screw the motor tight with the fastening screws 3 and 5.
- Tighten the screws at the eccentric 4.
- Establish the electrical connection at the motor.
- Put on cover 1 and tighten with the screws 6.

2.6.2 Removing / Installing the switching cylinder



Caution: Danger of injury !

Switch the main switch off.

Remove and mount the switching cylinder only with the sewing unit switched off.

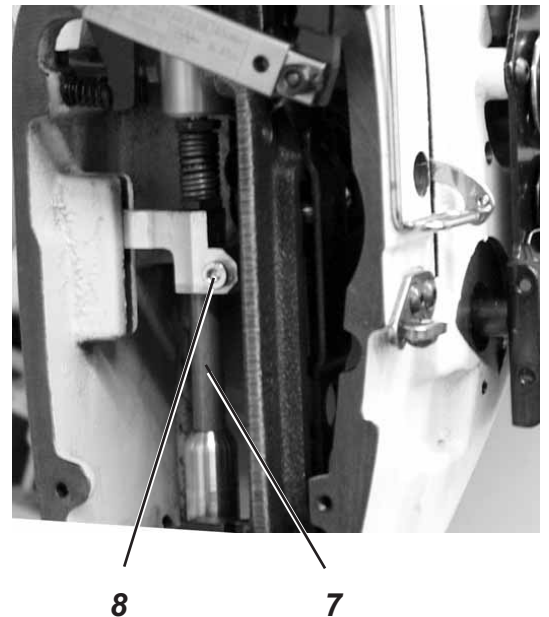
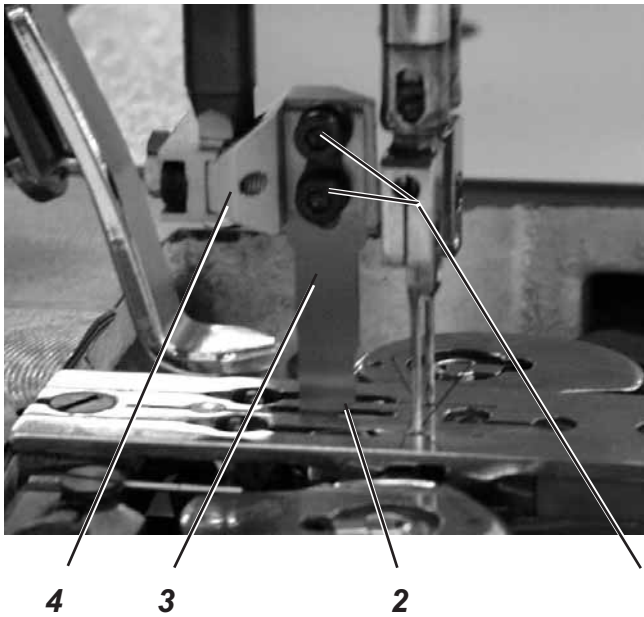
Removing the switching cylinder

- Pull off the pneumatic hoses 3 and 4.
- Screw the connections 2 out of the cylinder.
- Remove the driving motor (see chapter 2.6.1).
- Loosen the clamping screw 6 between switching cylinder and drive shaft.
- Pull the switching cylinder out upwards.

Installing the switching cylinder

- Insert the switching cylinder from above.
- Tighten the clamping screw 6 between switching cylinder and drive shaft.
- Push the motor to the front and push the motor shaft into the eccentric 1.
- Screw the motor tight with the fastening screws 5.
- Tighten the screws at the eccentric 1.
- Screw the pneumatic connections into the cylinder.
- Push on the pneumatic hoses 3 and 4.
- Mount the driving motor (see chapter 2.6.1).

2.6.3 Adjusting the knife



Caution: Danger of injury !

Switch the main switch off.

Separate the sewing unit from the pneumatic net.

Adjust the center knife only with the sewing unit switched off.

Standard checking

In the bottom dead centre the front edge 2 of center knife 3 must jut out approx. 1 mm above the cutting edge of the stationary knife in the throat plate.

The center knife 3 must abut on the stationary knife in the throat plate with a slight pressure.

- Move the center knife 3 to the bottom dead centre with the eccentric at the driving motor.
- Check whether the edge 2 of the knife stands above the stationary knife not more than 1 mm.

Correction

Placing the knife holder in parallel position

- Move the center knife to the bottom dead centre with the eccentric at the driving motor.
- Loosen screw 8.
- Turn the knife drive shaft 7 in such a way that the center knife is in parallel position to the knife in the throat plate.
- Tighten screw 8.

Adjusting the knife height

- Move the center knife to the bottom dead centre with the eccentric at the driving motor.
- Loosen screws 1.
- Adjust the height of center knife 3.
- Tighten screws 1.



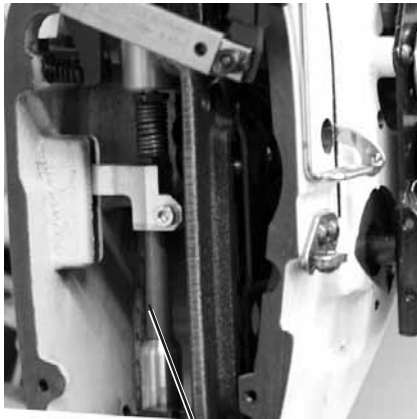
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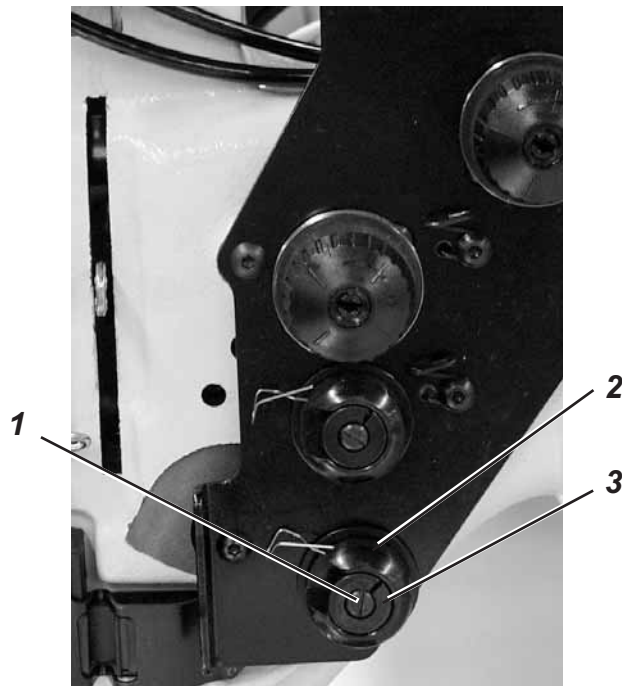
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7

- Loosen screws 5 and 6.
- Place the knife holder 4 with the center knife 3 to the left against the stationary knife in the throat plate. The center knife must abut in parallel position and with slight pressure.
- Tighten screws 5 and 6.
- Make a cutting test.
- For correction place the center knife in parallel position by slightly turning the knife drive shaft 7 to the left.

2.7 Thread controller spring



Caution: Danger of injury!

Switch the main switch off.

Adjust the thread controller spring only with the sewing unit switched off.

3

Standard checking

The thread controller springs must keep the needle threads under tension until the needle points penetrate the fabric.

If the needle threads are slack when the needles penetrate the fabric it may happen that the needles prick the threads when moving down.

- Turn the handwheel forwards slowly and watch the thread controller springs at the moment of the needle penetration.

Correction of the spring travel

- Loosen screw 1.
- Adjust the regulator 3 by turning.
- Tighten screw 1.

Correction of the spring tension

- Loosen screw 1.
- Turn bush 2.
 - Turn in clockwise direction: Increase the spring tension
 - Turn counter-clockwise: Reduce the spring tension
- Tighten screw 1.

2.8 Trimming and clamping device for the needle threads

2.8.1 Function



2

1



4

3



Caution: Danger of injury!

Switch the main switch off.

Check knife and thread catcher only with the sewing unit switched off.

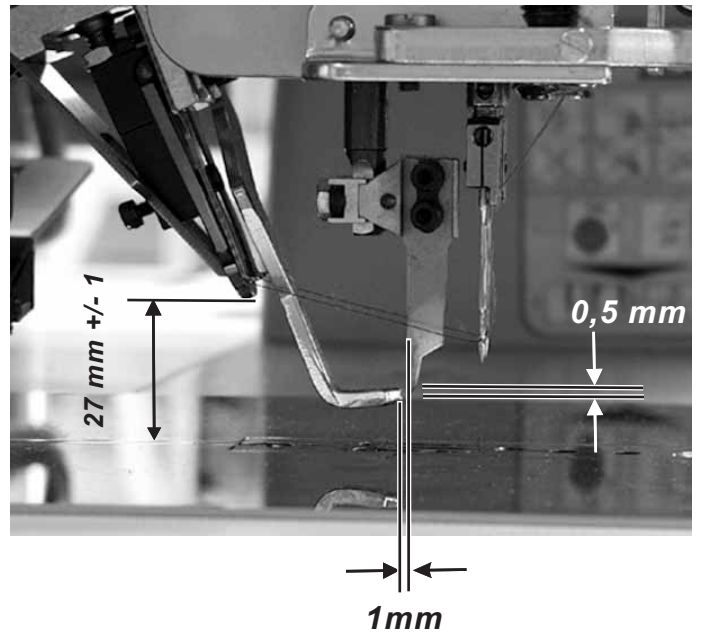
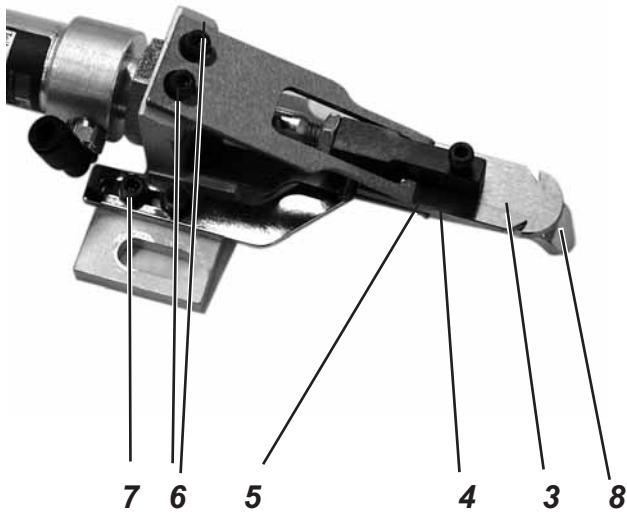
Function

- The cylinder 2 is switched on after the seam end and during the feed to the corner knives.
The thread catcher 3 is lowered and takes the needle threads up.
- After a preset time the thread catcher shoots up.
The needle threads are clamped at the clamping collar 1 and cut off by knife 4.
- After the first stitches of the next seam the clamped needle threads are released.
- By means of the springy clamping sheet 1 the thread catcher 3 abuts flat on the knife 4. Thus, the knife is automatically in parallel position.

Function check

- Actuate the pneumatic switch at the machine head.

2.8.2 Exchanging knife and thread catcher



Caution: Danger of injury !

Switch the main switch off.

Exchange knife and thread catcher only with the sewing unit switched off.

3

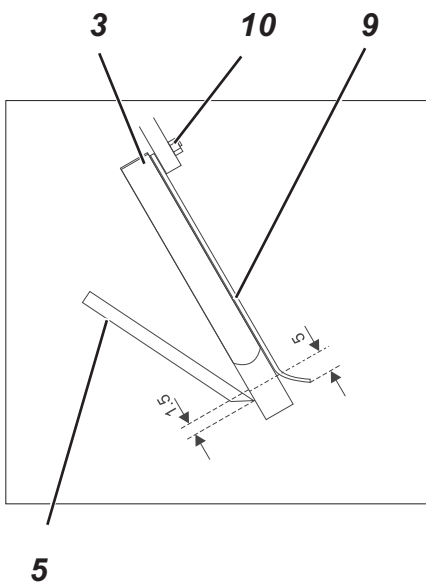
Standard

After a certain service life the knife 5 loses its sharpness. The blunt knife has to be removed for resharpening.

In case of a change to another needle distance the thread catcher 3 has to be exchanged, too.

Exchanging knife and thread catcher

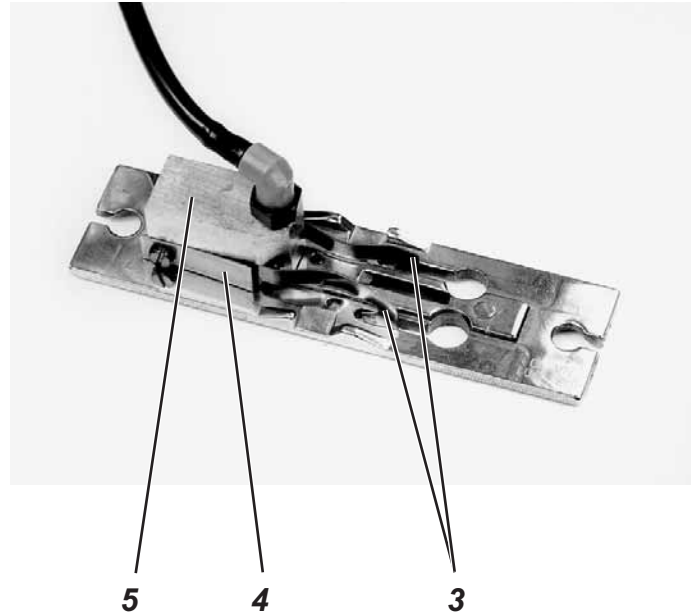
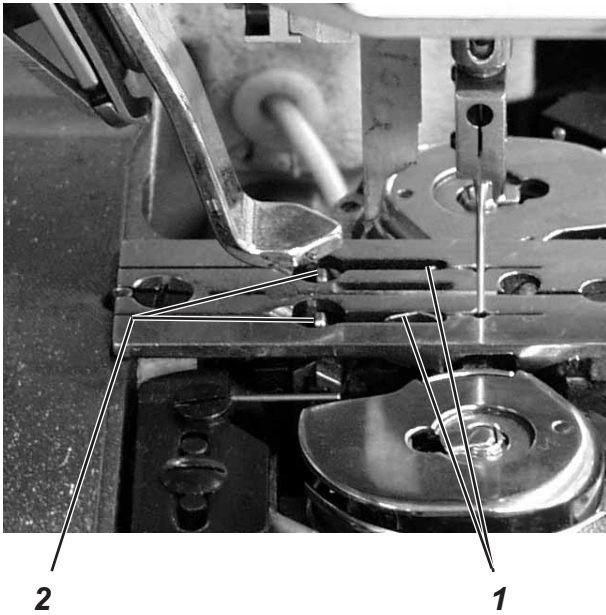
- Screw off the complete thread catcher from the machine head.
- Unscrew screws 6.
- Remove knife 5.
- Unscrew screw 7 and remove the knife protection 8.
- Unscrew screw 4 (on the rear).
- Take off the needle thread catcher 3.
- Insert new thread catcher and tighten with screw 4.
- Put on new knife 5 and tighten with screws 6. Set the dimensions 5 mm and 1.5 mm.
- Make a cutting and clamping test. If required, adjust the clamping pressure with screw 10.



