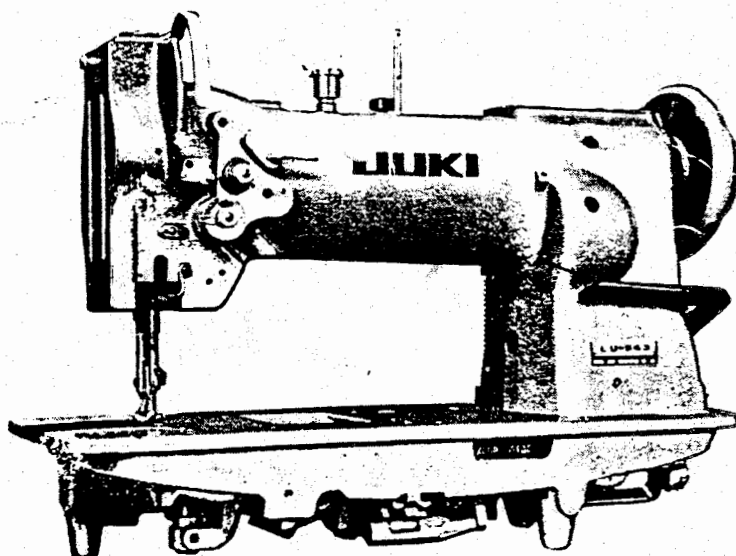
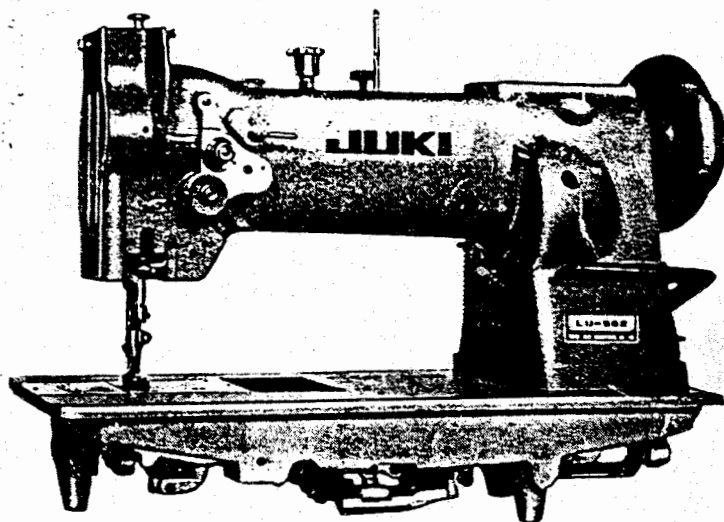


BE5630T0B0A

single needle, lockstitch, unison feed  
industrial sewing machine

single needle, lockstitch, unison feed  
industrial sewing machine with a large bobbin

# INSTRUCTION BOOK



**TOKYO JUKI INDUSTRIAL CO., LTD.**

Juki LU 563  
LU 562

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# **I. GENERAL DESCRIPTION**

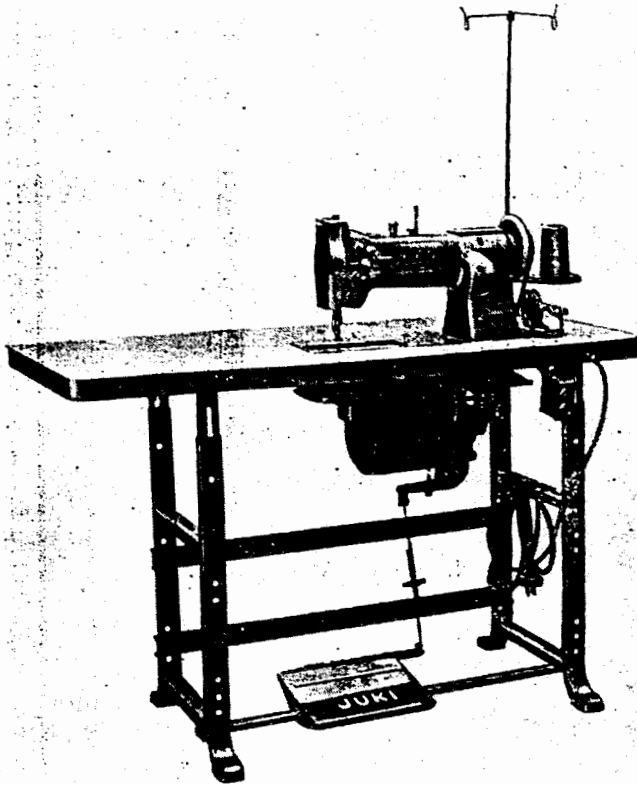
JUKI MODEL LU-562 is a single needle, unison feed, lockstitch industrial sewing machine with a reverse feed mechanism, possessing a sewing speed of up to 3,000 s.p.m. This machine is equipped with a horizontal axis rotary hook which is driven by a timing belt. The lifting range of the presser foot is 10 mm (3/8").

The maximum feed range is 7 mm (1/4") and a unison feed mechanism is adopted for this machine by which, no matter how fast the machine might rotate, the needle feed and the feed driving mechanisms synchronize each other. Thus, the upper and lower sewing cloth never slip out of place. With this specially designed feature, this machine is ideally suited for sewing heavy weight fabrics such as tent, awning, leathercoat, work clothes, work gloves, etc.

## **II. HOW TO OPERATE THE MACHINE**

### **1. Cautions on operation**

- \* Do not, under any circumstances, operate the machine, even for trial run, without lubricating the entire machine.
- \* The rotational direction of the machine and the hand wheel is toward the operator. (Viewed from the hand wheel side, it is counter-clockwise).
- \* The maximum rotation of the machine is 3,000 stitches per minute. However, for the first month, drop the speed to 2,500 s.p.m. and gradually increase the speed depending upon the nature of the fabric, the feed range and the capability of the operator.



## 2. Motor pulley and belt

Depending upon the nature of sewing fabric and other conditions, this machine has a sewing speed of 3,000 s.p.m. When the machine is to be connected directly to the power source, use a 3-phase, 400W (1/2HP) electric clutch motor. Use a M type V belt.

Refer to the following table for the relation between the number of rotation of the machine with the effective diameter of the motor pulley. (By effective diameter of the motor pulley, it is meant the diameter as calculated from the center of the V belt as it is wound around the pulley).

Cycles	r.p.m.	Part No. of motor pulley	Effective diameter of motor pulley
50	2970	MTK-PV080000	80 mm ( 3-1/16")
	2590	MTK-PV070000	70 mm (2-11/16")
60	2900	MTK-P00650000	65 mm (2-1/2")
	2660	MTK-PV060000	60 mm (2-51/6")

### 3. Lubrication

In order to run the machine smoothly, it is very important that machine be thoroughly and constantly lubricated to prevent wearing out of all essential frictional parts. When the machine is being run continuously, it should be oiled at least twice a day. While the machine is comparatively new or when some long fabric is to be sewn continuously, the oiling should be done oftener.

Be sure to oil all parts shown by arrows in Fig. 2-5. For oiling the inside parts of the face part, loosen the face plate set screw (Fig. 2 ①) and by placing the face plate on top, oil the oil wick and the moving parts as shown in Fig. 3 (arrows).

