



**SEIKO**

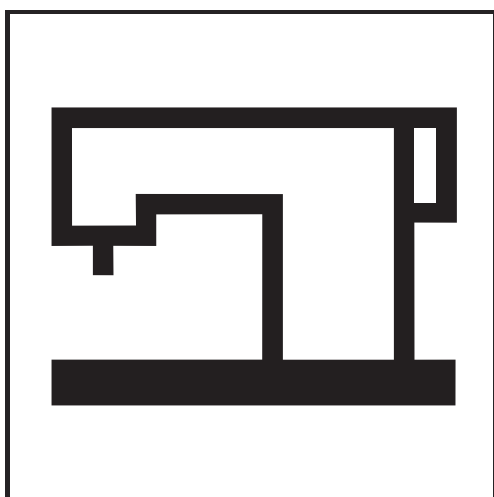
# INSTRUCTION MANUAL

SKZ-2B

SKZ-2B-3

SKZ-6B, SKZ-6B-3

SKZ-6BR, SKZ-6BR-3



**SEIKO SEWING MACHINE CO., LTD.**

Thank you very much for buying a SEIKO sewing machine. Before using your new machine, please read the safety instructions below and the explanations given in the instruction manual.

With industrial sewing machines, it is normal to carry out work while positioned directly in front of moving parts such as the needle and thread take-up lever, and consequently there is always a danger of injury that can be caused by these parts.


Follow the instructions from training personnel and instructors regarding safe and correct operation before operating the machine so that you will know how to use it correctly.

## SAFETY INSTRUCTIONS


### 1. Safety indications and their meanings

This instruction manual and indications and symbols that are used on the machine itself are provided in order to ensure safe operation of this machine and to prevent accidents and injury to yourself or other people. The meanings of these indications and symbols are given below.


#### Indications

 <b>CAUTION</b>	The instructions which follow this term indicate situations where failure to follow the instructions could cause injury when using the machine or physical damage to equipment and surroundings.
--	--


#### Symbols

- 

.....

This symbol (△) indicates something that should be careful of. The picture inside the triangle indicates the nature of the caution that must be taken.  
 (For example, the symbol at left means, “beware of injury”.)
- 










.....

This symbol (⊘) indicates something that you must not do.
- 

.....

This symbol (●) indicates something that you must do. The picture inside the circle indicates the nature of the thing that must be done.  
 (For example, the symbol at left means, “You must make the ground connection”.)

### 2. Notes on safety

<div>  <b>CAUTION</b> </div>	
Environmental requirements	
<div>  <div>           •Use the sewing machine in an area, which is free from sources of strong electrical noise such as high-frequency welders. Sources of strong electrical noise may cause problems with correct operation.         </div> </div> <div>  <div>           •Any fluctuations in the power supply voltage should be within ±10% of the rated voltage for the machine.            Voltage fluctuations that are greater than this may cause problems with correct operation.         </div> </div> <div>  <div>           •The power supply capacity should be greater than the requirements for the sewing machine’s electrical consumption.            Insufficient power supply capacity may cause problems with correct operation.         </div> </div> <div>  <div>           •The pneumatic delivery capability should be greater than the requirements for the sewing machine’s total air consumption.            Insufficient pneumatic delivery capability may cause problems with correct operation.         </div> </div>	<div>  <div>           •The ambient temperature should be within the range of 5°C to 35°C during use. Temperatures that are lower or higher than this may cause problems with correct operation.         </div> </div> <div>  <div>           •The relative humidity should be within the range 45% to 85% during use, and no dew formation should occur in any devices.            Excessively dry or humid environments and dew formation may cause problems with correct operation.         </div> </div> <div>  <div>           •Avoid exposure to direct sunlight during use.            Exposure to direct sunlight may cause problems with correct operation.         </div> </div> <div>  <div>           •In the event of an electrical storm, turn off the power and disconnect the power cord from the wall outlet.            Lighting may cause problems with correct operation.         </div> </div>



## CAUTION

### Installation



• 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 55kgf. 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.



• All cords should be secured at least 25mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electrical shocks could occur.



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



• If using a work table that has casters, the casters should be secured in such a way so that they cannot move.



• 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.



• 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 out of the reach of children.

### Sewing



• This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.



• The sewing machine should not be used for any applications other than sewing.



• Be sure to wear protective goggles when using the machine. If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and 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.



• If using a worktable that has casters, the casters should be secured in such a way so that they cannot move.



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



• 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.



• 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.



• If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest SEIKO dealer or a qualified technician.



• If the machine develops a problem, contact your nearest SEIKO dealer or a qualified technician.



## CAUTION

### Cleaning



▪ Turn off the power switch before carrying out cleaning, 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.



▪ 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.



▪ 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 they can cause vomiting and diarrhea. Keep the oil out of the reach of children.

### Maintenance and inspection



▪ 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.



▪ 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.



▪ 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.



▪ 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.



▪ Use only the proper replacement parts as specified by SEIKO.



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

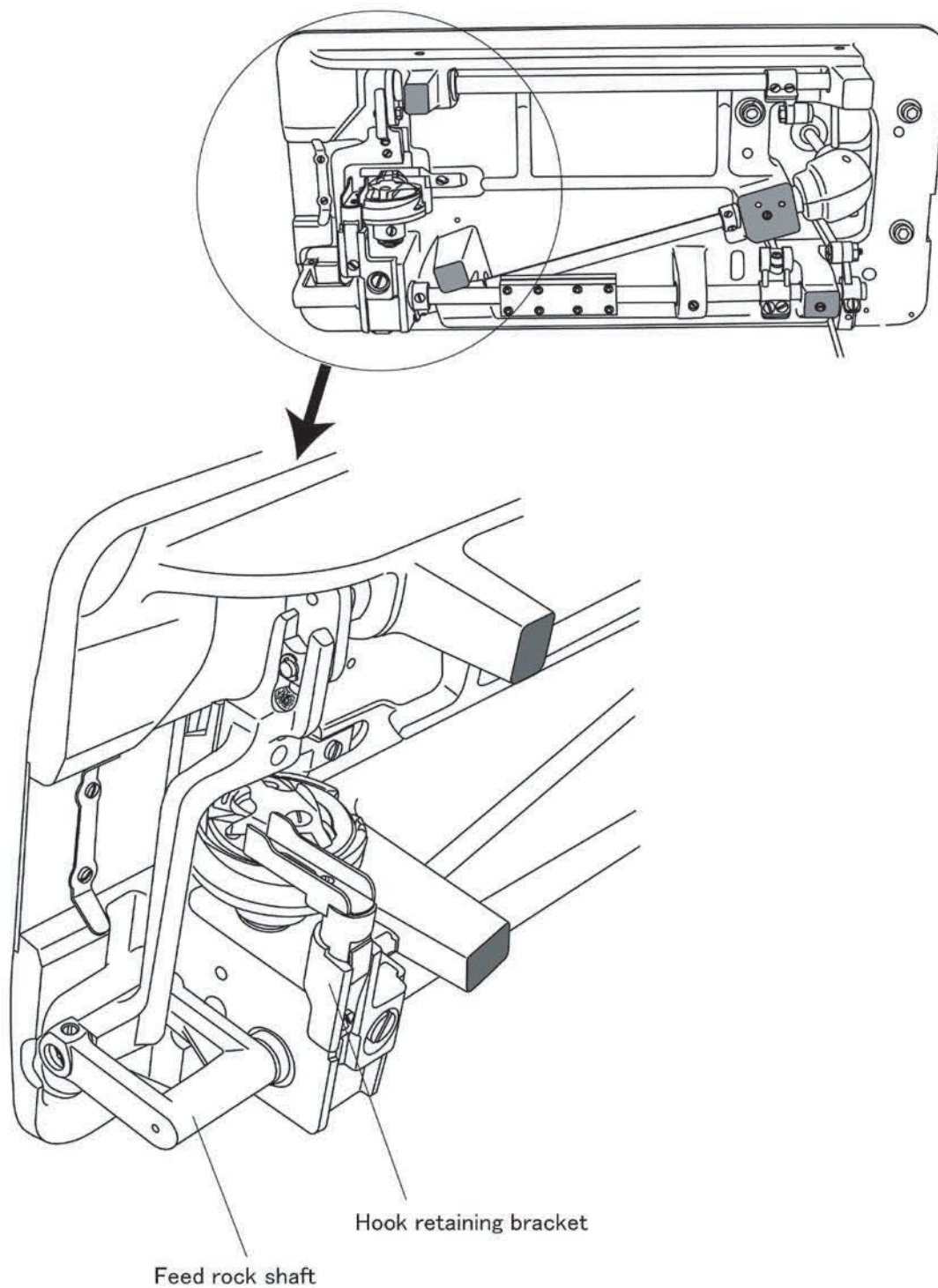


▪ Any problems in machine operation, which result from unauthorized modifications to the machine, will not be covered by the warranty.



## CAUTION

Don't hit the hook retaining bracket and the feed rock shaft against the thing of the outside strongly, when you move a sewing machine for the installation and the check. They may break by the shock.



### 3. Warning labels

\* The following warning labels appear on the sewing machine.

Please follow the instructions on the labels at all times when using the machine.

If the labels have been removed or are difficult to read, please contact your nearest SEIKO dealer.

①



Caution  
Moving parts may cause injury.

Attach all safety devices  
before using the sewing machine.

Turn off the power switch  
at the following times.

- When threading the needle.
- When replacing the bobbin, needle, knife, rotary hook.
- When lubrication, cleaning, adjustment and maintenance.

②



Be sure to connect the ground.

If the ground connection is not secure, you run the risk of receiving a serious electric shock.

③



Direction of operation

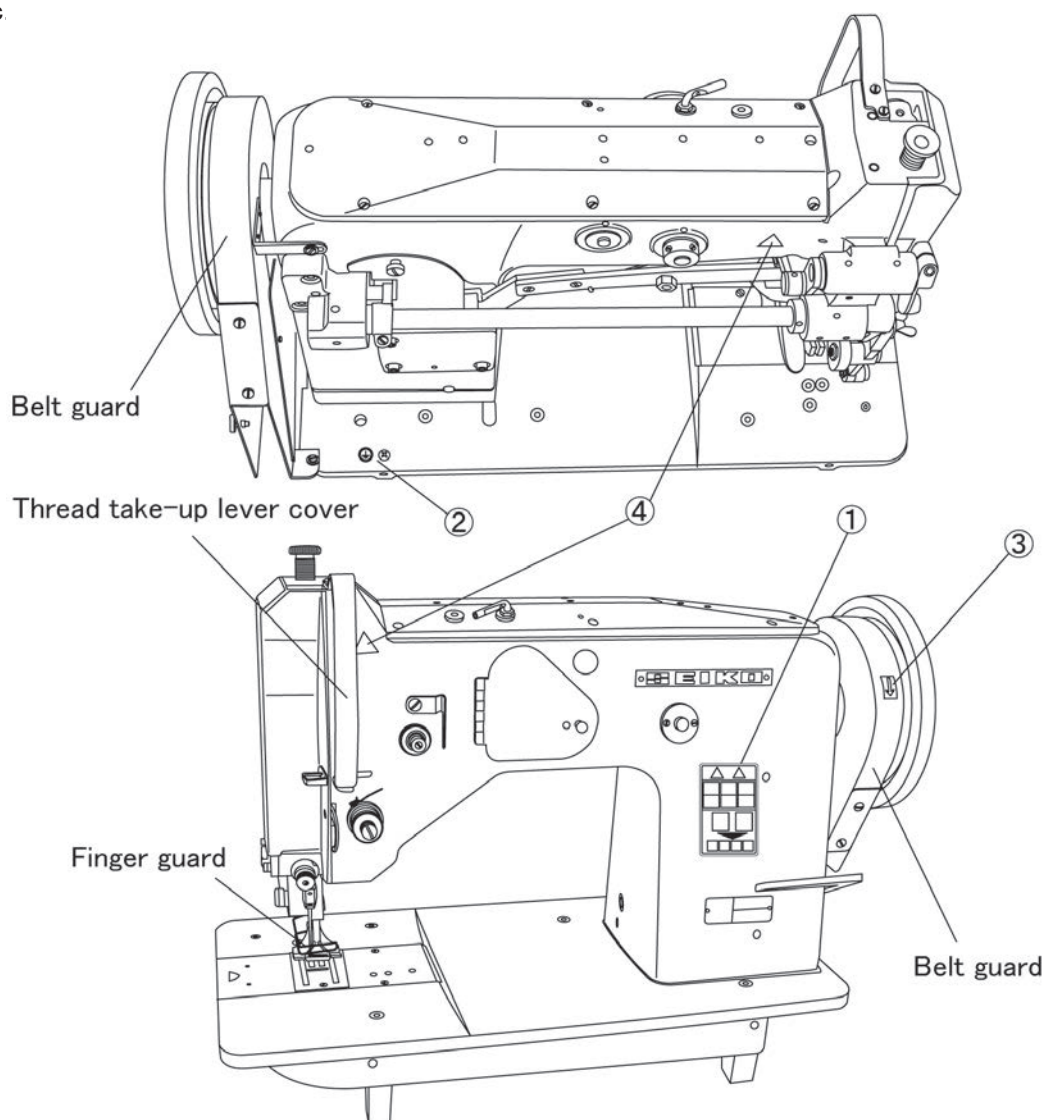
④



Moving parts may cause injury.

#### Safety devices

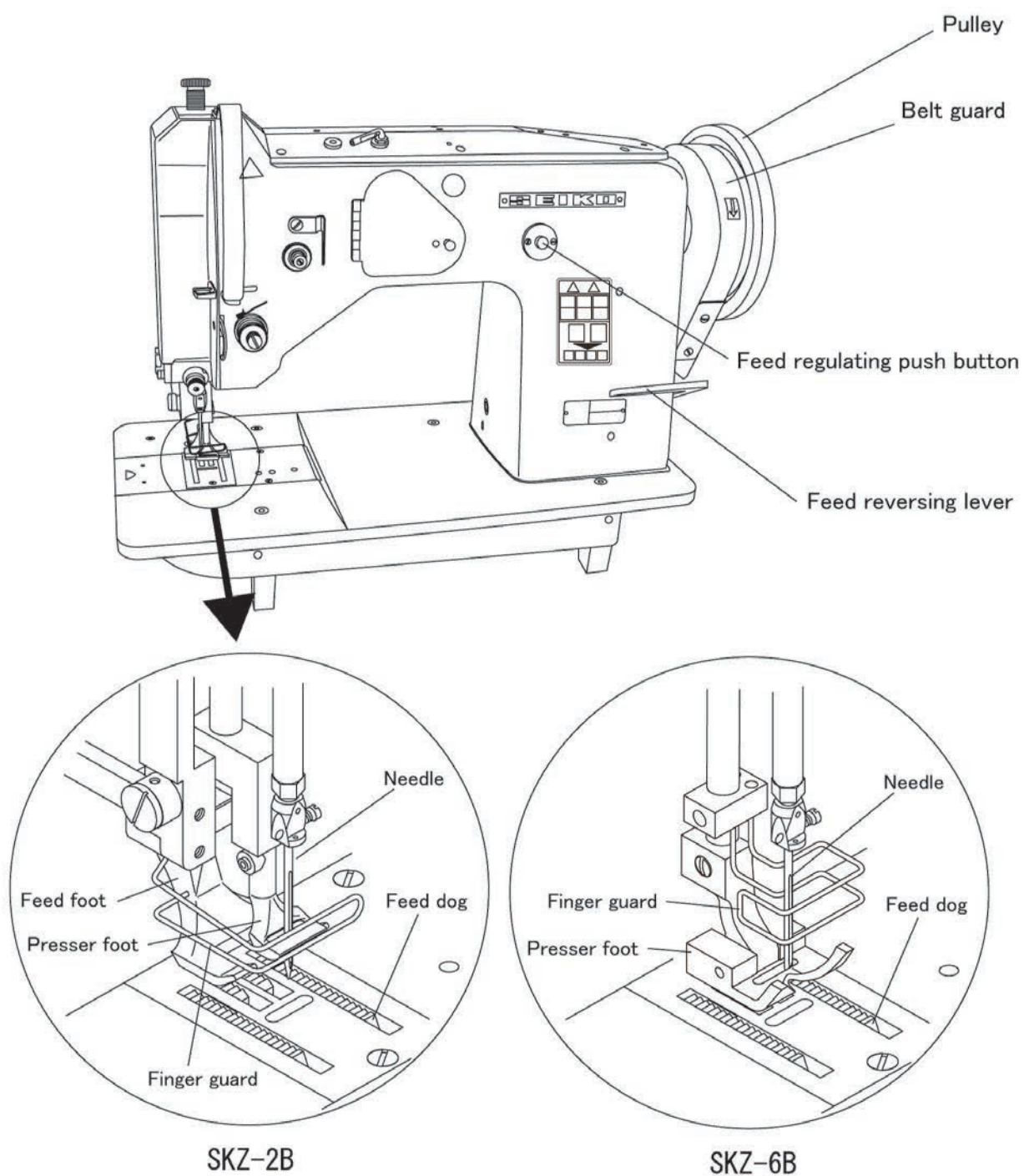
- Finger guard
- Thread take-up lever cover
- Belt guard, etc.



