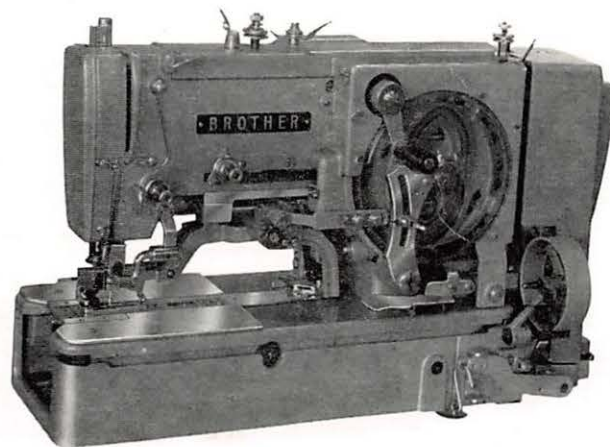


INSTRUCTION MANUAL
FOR
BROTHER MODEL LH4-B814-4



Gimp buttonholer for knit wear

BROTHER INDUSTRIES, LTD.
NAGOYA, JAPAN

C O N T E N T S

1. Specifications and Features	1
1. Main Specifications	1
2. Features	1
2. Setting up and running	2
1. How to fix the motor	2
2. Setting the machine head on table top	2
3. How to use the machine	4
1. Cleaning up	4
2. Needle and its setting	4
3. Selection of thread and threading	4
4. Winding lower thread.....	5
5. Threading bobbin case	5
6. Lower tension	6
7. Inserting bobbin case into hook	6
8. Running	6
9. Operating cutter locking device	6
10. Emergency stop.....	7
11. Operating manual feeding handle	7
4. Adjustment	7
1. Upper tension.....	7
2. Timing the hook and needle	8
3. Adjusting the width of buttonhole and position of buttonhole.....	8
4. Buttonhole slot and length.....	9
5. Number of stitches	9
6. Setting position of cutter	10
7. Position and adjustment of gimp guide.....	10
8. Gimp and zigzag width	11
9. Durability of blades.....	11
10. Work clamp lift	11
11. Synthetic thread	11
12. Placing gimp end	12
13. Single cycle use.....	12
14. Bar tacking.....	12
15. Safety device for work clamp lifter	12
16. Replacing lower thread trimmer.....	13
17. Adjusting automatic thread breakage perceiving device.....	13
18. Releasing tension on main tension regulator	13
19. Adjusting oiling.....	14
20. Installing the tape winder	14
5. Trouble shooting.....	14
1. Thread breaks	14
2. Stitch skipping	14
3. Threading off.....	14

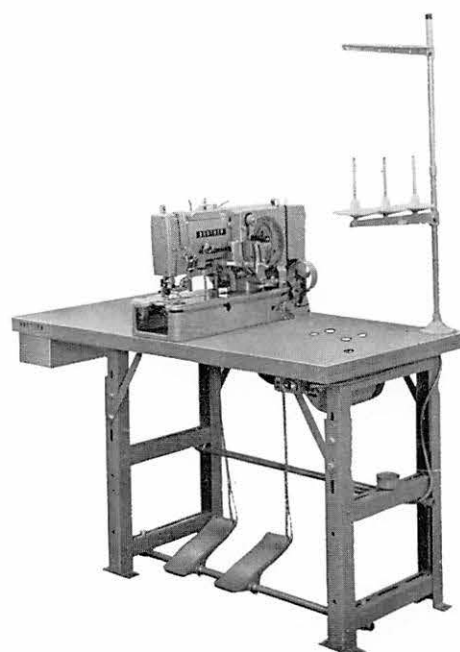
1. SPECIFICATIONS AND FEATURES

1. Main Specifications

Model	LH4-B814-4 Single needle lock stitch gimp buttonholer
Sub-class	-4
Use	Knitted wear
Max. sewing speed	3,300 spm
"	2,800 spm (Used synthetic upper thread or materials)
Length of buttonhole	10mm~32mm ($\frac{25}{64}$ "~ $1\frac{1}{4}$ ")
Width of buttonhole	2mm~ 6mm ($\frac{5}{64}$ "~ $\frac{15}{64}$ ")
Tape winding device	Equipped
Feeding mechanism	Upper & lower
Buttonhole stitches	147~360 stitches
Height of presser foot	13mm ($\frac{33}{64}$ ")
Oiling system	Automatic lubrication

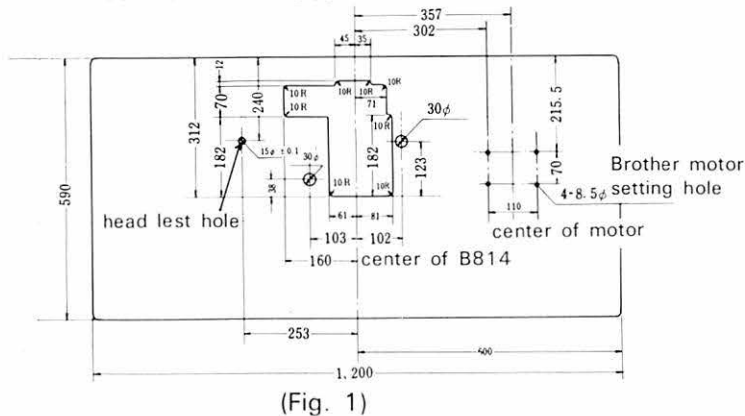
2. Features

- 1) When the sewing is done and you press the treadle for clamp lift, the threads and gimp are automatically trimmed.
- 2) This model is very fast to sew and can be obtained good quality buttonholes with easy adjustments.
- 3) Automatic lubrication can avoid the oiling to the machine in every morning.
- 4) It can raise up the productivity as it ensures less thread breaks and thread off.
- 5) Wide working space can ensure easy sewing operation.
- 6) A specially selected belt makes no fine adjustment of belt tension.
- 7) An automatic knife locking device enables to prevent the materials from damage in case of the thread breakage.
- 8) Specially designed speed reduction mechanism enables noiseless and less vibration works.
- 9) It is very easy to change the length, width of buttonholes, number of stitches and amount of oil.
- 10) Emergency instant stop lever can guarantee the long durability of this machine and also can protect the breakage of the important parts.
- 11) Bobbin winding can be done even if machine stops.
- 12) Presser foot can lift upto 13mm.
- 13) The applicable thickness of the materials is ensured upto 6mm.
- 14) This machine is equipped with adjustable rulers either to back and forth direction or left and right.