Mounting the complete thread catcher

- Mount the complete thread catcher on the machine head.
- Mount the complete thread catcher in such a way that the needle thread catcher 3 is centric between the needles.
- Adjust the height of the thread catcher so that the dimension between sliding sheet and lower edge of the needle thread catcher is 27 +/- 1 mm.
- Put on the knife protection 8.
The knife protection 8 has to be adjusted in such a way that the distances of 1 mm and 0.5 mm are kept when the center knife is in the lower dead centre.
- Tighten the knife protection 8 with screw 7.

2.9 Trimming and clamping device for the hook threads



Function

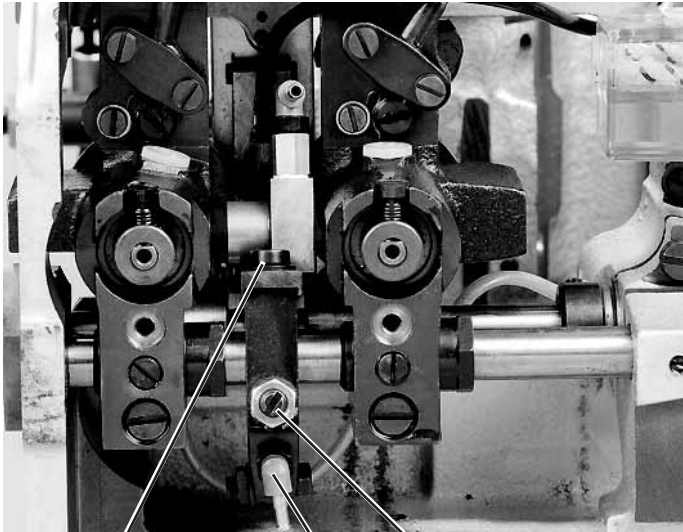
- After the seam end and during the thread pulling process the hook threads are pulled through the thread grooves of the throat plate into the open hook thread scissors 2 and the hook thread clamp 1.
- The hook thread clamp 1 is located under the throat plate. It opens pneumatically.
- The hook threads are pulled between the throat plate panel and the open thread clamping sheets 3.
- Close the spring clamping sheets.
- The hook thread scissors 2 cuts the hook threads off.
- In every working cycle the hook thread scissors 2 is cleaned by an air blast. This avoids clamping of fluff and thread tails.



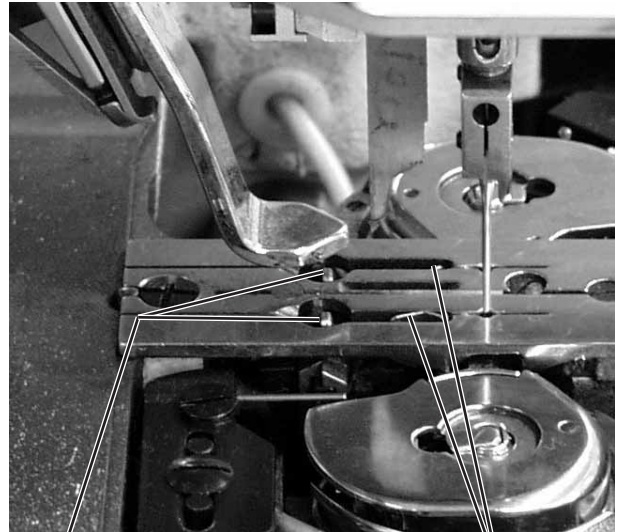
Caution: Danger of injury!

Switch the main switch off.

Adjust the trimming and clamping device for the hook threads only with the sewing unit switched off.



8 7 6



2 1

Standard

The top edge of the hook thread scissors 2 must be on the same level as the top side of the throat plate. A hook thread scissors in a too high position may damage the fabric.

If the hook thread scissors is positioned too low, the hook threads are not cut off.

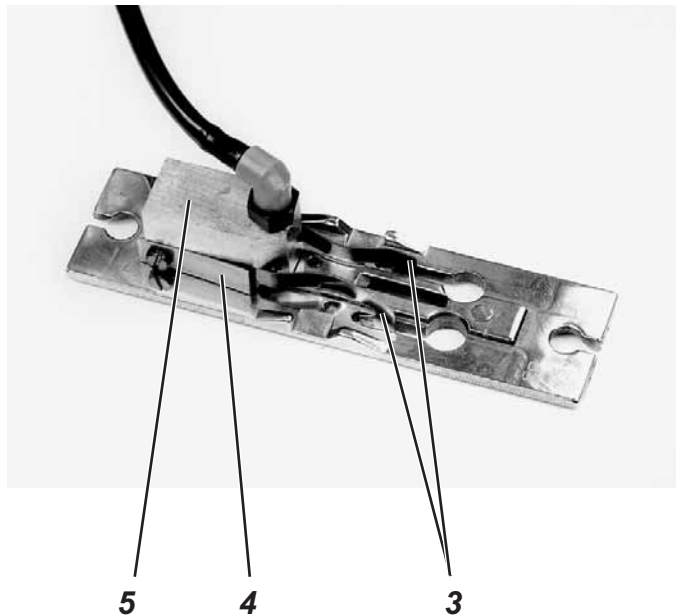
The limiting sheets 3 fastened at the cylinder 5 determine the opening width of the spring clamping sheets.

If the spring clamping sheets 3 are opened pneumatically, both hook tips must move by with a safe distance.

Correction

- Loosen screw 6.
- Align the openings of the hook thread scissors 2 centrally to the thread grooves of the throat plate.
- Tighten screw 6.

- Loosen screw 8.
- Adjust the height of the hook thread scissors.
The top side of the hook thread scissors must be on the same level as the top side of the throat plate.
- Tighten screw 8.



- Align the spring clamping sheets 3.
The spring clamping sheets must abut on the throat plate panel flat and with slight spring pressure.

Check the safety distance between the hook tips and the pneumatically opened thread clamps.

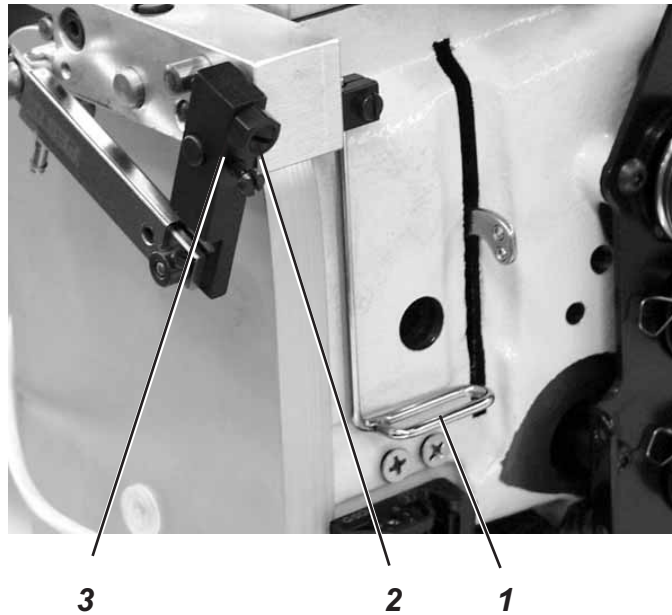
For this purpose please proceed as follows:

- Call up the adjustment and test program “Selecting the output elements” (see Programming Instructions, chapter 5.1).
- Loosen the thread clamps: Select the output element Y20 and press the “OK” key.
- Turn the handwheel slowly and check the distance between hook tips and thread clamps.
- If necessary, align the limiting sheets 4 correspondingly.
- Close the thread clamps: Press the “OK” key once again.
- Regulate the air blast for cleaning the hook thread scissors.
Compressed air is supplied via the connection Y19.
The butterfly valve is located at the blast pipe.

ATTENTION !

The stitch formation must not be disturbed by the air blast. Light-weight workpieces (e.g. lining fabrics) must not be blown up on the throat plate.

2.10 Thread puller for the needle threads



Caution: Danger of injury !

Switch the main switch off.

Adjust the thread puller only with the sewing unit switched off.

Standard checking

The thread puller 1 pulls a certain needle thread quantity out of the opened thread tension.

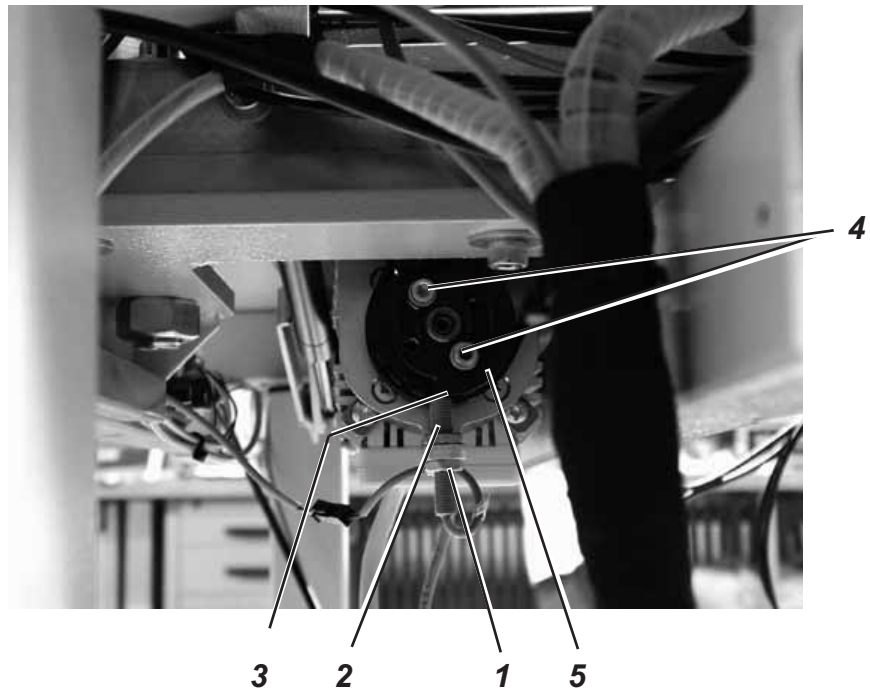
The needle thread quantity pulled out must be as large as to comply with the following conditions:

- At the sewing start the needles moving downwards must not pull the needle threads out of the needle thread clamp.
- At the same time a tight stitch formation has to be guaranteed at the sewing start and the thread puller must not touch the folding station.

Correction

- Loosen counternut 3.
- Adjust the stop width of the thread puller 1 by turning the stop screw 2.
- Tighten counternut 3.

2.11 Synchronizer



Caution: Danger of injury!

Switch the main switch off.

Adjust the synchronizer only with the sewing unit switched off.

3

Standard checking

After positioning the thread lever should be approx. 5 mm in front of the top dead centre.

The distance between the synchronizer 2 and the cam segment 5 should amount to approx. 0.5 to 1.0 mm.

Correction

- Loosen counternut 1.
- Adjust the distance between synchronizer 2 and the maximum outer diameter of cam segment 5.
Dimension = 0.5 to 1.0 mm.
- Tighten counternut 1.
- Turn the sewing machine in position “Thread lever 5 mm in front of the top dead centre”.
- Loosen screws 4.
- Turn the cam segment 5 in such a way that the switching cam 3 is positioned exactly on the synchronizer 2.
- Tighten screws 4.
- Check the positioning after sewing and correct, if necessary.

2.12 Oil lubrication



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 regulations.
Deliver used oil to an authorized collecting station.
Protect your environment.
Be careful not to spill any oil.

Oil the sewing unit exclusively with lubricating oil
ESSO SP-NK 10 or an equivalent oil with the following specification:

- Viscosity at 40° C: 10 mm²/s
- Ignition point: 150° C

SP-NK 10 is available from the **DÜRKOPP ADLER AG sales offices** under the following parts numbers:

- 2-Litre-Container: 9047 000013
- 5-Litre-Container: 9047 000014

Checking the oil supply in the oil reservoir 3 for lubrication of the machine head

- Raise the machine head (see chapter 2.1).
- The oil level in the oil reservoir 3 must not drop below the marking “Min”.
- If necessary, fill up oil up to the marking “Max” through the drill-hole in the inspection glass.

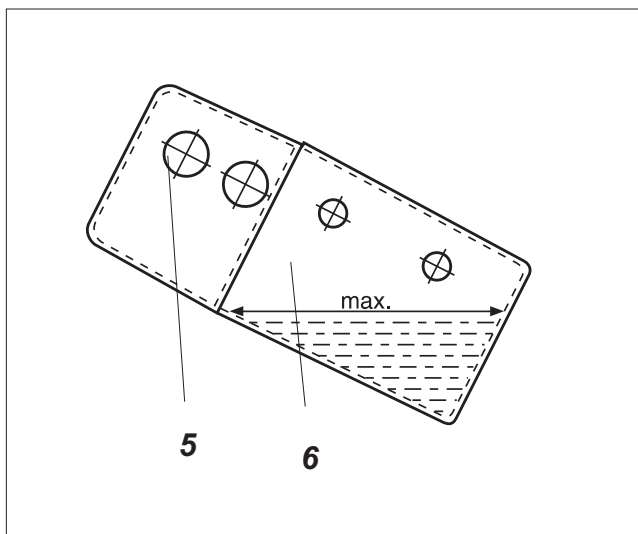
Checking the oil supply in the oil reservoir 6 for the hook lubrication

- Raise the machine head (see chapter 2.1).

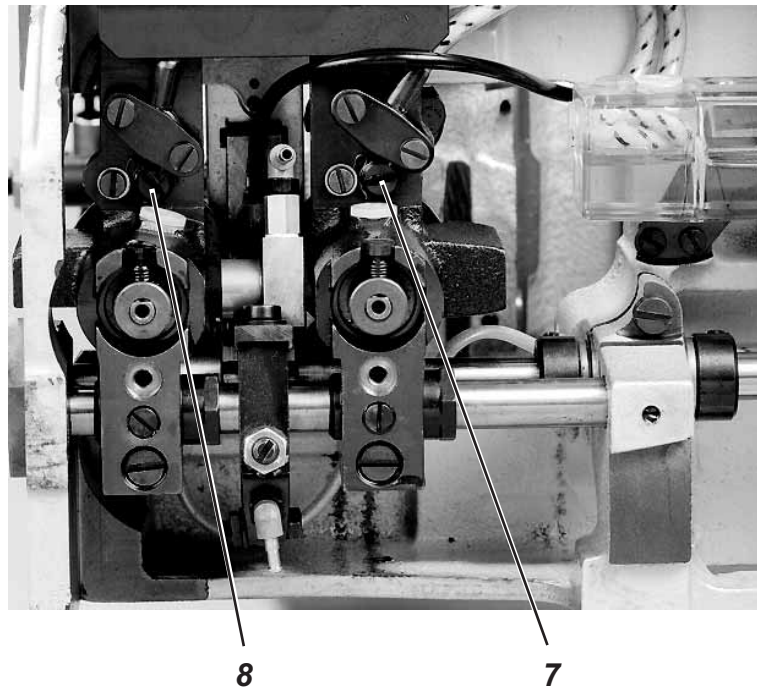
Fill the oil reservoir 6 with oil through nipple 5 up to the marking “Max”.
(see sketch).



