



M-TYPE CLASSIC M-TYPE PREMIUM

Additional Instructions

Electropneumatic needle cooling

IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

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1 General information

1.1 Needle cooling at the top

Components of the kit

Check whether the scope of delivery for kit 0867 590014 is correct prior to installation.

Part number	Quantity	Description
0667 315433	1	Block
Z132 001452	1	Blow tube
0699 979265	1	Hose
9790 000220	1	Plug nipple
9731 005004	1	Hose
9710 920012	1	Throttle valve
9710 061200	1	Magnet valve
9710 982003	1	Silencer
9204 200517	2	Pan-head screw
9870 367003	1	Cable K
9710 900031	1	Connection plate
9203 003097	2	Cylinder-head bolt
9203 003157	1	Cylinder-head bolt
9840 121001	5	Cable tie
0911 000478	1	O-ring
0798 120401	1	Cord clip
0791 867715 EN	1	Additional Instructions

1.2 Needle cooling at the bottom

Components of the kit

Check whether the scope of delivery for kit 0867 590024 is correct prior to installation.

Part number	Quantity	Description
0867 210060	1	Feed dog
0699 979265	1	Hose
0999 240389	1	Hose connector
9731 005004	1	Hose
9790 000220	1	Plug nipple
0999 240394	1	T-R coupling screw
9710 920012	1	Throttle valve
9710 900031	1	Connection plate
0911 000478	1	O-ring
9870 367003	1	Cable K
9203 003097	2	Cylinder-head bolt
9204 200517	2	Pan-head screw
9710 061200	1	Magnet valve
9203 003157	2	Cylinder-head bolt
9710 982003	1	Silencer
9840 121002	5	Cable tie
0791 867715 EN	1	Additional Instructions




Information

If you wish to connect the needle cooling at the bottom to a PREMIUM machine with short thread cutter, you will need the kit with the part number 0867 590054.

1.3 Kits for M-TYPE PREMIUM



Important

Machines of the M-TYPE PREMIUM class are not equipped with compressed air. If you want to connect the electropneumatic needle cooling to a PREMIUM machine, you will need the following additional kits (see  *Parts List*):

- **9780 000108**: Compressed air maintenance unit
- **0867 593534**: pneumatic connection PREMIUM
- **0797 003031**: Pressure line K

2 M-TYPE CLASSIC: Assembling the needle cooling at the top

WARNING

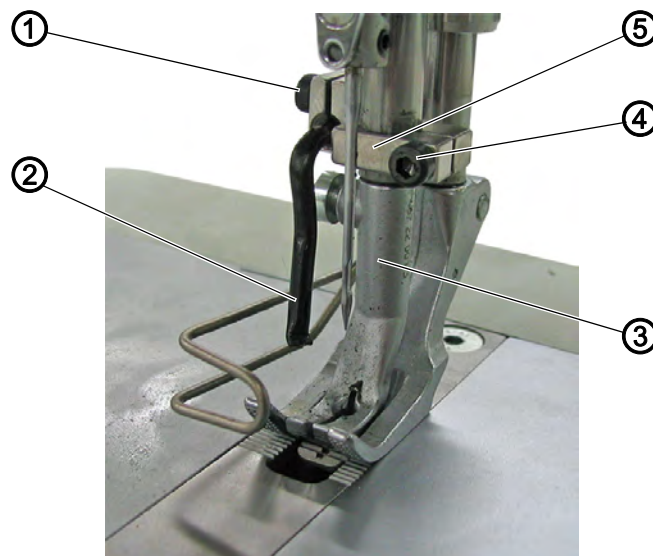


Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before assembling the needle cooling.

Fig. 1: Assembling the needle cooling at the top (1)



(1) - Screw
(2) - Blow tube
(3) - Feeding foot

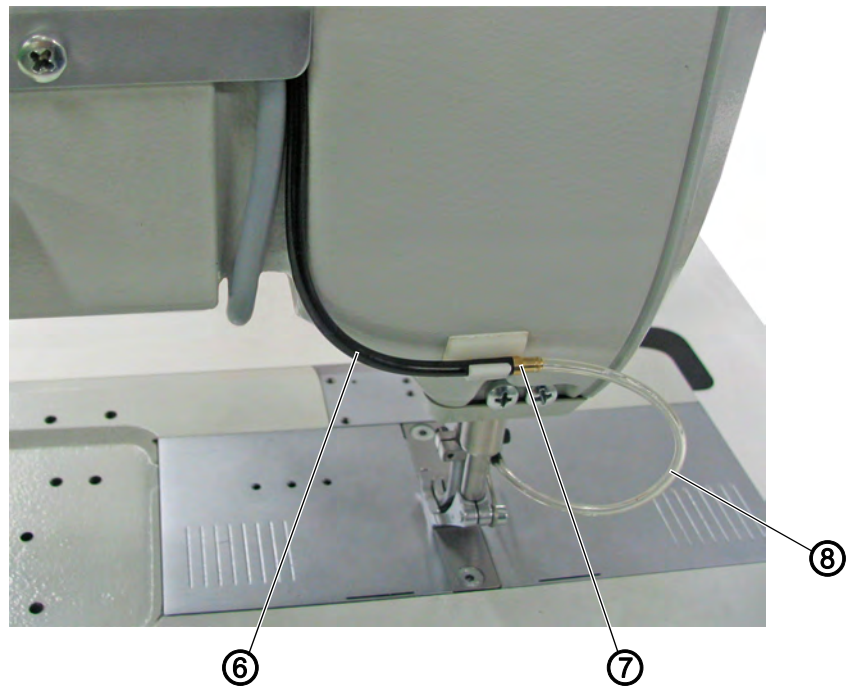
(4) - Screw
(5) - Block



To assemble the needle cooling at the top:

1. Disassemble the feeding foot (3).
2. Slip the block (5) onto the feeding foot bar.
3. Tighten the block (5) using the screw (4).
4. Tighten and align the blow tube (2) with the screw (1).
5. Assemble the feeding foot (3).

Fig. 2: Assembling the needle cooling at the top (2)



(6) - Hose

(8) - Hose

(7) - Plug nipple

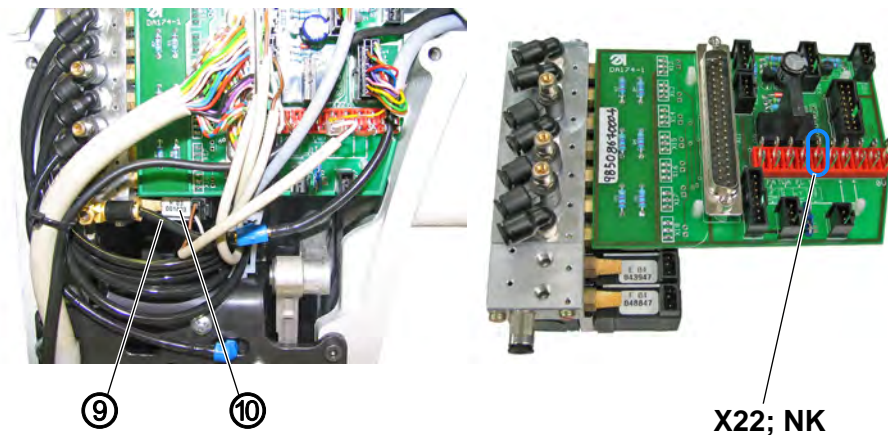


6. Connect hoses (6) and (8) using the plug nipple (7).

7. Lay the hose (6) through the machine arm.

8. Remove the valve cover.

Fig. 3: Assembling the needle cooling at the top (3)



(9) - Hose

(10) - Magnet valve

X22; NK



9. Connect the magnet valve (10) at connector strip X22:

- Contact 5 (NK)
- Contact 7 or contact 8 (+24 V)

10. Connect the hose (9) to the pneumatic system.

3 M-TYPE CLASSIC: Assembling the needle cooling at the bottom

WARNING

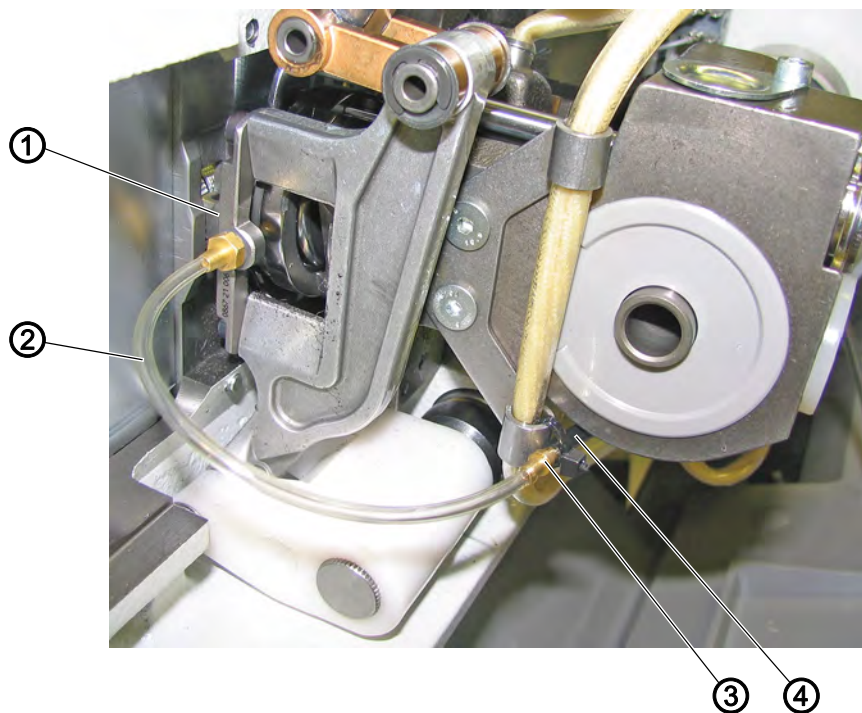


Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before assembling the needle cooling.

Fig. 4: Assembling the needle cooling at the bottom (1)



(1) - Feed dog

(2) - Hose

(3) - Plug nipple

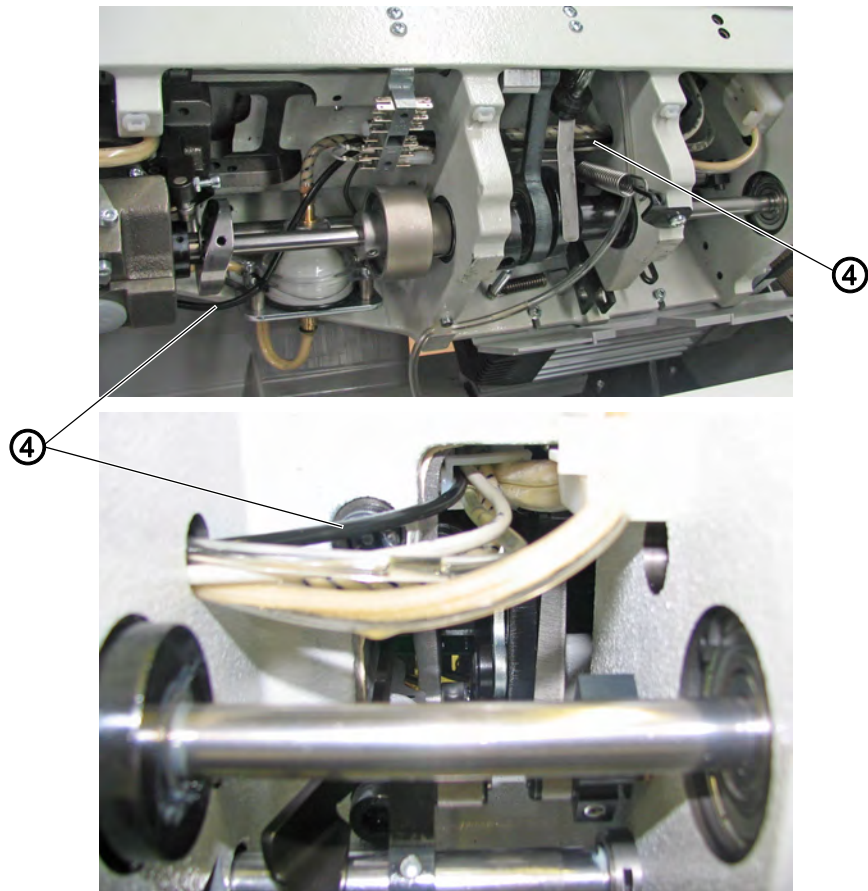
(4) - Hose



To assemble the needle cooling at the bottom:

1. Disassemble the old feed dog.
2. Assemble the new feed dog (1).
3. Connect hoses (2) and (4) using the plug nipple (3).

Fig. 5: Assembling the needle cooling at the bottom (2)

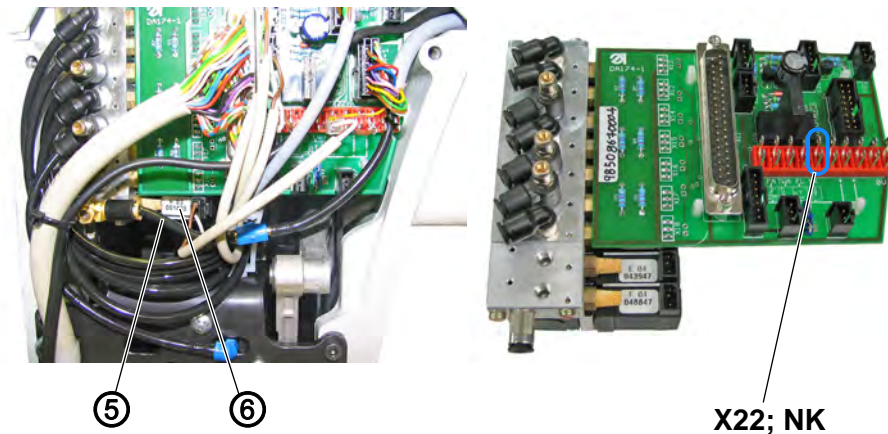


(4) - Hose



4. Lay the hose (4) below the machine.

Fig. 6: Assembling the needle cooling at the bottom (3)



(5) - Hose

(6) - Magnet valve



5. Connect the magnet valve (6) at connector strip X22:

- Contact 5 (NK)
- Contact 7 or contact 8 (+24 V)

6. Connect the hose (5) to the pneumatic system.

4 M-TYPE PREMIUM: Assembling the needle cooling at the top

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

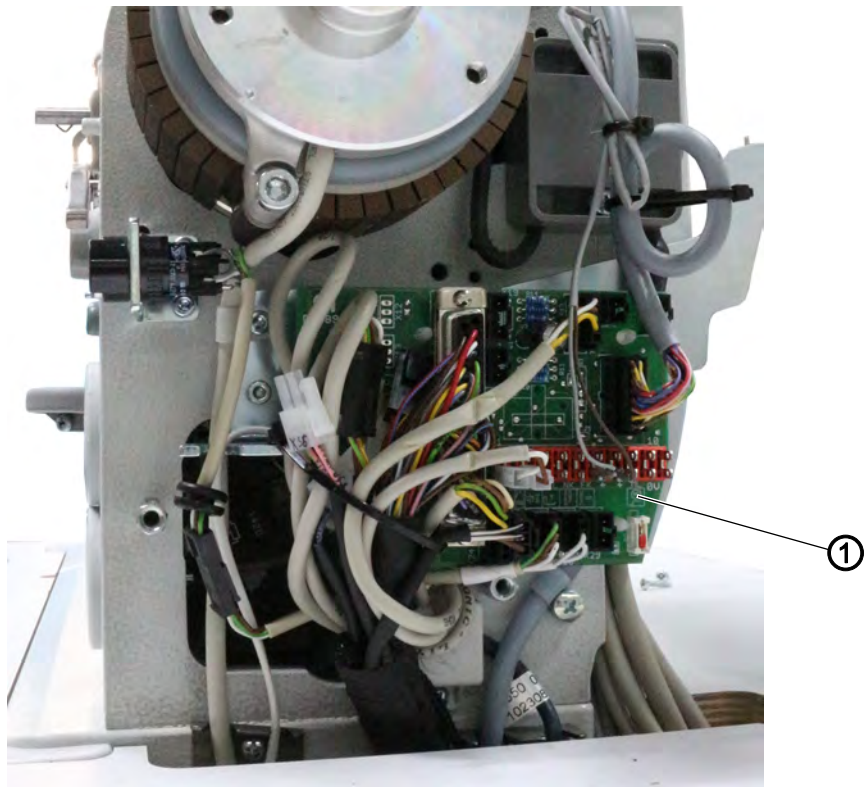
Switch off the machine before assembling the needle cooling.



To assemble the needle cooling at the top:

1. Remove the motor cover.

Fig. 7: Assembling the needle cooling at the top (1)

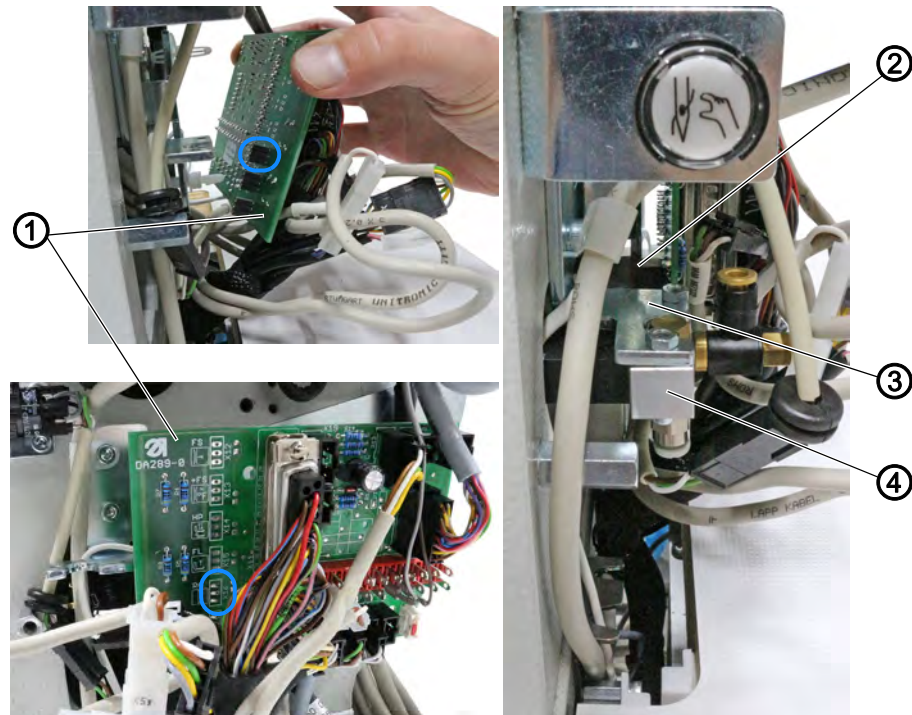


(1) - Circuit board



2. Loosen the circuit board (1).
To do so, push the circuit board (1) down and off the white spacers.
3. Screw the connection plate and magnet valve together.

