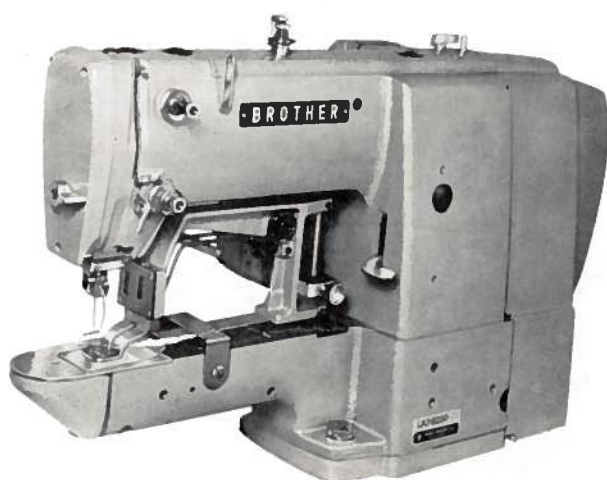


INSTRUCTION MANUAL
FOR
BROTHER LK3-B220, 221



High Speed Bar Tack Machine

BROTHER INDUSTRIES, LTD.
NAGOYA, JAPAN.

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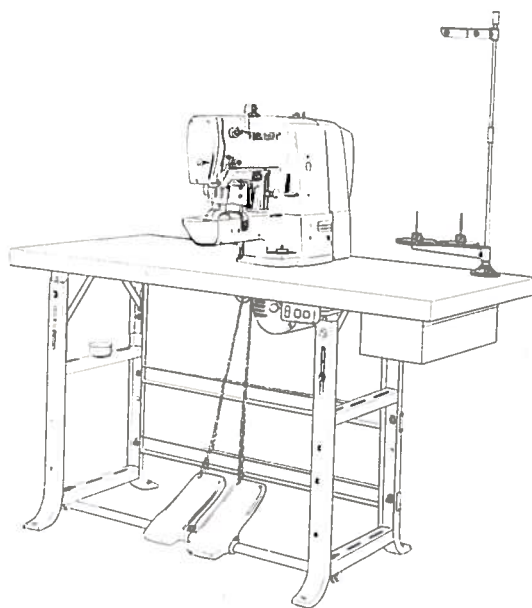
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LK3-B220, B221 High Speed Bar Tacking Machine

These machines are high speed bar tacking machines capable to sew at maximum high speed of 2,000 stitches per minute. The model LK3-B220 is suitable to do tacking jobs on overcoats, gent's pants, jeans, overalls and knitted underwears, and the model LK3-B221 is suitable to do tacking jobs on eyelet buttonhole ends, belt loops on gent's and ladies pants, and jeans and labelling on various clothes.

FEATURES

1. This is designed with cylindrical bed, link motion thread take-up, and shuttle hook.
2. On thread trimming mechanism, BROTHER's own unique idea is adopted to be ensured perfect thread trimming performances and thread tails are unified with this thread trimming mechanism. Also, the replacement of the thread trimming knives are very easy.
3. All the mechanisms are designed to be durable even at maximum high speed of 2,000 stitches per minute, thus it is ensured the less noise and less vibration. Especially, the clutch mechanism is designed with speed reduction method with two belts, and it ensures smooth operation when the machine starts and stops. This feature brings the noiseless operation and prevent the thread-off out of the needle.
Also, on the needle bar mechanism, it adopted with needle bar clamp to ensure noiseless operation and perfect stitch formations.
4. All the mechanisms are covered entirely and it is so-called totally enclosed type, thus it prevents thread jamming and oil stain.
5. It ensures wide space underneath the work clamp with unique designed work clamp lifting mechanism.
6. One of the greatest advantage is BROTHER's own designed hook timing adjusting mechanism, which is eliminated to adjust the space between needle and hook point with washer dependent on the thickness of needle. This adjustment is made only by adjusting ring to get proper clearance.
7. The belts are vertically put, then it enables easy setting and dismantling and it can be used with endless belts.
8. Bed base plays role of oil reservoir, thus it ensures no oil-leakage.



SPECIFICATIONS

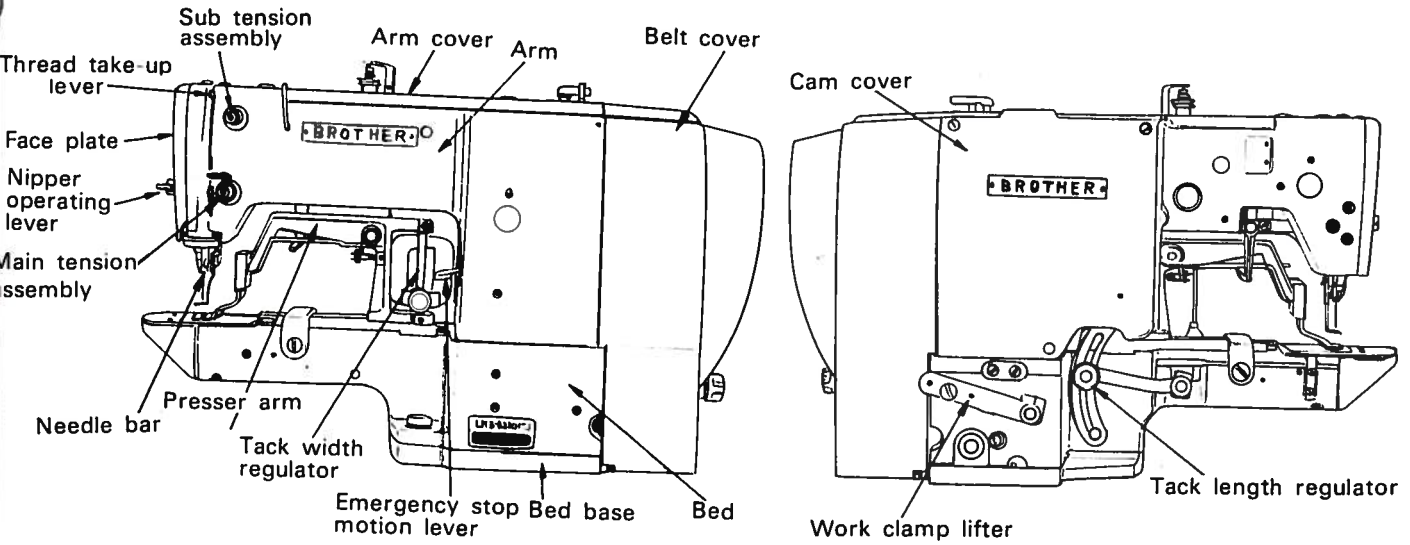
MODEL	LK3-B220	LK3-B220	LK3-B220	LK3-B220	LK3-B220	LK3-B220	LK3-B220	LK3-B220	LK3-B220
Sub-class	-1	-2	-3	-4	-5	-6	-7	-8	-9
Application	Overcoats, Overalls, Jeans, etc.	gent's and ladies' pants	Knitted Underwears	gent's ladies pants	Knitted Underwears	Denim or Corduroy Jeans	Denim or Corduroy Jeans	Overcoats, Overalls, Jeans, etc.	Overcoats, Overalls, Jeans, etc.
No. of stitch	42	28	28	21	21	42	28	42	28
Tack length	6~16 mm	3.5~10 mm	3.5~8 mm	3~7 mm	3~7 mm	7.5~20 mm	6~16 mm	7.5~20 mm	6~16 mm
Tack width	1~3 mm	1~3 mm	1~3 mm	1~3 mm	1~3 mm	1~3 mm	1~3 mm	1~3 mm	1~3 mm
Maximum sewing speed	2,000 spm	2,000 spm	2,000 spm	2,000 spm	2,000 spm	1,900 spm	1,900 spm	2,000 spm	2,000 spm
Needle bar stroke	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm
Height of work clamp	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm
Needle movement									

MODEL	LK3-B221	LK3-B221	LK3-B221	LK3-B221	LK3-B221	LK3-B221	LK3-B221	LK3-B221
Sub-class	-1	-2	-3	-4	-5	-6	-7	-8
Application	Eyelet button-hole end	Eyelet button-hole end	Belt loop	Labelling	Labelling	Labelling	Labelling	Belt loop
No. of stitch	28	21	21	42	32	28	21	28
Tack length	3~7 mm	3~7 mm	5~12 mm	20~50 mm	14~35 mm	18~45 mm	16~40 mm	7.5~20 mm
Tack width	1~3 mm	1~3 mm	0~1.5 mm	0 mm	0 mm	0 mm	0 mm	0~1.5 mm
Maximum sewing speed	2,000 spm	2,000 spm	2,000 spm	2,000 spm	2,000 spm	2,000 spm	2,000 spm	2,000spm
Need bar stroke	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm	41.2 mm
Height of work clamp	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm
Needle movement								

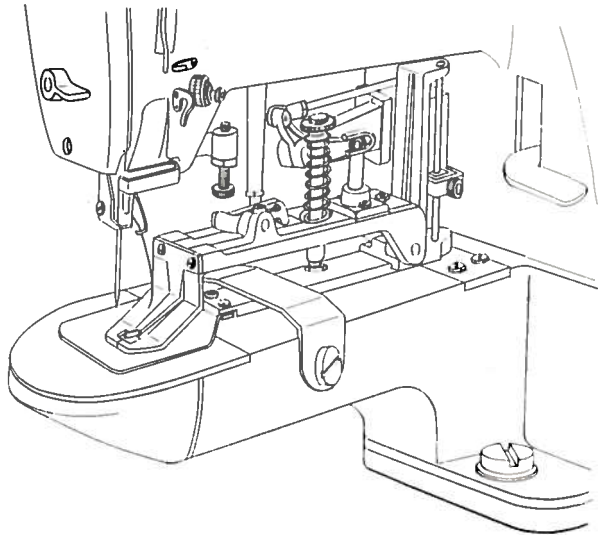
OPERATION

1. Name of major components

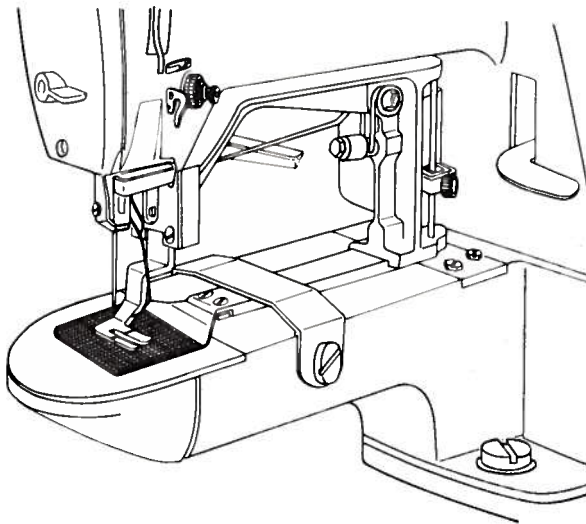
(A) Model LK3-B220



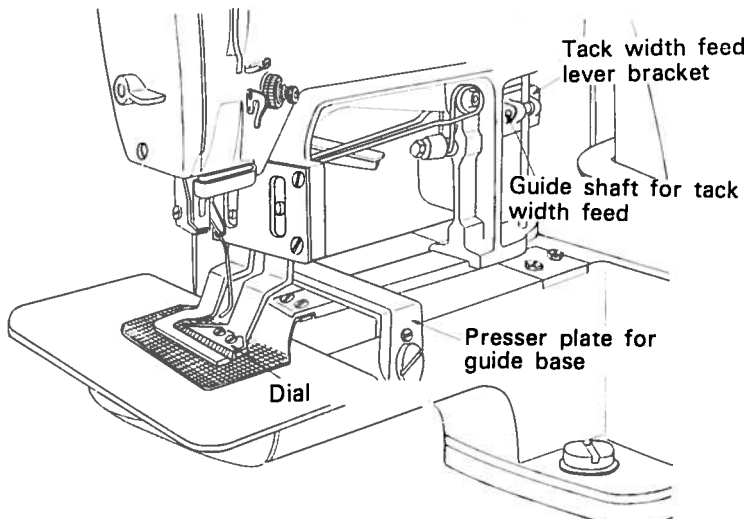
(B) Model LK3-B221-1 & -2



(C) Model LK3-B221-3 & -8



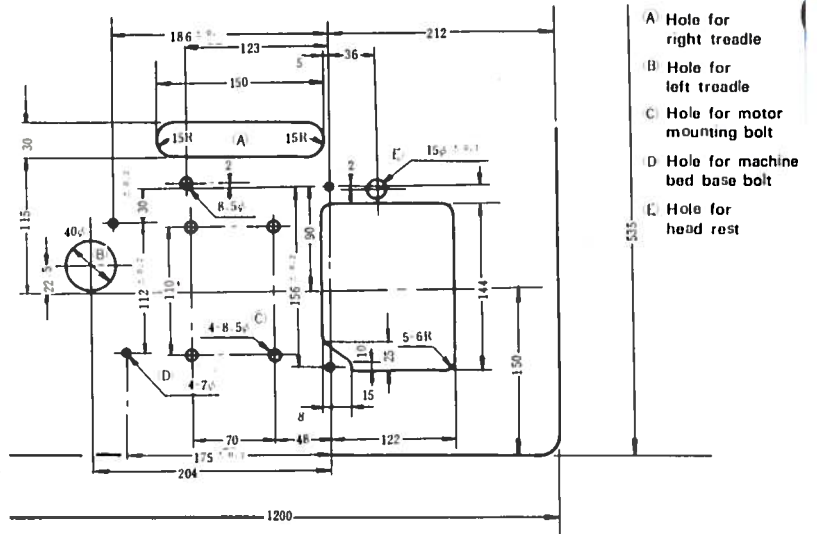
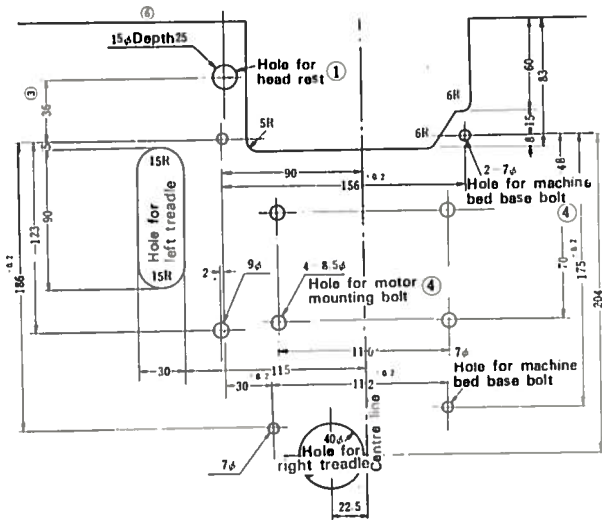
(D) Model LK3-B221-4 ~ -7



2. Setting up the machine

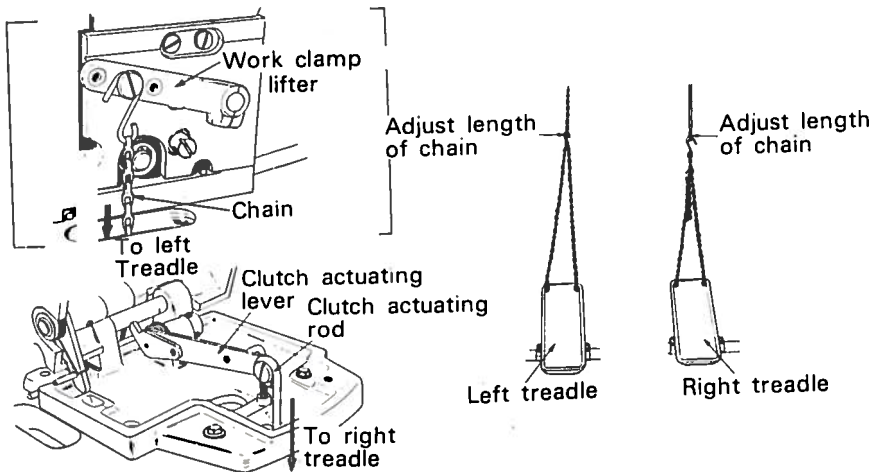
* Location and measurement of table top for LK3-B220 & LK3-B221

* Location and measurement of table top for LK3-B221-3 & -8



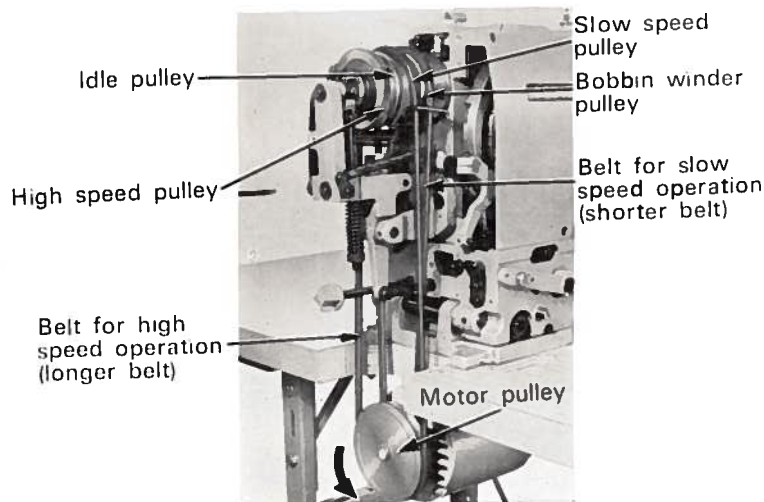
- (A) Hole for right treadle
- (B) Hole for left treadle
- (C) Hole for motor mounting bolt
- (D) Hole for machine bed base bolt
- (E) Hole for head rest

* Putting the chains



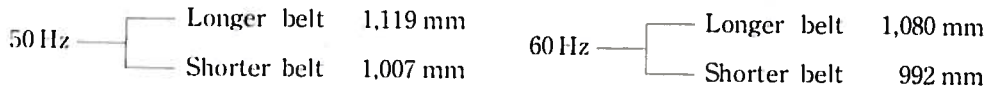
(Clutch actuating rod is included in accessories.)

* Putting belts



***Length of belts**

In case that you may use with non-BROTHER made table and stand, the standard length of the belts are as follows:



In case that you may use with non-BROTHER made table and stand, please determine the length of belts temporarily setting between motor pulley and idle pulley, on condition that the belt is not stretched, and cut the belts being 30~40 mm shorter and put the both ends together as described hereunder.

(NOTE) Be careful to get proper tension of the belts. In case of loose tension, it cannot run at proper speed and tight tension, it causes too heavy torque.

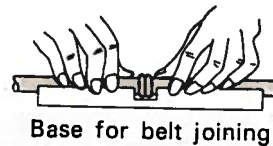
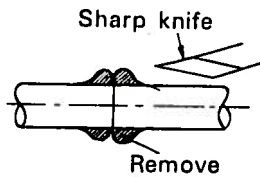
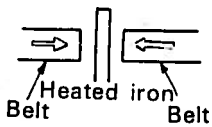
*** MOTOR**

Single phase	250W 4 pole
Three phase	250W 4 pole

*** MOTOR PULLEY**

	2,000 spm	1,900 spm	1,700 spm	1,500 spm	1,300 spm
50 Hz	130 mm	120 mm	108 mm	96 mm	84 mm
60 Hz	110 mm	102 mm	92 mm	82 mm	72 mm

***Joining belts**

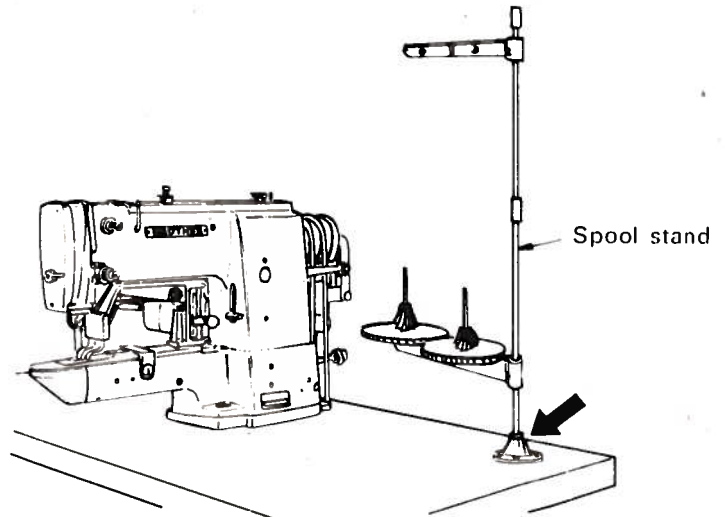


The belts contained with this machine head are made of polyurethane rubber of 8 mmφ, which does not cause any slippage on machine's running, and with the heat adhesion it ensures durability without any anxiety of breakage on the joining points during the operation.

Please take the following steps to adhere the belts.

- (1) Cut the belts 30~40 mm shorter than the length that it sets temporarily between the pulleys of motor and machine head.
- (2) Melt the both ends of the belts with heat such as lighter flame, heated iron plate and the like.
- (3) Put together both ends on base for belt joining then pressing each end and leave it about 3 minutes without removing the contact using base for belt joining contained in accessories.
- (4) Remove the surplus with sharp knife as per illustration.