3



2.12.1 Hook lubrication



Standard

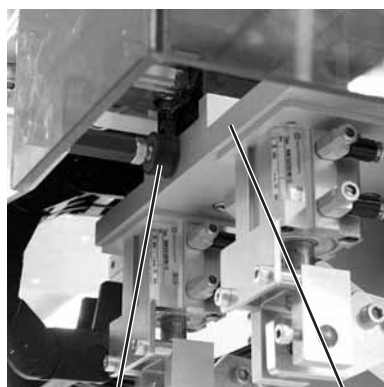
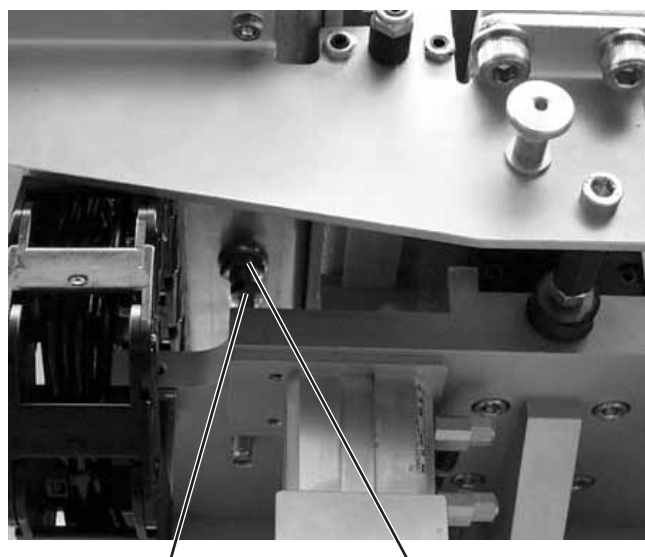
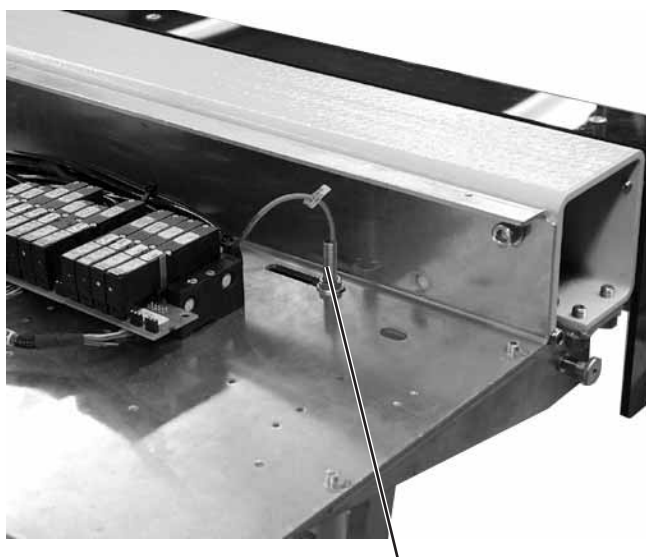
The necessary oil quantity has been adjusted by the manufacturer with the screws 7 and 8. It should be reduced or increased in special cases only.

- Adjust the screws 7 and 8.
- Screw the screws in: less oil
- Screw the screws out: more oil

Note:

3. Transport carriage

3.1 Rear end position



Standard checking

The switch 1 determines the rear and by means of a definitely specified path also the front end position of the transport carriage.

The switching screw 3 should be 12 mm above the fastening surface at the transport carriage. The distance between this surface and the limit switch should amount to 0.5 to 1 mm.

When the transport carriage has gone back so far that the switching screw 3 stands centrally above the switch 1, there must be a distance of 2 mm between the transport carriage 4 and the stop 5.

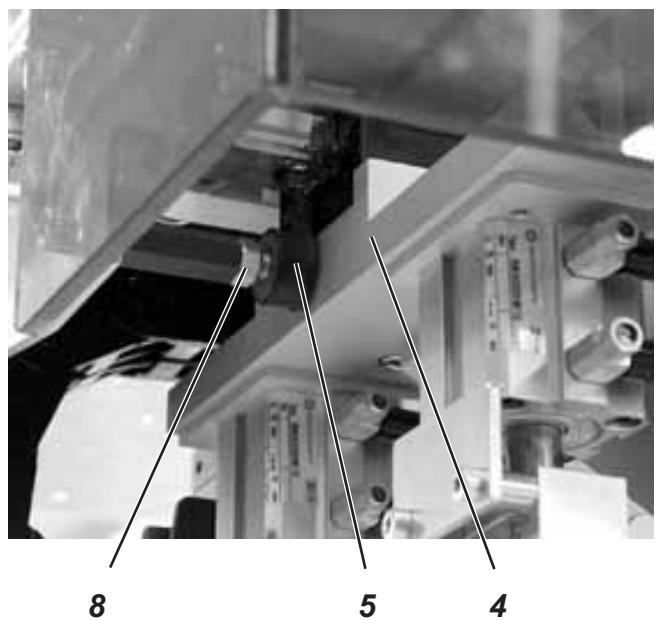
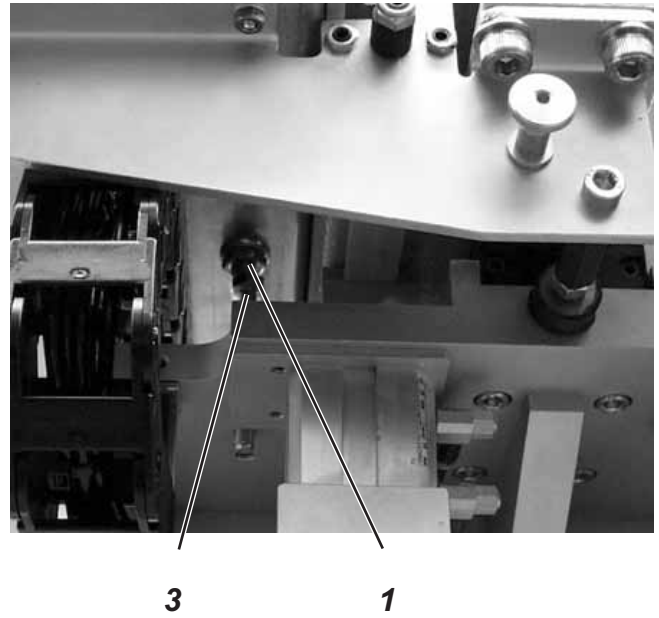
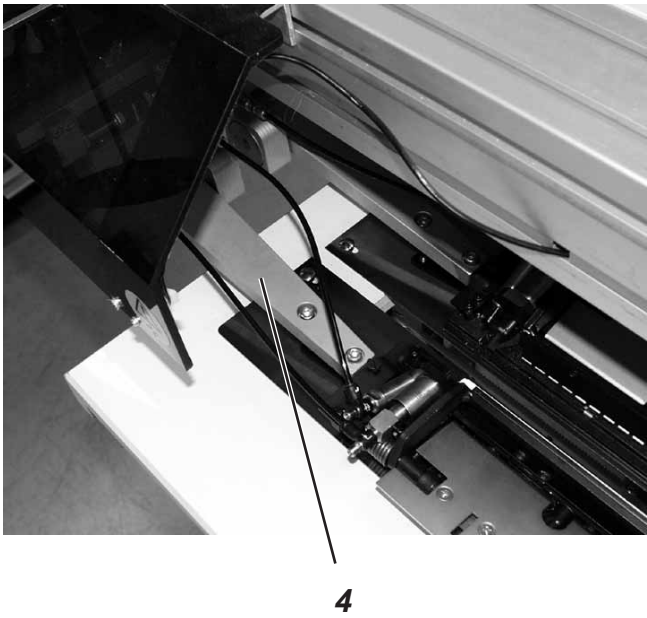
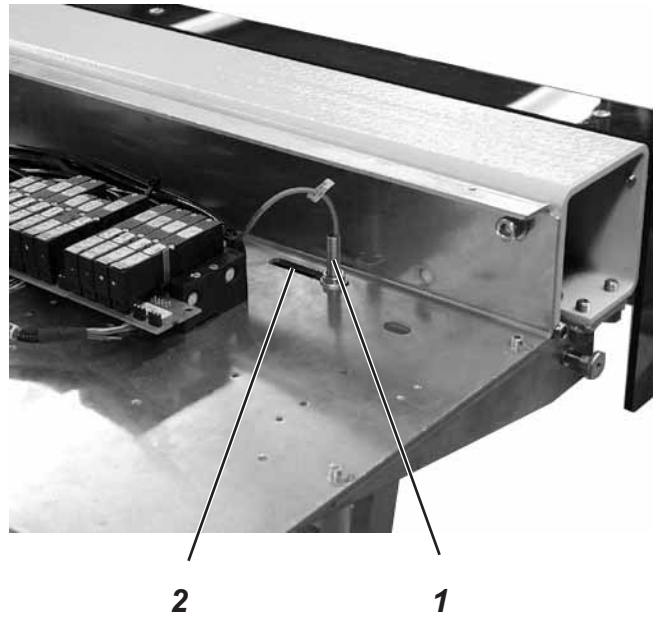
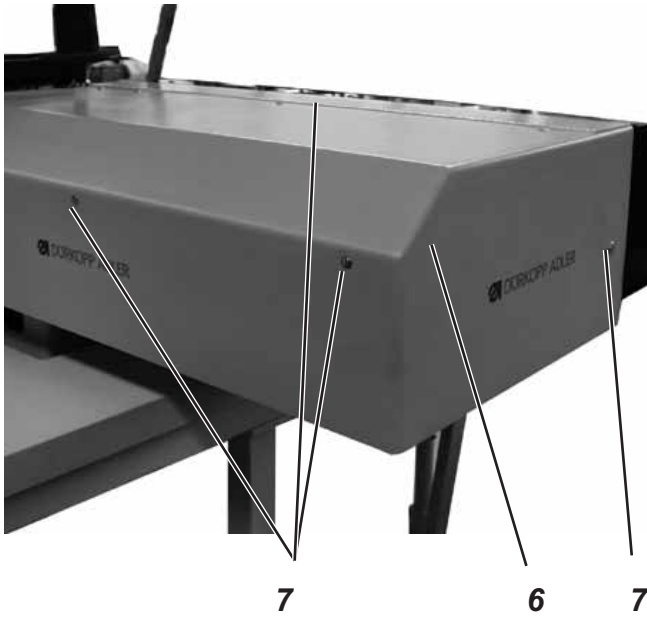
The fine adjustment is carried out during the feeding clamp adjustment. On this occasion the stop has to be corrected, too.



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the switch and the stop for the rear end position of the transport carriage only with the sewing unit switched off.



3.1.1 Position of the limit switch in the slotted hole

Checking

- Unscrew screws 7 and take off the covering cap 6.
- Check the position of the limit switch 1 in the slotted hole 2.

Correction

- Loosen the upper counternut at the limit switch 1.
- Set the limit switch in the slotted hole 2 (see chapter 4.5).
- Tighten the upper counternut again.



Attention: Danger of breakage !

After operations on the limit switch always check the distance to the switching screw 3.

3.1.2 Distance between switching screw and limit switch

Checking

- Unscrew screws 7 and take off the covering cap 6.
- Push the transport carriage 4 to the very back.
- Check the distance of 1 mm between limit switch 1 and switching screw 3.

Correction

- Loosen the counternut at the switching screw.
- Adjust the height of screw 3.
Distance between switching screw and fastening surface = 12 mm.
- Tighten the counternut.
- Push the transport carriage 4 to the very back.
- Set a distance of 1 mm between limit switch 1 and screw 3.

3

3.1.3 Stop for transport carriage

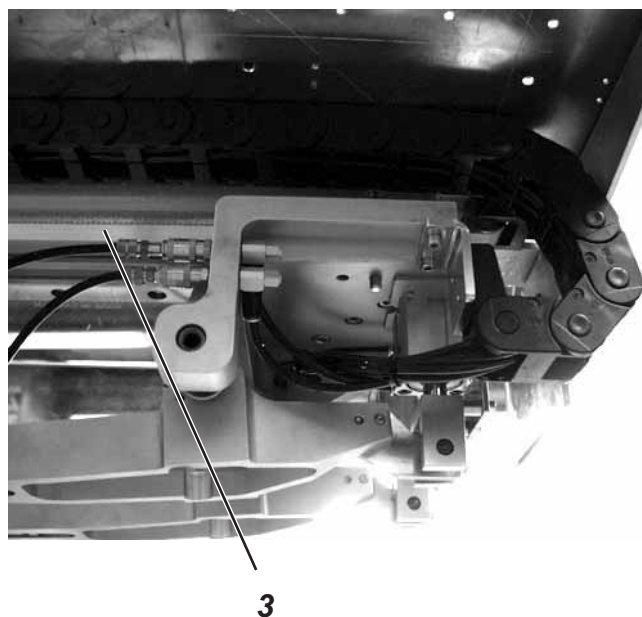
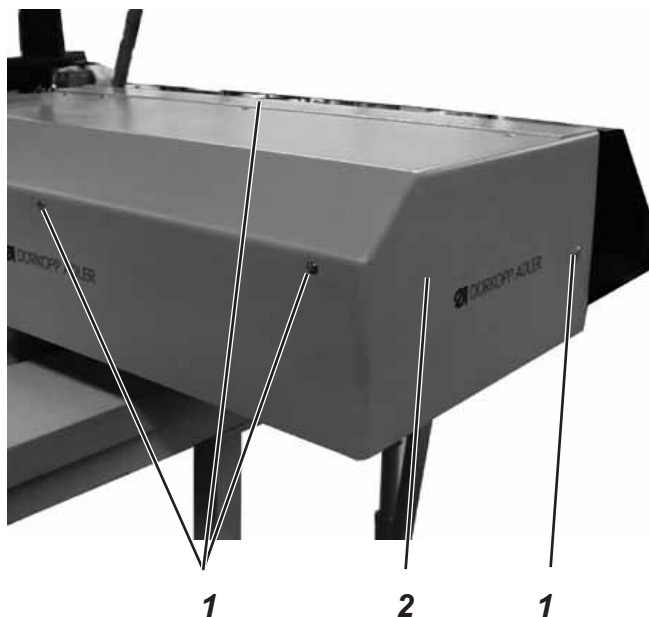
Checking

- Push the transport carriage 4 to the back until the surface of the switching screw 3 stands centrally above the limit switch 1.
- Check whether in this transport carriage position the distance between the stop 5 and the transport carriage amounts to 2 mm.