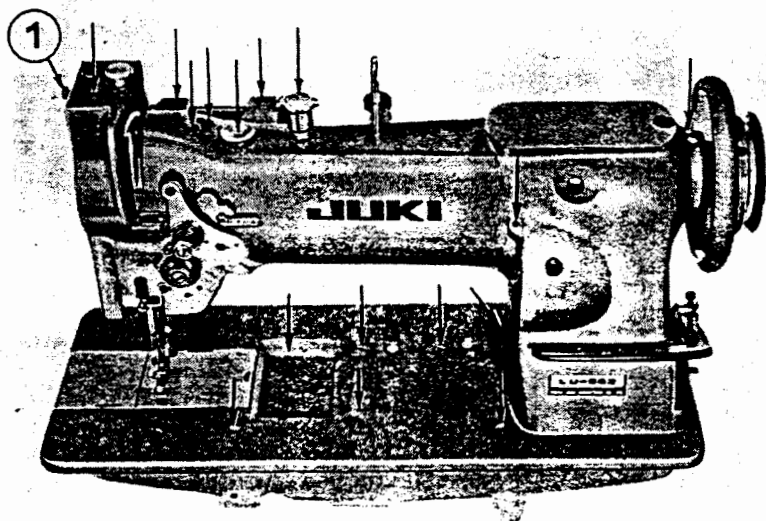


Fig. 2

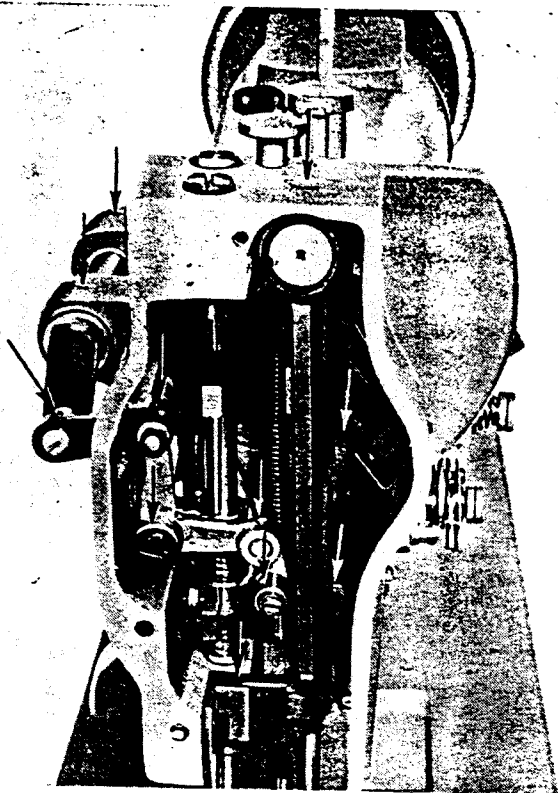


Fig. 3

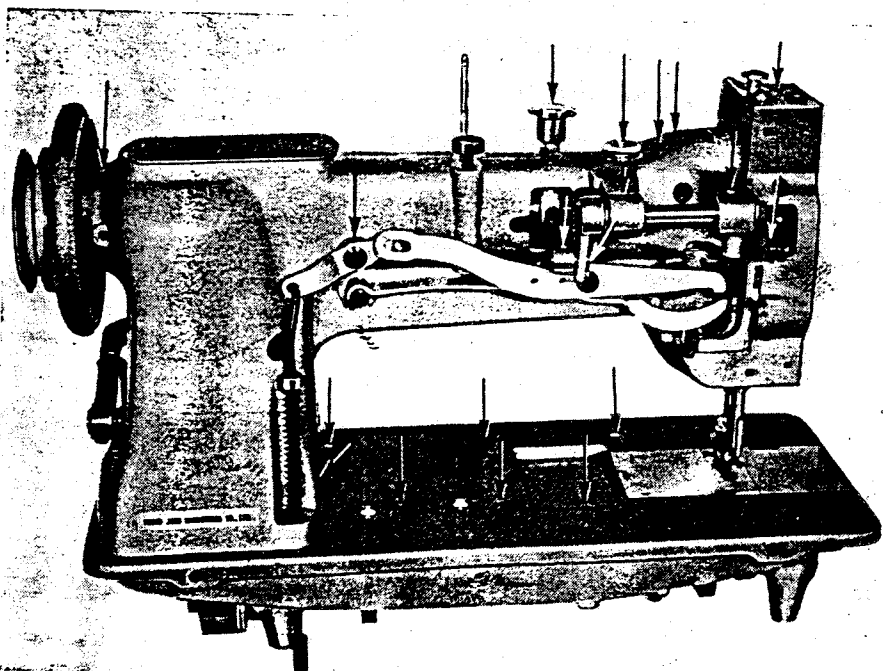


Fig. 4

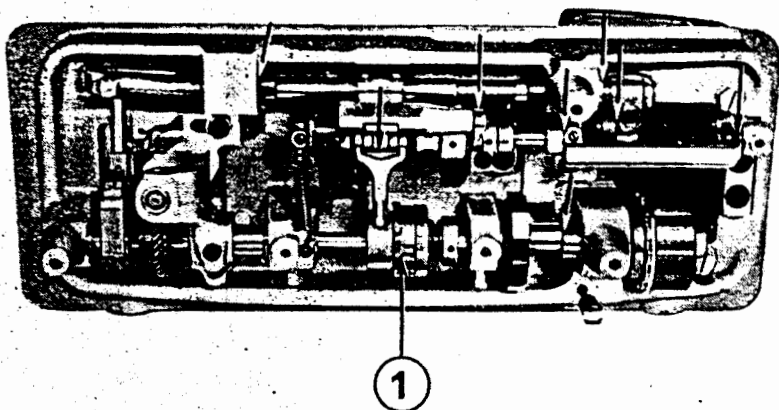


Fig. 5

#### 4. Thread

Only left-twist thread should be used for needle thread. But for the bobbin thread, either right-twist or left-twist can be used.

To verify the twist of the thread, hold the thread with your forefinger and the thumb of your right hand as shown in Fig. 6 and if the thread is twisted towards you and if it gets firmer, it's a left-twist but if it gets loose, it's a right-twist.

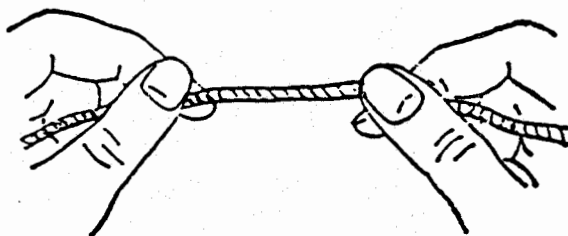


Fig. 6

## 5. Needle

Use a needle number DPX17(135X17) or DIX3, sizes #18~#23 for LU-562-563. Use a needle number DNX1, size #23 for LU-563-3. The size of the needle depends on the thickness of the sewing cloth and the sewing thread. Try to select a needle through which the thread passes easily. If a thread of inferior grade with flaw or which is hard to pass through the needle eye is used, beautiful stitching job cannot be performed.

