



Service Instructions

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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.



Service Instructions for the Class 887

(Edition 06/2012)

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1 General

These service instructions describe the adjustments that can be made to the class **887** special sewing machine.



CAUTION!

The operations described in these service instructions may only be carried out by qualified staff or other appropriately trained persons!



Caution: Risk of injury!

Turn the main switch off for repair, conversion and maintenance work and separate the machine from the pneumatic supply line.

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

These service instructions describe the adjustment of the sewing machine in a logical order. Please observe that various setting positions are dependent on each other. Thus it is essential that the settings be conducted while keeping to the order described.

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

This text does not specifically mention any machine covers or panels which must be removed or re-mounted in order to conduct inspections or adjustments.

Note

Some shafts on the special **887** machine are provided with flat eccentric surfaces. This significantly simplifies machine adjustments.

For all adjustments on flat surfaces, the first screw screwed in the direction of the eccentric surface.

1.1 Setting gauges

The retention pin required for adjusting the machine is included with all units. It is located with the machine accessories and can be attached so that it is easily accessible below the oil tray.

1.2 Adjusting the handwheel

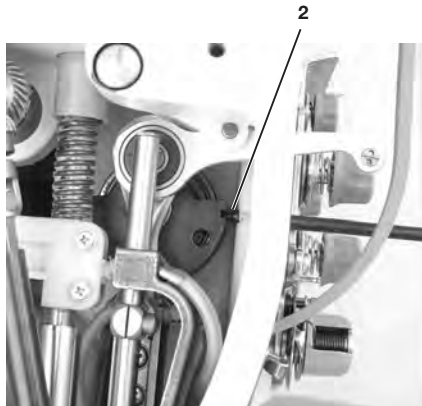
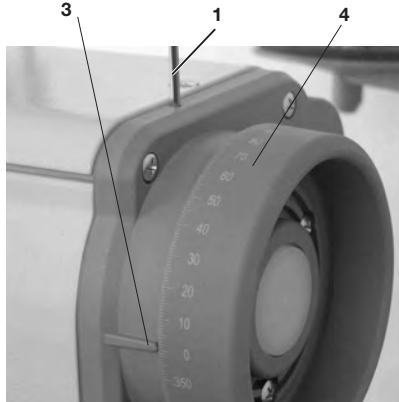
Rule:

The handwheel (4) is labelled with degree numbers.

Certain adjustments are made with these marked handwheel positions.

- Turn the handwheel until the degree value specified in the instructions is aligned with the pointer (3).
- Proceed with the adjustment described.

When the needle bar is at top dead centre, the pointer (3) should be aligned with "0" degrees.



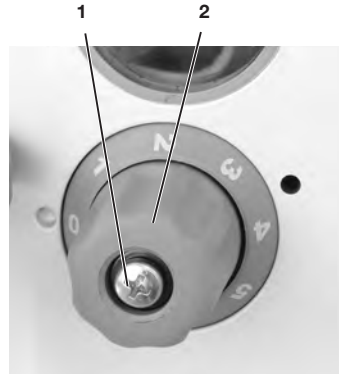
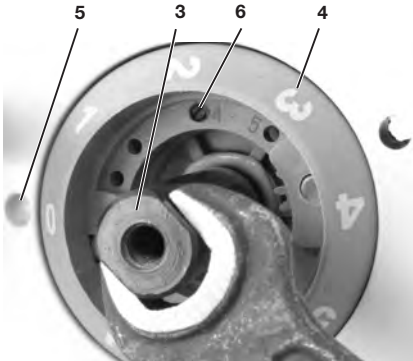
- Loosen the handwheel screws with a 3 mm Allen key (1).
- Position the needle bar in the upper dead centre position. Use the retention pin (3 mm diameter) to peg the position (2).
- Turn the handwheel so that the pointer (3) points to 0 degrees on the rotary scale.
- Tighten the first screw with the Allen key (1). Turn the handwheel to 50° and tighten the second screw with the Allen key (1).

2 Bottom feed

2.1 Basic setting for stitch adjustment and stitch length limit

Rule:

1. When setting the stitch length at "0", the stitch regulator gear should have as little play (clearance) as possible when you press down on the bartacking lever.
2. The maximum stitch length limit depends on the material to be sewn and the sewing equipment being used (see operating instructions).



- Loosen screw (1) and take off the settings dial (2).
- Turn the screw (3) as far as needed to the right using a 10 mm spanner wrench. Verify that the stitch regulator gear is without motion by pressing down on the bartacking lever. This fulfils rule 1.
- Set the scaling ring (4) with stitch length "0" to align with the circular mark (5).
- Limit the stitch length according to rule 2. For this, screw the retention pin (6) into the proper hole. The holes are marked with numbers which indicate the maximum stitch length.
- If a maximum stitch length of 7 mm is required, unscrew the screw (6) for 2.5 mm. Another end stop is available for this length.
- Put the settings dial (2) back on and tighten the screw (1).

Caution: Risk of injury!

Turn the main switch off.

Only carry out this basic stitch adjustment when the machine is turned off.



ATTENTION: Danger of breakage!

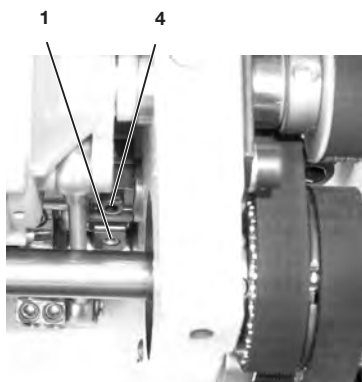
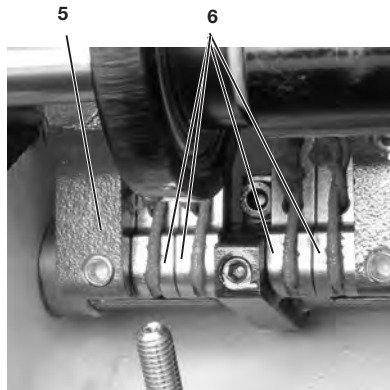
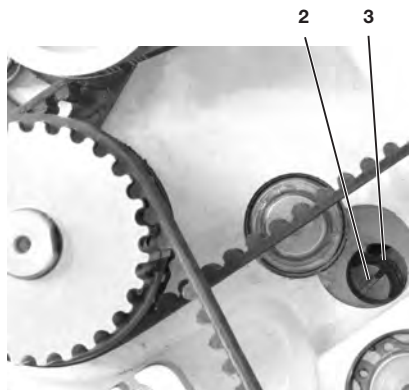
If the set stitch length is larger than allowed by the sewing equipment in use, then the needle will hit against the throat plate insert.



2.2 Stitch uniformity for forwards and reverse stitching

Rule:

1. When making a rough-scale adjustment to the stitch regulator gear, the machine should not feed when the stitch length is set to "0".
2. When making a fine-scale adjustment to the stitch regulator gear, the forwards and reverse stitch lengths should only deviate in value by a half stitch.