Correction

- Push the transport carriage to the back until the surface of the switching screw 3 stands centrally above the limit switch 1.
- Loosen counternut 8.
- Approach the stop 5 to the transport carriage by 2 mm.
- Tighten counternut 8.

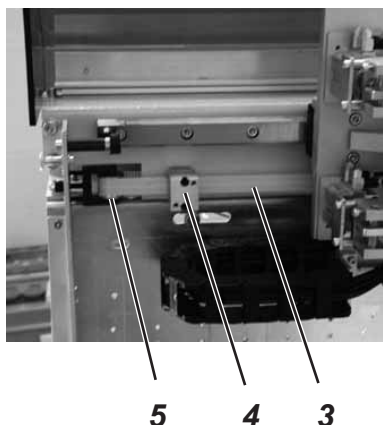
3.2 Changing the toothed belt



Caution: Danger of injury !

Switch the main switch off.

Change the toothed belt only with the sewing unit switched off.



For an easier exchange the toothed belt 4 is divided. It is held together by the belt clamp 3.

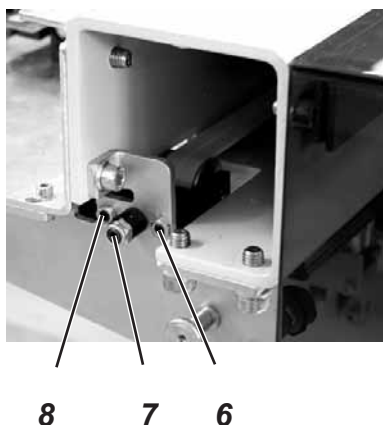
Removing the old toothed belt

- Unscrew screws 1 and take off the covering cap 2.
- Loosen the screws at the tension block and push the carriage aside. The screws of the toothed belt clamp are visible.
- Loosen the clamping screws of the toothed belt clamp 4.
- Pull the toothed belt 3 out of the casing.

Putting in a new toothed belt

(piece goods, minimum length 1.45 m)

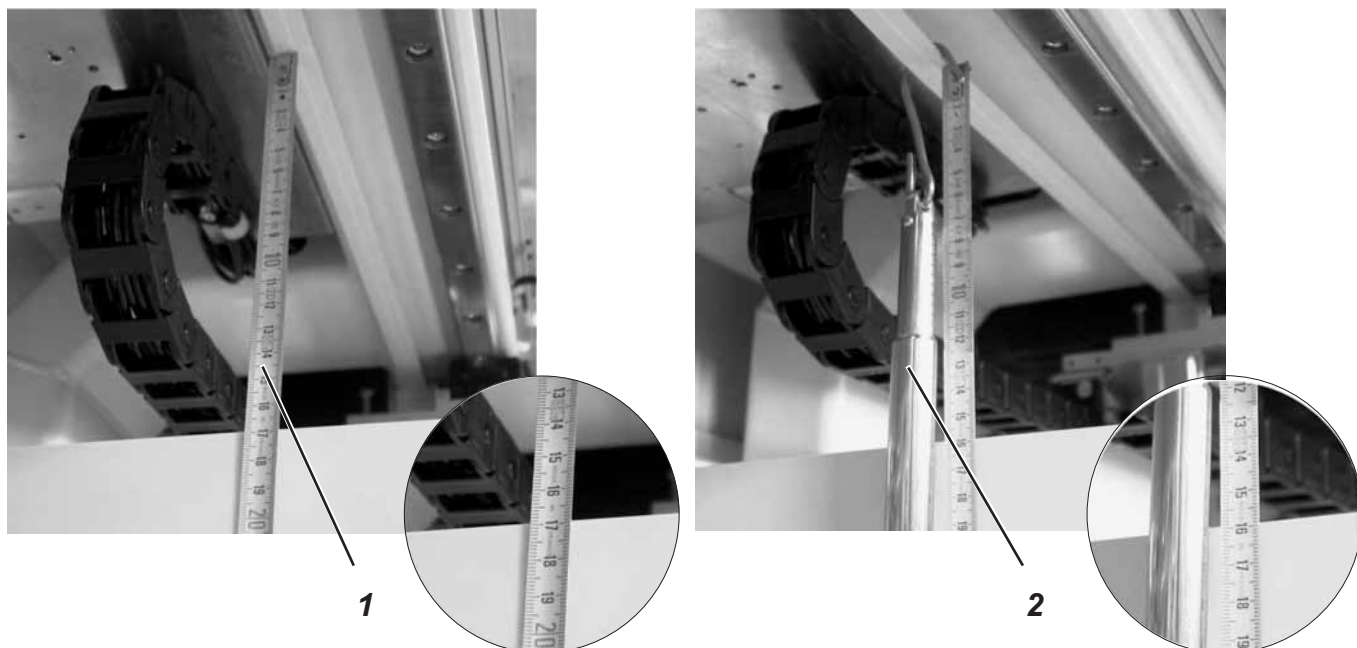
- Loosen the counternut at the clamp bolt 7 and turn back the tension pulley 5.
- Lay one end of the toothed belt on the toothed belt wheel of the step motor and pull it until the end reaches the toothed belt clamp 4.
- Lay the other end of the toothed belt around the tension pulley 5 and guide it to the toothed belt clamp 4.
- Connect both toothed belt ends with the toothed belt clamp 4.
- Adjust the toothed belt tension (see chapter 5.2).



With the screws 6 and 8 the course of the toothed belt on the belt wheel 5 can be adjusted. The toothed belt 3 should run centrally on the belt wheel.

- Adjust the belt wheel with the screws 6 and 8.

3.3 Adjusting the belt tension



Caution: Danger of injury !

Switch the main switch off.

Adjust the belt tension only with the sewing unit switched off.

3

Correction

- Push the transport carriage to the front.
- Measure the distance between the toothed belt and the upper edge of the table top with a tape measure 1.
- Pull the toothed belt down with a spring balance 2 and a power of 20 N.
- The toothed belt tension is correct when the distance between the toothed belt and the upper edge of the table top can be reduced by 11 mm at 20 N (Example: $170 - 11 = 159$ mm).

Consequences of a too high toothed belt tension

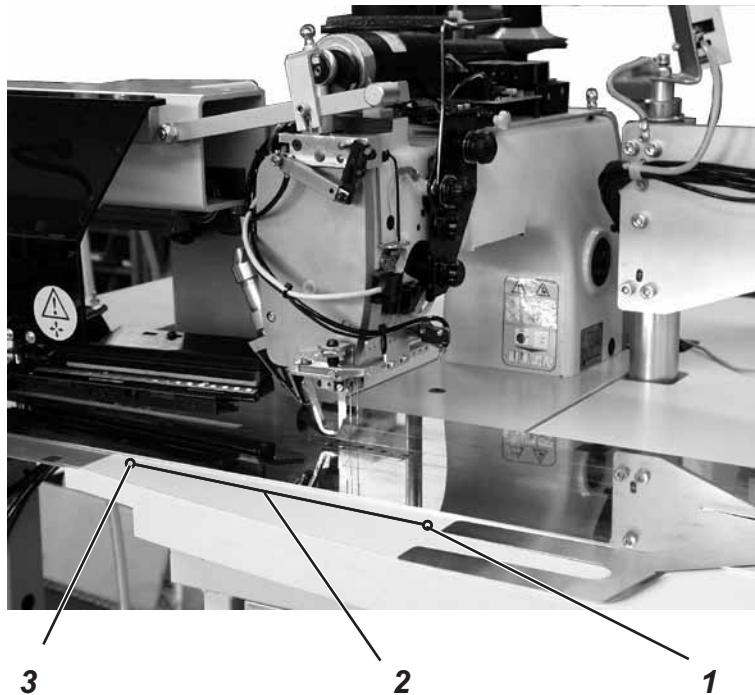
- Reduced durability
- Noisy running

Consequences of a too low toothed belt tension

- No faultless meshing between belt teeth and disc toothing
- The teeth may skip over under load
- Non-uniform stitch lengths
- Loss of steps possible

4. Feeding clamps

4.1 Measuring line for aligning the feeding clamps and the folder



For an unhindered material feed and a perfect pocket opening the folding and cutting tools as well as the marking lamps must be aligned to the middle of the pocket opening. The middle between both needle holders is considered as the middle of the pocket opening.

For adjusting and checking the folding and cutting tools the measuring line 2 has to be marked on the table top.

The course of the measuring line is parallel to the feeding direction with a distance of 125 mm to the cutting line.

Generating the measuring line

- Mark the measuring line between the two markings 1 and 3 on the table top. The markings have been fitted on the table top by the manufacturer.
- Check parallel position and distance before the start-up.

4.2 Aligning the feeding clamps as to the auxiliary line



5 4 2



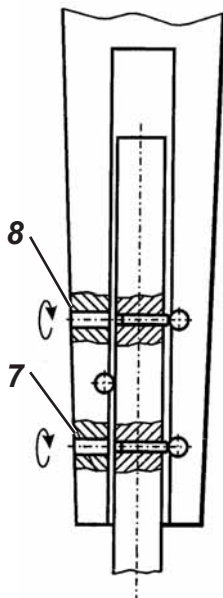
8 7 6 5



Caution: Danger of injury !

Switch the main switch off.

Check the parallel position of the feeding clamps only with the sewing unit switched off.



Standard checking

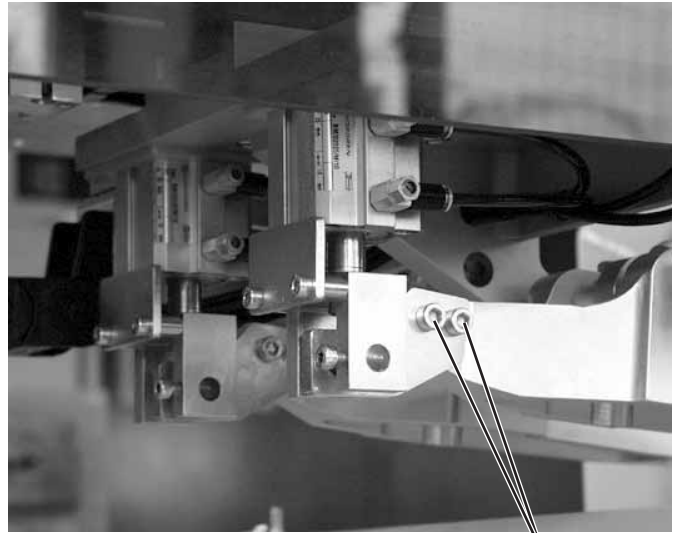
The feeding clamps 5 must be in parallel position to the pick-up folder and to the auxiliary line 2.

- Push the feeding clamps into the pick-up folder area.
- Check the parallel position of the inner edge of the feeding clamps to the auxiliary line 2.

Correction

- Loosen the tightening screws 6 slightly.
- Set the feeding clamp 5 in parallel position by means of the Allen screws 7 and 8 (SW 2).
For this purpose please proceed as follows:
- Turn the Allen screws 7 and 8 to the right or to the left until the parallel position is reached.
- Tighten the Allen screws 7 and 8 slightly.
- Tighten the tightening screws 6.

4.3 Feeding clamp stroke



Caution: Danger of injury !

Switch the main switch off.

Check and adjust the feeding clamp stroke only with the sewing unit switched off.

Standard checking

When the flap clamps 4 are closed, the raised feeding clamps 2 and 3 must pass the machine arm 1 without hitting it.

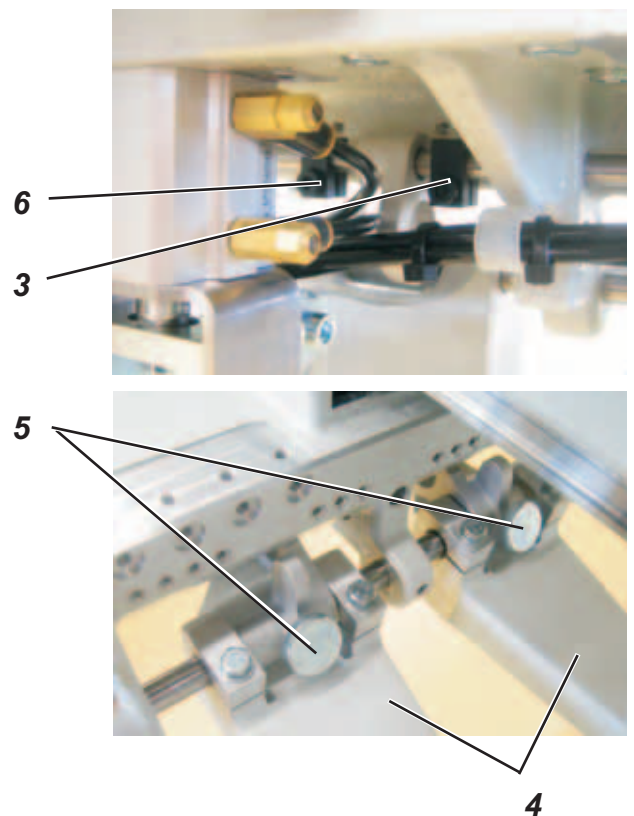
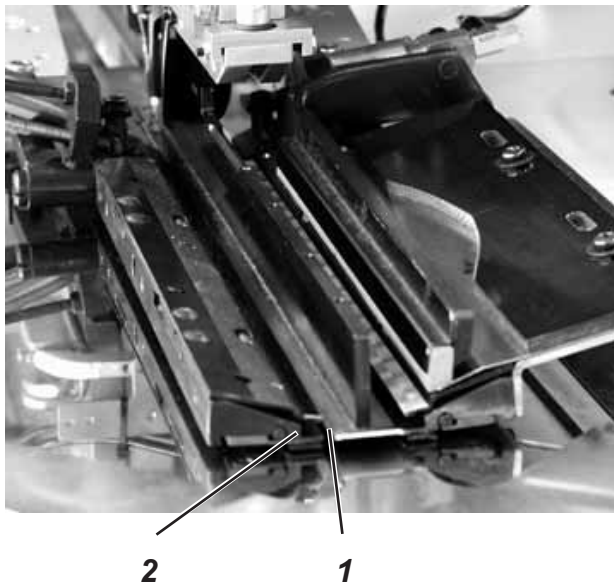
The distance between the front edges of the raised feeding clamps and the fabric sliding sheet should amount to approx. 20 mm on the left and on the right.

- Push the transport carriage under the machine arm.
- Check the stroke of both feeding clamps.

Correction

- The stroke can be set by loosening the screws 5.
- Check the stroke of the feeding clamp as to the fabric sliding sheet.
- Tighten the screws 5.