Fig. 8: Assembling the needle cooling at the top (2)



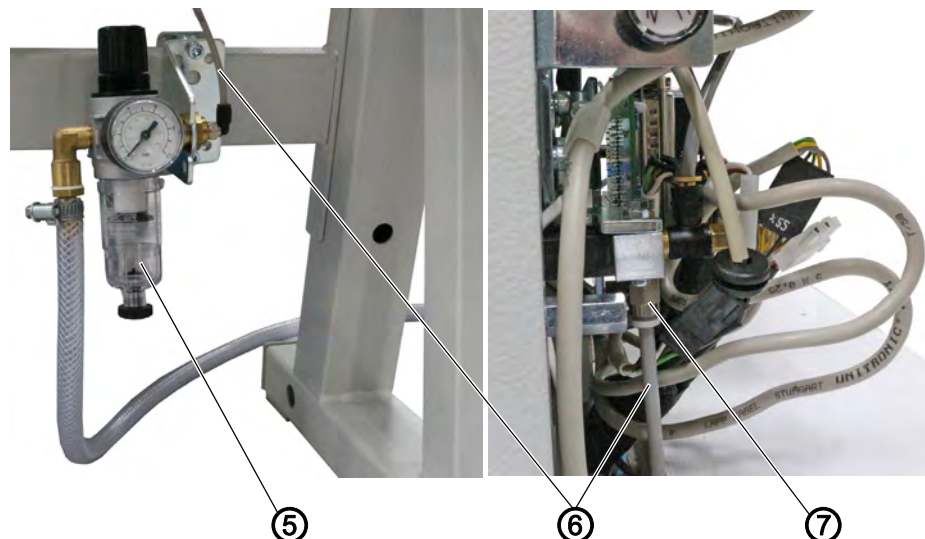
(1) - Circuit board
(2) - Magnet valve

(3) - Holder
(4) - Connection plate



4. Insert the magnet valve (2) into socket X16 on the circuit board (1). If socket X16 is already occupied, use socket X17 or socket X18.
5. Assemble the circuit board (1).
6. Tighten the connection plate (4) on the holder (3).

Fig. 9: Assembling the needle cooling at the top (3)



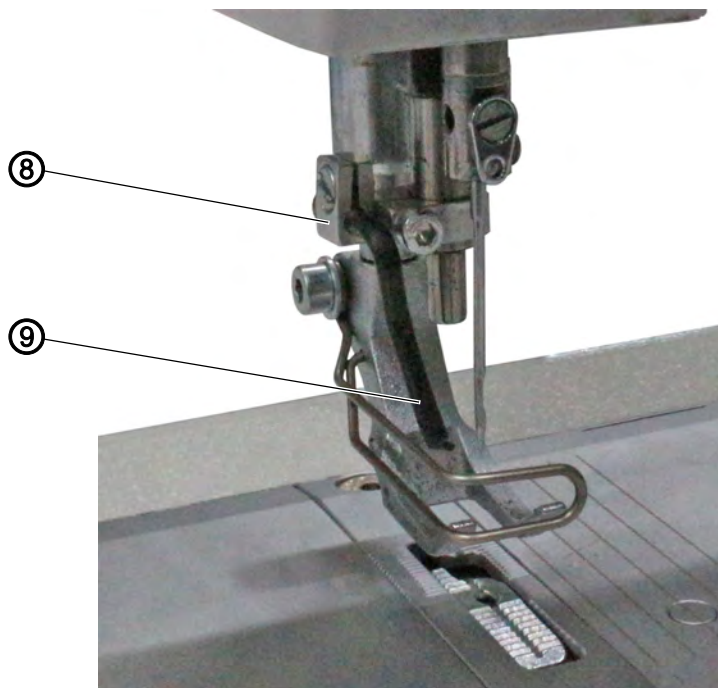
(5) - Compressed air maintenance unit
(6) - Hose

(7) - Valve



7. Assemble the compressed air maintenance unit (5) to the stand.
8. Use an R 1/4" hose coupling to connect the connection hose to the compressed air supply.
9. Set the operating pressure to 6 bar.
10. Connect the hose (6) to the valve (7).
11. Raise the sewing feet.
12. Disassemble the needle.
13. Disassemble the feeding foot.

Fig. 10: Assembling the needle cooling at the top (4)



(8) - Block

(9) - Blow tube

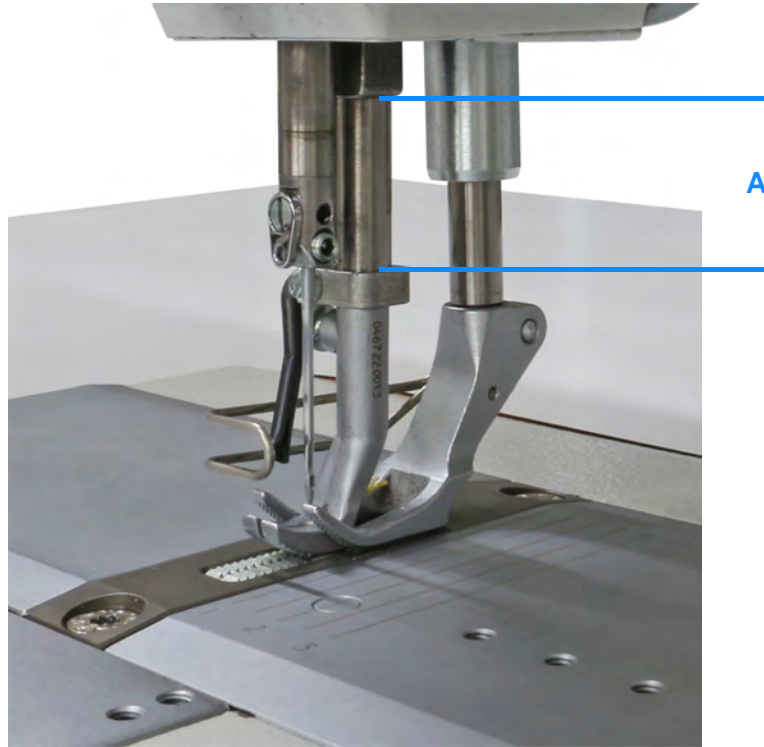


14. Screw the blow tube (9) to the block (8).
15. Screw the block (8) with the blow tube (9) to the feeding foot bar.
16. Insert the needle.
17. Align the blow tube (9) with the needle so that the blow tube (9) is at the center relative to the needle eye.
18. Assemble the feeding foot.



Information

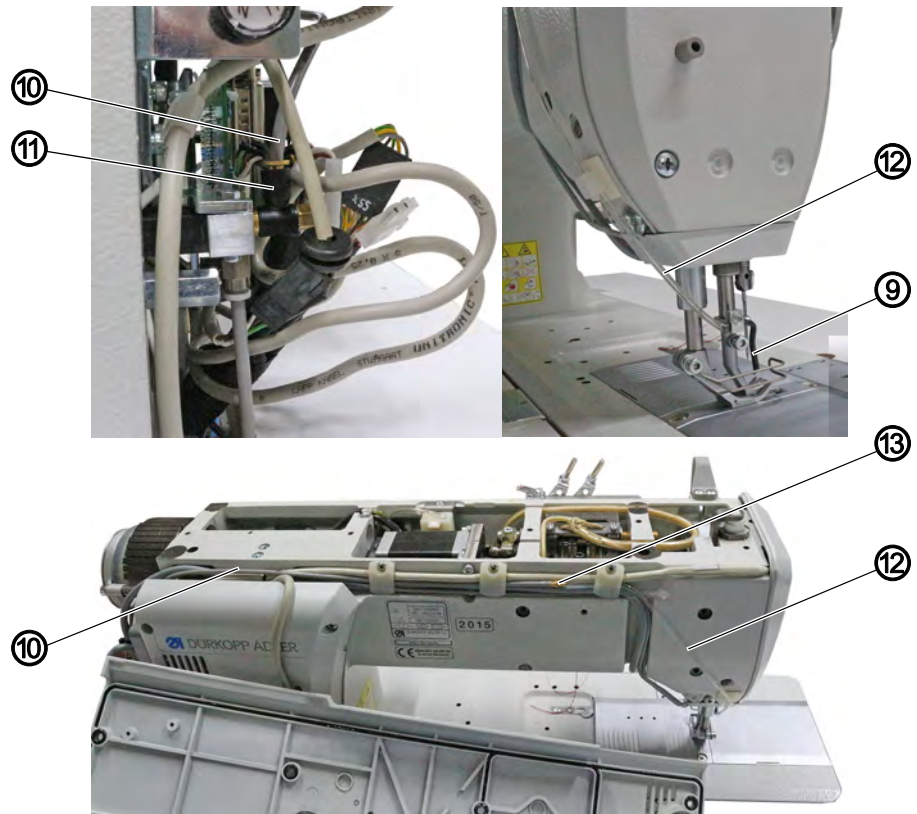
Fig. 11: Assembling the needle cooling at the top (5)



When the presser foot is lowered, the distance **A** must be 26 mm.
On machines with short thread cutter the distance **A** must be 24 mm.

19. Remove the arm cover.

Fig. 12: Assembling the needle cooling at the top (6)



(9) - Blow tube
(10) - Hose
(11) - Valve

(12) - Hose
(13) - Plug nipple



20. Connect the hose (10) to the valve (11).
21. Lay hose (10) through the machine arm and connect it with hose (12) using the plug nipple (13).
22. Shorten the hose (12) to the exact length that allows for the hose (12) to be connected to the blow tube (9).
23. Place the arm cover.
24. Place the motor cover.
25. Assemble the handwheel.

**Important**

PREMIUM machines require that the valve output be enabled for electro-pneumatic needle cooling via software.


NOTICE**Property damage may occur!**

Defect of the stepper motor cards.

To prevent a defect of the stepper motor cards, install the correct software version or adjust the sewing foot lifting height.

The software version must be higher than **A04.30**.

If the software version is **A04.30 or lower**:

- perform a software update ( *Service Instructions*)
- OR**
- limit the sewing foot lifting height to 16 mm (for short thread cutter 14 mm)



To enable the valve output via software:

1. Call up the Technician level.
 - Switch on the machine.
 - Press the **P** and **S** buttons at the same time.
 - Enter password (25483).
- ↳ You are on the Technician level:
2. Open the submenu *User config. > Output Config* and select the parameter T 56 00.
3. Assign mode 1 (NeedleCooling) to the output at which the needle cooling is connected.

Machine output signal	Output
RA (X16)	X120B.12
STL (X17)	X120B.22
STL (FA) (X18)	X120B.23

5 M-TYPE PREMIUM: Assembling the needle cooling at the bottom

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

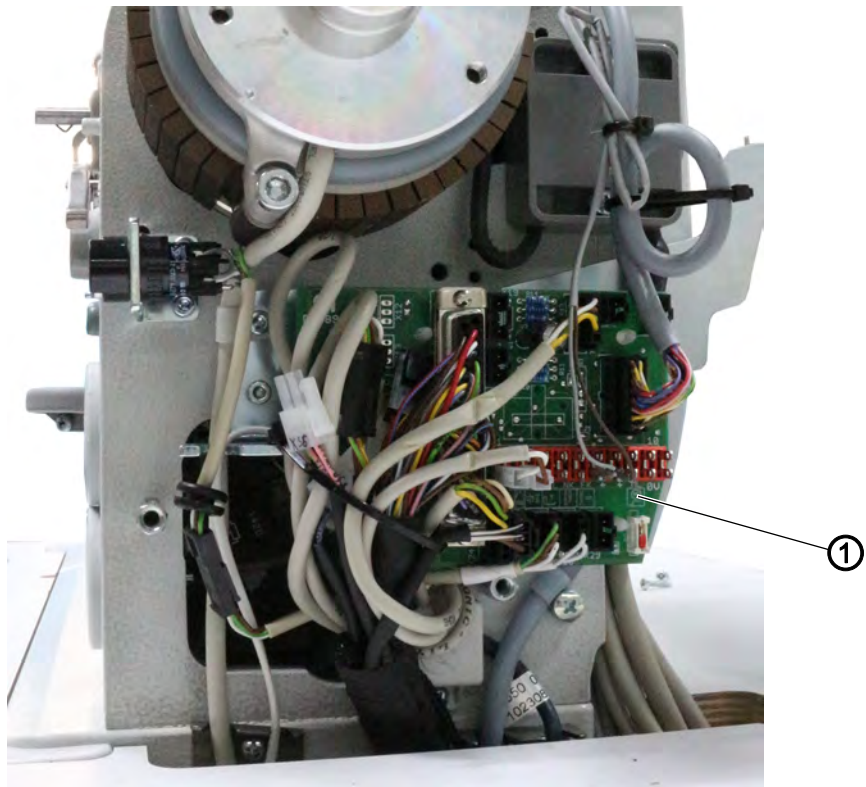
Switch off the machine before assembling the needle cooling.



To assemble the needle cooling at the bottom:

1. Remove the motor cover.

Fig. 13: Assembling the needle cooling at the bottom (1)

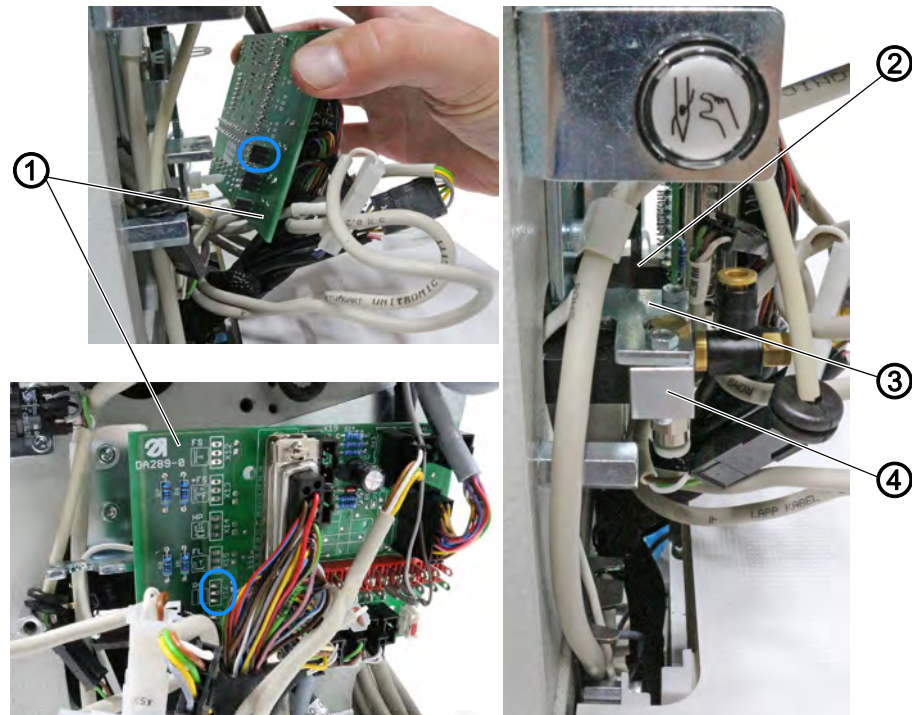


(1) - Circuit board



2. Loosen the circuit board (1).
To do so, push the circuit board (1) down and off the white spacers.
3. Screw the connection plate and magnet valve together.

Fig. 14: Assembling the needle cooling at the bottom (2)



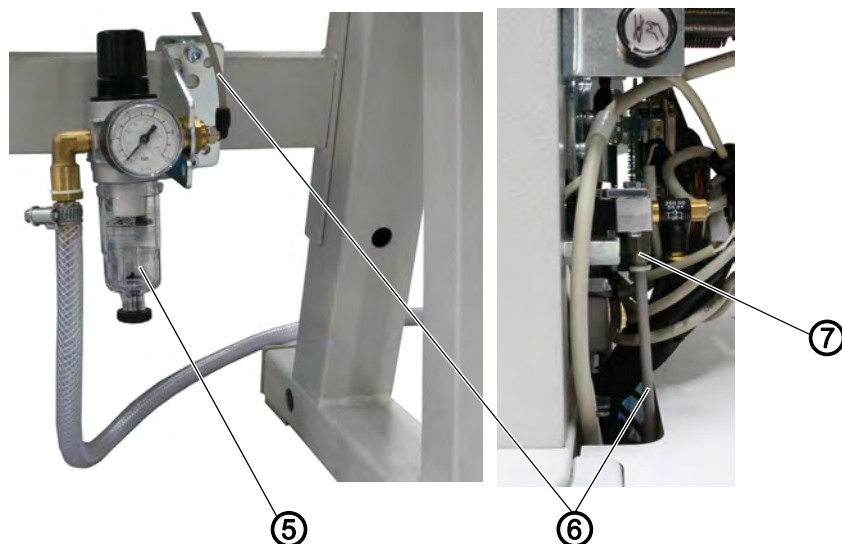
- (1) - Circuit board
(2) - Magnet valve

- (3) - Holder
(4) - Connection plate



4. Insert the magnet valve (2) into socket X16 on the circuit board (1). If socket X16 is already occupied, use socket X17 or socket X18.
5. Assemble the circuit board (1).
6. Tighten the connection plate (4) on the holder (3).

Fig. 15: Assembling the needle cooling at the bottom (3)



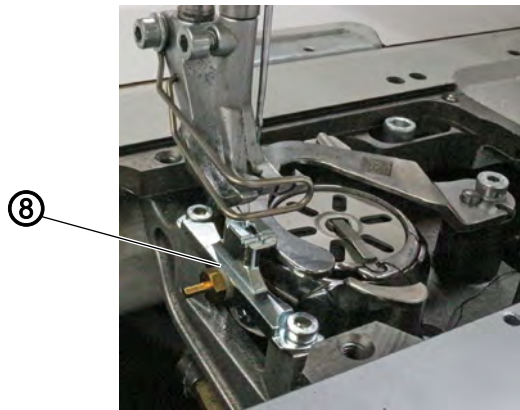
- (5) - Compressed air maintenance unit
(6) - Hose

- (7) - Valve



7. Assemble the compressed air maintenance unit (5) to the stand.
8. Use an R 1/4" hose coupling to connect the connection hose to the compressed air supply.
9. Set the operating pressure to 6 bar.
10. Connect the hose (6) to the valve (7).
11. Open the throat plate slide.
12. Disassemble the throat plate.
13. Disassemble the feed dog.

Fig. 16: Assembling the needle cooling at the bottom (4)

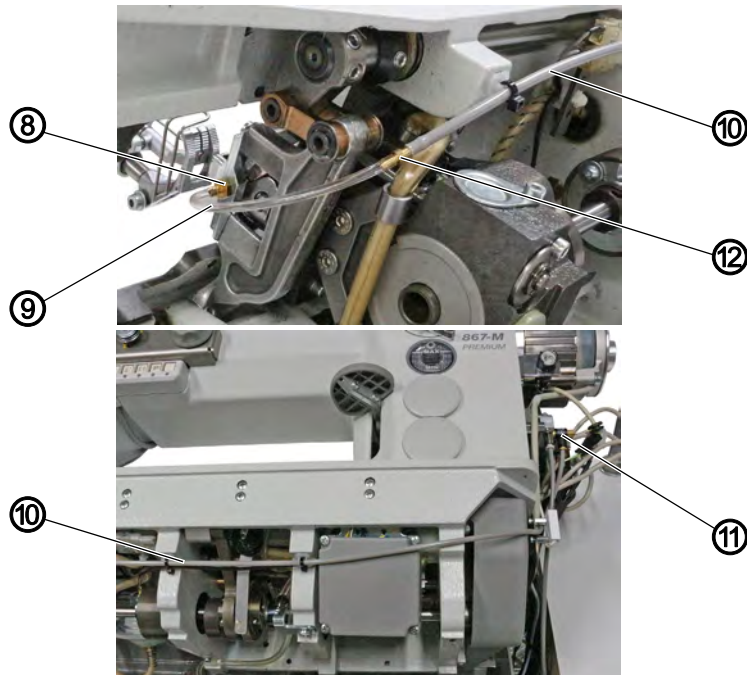


(8) - Feed dog



14. Assemble the new feed dog (8).
15. Tilt the machine head.

Fig. 17: Assembling the needle cooling at the bottom (5)



(8) - Feed dog
(9) - Hose
(10) - Hose

(11) - Valve
(12) - Plug nipple



16. Connect the hose (9) to the feed dog (8).
17. Connect hoses (9) and (10) using the plug nipple (12).
18. Lay the hose (10) below the machine using plug nipples.
19. Connect the hose (10) to the valve (11).
20. Erect the machine head.
21. Place the motor cover.
22. Assemble the handwheel.



Important

PREMIUM machines require that the valve output be enabled for electro-pneumatic needle cooling via software.