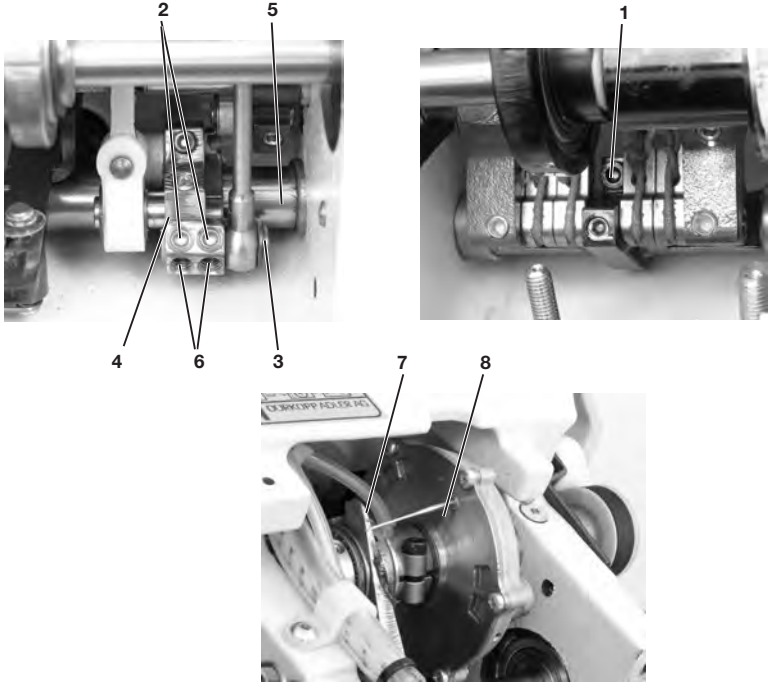


- Set the stitch length to "0".
- Loosen screw (1) and turn the grooved (3) eccentric tappet (2) according to the illustration. Fasten with screw (1).
- Loosen screw (4) on the clamping lever. Turn the settings frame (5) so that the shackles (6) are parallel. Tighten screw (4). This then fulfils rule 1.
- The next step is to match up the forwards and reverse stitch lengths. Sew ten stitches forwards. Press the bartacking lever and then sew ten stitches backwards. Rotate the eccentric tappet (2) so that rule 2 is fulfilled.
- Clockwise = increase forward stitch, decrease reverse stitch.
- Counter-clockwise = decrease forward stitch, increase reverse stitch.

2.3 Adjusting the levers on the rear feed shaft

Rule:

When setting the stitch length "0", the feed clutch should be in the middle range of the work limit settings.



- Set the stitch length to "0".
- Loosen screw (1).
- Loosen screw (2) and remove pin (3). Underneath is a lever (4) with two screws. The lever has to be fastened with a 3 mm Allen key in order to have it sitting properly on the flat surface of the shaft (5). Mount the pin (3) again.
- Screw out the screw on the feed clutch (8). Push the needle (7) into this opening. Turn the clutch (8) with your hand until the needle is **5 mm** into the hole. The rule is then fulfilled.
- Tighten screw (1).



Caution: Risk of injury!

Turn the main switch off.
Only carry out this lever adjustment when the machine is turned off.



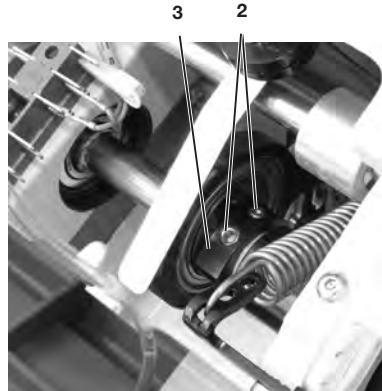
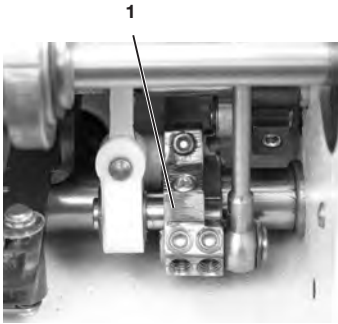
ATTENTION: Danger of breakage!

With large stitch lengths, it is possible that parts within the clutch will collide if the middle working range of the clutch is not maintained.

2.4 Position of the eccentric tappet for the feed movement

Rule:

When the handwheel pointer indicates “0” degrees, the feed lever (1) should not move when the bartacking lever is pressed down.



- Turn the handwheel so that the pointer indicates “0”.
- Loosen screws (2). To make the rough-scale adjustment, turn the eccentric tappet (3) so that it is approximately in the position shown in the illustration. Now make the fine-scale adjustment to the eccentric tappet. Continue until you have found the position where the feed lever (1) no longer moves when the bartacking lever is pressed down.
- Tighten screws at eccentric tappet (3).



Caution: Risk of injury!

Turn the main switch off.

Only carry out this eccentric adjustment when the machine is turned off.



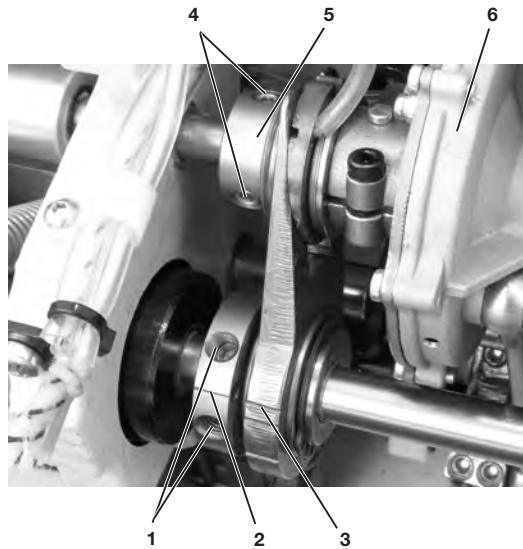
ATTENTION: Danger of breakage!

Imprecise settings can shorten the lifespan of the machine.

2.5 Switching over the feed clutch

Rule:

The clutch should be switched over when it is motionless (i.e., when it is in the dead centre point of its pendulum motion).



- Loosen the screws (1) on the eccentric tappet (2).
- Turn the eccentric tappet so that the dash (2) is aligned with the other dash (3).
- Loosen the three screws (4). Loosen the adjusting nut (5).
- Tighten the adjusting nut (5) until you feel it strike (the tightening increases in jumps). Push the clutch (6) to the right until the end stop is reached. Tighten the screws (4).
- Verify the adjustment. Turn the eccentric tappet with your hand in the other direction. The resistance during the rotation of the eccentric tappet should increase significantly when the two dashes are lined up.



Caution: Risk of injury!

Turn the main switch off.

Only carry out this adjustment when the machine is turned off.



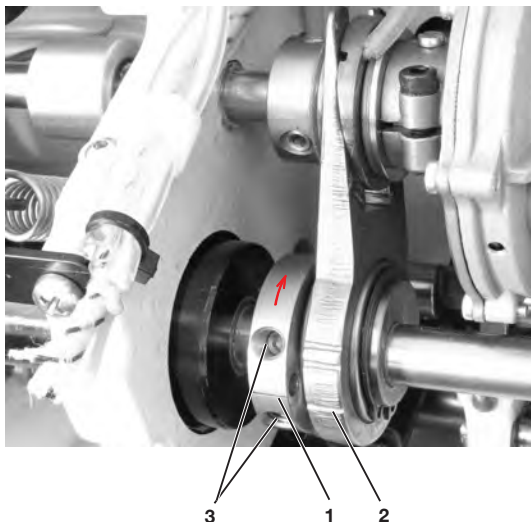
ATTENTION: Danger of breakage!

Imprecise settings can shorten the lifespan of the machine.

2.6 Position of the eccentric tappet for the switch over of the feed clutch

Rule:

When the handwheel pointer indicates “313” on the scale, the dash (1) on the eccentric tappet should be lined up with the lower dash (2) on the V-shaped push rod.



- Loosen screws (3).
- Turn the handwheel to position “313”.
- Turn the eccentric tappet in the direction of arrow so that dash (1) is lined up with dash (2).
- Turn back the eccentric tappet about 2° and move axially on the shaft until the middle is between the limit settings.
- Align the two dashes (1) and (2) again. Tighten the screws (3).



Caution: Risk of injury!

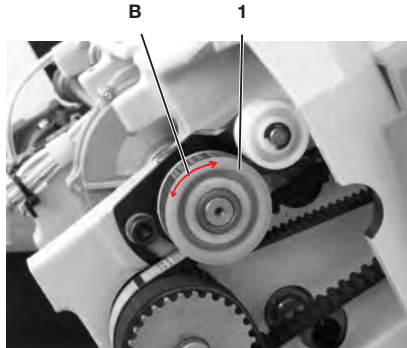
Turn the main switch off.

Only carry out this adjustment when the machine is turned off.