4.4 Distance between the feeding clamps and the folder sole



Standard checking

Between the outer edges 1 of the folder sole and the inner edges 2 of the feeding clamps there must be a certain distance. When processing medium-weight clothing fabrics the distance should amount to approx. 1.0 to 1.5 mm.

The distance is required to guarantee equal piping strips on both sides as well as an unhindered feed of the workpiece.



Caution: Danger of injury !

Check and adjust the feeding clamps with utmost caution when the sewing unit is switched on.



Attention: Danger of breakage !

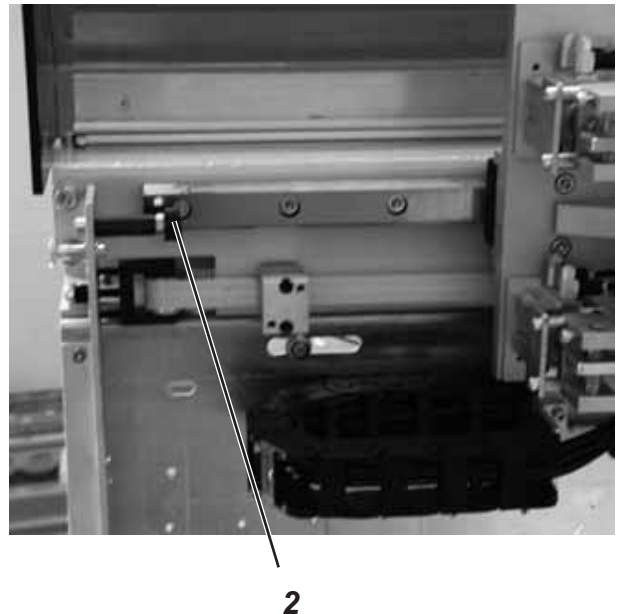
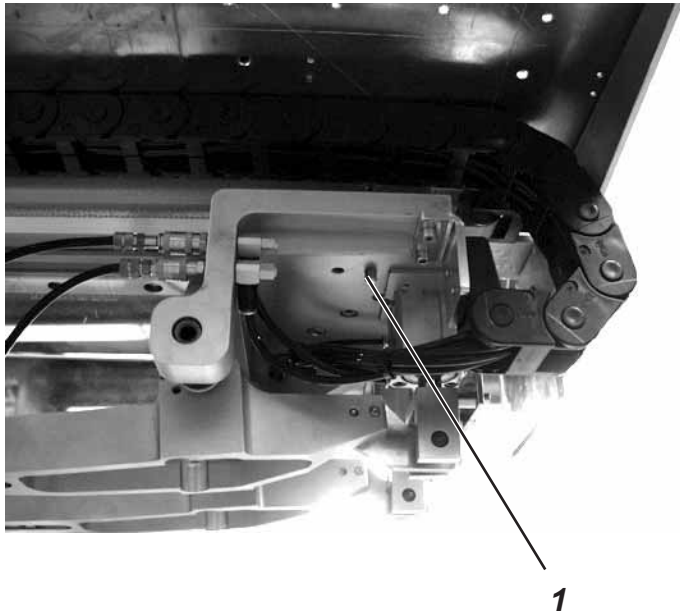
Select the corresponding clamp position according to the folder.

- Start the sewing operation and check the distance between the outer edges of the folder sole and the inner edges of the feeding clamps.

For single piping the clamping block 6 serves as stop for lever 4 and for double piping the clamping block 3.

- For adjusting loosen screw 5 and push the lever 4 in front of the clamping block 3 or 6 according to the application.
- Tighten screws 5.
- For fine adjustment loosen clamping block 3 or 6 and adjust on the axis. Then tighten the adjusting ring on the shaft.

4.5 Front end position of the feeding clamp



Caution: Danger of injury !

Switch the main switch off.

Adjust the feeding clamp with utmost caution.

- Move towards the reference point (switch 1). The feeding clamp runs to the front end position.
- Dimensional check of the front edge of the feeding clamp
Spacing A + sewing length + 15 mm
Consequently the front edge of the feeding clamp must have the dimensions
 $111 + 180 + 15 = 306$ mm from the middle of the needle.
- Measure the difference between the actual position and the determined nominal position.
- Switch the main switch off.
- Correct switch 1 by the difference .
- Correct the rear stop guide 5.
- Switch the main switch on.
- Make another reference run and check the dimensions of the front edge of the feeding clamp.

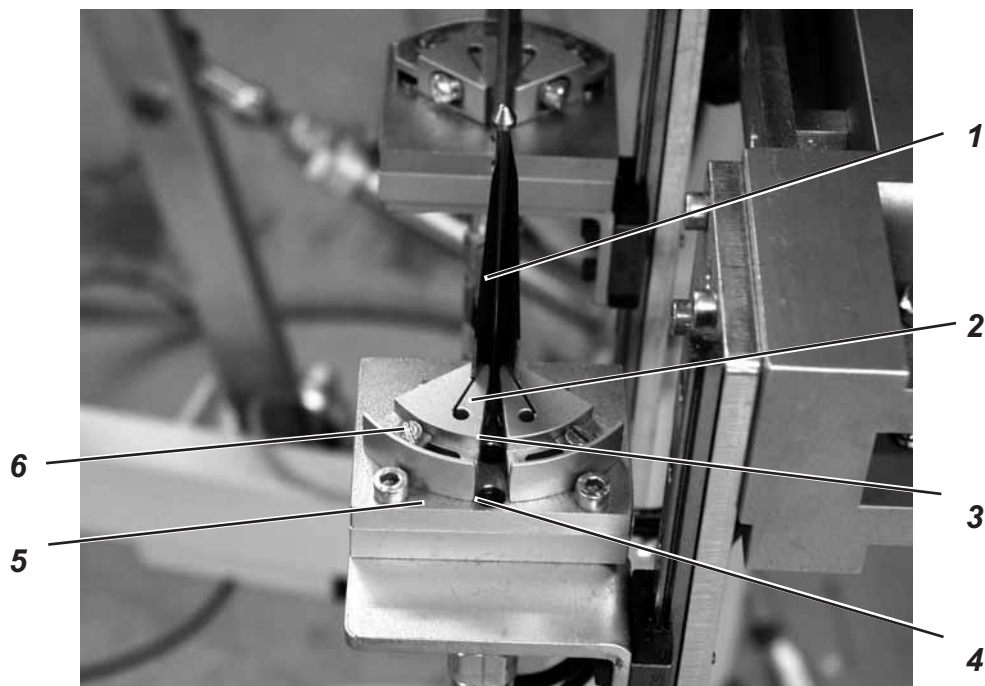
5. Knives for corner incision



Caution: Danger of injury !

Do not reach into the area of the corner knives.
The corner knives shooting up can cause severe cuts.
Carry out adjusting operations with utmost caution when the sewing unit is running.

5.1 Presetting

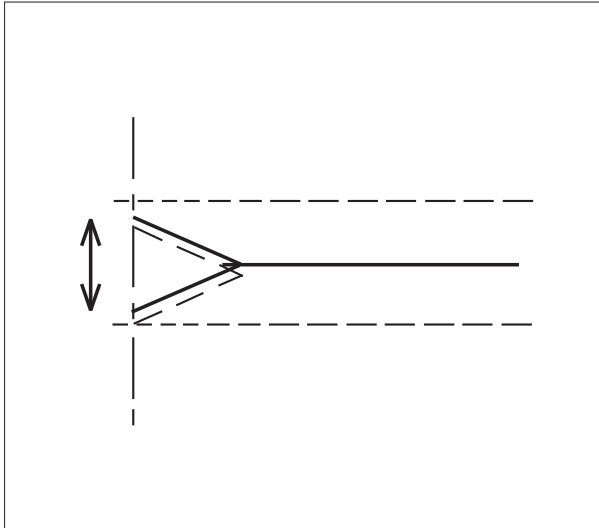


3

In order to be able to precisely adjust the position of the corner knives 1 all four corner knives are at first brought in a basic position.

- Loosen screws 6.
- Turn the corner knife holders 2 in such a way that the front sides 3 are positioned face to face.
- Tighten screws 6.
- Adjust the other two knife holders as described.

5.2 Aligning the corner knife station as to the seams



Caution: Danger of injury !

Switch the main switch off.

Adjust the corner knife station only with the sewing unit switched off.

Standard checking

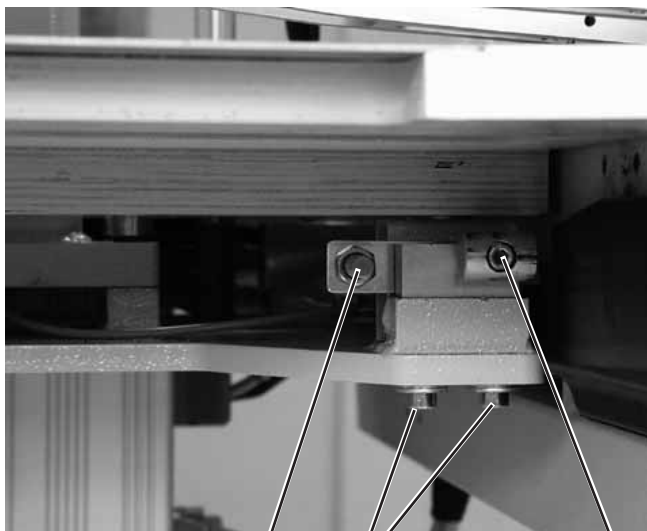
The corner incisions must be symmetrical to the seams.

- Iron a piece of interfacing on a workpiece.
By this the corner incisions become better visible.
- Sew a test seam.
- Check seam and cutting pattern.

Correction of the corner incision at the seam end

- Swing the corner knife station 1 out completely.





6 3 2



5 4

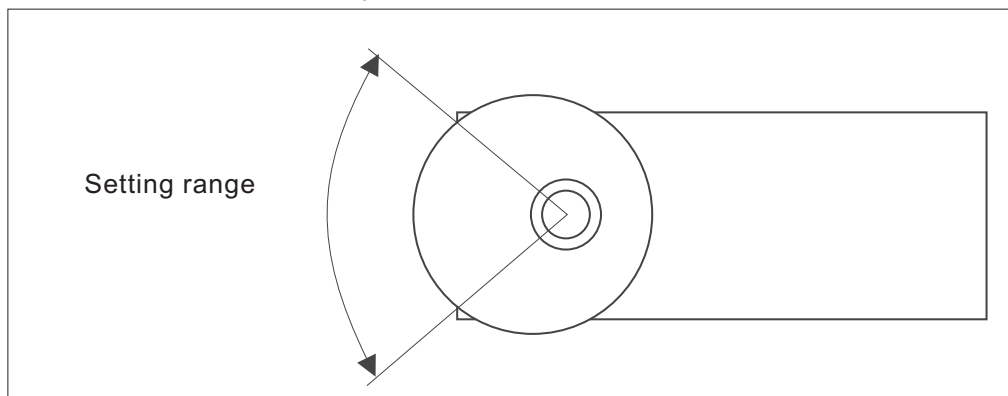
- Loosen the screws 3 slightly.
- Shift the holder 2 correspondingly.
- Tighten the screws 3.
- Swing the corner knife station in again.
- Correct the distance from the switch 6.

Correction of the corner incision at the seam beginning

- Loosen the screw 5 slightly.
- Adjust the corner knife station with the eccentric 4. Regulate the adjustment of the eccentric with the screw.

ATTENTION !

Observe the position of the eccentric.



- Tighten screw 5.
- Sew a test seam.
- Check seam and cutting pattern.

5.3 Adjusting the slant of the corner incisions



Caution: Danger of injury !

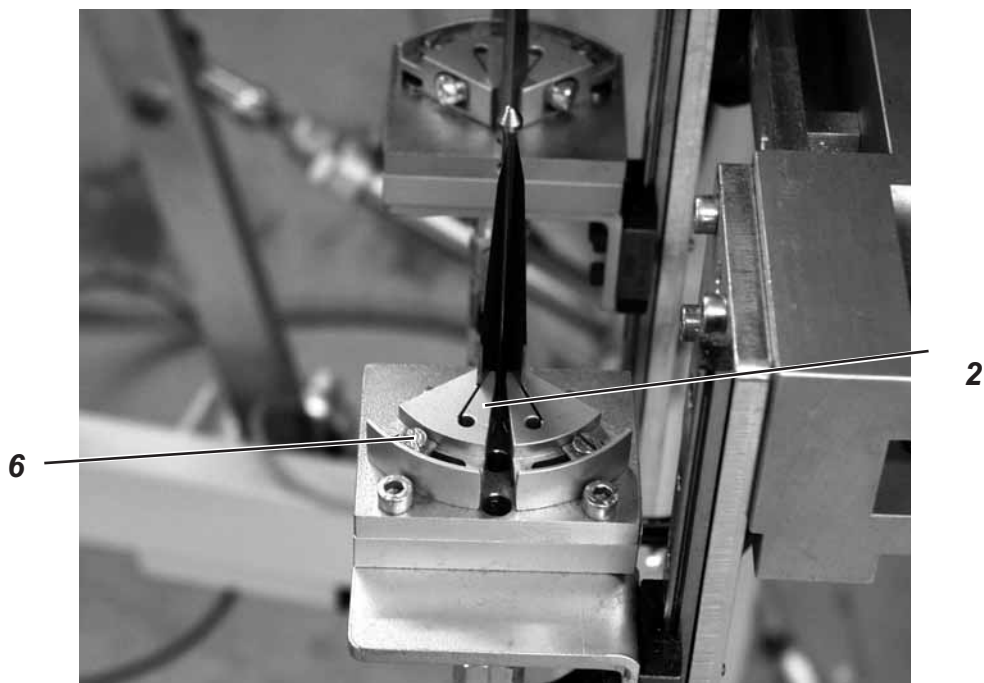
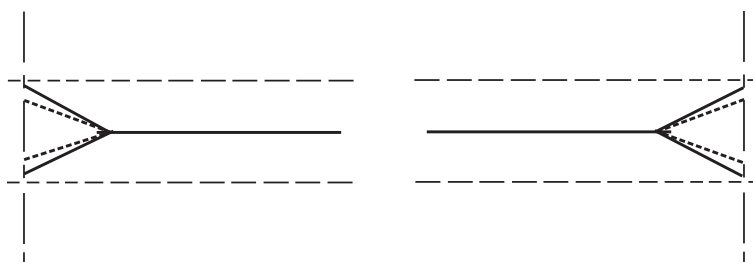
Switch the main switch off.

Adjust the corner knives only with the sewing unit switched off.

