GLOBAL

WF 1867 DD-AUT

Walking foot direct drive sewing machine

Instruction manual

Always switch off the electricity when working on the machine.

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1. Brief instruction

This machine is an industrial-type compound feed flat bed sewing machine,featuring the alternating high-pressure foot settings,even for the most difficult fabrics, the operation remains effortless, easy to operate and adjust, the sewing stitches look beautiful,high efficiency and reliable Performance. It is widely used in various leather products, leather clothing production, and the processing of seat cushion.

This machine is only permitted to be operated by personnel who have received specialized training and are qualified to do so, in accordance with the operating instructions provided in the manual. Any damage to the machine, financial losses, or injuries resulting from non-compliance with the operating instructions shall be the responsibility of the person or entity operating the machine.

The installation and operation of this machine should be conducted in a dry and clean environment. For the use of this machine in environments that are not dry and clean, measures should be taken to prevent moisture and dust. The machine should be regularly maintained, cleaned, and any debris should be removed. This machine is only suitable for processing dry sewing materials, and the sewing materials should not contain any hard objects.

CAUTION: The main power supply of the machine must be turned off when performing the following operations.

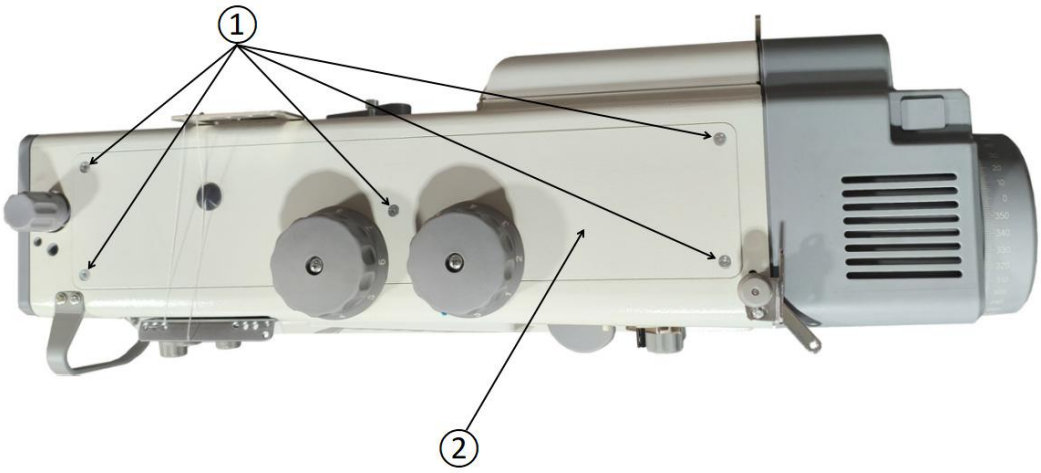
- Replacing the needle or other sewing tools
- Go away the working position
- Carry out maintenance and repairs
- Threading

2. Working basis

The machine's setting positions affect each other, always follow the setup steps.

To perform many setup tasks, you must first remove the cover plate to access the relevant components.

2.1 Assembling and disassembling the top cover plate



① Screws ② The top cover plate

Steps are as follows：

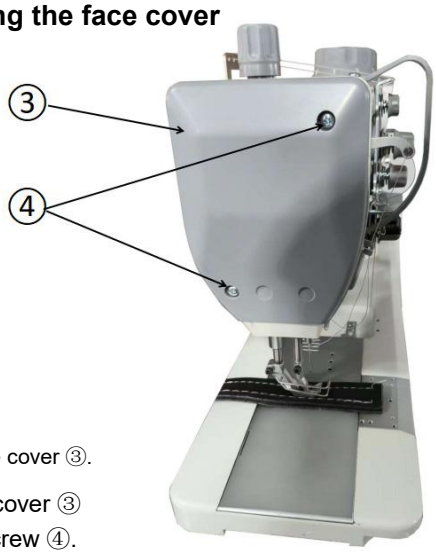
(1)、Wrench out the screw ① and remove the top cover plate ②.

(2)、Maintenance completed, place the top cover plate ② on the machine housing and tighten the screws ①.

2.2 Assembling and disassembling the face cover

③ The face cover

④ Screws

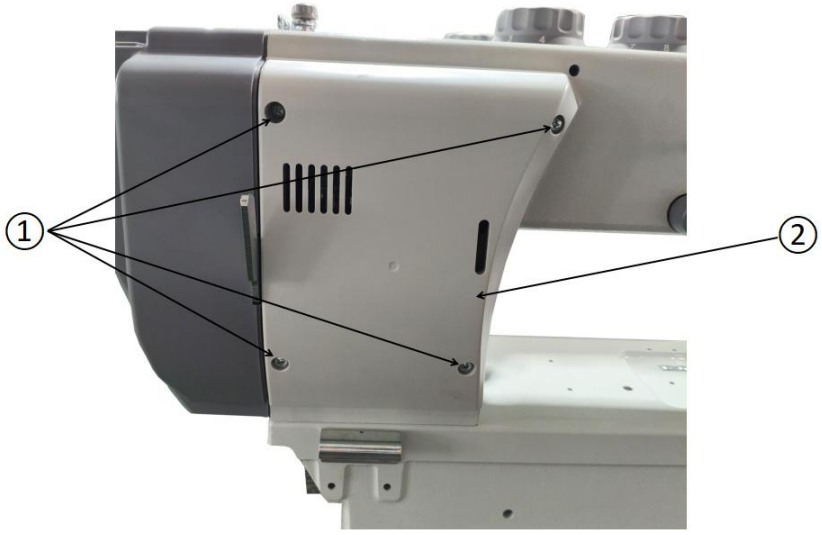


Steps are as follows：

(1) Wrench out the screw ④ and remove the face cover ③.

(2) Maintenance completed, place the face cover ③ against the housing and tighten the screw ④.

2. 3 Assembling and disassembling the back plate



① Screws ② The back plate

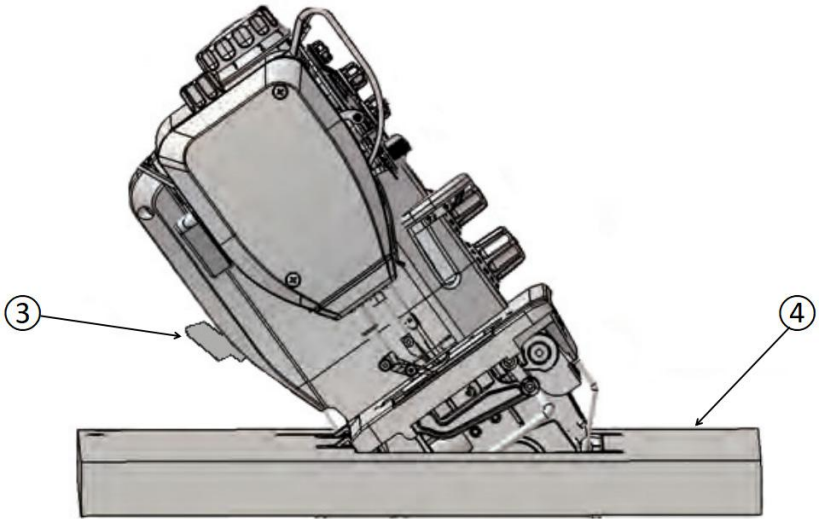
Steps are as follows：

(1) Wrench out the screw ① and remove the back plate ②.

(2) Maintenance completed, place the back plate ② against the housing and tighten the screw ①.

2. 4 Tilting the machine head

In order to access the components on the underside of the machine, you must first tilt the machine head.



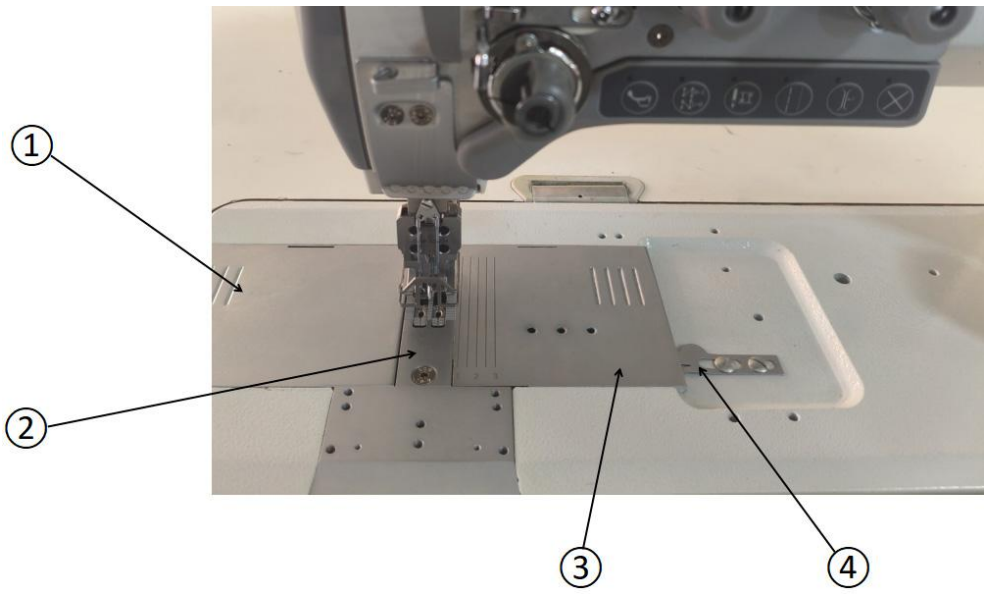
③ Support plate ④ Table

Steps are as follows：

(1) Tilt the machine head to the limit position, the support plate ③ is pressed against the table ④.

(2) Maintenance completed, erect the machine head

2.5 Moving the slide plate



① The slide plate (left) ② The needle plate
③ The slide plate (right) ④ The stop ring

Steps are as follows：

(1) Press the finger on the groove ① of the slide plate (left) to push it to the left.
(2) Press down the stop ring ④, Press the other finger against the groove ③ of the slide plate (right) to push it to the right.
(3) Maintenance completed, The slide plate (left) ① and the slide plate(right) ③ is pushed separately toward the needle plate ②.

2. 6 Assembling and disassembling the needle plate

CAUTION: Switch off the machine before you assemble or disassemble the needle plate.

① Screws ② Needle plate ③ *Nose of the bobbin case*

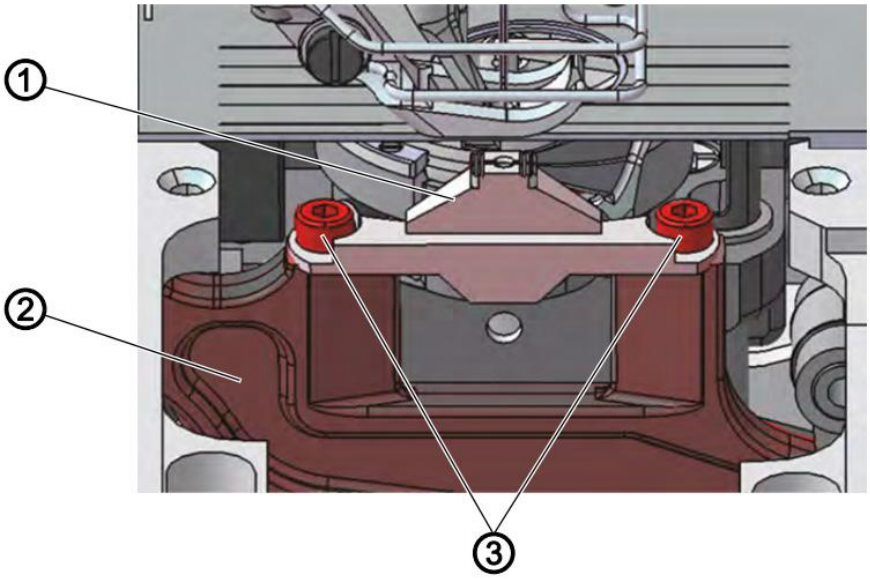
Steps are as follows:

(1) Wrench out the screws①, disassemble the needle plate ②.

(2) Maintenance completed, assemble the needle plate ②, ensure that the nose of the bobbin case ③ is located in the groove of the needle plate, tighten the screws①.

2.7 Assembling and disassembling the feed dog

CAUTION: Switch off the machine before you assemble or disassemble the feed dog!



① Feed dog ② Feed dog carrier ③ Screws

Steps are as follows:

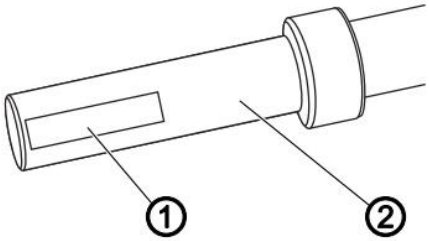
(1) Disassemble the needle plate before disassemble the feed dog①.

(2) Wrench out the screws③, remove the feed dog ① from the feed dog carrier ②.

(3) Maintenance completed, place the feed dog ① onto the feed dog carrier ② and tighten screws ③.

CAUTION: Check the feed dog position in its movement at maximum stitch length by turning the handwheel. The feed dog must not hit against the needle plate, the gap between the feed dog on either side and the needle plate groove is relatively close.

3. Flats on shafts

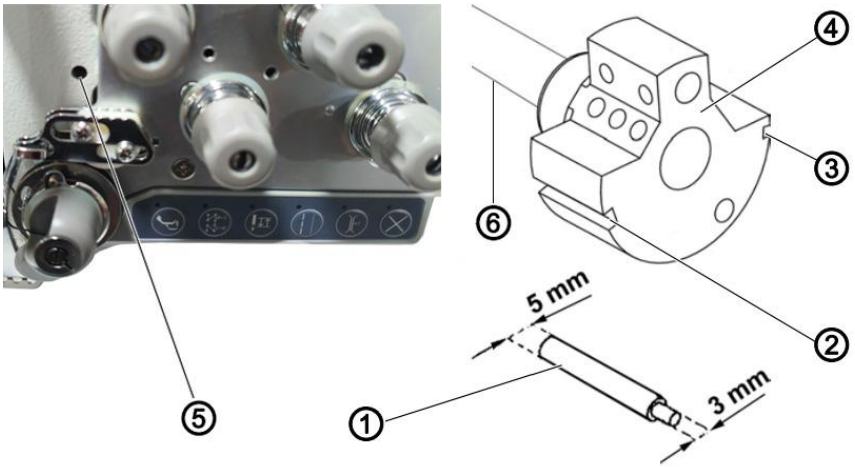


① Flat ② Shaft

Some shafts have flat surfaces at the points where the components are screwed on. This stabilizes the connection and makes adjusting easier.

Refer to the rotation direction of the shaft during machine operation, the first screw in the direction of rotation is screwed onto the surface. Always ensure that the screw faces are completely flush with the surface.

4. Locking the machine in place



① Locking pin ② L*arge locking groove* ③ Small locking groove
④ Needle bar crank ⑤ Locking pin inserting hole ⑥ Upper shaft

For some adjustments, the machine must be locked in place. The locking pin① is inserted into a slot on the needle bar crank④, locking the upper shaft⑥.

Steps are as follows：

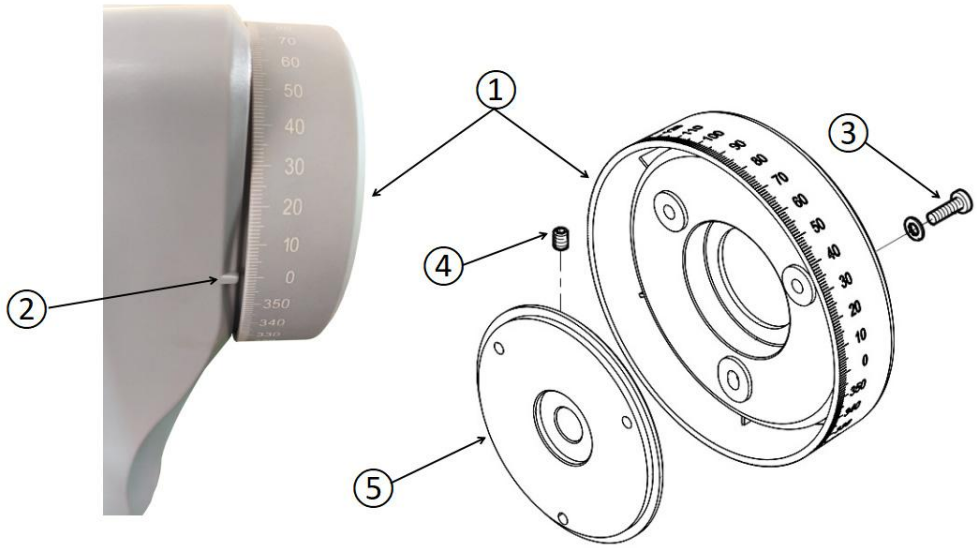
(1) Turn the handwheel until the groove on the needle bar crank ④ aligns with the locking pin inserting hole ⑤ on the machine casting.

(2) When the small end of the locking pin ① is inserted into the small locking groove ③ of the needle bar crank ④, with the handwheel in zero position, set the top dead center of the needle bar.

(3) When the large end of the locking pin ① is inserted into the large locking groove ② of the needle bar crank ④, the handweel is at 200-205°, set the hook claw threading distance and the needle bar height.

(4) Maintenance completed, pull the locking pin ① out.

5. Adjusting the handwheel into position



① Handwheel ② Marking ③ Screw
④ Screw ⑤ Handwheel mounting plate

When the small end of the locking pin is inserted into the small locking groove of the needle bar crank, the 0-degree line on the handwheel ① should align precisely with the marking ② on the cover.

Steps are as follows：

(1) Insert the small end of the locking pin into the small locking groove of the needle bar crank.

(2) Wrench out the screw ③, remove the handwheel ①.

(3) Loosen the screw ④, position the handwheel ① against the handwheel mounting plate ⑤, install the screw ③ simultaneously and pre-tighten it.

