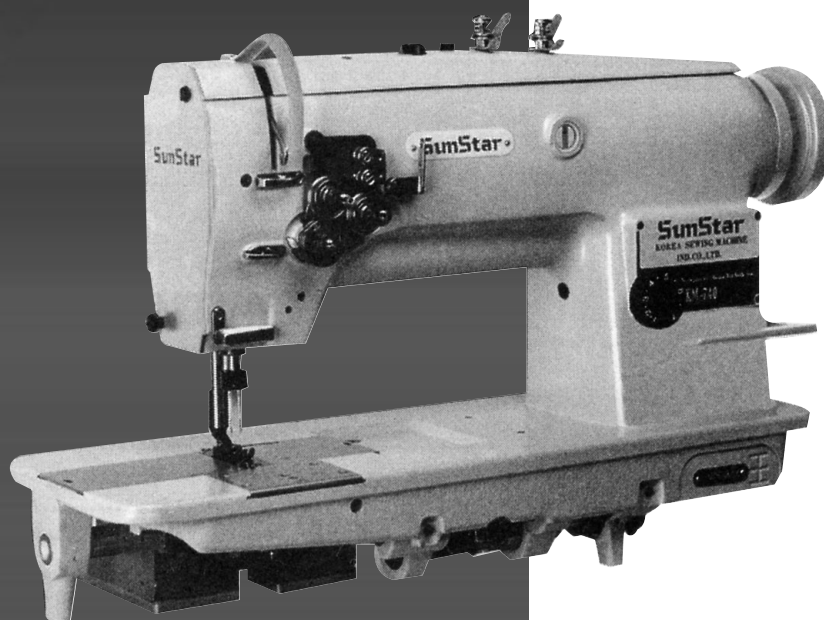




User's Manual

KM-740

Twin-Needle, Needle Feed
Lock Stitch Machine

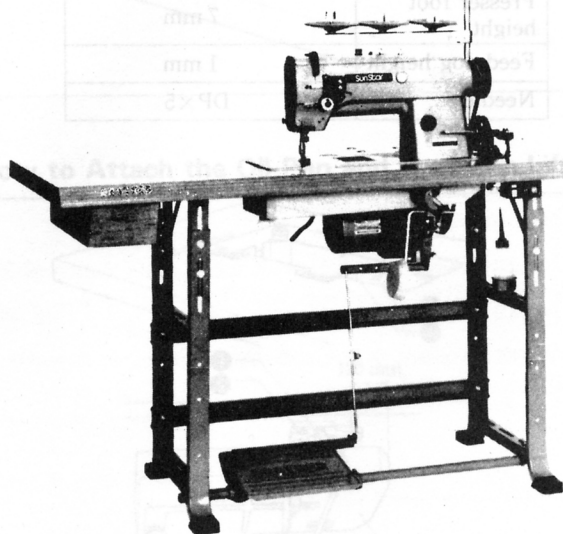


1. For proper use of the machine, thoroughly read this manual before use.
2. Keep this manual in a safe place for future reference in case the machine breaks down.

SUNSTAR MACHINERY CO., LTD.

MME-050509

FEATURES

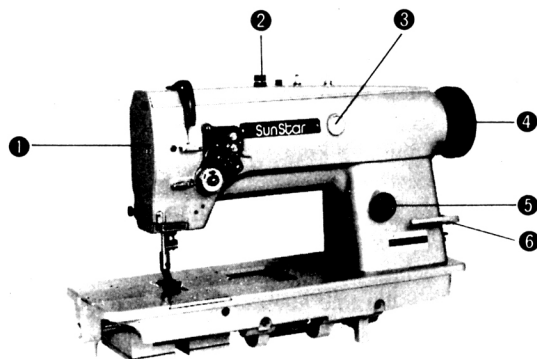


- ☆ The KM2-740 is a twin needles, needle feed lock stitcher with a reverse device operating at a sewing speed of 4,000 stitches per minute.
- ☆ Stitch length can be easily adjusted by means of a feed adjusting knob.
- ☆ Beautiful stitches can be formed by a twin needles, needle feed mechanism without stitch deviations nor shrinkage.
- ☆ The machine is furnished with precision devices, such as a durable automatic lubricator, wear-resistant ball bearings, and a special timing belt which reduces noise and vibration.

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NAMES OF MAIN PARTS



- 1 Face plate 2 Oil button 3 Oil gauge window 4 Pulley
5 Feed adjustment dial 6 Reverse feed lever

MODEL NO.	KM2-740
Use	For general & thick materials.
Sewing speed	4000 spm
Stitch length	0~4 mm
Presser foot height	7 mm
Feed dog height	1 mm
Needles	DP×5

INSTALLING

1. Power Table

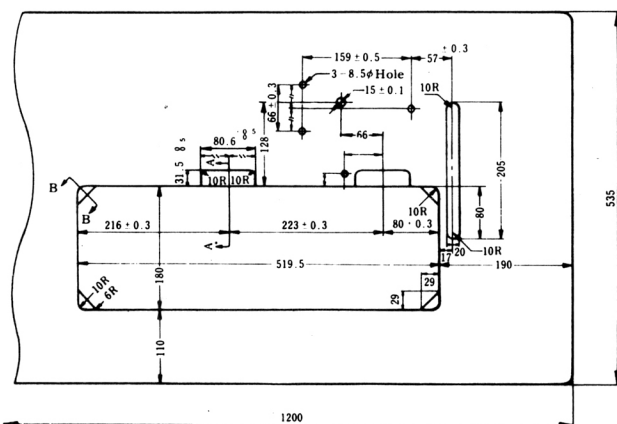
Power	Motor
Single-phase 100/220V	2-pole, 250 W motor
Three-phase 220/380V	2-pole, 250 W motor

★ Use one of the above-mentioned power tables.

★ In case of using a commercial motor, select one which meets the above specifications.

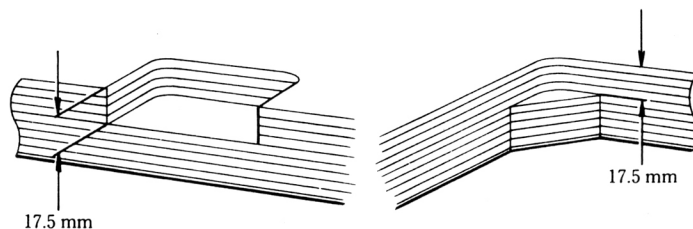
★ Select the correct motor pulley and V-belt by referring to the table below to suit the power frequency of your area.

Sewing speed	Frequency	Motor pulley	V-belt
4000 spm	50 Hz	Motor pulley 105	43 inches
	60 Hz	Motor pulley 90	42 inches



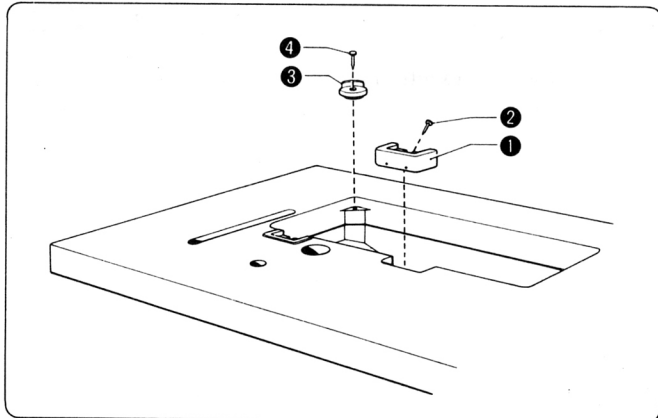
A-A cross section

B-B cross section



★ In case of using a commercial table, drill holes in the table as shown above.