2.7 Checking the switch over of the feed clutch

Rule:

The feed clutch should be switched over when it is motionless (i.e., when it is in the dead centre point of its pendulum motion). This can be detected from the rotational direction of the belt pulley (1) in front of and behind the dead centre point.



	1	2	3	4
A	274°	281°	94°	101°
B	←	→	←	→

- Set the maximum stitch length.
- Turn the handwheel (**A**) so that it is positioned at “274” degrees (refer to Table / A). Push the bartacking lever down. Check if the rotational direction (**B**) of the belt pulley (1) corresponds to the direction specified in the table. Do the same for “281” degrees.
- If the rotational directions do not correspond to those specified in the table, correct the necessary settings. If the clutch switches over too soon (on a smaller angle), tentatively loosen the adjusting nut (5) (see chapter 2.5) and repeat the check. Continue loosening until you locate the correct position for the nut. If the clutch switches over too late, tighten the controlling nut (5).



Caution: Risk of injury!

Turn the main switch off.

Only carry out this adjustment when the machine is turned off.



CAUTION!

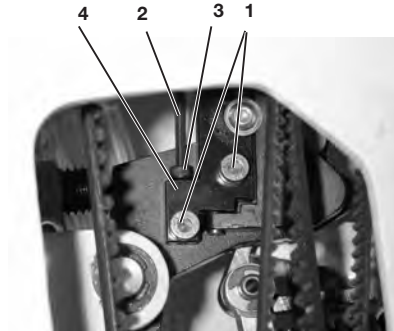
Imprecise settings can shorten the lifespan of the machine.

2.8 Adjusting the reduced stitch length

Note: It is an optional equipment.

Rule:

If a reduced stitch is selected via a switch button, it should then be effectively 50% with 7 mm stitch length and between 60% and 70% with 2 mm stitch length.

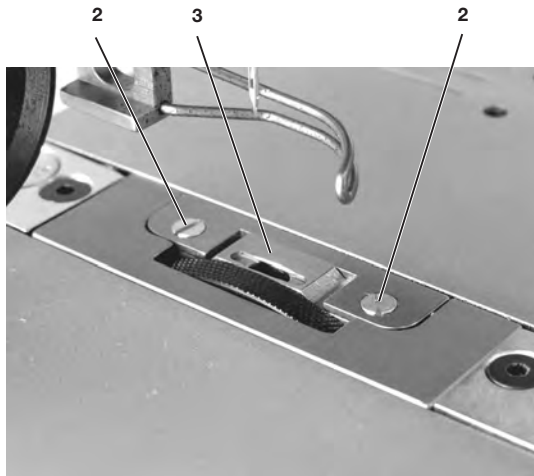


- Loosen screws (1).
- Shift the piece (4) through changing the position of the screw (3) with a 2.5 mm Allen key (2) until the stitch length corresponds to the value given in the above rule.
- Fasten screws (1).

2.9 Throat plate

Rule:

With the standard setting the throat plate insert should be adjusted to the center of the throat plate.



- Remove the throat plate.
- Loosen the screws (2) and adjust the throat plate insert (3) to be in the centre of the throat plate cutout.
- Fasten the screws (2) again.
- Fit the throat plate again.



Caution: Risk of injury!

Turn the main switch off.

Only carry out this adjustment when the machine is turned off.



ATTENTION: Danger of breakage!

An incorrectly fixed throat plate causes the destruction of the parts when the machine is started.

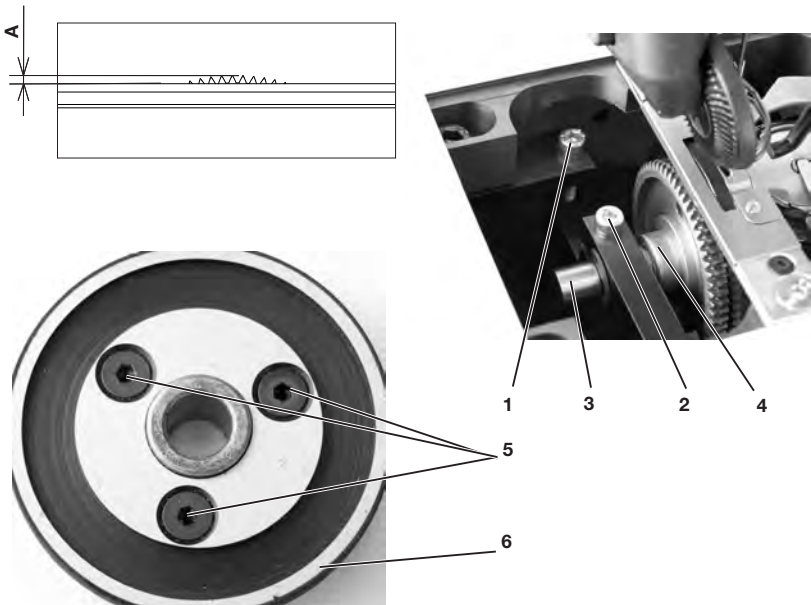
2.10 Slide wheel feeder

Rule:

1. The height **(A)** that the feed dog (1) is above the throat plate must be appropriate for the thickness and toughness of the material.
2. Standard height of teeth above the throat plate inset see table below:

Needle thickness Nm	Feed dog height in mm (A)
70 - 80	0.4 - 0.5
90 - 110	0.4 - 0.5
120 - 200	0.6 - 0.8

3. Also the tooth pitch must be adapted according to the material that is to be sewn:
thin material – fine teeth in order to avoid marks in the leather
soft, thick material – thick teeth for sufficient feed traction



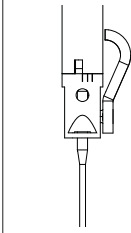
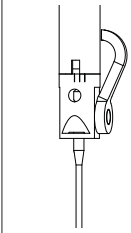
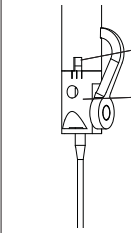
- Set the height of the wheel feeder according to rule 2. In order to elevate the wheel feeder, turn the screw (1) clockwise.
- In order to lower the wheel feeder, turn the screw (1) counter-clockwise.
- When exchanging the wheel take out the throat plate. Loosen the screw (2) and slide the pin (3). Remove the feeder (4) with the cogwheel. Loosen the screws (5), exchange the wheel feeder against another one and remount the parts in inversed sequence again.

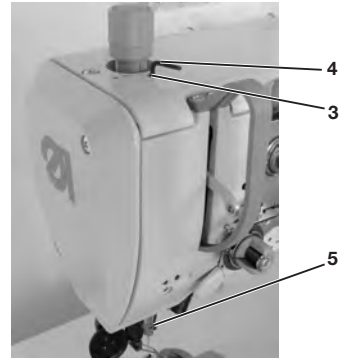
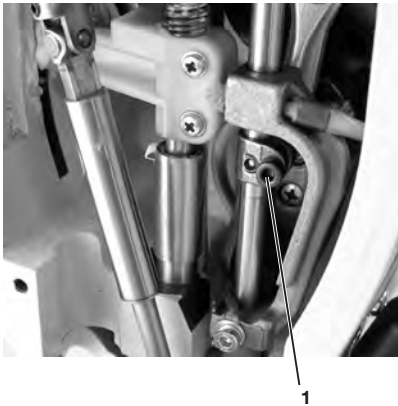
3 Top feed

3.1 Position of the needle holder with single needle sewing machines

Rule:

The position of the needle holder is to be set in dependence to the needle thickness according to the following chart.