To enable the valve output via software:

1. Call up the Technician level.
 - Switching on the machine
 - Press the **P** and **S** buttons at the same time.
 - Enter password (25483).
- ↳ You are on the Technician level:
2. Open the submenu *User config. > Output Config* and select the parameter T 56 00.
3. Assign mode 1 (NeedleCooling) to the output at which the needle cooling is connected.

Machine output signal	Output
RA (X16)	X120B.12
STL (X17)	X120B.22
STL (FA) (X18)	X120B.23



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Spezialnähmaschine

Serviceanleitung

[Service Instructions](#)

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General safety instructions

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

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



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

Danger of bodily injuries !

Please note also the general safety instructions.



Part 3: Service Instructions - Class 869

(Edition 04/2010)

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1. General

These service instructions describe how to set up the special 869 sewing machine.



IMPORTANT!

The tasks described in these service instructions must only be carried out by qualified or appropriately trained people.



Caution: Danger of injury!

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

Only carry out adjustment work and function tests when the machine is running with the greatest care and observing all safety measures.

These service instructions describe how to set the sewing machine up in a practical order. With this it must be noted that different setting positions depend on each other. Therefore, adjustments must be made in the order described.

A new, perfect needle must be used for all adjustment work on stitch creating parts.

Machine covers that must be unscrewed and screwed back on again for inspection and adjustment work are not mentioned in the text.

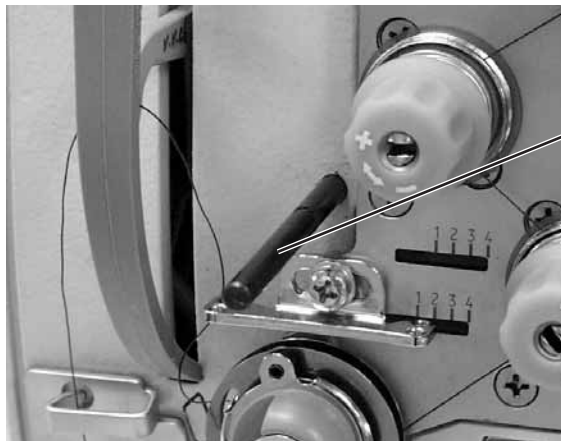
Important

On the special 869 machine some shafts have flat spots that make it considerably easier to adjust the machine.

For all adjustments on the flat spot each time the first screw is screwed in the direction of rotation on the flat spot.

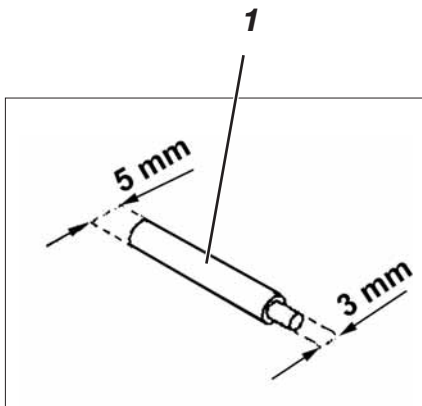
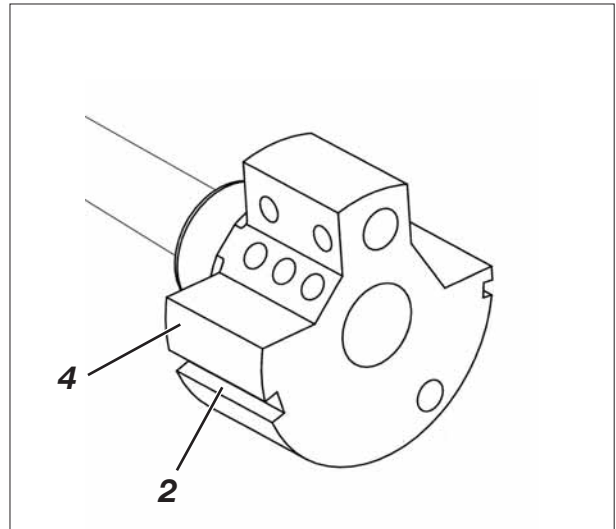
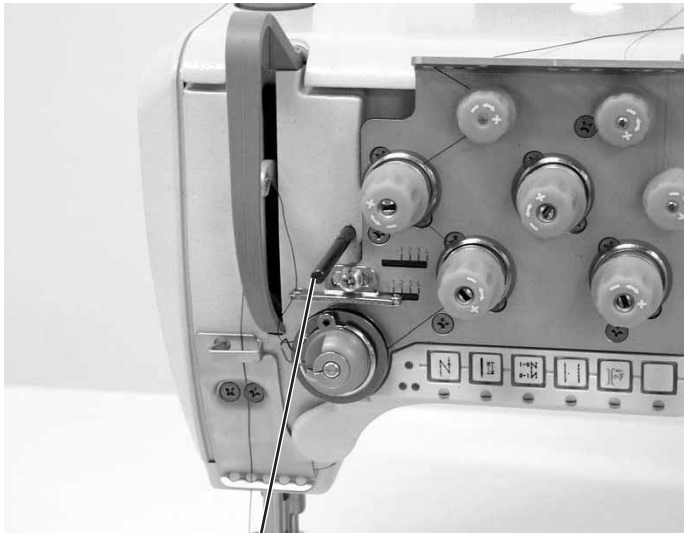
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1.1 Gauges



The locking pin 1 required to set the machine is provided as standard with the machine. It is in the machine's accessories' kit and can be fixed to the bottom of the oil sump so that it is easy to get to.

1.2 Description of the locking positions



With the locking pin 1 and the marking grooves 2 and 3 in the needle bar crank 4 the sewing machine can be locked in two setting positions.

Position I = Ø 5 mm locking pin for large groove
= loop stroke, needle bar height

Position II = Ø 3 mm locking pin for small groove
= needle bar at top dead centre, graduated scale on hand wheel

1.3 Graduated scale on the hand wheel



The hand wheel 2 is printed with graduated numbers.

Specific settings are configured using these hand wheel settings.

- Turn the hand wheel until it reaches the graduated figure specified in these instructions on the indicator 3.
- Set as described.

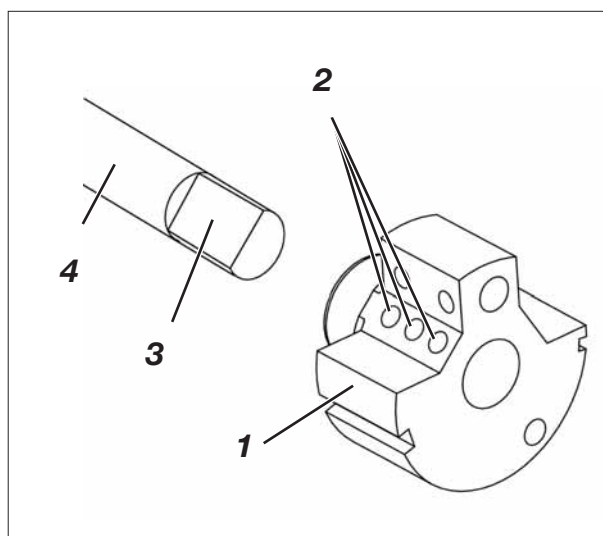
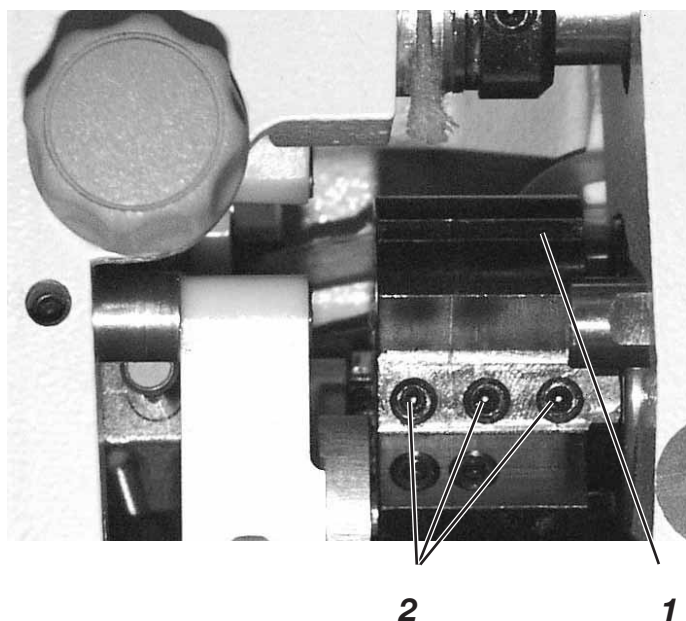
Setting the hand wheel

- Move the machine to position II with the Ø 3 mm locking pin.
- Undo the hand wheel fixing screws through hole 1.
- Turn the hand wheel until the number “0” shows on the indicator 3.
- Screw in the first fixing screw again.
- Turn the hand wheel 50° and screw in the second fixing screw.

GB

2. Sewing machine

2.1 Position of the needle bar crank on the arm shaft



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the position of the needle bar crank when the machine is switched off.

Standard checking

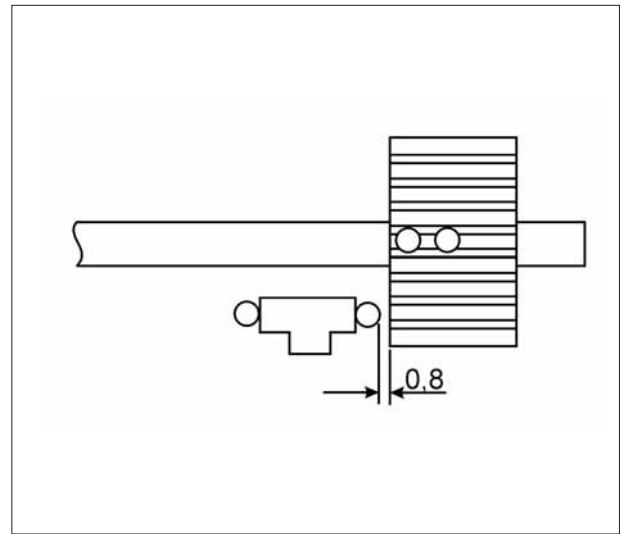
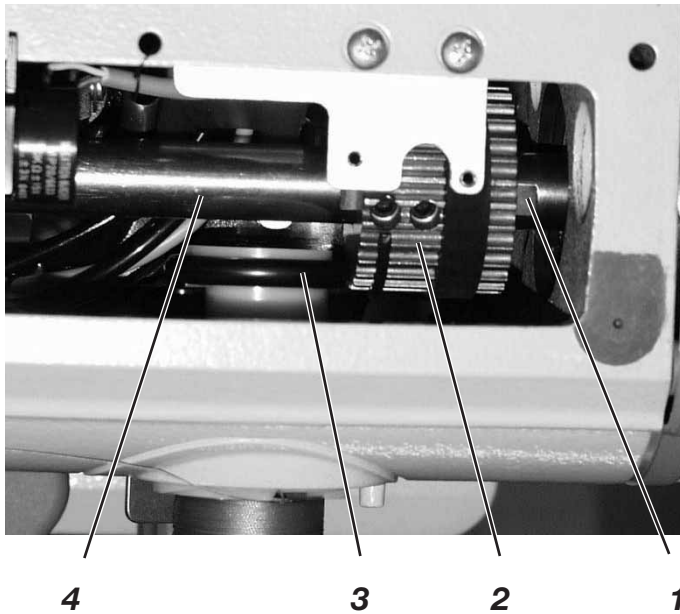
The needle bar crank 1 is fixed to the arm shaft with the two screws 2. The screws must be seated on the flat spot 3.

Correction

- Undo screws 2 on the needle bar crank.
- Turn the needle bar crank on the shaft so that the screws 2 are seated on the flat spot 3.
- Push the needle bar crank axially to the right until it will go no further.
- Screw in the screws 2.

2.2 Top and bottom sprocket belt wheel/ tooth belt

2.2.1 Position of the top sprocket belt wheel



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the position of the top sprocket belt wheel when the machine is switched off.

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Standard checking

The sprocket belt wheel 2 is fitted to the arm shaft 4 with two screws. The screws must be seated on the flat spot 1.

The distance between the sprocket belt wheel 2 and the bobbin winder wheel 3 must be 0.8 mm when the bobbin winder is out of action.

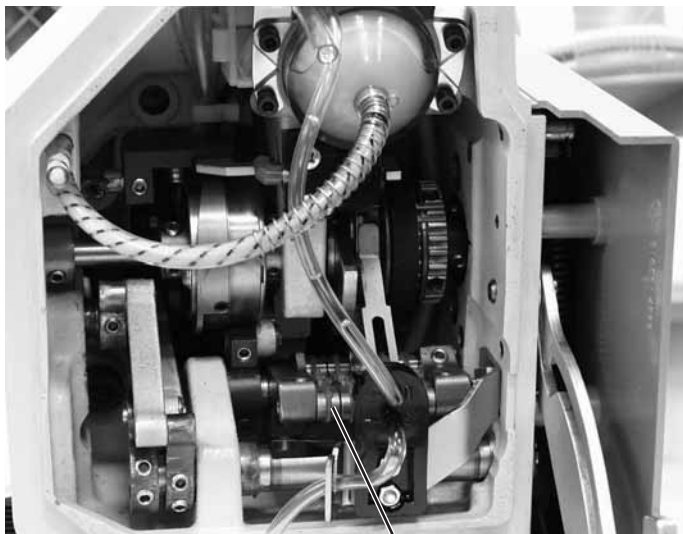
- Check the distance between the sprocket belt wheel 2 and the bobbin winder wheel 3 with a feeler gauge.

Correction

- Undo the grub screws on the sprocket belt wheel.
- Turn the sprocket belt wheel until the screws sit on the flat spot 1 of the arm shaft.
- Set the lateral distance of 0.8 mm between the sprocket belt wheel 2 and the bobbin winder wheel 3 with a feeler gauge.
- Tighten the grub screws on the sprocket belt wheel.

2.3 Bottom feed and stitch adjustment gear

2.3.1 Basic stitch adjustment setting



1



6

5

4

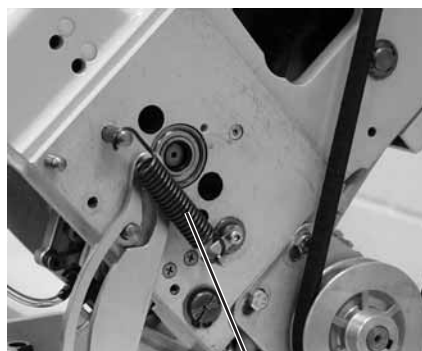
3



Caution: Danger of injury!

Turn off the main switch.

Only set the basic stitch adjustment when the sewing machine is switched off.



2

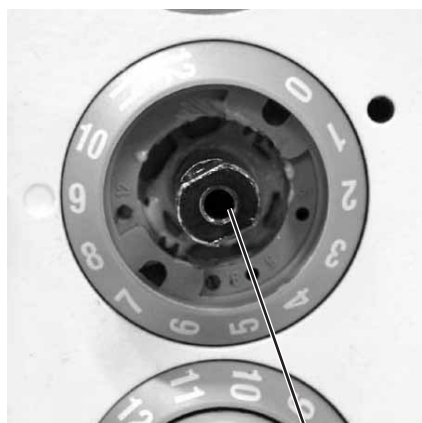
Standard checking

When the adjustment wheel 5 is set to "0" the stitch adjuster drive 1 must have as little play as possible.

- Turn the adjustment wheel 5 to stitch length "0".
- Check the play on the stitch adjuster drive 1.

Correction

- Unhook spring 2.
- Fix the adjustment wheel 5 with the spanner 3.
- Remove screw 4 and remove the adjustment wheel 4.
- Turn the shaft 7 to the right with a 10 mm open ended spanner until the stitch regulator lever 1 has a little play as possible.



7



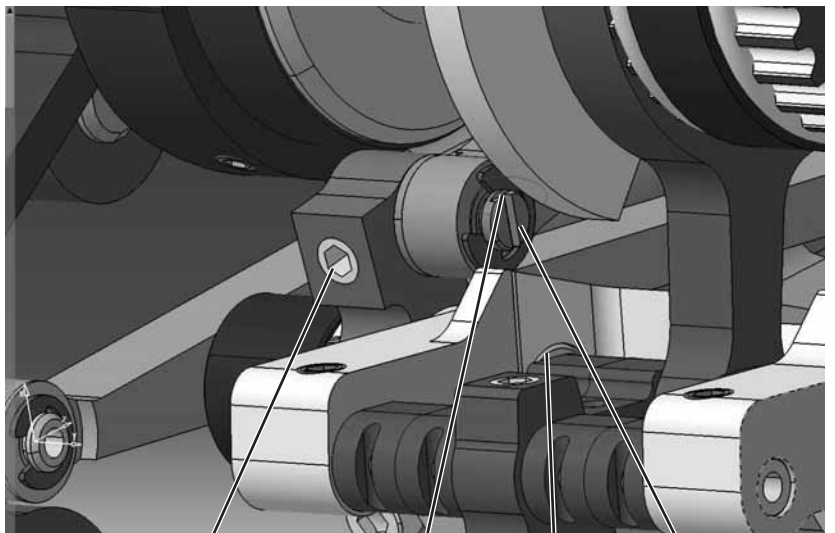
CAUTION Risk of breaking!

Do not turn the shaft too far to the right. The stitch adjustment parts may get jammed and the maximum stitch length of 9 mm or 6 mm will not be reached.

- Set scale 6 to "0".
- Replace adjustment wheel 5 and fix with screw 4.
- Check the play on the stitch regulator lever 1.
- Hook spring 2 on again.



1



3

4

1

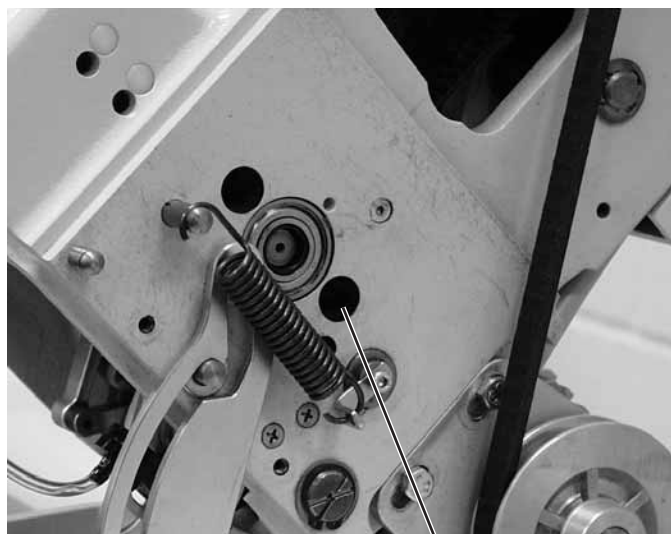
2

Setting the eccentric

The eccentric 2 must be set so that the marking 4 on eccentric 2 points away from the shaft 1.

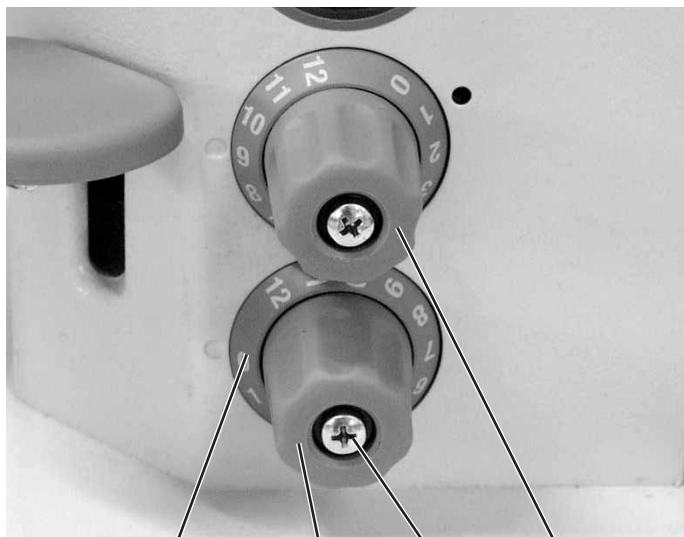
- Undo screw 3.
- Turn eccentric 2 accordingly through hole 5.
- Tighten screw 3.

