



# User's Manual

## KM-341BL

High-speed 1-Needle  
Lock Stitch  
Upper/Lower Feed  
Sewing Machine



SUNSTAR MACHINERY CO., LTD.

- 1) FOR AT MOST USE WITH EASINESS,  
PLEASE CERTAINLY READ THIS MANUAL  
BEFORE STARTING USE.
- 2) KEEP THIS MANUAL IN SAFE PLACE  
FOR REFERENCE WHEN THE MACHINE  
BREAKS DOWN.

MME-050629



1. Thank you for purchasing our product. Based on the rich expertise and experience accumulated in industrial sewing machine production, SUNSTAR will manufacture industrial sewing machines, which deliver more diverse functions, high performance, powerful operation, enhanced durability, and more sophisticated design to meet a number of user's needs.
2. Please read this user's manual thoroughly before using the machine. Make sure to properly use the machine to enjoy its full performance.
3. The specifications of the machine are subject to change, aimed to enhance product performance, without prior notice.
4. This product is designed, manufactured, and sold as an industrial sewing machine. It should not be used for other than industrial purpose.



**SUNSTAR MACHINERY CO., LTD.**

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# Machine Safety Rules




Safety instructions in this manual are defined as Danger, Warning and Caution.

If they are not properly observed, physical injuries or machine damage might occur.

**Danger** : This mark must be observed. Otherwise, danger could result during machine installation, transportation and operation.

**Warning** : When this mark is observed, machine-related injuries could be prevented.

**Caution** : When this mark is observed, machine errors could be prevented.

<p><b>1-1) Transportation</b></p> 	<p>Those, who fully understand the safety rules, should transport the sewing machine. The following instructions must be observed during transportation:</p> <ul style="list-style-type: none"> <li>Ⓐ At least two people should move the machine.</li> <li>Ⓑ To prevent accidents from occurring during transportation, wipe off the oil put on the surface of the machine.</li> </ul>
<p><b>1-2) Installation</b></p> 	<p>The machine may not work properly or break down depending on where it is installed. The right place of installation should meet the following conditions:</p> <ul style="list-style-type: none"> <li>Ⓐ Remove the package and wrappings from the top in order. Take a special notice of the nails on the wooden box.</li> <li>Ⓑ Dust and moisture stains and rusts the machine. Install air-conditioners and clean the machine regularly.</li> <li>Ⓒ Keep the machine away from direct sunlight.</li> <li>Ⓓ Leave the left, right and rear sides of the machine at least 50cm away from the wall to secure sufficient space for repair.</li> <li>Ⓔ Explosion Do not use the machine in the atmospheres exposed to the danger of explosion. To avoid explosion, do not operate this machine in a place where a large quantity of aerosol products is used or where oxygen is stored, unless there are specific facilities installed to prevent explosion.</li> <li>Ⓕ The machine does not provide lightings. End users should install them at their workplace.</li> </ul> <p>[Note]See “4. Installation” for more details on machine installation.</p>
<p><b>1-3) Repair</b></p> 	<p>When the machine needs to be repaired, only the designated A/S engineers, who were trained by Sunstar, should repair the machine.</p> <ul style="list-style-type: none"> <li>Ⓐ Before cleaning or repairing the machine, turn off the machine and wait for 4 minutes till the machine is completely discharged.</li> <li>Ⓑ The machine specifications and parts should not be altered without prior consultation with Sunstar. This may pose danger to operation.</li> <li>Ⓒ When repairing, only the original spare parts produced by Sunstar should be used for replacement.</li> <li>Ⓓ Put all safety covers back on the machine after repairing is complete.</li> </ul>

## 1-4) Operation



KM-341BL Series is an industrial sewing machine designed to conduct pattern sewing using fabrics and other similar materials. During operation, the following instructions should be kept in mind:

- Ⓐ Read through this manual carefully and completely before operating the machine.
- Ⓑ Wear proper clothes for safety.
- Ⓒ Keep hands or other body parts away from the machine's operating sections (needle, hook, take-up, pulley, etc.), when the machine is in operation.
- Ⓓ Do not remove safety plates and various covers, while the machine is operating.
- Ⓔ Be sure to connect the machine to the grounding conductor.
- Ⓕ Turn off the machine before opening the electric boxes including the control box. Make sure that the power switch is "OFF".
- Ⓖ Stop the machine when placing a thread or when checking swing materials.
- Ⓗ Do not turn on the machine when stepping on the pedal.
- Ⓘ If possible, install the machine away from the place where powerful electromagnetic waves are generated, such as high-frequency welding machine.

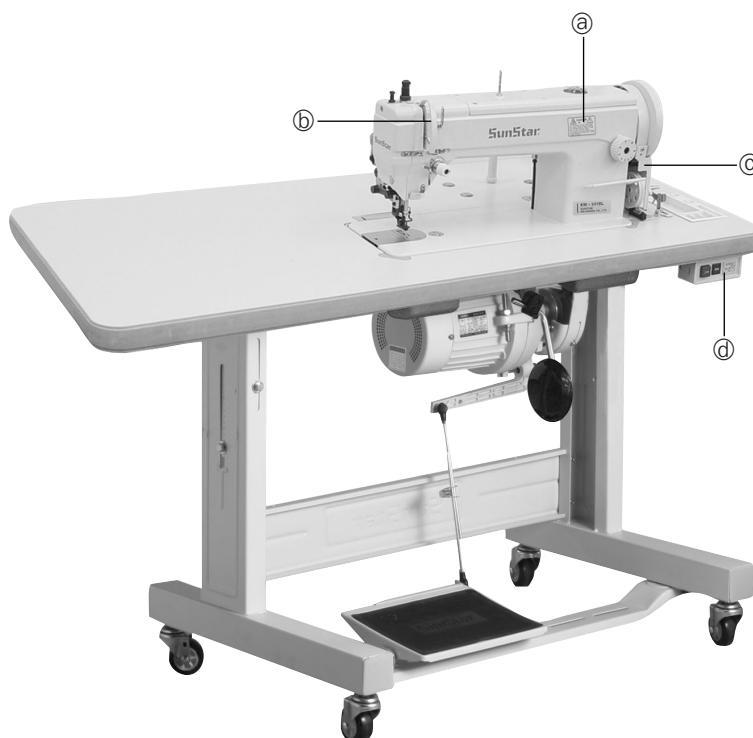
### [ Warning ]

Make sure that the motor cover is closed during machine operation.  
Turn off the power when checking or adjusting the machine.

## 1-5) Safety Devices



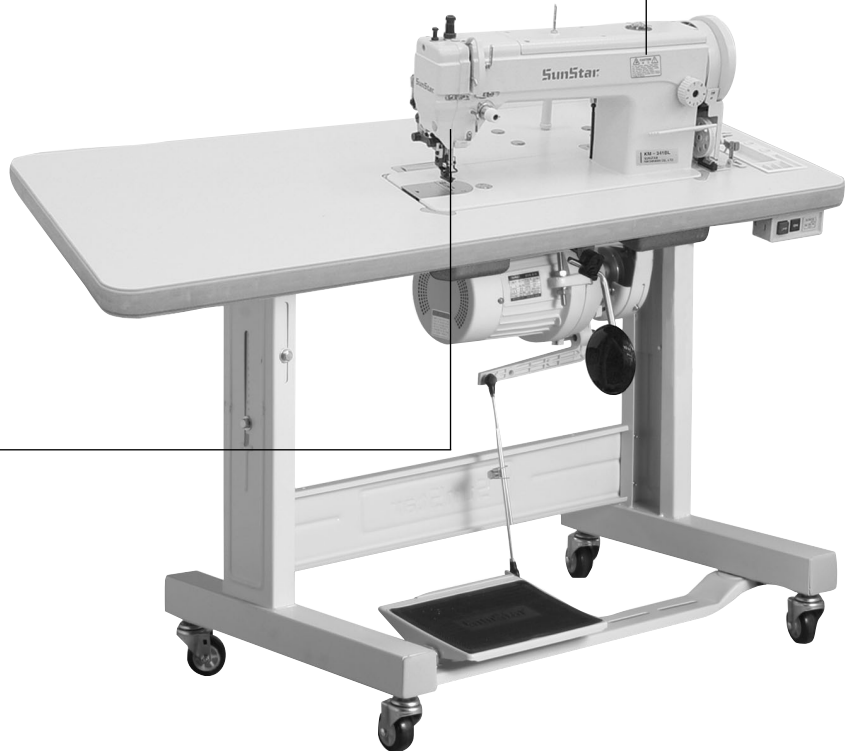
- Ⓐ Safety label : Shows the cautions users should keep in mind during operation
- Ⓑ Take-up cover: Prevents human body from contacting thread take-up
- Ⓒ Belt cover: Prevents physical injuries from occurring by the belt or clothes from being stuck in the belt.
- Ⓓ Power specification label: Displays safety cautions to prevent electrification (Power input and use Hz)



## 1-6) Location of Caution Marks



Caution marks are attached on the machine for safety.  
When operating the machine, carefully read the instructions on the mark.