*Setting spool stand



*Checking speed reduction

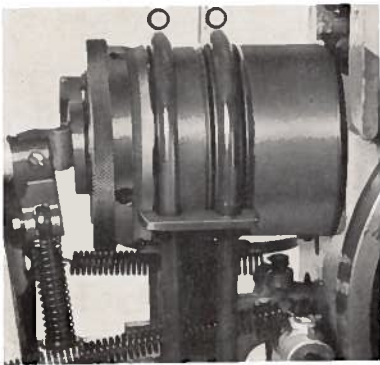


Photo 1

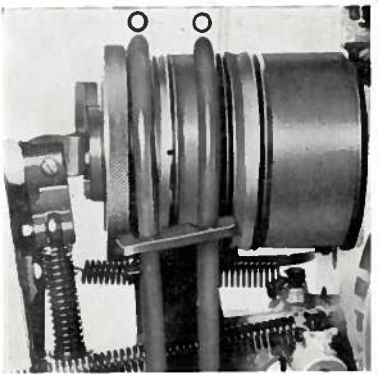


Photo 2

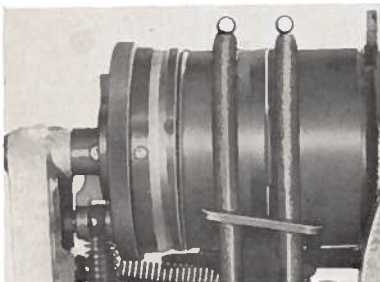


Photo 3

- Without running the motor, when clutch is raised, the belt guide is positioned at slow speed pulley and idle pulley as per Photo 1.

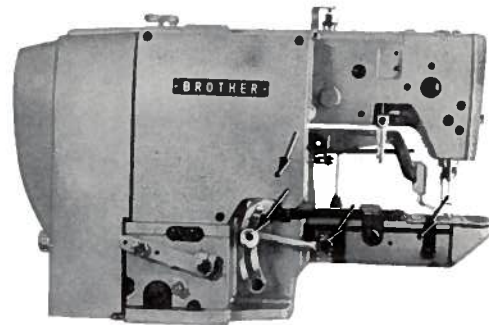
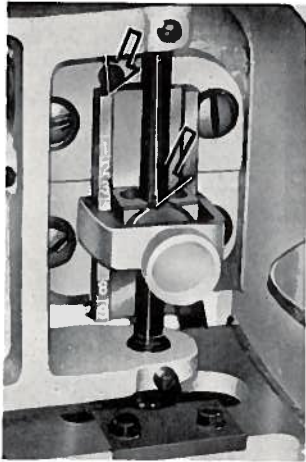
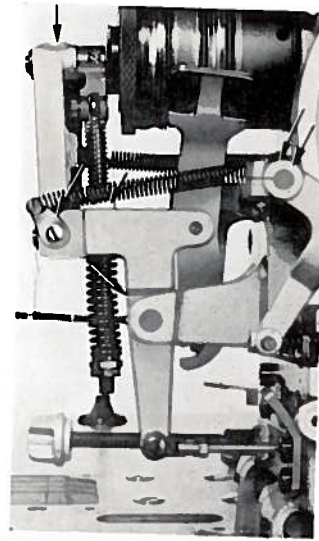
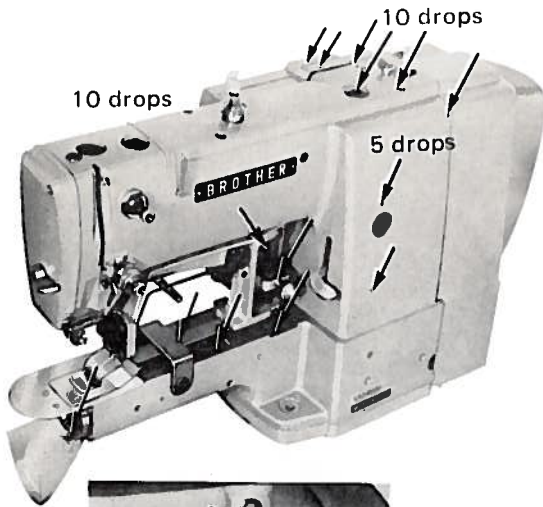
- With turning the pulley, when clutch tripping cam lever is disengaged out of stop cam, the belt guide lever is positioned at slow speed pulley and idle pulley as per Photo 2.

- At a few stitches before the machine stops, when clutch tripping cam lever is at the stop cam, the belt guide lever is positioned at slow speed pulley and idle pulley as per Photo 1.

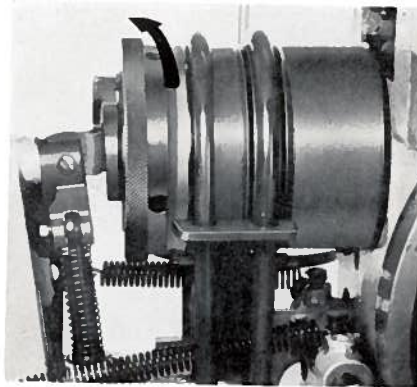
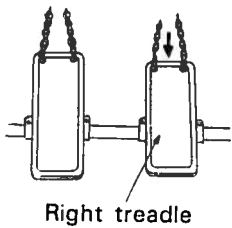
- At the stop position, the belt guide lever is positioned at idle pulley and bobbin winder pulley as per Photo 3.

3. Oiling

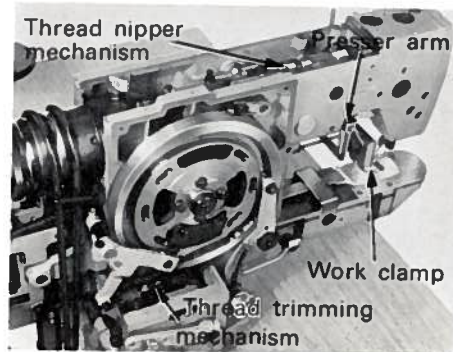
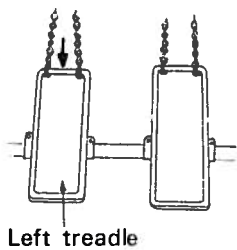
Supply one or two drops of quality sewing machine oil into oil holes with arrow indicated before using the machine.



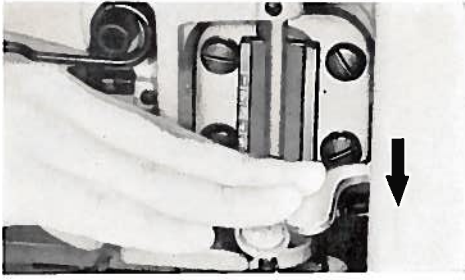
4. Safety operation



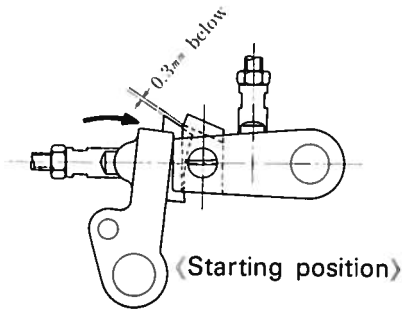
- When the switch is "ON", motor starts to run and the idle pulley starts to run.



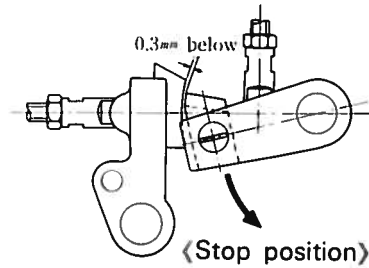
- Release the right treadle when the machine is in operation. (Machine stops automatically)
- When the left treadle is depressed, it works the thread trimming and thread nipper mechanisms and lifts work clamp.



- To stop the machine during the operation, depress the emergency stop lever before completing sewing cycle.



- Even if the left treadle is accidentally depressed while the machine is in operation, work clamp stays down.



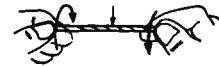
- When the work clamp is raised up, the machine will not start even if the right treadle is accidentally depressed.

5. Needle and thread

* Selection of needle and thread

Needle size	Thread size	Application
# 9	#100 ~ #80	Tricot, fine knitted under wear
# 11	# 80 ~ #60	" "
# 14	# 60 ~ #50	Men's and Ladies' wears
# 16	# 50 ~ #40	Work clothes, overalls, overcoats
# 18	# 40 ~ #30	" " "
# 19	# 30 ~ #20	" " "
# 21	# 20 ~ # 8	Thick overcoats, Jeans

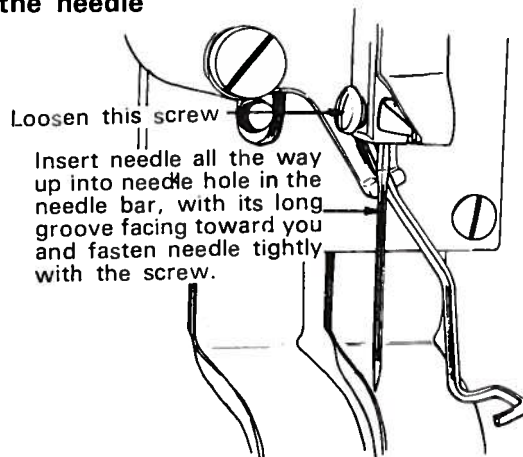
Left-twisted thread



The twist is strengthened in case of left-twisted thread.

- Use a left-twisted thread for upper thread.

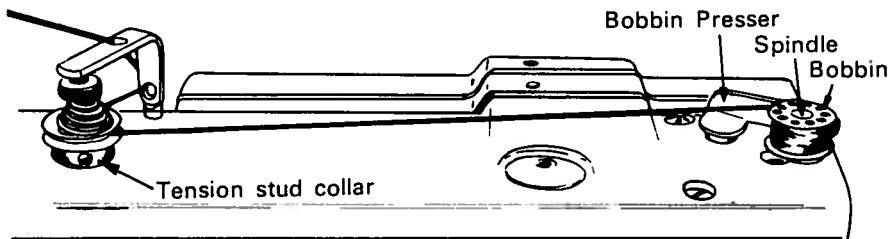
* Installing the needle



***List of needle to be recommended**

LK3-B220-1	LQ×5	# 16	LK3-B221-1	DB×1	# 14
LK3-B220-2	LQ×5	# 16	LK3-B221-2	DB×1	# 14
LK3-B220-3	LQ×5	# 11	LK3-B221-3	LQ×5	# 16
LK3-B220-4	LQ×5	# 16	LK3-B221-4	DB×1	# 11
LK3-B220-5	LQ×5	# 11	LK3-B221-5	DB×1	# 11
LK3-B220-6	DP×17	# 21	LK3-B221-6	DB×1	# 11
LK3-B220-7	DP×17	# 21	LK3-B221-7	DB×1	# 11
LK3-B220-8	LQ×5	# 16	LK3-B221-8	LQ×5	# 16
LK3-B220-9	LQ×5	# 16			

6. Winding bobbin



- 1) Put bobbin onto bobbin winder spindle.
- 2) Wind a few turns of thread on bobbin.
- 3) Press bobbin presser as far as it goes.

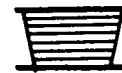
⟨Thread correctly wound on bobbin.⟩



⟨If thread is unevenly wound on bobbin.....⟩



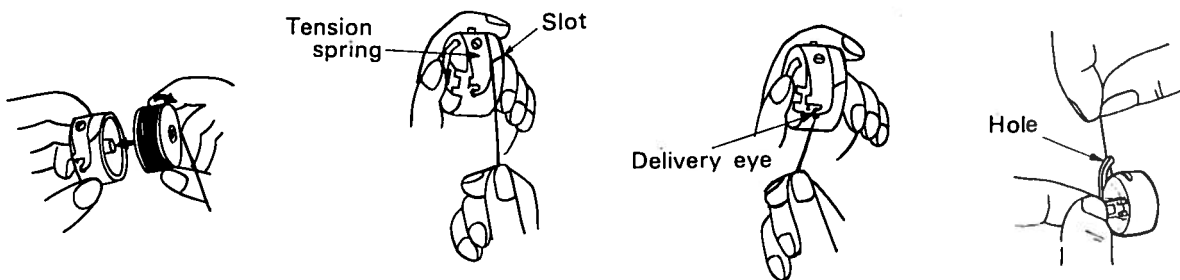
Raise the position of tension discs.



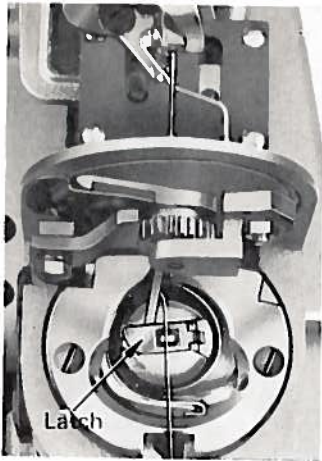
Lower the position of tension discs.

* The position of tension discs can be adjusted by positioning up or down the tension collar.

7. Threading the bobbin case.....

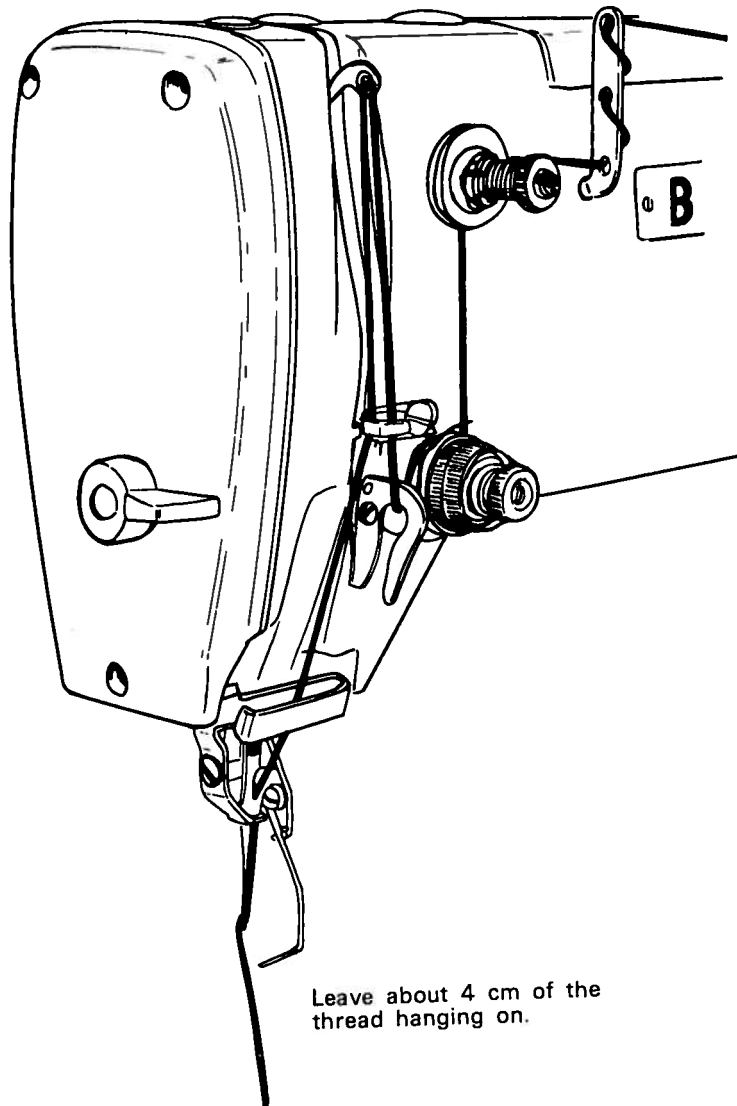


1. Put bobbin in bobbin case.
2. Pass the thread through slot and under the tension spring
3. Pull the thread out of delivery eye under the tension spring.
4. Lead the thread through hole in position finger and leave about 3cm of the thread out.



5. Hold latch, insert bobbin case onto pin at the centre of shuttle, and release latch when bobbin case properly placed.

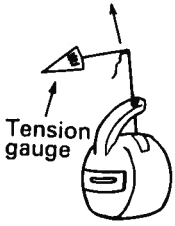
8. Upper threading



Leave about 4 cm of the thread hanging on.

9. Thread tensions

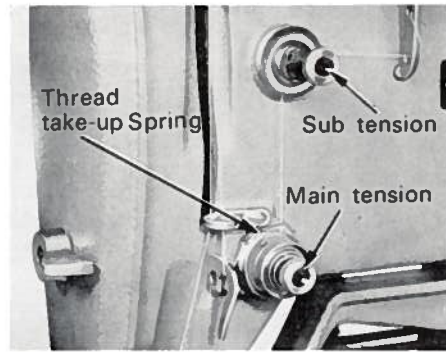
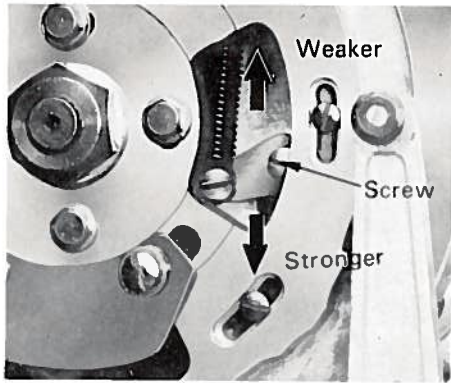
*Lower thread tension



Adjust the lower thread tension so that you will feel a slight resistance in pulling the thread from the bobbin case. (15~30 grams for #50 cotton thread)
Measure the tension by the tension gauge as per the illustration.

After adjusting the lower thread tension, adjust the upper thread tension by means of the main tension.

*Upper thread tension



*Main tension

This adjustment is affected the sewing condition, therefore, adjust the tension to be following list dependent on sub-class, thread and materials.

	Tension	Thread
LK3-B220-1~5, -8~9, B221-1~3, -8.....	70~80 gr.	Dacron #50
LK3-B220-6~7.....	150~200 gr.	Cotton #50
LK3-B221-4~7.....	50~60 gr.	Dacron #80

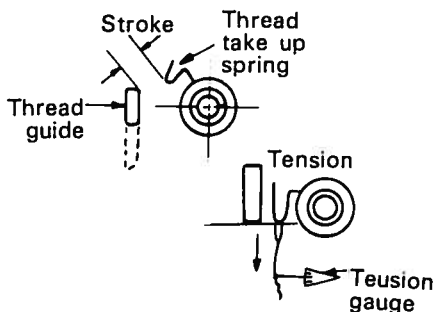
When the thread is trimmed after the main tension is released at the final stitch, enough length of the upper thread should be left out of the needle eye.

*Sub tension

Sub tension plays a role to prevent the upper thread from loosening when the thread is trimmed. Adjust the sub tension so that the upper thread will be fairly taut between the needle and the material when the machine stops.

(40~50 gr. for B220-6~7; 5~25 gr. for all other sub-classes)

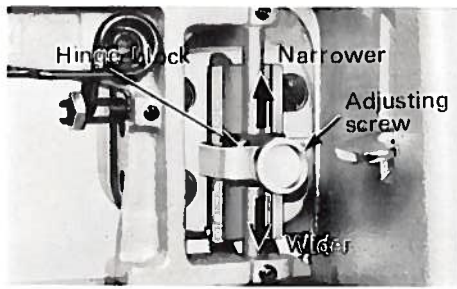
*Thread take up spring stroke and its tension



This adjustment is also affected much on the sewing condition.

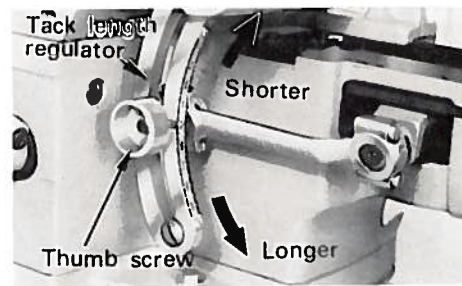
	Stroke	Tension
LK3-B220-1~5, -8~9 } LK3-B221-1~3, -8 }	3 mm	15~20 gr.
LK3-B220-6~7.....	6~8 mm	220~300 gr.
LK3-B221-4~7.....	12.5~13.5 mm	15~220 gr.

10. Adjusting tack width



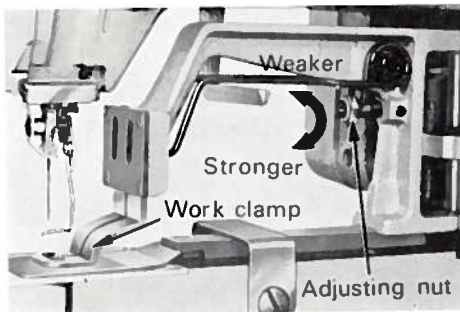
Adjust by loosening adjusting screw and moving hinge block in vertical direction.

11. Adjusting tack length



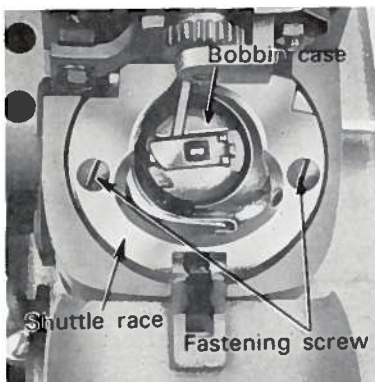
Adjust by loosening thumb screw and moving it along with the slot of the tack length regulator.