## 6. How to insert the needle

To insert the needle correctly, first, rotate the hand wheel toward the operator, raise the needle bar to the highest position, loosen the needle clamping screw and by inserting the needle into the needle hole of the needle bar as far as it will go with the long groove of the needle facing left (toward the face plate), tighten the needle clamping screw.

## 7. How to remove the bobbin (Fig. 7)

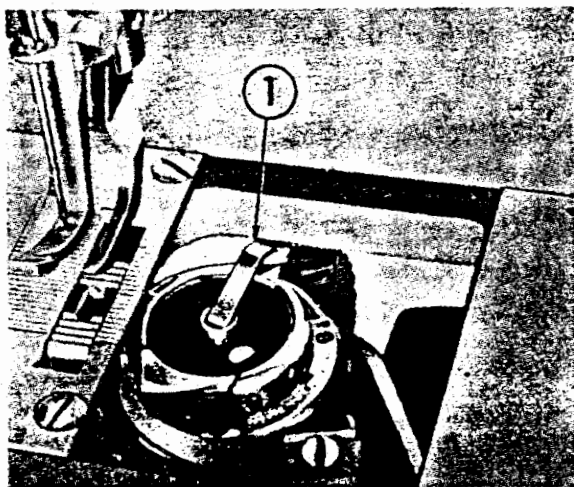


Fig. 7

Pull out the right bed slide, raise the bobbin case latch (Fig. 7 ①) with your fingers and take out the bobbin.



## 8. How to wind the bobbin (Fig. 8)

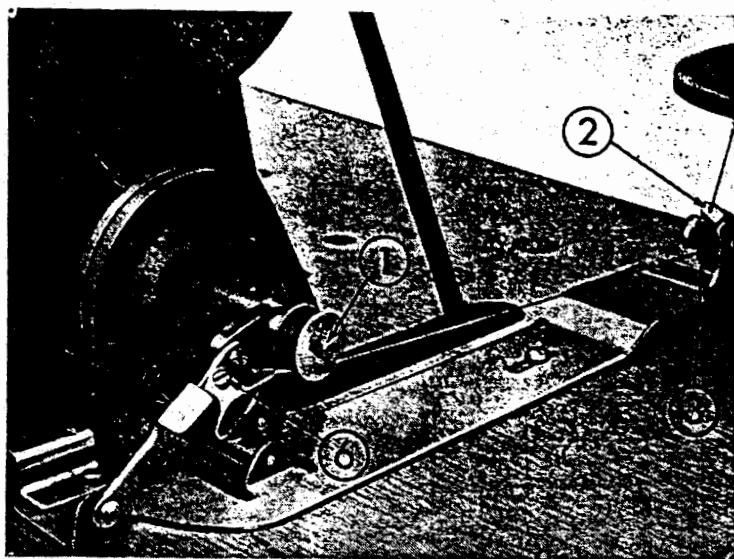


Fig. 8

Fasten the bobbin winder to the table as shown in Fig. 8. Be sure to fasten the pulley ⑤ so that it will be contacting the belt correctly at the winding position. To wind the bobbin, first, insert the bobbin into the pulley shaft ① as far as it will go. Then, after passing the thread through the eyelet ② of the thread guide on the tension bracket, pass it between the 2 thread tension discs ③ towards you from the back side, then pull out this thread and wind the tip of this thread into the bobbin from under-side several times around. Then, if the trip latch ④ is pressed, it will press down the bobbin and the pulley will contact the belt and with the rotation of the machine, the pulley will also rotate. When sufficient amount of thread is wound, the trip latch will be released and the rotation of the pulley will stop. The amount of wound thread can be regulated by the screw ⑥. This winding process can be performed during the running of the machine.

9. How to insert the bobbin into the bobbin case and passing the bobbin thread (Fig. 9)

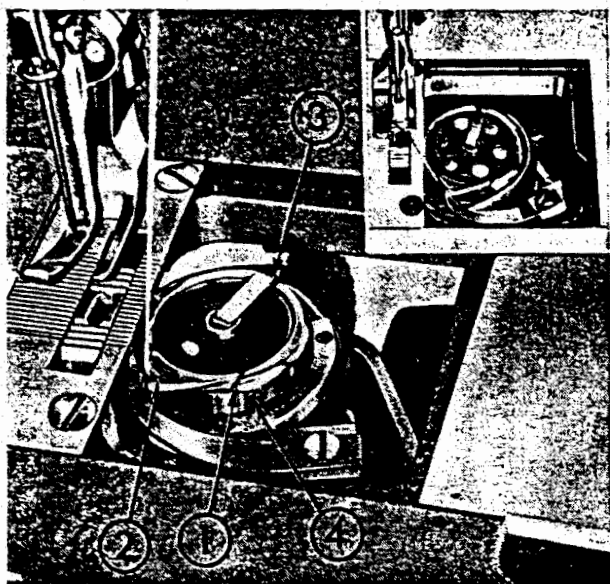


Fig. 9

Pull out about 10 cm(4") of the thread from the wound bobbin, insert the bobbin into the bobbin case shaft and knock down the bobbin case latch ③. Then, pass the pulled out bobbin thread through the slit ① of the bobbin case, duck it under the protuberance ②, under the thread tension spring of the bobbin case and finally pull it out about 5 cm (2") on top of the needle plate and close the slide plate.

10. How to thread the machine (Fig. 10, 11)

To pass the needle thread, do as follows, in order :

First pass the thread through the eyelet ① of the thread guide bar atop the arm from the opposite side towards the operator and then pass it through the eyelet ② from right to left as you face the machine. Then, through the hole of the 3-hole thread eyelet ③, in between the thread tension disc ③ from right, above, to lower left, from right to left

