

# JUKI

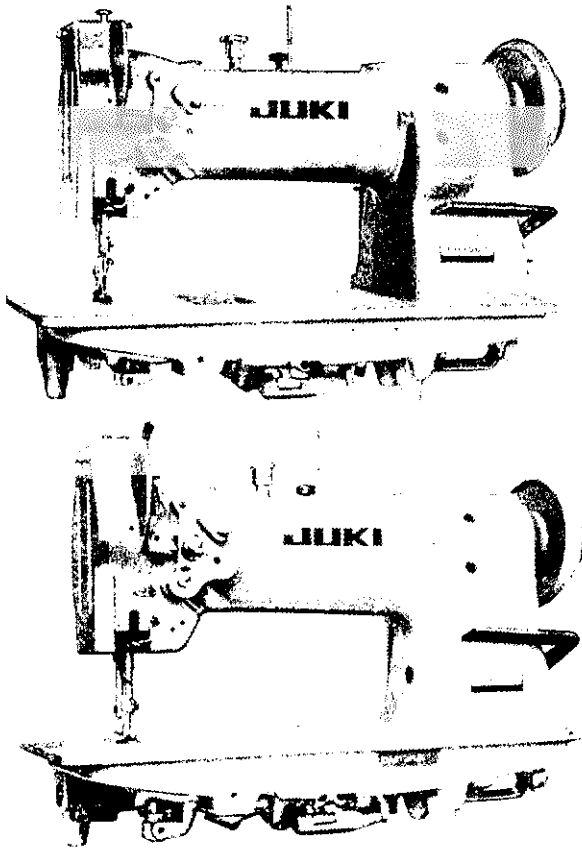
1-Needle, Lockstitch, Unison Feed  
Industrial Sewing Machine

## LU-562

1-Needle, Lockstitch, Unison Feed  
Industrial Sewing Machine with a Large Bobbin

## LU-563

# INSTRUCTION MANUAL



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No.01

BE5630T0BOA

## CAUTIONS BEFORE OPERATION

1. Don't run the machine before filling the oil reservoir with the prescribed lubricating oil.
2. After setting up your machine, make sure that it runs in the correct direction; lower the needle by turning the handwheel and watch the handwheel's revolution by momentarily switching the power "on" (correct rotational direction of the handwheel: counterclockwise when viewed from the handwheel's end).
3. Run the newly installed machine at a speed of 2,500 s.p.m. or lower for the first 4 weeks.

## CAUTIONS IN OPERATION

1. Don't put your hand under the needle when you turn "on" the power switch or operate the machine.
2. Don't put your hand into the thread take-up cover while the machine is running.
3. Don't forget to cut off the power supply before you tilt the machine head backwards or replace the V-belt.
4. Never bring your fingers or hair close to, or place anything on the handwheel, V-belt, bobbin winder wheel or motor during operation. It may lead to serious personal injuries.
5. If your machine is provided with a belt cover, finger guard and eye guard, never operate your machine with any of them removed.

## 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 pesser foot is 15 mm (19/32").

The maximum feed range is 7 mm (9/32") 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 top and bottom feed 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

### I. 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.

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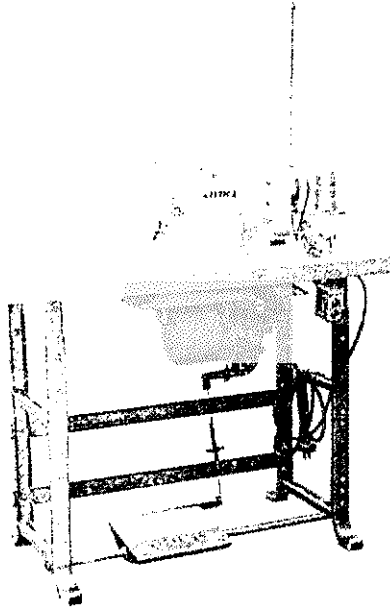


Fig. 1

## 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 (1/2 HP) 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 (3-5/32")
	2590	MTK-PV070000	70 mm (2-3/4")
60	2900	MTK-P00650000	65 mm (2-9/16")
	2660	MTK-PV060000	60 mm (2-23/64")