Angular position of the needle holder			
Needle thickness Nm	70 - 110	120 - 160	180 - 200

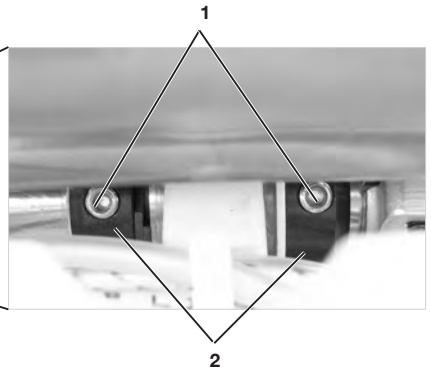
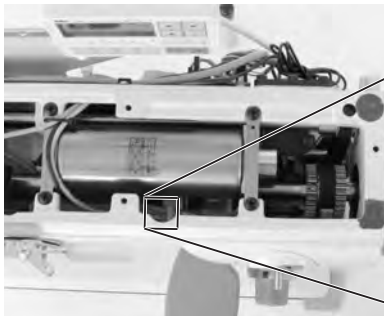
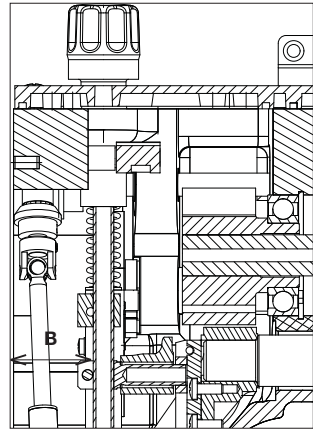
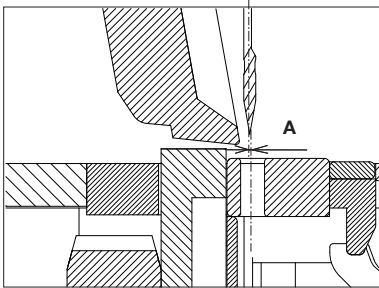


- Remove the thread guide.
- Loosen screw (1) and turn the needle bar with the right groove edge (2) to the needle bar axis (in sewing direction) and tighten screw (1).
- Bring the needle bar to the upper dead center and loosen the screw of the needle holder through the bore (3) by using an Allen key of 2.5 mm (4).
- Turn the needle holder (5) according to the rule and tighten the screw (1).

3.2 Needle feed

Rule:

1. The needle bar should be adjusted so that it is flush with the presser foot bar.
2. It should be set so that the axis of the needle is moved **(A) = 0.1mm to the left to the middle of the stitch hole.**
3. The transport motion of the needle should be set as follows: at the maximum stitch length the needle leaves the throat plate very near the back edge of the stitch hole.



- Loosen screws (1) and adjust the needle bar to the dimension **(B) = 31mm** as shown in the illustration. Rule 1 has been fulfilled.
- Set the adjustment rings (2) and tighten the screws (1).

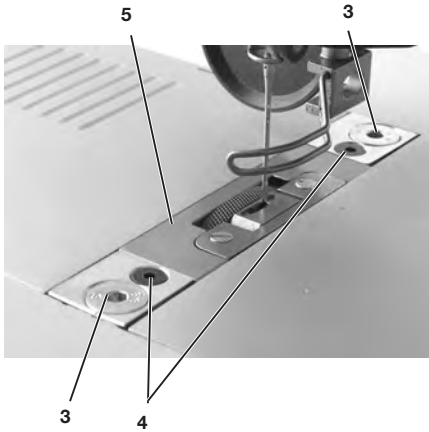


Fig. 1

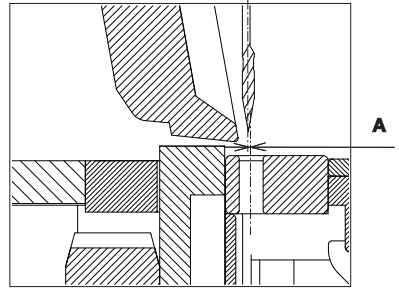
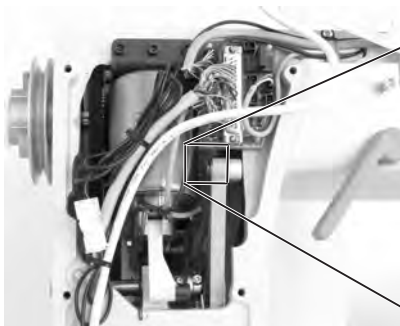
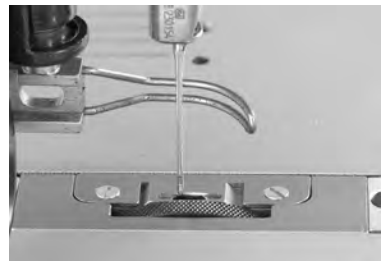


Fig. 2

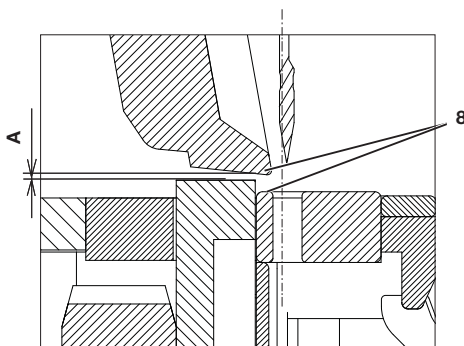
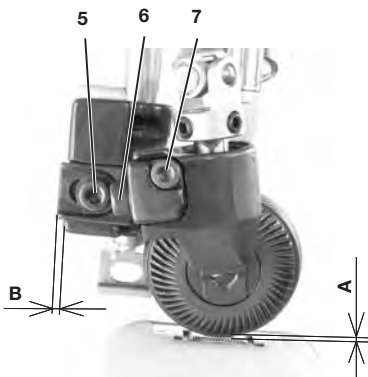
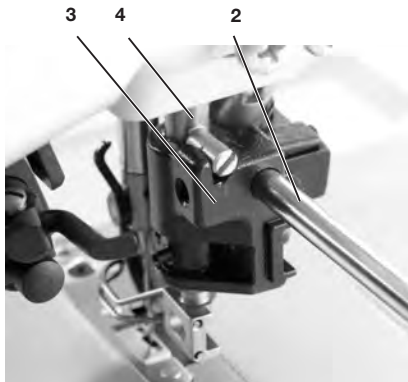
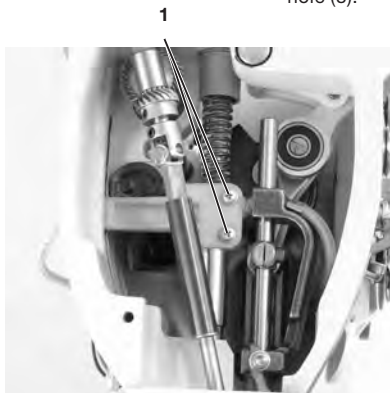


- Loosen screws (3) and (4). Move the throat plate so that the rule 2 is met (**A**) = **0.1 mm** according to **fig. 1**. Tighten the screws.
- Center the throat plate insert (see chapter 2.9).
- Set the maximum stitch length (see chapter 2).
- Set the needle to the position in which it leaves the throat plate insert. Dismantle the rear cover and loosen screw (6). Set the needle manually to the position shown in **fig. 2** and tighten screw (6).

3.3 Roller foot

Rule:

1. The location surface on the roller foot holder should be aligned in the right angle to the longitudinal axis of the machine .
Between the roller foot and the wheel feeder should be a distance of **(A) = 0.03 to 0.16 mm**.
2. The position of the roller foot in sewing direction should be set **(B) = 1.3 to 2.3 mm**
3. The lateral position of the roller foot should be set so that the lower edge of the roller foot ends with the left-hand edge of the stitch hole (8).