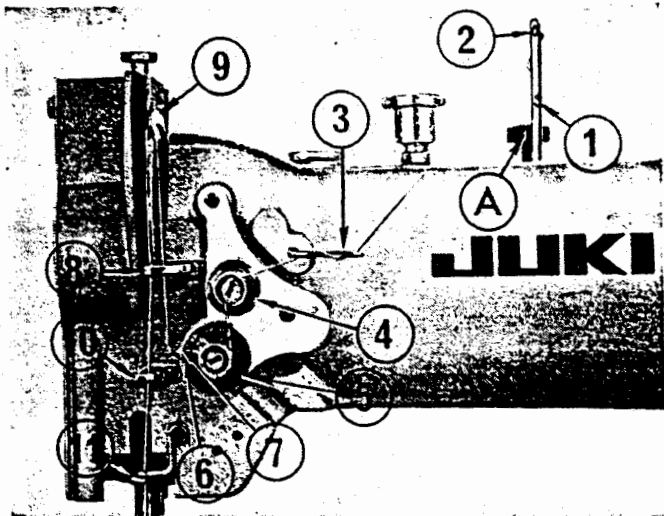


Fig. 10

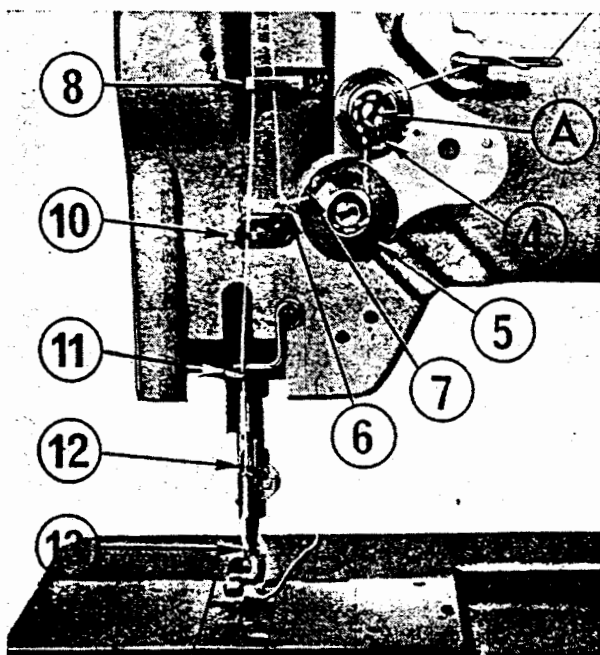


Fig. 11

on the lower side of the thread take-up spring guide disc ⑤ and by pulling it up as you hang it on the thread take-up spring ⑥, pass it to the hook ⑦ of the thread take-up spring guide disc.

Next, pass it through the thread upper guide ⑧, pull it up, pass it through the eyelet of thread take-up lever ⑨ from right to left and pass it in order of thread upper guide ⑧ (by pulling it down), thread center guide ⑩ thread lower guide ⑪, needle bar thread guide ⑫ and finally pass it through the needle eye ⑬ from left to right. Pull out the passed thread from the needle eye for about 10 cm (4").

### **11. Adjusting the thread tension**

The tension of the needle thread is adjusted by turning the thread tension nut (Fig. 11 A).

The tension of the bobbin thread is adjusted by turning the screw (Fig. 9 ④) on the outside of the bobbin case. If this screw is turned to right, the tension gets stronger and if turned to left, it gets weaker.

### **12. Adjusting the pressure of the presser foot**

The pressure of the presser foot is adjusted by the presser foot adjusting screw (Fig. 10 A) atop the arm. To increase the pressure, turn this screw to right and to weaken the pressure, turn it to left.

### **13. Adjusting the stitch length**

The graduation of the stitch length is marked on the feed graduation plate attached to the main shaft. (Fig. 12 ①).

To adjust the stitch length, rotate the hand wheel slowly as you keep on pressing the push-button (Fig. 12 ②) atop the bed until the tip of the push-button enters the groove (Fig. 5 ①) of the eccentric mechanism.

When it is entered, rotate the hand wheel either towards you or away from you as you keep pressing the push button until the desired stitch length indicating mark on the graduation plate appears on the

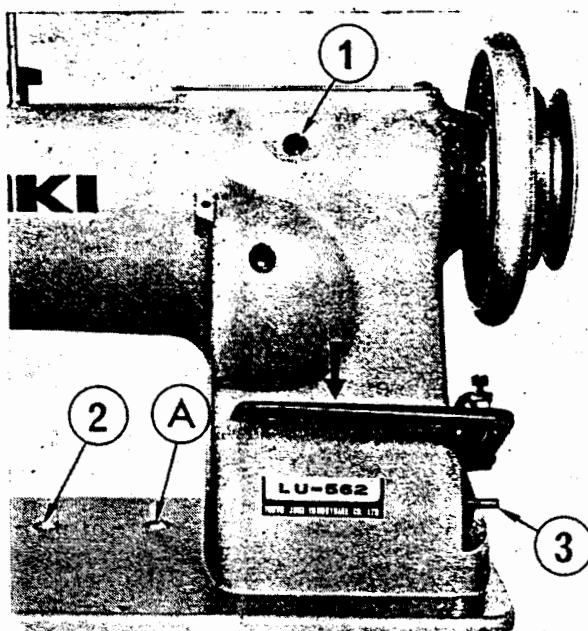


Fig. 12

hole of the arm (Fig. 12 ①). When the desired stitch length indicating mark appears on the hole, release the push-button. But please note that the figure which appears on the hole of the arm (Fig. 12 ①) means so many stitches per 25.4 mm (1").

For reverse sewing, push the feed lever (Fig. 12 ③) downwards until it hits the stopper. As long as this lever is kept down, the machine will do reverse sewing.

#### 14. Regulating the vertical stroke of the upper feed and the presser foot

The vertical stroke of the presser foot (Fig. 13 ①) and the upper feed (Fig. 13 ②) moving alternately is equal, normally, and the range of this stroke is adjusted by the thickness of the sewing cloth.

But sometimes this alternating vertical stroke has to be changed depending upon the nature of the sewing fabric.

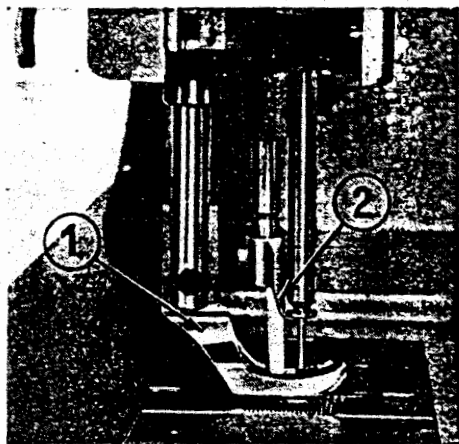


Fig. 13

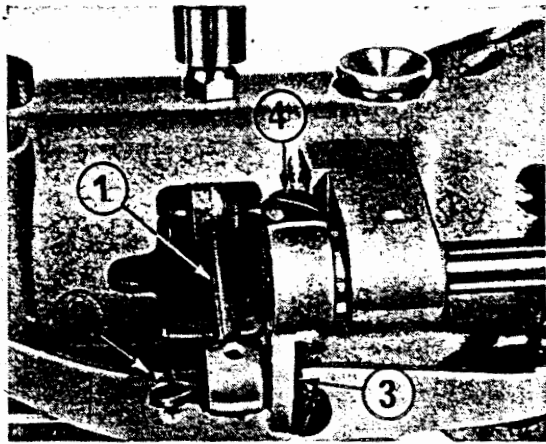


Fig. 14

The range of the upper feed can be adjusted by loosening the hinge nut (Fig. 14 ②) of the upper feed arm (Fig. 14 ①); to increase the feed amount, move the upper feed rod connecting shaft (Fig. 14 ③) toward “up” and to decrease the feed amount, move it toward “down” and tighten the shaft.

To change the alternate feed amount, when the moving range of the presser foot is to be increased or decreased, or when reverse is required, slightly loosen the upper feed arm set screw (Fig. 14 ④), bring the upper feed foot either to “up” or “down” and after setting it to the desired position, tighten the upper feed arm set screw.

This adjusting procedure is treated in detail in Chapter III-3. on “Adjusting the height of the presser foot and the work foot bar”.

## 15. Safety clutch

This machine is equipped with a safety clutch which, when during the sewing, if the thread happens to get entangled inside the sewing hook or when the machine is over-taxed in any way, this safety clutch goes into action automatically and thus prevents damages to the machine.