2 How to Attach the Rubber Hinge and the Head Cushion



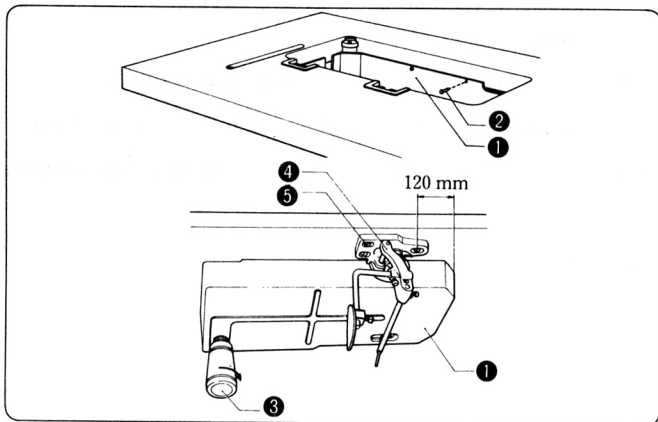
1. How to attach the rubber hinge

Install the rubber hinge ① on the table with nails ②.

2. How to attach the head cushion

Install the head cushions ③ at the four corners of the table with nails ④.

3 How to Attach the Oil Pan and the Knee Lifter



1. How to attach the oil pan

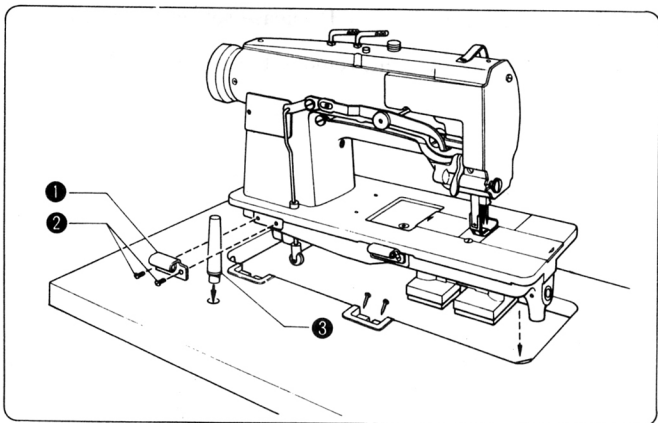
Fit oil pan ① into the opening in the table, and secure it with 5 nails ②.

Screw plastic oiler ③ into oil pan ①.

2. How to attach the Knee lifter

Install the knee lifter assembly ④ on the back of the table with screws ⑤.

4 How to Install the Machine Head

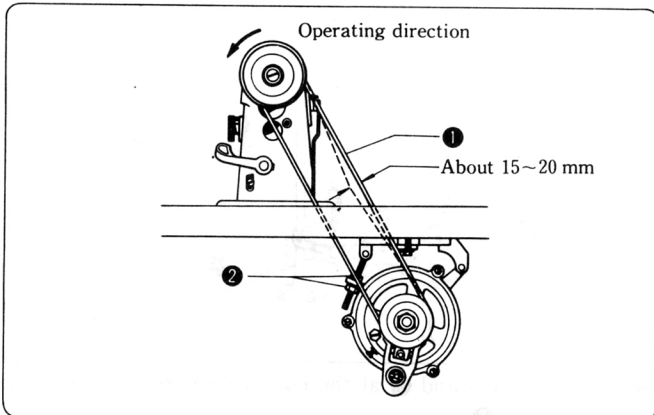


1. Attach the hinges ① to the bed with the flat-head screws ②.

2. Attach the hinges ① to the rubber bases and then place the machine head on the cushions.

⊙ Use a hammer to drive the head rest ③ into the table.

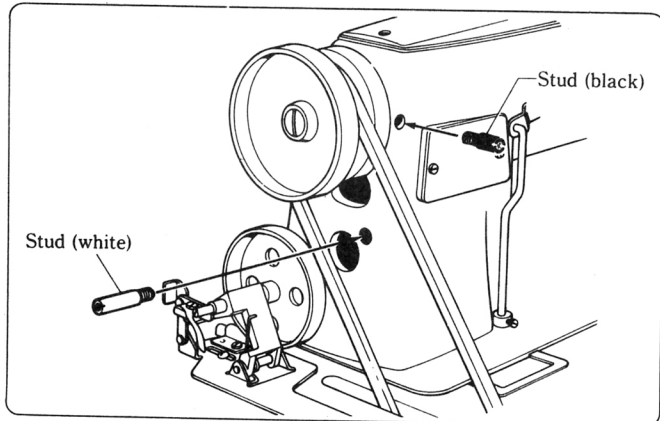
5 Test Running



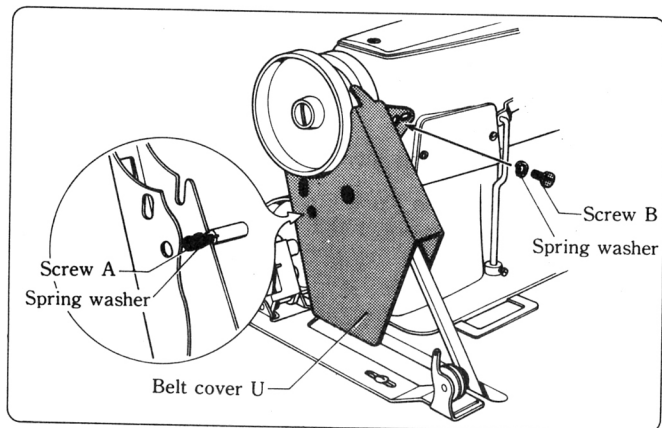
★ The correct operating direction of the machine is counter-clockwise (as viewed from the pulley side).

★ Press the belt ①, and adjust the belt tension by turning the nuts ② so that the belt has about 15~20 mm of "play".

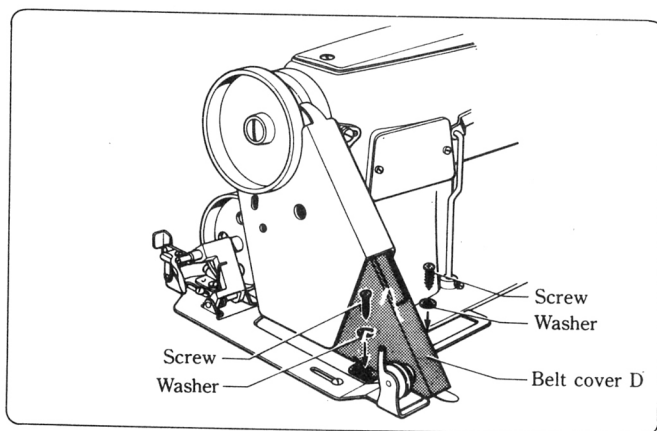
⑥ How to Install the Belt Covers



1. Screw the stud (black) into the back of the machine head.
2. Screw the stud (white) into the machine head.

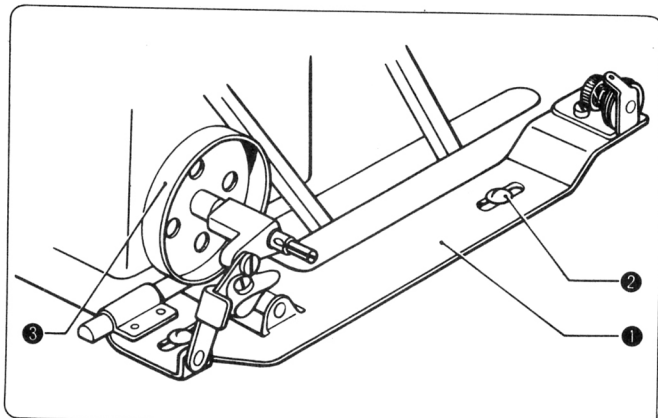


3. Temporarily tighten screw A and spring washer in the stud (white).
 4. Install the belt cover U with screw A as shown at left.
 5. Install the belt cover U with screw B and spring washer.
- ※ When installing belt cover U, please bring down the machine.



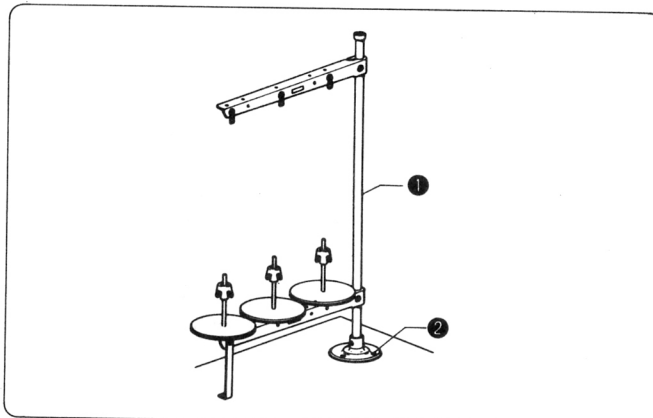
6. Install the belt cover D with screws and washers.
- ※ When installing belt cover D, please set up the machine.
- ★ When replacing the belt, remove the belt cover U.

