

JUKI

1-needle, unison-feed, lockstitch machine with a reverse feed mechanism

LU-562N

1-needle, unison-feed, lockstitch machine with a large bobbin and a reverse feed mechanism

LU-563N

INSTRUCTION MANUAL

No. 00
2915100E

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I. INTRODUCTION

JUKI LU-562N/563N model of industrial sewing machine is a 1-needle and unison-feed machine with a reverse feed mechanism which runs at 2,500 s.p.m. It incorporates a full rotary vertical-axis hook that is driven by a timing belt. The presser goes up as high as 13 mm. The max. feed amount is 7 mm. The machine incorporates a unison-feed mechanism which synchronizes the top and bottom feed mechanism with the needle feed mechanism so as to prevent slippage between the upper and lower cloths regardless of the sewing speed. These features mean that the machine has been designed so that it is best-suited to the sewing of heavy-weight materials including tents, car seats, leather coats and work gloves.

II. OPERATION

1. For safe operation

- 1) Never operate your sewing machine even for trial unless it is sufficiently lubricated.
- 2) The normal direction of the sewing machine is obtained when the handwheel turns toward you. (The handwheel turns counterclockwise as observed from the handwheel side.)
- 3) The sewing speed (number of revolutions) of the sewing machine is 2,500 s.p.m. For a month after the set-up, run the sewing machine at lower speed. Then, run the machine at an appropriate sewing speed in accordance with the material thickness, feed amount and level of the operator's skill.

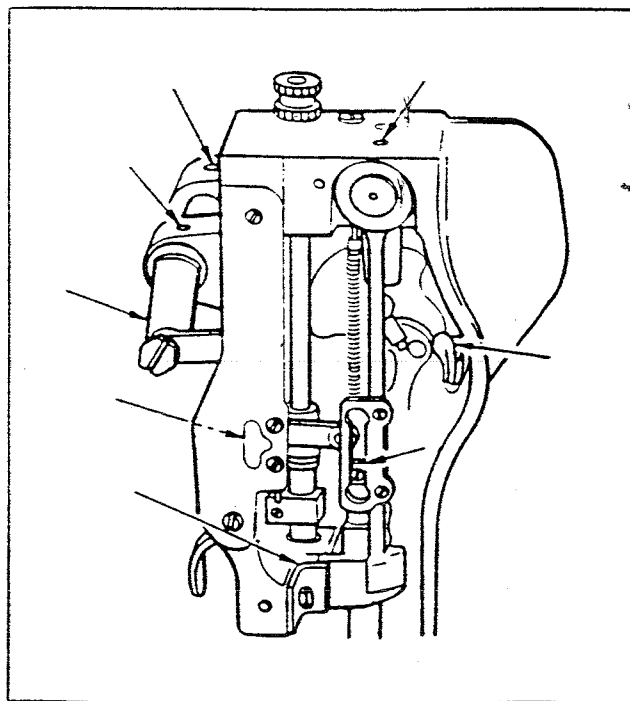
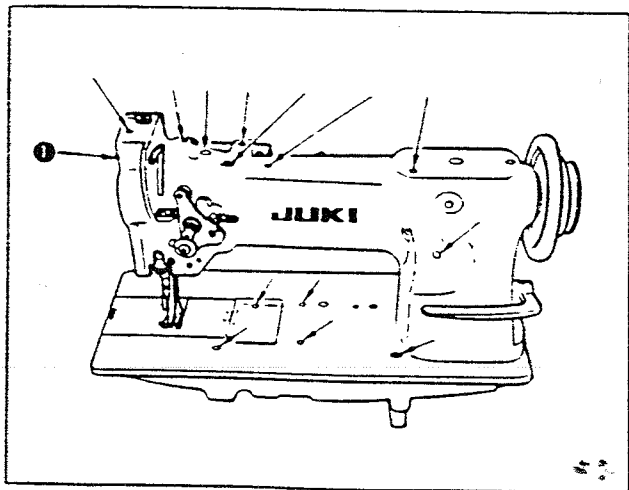
2. Motor pulley and V belt

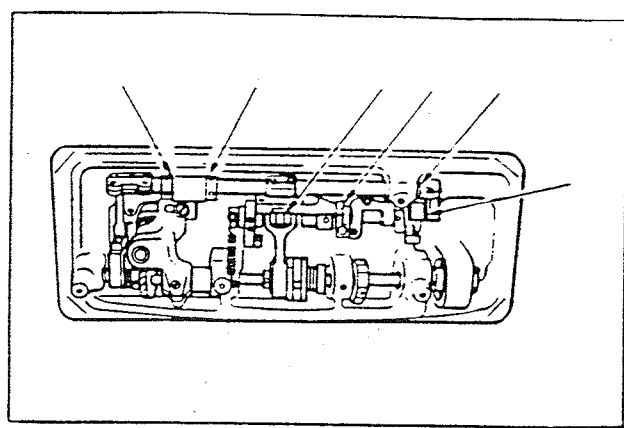
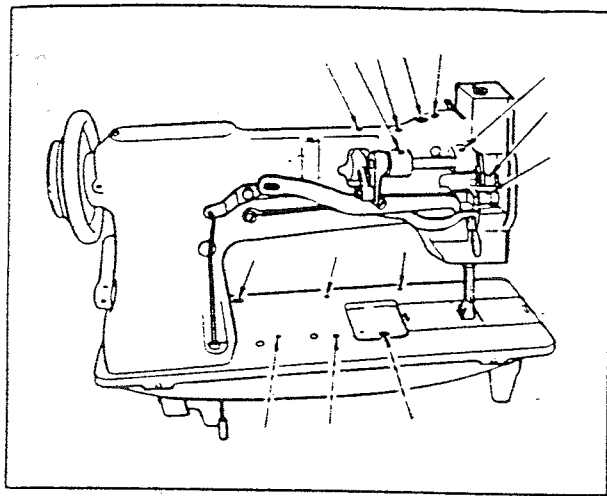
The machine is capable of running at 2,500 s.p.m. (the speed changes depending on the type of material and other sewing conditions). Use a direct coupled type 2P clutch motor of 3-phase and 400 W. (1/2 HP) Use an M type V belt. The table below indicates the relation between the sewing speed of the machine and the dimension of the motor pulley (effective diameter). (The effective diameter of the motor pulley is a diameter that is measured, when a V belt is wound round the motor pulley, from the center of the V belt.)

Frequency	Sewing speed	Part No. of motor pulley	Effective diameter of motor pulley
50Hz	2,590s.p.m	MTK-PV070000	70mm
60Hz	2,660s.p.m.	MTK-PV060000	60mm

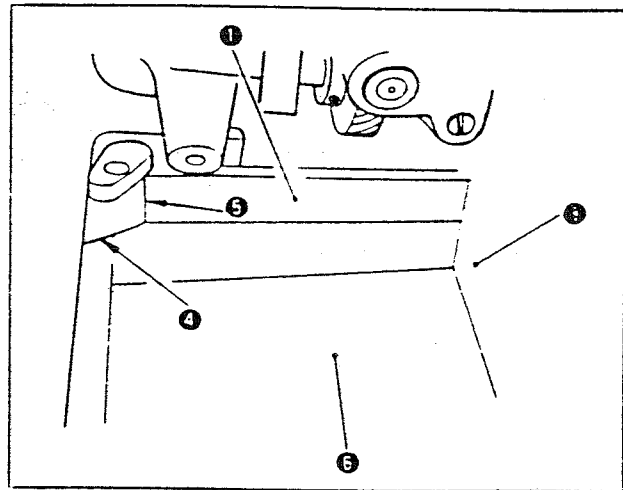
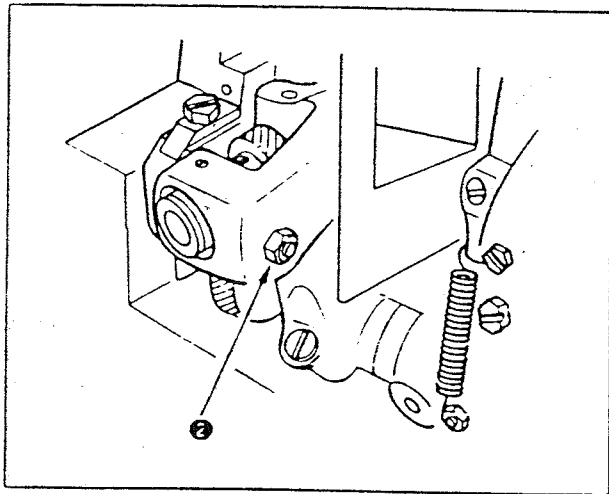
3. Lubrication

- 1) Sufficiently lubricate the sewing machine so as to allow the machine to always run smoothly and to prevent sliding components from being likely to wear out.
- 2) For the continuous operation of the machine, lubricate the machine at least twice a day.
- 3) Frequently lubricate a newly installed machine or the machine is continuously used for sewing long-sized materials.
- 4) Apply oil to the points marked with an arrow in the figure. To lubricate components located inside the face plate, loosen screw ①, raise the face plate and apply oil to the oil and moving parts.