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## 1. MAIN PARTS NAMES



## 2. SPECIFICATIONS

Variety		SKZ-2B	SKZ-2B-3
Step (point)		1-step (2-point)	2-step (3-point)
Number of needle		Single needle	
Max. sewing speed*		1000 s.p.m.	
Max. stitch length		19/64" (7.5 mm)	
Stitch width		0 to 1/2" (0 to 12.7 mm)	
Clearance under presser foot	by knee	19/32" (15 mm)	
	by hand	11/32" (9 mm)	
Needle bar stroke		2" (50.8 mm)	
Needle		DDXH14 (#25)	
Thread		#5 (standard)	
Hook		Extra large horizontal axis hook	
Thread take-up lever		Link type	
Lubrication		Hand type	
Alternating presser foot movement amount		1/8" to 15/64" (3 to 6 mm)	
Bed size		20-15/32"X9-27/32" (520X250 mm)	
Working space		10"X7-43/64" (254X195 mm)	
Net weight (Head only)		55 kgf	
Motor		Clutch motor	

\* Speed depends on threads, materials and type of operation.

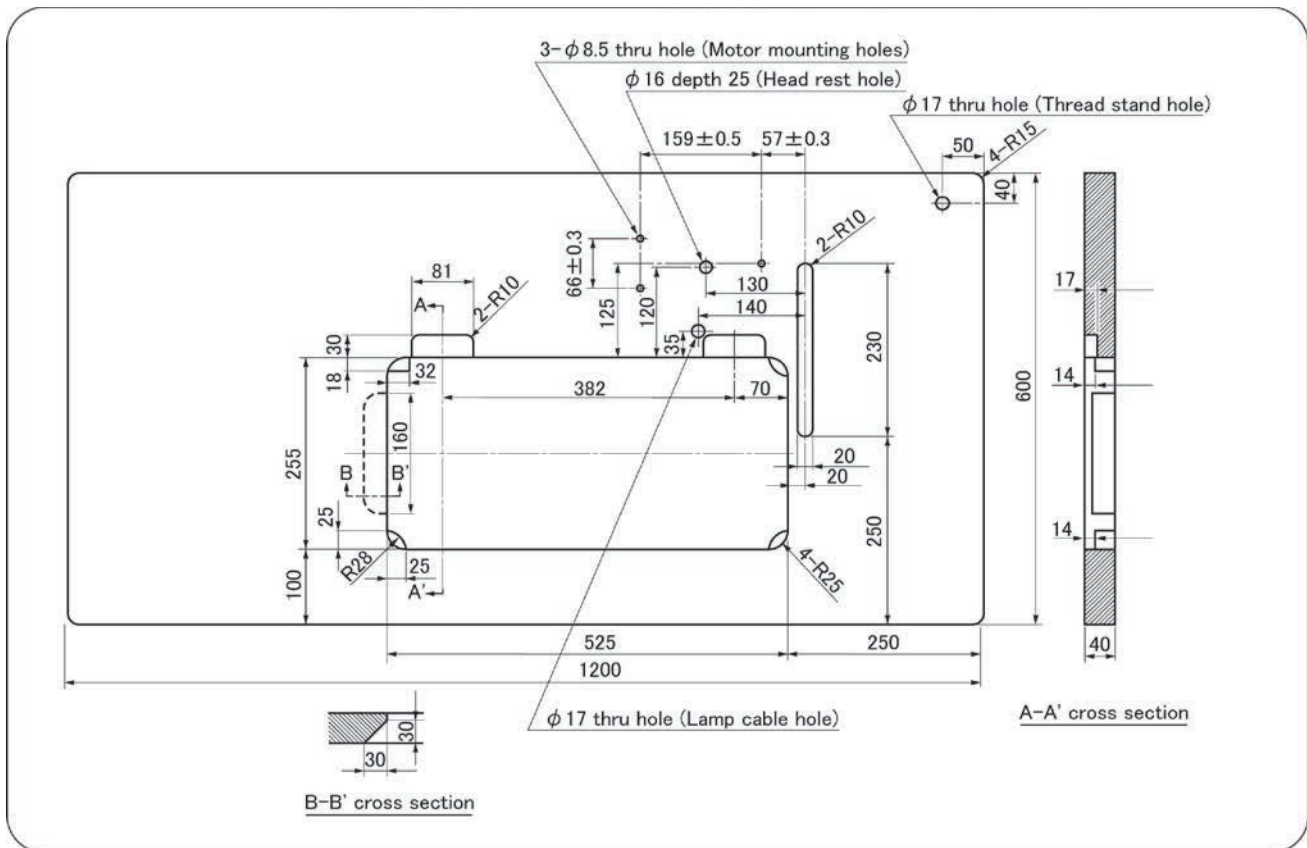
Variety		SKZ-6B	SKZ-6BR	SKZ-6B-3	SKZ-6BR-3
Step (point)		1-step (2-point)		2-step (3-point)	
Number of needle		Single needle			
Cloth puller device		—	○	—	○
Max. sewing speed*		1,000 s.p.m.			
Max. stitch length		19/64" (7.5 mm)			
Stitch width		0 to 1/2" (0 to 12.7 mm)			
Clearance under presser foot	by knee	19/32" (15 mm)			
	by hand	25/64" (10 mm)			
Needle bar stroke		2" (50.8 mm)			
Needle		DDXH14 (#25)			
Thread		#5 (standard)			
Hook		Extra large horizontal axis hook			
Thread take-up lever		Link type			
Lubrication		Hand type			
Bed size		20-15/32"X9-27/32" (520X250 mm)			
Working space		10"X7-43/64" (254X195 mm)			
Net weight (Head only)		54 kgf	55 kgf	54 kgf	55 kgf
Motor		Clutch motor			

\* Speed depends on threads, materials and type of operation.

### 3. WORK TABLE AND MOTOR

### ■ Work table

- When using a table made by another manufacturer, drill holes in the table as shown in the figure below.
- The top of the table should be 40mm in thickness and should be strong enough to hold the weight and withstand the vibration of sewing machine.



■ Motor



## CAUTION



- All cords which are connected to the motor should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electric shocks could occur.



- Install the correct belt guard which corresponds to the motor being used.

<Motor>

- Select the correct motor from those listed in the table.
- Refer to the instruction manual for the motor for details on installing and using the motor.

Power	Motor
Single-phase	4-pole, 400 W or more
Three-phase	4-pole, 400 W or more

### <Motor pulley and V-belt>

- Select the correct motor pulley and V-belt by referring to the table to suit the power frequency of your area.

Sewing speed	Frequency	Motor pulley	V-belt
1,000 s.p.m.	50 Hz	ϕ 95	53 inches
	60 Hz	ϕ 80	52 inches

## 4. INSTALLATION



### CAUTION



• A qualified technician should only install the sewing machine.



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



• The sewing machine weighs more than 55 kgf. Two or more people should carry out the installation.



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

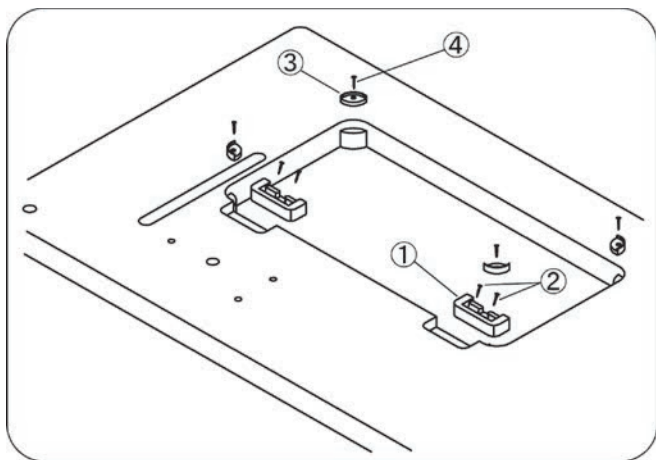


• Be sure to connect the ground. If the ground connection is not secure, serious electric shocks will result.



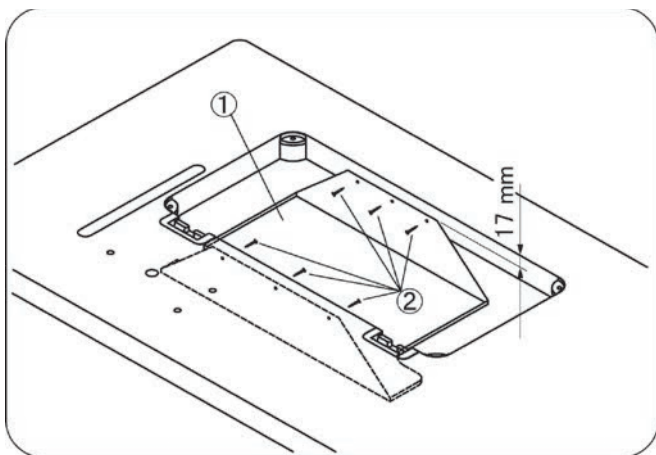
• Install the belt guard to the machine head.

### 4.1 Installing the hinge rubber cushion and the corner rubber cushion



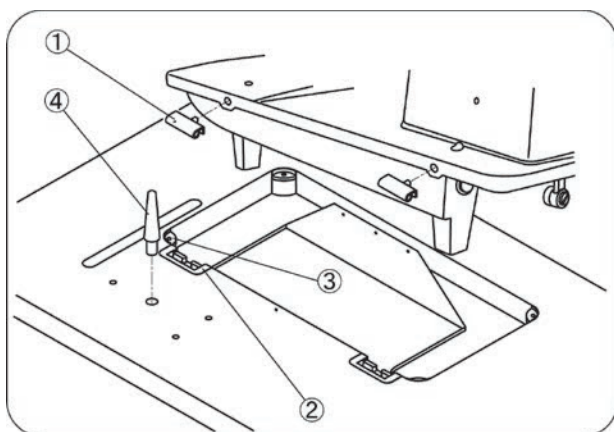
1. Install the hinge rubber cushion ① on the table with the two nails ②. (Two places)
2. Install the corner rubber cushion ③ at the corner of the table with a nail. (Four corners)

### 4.2 Installing the oil pan



- Fit the oil pan ① into the opening in the table, and secure it with 6 nails ②.

### 4.3 Installing the machine head



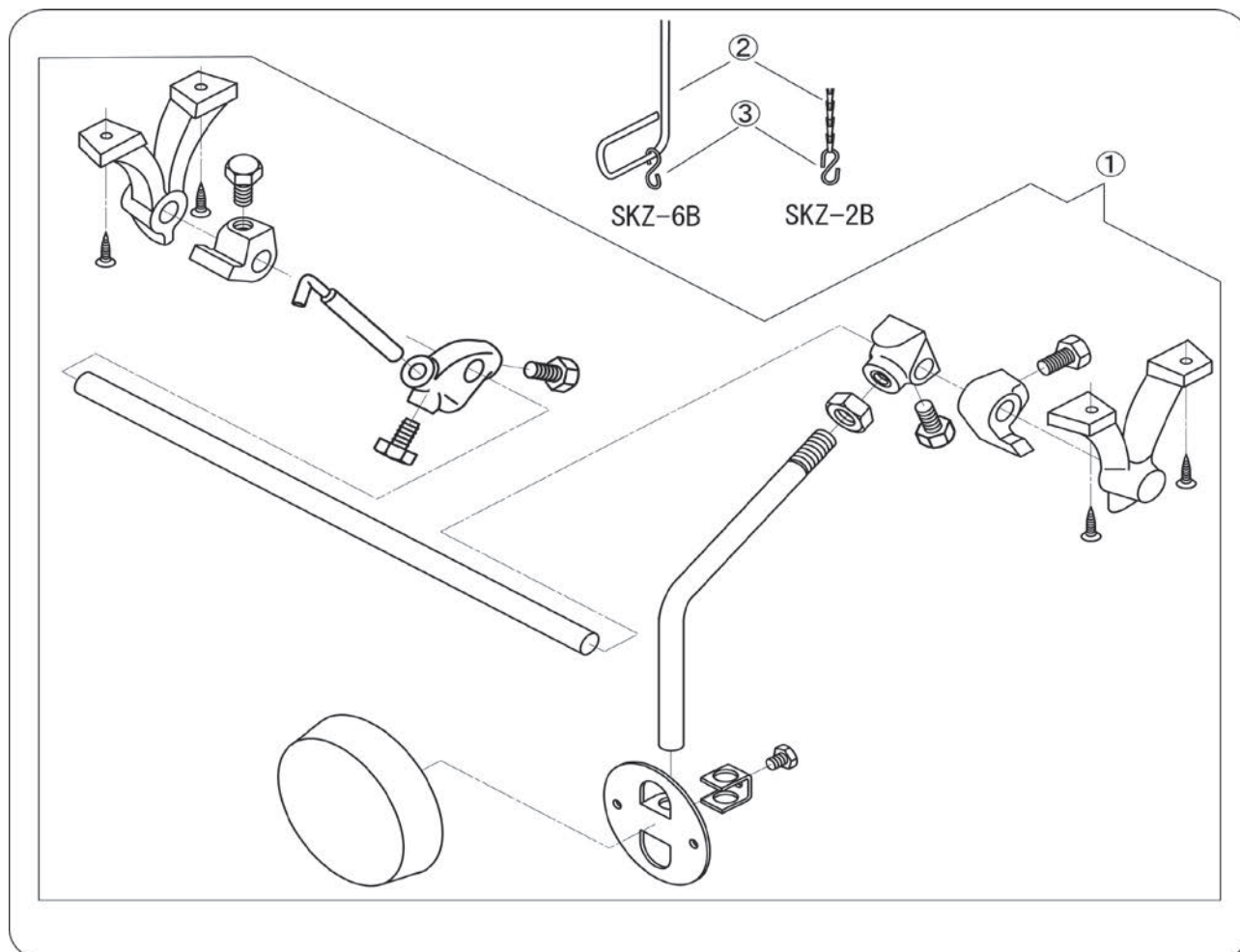
1. Insert the two hinge connections ① into the holes in the machine bed.
2. Fit the hinge connection ① to the hinge rubber cushion ② and then place the machine head onto the corner rubber cushion ③.
3. Tap the head rest ④ (option) into the table hole.