⑦ How to Install the Bobbin Winder



- ★ Install bobbin winder ① on the table with two screws ②. (Install it so that bobbin winder pulley ③ will not slip.)

⑧ How to Install the Cotton Stand



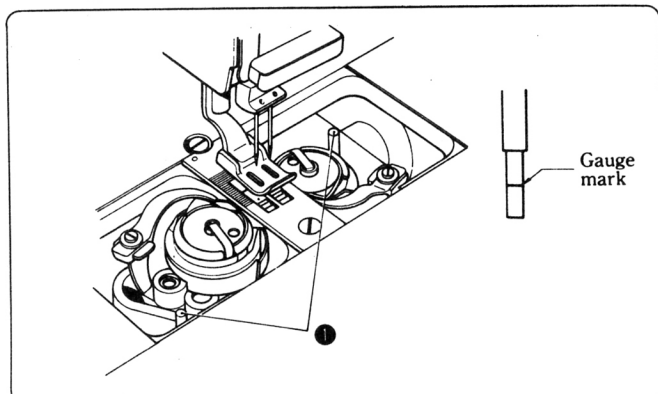
- ★ Install cotton stand ① at the right rear corner of the table with screws ②.

LUBRICATION

★ Use the SUNSTAR oil (white spindle oil #70) supplied as accessory.

1 Lubrication

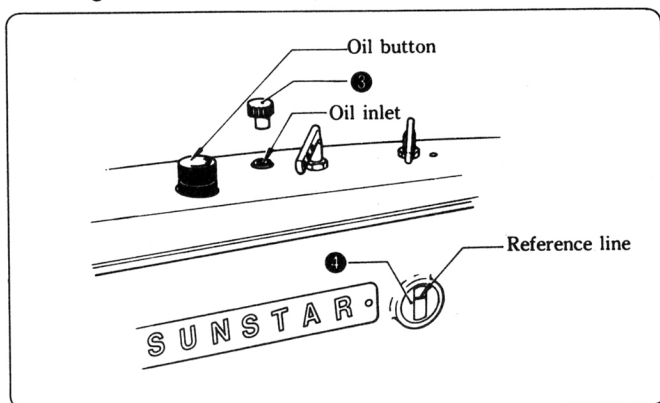
1. Filling the rotary hook oil tank



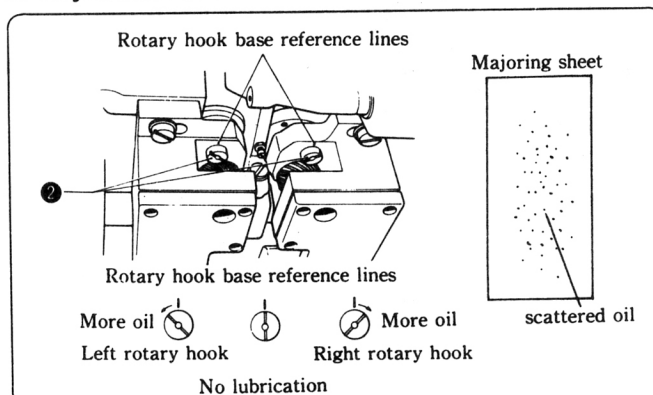
★ Pull out the oil gauges ① and supply oil to the tank until the oil level reaches the mark on the gauge.

★ Take care that the oil level does not decrease to the tip of the oil gauge ①, because oil will then no longer be supplied to the rotary hook.

3. Filling the oil tank on top of the arm



2. Adjustment of oil flow to the rotary hook



★ Adjust the oil flow rate by turning the oil flow adjustment screws ② with reference to the rotary hook base reference lines, as shown above.

※ When exchanging rotary hook, be sure to make adjustment of oil supply to rotary hook.

The amount of oil scattering from rotary hook should be on the level as shown above per approximately 10 seconds.

★ Remove the oil inlet cap ③ and supply oil to the tank until the oil level reaches the reference line on the oil gauge window ④.

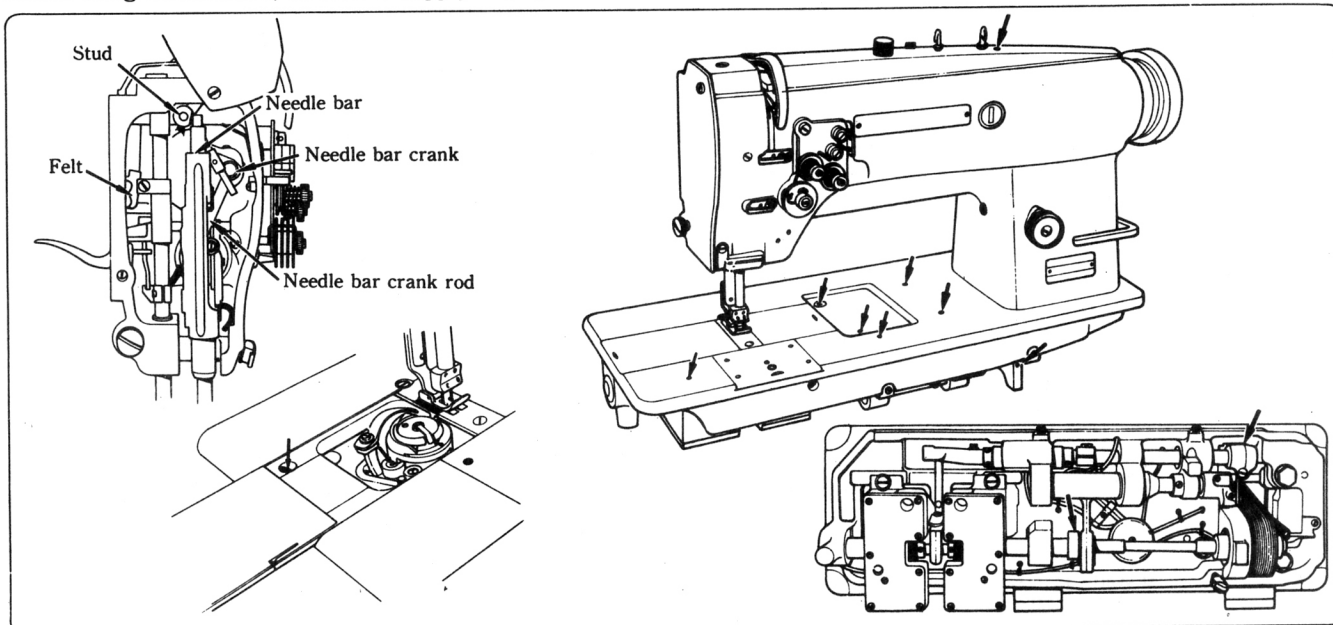
★ Oil should be supplied if the oil level is no longer visible in the oil gauge window.

★ To operate the machine, press the oil button to the white line and turn it in the direction of the arrow.

※ When not using the machine, be sure to release the oil button to its original position.

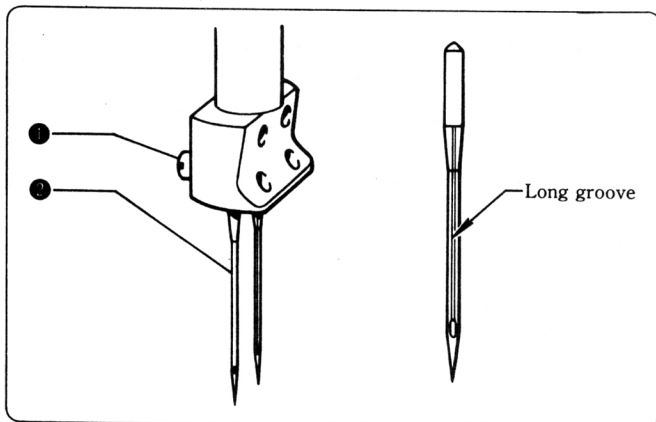
2 Oiling

Before using the machine, be sure to supply a drop or two of oil at each of the points indicated by an arrow.