(1) Lubricating the hook components (LU-563N)

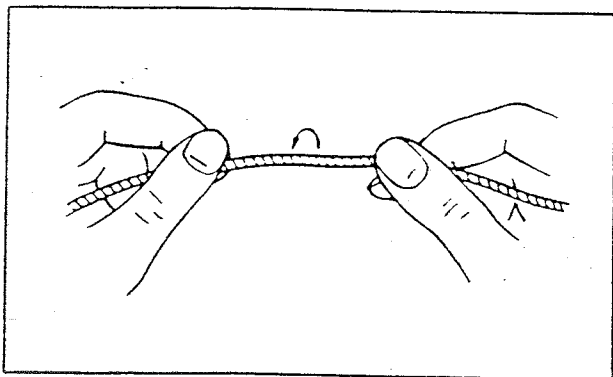


Operate the sewing machine after oil reservoir ① has been filled with oil since the hook shaft saddle components of the LU-563N is automatically lubricated. Adjust the amount of oil in the hook using oil amount adjusting screw ②. Turn the screw clockwise to increase the amount of oil in the hook or counterclockwise to decrease it.

(Caution) 1. Oil reservoir ① is used with placed on the oil pan ③. Install oil pan ③ so that top end ④ of oil reservoir ① is fitted in the lower section ⑤ of the leftmost edge of table.

2. Place oil drip felt ⑤ in oil reservoir ① to prevent dust and thread waste from entering the oil.

4. Thread



Use only the Z-twist thread for the needle thread. Either S-twist or Z-twist thread for the bobbin thread.

To check the twist of thread, hold each end of thread with the thumb finger and index finger and turn the thread end held by your right-hand fingers toward you. If the thread is Z-twist one, the thread will be hardly twisted by turning it in the aforementioned way. If the thread is S-twist one, it will be untwisted by doing so.

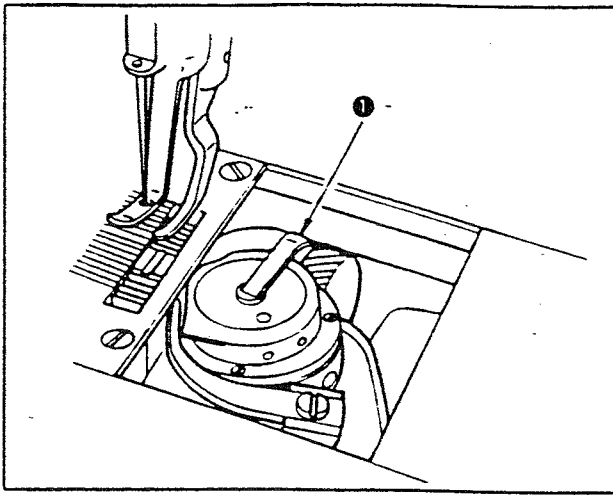
5. Needle

Use a DPx17 or D1x3 #18 to #24 needle for the sewing machine. Size of needle depends on thickness of the material and thread to be used. Select a needle with eyelet through which the thread passes smoothly. Neatly finished seams cannot be obtained when thread used is poor in quality, unevenly twisted or fails to smoothly go through the eyelet of needle.

6. Attaching the needle

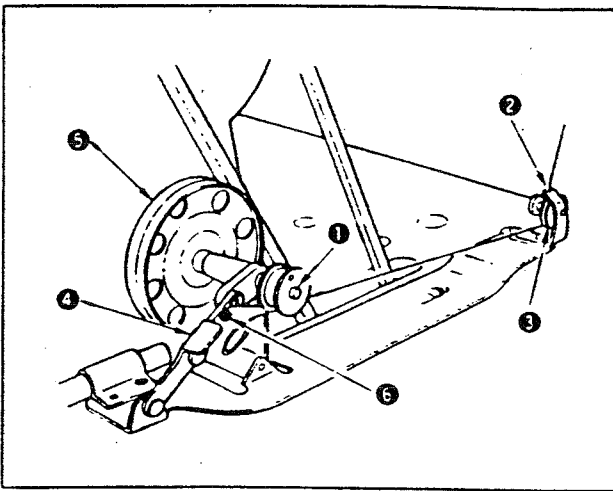
Turn the handwheel toward you so as to bring the needle bar up to the highest position of its stroke. Then, loosen the needle clamp screw, insert the needle in the hole in the needle bar until it will go no further. Then, adjust the orientation of the needle so that the long groove on needle faces exactly to the left (toward the face plate). Now, tighten the needle clamp screw.

7. Taking out the bobbin



Draw out the slide plate, right and raise latch ① of bobbin case with fingers. Now, take the bobbin out from the bobbin case.

8. Winding the bobbin



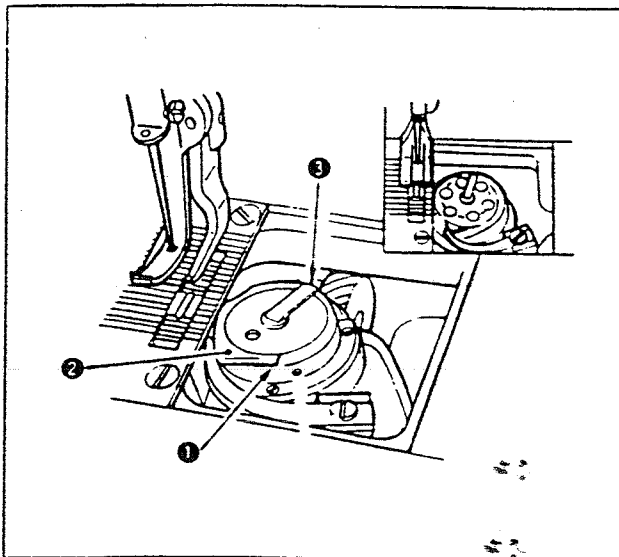
1) Set the bobbin winder base on the table as illustrated in the figure. In this case, position the bobbin winder base so that the bobbin properly comes in contact with the belt of bobbin winder pulley ⑤ when the bobbin winder is in operation.

2) To wind the bobbin, insert first the bobbin into the bobbin winder until it is pressed against bobbin winder spindle ①.

3) After the thread is passed through thread hole ② in the tension post socket, pass it through between two tension disks ③ toward you. Draw out the thread and wind its end round the bobbin from the underside by several turns.

4) Press link No. 1 ④, and the bobbin will be pressed to make bobbin winder pulley ⑤ come in contact with the belt. Consequently, bobbin winder pulley ⑤ will turn as the sewing machine operates. Once the bobbin is wound with a predetermined amount of thread, the bobbin presser will come off and bobbin winder pulley ⑤ will stop turning. It is possible to wind the bobbin while the sewing machine is in operation. Adjust the amount of thread to be wound round the bobbin using screw ⑥.

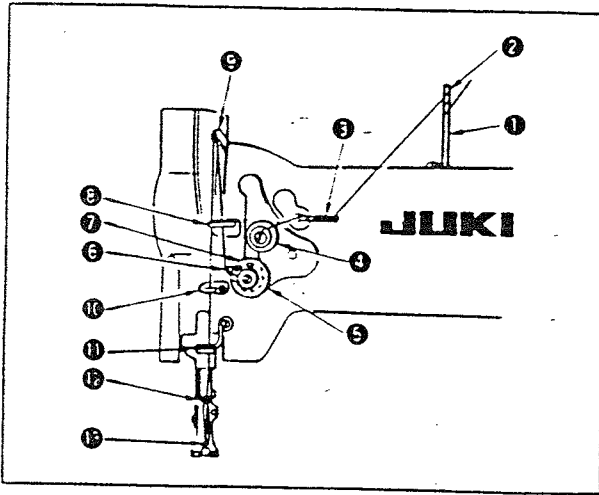
9. Placing the bobbin in the bobbin case and handling the bobbin thread



1) Draw out the thread from the bobbin by approximately 10 cm. Fit the bobbin on the shaft of bobbin case and tilt latch ③ of bobbin case.