GB



5

2.3.2 Adjust the 2nd stitch length

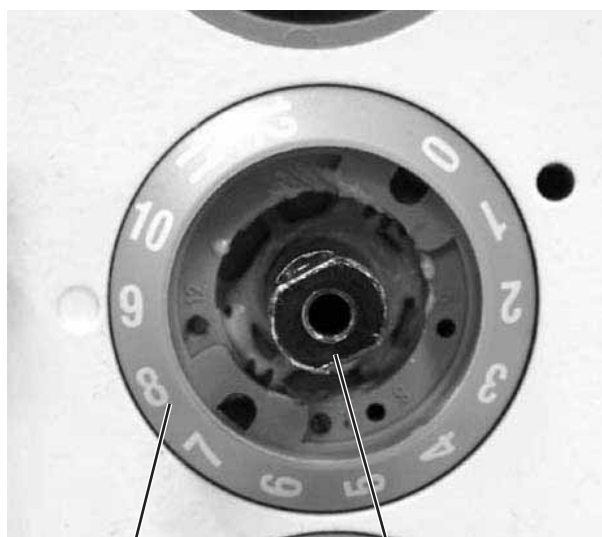


4

3

2

1



4

5



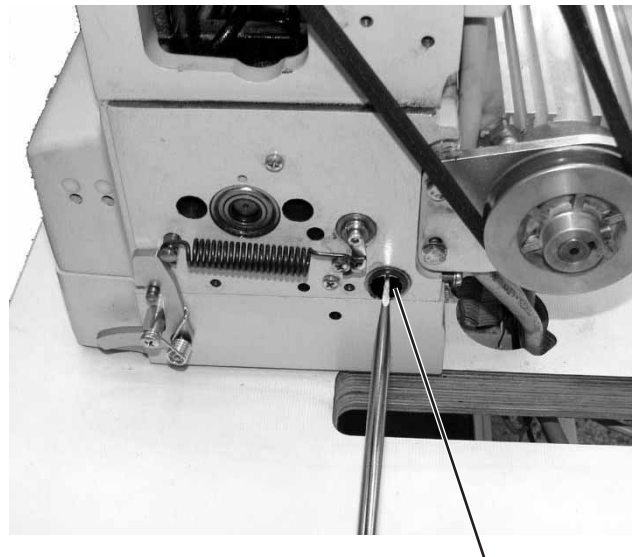
Caution: Danger of injury!

Turn off the main switch.

Only set the basic stitch adjustment when the sewing machine is switched off.

- Turn the top adjustment wheel 1 to “4”.
- Remove screw 2 and remove the adjustment wheel 3.
- Turn the shaft 5 carefully clockwise with a 10 mm open ended spanner until it will go no further.
- Turn scale 4 to position “4”.
- Replace adjustment wheel 3 and fix with screw 2.

2.3.3 Basic feed setting



Caution: Danger of injury!

Turn off the main switch.

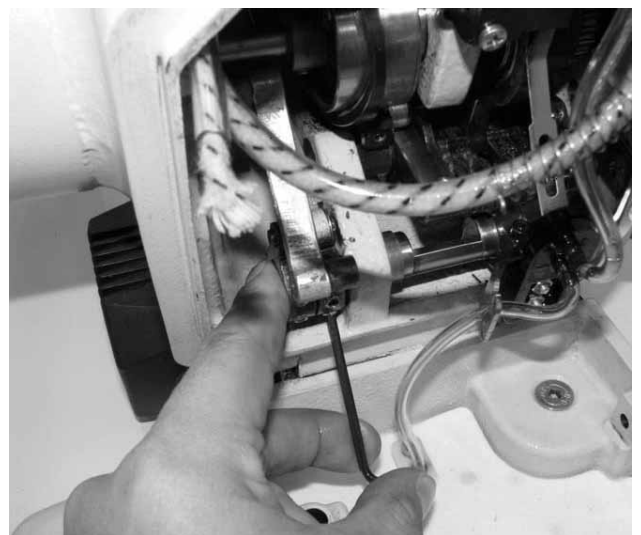
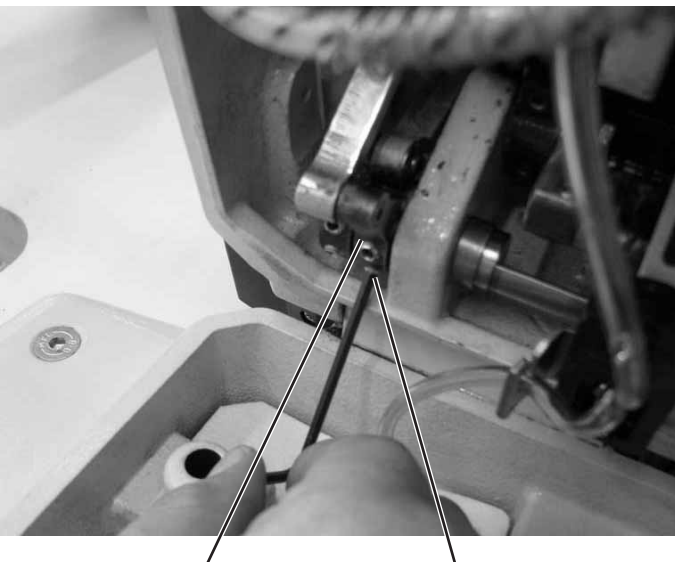
Only check and adjust the position of the feed dog and the stitch adjustment drive when the machine is switched off.

Adjustment

The basic setting is done when the stitch length is set to "0".

Correction

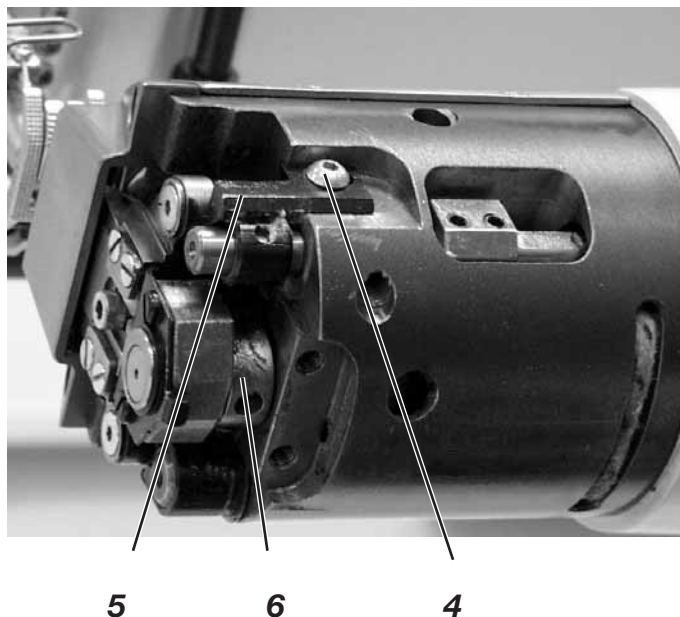
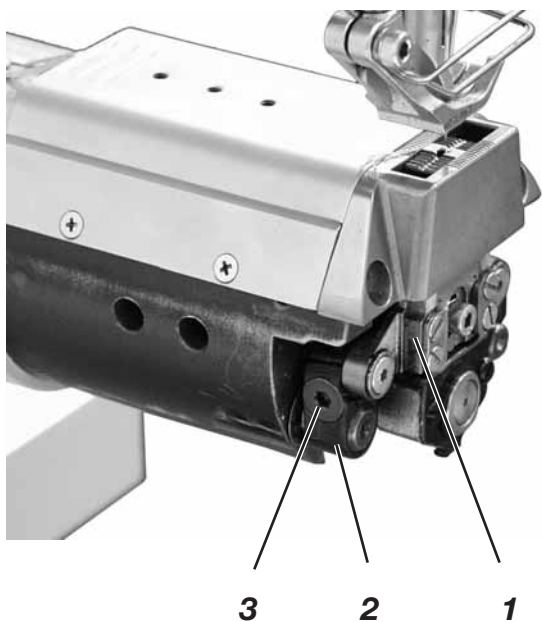
- Set stitch length levers 1 and 2 to "0".
- Use a screw driver to turn groove 3 on the thrust shaft vertically.



- Put the spanner on the first grub screw 4 of the right lever 2 and rest it on the cast arm bed.
- Adjust the axial play of the thrust shaft and tighten the grub screw.

GB

2.3.4 Position of the feed dog in the throat plate cut out



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the position of the feed dog when the machine is switched off.

Lateral alignment

The feed dog should be at a uniform distance to the right and the left of the throat plate.

Correction

- Undo screw 3.
- Undo screw 4.
- Undo the grub screws on the stroke eccentric 6.
- Align the feed dog support 1 laterally.
- Tighten screw 3.
- Tighten screw 4.
- Place the stroke eccentric 6 right over to the right and screw in the grub screws.

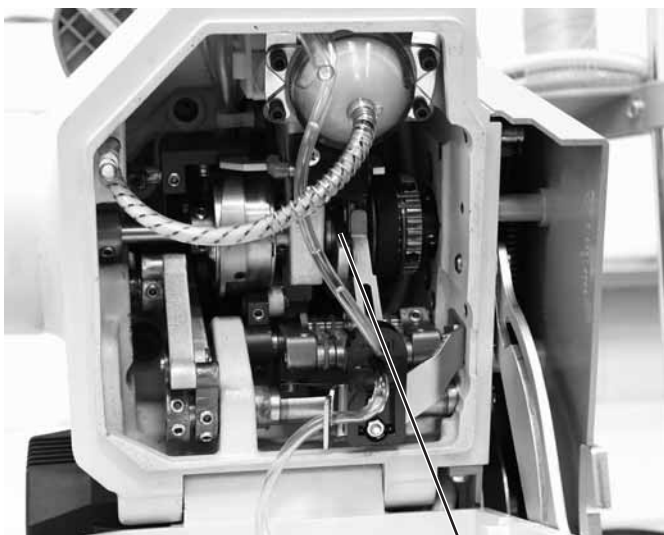
Alignment in feed direction

With a maximum stitch length the feed dog should move in the middle of the throat plate cut out.

Correction

- Undo screw 3.
- Turn lever 2.
- Tighten screw 3.
- Check setting.

2.3.5 Feeding motion of the feed dog



1



180°



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the position of the feed dog when the machine is switched off.

GB

Standard checking

When the machine is in position "5°" the feed dog must not move when the stitch adjuster lever is operated when the stitch is set to its maximum length.

- Setting the longest stitch length.
- Turn the machine to position "5°".
- Move the stitch adjuster lever and check that the feed dog does not move.

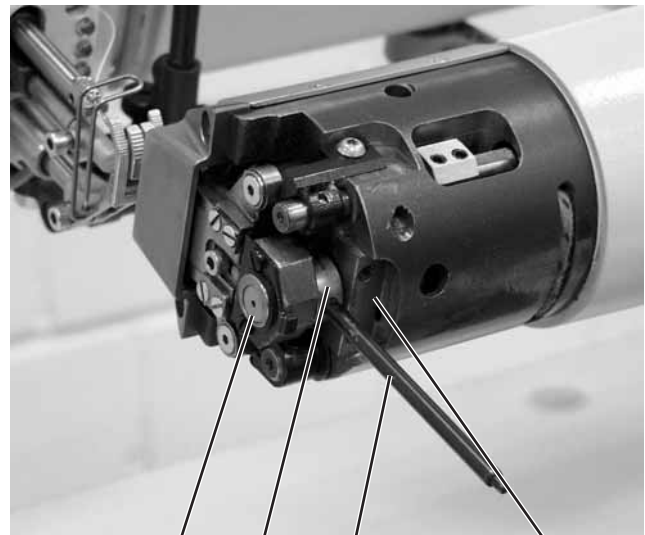
Correction

- Undo the screws on the push eccentric.
- Readjust the push eccentric.
- Do up the screws on the push eccentric 1.
- Move the stitch adjuster lever and check that the feed dog does not move.

2.3.6 Lifting motion of the feed dog



1



5

4

3

2



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the position of the feed dog stroke movement when the machine is switched off.

Standard checking

The feed dog should be the same distance from the throat plate at both the front and back dead centre:

- Turn the hand wheel and check the movement of the feed dog.

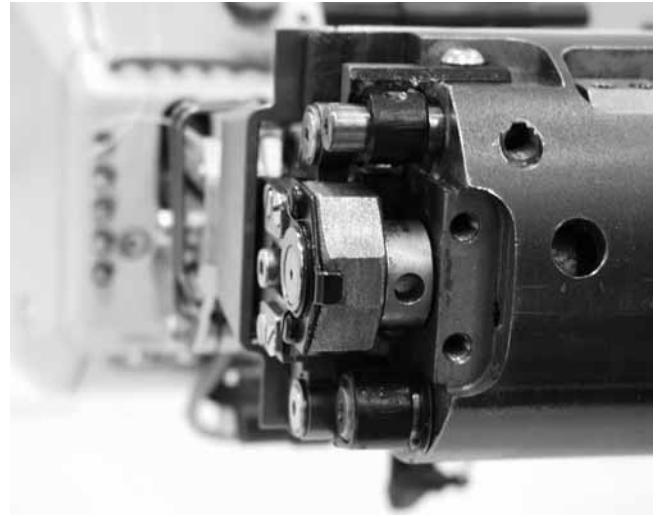
Correction

- Undo the screws 1 on the stroke eccentric.
- Insert locking pin 2 into the hole in the stroke eccentric 4 and set so that it is vertical to surface 2.
- Turn the hand wheel 260°.
- Tighten screws 1.

2.3.7 Switching off the lifting motion of the feed dog for edging work



1



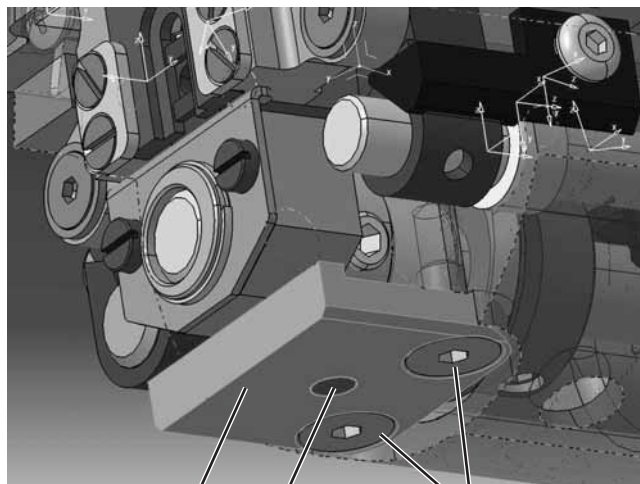
Caution: Danger of injury!

Turn off the main switch.

Only switch off the lifting motion of the feed dog when the sewing machine is switched off.

GB

- Remove screws 1 from the stroke eccentric.



4

3

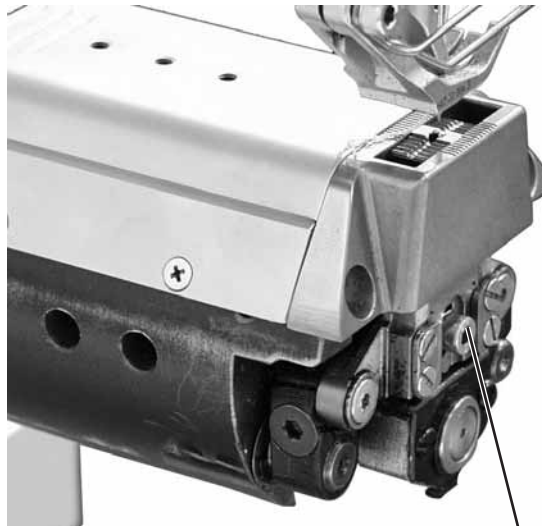
2

- Insert pin 3 on plate 4 (order no. 0869 160123) into the hole on the stroke eccentric and screw in with two screws 2.

2.3.8 Feed dog height



1



2



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the feed dog height when the machine is switched off.

Standard checking

Machines without feed dog stroke

The feed dog should be the same height as the throat plate.

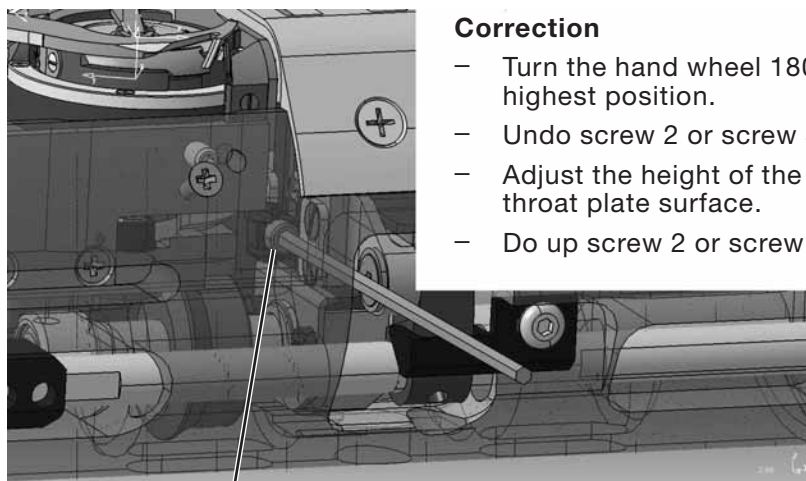
Machines with feed dog stroke

In order to ensure that the material being sewn feeds through properly the feed dog 2 must project 1.00 mm above the throat plate surface when it is at its highest position.

- Turn the hand wheel 180° then the feed dog 1 has reached its highest position.
- Check the height of the feed dog 1.

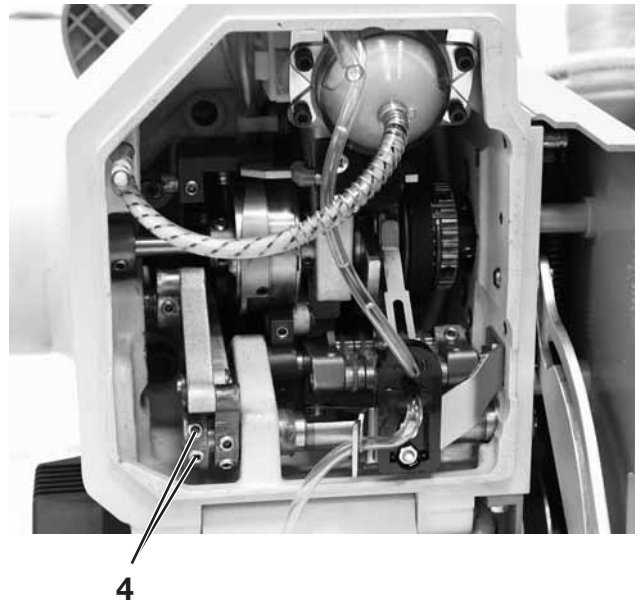
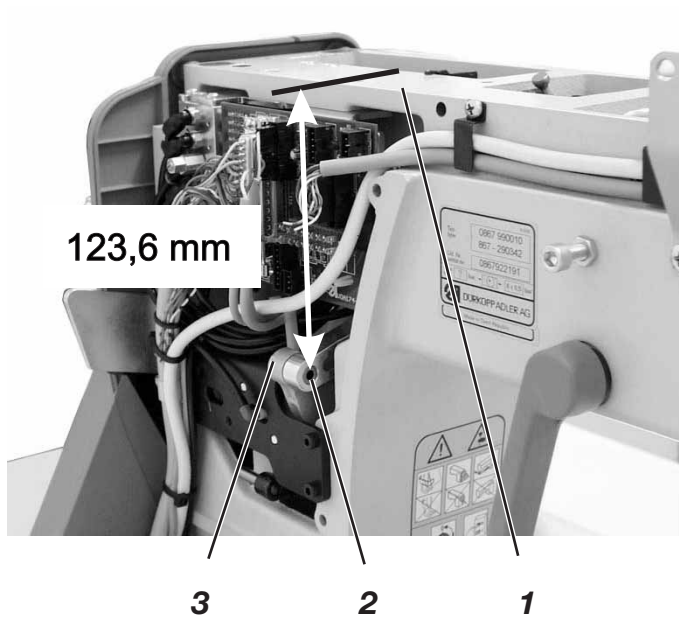
Correction

- Turn the hand wheel 180° then the feed dog 1 has reached its highest position.
- Undo screw 2 or screw 3.
- Adjust the height of the feed dog so that it is 1.0 mm above the throat plate surface.
- Do up screw 2 or screw 3 .