12. Adjusting pressure of work clamp

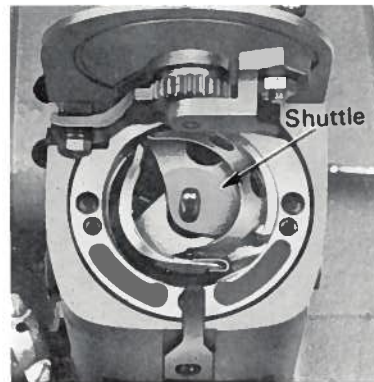


Adjust the work clamp so that it exerts no more pressure than necessary to prevent the material from slipping.

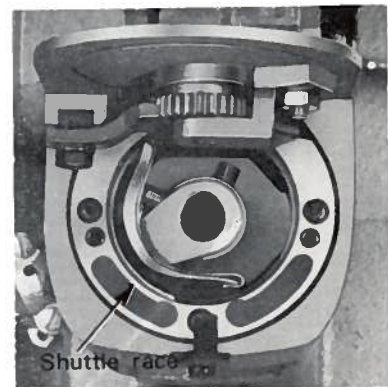
13. Cleaning shuttle



1. Remove shuttle race with bobbin case.

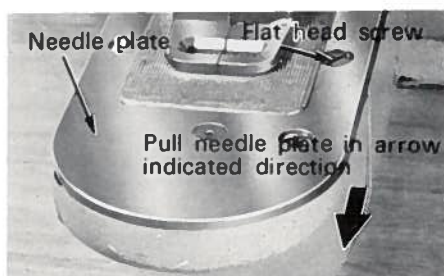


2. Remove shuttle.



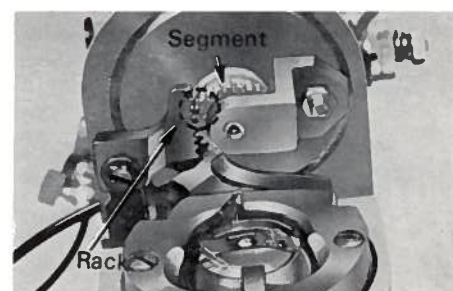
* After cleaning, put a drop of oil inside of shuttle race.

14. Removing needle plate

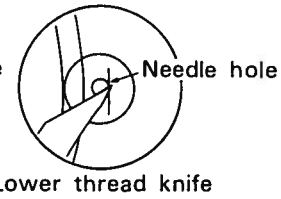
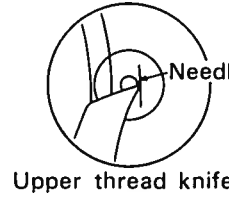
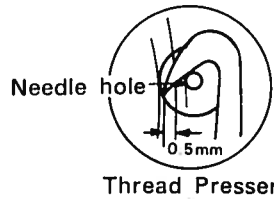
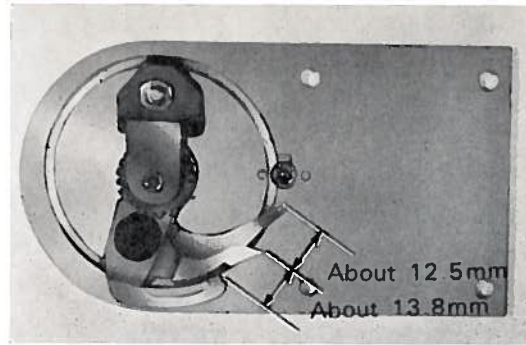
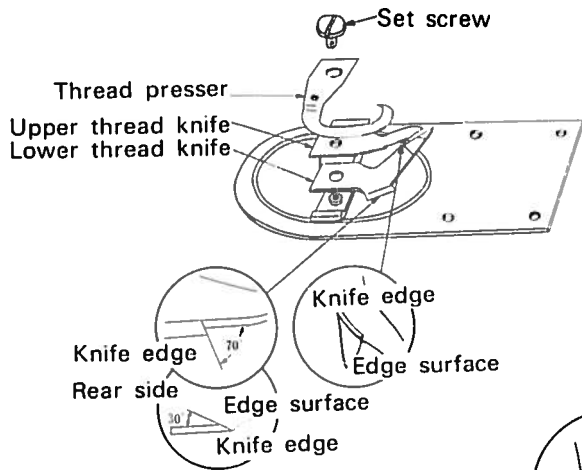


Remove four flat head screws and then needle plate.

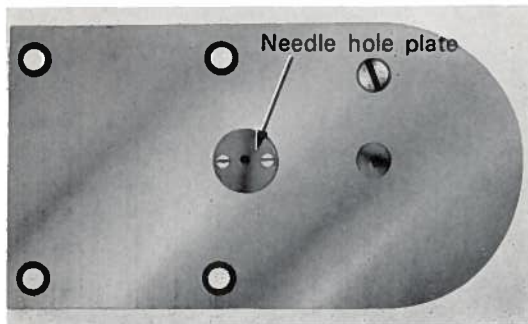
15. Installing needle plate



Match marking in assembling.



16. Replacing needle hole plate



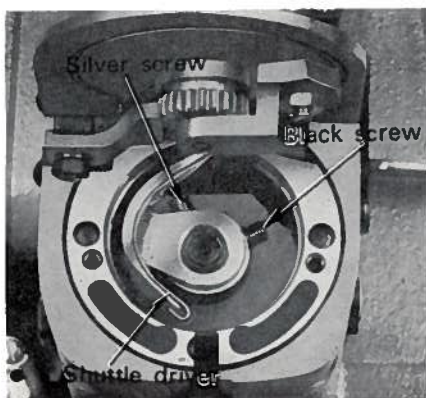
- * The needle hole plate can be removed by loosening two set screws and pushing it upward. The needle hole must be very smooth.
- * Replace the needle hole plate if the needle hole is considerably damaged.
- * When putting a new needle hole plate in replacement, make sure the groove on its underside is in line with the groove in the needle plate.

* Needle hole plates are available in standard size (1.6mm in needle hole diameter); and special size (2.2mm in needle hole diameter) for thick materials, and another special size (4.0mm in needle hole diameter) for ultra heavy materials.

ADJUSTMENTS

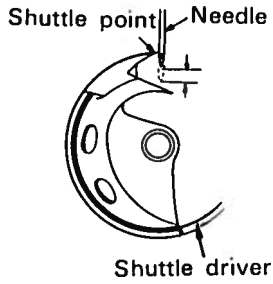
1. Adjusting needle bar

The proper needle bar rise and needle bar height are necessary for the needle in its upward travel from the lowest point to form the correct loop of the upper thread and for the shuttle point to properly hook the loop.



(1) Needle bar rise

When the needle bar comes up from downmost to below-mentioned measurement, the shuttle point must be in line with the centre axis of the needle. Adjustment can be made by loosening two shuttle driver set screws and turning the shuttle driver as required and fasten the silver screw matching with the groove of lower shaft and then black screw.

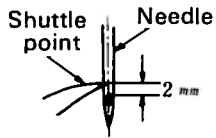


Make sure that the shuttle driver is in close contact with the rear side of shuttle point.

LK3-B220-1~-5, -8~-9	}	2.8 mm ± 0.2 mm
LK3-B221-1~-3, -8		
LK3-B220-6~-7	2.5 mm ± 0.1 mm
LK3-B221-4~-7	2.5 mm ± 0.2 mm

(NOTE) LK3-B220-6 & -7 for Denim, only one screw is set.

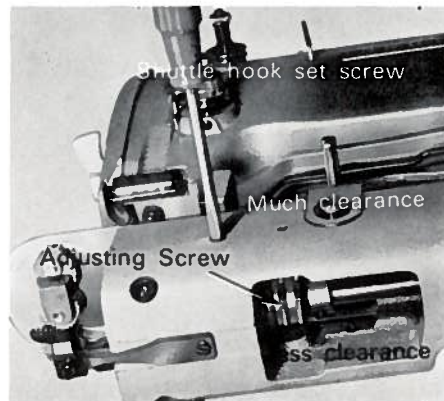
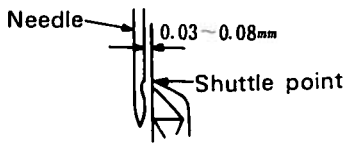
(2) Needle bar height



When the shuttle point is in line with the centre axis of the needle, the correct distance between the top of the needle eye and the shuttle point is as follows. If adjustment is required, loosen the needle bar connecting stud screw and raise or lower the needle bar.

LK3-B220-1~-5, -8~-9	}	2.0 mm ± 0.3 mm
LK3-B221-1~-3, -8		
LK3-B220-6~-7	1.2 mm ± 0.2 mm
LK3-B221-4~-7	2.0 mm ± 0.3 mm

(3) Clearance between the needle and the shuttle point



The correct clearance between the centre of needle being met with shuttle point is 0.03~0.08mm.

To adjust the clearance, loosen the shuttle hook set screw and rotate the adjusting screw and fasten the set screw tightly after completion.

2. Adjusting feed mechanism

Bar tacks will be made as the power is transmitted to tack length and tack width mechanisms through the outer and inner grooves of the feed cam.

The tack design stays within the rectangular opening in the work clamp and even when the swing is expanded by feed adjustment, its centre must always be at the same point.

(1) Needle and feed cam

Feeding begins as soon as the needle rises out of the material and ends before needle comes down into the material. If adjustment is required, loosen the worm wheel shaft nut and the hexagonal bolt and turn the feed cam by degrees.

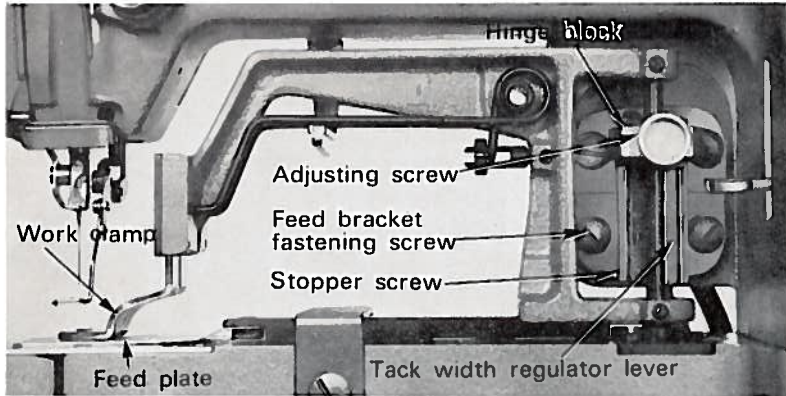
Turning the feed cam in its rotating direction, it advances the feed timing and vice versa.

(NOTE) LK3-B220-6 & -7 for Denim, the timing of feed cam should be advanced a bit earlier.

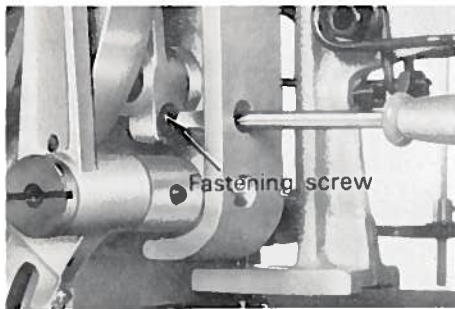
(2) Adjusting tack width motion (Except LK3-B221-4--7)

Adjusting tack width and tack length motions require very delicate and precise cautions. Make adjustments firstly on the tack width motion and then tack length motion with great care. Once the correct adjustment was made, no further adjustment is necessary unless absolutely required.

First of all, adjust to get the correct position between work clamp and feed plate by loosening clamp frame set bolt.

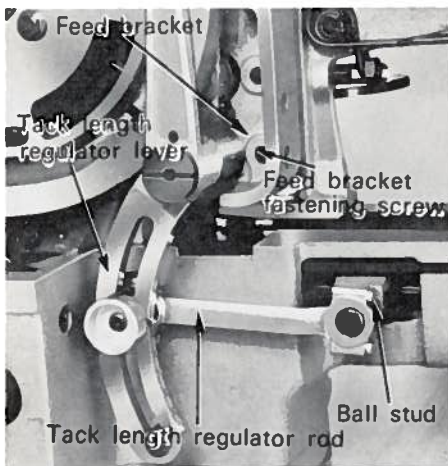


- 1) Let the first needle come down into the needle hole.
- 2) Loosen the adjusting screw and raise the hinge block until the hinge block is in level with the tack width regulator lever shaft, and tighten the adjusting screw
- 3) Loosen the feed bracket, fastening screw, move the presser arm and set the position of bracket so that

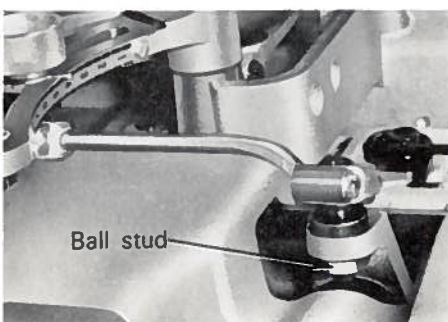


- the needle hole will come exactly at the centre of work clamp, then tighten the fastening screw.
- 4) Loosen the tack width lever fastening screw and lower the hinge block all the way down, then tighten the fastening screw. Again, move the presser arm and set the presser arm so that the needle hole will come exactly at the centre of work clamp, then tighten the fastening screw.

(3) Adjusting tack length motion



- 1) Raise the clutch and turn the driving pulley by hand until the needle comes down into the needle hole with tack length regulator in the marked position of the rim of the feed cam.
- 2) Loosen the feed bracket fastening screw, when the tack length regulator rod brings to its fullest extent in the elongated hole of the tack length regulator lever, set the position of bracket not so as to move the work clamp.
- 3) Loosen ball stud and set the position of presser arm so that the centre of work clamp will come to the needle hole, then tighten the ball stud.



(4) Adjusting motions on LK3-B221-4--7

1) Adjusting tack length motion

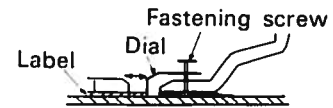
- (i) At the stop, move presser plate for guide base back and forth so that the needle hole plate may be positioned at the centre of feed plate window.
- (ii) Make the tack length at maximum and make sure that the above position is kept during one cycle. In case of adjustment, readjust the position of feed plate window.

2) Adjusting dial of labelling

The dial plays a role to determine the position of label.

When you set the material by work clamp, put the label underneath the dial to its extent to fix the position, then you can get the pre-determined, constant measurement on the materials.

This adjustment is made by moving the dial back and forth.

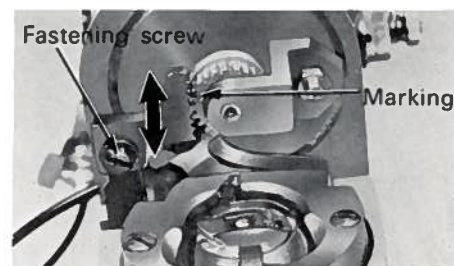
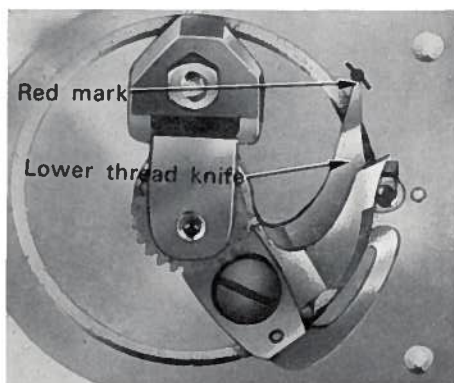


3. Adjusting thread trimming mechanism

The upper thread knife, lower thread knife and thread presser are mounted to the pinion stud bracket and are operated by the power transmitted from the knife cam.

- 1) As the needle rises out of the needle hole after the first stitch, the thread presser catches the upper thread to prevent the thread from slipping out.
 - 2) The thread presser releases the thread just before the fifth stitch is formed.
 - 3) As soon as the upper thread is pulled up by the thread take-up lever, the lower thread knife catches the lower thread. At this moment, the tip of the upper thread knife is just in front of the needle hole.
 - 4) The upper thread knife enters the upper thread loop while the shuttle point comes to its downmost position after catching the loop in the process of forming the final stitch.
 - 5) The machine stops. When the left treadle is depressed, the connecting rod adjuster disengages from the tip of the knife bar and the connecting rod spring pulls the knives to trim both threads.
- * In adjusting the knives, firstly remove the needle plate and make sure the knives are installed correctly. Then, make adjustments in the following steps.

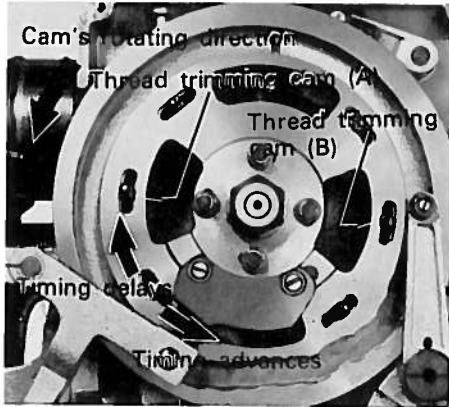
(1) Thread trimming lever roller and lower thread knife



This adjustment is made by loosening the rack and moving it back and forth.

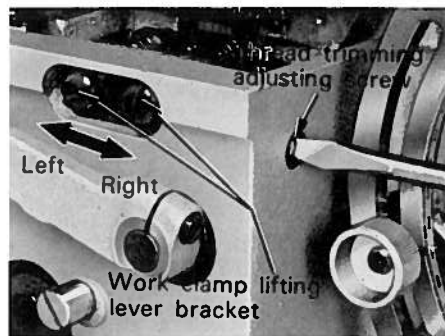
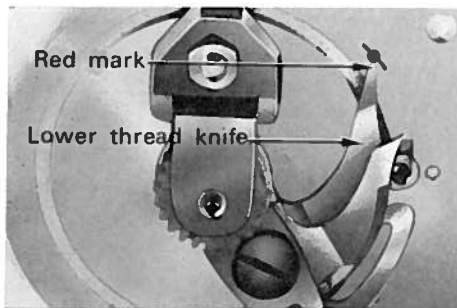
At the thread trimming lever roller is just above the recess portion of the knife cam, that is the second stitch, and at the stop position of thread trimming knives, the point of lower thread knife is positioned at the red mark of the needle plate.

(2) Timing of knife cam



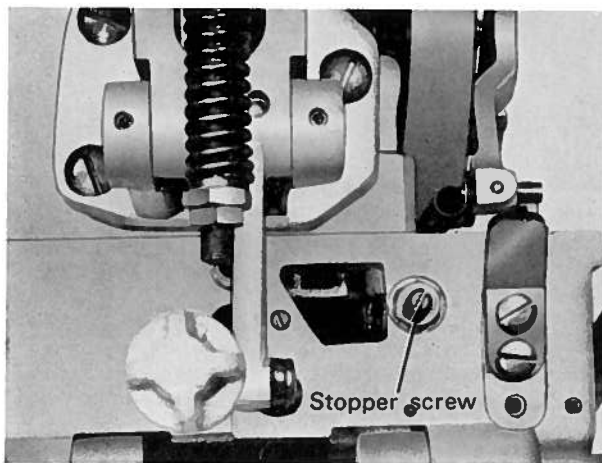
Loosen the fastening screw for knife cam (A) and adjust the timing so that the needle may not touch the thread trimming knives and the upper thread loop may not touch the knives. Adjust the thread trimming cam (B) by loosening fastening screw so that the upper thread knife may hook the upper thread loop during hook point travelling downward with upper thread loop at the final stitch.

(3) Lower thread knife and thread trimming lever



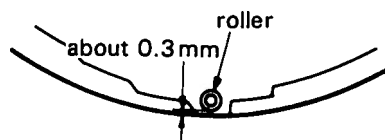
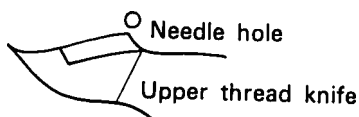
At the stop position, loosen two screws and adjust the thread trimming adjusting screw so that the point of lower thread knife will be positioned at the red mark on the needle plate.

(4) Adjusting thread trimming stopper screw

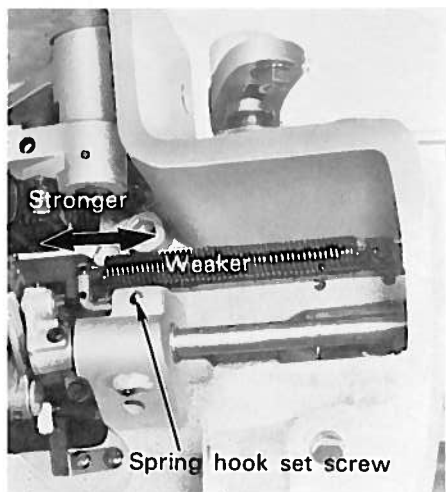


When work clamp is lifted up, adjust by stopper screw so that thread trimming lever roller may be apart about 0.3mm from the bottom of knife cam.

At this moment, the needle hole is positioned at the rear of upper thread knife.