Standard checking

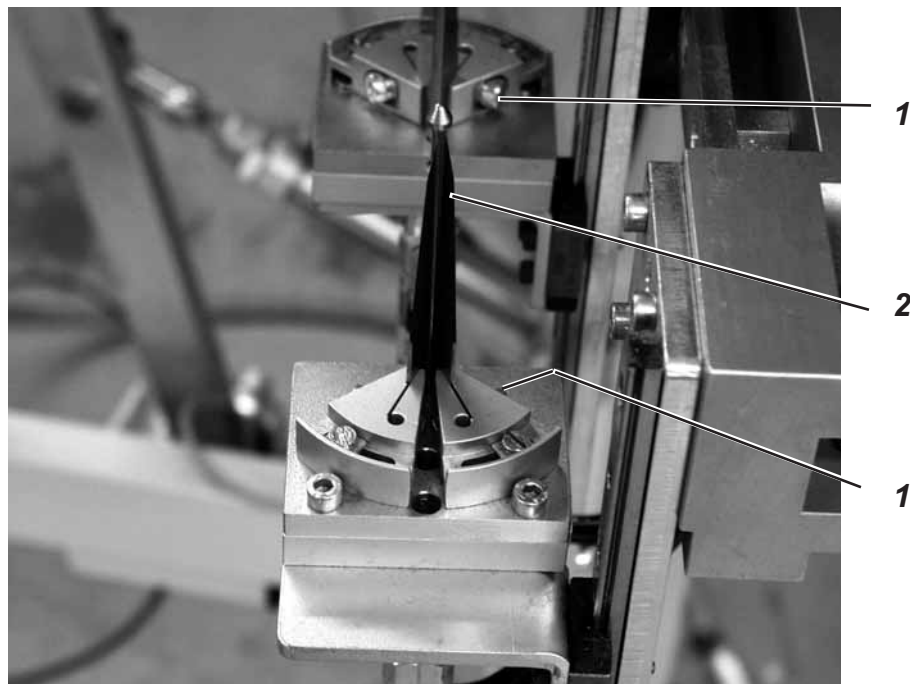
The incisions of the corner knives should be as close to the seam as possible, but must not cut it.

- Sew a test seam.
It is advisable to iron a piece of interfacing on the workpiece before. By this the corner incisions become better visible.
- Check seam and cutting pattern.



- Loosen screw 6.
- Adjust the corner knife holder 2 correspondingly.
- Tighten screw 6.
- Adjust the other three knife holders according to the seam pattern.

5.4 Exchanging the corner knives



Caution: Danger of injury !

Switch the main switch off.
Exchange the corner knife station only with the sewing unit switched off.

Danger of cuts.
Do not reach into the sharp edges of the corner knives.

Blunt knives are to be exchanged against a set of knives included in the accessories.

The corner knives can be ordered under the following order numbers:

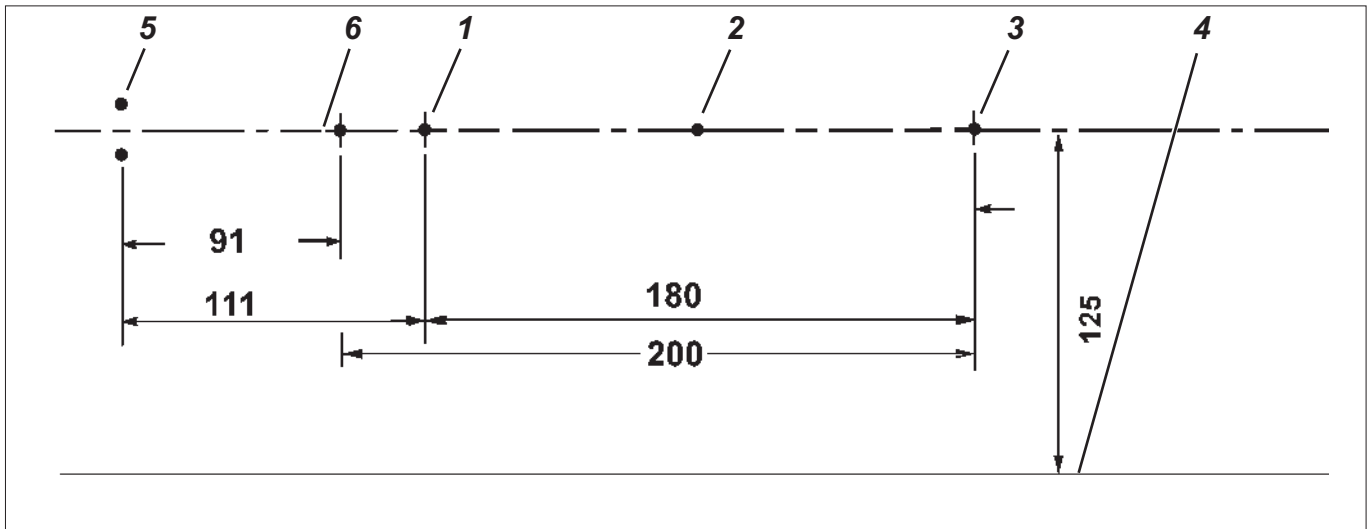
Set of corner knives	Order number
Needle distance = 10 mm	2 x 0746 060689, 2 x 0746 060690
Needle distance = 12 mm	2 x 0746 060691, 2 x 0746 060692

- Swing the corner knife station out.
- Loosen screw 1.
- Take off the old corner knife.
- Insert a new corner knife 2 in the knife holder 3. The point of the knife must be under the pricker.
- Tighten screw 1.
- Swing the corner knife station in again.

6. Laser markings

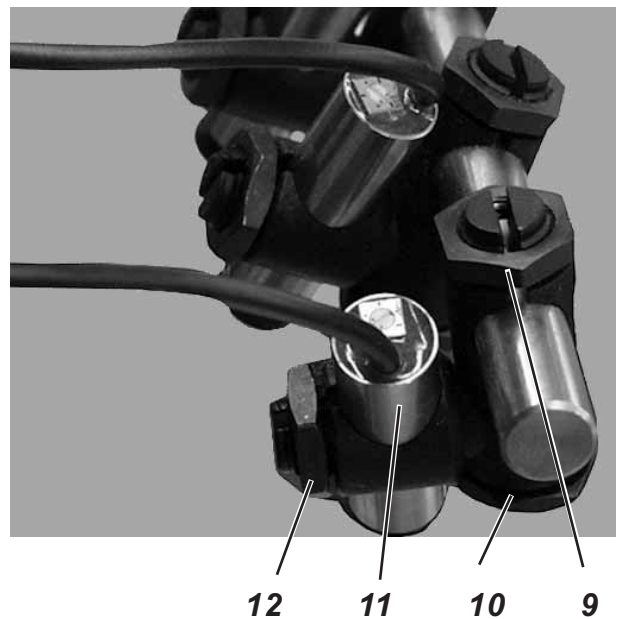
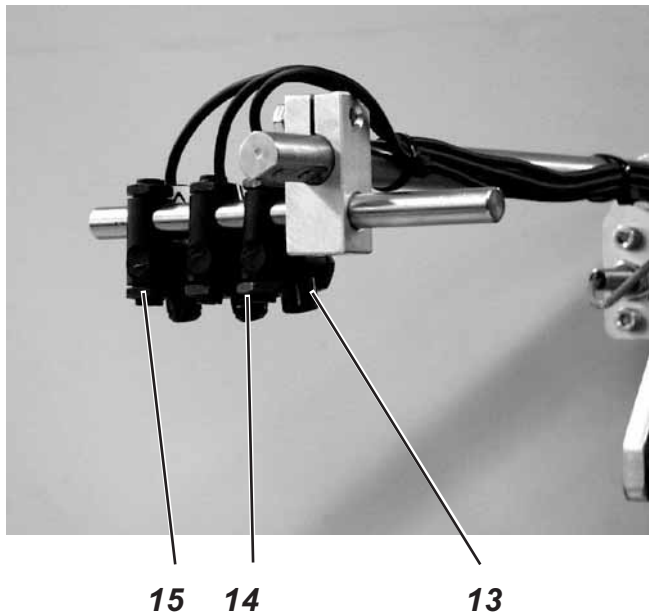
Class 745-34 S is equipped with 3 standard laser modules for marking the positioning points. The laser .. (Nummer einfügen?) marks the front positioning point for the left or right workpiece, the laser .. marks the rear positioning point. The laser .. marks the middle of the pocket opening.

The fastening positions of the laser modules are described in chapter 6.1.
An adjustment template is available under order number 0745 290050.



- 1 : Marking of the front positioning point
- 2 : Middle of pocket opening
- 3 : Marking of the rear positioning point
- 4 : Measuring line
- 5 : Needles
- 6 : Cutting line

6.1 Aligning the markings



Caution: Danger of injury !

Laser light.

Do not look into the light source.

3

The markings 13 mark the seam beginning, the markings 14 the middle of the pocket opening and the markings 15 the seam end.

The markings 1 and 3 must be aligned as to the cutting line 6 (middle of pocket opening).

The distance between the middle of the pocket opening and the measuring line 6 must amount to 125 mm.

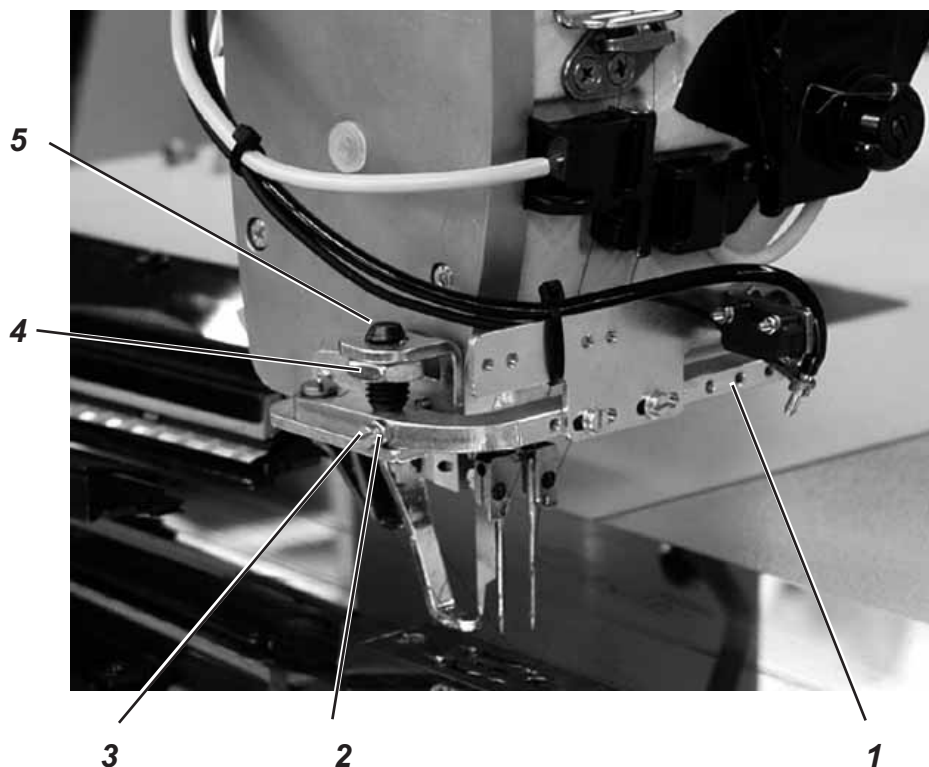
- Loosen the clamping nuts 9 and 10 slightly.
- Align distance and angle of the laser module to the cutting line 6 by shifting and turning.
- Tighten the clamping nuts 9 and 10.
- Loosen the clamping nut 12 slightly.
- Align the laser line by turning the laser 11.
- Tighten the clamping nuts 12 again.

After adjustment of the markings please consider the following in any case:

- Check the markings and their alignment as to the middle of the pocket.
- Observe the maximum sewing area.

7. Reflected light barriers for flap scanning

7.1 Swivel arm



Caution: Danger of injury !

Switch the main switch off.

Adjust the swivel arm of the reflected light barriers only with the sewing unit switched off.

Standard checking

The swivel arm 1 should stand in parallel position to the machine arm. When swivelled in front of the arm it must snap in safely.

- Swing out the swivel arm 1 with the light barriers.
- Swing the swivel arm in again and check the pressure of the locking screw 5.
- Check the position of the swivel arm to the machine head.

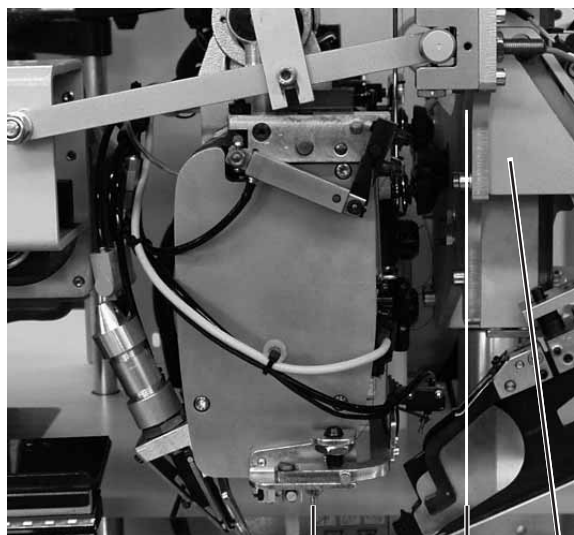
Correction

- Loosen counter nut 4.
- Turn locking screw 5.
In clock-wise direction = higher locking pressure
Counter-clockwise = lower locking pressure
- Tighten counter nut 4.
- Loosen counter nut 2.
- Set the swivel arm parallel to the machine head with screw 2.
- Tighten counter nut 2.

7.2 Aligning the light barrier for flap

See Programming Instructions chapter 4

8. Aligning the folding station plate as to the measuring line



79 mm

1



5

4

3



$64 \pm 0,5 \text{ mm}$



Caution: Danger of injury !

Switch the main switch off.

Adjust the folding station plate of the loading station only with the sewing unit switched off.

Standard checking

The distance between the middle of the needle and the inner side of the folding station plate 1 must amount to 79 mm.

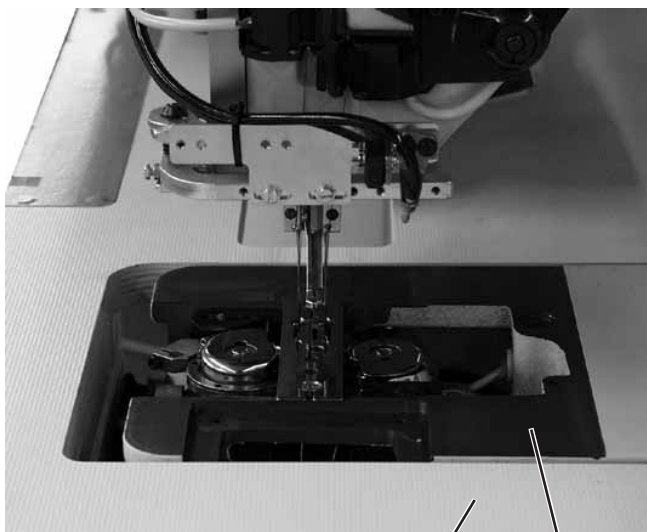
Between the bores on the machine arm and the inner side of the folding station plate 1 there should be a distance of 64 mm ± 0.5.