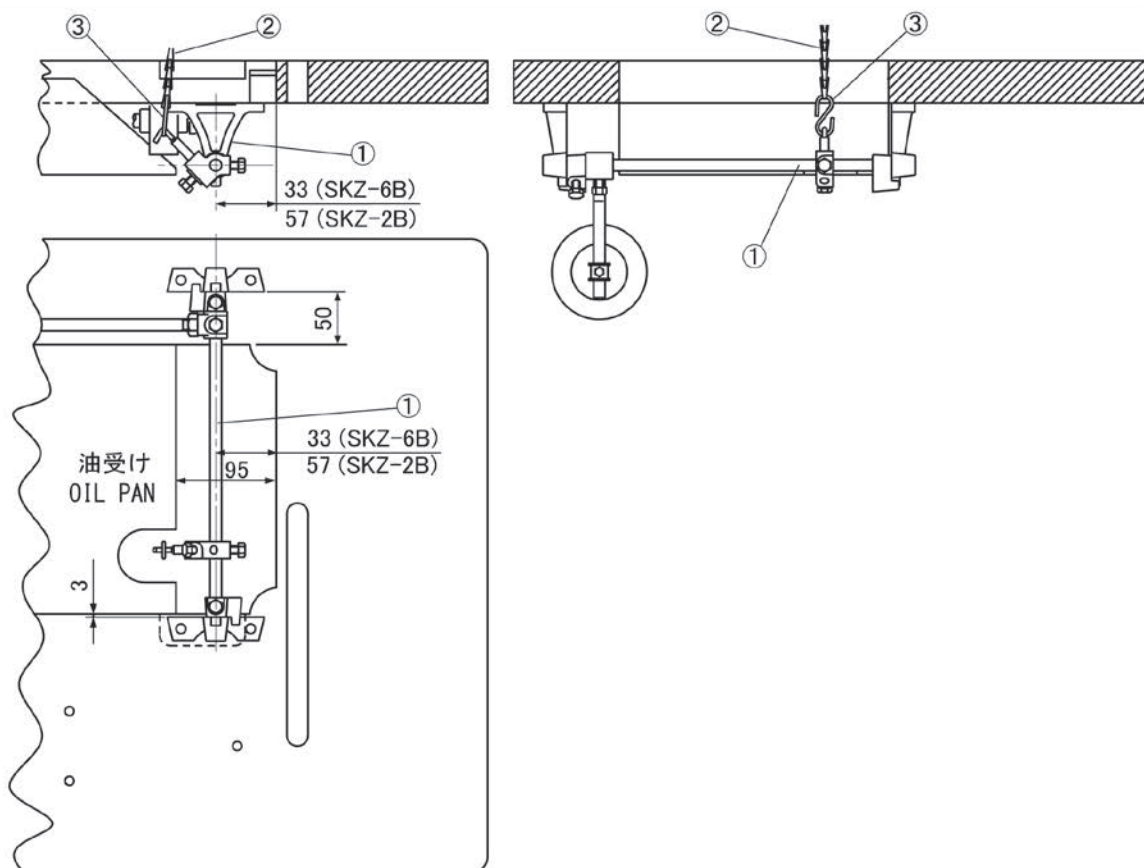
**NOTE:**

Tap the head rest securely into the table hole. If the head rest is not pushed in as far as it will go, the machine head will not be sufficiently stable when it is tilted back.

### 4.4 Installing the knee lifter

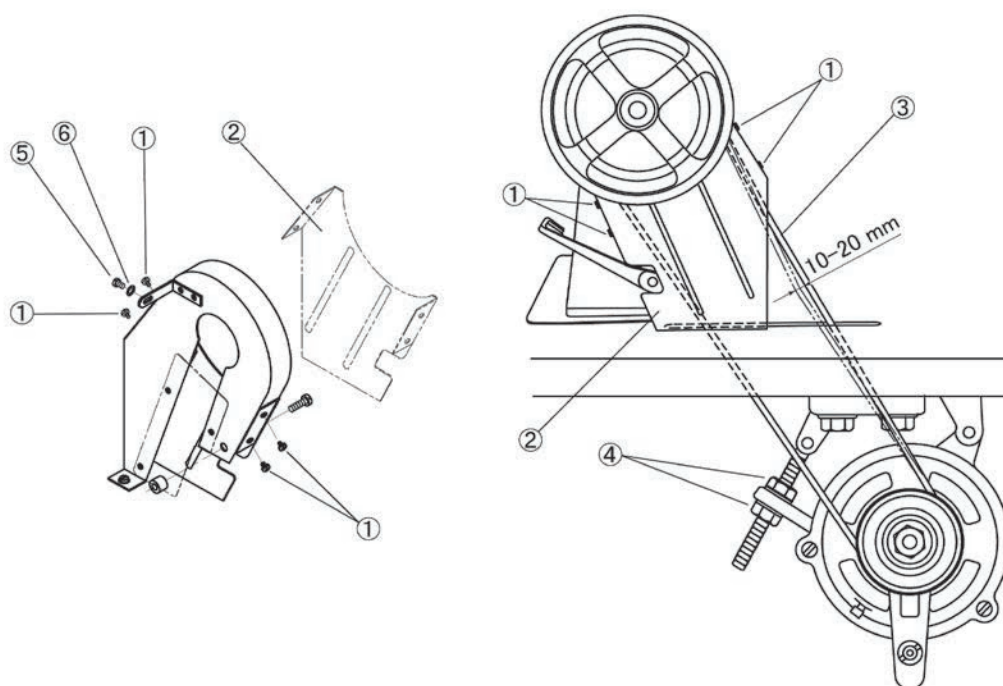
Assemble a knee lifter ① and install it in the back of the table with four wood screws. Then, join the knee lifter ① and the chain ② (SKZ-6B : connecting rod) with the hook ③, and adjust each.



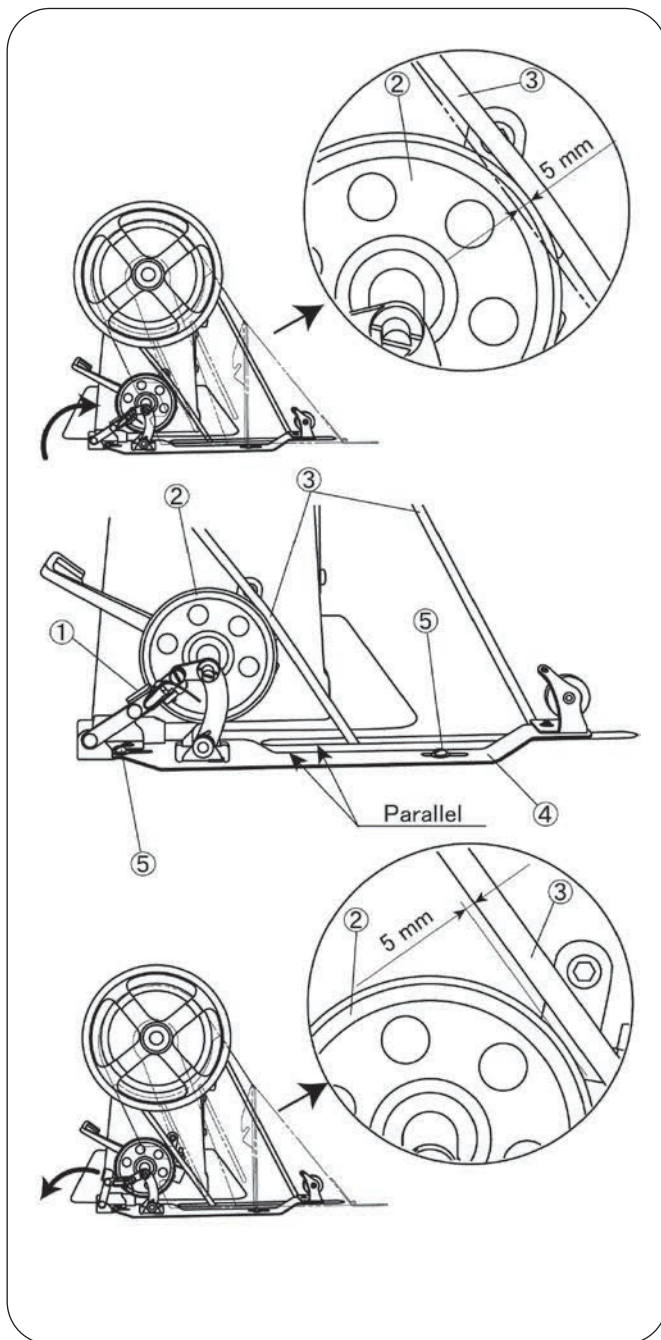


#### 4.5 Installing the V-belt

1. Remove the screws ① (4pcs.) and the belt guard side cover ②.
2. Remove the screw ⑤ and the washer ⑥, and then place the V-belt ③ onto the machine pulley.
3. Tilt back the machine head, and then place the V-belt ③ onto the motor pulley.
4. Turn the nuts ④ to adjust so that there is 15 to 20 mm of deflection in the V-belt ③ when it is pressed at the midway point with a force of 9.8N (1kgf).

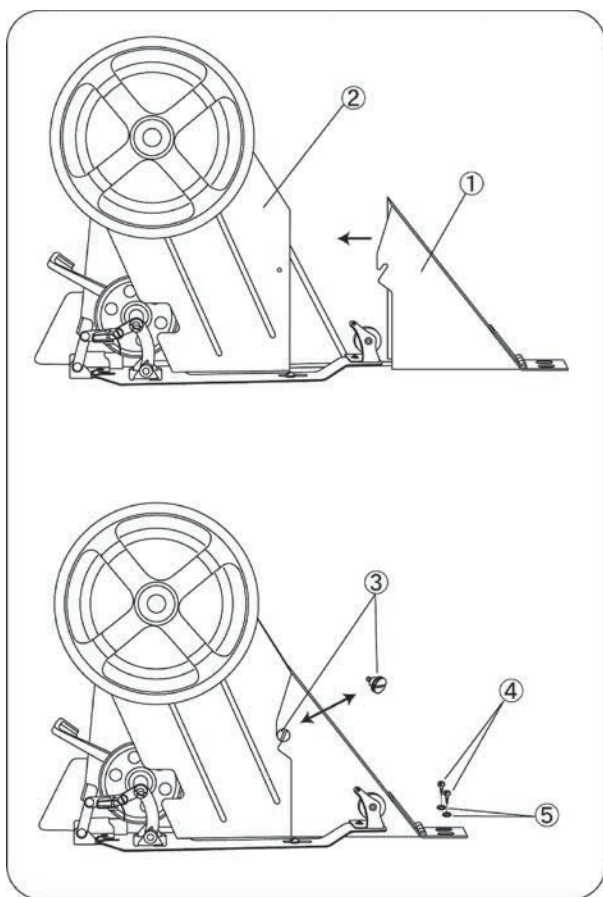


#### 4.6 Installing the bobbin winder



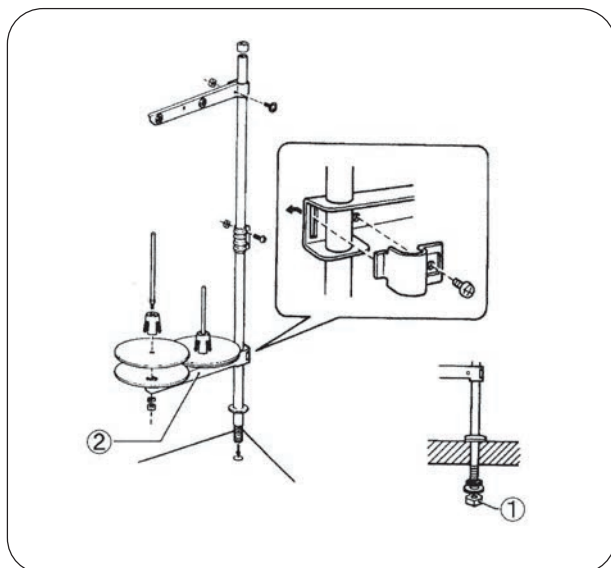
1. Push down the bobbin set lever ① as far as it will go.
2. Place the bobbin winder pulley ② so that it pushes the V-belt ③ by approximately 5 mm, and then place the bobbin winder ④ so that it is parallel with the belt hole in the work table.
3. Install the bobbin winder ④ to the work table with the two wood screws ⑤.
4. Pull the bobbin set lever ① back and check that there is approximately 5 mm of clearance between the bobbin winder pulley ② and the V-belt ③.

#### 4.7 Installing the auxiliary belt guard



Move the auxiliary belt guard ① from behind as shown in the illustration and tighten it to the belt guard side cover ② with the thumbscrew ③. Also, tighten it to the table with two wood screws ④ and two washers ⑤.

#### 4.8 Installing the thread stand



Assemble the thread stand as shown in the illustration, and then install it to the work table.

- \* Tighten the nut ① securely so that the thread stand does not move.
- \*\* When installing the thread stand, raise the spool holder ② to the position where it does not touch the machine head when the machine head is tilted back.

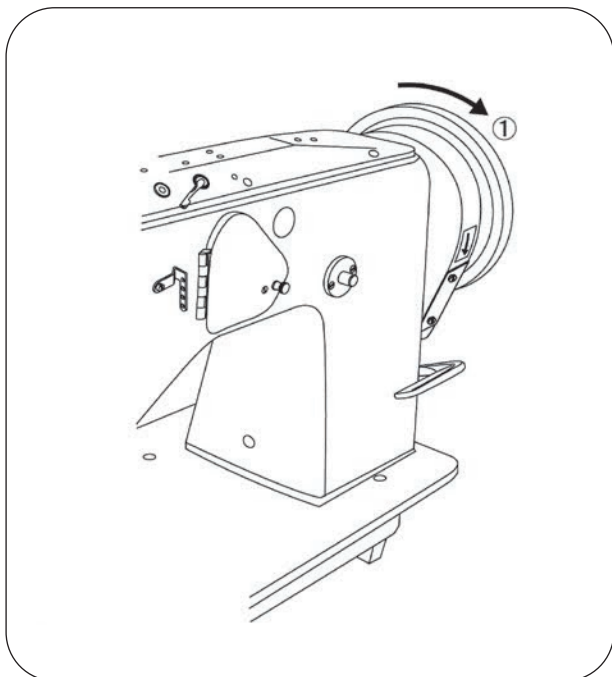
#### 4.9 Checking the machine pulley rotating direction



#### CAUTION



• Do not touch any of the moving parts or place 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 switch.
2. Depress the treadle and check that the direction of the machine pulley matches 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. 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 out the reach of children.

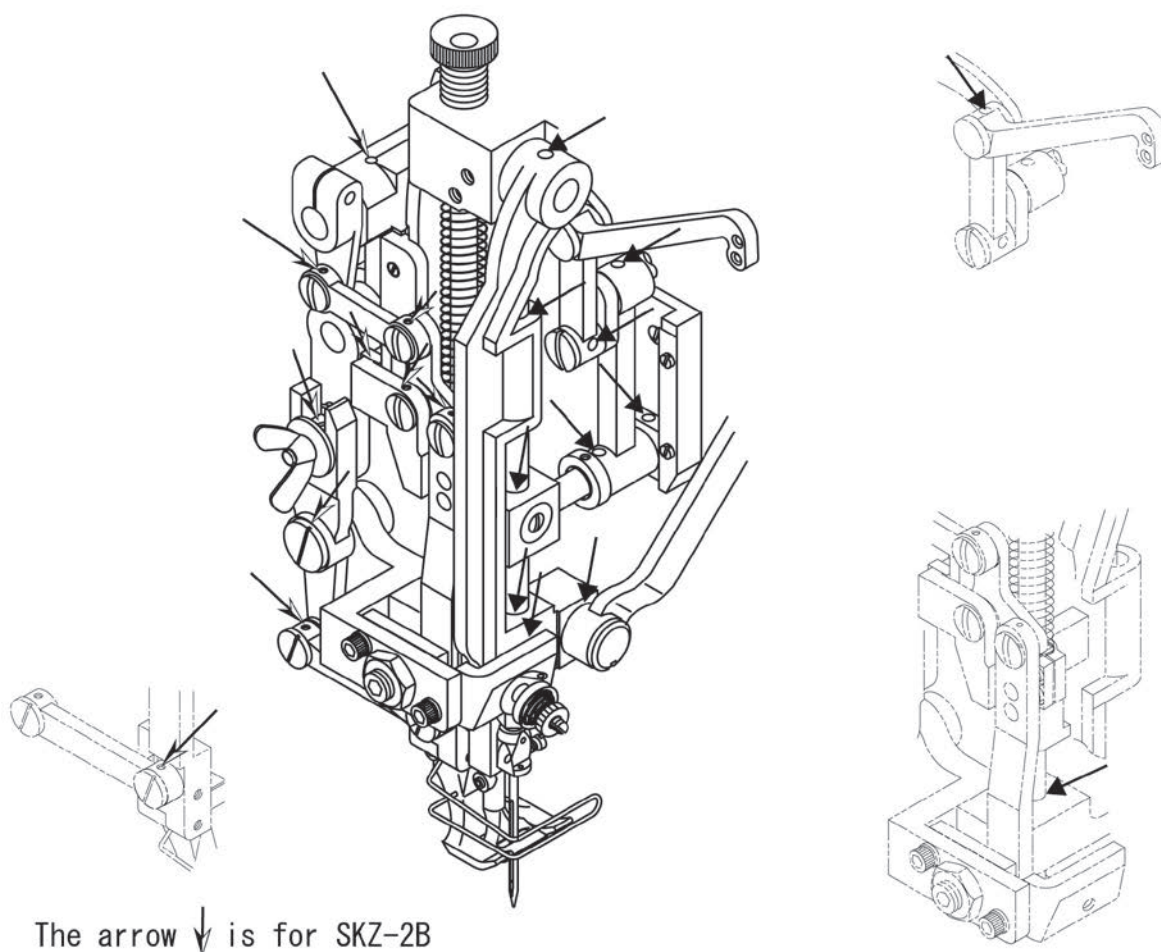
• The sewing machine should always be lubricated and the oil supply replenished before it is used for the first time, and also after long periods of non-use.