(4) Turn the handwheel ① until the 0-degree line aligns with the marking ② on the cover.

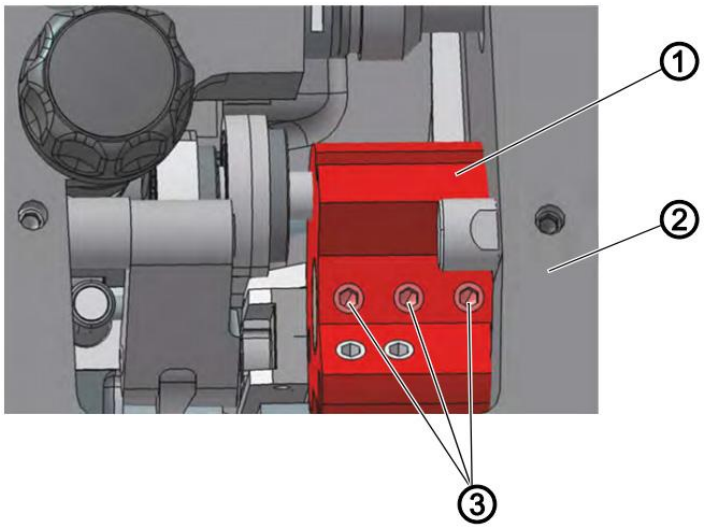
(5) Wrench out the screw ③（the handwheel ① must remain stationary）, remove the handwheel ①.

(6) Tighten the screw ④.

(7) position the handwheel ① against the handwheel mounting plate ⑤, keep the 0-degree line aligns withe marking ② on the cover, tighten the screw ③.

(8) Pull out the locking pin from the casting.

6. Positioning the needle bar crank



① Needle bar crank ② Machine head ③ Screws

Steps are as follows：

(1) Loosen the screws ③, move the needle bar crank ① to the right until it comes into contact with the machine head ②.

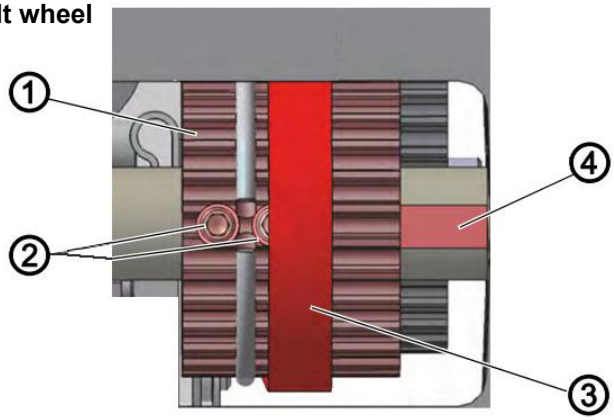
(2) The screws ③ are fully secured onto the flat surface of the upper shaft and must be tightened.

7. Positioning the toothed belt wheel

After moving the toothed belt wheel, it is essential to check the position of the other toothed belt wheel. The toothed belt should not protrude beyond the edge of the toothed belt wheel. Switch off the machine before you position the toothed belt wheel.

7.1 Positioning the upper toothed belt wheel

① Upper toothed belt wheel
② Screws
③ Toothed belt
④ Flat of upper shaft



Steps are as follows：

(1)Disassemble the upper cover plate.

(2)Use a screwdriver to move the toothed belt ③ sideways until you can reach the screw ②.

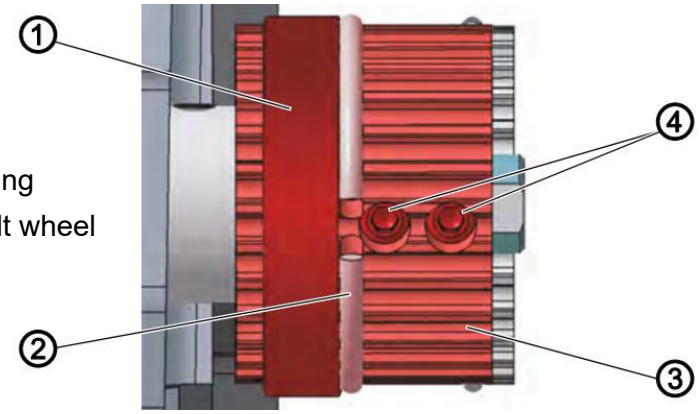
(3)Loosen the screws ②.

(4)Turn the upper toothed belt wheel ① until the screws ② are fully positioned on the flat surface of the upper shaft ④.

(5)Tighten the screws ②.

(6)Use a screwdriver to re-position the toothed belt ③.

7. 2 Positioning the lower toothed belt wheel



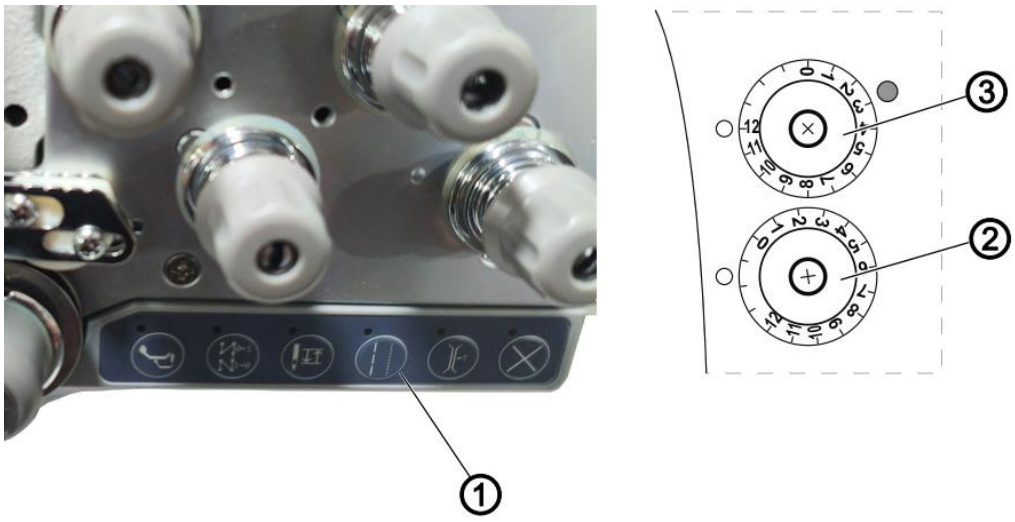
① Toothed belt
② Elastic retaining ring
③ Lower toothed belt wheel
④ Screws

Steps are as follows：

(1)Tilt the machine head.
(2)Loosen the screws④.
(3)Turn the lower toothed belt wheel ③ until the screws④ are fully positioned on the flat surface of the lower shaft.
(4)Move the lower toothed belt wheel ③ until the toothed belt ① approach the elastic retaining ring ② closely, but it should not cause the toothed belt to be subjected to compression.
(5)Tighten the screws ④.

8. Setting the stitch length adjusting knob

Switch off the machine before you adjust the stitch length adjusting wheel.Turn the adjusting knob carefully and stop as soon as you feel a slight resistance. If you turn it excessively, parts of the driven mechanism in the adjusting knob may bend or get stuck.



① Button for the stitch length ② Lower stitch length adjusting knob
③ Upper stitch length adjusting knob

The two adjusting knobs on the machine column are used to determine the length of the stitch.

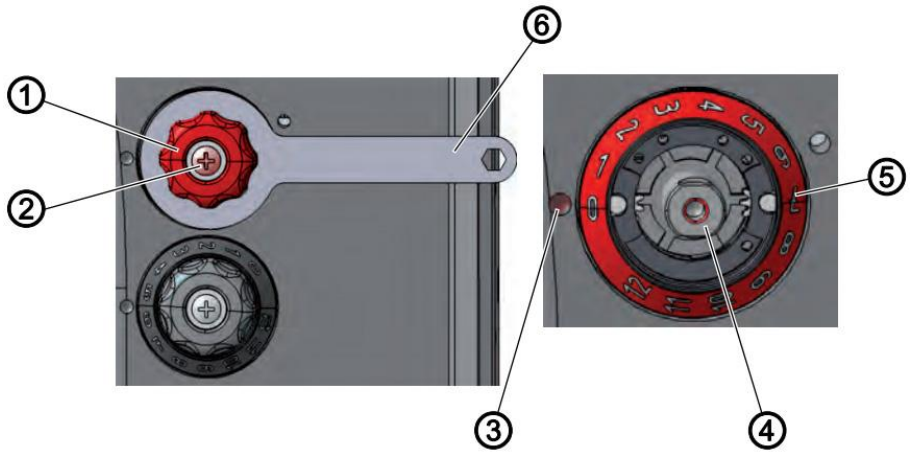
- Upper stitch length adjusting knob③：large stitch length
- Lower stitch length adjusting knob②：small stitch length

It is not possible to set a larger stitch length on the lower adjusting knob than on the upper adjusting knob.
It is not possible to set a smaller stitch length on the upper adjusting knob than on the lower adjusting knob.
To switch over between the stitch lengths: Press the button for the stitch length ① on the machine head.

When the upper adjusting knob ③ is activated, the button ① lights up.
Upon switching on the machine, the stitch length adjusting knob activated most recently is always active.
Adjust the upper stitch length adjusting knob first before adjusting the lower stitch length adjusting knob.

8. 1 Setting the upper stitch length adjusting knob

The upper stitch length adjusting knob is set to the maximum stitch length, the length of the stitched seam is determined by the sewing components installed.



① Upper stitch length adjusting knob ② Screw ③ Calibration mark
④ Adjusting shaft ⑤ Scale ⑥ Wrench

Steps are as follows：

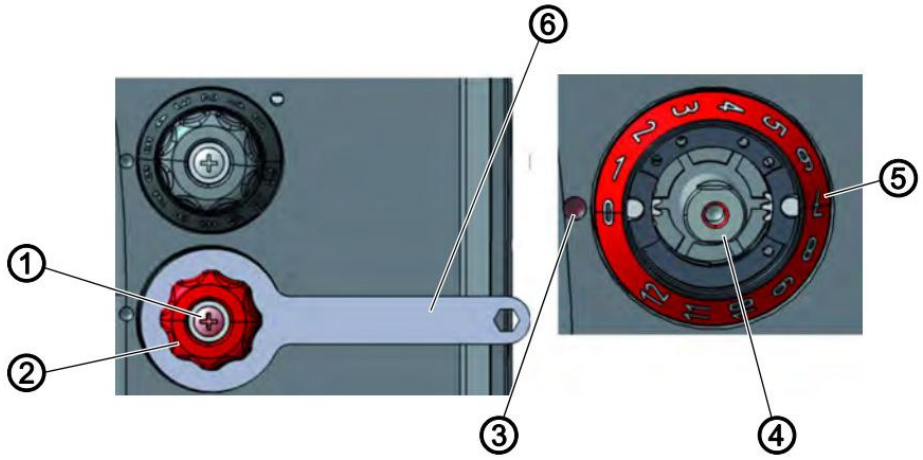
(1) Unthread the needle thread, switch on the machine.
(2) Press the stitch length switch over button  on the machine head.
The button lights up.
The machine switches over to the upper stitch length adjusting knob①.
(3) Use the wrench ⑥ to secure the upper stitch length adjusting knob①, wrench out the screw ②.
(4) Remove the upper stitch length adjusting knob ① from the adjusting shaft ④.
(5) Carefully turn the adjusting shaft ④ with a 10 mm open-end wrench in order to set the stitch length.

- To set the smaller stitch length：turn clockwise
- To set the larger stitch length：turn counterclockwise

(6) Perform a sewing test with a sheet of paper and readjust if necessary.
(7) Turn the scale ⑤, align the digital setting for the length of the stitch line with the calibration mark③.
(8) Insert the upper stitch length adjusting knob ① onto the adjusting shaft ④ and secure it with the wrench ⑥.
(9) Tighten the screw ②.

8. 2 Setting the lower stitch length adjusting knob

The lower stitch length adjusting knob can be turned only up to the length set by the upper stitch length adjusting knob.



① Screw ② Lower stitch length adjusting knob ③ Calibration mark
④ Adjusting shaft ⑤ Scale ⑥ Wrench

Steps are as follows：
(1) Unthread the needle thread, switch on the machine.
(2) Press the stitch length switch over button  on the machine head.

The button turns off.
The machine switches over to the lower stitch length adjusting knob ②.
(3) Use the wrench ⑥ to secure the lower stitch length adjusting knob ②, wrench out the screw ①.
(4) Remove the lower stitch length adjusting knob ② from the adjusting shaft ④.
(5) Carefully turn the adjusting shaft ④ with a 10 mm open-end wrench in order to set the stitch length.

- To set the smaller stitch length： turn counterclockwise
- To set the larger stitch length： turn clockwise

(6) Perform a sewing test with a sheet of paper and readjust if necessary.
(7) Turn the scale ⑤, align the digital setting for the length of the stitch line with the calibration mark ③.
(8) Insert the lower stitch length adjusting knob ② onto the adjusting shaft ④ and secure it with the wrench ⑥.
(9) Tighten the screw ①.

8. 3 Setting the stitch length adjusting limit

If not all of the stitch lengths are available during sewing operation, a limit can be placed on the maximum stitch length that can be set. 12, 9, or 6 mm can be selected as the maximum stitch length. The appropriate needle plate must be selected for the selected maximum stitch length. The needle plate groove must be large enough to prevent the feed dog from hitting the edges of the needle plate at the front and rear dead center.

① Upper stitch length adjusting knob ② Screw
③ Wrench ④ Positioning hole

The upper stitch length adjusting knob can only be turned up to the set maximum stitch length.

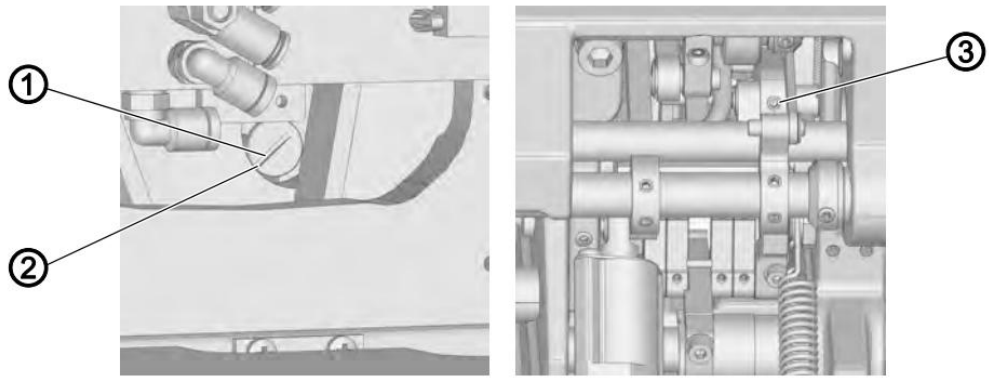
Steps are as follows：

(1) Position the upper stitch length adjusting knob ① to 0.
(2) Hold the upper stitch length adjusting knob ① in place using the wrench ③, wrench out the screw ②.
(3) Remove the upper stitch length adjusting knob ①.
(4) Wrench out the screw from one of the positioning hole ④, screw this bolt into the numbered positioning hole that corresponds to the maximum stitch length required by the machine.
(5) Turn the digital scale so that the 0 aligns with the calibration mark.
(6) Insert the upper stitch length adjusting knob ① onto the adjusting shaft.
(7) Use the wrench ③ to secure the upper stitch length adjusting knob①, tighten the screw ②.

8.4 Setting the eccentric pin

The forward and backward stitches must be the same length.

As a test, sew a seam forward, stop, and sew a seam backward. The punctures of the forward and backward stitches have to lie within one another.



① Eccentric slot ② A raised area ③ Screw

Steps are as follows：

(1) Tilt the machine head, loosen the screw ③.

(2) Turn the eccentric pin ① from the right through the opening in the base plate

Initial position:

The slot in the eccentric pin① is parallel to the axis of the machine, the raised area ② points downward.

If the forward and backward stitches are not the same length:

Turn clockwise: the forward stitch becomes larger, the backward stitch smaller.

Turn counterclockwise: the forward stitch becomes smaller, the backward stitch larger.

(3) Maintenance completed, tighten the screw ③.

9. Feed dog

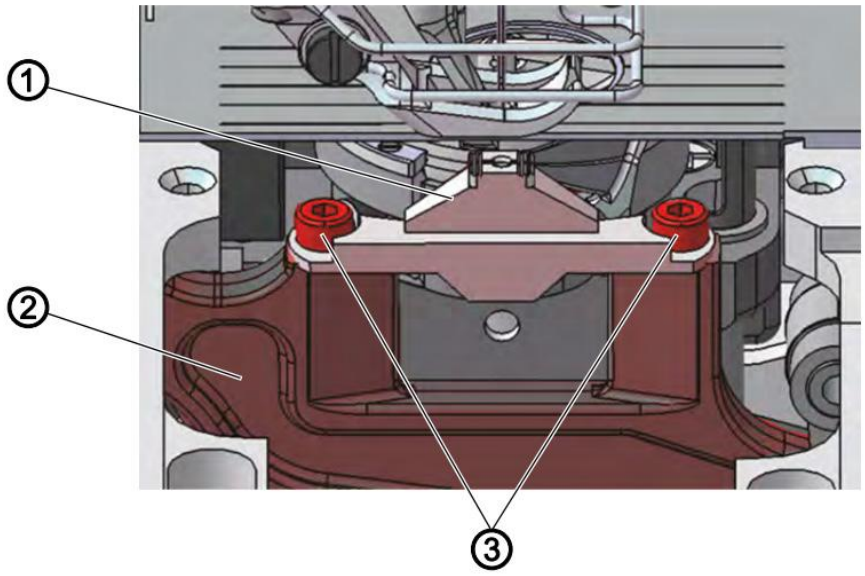
The position and the movement of the feed dog and needle bar have to be coordinated such that the needle pierces exactly in the center of the needle hole of the feed dog.

If the stitch length is 0, the feed dog is exactly in the center of the needle plate groove, both sideways and in the sewing direction.