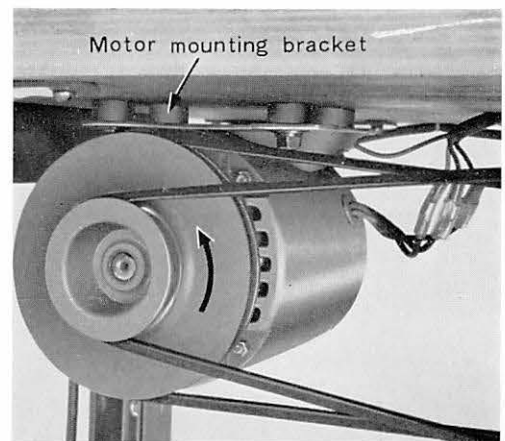
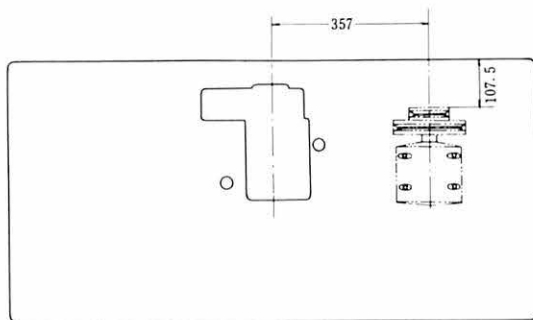


2. SETTING UP AND RUNNING

1. How to fix the motor



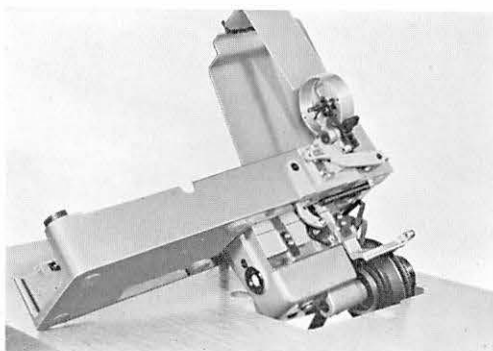
As shown in Fig. 1, it is the measurement of the location of constant running induction motor, made by Brother. (4 pole, 1,440/1,720 rpm, 250W). If you purchased this machine as head only, please use with the constant running induction motor of 4 pole, 250W or more wattage and in this case, the motor mounting bracket is different from our Brother motor, thus, please follow the instruction below :



Firstly, put the two speed pulley which is supplied with the machine head to the motor shaft and set the position apart 357mm from the centre of the machine. Set the position apart 107.5mm from the edge of the table top to the end of pulley as shown in Fig 2. Drill the holes at the correct position. Secondly, put the motor to table top. At that time, please make sure to insert the washers between table top and motor mounting bracket and fasten securely with set bolts.

The correct motor rotation is counter clockwise viewed from the pulley side and if not, please get the correct rotation.

2. Setting the machine head on table top



1) Set the base.

Put the base on the table top as per Fig. 4 and put two belts as shown in Fig. 3. In the district of 60 Hz, use with 41" for larger diameter pulley and 42" for smaller diameter pulley. In the district of 50 Hz, use with both 41"s.

At the proper tension of two belts, fasten the base with wood screws to table top securely.

Unless you may put the position correctly, it causes to lessen the life of belts.

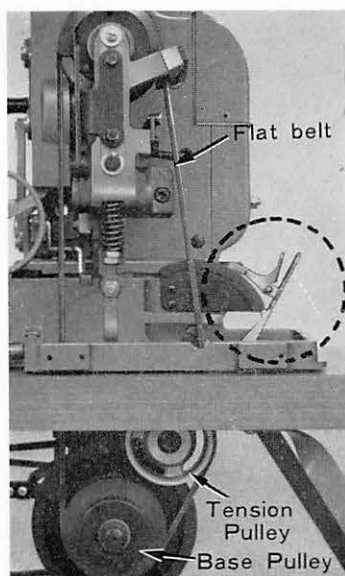
2) Put the hinges in the bed and place the machine head on the base.

3) Put the tension pulley as shown in Fig. 5.

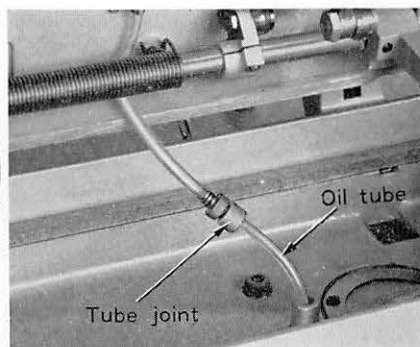
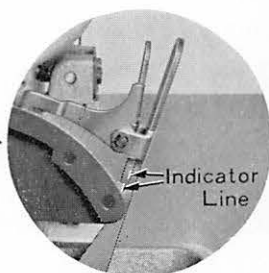
4) Put the head rest.

5) As shown in Fig. 6, connect the oil tubes with tube joint.

Then, put the flat belt between base pulley and tension pulley as shown in Fig. 5.



(Fig. 5)

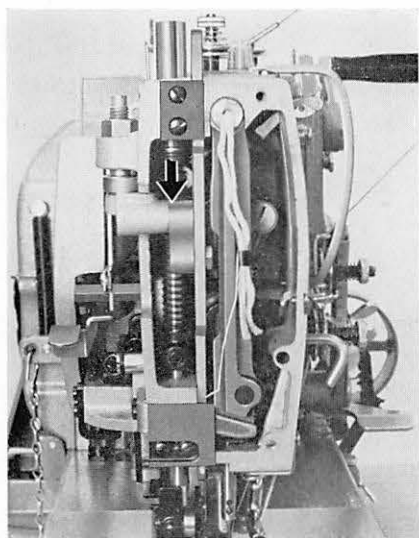


(Fig. 6)

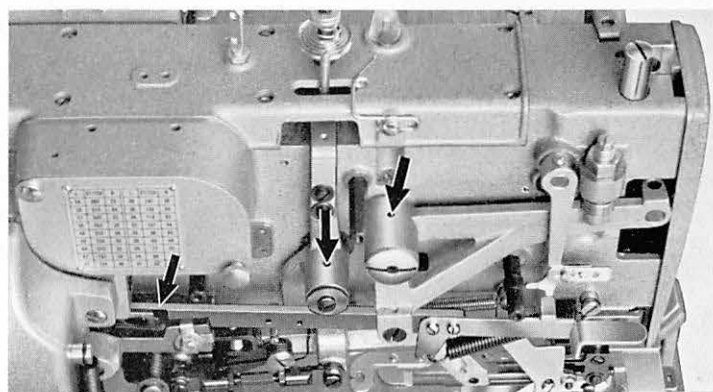
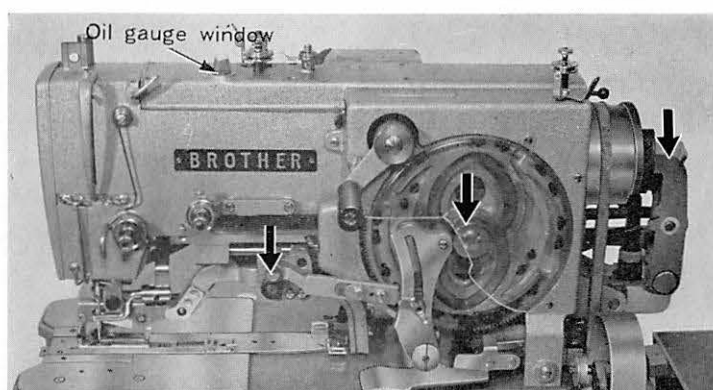


(Fig. 7)

- 6) Put the bobbin winder assembly as per Fig. 7. At that time, please make sure to be right angle between belt and pulley. This is because you can get the even bobbin winding when you may wind the bobbin threads on bobbin actually. The fine adjustment can be done at the position of thread guide.
- 7) Put the belt cover with flat head screws.
- 8) Put the flat belt to the machine pulley and push the tension lever and release it at the position in line with indicator.