### 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).

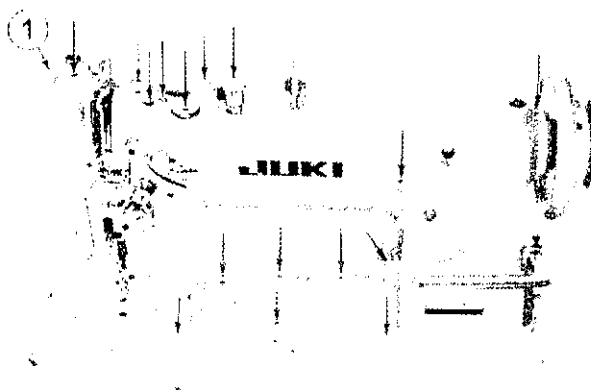


Fig. 2

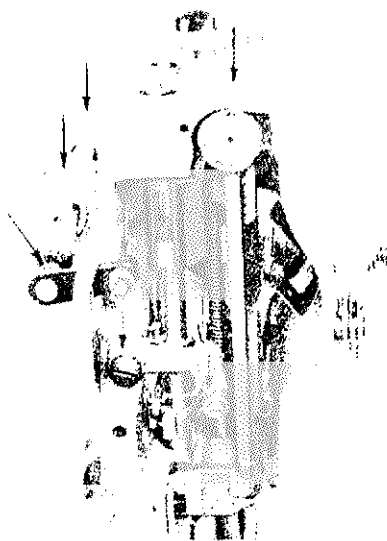


Fig. 3

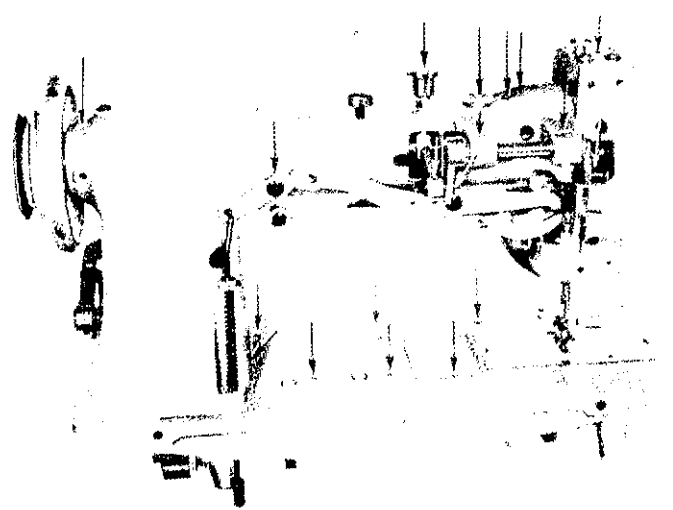


Fig. 4

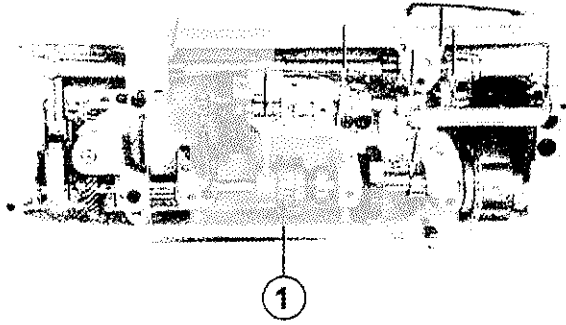


Fig. 5

#### 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 fore-finger 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

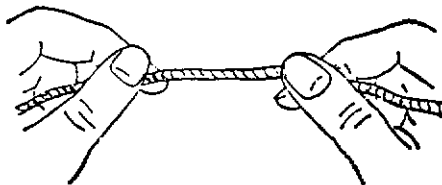


Fig. 6



## 5. Needle

Use a needle number DP X 17 (135 X 17) or DI X 3, sizes #18 ~ #23 for LU-562, 563. Use a needle number DN X 1, 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 falw 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)