## 1-7) Warning Messages

### Caution

1)

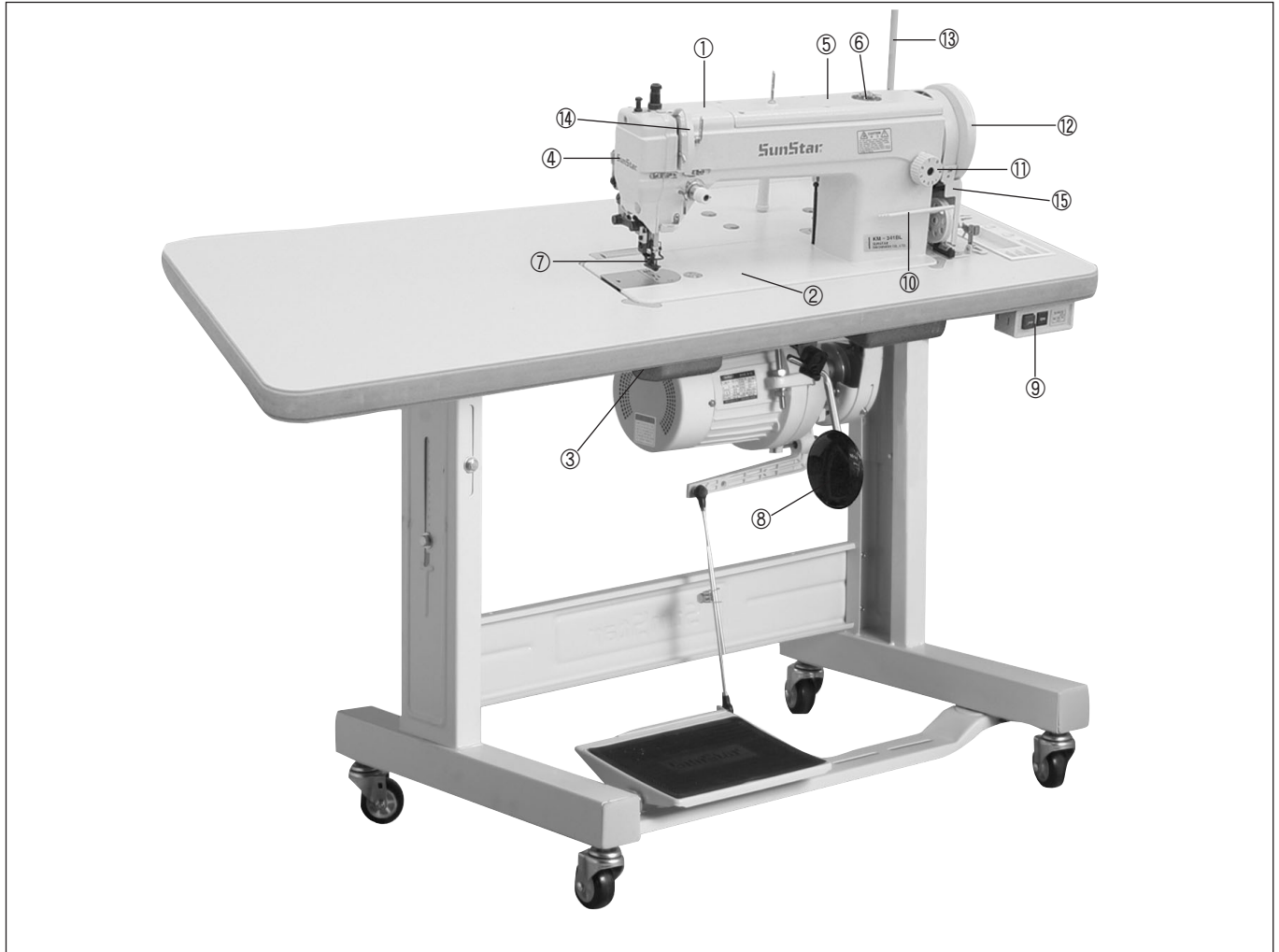


2)



# 2

## Entire Configuration



- |                |                    |
|----------------|--------------------|
| ① Arm          | ⑧ Knee Lifting Pad |
| ② Bed          | ⑨ Power Switch     |
| ③ Oil Fan      | ⑩ Reverse Lever    |
| ④ Face Plate   | ⑪ Stitch Dial      |
| ⑤ Top Cover    | ⑫ Pulley           |
| ⑥ Oil Window   | ⑬ Thread Stand     |
| ⑦ Presser Foot |                    |

### Safety Devices

- |                 |
|-----------------|
| ⑭ Take-up Cover |
| ⑮ Belt Cover    |

# 3

## Specifications

MODEL		KM-341BL
Name		High-speed 1-Needle Lock Stitch Upper/Lower Feed Sewing Machine with Vertical Large Hook
Needle in Use		DP × 17 #23, DB × 1 #21 (#20 ~ #24)
Needle Stroke		34.7 mm
Thread Take-up Stroke		71.5 mm
Up/Down Overlap of Presser Foot		2 ~ 5 mm
Presser Foot Lifting	Hand	8 mm
	Knee	14 mm
Max. Fabric Thickness		8 mm
Max. Thickness of Fabric End		5 mm
Feed Dog Height		1~1.2 mm
Application		Medium ~ Heavy Materials



# 4

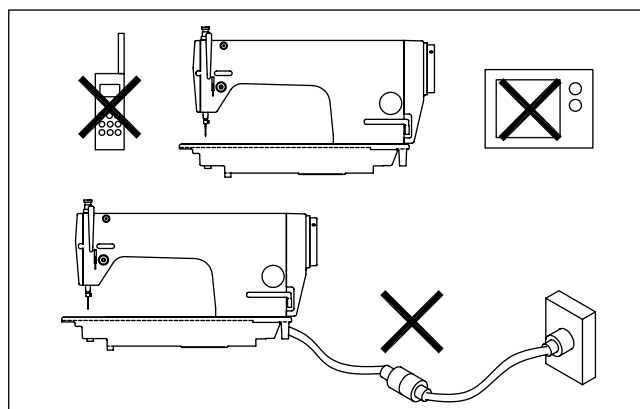
## Installation

### [ Caution ]

- Sewing machine installation and wiring work should be conducted by qualified engineers.
- Since the sewing machine's body weights 50kg or so, at least two persons are needed to install the sewing machine.
- Do not turn on the power until the installation is completed.  
If the foot pedal is accidentally stepped, the sewing machine can start operation, providing causes for accidents.
- When the sewing machine body is laid down or erected straight, use both hands. If only one hand is used, it may cause injuries such as fingers stuck in the machine.

### 4-1. Where to Install

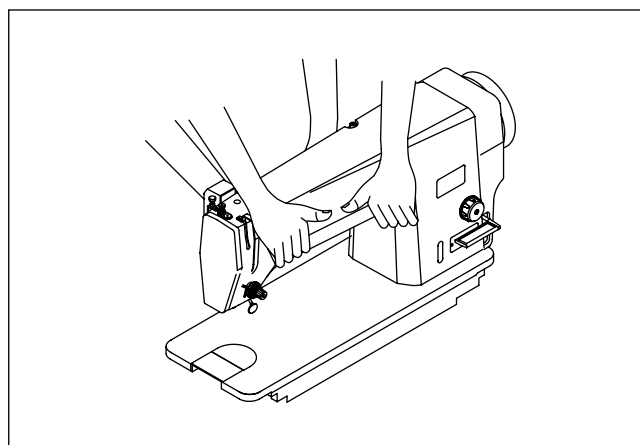
- 1) Do not install the sewing machine next to television, radio and wireless phones, since they can cause noises to the sewing machine.
- 2) Connect the power plug of the sewing machine directly to the AC outlet. If a multi-tap is used, it may cause malfunction of the sewing machine.