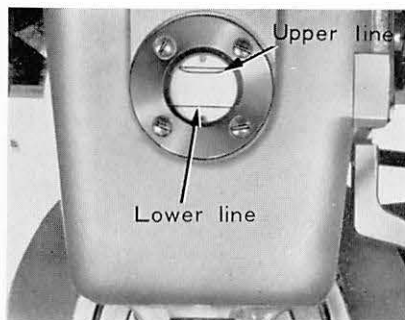


(Fig. 8)

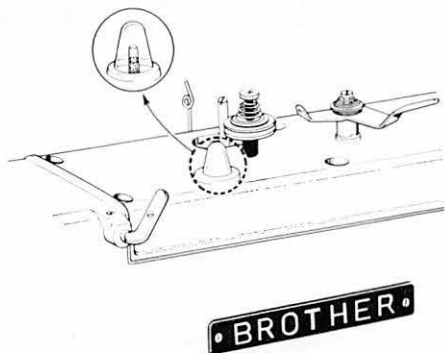


(Fig. 9)

- 9) All the above procedures are completed, then pour oil into the oil reservoir and oil to the sliding parts taking off the face plate, side cover and belt cover. Please also make sure to wipe out all the dusts of packing in transit, if any. (Figs 8. 9)



(Fig. 10)



(Fig. 11)

10) Oiling into oil reservoir.

This model is constructed that oil reservoir is a part of bed plate which is seen underneath the table top. Oiling is made as per Fig. 6 and pour oil onto the oil filter.

Pour oil until the upper line of oil gauge window.

Check in the oil gauge window before starting jobs whether proper oil is contained or not and in case that oil may show under the lower line, fulfil oil properly.

11) Checking the lubricating system.

Turn the oil flow regulating valve on the right side of the bed with a screwdriver so that when the motor is switched on oil may be visible in the pipe in the oil gauge window in the top cover. (Fig. 11)

3. HOW TO USE THE MACHINE

1. Cleaning up

It is absolutely necessary to maintain the hook and race cleaning up in order to get the beautiful buttonhole stitches. Please remove all the dusts and lints to get the constant beautiful stitches.

- 1) Remove all the dusts or lints which will be accumulated between needle plate and hook at least once a day after job finish.
- 2) Remove all the dusts or lints which will be accumulated on the presser foot and thread trimming mechanism whenever you may recognize the necessity.

2. Needle and its setting

Model LH4-B814-4 is used with DP $\times$ 5 needle.

Use the needle as thin as possible. It must be matching the thickness of thread and needle eye so that the thread may pass through the needle eye smoothly.

In general, for purl stitch, the recommended needle size is upto #11, whereas for whip stitch, upto #9.

To set the needle to the needle bar, please refer to Fig. 13. Short groove in front of you and fasten the needle set screw confirming that the needle comes all the way upto the needle bar hole.

*The recommended angle of the needles is a bit left direction against the centre of needle bar. At this setting position, it is effective to eliminate skip stitches.

3. Selection of thread and threading

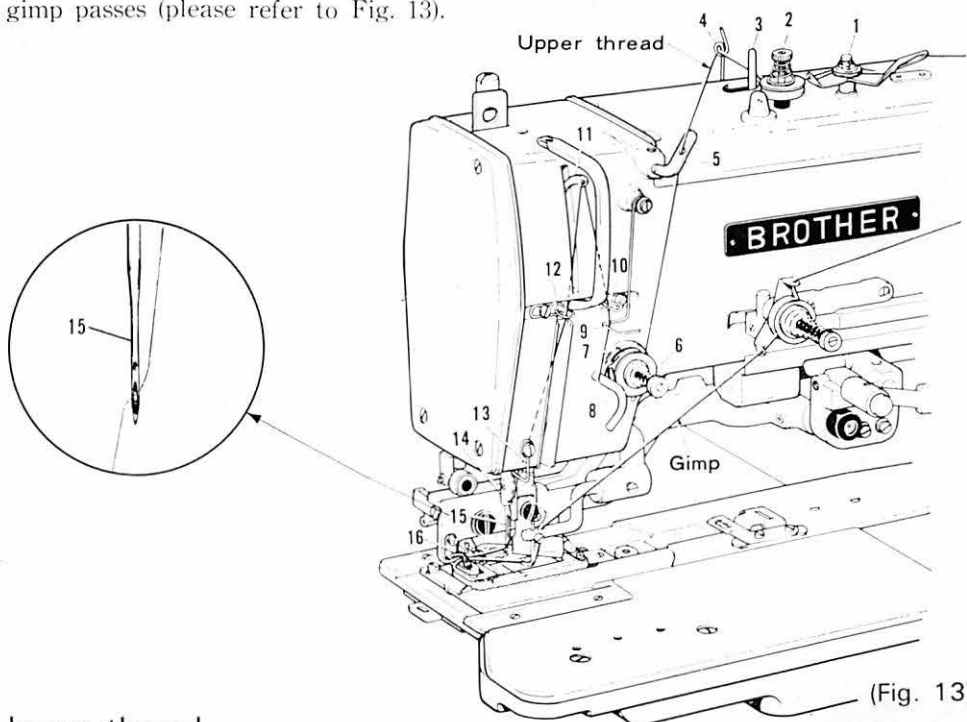
For good quality buttonholes, use for upper thread with only high grade threads, preferably cotton threads in size of #40-#60, 4-6 ply thread, left hand twisted, uniform in diameter without knot or slubs.

This model LH4-B814-4 can be sewn with the synthetic threads as well as cotton threads.

Right hand twisted thread or poor quality threads cause thread breakage which drop the productivity. Therefore, please make sure to use high grade threads to use with this machine.

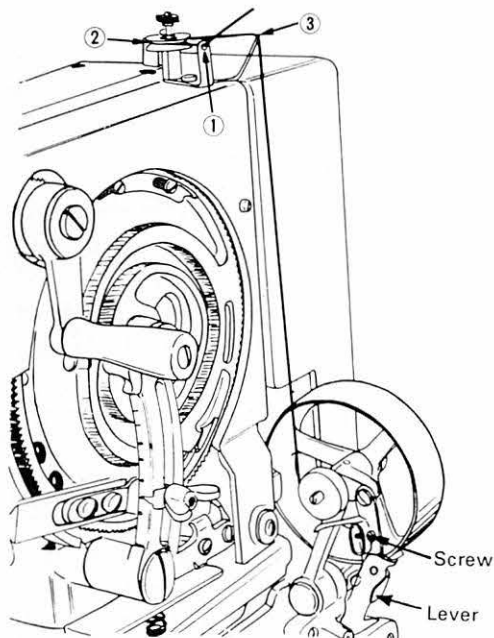
Use for lower thread with high grade threads as well in size of #50-#100.

- Threads and gimp passes (please refer to Fig. 13).



(Fig. 13)

4. Winding lower thread



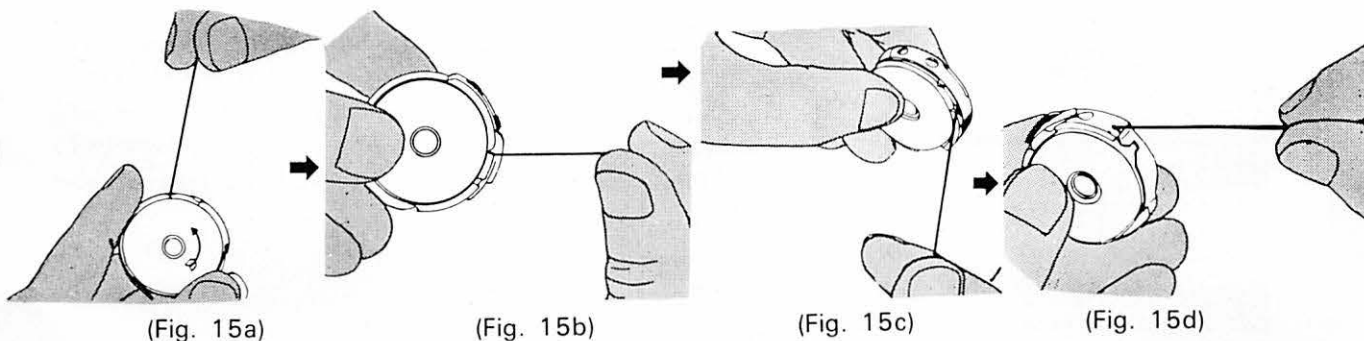
(Fig. 14)

For lower thread, it is recommended to use with #50-#100 cotton thread, but it can be assured to get sewing performance with synthetic threads as well.