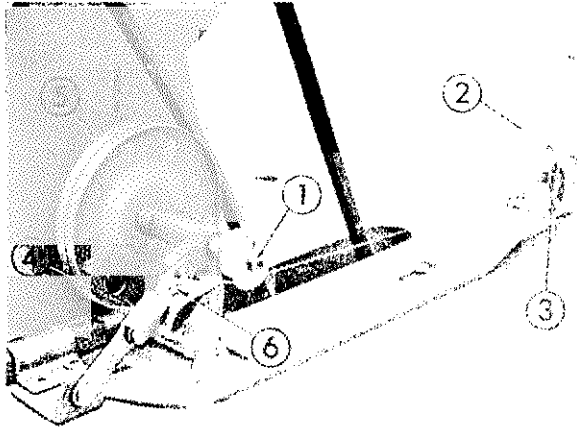


Fig. 8

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)

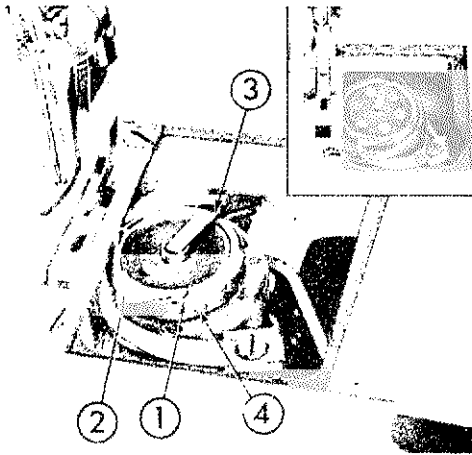


Fig. 9

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 ④ 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 ④ from right, above, to lower left, from right to left 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.

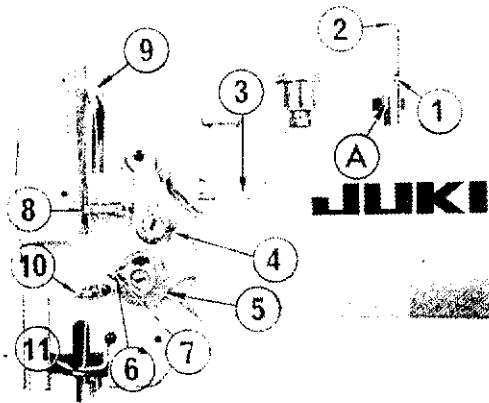


Fig. 10

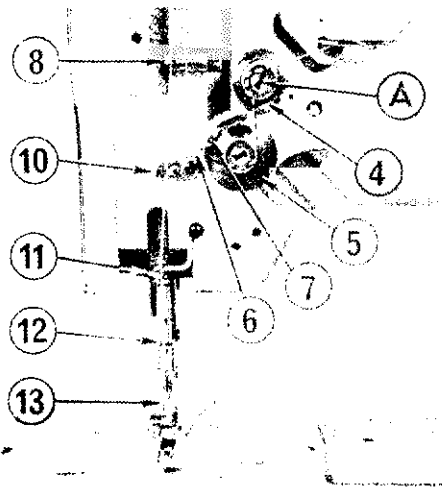


Fig. 11

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 ⑬ 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 ㉖).

The tension of the bobbin thread is adjusted by turning the screw (Fig. 9 ㉔) 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 ㉗) 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 ㉑).

To adjust the stitch length, rotate the hand wheel slowly as you keep on pressing the push-button (Fig. 12 ㉒) stop the bed until the tip of the push-button enter the groove (Fig. 5 ㉑) of the eccentric mechanism

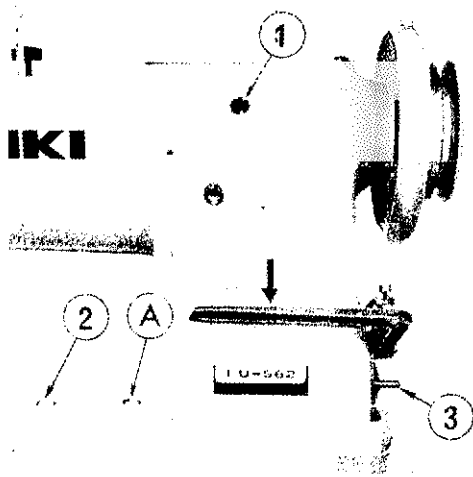


Fig. 12

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

#### 14. Regulating the vertical stroke of the walking foot and the presser foot

The vertical stroke of the presser foot (Fig. 13 1 ) and the walking foot (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.