CORRECT OPERATION

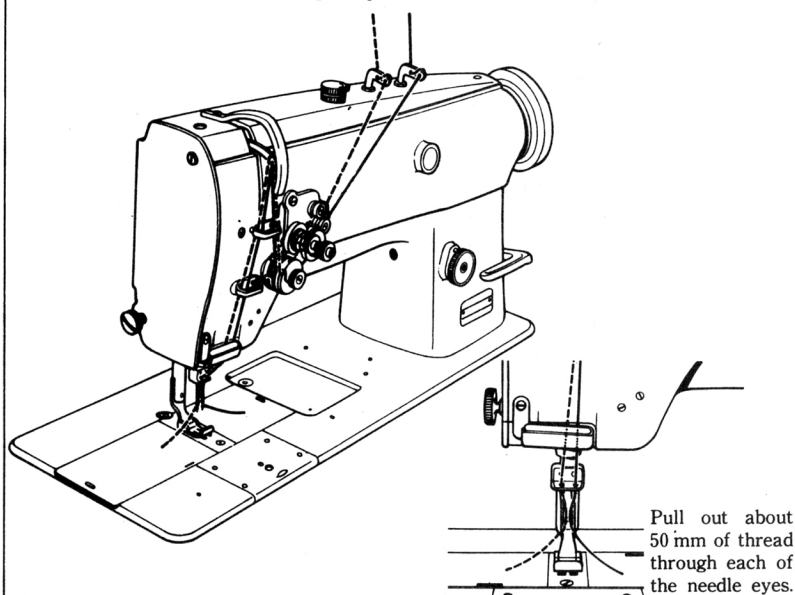
1 How to Attach the Needles



★ Loosen the screws ①, hold the needles ② with their long groove facing inward, insert them all the way into the needle bar, and re-tighten the screws ①.

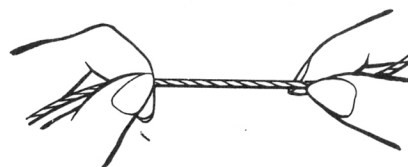
2 Upper Threading

Raise thread take-up to the highest position.

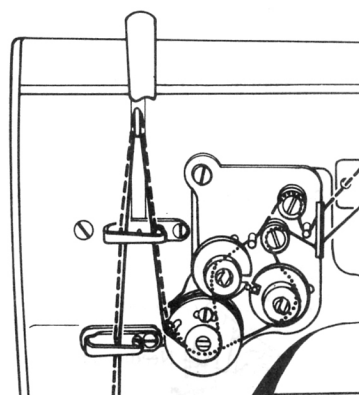


Pass the threads through the needle eyes from inside to outside.

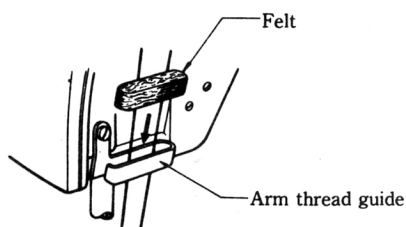
★ Left twist thread should be used you the needle.
Either right or left twist thread can be used for the bobbin.



※ Hold the thread as shown above.
Turn the thread over toward you between the thumb and forefinger of the right hand; it left twist, the strands will wind tighter; if right twist the strands will unwind.

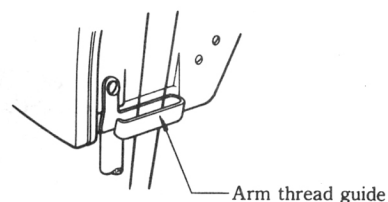


Synthetic thread

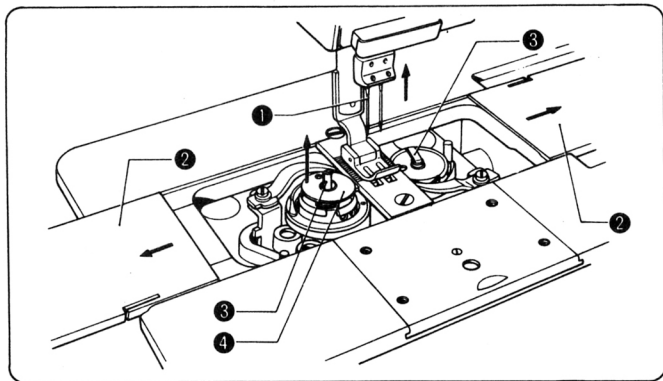


If synthetic thread is used, use the felt (included) in the arm thread guide.

Cotton thread

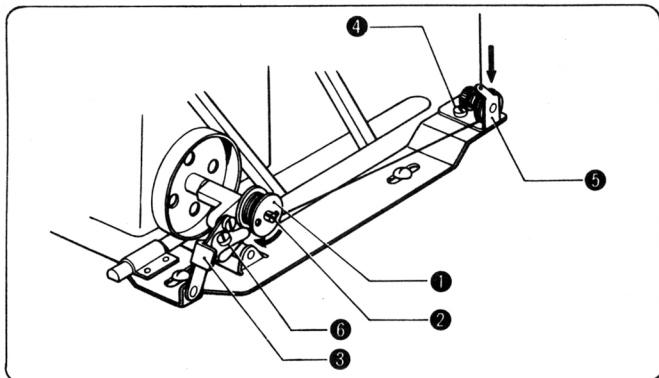


3 How to Remove the Bobbin



1. Raise the needles ① to the highest positions, and open the slide plates ② by moving them to the right and left.
2. Pull the rotary hook latches ③ upward, and then remove the bobbin ④.

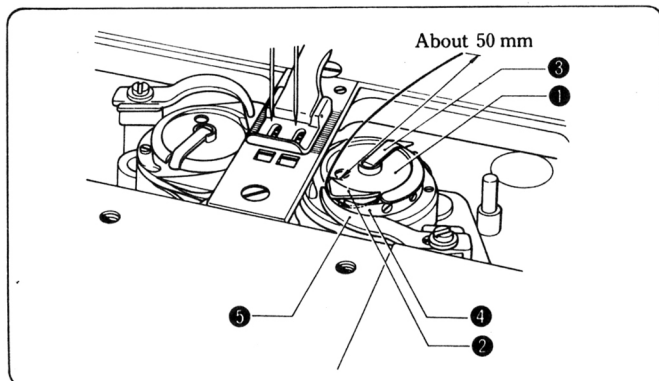
4 How to Wind the Lower Thread



1. Push the bobbin ① onto the bobbin winder shaft ②.
2. Push the bobbin winder stop latch ③ all the way downward.
3. Wind the thread around the bobbin ① a few times (in the direction of the arrow), and then operate the machine.
4. If the thread cannot be wound evenly, loosen the thread guide screw ④, and move the thread guide ⑤ to the right or left as necessary.

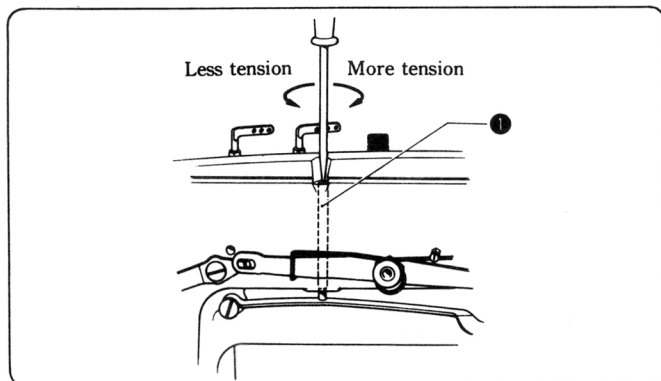
※ To wind more thread onto the bobbin ①, make adjustment by tightening the screw ⑥.