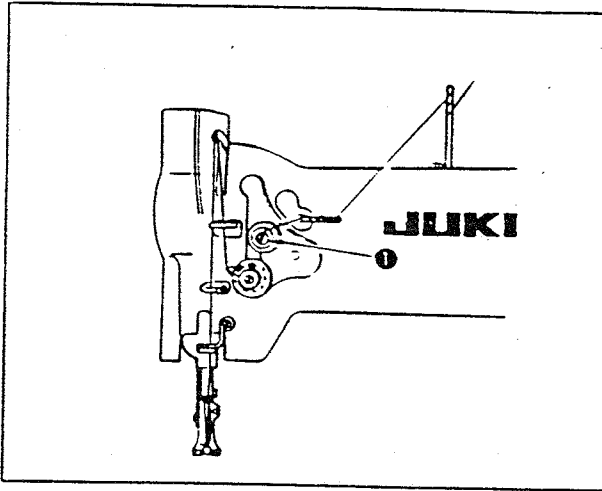
2) Fit the thread which has been drawn out from the bobbin case in notch ① outside the bobbin case, pass the thread under protruding portion ② and under the tension spring of bobbin case to route it up on the throat plate. Then pull the thread above the throat plate by approximately 15 cm. Then, close the slide plate.

10. Threading the machine head

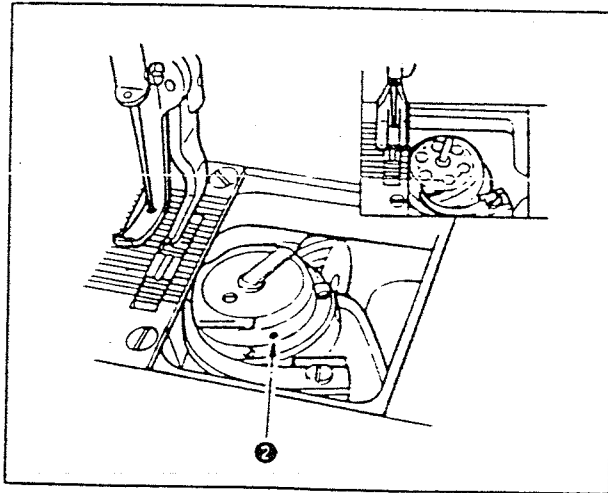


- 1) Pass thread, toward you, through hole ① in the needle thread guide pin located on the top surface of machine arm. Then pass it through hole ② from the right-hand side toward the left.
- 2) Pass the thread through the hole in thread guide ③. Pass it through between tension disks ④ from the upper right toward the lower left. Then, pass the thread through the lower part of thread take-up spring guide disk ⑤ from the right-hand side toward the left. Then, putting the thread on thread take-up spring ⑥, draw it up until it is fitted in hook ⑦ of the thread take-up spring guide disk.
- 3) Pass the thread in take-up thread guide, upper ⑧. Draw up the thread to pass it through hole ⑨ in the thread take-up lever from the right-hand side toward the left. Then, draw the thread up to thread take-up thread guide, upper ⑩, take-up thread guide, intermediate ⑪, take-up thread guide, lower ⑫ and needle bar thread eyelet ⑬ in the written order. Then pass the thread through eyelet ⑬ in the needle from the left-hand side toward the right.
- 4) Draw the thread trailing from the needle eyelet by approximately 10 cm.

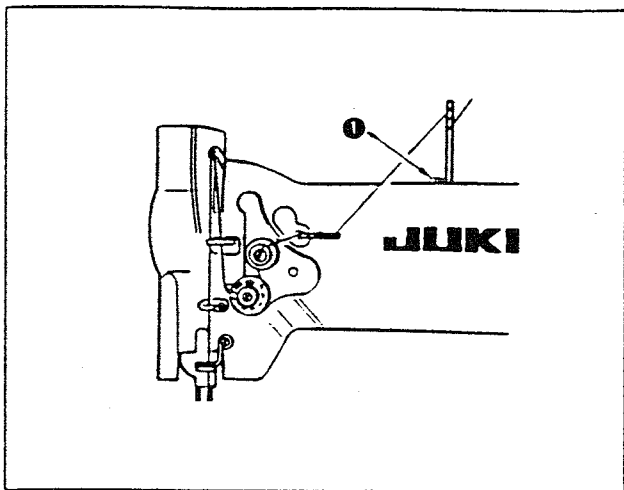
11. Adjusting the thread tension



Adjust the needle thread tension by turning tension nut ①. Adjust the bobbin thread tension by turning screw ② located almost at the center of adjusting spring mounted outside the bobbin case. Turn the screw clockwise, and the thread tension will increase. Turn it counterclockwise, and the thread tension will decrease.

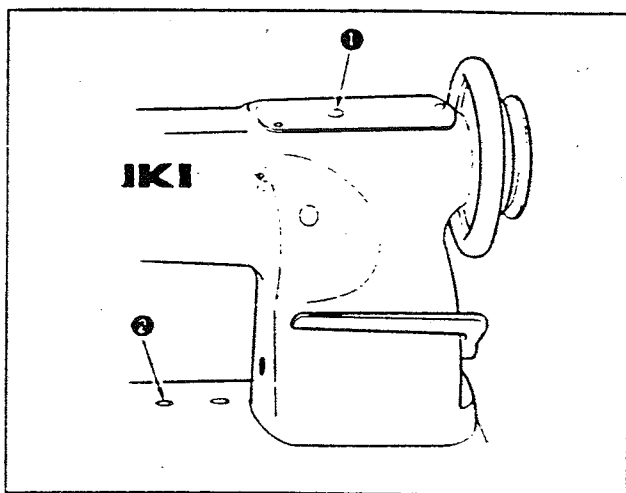


12. Adjusting the pressure of the presser foot



Adjust the pressure of the presser foot using adjusting screw ① which rise above the machine head. Turn the adjusting screw clockwise to increase the pressure of the presser foot, or counterclockwise to decrease it.

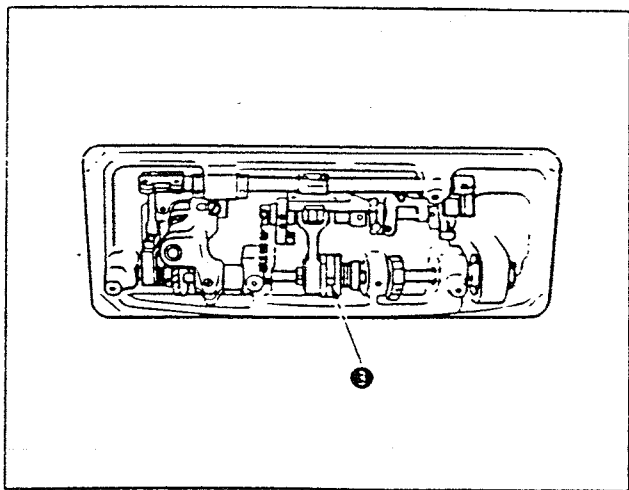
13. Adjusting the stitch length



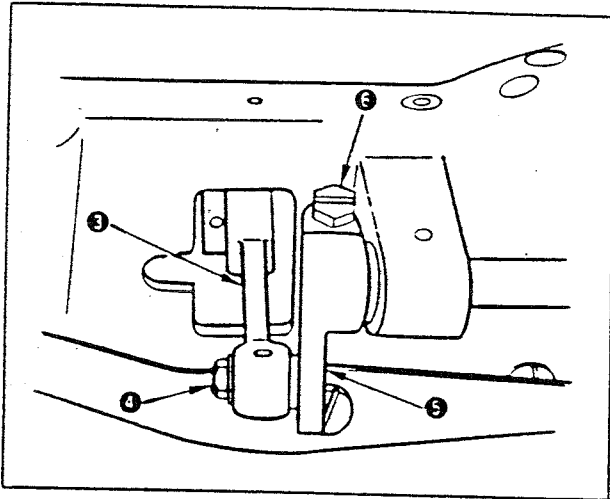
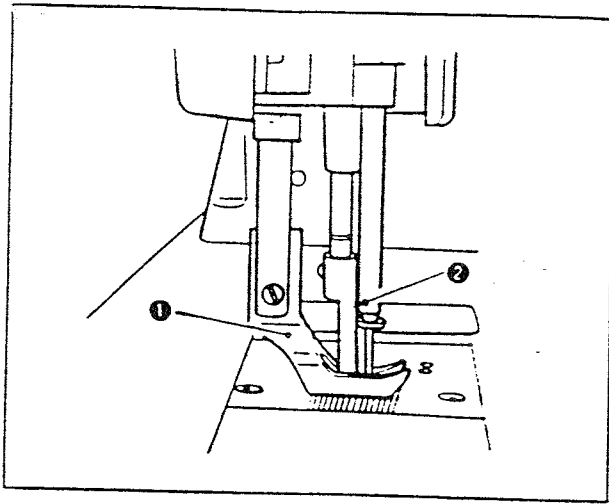
- 1) Divisions for stitch length are engraved on stitch graduator ① mounted on the main shaft.
- 2) To adjust the stitch length, pressing push-button ② on the top surface of the bed, carefully turn the handwheel first until the top end of push-button ② fits in slit ③ on the feed eccentric mechanism.