• Use only the lubricating oil.

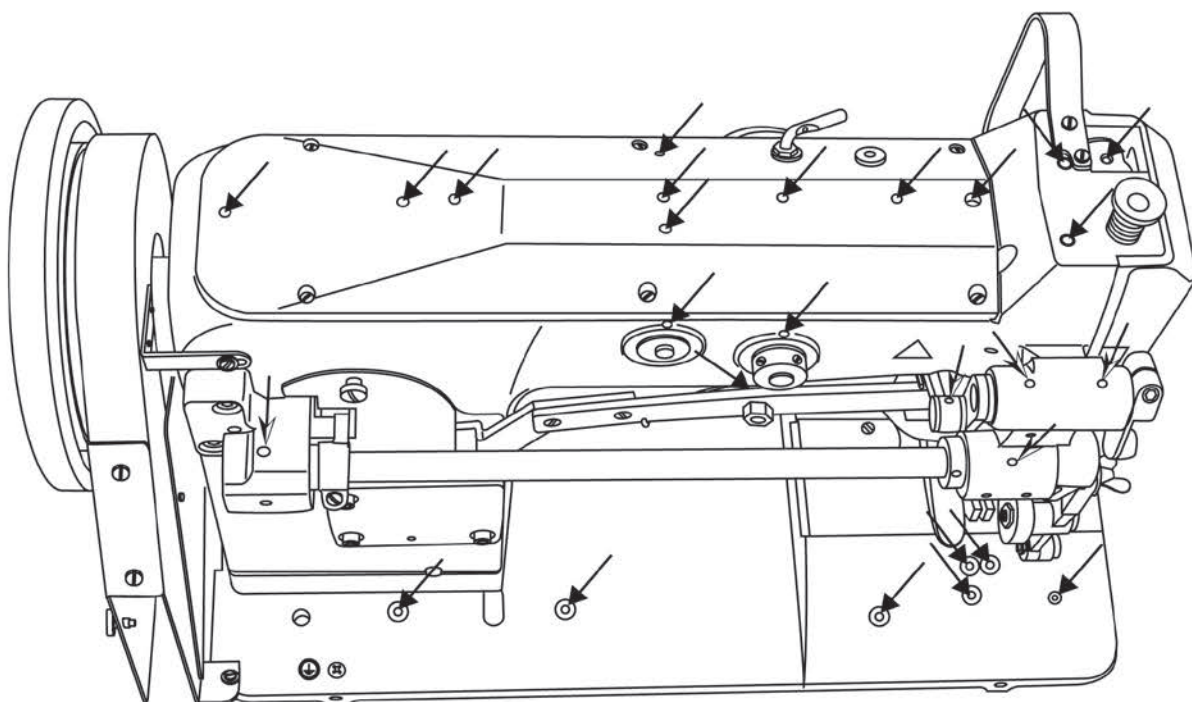
• Add 1-2 drops of oil in the places indicated by the arrows.

• Add oil other sliding parts also, while being careful to avoid oil leaks.

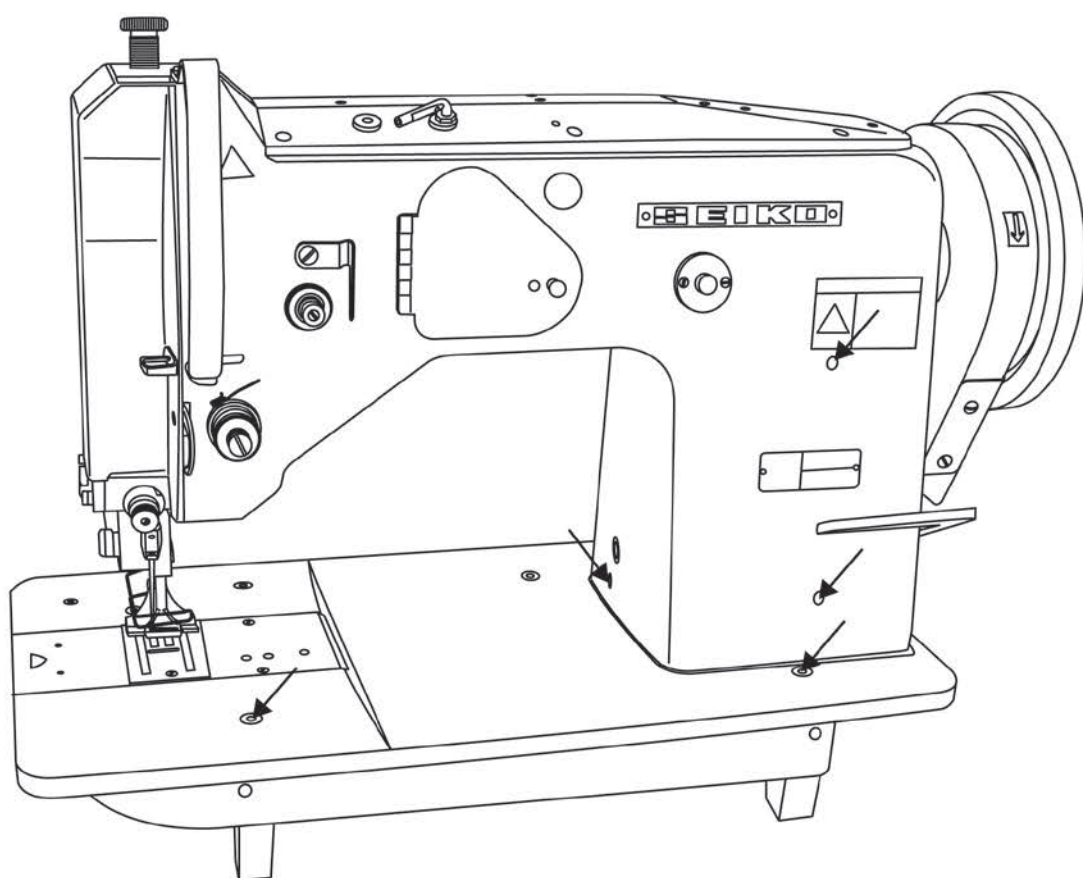
• Oiling must be done at least twice daily continuous use.

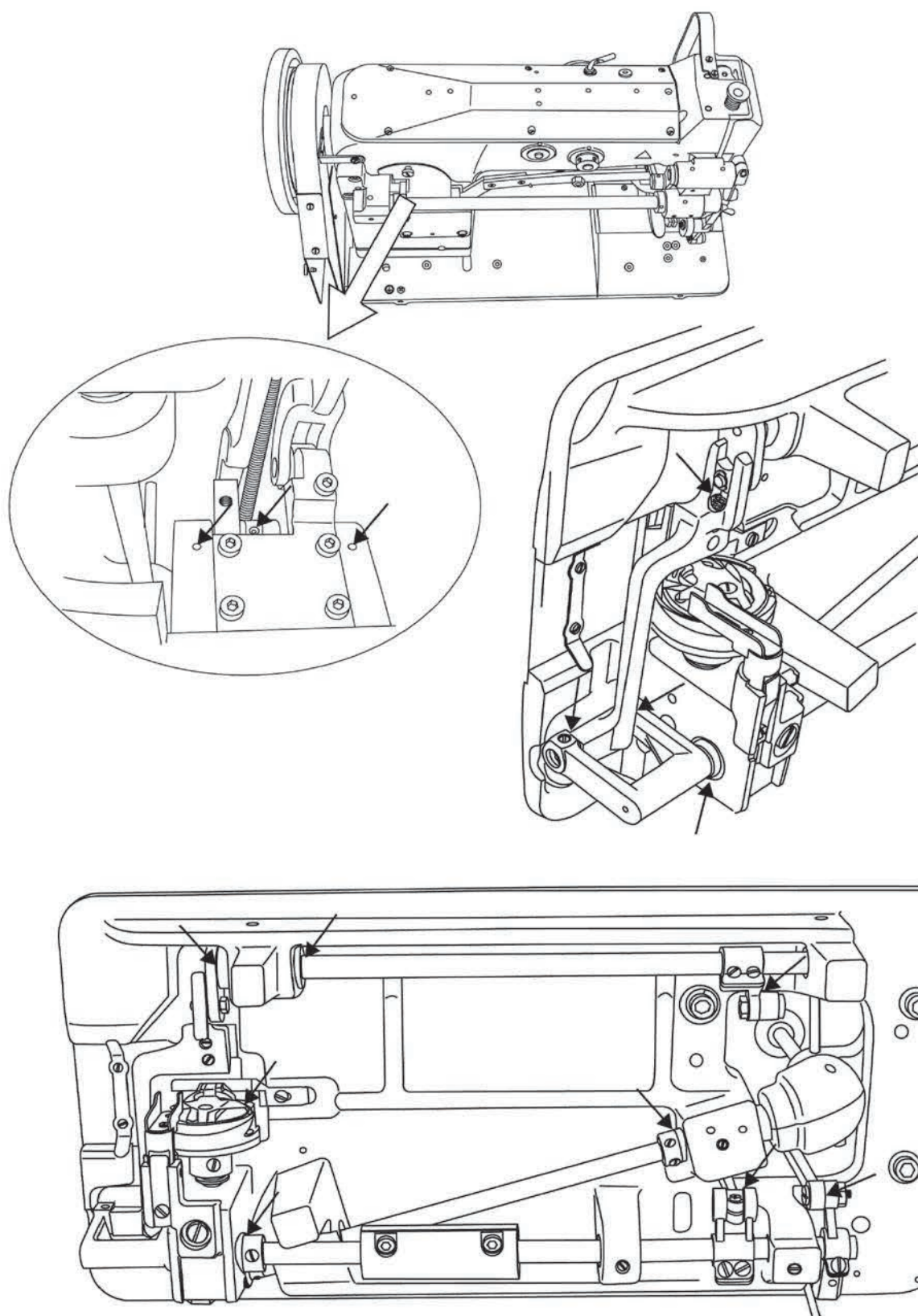


The arrow ↓ is for SKZ-2B



The arrow ↓ is for SKZ-2B





## 6. PREPARATION BEFORE SEWING

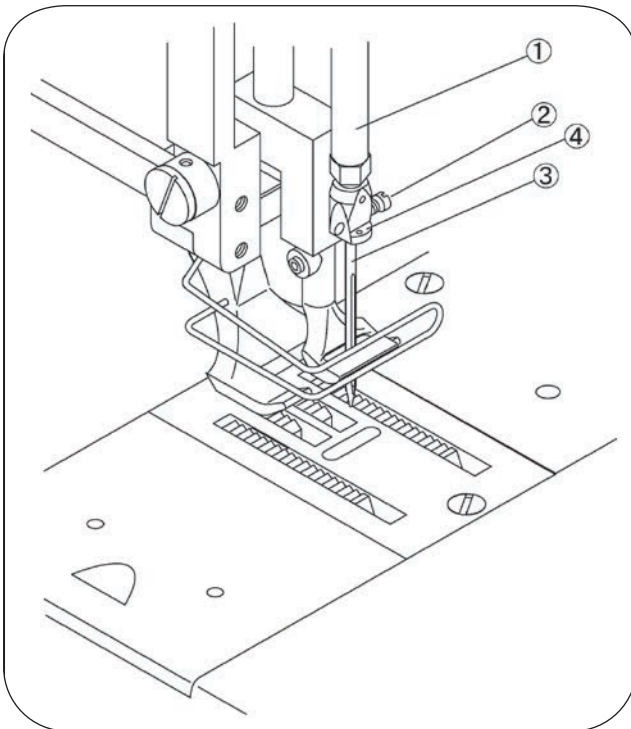
### 6.1 Installing the needle



#### CAUTION



• Turn off the power switch before installing the needle. 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. The machine may operate if the treadle is pressed by mistake, which could result in injury.

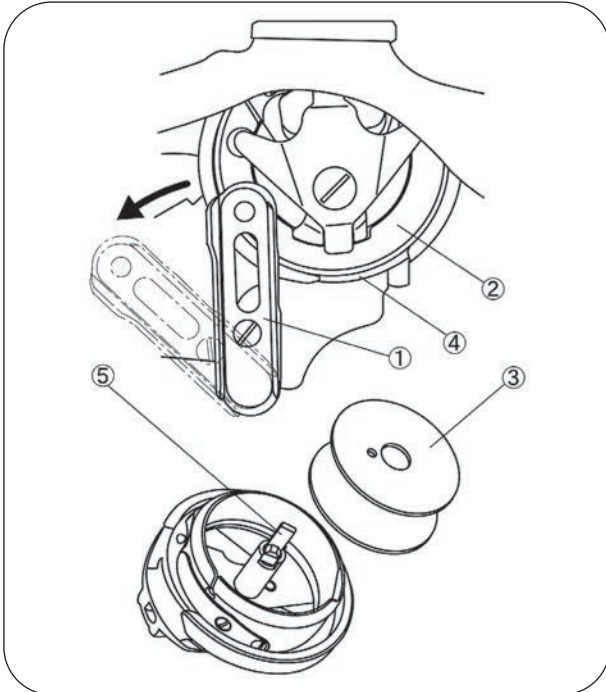


1. Turn the machine pulley to move the needle bar ① to its highest position.
2. Loosen the screw ②.
3. Insert the needle ③ into the needle clamp ④ as far as it will go, making sure that its long groove face an operator.
4. Tighten the screw ②.

## 6.2 Removing the bobbin case and the bobbin



• Turn off the power supply before removing the bobbin case and the bobbin. 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. The machine may operate if the treadle is pressed by mistake, which could result in injury.



### ■ Removing the bobbin case

1. Turn the machine pulley until the needle comes above the throat plate.
2. Pull down the bobbin case retainer ① to left side, and then remove the bobbin case ②.

\* It will be easy to remove the bobbin case ②, when the groove of the rotating hook ④ is positioned as shown in the illustration at left.

### ■ Removing the bobbin

Lift up the latch ⑤ of the bobbin case ②, and then remove the bobbin ③.

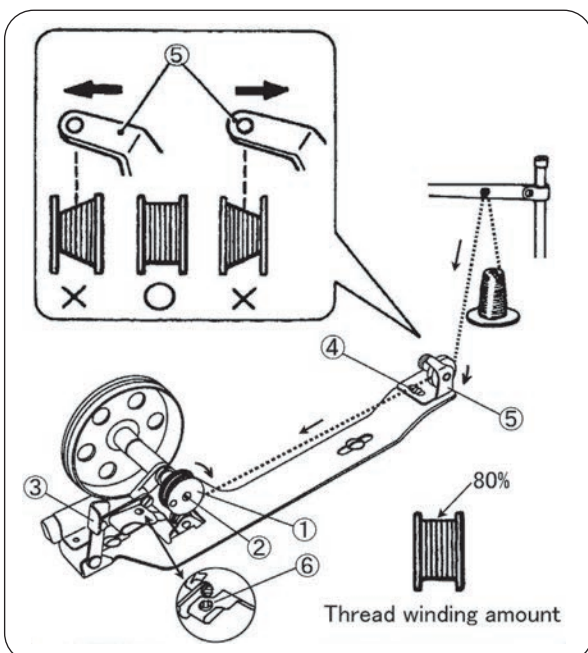
## 6.3 Winding the lower thread



### CAUTION



• Do not touch any of the moving parts or place 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 switch.
  2. Place the bobbin ① onto the bobbin winder shaft ②.
  3. Wind the thread several times around the bobbin ① in the direction indicated by the arrow.
  4. Push down the bobbin set lever ③.
  5. Raise the presser foot with the foot lifting lever.
  6. Depress the treadle. Lower thread winding will then start.
  7. Once winding of the lower thread is completed, the bobbin set lever ③ will return automatically.
- \* If the thread cannot be wound on evenly, loosen the screw ④ and move the bobbin winder bracket ⑤ to the side where there is less thread.
- \*\* Turn the adjustment screw ⑥ to adjust the bobbin winding amount.