5 Lower Threading



1. Place bobbin ① into rotary hook ② as shown at left.
2. Push latch ③ of the rotary hook flat.
3. Pass the thread end through the slit in the rotary hook.
4. Pass the thread under tension spring ④.
5. Pass the thread through the clearance between rotary hook ② and bobbin case opener ⑤.
6. Pull the lower thread end up on the needle plate until about 50 mm of it is out.

6 Adjustment of Presser Foot Pressure



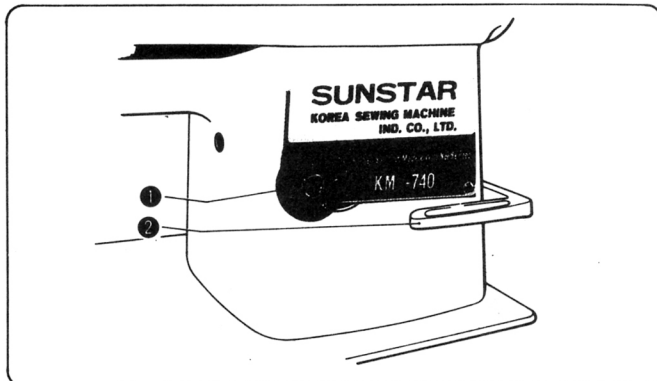
★ Adjust the presser foot pressure by turning the presser foot adjustment screw ①.

For thin materials: 4~5 kg

For medium-thick materials: 7 kg

For thick materials: 8 kg

7 Adjustment of Stitch Length

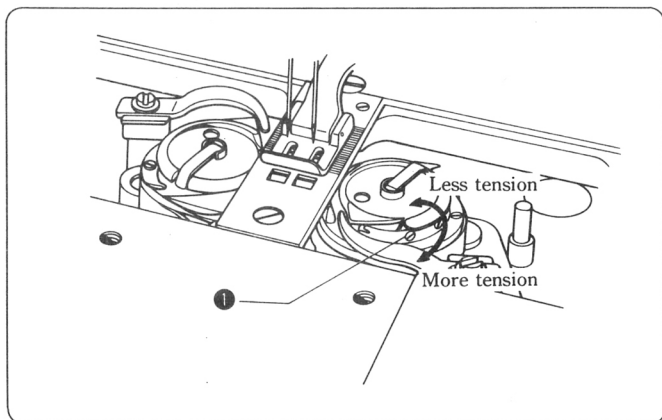


★ Stop the machine and turn the feed adjustment dial ① to set it to the desired stitch length.

★ The material will be fed backward when the reverse lever ② is pressed down, and forward again when it is released. The lever will automatically return to its original position when released.

8 Thread Tension

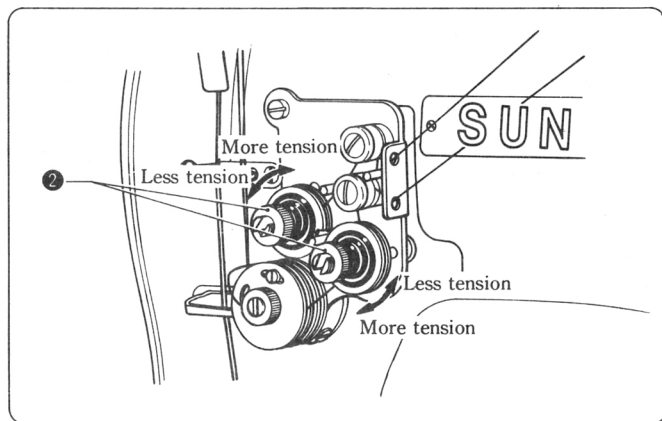
1. Tension of lower thread



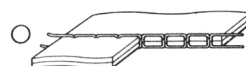
★ Lower thread tension varies with the kinds of cloth and thread, and can be adjusted by turning lower thread tension adjusting screw ①.

	Thin materials	Medium-thick materials	Thick materials
Cotton (Count)	45~55 g (#80)	50~65 g (#50)	60~80 g (#20)
Dacron (Count)	35~45 g (#80)	35~45 g (#50)	60~70 g (#30)
Vinylon (Count)			75~95 g (#20)

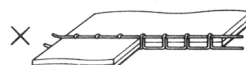
2. Tension of upper thread



★ Adjust the tension of the upper thread by turning the thread-tension nut ②.



Good even stitches

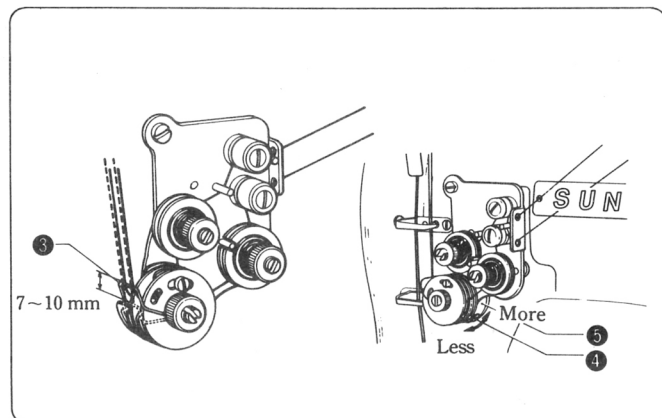


Upper thread tension too strong or lower thread tension too weak



Upper thread tension too weak or lower thread tension too strong

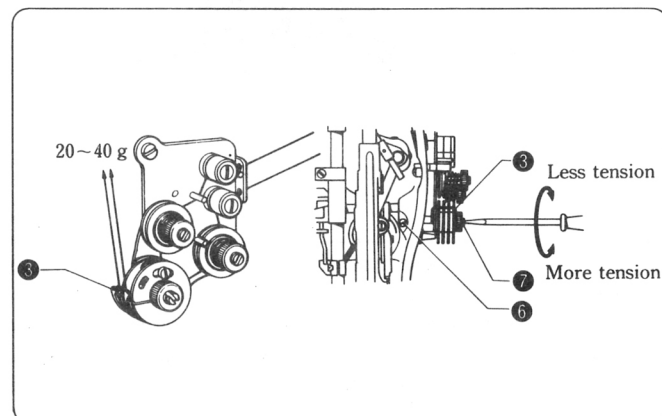
3. Thread take-up spring



Operating range of thread take-up spring

★ The standard operating range of the thread take-up spring is 7~10 mm.

The operating range of the thread take-up spring ③ can be adjusted by the thread take-up stopper ⑤ after loosening the screw ④.



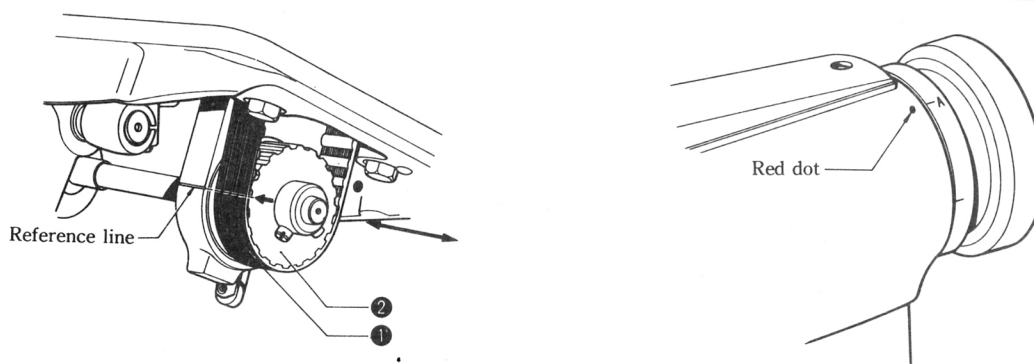
Tension of the thread take-up spring

★ The standard tension of the thread take-up spring is 20~40 grams.

Adjust the tension of the thread take-up spring ③ by loosening the screw ⑥ and turning the thread tension stud ⑦.