- 3) Once the top end of push-button has fitted in the slit, turn the handwheel toward or away from you until the engraved division on feed stitch graduator ① corresponding to the stitch length desired is observed through the hole in the top board, while keeping push-button ② held depressed. Once the engraved division corresponding to the desired stitch length appears in the hole, release push-button ②.

Note that divisions on stitch graduator ① indicate the number of stitches to be made for every 25.4 mm (1 inch). To make the machine perform reverse feed stitching, depress the switch lever downward. The machine performs reverse feed stitching as long as the lever is held depressed.



14. Adjusting the lifting amount of the presser foot and walking foot

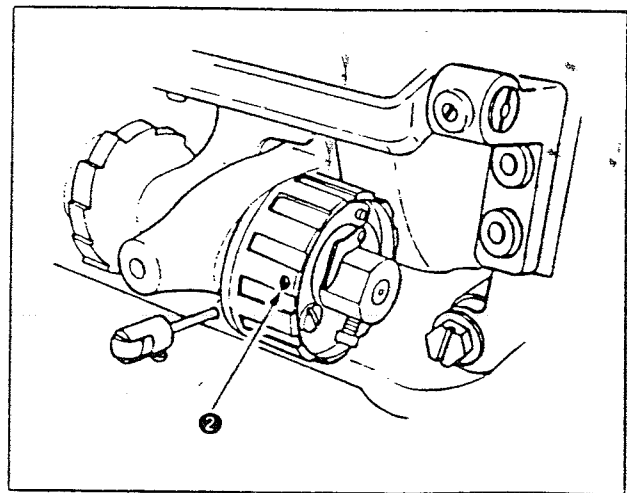
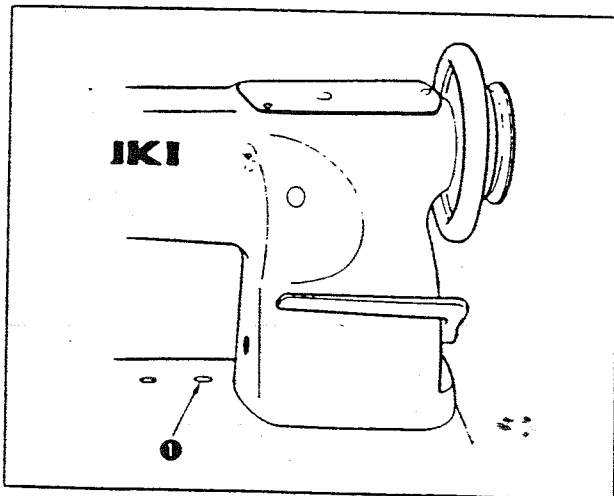


- 1) The lifts of presser foot ① and walking foot ② which alternately go up are normally set equal. They are adjusted in accordance with thickness of the material to be sewn. Note that, however, the amount of the vertical movement of the presser foot and that of the walking foot can be set to different values when sewing a certain type of material.
- 2) The lifting amount of the presser foot and walking foot can be adjusted with ease. Loosen nut ④ in upper feed driving rod ③ and raise hinge screw ⑤ to increase the lifting amount and lower the shaft to decrease it. (The lifting amount can be adjusted in the range of 2.1 mm to 6 mm.)
- 3) If it is necessary to set the lifting amount of the presser foot ① and that of the walking foot to different values, i.e., to increase the lifting amount of the presser foot ① and decrease that of the walking foot and vice versa, slightly loosen clamping screw ⑥ of the walking foot adjusting lever and raise/lower walking foot ② until the desired lift is obtained. Then, tighten clamping screw ⑥. The aforementioned adjusting procedure is also described in "III-3 Height of the presser foot and adjustment of the height of the presser foot and walking foot."

15. Safety clutch

The sewing machine is equipped with a safety clutch which automatically actuate to prevent the machine failure if the thread is caught in the hook or an excessive load is applied to the sewing machine while the machine is in operation. Once the safety clutch actuates, neither the feed mechanism nor the hook will operate even when you turn the handwheel.

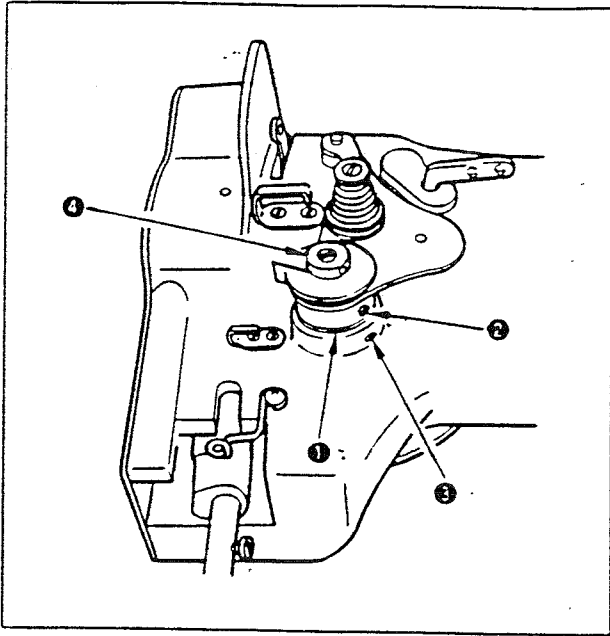
16. Operating the safety clutch



- 1) To make the safety clutch properly ready for operation, pushing push-button ①, turn the handwheel strongly in reverse direction of rotation.
- 2) To adjust the safe load, remove the timing belt and turn adjustment screw ②. Turn the screw clockwise, and the safe load will be increased and the safety clutch will not easily come off. Turn it counterclockwise, and the safe load will be decreased and the safety clutch will easily come off.