3

2.4 Transfer lever



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the transfer lever when the machine is switched off.

GB



5

Standard checking

Lever 3 transfers the movement of the feed shaft to the needle bar crank.

Lever 3 must be positioned so that the distance from the surface of the arm 1 to the middle of the bolt 2 is 6 mm at stitch length "0".

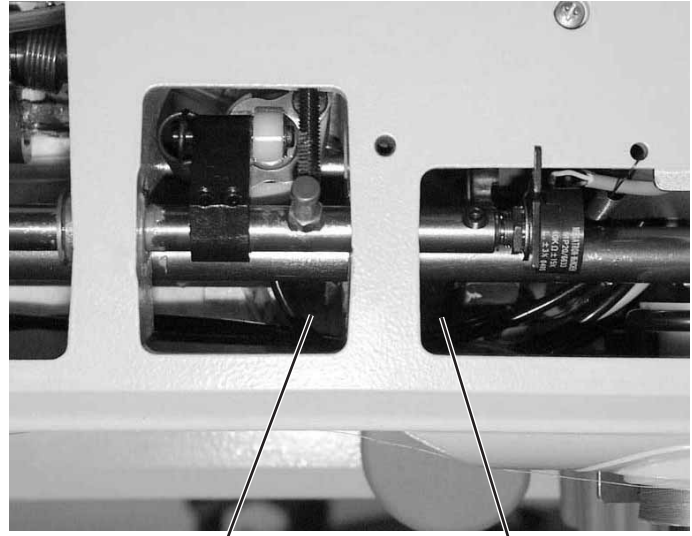
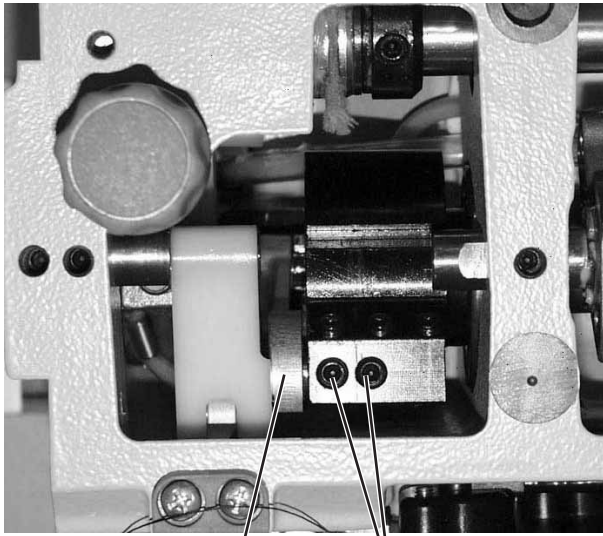
- Set stitch length to "0".
- Check the measurement between the upper edge 1 and the middle of the bolt 2.

Correction

- Undo screws 4 on the bottom transfer lever.
- Undo screw 5 on the top transfer lever .
- Set lever 3 to the specified measurement.
- Screw in screws 4 and 5 again.

2.5 Needle bar crank

2.5.1 Aligning needle bar crank to the side



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the needle bar crank when the machine is switched off.

Standard checking

The needle must go through the middle of the feed dog needle hole.

- Fitting a new needle.
- Turn the needle bar down with the hand wheel.
- Check the lateral position of the needle in the needle hole.

Correction

- Undo the screws on the adjustment rings 3 and 4.
- Set the needle bar crank laterally so that the needle is in the middle of the needle hole.
- Line up adjustment rings 3 and 4 and tighten the screws.
- Undo screws 1.
- Align the thread lever laterally so that the play on the connecting rod 2 on the cross head is the same on both sides.
- Tighten screws 1.



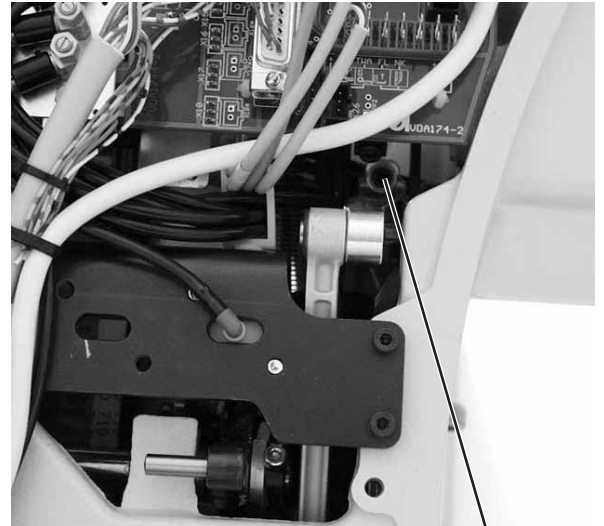
CAUTION Risk of breaking!

After the needle bar crank has been aligned laterally check the distance between the hook tip and the needle. If necessary correct the distance (see chapter 2.6.3).

2.5.2 Needle hole in feed direction



1



2



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the needle hole when the machine is switched off.

GB

Standard checking

The needle should go through the middle of the feed dog needle hole when a stitch length of “0” is set.

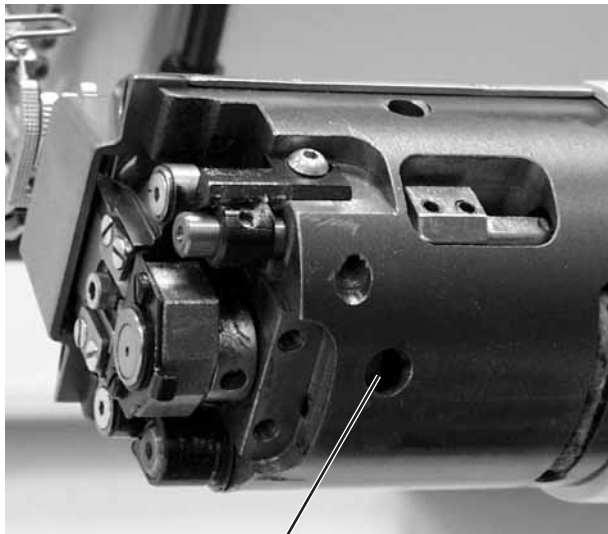
- Set stitch length to “0”.
- Fit a new needle.
- Turn the needle bar down with the hand wheel.
- Check the position of the needle in the needle hole.

Correction

- Undo screw 2 on the top transfer lever.
- Set the needle bar crank so that the needle is in the middle of the needle hole.
- Tighten screw 2 again.

2.6 Hook, loop stroke and needle bar height

2.6.1 Loop stroke



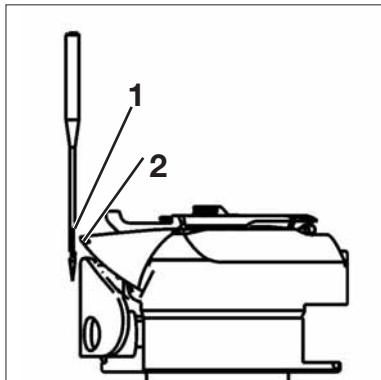
3



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the loop stroke when the machine is switched off.



Standard checking

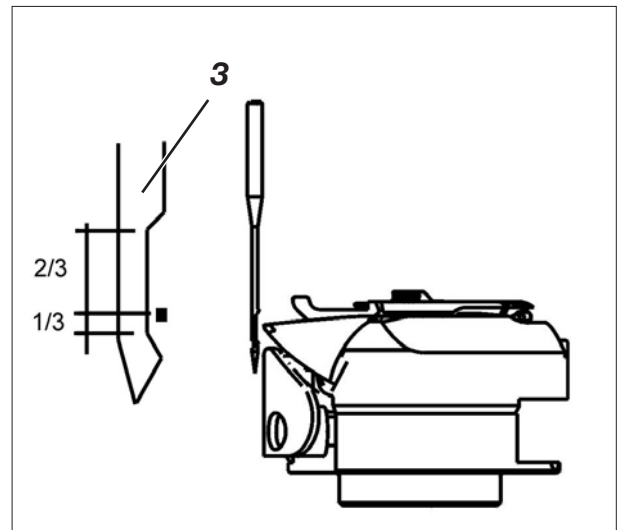
The loop stroke is the path of the needle bar from the top dead centre to the point at which the hook tip 2 is in the middle of needle 1. The loop stroke is 2 mm.

- Locate top part of the machine in position I (Ø 5 mm locking pin in the large groove).
- Set the stitch length adjustment wheel to “0”.
- Check the position of the hook tip in relation to the needle.

Correction

- Locate the top part of the machine in position I with the Ø 5 mm locking pin (large groove).
- Set the stitch length adjustment wheel to “0”.
- Undo screws on the bevel gear 3.
- Turn the hook so that the hook tip 2 is in the middle of needle 1.
- Place the bevel gear so close that the hook has even less radial play inside the bevel gears.
- Replace screws on the bevel gear 3.

2.6.2 Needle bar height



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the needle hole height when the machine is switched off.

GB

Standard checking

The height of the needle bar should be set so that the hook tip is in the lower third of the channel when the stitch length is "0" and in the loop stroke position.

- Set the stitch length adjustment wheel to "0".
- Set the sewing machine to position I (loop stroke setting = 202°).
- Check the position of the needle in relation to the hook tip.

Correction

- Set the stitch length adjustment wheel to "0".
- Undo clamping screw 1.
- Push the needle bar 2 onto the needle 3.
While doing this the needle bar must not be twisted.
The channel must be by the hook tip.
- Tighten clamping screw 1.

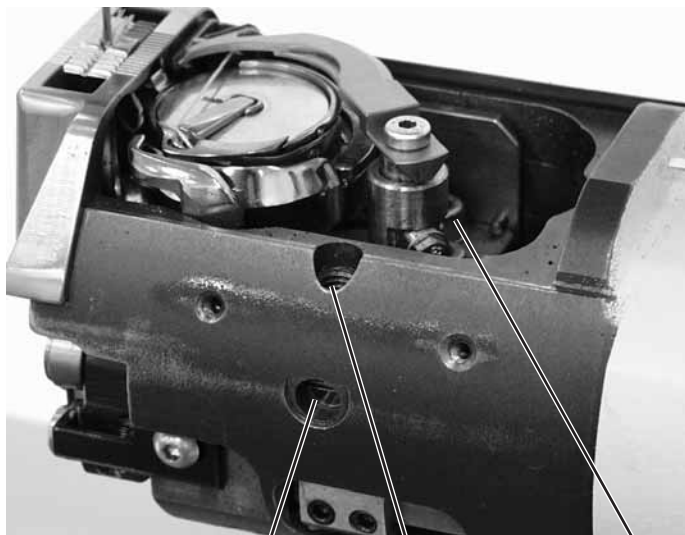
Setting the needle bar height wrongly can have the following effects:

- Damage to the hook tip.
- Wedging the needle thread between the needle and the needle guard.
- Skipped stitches and thread tearing.

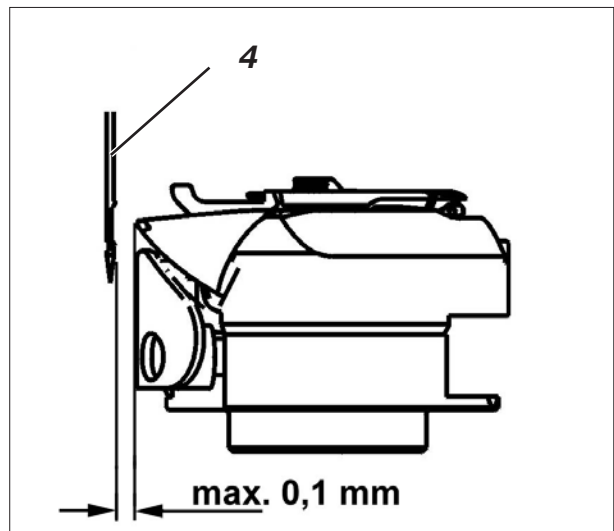
IMPORTANT!

After adjusting the needle bar height the position of the needle guard must be checked (see chapter 2.6.4).

2.6.3 Distance between hook and needle



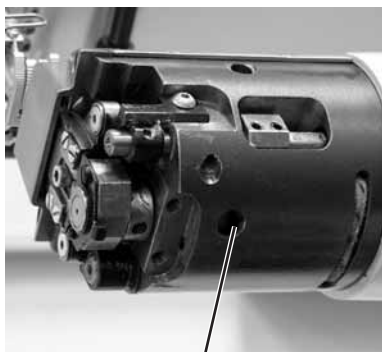
3 2 1



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the hook distance when the machine is switched off.



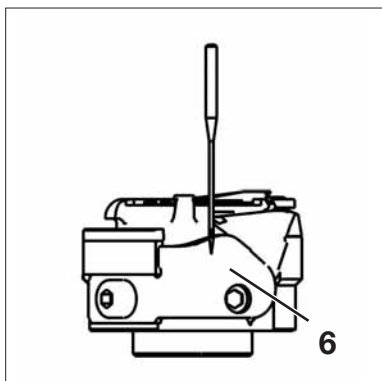
5

Standard checking

In the loop stroke position the distance between the hook tip and the needle channel must be no more than 0.1mm.

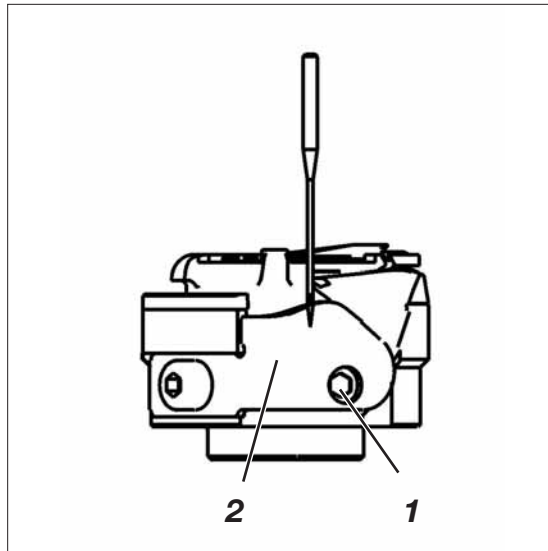
Correction

- Check whether the needle is being pushed away from the hook guard 6 in the loop stroke position.
If the needle is being pushed away the needle guard must be reset accordingly (see chapter 2.6.4).
- Check the distance.
The distance between the needle 4 and the hook should be no more than 0.1mm.
- Undo screw 1.
- Undo screw 2.
- Undo screws on the bevel gear 5.
(Screws can be reached at 202° and 292°).
- Push the hook housing to the side accordingly.
- Screw in screws 1 and 2 again.
- Set the loop stroke (see chapter 2.6.1).
- Place the bevel gear 5 so close that the hook has even less radial play inside the bevel gears.
- Replace screws on the bevel gear 5.



6

2.6.4 Needle guard



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the needle guard when the machine is switched off.

GB

Standard checking

The needle guard 2 should prevent the needle touching the hook tip. In the loop stroke position the needle should be pushed away slightly.

- Check the needle guard.

Correction

- Turn the machine to the loop stroke position.
- Adjust the needle guard by turning screw 1.



IMPORTANT!

The needle guard must be adjusted after a change in the needle bar height, after adjusting the loop stroke and after changing the needle thickness.

2.7 Bobbin housing elevator

2.7.1 General

The thread lever must draw the thread between the bobbin housing and its retainer.

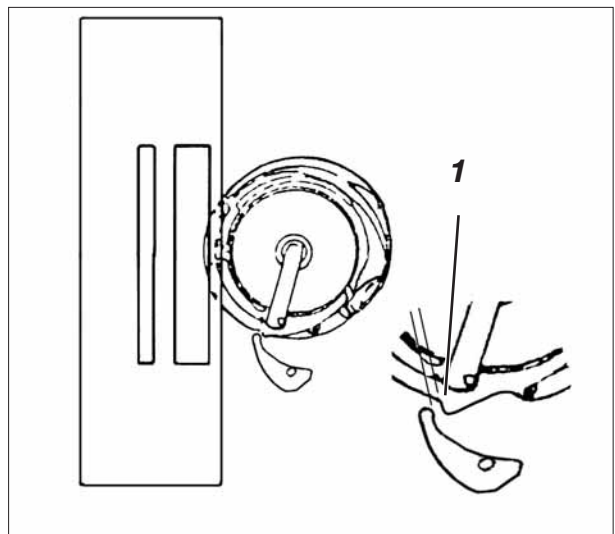
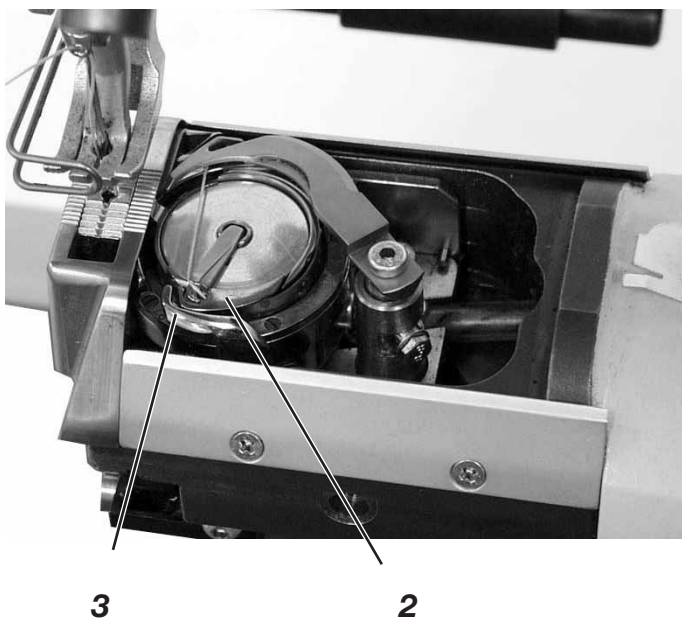
So that the thread can slip through unhindered, the bobbin housing must be raised at this time.

As a result the required seam construction is achieved with the lowest possible thread tension.

Incorrect settings may have the following effects:

- Thread breaking
- Loops on the underside of the seam
- Loud noises

2.7.2 Bobbin housing elevator path



Caution: Danger of injury!

Turn off the main switch.