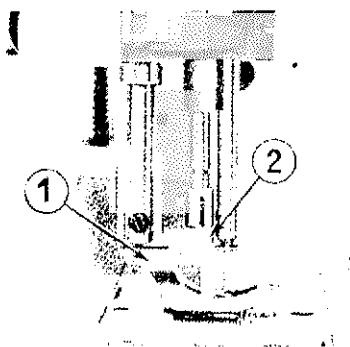


Fig. 13

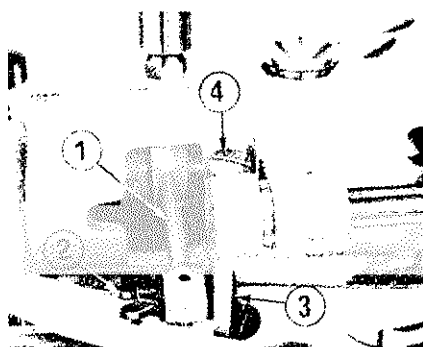


Fig. 14

The range of the walking foot can be adjusted by loosening the wing screw (Fig. 14 2 ) of the upper feed driving rod (Fig. 14 1 ); to increase the feed amount, move the upper feed spring 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 and that of the walking foot is to be decreased, or vice versa, slightly loosen the screw (Fig. 14 4 ), bring the walking foot either to “up” or “down” and after setting it to the desired position, tighten the screw.

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

## 15. Safety clutch

This machine is equipped with a safety clutch which, when the thread happens to get entangled inside the sewing hook during sewing 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, the feed and the sewing hook components do not move at all. Even if the hand wheel is rotated.

## 16. How to operate the safety clutch

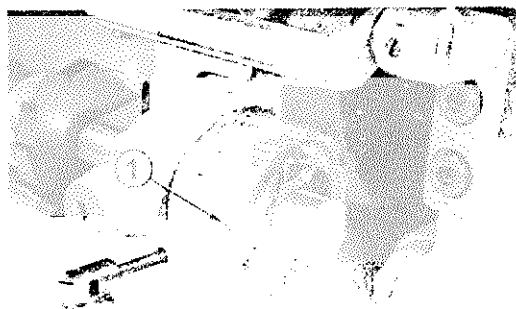


Fig. 15

To set the safety clutch correctly, rotate the hand wheel strongly in the reverse rotational direction as you keep pushing the button (Fig. 12 A ). 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

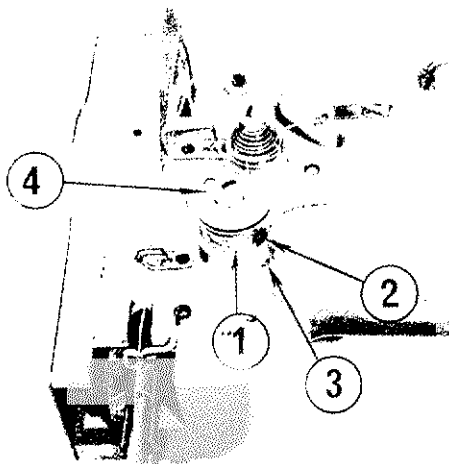


Fig. 16

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 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