To wind the thread in bobbin, please refer to Fig. 14. Wind 4-5 times around the empty bobbin counter clockwise, and push the lever to start to wind. When sufficient amount of threads will be wound, the bobbin winder will stop automatically. The amount of threads to be wound is adjusted by the screw.

5. Threading bobbin case

To thread on the bobbin case, please refer to Fig. 15, a. b. c & d.



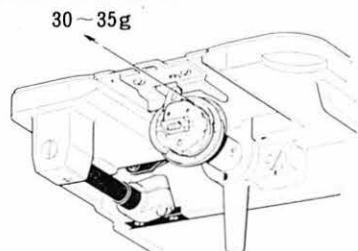
(Fig. 15a)

(Fig. 15b)

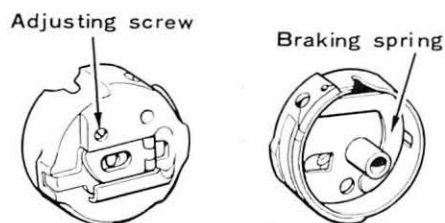
(Fig. 15c)

(Fig. 15d)

6. Lower tension



(Fig. 16)



(Fig. 17)

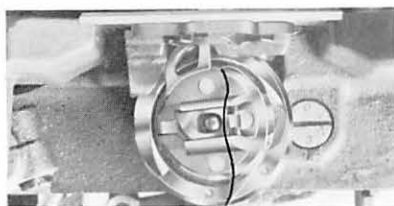
This machine must be used with special bobbin and bobbin case.

Especially, when you may use the synthetic thread as lower thread, there causes idle running of bobbin in the bobbin case, thus with spring action in the bobbin case, it prevents the bobbin from idle running. Therefore, when you want to adjust the tension of lower thread, set the bobbin case onto rotary hook and pull the lower thread, then check its tension and adjust it. (See Fig. 16)

The tension of lower thread is adjusted by the thread retaining spring and braking spring. Each tension as standard is 10~15 grams by thread retaining spring and 20 grams by braking spring, thus standard tension is 30~35 grams in total.

(NOTE) Braking spring is correctly adjusted before shipment, so that you need no adjustment until it will be out of order.

7. Inserting bobbin case into hook



(Fig. 18)

Please refer to Fig.18 to insert the bobbin case into hook. At that time, please make sure to pull the thread end toward you in order to avoid thread jamming.

8. Running

When you will start the machine, please make sure to be normal stop position, that is, the stopper is engaged in the stopper cam. Unless you may be acquainted with this machine, please refrain the machine from starting by the motor. Fig 20.

The best way to comprehend the machine mechanism thoroughly, please start the machine by hand driving the pulley slowly to observe the respective movements. At first, remove thread, needle, bobbin case and cutter then start to run.

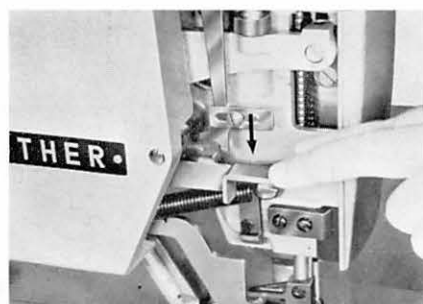
With left treadle pedal, you can lift the clamping foot and with right treadle pedal, you can start the machine.

This machine is designed with safety device, which prevents the machine from starting while the clamping foot is lifted and prevents the clamping foot from lifting up while machine runs. Therefore, if you depress right treadle pedal on the half way of left pedal engagement, the machine will not start to run, and left treadle pedal will not engage in lifting clamping foot while machine is running.

(NOTE) Please be careful that when machine is going to stop if you will depress left treadle pedal, the machine will not stop.

9. Operating cutter locking device

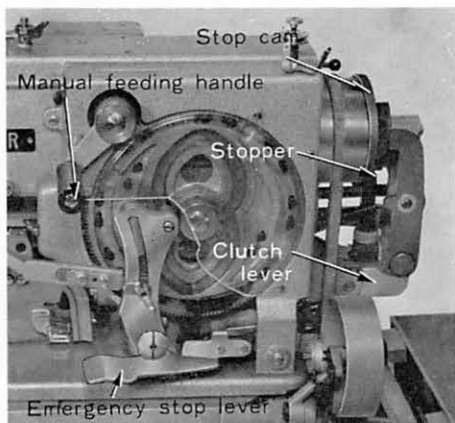
- | | |
|--|--|
| (1) On upper thread breaking | } you can have machine restart without cutting the buttonhole with cutter. |
| (2) On lower thread running out or thread breaking | |



(Fig. 19)

With this model, LH4-B814-4, in case of (1) the cutter movement will be locked automatically and in case of (2), as the cutter will be engaged in, please depress the cutter stop lever until the machine stops automatically. With this step, it ensures to prevent the materials from damage and you can have machine restart. Fig 19.

10. Emergency stop



(Fig. 20)

It is essential to stop the machine instantaneously even if the machine runs when the needle breaks or thread jamming in the hook. This prevents the machine and materials from damage.

In this case, depress down the emergency stop lever by hand and release it. (This operation of the emergency stop lever means that machine speed will be reduced to 800 rpm by pressing the lever and will be reduced to zero by releasing the lever.)

11. Operating manual feeding handle

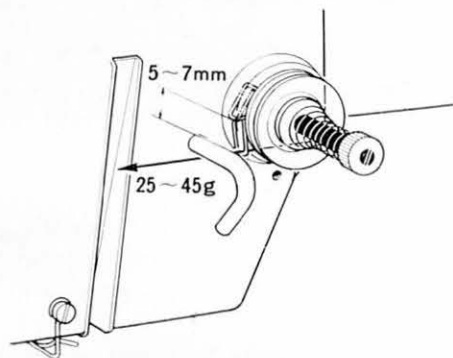
When you will use the emergency stop lever or when the thread breakage causes during its operation, you would like to restart the machine just before the defective stitch. At that time, turn the feed cam clockwise by means of this manual feeding handle at your desired position. Fig 20.

- (NOTE) 1. At the repairing of this machine, on the condition that the stop cam may be off from stopper which is on the condition of depressing the right treadle pedal, after turning the pulley by hand, there causes sometimes the cutter being operated to drop at the machine starting to run. This can be avoided by starting the machine from normal stop position or depressing the cutter stop lever as shown in Fig. 19.
2. The manual feeding handle should be used when the needle is apart from the materials. It is safe to operate the manual feeding handle at that position that stop cam stops at the correct angle.

4. ADJUSTMENT

1. Upper tension

This machine is equipped with two tension regulators. Upper tension is regulated by the tension of main tension assembly which is located on the upper plate and sub-tension is fixed the spring tension and no need to regulate the tension.



(Fig. 21)

- (1) Upper tension should be adjusted within 25~45 grams when it is pulled as per Fig. 21.

To check the tension is done by rotating the machine by the manual feeding handle and pressing the actuating treadle pedal.

- (2) Tension spring stroke and its adjustment.