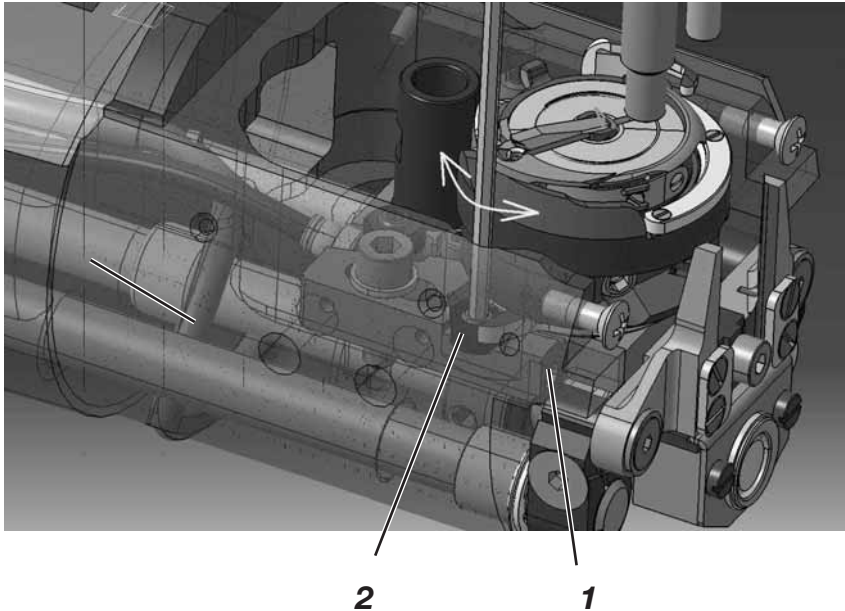
Only check and adjust the bobbin housing elevator when the machine is switched off.

Standard checking

The bobbin housing elevator 3 should raise the middle part of the hook 2 so that the sewing thread can slip through unhindered between the bobbin housing lug and the throat plate recess.

The elevation gap X depends on the thickness of the thread to be sewn.

- Turn the hand wheel and check whether the bobbin housing elevator opens the bobbin housing far enough.



Correction

- Turn eccentric bolt 2.
The eccentric bolt 2 is held by the grub screw 1 and a plastic pressure piece.
- The frictional force can be changed with grub screw 2 when the hook bearing is removed.

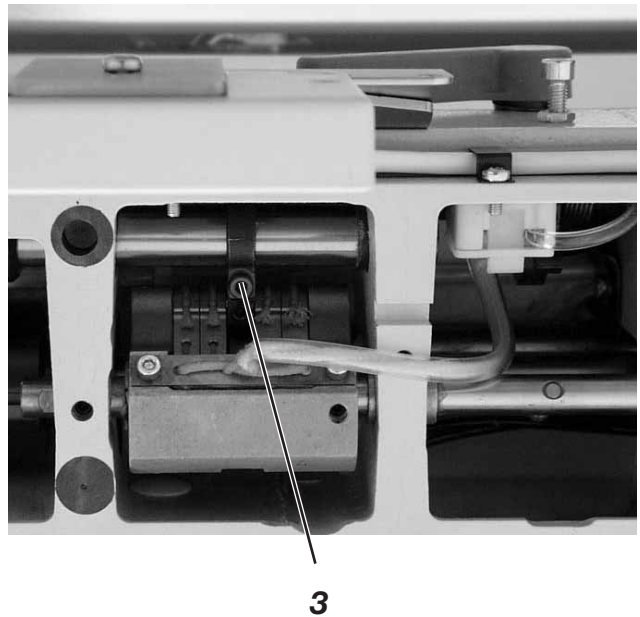
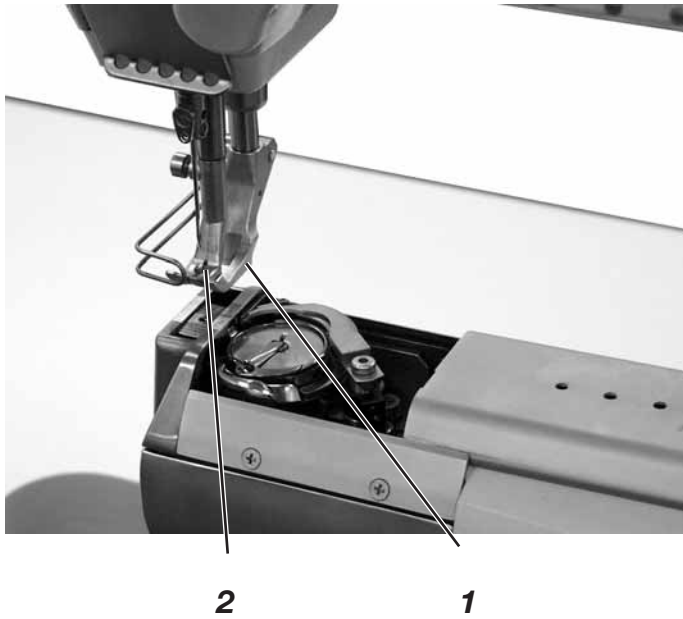
GB

2.7.3 Elevation time

The time of elevation is firmly preset by the eccentric on the hook and cannot be changed.

2.8 Feed foot and material presser foot

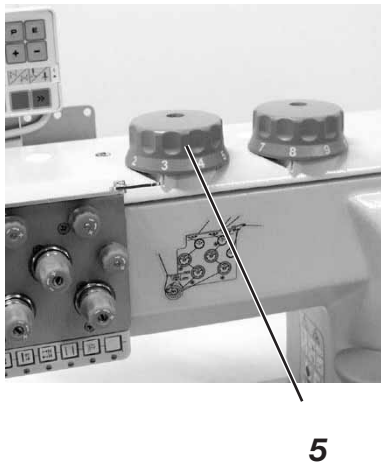
2.8.1 Feed foot and material presser foot stroke



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the sewing foot stroke when the machine is switched off.



Standard checking

The strokes of the two sewing feet should be the same height when the adjustment wheel 5 for the sewing foot stroke setting is set to "3".

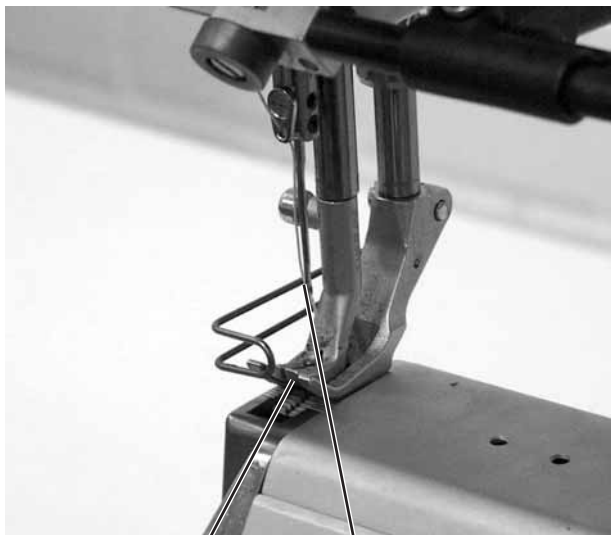
- Set stitch length to "0".
- Set the average sewing foot pressure.
- Set the sewing foot stroke on the adjustment wheel 5 to "3".
- Unscrew the feed dog.
- Put a plate (3 mm) under the sewing feet.
- Turn the hand wheel and compare the strokes of sewing feet 1 and 2.

The stroke of the material presser foot 1 and the feed foot 2 should be the same height.

Correction

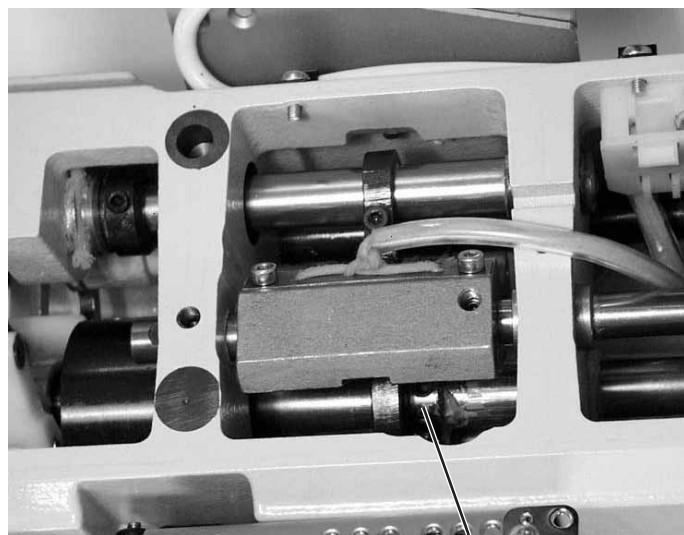
- Unscrew the arm cover.
- Turn the hand wheel to position "0°".
- Undo screw 3.
- Press feeder foot 2 right down onto the throat plate.
- Tighten screw 3.
- Screw the arm cover back on.
- Turn the adjustment wheel to setting "3".
- Check whether both strokes are the same height.
If not correct the setting.

2.8.2 Feed foot stroke movement



2

1



3



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the stroke movement when the machine is switched off.

GB

Condition

- The same sewing foot and material presser foot stroke is set (see chapter 2.8.2)
- The time of the feed dog stroke movement is correct (see chapter 2.3.3).

Adjustment

The descending feeder foot 2 should alight on the feed dog at the maximum sewing foot stroke and a maximum stitch length if, with the descending needle 1 the needle point has reached the top edge of the feeder foot (95° on the hand wheel).

- Set the longest stitch length.
- Set the maximum sewing foot stroke.
- Turn the hand wheel and check the stroke movement.

Correction

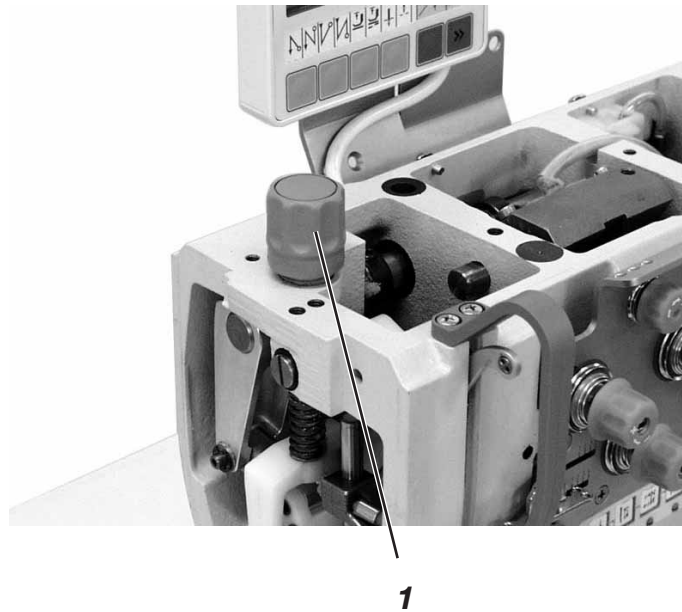
- Undo the screws on the stroke eccentric 3 (2 screws).
- Turn the eccentric accordingly.

IMPORTANT!

The eccentric must not be moved axially.

- Do up the screws on the stroke eccentric 3.
- Check the setting.

2.8.3 Sewing foot pressure



Standard checking

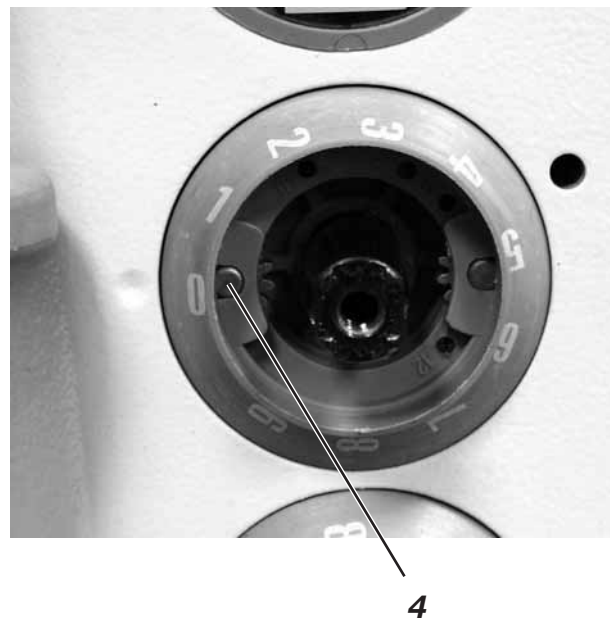
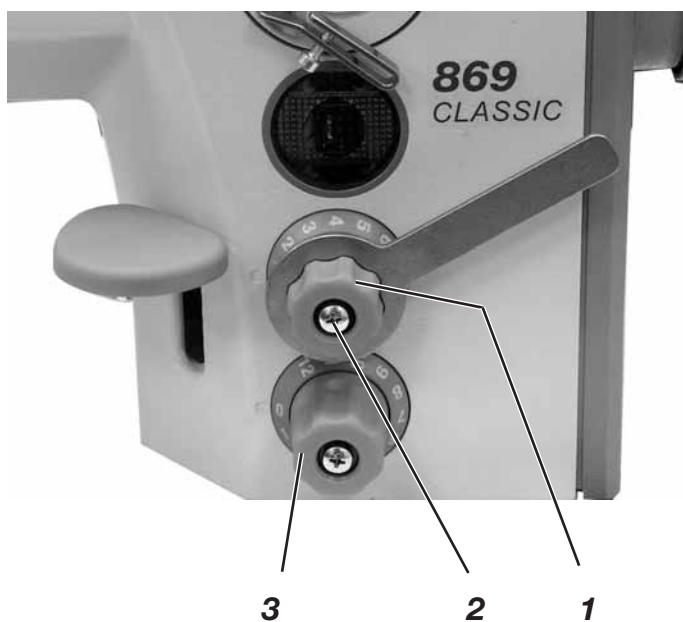
The material to be processed must not float.

However, it should not be given any more pressure than necessary.

Correction

- Set the sewing foot pressure with screw 1.
To increase sewing foot pressure
= Turn screw 1 clockwise.
To reduce sewing foot pressure
= turn screw 1 anti-clockwise.

2.9 Stitch length limitation



Depending on the sewing equipment used the stitch length setting must be limited to 6 or 9 mm.

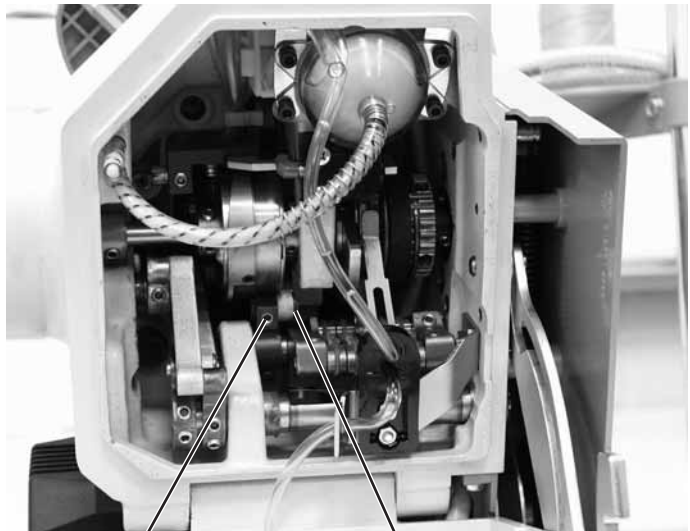
- Remove screw 2 on the stitch length adjustment wheel.
- Take out adjustment wheel 1.
- Unscrew grub screw 4 and screw it into the corresponding hole. The holes have numbers.
For 6 mm = screw in hole 8
For 9 mm = screw in hole 12
- Configure as in chapter 2.3.1 “**Basic stitch adjustment setting**”.
- Put the adjusting wheel on and fix with screw 2.

GB

2.10 Consistent forward and reverse stitches



1



3

2



Caution: Danger of injury!

Turn off the main switch.

Only set the stitch evenness when the sewing machine is switched off.

Standard checking

The stitch length for the forward and reverse stitch should be the same.

- Sew a seam forwards.
- Sew a seam in reverse.
- Compare the stitch lengths of the two seams.

Correction

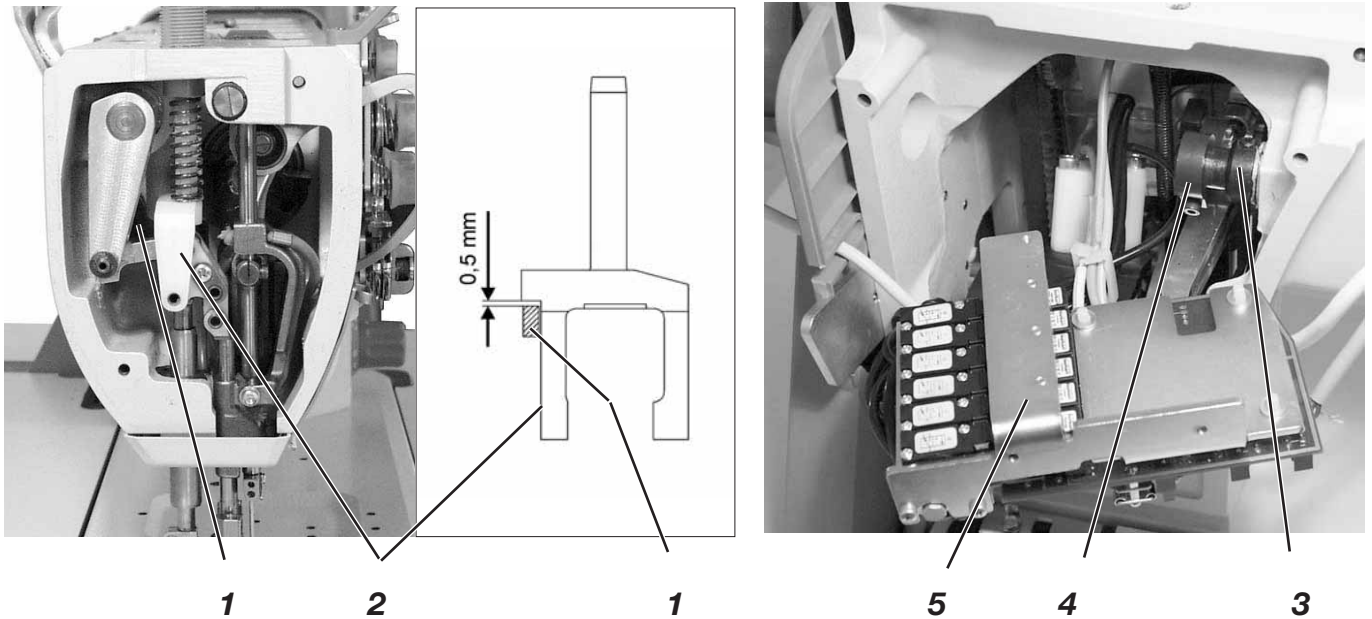
- Undo screw 3.
- Turn the eccentric with a screwdriver through hole 1.
Clockwise =
Forward stitch larger, reverse stitch smaller.

Anti-clockwise =
Reverse stitch larger, forwards stitch smaller.

- Tighten screw 3.
- Sew a seam forwards.
- Sew a seam in reverse.
- Compare the stitch lengths of the two seams.

2.11 Sewing foot lifting

211.1 Sewing foot lifting (mechanical)

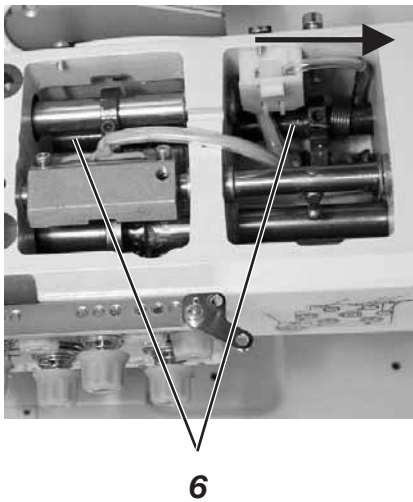


Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the play in the raising mechanism when the machine is switched off.

GB



Standard checking

The elevating shaft 6 must be smooth running but must not have any axial play.

The play in the raising mechanism should be about 0.5 mm between spring guide 2 and the elevating lever 1.

- Lower sewing feet.
- Turn the hand wheel until the material pressure foot comes down.
- Move the elevating shaft 6 and check play.

Correction

Place the elevating shaft close by.

- Unscrew the electronic and pneumatic unit 5.
- Undo the screw on adjustment ring 3.
- Push the elevating shaft completely to the right (see arrow), push the adjustment ring 3 onto the bearing bush and screw on.