Various settings can be made depending on how far the position of the feed dog differs from the correct setting:

- For minimal deviations, move the feed dog on the feed dog carrier.
- For larger deviations, move the entire feed dog carrier on the shaft.

9.1 Moving the feed dog



① Feed dog ② Feed dog carrier ③ Screws

Steps are as follows：

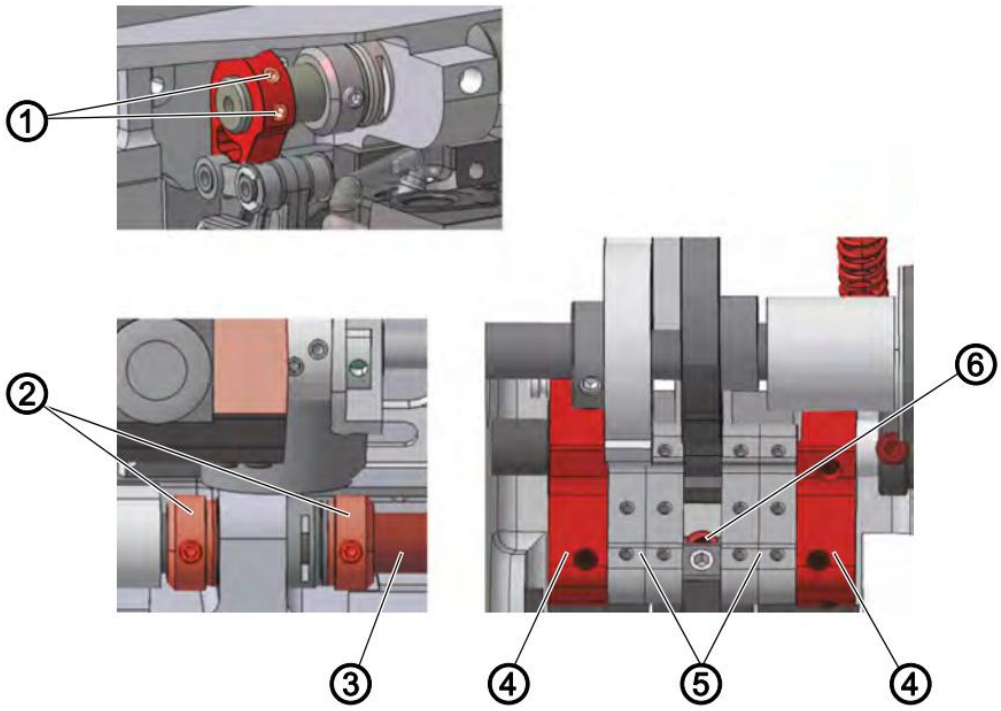
(1) Switch off the machine,disassemble the needle plate.

(2) Loosened the screws ③, move the fee dog① on the feed dog carrier ②, at the same time, place the needle plate onto the feed dog as a reference. The gap between the sides of the feed dog and the needle plate slot is relatively close.

(3) Maintenance completed, tighten the screws ③.

9. 2 Moving the feed dog carrier

The feed dog carrier is mounted on the feeding shaft and feeding lifting shaft, can be moved on both shafts. The feed dog carrier is connected to the feeding shaft and the needle distance adjusting transmission mechanism.



① Screws ② Retaining rings ③ Feeding shaft
④ Adjusting frame ⑤ Link ⑥ Screw

Steps are as follows：

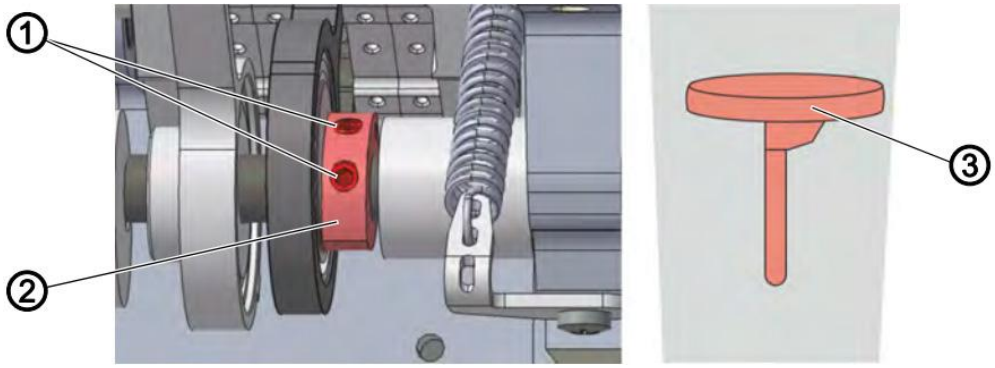
(1) Tilt the machine head.
(2) Set the upper stitch length adjusting knob to 0.
(3) Loosen the screws ①, the screw ⑥ and the screws for the retaining rings ②.
(4) Move the feed dog carrier perpendicular to the sewing direction so that the feed dog is exactly in the center of the needle plate slot.
(5) Push the retaining rings ② toward each other as far as they will go, tighten the screws for the retaining rings ②. The feeding shaft is securely clamped in place by the retaining rings ②.
(6) Move the feed dog carrier in the sewing direction such that the feed dog is exactly in the center of the needle plate slot.
(7) Tighten the screws ① and the screw ⑥.

9. 3 Setting the feed dog movement

The feed dog moves in an elliptical cycle. To calibrate the movement of the feed dog, it is necessary to set the feeding motion, the lifting height and the lifting movement of the feed dog.

9. 3. 1 Setting the feed movement

Switch off the machine before you adjust the feed movement.
The proper setting for the feed movement is checked at standstill and adjusted using the feeding cam.



① Screws ② Feeding cam ③ Backstitch handle

Steps are as follows：

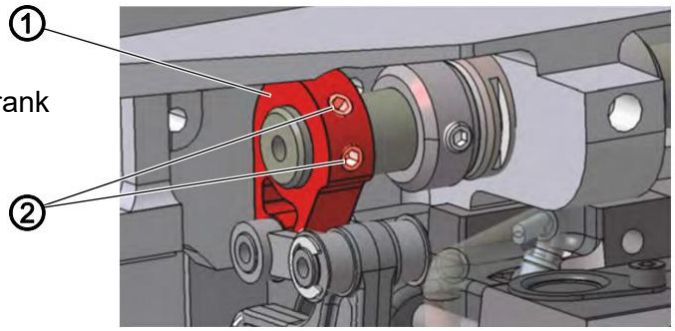
(1) Tilt the machine head.
(2) Set the upper stitch length adjusting knob to the maximum stitch length.
(3) Loosen the screws ①.
(4) Move the handwheel into the 180° position.
(5) Press the backstitch handle ③ down and observe how the feed dog and needle respond.
(6) Turn the feeding cam ② so that the feed dog and needle no longer move when the backstitch handle ③ is pressed.
(7) Tighten the screws ①.

9. 3. 2 Setting the feed dog height at top dead center

The feed dog reaches the maximum lifting height at top dead center when the handwheel is positioned at 180°, the upper edge of the feed dog protrudes 0.5 mm above the needle plate.

① Feed dog lifting crank

② Screws



Steps are as follows：

(1) Switch off the machine, Tilt the machine head.
(2) Move the handwheel into the 180° position.
(3) Loosen the screws ②.
(4) Turn the feed dog lifting crank ① so that the upper edge of the feed dog protrudes 0.5 mm above the needle plate.
(5) Tighten the screws ②.

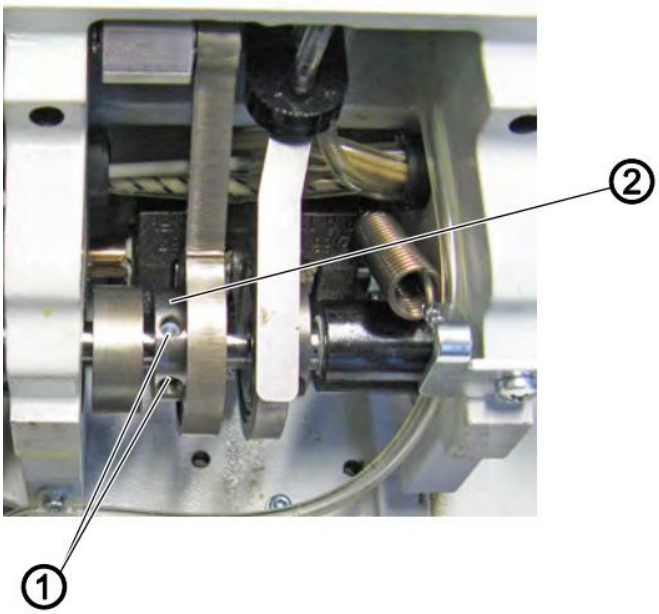
9. 3. 3 Setting lifting movement

At the front dead center (handwheel position 90°) and at the rear dead center (handwheel position 270°) for the feed dog, the upper edge of the feed dog is at the same height as the upper edge of the needle plate.

At 90°, the feed dog is in the upward movement; at 270°, in the downward movement.

① Screws

② Feed dog lifting cam

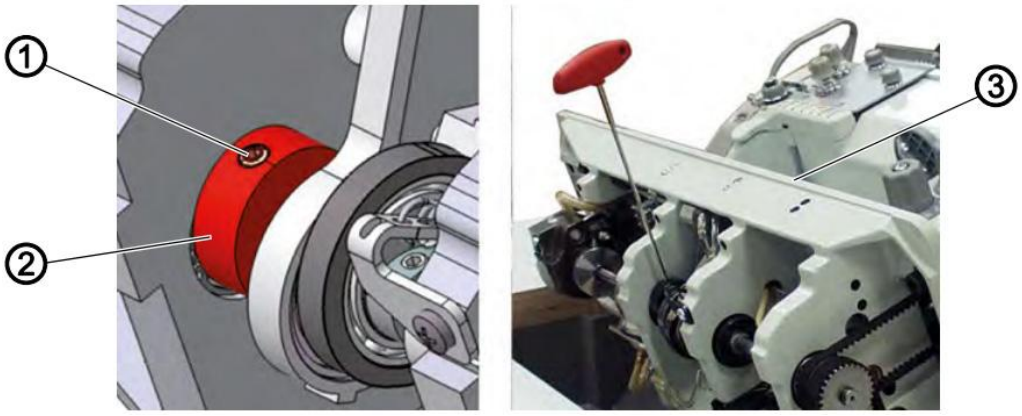


Steps are as follows：

(1) Switch off the machine, Tilt the machine head.
(2) Loosen the screws ①.
(3) Move the handwheel into the 90° position.
(4) Turn the feed dog lifting cam ② so that the upper edge of the feed dog is at the same height as the upper edge of the needle plate when the feed dog is in the upward movement.
(5) Tighten the screws ①.

9. 3. 4 Setting the balance weight

When the handwheel position at 200°, the balance weight is parallel to the base plate.



① Screw ② Balance weight ③ Base plate

Steps are as follows：

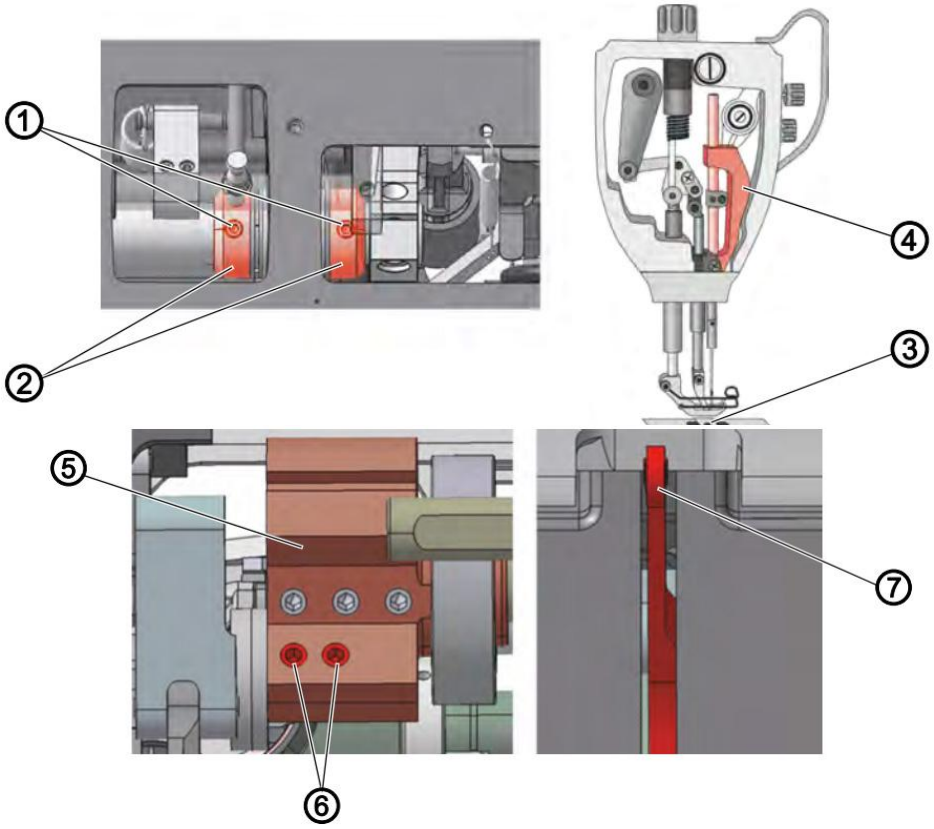
(1) Switch off the machine, Tilt the machine head.
(2) Loosen the screw ① and leave the Allen key inserted in the screw.
(3) Move the handwheel into the 200° position.
(4) Turn the balance weight ② so that the screw ① is parallel to the base plate ③.
Use the Allen key inserted in the screw for a reference.
(5) Tighten the screw ①.

10 Aligning the needle bar vibrating frame

Position the upper and lower stitch length adjusting knob to 0, turn the handwheel, the needle pierces exactly in the center of the feed dog needle hole.

Switch off the machine before aligning the needle bar vibrating frame.

10. 1 Aligning the needle bar vibrating frame sideways

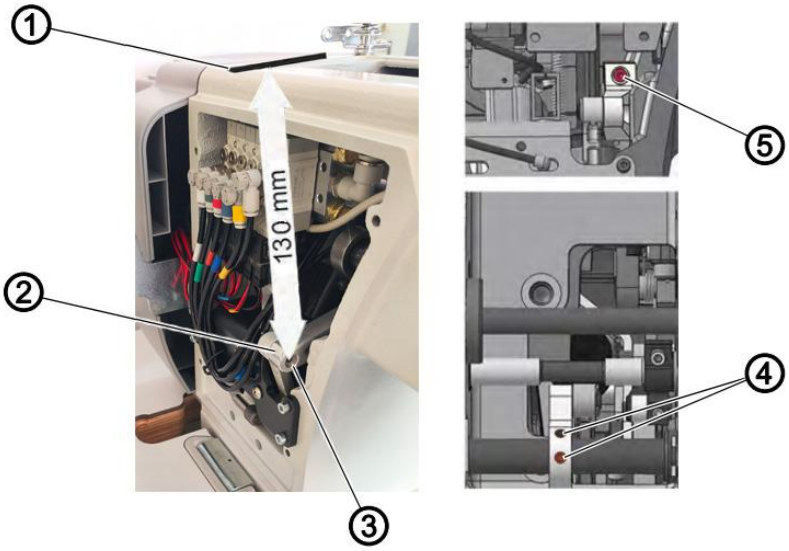


① Screws ② Retaining rings ③ Needle hole ④ needle bar vibrating frame
⑤ Needle bar crank ⑥ Screws ⑦ Thread take up lever

Steps are as follows:

(1) Disassemble the top cover plate and the face plate.
(2) Set the upper and lower stitch length adjusting knob to 0.
(3) Loosen the screws ① on the two retaining rings ② at the right end of the shaft for the needle bar vibrating frame.
(4) Loosen the screws ⑥ on the needle bar crank ⑤. Caution: the screws ⑥ must be fully secured onto the flat surface of pin shaft.
(5) Move the needle bar vibrating frame ④ sideways such that the needle pierces exactly in the center of the needle hole③ for the feed dog.
(6) Push the retaining rings ② inwards as far as they will go and tighten the screws ①.
(7) Move the thread take up lever ⑦ to the center of the slot in the casting and tighten the screws ⑥.
(8) Maintenance completed, install the top cover plate and the face plate.

10. 2 Aligning the needle bar in the sewing direction



① Top surface of machine head ② Needle bar vibrating crank
③ Center of pin shaft ④ Screws ⑤ Screw

Set the upper and lower stitch length adjusting knob to 0, adjust the needle bar vibrating crank ② to ensure the center of pin shaft ③ is 130mm from the top surface of the machine head.

Steps are as follows：

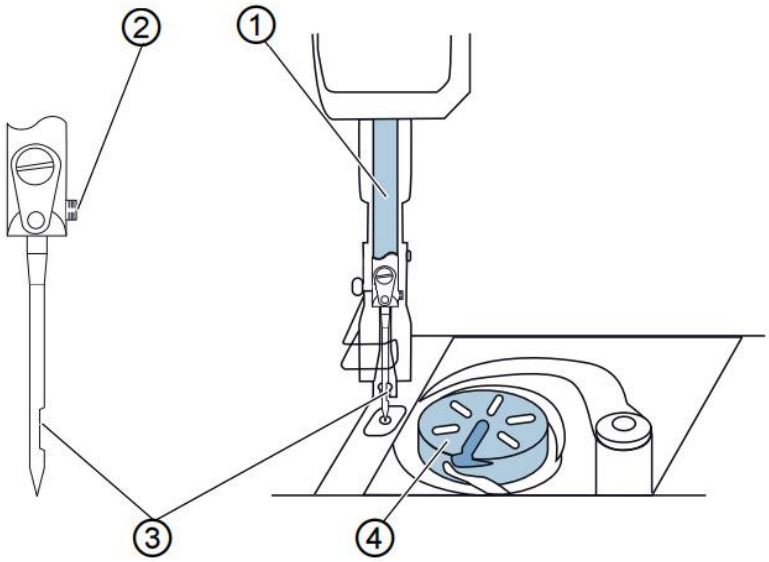
(1) Disassemble the back cover plate.
(2) Loosen the screw ⑤.
(3) Set the upper and lower stitch length adjusting knob to 0.
(4) Tilt the machine head , loosen the screws ④.
(5) Position the machine head upright.
(6) Adjust the needle bar vibrating crank ②.
(7) Tighten the screw ⑤.
(8) Tilt the machine head, tighten the screws ④.
(9) Position the machine head upright, install the back cover plate.