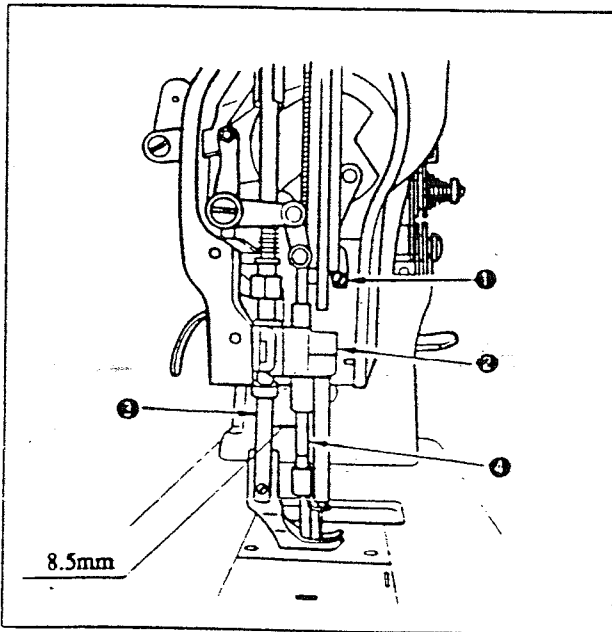
III. ADJUSTMENT

1. Adjusting the needle thread tension controller

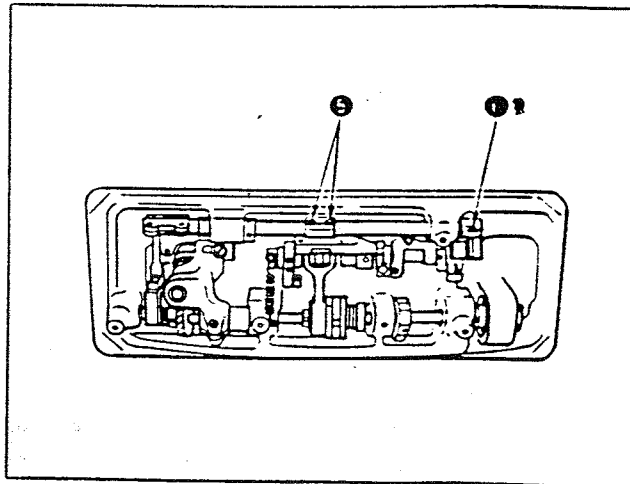
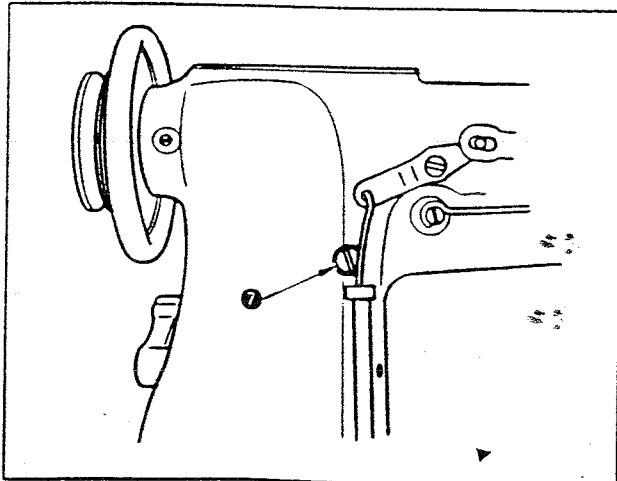


- 1) Thread take-up spring takes up the slack of needle thread until the needle comes down and the needle tip enters the material. If the spring fails to work properly, the descending needle will be tangled with the needle thread or it will stick into the needle thread.
- 2) To move thread take-up spring adjusting plate ① so as to adjust the stroke of the thread take-up spring, loosen first screw ②.
- 3) Move adjusting plate ① to the right, and the stroke of the thread take-up spring will be increased. Move adjusting plate ① to the left, and it will be decreased. After the completion of the adjustment, securely tighten the screw.
- 4) To increase the tension of the thread take-up spring, loosen first screw ③ in the machine arm located below the thread take-up spring guide disk. Then, fitting a screwdriver in the slit on the top end of thread take-up spring shaft ④, turn the shaft carefully counterclockwise. To decrease the tension of the thread take-up spring, turn the shaft clockwise. After the completion of the adjustment, securely tighten screw ③.

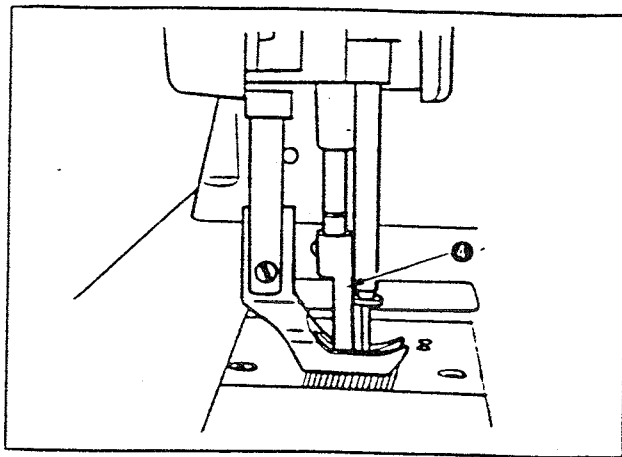
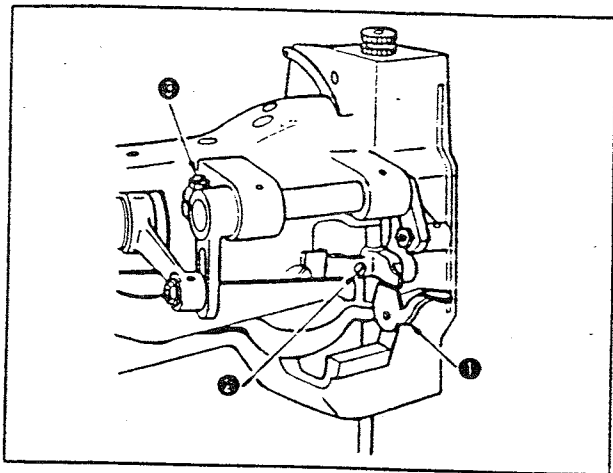
2. Adjusting longitudinal position of the needle bar frame



- 1) Correct relation between needle bar frame ② and presser bar ③ is obtained by positioning them so that presser bar ③ is spaced 8.5 mm from walking foot bar ① when stitch length is set to 0 (zero). Correct relation between needle bar frame ② and the feed dog is obtained by positioning them so that the needle enters almost center (or slightly this side of the center) of the needle hole in the feed dog over the entire stroke of the feed dog.
- 2) If the correct relation between walking bar ① and presser bar ③ is not provided when stitch length is set to 0 (zero), loosen two clamping screws ⑤ in the feed rock shaft crank and adjust the distance between presser bar ③ and walking bar ① to 8.5 mm. Then securely tighten clamping screws ⑤.
If the correct relation between needle bar frame ② and the feed dog is not provided, first set stitch length to 0 (zero).
- 3) Then, loosen the clamping screw in needle feed rock crank ⑥. Loosen the clamping screw in the needle bar frame rear crank through hole ⑦ in the rear side of the machine arm. Then adjust so that the needle enters almost center (or slightly this side of center) of the needle hole in the feed dog. Keeping the aforementioned state, position the needle feed rock crank so that it is in parallel to the top surface of the bed and tighten the two screws.

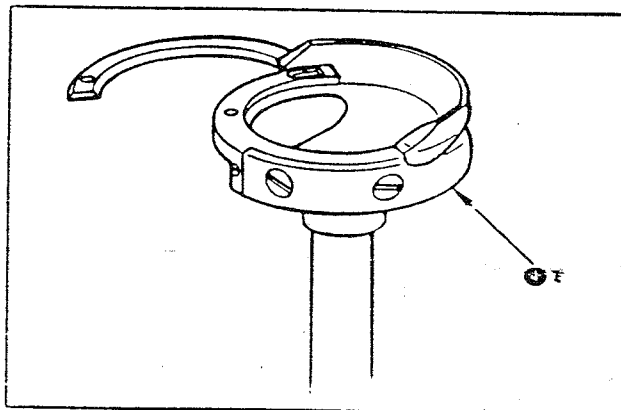
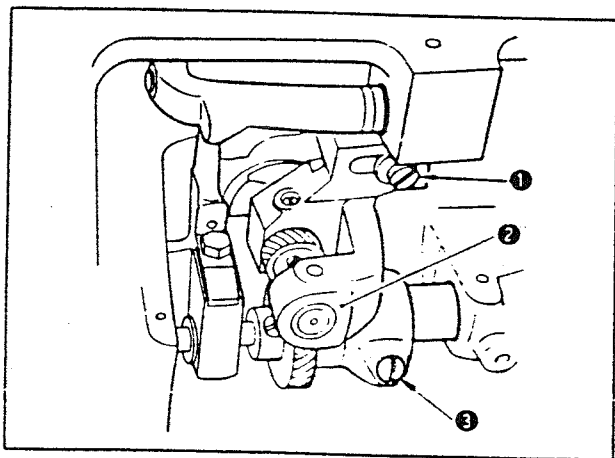