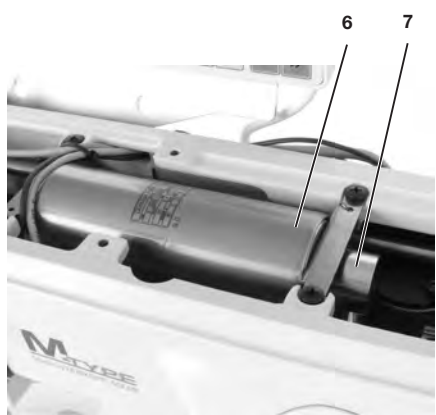
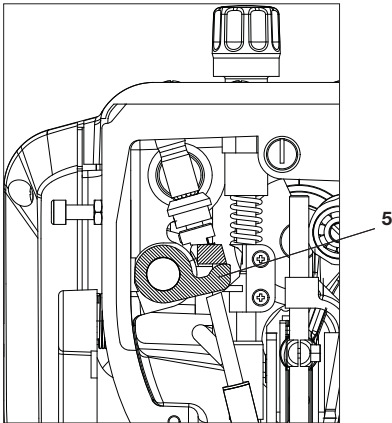
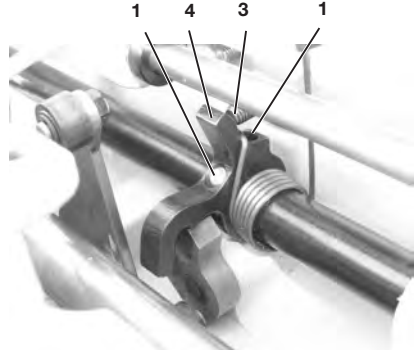
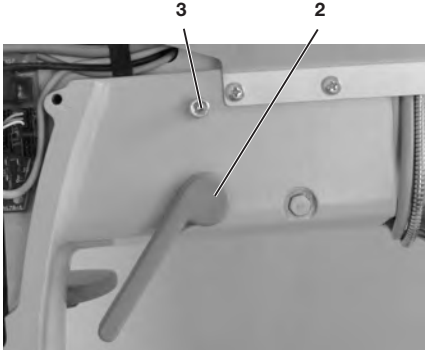


- Loosen screw (1). Displace the presser foot bar vertically according to rule 1. Insert the Philips screw-driver (2) that is part of the accessories into the hole of the roller foot holder (3) and turn the presser foot bar (4) together with the roller foot holder (3) until the Philips screw-driver comes to a right angle with the longitudinal axis of the machine. Tighten screw (1).
- Loosen screw (5). Displace the roller foot according to rule 2 and tighten screw (5).
- Loosen screw (6). Displace the roller foot according to rule 3 with the adjusting screw (7) and tighten screw (6).

3.4 Roller foot lifting

Rule:

1. The lifting of the roller foot via hand lever should be of **5.4 to 5.6 mm**.
2. The lifting of the roller foot via electromagnet should be of **11.5 to 12.5 mm**.
3. The lifting of the roller foot via knee lever should be of about **0.2 to 0.4 mm** higher than the electromagnetic lifting (if existing).



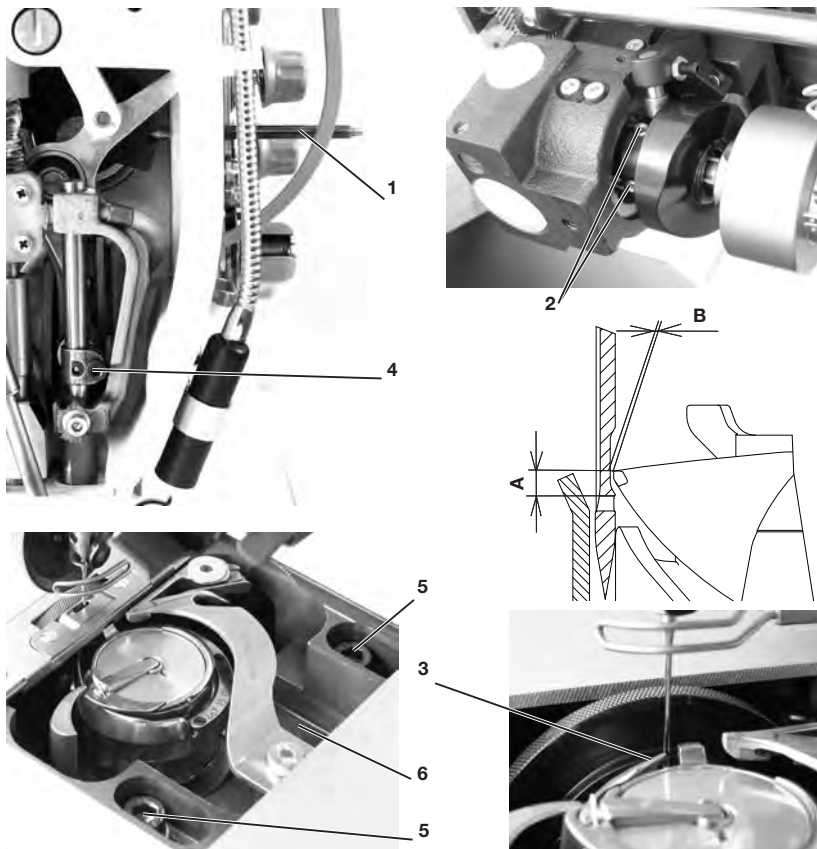
- Remove the solenoid of the presser foot lifting.
- Loosen screw (1). Bring the hand lever (2) into the depicted position and simultaneously screw in screw (3) until it butts against the lever (4). The lever (2) remains in the depicted position.
- Put a spacer of **5.6 mm** underneath the roller foot and push the lever (5) manually according to the figure above until it stops. Tighten screw (1). This procedure accomplishes rule 1.
- Remove screw (3) and mount the electromagnet of the presser foot lifting (6). In order to check whether rule 2 is accomplished, engage the magnetic core. If the values are not correct, effectuate an adjustment.
- Set the lifting of the knee lever according to rule 3 by adjusting screw (3).

4 Adjusting the needle bar and the hook

4.1 Needle bar height, play of needle to hook tip, loop stroke

Rule:

When the handwheel pointer indicates “203” degrees (2.5 mm loop stroke), the hook tip should stand at the needle axis at the stitch length “0”. Length (A) = 1.5 mm, distance (B) = 0.02 to 0.1 mm.

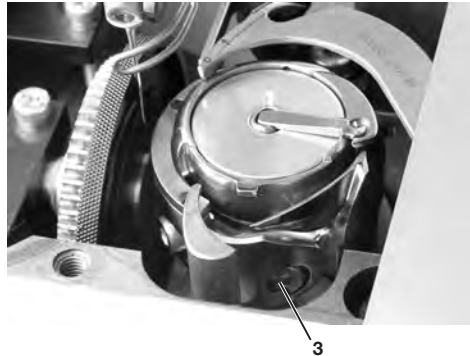
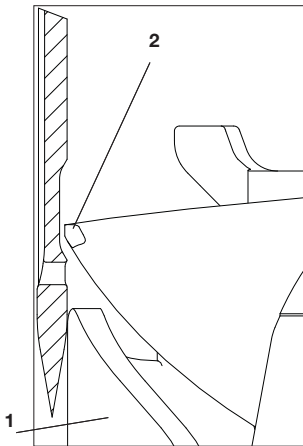


- Lock the handwheel in loop stroke position (2 mm) by using the locking pin (1) 5 mm, degree “203”.
- Loosen screw (2) and turn the hook tip (3) to the needle axis.
- Loosen screw (4), position the needle bar and needle to the distance measure (A) and tighten screw (4).
- Loosen the two screws (5) and displace the hook column (6) to the distance measure (B).
- Check whether the hook tip (3) is positioned in the range of the needle axis, tighten screw (2).

4.2 Hook tip guard

Rule:

The guard plate (1) for the hook should prevent the needle from touching the hook tip (2).



- Adjust the maximum stitch length according to the machine configuration.
- Remove the throat plate.
- Position the hook tip (2) on the needle and adjust the setting screw (3) of the guard plate (1) by using an Allen key of 3 mm, so that the needle does not touch the hook tip.
- The setting is not incorrect if the guard plate (1) slightly deflects the needle.



Caution: Risk of injury!