[ Fig. 1 ]

### 4-2. Machine Transportation

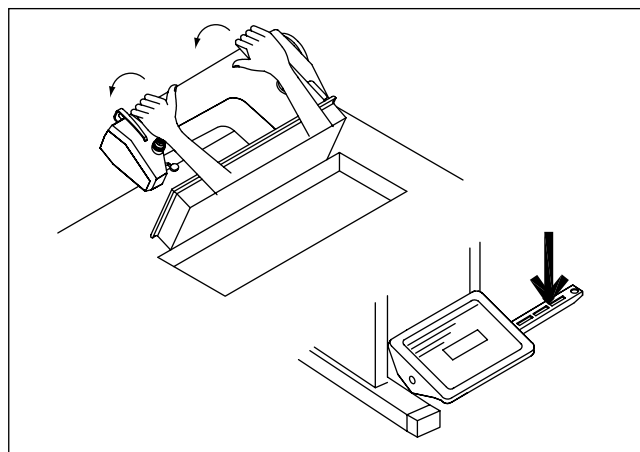
- 1) The body of the sewing machine shall be transported by two persons as in the figure.



[ Fig. 2 ]

### 4-3. Laying Down Sewing Machine

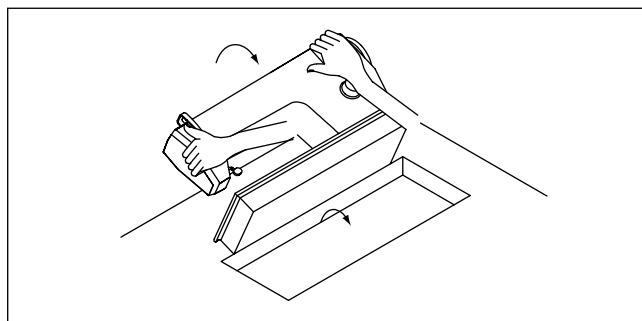
- 1) Hold the upper part of the sewing machine body with two hands and lay it down by pushing it backward. Then the sewing machine lies down. Make sure that press the lower part of the plate leg of the sewing machine. Otherwise, the sewing machine body and the entire plate leg might fall backward, causing accidents.



[ Fig. 3 ]

#### 4-4. Returning to Original Position

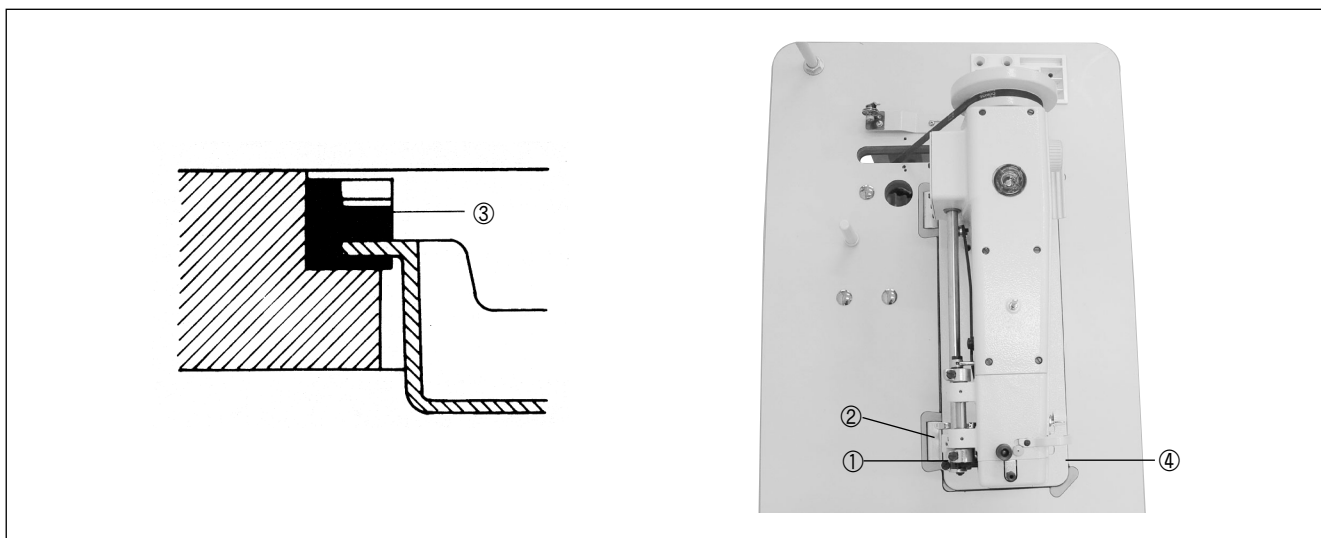
- 1) Clear away tools from the table.
- 2) Hold the face plate with the left hand, while slowly returning the sewing machine back to its original position.



[ Fig. 4 ]

#### 4-5. Installation of Head Part

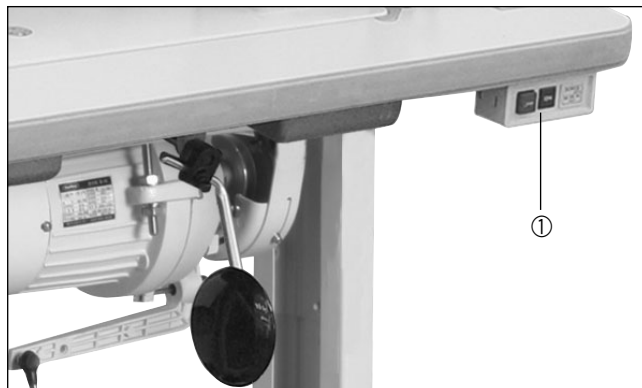
Insert the hinge rubber① into the table, and insert the oil fan into the middle of the head supporting rubber B③ as in Fig. 5. Insert the head hinge② into the bed hole and install the machine above the head supporting rubber A④ and the head supporting rubber B③, while inserting the hinge rubber①.



[ Fig. 5 ]

#### 4-6. Installation of Power Switch Box

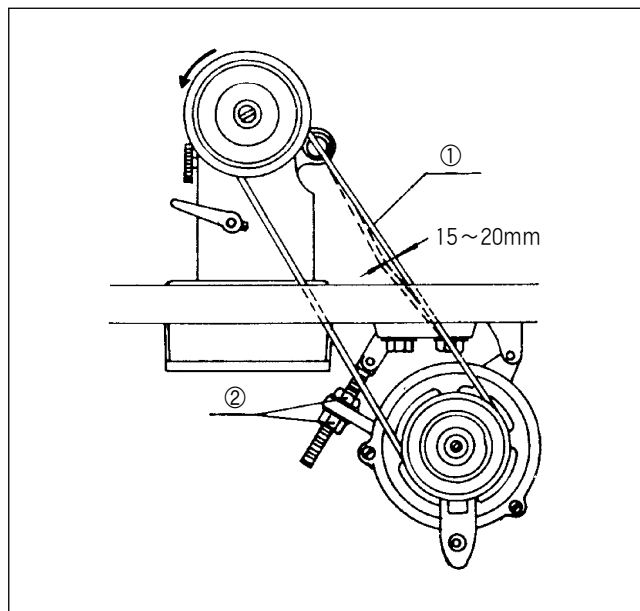
See <Fig.6> when installing the power switch box① and install it on the right bottom of the table.



[ Fig. 6 ]

#### 4-7. Adjusting Belt Tension

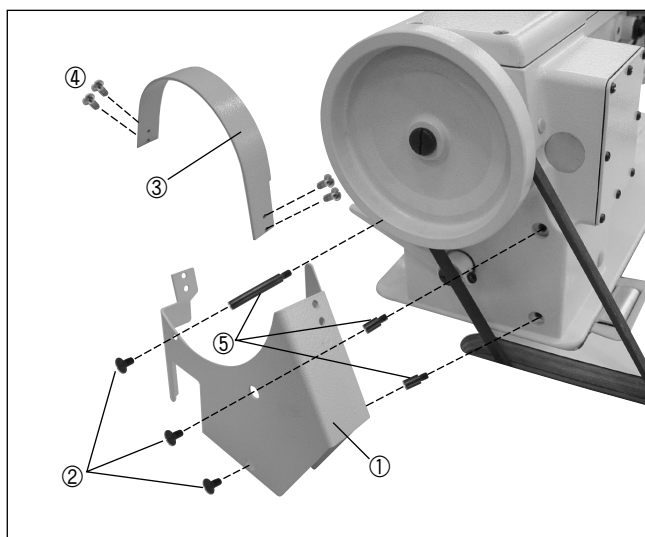
- 1) When looking at the sewing machine from the pulley side, it looks like it is spinning in the left side.
  - 2) To adjust the belt tension, press the belt① with a finger and when it is pushed down about 15~20 mm, fasten the nut②.
- ※ Keep the presser foot stay at the up position, while the belt is spined for testing.