3. Height of the presser foot and adjustment of the height of the presser foot and walking foot



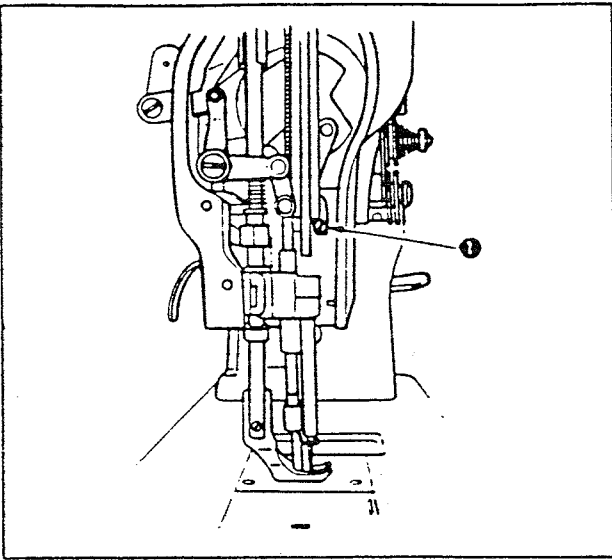
- 1) To adjust the lift of the presser foot by hand-lifter ①, raise hand-lifter ①, loosen clamping screw ② in the hand lifter mounting bracket and adjust so that a clearance of approximately 8.5 mm is provided between the sole of presser foot and the top face of throat plate. Then tighten clamping screw ②. To set the lifts of the presser foot and walking foot equal, lower the presser foot, loosen clamping screw ③ in the walking foot adjusting lever and turn the handwheel carefully toward you until the needle tip, top surface of feed dog, soles of presser foot and walking foot are flush with the top surface of throat plate. Now, tighten clamping screw ③.
- 2) To set the lifts of the presser foot and walking differently, loosen clamping screw ③ in the walking foot adjusting lever when the soles of presser foot and walking foot ④ are flush with the top surface of throat plate. Now, turn the handwheel toward you, then tighten screw ③. This will cause the presser foot to go up higher than the walking foot. If the handwheel is turned in the reverse direction, in the aforementioned state, the walking foot will go up higher than the presser foot. This means that the farther the handwheel is turned, the more the difference between the lifts of the presser foot and walking foot becomes.

4. Adjusting the relation between the needle and the hook point

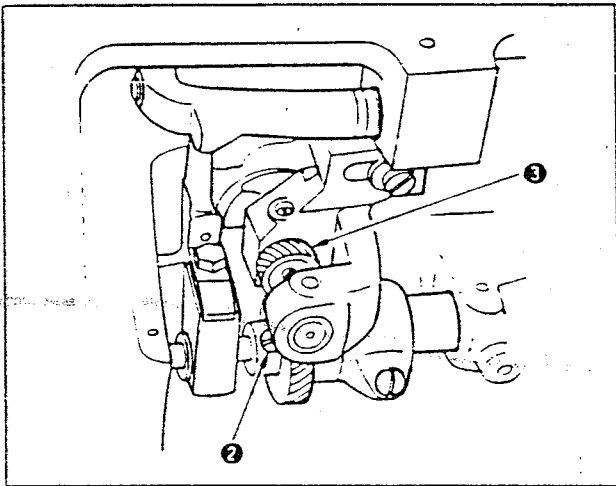


- 1) To prevent needle thread breakage, minimize the clearance provided between the hook point and the needle.
- 2) To adjust the clearance provided between the needle and the hook point, turn first the handwheel by hand until the center of needle meets the hook point.
- 3) Then, loosen two screws ① in the lower section of the bed and screw ③. This will allow hook driving shaft saddle ② to the right and left. Now, minimize the clearance between the needle and the hook point as far as they do not come in contact with each other, and tighten two screws ① and screw ③.
- 4) Needle guide ④ mounted on the bottom of hook works to prevent the needle which bends when sticking into the material from coming in contact with the hook and breaking the hook point.
- 5) The needle guide can be bent outward using a pair of small pliers so as to prevent the needle from coming in contact with the hook point. However, it is bent excessively outward, stitch skipping or thread breakage will result. So, carefully bend the needle guide.

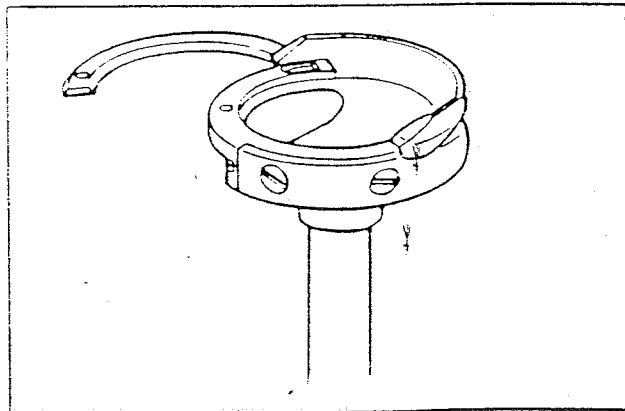
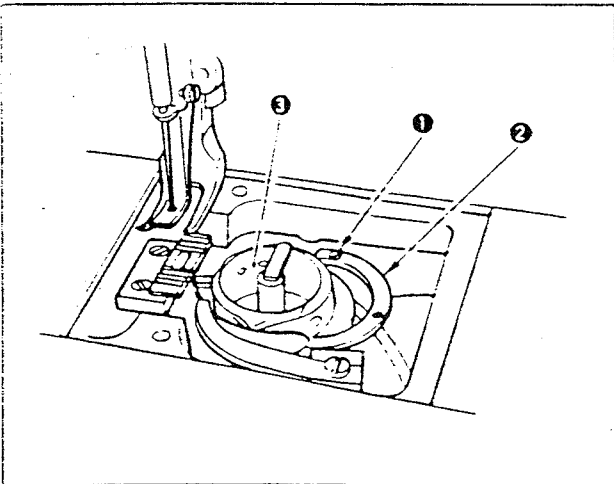
Adjusting the hook timing



- 1) Set stitch length to 3.2 mm.
- 2) Remove the throat plate. Turn the handwheel by hand toward you until the needle bar ascends 2.4 mm from the lowest position of the stroke. At this time, the center of the needle should be aligned with the hook point and the needle eyelet should be positioned approximately 1.8 mm lower than the hook point. As far as the aforementioned requirements are satisfied, the correct relation between the needle bar height and the hook position is obtained.
- 3) To adjust the height of the needle bar, loosen screw ① and move the needle bar up or down.
- 4) After the completion of the adjustment, securely tighten screw ①.
- 5) If the time for aligning the needle bar with the hook point is not correct, turn first the handwheel by hand toward you and determine the height of the needle bar following the procedure described above. Then, loosen the two screws in driving gear, large ② and move driving gear, large ② to the left or right and turn the hook so that the hook point correctly meets the center of needle. Then securely tighten the two screws. In this case, the hook is fixed, at a constant position, on driving gear, small ③.

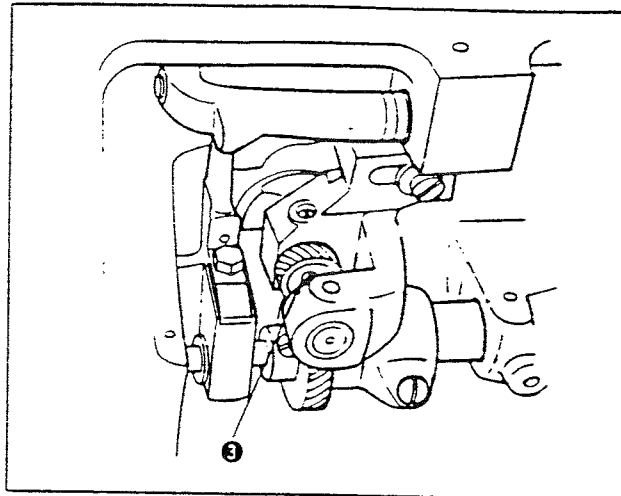
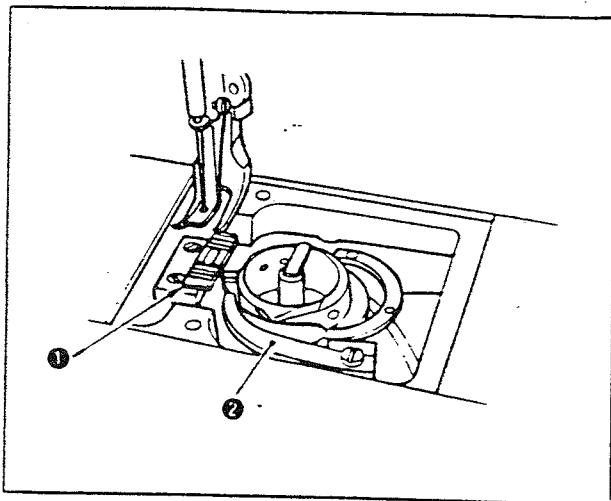


6. Removing the bobbin case from the hook



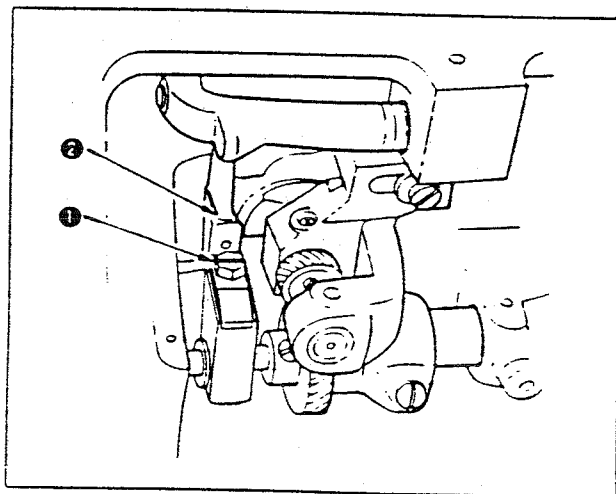
Remove two small screws ① from the hook, open holder ② as illustrated in the figure above, and take bobbin case ③ out of the hook.