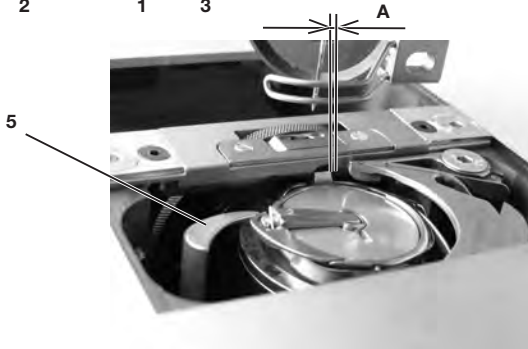
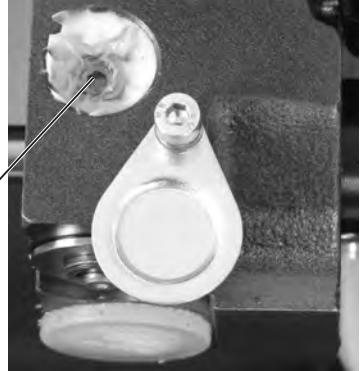
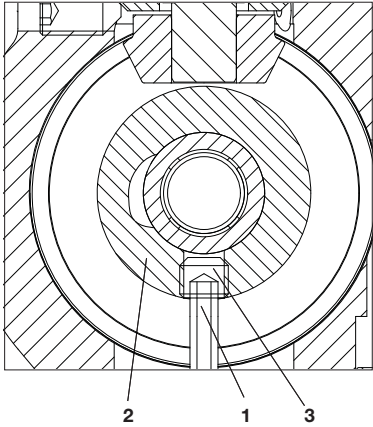
Turn the main switch off.

Proceed with the setting of the hook guard only with the sewing machine switched off.

4.3 Bobbin housing release

Rule:

1. When the Allen key (1) is inserted in the threaded pin (3), the index should point to the degree "112" on the graduation scale of the handwheel.
2. The distance measure (A) with max. release should be as follows:
 - for the needle thickness range **Nm 70 to 110 - (A) = 0.5 mm**
 - for the needle thickness range **Nm 120 to 200 - (A) = 0.8 mm**

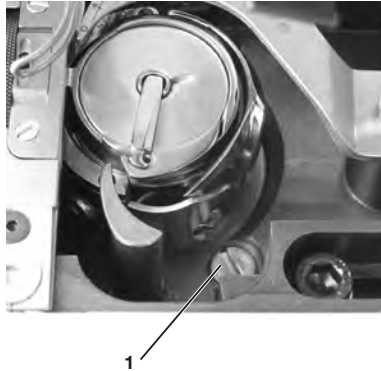


- Remove the plug on the bottom, loosen screw (3), adjust the handwheel according to rule 1. Tighten screw (3).
- Turn the handwheel so the indicator points to "310". Remove the plug. Loosen screw (4). Turn the bobbin housing lift (5) so that the available clearance distance (A) complies with rule 2. Tighten screw (4). Re-seal the openings.

4.4 Hook lubrication

Rule:

The lubricator's regulator screw (1) should project approx. **1 mm** out of the lubricator.



- The oil quantity necessary for a safe lubrication of the hook is set at the factory. A modification may only be needed in exceptional cases.
The required oil quantity depends on the material to be sewn and the thread used.
Hold a piece of paper (blotting paper) next to the hook, sew a material for approx. 1 m and check if oil is spun off onto the paper.
- Increase the oil quantity = turn the screw counter-clockwise, but not any further than **1.0 mm** above the surface of the lubricating fitting.
- Reduce the oil quantity = turn the screw clockwise, but not any further than **0.3 mm** below the surface of the lubricating fitting.



Caution: Risk of injury!

Turn the main switch off.

Proceed with the setting of the hook lubrication only with the sewing machine switched off.

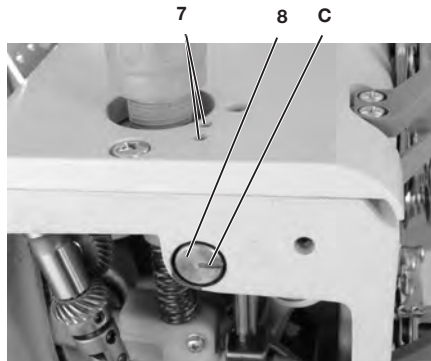
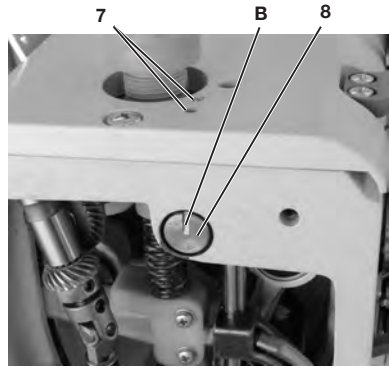
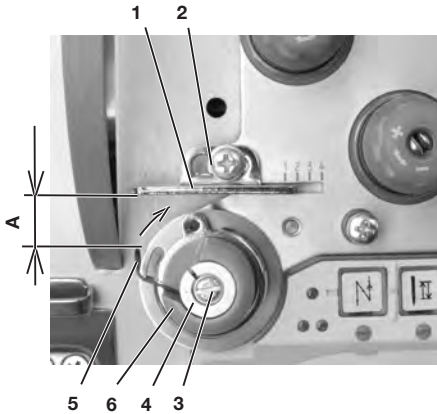
5 Thread setting

5.1 Thread regulator, check spring, bolt for the thread lever mechanism

Rule:

1. The right edge of the thread regulator (1) should end at figure 2 on the scale.
2. The check spring (5) should be set to the distance measure of **(A) = 10 to 12 mm**. The spring travel consists of about **30°**.
3. The position of the bolt (8) should be set as follows, depending on the needle in use:

Needle thickness Nm	Bolt position
70 - 110	B
120 - 200	C

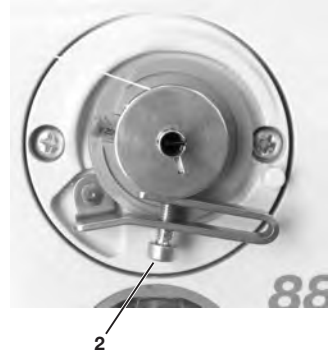
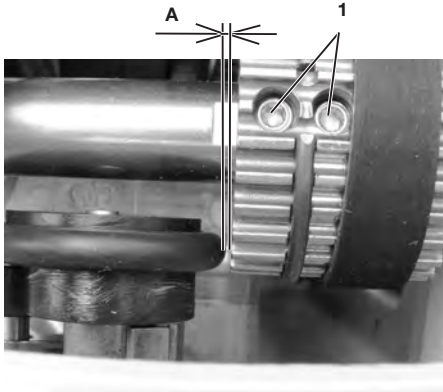


- Loosen screw (2), push the thread regulator (1) according to rule 1 to end at figure 2, tighten screw (2).
- Loosen screw (3). Turn the stop sleeve (4) in the direction of the arrow until the check spring (5) comes off the body (6). Turn the stop sleeve (4) against the direction of the arrow until the check spring (5) touches the body (6). Turn both parts (4) and (6) together to reach the distance measure **(A)**. Detain the body (6) and turn the stop sleeve (4) for another **30°** against the arrow. Detain the parts (4) and (6), tighten screw (3).
- Insert a 3 mm Allen key in the holes (7) and loosen the screws. Bring the bolt (8) into the correct position according to rule 3 and tighten screws (7).

5.2 Bobbin winder

Rule:

1. When the bobbin winder is switched off, the distance between bobbin winder wheel and belt pulley should be **(A) = 0.8 mm**.
2. The winding procedure should stop automatically, when the bobbin is filled up to 0.5 mm underneath the the bobbin edge.