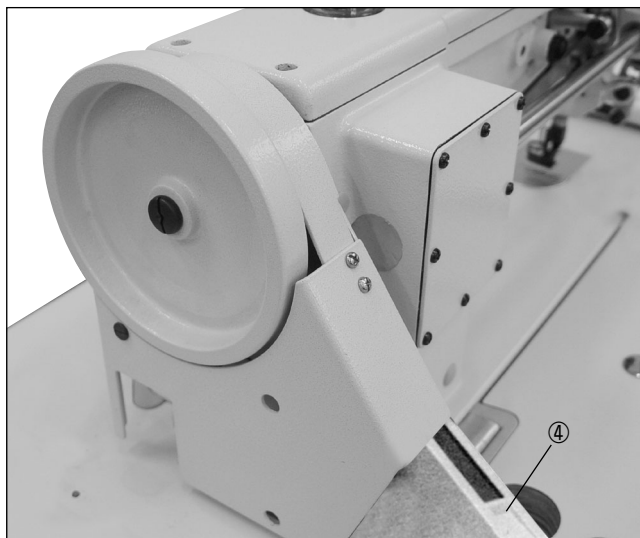
[ Fig. 7 ]

#### 4-8. Installation of Belt Cover

- 1) Attach the belt cover A① to the sewing machine body using the screw② (3EA) and three belt supports⑤.  
If the sewing machine is pushed backward a little bit, assembling the belt cover A① becomes a bit easier.  
When the assembly of the belt cover A① is finished, insert the front part of the belt cover C③ into the groove of the belt cover A①, and fix the rear part using the screw④.
- 2) Attach the belt cover B④ to the table.  
Make sure that the belt cover B④ does not interfere with the belt operation.



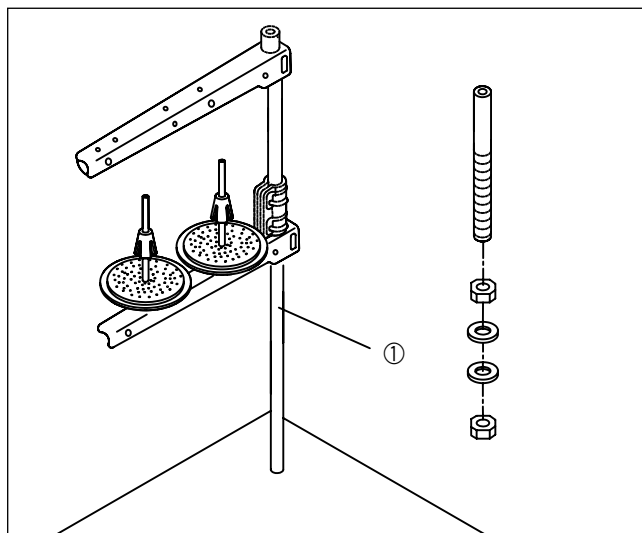
[ Fig. 8 ]



[ Fig. 9 ]

## 4-9. Thread Stand

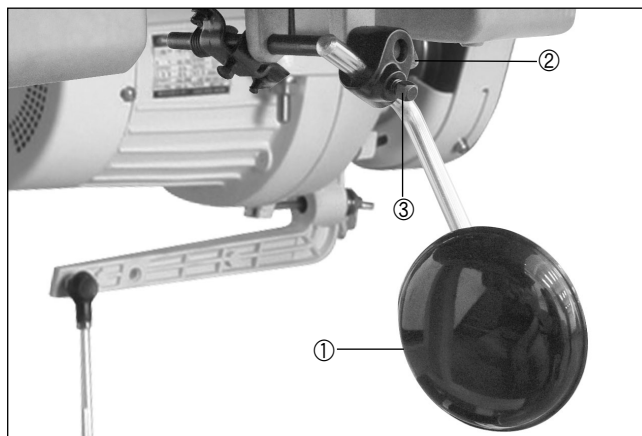
- 1) Install the thread stand① on the table as in the figure.



[ Fig. 10 ]

## 4-10. Knee Lifting Pad

- 1) Attach the knee lifting pad① to the bottom of the oil fan as in the figure, and fasten it using the bolt②.
- 2) Loosen the bolt③ to adjust the position of the knee lifting pad① for user's comfortable operation.



[ Fig. 11 ]

## 4-11. Oil Supply

### [ Caution ]

- When oil supply is completed, do not plug in the sewing machine. When the sewing machine is plugged in, and the pedal is accidentally stepped on, the sewing machine might start, causing injuries.
- When dealing with lubricant, wear glasses and gloves to protect eyes and hands. Take caution not to make eyes and skin contact lubricant. When lubricant is touched, rinse off the smear with a soap and running water. When lubricant touches eyes, rinse off lubricant in running water and go to hospital to see a doctor.
- Do not swallow lubricant. It may cause diarrhea and vomiting. If you swallow lubricant, immediately see a doctor.
- Keep lubricant out of reach of children and youth. Keep lubricant stored away from fire.

- When it is first time to operate the sewing machine or it is reuse of the sewing machine after a long-term storage, please supply oil to the machine.
- Use original Sunstar lubricant (Lubricant is in the accessory box).

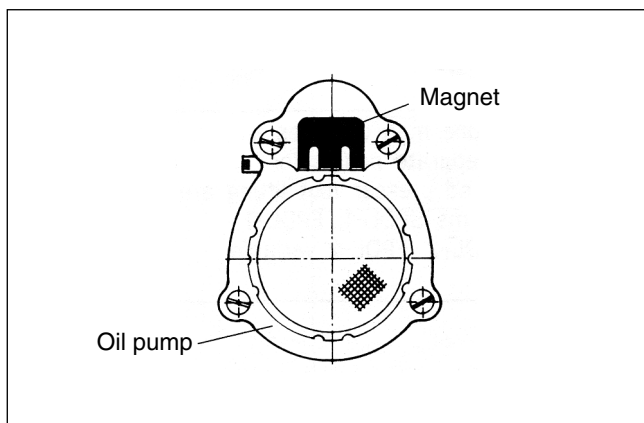
### A. Installation of Magnet Removing Chips (Iron Powder)

Attach the magnet removing chips (iron powder), which is inside the accessory box, to the oil pump inside the bed.

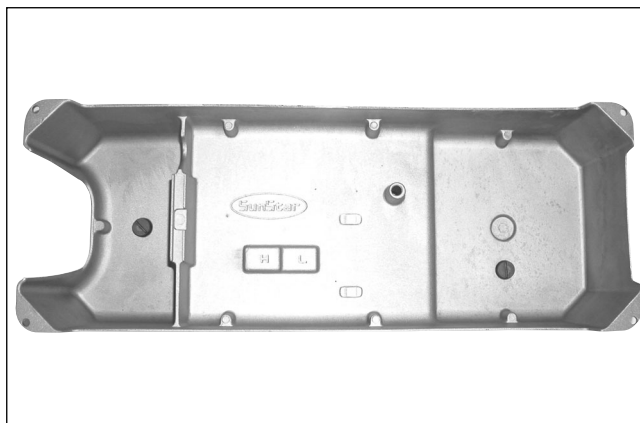
- ※ Do not remove the magnet to use it for other purpose. If the sewing machine is operated without the magnet, it may cause malfunction in the machine and negatively affect durability of the machine.

#### B. Lubricant Supply to Oil Fan

- Fill lubricant up to “High”.
- Use the oil for Sunstar industrial sewing machine or Shell’s Tellus C10 as lubricant.
- When lubricant reaches “Low”, lubricant should be resupplied until it reaches “High”.
- Exchange lubricant oil every two weeks.