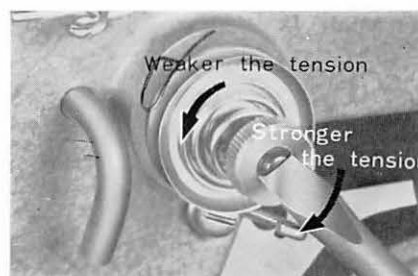
The stroke of tension spring is regulated by turning the sub-tension knob so as to be 5~7mm when the upper thread is pulled as per Fig. 21.

At that time, the tension is regulated by turning the sub-tension knob so as to be 10~15 grams when the upper thread is pulled downward.



(Fig. 22)

* When the height of thread take-up spring is incorrect position, loosen the screw and turn the upper tension regulator assembly.

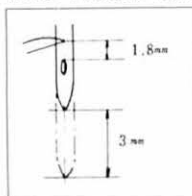


(Fig. 23)

* The thread take-up spring must be adjusted to correct tension as weak as possible.

* To change the tension, turn the stud screw. Fig. 23.

2. Timing the hook and needle



(Fig. 24)

To make adjustment of timing the hook and needle, please make sure to be at the position of the needle coming down to the centre of needle plate.

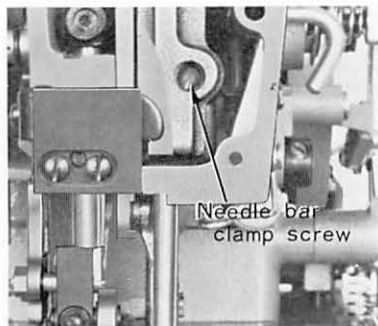
When the needle comes up 3mm from its lowest position, it is correct timing that the point of hook is located at behind the centre of needle. At that time, the correct height of needle bar is determined at the distance of 1.8mm between the point of hook and the top of needle eye. Fig. 24.



(Fig. 25)

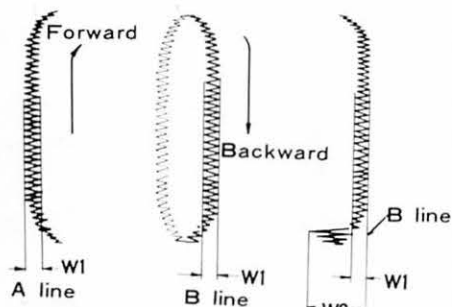
(1) To make adjustment of timing the hook, loosen the set screw as per Fig. 25.

(2) To make adjustment of needle bar height, loosen the needle bar clamp screw. Fig. 26.

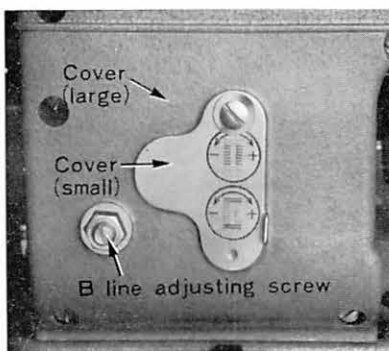


(Fig. 26)

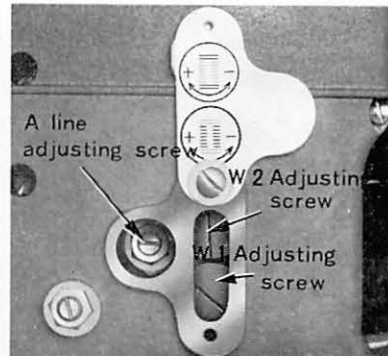
3. Adjusting the width of buttonhole and position of buttonhole



(Fig. 27)



(Fig. 28)



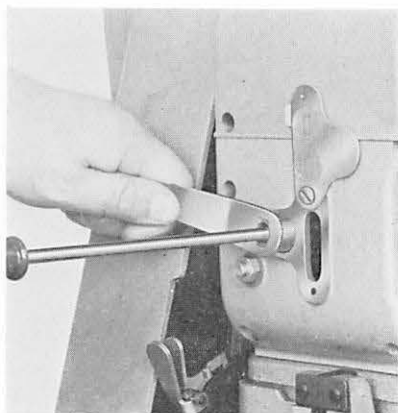
(Fig. 29)

(1) Needle swinging.

This machine swings the needle from right to left either going forward or backward, Fig. 27.

(2) Adjusting zigzag width W1 and W2. With W1 and W2 adjusting screws, turn to right (clockwise), the zigzag width will be wider, and turn to left (counter-clockwise), the zigzag width will be narrower. (Figs. 28, 29)

The width of zigzag and tacking can be adjusted by the adjusting screws to be larger or smaller. If you will loosen considerably the adjusting screw for bar tacking, you can obtain the gimp button-hole without bar taking.



(Fig. 30)

(3) Adjusting procedure

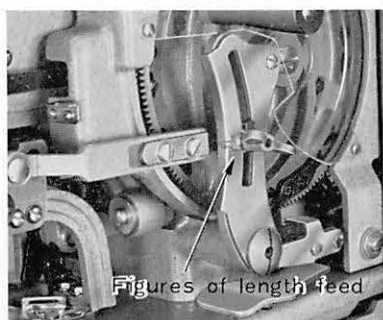
When the cutter goes down, after adjusting the A line not so as to break the sewn thread, adjust the zigzag width of parallel. Then, adjust the B line not so as to break the sewn thread of right zigzag in parallel. After completion of above-mentioned adjustment, adjust the width of bar tacking portions.

(NOTE) (1) By means of needle bar movement and pressing the materials with thread, when you will make adjustment by turning the pulley by hand, it causes a slight difference, therefore, please adjust the correct position with actual sewing.

(2) This machine is designed the needle swinging much more than the slot of work clamp therefore, please make sure the needle not to hit the work clamp when you may set the zigzag width of 4mm or more on bar tacking portions or after the removal of position lines on both backward and forward zigzag width of parallel portions.

After turning the pulley by hand, please make sure to use the emergency stop lever and set the machine to the normal stop position, namely, the stopper cam being positioned in the stopper. Then, start the machine.

4. Buttonhole slot and length



(Fig. 31)

If you determine the length of buttonhole, choose proper cutter and set the indicator to the figures of length feed. The figures are correspondent to the cutter length. (Fig.31)

5. Number of stitches

L	STITCH	R	L	STITCH	R
54	360	22	38	147	38
52	319	24			
51	300	25			
50	283	26			
48	252	28			
46	226	30			
44	203	32			
42	182	34			
40	164	36			

(Fig. 32)

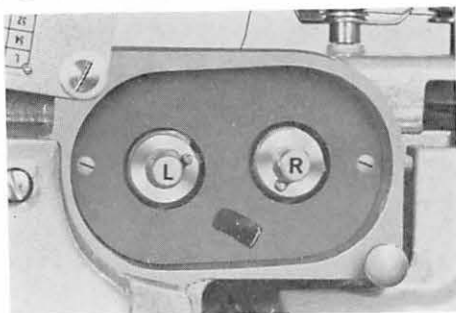
Please use with this machine in proper numbers of stitches per cycle depending on the length of buttonhole.

You can obtain the predetermined number of stitches changing the combination of the gears including with this machine. (Fig. 32)

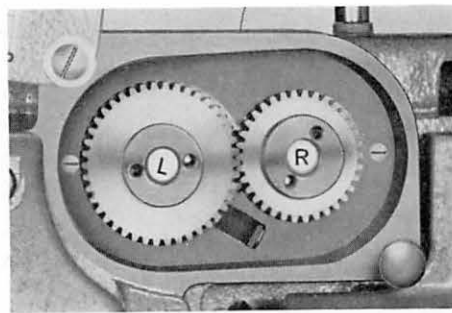
This machine is designed to sew one buttonhole with double cycle automatically and the minimum number of stitch per one buttonhole is 147 stitches. Thus, the minimum number of stitch per single cycle (when you will use it as single cycle) is 73 stitches. Maximum is 360 stitches; (180 stitches as single cycle)

(NOTE) Gear box is, thus, designed not so as to get the gear combination below 147 stitches.