- Turn the belt pulley to the top using the screws (1). Push the toothed belt to the right so that both screws (1) are accessible. Loosen screws (1) and set the distance measure **(A)** according to rule 1, tighten screws (1).
- Determine the bobbin filling by adjusting screw (2). Screw in screw (2) for 1 to 2 mm, but a bobbin on the bobbin winder shaft and wind on thread. Check the filling level as soon as the bobbin winder turns off. If necessary, change the position of the screw (2) until rule 2 is fulfilled.

6 Thread cutter

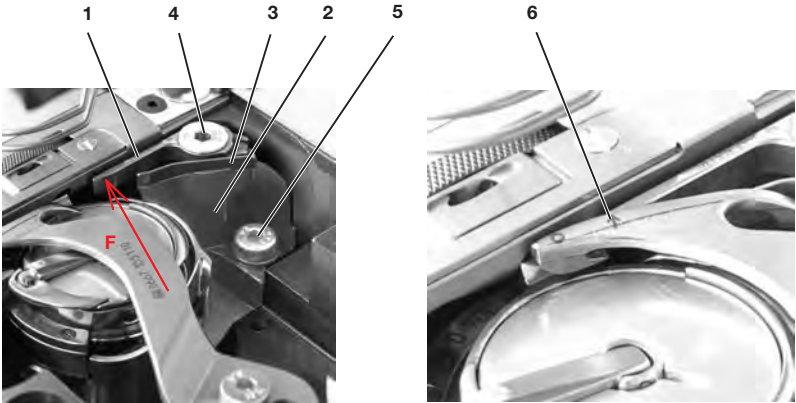
6.1 General

The large and the oversized hook could be used with the present machine. In both cases the parts used are identical. The knife carrier should only be mounted in a different position.

6.2 Position of the thread-pulling knife, position of the counter knife

Rule:

1. The counter knife (1) is to be screwed to the holder (2) with a 50 to 100 N force on the knife in the arrow direction (F). This will avoid a change of the cutting pressure when loosening and tightening the screw (4) of the clamp spring (3).
2. The holder (2) should be fixed with screw (5) to the hook bearing so that the knives touch mutually at arrow point (6) during the knife trimming motion. This guarantees an optimal cutting pressure.



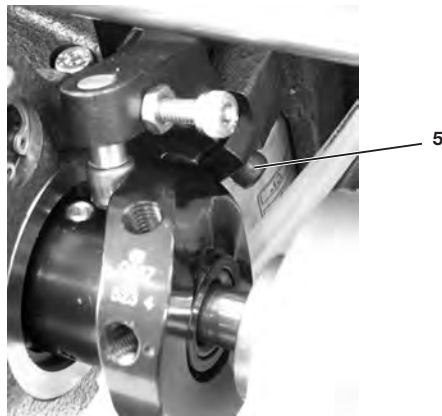
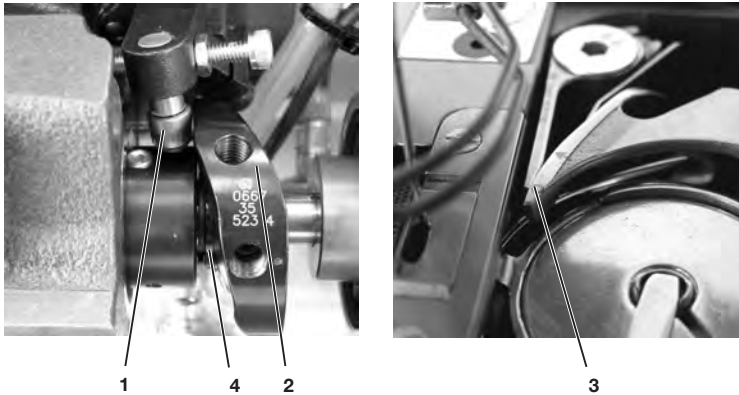
ATTENTION !

If the pressure of the counter-knife is set too high this leads to an excessive knife wear.

6.3 Starting position for the thread pulling knife

Rule:

When the roller (1) is at the highest point of the control cam (2), the marking "O" (3) of the thread pulling knife should stand close to blade of the counter-knife.



- Check if the control cam (2) is stopped at the locking ring (4).
- Turn the cam according to the rule.
- Loosen screw (5).
- Turn the thread pulling knife in a way that the marking "O" (3) stands close to the blade of the counter-knife.
- Tighten screw (5) and check the initial position of the knife.



Caution: Risk of injury!

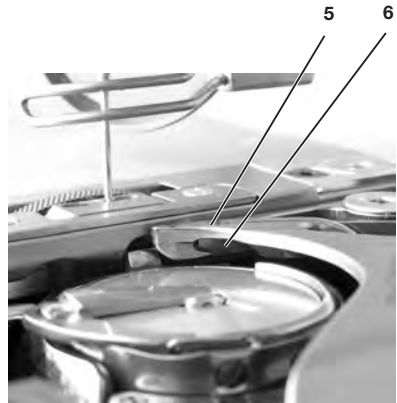
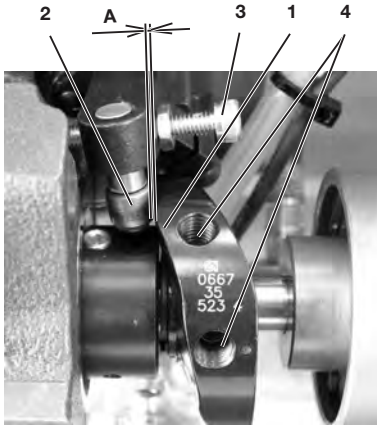
Turn the main switch off.

Proceed with the setting of the thread cutter only with the sewing machine switched off.

6.4 Control cam

Rule:

1. There should be a clearance distance (**A**) = 0.05 to 0.1 mm between the highest point on the control cam (1) and the roller (2).
2. The threads should be separate when the pointer on the handwheel points from "40" to "45" on the scale.



- Loosen the locknut. Turn screw (3) until the distance (A) between the roller (2) and the highest point on the control cam (1) is equal to 0.05 to 0.1 mm, according to rule 1.
- Loosen screws (4). Turn the handwheel so that the pointer indicates "40" to "45" on the scale. Adjust the thread pulling knife (5) manually so that its tip overlaps 2 mm the blade of the counter-knife (on the thread pulling knife (marking "O" standing close to the blade of the counter-knife).
- Push the control cam (1) to the left while simultaneously turning it in the machine's rotational direction. Turn until the roller (2) comes up against it.
- Tighten screws (4).



Caution: Risk of injury!

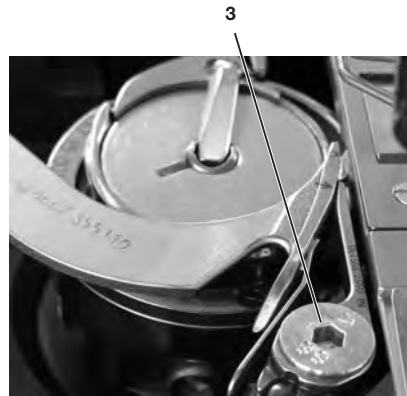
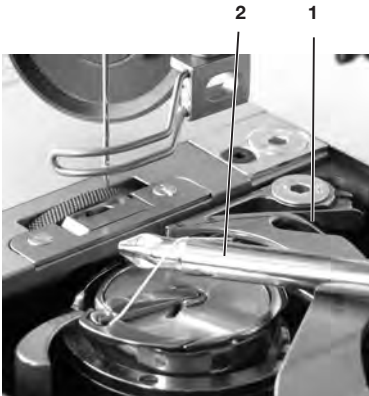
Turn the main switch off.

Proceed with the setting of the control cam only with the sewing machine switched off.

6.5 Bobbin thread clamp

Rule:

The clamping force of the spring (1) should not be set higher than needed. It should just be able to pull out the lower thread from the hook.



- Sew and cut the threads.
- Using a screwdriver (2), inspect the thread according to the illustration. Check if the thread is being pulled out of the bobbin winder or from the clamping (1).
- Using screw (3), control and adjust the spring pressure (1) until the rule is fulfilled.



Caution: Risk of injury!