11 Position of the hook and needle

11. 1 Mounting or replacing the needle

Switch off the machine before you install or replace the needle.

11. 1. 1 Single needle machine

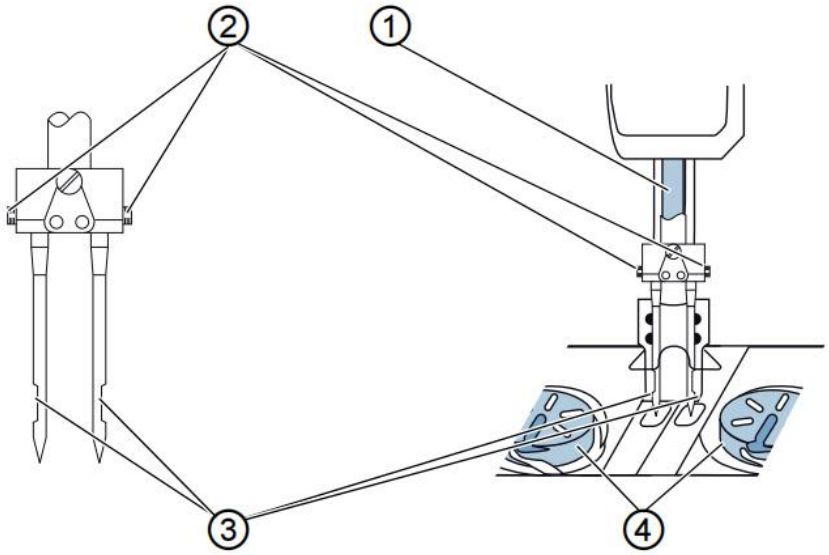


① Needle bar ② Screw ③ Needle groove ④ Hook

Steps are as follows：

(1) Turn the handwheel until the needle bar ① reaches the top dead point.
(2) Loosen the screw ②.
(3) Pull the needle down.
(4) Install the new needle, Align the needle groove ③ with the hook ④.
(5) Tighten the screw ②.

11. 1. 2 **Double needle machine**



① Needle bar ② Screws ③ Needle groove ④ Hooks

Steps are as follows：

(1) Turn the handwheel until the needle bar ① reaches the top dead point.
(2) Loosen the screws ② on both sides.
(3) Pull the needle down individually.
(4) Install the new needles on both sides.

CAUTION：

Adjust the needle during installation so that the groove ③ of the two needles are oriented away from each other, each needle groove ③ must point towards the hook ④ belonging to that needle.

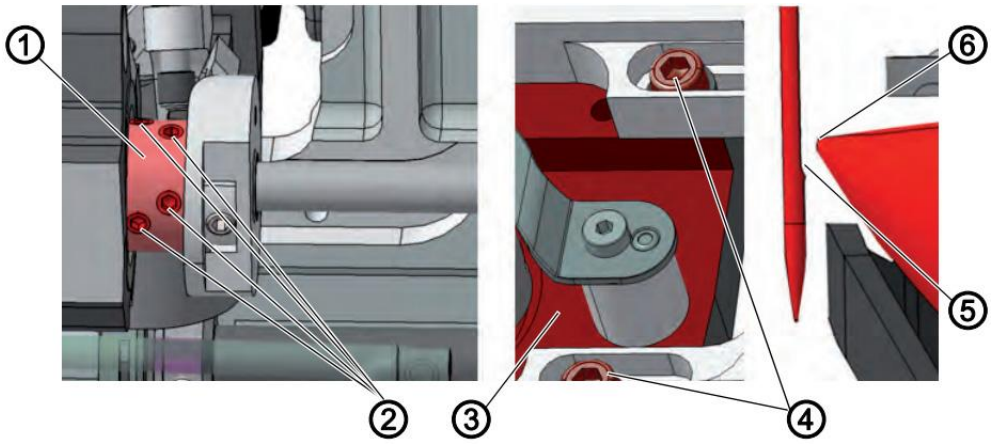
(5) Tighten the screws ②.

11. 2 Setting the hook claw stitch length

The hook claw stitch length refers to the distance between the needle and the hook tip.

- The hook claw stitch length is too small will cause：the hook tip damaging, the needle broken.
- The hook claw stitch length is too large will cause：thread breaking, skip stitches.

After installing the needle with a different diameter, re-check the hook claw stitch length, re-adjust it as necessary.Switch off the machine before adjusting.

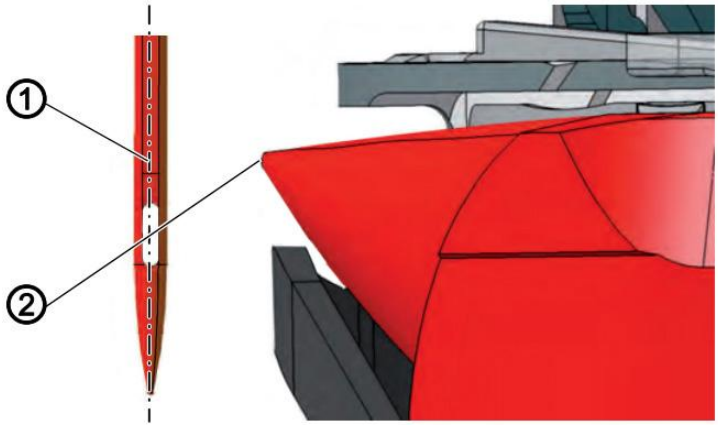


① Retaining ring ② Screws ③ Hook saddle
④ Screws ⑤ Needle groove ⑥ Hook tip

Steps are as follows：

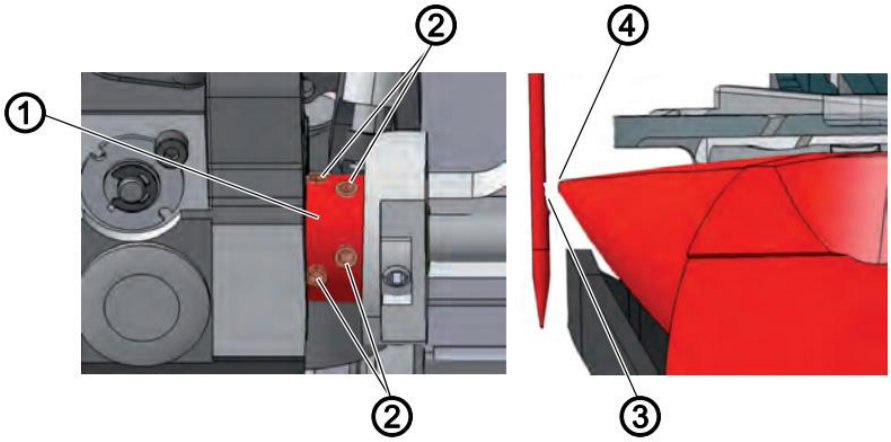
(1) Tilt the machine head.
(2) Move the slide plate, disassemble the needle plate.
(3) Insert the large end of the locking pin into the groove of the needle bar crank.
(4) Loosen the hook saddle ③ and the screws ④.
(5) Loosen the retaining ring ① and the screws ②.
(6) Move the hook saddle ③ from the side.
(7) The distance between the hook tip ⑥ and the needle groove ⑤ is no greater than 0.1mm, and the hook tip is not in contact with the needle.
(8) Tighten the hook saddle ③, the screws ④, the retaining ring ① and the screws ②.
(9) Remove the locking pin from the needle bar crank.
(10) Setup completed, install the needle plate, place the slide plate in its original position.
(11) Position the machine head upright.

11.3 Setting the hook claw thread gap



① Vertical center line of the needle ② Hook tip

The hook claw stitch length is the path length from the lower dead point of the needle bar up to the position where the hook tip is exactly on the vertical center line of the needle. The hook claw stitch length is 2mm.



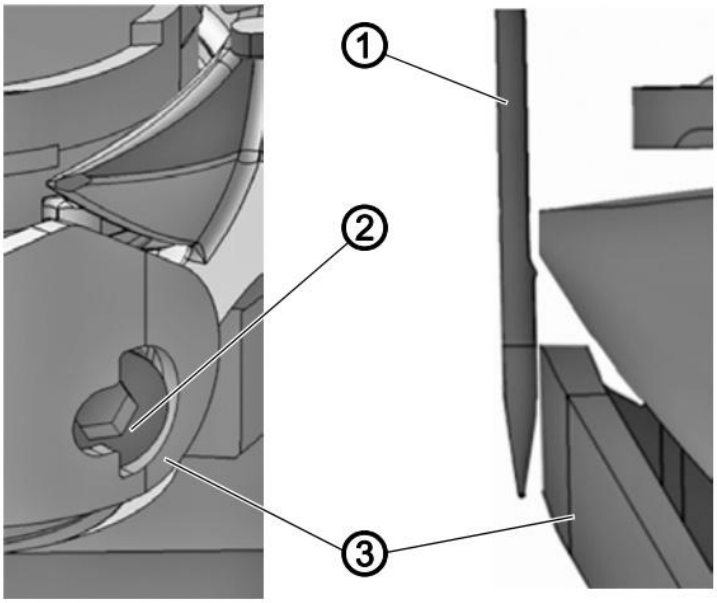
① Retaining ring ② Screws ③ Needle groove ④ Hook tip

Steps are as follows:

(1) Tilt the machine head.
(2) Move the slide plate.
(3) Disassemble the needle plate and the feed dog.
(4) Insert the large end of the locking pin into the groove of the needle bar crank.
(5) Loosen the retaining ring ① and the screws ②.
(6) Turn the hook such that the hook tip ④ points exactly to the vertical center line of the needle groove ③.
(7) Tighten the retaining ring ① and the screws ②.
(8) Remove the locking pin from the needle bar crank.
(9) Setup completed, install the needle plate and the feed dog, place the slide plate in its original position.
(10) Position the machine head upright.

11.4 Setting the needle guard

The needle guard prevents contact between needle and hook tip.During the operation of the machine, the needle guard pushes the needle away just enough so that it cannot be touched by the hook tip.



① Needle ② Screw ③ Needle guard

Steps are as follows：

(1) Switch off the machine, tilt the machine head.
(2) Move the slide plate.
(3) Disassemble the needle plate and the feed dog.
(4) Turn the handwheel and check how far the needle guard ③ pushes the needle ① away.
(5) Turn the screw ② such that the needle guard ③ just pushes the needle① far away enough so that it cannot be touched by the hook tip.

- **Pushing away more strongly：turn counterclockwise**
- **Pushing away less strongly：turn clockwise**

(6) Setup completed, install the needle plate and the feed dog, place the slide plate in its original position.
(7) Position the machine head upright.

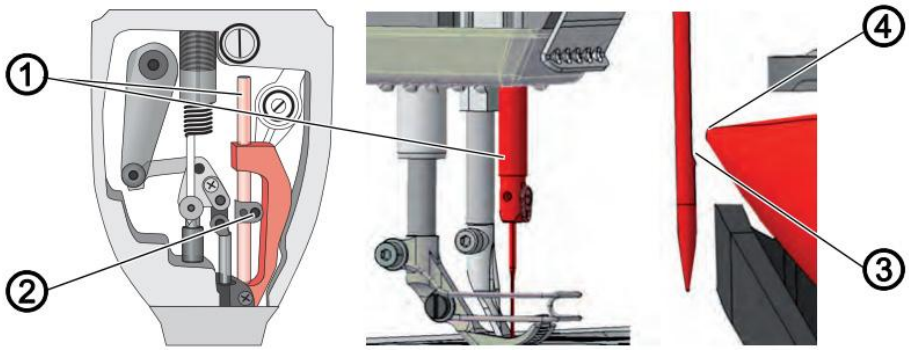
11.5 Setting the needle bar height

Proper setting:

Insert the large end of the locking pin into the groove of the needle bar crank. The hook tip is level with the lower third of the needle groove.

Disturbances caused by an incorrect needle bar height:

- Damage to the hook tip
- Jamming of the needle thread
- Skip stitches
- Thread breaking
- Needle breakage



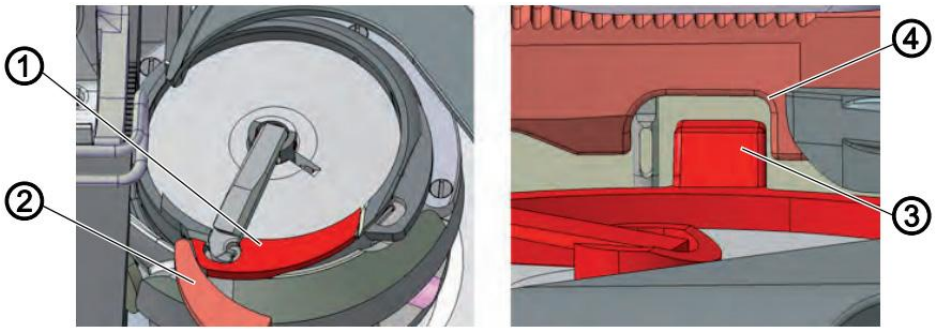
① Needle bar ② Screw ③ Needle groove ④ Hook tip

Steps are as follows:

(1) Switch off the machine, disassemble the face plate, move the slide plate.
(2) Loosen the screw ② of the needle bar ①.
(3) Adjust the height of the needle bar ① such that the hook tip ④ is level with the lower third of the needle groove ③. When doing so, take care not to twist the needle, the needle groove ③ must face toward the hook tip ④.
(4) Tighten the screw ② of the needle bar ①.
(5) Setup completed, install the face plate, place the slide plate in its original position.

12 Setting the hook thread distributing claw

Switch off the machine before setting the hook thread distributing claw.



① Bobbin case
② Hook thread distributing claw
③ Nose of the bobbin case
④ Groove at the bottom of the needle plate

The hook pulls the needle thread through between the nose of the bobbin case ③ and the groove at the bottom of the needle plate ④. The hook thread distributing claw ② now pushes the bobbin case ① away so that a gap appears for the thread.

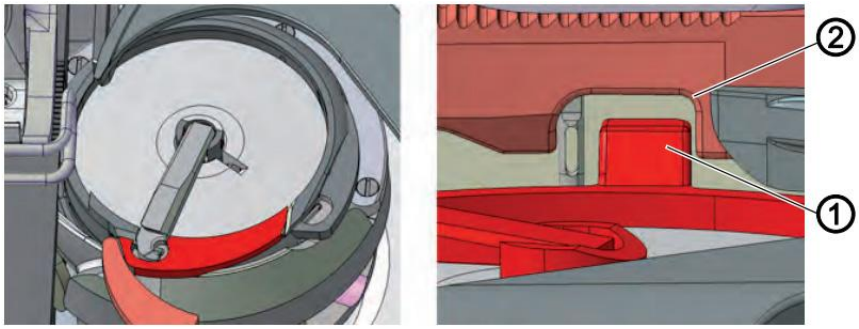
When the position of the handwheel is approximately 0° and the hook tip is located below the hook thread distributing claw ②, the hook thread distributing claw② must be in an open state to facilitate the smooth passage of the thread through the gap.

In order for the nose of the bobbin case ③ to smoothly oscillate back and forth within the groove at the bottom of the needle plate ④, it is essential to accurately set the positioning of the hook thread distributing claw ② to determine the gap between the bobbin case ① and the hook thread distributing claw ②, as well as the timing for the hook thread distributing claw ② to push the bobbin case ① open.

Disturbances caused by an incorrect setting of the hook thread distributing claw ②:

- Thread breaking
- The stitching threads droop down from the underside of the fabric
- Loud machine noise

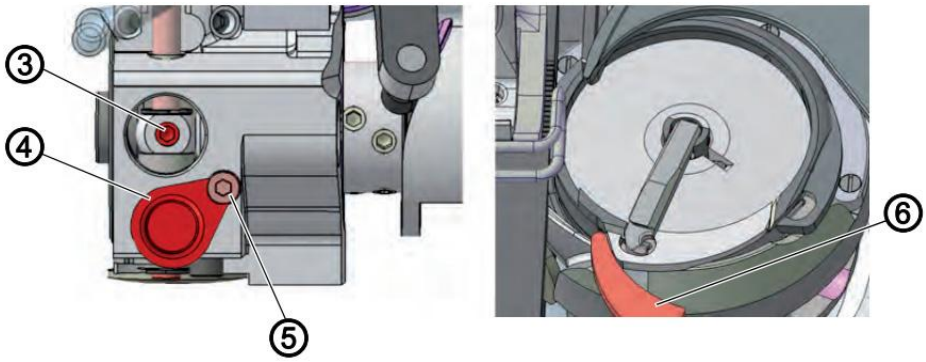
12. 1 Setting top open clearance



① Nose of the bobbin case ② Groove at the bottom of the needle plate

After replacing the thicker-diameter stitching thread, inspect the gap width of the hook thread distributing claw-top opening the bobbin case.

The needle thread slides through unobstructed between the nose of the bobbin case ① and the groove at the bottom of the needle plate ②.



③Screw ④Cover plate ⑤Screw ⑥ Hook thread distributing claw

Steps are as follows：

(1) Loosen the screw ⑤, pull the cover plate ④ down.

(2) Loosen the screw ③.