When this safety clutch is acting, even though the hand wheel is rotated, the feed and the sewing hook components do not move at all.

## 16. How to operate the safety clutch

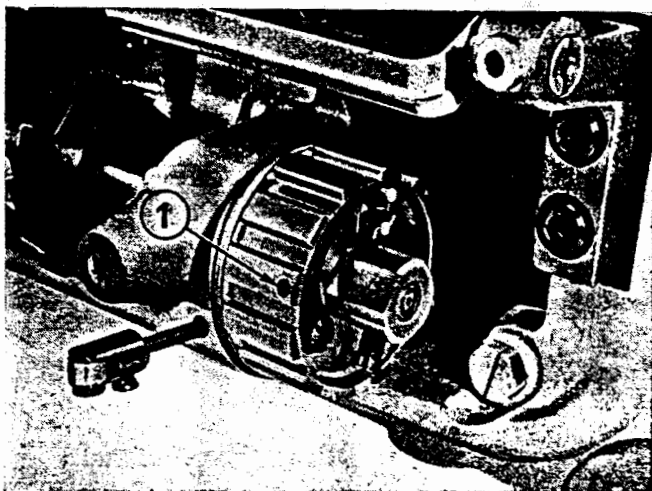


Fig. 15

To set the safety clutch correctly, rotate the hand wheel strongly in the reverse rotational direction as you keep pushing the button (Fig. 12 ④). To adjust the applying pressure of the safety clutch, release the timing belt and turn the adjusting screw (Fig. 15 ①). If this screw is rotated to right, the applying pressure will increase and the clutch becomes difficult to be released, while if it's turned to left, the applying pressure becomes less and the clutch becomes easier to be released.

## III. HOW TO ADJUST THE MACHINE (Fig. 16)

### 1. Adjusting the needle thread tension controller

The function of the thread take-up spring is to absorb the slack of the needle thread until the point of the needle pierces the cloth in its downward stroke. If this spring does not function properly, the needle

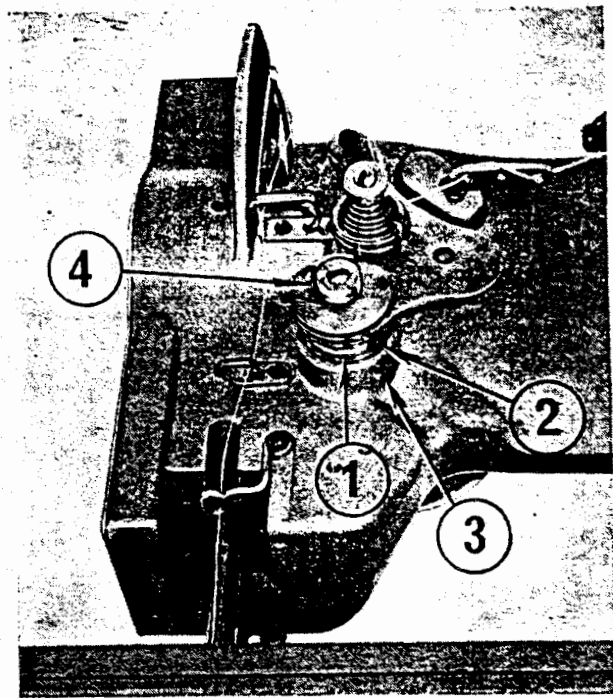


Fig. 16

might be tangled up with the slack thread or the needle might pierce the needle thread.

To move the thread take-up spring adjusting plate (Fig. 16 ①) in order to regulate the movement of the thread take-up spring, loosen the screw ②, Fig. 16. To increase the movement of the thread take-up spring, move this adjusting plate toward right. To make the movement of the spring less, move this adjusting plate toward left. After adjusting, be sure to tighten the screw.

To strengthen the tension of the thread take-up spring, loosen the thread controller stud set screw ③, Fig. 16 in the arm under the thread controller disc, insert a screw driver to the tip of the groove of the thread tension post (Fig. 16 ④) and turn slowly to left. To weaken the tension, turn the screw driver to right. After the adjustment, re-tighten the screw.



## 2. Adjusting the relative position of the needle bar frame

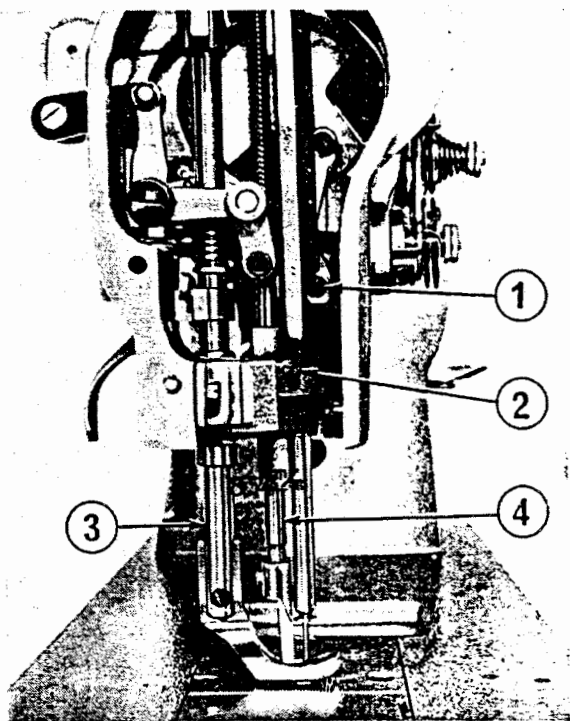


Fig. 17

The correct relative position of the needle bar frame (Fig. 17 ②) with that of the presser bar (Fig. 17 ③) is when, with the stitch length at "0," the clearance between the presser bar and the working foot bar (Fig. 17 ④) comes to 8.54 mm (5/16"). (Fig. 17)

Also, the correct relative position of the needle bar frame with that of the feed dog is when, no matter what the cycle of the feed motion, the needle should be around the center of or nearer the front side of the needle hole of the feed dog.

When the stitch length is set at "0" and if the relative position of the work foot bar with the presser bar is not right, loosen the 2 clamp screws of the feed rocker shaft crank (Fig. 18 ①), match the clearance between the presser bar and the working foot bar at 8.54 mm (5/16") and then tighten the set screw.