(1) Changing the number of stitches



(Fig. 33)



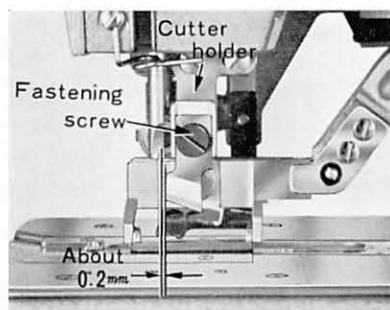
(Fig. 34)

Here is an example to obtain the desired number of stitches per cycle.

To obtain 182 stitches per cycle, please refer Figs. 33, 34.

- a. Put "42" gear into L shaft.
- b. Put "34" gear into R shaft turning gear slightly pushing and you can easily put it into the pinions within 180° rotation.
- c. Close the cover not so as to drop out.

6. Setting position of cutter

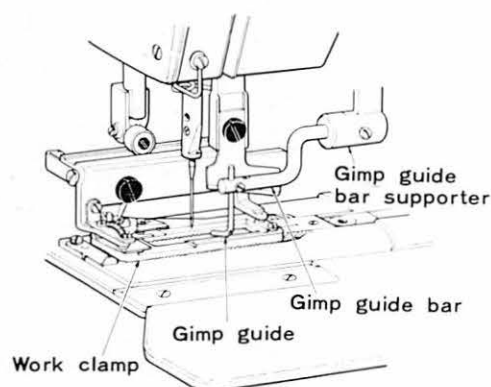


(Fig. 35)

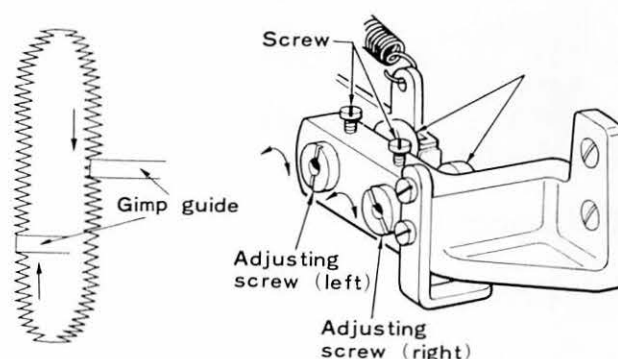
The position of cutter is adjusted by the movement of cutter holder. At that time, please make sure to have 0.2mm or more clearance between needle bar and cutter edge.

The height of cutter must be set as its lowest point (front) is 2mm below the needle plate surface on its way down. (Fig. 35)

7. Position and adjustment of gimp guide



(Fig. 36)



(Fig. 37)

In case you may change the width of buttonhole and zigzag considerably, there causes that gimp will not be sewn correctly with zigzag sewing, at that time, it is necessary to adjust the position of the gimp guide. Adjustment is done as follows; -

- (1) In case of left zigzag, the point of gimp guide should be positioned at the left end of zigzag width.

In this case, please refer to Fig. 36, 37.

- (2) In case of right zigzag, the point of gimp guide should be positioned at the centre of zigzag width. To adjust the position, loosen the screws and turn the adjusting screw respectively. After completion, fasten the screws securely.

8. Gimp and zigzag width

- (1) Usually, the gimp to be used for outer knit wears is fine or medium gauge yarn or linking thread.
To make strong and durable buttonhole which means not stretchable against longer stitches, gimp should be used with strong and greater friction.
(NOTE) If you use synthetic thread like Nylon or Dacron as gimp, there causes slippage between gimp and upper thread, then buttonhole shape becomes twisted.
- (2) As the width of zigzag and the thickness of the gimp is very much affected on the strength of the buttonhole, the narrower zigzag width is recommended to get the stronger buttonhole. At this time the width is limited a bit wider than the gimp thickness.

9. Durability of blades

The blades to adopt on this machine is specially treated and ensures its long durability.

But after a considerable use or thicker gimp, it becomes dull. In that case, sharpen or replace it.

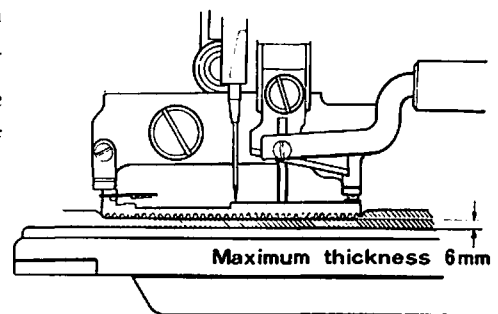
(NOTE) When you would remove or fix the work clamp assembly, make sure that the machine should be stopped at the left zigzag sewing position.

In case of changing the blades, take the following steps.

- (1) Set the machine at left zigzag sewing position.
- (2) Turn the manual handle so that the stud screw for work clamp will be positioned to remove by the screw driver. That is the position that the screw driver may not touch the needle.
- (3) After loosening the screw for the pressure spring, remove the stud screws and remove the work clamp.
- (4) Change the blade.
- (5) To assemble it, take the reverse steps as mentioned above.

10. Work clamp lift

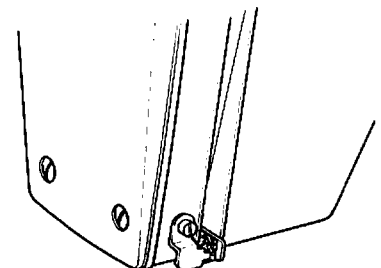
The materials underneath the work clamp after pressing down by work clamp are limited to be at the maximum of 6mm by this machine. In case of thicker materials than 6mm, needle bar may hit the gimp guide, then make sure the thickness of the materials to be sewn at the maximum of 6mm.



(Fig. 38)

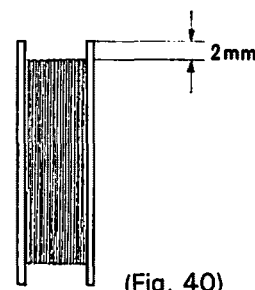
11. Synthetic thread

- (1) Stretchable synthetic thread like Nylon or Dacron is used to be beautiful stitches as upper thread very recently. At that time, change the thread guide as per Fig 39, which is enclosed in the accessory box.



(Fig. 39)

- (2) To avoid the thread breakage, the amount to be wound on the bobbin is at maximum of 70~80%.



(Fig. 40)

- (3) When you use the synthetic thread as upper thread, and encounter occasional thread breakages, check the back side of rotary hook if there are the threads wound and eliminate them.
- (4) In case of synthetic thread used as upper thread, the maximum speed is limited at 2,800 s.p.m., however, depending on the kind and thickness of the materials, due to the extra-ordinary heat on the needle, it causes upper thread breakage, use with the special needle, get the machine slow down and put the silicone oil into the felt on the thread guide.

12. Placing gimp end

Place the end of gimp passing through the gimp guide into the gimp holder, bending spring. (Fig. 13)

If you hold the gimp and upper thread, it prevents the blade from returning, thus occasionally, there causes that the blade hits the cutter. Therefore, please be accustomed not to hold the gimp with your finger.