Turn the main switch off.

Only adjust the clamping spring when the machine is turned off.



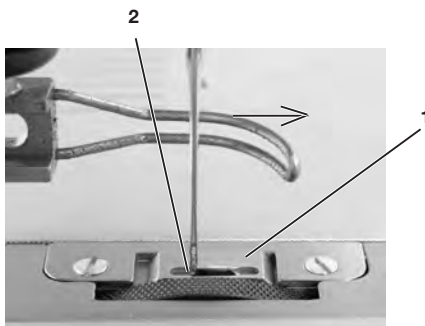
CAUTION!

Sewing problems can result when the clamping spring is improperly adjusted.

6.6 Position of the throat plate insert

Rule:

When sewing with short stitch length, the throat plate insert should be shifted against the operator to avoid stitch skipping at the beginning of sewing.



- Depending on the thread thickness, set the stitch length from **1.5 to 2.5 mm**
- At seam beginning check if skipped stitch occurs. In such a case, shift the throat plate insert (1) in the arrow direction, until the rear edge of the needle hole (2) will be **0.2 up to 0.3 mm** from the needle. Fasten the insert.
- Limit the stitch length to **2.5 mm**. The explanation on how to limit the stitch length is described in chapter 2.1.



Caution: Risk of injury!

If the position of the throat plate insert is changed without limiting the stitch length to 2.5 mm, the needle may then strike against the throat plate insert if the stitch length is increased. This will damage the machine and may even injure the operator.

7 Electronic control and machine drive

Detailed operating instructions of the positioning drive are enclosed with the sewing machine.

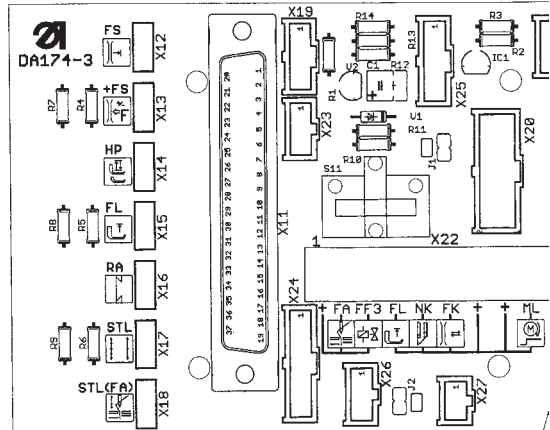
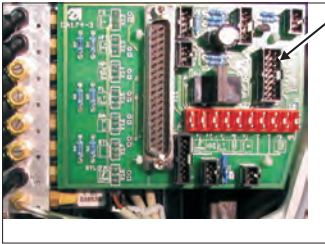
A selection of instructions concerning the controlling and adjustments of the drive, accessible to the operator, are included in the operating instructions.

A selection of instructions needed for the setting of the drive, provided for the technician, are included in operating instructions.

The operating instructions of the positioning drive are enclosed with the sewing machine (see also www.efka.net).

7.1 Connections PCB

For the sake of completeness, the various connections of the PCB below are explained here.



X11 Control Sewing Drive	X12 Solenoid Thread Tension	X13 Solenoid Additional Thread Tension
X14 Solenoid Stroke Adjustment Pneum.	X15 Solenoid Sewing Foot Lifting	X16 Solenoid Tack
X17 Solenoid Switching Stitch Length	X18 Solenoid Short Stitch	X19 HP-Potentiometer in the Arm (Speedomat)
X20 Key Block	X21 Light Barrier Seam End	X23 Speed Limitation Stitch Length
X22 1 +24V 4 Output Sewing Foot Lifting 7 u. 8 +24V	2 Output Thread Cutter 5 Output Needle Cooling 9 Output Motor Running / Signal	3 Output Flip-flop 3 Adjustable via Parameter 275 6 Output Thread Clamp 10 0V
<i>For each connection make sure to have one wire connected to the +24V and the other one to the output function.</i>		
X24 Residual Thread Monitor	X25 Oil Level Monitoring	X26 Input Machine Run Blockage (Possibility of connecting an external ext. PIN 2/3)
X27 Output for max. 50 mA		
J2 Jumper 2	Closed: bridging the input machine run blockage X26 PIN 2/3 Open: an external "trigger" button must be connected to the X26 PIN 2/3.	

7.2 Direct Drive DAC classic

7.2.1 Important notes concerning electrostatic discharges (ESD)



ATTENTION

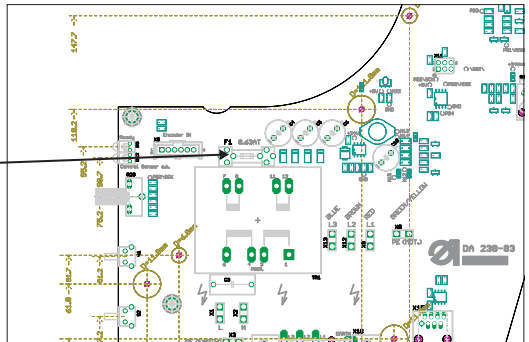
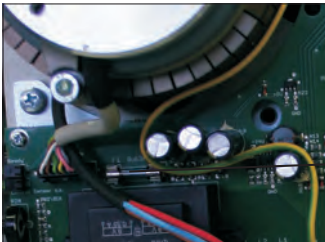
Before effectuating any works on electronic components:
Turn off the main switch. Remove the plug from the socket.

- Electrostatic discharges can cause damage to PCBs and other components.
You can obtain a certain protection by wearing anti-static gloves or wrist-wraps that you can connect for grounding on the mass of any unpainted metal piece of the machine head or on the switch cabinet.
- Handle the PCBs with utmost caution. They are very sensitive towards electrostatic discharges.
Hold the PCBs only at their edges.
- Put the PCBs after unwrapping or after dismantling with their components upside onto a grounded statically discharged surface. We recommend to use a conductive foam underlay but not the protective cover of the PCB.
- Pay attention not to pull the PCB over any surface.

7.2.2 Replacing the fuse

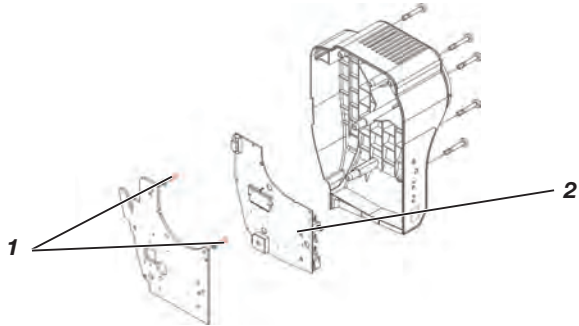
- Exchange the fuse (1)
- The fuse serves only for the integrated sewing light transformer.

Value: 0,63 A T



7.2.3 Exchanging the PCB

- Remove the connectors.
- Loosen the screws (1) for the holding plate of the PCB.
- Replace the PCB (2) and refix it onto the holding plate.
- Tighten the screws (1) for the holding plate on the PCB.

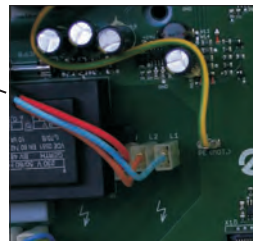
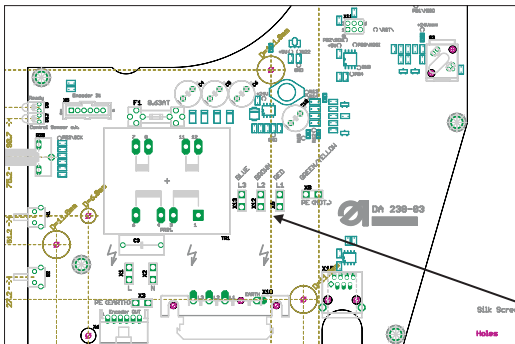


- Replug the connectors.



Caution !

Make sure that the motor is connected correctly!
(see photo)





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