7. Removing the hook from the sewing machine



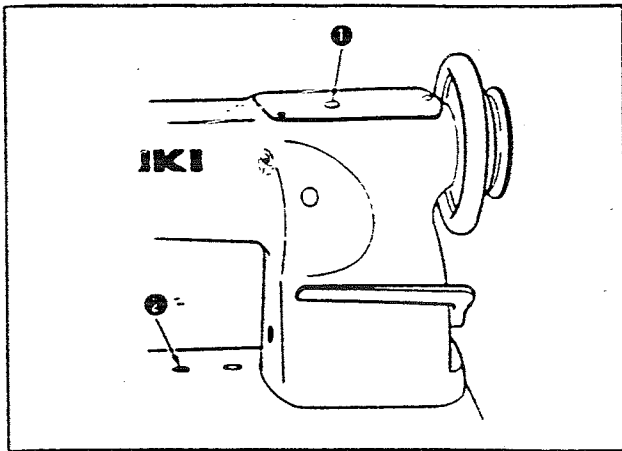
- 1) Open slide plate and remove throat plate, feed dog ①, presser foot, walking foot and bobbin case opening lever ②.
- 2) Then, fully raise the presser bar lifting lever until it comes in contact with the side face of the machine.
- 3) Tilt the machine and loosen two screws in driving gear, small ③.
- 4) Turn the handwheel so as to bring the needle bar up to the highest position. Then, fitting a small screwdriver on the top of the hook shaft, lightly tap the hook until it comes off.

8. Adjusting the height of the feed dog



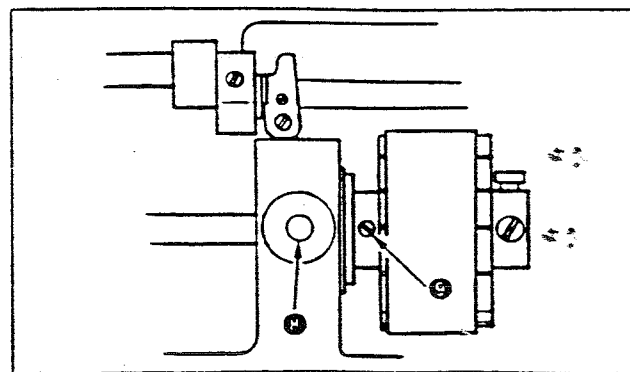
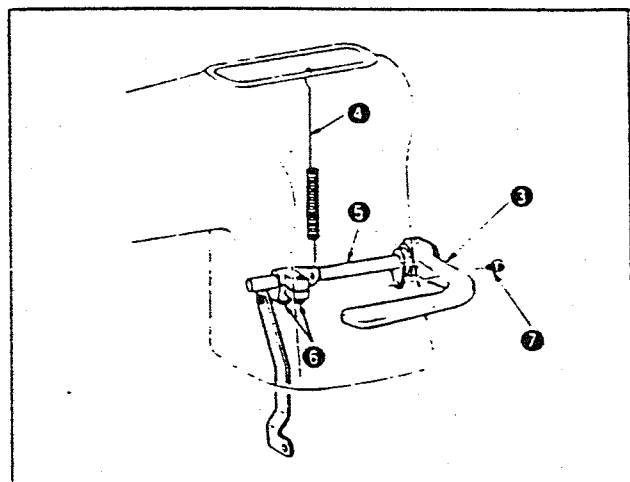
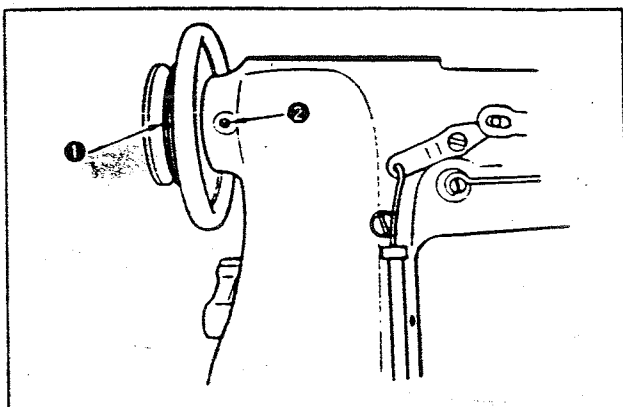
- 1) Normally, the whole feed dog rises above the top surface of throat plate when the feed reaches the highest position of its stroke.
- 2) To adjust the height of the feed dog, remove first the throat plate and clear fibrous waste from the area near the feed dog. Then, attach the throat plate to the bed.
- 3) Then, tilt the machine, turn the handwheel toward you to bring the feed dog up to the highest position. Now, loosen the clamping screw in feed bar slide fork ① and adjust the height of the feed dog as desired by moving feed bar ② up or down. Then, securely tighten the screw. For the standard adjustment, the feed dog should rise 1.3 mm above the throat plate when it reaches the highest position of its stroke.
- 4) Vertical stroke of the bottom feed can be reduced by replacing the feed driving eccentric cam with a feed driving eccentric cam (B184005100A) (optional part No. 1 shown on page 12). This will upgrade finished seam quality in piping operation or binder attaching operation. To use the optional cam, adjust the height of the feed dog to 0.6 mm. Please contact our distributor from which you have purchased your machine or business office for information in detail when necessary.

9. Adjusting the stitch graduator



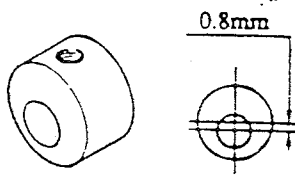
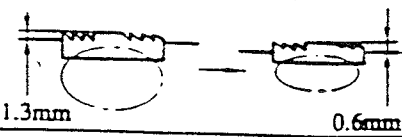
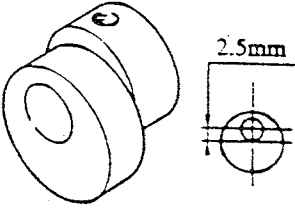
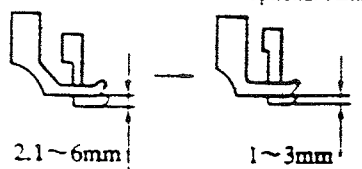
- 1) To adjust the position of stitch graduator ①, loosen first the clamping screw in stitch graduator ①.
- 2) Minimize the stitch length (0 mm).
- 3) Pressing push-button ②, carefully turn the handwheel until the top end of push-button ② fits in slit on the feed rock eccentric mechanism. Once the top end of push-button has fitted in the slit, adjust the position of the scale plate so that the screw No. 1 stitch graduator ① is brought into the hole in the top board. Then, fix stitch graduator ① on the main shaft.