(5) Tension of connecting rod spring



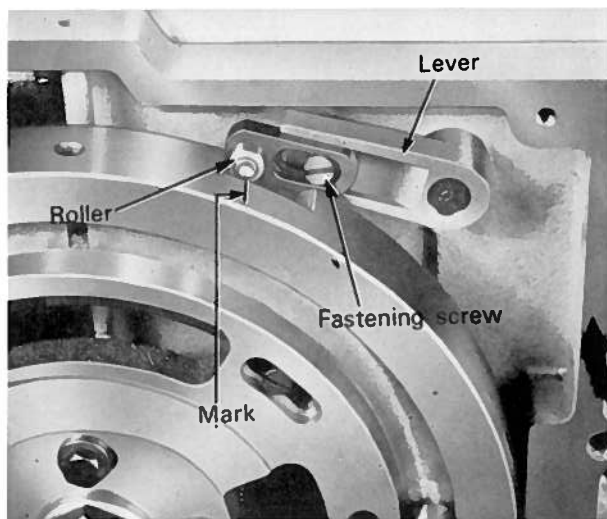
If the connecting rod spring has too weak tension, the knives often fail to trim the threads and in some extreme cases, collide with the needle causing to break. If, on the other hand, the spring has too strong tension extra power will be needed to drive the knives, thus the machine does not work smoothly. To adjust the spring tension, loosen the spring hook set screw and move the spring hook left or right.

4. Adjusting the thread nipper

As the needle begins to rise for the final stitch, the upper thread knife enters the upper thread loop. And the main tension is released to allow sufficient length of the thread for the knife.

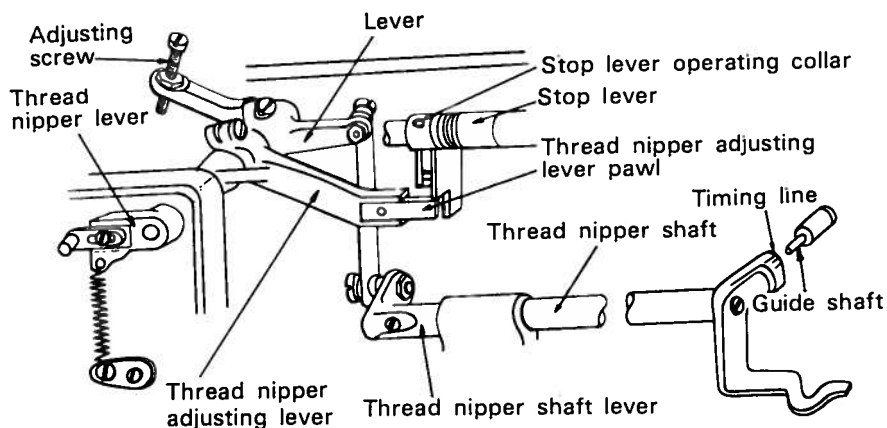
When the left treadle is depressed, it works the thread nipper mechanism and at the first stitch, the needle bar thread nipper is lightly tightened to prevent the thread from slipping and being jammed.

Before the needle comes down for the second stitch, the thread nipper is released and the main tension is tightened. Make adjustments, if necessary, in the following manner.



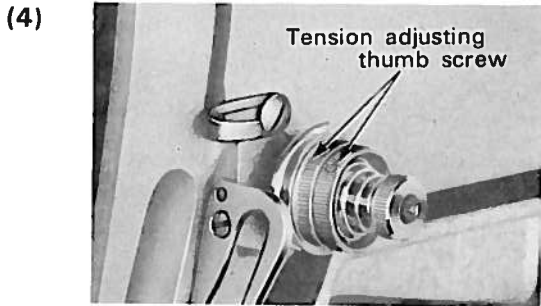
- (1) At the stop position, adjust the roller position so that its centre will be matched with the red marking.

(2) Adjusting timing of the thread nipper

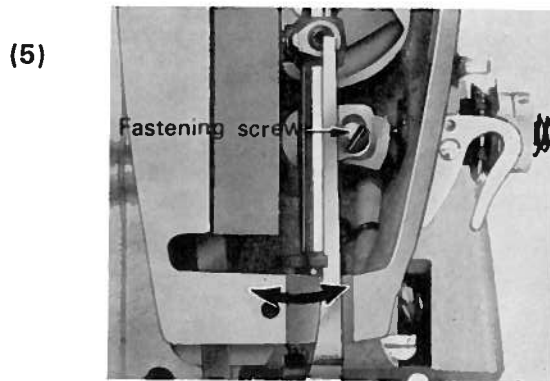


At the position of the roller being over the recess position of the cam, the end of guide shaft must be positioned at the upper line of the cam. In case of adjustment, loosen the fastening screw and rotate the thread nipper shaft.

- (3) At the stop position (before lifting work clamp), the end of guide shaft must be positioned at the lower line of cam on the condition that the thread nipper stop lever contacts the thread nipper adjusting lever pawl. In case of adjustment, loosen the thread nipper adjusting lever screw, fix the position of the thread nipper shaft and adjust to bite the thread nipper adjusting lever pawl and stop lever, then fasten the screw tightly. (At that time, the roller position is 2mm apart from recess portion of the cam).
At this position, when the thread nipper stop lever is disengaged, adjust the roller to move smoothly to the bottom of the recess portion of the cam.



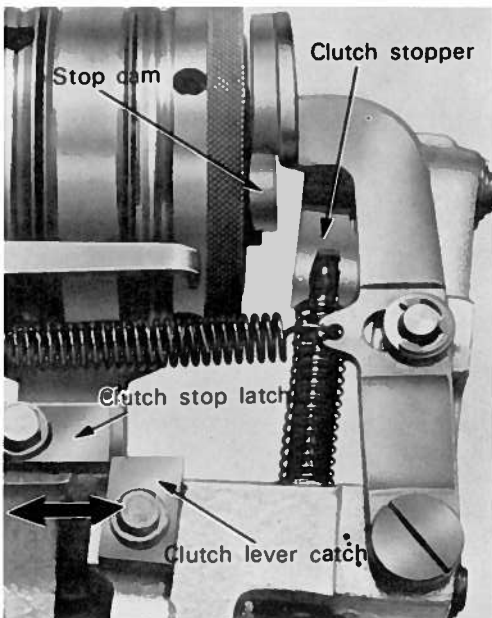
At the position of the roller being over the recess portion of the cam, adjust the tension adjusting thumb screw so that the main tension will be tight and at the position of the roller being in the recess portion of the cam, adjust it so that the main tension will be loosened.



At the position of the lever pawl being released out of the stop lever, adjust the thread nipper moving left and right so that the needle bar thread guide may catch the thread surely.

5. Adjusting clutch and brake

Unless the clutch and brake are in order, the machine may not stop properly, more power may be consumed for the machine's operation, or machine's durability may be considerably lessened.

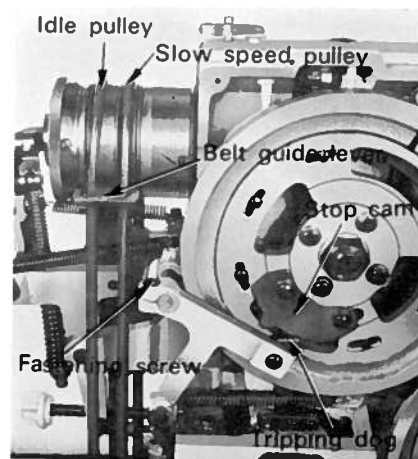


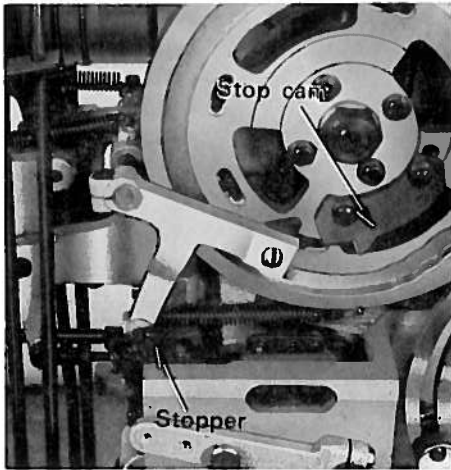
In case of adjustment, please follow the instructions.

(1) Clutch lever catch and clutch stop latch

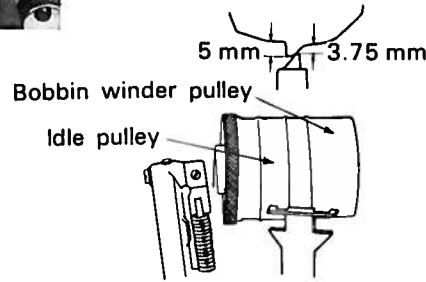
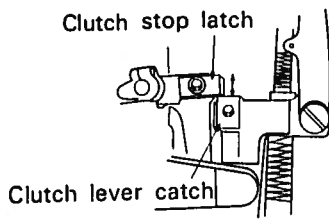
Adjust the position of the clutch stop latch so that the minimum distance between the stop cam and the clutch stopper is about 3mm.

- (2) At the position of tripping dog being over the stop cam, adjust the level of belt guide so that the belts are at the idle pulley and the slow speed pulley.



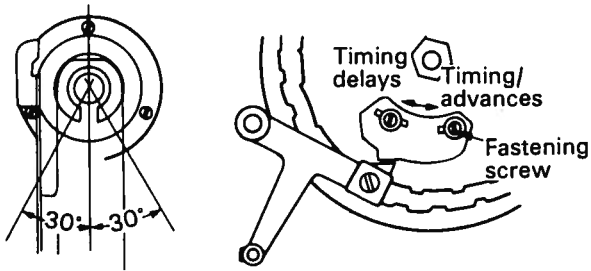


(3) At the position of tripping dog being out the stop cam, adjust the position of the stopper so that the belts are at the idle pulley and the high speed pulley.



(4) Adjusting height of tripping dog

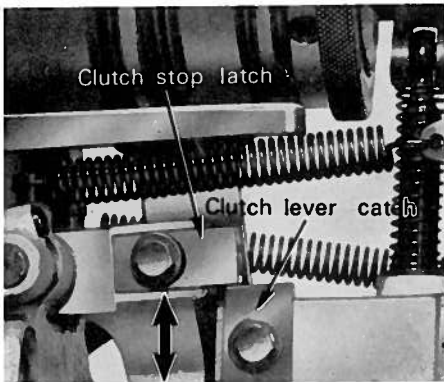
Please adjust the position of of lever so that clutch may come into function when tripping dog reaches three quarter position of stop cam.



(5) Timing of stop cam and clutch stopper

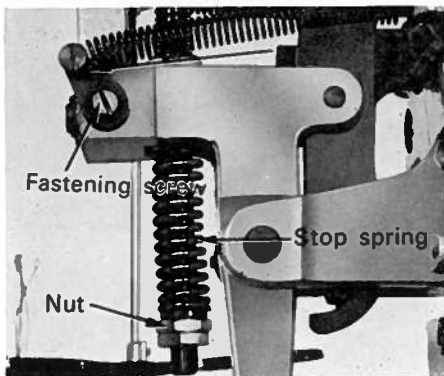
Please adjust stop cam so that clutch stop latch may disengage with clutch lever catch one stitch before the end of sewing cycle. In this case, please see that clutch stop latch will disengage with clutch lever catch within $\pm 30^\circ$ from the position where the groove of stop cam falls into line with clutch stopper. In case of adjustment, loosen

two set screws and move stop cam left or right to adjust. At that time, make sure to get proper timing by turning high speed pulley by hand.



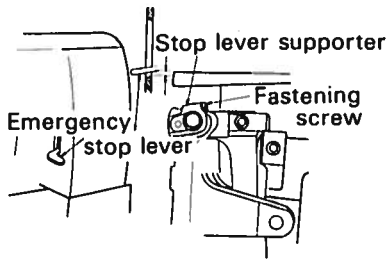
(6) Pressure of the clutch lever spring

Adjust the clutch lever spring so that it has just enough tension to permit the clutch stopper to fit positively into the groove of the stop cam to stop the machine gently. In case of adjustment, loosen the fastening screw and change the angle of the adjusting plate.



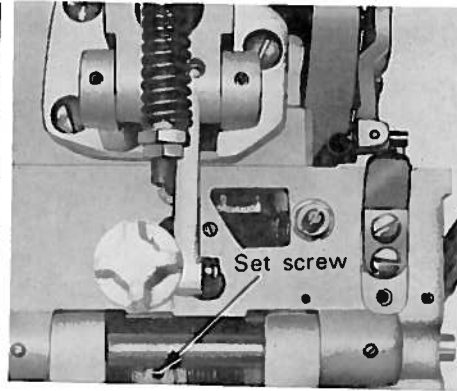
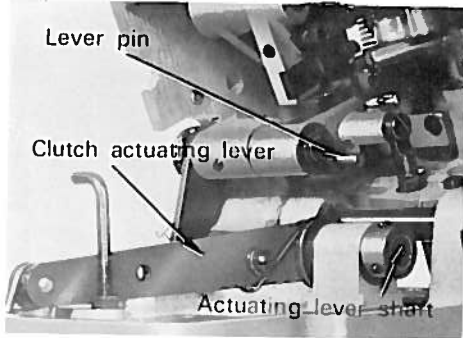
(7) Pressure of the stop spring

If the stop spring is too weak in tension, the needle may come down into the material as the machine is going to stop or the machine may stop at wrong position. If, on the other hand, the stop spring is too strong in tension, the impact exerted on the machine at the time of stopping will be increased and this will adversely affect the durability of this machine. Adjust the stop spring tension by turning the nut.



(8) Position of emergency stop lever

When tripping dog is at the highest position of stop cam, adjust by loosening fastening screw so that the distance between the arm hole and emergency stop lever is about 1 mm.



(9) Clutch actuating lever

In case that the right treadle is depressed strongly, it causes the belts coming off out of the pulleys due to too much movement of the clutch. In order to avoid this, adjust in the following manners.

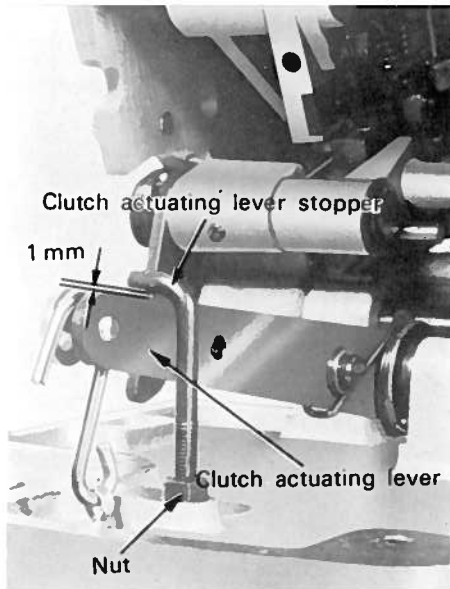
* At the starting, set the shaft by the fastening screw so that the actuating lever shaft contacts with the lever pin and adjust to get the distance of 3mm between the bed and the clutch actuating lever by lowering the lever. After completion, take off the screw.

(10) Clutch actuating lever stopper

In order to prevent the right treadle from going upward, the clutch actuating lever stopper is limited the movement of the clutch actuating lever. In case of adjustment, adjust in the following manners.

1. Be the machine at stop position.
2. Fix the actuating lever shaft with set screw.
3. Set the machine in normal position.
4. Adjust the height of the stopper to be 1 mm by loosening nut.
5. After completion, take out the set screw.

(Set screw is included in the accessory box)

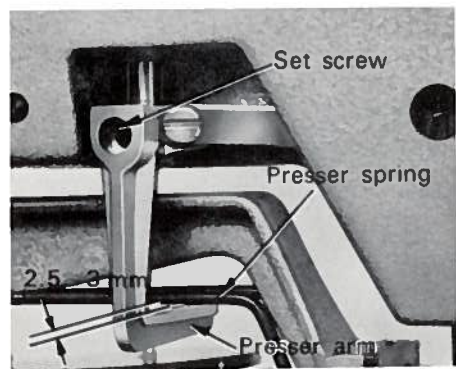
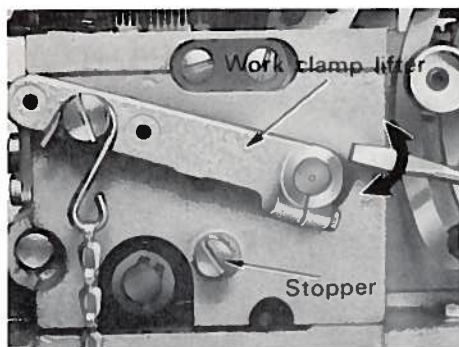
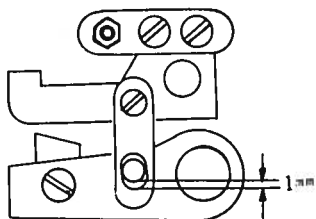


6. Adjusting work clamp lifter

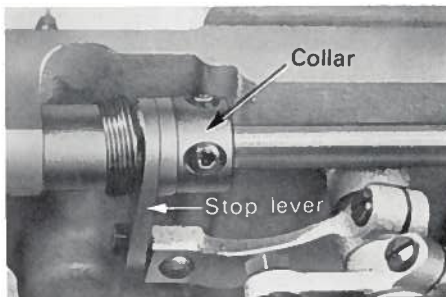
While the machine is in operation, the work clamp stays down even if the right treadle is depressed and also the knife bar remains inoperative. When the left treadle is depressed after the machine has automatically stopped, the knife bar tripping lever is actuated to operate the knives and then the work clamp is raised up.

In case of the adjustment, do in the following manners.

- (1) At the stop position, when the left treadle is depressed, adjust the length of the clutch actuating connector to operate with the clearance of less than 0.3mm as the work clamp connecting lever latch is adjacent with the clutch actuating connector lever stop.
- (2) Fasten set screw for latch at the position that the lower portion of the latch meets work clamp connecting lever.



- (3) In the operation, adjust by work clamp shaft lever the clearance to be less than about 0.3mm between clutch connector lever stop and work clamp connector latch as per Page.8.
- (4) When the left treadle is depressed after the machine stopped, make sure that the thread trimming mechanism does not engage until the work clamp connecting lever latch is out of the clutch actuating connector lever stop. If incomplete, repeat the adjustment mentioned in step 2) and 3).
- (5) When the left treadle is depressed upto the stopper, adjust the height of the work clamp to be 10 mm apart from the feed plate.
- (6) Adjust the height of the presser arm to be 2.5-3.0mm between the presser arm and the presser spring by set screw.
- (7) At the stop position, when the left treadle is depressed, just before the thread trimming mechanism is engaged, adjust the relation between the stop lever and the collar so that the needle bar thread guide is tightened.



7. Adjusting work clamp on B221-1 and -2

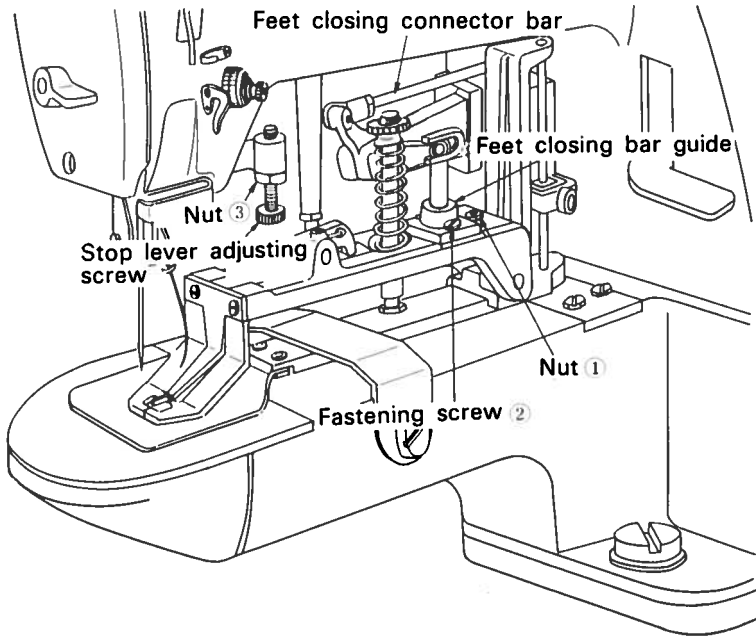
The two presser feet are opened about 2mm when the work clamp are lifted up. The feet will be closed when the work clamp is depressed and actuated the machine by treadle pedal. In this case, the feet catch the material up between the left and right.

In case that this action may not work in good condition, the sewing result on eyelet buttonhole end becomes very dirty.

In the adjustment, do in the following manners.