• To increase the winding amount: Tighten the screw  
• To decrease the winding amount: Loosen the screw

### Note:

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

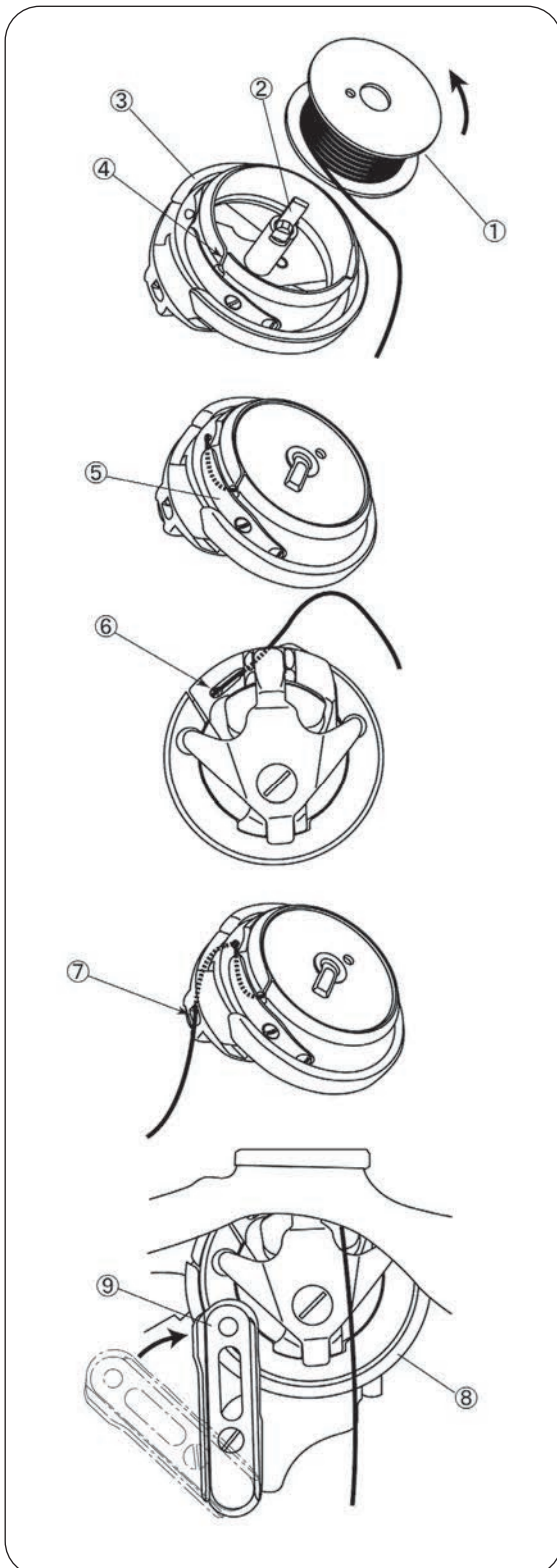
## 6.4 Installing the bobbin case



### CAUTION



• Turn off the power supply before installing the bobbin case. 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. The machine may operate if the treadle is pressed by mistake, which could result in injury.



1. Lift up the latch ② of the bobbin case ③, and place the bobbin ① onto the bobbin case ③ so that the thread winding direction is counter-clockwise as shown in the illustration.
2. Pass the lower thread through the groove ④ of the bobbin case ③.
3. Pass it along the inside of the tension spring ⑤, and pass it through the holes ⑥ and ⑦. Then lay the latch ② of the bobbin case. Pull the lower thread until there is a length of approx. 5 cm of thread.
4. Turn the hole ⑦ up and hang the thread, and then place the bobbin case ③ onto the rotating hook ⑧, and pull up the bobbin case retainer ⑨.

## 6.5 Threading the upper thread

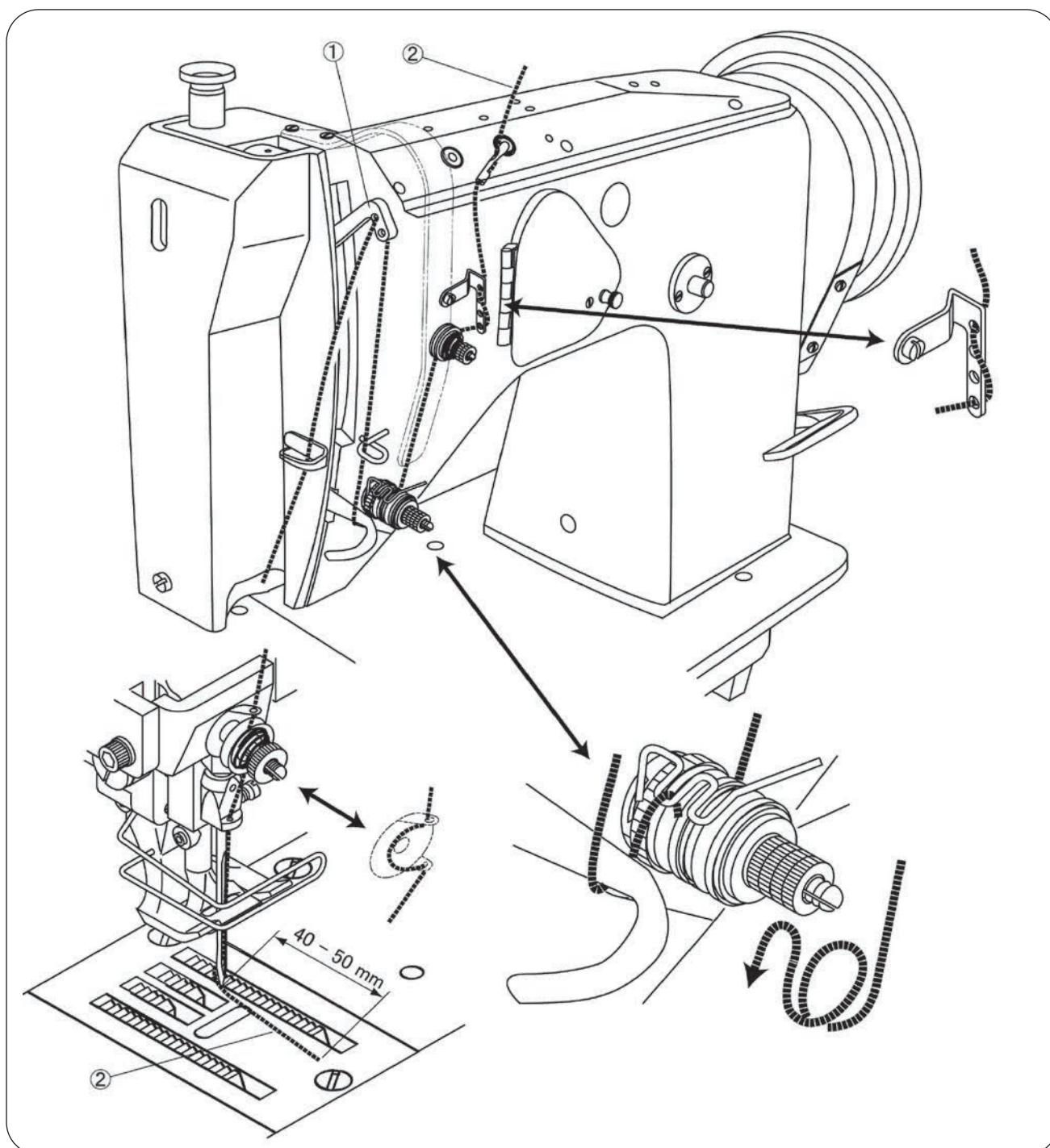


### CAUTION



- Turn off the power supply before threading the upper thread. 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. The machine may operate if the treadle is pressed by mistake, which could result in injury.

Turn the machine pulley and raise the thread take-up lever ① before threading the upper thread ②. This will make threading easier and it will prevent the thread from coming out at the sewing start. Thread the rear side from the front of the needle. And, leave a 40 to 50mm thread leader.



## 7. SEWING



### CAUTION



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



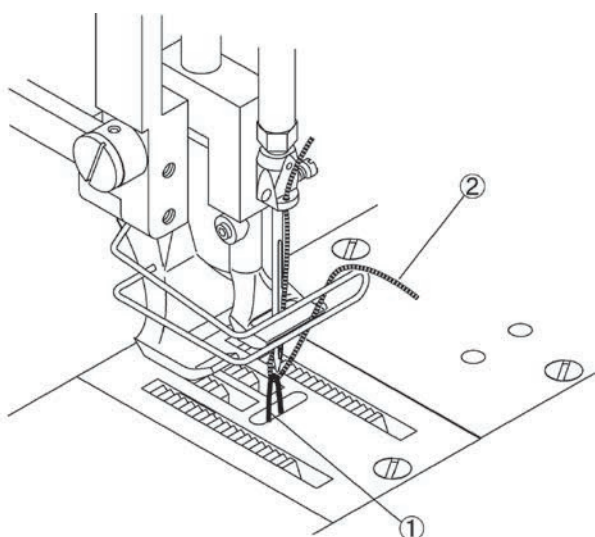
• Turn off the power switch at the following times. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is pressed by mistake, which could result in injury.

1. When threading the needle
2. When replacing the needle and bobbin
3. when not using the machine and when leaving the machine unattended



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

### 7.1 Sewing

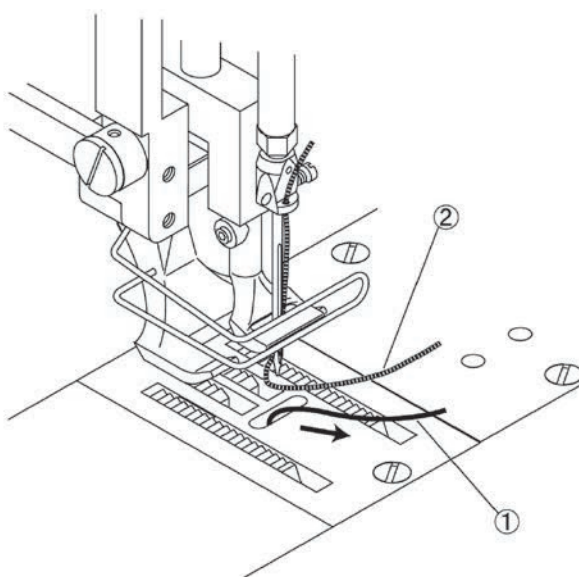


1. While holding the upper thread ② with your fingers, turn the machine pulley by hand toward you until the lower thread ① comes out onto the throat plate.

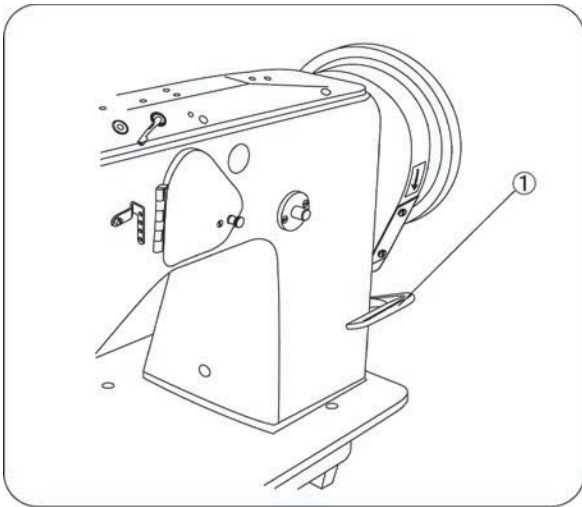
2. Pull the lower thread toward ① you and check that it pulls to smoothly.

3. Turn on the power switch.

4. Depress the treadle to start sewing.

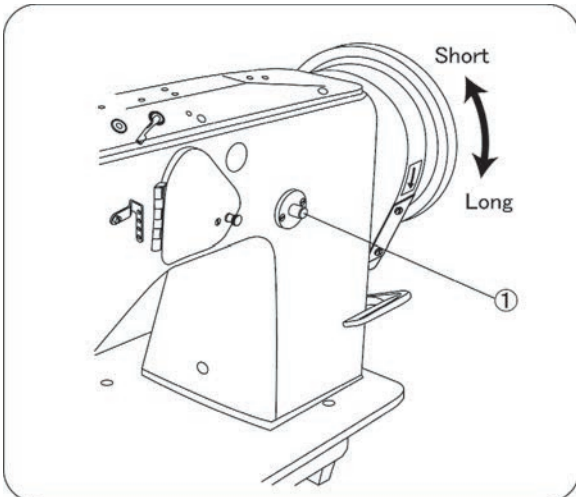


## 7.2 Backtacking



When the feed reversing lever ① is pushed, the material feed direction will be reversed, and when it is returned to its original position, the feed direction will change back to normal.

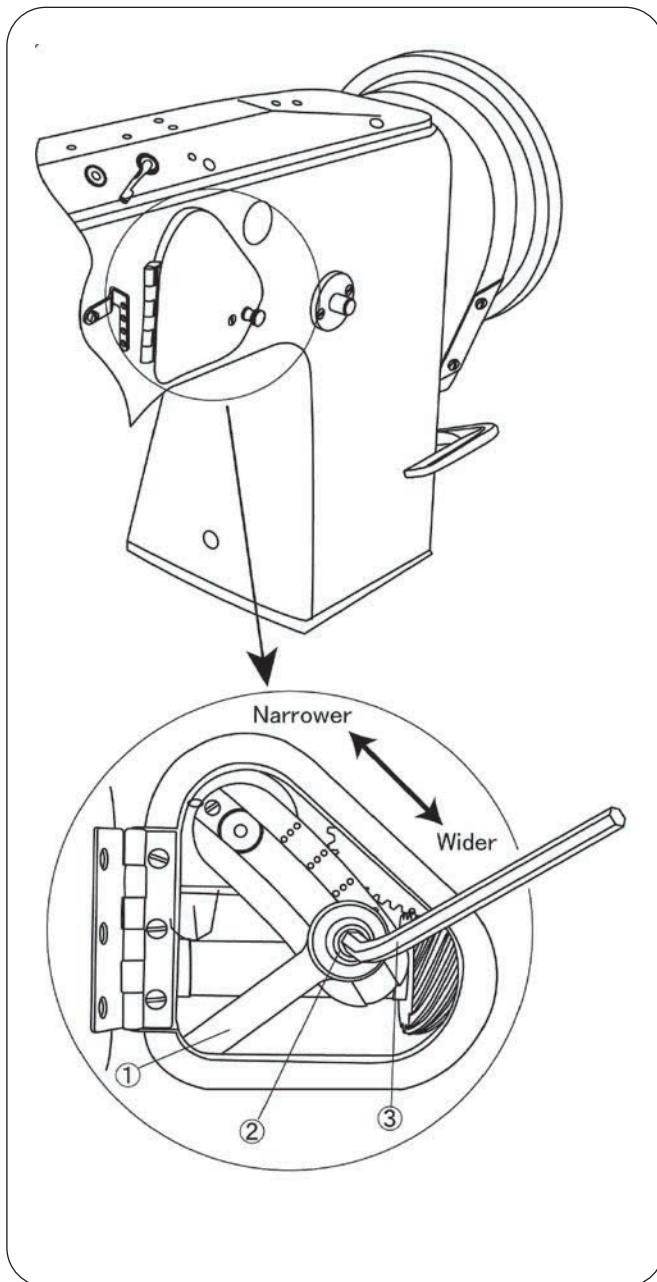
## 7.3 Adjusting the stitch length



While pushing the feed regulating push button ①, turn the machine pulley slowly forward so that the feed regulating push button ① enters the groove in the feed eccentric. Then while pushing the feed regulating push button ①, turn the machine pulley to forward or backward to adjust its position.