10. Replacing the timing belt

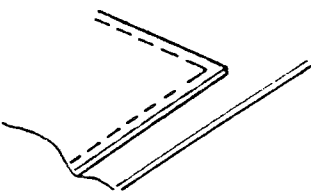



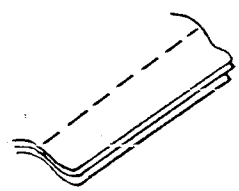
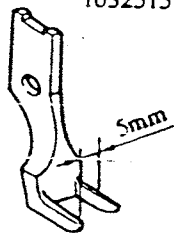
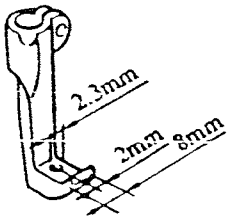
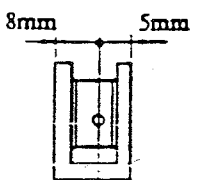
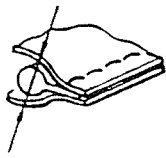
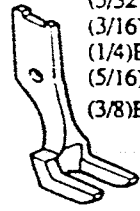
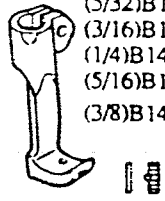
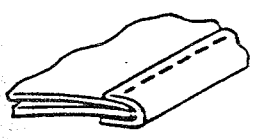
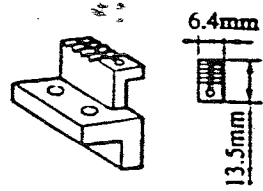



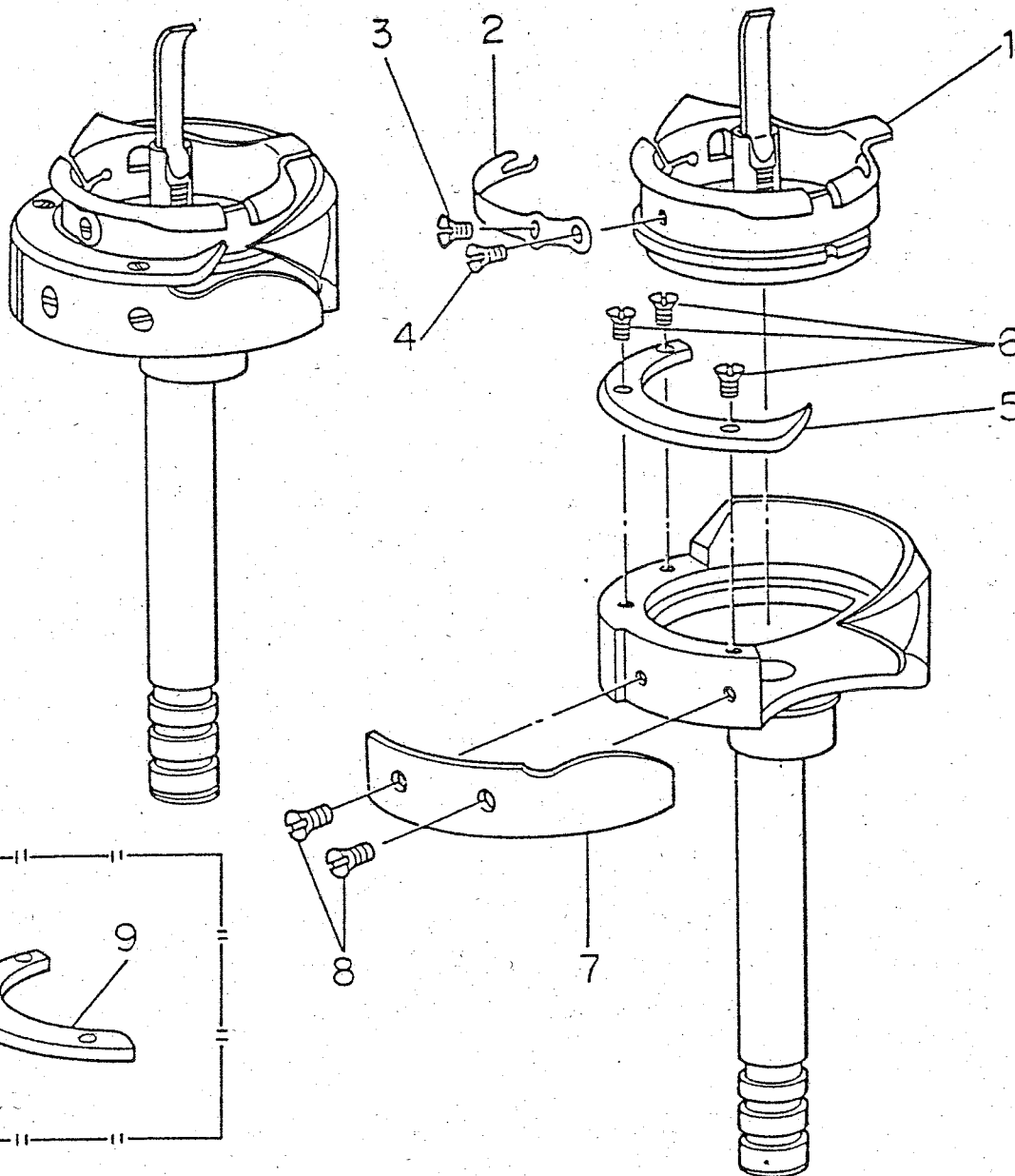
- 1) Loosen two screws ① in the handwheel. Then, draw out the handwheel.
- 2) Loosen screw ② in the main shaft rear bushing. Remove the top cover. Loosen the two screws in the main shaft rear bushing located on the right-hand side of the upper sprocket wheel. Then, draw out the main shaft rear bushing from the machine head.
- 3) Remove reverse feed control lever ③. To remove it, remove tension spring ④ from the hole in the machine head, tilt the machine head, loosen the two screws in tension spring regulating arm ⑥ that is attached on feed lever shaft ⑤ and remove screw ⑦ in the feed lever shaft stopper plate. Now, draw out lever shaft ⑤ with the lever held attached.
- 4) Remove the timing belt first from the lower sprocket. Draw the timing belt as long as possible from the hole in the top cover. Then, draw out the belt from the hole in which the main shaft rear bushing has been placed.
- 5) The hook makes two revolutions while the hook driving shaft makes a revolution. The feed cam is attached to the hook driving shaft. This means that the hook timing with respect to the needle bar will be defective unless the feed timing with respect to the needle bar is correct. So, it is necessary to adjust the relation between the main shaft and the hook driving shaft correctly when re-attaching the timing belt to the machine.
- 6) Installation of the timing belt is carried out following the procedure for removing it in the reverse order as described below. Pass the timing belt through the main shaft, fit the main shaft rear bushing in the machine head, attach the handwheel to the main shaft and put the timing belt on the upper sprocket wheel.
- 7) To put the timing belt on the lower sprocket wheel, turn the hook driving shaft by hand while keeping the needle bar in the lowest position until hole ⑥ in the lower section of the bed is aligned with the screw No. 1 in hook driving shaft rear bushing ⑤. Now, put the timing belt on the lower sprocket wheel. This will provide the correct feed timing with respect to the needle bar.

IV. OPTIONS

NO		Part No.	Name of part	Remarks
1		B184005100A	Feed driving eccentric cam	Current vertical stroke of the feed dog can be halved by replacing the current cam (B1840051000) with the optional cam. (Adjust the height of the feed dog to 0.6 mm.) 
2		10309904	Feed eccentric cam	Current alternating vertical stroke of the walking foot can be halved by replacing the current cam (D1450055B00) with the optional cam. 

V. OPTIONAL GAUGES

NO	Process	Presser foot	Walking foot	Remarks
1	Sewing edges 	 B1525563000	 10338309	 1.2mm
2	Sewing in general 	 10325157 5mm	 10325306 2.3mm 2mm 8mm	 8mm 5mm
3	Piping operation 	 Size (5/32)B152724500C (3/16)B152724500D (1/4)B152724500F (5/16)B152724500H (3/8)B152724500K	 Size (5/32)B147424500C (3/16)B147424500D (1/4)B147424500F (5/16)B147424500H (3/8)B147424500K	5/32=3.9mm 3/16=4.8mm 1/4=6.4mm 5/16=7.9mm 3/8=9.5mm
	Process	Feed	Throat plate	
1	Binding operation 	 B1613563C00 6.4mm 13.5mm	 B1109563C00	



*Back
Please try this part*

REF.NO.	NOTE	品名	DESCRIPTION	品名	数量
1		040-56349021	SEWING HOOK	縫針	1
2		040-56348963	TENSION SPRING	テンションスプリング	1
3		040-05141184	ADJUSTING SCREW	調整ネジ	1
4		040-05140582	TENSION SPRING SET SCREW	テンションスプリング止ねじ	1
5		040-56349031	HOOK GIB	縫針	1
6		040-05141182	HOOK GIB SET SCREW	縫針止ねじ	3
7		040-56348961	NEEDLE POSITIONER	針位置決め	1
8		040-05541581	SCREW	止ねじ	2
9	#01	040-56349331	HOOK GIB	縫針 (アール)	1

Note(注記) #01.....Special order part for heavy weight materials 厚物用特別注文部品

Applicable models 適用機種

LH-513
LU-563