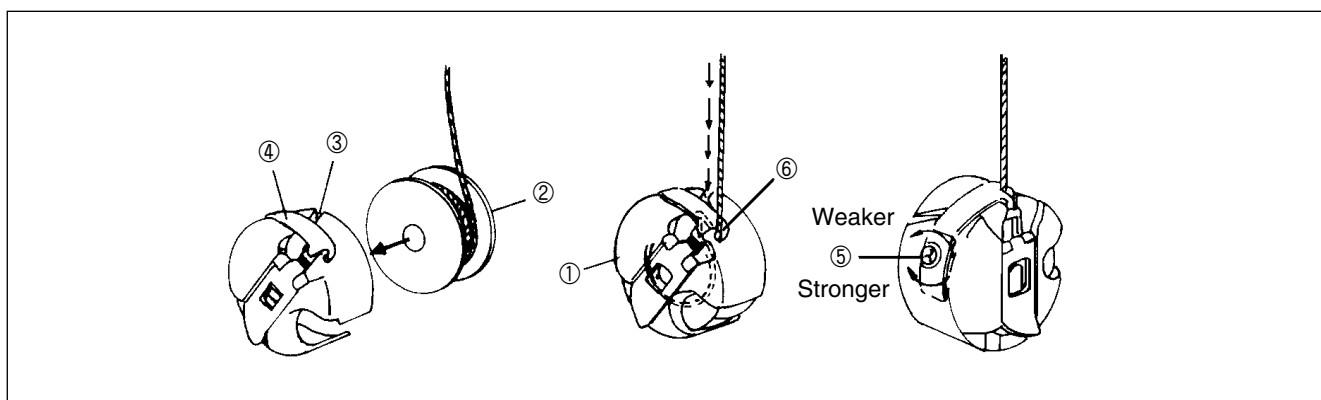
[ Fig. 12 ]



[ Fig. 13 ]

### 4-12. Inserting Bobbin into Bobbin Case

- Insert the bobbin into the bobbin case as in the figure below.
  - ※ If the bobbin is inserted in the opposite direction, it is spined loosely, causing entanglement of lower thread.
- Insert the thread into the lower thread tension adjusting spring④ through the thread path③ and take out the thread through the thread hole⑥.
- Set the output tension to the extent that when the bobbin case① is dropped with the end of the thread held, it falls gradually.
- When the tension adjusting screw⑤ is turned clockwise, the lower thread tension gets stronger. When it is turned counter-clockwise, the lower thread tension gets weaker.



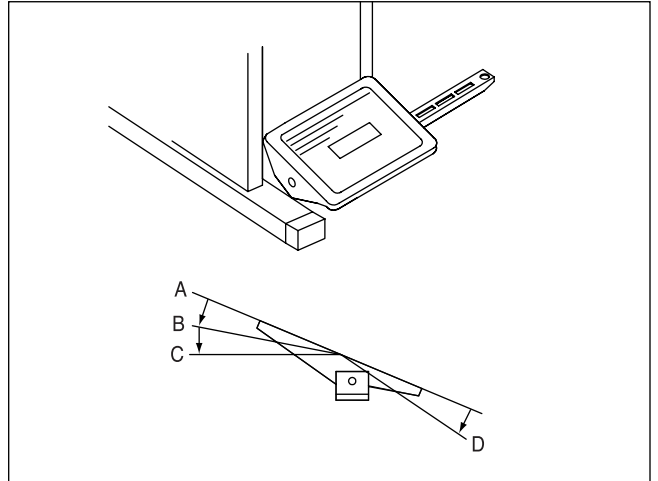
[ Fig. 14 ]

### 4-13. Test Operation (Pedal Operation)

[ Caution ]

- During operation, do not touch spinning or moving parts or press them with an object.  
It may cause physical injuries or machine breakdowns.

- 1) Move the pedal at the B position to see if you can conduct low speed sewing.
- 2) Move the pedal at the C position to see if you can conduct high-speed sewing.
- 3) Step the pedal (B or C position). Stay your feet away from the pedal and place it at the Neutral A position.  
Check whether the needle stops below the surface of the needle plate (in case of setting up the lower stop position).

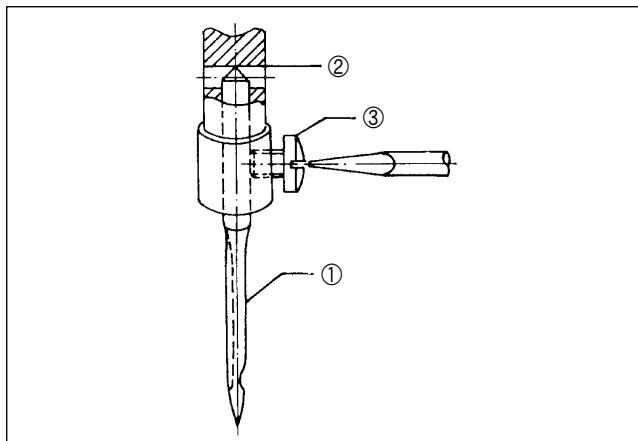


[ Fig. 15 ]

## Basic Sewing Machine Adjustments

### 5-1. Needle Insertion

Place the long groove of the needle① toward the left. Insert the needle deep into the needle bar hole② and fasten the needle fixing screw③.

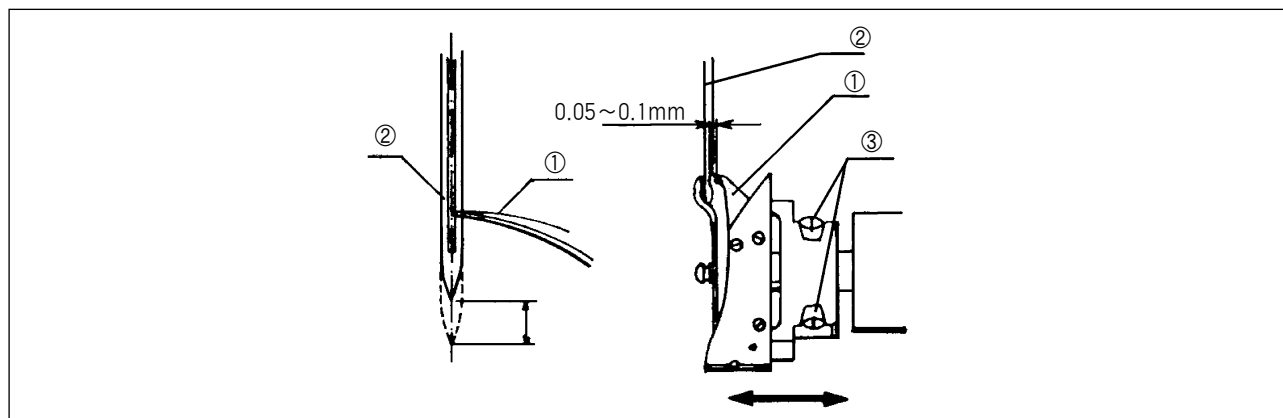


[ Fig. 16 ]

### 5-2. Adjusting Needle and Hook Timing

#### 1) Needle Bar Lifting

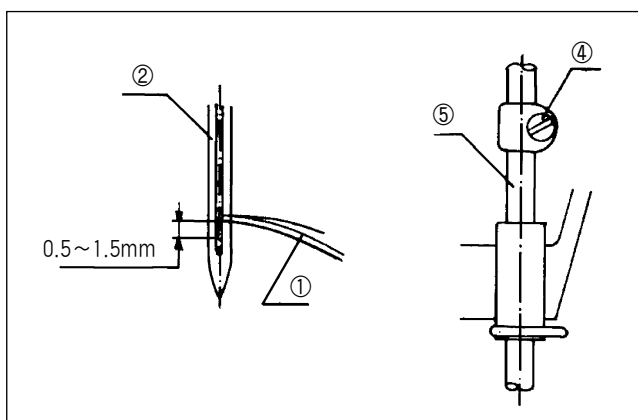
Turn the pulley to place the needle 2.24mm above the lowest point. In this case the hook point① and the middle of the needle② should be aligned. Loosen the fixing screw③ and set the hook point① at the middle of the needle②. Adjust the distance between the hook point① and the needle② at 0.05~0.1mm.



[ Fig. 17 ]

#### 2) Needle Bar Height

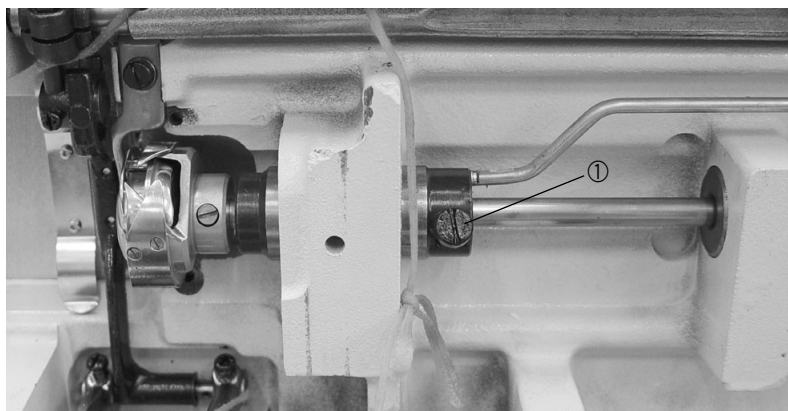
Loosen the tightening screw④ to adjust the distance between the upper part of the thread hole and the hook point① at 0.5~1.5mm when the hook point① is aligned with the middle of the needle②. Move the needle bar up or down to adjust the needle bar⑤ and fasten the screw④.



[ Fig. 18 ]

### 5-3. Adjusting Oil Supply to Hook

Turn the oil volume adjusting screw①, which is inserted in the lower shaft front bushing, clockwise(+). It will release more oil. Turn the screw counter-clockwise(−) and it will release less oil.