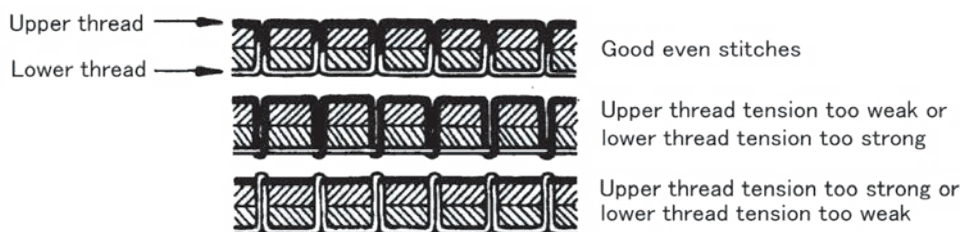
- To increase the stitch length, turn the machine pulley forward.
- To decrease the stitch length, turn the machine pulley backward.

## 7.4 Adjusting the stitch width

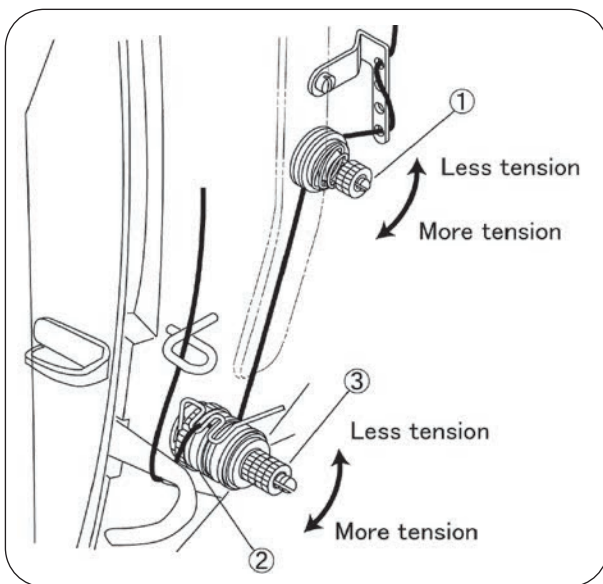


1. Loosen the screw ② by hexagonal wrench ③.
2. Move the zigzag connection ① up or down.  
Stich width becomes narrow when moving it up, and sticth width becomes wide when moving it down.
3. Tighten the screw ②.

## 7.5 Adjusting the thread tension



### ■ Upper thread tension



1. The tension of the upper thread is adjusted using upper tension thumb nuts ①.  
To increase the tension of the upper thread, turn the tension thumb nuts ① clockwise.  
To decrease tension, turn the tension thumb nuts ① counter-clockwise.
2. When the upper thread seems to sag with the lower tension discs ②, turn the upper tension thumb nut ③ slightly clockwise, and when the lower tension discs ② don't turn, turn the upper tension thumb nut ② counter-clockwise to weaken the thread tension so that the upper thread is threading without deflection.

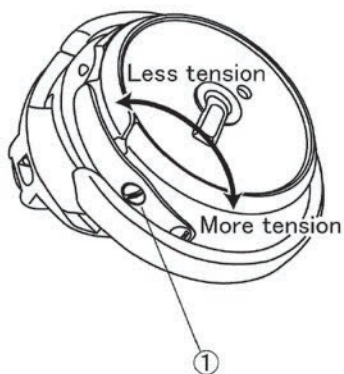
### ■ Lower thread tension



## CAUTION



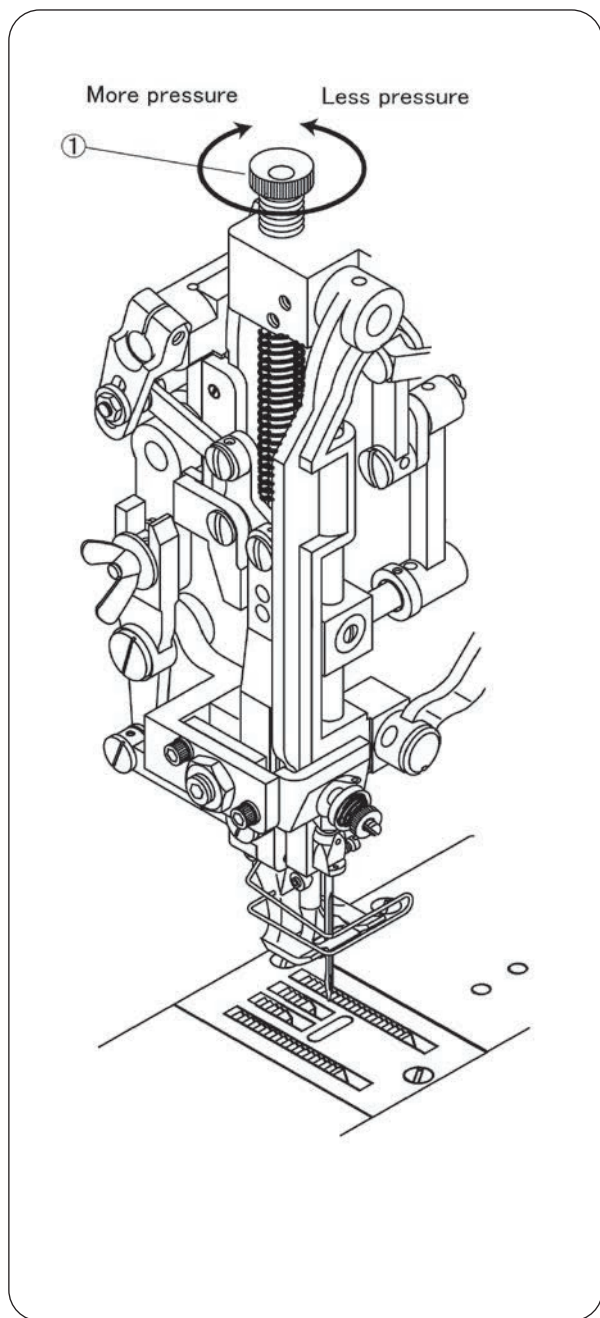
- Turn off the power supply before removing or inserting the bobbin case. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is pressed by mistake, which could result in injury.



The tension of the lower thread is adjusted by turning the screw ①.

- To increase the tension of the lower thread, turn the screw ① clockwise.
- To decrease the tension of the lower thread, turn the screw ① counter-clockwise.

## 7.6 Adjusting the foot pressure



Adjust the foot pressure weakly as much as possible so that the presser foot can properly hold down material by turning the screw ①.

- To increase, turn the screw ① clockwise.
- To decrease, turn the screw ① counter-clockwise.

## 8. STANDARD ADJUSTMENTS



### CAUTION



• A qualified technician should only carry out maintenance and inspection of the sewing machine.



• Ask your SEIKO dealer or 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.



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



• 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.

1. When carrying out inspection, adjustment and maintenance

2. 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 the motor stops fully before starting work.

### 8.1 Adjusting the needle and rotating hook timing

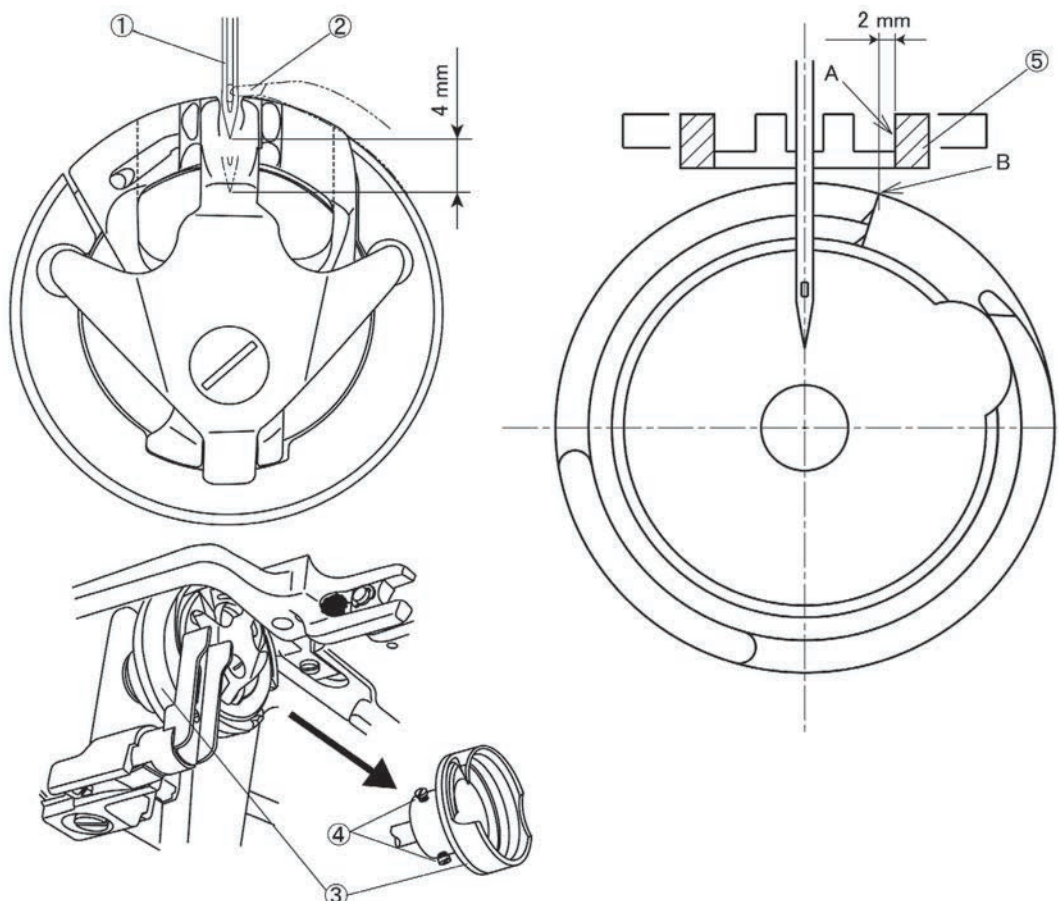
1. Set the stitch width to "0". (Refer to "7.4 Adjusting the stitch width".)

2. Loosen the screws ④ (3 pcs.).

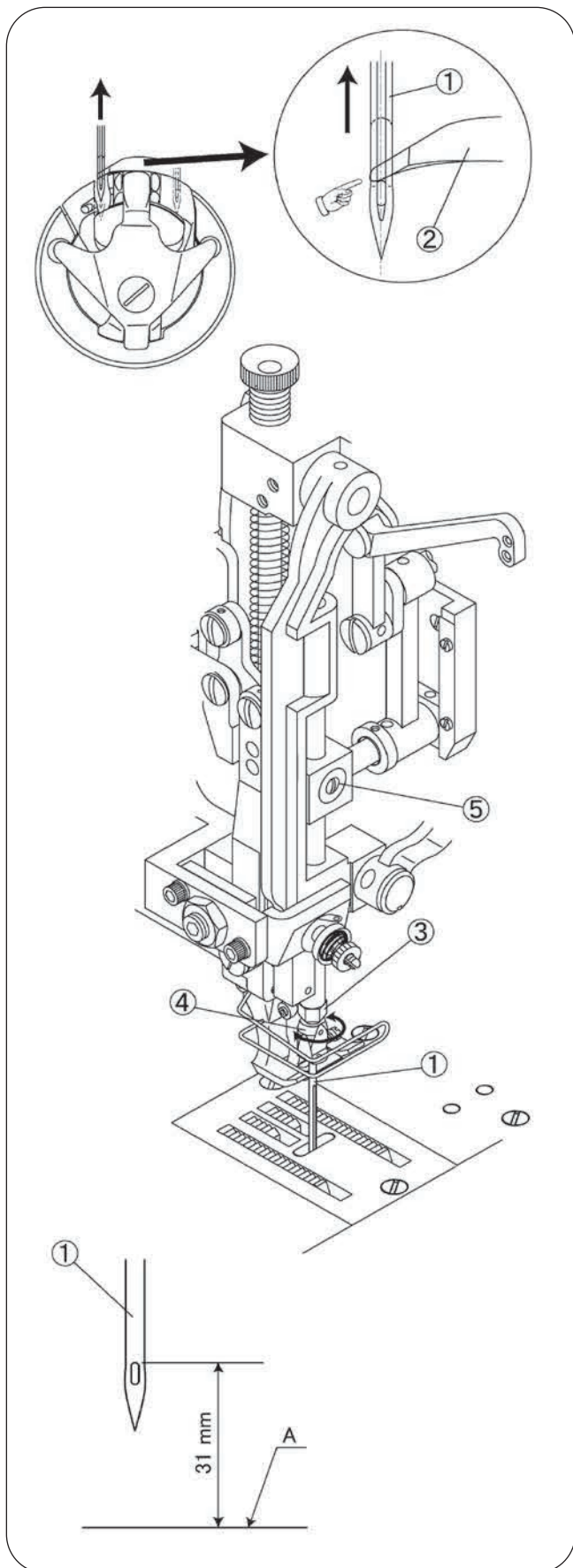
3. Turn the machine pulley toward you until the needle bar rises by 4 mm from its lowest point.

4. Bring the hook point ② to the center of the needle ① by moving the hook ③ and tighten the screws ④ (3 pcs.).

When the needle is its lowest point, the horizontal distance between the surface A of the feed dog ⑤ and the edge B of the hook ③ is approximately 2 mm as for the aim of the adjustment.



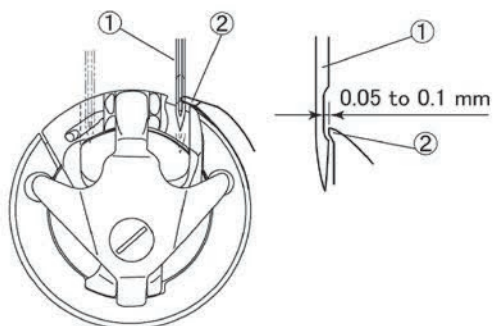
## 8.2 Adjusting the height of the needle



Set the stitch width to the maximum setting, and adjust in the position when the needle comes to the left.

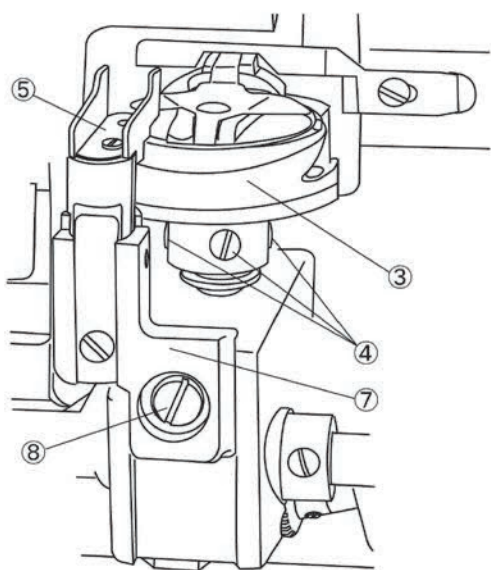
1. Turn the machine pulley toward you so as to fit the left edge of the needle ① to the hook point ②.
2. Loosen the nut ③, and then turn the needle clamp ④ and adjust the height of the needle ① for the underside of the hook point not to overlap with the upper end of the needle eye and to touch to it.
3. Tighten the nut ③, and loosen the screw ⑤.
4. Turn the needle clamp ④ and return the direction of the needle ①.
5. Tighten the screw ⑤.  
When the needle is its highest point, the distance between the surface A of the throat plate and the upper end of the needle eye is approximately 31 mm as for the aim of the adjustment.