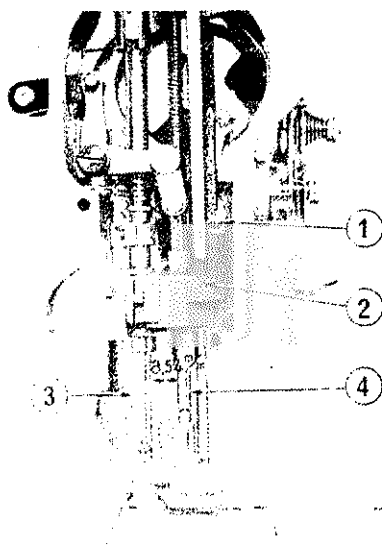


Fig. 17

The relative position of the needle bar frame (Fig. 17 (1)) with that of the presser bar (Fig. 17 (2)) is correct 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 ( $21/64''$ ). (Fig. 17)

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

When the stitch length is set at "0" and if the relative position of walking bar with the presser bar is not right, loosen the 2 screws of the feed rock shaft crank (Fig. 18 133), match the clearance between the presser bar and the walking bar at 8.54 mm ( $21/64''$ ) and then tighten the screws.

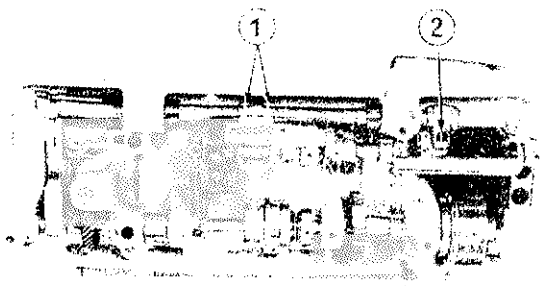


Fig. 18

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 screw (Fig. 18 (2)) of the driving rod crank and loosen the screw of the needle bar shaft rear crank from the hole (Fig. 25 (1)) in the back of the arm. And further, when the needle comes near the center or front half of the hole of the feed dog, and holding this position make the driving rod crank parallel to the surface of the bed and tighten the 2 screws.

### 3. Adjusting the height of the presser foot and the walking foot

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 (21/64") while lifting the hand lifter, then tighten the clamp screw.

To adjust the height of the presser foot and the walking foot so that the rising amount becomes equal, lower the presser foot, loosen the clamping screw (Fig. 19 (3)) of the upper feed spring rod, rotate the hand wheel slowly towards you and when the surface of the presser foot and the walking foot come in one line with respect to the upper surface of the throat plate when the presser foot completes its oscillating movement, tighten the screw. To change the rising amount of the presser foot and the walking foot, loosen the upper feed spring

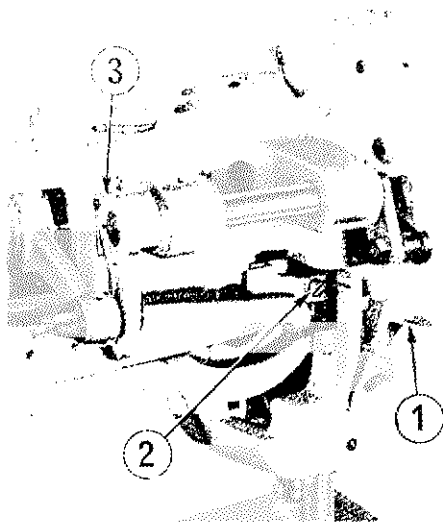


Fig. 19

rod, of screw (Fig. 19 3 ) and when the lower surface of the presser foot and the walking foot come in one line above the throat plate, turn the hand wheel towards the operator and re-tighten the screw. Then the presser foot amount becomes larger than the walking foot 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 walking foot 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 walking foot.

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

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 point of the sewing hook and the needle, first, rotate the hand wheel with your hand until the axis of the needle and the blade point 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

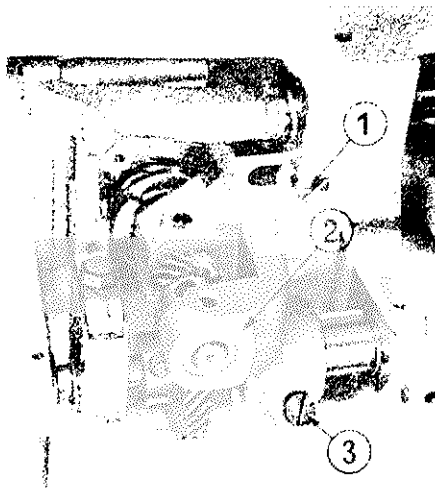


Fig. 20

and the blade point 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 point 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 point with the needle

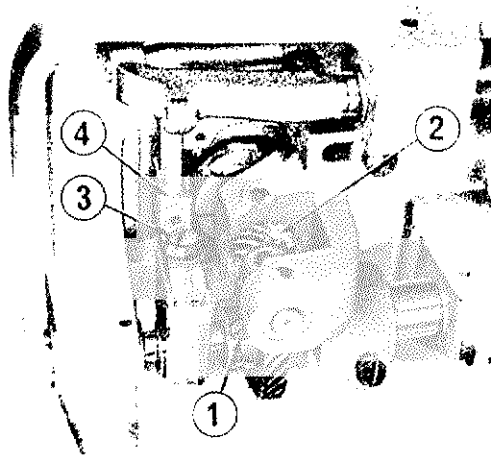


Fig. 22

For this adjustment, first, set the stitch length at 3.2 mm (1/8" +). Remove the throat 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 axis of the needle coincides with the blade point of the hook and when the needle eye comes to about 1.6 mm (1/16") under the blade point 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, firmly re-tighten the clamping screw.

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 applying 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 axis 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)

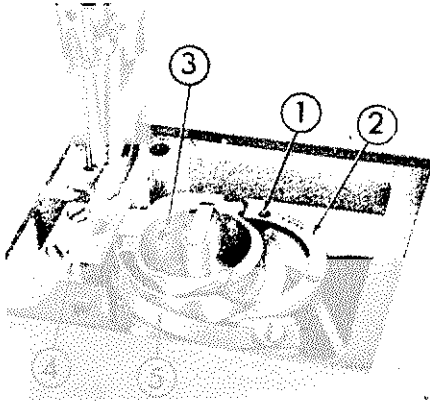


Fig. 23

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 bed slide, remove the throat 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 throat plate.

To adjust the height of the feed dog, first, remove the throat plate, clean up any thread hards around the feed dog and install the throat 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 so as not to let the bottom part of the feed dog hit the sewing hook.

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

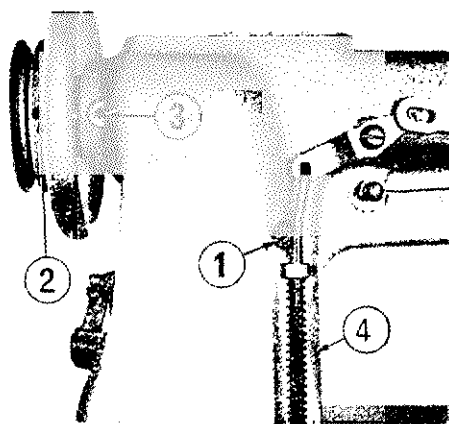


Fig. 24

Remove the face plate and the needle bar frame, 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.

### 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 (1-1/4"). 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 main shaft rear bushing at the right side of the upper sprocket wheel and draw out the main shaft rear bushing from the frame.

Then, remove the reverse feed control lever (Fig. 25 1 ). To do this, remove the tension spring which is hooked to the top cover, tilt the machine and by loosening the 2 screws (Fig. 25 3 ) of the reverse feed control lever shaft, remove the screw (Fig. 24 4 ) of the reverse feed control lever shaft. After that, pull out the lever shaft together with the reverse feed control lever.

Take the timing belt off the lower sprocket wheel, pull it up as much as possible through the top cover opening, then draw it out through the clearance where the main shaft rear bushing was mounted.

The sewing hook rotates 2 times while the hook driving shaft rotates once. As the feed cam is attached to the hook shaft, the timing of the sewing hook with the needle bar will become wrong unless the feed timing is matched correctly with the needle bar. For this reason, when the timing belt is to be remounted, it is vitally important to match the timing of the main shaft with the hook driving shaft.

When remounting the timing belt, reverse the above procedure and pass the belt to the main shaft, put the main shaft rear bushing in to the frame, attach the hand wheel to the main shaft and put the belt around the upper sprocket wheel.