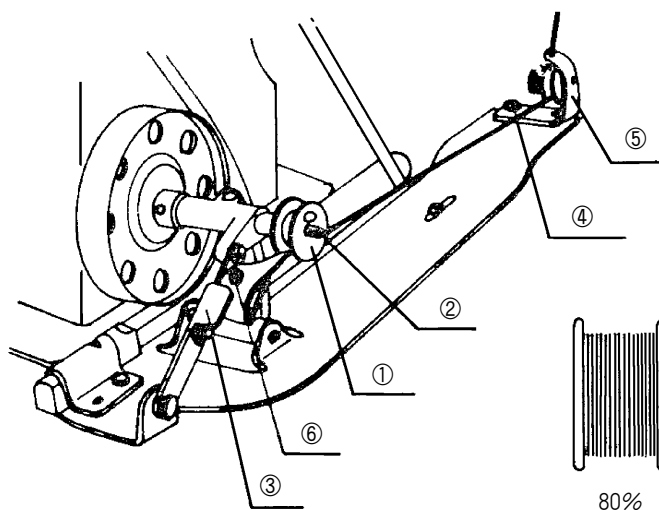


Less

More

[ Fig. 19 ]

### 5-4. Adjusting Lower Thread Spinning

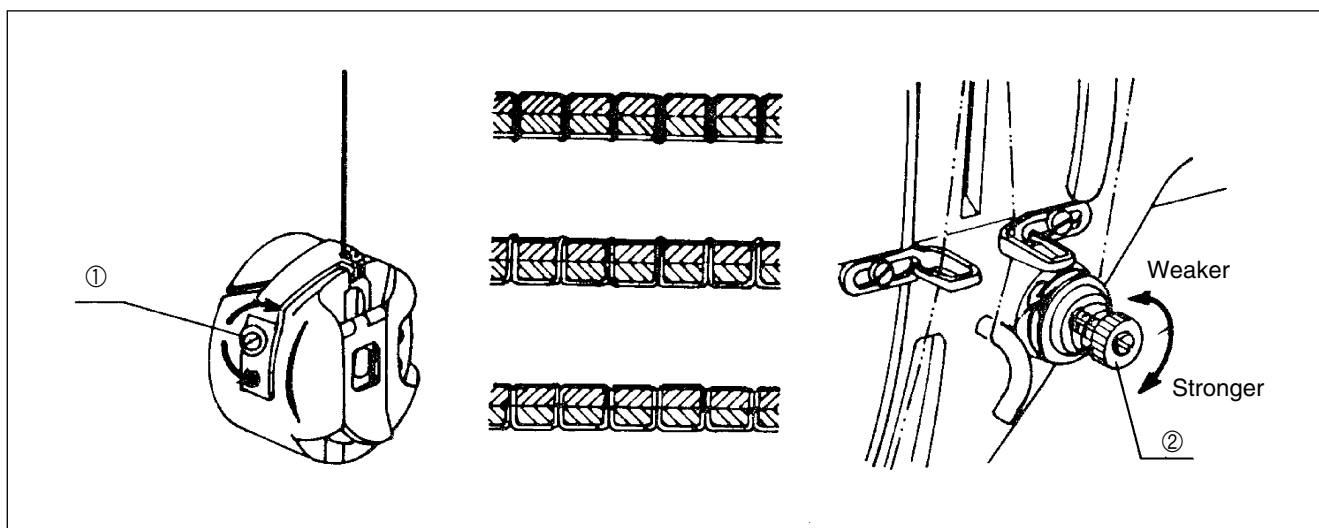


[ Fig. 20 ]

- 1) Insert the bobbin① into the thread spinning shaft②.
- 2) Press the thread spinning lever③.
- 3) Spin five or six times by hand in the direction of thread spinning in the bobbin① and operate the sewing machine.
- 4) If the thread spinning does not take place horizontally, loosen the thread guide screw④ and move the thread guide plate⑤ left or right for adjustment.
- 5) When the thread is spun around the bobbin① a lot, loosen the adjusting screw⑥. When the thread spun around the bobbin is small, fasten the screw.



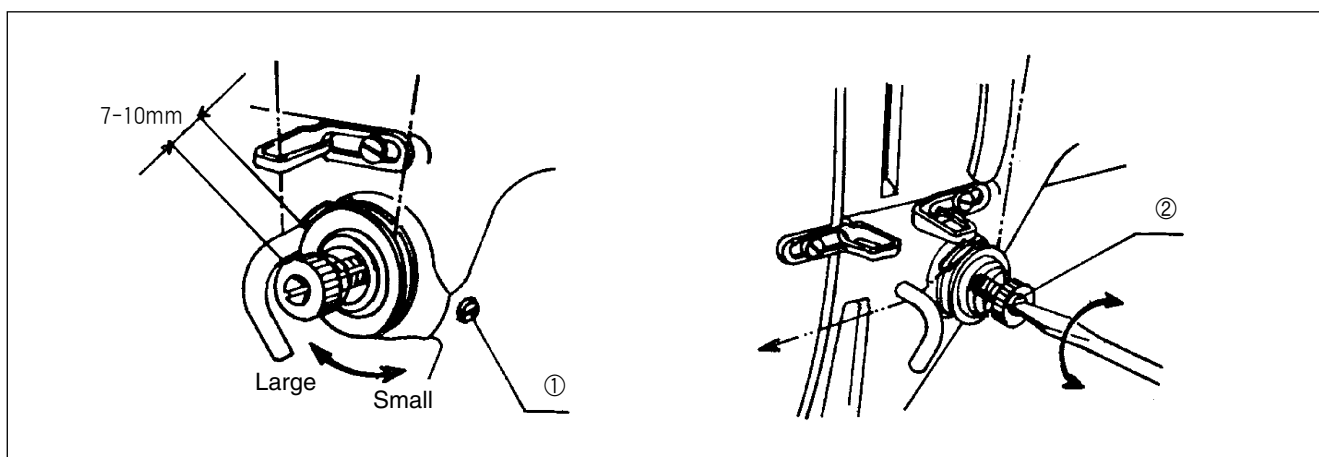
## 5-5. Adjusting Thread Tension



[ Fig. 21 ]

- 1) Adjust the lower thread tension by slightly turning the tension adjusting screw①, so that when the end of thread is picked up by hand, the thread does not get loose.  
 ※ The average tension of pulling the thread out of the bobbin case is 30~50g.
- 2) Lower the presser foot and turn the tension adjusting screw② to adjust the upper thread.

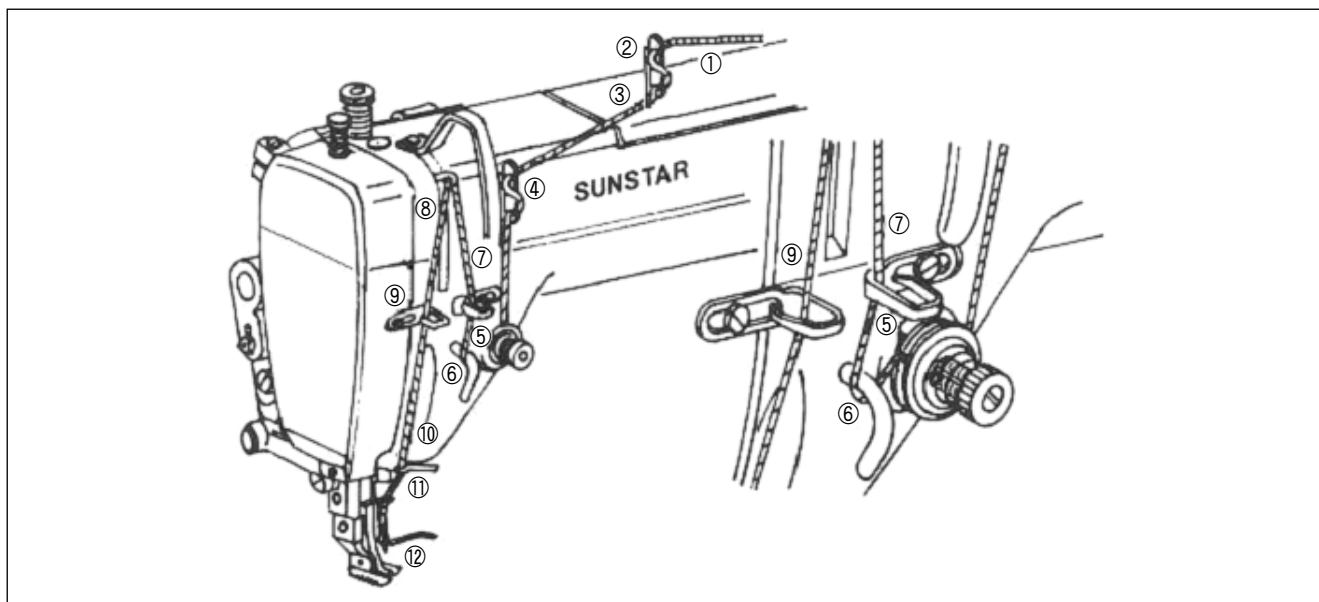
## 5-6. Adjusting Thread Take-up Spring



[ Fig. 22 ]

- 1) The scope of operation of the thread take-up spring is 7~10mm.  
 The standard strength of the thread take-up spring twist is 40~60g.
- 2) When adjusting the scope of operation of the thread take-up spring, loosen the fixing screw① for the thread take-up and turn the thread adjusting device (Adjust the scope of operation to be smaller for heavy materials and vice versa for light materials.)
- 3) Adjust strength of the thread take-up spring by inserting a driver into the groove of the thread adjusting device post② and turn it left or right (Adjust strength of the thread take-up spring to be stronger for heavy materials, and vice versa for light materials.)