### 8.3 Adjusting the clearance between the needle and the hook



#### ■ Adjusting the clearance between the needle and the hook

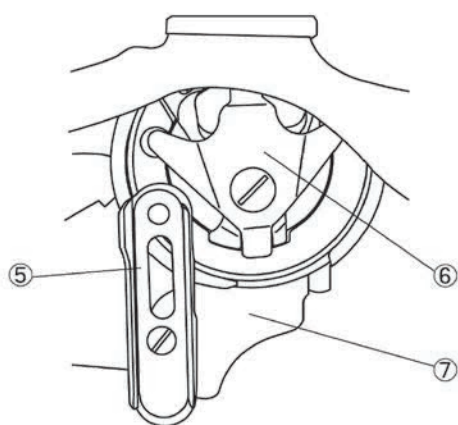
1. Turn the machine pulley toward you so as to fit the center of the needle ① to the hook point ②.
2. Loosen the screws ④ (3 pcs.), adjust the hook ③ position so that the clearance between the needle ① and the hook point ② becomes 0.05 to 0.1 mm
3. Tighten the screws ④ (3 pcs.).



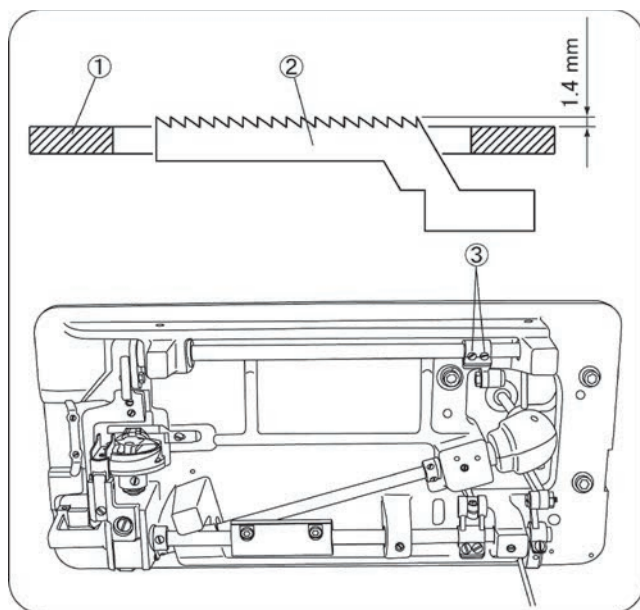
#### ■ Assembling the bobbin case retainer bracket

This adjustment must be done after adjusting the clearance between the needle and the hook.. Let the bobbin case retainer ⑤ contact sufficiently, but not to bend, with the hook ⑥ without any clearance, then tighten the screw ⑧ securely.

\* Excess contact between the two makes unnecessary wear and noise.



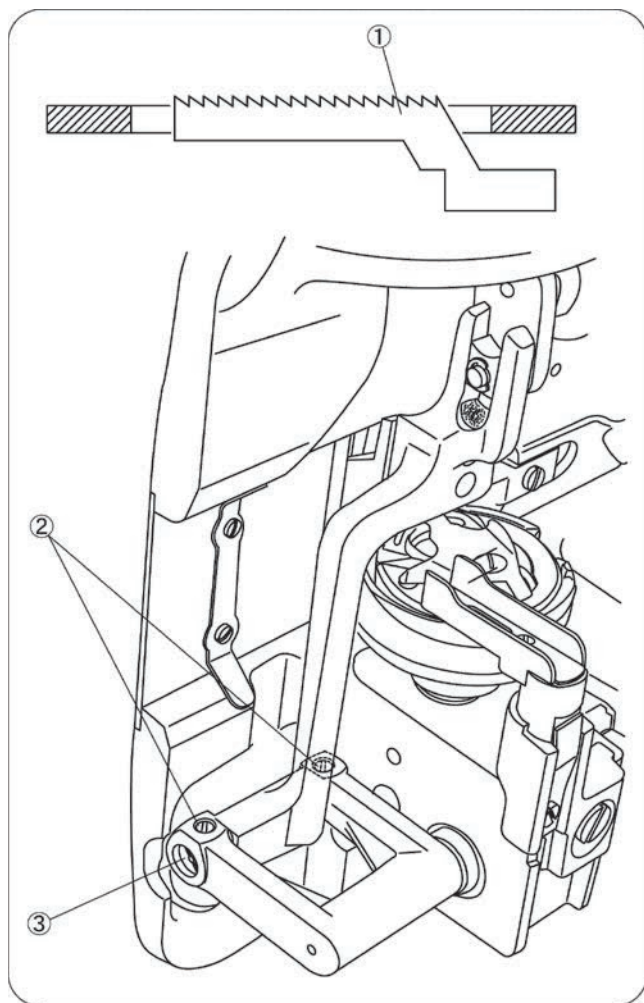
#### 8.4 Adjusting the height of the feed dog



The standard height, when the feed dog ② is at its highest position above the throat plate ① is 1.4mm.

1. Tilt back the machine head, and turn the machine pulley to set the feed dog ① to its highest position.
2. Loosen the screws ③ (2pcs.), and adjust the height of the feed dog ② so that the feed dog ② raises to 1.4mm from the surface of throat plate ①.
3. Tighten the screws ③ (2pcs.) securely.

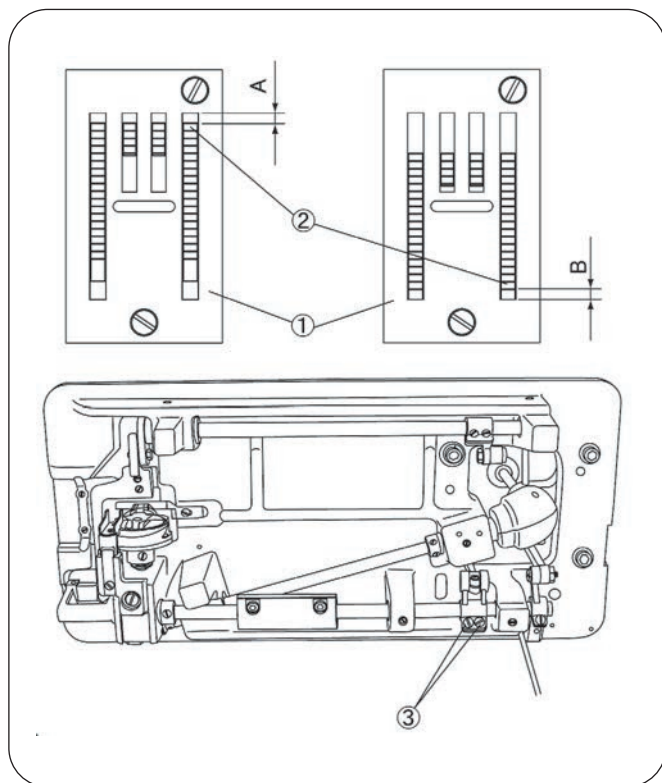
#### 8.5 Adjusting the inclination of the feed dog



1. Tilt back the machine head, and turn the machine pulley to set the feed dog ① to its highest position.
2. Loosen the screws ② (2pcs.).
3. Turn the feed bar hinge pin ③ to adjust the inclination of the feed dog ①. Generally, adjust it in parallel.
4. Tighten the screws ② (2pcs.) securely.

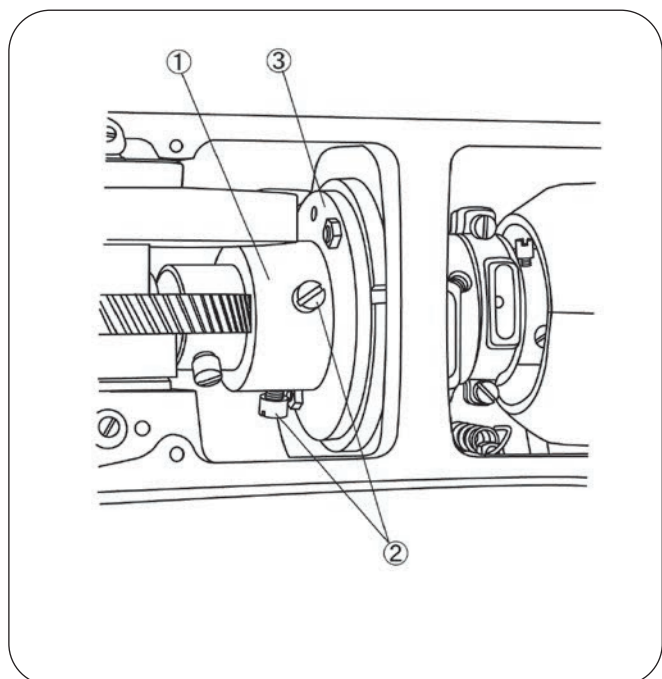
\* After adjustment, confirm the position of the feed dog ① and when not being in the proper position, adjust it.

## 8.6 Adjusting the position of the feed dog



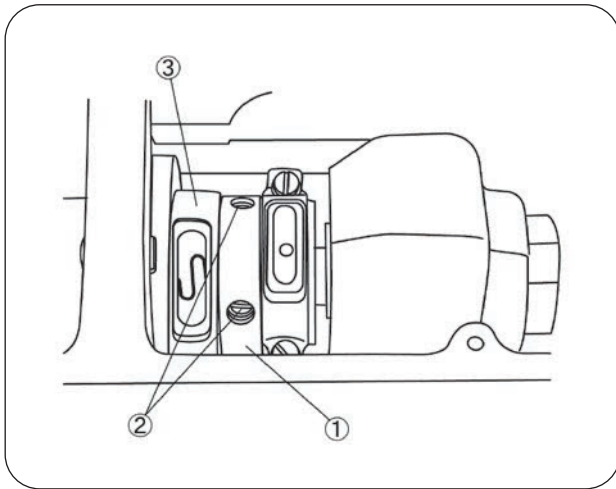
1. Set the feed amount to the maximum.  
(Refer to "7.3 Adjusting the stitch length")
2. Turn the machine pulley, and adjust so that the clearance A & B between the throat plate ① and the feed dog ② should be same.
3. Loosen the screws ③ (2pcs.) and adjust the position of the feed dog ②.
4. Tighten the screws ③ (2pcs.) securely.

## 8.7 Adjusting the needle and feed timing



1. Remove the arm top cover.
2. Set the feed amount to the maximum setting.  
(Refer to "7.3 Adjusting the stitch length")
3. Loosen the screws ② (3pcs.) of the feed eccentric adjusting flange coupling ① and turn the feed eccentric adjusting flange ③ for the adjustment.
3. Turn the machine pulley towards you. And after the feed dog has finished its feeding motion and when the teeth of feed dog become equal height to the surface of the throat plate, the needle tip reaches to the throat plate.
4. After the adjustment, tighten the screws ②(3pcs.) securely, and replace the arm top cover.

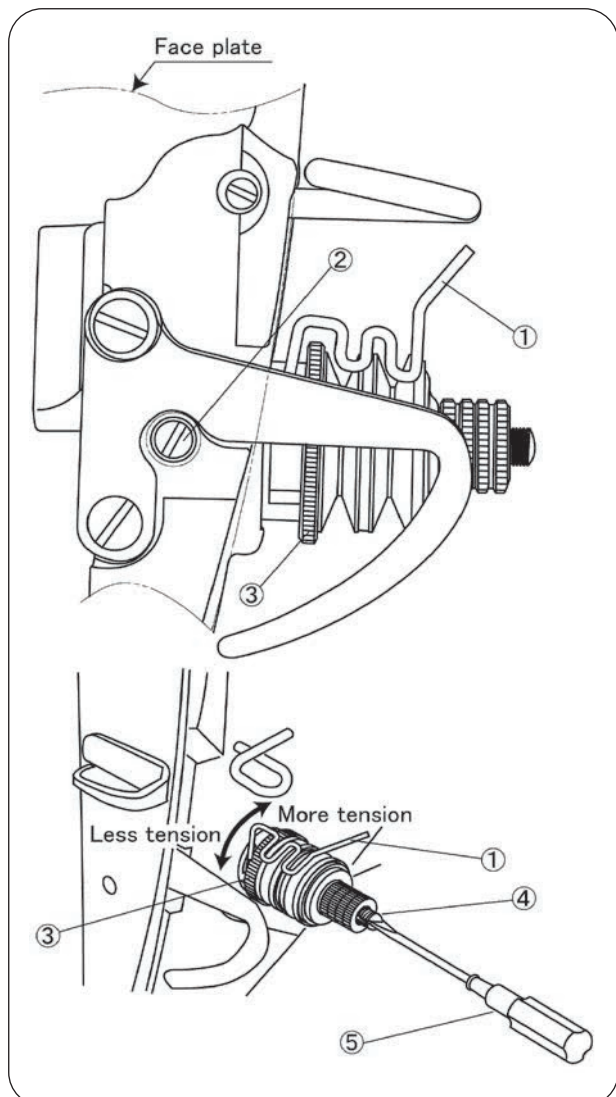
## 8.8 Adjusting the up and down travel of the feeder



The adjustment of the up and down travel of the feeder against its back and forth travel is made so that the teeth of the feed dog rise to the highest point at the middle position, when feeding travel is the largest.

1. Loosen two screws ②, and adjust it by turning the feed lifting cam ① to change an angle with the arm shaft.  
To make the up and down travel of the feeder faster, turn the feed lifting cam ① toward driving direction and to make it slower, turn the cam toward opposite direction.
2. Be sure to tighten the screws ② while pushing the feed lifting cam ① to the rod ③ not to make any clearance axially.

## 8.9 Adjusting the thread take-up spring



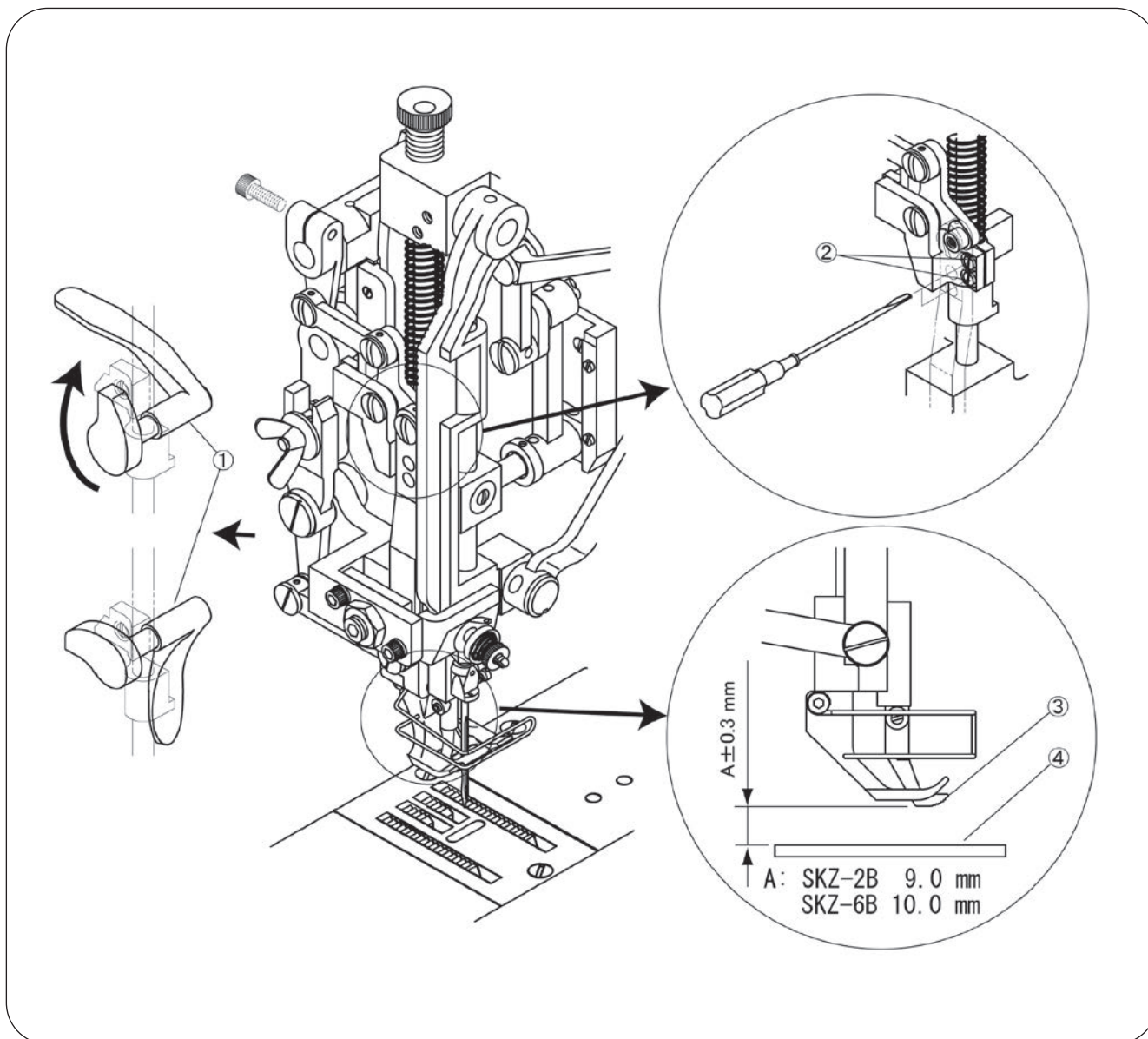
■ Operating range of the thread take-up spring  
The standard operating range for spring ① is 5–10 mm.