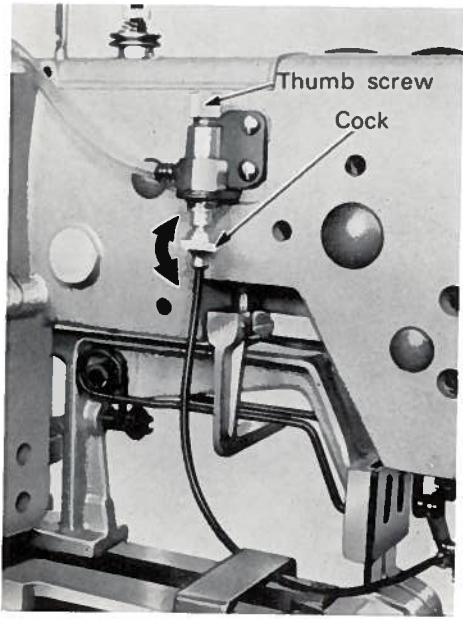
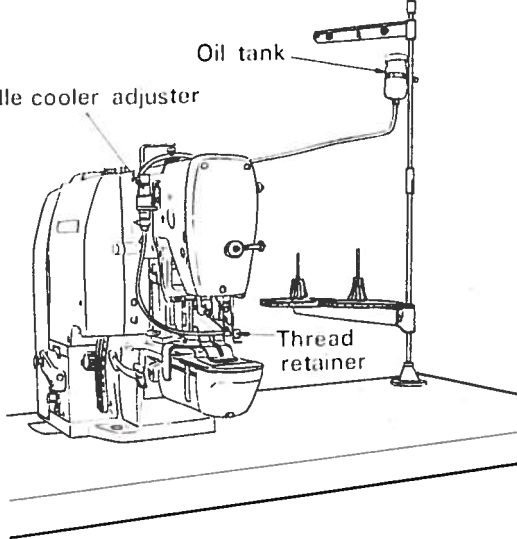
- (1) Amount of opening between the feet can be adjusted by the nut ①.
- (2) In case that the feet will not be closed when the right treadle pedal is depressed, at the stop position, being depressed the right treadle pedal, unscrew the fastening screw ② and pull the feet closing bar guide toward you.
- (3) At the stop position, in case that the feet will not open when the left treadle pedal is depressed, loosen nut ③ and adjust the height of stop lever adjusting screw.

(4) In case that the feet will not be closed when the right treadle pedal is depressed and before the machine starts, adjust the length of the feet closing connector bar.



8. Needle cooler mechanism

*This machine can be used with the needle cooler device at your option. In case that you may need, please contact your dealer. This needle cooler device is featured to avoid the thread breakage with synthetic thread even at maximum high speed of 2,000 stitches per minute.



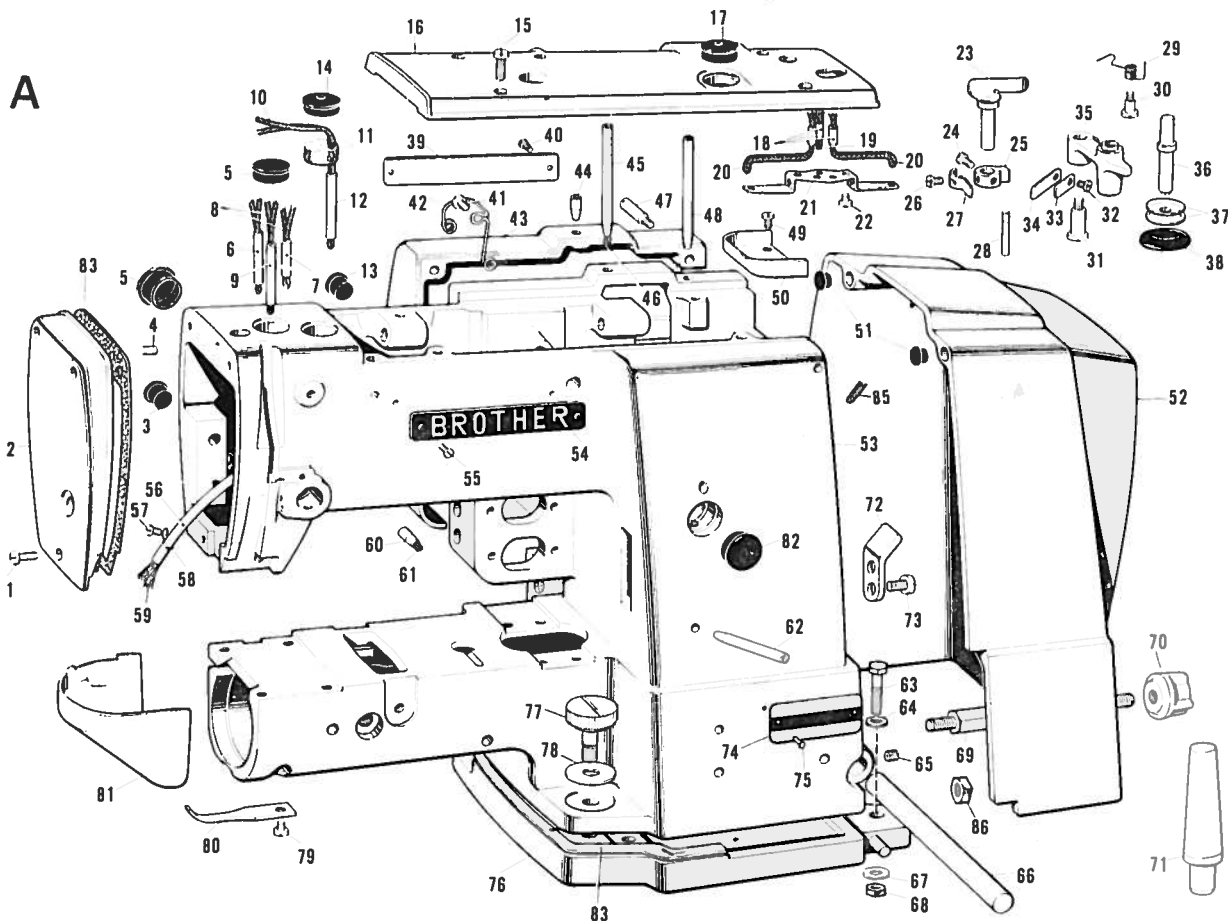
- Cock
When you use this machine with synthetic thread, open the cock vertically and if not, close the cock.
- Thumb screw
Adjust oil flow depending on the thickness of the materials and thread.
- If you turn thumb screw clockwise, you can get less oil flow.
- Silicone oil
Use #100 silicone oil which is available by BROTHER.

PARTS LIST for LK3-B220


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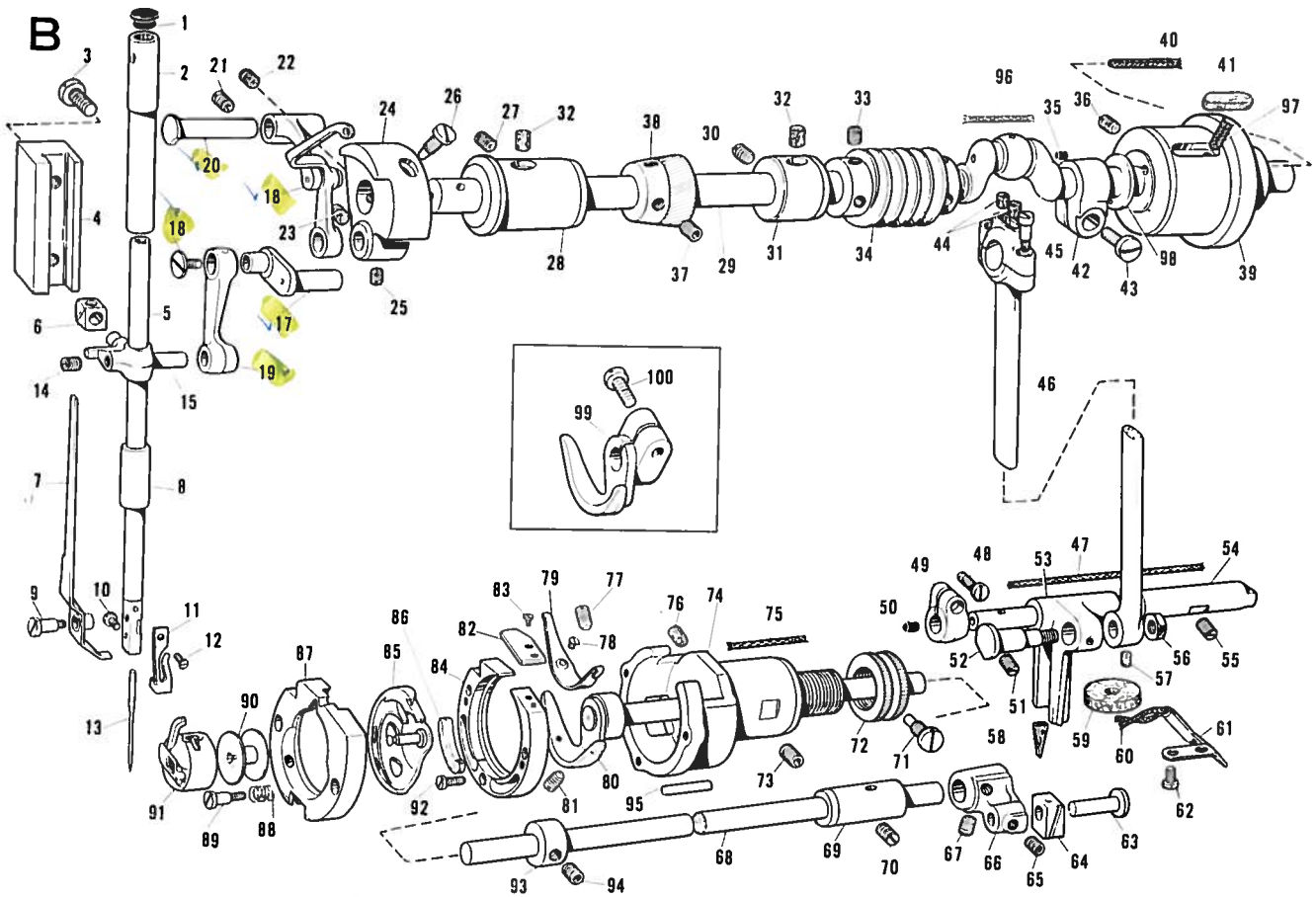
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141843-0-01	F-35		141950-0-01	C-52			D-20			Z-17	
141844-0-01	F-32		141951-0-01	C-57		142458-0-01	A-76		145978-0-01	C-43	
141845-0-01	F-1 ~ 22		141953-0-01	C-48		142556-0-01	B-38		180501-0-01	J-1 ~ 10	
141846-0-01	F-7			C-58		142565-0-01	G-40		180504-0-01	B-82 ~ 89	
141847-0-01	F-4		141957-0-01	C-81		142667-0-01	C-22			G-5, 6	
141848-0-01	F-3		141958-0-01	C-85		142721-0-01	Z-11		181021-0-01	11, 12	
141849-0-01	F-2		141959-0-01	C-60		142751-0-01	C-12		181027-0-01	B-42	
141850-0-01	F-8		141960-0-01	C-61		142792-0-01	B-71		181028-0-01	B-49	
	F-23		141961-0-01	C-64		142794-0-01	B-96		181029-0-01	B-74 ~ 76	
141851-0-01	F-9		141962-0-01	C-65		142972-0-01	Z-42		181030-0-01	B-16 ~ 20	
141852-0-01	F-6		141963-0-01	C-69		143190-0-01	D-18		403865-0-01	F-43	
141853-0-01	F-15		141964-0-01	C-82		143231-0-01	A-74				
141854-0-01	F-18		141965-0-01	C-72		143444-0-01	B-97				
141855-0-01	F-20		141966-0-01	C-83		143446-0-01	J-23				



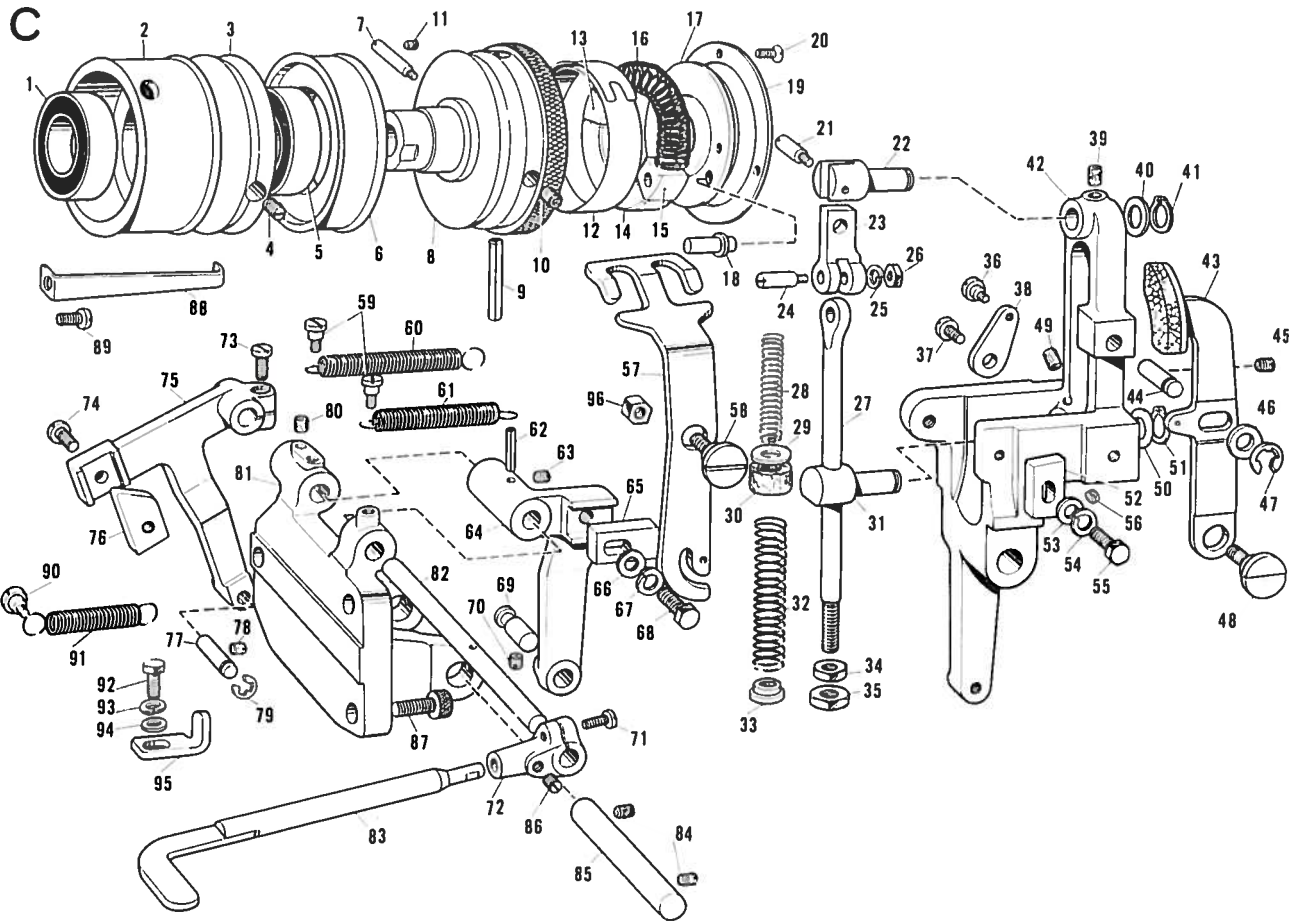
Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
A-1	Set Screw for A-2	3 pcs.	009711-4-12		A-15	Oil Pipe	1 pce.		
A-2	Face Plate	1 pce.	141994-0-01		A-16	Wick	1	114240-0-01	
A-3	Oil Cap	1	117934-0-01		A-17	Set Screw for A-43	3 pcs.	141748-0-01	
A-4	Oil Cap	1	142274-0-01		A-18	Oil Pipe	1 pce.		
A-5	Oil Cap	1	140392-0-01		A-19	Set Screw for A-50	2 pcs.	100242-0-03	
A-6	Oil Pipe	1			A-20	Duster Plate	1 pce.	141745-0-01	
A-7	Oil Pipe	2 pcs.			A-21	Stopper cap	2 pcs.	104450-0-01	
A-8	Wick 4 x 4	3	118768-0-01		A-22	Belt Cover with A-51	1 pce.	143896-0-01	
A-9	Oil Cap	1 pce.			A-23	Arm-bed	1	141736-0-01	
A-10	Wick	1	118955-0-01		A-24	Name Plate	1	112548-0-01	
A-11	Felt (A)	1	141742-0-01		A-25	Set Screw for A-54	2 pcs.	100191-0-03	
A-12	Oil Pipe	1			A-26	Vinyl Tube	1 pce.	117021-0-00	
A-13	Pil Cap	1	117934-0-01		A-27	Set Screw for A-58	1	009670-6-12	
A-14	Oil Cap	1	141744-0-01		A-28	Vinyl Tube Holder	1	117150-0-01	
A-15	Set Screw for A-16	4 pcs.	009761-4-12		A-29	Wick	1	142253-0-01	
A-16	Arm Cover	1 pce.	141751-0-01		A-30	Oil Pipe	1		
A-17	Oil Cap	1	141744-0-01		A-31	Wick	1	108805-0-01	
A-18	Oil Pipe	3 pcs.	116968-0-00		A-32	Oil Pipe	1		
A-19	Wick	1 pce.	118768-0-01		A-33	Set Bolt 6 x 63 for A-76	4 pcs.	144543-0-01	
A-20	Wick	2 pcs.	142255-0-01		A-34	Washer	4	025060-2-32	
A-21	Wick Holder	1 pce.	141753-0-01		A-35	Set Screw for A-66	2	013761-0-12	
A-22	Set Screw for A-21	2 pcs.	009680-6-12		A-36	Bed Hinge Shaft	1 pce.	141761-0-01	
A-23	Bobbin Presser	1 pce.	141756-0-01		A-37	Washer	4 pcs.	025060-3-32	
A-24	Set Screw for A-23	1	140557-0-01		A-38	Nut for A-63	4	021060-1-02	
A-25	Bobbin Winder Pawl	1	111949-0-01		A-39	Belt Cover Support Shaft	1 pce.	142000-0-01	
A-26	Set Screw for A-27	1	101531-0-03		A-40	Belt Cover Support Knob	1	142001-0-01	
A-27	Stopper for Bobbin Presser	1	111950-0-01		A-41	Head Rest	1	142005-0-00	
A-28	Pin	1	141752-0-01		A-42	Head Supporter	1	142422-0-01	
A-29	Spring for A-35	1	141757-0-01		A-43	Set Screw for A-72	2 pcs.	009481-6-12	
A-30	Stud Screw for A-29	1	103317-0-01		A-44	Model Plate	1 pce.	143231-0-01	
A-31	Stud Screw for A-35	1	104212-0-01		A-45	Set Pin	2 pcs.	116231-0-01	
A-32	Set Screw for A-33	1	100080-0-01		A-46	Head Base	1 pce.	142458-0-01	
A-33	Washer for A-34	1	111943-0-01		A-47	Head Fixed Screw	1	141762-0-01	
A-34	Spring Plate	1	111042-0-01		A-48	Washer for A-77	1	101015-0-01	
A-35	Bobbin Winder Shaft Holding Bracket	1	141754-0-01		A-49	Set Screw for A-80	1	009680-7-13	
A-36	Bobbin Winder Shaft	1	141755-0-01	142089-0-01	A-50	Spring Plate	1	141812-0-01	
A-37	Bobbin Winder Wheel	2 pcs.	111946-0-02		A-51	Shuttle Race Cover	1	141809-0-01	
A-38	Rubber Ring	1 pce.	120448-0-01		A-52	Oil Cap	1	140392-0-01	
A-39	Name Plate	1	112548-0-01		A-53	Face Plate Packing	1	143449-0-01	
A-40	Set Screw for A-39	2 pcs.	100191-0-03		A-54	Head Base Packing	1	143450-0-01	
A-41	Set Screw for A-42	1 pce.	112751-0-03		A-55	Wick	1	117007-0-01	
A-42	Wick Holder	1	143557-0-01		A-56	Nut	1	100075-0-04	
A-43	Cam Cover	1	141746-0-01						

※ If you need part of  mark, please refer to different parts list page 37. because the part differs in accordance with sub-class.

※ If you need part of  mark, please advise assembly number.