STANDARD ADJUSTMENTS

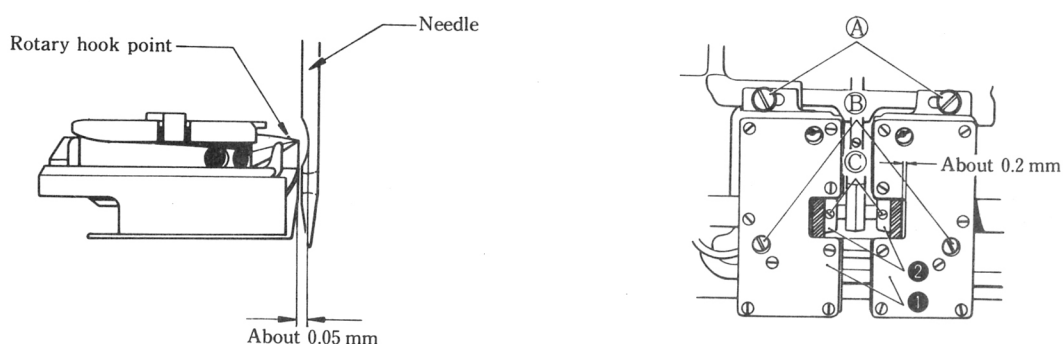
1 Adjustment of Needles and Feed-Timing



1. Remove the needles.
2. Tilt the machine head back and remove the timing belt ①.
3. Turn the machine pulley until the "A" mark is aligned with the red dot.
4. While holding the upper shaft so that it won't move, align the arrow on the lower belt pulley ② with the reference line on the arm bed, and attach the timing belt ①.
5. Return the machine head to its original position, and install the needles.

2 Adjustment of Needles and Rotary Hook-Timing

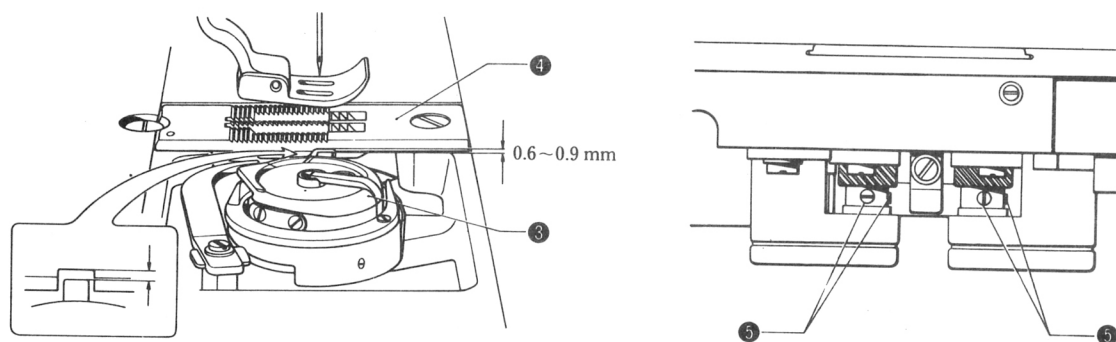
1. Clearances between needles and rotary hook tips



1. Loosen the screws A, B and C, and move the rotary hook base ① to the right or left until the clearances between the needles and rotary hook tips are about 0.05 mm.
2. Adjust the engagement of the spiral gear ② by adjusting the clearance between the inner side of the rotary hook base ① and the end face of the spiral gear ② to about 0.2 mm by moving the spiral gear ② to the right or left.

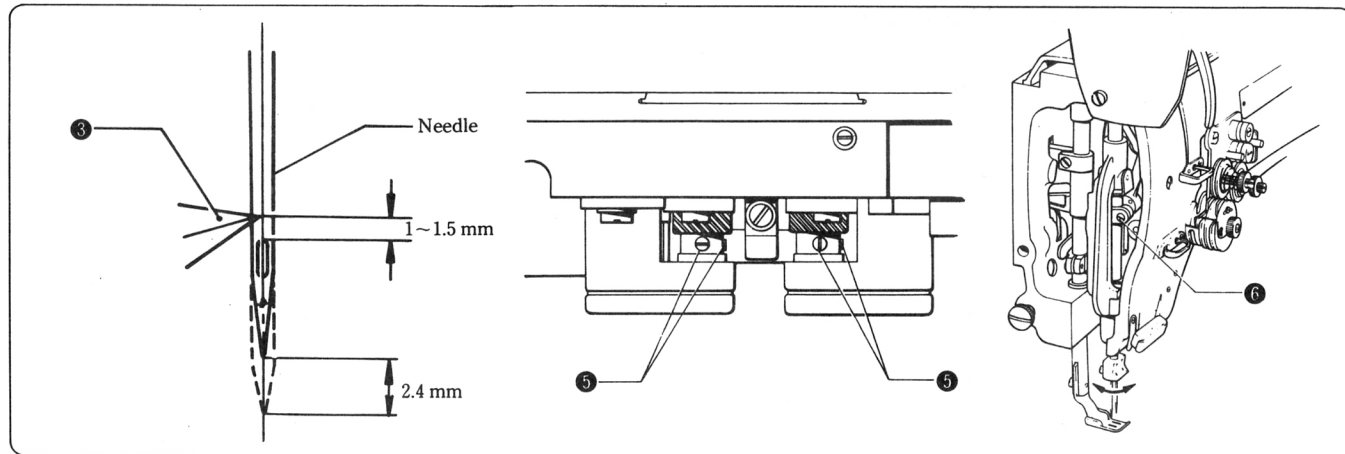
※Tighten the screws C for the spiral gear ② in such a way as not to change the contact.

2. Clearances between rotary hooks and needle plate



- ★Loosen the screws ⑤, and raise or lower the rotary hooks ③ until the clearances between the rotary hooks ③ and the needle plate ④ are 0.6~0.9 mm.

3. Needle bar rise and height



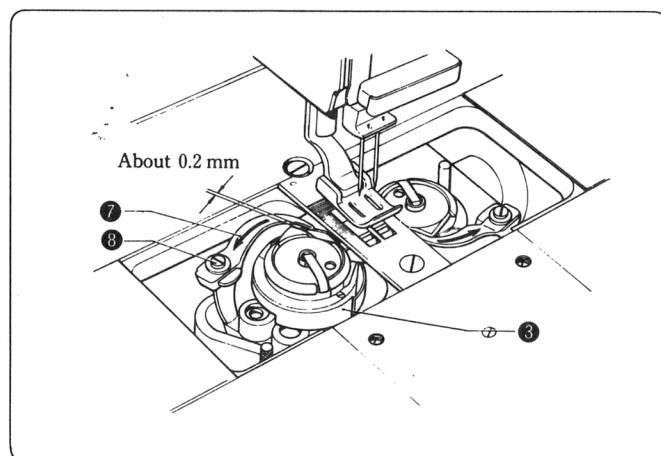
Needle bar rise

- (1) Turn the feed adjusting knob to Position 2.
- (2) Loosen screws 5 and turn rotary hook 3 so that the rotary hook point meets the center of the needle when the needle rises 2.4 mm from its lowest position.

Needle bar height

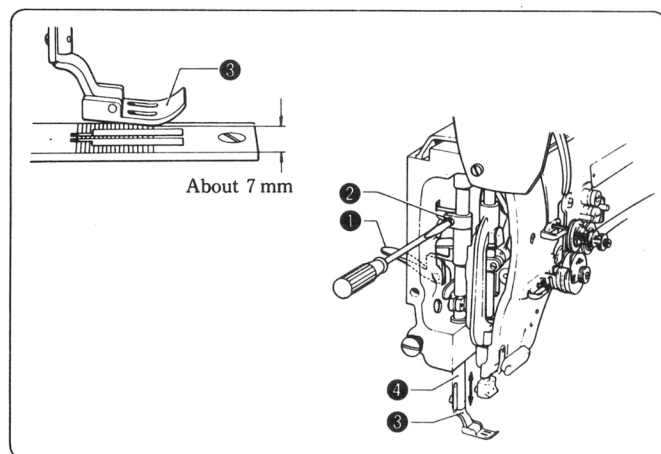
- (1) Turn the feed adjusting knob to Position 0.
- (2) Loosen screw 6 and raise or lower the needle bar so that the clearance between the upper end of the needle eye and the rotary hook point will be 1~1.5 mm when the rotary hook point meets the center of the needle.