ATTENTION!

The shaft must still run smoothly.

Elevating shaft play

- Undo the screws 4 on the elevating pulley.
- Turn the elevating shaft 6 until there is some play.
- Do up the screws on the elevating pulley 4.

2.11.2 Height of the sewing feet locked with the hand lever



1



3

2



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the sewing foot lifting when the machine is switched off.

Standard checking

The sewing feet 4 are locked into the raised position with hand lever 1 to change the sewing feet, for example, or to run the sewing machine without material or to wind the hook thread.

The sewing feet 4 locked into the raised position with the hand lever should be 10 mm away from the throat plate.

- Bring both sewing feet to the same level.
- Raise and lock the sewing feet with the hand lever.
- Check the elevation height.

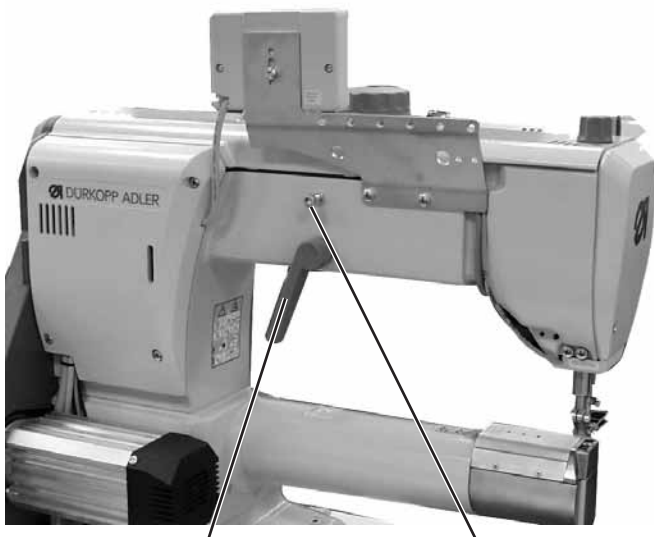
Correction

- Raise the sewing feet.
- Put a spacer (10 mm) under the sewing feet.
- Undo the screws on the elevation lever 3.
- Press the elevation lever 1 down.
- Press lever 3 onto the eccentric disc 2.
- Do up the screws on the elevation lever 3.



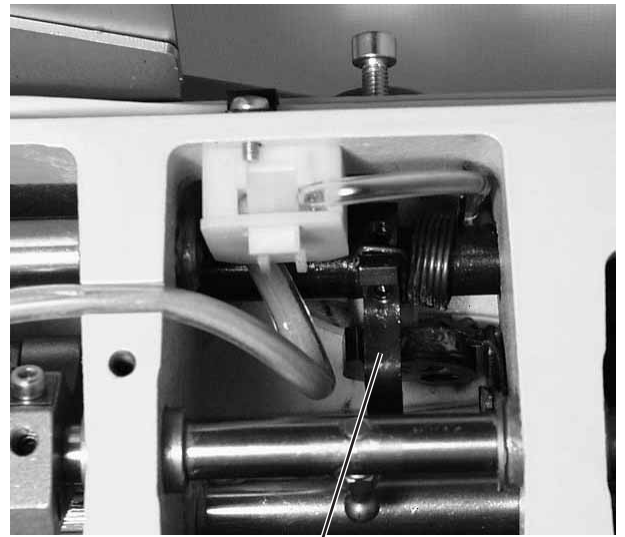
4

2.11.3 Height of the raised sewing feet



2

1



3



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the height of the raised sewing feet when the machine is switched off.

GB



4

Standard checking

The sewing feet 4 raised pneumatically or by using a knee lever should be 20 mm from the throat plate when the thread lever is at the top dead centre.

The screw 2 restricts the passage of the ventilation lever 3.

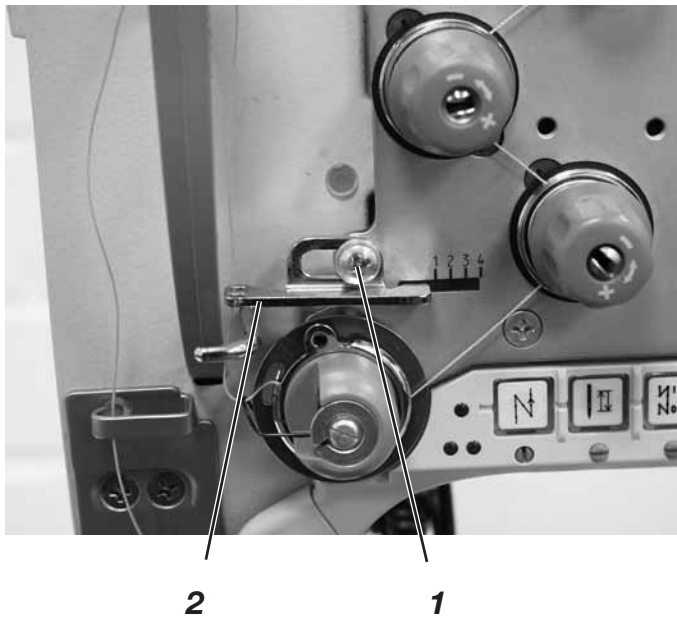
- Lower sewing feet.
- Turn the hand wheel until the thread lever is at the top dead centre.
- Raise with the knee lever or pneumatically and measure the elevation height.

Correction

- Undo the counter nut 1.
- Turn the stop screw 2 accordingly.
- Tighten counter screw 1.

2.12 Thread carrying parts

2.12.1 Thread regulator



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the thread regulator when the machine is switched off.

Standard checking

The position of the thread regulator 1 depends on the thickness of the material, the thread thickness and the selected stitch length. It must be set so that the thread is fed round the hook in a controlled manner.

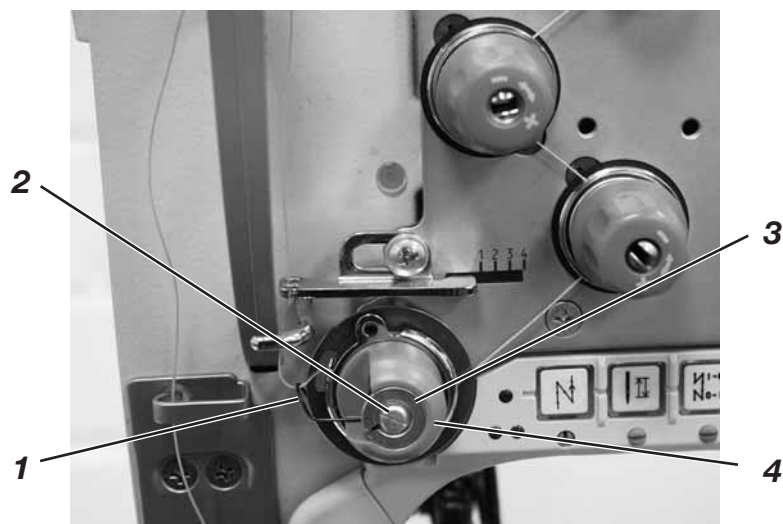
The greatest amount of thread is released at setting "1" as it is required for particularly long stitch lengths and thick sewing threads.

- Open the throat plate slide.
- Thread the needle and hook thread.
- Insert the material.
- Start sewing for a short time.
- Turn the hand wheel and observe how tightly the needle thread is being fed around the hook.

Correction

- Undo screw 2.
- Move the thread regulator.
Thread regulator to the left = more thread
Thread regulator to the right = less thread.
- Tighten screw 2.

2.12.2 Thread take up spring



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the thread take up spring when the machine is switched off.

Standard checking

The adjustment rules for spring travel and spring tension apply to normal needle thread thicknesses.

With extremely strong or weak needle threads or sewing material other settings may be required.

Spring travel

The thread take up spring 1 must keep the needle thread at low tension from the top thread level position until the eye of the needle pierces the material.

To achieve an even seam at low thread tension the thread take up spring travel can also be increased.

The thread take up spring must only be at the stop when the needle has penetrated the material up to the eye.

Spring tension

The spring tension should be lower than the needle thread tension.

Correction

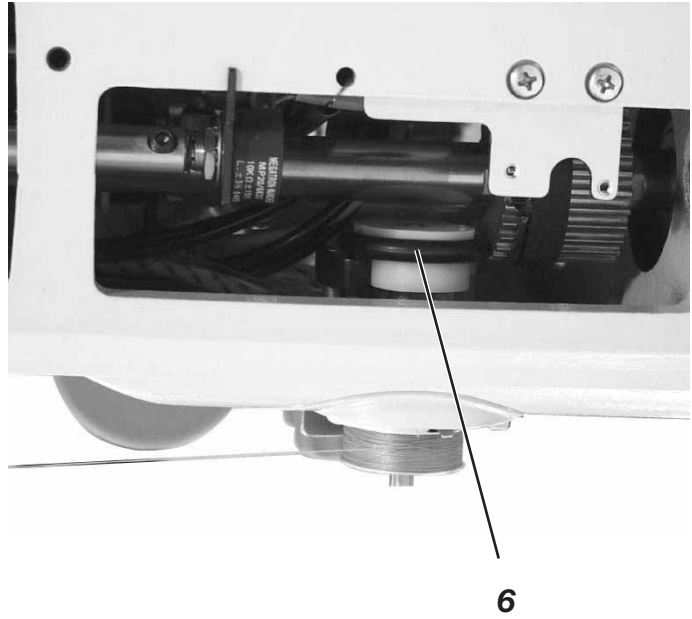
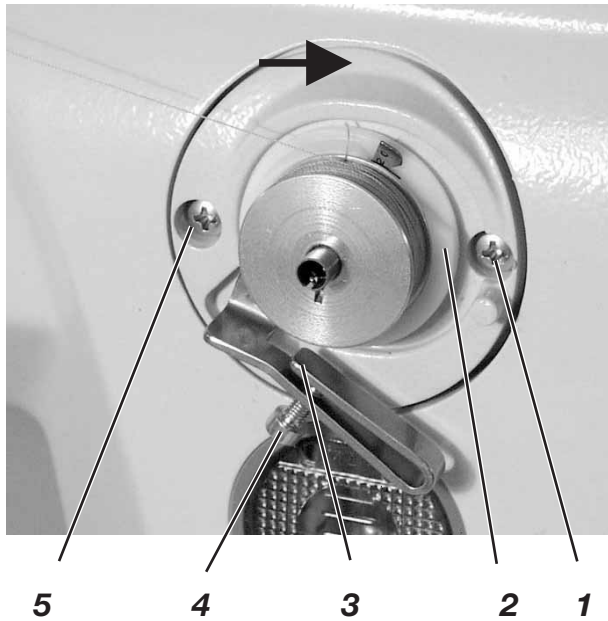
Spring travel

- Undo screw 2.
- Turn the stop sleeve 4.
Turn anti-clockwise = more travel
Turn clockwise = less travel.
- Tighten screw 2.

Spring tension

- Undo screw 2.
- Adjust spring washer 3 without changing the position of the stop sleeve 4.
Turn the washer clockwise = less spring tension
Turn the washer anti-clockwise = more spring tension.
- Screw in screw 2 without turning the position of the stop sleeve 4 and the spring washer 3.

2.13 Bobbin winder



Caution: Danger of injury!

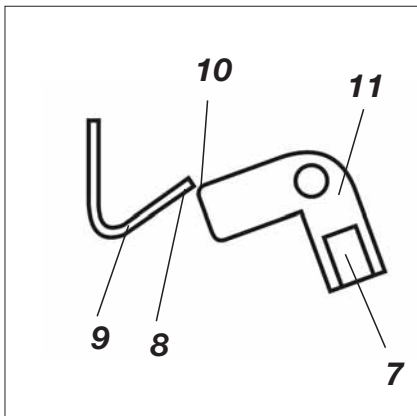
Turn off the main switch.

Only check and adjust the bobbin winder when the machine is switched off.

Standard checking

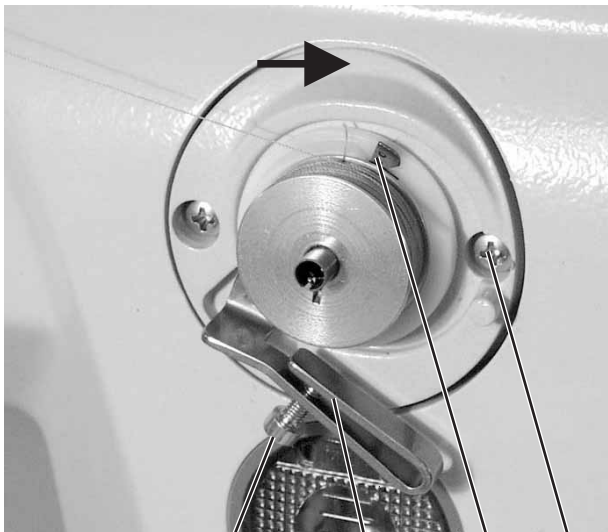
The winding procedure must stop automatically when the bobbin is filled up to about 0.5 mm below the edge of the bobbin.

The bobbin wheel should have no axial play but must also run smoothly.

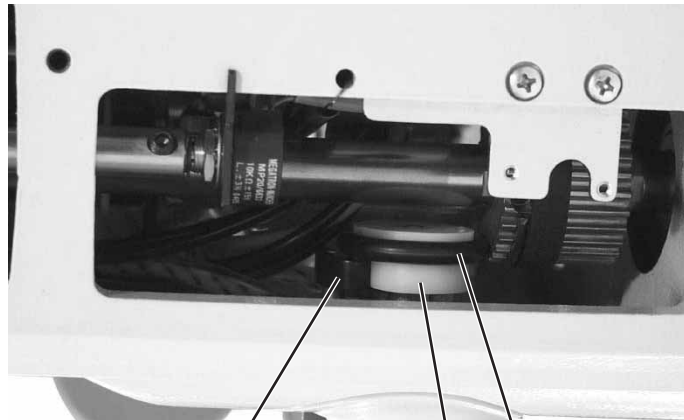


Basic settings

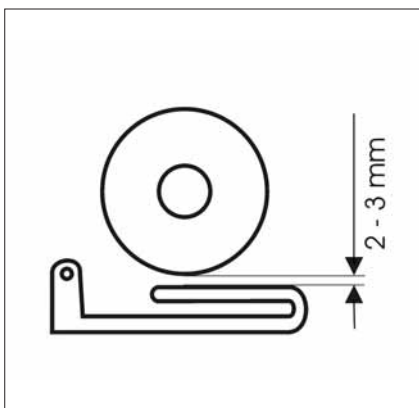
- Remove the bobbin winder.
To do this unscrew the two fixing screws 1 and 5 and remove the bobbin winder.
- Screw in screw 4 until the two side pieces of the bobbin winder flap 3 are parallel to each other.
- Put a completely full bobbin onto the bobbin winder.
- Turn the bobbin winder flap so that it rests against the thread on the bobbin.
- Undo screw 7.
- Set the cam 11 so that the corner 10 of the cam and the corner 8 of the flat spring 9 are on top of each other (spring is tensioned) and the bobbin winder flap 3 has not axial play.
- Tighten screw 7.



4 3 12 1



14 13 6

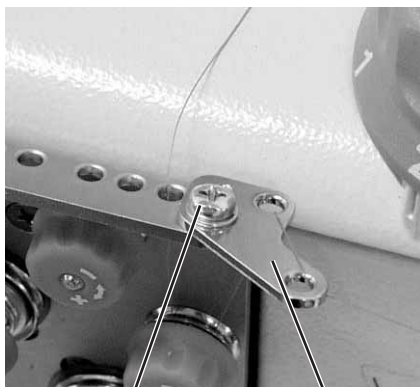


- Turn the bobbin winder spindle so that the cutting blade 12 points towards the right fixing screw 1.
- Undo the screw on the engaging bracket 14.
- Adjust the bobbin winder flap so that there is 2 - 3 mm of air between the thread on the bobbin and the bobbin winder flap (insert a spacer).
- Set the engaging bracket 14 so that it is next to the locking disc 13 and has 0.5 mm of air axially between it and the bobbin winder wheel 6.
- Fasten the screw into the engaging bracket.
- Screw the bobbin winder down again.

GB

Smaller changes to the fill quantity

- Set the bobbin winder flap 3 with screw 4.



17 16

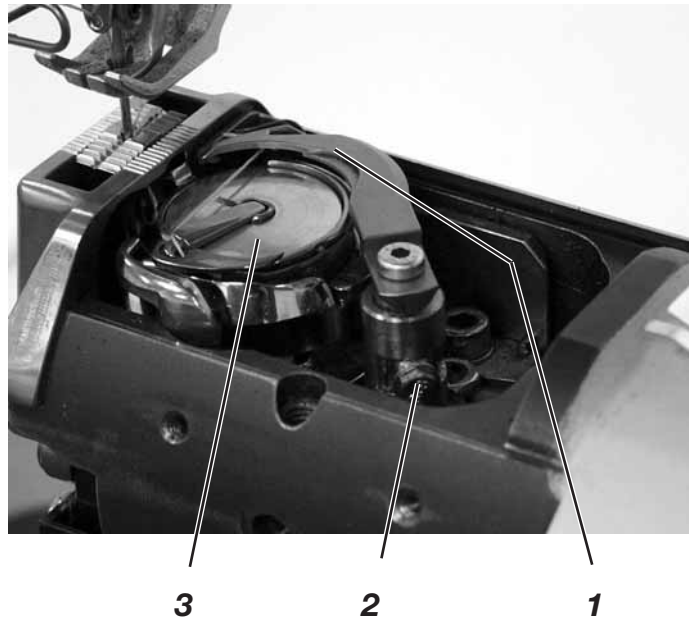
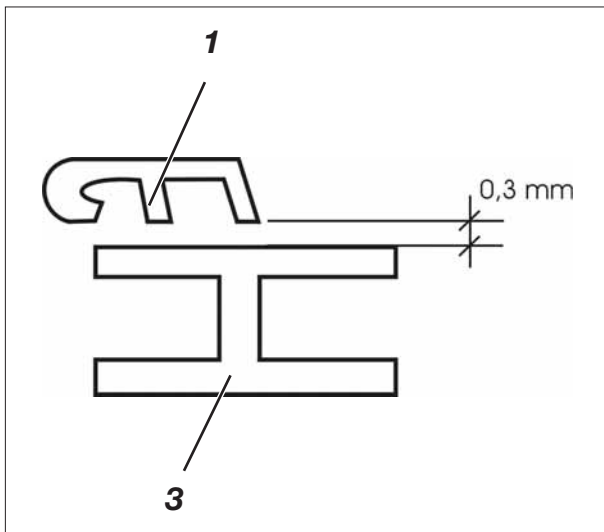
To adjust the bobbin winder pre-tensioning position

The guide must be set so that the bobbin is filled with thread evenly over its width.

- Undo screw 17.
- Set guide 16.
- Tighten screw 17.

2.14 Thread cutter

2.14.1 Thread pulling knife height



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the thread pulling knife when the machine is switched off.

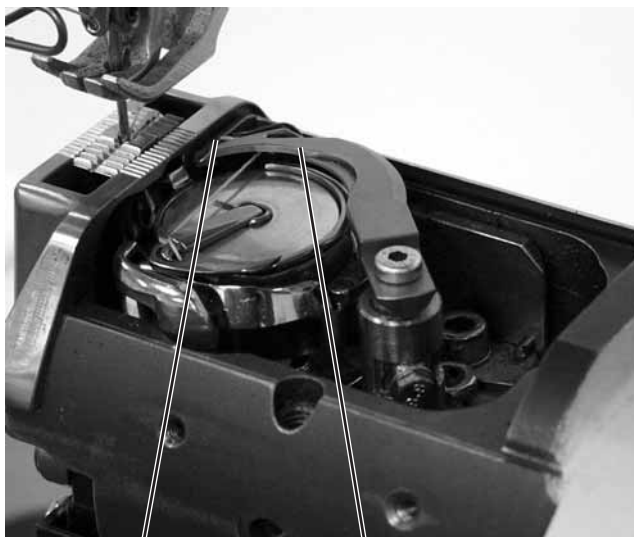
Standard checking

The thread pulling knife should go past the bobbin 3 at a distance of 0.3 mm.