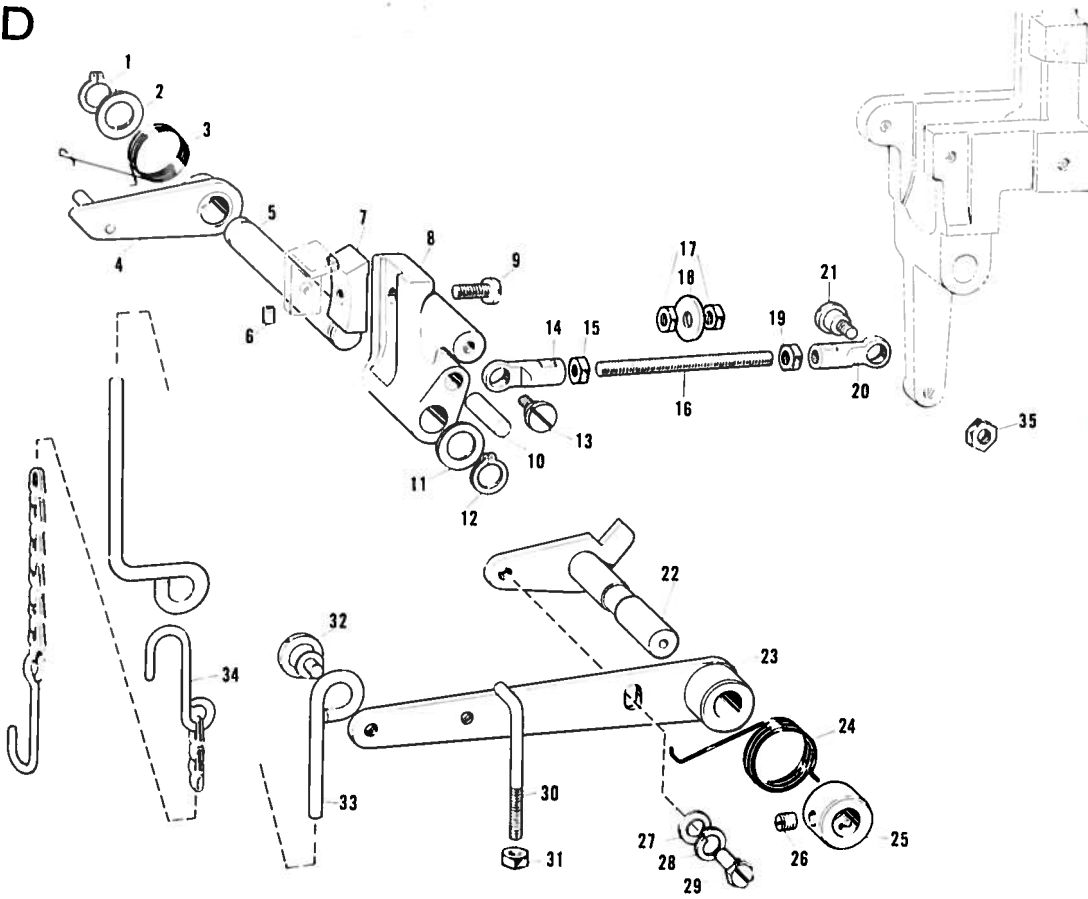


Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
B-1	Oil Cap	1 pce.	117936-0-01		B-51	Set Screw for B-52	1 pce.	013761-2-12	
B-2	Needle Bar Bushing Upper	1 "	141777-0-01		B-52	Set Screw for Crank Rod	1 "	141786-0-01	
B-3	Set Screw for B-4	2 pcs.	009781-4-12		B-53	Oscillating Rock Body	1 "	141787-0-01	
B-4	Needle Bar Guide	1 pce.	141780-0-00		B-54	Oscillating Rock Shaft	1 "	141788-0-01	
B-5	Needle Bar	1 "			B-55	Set Screw for B-54	1 "	013761-0-12	
B-6	Slide Block	1 "	142211-0-01		B-56	Nut for B-62	1 "	104689-0-01	
B-7	Nipper Fastening Plate	1 "	141779-0-01		B-57	Set Screw	1 "	014680-6-22	
B-8	Needle Bar Bushing Lower	1 "	141778-0-01		B-58	Felt for B-51	1 "	115434-0-01	
B-9	Stud Screw for B-8	1 "	115404-0-01		B-59	Felt for B-68	1 "	142293-0-01	
B-10	Needle Set Screw	1 "	101531-0-01		B-60	Wick	1 "	118768-0-01	
B-11	Thread Nipper Spring	1 "	115489-0-01		B-61	Wick Supporter	1 "	142379-0-01	
B-12	Set Screw for B-11	1 "	102626-0-05		B-62	Set Screw for B-61	2 pcs.	009680-6-12	
B-13	Needle	1 "			B-63	Lower Shaft Crank Pin	1 pce.	141774-0-01	
B-14	Set Screw for B-15	1 "	014760-6-22		B-64	Slide Block	1 "	142210-0-01	
B-15	Needle Bar Clamp	1 "	141775-0-01		B-65	Set Screw for B-63	1 "	014680-6-22	141792-0-01
B-16	Thread Take-up Lever	1 "			B-66	Lower Shaft Crank	1 "	141793-0-01	
B-17	Needle Bar Crank	1 "			B-67	Set Screw for B-66	2 pcs.	014770-6-22	
B-18	Set Screw for B-19	1 "	100253-0-01	181030-0-01	B-68	Lower Shaft	1 pce.	141795-0-01	
B-19	Needle Bar Crank Rod	1 "			B-69	Lower Shaft Bushing	1 "	141801-0-01	
B-20	Stud for Thread Take-up Supporter	1 "			B-70	Set Screw for B-69	1 "	100013-0-04	
B-21	Set Screw for B-20	1 "	013761-2-12		B-71	Guide Screw	2 pcs.	142792-0-01	
B-22	Set Screw for B-24	1 "	013780-7-10		B-72	Shuttle Hook Adjusting Ring	1 pce.	141806-0-01	
B-23	Set Screw for B-17	1 "	013770-6-12		B-73	Set Screw for B-74	1 "	014760-6-22	
B-24	Counter Weight	1 "	141773-0-00		B-74	Shuttle Race Body	1 "		
B-25	Set Screw for B-17	1 "	101706-0-01		B-75	Wick	1 "		181029-0-01
B-26	Set Screw for B-24	1 "	100250-0-01		B-76	Felt	1 "	107149-0-01	
B-27	Set Screw for B-28	1 "	013761-2-12		B-77	Set Screw A for B-80	1 "		
B-28	Upper Shaft Bushing Left	1 "	141772-0-01		B-78	Set Screw for B-79	2 pcs.		
B-29	Upper Shaft with B-45, 46	1 "	142380-0-01		B-79	Shuttle Driver Spring	1 pce.		
B-30	Set Screw for B-31	1 "	013761-2-12		B-80	Shuttle Driver	1 "		
B-31	Upper Shaft Bushing Intermediate	1 "	141771-0-01		B-81	Set Screw B for B-80	1 "		
B-32	Felt	2 pcs.	140560-0-01		B-82	Shuttle Race Thread Guide	1 "	105828-0-01	
B-33	Set Screw for B-34	6 "	014760-6-22		B-83	Set Screw for B-82	1 "	100105-0-04	
B-34	Worm	1 pce.			B-84	Shuttle Race	1 "	141805-0-01	
B-35	Oil Cap	2 pcs.	142274-0-01		B-86	Felt	2 pcs.	144190-0-01	180504-0-01
B-36	Set Screw for B-39	1 pce.	013761-0-12		B-87	Shuttle Race Ring	1 pce.		
B-37	Set Screw	1 "	107053-0-01		B-88	Spring for B-87	2 pcs.	105832-0-00	
B-38	Collar	1 "	142556-0-01		B-89	Set Screw for B-87	2 "	105831-0-01	
B-39	Upper Shaft Bushing Right	1 "	141766-0-01		B-85	Shuttle Hook	1 pce.	116827-0-01	
B-40	Wick	1 "	115515-0-01		B-90	Bobbin	1 "	145265-0-01	
B-41	Felt	1 "	100598-0-01		B-91	Bobbin Case	1 "	116828-0-01	
B-42	Upper Shaft Collar with B-42	1 "	181027-0-01		B-92	Set Screw for B-84	3 pcs.	100064-0-05	
B-43	Set Screw for B-42	1 "	106764-0-01		B-93	Set Collar	1 pce.	110495-0-03	
B-44	Felt	2 pcs.	107149-0-01		B-94	Set Screw for B-93	2 pcs.	014770-6-22	
B-45	Set Screw for B-46	2 "	110686-0-01		B-95	Guide Pin	1 pce.	141808-0-01	
B-46	Crank Rod with B-29, 45	1 pce.	142380-0-01		B-96	Wick	1 "	142794-0-01	
B-47	Wick	1 "	112750-0-00		B-97	Wick	1 "	143444-0-01	
B-48	Set Screw for B-49	1 "	009681-2-10		B-98	Washer	1 "	143858-0-01	
B-49	Set Collar with B-48	1 "	181028-0-01		B-99	Shuttle Driver	1 "		
B-50	Oil Cap	1 "	142274-0-01		B-100	Set screw	1 "		



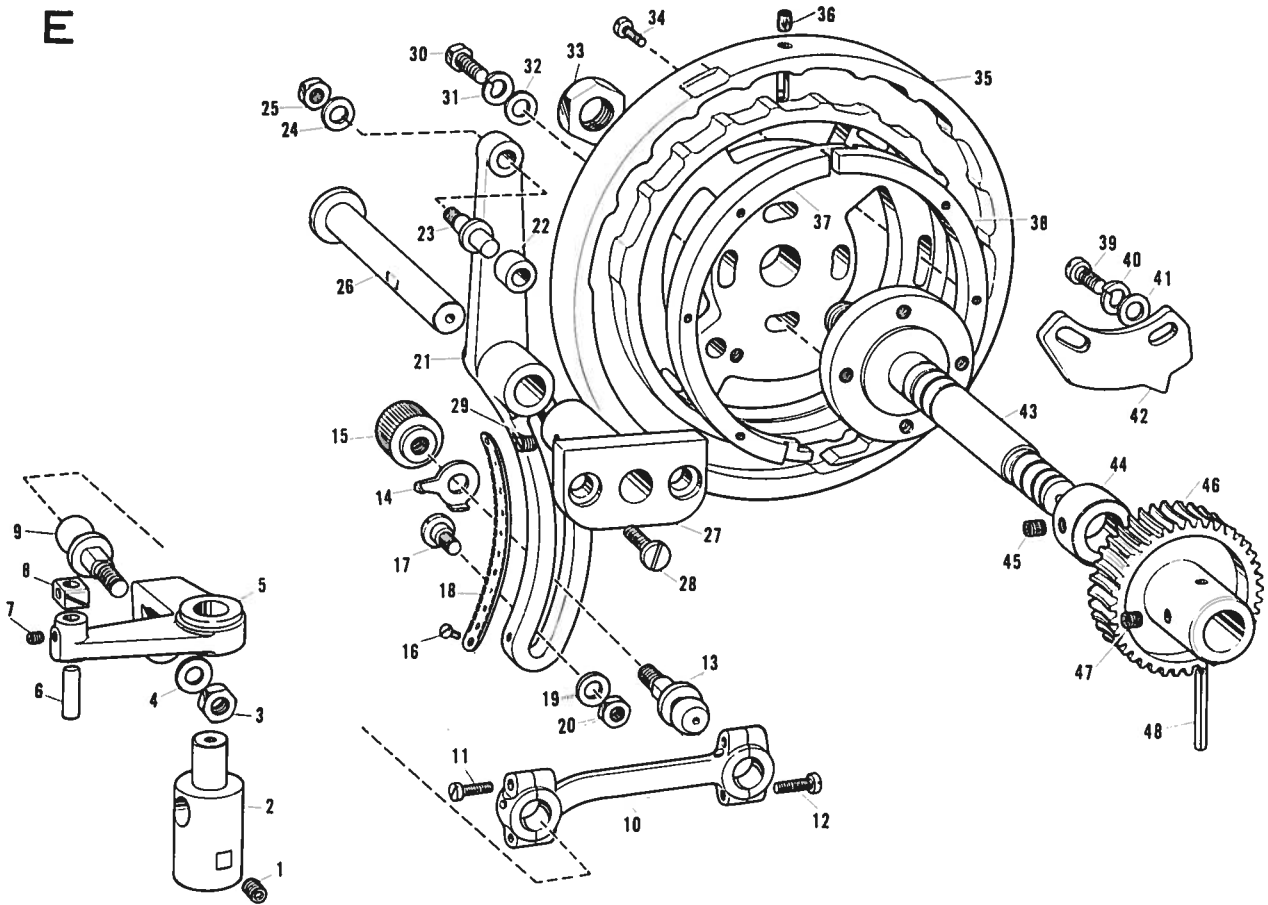
Ref. No.	Name of parts	Q'ty	Parts No.	Assembly No.	Ref. No.	Name of parts	Q'ty	Parts No.	Assembly No.
C-1	Ball Bearing	1 pce.	143448-0-00		C-49	Felt	1 pce.	107149-0-01	
C-2	Bobbin Winder Pulley	1 "	141784-0-01		C-50	Washer	1 "	025100-1-32	
C-3	Slow Speed Pulley	1 "	141783-0-01		C-51	Stop Ring	1 "	048100-1-42	
C-4	Set Screw for C-3	1 "	100016-0-04		C-52	Clutch Lever Catch	1 "	141950-0-01	
C-5	Ball Bearing	1 "	143448-0-00		C-53	Washer	1 "	025770-2-32	
C-6	Idle Pulley	1 "	141782-0-01		C-54	Spring Washer	1 "	028770-2-42	
C-7	Pulley Stud	1 "	141282-0-01		C-55	Set Bolt	1 "	017782-0-12	
C-8	High Speed Pulley	1 "	141781-0-01		C-56	Felt	1 "	140399-0-01	
C-9	Spring Pin	1 "	047603-6-42		C-57	Belt Shifter	1 "	141951-0-01	
C-10	Set Screw for C-8	1 "	014770-6-22		C-58	Stud Screw for C-58	1 "	141953-0-01	
C-11	Set Screw	1 "	109184-0-01		C-59	Stud Screw for Spring	2 pcs.	141535-0-01	
C-12	Spring Cover for Pulley	1 "	142751-0-01		C-60	Clutch Lever Spring	1 pce.	141959-0-01	
C-13	Block for Plunge Spring	1 "	141281-0-01		C-61	Brake Lever Spring	1 "	141960-0-01	
C-14	Plunge Spring Holder	1 "	141284-0-00		C-62	Spring Pin	1 "	046302-0-00	
C-15	Block for Stop Cam	1 "	141285-0-01		C-63	Set Screw	1 "	014760-6-22	
C-16	Plunge Spring	1 "	141283-0-01		C-64	Clutch Tripping Lever	1 "	141961-0-01	
C-17	Stop Cam with C-18	1 "	141286-0-01		C-65	Clutch Stop Latch	1 "	141962-0-01	
C-18	Stud for Stop Cam	1 "			C-66	Washer	1 "	025770-2-32	
C-19	Stop Cam Ring	1 "	141289-0-01		C-67	Spring washer	1 "	028770-2-42	
C-20	Set Screw for C-19	3 pcs.	117348-0-01		C-68	Set Bolt	1 "	017782-0-12	
C-21	Stud Screw for C-22	1 pce.	115544-0-01		C-69	Stud Pin for Belt Shifter	1 "	141963-0-01	
C-22	Clutch Stopper Holder	1 "	142667-0-01		C-70	Set Screw	1 "	013760-6-12	
C-23	Clutch Stopper	1 "	143941-0-01		C-71	Set Screw	1 "	009711-2-12	
C-24	Clutch Stopper Stud	1 "	115546-0-01		C-72	Stop Lever Supporter	1 "	141965-0-01	
C-25	Spring Washer	1 "	028050-2-42		C-73	Set Screw for C-75	1 "	009761-4-12	
C-26	Nut	1 "	021710-2-02		C-74	Set Screw for C-76	1 "	009771-0-12	
C-27	Stopper Adjusting Spring Shaft	1 "	115547-0-01		C-75	Clutch Tripping Dog Lever	1 "	141970-0-01	
C-28	Stopper Spring (B)	1 "	115551-0-01		C-76	Clutch Tripping Dog	1 "	144536-0-01	
C-29	Washer	1 "	025100-1-32		C-77	Set Pin for C-75	1 "	141972-0-01	
C-30	Felt	1 "	115550-0-01		C-78	Set Screw for C-77	1 "	013680-6-12	
C-31	Holder for C-27	1 "	115552-0-01		C-79	Stop Ring	1 "	048040-3-42	
C-32	Stopper Spring (A)	1 "	115548-0-01		C-80	Felt	1 "	107149-0-01	
C-33	Washer	1 "	115549-0-01		C-81	Clutch Lever Bracket	1 "	141957-0-01	
C-34	Nut	1 "	021860-2-02		C-82	Clutch Tripping Lever Shaft	1 "	141964-0-01	
C-35	Nut	1 "	100075-0-04		C-83	Emergency Stop Lever	1 "	141966-0-01	
C-36	Stud Screw for C-38	1 "	110171-0-02		C-84	Set Screw for C-85	2 pcs.	014760-6-22	
C-37	Set Screw	1 "	009761-2-12		C-85	Clutch Lever Shaft	1 pce.	141958-0-01	
C-38	Spring Adjusting Plate	1 "	115558-0-01		C-86	Set Screw	1 "	013710-7-12	
C-39	Felt	1 "	107149-0-01		C-87	Set Screw for C-81	3 pcs.	018102-0-20	
C-40	Washer	1 "	025100-1-32		C-88	Belt Guide Plate	1 pce.	141975-0-01	
C-41	Stop Ring	1 "	048100-1-42		C-89	Set Screw for C-88	1 "	009761-0-12	
C-42	Clutch Lever	1 "	144427-0-01		C-90	Stud Screw	1 "	110171-0-02	
C-43	Brake Lever	1 "	145978-0-01		C-91	Spring	1 "	141973-0-01	
C-44	Brake Lever Pin	1 "	142214-0-01		C-92	Set Bolt	1 "	017781-4-12	
C-45	Set Screw for C-44	1 "	100013-0-04		C-93	Spring Washer	1 "	028770-2-42	
C-46	Washer	1 "	107153-0-02		C-94	Washer	1 "	025770-2-32	
C-47	Stop Ring	1 "	048070-3-42		C-95	Clutch Cam Lever Stopper	1 "	141974-0-01	
C-48	Stud Screw for C-43	1 "	141953-0-01		C-96	Nut	1 "	104689-0-01	

D

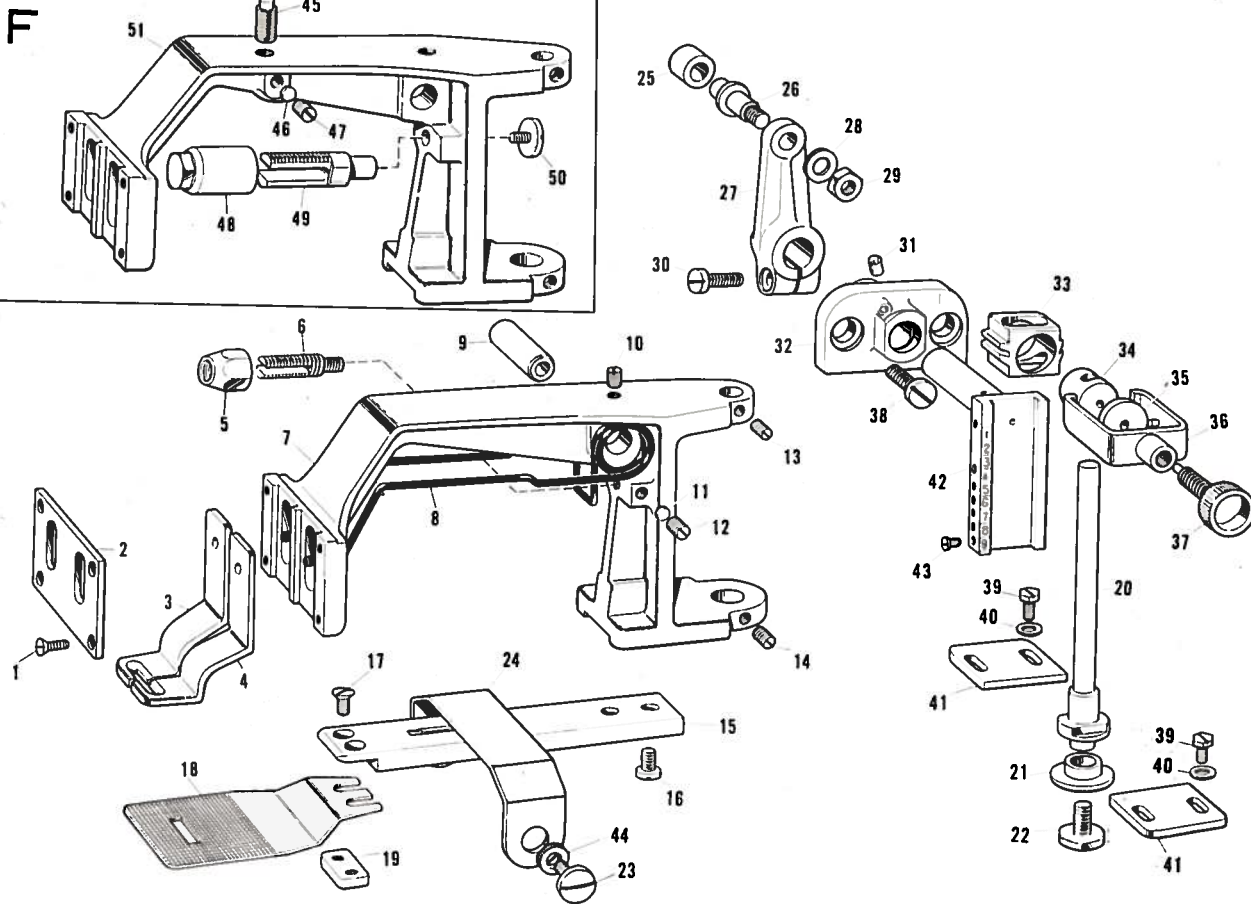


Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
D-1	Stop Ring	1 pce.	048120-1-42		D-19	Nut	1 pce.	021760-2-02	
D-2	Washer	1 "	115007-0-02		D-20	Joint	1 "	142433-0-01	
D-3	Spring	1 "	141981-0-01		D-21	Stud Screw for D-20	1 "	143988-0-01	
D-4	Safety Lever	1 "	141980-0-01		D-22	Drive Lever Shaft	1 "	141985-0-01	
D-5	Drive Connecting Lever Shaft	1 "	141979-0-01		D-23	Clutch Actuating Lever	1 "	141984-0-01	
D-6	Set Screw	1 "	014760-6-22		D-24	Spring	1 "	141986-0-01	
D-7	Drive Connecting Lever Pawl	1 "	141978-0-01		D-25	Set Collar	1 "	117671-0-02	
D-8	Drive Connecting Lever	1 "	141977-0-01		D-26	Set Screw	2 pcs.	100251-0-01	
D-9	Set Screw for D-7	1 "	009771-4-12		D-27	Washer	1 pce.	025770-2-32	
D-10	Set Pin for D-8	1 "	141834-0-01		D-28	Spring Washer	1 "	028770-2-42	
D-11	Washer	2 pcs.	115007-0-02		D-29	Set Bolt	1 "	017771-4-12	
D-12	Stop Ring	2 "	048120-1-42		D-30	Clutch Actuating Lever Stopper	1 "	141988-0-01	
D-13	Stud Screw for D-14	1 pce.	115389-0-02		D-31	Nut	1 "	021760-2-02	
D-14	Joint	1 "	142433-0-01		D-32	Stud Screw for Chain	1 "	141893-0-01	
D-15	Nut	1 "	021760-2-02		D-33	Drive Connector	1 "	142270-0-01	
D-16	Drive Connecting Bar	1 "	141983-0-01		D-34	Chain	1 "	106612-0-01	
D-17	Nut	2 pcs.	141493-0-01		D-35	Nut	1 "	021770-1-03	
D-18	Washer	1 pce.	143190-0-01						