## 5-7. Placing Upper Thread

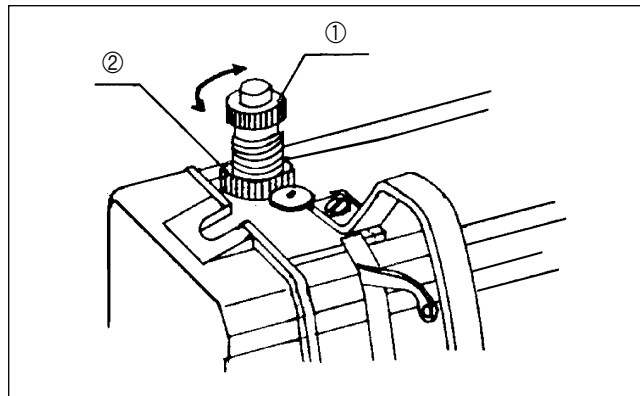


[ Fig. 23 ]

- 1) Move the thread take-up to the highest position.
- 2) Insert the thread into the needle from left to right.

## 5-8. Adjusting Pressure of Pressor Foot

Loosen the fixing nut② for the pressure adjusting screw and turn the pressure adjusting screw① left or right to make the sewing fabric held by the pressor foot. Fasten the fixing nut②.



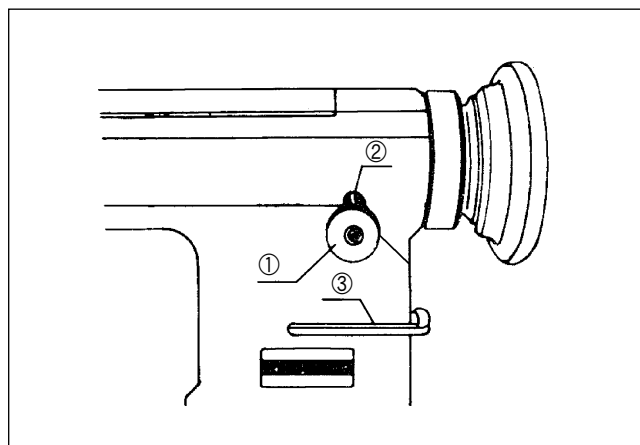
[ Fig. 24 ]

## 5-9. Adjusting Stitch Length

- 1) Match the desired number on the stitch length dial① with the pin② above.
  - ※ The bigger the figure becomes, the bigger the stitch length becomes.
- 2) Press the reverse lever③ by hand for reverse sewing.

This time, the sewing fabric is fed in the opposite way.

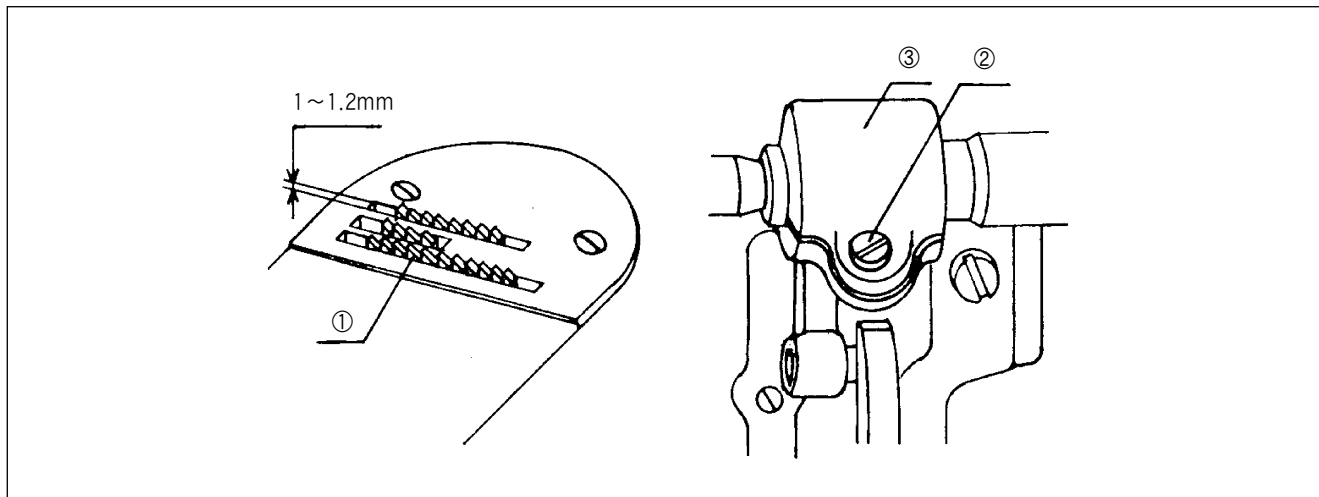
When the reverse lever is not pressed, the sewing fabric is fed in the normal direction.



[ Fig. 25 ]

## 5-10. Adjusting Height of Feed Dog

When the stitch length is maximum and the feed dog① is above the needle plate, the maximum height of the feed dog is 1~1.2mm. Loosen the screw② and move the feed lift shaft crank③ left or right to adjust the height of the feed dog.

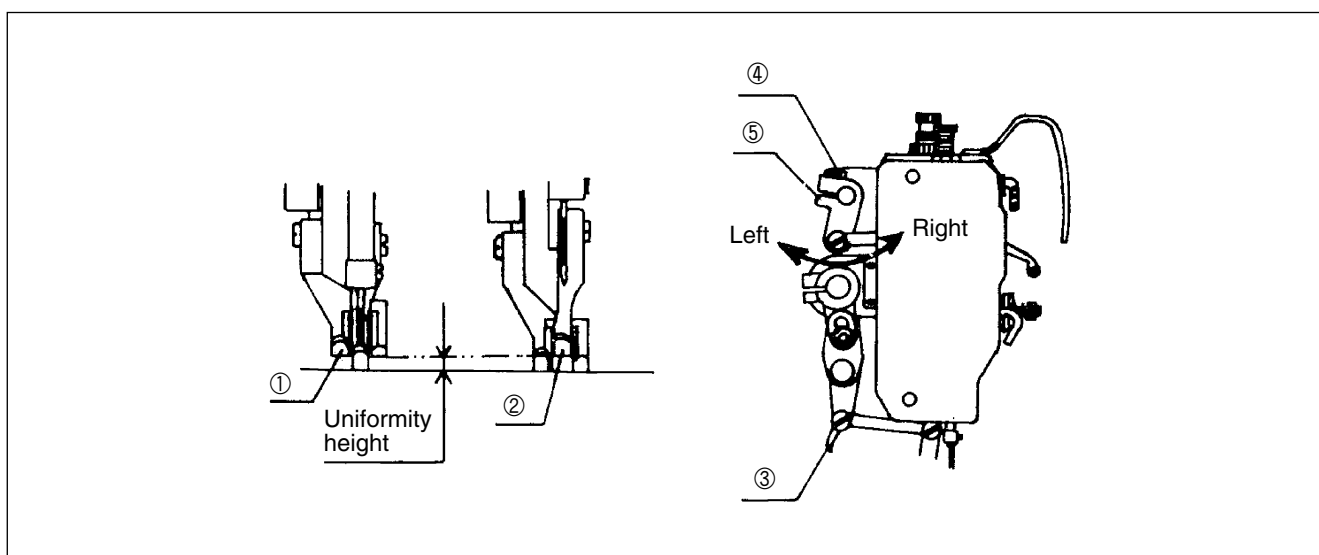


[ Fig. 26 ]