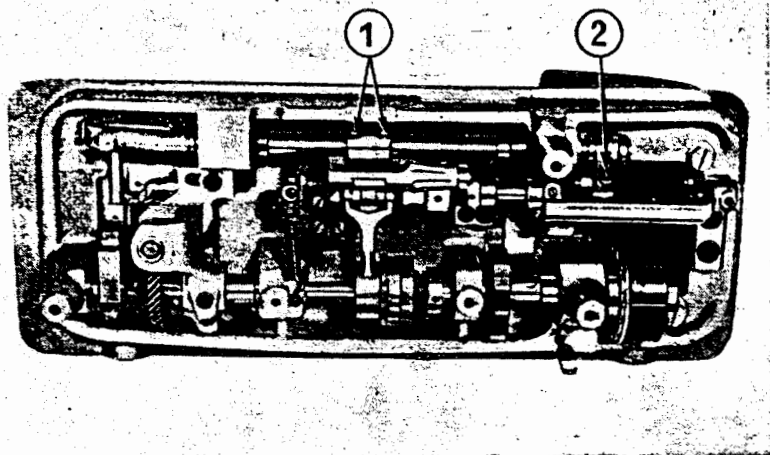


Fig. 18

Also, to set the correct relative position of the needle bar frame with that of the feed dog, first, set the stitch length at "0," then loosen the needle bar frame rock shaft crank screw (Fig. 18 ②) and loosen the rear set screw of the needle bar frame from the hole (Fig. 24 ①) in the back of the arm. And further, when the needle comes near the center (or nearer the front side) of the needle hole of the feed dog, tighten the 2 clamp screws and make the needle bar frame rock shaft crank parallel to the surface of the bed by holding this position.

### 3. Adjusting the height of the presser foot and the work foot bar

To adjust the height of the presser foot by the hand lifter (Fig. 19 ①), loosen the clamp screw of the lifter lever bracket (Fig. 19 ②), adjust the clearance between the lower surface of the presser foot and the upper surface of the needle plate to approximately 8.5 mm (5/16") while lifting the hand lifter, then tighten the clamp screw.

To adjust the height of the presser foot and the work foot bar so that the rising amount becomes equal, lower the presser foot, loosen the

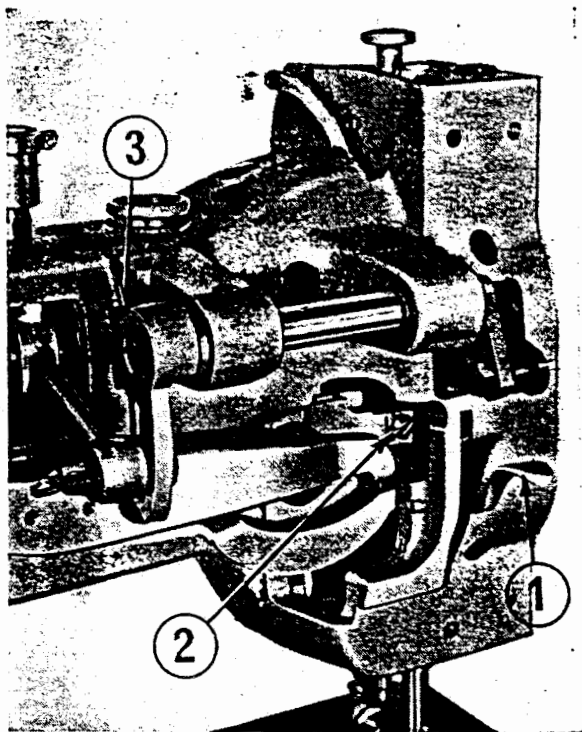


Fig. 19

clamping screw of the work foot bar arm (Fig. 19 ③), rotate the hand wheel slowly towards you and when the surface of the presser foot and the work foot bar come in one line with respect to the upper surface of the needle plate when the presser foot completes its oscillating movement, tighten the screw. To change the rising amount of the presser foot and the work foot bar, loosen the work foot bar arm set screw (Fig. 19 ③) and when the lower surface of the presser foot and the work foot bar come in one line above the needle plate, turn the hand wheel towards the operator and re-tighten the screw. Then the presser foot amount becomes larger than the work foot bar amount. But if the hand wheel is rotated in the reverse direction away from the operator, the reverse condition ensues, i. e. the rising amount of the work foot bar gets larger than the presser foot. Consequently, the greater the rotation of the hand wheel, the greater the difference in the rising amount of the presser foot and the work foot bar.

#### 4. Adjusting the relative position of the sewing hook point with the needle

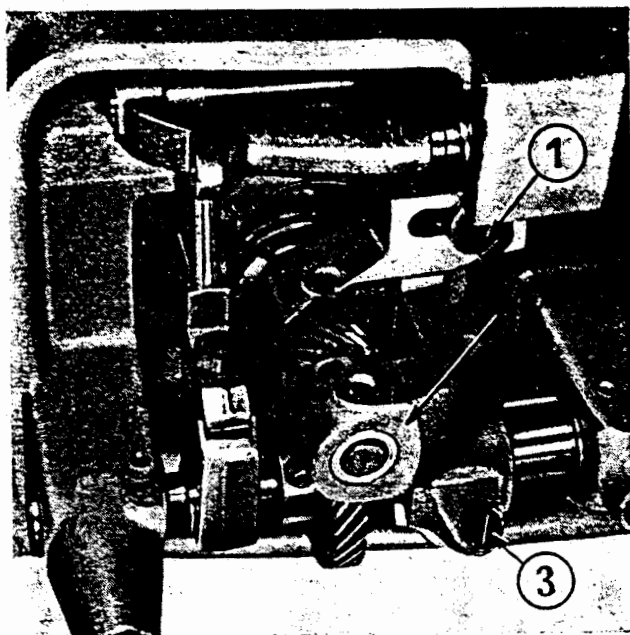


Fig. 20

To prevent the breaking of the needle thread, the sewing hook tip should be set as closely as possible to the needle. To adjust the distance between the blade tip of the sewing hook and the needle, first, rotate the hand wheel with your hand until the center of the needle and the blade tip coincide with each other. Then, if the 2 screws (Fig. 20 ① and ③) are loosened, the base of the sewing hook (Fig. 20 ②) will move to right or left. At this position, bring the needle and the blade tip of the hook as close as possible without touching each other and then re-tighten the screws.

The needle guide (Fig. 21 ①) at the bottom of the sewing hook prevents the blade tip from any damages which might occur when the needle, upon piercing the cloth, might bend itself and hit the blade point of the sewing hook.

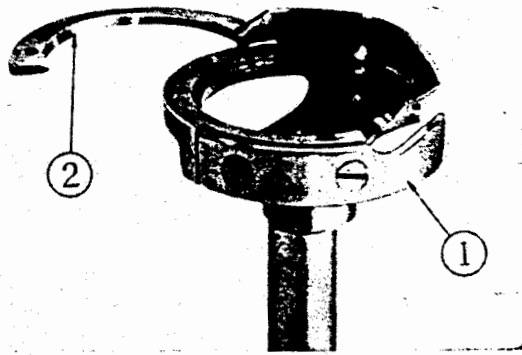


Fig. 21

This needle guide is so constructed that it can be bent toward outside with a pair of pliers to prevent the needle from hitting the blade point of the sewing hook. However, be extremely careful because if you bend it too much, it might cause skip-stitching or thread breakage.