Correction

- Undo screw 2.
- Align the height of the thread pulling knife 1.
- Tighten screw 2.

2.14.3 Thread pulling knife



2

1



6

5

4

3

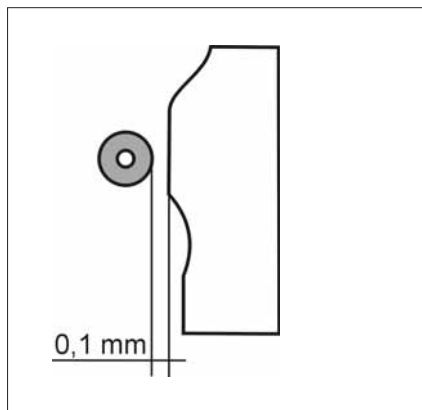


Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the thread pulling knife when the machine is switched off.

GB



0,1 mm

Standard checking

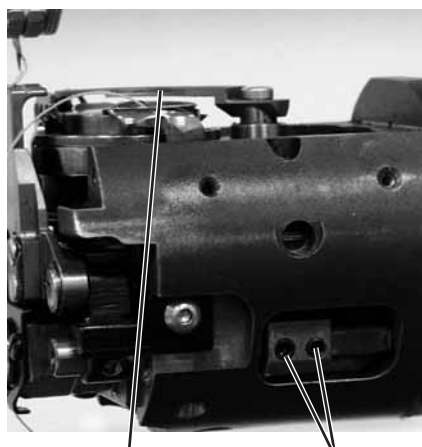
When the thread pulling knife 1 is in its rest position the distance between the cam 4 (highest point) and the spool 5 should be 0.1 mm. Here the cam must be next to the edge of the snap fit coupling 8.

In the rest position the thread pulling knife should be flush with the edge of the counter blade 2.

- Check whether the cam is close by.
- Turn the machine until the highest point of the cam 4 is next to the spool 5 (80° on the hand wheel).
- Check the distance between the cam 4 and the spool.

Correction

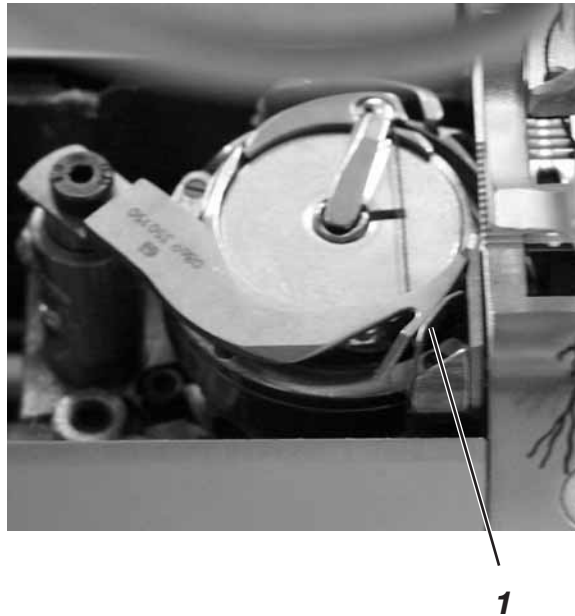
- Undo screws 3 on the cam 4.
- Put the cam right over to the right.
- Do up the screws 3 on the cam again.
- Undo screw 6.
- Set a distance of 0.1mm between the cam 4 and the spool 5.
- Tighten screw 6.
- Undo screws 7.
- Turn the thread pulling knife 1 so that it projects 0.2 - 0.8 mm over the edge of the counter blade.
- Tighten screws 7.



1

7

2.14.4 Cutter pressure and bobbin thread clamp



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the counter blade and the bobbin thread clamp when the machine is switched off.

Standard checking

The thread should be cut reliably with the lowest possible pressure. Low cutting pressure keeps wear on the blades low. Two of the thickest threads to be sewn must be cut reliably at the same time.

The clamping spring 1 should keep the cut thread so that skipped stitches do not occur at the start of the seam.

- Turn the hand wheel until the thread draw cutter can be swung out.
- Swing the thread draw cutter out by hand.
- Insert two of the threads to be cut into the thread draw cutter.
- Keep turning the hand wheel until the cutter has swung back.
- Check whether the sewing threads have been cut cleanly.
- Remove the thread from the clamp and check the clamping effect while doing this.
If the clamping effect is too great or too small the thread clamp must be reset.

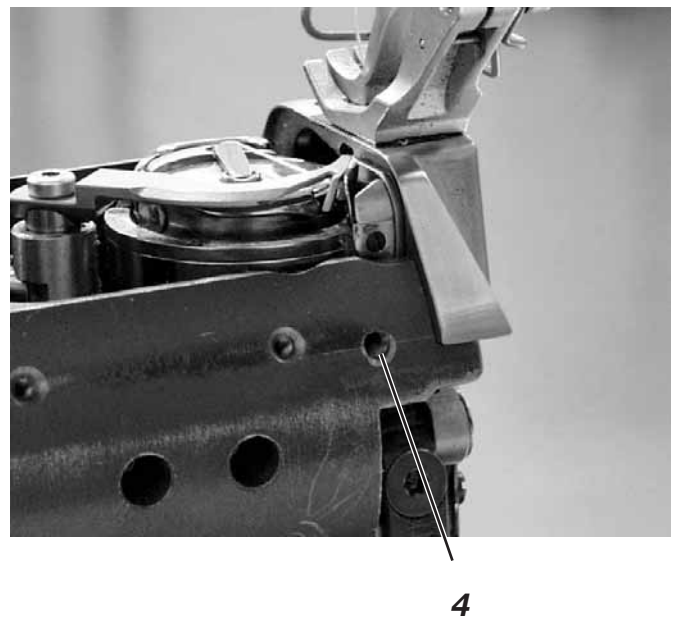
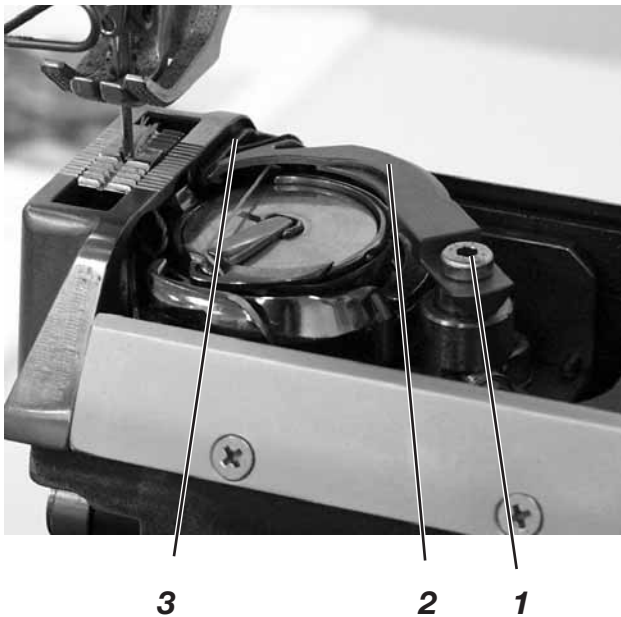


IMPORTANT!

If the counter cutter pressure is set too high this leads to increased wear on the cutter.

An incorrect thread clamp setting may lead to problems at the start of sewing.

To adjust cutting pressure



Adjustment

For a flawless cutting operation it is important for screw 4 in the free arm to be up against the counter cutter support with a slight pressure and in this way it cannot be pressed down.

Correction

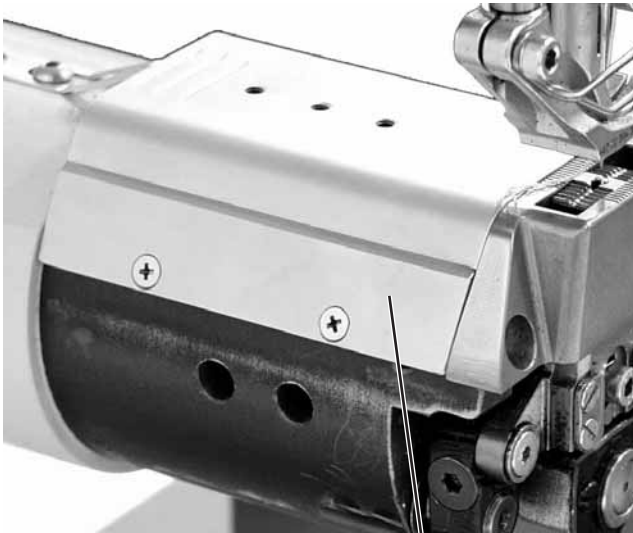
- Undo screw 4 a little and then screw it in slightly again on the counter cutter.
- Swing the thread draw cutter out until the arrow on the cutter points towards the edge of the counter cutter.
- Undo screw 1.
- Place the thread draw cutter 2 against the counter cutter.
- Tighten screw 1.

Important

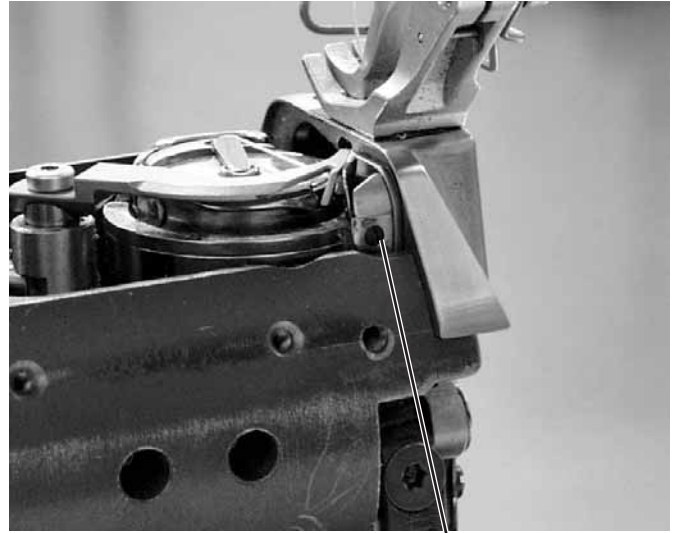
The eccentric cut of the thread draw cutter 2 automatically produces a cutting pressure when both cutting edges are on top of each other.

GB

To adjust the bobbin thread clamp



5



6

- Unscrew bar 5.
- Turn screw 6.

Clockwise = clamping force higher
Anti-clockwise = clamping force lower

- Screw bar 5 on again.

2.14.5 Cutting position



1



Caution: Danger of injury!

Turn off the main switch.

Only check and adjust the cutting position when the machine is switched off.

GB

Standard checking

If the machine is at position 58° on the hand wheel the threads must be cut.

Correction

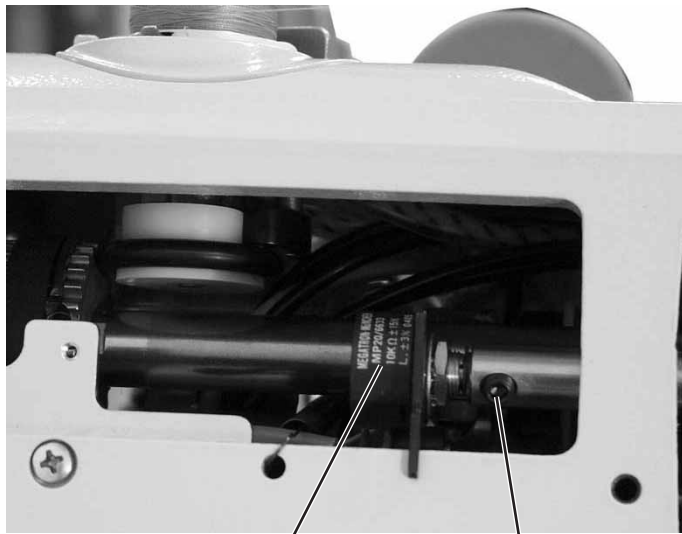
- Undo screws on the cam 1.
- Turn the cam accordingly.
- Do up screws on cam 1 .
- Check whether the threads have been cut at 58° on the hand wheel.

Note!

Ensure that the cam is on the right.

2.15 Potentiometer in the arm

Sewing machines with thread cutters are fitted with a potentiometer to limit the speed with larger sewing foot strokes. The control unit detects this potentiometer in the sewing foot stroke and restricts the speed.



2

1



4

3

2.15.1 Basic setting without control panel

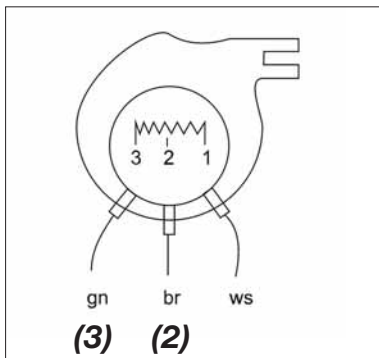
Sewing machines without a control panel must be adjusted as described below.



Caution: Danger of injury!

Turn off the main switch.

Only set the potentiometer when the sewing machine is switched off.



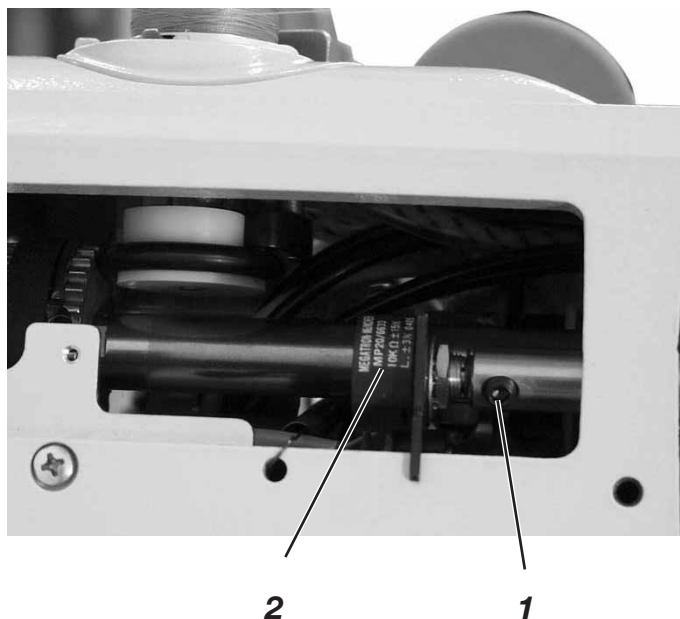
- Unscrew the arm cover.
- Remove plug 3 of the potentiometer from circuit board 4.
- Check the resistance on the terminals (2) and (3) of the potentiometer with an ohmmeter
Terminal (3) = green wire
Terminal (2) = brown wire

Reading: 7.1 - 7.3 kOhm

If the above values are not correct the setting of the potentiometer 2 must be corrected.

- Undo screw 1.
- Set the shaft of the potentiometer 2 to the corresponding value.
- Insert the potentiometer completely into the regulating shaft hole and screw in screw 1.
- Insert plug 3 of the potentiometer into circuit board 4.

2.15.2 Basic setting with V810 or V820 control panel



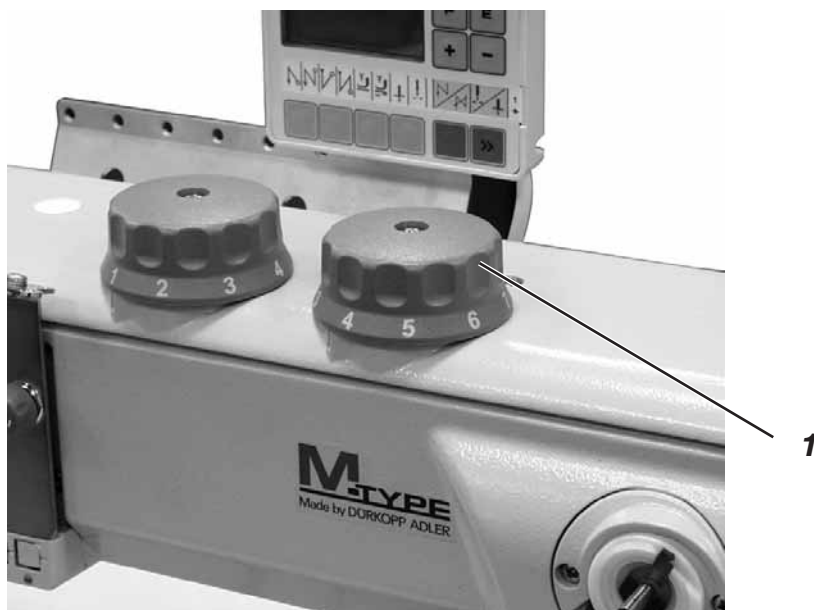
Caution: Danger of injury!

The potentiometer is adjusted when the main switch is on.
Work with appropriate precautions.

- Undo the locking screw 1 for the potentiometer 2.
- Press down and hold “P” and switch the main switch on.
- Access the technician level.
- Select parameter “F-188”.
- Press “E”.
The current speedomat level (e.g. 11) and the relevant speed limit (e.g. 2480) are displayed.
- Turn the potentiometer shaft until speedomat level 07 and the relevant maximum speed of 2800 rpm are displayed on the screen.
- Screw in locking screw 1.
- Check the adjustment.

GB

2.15.3 Testing the potentiometer adjustment



- Press down and hold “P” and switch the main switch on.
- Access the technician level.
- Select parameter “F-188”.
- Press “E”.
The current speedomat level and the relevant speed limit are displayed.
- Set the adjusting wheel 1 to “**lowest stroke height**”.
Speedomat level 06 must be displayed on the screen.
- Set the adjusting wheel 1 to “**maximum stroke height**”.
Speedomat level 21 must be displayed on the screen.
“EEEE” appears on the screen for the speed.

Important

If speedomat levels 07 and 21 are not reached the potentiometer must be reset.

2.16 Oil lubrication



Caution: Danger of injury!

Oil can cause skin rashes.
Avoid excessive contact with the skin.
Wash thoroughly after contact.



IMPORTANT!

The handling and disposal of mineral oils is subject to legal regulations.
Deliver used oil to an authorized collecting station.
Protect your environment.
Ensure that you do not spill any oil.

Only use lubrication oil **DA 10** or a similar oil with the following specifications to lubricate the special sewing machine:

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

DA 10 can be bought at the sales points of **DÜRKOPP ADLER AG** under the following parts numbers:

200 ml container:	9047 000011
1 litre container:	9047 000012
2 litre container:	9047 000013
5 litre container:	9047 000014

GB



1

Lubricating the upper part of the machine

- The upper part of the machine is fitted with a central oil wick lubrication system. All bearing points are supplied from the oil supply container 1.
- The oil level must not go below the “**MIN**” mark.
- Fill with oil up to the “**MAX**” mark through the hole in the inspection glass.

2.17 Maintenance



Caution: Danger of injury!

Switch the main switch off.

The sewing machine must only be maintained when it is switched off.

The maintenance work to be carried out by the sewing machine operating personnel daily or weekly (cleaning and lubricating) are described in the operating instructions (Part 1). They are only listed in the following table for completeness.

Maintenance work to be carried out	Operating hours			
	8	40	160	500
Upper part of sewing machine				
- Remove sewing dust and loose thread	X			
- Check the oil level in the oil reservoir for lubricating the top of the sewing machine		X		
Sewing drive				
- Clean the motor fan grid	X			
- Check the condition and tension of the V belt			X	
Pneumatic system				
- Check the water level in the pressure controller		X		
- Clean the filter insert in the compressed air maintenance unit				X
- Checking the pneumatic system for leaks				X