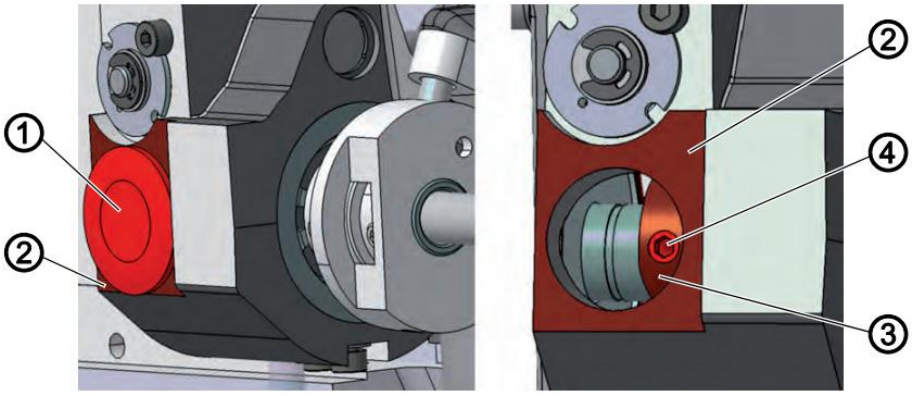
(3) When the position of the handwheel is at 280°, adjust the hook thread distributing claw ⑥, position the nose of the bobbin case ① centrally within the groove at the bottom of the needle plate ②.

CAUTION： Ensure that the gaps on both sides are similar.The nose of the bobbin case ① must not be banged back and forth within the groove at the bottom of the needle plate ②.

(4) Tighten the screw ③.

(5) Place the cover plate ④ in its original position, tighten the screw ⑤.

12. 2 Setting top open time



① Plastic plug ② Hook saddle ③Thread distributing cam ④Screw

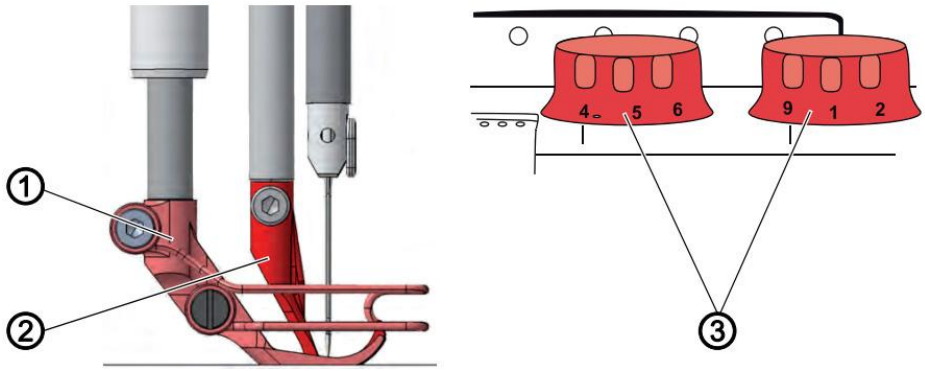
When the hook tip has caught onto the thread loop and is positioned below the thread distributing claw, the gap between the thread distributing claw and the bobbin case is open.
In 1-needle machines, this happens when the handwheel position is approx.0°.
In 2-needle machines, this happens when the handwheel position is approximately 0° for the right-hand hook; for the left-hand hook, the handwheel position is also approximately 0°during this process.
When the handwheel position is approximately 0°, the screw ④ is exactly in the center of opening for the hook saddle ②.（Insert Allen key in the screw ④ for orientation）

Steps are as follows：

(1) Tilt the machine head.
(2) Remove the plastic plug ① on the bottom side of the hook saddle ②.
(3) Loosen the screw ④ through the opening of the hook saddle.
(4) Turn the handwheel until the hook tip is exactly below the thread distributing claw after the hook tip has caught onto the thread loop.
(5) Insert the Allen key into the screw ④ and turn the thread distributing cam ③, so that the thread distributing claw opens at the correct point in time.
(6) Tighten the screw ④.
(7) Insert the plastic plug ① into the opening of the hook saddle ②.
(8) Position the machine head upright, perform a sewing test.

13 Setting the presser foot

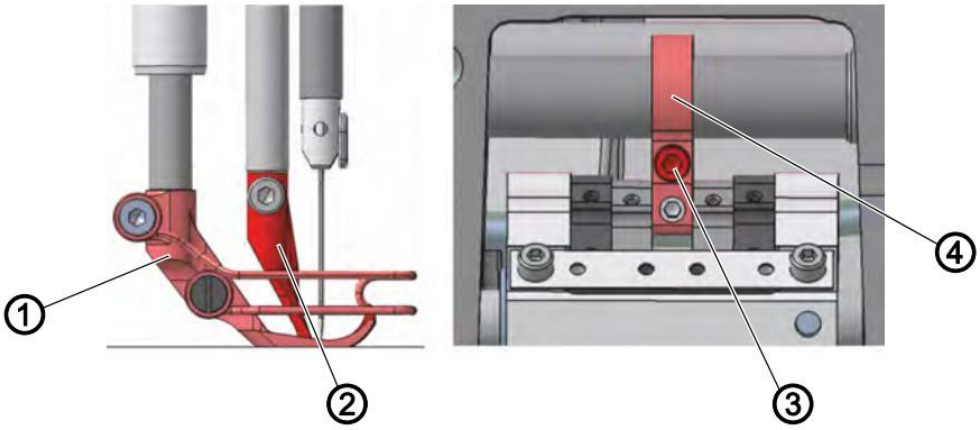
Switch off the machine before adjusting the sewing feet.



①Outer presser foot ②Inner presser foot ③Adjusting wheels for presser foot stroke

The 2 adjusting wheels ③ on top of the machine determine how high the outer presser foot ① and the inner presser foot ② are raised when sewing.
The left adjusting wheel determines the normal sewing foot stroke.
The right adjusting wheel determines the increased sewing foot stroke.
The increased sewing foot stroke must NOT be lower than the normal sewing foot stroke.

13. 1 Setting the uniform presser foot lifting



① Outer presser foot ② Inner presser foot ③ Screw ④ Crank

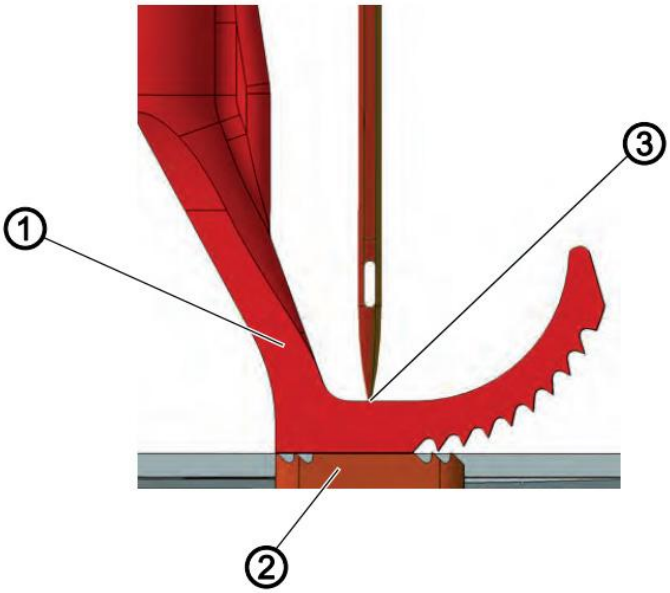
Steps are as follows:

(1) Disassemble the top cover plate.
(2) Move the handwheel into the 0° position.
(3) Loosen the screw ③ on the crank ④.
(4) Lower the outer presser foot ① and the inner presser foot ② together down to the needle plate.

CAUTION: Do not inadvertently lower the inner presser foot through the needle plate cutout down to the feed dog.

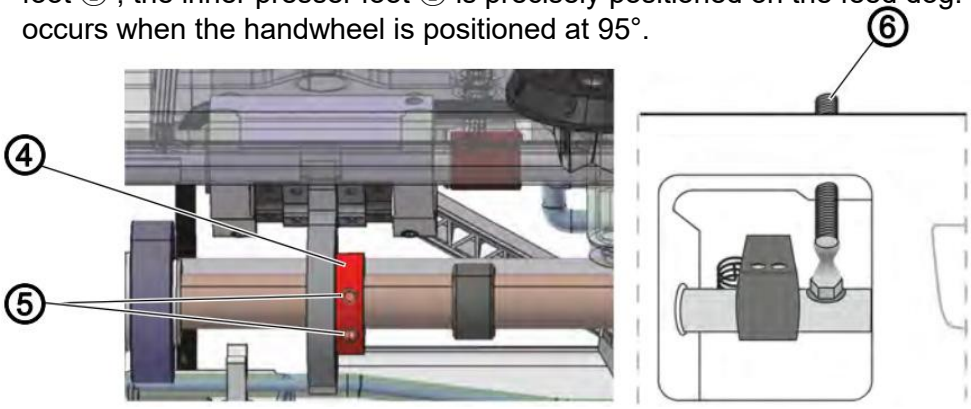
(5) Tighten the screw ③.

13. 2 Setting the inner presser foot



① Inner presser foot ② Feed dog ③ Needle tip

When the needle tip ③ moves upward to the upper edge of the inner presser foot ① , the inner presser foot ① is precisely positioned on the feed dog. This occurs when the handwheel is positioned at 95°.



④ Presser foot lifting eccentric cam ⑤ Screws ⑥ Screw

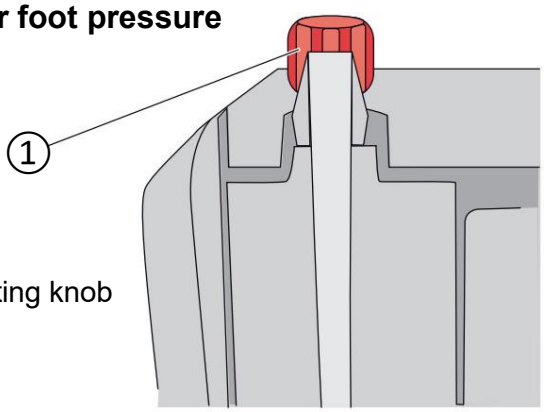
Steps are as follows:

(1) Disassemble the top cover plate.
(2) Wrench in the screw ⑥ into the upper limit screw of the tightening shaft to enable the presser foot to complete its stroke.
(3) Set the upper stitch length adjusting knob to 0.
(4) Loosen the screws ⑤, turn the handwheel to 95°.
(5) Turn the presser foot lifting eccentric cam ④ so that the inner presser foot on the feed dog.

CAUTION: The presser foot lifting eccentric cam ④ will not move laterally on the shaft.

(6) Tighten the screws ⑤.
(7) Wrench out the screw ⑥ to prevent it from contacting the limit screw.

13. 3 Setting the presser foot pressure



① Presser foot pressure adjusting knob

Turning the adjusting knob ① can modify the pressure exerted on the presser foot.

- **Greater pressure**：turn clockwise
- **Lower pressure**： turn counterclockwise

The correct pressure depends on the sewing material:

- Lower pressure for soft materials
- Higher pressure for thick materials

13. 4 Setting the presser foot lifting height

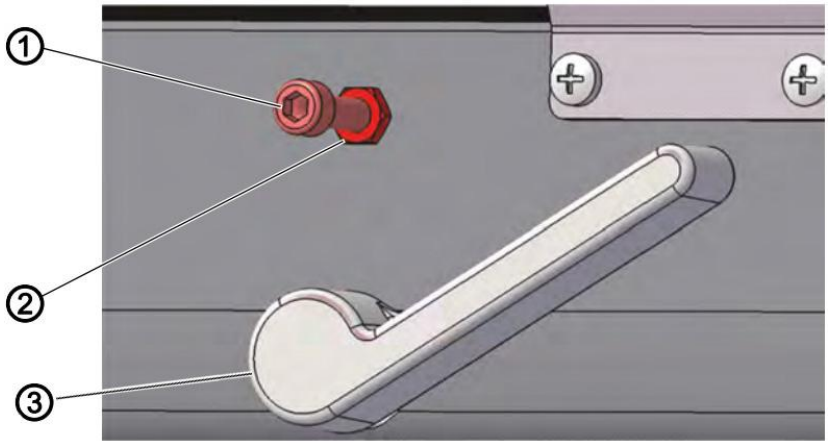
In factory status, the preset distance between the lifted presser foot and the needle plate is 20mm.

- **Lift the presser foot**: Turn the wrench ③ downward.
- **Release the presser foot**: Turn the wrench ③ upward.

① Screw

② Nut

③ Wrench



Steps are as follows：

(1) Loosen the nut ②.

(2) Turn the screw ① to adjust the distance between lifted presser foot and the needle plate.

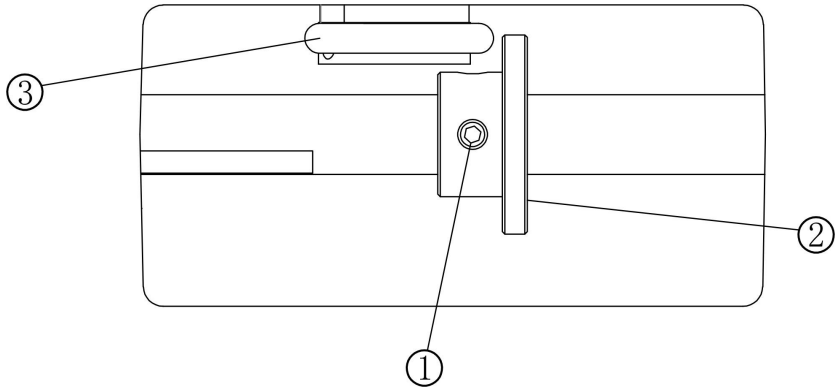
- **Reduce the lifting height of presser foot**： turn clockwise
- **Increase the lifting height of presser foot**: turn counterclockwise

(3) Tighten the nut ②.

14 The bobbin winder

Switch off the machine before setting the bobbin winder.

14. 1 Setting the bobbin winder wheel and the drive wheel



① Screw ② drive wheel ③ Bobbin winder wheel

When unwinding, the distance between the bobbin winder wheel and the drive wheel is approximately 0.8mm.

Steps are as follows：

(1) Remove the top cover plate.

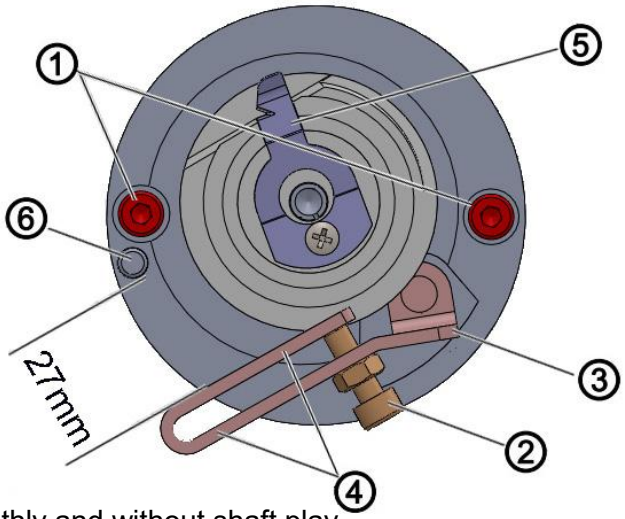
(2) Loosen the screw ①.

(3) Move the drive wheel ② left or right to adjust the distance between the bobbin winder wheel ② and the drive wheel ③ to 0.8mm.

(4) Tighten the screw ①, place the top cover plate in its original position.

14. 2 Setting the bobbin winder

① Screws
② Screw
③ Full-line skip plate
④ Side
⑤ Cutter
⑥ limit post



CAUTION：

- The bobbin winder wheel runs smoothly and without shaft play.
- When the bobbin is fully wound with the required amount of line,the full-line skip plate ③ automatically disengages, marking the end of the winding process.
- End winding, the cutter ⑤ to the upper left corner.
- End winding, the distance between side ④ and limit post ⑥ is approximately 27mm.

Setting the winder filling quantity

(1) Remove the screws ①, take out the bobbin winder.

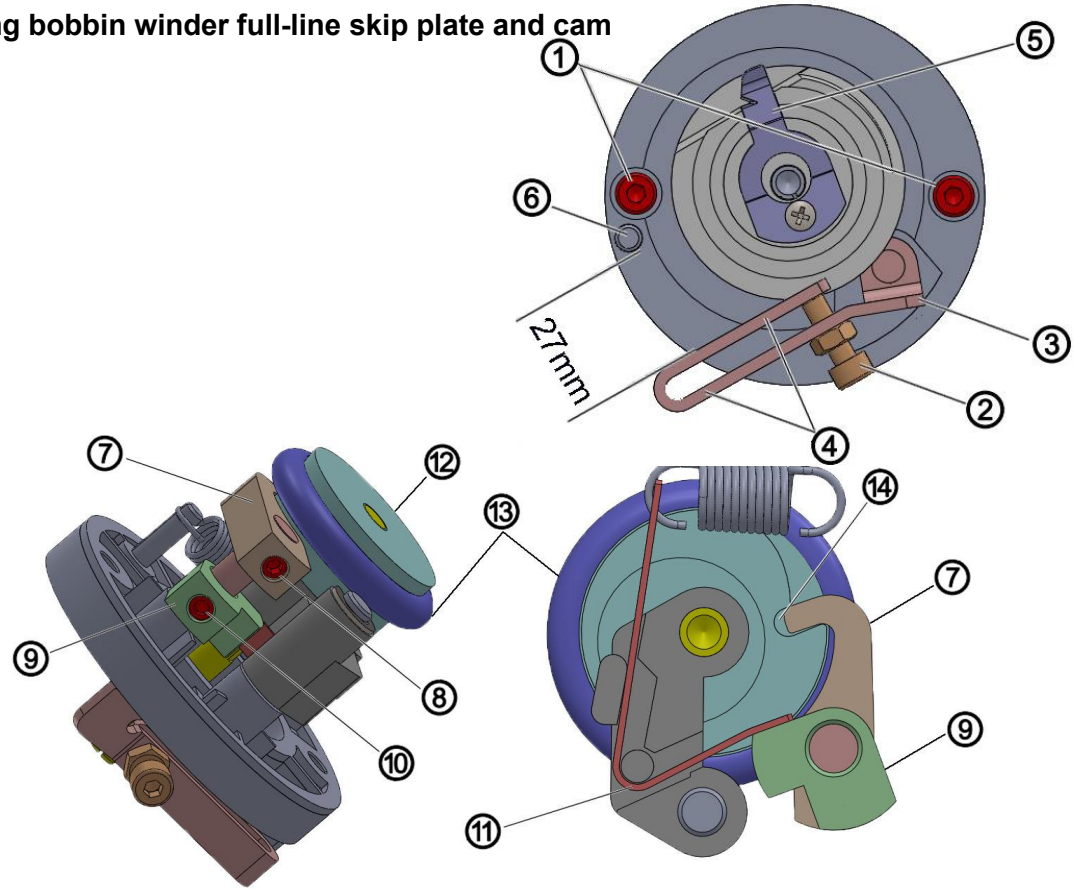
(2) Loosen the locking nut on the screw ②.

(3) Turn the screw ②.

- **Reduce the amount of bobbin winding：** turn clockwise, side ④ opens.
- **Increase the amount of bobbin winding：** turn counterclockwise, side ④ tighten up.

(4) Tighten the locking nut on the screw ②.

Setting bobbin winder full-line skip plate and cam



⑦ Limit claw ⑧ Screw ⑨ Cam ⑩ Screw
⑪ Leaf spring ⑫ Wheel disk ⑬ Bobbin winder wheel
⑭ Slot

Steps are as follows：

(1) Loosen the screw ⑧ and the screw ⑩.

(2) Turn the full-line skip plate ③, keep its side ④ approximately 27mm from the limit post ⑥.

(3) Turn the wheel disk ⑫ and push the limit claw ⑦ into its slot ⑭.

(4) Adjust the limit claw ⑦, maintain a clearance of approximately 0.5mm between it and the bobbin winder wheel ⑬.

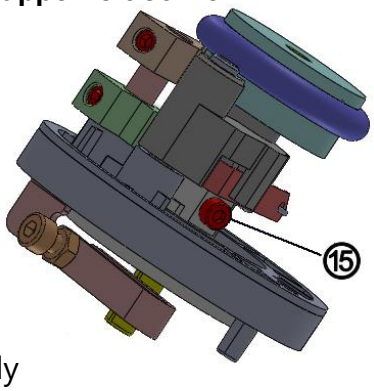
(5) Tighten the screw ⑧.

(6) Turn the cam ⑨ such that it is just contacting the leaf spring ⑪.

(7) Keep the full-line skip plate ③ without axial clearance, then tighten the screw ⑩.

Setting the cutter

End winding, the cutter ⑤ to the upper left corner.

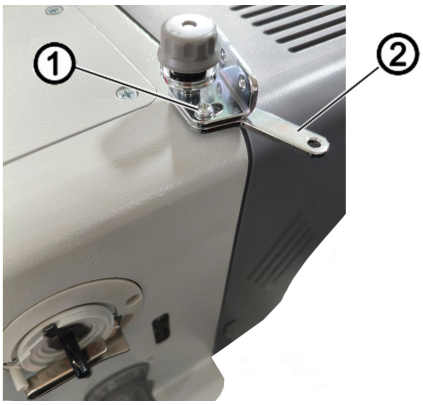


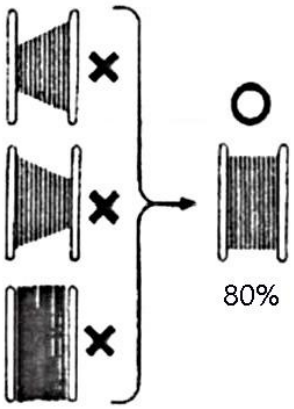
If the cutter is oriented incorrectly

Method 1： Wrench out the screw ⑮, turn the wheel disk to 180°, then tighten the screw ⑮.

Method 2： Remove the bobbin winder wheel from the wheel disk, wrench out the screw on the wheel disk, turn the wheel disk to 180°. Finally tighten the screw on the wheel disk and insert the bobbin winder wheel to the wheel disk.

14. 3 Setting the bobbin winder winding





When winding the bobbin, lift the full-line skip plate upward until it contacts the limit post. As shown in the lower left corner of the left image.

The winding amount is generally 80% of the bobbin diameter. Excessive winding, inward deviation, or over-winding are all detrimental to material sewing. As shown in the figure on the right.

Steps are as follows：

(1) Loosen the screw ①.

- Excessive winding, turn the thread guide plate ② counterclockwise until the winding is even.
- Inward deviation, turn the thread guide plate ② clockwise until the winding is even.

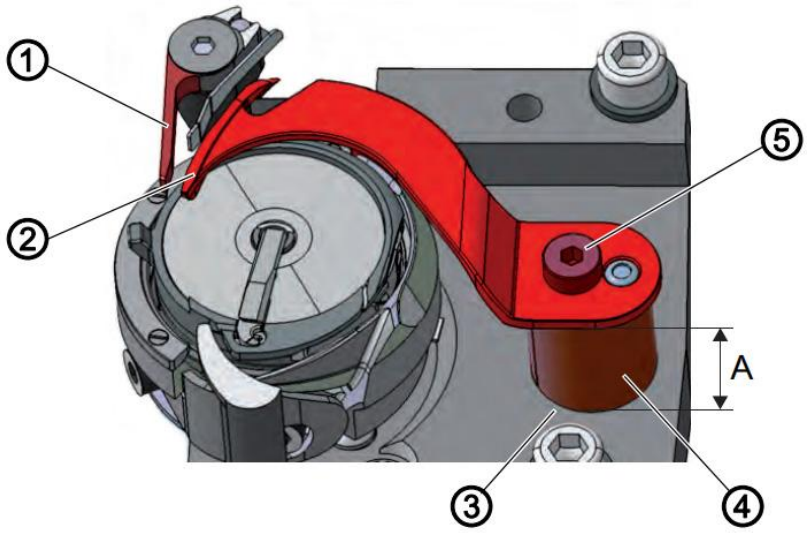
(2) Tighten the screw ①.

(3) Over-winding, loosen the nut on the full-line skip plate, then turn the screw on the full-line skip plate clockwise to open its side. Adjustment completed, tighten the nut on the full-line skip plate.

15 Setting the thread trimmer

Switch off the machine before adjusting the thread trimmer.

15. 1 Setting the height of the movable knife



① Fixed knife ② Movable knife ③ Hook saddle mounting surface
④ Knife carrier ⑤ Screw A Distance

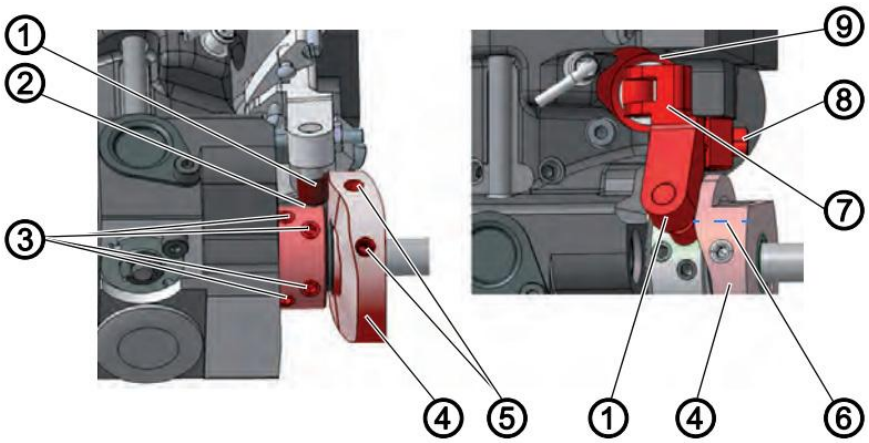
The height of the movable knife can be fine-tuned by inserting the washers between the knife carrier ④ and the movable knife ②. Factory set： the distance A between the upper edge of the knife carrier ④ and the hook saddle mounting surface ③ is 10.7±0.05 mm

CAUTION： When changing the knives, make sure that you do not lose the washers.
Set the movable knife ② and fixed knife ① to the same height as far as possible.

Steps are as follows：

(1) Remove the slide plate.
(2) Wrench out the screw ⑤.
(3) Remove the movable knife ②.
(4) Place as many washers between the knife carrier ④ and the movable knife ② as necessary to ensure that the upper edges of the movable knife ② and the fixed knife ① are at the same height.
(5) Keep any non-required washers on the top side of the movable knife ②, fix it with the screw ⑤.
(6) Tighten the screw ⑤.

15. 2 Setting the thread trimmer cam



① Roller ② Retaining ring ③ Screws
④ Thread trimmer cam ⑤ Screws ⑥ Widest extent
⑦ Thread trimmer crank ⑧ Screw ⑨ Thread trimmer solenoid

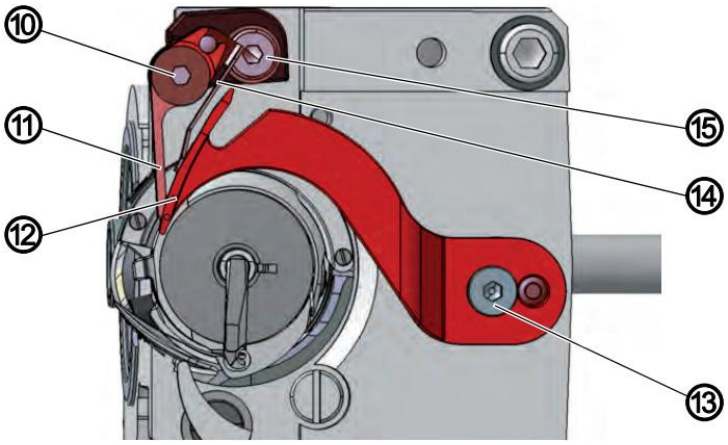
- The thread trimmer cam ④ makes direct contact with the retaining ring ②.
- The distance between the widest extent ⑥ of the thread trimmer cam ④ and the roller ① is 0.1 mm at most.
- After cutting the line, the circle mark on the movable knife aligns precisely next to the tip of the fixed knife.

Steps are as follows：

(1) Tilt the machine head.
(2) Remove the slide plate.
(3) Loosen the screw ③ on the retaining ring ②.
(4) Push the retaining ring ② as far as it will go to the left.
(5) Tighten the screw ③ on the retaining ring ②.

CAUTION： Tighten the 4 screws (3) on the retaining ring ② before you loosen the screws ⑤. The retaining ring ② and the thread trimmer cam ④ are both mutually used as a stop and must not be loosened at the same time.

(6) Loosen the screws ⑤.
(7) Press the thread trimmer crank ⑦ against the thread trimmer solenoid ⑨.
(8) Turn the thread trimmer cam ④ to align its widest extent ⑥ with the roller ①.
(9) Move the thread trimmer cam ④ such that the distance between its widest extent ⑥ and the roller ① is 0.1 mm at most.
(10) Tighten the screws ⑤.

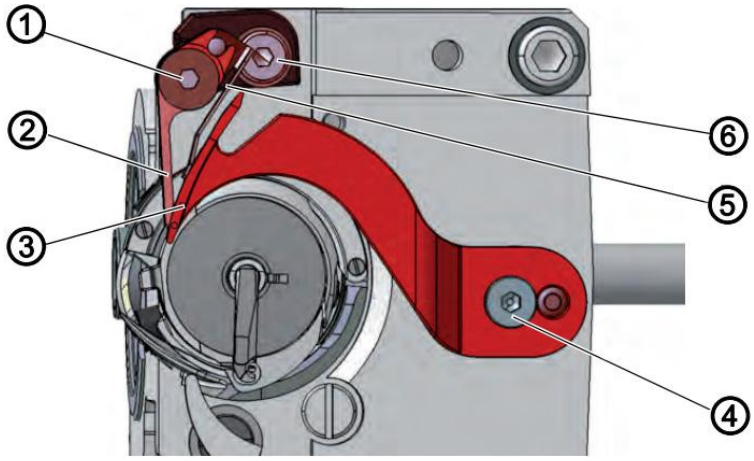


⑩ Screw ⑪ Fixed knife ⑫ Movable knife
⑬ Screw ⑭ Thread clamp spring ⑮ Screw

(11) Loosen the screw ⑧ on the thread trimmer crank ⑦.
- Turn the movable knife ⑫ until the circle mark aligns precisely next to the tip of the fixed knife.

(12) Tighten the screw ⑧. Caution：the thread trimmer crank ⑦ must not have axial play.
(13) Loosen the screws ③ on the retaining ring ②.
(14) Push the retaining ring ② to the thread trimmer cam ④ as far as it will go to the right.
(15) Check the position of hook claw stitch distance.
(16) Tighten the screws ③ on the retaining ring ②.

15. 3 **Setting the cutting pressure**



① Screw ② Fixed knife ③ Movable knife
④ Screw ⑤ Thread clamp spring ⑥ Screw

When the movable knife approaches the fixed knife, the cutting pressure can be automatically generated by the shape of the movable knife.
In resting position, the thread clamp spring makes contact with the movable knife without any pressure being applied. During cutting, any 2 threads with the greatest strength used for sewing can be neatly cut simultaneously.

Disturbances caused by an incorrect setting:

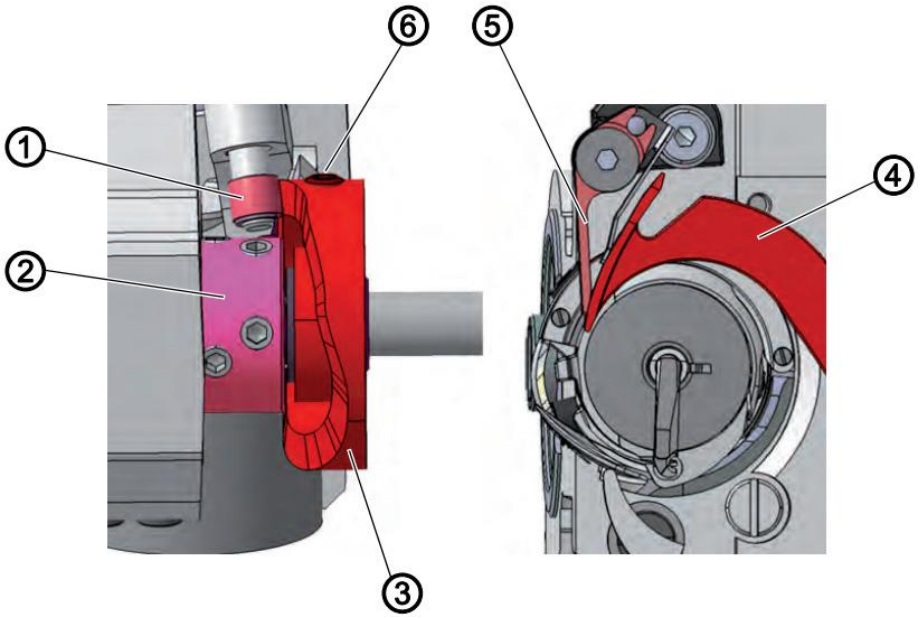
- Increased the movable knife and the fixed knife wear when the pressure is too great.
- Insufficient pressure prevents the sutures from being cut neatly.
- Problems when sewing on if the clamping pressure is too high.

Steps are as follows:

(1) Remove the slide plate.
(2) Turn the handwheel until the movable knife ③ can be turned outward by hand.
- Adjust the movable knife ③ until the arrow mark on the movable knife ③ aligns precisely next to the tip of the fixed knife ②.

(3) Loosen the screw ①.
(4) Turn the thread clamp spring ⑤ to ensure it tightly contacts the movable knife ③.
(5) Turn the fixed knife ② to ensure it tightly contacts the movable knife ③.
(6) Tighten the screw ①.
(7) Swing the movable knife ③, check the position of the cutting, as the fixed knife ② may shift position when tightening the screw ①. If so, re-adjust it.

15. 4 Setting point in time for cutting



① Roller ② Retaining ring ③ Thread trimmer cam
④ Movable knife ⑤ Fixed knife ⑥ Screw

The thread are cut when the thread take-up lever is at the top dead point（The handwheel position is at 60°）.

Steps are as follows：

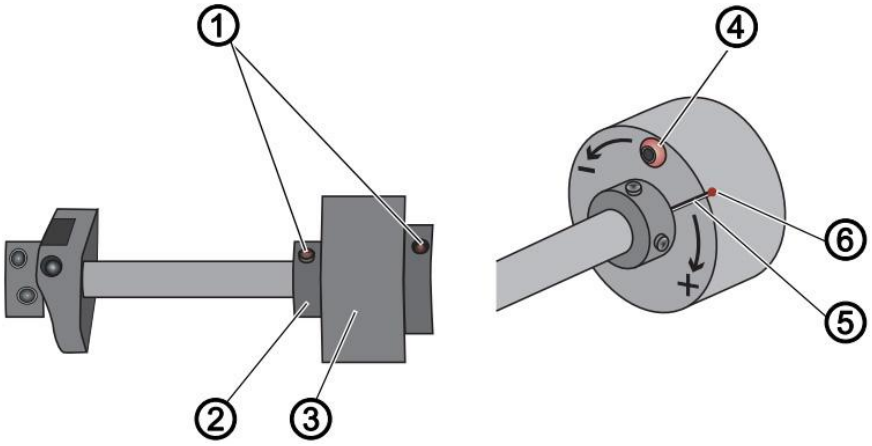
(1) Remove the slide plate, tilt the machine head, loosen the screw ⑥.
(2) Turn the handwheel until the movable knife ④ can be swung out by hand.
(3) Adjust the movable knife ④ until the circle mark on the movable knife ④ aligns precisely next to the tip of the fixed ⑤.
(4) Set the handwheel position to 60°.
(5) Push the thread trimmer cam ③ to the left as far as it will go and against to the retaining ring ②.
(6) Turn the thread trimmer cam ③ such that the widest extent aligns to the roller ① and the widest extent of the thread trimmer cam ③ is at the handwheel position 60°at the highest point.
(7) Tighten the screw ⑥.
(8) Check adjustment:

- Insert the thread into the movable knife ④ and turn slowly the handwheel.
- Check the handwheel position at which the thread is cut.

(9) If necessary, repeat adjustment steps 1 – 7 until the handwheel is at 60° to cut.

16 Setting the clutch

Switch off the machine before setting the clutch.



① Screws ② Adjusting ring ③ Clutch
④ Screw ⑤ Slot ⑥ Mark

16.1 The clutch reset

The adjusting ring ② and the 4 screws ① on the clutch ③ must be parallel to each other. Once the clutch ③ is disengaged, the screws ① will no longer be parallel.

Reset the clutch as follows：

(1) Tilt the machine head.
(2) Turn the adjusting ring ② until the 4 screws ① are parallel to each other.
● The clutch has returned to its normal state.

16.2 Setting the torque of the clutch

Factory settings of the machine: when mark ⑥ is located above the slot ⑤ on the disc, the torque is 8 Nm.

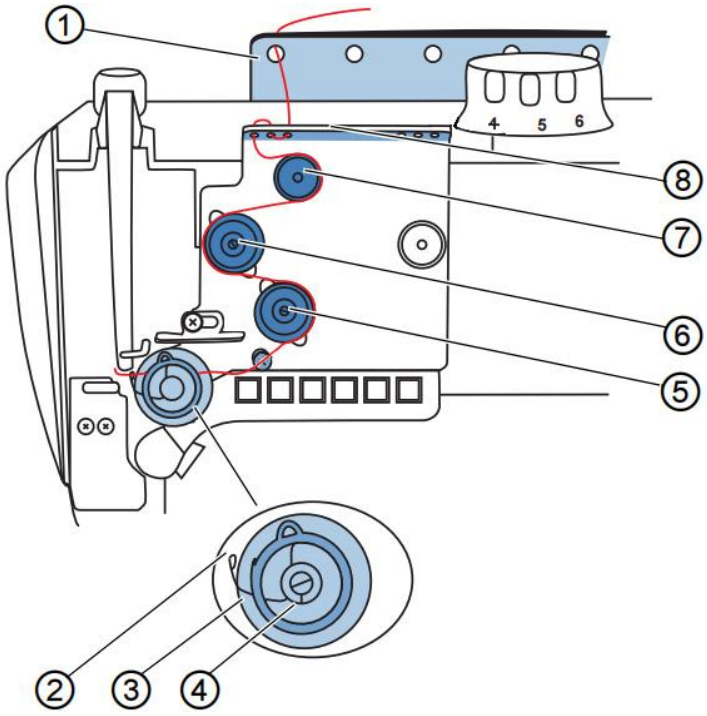
Set the torque as follows：

(1) Tilt the machine head.
(2) Loosen the screw ④.
(3) Use a screwdriver to turn the disc through the slot ⑤ until the torque reaches 8 Nm.
● Increase torque: turn in the direction “+”.
● Reduce torque: turn in the direction “-”.
(4) Tighten the screw ④.

17 Threading the top thread

Switch off the machine before threading the top thread.
Do not touch the area beneath the needle with your hand.

17. 1 Single needle machine



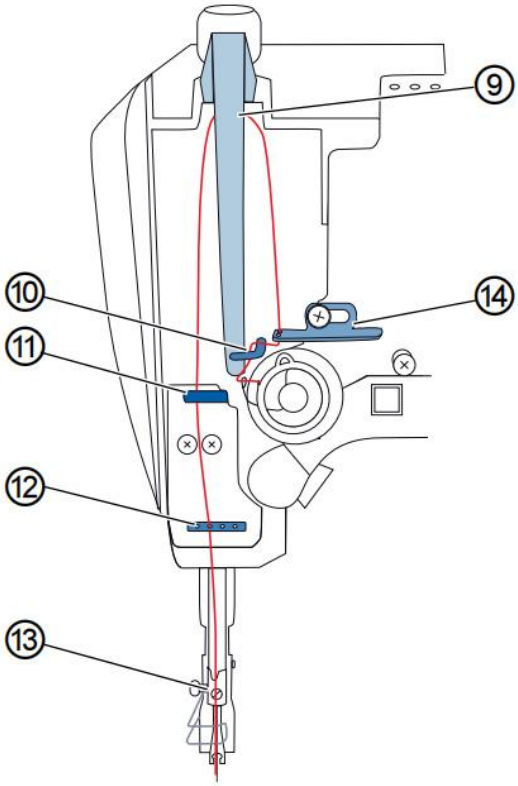
① Thread guide plate ② Spring tip ③ Thread take-up spring
④ Thread clamp plate ⑤ Main thread tension regulator
⑥ Additional thread tension regulator
⑦Pre-tensioning thread tension regulator ⑧Thread tension regulator plate

Pass the thread to single needle as follows:

(1) The thread passes from the rear to the front through the left-side hole of the thread guide plate ①.
(2) The thread passes through the three holes of the thread tension regulator plate ⑧ in a wavy pattern.

- First, pass through the hole on the right side from top to bottom, then pass through the middle hole from bottom to top, and finally pass through the hole on the left side from top to bottom.

(3) Pass the thread around the pre-tensioning thread tension regulator ⑦ clockwise.
(4) Pass the thread around the additional thread tension regulator ⑥ counterclockwise.
(5) Pass the thread around the main thread tension regulator ⑤ clockwise.
(6) Pass the thread around the thread clamp plate ④ clockwise.
(7) Pull the thread down toward the spring tip ②.
(8) The thread lift the thread take-up spring ③.



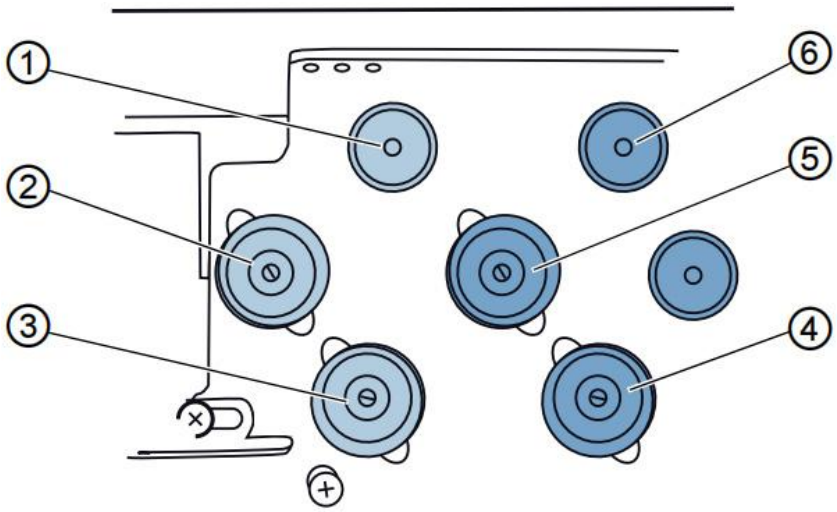
⑨Thread take-up lever（Invisible） ⑩Thread guide lever ⑪Thread guide slot
⑫ Thread guide hole ⑬ Thread guide plate ⑭ Thread adjusting device

(9) Pass the thread throgh the lower side of the thread guide lever ⑩.
(10) Pass the thread through the hole of the thread adjusting device ⑭ from bottom to up.
(11) Pass the thread through the thread take-up lever ⑨(not visible in the image) from right to left.
(12) Pass the thread through the thread guide slot ⑪.
(13) Pass the thread through the thread guide hole ⑫.
(14) Pass the thread through the thread guide plate ⑬ of the needle bar.
(15) Pass the thread through the needle（not visible in the image）from left to right, the thread end towards the hook.
(16) When the thread is pulled through the needle hole and the thread take-up lever is in its highest position, the length of the thread end that is pulled out is approximately 4 cm.

CAUTION： The thread end is too long, causing the thread to be wrapped by the hook, which can lead to malfunctions.
The thread end is too short, it will be impossible to start stitching.

17.2 Double needle machine

Compared to the thread tension regulator of the single needle model, the double needle model features an additional set of the thread regulator , The winding method of this thread tension regulator is the same as that of the single needle model.



① Pre-tensioning thread tension regulator（the thread at the left side）
② Additional thread tension regulator（the thread at the left side）
③ Main thread tension regulator（the thread at the left side）
④ Main thread tension regulator（the thread at the right side）
⑤ Additional thread tension regulator（the thread at the right side）
⑥ Pre-tensioning thread tension regulator（the thread at the right side）

Pass the thread to the double needle as follows：

(1) Pass the thread at the left side around the pre-tensioning thread tension regulator ① clockwise.
(2) Pass the thread at the left side around the additional thread tension regulator ② counterclockwise.
(3) Pass the thread at the left side around the main thread tension regulator ③ clockwise.
(4) Pass the thread at the right side around the pre-tensioning thread tension regulator ⑥ clockwise.
(5) Pass the thread at the right side around the additoinal thread tension regulator ⑤ counterclockwise.
(6) Pass the thread at the right side around the main thread tension regulator ④ clockwise.

⑦ Thread guide lever ⑧ Spring tip ⑨ Thread guide slot
⑩ Thread take-up lever（Invisible） ⑪ Thread take-up spring
⑫ Thread tension plate
⑬ Thread adjusting device（thread at the right side）
⑭ Thread adjusting device（thread at the left side）

(7) The thread at the left side around the rear thread tension plate ⑫ clockwise.
(8) Pull the thread at the left side down toward the spring tip ⑧.
(9) The thread at the left side lift the thread take-up spring ⑪.
(10) The thread at the left side passes beneath the thread guide lever ⑦.
(11) The thread at the left side passes through the thread adjusting device ⑭ from bottom to up.
(12) The thread at the left side passes through the upper hole of the thread take-up lever ⑩ from right to left.
(13) Pass the thread at the right side around the front thread tension plate ⑫ clockwise.
(14) Pull the thread at the right side down toward the spring tip ⑧.
(15) The thread at the right side lift the thread take-up spring ⑪.
(16) The thread at the right side passes beneath the threadguide lever ⑦.
(17) The thread at the right side passes through the thread adjusting device ⑬ from bottom to up.
(18) The thread at the right side passes through the lower hole of the thread take up lever ⑩ from right to left.
(19) The thread on the left and right side pass through the thread guide slot ⑨. The threads on both sides must not cross.
(20) The thread at the right side passes through the right hole of the thread guide plate of the needle bar.
(21) The thread at the left side passes through the left hole of the thread guide plate of the needle bar.
(22) The thread at the right side passes through the needle hole of the needle at the right side, the thread end points toward the hook at the right side.
(23) The thread at the left side passes through the needle hole of the needle at the left side, the thread end points toward the hook at the left side.
(24) Pull the threads on both sides through the needle holes, when the thread take up lever at the highest position, the length of the pulled-out thread end is approximately 4 cm.

18 Threading the bobbin thread

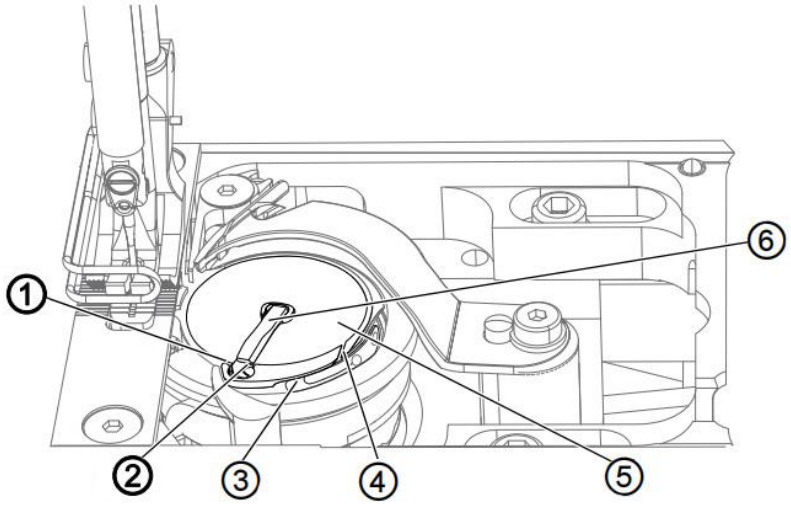
① Thread guide plate ② Guide plate
③ Thread tension regulator ④ Cutter ⑤ Bobbin shaft
⑥ Full-line skip plate ⑦ limit post

Threading the bobbin thread as follows:

(1) The thread passes through the last two holes in the thread guide plate ① from right to left.
(2) The thread around the thread tension regulator ③ counterclockwise.
(3) The thread passes through the front hole in the thread guide plate ① from left to right.
(4) The thread passes through the hole in the guide plate ② from up to bottom.
(5) Hold the thread in place behind the cutter ④.
(6) Insert the bobbin onto the bobbin shaft ⑤.
(7) Turn the bobbin until it locks into place on the bobbin shaft.
(8) Pull up the full-line skip plate ⑥ until it contacts tightly to the limit post ⑦.
(9) Press the pedal forward.
The machine begins stitching while simultaneously winding the thread from the ball of string onto the bobbin.When the bobbin reaches the required winding capacity, the full-line skip plate automatically opens, and the bobbin winder stops winding.
(10) Remove the bobbin that has been wound with the thread from the bobbin shaft.

19 Replacing the bobbin

Switch off the machine before replacing the bobbin.



① Thread eyelet point ② Guiding part ③ Tension spring
④ Thread eyelet point ⑤ Bobbin ⑥ Bobbin case lock clasp

Replacing the bobbin as follows：

(1) Raise the bobbin case lock clasp ⑥.
(2) Remove the empty bobbin ⑤.
(3) Insert the bobbin ⑤ with the wound thread.

CAUTION：

When inserting the bobbin, the direction of the bobbin thread drawn out from the bobbin should be opposite to the motion direction of the hook.

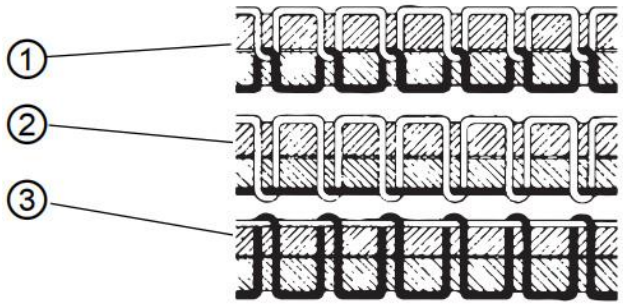
(4) Pass the bobbin thread through the thread eyelet point④ in the bobbin case.
(5) Pull the bobbin thread down the tension spring ③.
(6) Pass the bobbin thread through the thread eyelet point ① next to the guide part ② and pull it out by approximately 3 cm.
(7) Close the bobbin case lock clasp ⑥.

20 Adjusting of thread tension

Both the tension of the top thread and the bobbin thread affect the stitches.If the thread tension is too high, it may cause unnecessary wrinkling or breakage of the stitches when sewing thin materials. Switch off the machine before adjusting the thread tension.

When the tension strength of the top thread and the bobbin thread are equal, the knot is located at the center of the seam material.

When setting the tension of the thread, ensure that the required stitch is achieved with the smallest possible tension.



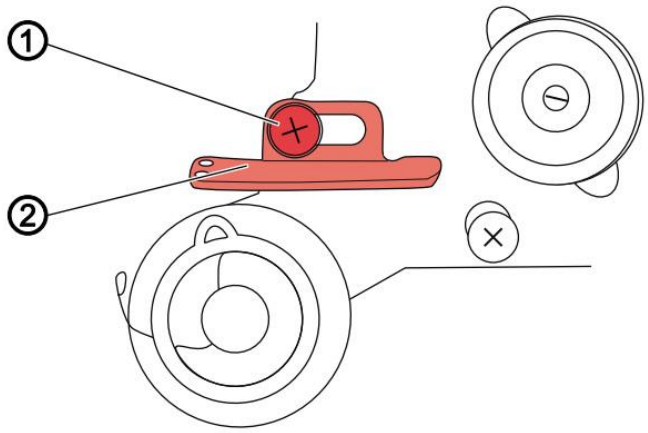
① Tension of the top thread equals to the tension of the bobbin thread

② Tension of the top thread is less than the tension of the bobbin thread

③ Tension of the top thread is greater than the tension of the bobbin thread

20. 1 Setting the top thread regulator

The top thread regulator determines the amount of tension to pass the top thread around the hook.The top thread ring should be drawn down to just above the thickest point of the hook with minimal tension.



① Screw ② Top thread regulator

Setting the top thread regulator as follows:

(1) Loosen the screw ①.

(2) Move the top thread regulator ②.

- **Reduce the top thread tension**：move to the left
- **Increase the top thread tension**：move to the right

(3) Tighten the screw ①.

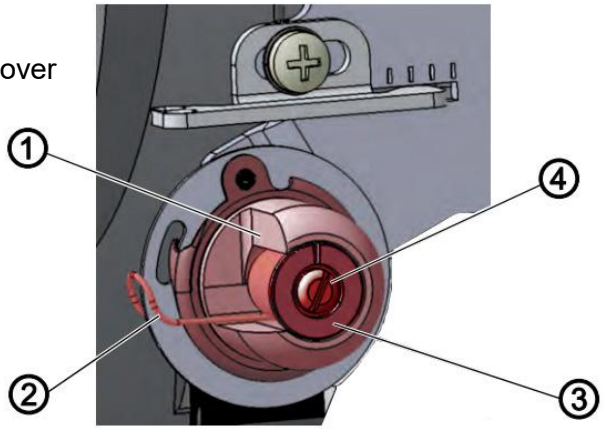
20. 2 Setting the thread take-up spring

① Limited-position protective cover

② Thread take-up spring

③ Tension wheel

④ Screw



The thread take-up spring keeps the top thread at its highest position until the needle hole penetrates the sewing material under pressure.When the needle hole enters the sewing material, the thread take-up spring ② is located on the limited-position protective cover.
Different types of sewing materials and effects require distinct settings for the thread take-up spring.

Setting the thread take-up spring as follows：

(1) Loosen the screw ④.

(2) Turn the limited-position protective cover ① to adjust the stroke of the thread take-up spring ②.

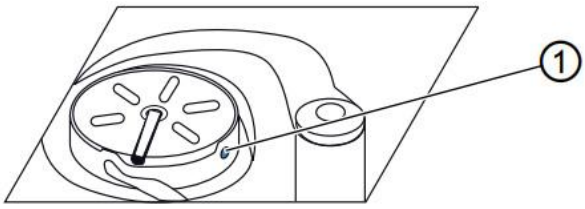
- **Increase the stroke of the spring：** Turn counterclockwise
- **Reduce the stroke of the spring：** Turn clockwise

(3) Turn the tension wheel ③ to adjust the tension of the thread take-up spring ②.

- **Increase the tension of the spring：** Turn counterclockwise
- **Reduce the tension of the spring：** Turn clockwise

(4) Tighten the screw ④.

20. 3 Setting the bobbin thread tension



① Adjusting screw

Setting the bobbin thread tension as follows：

(1) Turn the screw ① clockwise to increase the bobbin thread tension.

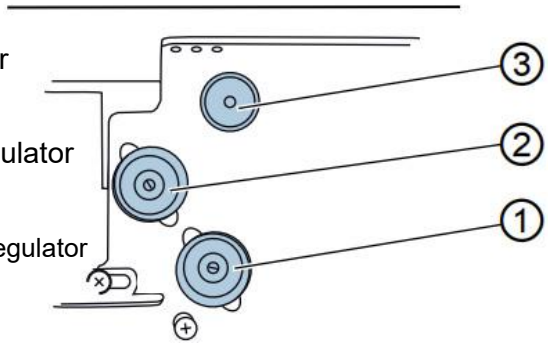
(2) Turn the screw ① counterclockwise to reduce the bobbin thread tension.

20.4 Setting the top thread tension

①Main thread tension regulator

②Additional thread tension regulator

③Pre-tensioning thread tension regulator



The knobs on the three thread tension regulators determine the tension of the top thread.

- **Increase the top thread tension：** Turn clockwise
- **Reduce the top thread tension：** Turn counterclockwise

When the main thread tension regulator ① and the additional thread tension regulator ② are fully opened, the pre-tensioning thread tension regulator ③ should clamp the top thread.

The pre-tensioning thread tension regulator ③ determines the length of the thread when the stitching begins.

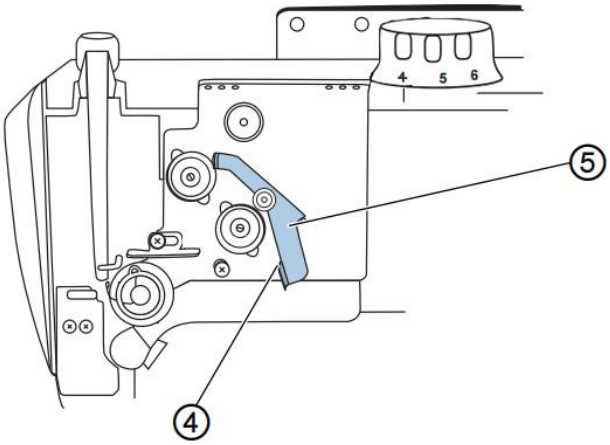
- **Shorten the length of the thread when the stitching begins：** Turn clockwise
- **Extend the length of the thread when the stitching begins：** Turn counterclockwise

As the thickness of the stitching material increases, the tension on the top thread needs to be increased.Turn the knob on the thread tension regulator in a clockwise direction by a specific angle.The tension settings on the additional thread tension regulator ② should always be lower than those on the main thread tension regulator ①.The additional thread tension regulator ② can be turned on or off either automatically or manually.

Turn on or off the additional thread tension regulator ② manually

④ Handle

⑤ Lever



(1) Turn the lever ⑤ clockwise by using the handle ④ to turn on the additional thread tension regulator.

(2) Turn the lever ⑤ counterclockwise by using the handle ④ to turn off the additional thread tension regulator.

21 Maintenance

Prior to any maintenance work, switch off the machine or set the machine to threading mode. The maintenance work that needs to be carried out on a regular basis to extend the service life of the machine and achieve the desired seam quality.

Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Machine head				
Removing dust and thread remnants	○			
Check the oil level	○			
Check the hook lubrication		○		
Pneumatic system				
Setting the operating pressure	○			
Draining the water-oil mixture	○			
Cleaning the filter element				○
Specific components				
Cleaning the motor fan mesh			○	
Clean the heat dissipation window of the electromagnetic valve			○	
Checking the toothed belt			○	

21.1 Cleaning

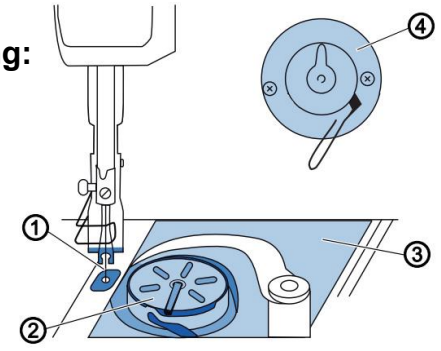
Safety goggles should be worn during cleaning to prevent flying particles from entering the eyes. Hold the compressed air gun so that the particles do not fly close to people. Make sure no particles fly into the oil pan.

Notice：

- Solvent-based cleaners will damage paintwork.
- Use only solvent-free substances for cleaning.
- Dust and thread remnants should be removed after every 8 operating hour using a compressed air gun or a brush. If very fluffy sewing material is being sewn, the machine must be cleaned more frequently.

Areas particularly susceptible to soiling:

① Area around the needle
② Hook
③ Area under the needle plate
④ Cutter on the bobbin winder



21. 2 Lubricating

Avoid skin contact with oil. Skin contact with oil can cause rashes. If oil has come into contact with your skin, wash the affected areas thoroughly.

Incorrect oil types can result in damage to the machine.

For re-filling the oil, use only lubricating oil **DA 10** or oil of equivalent quality with the following specifications:

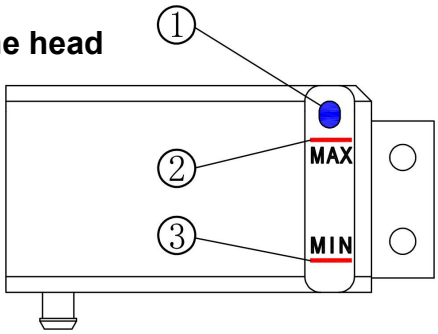
- Viscosity at 40℃ ： 10mm²/s
- Flash point：150℃

21. 2. 1 Lubricating the machine head

① Oil filling hole

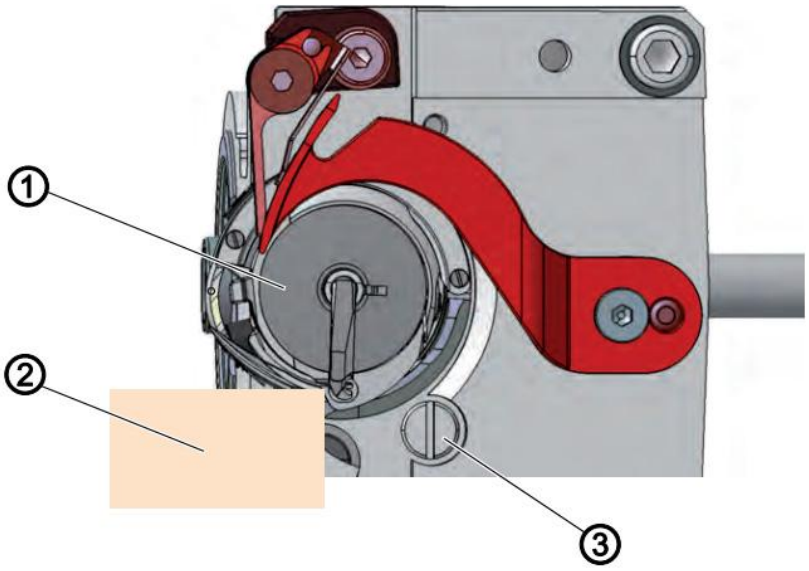
② MAX marking

③ MIN marking



The oil level must not raise above the MAX marking ② or drop below the MIN marking ③. When re-filling the oil, pour it into the filling hole ①.

21. 2. 2 Setting the hook lubrication system



① Hook ② Blotting paper ③ Screw

The output oil quantity for hook lubrication was pre-set at the factory. Hold a piece of blotting paper ② next to the hook① while sewing. After stitching 1m, the blotting paper ② have been sprayed a thin and even oil layer.

Set the hook lubrication system as follows:

(1) Remove the slide plate.

(2) Turn the screw ③.

- **Increase the output oil quantity：** Turn counterclockwise
- **Reduce the output oil quantity：** Turn clockwise

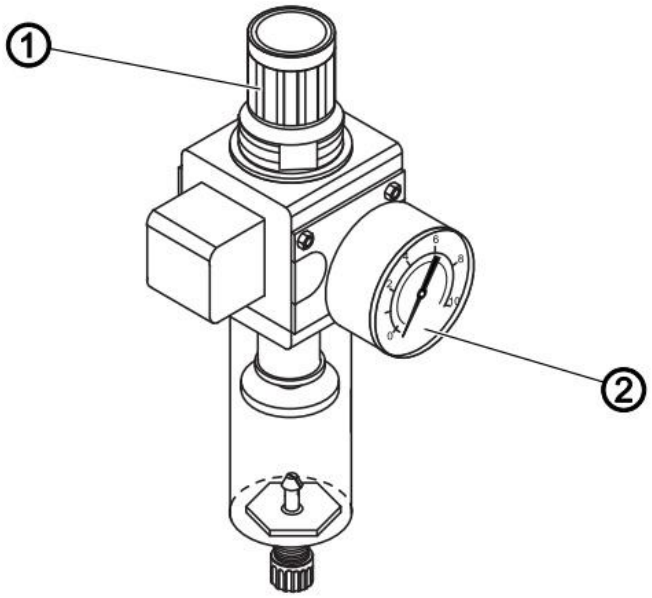
CAUTION： The output oil quantity does not change until after several minutes of operation. Please finish stitching for a few minutes before re-checking the output oil quantity.

21.3 Servicing the pneumatic system

Check the operating air pressure on a daily basis.

21.3.1 Setting the operating air pressure

The air pressure of the pressure regulator is set to 0.6MPa when the machine is in operation. The operating air pressure cannot deviate by more than ± 0.5 bar. The machine is only used when the operating air pressure is set correctly, Incorrect operating air pressure can result in damage to the machine.



① Pressure regulator ② Pressure gauge

Setting the operating air pressure as follows:

(1) Pull the pressure regulator ① up.

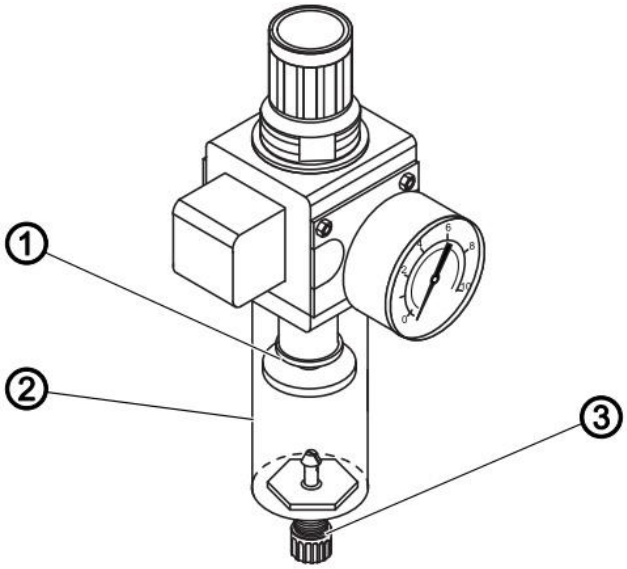
(2) Turn the pressure regulator ① until the pointer on the pressure gauge ② points to the inner ring number 0.6.

- **Increase pressure**：Turn clockwise
- **Reduce pressure**：Turn counterclockwise

(3) Push the pressure regulator ① down.

21. 3. 2 Draining the water-oil mixture

During the operation of the machine, it is necessary to inspect the oil-water mixture in a daily basis. Excess accumulation of oil-water mixtures can result in damage to the machine. it must be drained promptly.



① Filter element ② Collection container ③ Drain screw

During operation, the oil-water mixture accumulates in the collection container ②.

Notice：

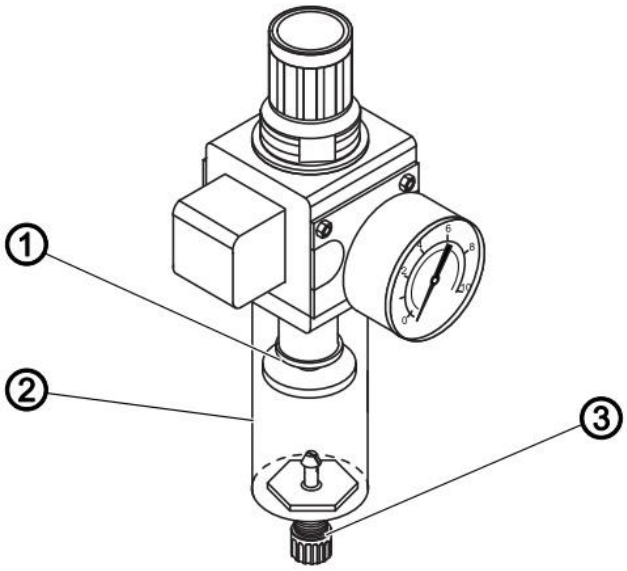
- Check the level of the oil-water mixture in the collection container ② daily.
- The level of the oil-water mixture should not exceed the filter element ①.

Drain the oil-water mixture as follows：

(1) Disconnect the machine from the compressed air supply.
(2) Place the container under the drain screw ③.
(3) Loosen the drain screw ③ completely.
(4) Allow the water-oil mixture to drain into the container.
(5) Tighten the drain screw ③.
(6) Connect the machine to the compressed air supply.

21.3.3 Cleaning the filter element

- Solvent-based cleaners damage the filter.
- Use only solvent-free substances for washing the filter housing.

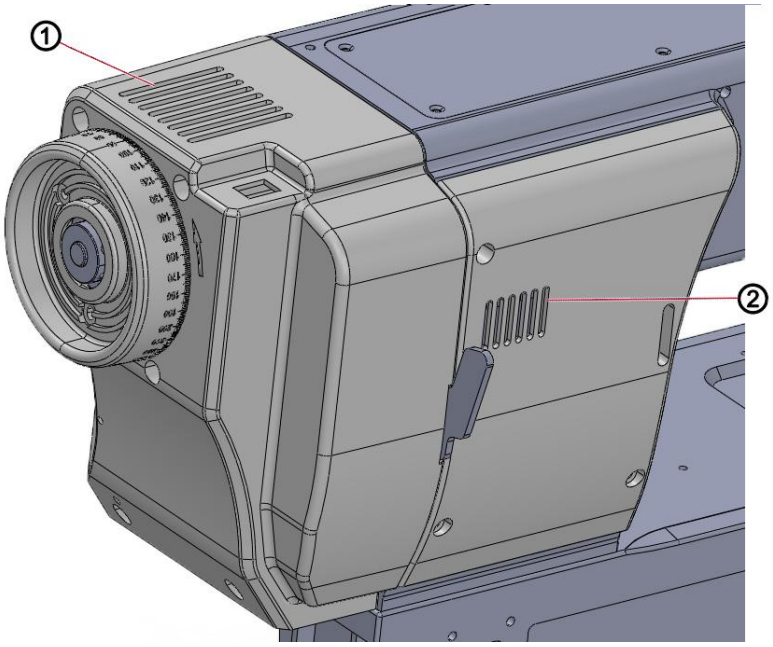


① Filter element ② Collection container ③ Drain screw

Clean the filter element as follows：

(1) Disconnect the machine from the compressed air supply.
(2) Drain the water-oil mixture.
(3) Unscrew the collection container ②.
(4) Unscrew the filter element ①.
(5) Blow out the filter element ① using the compressed air gun.
(6) Clean the filter housing with gasoline.
(7) Tighten the filter element ①.
(8) Tighten the collection container ②.
(9) Tighten the drain screw ③.
(10) Connect the machine to the compressed air supply.

21.4 Servicing specific components



①Motor heat dissipation window ②Electromagnetic valve heat dissipation window

21.4.1 Cleaning the motor heat dissipation window

The motor heat dissipation window ① must be cleaned once a month using a compressed air gun. When very fluffy material is used for sewing, the motor heat dissipation window ① must be cleaned more frequently. The steps are as follows:

(1) Disassemble the handwheel.
(2) Disassemble the motor cover.
(3) Use a compressed air gun to blow away dust and other debris from the motor heat dissipation window ①.
(4) Install the motor cover.
(5) Install the handwheel.

21.4.2 Cleaning the electromagnetic valve heat dissipation window

The electromagnetic valve heat dissipation window ② must be cleaned once a month using a compressed air gun. When very fluffy material is used for sewing,The electromagnetic valve heat dissipation window ② must be cleaned more frequently. The steps are as follows:

(1) Disassemble the rear cover plate.
(2) Use a compressed air gun to blow away dust and other debris from the electromagnetic valve heat dissipation window ②.
(3) Install the rear cover plate.

21.4.3 Checking the toothed belt

- The toothed belt must be checked once a month.
- When pressed with a finger, the toothed belt curvature must be no more than 10mm.
- The toothed belt must not exhibit any signs of cracks, brittleness, or broken teeth.
- A damaged toothed belt must be replaced immediately.