1. Loosen the screw ② through the hole of the face plate, and turn the thread take-up spring adjusting sleeve ③ clockwise or counter-clockwise as suitable work.
2. After the adjusting, tighten the screw ②.

■ Tension of the thread take-up spring  
The standard tension for spring ① is 0.39 – 0.78N (40 – 80gf).

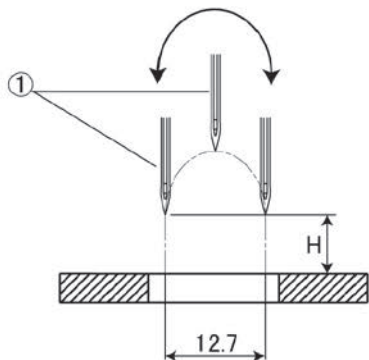
1. Loosen the stud ④ by minus driver ⑤.
2. Turn the thread take-up spring adjusting sleeve ③ to adjust the tension.
  - To decrease the spring tension, turn it counter-clockwise.
  - To increase the spring tension, turn it clockwise.
3. After the adjusting, tighten the stud ④.

## 8.10 Adjusting the height of the presser foot

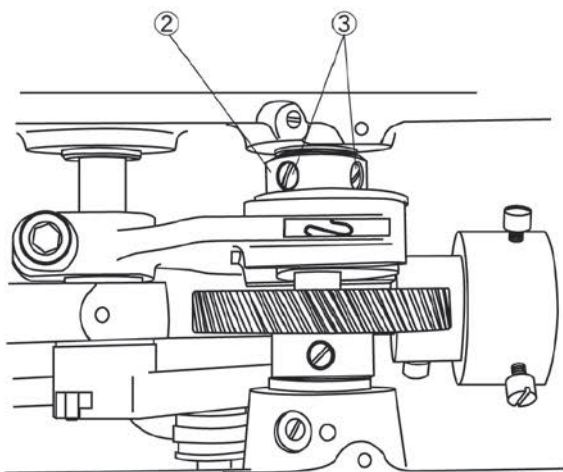


1. Lift the presser foot lifting lever ①, and raise the presser foot ③.
2. Loosen the screws ② (2pcs.), and adjust the presser foot ③ up or down as suitable work.
  - The standard height between the presser foot ③ and the surface of throat plate ④ is  $9 \pm 0.3$  mm SKZ-2B,  $10 \pm 0.3$  mm SKZ-6B when lift the presser foot lifting lever ①.
3. Tighten the screws ② (2pcs.)

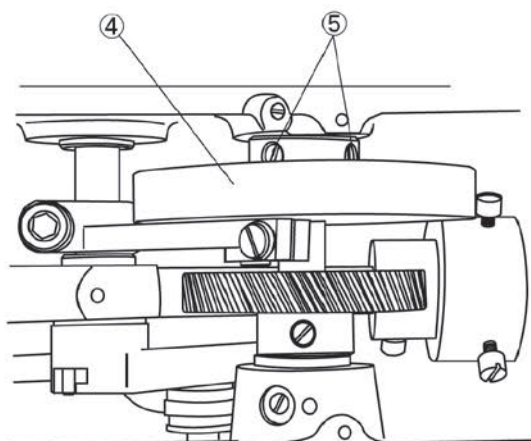
## 8.11. Adjusting the swing position of the needle



<SKZ-2B, SKZ-6B>



<SKZ-2B-3, SKZ-6B-3>



Adjust for the needle to swing from side to side in the highest position.

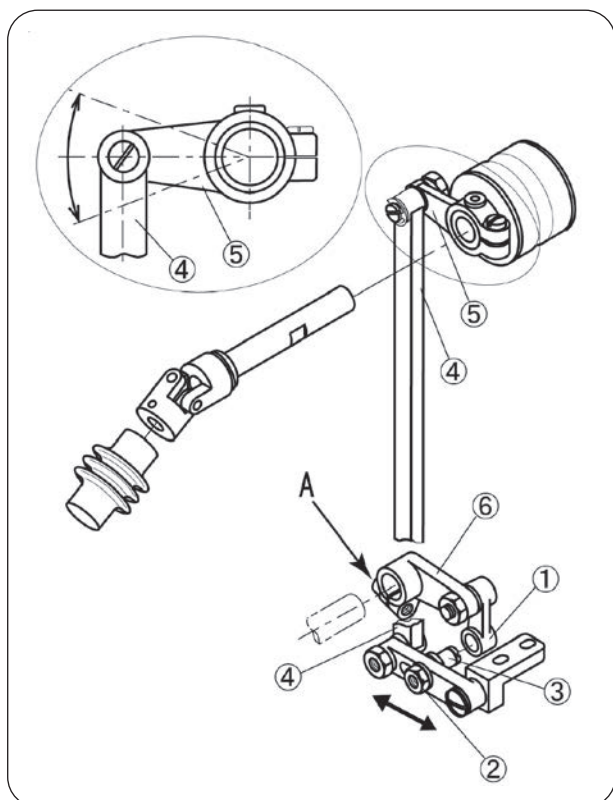
<SKZ-2B, -6B: 1-step (2-point)>

Loosen the two screws (3), and adjust the swing position of the needle by turning the zigzag eccentric (2).

<SKZ-2B-3, 6B-3: 2-step (3-point)>

Loosen the two screws (5), and adjust the swing position of the needle by turning the zigzag eccentric (6).

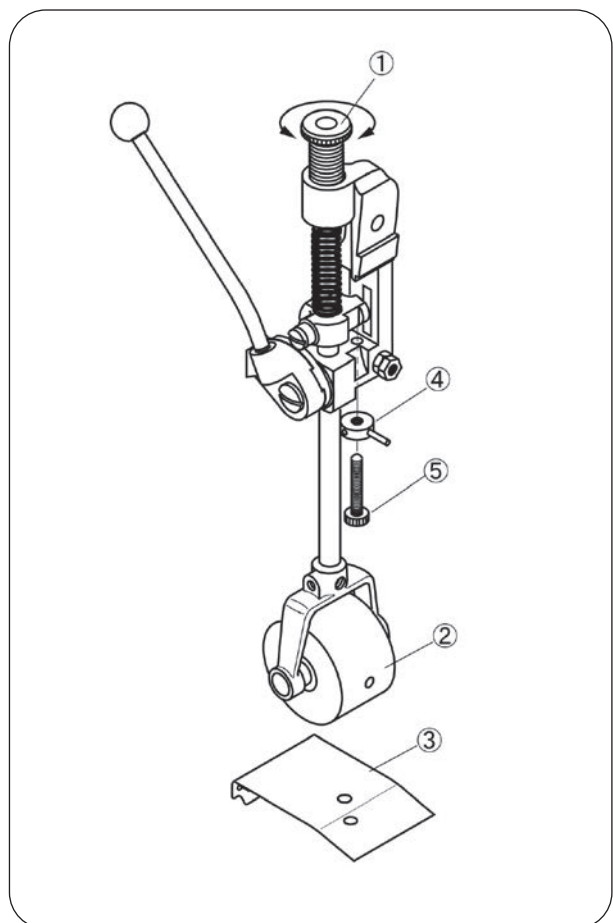
## 8.12 Adjusting the puller feed amount (SKZ-6BR, 6BR-3)



Adjust Puller feeding amount so that sewing object is fed without slack.

1. Tilt Machine head, and adjust position of Feed connecting link ① located under bed.
2. Loosen Nut ②, and move position of Pin screw ③ close to Clutch connecting rod ④ to make feed amount larger and move far to make it smaller.
3. Assemble Feed clutch bell crank (lower) ⑥ so that Feed clutch connecting rod ④ and Feed clutch bell crank (upper) ⑤ can move evenly at angle of around 90 degree.
4. Loosen Screw A to adjust position of Feed clutch bell crank (lower) ⑥.

## 8.13 Adjusting the roller pressure (SKZ-6BR, 6BR-3)



1. Turning Regulating thumb screw ① to right will increase Roller pressure, and turning to left will decrease.
2. To raise Roller ② and have a space on Roller bed plate ③, loosen Roller spacing collar ④ and turn Roller adjusting screw ⑤. Make sure to turn Collar ④ to fix Screw ⑤ at the last.

## 9. 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.






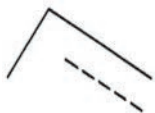

### CAUTION

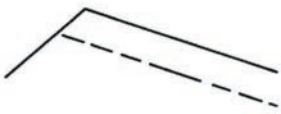
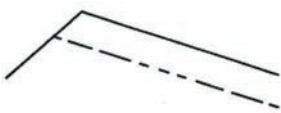


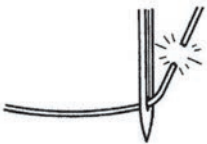
• Turn off the power switch and disconnect the power cord before carrying out troubleshooting, otherwise the machine will operate if the treadle is pressed by mistake, which could result in injury.

\* 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.

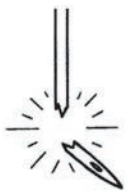
Problem	Possible cause	Page
1. Upper thread is not tight. 	<ul style="list-style-type: none"> <li>• Is the upper thread tension too weak, or is the lower thread tension too strong? Adjust the upper thread tension or lower thread tension.</li> <li>• Is the thread take-up spring too weak? Adjust the tension of the thread take-up spring.</li> <li>• Is the operating range for the thread take-up spring too small? Increase the operating range for the thread take-up spring.</li> <li>• Is the clearance between the bobbin case and the bobbin case retainer correct? Adjust the position of the bobbin case retainer.</li> </ul>	<p>20</p> <p>27</p> <p>27</p> <p>24</p>
2. Lower thread is not tight. 	<ul style="list-style-type: none"> <li>• Is the lower thread tension too weak, or is the upper thread tension too strong? Adjust the lower thread tension or upper thread tension.</li> </ul>	20
3. Loops appear in seam 	<ul style="list-style-type: none"> <li>• Is the tip of the needle burred? If the tip of the needle is burred, replace the needle.</li> <li>• Is the needle hole facing in the correct direction? If the direction of the hole is incorrect, install the needle correctly.</li> <li>• Is the needle too thin for the thread? Replace with a needle that is one rank thicker.</li> <li>• Is the upper thread tension too weak? Adjust the upper thread tension.</li> <li>• Is the thread take-up spring too weak? Adjust the tension of the thread take-up spring.</li> <li>• Is the operating range for the thread take-up spring too small? Increase the operating range for the thread take-up spring.</li> <li>• Is the thread path not smooth enough? Use a file with a fine grain or sandpaper to polish smooth the thread path.</li> </ul>	<p>13</p> <p>13</p> <p>13</p> <p>20</p> <p>27</p> <p>27</p> <p>–</p>

Problem	Possible cause	Page
	<ul style="list-style-type: none"> <li>•Is there too much thread wound onto the bobbin? The bobbin-winding amount should not be more than 80%.</li> </ul>	14
	<ul style="list-style-type: none"> <li>•Is the bobbin-winding tension too strong or too weak? Wind the thread onto the bobbin at an appropriate tension.</li> </ul>	–
	<ul style="list-style-type: none"> <li>•Is the bobbin turning smoothly? Pull out the lower thread to check the turning of the bobbin, and replace the bobbin if necessary.</li> </ul>	–
	<ul style="list-style-type: none"> <li>•Is the bobbin case tension spring defective? Replace the bobbin case.</li> </ul>	–
	<ul style="list-style-type: none"> <li>•Is the rotating hook scratched? Replace the rotating hook.</li> </ul>	–
	<ul style="list-style-type: none"> <li>•Is the feed dog height correct? Adjust the feed dog height so that it is 1.4 mm when the feed dog is at its highest position.</li> </ul>	25
	<ul style="list-style-type: none"> <li>•Is the needle and feed timing correct? Adjust the needle and feed timing.</li> </ul>	26
	<ul style="list-style-type: none"> <li>•Is the needle and rotating hook timing correct? After adjusting the needle height, adjust the needle and rotating hook timing.</li> </ul>	22,23
	<ul style="list-style-type: none"> <li>•Is the clearance between the rotating hook and the bobbin case retainer correct? Adjust the position of the bobbin case retainer.</li> </ul>	24
4. Skipped stitches at sewing start Thread unraveling at sewing start   Upper thread	<ul style="list-style-type: none"> <li>•Is the feed dog height correct? Adjust the feed dog height so that it is 1.4 mm when the feed dog is at its highest position.</li> </ul>	25
	<ul style="list-style-type: none"> <li>•Is the thread take-up spring tension too strong? Reduce the tension of the thread take-up spring.</li> </ul>	27
	<ul style="list-style-type: none"> <li>•Is the operating range for the thread take-up spring too large? Decrease the operating range for the thread take-up spring.</li> </ul>	27
	<ul style="list-style-type: none"> <li>•Is the presser foot pressure too weak? Adjust the presser foot pressure.</li> </ul>	21
	<ul style="list-style-type: none"> <li>•Is the needle too thick? Try using a needle with a count that is one lower than the current needle.</li> </ul>	13
	<ul style="list-style-type: none"> <li>•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.</li> </ul>	16

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.	13
	•Is the needle properly installed? If it is incorrect, install the needle correctly.	13
	•Is the needle too thin or too thick for the thread? Replace with a needle that is suitable for the thread.	13
	•Is the machine properly threaded? If it is incorrect, thread the thread correctly.	16
	•Is the presser foot pressure too weak? Adjust the presser foot pressure.	21
	•Is the rotating hook tip broken or worn? Sharpen the rotating hook tip or replace the rotating hook.	–
	•Is the height of the needle correct? Adjust the height of the needle.	23
	•Is the needle and rotating hook timing correct? After adjusting the needle height, adjust the needle and rotating hook timing.	22,23
6. Uneven seam  	•Is the needle and feed timing correct? Adjust the needle and feed timing.	26
	•Is the feed dog height correct? Adjust the feed dog height so that it is 1.4 mm when the feed dog is at its highest position.	25
	•Is the presser foot pressure too weak? Adjust the presser foot pressure.	21

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	13
	•Is the needle scratched? Replace the needle.	13
	•Is the needle properly installed? If it is incorrect, install the needle correctly.	13
	•Is the needle too thin or too thick for the thread? Replace with a needle that is suitable for the thread.	13
	•Is the upper thread tension too strong or too weak? Adjust the upper thread tension.	20
	•Is the tension of the thread take-up spring too strong or too weak? Adjust the tension of the thread take-up spring.	27
	•Is the operating range for the thread take-up spring too large or too small? Decrease or increase the operating range for the thread take-up spring.	27
	•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 rotating hook and the bobbin case retainer correct? Adjust the bobbin case retainer.	24
	•Has the needle been pushed in fully during installation? Install the needle correctly.	13
	•Is the height of the needle too low? Adjust the height of the needle.	23
	•Is the needle and rotating hook timing correct? After adjusting the needle height, adjust the needle and rotating hook timing.	22, 23
	•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.	21

\* See the 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.	13
	•Is the needle bent, is the needle tip broken, or is the needle hole blocked? Replace the needle.	13
	•Is the needle and feed timing correct? Adjust the needle and feed timing.	26
	•Is the needle and rotating hook timing correct? After adjusting the needle height, adjust the needle and rotating hook timing.	22,23
<div> <b>Caution</b> <ul style="list-style-type: none"> <li>•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.</li> <li>•Furthermore, we recommend that through steps be taken to account for such needles to comply with product liability regulations.</li> </ul> </div>		



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