13. Single cycle use

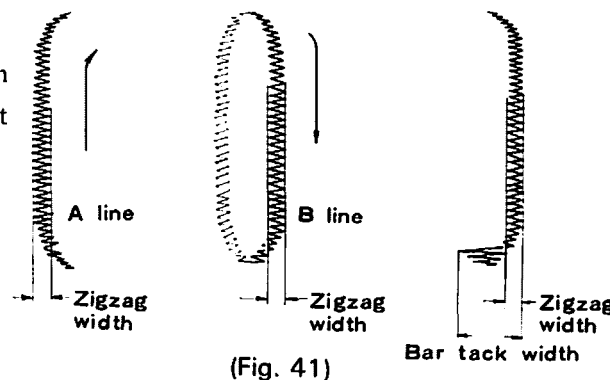
This machine is adjusted to be automatic double cycling at the shipment, however, if you wish to use this machine with single cycle, adjust the machine as follows: -

- (1) Put the stop cam. (Contained in the accessory box)
- (2) Put the cutter cam. (Contained in the accessory box)
- (3) Furthermore, remove the gimp guide swinging cam (A) which is located under the cutter cam, and put the gimp guide swinging cam (B) which is contained in the accessory box.

You can get the machine as single cycle, take note that the cam (A) and (B) is quite resemble each other, therefore, do not mix up.

14. Bar tacking

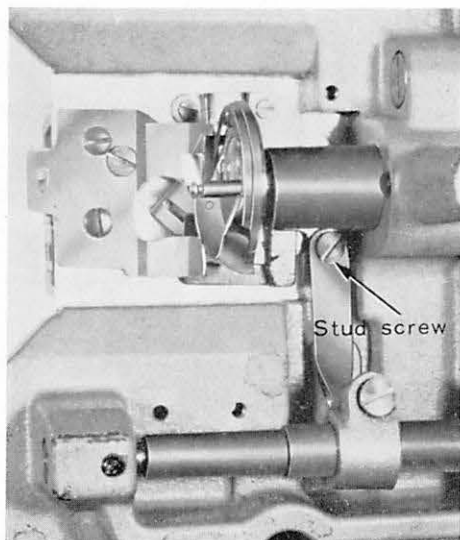
This machine can get the wider tacking to be much cleaner sewing of the gimp, and at your option, it can get the buttonhole without bar tacking.



15. Safety device for work clamp lifter

Work clamp lift is only functioned after sewing one buttonhole. In case of other occasions, safety device is engaged not so as to lift up the work clamp. This features that it prevents the threads and gimp from trimming when you want to stop the machine with emergency stop lever due to thread breakage or empty bobbin thread during sewing.

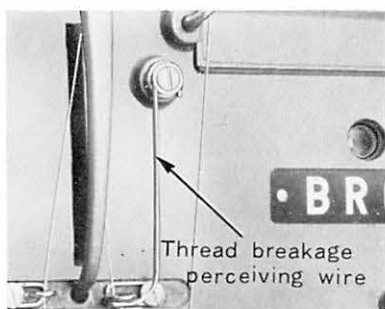
16. Replacing lower thread trimmer



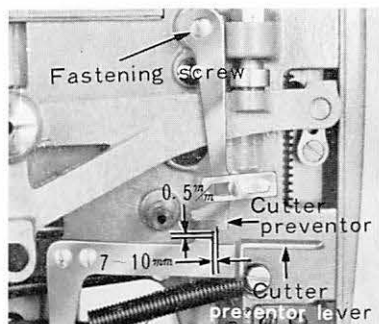
(Fig. 42)

If you will find that the lower thread trimmer blades are dull, unscrew the stud screw and needle plate screws as shown in Fig. 42, then remove the needle plate assembly and replace the defective parts thereof.

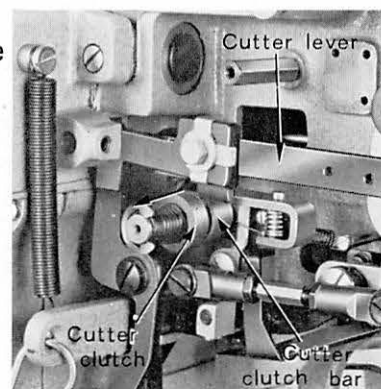
17. Adjusting automatic thread breakage perceiving device



(Fig. 43)



(Fig. 44)

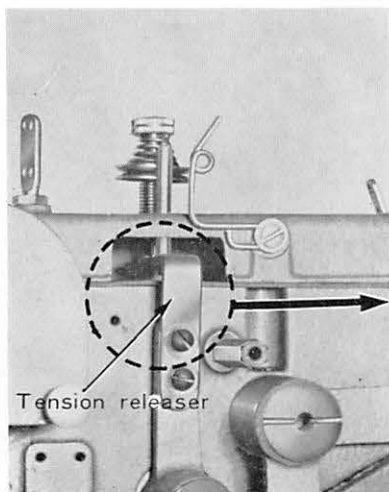


(Fig. 45)

If the relative position between cutter preventor and thread breakage perceiving wire will be out of order, although the upper thread does not break, the cutter will not drop in some occasions. In this case, please make sure to be as per Fig. 43 on the condition of correct threading and correct tensions. This relation can be obtained by adjusting the fastening screw as per Fig. 44 loosened.

Also the correct relation between cutter preventor and cutter preventor lever must be adjusted so as to be 0.5mm clearance as per Fig. 44, when the cutter clutch bar moves to the direction shown arrow mark, and cutter lever removes from cutter clutch to cutter clutch bar. (Fig. 45)

18. Releasing tension on main tension regulator



(Fig. 46)



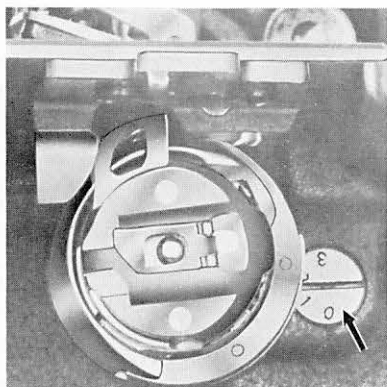
High speed
Sewing



Stop
position

The thread on main tension regulator is tight at high speed sewing, and releases freely at stop position. This can be adjusted by setting the upper tension releaser. (Fig. 46)

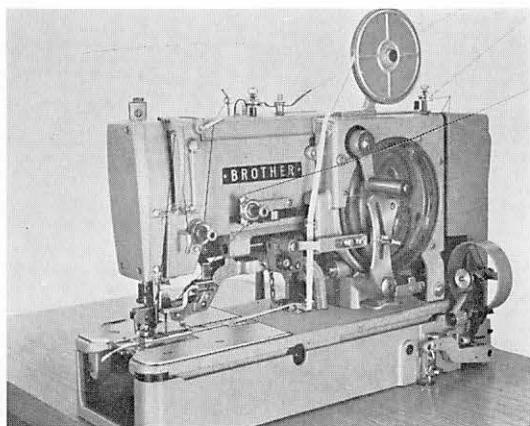
19. Adjusting oiling



(Fig. 47)

- (1) This machine features automatic lubrication to all sliding parts and the adjustment of oiling to all those parts except to hook can be done by the adjusting screw located in the right of bed. This can be done by screw driver, and if you will turn clockwise, the oil feeds less and vice versa. Please make sure to adjust to lubricate to all necessary points with proper amount of oil feeding in order to avoid oil leakage due to much oil or seizing up due to less oil.
- (2) Adjusting oiling to hook can be done by moving the screw located in front of machine. Less oil to the hook is recommendable. (Fig. 47)

20. Installing the tape winder



*When sewing elastic fabrics such as knittings, use a tape on the wrong side of the fabric to reinforce holes.