- Measure the distance between the folding station plate 1 and the bores when the loading station is swung in.

Correction

- Push the covering cap to the back.
- Loosen the bolt 5.
- Shift the lever 4 in the slotted hole 3.
- Tighten the bolt 5.
- Push the covering cap to the front.

9. Positioning the sewing machine head as to the table top



2

1



4

3



Caution: Danger of injury !

Switch the main switch off.

Adjust the sewing machine head only with the sewing unit switched off.

3



8

7

6

5

Standard checking

The non-varnished surface of the base plate 1 of the sewing machine head must be at the same level as the table top 2 over its whole length.

- Push the feeding clamps to the back.
- Lift the sliding sheet 3 at the front and swivel it to the left.
- Check the height of the base plate.

Correction

Sewing machine head, right side

- Remove the cover 4.
- Loosen the counter-nuts 6 and 8.
- Turn the screws 5 and 7 equally with an Allen wrench.
- Tighten the counter-nuts 6 and 8.

Sewing machine head, left side

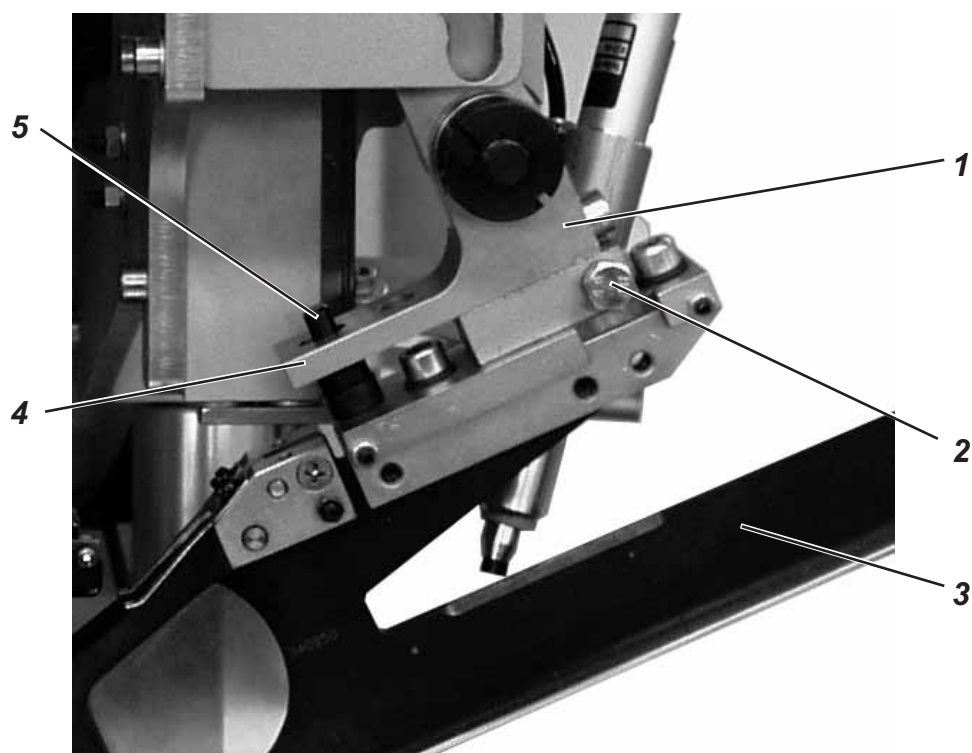
- Swing the sewing machine head upwards (see chapter 2.1).
- Turn the screw 9 with an Allen key.
- Swing the sewing machine head back.



9

10. Folder

10.1 Proper fastening



Caution: Danger of injury !

Switch the main switch off.

Remove and mount the folder only with the sewing unit switched off.

Standard

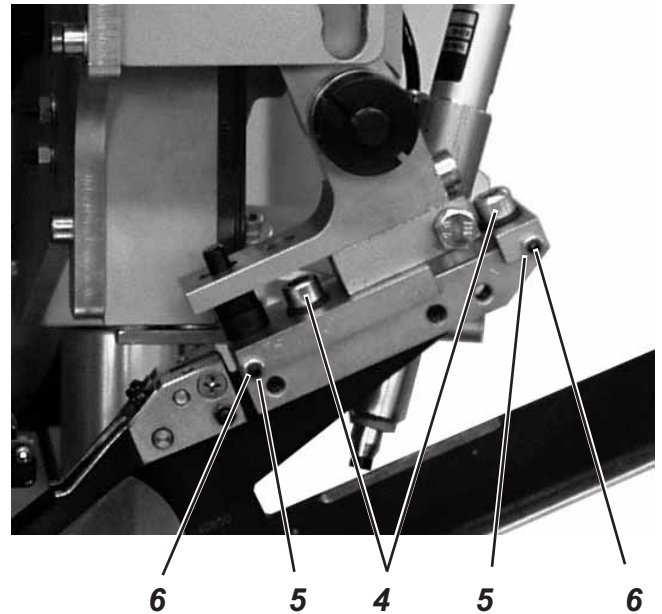
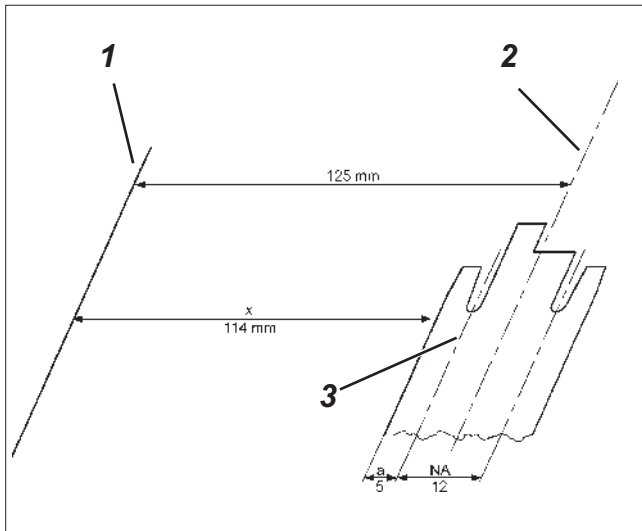
The folder 3 has to be pushed upwards until it abuts on the clamping collar 1.

The pin 5 must stick in the drill-hole of the operating lever 4.

Correction

- Loosen screw 2.
- Push the folder 3 upwards as far as it will go.
- Tighten screw 2.

10.2 Aligning the folder as to the middle of the pocket opening



Caution: Danger of injury !

Switch the main switch off.
Align the folder as to the middle of the pocket opening only with the main switch switched off.

Standard checking

If properly fitted, the folder can be aligned as to the middle of the pocket opening from the measuring line 1.

The dimension x can be calculated according to the width of the folder sole 2. With the help of this dimension the folder can be aligned as to the middle of the pocket opening 3 and parallel to the measuring line 1.

- Deduct the piping width a and half the needle distance NA from the dimension 125 mm.

Example from the sketch:

$$125 \text{ mm} - a - 1/2 \times NA = x$$

$$125 \text{ mm} - 5 \text{ mm} - 1/2 \times 12 \text{ mm} = 114 \text{ mm}$$

- Check the distance of the folder sole to the measuring line 1.

Table Dimension a

NA	a
10	4
12	5
14	6
16	6,5
20	8,5

Correction of the parallel position

- Make the machine pressureless and press the folder down by hand.
- Slightly loosen the screws 4.
- Loosen the nuts 5 and turn the core pins 6 until the dimension x is adjusted over the whole sole length.
- Tighten the nuts 5.
- Tighten the screws 4.

10.3 Lifting motion of the folder



2

1



4

3



Caution: Danger of injury !

Switch the main switch off.

Adjust the lifting motion of the folder only with the sewing unit switched off.

Standard checking

When the folder is lowered

- Lower the folder 2 on the fabric sliding sheet 1. In this position there must be a clearance of 0.3 - 0.5 mm between the guide roller 3 and the lowest point of the guide groove 4.

When the folder is raised

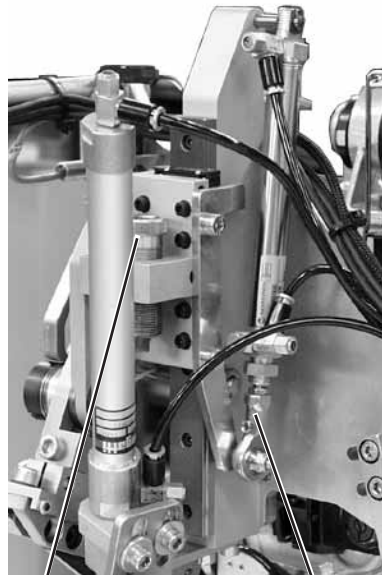
When the folder is raised, there must still be some clearance between the guide roller 3 and the highest point of the guide groove 4.

- Press the folder down to the fabric sliding sheet by hand.
- For this purpose turn the screw 6 back, if required.
- Check the air gap between guide groove 4 and guide roller 3.
- Lift the folder to the upper position.
- Check the air gap between guide groove 4 and guide roller 3.

Correction

- Adjust the joint head 5 on the piston rod of the cylinder.

If - with the folder lowered - the guide roller 3 hits the guide groove and the folder is not lowered as far as required, the guide groove has to be readjusted (see next page).

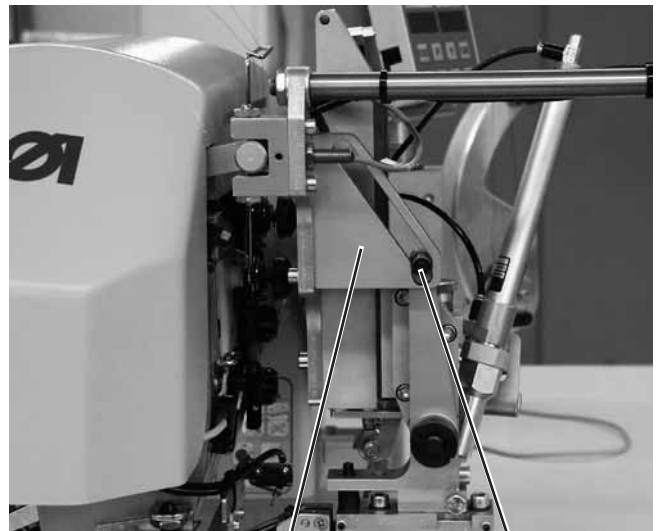


6

5



8



6

7



Caution: Danger of injury !

Switch the main switch off.

Adjust the guide groove for the folder only with the sewing unit switched off.

- Loosen the screw 8.
- Shift the cam piece 6 in the slotted holes.
- Tighten the screw 8.

12



10

11

3

Stop screw with spring

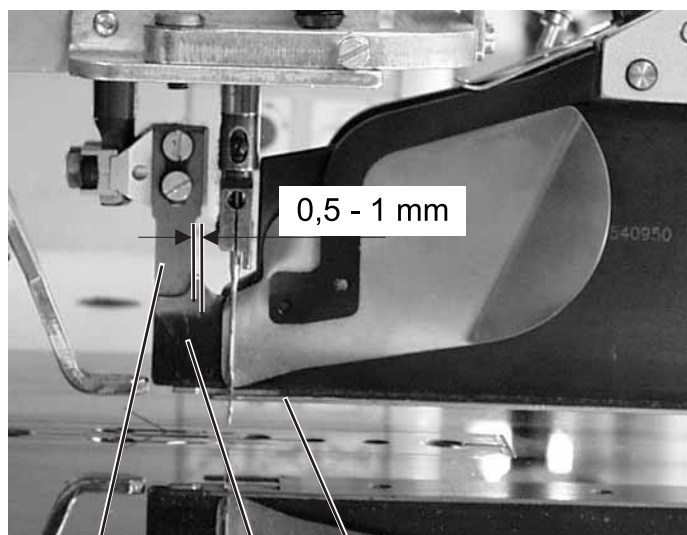
Standard checking

The stop screw 10 has to be adjusted in such a way that - with the folder lowered - the distance between the folder sole and the sliding sheet amounts to approx. 1 - 2 mm (dependent on the fabric).

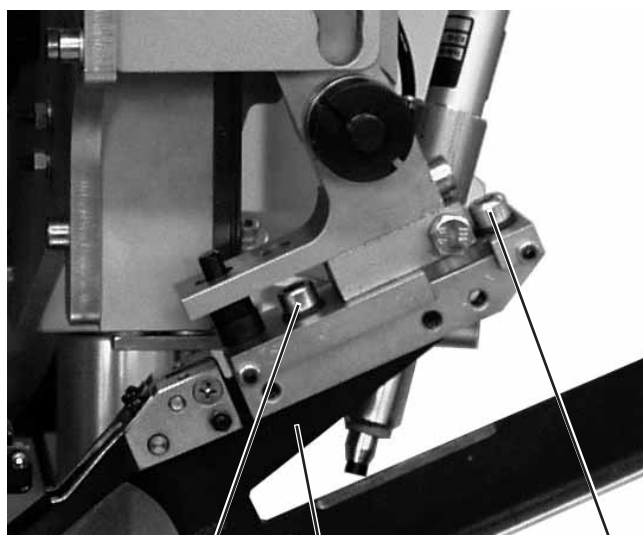
The incorporated spring presses the folder back so that the piping strip is seized when sewing (during the last section of the backward movement the cylinder is pressureless).

- Turn the stop screw 10 in such a way that - if the folder is lowered - the stop screw 10 abuts on the stop 11 (make sure that it snaps in).
- Adjust the spring pressure with screw 12 in the stop screw 10 so that the folder is pressed back.

10.4 Position of the folder to the needles



3 2 1



6 5 4



Caution: Danger of injury !

Switch the main switch off.

Align the folder as to the needles and to the center knife only with the sewing unit switched off.

Standard checking

When the folder is properly fastened, the following conditions must be fulfilled:

When the folder is lowered, the needles must stick in the needle holes of the folder sole 1 without hindrance (without being pushed out of the way).