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



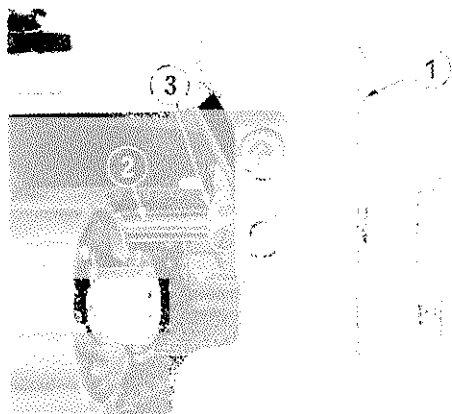


Fig. 25

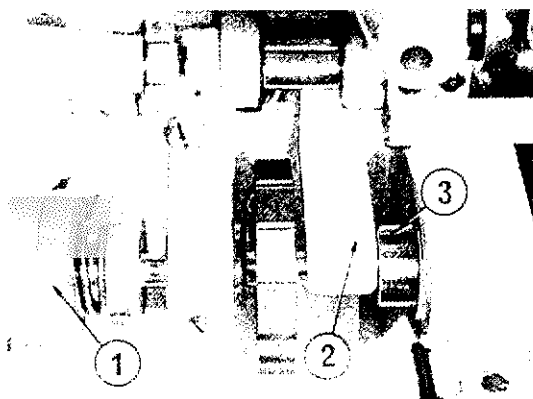


Fig. 26

## 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.

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

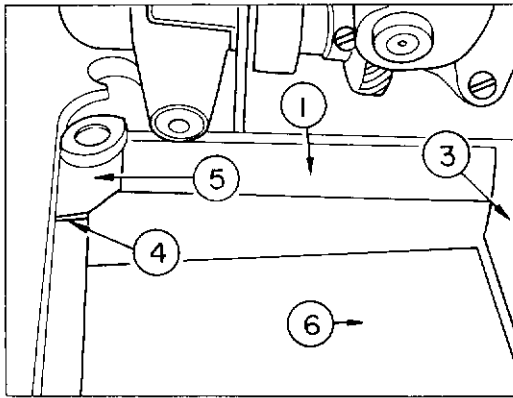
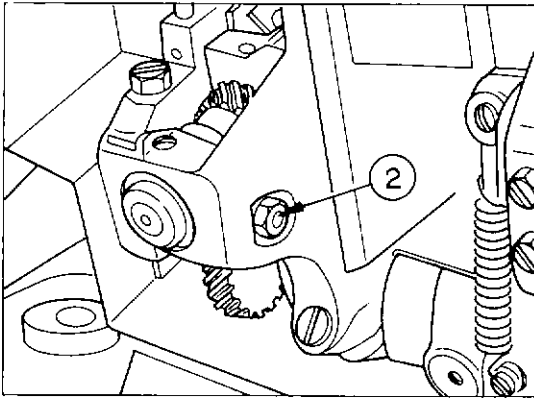
The sewing hook and shaft components are lubricated automatically. Prior to use, fill oil reservoir ① with oil so that the oil level becomes 3 mm above the bottom end surface of the hook driving shaft saddle when the machine head is fixed on the table.

Adjust the oil amount of the sewing hook with the oil adjusting screw ②. Turn this screw to right to increase the amount and to left to decrease the amount.

Supply oil before the oil level lowers below the bottom end surface of the hook driving shaft saddle, or else the lubrication will stop.

(Caution)

1. As the oil reservoir ① must be placed on top of the oil pan ③ when attaching the oil pan, be sure to attach it so that the top edge of the oil reservoir ④ comes to the lower left corner ⑤ of the table.
2. Insert oil filter pad ⑥ inside the oil reservoir to prevent the dust or thread hards to get into the oil.



**2. How to Pull out the sewing hook from the machine**  
(Refer to page 19)

Open the slide plate, remove the throat plate, feed dog, presser foot, walking foot and sewing hook guide. Then, lift up the hand lifter 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 end of the sewing hook and pull it out by lightly tapping it.