E

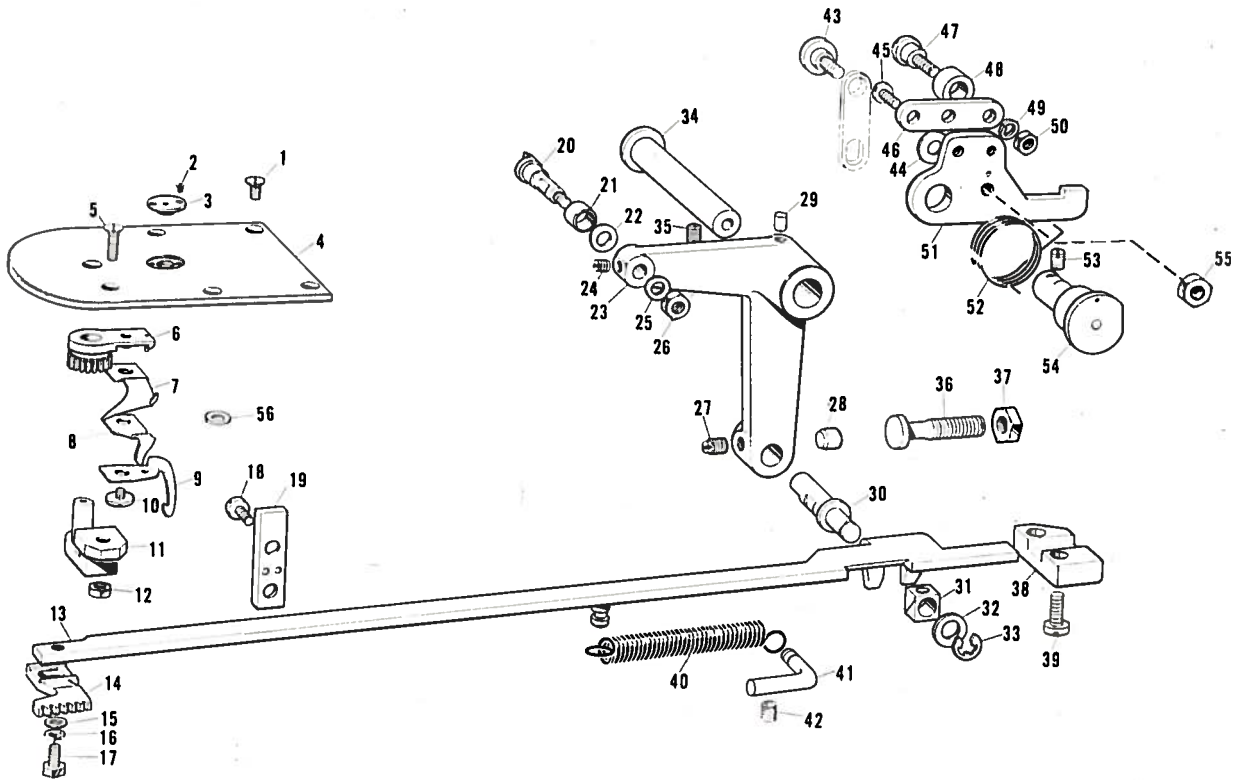


Ref. No.	Name of parts	Q'ty	Parts No.	Assembly No.	Ref. No.	Name of parts	Q'ty	Parts No.	Assembly No.
E-1	Set Screw for E-2	1 pce.	014760-6-22		E-25	Nut	1 pce.	021760-2-02	
E-2	Tack Length Regulator Lever Stud	1 "	141835-0-01		E-26	Tack Length Feed Shaft	1 "	141826-0-01	
E-3	Nut	1 "	021820-2-02		E-27	Tack Length Feed Bracket	1 "	141827-0-01	
E-4	Washer	1 "	025080-1-32		E-28	Set Screw for E-27	2 pcs.	009821-6-12	
E-5	Tack Length Regulator Lever	1 "	141833-0-01		E-29	Set Screw for E-26	1 pce.	014760-6-22	
E-6	Set Pin	1 "	141834-0-01		E-30	Set Bolt for E-43	4 pcs.	017782-0-12	
E-7	Set Screw	1 "	013680-6-12		E-31	Spring Washer	4 "	028770-2-42	
E-8	Slide Block	1 "	142211-0-01		E-32	Washer	4 "	025770-2-32	
E-9	Ball Stud	1 "			E-33	Nut for E-43	1 pce.	105744-0-03	
E-10	Tack Length Regulator Rod	1 "			E-34	Set Screw for E-37, 38	6 pcs.	009711-4-12	
E-11	Set Screw for E-10	2 pcs.	009681-4-14	141828-0-01	E-35	Feed Cam	1 pce.		
E-12	Set Screw for E-10	2 "	009681-4-14		E-36	Felt	1 "	107149-0-01	
E-13	Ball Stud	1 pce.			E-37	Knife Cam B	1 "		
E-14	Tack Length Indicator Plate	1 "	144473-0-01		E-38	Knife Cam A	1 "		
E-15	Thumb Screw	1 "	141831-0-01		E-39	Set Screw for E-42	2 pcs.	009781-4-12	
E-16	Set Screw for E-18	2 pcs.	101275-0-01		E-40	Spring Washer	2 "	028770-2-42	
E-17	Stud Screw	1 pce.	115389-0-02		E-41	Washer	2 "	025770-2-32	
E-18	Tack Length Indicator	1 "	142122-0-01		E-42	Clutch Stopper Cam	1 pce.		
E-19	Washer	1 "	025770-2-32		E-43	Worm Wheel Shaft	1 "	141815-0-01	
E-20	Nut	1 "	021780-2-02		E-44	Set Collar	1 "	141816-0-01	
E-21	Tack Length Regulator Lever	1 "	144254-0-01		E-45	Set Screw	2 pcs.	014770-6-22	
E-22	Roller for E-21	1 "			E-46	Worm Wheel	1 pce.		
E-23	Roller Stud for E-21	1 "			E-47	Set Screw	1 "	014760-6-22	
E-24	Washer	1 "	025060-2-32		E-48	Spring Pin	1 "	047603-2-42	



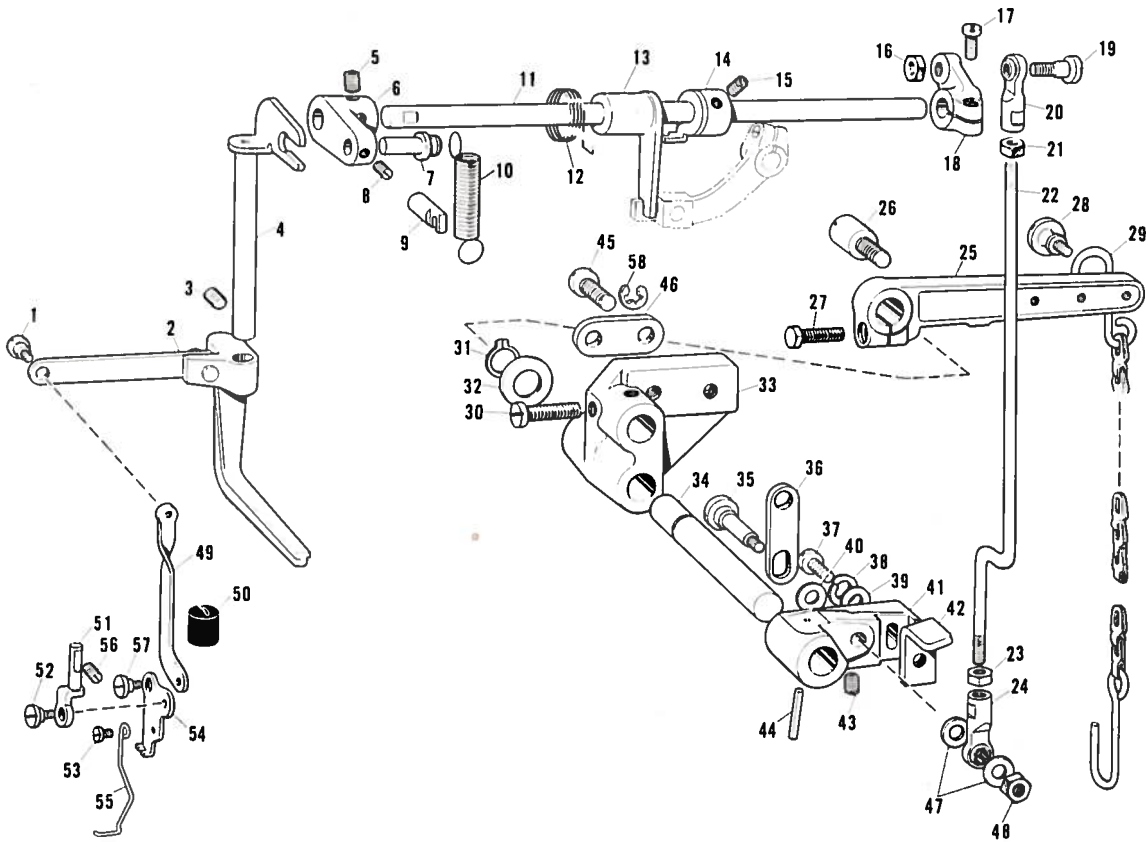
Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
F-1	Set Screw for F-2	4 pcs.	107038-0-01		F-30	Set Screw for F-27	1 pce.	106764-0-01	
F-2	Work Clamp Guide Plate	1 pce.	141849-0-01		F-31	Felt	1 -	107149-0-01	
F-3	Work Clamp (Left)	1 -			F-32	Tack Width Feed Lever Bracket	1 -	141844-0-01	
F-4	Work Clamp (Right)	1 -			F-33	Tack Width Adjuster	1 -	141839-0-01	
F-5	Nut	1 -			F-34	Shaft for F-33	1 -	141841-0-00	
F-6	Adjusting Screw for Work Clamp	1 -			F-35	Washer	1 -	141843-0-01	
F-7	Presser Arm	1 -			F-36	Hinge Block Shaft	1 -	141840-0-01	
F-8	Work Clamp Spring	1 -			F-37	Adjusting Screw	1 -	141842-0-01	
F-9	Shaft for F-8	1 -	141851-0-01		F-38	Set Screw for F-32	2 pcs.	009821-6-12	
F-10	Set Screw for F-9	1 -	100062-0-03		F-39	Set Bolt for F-41	4 -	117363-0-01	
F-11	Washer	1 -			F-40	Washer	4 -	025710-1-32	
F-12	Set Screw	1 -			F-41	Roller Stud Guide Plate	2 -	141858-0-01	
F-13	Set Screw	1 -	100013-0-01		F-42	Tack Width Regulator Lever	1 pce.	141838-0-01	
F-14	Set Screw	1 -	100062-0-03		F-43	Set Screw for F-42	1 -	303865-0-01	
F-15	Feed Plate Carrier	1 -	141853-0-01		F-44	Collar for F-23	1 -	143539-0-01	
F-16	Set Screw	2 pcs.	009761-0-12		F-45	Presser Arm Stopper Screw	1 -		
F-17	Set Screw	2 -	145045-0-01		F-46	Washer	1 -		
F-18	Feed Plate	1 pce.			F-47	Set Screw	1 -		
F-19	Feed Plate Supporter	1 -	142217-0-01		F-48	Nut	1 -		
F-20	Feed Regulator Post	1 -	141855-0-01		F-49	Adjusting Screw	1 -		
F-21	Roller Stud for F-20	1 -	141856-0-01		F-50	Set Screw	1 -		
F-22	Set Screw for F-21	1 -	141857-0-01		F-51	Presser Arm	1 -		
F-23	Set Screw for F-24	2 pcs.	141850-0-01						
F-24	Holder for Feed Plate Carrier	1 pce.	144475-0-01						
F-25	Roller for F-26	1 -							
F-26	Roller Stud for F-27	1 -							
F-27	Tack Width Feed Lever	1 -							
F-28	Washer	1 -	025060-2-32						
F-29	Nut	1 -	021760-2-02						

G

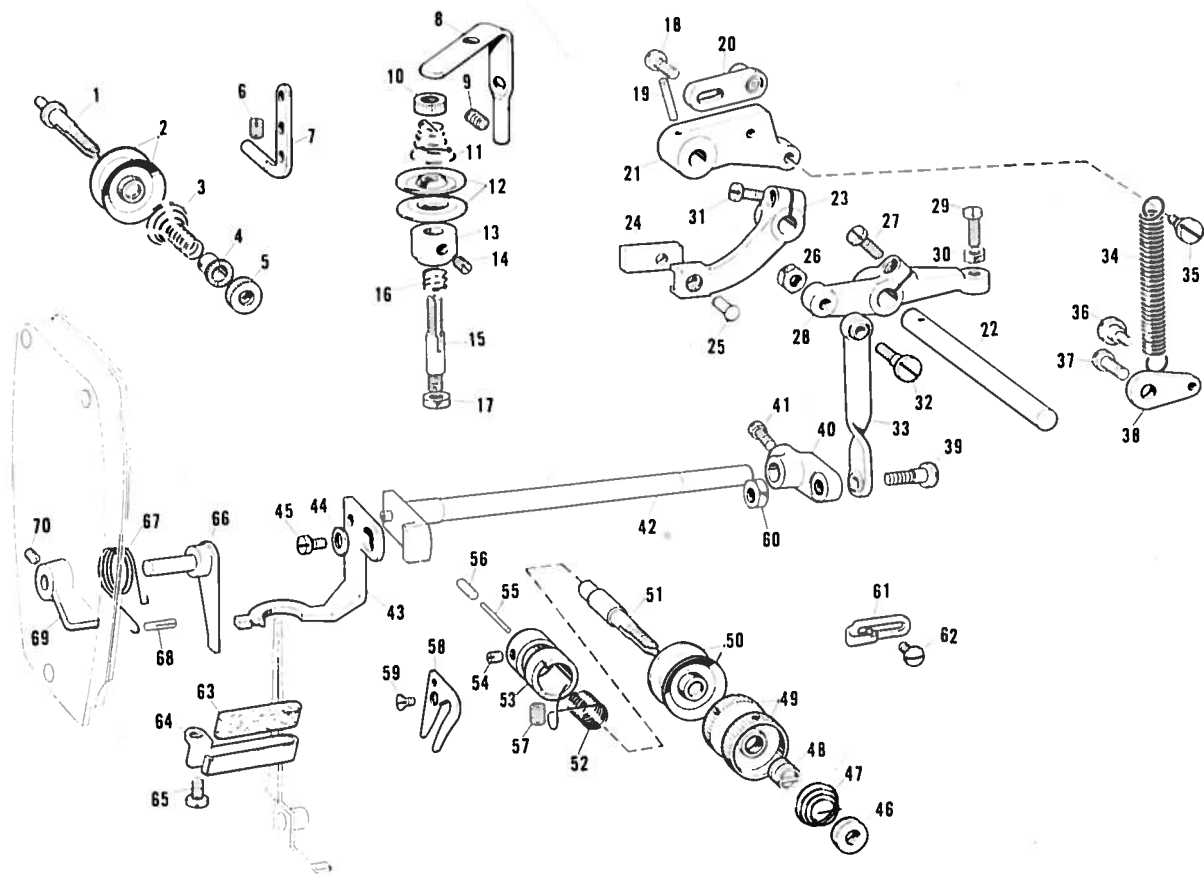


Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
G-1	Set Screw for G-4	4 pcs.	100032-0-01		G-29	Pin	1 pce.	107119-0-01	
G-2	Set Screw for G-3	2	105970-0-01		G-30	Stud Pin for G-31	1	141870-0-01	
G-3	Needle Hole Plate	1 pce.			G-31	Slide Block	1	142211-0-01	
G-4	Needle Plate	1	141862-0-01		G-32	Washer	1	025770-2-32	
G-7	Lower Thread Knife	1			G-33	Clip Ring	1	048050-3-42	
G-8	Upper Thread Knife	1			G-34	Thread Trimming Lever Shaft	1	141871-0-01	
G-9	Thread Retainer	1			G-35	Set Screw	1	014760-6-22	
G-10	Set Screw	1	105965-0-02		G-36	Set Screw	1	141875-0-01	
G-5	Set Screw for G-11	1	105955-0-01		G-37	Nut	1	105812-0-01	
G-6	Knife Carrier Pinion	1	140023-0-01		G-38	Knife Bar Guide Plate (B)	2 pcs.	141877-0-01	
G-11	Pinion Stud Bracket	1		181021-0-01	G-39	Set Screw for G-38	1 pce.	009761-4-12	
G-12	Nut	1	021680-2-03		G-40	Knife Bar Pulling Spring	1		
G-13	Knife Bar	1	141872-0-01		G-41	Spring Adjusting Bar	1	014760-6-22	
G-14	Knife Bar Rack	1	141874-0-01		G-42	Set Screw	1	014760-6-22	
G-15	Washer	1	025710-1-32		G-43	Stud Screw	1	118244-0-01	
G-16	Spring Washer	1	028050-2-42		G-44	Washer	2 pcs.	025060-2-32	
G-17	Set Bolt	1	117363-0-01		G-45	Set Screw	1 pce.	009711-0-12	
G-18	Set Screw	2 pcs.	106396-0-02		G-46	Supporter Plate	1	141885-0-01	
G-19	Knife Bar Guide Plate (A)	1 pce.	141876-0-01		G-47	Stud Screw	1	115488-0-01	
G-20	Roller Stud	1	141869-0-01		G-48	Roller	1	115445-0-01	
G-21	Roller for G-20	1	141868-0-01		G-49	Spring Washer	1	028050-2-42	
G-22	Washer	1	115663-0-01		G-50	Nut	1	021710-2-02	
G-23	Thread Trimming Lever	1	141867-0-01		G-51	Thread Trimming Lever Plate	1	141884-0-01	
G-24	Set Screw	1	013710-5-12		G-52	Spring for G-51	1	141887-0-01	
G-25	Spring Washer	1	028050-2-42		G-53	Set Screw	1	013760-6-12	
G-26	Nut	1	021710-2-02		G-54	Shaft for G-51	1	141886-0-01	
G-27	Set Screw for G-30	1	100013-0-04		G-55	Nut	1	021760-2-02	
G-28	Stopper	1	143706-0-00		G-56	Washer	1		