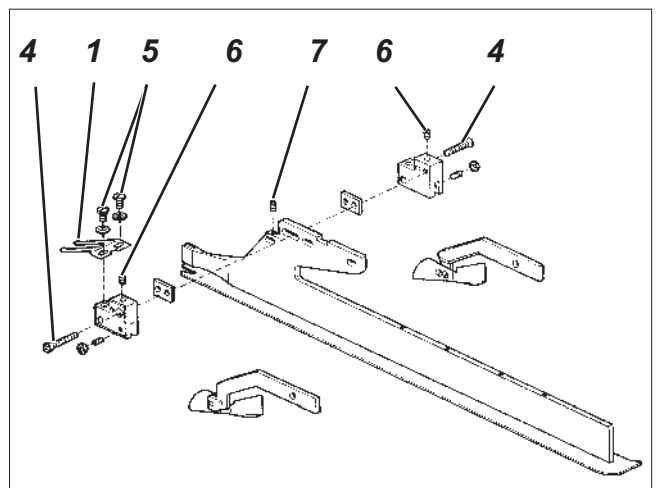
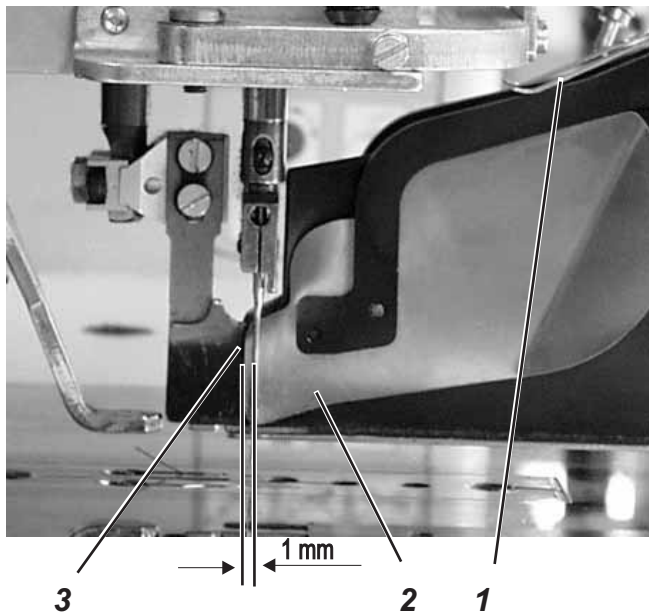
When the center knife 3 enters into the center knife protection 2, the rear knife edge must be flush with the knife protection.

- Press the folder down by hand completely.
- Check the position of the folder sole to the needles and to the center knife.

Correction

- Loosen the screws 4 and 6 at the rear.
- Push the folder holder 5 in sewing direction.
- Tighten the screws 4 and 6.

10.5 Guide plates at the folder



Caution: Danger of injury!

Switch the main switch off.

Adjust the guide plates only with the sewing unit switched off.

Standard checking

When the folder is lowered, the edges 3 of the guide plates 2 must project beyond the needles by approx. 1 mm to the back.

The leaf springs 1 hold the guide plates down with low pressure. The pressure must be set in such a way that the springy guide plates can be easily lifted by the fed piping strip or by the flap.

- Lower the folder.
- Check the position of the guide plates to the needles.
- Check the spring pressure of the guide plates.

Correction

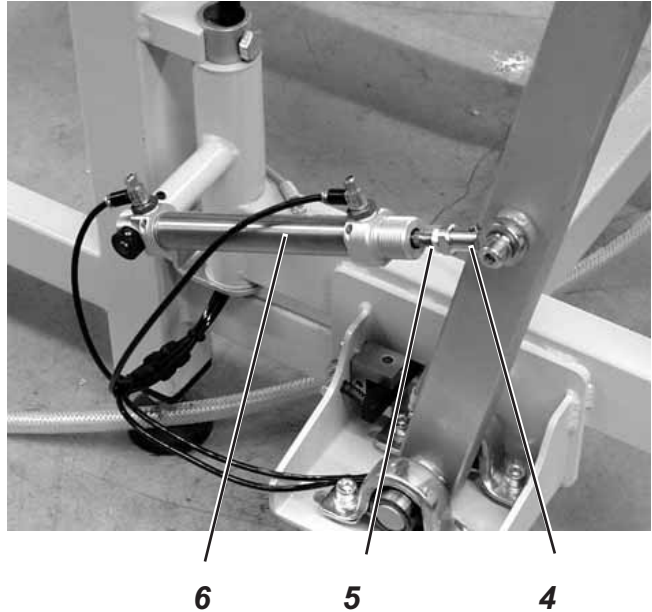
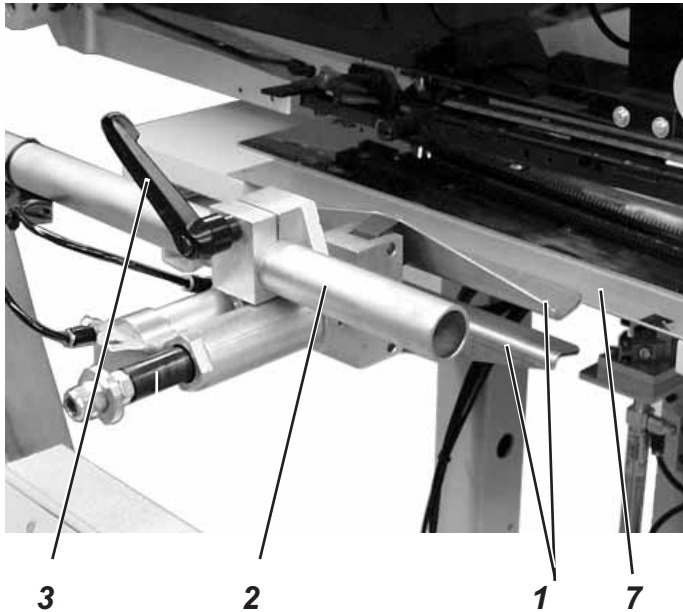
Aligning the guide plates

- Loosen screws 4.
- Loosen core pin 7.
- Adjust the guide plates in longitudinal direction.
- Adjust the core pins 6. The lower edges of the guide plates should be approx. 1 to 2 mm above the fabric sliding sheets.
- Tighten screws 4.
- Tighten core pin 7.

Adjusting the spring pressure

- Loosen screws 5.
- Adjust the pressure by aligning the leaf springs 1.
- Tighten screws 5.

11. Stacker



The basic stacker settings mentioned hereafter have been made by the manufacturer in factory 6. They have to be corrected in exceptional cases only.



Caution: Danger of injury !

Before carrying out any adjustment work switch off the main switch and separate the stacker from the compressed air supply.

11.1 Position of the pincers to the table top

Standard checking

The open pincers 1 should be positioned to the table top in such a way that the sewing material can be fed unhindered.

Correction

- Loosen counternut 5.
- Turn the joint head 4 on the piston rod of cylinder 6.
- Tighten counternut 5.

11.2 Height of the pincers

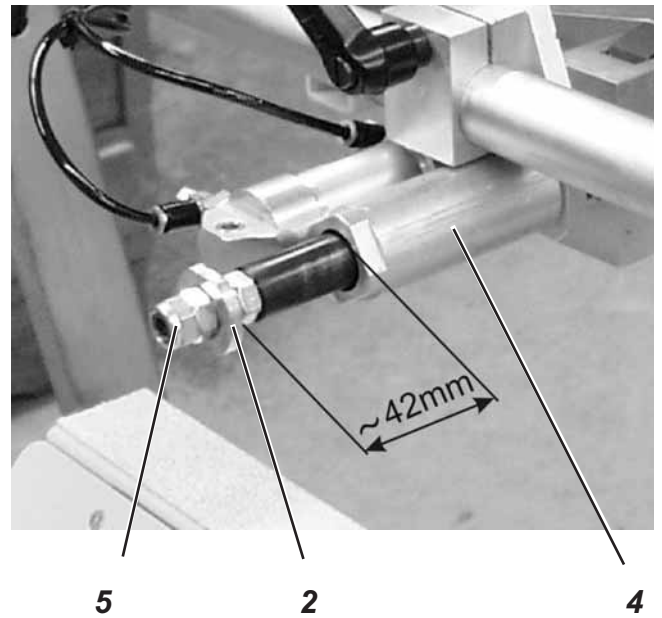
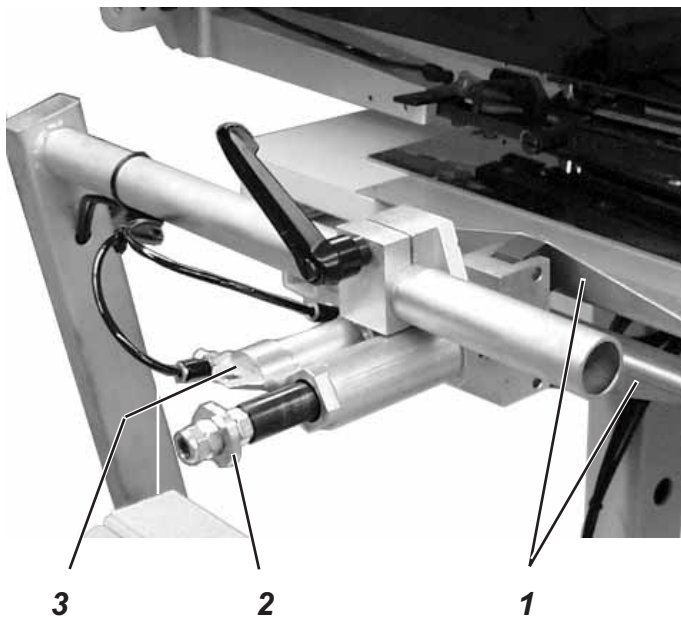
Standard checking

The closed pincers 1 should be on the level of plate 7 in the table top.

Correction

- Loosen the clamping lever 3.
- Press the pincers 1 to the front by hand until the pincers closes.
- Tighten the clamping lever 3.

By loosening the clamping lever 3 the pincers can also be shifted on the axle 2 in both directions.



11.3 Position and closing of the pincers

Standard checking

When the cylinder 3 extends, the disc 2 reaches the bushing 4 after ~42mm. This is the front position of the pincers 1 (from this position the pincers closes, when the cylinder 3 is moving on, and clamps the material).

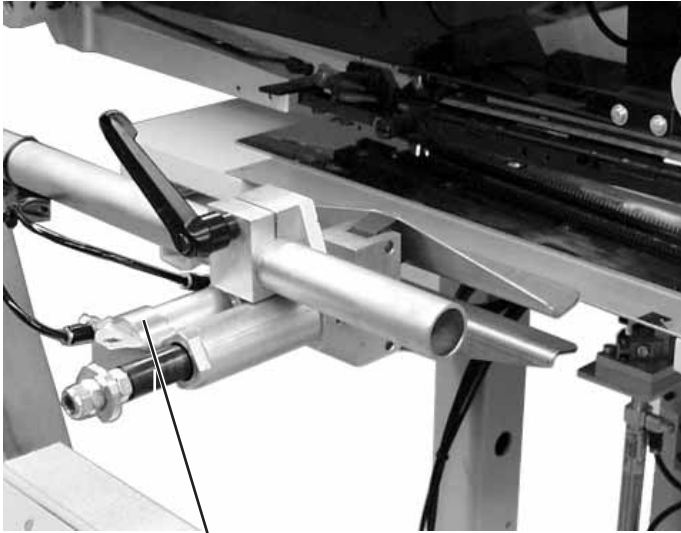
Correction

The front position and the closing of the pincers 1 is influenced by the position of the disc 2.

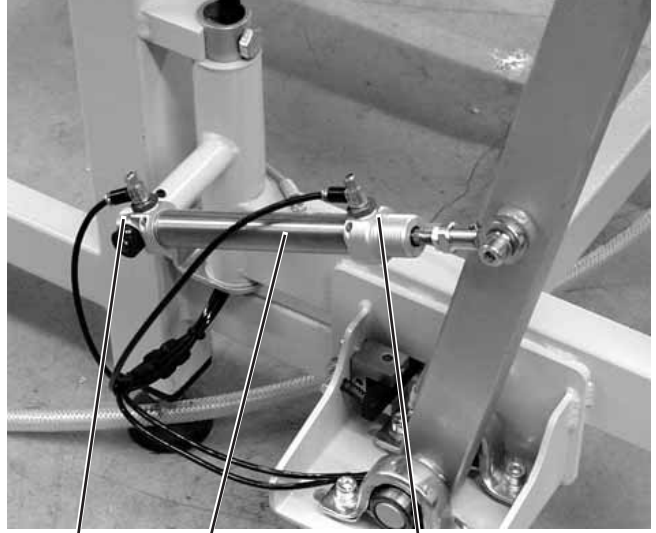
- Loosen the nut 5.
- Adjust the disc 2.
(Reduce the distance between disc and bushing = clamping pressure increase)
(Increase the distance between disc and bushing = clamping pressure reduction)
- Tighten the nut 5.

Hint:

When establishing the pocket program the "Position of the feeding clamp after sewing" can be determined and adapted to the position of the stacker pincers.



1



7

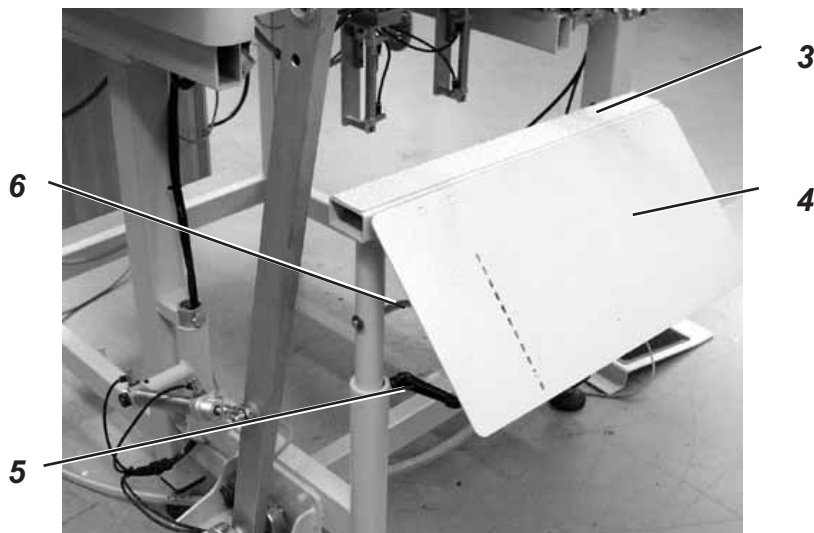
2

7

11.4 Cylinder speed

The speed can be set with the throttling valves at the cylinders 1 and 2. Adjust the end cushioning 7 at the cylinder 2 in such a way that the lever reaches the end position rapidly, but not abruptly.

11.5 Position of the rest plate



3

4

6

5

The height of the bow 3 with rest table 4 can be adjusted so that workpieces of different length and bundles of different thickness can be stacked.

- Loosen the clamping lever 5 and adjust the position.
- Tighten the clamping lever 5.

By swivelling the rest table 4 the deposit surface can be adjusted (short and long workpieces).

When the position has been found, the locking lever 6 can be inserted in the corresponding hole in the rest table.

11.6 Swivelling the stacker aside



For adjusting the corner knives the stacker can be swivelled aside.

- Loosen the pawl 1.
- Swivel the stacker aside.
- Let the stacker catch in its position again after the adjusting operations.
- With the screw 2 the stacker can be set close to the stand.

3

12. Exchange the control unit

See:

Part 2, Installing Instructions: “Sewing software installation” and
Part 4, Instructions for programming: Chapter 3.5 “Dongle Menu”.

Note: