

SEIKO

INSTRUCTION MANUAL

LSWNH-28BL-20-1



SEIKO SEWING MACHINE CO.,LTD.

4. INSTALLATION



CAUTION



• Machine installation should only be carried out by a qualified technician.



• Contact your SEIKO dealer or a qualified electrician for any electrical work that may need to be done.



• The sewing machine weighs more than 45kg (LSWN-28BL-3). The installation should be carried out by two or more people.



• Do not connect the power cord until installation is complete, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.



• Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.

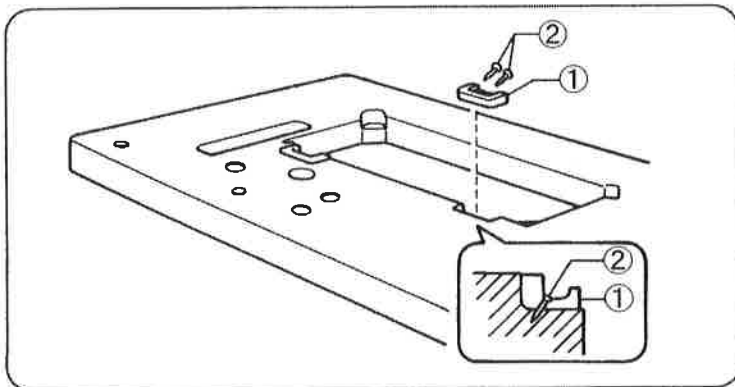


• Install the belt guards to the machine head and motor.



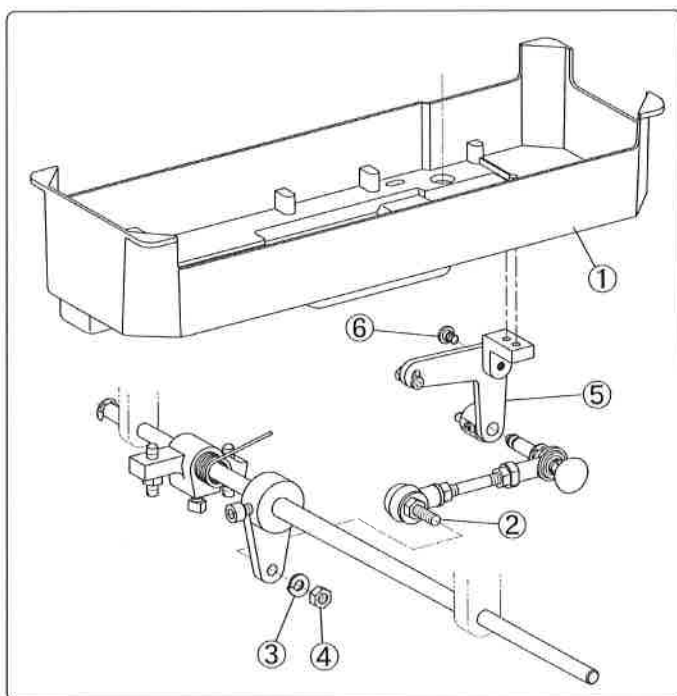
• Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, your hand to slip, and your hand may get caught.

4.1 Installing the machine hinge connection cushion



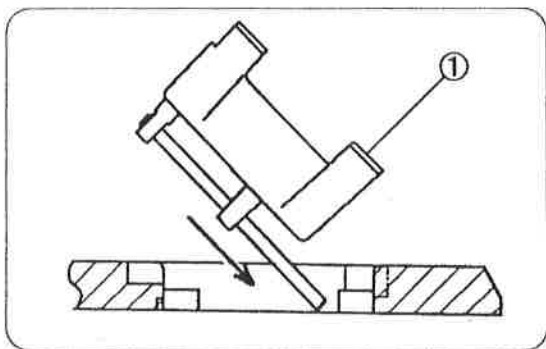
Insert the machine hinge connection cushions ① into the cut-away sections of the work table (two places), and secure each of them with two nails ②.

4.2 Installing the drip pan

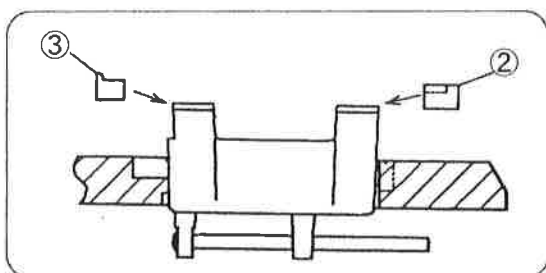


1. Attach Joint ② with Washer ③ and Nut ④ to the Oil-Pan ① parts, as illustrated.

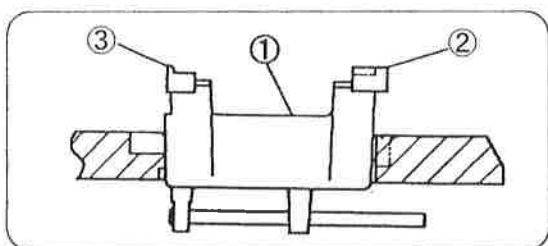
2. Fix Knee lifter lever ⑤ to Knee lifter lever base with Screw ⑥.



2. While inclining the drip pan ①, install it from the upper-side of the work table as shown in the illustration.

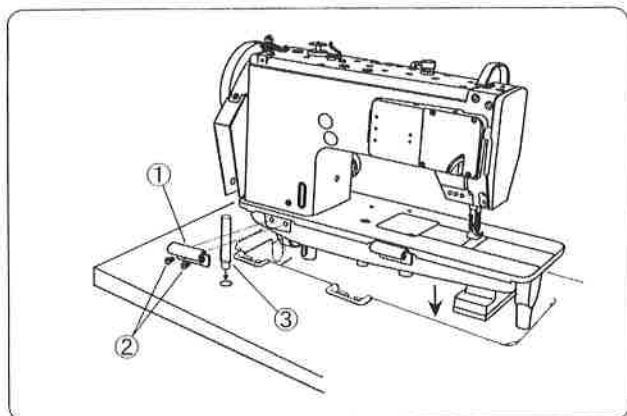


3. Return the inclination of the drip pan and fit the rubber cushions ② and ③ to the corners of the drip pan. (The rubber cushions ② should be fit to the two front corners, and the rubber cushions ③ should be fit to the two rear corners.)



4. Install the drip pan ① in the work table while pushing it.

4.3 Installing the machine head

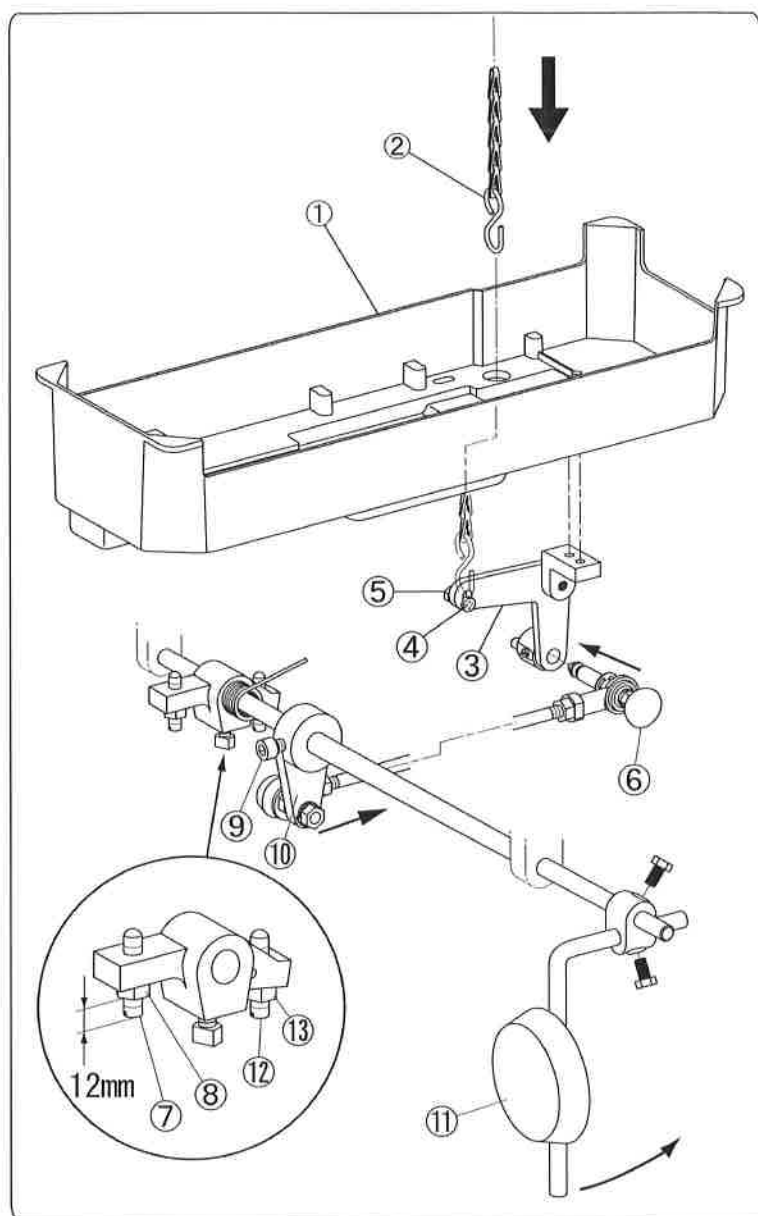


1. Attach the machine hinge connection ① to the bed of the machine head with two screws ② (two places).

2. Fit the machine hinge connection ① to the machine hinge connection cushion, and then place the machine head on the table.

3. Hammer the head rest ③ into the table.

4.4 Installing the Knee Lifter



1. Please hook the chain-hook ② to Lever ③ as illustrated after setting a sewing machine head and Oil Pan ① on the working table.

2. Securely fix the chain-hook ② with Stopper ④ and Nut ⑤ not to release.

3. Hold Ball knob ⑥ and insert into a hole of Lever ③ until it stops.

4. Loosen Screw ⑦ until making distance 12mm from Nut ⑧ surface, and tighten Nut ⑧.

5. Lower Presser bar lifter, then turn Pulley till Lifting presser foot reaches to Needle plate.

6. Loosen Knee lifter crank screw ⑨, and move Knee lifter crank ⑩ in direction of arrow, and lock Screw ⑨ where chain ② is stretched tight.

* Move Knee lifter crank ⑩ very close to Spring without gap when locking Screw ⑨.

7. Move Knee pad ⑪ with your knee and adjust the best position.

8. Move Knee pad ⑪ to direction of arrow, and adjust Screw ⑫ so that it stops when Lifting presser foot comes 16mm high from Needle plate. Fix Nut ⑬.

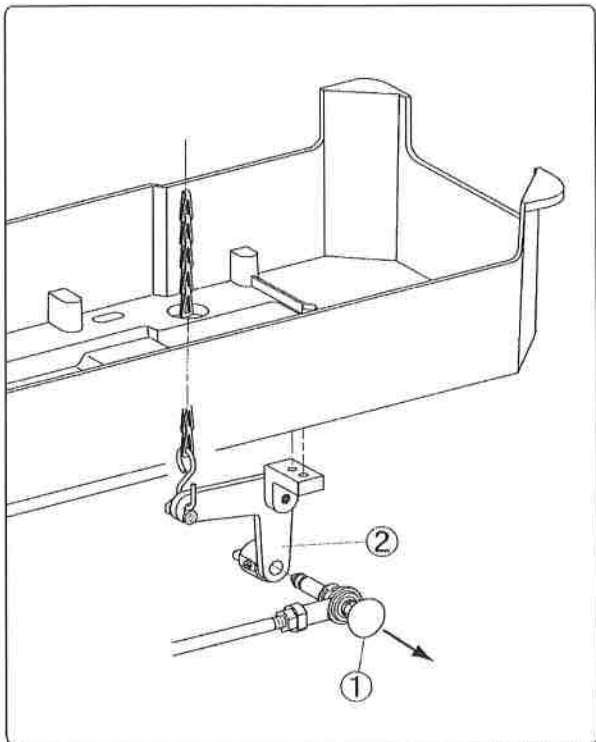
4.5 How to tilt sewing machine head



CAUTION

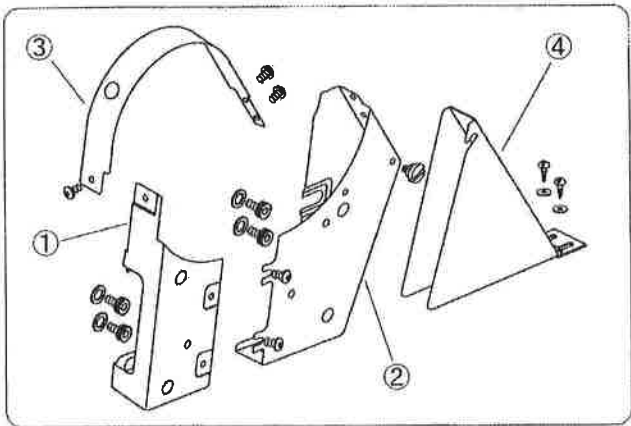


Please pull out Connecting pin from Knee lifter lever before tilting sewing machine head



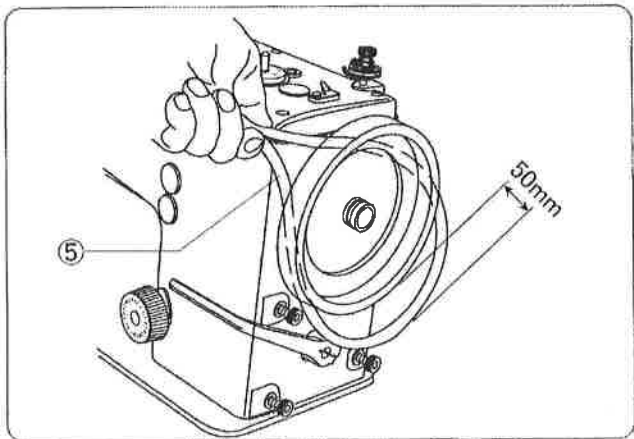
Hold Ball knob ① and pull out Connecting pin from Knee lifter lever ② before tilting sewing machine head.

4.6 Installing the motor belt and the belt guard

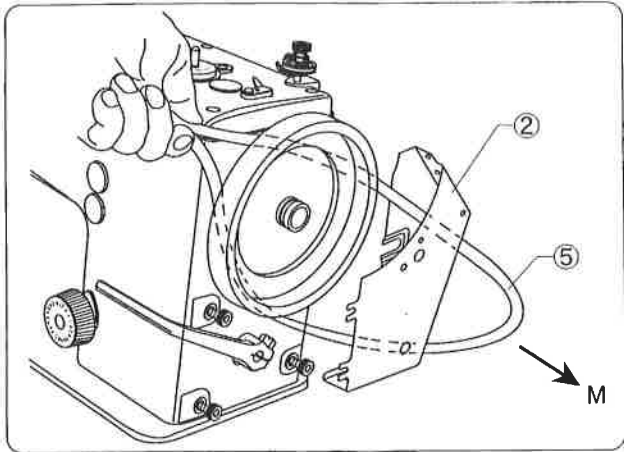


■ Belt Guard

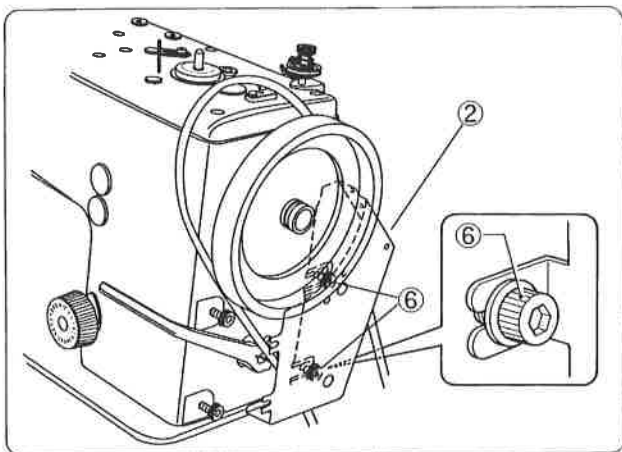
No.	Parts name
①	Belt guard (A)
②	Belt guard (B)
③	Belt guard (C)
④	Belt guard (D)



1. Hold the motor belt ⑤ with your left hand, and keep it about 50 mm behind the machine pulley as shown in the illustration.

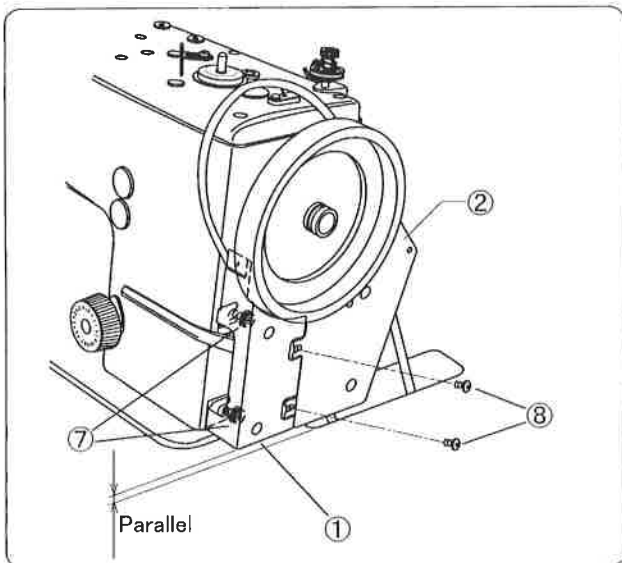


2. Move the belt guard ② from behind, and pull the motor belt ⑤ in the “M” direction.



3. Loosen the two bolts ⑥ which are screwed into the machine head.

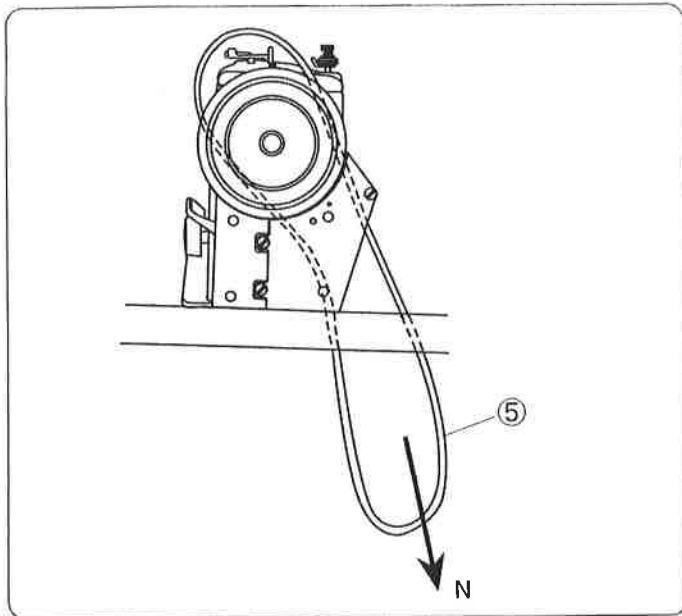
4. Align the grooves in the belt guard ② with the bolts ⑥.



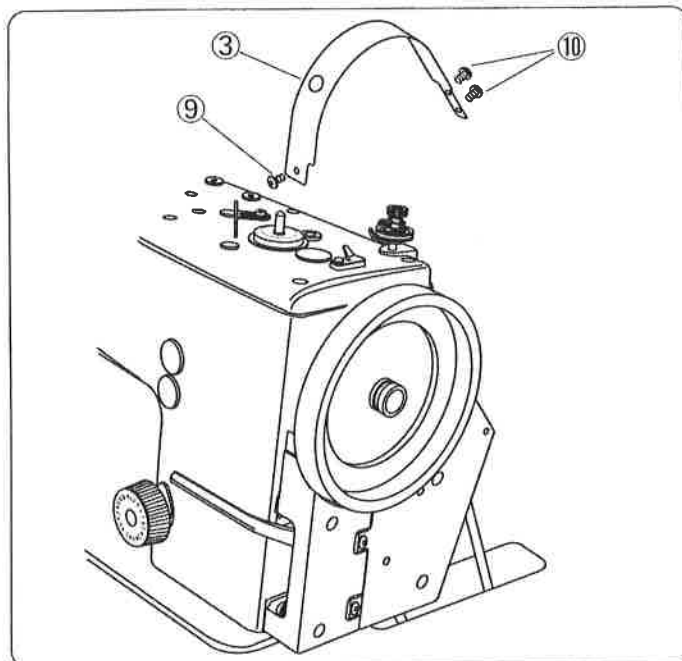
5. Install the belt guard ① with the two bolts ⑦.

6. Position the belt guard ② and the belt guard ① so that there is no gap between them and so that they are parallel to the hole of the work table, and then secure only the belt guard ② with two screws ⑥.

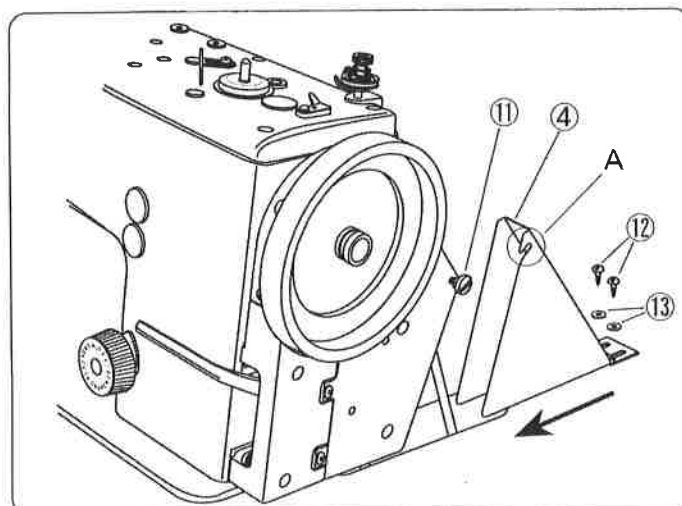
7. Tighten the two screws ⑧.



8. Pull the motor belt ⑤ in the “N” direction under the table, and place it on the machine pulley surely.

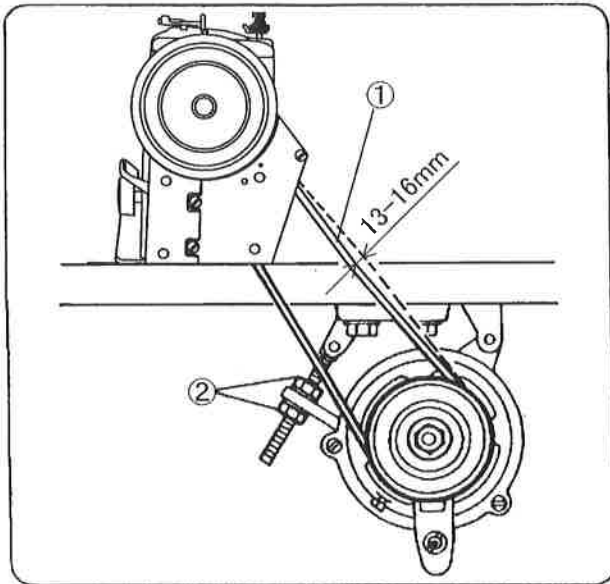


9. Install the belt guard ③ with the screw ⑨ and the two screws ⑩.



10. Move the belt guard ④ from behind, and place the hook part “A” of the belt guard ④ on the thumb screw ⑪. Put two washers ⑬, and then tighten two wood screws ⑫.

4.7 Adjustment of the motor belt tension



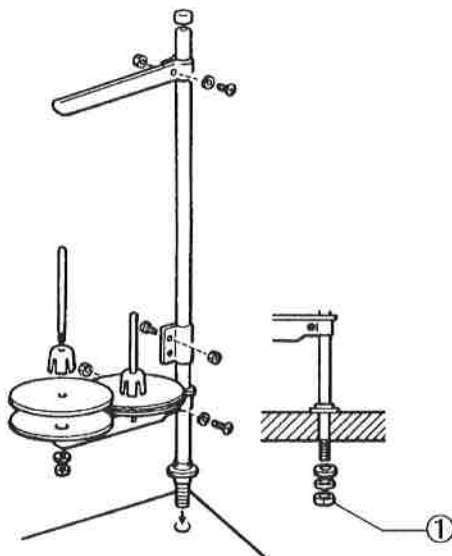
1. Tilt back the machine head, and then place the motor belt ① onto the motor pulley and the machine pulley.

2. Turn the two nuts ② to adjust so that there is 13-16 mm of deflection in the belt ① when it is pressed at the midway point with a force of 9.8N (1kgf).

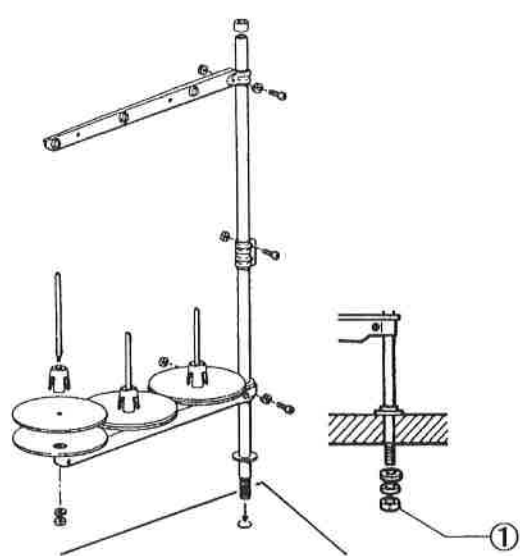
4.8 Installing the thread unwinder

Assemble the thread unwinder as shown in the illustration, and then install it on the table. Tighten the nuts ① securely so that the thread unwinder does not move.

<For single needle>



<For two needle>

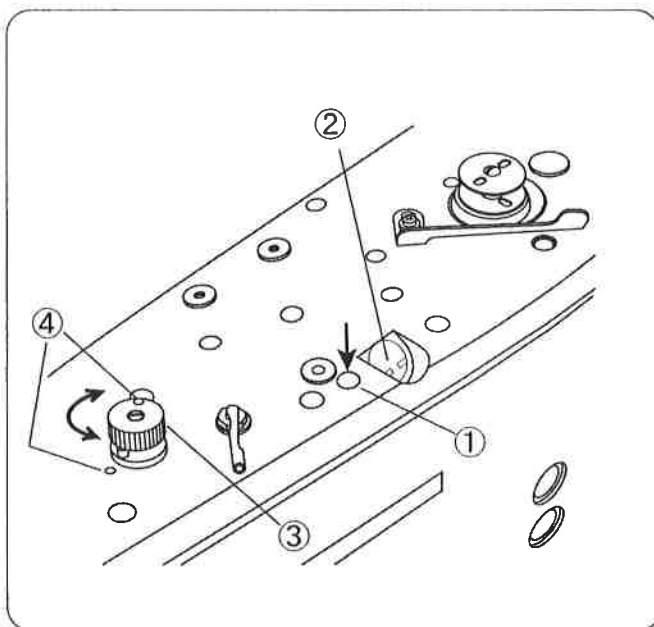


4.9 Lubrication

CAUTION

-  • Do not connect the power cord until lubrication has been completed, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
-  • Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil under any circumstances, as it can cause vomiting and diarrhea. Keep the oil of the reach of children.

- The sewing machine should always be lubricated and the oil supply replenished before it is used for the first time, and also be done after long periods of non-use.
- Oiling must be done at least once daily in continuous use.

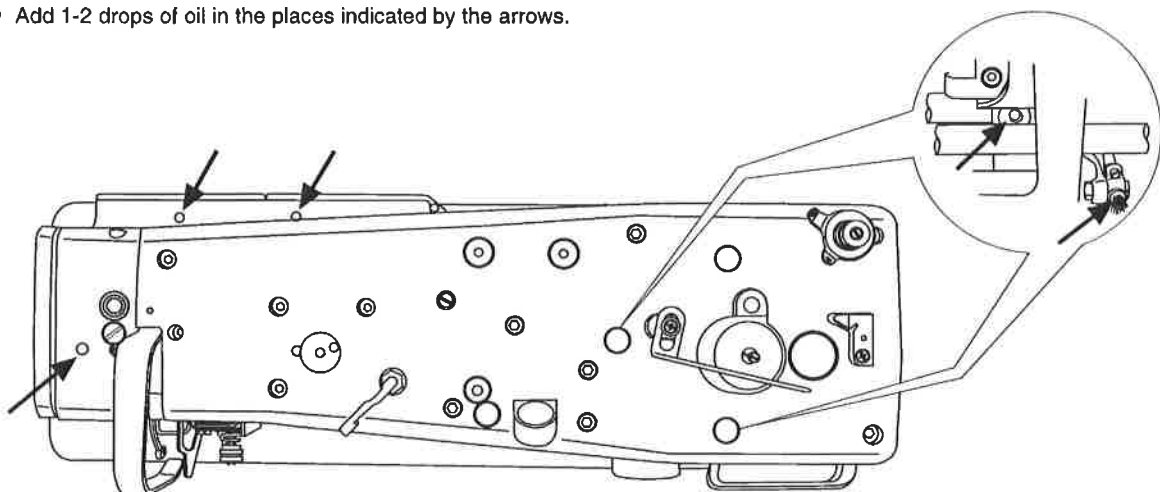


■ Oil reservoir

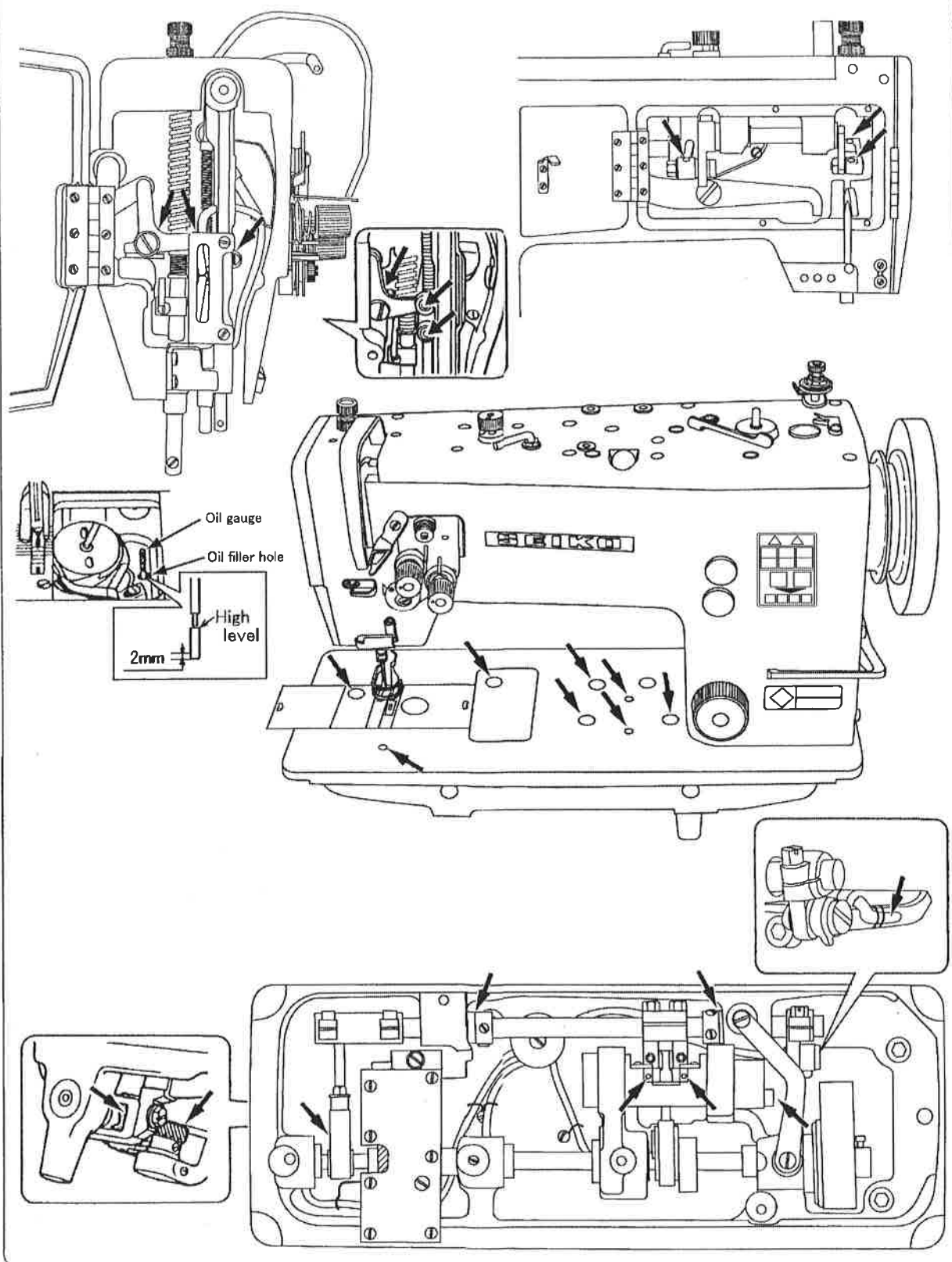
- To fill the oil reservoir on the top of the machine, pour oil through the oil filler hole ①, until the oil level reaches the upper reference line ② of the oil level indicator
- Lubrication is automatically performed via the machine's oiling wicks in response to vibration of the machine during sewing operation. The oil flow stops automatically when the machine stops.
- If oil starts to leak out from the jaw of the arm or from the needle bar, carry out the following operation momentarily to stop lubrication.

1. Turn the lubrication dial ③ until the two points ④ are aligned, when the dial will drop and lubrication will stop completely.
2. After sewing for a while, lift and turn the lubrication dial ③ until it will be on the pin. Lubrication will then start again.

- Add 1-2 drops of oil in the places indicated by the arrows.



- Add 1-2 drops of oil in the places indicated by the arrows.
Add oil to other sliding parts also, while being careful to avoid oil leaks.
Add oil, if oil level become less than 2mm.

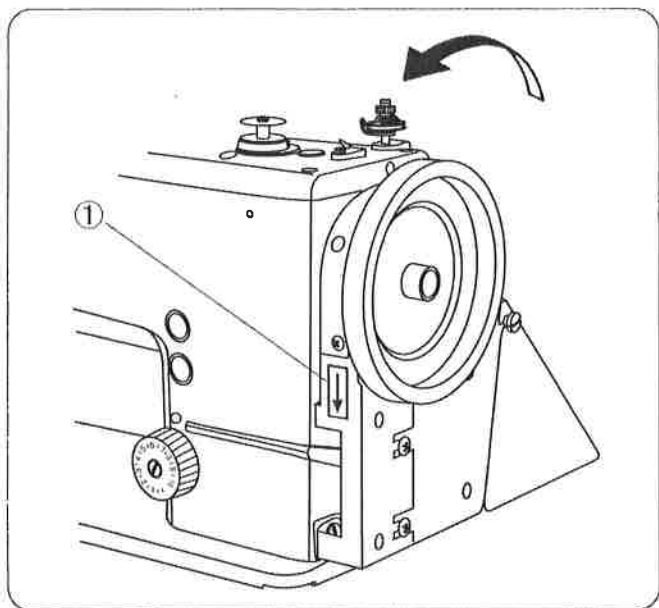


4.10 Checking the machine pulley rotating direction

CAUTION



• Do not touch any of moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.



1. Insert the power cord plug into the wall outlet, and then turn on the power supply.
2. Depress the treadle slightly and check that the machine pulley starts to turn in the direction of the arrow ①.

* If the direction of rotation is reversed, change the direction of rotation to the correct direction while referring to the instruction manual for the motor.

5. PREPARATION BEFORE SEWING

5.1 Installing the needle

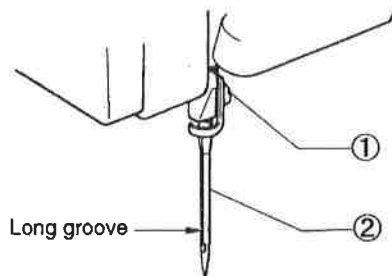


CAUTION



- Turn off the power switch before installing the needle, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

<For single needle>



1. Turn the machine pulley toward you to move the needle bar to its highest position.

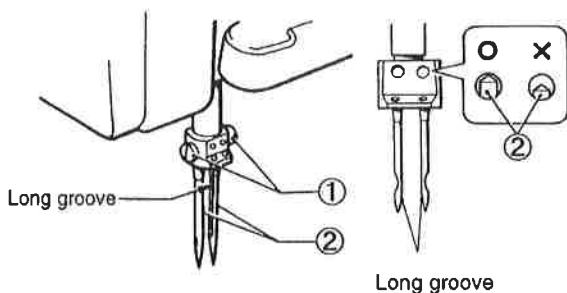
2. Loosen the screw ①.

<For single needle>

3. Holding the needle ② with its long groove facing left, insert into the needle bar as far as it will go.

4. Tighten the screw ①.

<For two needle>



<For two needle>

(Do the following operation for the two needles.)

3. Holding the needle ② with its long groove facing inward as shown in the illustration, insert into the needle clamp as far as it will go.

4. Tighten the screw ①.

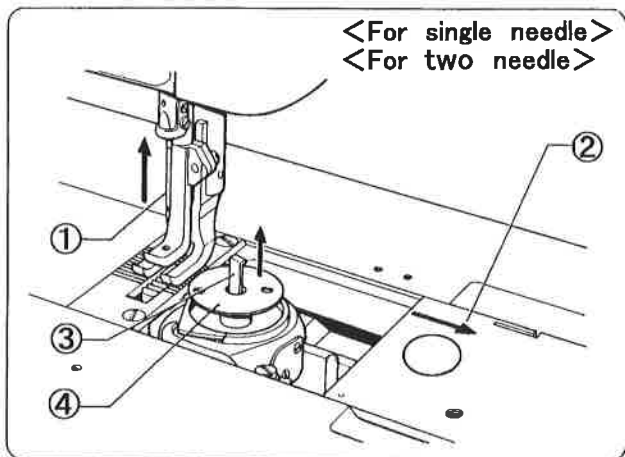
5.2 Removing the bobbin



CAUTION



- Turn off the power switch before removing the bobbin, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



1. Raise the needle ① to its highest position, and open the slide plate ②.
2. Raise the latch of the rotary hook ③, and remove the bobbin ④.

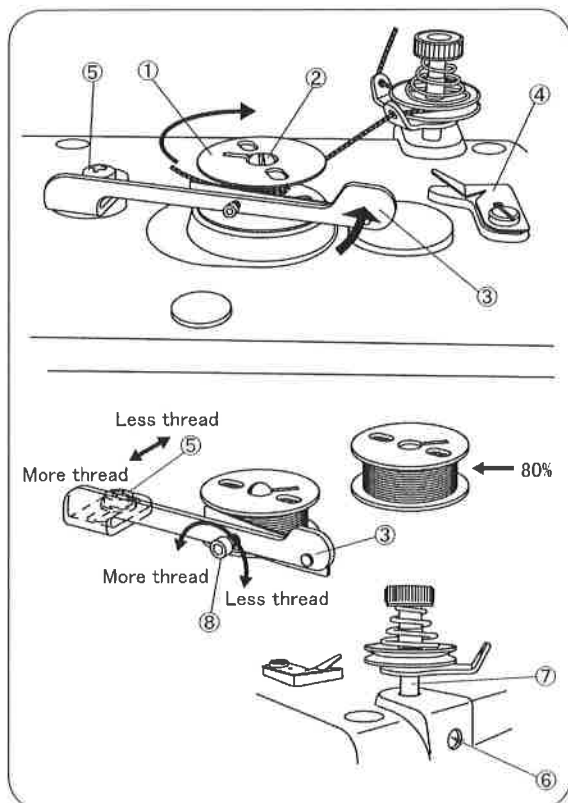
5.3 Winding the lower thread



CAUTION



- Do not touch any of moving parts or press any objects against the machine while winding the lower thread, as this may result in personal injury or damage to the machine.



1. Turn on the power supply.
2. Push the bobbin ① on the bobbin winder shaft ②.
3. Wind the thread end several times around the bobbin ① in the direction indicated by the arrow.
4. Push the bobbin winder lever ③ toward the bobbin.
5. Depress the treadle. Lower thread winding will then start.
6. Once winding of the lower thread is completed, the bobbin winder lever ③ will return automatically.
7. After the thread has been wound on, remove the bobbin and cut the thread with the thread trimming knife ④.

NOTE: The amount of thread wound onto the bobbin should be a maximum of 80% of the bobbin capacity.

* Loosen the screw ⑤ and adjust the amount of thread wound onto the bobbin approximately by moving the bobbin winder lever ③. Then adjust properly by turning the screw ⑧.

** If the thread does not wind on evenly, loosen the set screw ⑥ and move the bobbin winder tension stud ⑦ up or down to adjust.

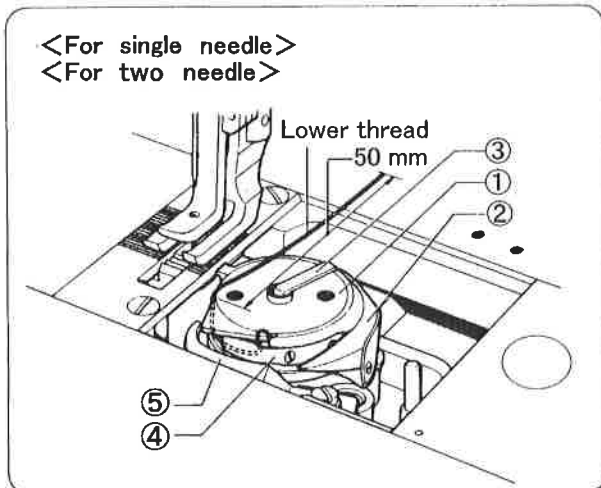
5.4 Installing the bobbin



CAUTION



- Turn off the power switch before installing the bobbin, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



1. Place the bobbin ① into the rotary hook ② as shown in the illustration.
2. Lay the latch ③ of the rotary hook.
3. Pass the thread end through the slit in the rotary hook.
4. Pass the thread under the tension spring ④.
5. Pass the thread through the space between the rotary hook ② and the bobbin case opener ⑤.
6. Pull the lower thread until there is a length of about 50 mm of thread above the throat plate.

5.5 Threading the upper thread



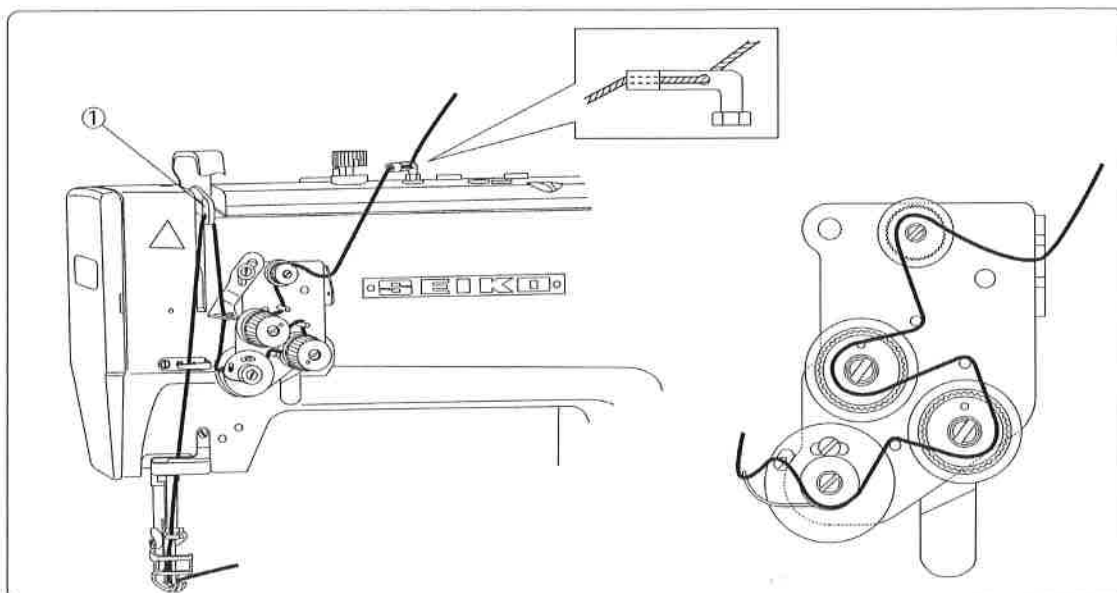
CAUTION



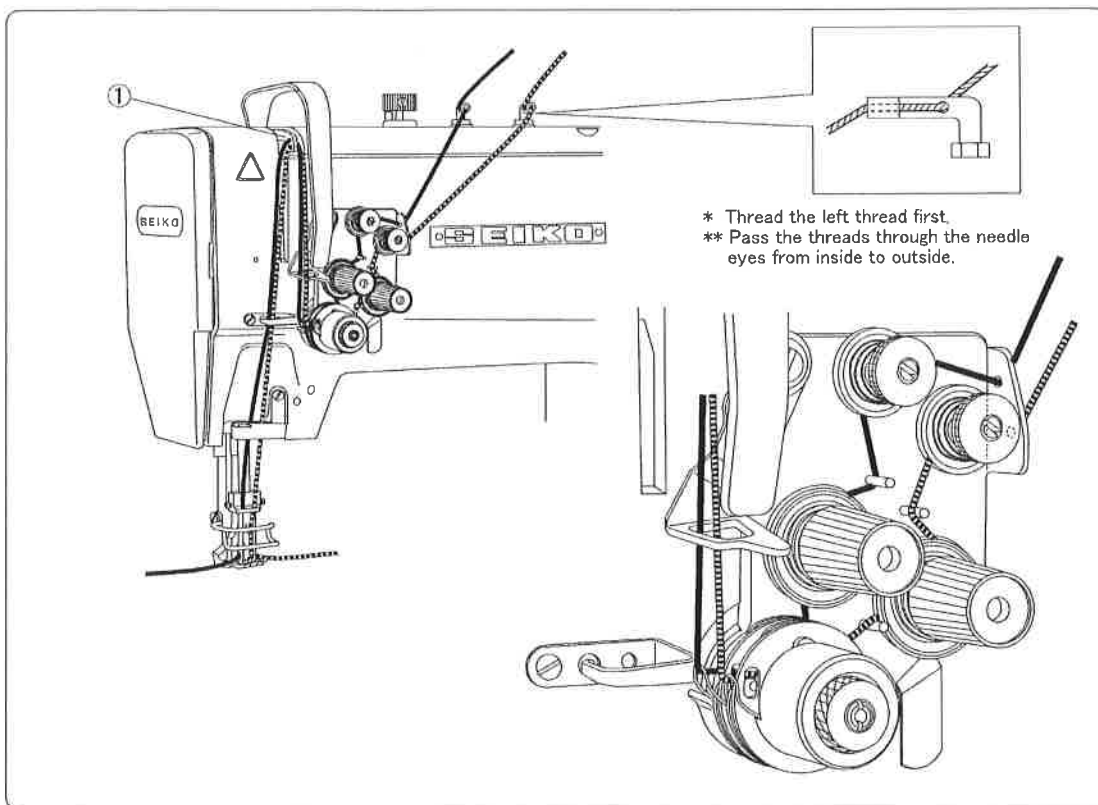
- Turn off the power switch before threading the upper thread, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

Turn the machine pulley and raise the thread take-up lever ① to its highest point before threading the upper thread. This will make threading easier and it will prevent the thread from coming out at the sewing start.

5.5.1 Single needle type



5.5.2 Two needle type



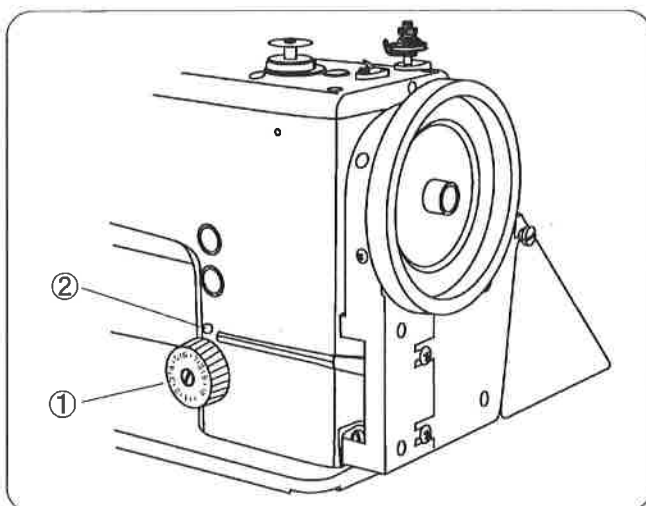
5.6 Adjusting the stitch length



CAUTION



- Turn off the power switch before adjusting the stitch length, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



Turn the feed adjustment dial ① clockwise or counterclockwise to align the number with the mark ②.

* The greater the number, the longer the stitch length.

6. SEWING



CAUTION



• Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result.



• Turn off the power switch at the following times, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.

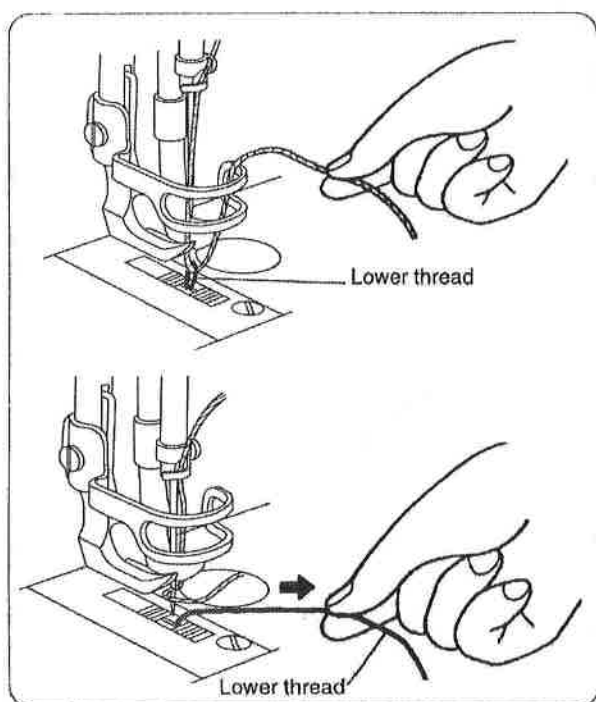
- When threading the needle
- When replacing the needle and bobbin
- When not using the machine and when leaving the machine unattended

* When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



• Do not touch any of moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

6.1 Sewing



1. While holding the upper thread with your fingers, turn the machine pulley by hand toward you until the lower thread comes out onto the feed dog.

* For machines with two needles, hold upper threads together when carrying out this work.

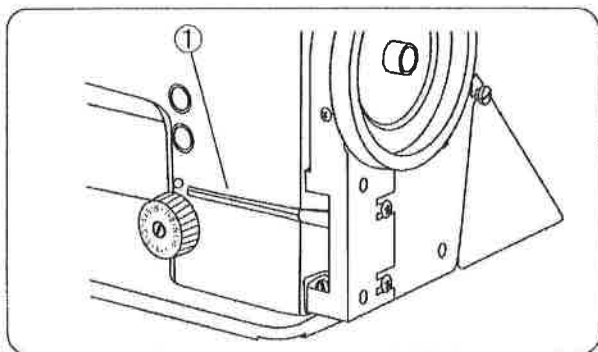
2. Pull the lower thread toward you to check that it comes out smoothly from the hole.

3. Close the slide plate

4. Turn on the power supply.

5. Depress the treadle to start sewing.

6.2 Reverse stitching

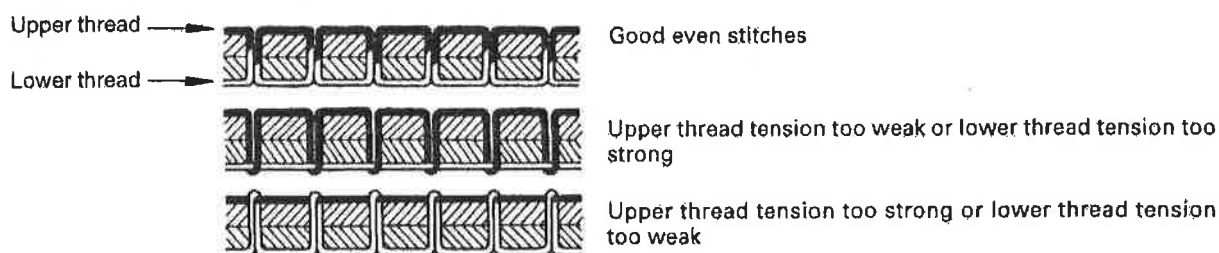


When the reverse lever ① is pressed, the material feed direction will be reversed.

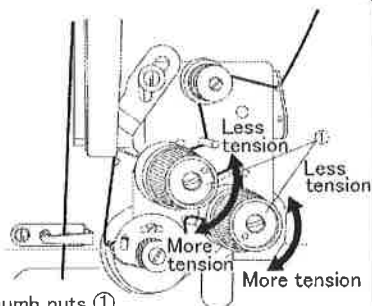
When it is released, the feed direction will return to normal.

7 THREAD TENSION

7.1 Adjusting the thread tension

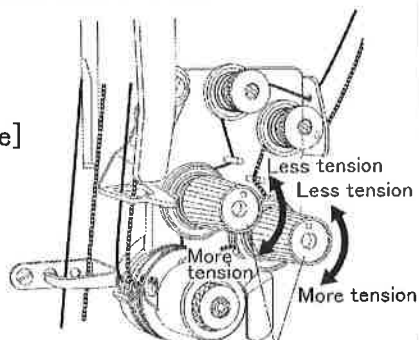


[For single needle]



* Adjust so that the two thumb nuts ① are tightend to the same degree of tension.

[For two needle]



■ Upper thread tension

The upper thread tension is adjusted by turning the tension thumb nut ①.

To increase the upper thread tension, turn the tension thumb nut ① to the right.

To decrease the upper thread tension, turn the tension thumb nut ① to the left.

■ lower thread tension

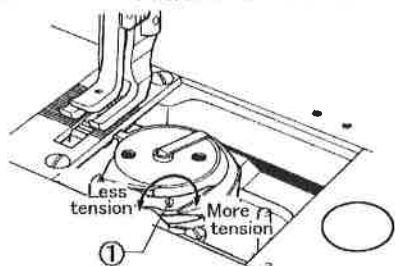


CAUTION



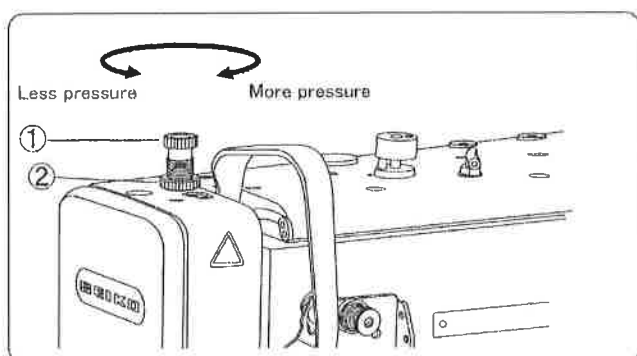
• Turn off the power switch before adjusting the lower thread tension, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.

* When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



Lower thread tension varies with the kinds of cloth and thread, and can be adjusted by turning the lower thread tension adjusting screw ①.

7.2 Adjusting the presser foot pressure



The presser foot pressure should be as weak as possible, but strong enough so that the material does not slip.

1. Loosen the nut ②.

2. Adjust by turning the thumb screw ①.

If the thumb screw ① is turned clockwise, the presser foot pressure will become stronger, and if it is turned counter-clockwise, the presser foot pressure will become weaker.

3. Tighten the nut ②.

8. STANDARD ADJUSTMENT



CAUTION



• Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.



• Ask your SEIKO dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.



• If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.



• Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.



• Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.

• When carrying out inspection, adjustment and maintenance

• When replacing consumable parts such as the rotary hook

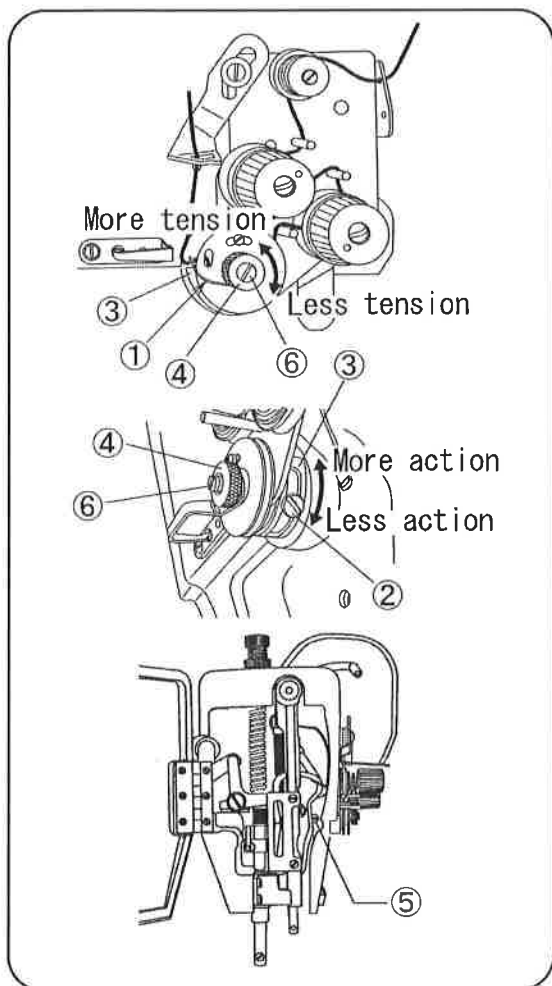
* When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



• If the power switch and air need to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.

8.1 Adjusting the thread controller spring

8.1.1 Single needle type



■ Thread controller spring tension

The standard tension for the thread controller spring ① is 0.59–0.98N (60–100gf).

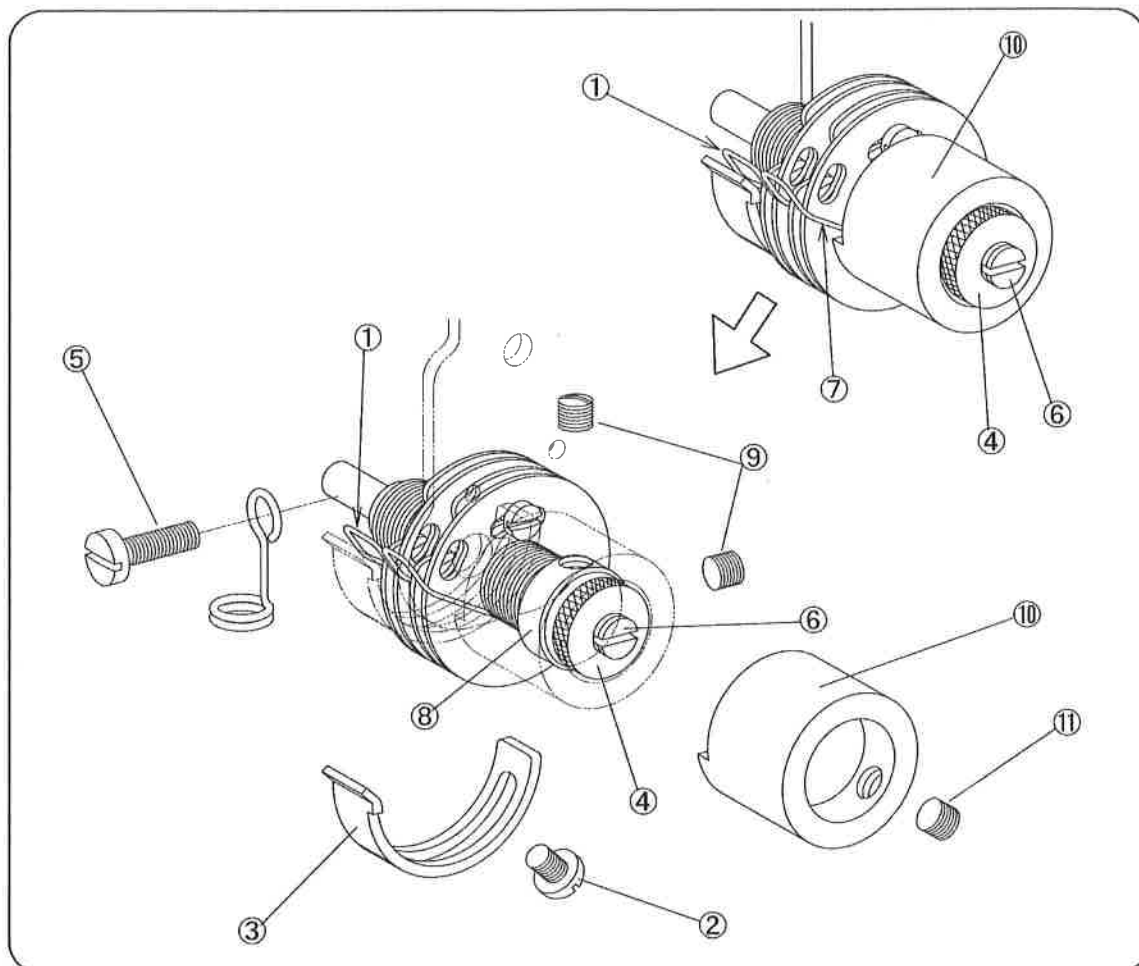
1. Loosen the thumb nut ④ and the screw ⑤.
2. Adjust the tension for the thread controller spring ① by turning the thread controller stud ⑥ with a screwdriver.
 - To increase the tension, turn the thread controller stud ⑥ to the left.
 - To decrease the tension, turn the thread controller stud ⑥ to the right.
3. After adjustment, tighten the thumb nut ④ and the screw ⑤.

■ Operating range of the thread controller spring

The standard operating range of the thread controller spring ① is 5–10 mm.

1. Loosen the screw ② and then adjust the operating range of the thread controller spring by turning the thread controller spring stopper ③.
 - For more operating range, turn the thread controller spring stopper ③ to the left.
 - For less operating range, turn the thread controller spring stopper ③ to the right.
2. After adjustment, tighten the screw ②.

8.1.2 Two needle type



■ Thread controller spring tension

The standard tension for each of the thread controller springs ① and ⑦ is 0.59–0.98N (60–100gf). Adjust the thread controller spring ① first and then adjust the thread controller spring ⑦.

1. Loosen the screws ⑤ and ⑪.

- To increase the tension, turn the thread controller stud ⑥ to the left with a screwdriver.
- To decrease the tension, turn the thread controller stud ⑥ to the right with a screwdriver.

After adjustment, tighten the screw ⑤.

2. Loosen the screw ⑪ and then remove the thread controller spring cover ⑩. Loosen the two screws ⑨ and the thumb nut ④.

- To increase the tension, turn the thread controller stud collar ⑧ to the left.
- To decrease the tension, turn the thread controller stud collar ⑧ to the right.

After adjustment, tighten the two screws ⑨ and the thumb nut ④, then replace the thread controller spring cover ⑩ and tighten the screw ⑪.

■ Operating range of the thread controller spring

The standard operating range of each of the thread controller springs ① and ⑦ is 5–10 mm.

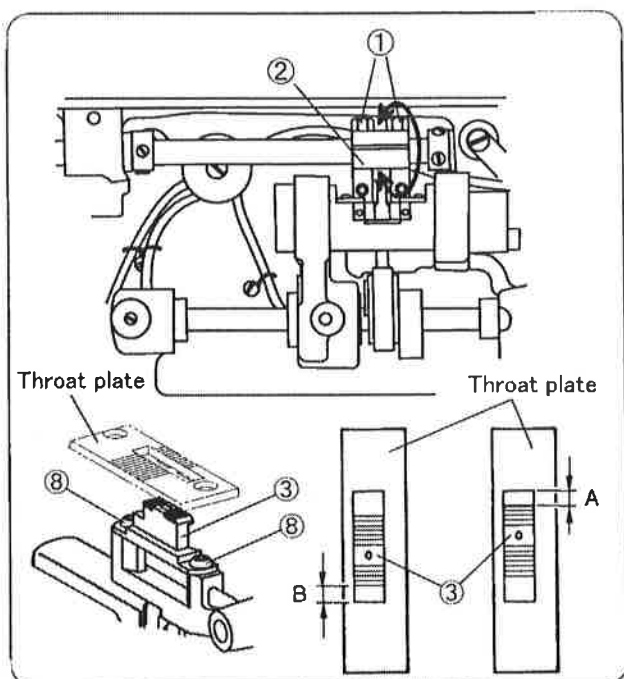
1. When adjusting the thread controller spring ⑦, loosen the screw ⑪.

- For more operating range, turn the thread controller spring cover ⑩ to the left.
 - For less operating range, turn the thread controller spring cover ⑩ to the right.
- After adjustment, tighten the screw ⑪.

2. When adjusting the thread controller spring ①, loosen the screw ②.

- For more operating range, turn the thread controller spring stopper ③ to the left.
 - For less operating range, turn the thread controller spring stopper ③ to the right.
- After adjustment, tighten the screw ②.

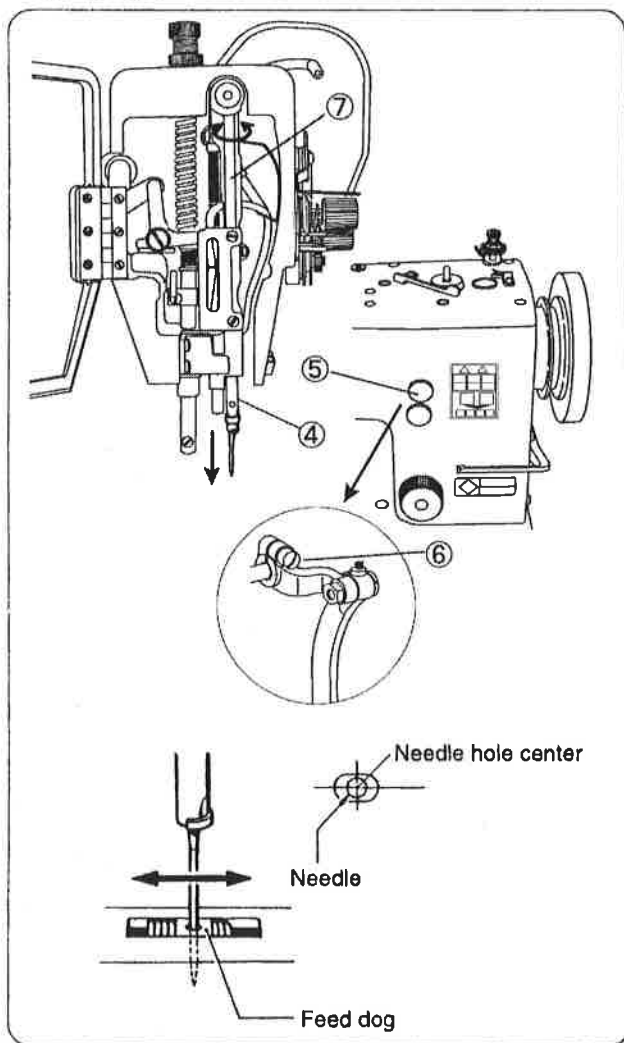
8.2 Adjusting the position of the needle and the feed dog



NOTE: When removing and reinstalling the feed dog ③, Tighten the screws ⑧ to a torque of $3\text{N}\cdot\text{m}$ ($30\text{kgf}\cdot\text{cm}$).

■ Adjusting the feed dog position (Longitudinal)

1. Set the feed adjustment dial to the largest setting.
2. Loosen the screws ①, and then move the crank ② to set the position of the feed dog ③ so that both minimum clearances A and B are equal when the feed dog ③ moves backward or forward.
3. After adjustment, tighten the screws ①.

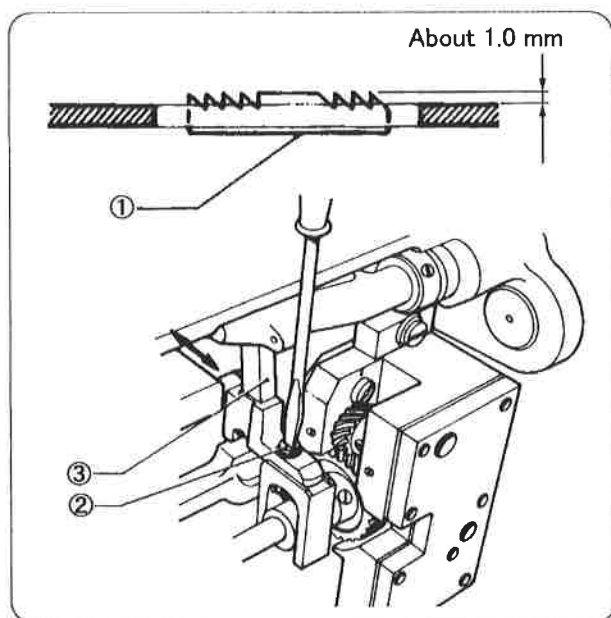


■ Positions of the needle and the needle hole in the feed dog

Turning the pulley to lower the needle bar ④ slowly, check whether the needle falls in the center in the needle hole in the feed dog or not. If the needle does not enter into the center in the needle hole:

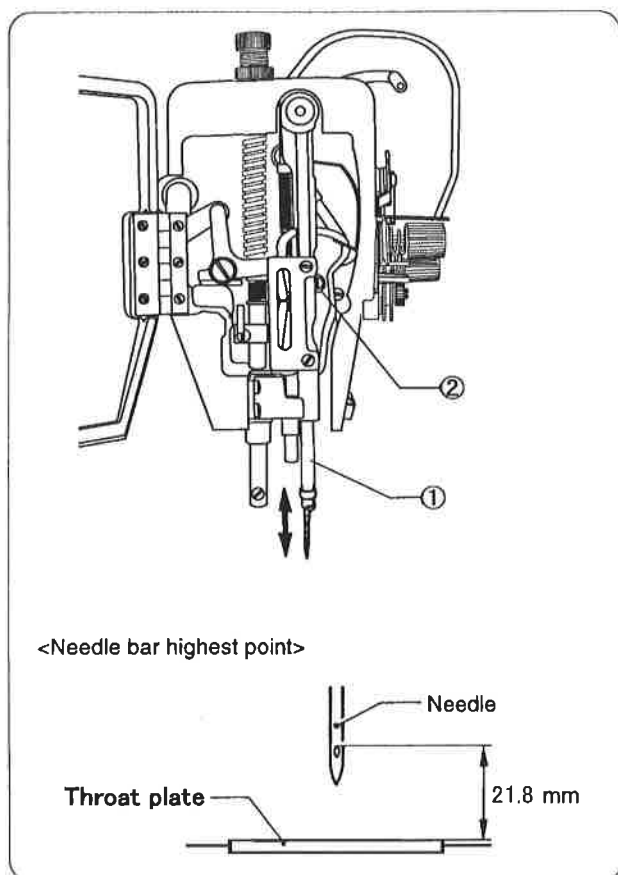
1. Remove the rubber ⑤.
2. Loosen the screw ⑥ through the window of the arm.
3. Holding the needle bar rock frame ⑦, move it as may be required to get the correct position to the feed dog. Then tighten the screw ⑥.
4. Replace the rubber ⑤.

8.3 Adjusting the height of the feed dog



1. Turn the machine pulley until the feed dog ① rises to its highest position.
2. Loosen the screw ②, and raise or lower the feed bar ③ so that the feed dog ① will rise about 1.0 mm above the throat plate.

8.4 Adjusting the height of the needle bar

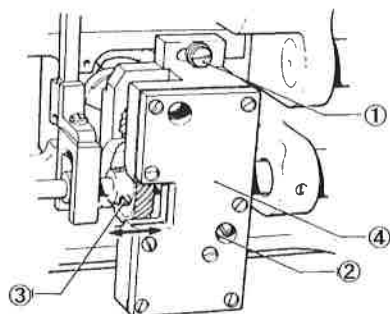
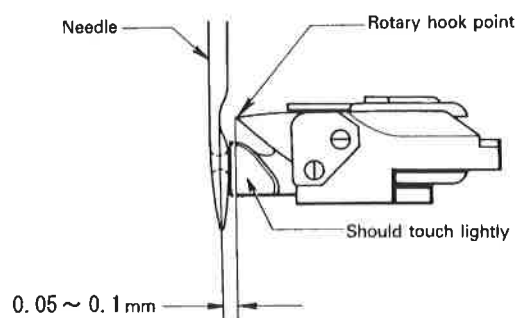
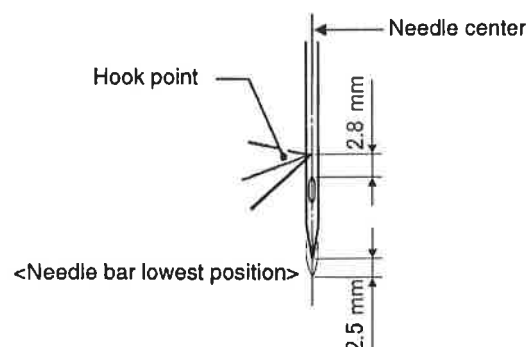


When the needle bar ① is at its highest point, normally the measurement between the surface of the throat plate and the upper end of the needle eye is 21.8 mm.

1. Loosen the screw ② and move the setting position of the needle bar ① to get the correct position.
2. Tighten the screw ②.

8.5 Adjusting the timing between the needle and the hook

<For single needle>
<For two needle>



After adjusting the height of the needle bar, set the stitch length to minimum, and then turn the machine pulley toward you until the needle bar reaches its lowest point.

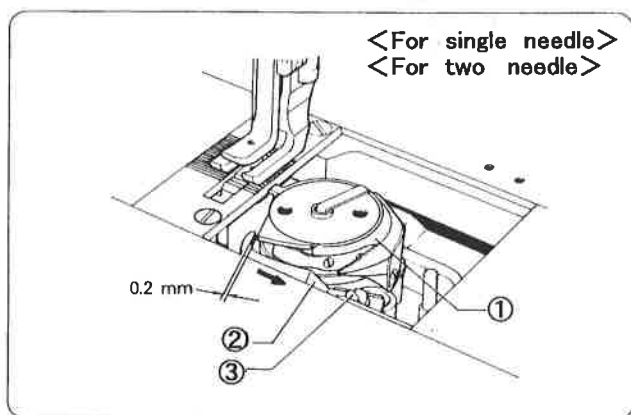
Continue turning and allow the needle bar to rise about 2.5 mm while on its upward stroke. With the needle bar in this position, the hook point should be at the center of the needle, and normally the measurement between the hook point and the upper end of the needle eye should be 2.8 mm, further the clearance between the hook point and the needle hollow should be about 0.05 to 0.1 mm.

The needle should slightly contact the needle guard.

* If they are not measured as above, perform the adjustments below.

1. Loosen the screws ①, ② and ③, and then adjust the clearance between the hook point and the needle hollow to between 0.05 and 0.1 mm by moving the hook saddle ④ to the right or the left.
2. Turn the machine pulley to raise the needle bar by 2.5 mm from its lowest position.
3. After adjusting the clearance, adjust the needle guard so that the needle and the needle guard lightly touch each other.
4. After adjustment, securely tighten the screw ①, ② and ③.

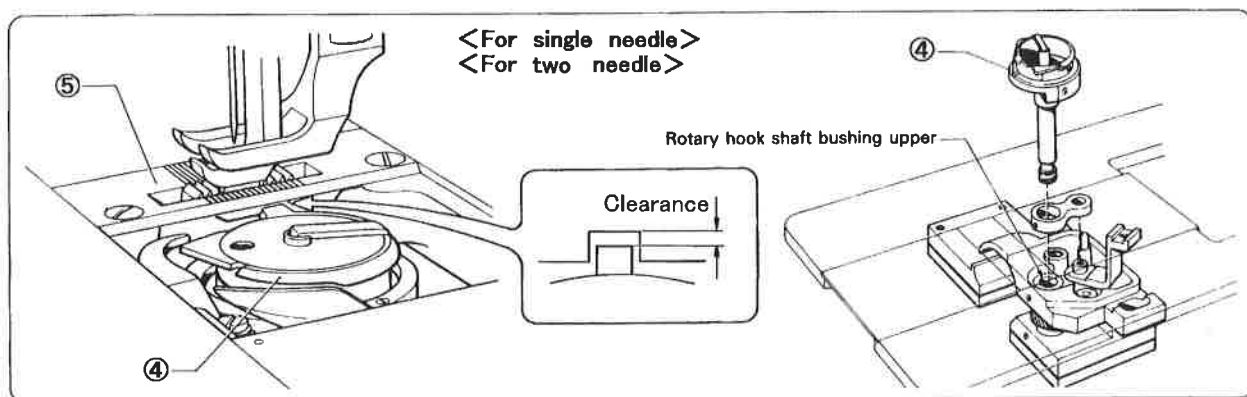
8.6 Adjusting the clearance between the rotary hook and the bobbin case opener



Adjust the clearance between the rotary hook ① and the bobbin case opener ② to about 0.2 mm when the bobbin case opener ② have retracted fully in the arrow direction.

1. Loosen the screw ③.
2. Move the bobbin case opener ② to the right or the left.
3. After adjustment, tighten the screw ③ securely.

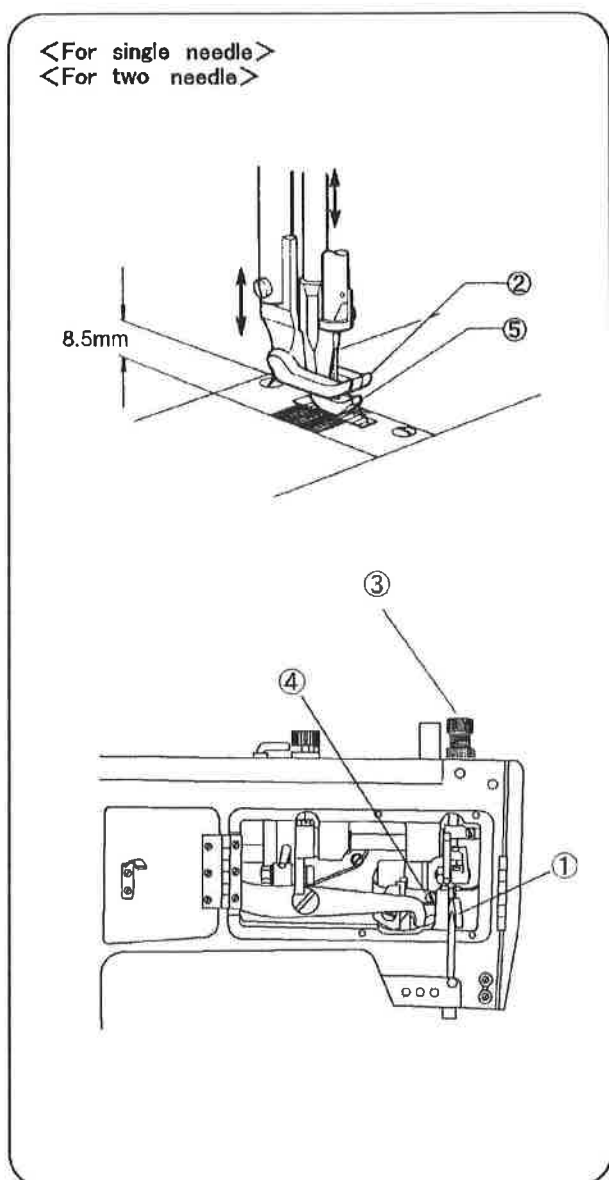
8.7 Adjusting the clearance between the rotary hook and the throat plate



The rotary hook ④ is set to the proper height by the bushing (upper) so that the clearance between the rotary hook ④ and the throat plate ⑤ will be set as required.

Model	Clearance
LSWN-8BL-3	1.0 mm
LSWN-8BL/TA-3	1.3 mm
LSWN-28BL-3	1.0 mm
LSWN-28BL/TA-3	1.3 mm

8.8 Adjusting the height of the presser foot

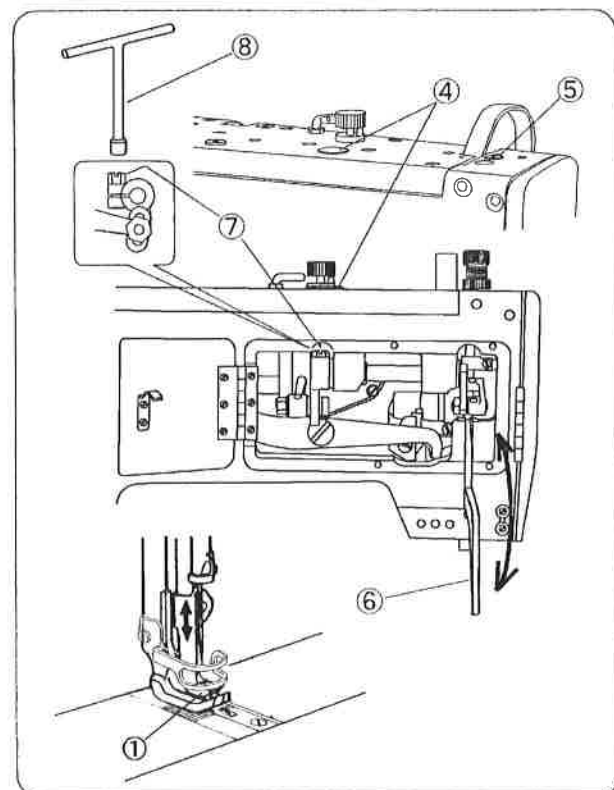
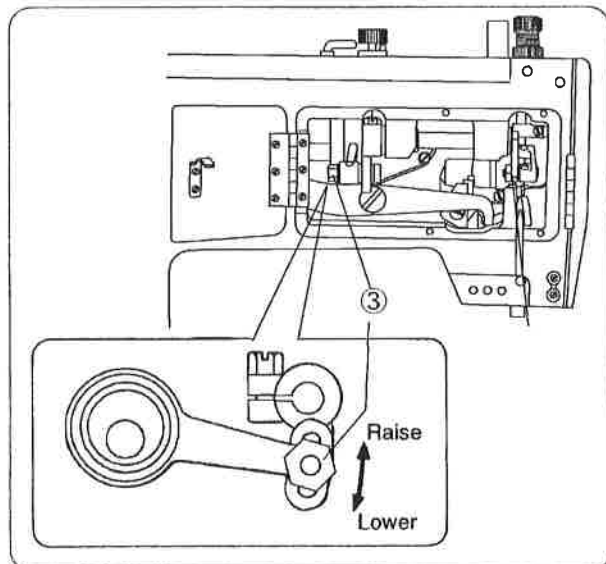
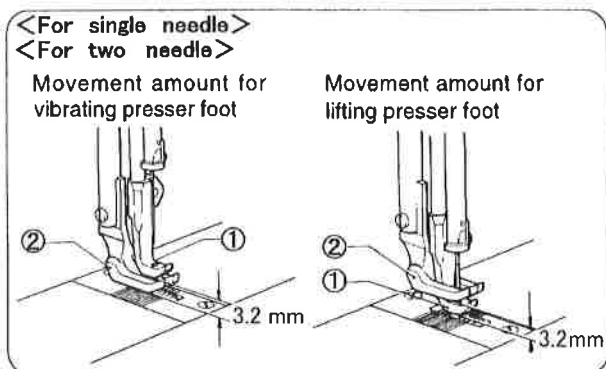


The standard height of the lifting presser foot ② is 8.5 mm when the presser foot has been raised by the presser bar lifter ①.

1. Loosen the screw ③, raise the presser bar lifter ①, and then loosen the set screw ④.
2. Move the lifting presser foot ② up or down to adjust its height.
3. Tighten the screw ④.
4. Tighten the screw ③ to adjust the presser foot pressure.

NOTE: If the height of the lifting presser foot ② is changed, the movement amount of the lifting presser foot ② and the vibrating presser foot ⑤ will change. Adjust the amount of movement of the vibrating presser foot ⑤ so that it matches the movement of the lifting presser foot ②.

8.9 Adjusting the presser foot movement amount



- The vibrating presser foot ① and the lifting presser foot ② move up and down alternately.
- Normally the vibrating presser foot ① and the lifting presser foot ② move to the same height in their vertical motions. (Standard height: 3.2 mm)
- The maximum height of the vibrating presser foot ① and the lifting presser foot ② is 6 mm.

If changing the movement amounts of both the vibrating presser foot and the lifting presser foot simultaneously, use method (A); if increasing the movement amount for only one (thereby decreasing the movement amount of the other), use method (B).

Method (A): Simultaneous adjustment of the movement amount for both the vibrating presser foot and the lifting presser foot

1. Loosen the nut ③.
2. Move the nut ③ up or down as suitable to the work.

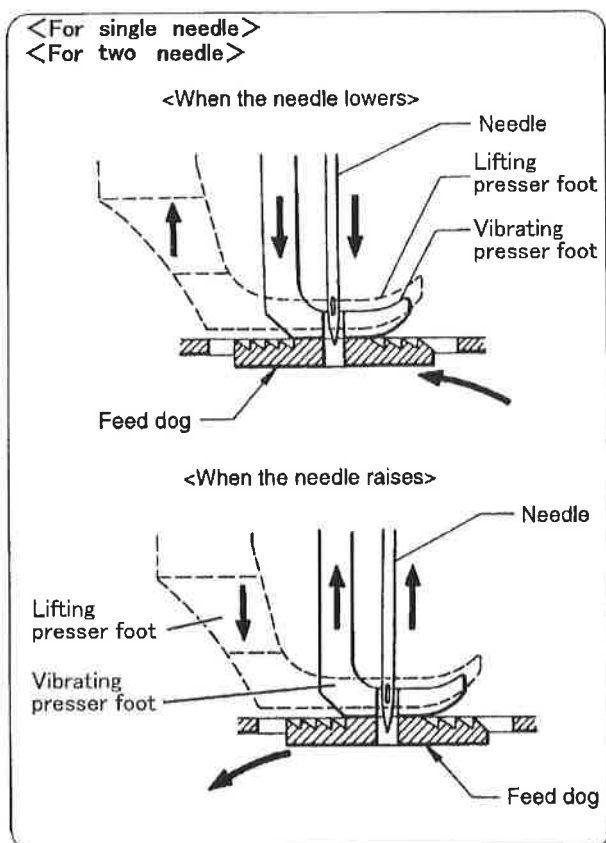
Raise the nut ③ for increasing motion; or lower it for decreasing motion.

3. Tighten the nut ③.

Method (B): Adjustment of the movement amount for the vibrating presser foot

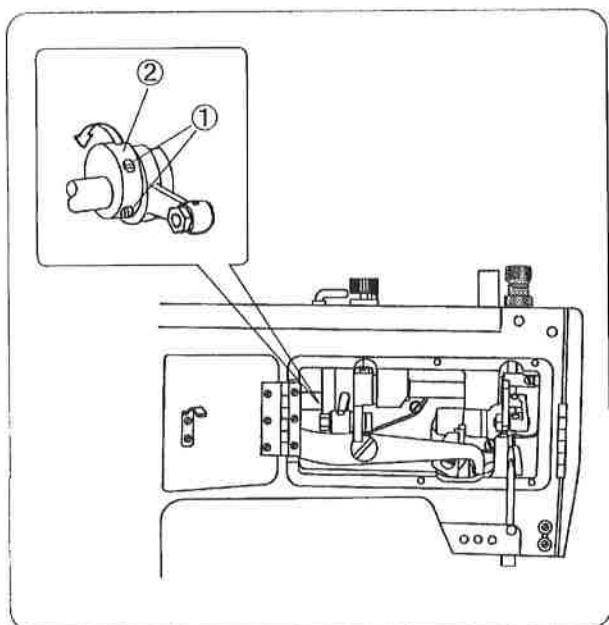
1. Remove the rubber cap ④, and then loosen the vibrating presser bar screw ⑤.
2. Lower the presser bar lifter ⑥.
3. While holding the vibrating presser foot ①, loosen the bolt ⑦ with the T box wrench, and then move the vibrating presser foot ① up or down as necessary.
4. After positioning the vibrating presser foot ①, tighten the bolt ⑦.
5. Tighten the vibrating screw ⑤, and then replace the rubber cap ④.

8.10 Adjusting the timing of the vibrating presser foot



Check the vibrating presser foot timing as follows:

1. Lower the presser bar lifter lever, and then turn the pulley toward you. At the time the vibrating presser foot should reach the feed dog before the needle eye does.
2. When the needle is raised, make sure that the vibrating presser foot is still holding the material firmly. If the vibrating presser foot rises while the needle is still penetrating to the material, it may cause skipped stitches, etc.



If the timing is not correct after you make these adjustments:

1. Loosen the two screws ①.
2. To synchronize the timing of the vibrating presser foot, turn the cam ②.
3. Tighten the screws ①.

8.11 Adjusting the rotary hook lubrication amount



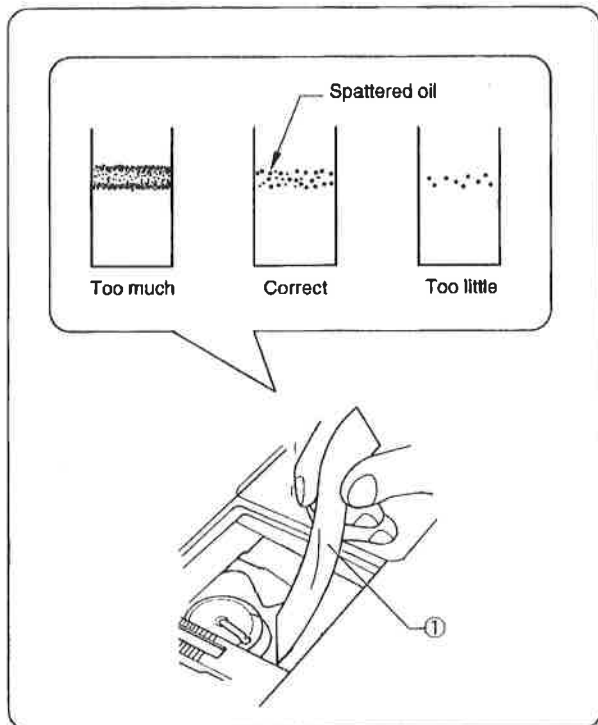
CAUTION



• When checking the rotary hook lubrication, do not touch moving parts such as the rotary hook, needle and needle bar with your finger or paper nor push them with other objects, otherwise injury or damage to the machine may result.

Adjust the rotary hook lubrication amount by the following procedure.

* Be sure to adjust the rotary hook lubrication amount whenever the rotary hook is replaced.



■ Checking the lubrication amount

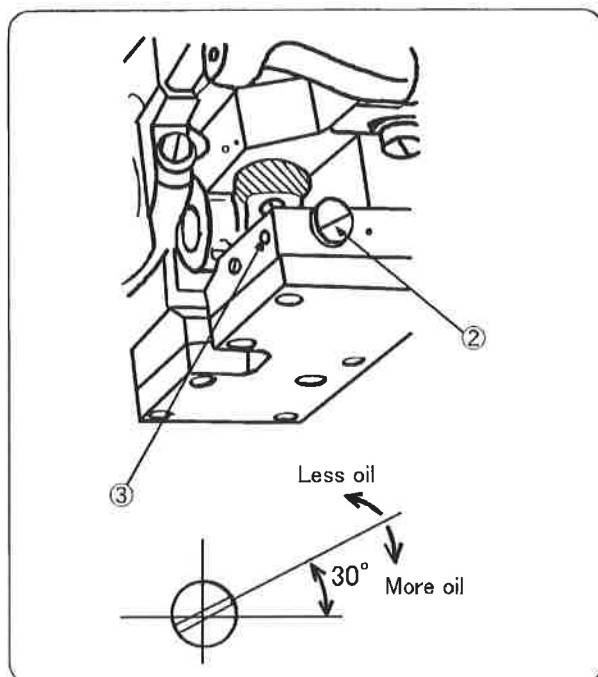
After adjusting the lubrication adjustment screw, run the sewing machine for approximately one minute to allow the lubrication amount to stabilize before checking the lubrication amount.

1. Insert the lubrication amount check sheet ① from the right side of the rotary hook and hold it there. Then run the sewing machine at high speed for 10 seconds.

* Any type of paper can be used as the lubrication amount check sheet ①.

2. Check the amount of oil which has spattered onto the lubrication amount check sheet ①.

* After approximately 10 seconds, the amount of oil spattered by the rotary hook should be as shown in the illustration at left.



■ Adjusting the lubrication amount

1. Lay the machine head.

2. Loosen the screw ③ and adjust the lubrication amount by turning the lubrication adjustment screw ②.

3. After adjustment, tighten the screw ③ securely.

(Reference)

The standard setting is that the slot of the screw is at an angle of 30 degrees as shown in the illustration.

When the slot is horizontal; angle is zero degrees, the lubrication quantity is in the maximum.

9. SAFETY CLUTCH MECHANISM

If the thread is tangled with the rotary hook during sewing, the safety mechanism for the safety clutch pulley operates to stop the lower shaft and let the safety clutch pulley idle, thereby protecting the rotary hook and the timing belt.

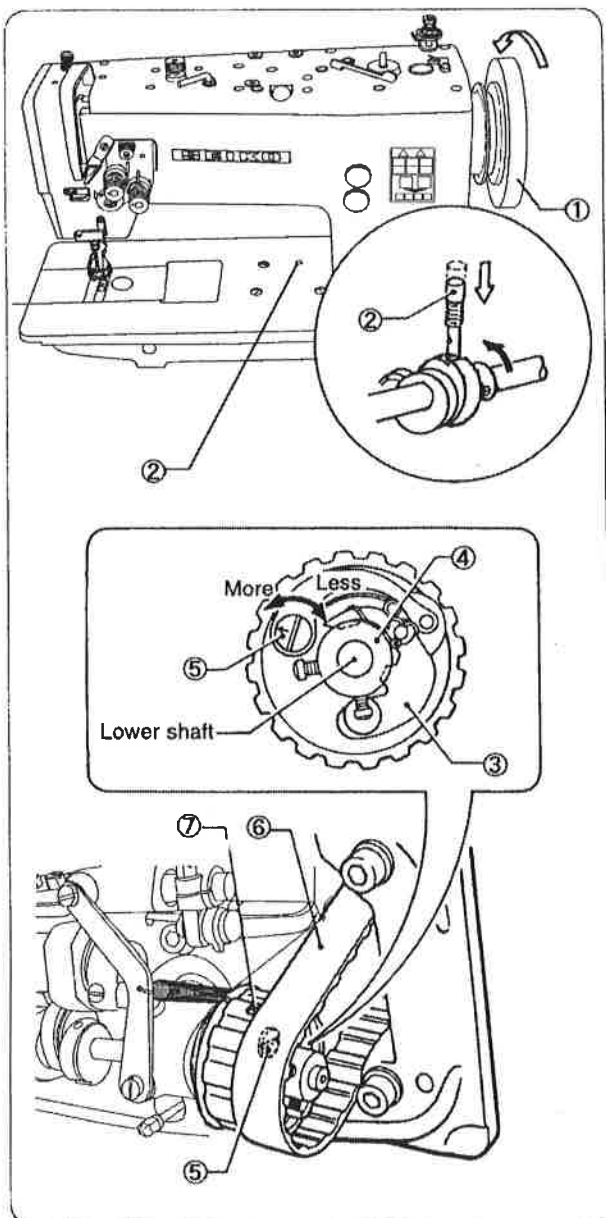
Release the safety clutch mechanism as mentioned below.



CAUTION



- Turn off the power switch before releasing the safety clutch mechanism, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



■ Releasing the safety clutch mechanism

1. Remove the thread entangled with the rotary hook.

NOTE: Do not use a sharp-edged tool to clean the hook; otherwise the rotary hook may become damaged.

2. Slowly turn the machine pulley ① backward while pressing the push button ②. The safety clutch mechanism will then be reset. (The safety clutch locking lever ③ must be correctly in the groove of the safety clutch collar ④.)

■ Safety clutch mechanism engaging tension

The safety clutch mechanism engaging tension is weakest when the arrow on the lever screw hinge pin ⑤ points to the center of the lower shaft; and increases as it points outward.

1. Remove the timing belt ⑥.
2. Loosen the screw ⑦, and then adjust by turning the lever screw hinge pin ⑤.
3. After adjustment, tighten the screw ⑦ securely.
4. Put the timing belt ⑥ on the safety clutch pulley.

10. TROUBLESHOOTING

- Please check the following points before calling for repairs or service.
- If the following suggestions do not solve the problem, turn off the machine power supply and contact your nearest SEIKO dealer.

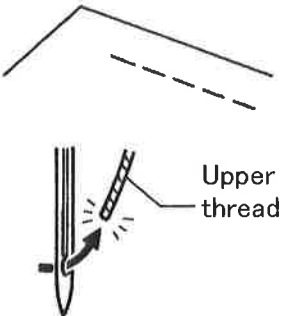


CAUTION

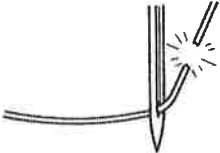


- Turn off the power switch and disconnect the power cord before carrying out troubleshooting, otherwise the machine will operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

Problem	Possible cause	Page
1. Upper thread is not tight. 	• Is the upper thread tension too weak, or is the lower thread tension too strong? Adjust the upper thread tension or lower thread tension. • Is the thread controller spring too weak? Adjust the tension of the thread controller spring. • Is the operating range for the thread controller spring too small? Increase the operating range for the thread controller spring. • Is the clearance between the rotary hook and throat plate stopper correct? Adjust the bobbin case opener.	20 21,22 21,22 26
2. Lower thread is not tight. 	• Is the lower thread tension too weak, or is the upper thread tension too strong? Adjust the lower thread tension or upper thread tension.	20
3. Loops appear in seam. 	• Is the tip of the needle burred? If the tip of the needle is burred, replace the needle. • Is the needle hole facing in the correct direction? If the direction of the hole is incorrect, install the needle correctly. • Is the needle too thin for the thread? Replace with a needle that is one rank thicker. • Is the upper thread tension too weak? Adjust the upper thread tension. • Is the thread controller spring too weak? Adjust the tension of the thread controller spring. • Is the operating range for the thread controller spring too small? Increase the operating range for the thread controller spring. • Is the thread path not smooth enough? Use a file with a fine grain or sandpaper to polish smooth the thread path. • Is there too much thread wound onto the bobbin? The bobbin-winding amount should not be more than 80%. • Is the bobbin-winding tension too strong or too weak? Wind the thread onto the bobbin at an appropriate tension.	15 15 2 20 21,22 21,22 — 16 —

Problem	Possible cause	Page
	•Is the bobbin turning smoothly? Pull out the lower thread to check the turning of the bobbin, and replace the bobbin if necessary. •Is the bobbin case tension spring defective? Replace the rotary hook. •Is the rotary hook scratched? Replace the rotary hook. •Is the feed dog height correct? Adjust the feed dog height so that it is 1.0mm when the feed dog is at its highest position. •Is the needle and feed timing correct? Adjust the needle and feed timing. •Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing. •Is the clearance between the rotary hook and throat plate stopper correct? Adjust the bobbin case opener. •Is the rotary hook lubrication amount too small? Check the oil amount of hook saddle with oil gauge. Adjust the rotary hook lubrication amount. •Is there any rubbish sticking to the rear of the bobbin case? Clean the bobbin case.	— — — 24 29 24, 25 26 13 30 —
4. Skipped stitches at sewing start Thread unraveling at sewing start 	•Is the feed dog height correct? Adjust the feed dog height so that it is 1.0mm when the feed dog is at its highest position. •Is the thread controller spring tension too strong? Reduce the tension of the thread controller spring. •Is the operating range for the thread controller spring too large? Decrease the operating range for the thread controller spring. •Is the presser foot pressure too weak? Adjust the presser foot pressure. •Is the needle too thick? Try using a needle with a count that is one lower than the current needle. •Is the thread take-up lever at its highest position at the sewing start? Set the thread take-up lever to its highest position at the sewing start.	24 21,22 21,22 20 2 17

Problem	Possible cause	Page
5. Skipped stitches occur while sewing. 	• Is the needle tip bent? Is the needle tip blunt? If the needle tip is bent or broken, replace the needle.	15
	• Is the needle properly installed? If it is incorrect, install the needle correctly.	15
	• Is the needle too thin or too thick for the thread? Replace with a needle that is suitable for the thread.	2
	• Is the machine properly threaded? If it is incorrect, thread the thread correctly.	18
	• Are the presser feet riding too high? Adjust the height of the presser feet.	27
	• Is the presser foot pressure too weak? Adjust the presser foot pressure.	20
	• Is the rotary hook tip broken or worn? Sharpen the rotating hook tip or replace the rotary hook.	–
	• Is the height of the needle bar correct? Adjust the height of the needle bar.	24
	• Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing.	24, 25
	• Is the needle guard position correct? Adjust the position of the needle guard.	25
	• Is the needle and feed timing correct? Adjust the needle and feed timing.	29
6. Uneven seam 	• Is the needle and feed timing correct? Adjust the needle and feed timing.	29
	• Is the feed dog height correct? Adjust the feed dog height so that it is 1.0mm when the feed dog is at its highest position.	24
	• Is the presser foot pressure too weak? Adjust the presser foot pressure.	20

Problem	Possible cause	Page
7. Upper thread breaks. 	•Is the needle bent or is the needle tip broken? Replace the needle if it is bent or broken	15
	•Is the needle scratched? Replace the needle.	15
	•Is the needle properly installed? If it is incorrect, install the needle correctly.	15
	•Is the needle too thin or too thick for the thread? Replace with a needle that is suitable for the thread.	2
	•Is the upper thread tension too strong or too weak? Adjust the upper thread tension.	20
	•Is the tension of the thread controller spring too strong or too weak? Adjust the tension of the thread controller spring.	21,22
	•Is the operating range for the thread controller spring too large or too small? Decrease or increase the operating range for the thread controller spring.	21,22
	•Is the thread path not smooth enough? Use a file with a fine grain or sandpaper to polish smooth the thread path.	—
	•Is the rotating hook tip broken or worn? Sharpen the rotating hook tip or replace the rotating hook.	—
	•Is the rotating hook thread path damaged? Smooth the rotating hook thread path or replace the rotating hook.	—
	•Is the clearance between the rotary hook and throat plate stopper correct? Adjust the bobbin case opener.	26
	•Has the needle been pushed in fully during installation? Install the needle correctly.	15
	•Is the height of the needle bar too low? Adjust the height of the needle bar.	24
	•Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing.	24, 25
	•Is the sewing speed too fast, causing the thread to break due to heat? Reduce the sewing machine speed.	*
	•Is the material feeding correctly at sections where the thickness changes (such as joints and pockets) ? Increase the presser foot pressure.	20

* See motor instruction manual.

Problem	Possible cause	Page
8. Needle breaks 	• Is the material being pushed or pulled with excessive force during sewing? • Is the needle properly installed? If it is incorrect, install the needle correctly. • Is the needle bent, is the needle tip broken, or is the needle hole blocked? Replace the needle. • Is the needle and feed timing correct? Adjust the needle and feed timing. • Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing. • Is the needle guard position correct? Adjust the position of the needle guard.	-- 15 15 29 24, 25 25
Caution • It is extremely dangerous to leave any pieces of broken needle sticking in the material. If the needle breaks, search for all pieces until the whole of the needle is found again. • Furthermore, we recommend that through steps be taken to account for such needles to comply with product liability regulations.		

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