**5. Adjusting the height of the needle bar and matching the timing of the hook blade tip with the needle**

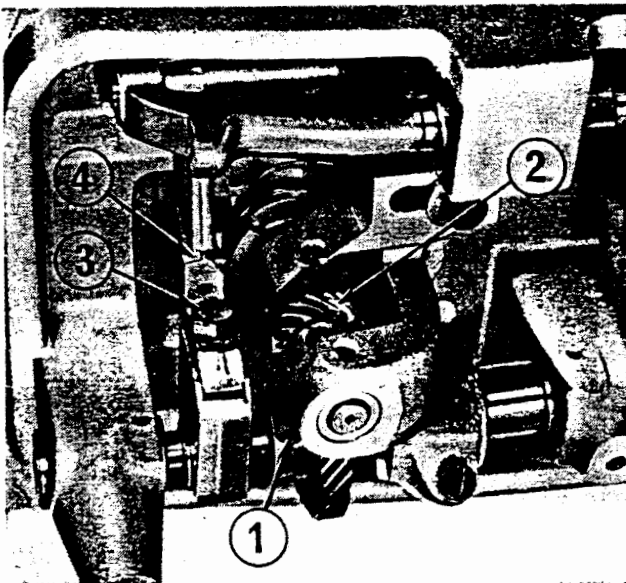


Fig. 22.

For this adjustment, first, set the stitch length at 3.2 mm (1/8" +). Remove the needle plate, rotate the hand wheel towards the operator with the hand and when the needle bar has risen to 2.4 mm (3/32") from the lowest position, the center of the needle coincides with the blade tip of the hook and when the needle hole comes to about 1.6 mm (1/16") under the blade tip of the sewing hook, the relative position of the height of the needle bar and the sewing hook comes to the correct relative position.

To adjust the height of the needle bar, loosen the needle bar clamping screw (Fig. 17 ①) and move the needle bar up and down. When proper adjustment is made, re-tighten the clamping screw tight.

When the timing of the needle bar and the blade point is matched wrong, rotate the hand wheel towards the operator and set the height of the needle bar with the above-mentioned method. Then, loosen the 2 screws of the large mitre gear (Fig. 23 ①), move the mitre gear to right or left, rotate the sewing hook and match it with the center of the needle and re-tighten the 2 screws. At this point, the sewing hook is firmly set to the small mitre gear (Fig. 32 ②).

#### 6. Removing the bobbin case from the sewing hook (Fig. 23)

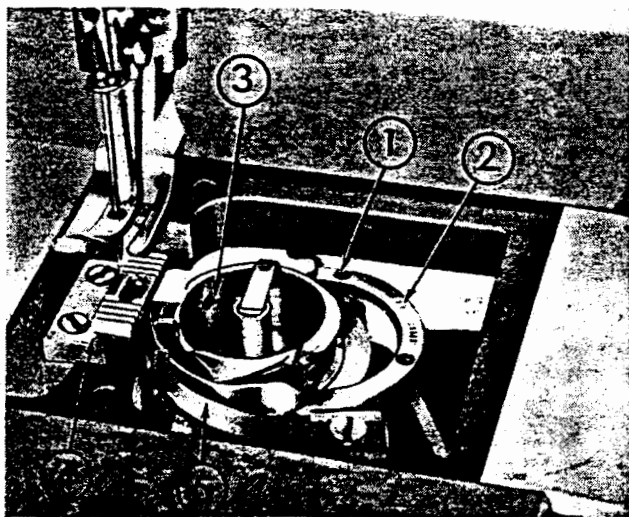


Fig. 23

Remove the 2 small screws Fig. 23 ①) from the sewing hook, open the hook gib Fig. 23 ②) as shown in Fig. 22 and take out the bobbin case (Fig. 23 ③).

## **7. How to pull out the sewing hook from the machine**

Slide open the slide plate, remove the needle plate, feed dog (Fig. 23 ④) and the sewing hook guide latch (Fig. 23 ⑤).

Then, tilt the machine head backwards, loosen 2 set screws of the hook driving pinion (Fig. 22 ②) and remove the sewing hook by knocking the bottom of the spindle of the hook lightly by a screw driver.

## **8. Adjusting the height of the feed dog**

Normally, when the feed dog rises to its highest position, entire teeth of the feed dog appears on the surface of the needle plate.

To adjust the height of the feed dog, first, remove the needle plate, clean up any thread hards around the feed dog and install the needle plate to the bed. Next, tilt the machine, rotate the hand wheel toward the operator and bring the feed dog to its highest position. Then, loosen the screw of the feed bar fork (Fig. 22 ③), slide the feed bar (Fig. 22 ④) up and down and after adjusting, firmly tighten the screw.

When adjusting the height of the feed dog, be very careful and don't let the bottom part of the feed dog hit the sewing hook.

## **9. How to remove the needle bar frame rock shaft**

Remove the needle bar frame and the face plate, insert a screw driver into the hole (Fig. 24 ①), loosen the screw of the needle bar frame rock shaft crank and take out the needle bar frame rock shaft.

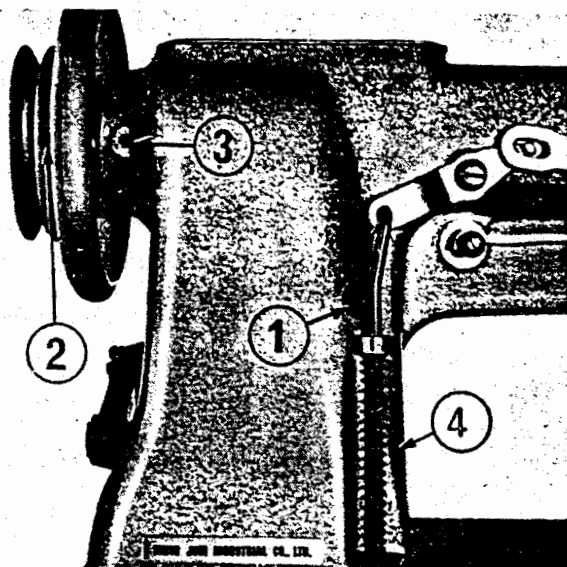


Fig. 24

## 10. Adjusting the feed graduation disc

To adjust the correct position of the feed graduation disc (Fig. 12 ①), at first loosen the set screws of the graduation disc. Then, adjust the stitch length to 3.17 mm ( $1/8'' +$ ) (Place a paper under the presser foot, rotate the hand wheel with your hand and after 11 stitchings, the overall length should become 31.7 mm ( $1-21/32''$ )). Next, rotate the hand wheel while pressing the push button (Fig. 12 ②) until the tip of the push button engages with the notch of the ratchet pawl on the feed rocker driving eccentric (Fig. 26 ①) and when it is inserted, tighten the graduation disc to the main shaft so that the graduation scale of 8 comes out to the hole of the arm (Fig. 12 ①).

## 11. How to replace the timing belt

Loosen the 2 set screws of the belt groove of the hand wheel (Fig. 24 ②) and pull out the hand wheel. Then, loosen the main shaft rear bushing set screw (Fig. 24 ③), remove the top cover, loosen the 2 screws



of the upper main shaft rear bushing at the right side of the upper sprocket and remove the main shaft rear bushing from the frame.

Then, remove the feed lever (Fig. 25 ①). To do this, remove the tension spring which is hanging in the hole of the top cover, tilt the machine and by loosening the 2 set screws of the feed lever shaft bracket (Fig. 25 ③), which is attached to the feed lever shaft, remove the end screw of the feed lever shaft (Fig. 25 ④). After that, with the lever in attached condition, pull out the lever shaft.