4. Clearances between rotary hooks and bobbin case openers



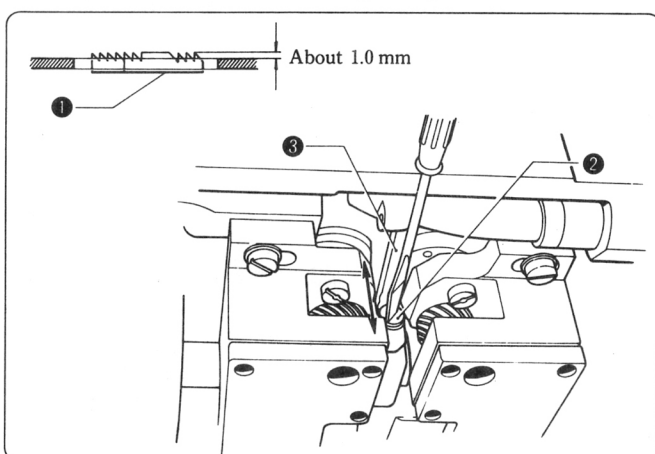
- ★ Adjust the clearances between rotary hooks 3 and bobbin case opener 7 to about 0.2 mm when bobbin case opener 7 have retracted fully in the arrow direction by loosening screw 8 and moving bobbin case opener 7 to the right or left.

3 Adjustment of Presser Foot Height



- (1) Raise presser foot lifter 1.
 - (2) Loosen screw 2, and raise or lower presser bar 4 so that presser foot 3 will rise about 7 mm above the needle plate.
- ※ Be careful not to turn the presser bar 4.
 ※ When turning the screw 2, lower the needle bar.

4 Adjustment of Feed Dog Height

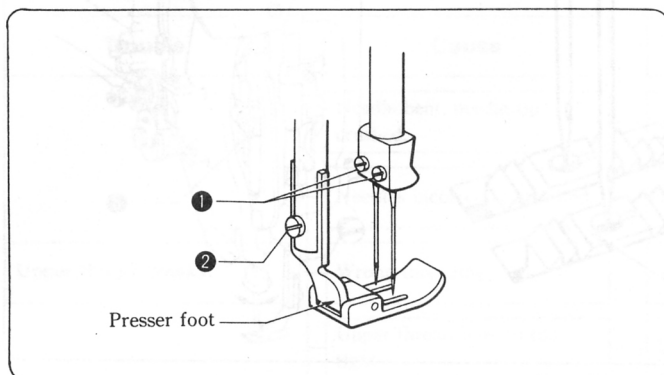


- (1) Turn the machine pulley until feed dog 1 rise to the highest position.
- (2) Loosen screw 2 and raise or lower feed dog holder 3 so that feed dog 1 will rise about 1.0 mm above the needle plate.

5 How to Change Gauges

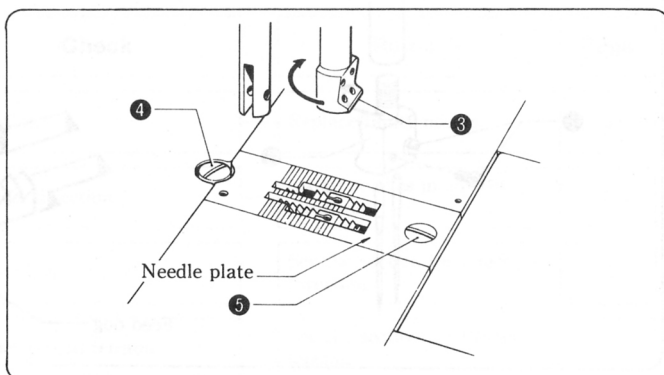
1. How to remove the needles, presser foot, needle clamp, needle plate and feed dog

(1) How to remove the needles and presser foot



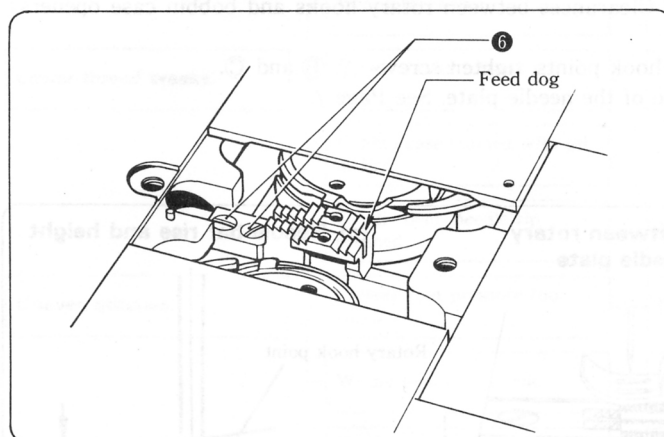
- ★ Loosen screws ① and remove the needles.
- ★ Loosen screw ② and remove the presser foot.

(2) How to remove the needle clamp and needle plate



- ★ Remove needle clamp ③ by turning it in the arrow direction.
- ★ Loosen screw ④, and remove screw ⑤ and the needle plate.

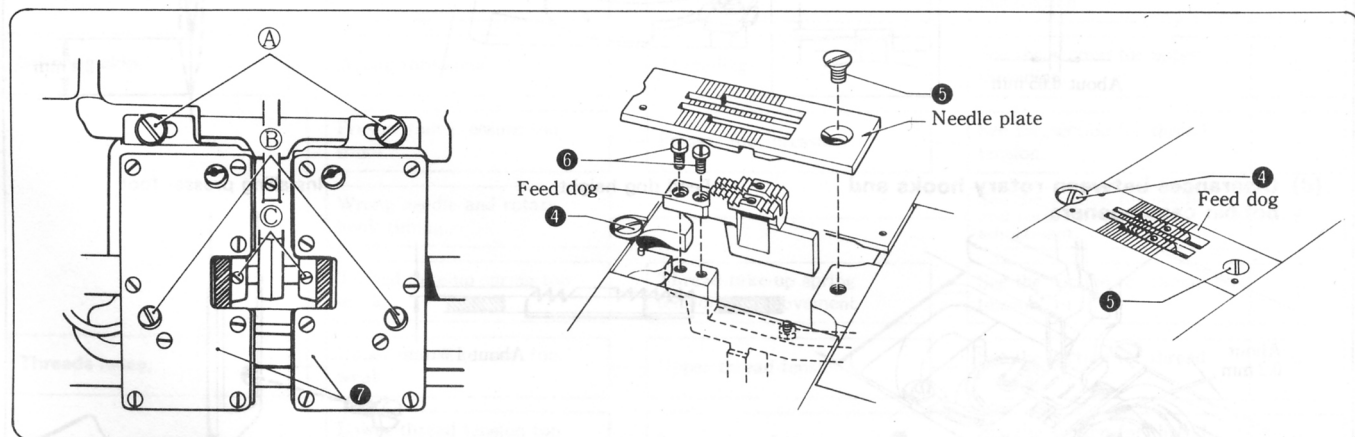
(3) How to remove the feed dog



- ★ Remove screws ⑥ and then the feed dog.