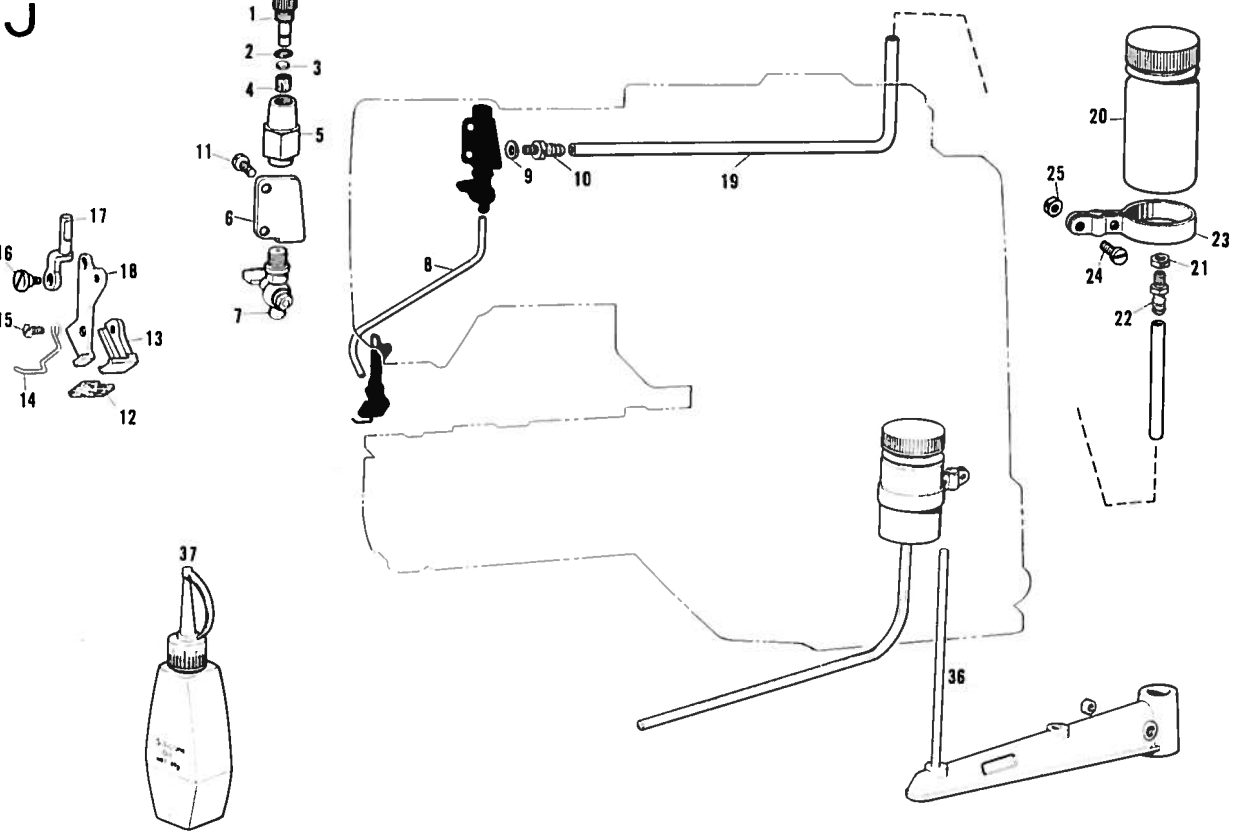
H



Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
H-1	Stud Screw	1 pce.	141927-0-01		H-30	Set Screw	1 pce.	009402-0-12	
H-2	Work Clamp Lifter Holder	1 *	141904-0-01		H-31	Stop Ring	1 *	048120-1-42	
H-3	Set Screw	1 *	014770-6-22		H-32	Washer	1 *	115007-0-02	
H-4	Work Clamp Lifter	1 *	141903-0-01		H-33	Lifting Lever Bracket	1 *	141890-0-01	
H-5	Set Screw	2 pcs.	014760-6-22		H-34	Lifting Lever Shaft	1 *	141883-0-01	
H-6	Lifting Arm (Front)	1 pce.	141900-0-01		H-35	Stud Screw	1 *	141889-0-01	
H-7	Stud Pin for H-4	1 *	141901-0-01		H-36	Connecting Plate	1 *	141888-0-01	
H-8	Set Screw	1 *	013680-6-12		H-37	Set Screw	1 *	009771-4-12	
H-9	Spring Hook	1 *	142009-0-01		H-38	Spring Washer	1 *	028770-2-42	
H-10	Spring	1 *	141902-0-01		H-39	Washer	1 *	025770-2-32	
H-11	Work Clamp Lifting Shaft	1 *	141899-0-01		H-40	Washer	1 *	025770-2-32	
H-12	Spring for H-13	1 *	141909-0-01		H-41	Lifting Lever Arm	1 *	141881-0-01	
H-13	Nipper Operating Lever	1 *	141907-0-01		H-42	Lifting Lever Arm Pawl	1 *	141882-0-01	
H-14	Collar for H-13	1 *	141908-0-01		H-43	Spring Pin	1 *	047502-2-42	
H-15	Set Screw	2 pcs.	014770-6-22		H-44	Set Screw	2 pcs.	009822-0-12	
H-16	Nut	1 pce.	021780-3-02		H-45	Washer	1 pce.	141891-0-01	
H-17	Set Screw	1 *	009771-4-12		H-46	Washer	2 pcs.	025770-2-32	
H-18	Lifting Arm (Rear)	1 *	141897-0-01		H-47	Nut	1 pce.	021780-2-02	
H-19	Set Screw	1 *	141898-0-01		H-48	Thread Wiper Connecting Plate	1 *	141929-0-01	
H-20	Ball Joint	1 *	141492-0-01		H-49	Oil Cap	1 *	141931-0-01	
H-21	Nut	1 *	021760-2-02		H-50	Thread Wiper Supporter	1 *	141925-0-01	
H-22	Connecting Bar	1 *	141896-0-01		H-51	Stud Screw	1 *	141927-0-01	
H-23	Nut	1 *	021760-2-02		H-52	Set Screw	1 *	009670-5-14	
H-24	Ball Joint	1 *	141492-0-01		H-53	Thread Wiper Set Plate (A)	1 *	141926-0-01	
H-25	Work Clamp Lifter	1 *	141892-0-01		H-54	Thread Wiper (A)	1 *	141928-0-01	
H-26	Stopper for Lifting Lever	1 *	141894-0-01		H-55	Set Screw	1 *	013711-0-12	
H-27	Set Bolt	1 *	017761-6-12		H-56	Stud Screw	1 *	141927-0-01	
H-28	Stud Screw for Chain	1 *	141893-0-01		H-57	Spring Washer	2 pcs.	028080-2-42	
H-29	Chain	1 *	105333-0-01						141924-0-01

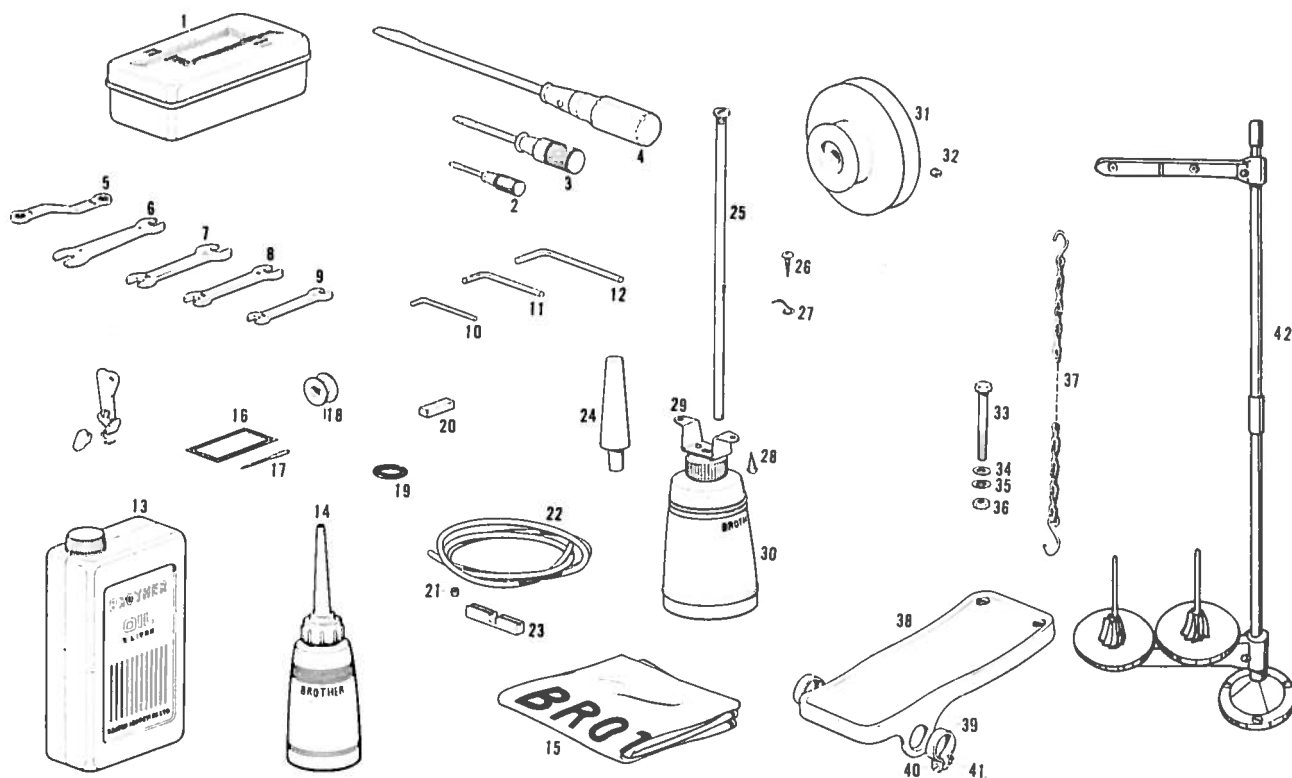


Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	parts No.	Assembly No.
I-1	Sub Tension Stud	1 pce.	110820-0-01		I-36	Stud Screw	1 pce.	110171-0-02	
I-2	Tension Disc	2 pcs.	108721-0-01		I-37	Set Screw	1 -	009761-2-12	
I-3	Sub Tension Spring	1 pce.	115958-0-01		I-38	Adjusting Plate for I-34	1 -	115558-0-01	
I-4	Sub Tension Washer	1 -	144105-0-00		I-39	Set Screw	1 -	141898-0-01	
I-5	Sub Tension Control Nut	1 -	105230-0-01		I-40	Thread Nipper Connecting Joint	1 -	141920-0-01	
I-6	Set Screw	1 -	013711-0-12		I-41	Set Screw	1 -	105163-0-01	
I-7	Thread Retainer	1 -	141989-0-01		I-42	Thread Nipper Connecting Shaft	1 -	141922-0-01	
I-8	Thread Guide for Bobbin Winder	1 -	141759-0-01		I-43	Thread Nipper Fastening Plate	1 -	141923-0-01	
I-9	Set Screw	1 -	013710-7-12		I-44	Washer	1 -	025710-1-32	
I-10	Tension Control Nut	1 -	100136-0-01		I-45	Set Screw	1 -	009710-7-12	
I-11	Tension Spring	1 -	104525-0-01		I-46	Tension Control Nut	1 -	100136-0-01	
I-12	Tension Disc	2 pcs.	108721-0-01		I-47	Tension Spring	1 -	104525-0-01	
I-13	Tension Stud Collar	1 pce.	118405-0-03		I-48	Tension Release Adjusting Screw	1 -	117488-0-01	
I-14	Set Screw	2 pcs.	100388-0-01		I-49	Tension Release Adjusting Knob	2 pcs.	117487-0-01	
I-15	Tension Stud	1 pce.	118404-0-01		I-50	Tension Disc	2 -	108721-0-01	
I-16	Spring	1 -	109986-0-01		I-51	Tension Stud	1 pce.	115594-0-01	
I-17	Nut	1 -	021780-3-02		I-52	Thread Take-up Spring	1 -		
I-18	Set Screw	1 -	106396-0-02		I-53	Tension Bracket	1 -	115593-0-01	
I-19	Spring Pin	1 -	047301-8-42		I-54	Set Screw	1 -	104649-0-01	
I-20	Thread Nipper Lever Roller	1 -	141912-0-01		I-55	Tension Release Pin	1 -	115599-0-00	
I-21	Thread Nipper Lever	1 -	141911-0-01		I-56	Tension Release Guide Pin	1 -	141992-0-01	
I-22	Thread Nipper Lever Shaft	1 -	141914-0-01		I-57	Set Screw	1 -	013760-7-12	
I-23	Thread Nipper Adjusting Lever	1 -			I-58	Thread Guide Plate	1 -	141993-0-01	
I-24	Thread Nipper Adjusting Lever Pawl	1 -		142219-0-01	I-59	Set Screw	1 -	108960-0-03	
I-25	Set Pin	1 -			I-60	Nut	1 -	021780-3-02	
I-26	Nut	1 -	021780-2-02		I-61	Arm Thread Guide Upper	1 -	115316-0-01	
I-27	Set Screw	1 -	141898-0-01		I-62	Set Screw	1 -	112751-0-01	
I-28	Thread Nipper Connecting Lever	1 -	141967-0-01		I-63	Felt for I-64	1 -	114941-0-01	
I-29	Set Screw	1 -	009712-0-12		I-64	Arm Thread Guide Lower	1 -	141998-0-01	
I-30	Nut	1 -	021710-2-02		I-65	Set Screw	1 -	009680-8-14	
I-31	Set Screw for I-23	1 -	009711-4-12		I-66	Tension Release Lever	1 -	141996-0-01	
I-32	Set Screw	1 -	009711-4-12		I-67	Spring for I-66	1 -	141997-0-01	
I-33	Thread Nipper Connecting Plate	1 -	141918-0-01		I-68	Pin	1 -	120034-0-01	
I-34	Spring for I-21	1 -	115570-0-01		I-69	Tension Release Lever Handle	1 -	141995-0-01	
I-35	Stud Screw	1 -	110171-0-02		I-70	Set Screw	1 -	014680-6-22	



Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
J-1	Needle Cooler Adjusting Screw	1 pce.	141939-0-01	180501-0-01	J-19	Vinyl Tube	1 pce.	142256-0-01	142423-0-01
J-2	Packing	1 "	081004-0-70		J-20	Oil Tank	1 "		
J-3	Washer	1 "	141940-0-01		J-21	Nut	1 "		
J-4	Felt	1 "	141941-0-01		J-22	Oil Feeding Connector	1 "		
J-5	Needle Cooler Adjustor	1 "			J-23	Oil Tank Holder	1 "	143446-0-01	
J-6	Holder for J-5	1 "	141944-0-01		J-24	Set Screw	2 pcs.	110191-0-01	
J-7	Oil Cock	1 "	142411-0-01		J-25	Nut	2 "	110161-0-03	
J-8	Oil Tube	1 "	141946-0-00		J-36	Needle Cooler Base	1 pce.	144866-0-01	
J-9	Packing	1 "	141943-0-00		J-37	Needle Cooler Oil	1 "	144506-0-01	
J-10	Oil Feeding Connector	1 "	141942-0-01		J-1-37	Complete Set		144538-0-01	
J-11	Set Screw for J-6	2 pcs.	009711-0-14						
J-12	Needle Cooler Felt	1 pce.	141935-0-01						
J-13	Oil Tube Holder	1 "	141936-0-01						
J-14	Thread Wiper (B)	1 "	141934-0-01						
J-15	Set Screw	1 "	009670-7-14						
J-16	Stud Screw	1 "	141927-0-01	141932-0-01					
J-17	Thread Wiper Supporter	1 "	141925-0-01						
J-18	Thread Wiper Set Plate (B)	1 "	141933-0-01						

* This is optional part.



Accessories Part-list for LK3-B220, and B221

Ref. No.	Name of parts	Qty	Parts No.	Assembly No.	Ref. No.	Name of parts	Qty	Parts No.	Assembly No.
●Z-1	Accessory Box	1 pce.	110436-0-01		●Z-24	Head Rest	1 pce.	142005-0-00	
●Z-2	Screwdriver 6 × 40	1 *	102676-0-02		●Z-25	Vinyl Tube	1 *	141763-0-01	
●Z-3	Screwdriver 5.5 × 75	1 *	102629-0-04		●Z-26	Set Screw for Z-27	1 *	031311-3-02	
Z-4	Screwdriver 6.4 × 204	1 *	100472-0-01		●Z-27	Tube Holder	1 *	117150-0-01	
●Z-5	Spanner 8 × 9	1 *	105343-0-01		●Z-28	Set Screw for Z-29	2 pcs.	101118-0-01	
●Z-6	Wrench 14 × 17	1 *	116715-0-01		Z-29	Dust Oiler Supporter	1 pce.	142003-0-01	
●Z-7	Wrench 10 × 12	1 *	107780-0-01		Z-30	Dust Oiler	1 *	114486-0-01	
●Z-8	Wrench 8 × 9	1 *	100887-0-01		Z-31	Motor Pulley (60 Hz, 2000 spm.)	1 *		
●Z-9	Wrench 6 × 7	1 *	107779-0-01		Z-31	Motor Pulley (50 Hz, 2000 spm.)	1 *		
●Z-10	Allen Wrench (2mm)	1 *	142002-0-01		Z-31	Motor Pulley (60 Hz, 1900 spm.)	1 *		
●Z-11	Allen Wrench (3mm)	1 *	142721-0-01		Z-31	Motor Pulley (50 Hz, 1900 spm.)	1 *		
●Z-12	Allen Wrench (6mm) for B221 only	1 *	115157-0-01		Z-32	Set Screw for Pulley	2 pcs.	013761-2-12	
Z-13	Oil	1 *	145277-0-03		●Z-33	Bolt	4 *	144543-0-01	
Z-14	Oiler	1 *	114483-0-01		●Z-34	Washer	4 *	025060-2-34	
Z-15	Head Cover	1 *	144226-0-01		●Z-35	Washer	4 *	025060-3-34	
●Z-16	Needle Bag	1 *	108920-0-01		●Z-36	Nut	4 *	021060-1-04	
●Z-17	Needle	5 pcs.			●Z-37	Chain (A) for Work Clamp Lifter	1 pce.	105333-0-01	
●Z-18	Bobbin	5 *	100117-0-01		●Z-37	Chain (B) for Clutch Actuating Lever	1 *	106812-0-01	
●Z-19	Rubber Ring	1 pce.	120448-0-01		Z-38	Foot Pedal	2 pcs.	117437-0-01	
●Z-20	Felt	5 pcs.	114941-0-01		Z-39	Foot Pedal Stopper	2 *	116016-0-01	
●Z-21	Adjusting Screw for Drive Lever Shaft	1 pce.	013761-0-12		Z-40	Set Screw	2 *	001401-4-06	
Z-22	Belt	1 *	143852-0-01		Z-41	Nut	2 *	021400-1-06	
●Z-23	Belt Connector Base	1 *	143877-0-01		Z-42	Cotton Stand	1 set.	142972-0-01	

Remark

* The parts with mark (*) are in accessory box.

DIFFERENT PARTS LIST

Ref. No.	Name of parts	Sub-class	-1	-2	-3	-4	-5	-6	-7	-8	-9
B-5	Needle bar				141776001			144238001		141776001	
B-13, Z-17	Needle		105771016 (LQ × 5)		105771011	105771016	105771011	145646021 (DP × 17)		105771016	
B-34	Worm		141813001	142223001			141813001		142223001	141813001	142223001
B-77	Set screw				141799001						
B-81	Set screw				141800001						141799001
B-78-80	Shuttle driver assembly				141796001						141800001
B-99	Shuttle driver										141796001
B-100	Set screw							144478001			
E-22	Roller							009711412			
E-23	Roller stud				105872004			144255001			105872001
E-35	Feed cam				141824001			144256001			141824001
E-37	Knife cam B		141818001	142220001		142383001		144469001	144467001	144490001	144492001
E-38	Knife cam A		141821001	142222001		142385001		141821001	142222001	141821001	142222001
E-42	Clutch stopper cam		141820001	142221001		142384001		145048001	145019001	141820001	142221001
E-34-42	Feed cam assembly		141819001	142228001			141819001		142228001	141819001	142228001
E-46	Worm wheel		141817001	142381001		142382001		144468001	144466001	144489001	144491001
F-3	Work clamp (left)		141814001	142224001			141814001		142224001	141814001	142224001
F-4	Work clamp (right)		141848001	142389001	142226001	142389001	142226001	144462001	144482001	144601001	141848001
F-5	Nut		141847001	142388001	142225001	142388001	142225001	144461001	144481001	144606001	141847001
F-6	Adjusting screw				145009001						145009001
F-7	Presser arm				141852001						141852001
F-8	Work clamp spring				141846001						141846001
F-11	Washer				141850001				144477001		141850001
F-12	Set screw				107793000						107793000
F-18	Feed plate				100013004						100013004
F-45	Presser arm stopper screw		141854001	142390001	142227001	142390001	142227001	144460001	144483001	144602001	141854001
F-46	Washer							144485001			
F-47	Set screw							107793001			
F-48	Nut							100013004			
F-49	Adjusting screw							144464001			
F-50	Set screw							144463001			
F-51	Presser arm							105156003			
F-1-22	Presser arm assembly							144480001			
F-1-4 8-10 13-22 45-51	Presser arm assembly		141845001	142387001	142386001	142387001	142386001			144603001	141845001
F-25	Roller							144465001	144479001		
F-25	Roller stud				105872004			144255001			105872004
F-25-29	Tack width feed lever assembly				141824001			144256001			141824001
G-3	Needle hole plate				141836001			144474001			141836001
G-7	Lower thread knife		118872001		105969001	118872001	105969001	144429001			118872001
G-8	Upper thread knife				141863001			145148001			141863001
G-9	Thread retainer				141864001			144471001			141864001
G-40	Knife bar pulling spring				141865001						141865001
G-56	Washer				142565001			144589001			142565001
i-52	Thread take-up spring							025680232			
Z-31	Motor pulley (60Hz)				100399001			144588001			100399001
	Motor pulley (50Hz)				142006001			144640001			142006001
					142393001			144644001			142393001