Remove the timing belt from the lower sprocket, pull it out from the hole where the upper main shaft was installed.

The sewing hook will rotate 2 times as against one rotation of the hook shaft. Also, as the feed cam is attached to the hook shaft, unless the feed timing is matched with the needle bar correctly, the timing of the sewing hook with the needle bar also becomes wrong. For this reason, when the timing belt is to be replaced again, it is vitally important to match the mutual relationship of the upper main shaft with the hook shaft.

When installing the timing belt, reverse the above procedure and pass the belt to the main shaft, insert the main shaft rear bushing to the frame, attach the hand wheel to the upper main shaft and hang the belt to the upper sprocket.

When hanging the belt to the lower sprocket, rotate the hook shaft with your hand with the thread take-up in the highest raised position, and after matching the hook shaft indicator's arrow point (Fig. 26 ②) with the arrow point of the hook shaft rear bushing (Fig. 26 ③), hang the belt to the lower sprocket. Thus, the feed timing with respect to the needle bar becomes correct.

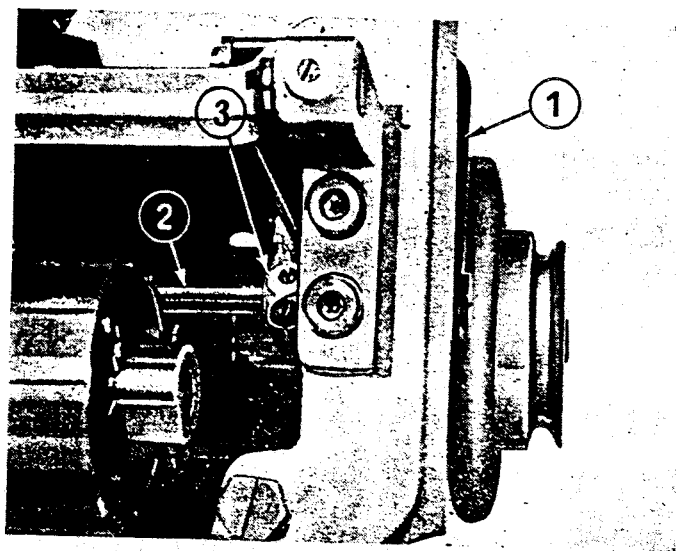


Fig. 25

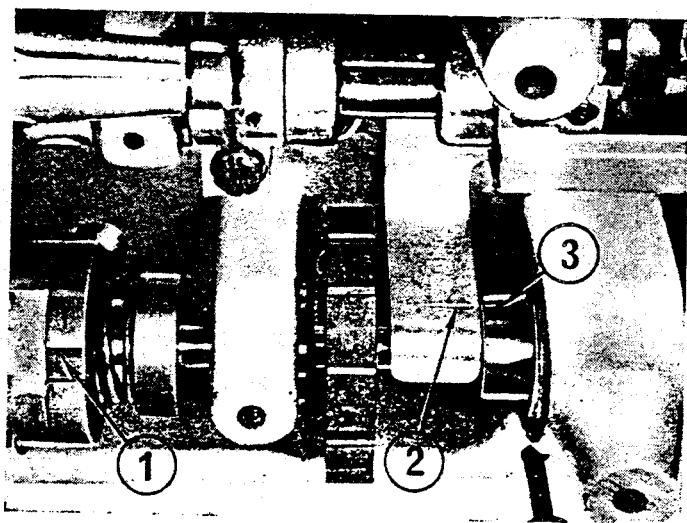


Fig. 26

# INSTRUCTION BOOK LU-563

Model LU-563 is a single needle, lockstitch, unison feed industrial sewing machine with a large bobbin and a reverse sewing lever.

Sewing speed is 2,500 s.p.m.

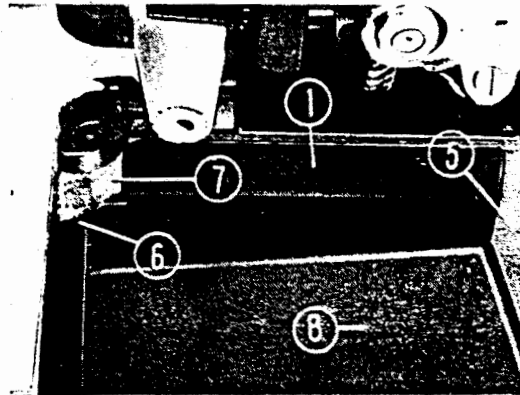
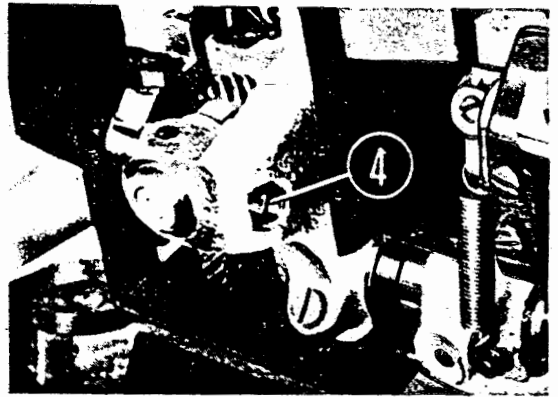
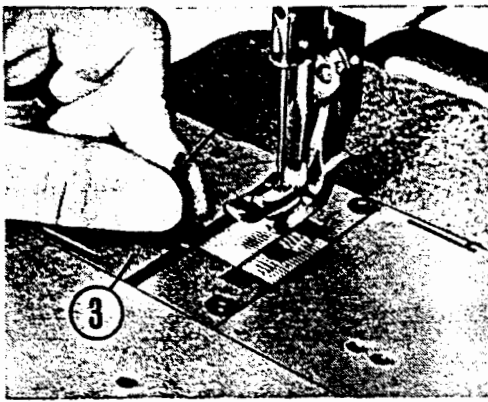
NOTE: With the exceptions of below, all other instructions are identical with LU-562.

## 3-1 Lubricating the sewing hook parts (LU-563)

The lubrication of sewing hook components of LU-563 is all automatic, so insert the oil indicator ② to the oil reservoir ① between the sliding plate ③ and the throat plate, as shown in the figure, and fill with oil until the oil indicator comes between (-H-) to (-L-), then run the machine. Adjust the oil amount of the sewing hook with the oil adjusting screw ④. Turn this screw to right to increase the amount and to left to decrease the amount.

(Caution)

1. As the oil reservoir ① must be placed on top of the oil pan ⑤ when attaching the oil pan, be sure to attach it so that the top edge of the oil reservoir ⑥ comes to the lower left end of the table 7.
2. Insert oil filter pad ⑧ inside the oil reservoir to prevent the dust or thread hards to get into the oil.



## 7. How to pull out the sewing hook from the machine (Refer to page 21)

Open the slide plate, remove the throat plate, feed dog, presser foot, upper feed and sewing hook guide. Then, lift up the presser foot lever to its limit until it hits the side of the arm.

Tilt the arm and loosen 2 screws of the hook driving shaft gear (small).

Rotate the hand wheel and after raising the needle bar to the highest position, insert a screw driver to the point of the sewing hook and pull it out by lightly tapping it.