2. How to install the needles, presser foot, needle clamp, needle plate and feed dog

(1) How to install the needle plate and feed dog



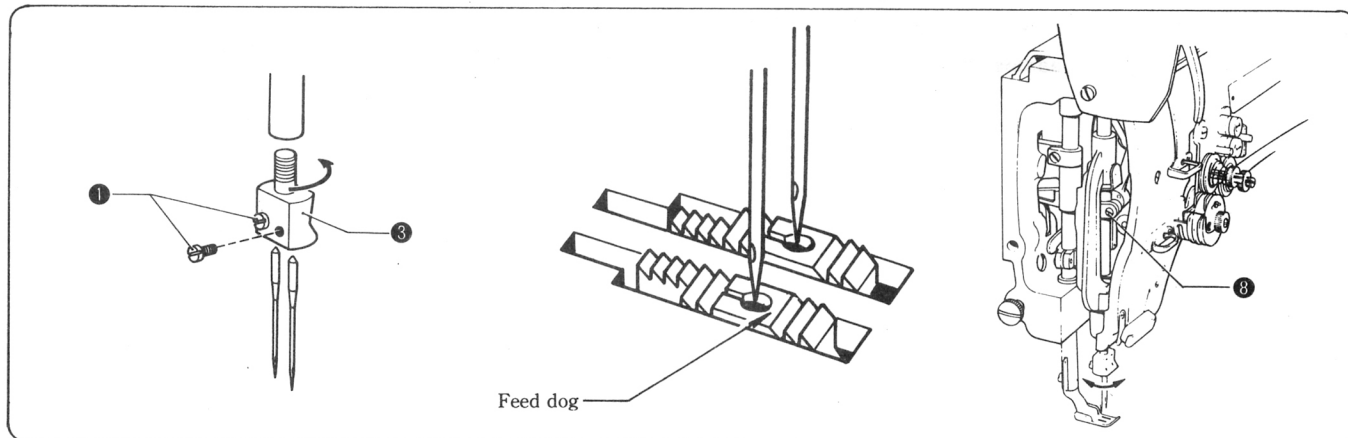
How to widen stitch width

- ★ Loosen screws A, B and C, and move rotary hook base ⑦ to the right or left.
 - ★ Install the feed dog with screws ⑥.
 - ★ Install the needle plate with screws ④ and ⑤.
- (Make sure that the feed dog are in the slots of the needle plate and move smoothly.)

How to narrow stitch width

- ★ Install the feed dog with screws ⑥.
 - ★ Install the needle plate with screws ④ and ⑤.
- (Make sure that the feed dog are in the slots of the needle plate and move smoothly.)
- ※ Tighten rotary hook base ⑦ with screws A, B and C when needle and rotary hook timing has been adjusted.

(2) How to install and adjusting the needles, presser foot and needle clamp



★ Needle clamp ③ into the needle bar securely.

★ Install the needles in needle clamp ③ with screws ①.

★ Loosen screw ⑧ and align the needles so that the needles will fall in the centers of the needle holes in the feed dog.

★ After the above installation procedure, adjust the needle and rotary hook timing by referring to Section ② See Page 6.

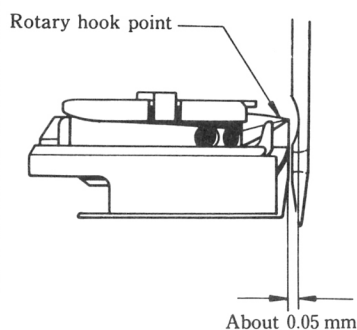
(a) Clearances between needles and rotary hook points: about 0.05 mm (b) Clearances between rotary hooks and needle plate: 0.6~0.9 mm (c) Needle bar rise: When the needles rise 2.4 mm from the lowest position, the rotary hook points meet the centers of the needles. Needle bar height: 1~1.5 mm (d) Clearances between rotary hooks and bobbin case openers: about 0.2 mm

★ After adjusting the clearances between the needles and rotary hook points, tighten screws ①, ② and ③.

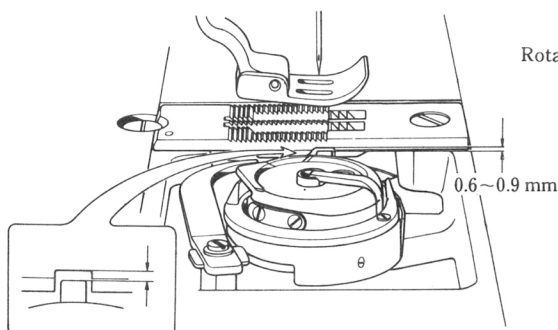
★ The correct feed dog height is about 1.0 mm above the top face of the needle plate. See Page 7.

★ Install presser foot ④ with screw ②.

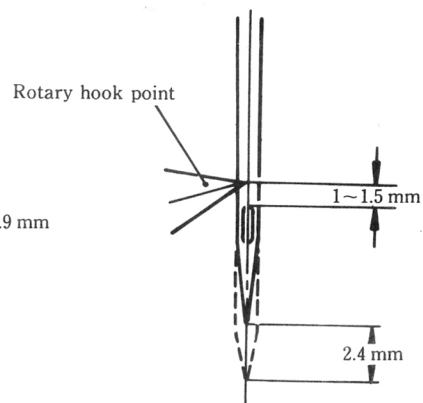
(a) Clearances between needles and rotary hook points



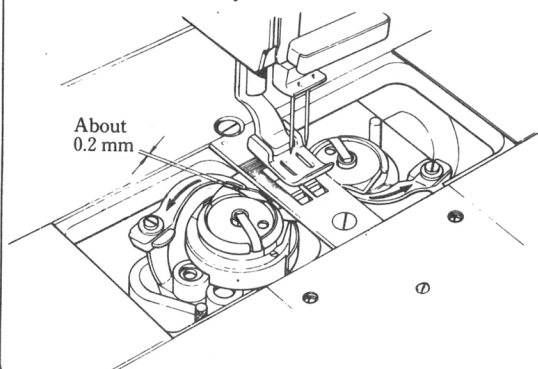
(b) Clearances between rotary hooks and needle plate



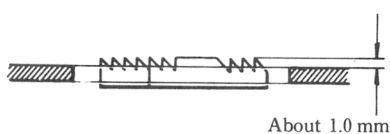
(c) Needle bar rise and height



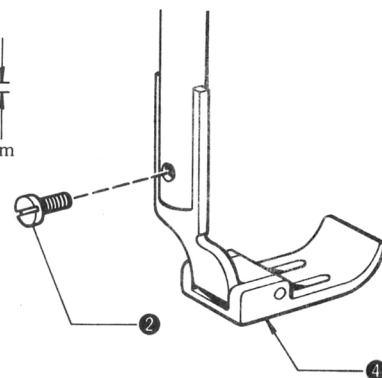
(d) Clearances between rotary hooks and bobbin case openers



Feed dog height



Installing presser foot



TROUBLESHOOTING GUIDE

Trouble	Cause	Check	Remedy	Page
Upper thread breaks.	Needle bent, needle tip crushed.	Needles.	Replace faulty needle.	5
	Needles incorrectly installed.	Needle direction.	Install needles in correct direction.	5
	Wrong threading.	Threading.	See the section for upper threading.	5
	Upper thread tension too tight.	Upper thread tension.	See the section for thread tension.	7
	Wrong clearances between rotary hooks and bobbin case openers.		See the section for needle and rotary hook timing adjustment.	8
Lower thread breaks.	Wrong needle and rotary hook timing.		See the section for needle and rotary hook timing adjustment.	8
	Wrong threading.	Threading.	See the section for upper threading.	5
	Lower thread tension too tight.	Intensity of lower thread tension regulator screw.	Adjust to proper tension.	7
Uneven stitches.	Bobbin case stained with oil or lint.		Remove lint and oil thoroughly.	
	Needle bent, needle tip crushed.	Needles.	Replace faulty needle.	5
	Presser foot pressure too small.	Presser foot pressure.	See the section for thread tension.	7
Stitches skip.	Wrong feed dog height.	Feed dog height.	See the section for feed dog height adjustment.	9
	Needle bent, needle tip crushed.	Needles.	Replace faulty needle.	5
	Needles incorrectly installed.	Needle direction and height.	See the section for needle installation.	5
Threads loose.	Wrong threading.	Threading.	See the section for upper threading.	5
	Presser foot pressure too small.	Presser foot pressure.	See the section for thread tension.	7
	Wrong needle and rotary hook timing.		See the section for needle and rotary hook timing adjustment.	8
Needle breaks.	Thread take-up spring too weak.	Thread take-up spring tension and movement.	See the section for thread tension.	7
	Upper thread tension too weak.	Upper thread tension.	See the section for thread tension.	7
	Lower thread tension too weak.	Lower thread tension.	See the section for thread tension.	7
Needle breaks.	Needles incorrectly installed.	Needle direction and height.	See the section for needle installation.	5
	Needle bent, needle tip crushed.	Needles.	Replace faulty needle.	5
	Wrong needle and feed timing.		See the section for needle feed timing adjustment.	8
Needle breaks.	Wrong needle and rotary hook timing.		See the section for needle and rotary hook timing adjustment.	8