## 5-11. Adjusting Main and Auxiliary Presser Feet

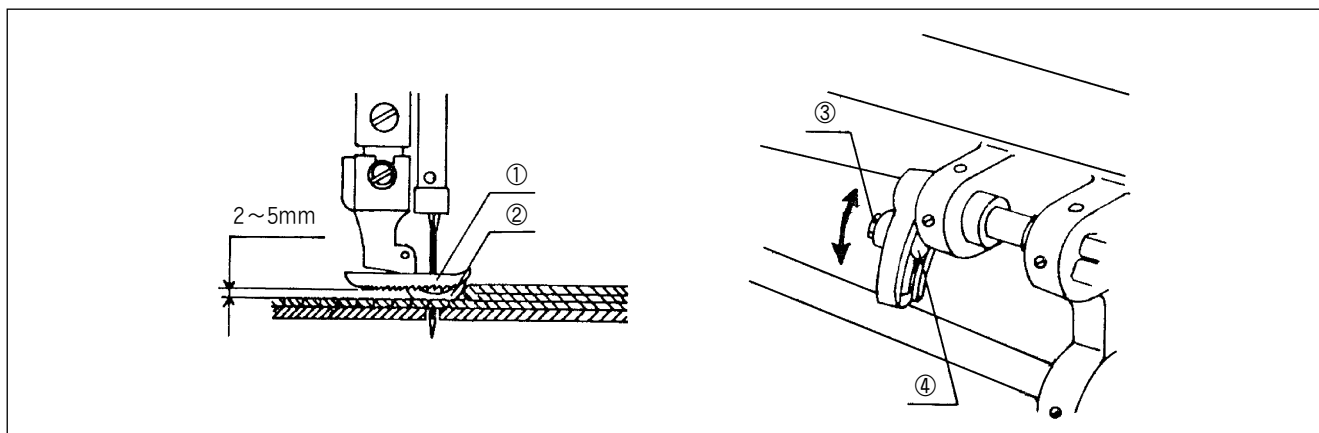
### 1) Alternative Longitudinal Move of Main and Auxiliary Presser Feet

- (1) The main presser foot① and the auxiliary presser foot② move up and down alternatively.
- (2) When the main presser foot① and the auxiliary presser foot② are at the highest position respectively, their heights should be same or the height of the auxiliary presser foot② should be a bit lower. Place the thread take-up at the lowest position and pull down the presser bar lift③. Loosen the screw④ and adjust the longitudinal movement adjusting crank⑤ left or right (When it is moved to the left, the lift of the auxiliary presser foot grows smaller.)



[ Fig. 27 ]

## 2) Longitudinal Operation Range of Main and Auxiliary Presser Feet



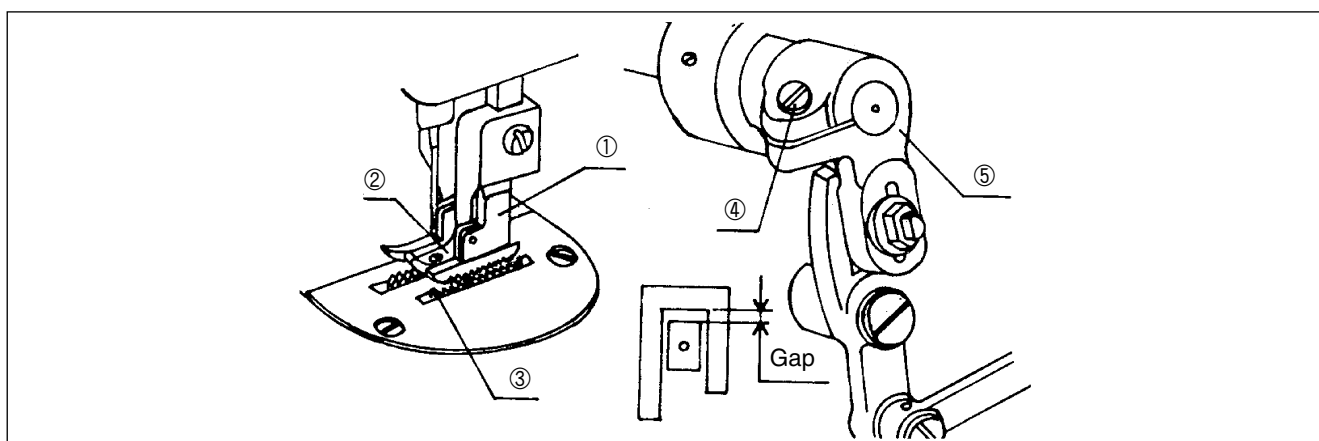
[ Fig. 28 ]

The longitudinal operation range of the main presser foot① and the auxiliary presser foot② range from 2 to 5mm. Loosen the nut③ according to the sewing fabric and adjust the presser foot longitudinal movement shaft④ up or down.

※ When the sewing fabrics have only small gaps in thickness, the operation range should be set at the minimum level.  
(highest position: 5mm, lowest position: 2mm)

## 3) Adjusting Front/Rear Location of Main Presser Foot

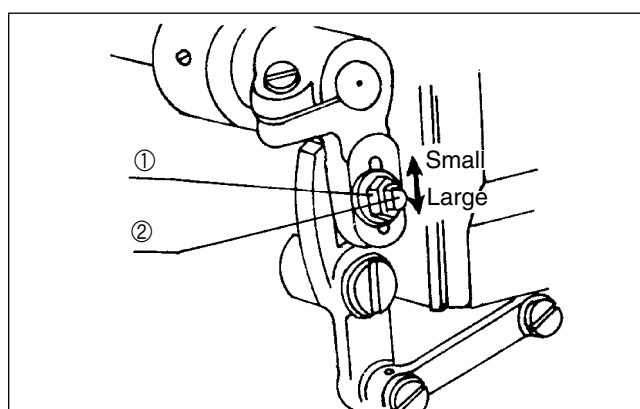
Set the stitch length at the maximum figure and loose the screw④ to the extent that the rear side of the auxiliary presser foot② is not contacted with the main presser foot①. Move the horizontal movement adjusting crank⑤ for the presser foot left or right for adjustment.



[ Fig. 29 ]

## 4) Adjusting Feed of Main Presser Foot

The standard ratio of the feed dog feed to the main presser foot feed is 1:1. Depending on sewing conditions, the feed volume of the main presser foot can be different. Loosen the nut① and move the horizontal movement adjusting shaft② for the presser foot up or down.



[ Fig. 30 ]

## Errors and Troubleshooting

### 1) Troubleshooting

NO.	Error	Check	Cause	Handling Measure
1	Needles are broken.	Direction and height of needle insertion	The direction of inserting a needle is wrong.	Insert the needle in a right direction and push it into the deepest position.
		Needle	A needle is crooked.	Replace the needle.
		Feed dog timing	The feed dog timing for needle bar movement is bad.	Adjust the timing of feed dog.
		Lifting of needle bar	The timing of needle and hook is bad.	Adjust the timing of needle and hook.
		Height of needle bar	The timing of needle and hook is bad.	Adjust the timing of needle and hook.
		Gap between needle and hook	The timing of needle and hook is bad.	Adjust the timing of needle and hook.
2	Thread is broken.	Method of thread placing	The thread placement is wrong.	Place the thread in the right way.
		Needle	The needle is crooked/The tip of the needle is broken.	Replace the needle.
		Direction, height of needle	The direction of the needle is wrong.	Insert the needle in the right way.
		Upper thread tension	The upper thread tension is too strong.	Adjust the upper thread tension properly.
		Lower thread tension	The lower thread tension is too strong.	Adjust the lower thread tension properly.
		Movement range of thread take-up spring	The movement range is too wide.	Adjust the movement range of the spring.
3	Thread tension is improper.	Thread tension	The upper and lower thread tension is improper.	Adjust the upper and lower thread tension.
		Tread take-up spring tension	The tread take-up spring tension is improper.	Adjust the tread take-up spring tension.
		Gap between opener and hook	The gap between opener and hook is improper.	Adjust the gap between opener and hook.
4	When sewing starts, the upper thread is escaped or sewing skip occurs.	Direction, height of needle	The needle position is wrong.	Insert the needle in the right direction.
		Needle	A needle is crooked/ The end of the needle is broken.	Replace the needle.
		Placing the thread	How to place thread is wrong.	Properly place the thread.
		Gap between needle and hook	The timing of thread and hook is improper.	Adjust the timing of thread and hook.
		Check the highest needle stop position	Because the needle's highest stop position is not proper, the thread take-up removes the upper thread by pulling it when the sewing starts.	Reset the position of the needle's highest stop position.

## Table Drawing