5 TROUBLE SHOOTING

1. Thread breaks

- a. Needle blunt or bent
- b. Needle too thin
- c. Needle plate damaged
- d. Poor quality of thread used
- e. Too strong tension on upper thread
- f. Improper threading
- g. Hook point damaged
- h. Out of timing the hook
- i. Dusts or lints in hook

2. Stitch skipping

- a. Needle bent
- b. Incorrect setting the needle, height and angle
- c. Too thick or thin needle size
- d. Out of timing the hook and needle

3. Threading off

- a. Weak spring action of blades
- b. Incorrect trimming upper thread by upper blade

PARTS LIST for LH4-B814-4

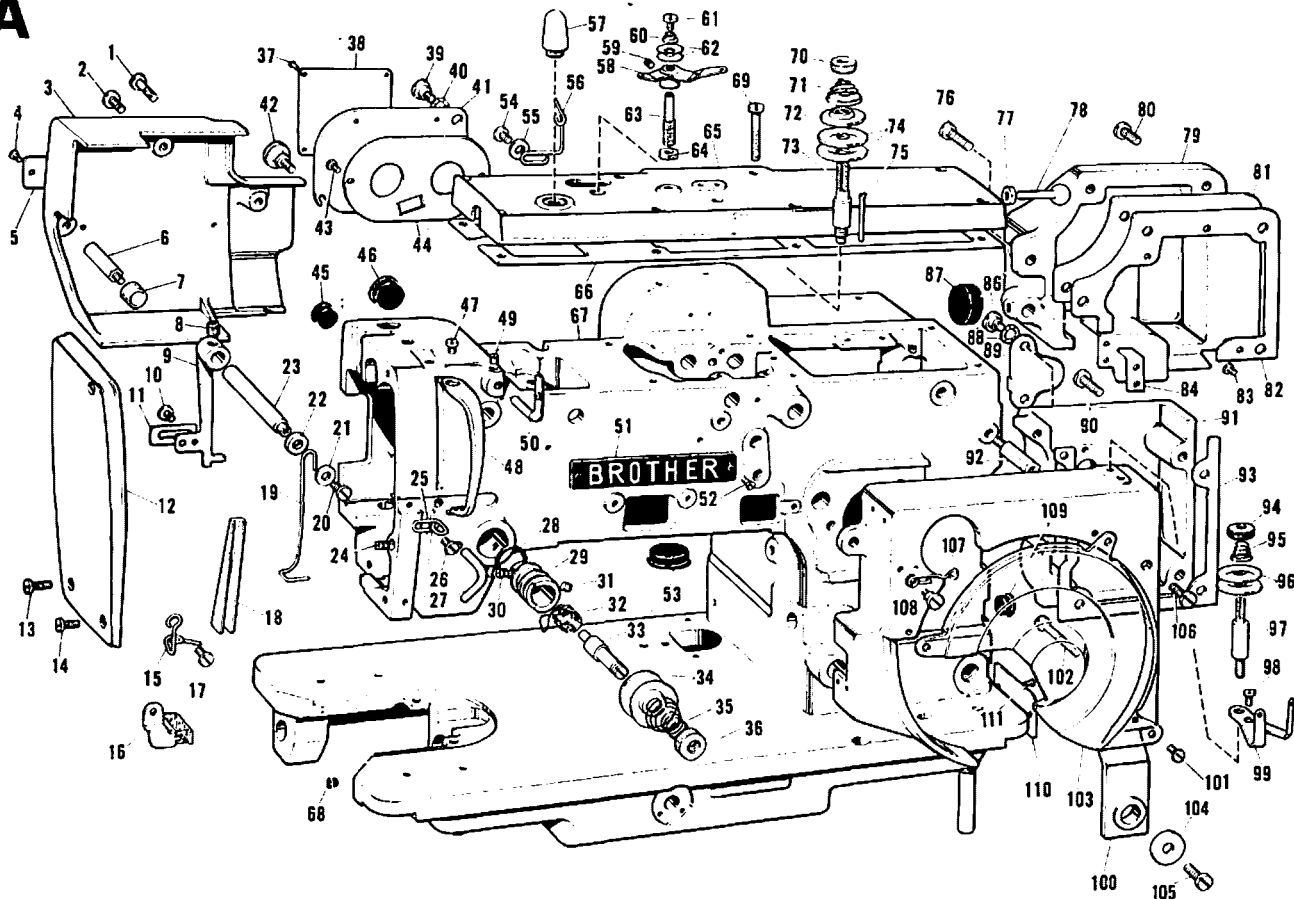
INDEX

Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark
001401-4-06	Z-57		014770-6-22	H-44		100130-0-03	B-6		104821-0-01	D-19	
003660-8-12	M-46		"	I-45		"	P-32		"	F-8	
"	M-52		"	I-47		"	P-51		104833-0-01	A-68	
"	M-57		"	I-56		100134-0-01	A-72		104847-0-01	K-29	
009670-6-12	A-43		"	J-39		"	F-60		104848-0-01	K-43	
"	A-83		"	J-69		100136-0-01	A-36		104908-0-01	D-15	
"	L-49		"	K-5		"	A-70		105123-0-01	M-63	
"	L-62		"	K-34		"	F-62		105123-0-03	J-6	
009680-6-12	J-17		014760-6-22	M-15		"	Z-34		105205-0-01	I-28	
"	L-15		"	M-17		100137-0-02	G-29		105219-0-03	A-47	
"	L-19		"	M-20		"	J-51		105234-0-03	A-77	
"	P-2		"	K-1		"	K-25		"	I-26	
009680-7-12	H-1		017751-4-13	C-68		"	L-8		105282-0-01	P-43	
"	I-2		017761-4-12	C-70		"	L-21		105288-0-02	P-38	
"	I-11		017781-4-12	C-43		"	L-42		105343-0-01	Z-3	
"	I-68		017782-5-12	G-21		"	M-9		105344-0-01	Z-9	
009680-8-12	F-37		018081-4-22	C-58		100191-0-03	A-4		105812-0-01	E-11	
"	F-55		"	M-14		"	A-52		105812-0-02	E-13	
"	I-15		018400-8-22	J-37		100197-0-02	P-9		106147-0-01	D-27	
"	I-58		"	J-42		100218-0-03	F-68		"	F-17	
"	J-67		018401-6-22	P-21		"	G-64		106568-0-01	P-40	
"	Z-21		021400-1-03	F-18		"	I-65		106588-0-01	H-37	
009680-8-13	M-33		021400-1-06	Z-58		"	P-8		106629-0-01	K-58	
009680-8-14	H-25		021710-2-02	C-57		"	P-24		107017-0-01	A-40	
009681-0-12	F-28		021750-1-03	I-60		100242-0-01	B-69		"	A-88	
"	F-33		021780-3-02	K-40		"	F-67		107093-0-01	B-8	
"	F-35		"	K-62		"	L-18		"	J-26	
"	F-51		021780-3-03	F-49		"	L-37		"	K-47	
"	G-7		021860-2-02	C-45		"	L-53		107114-0-01	A-64	
"	J-3		021910-3-02	F-19		"	L-54		"	H-4	
"	J-44		022840-3-03	I-41		100250-0-01	B-27		107126-0-01	H-43	
"	Z-18		"	I-55		100251-0-01	M-40		107153-0-02	C-35	
009681-0-14	A-14		022870-1-04	H-13		100257-0-10	I-35		107175-0-02	G-46	
"	F-53		025050-2-33	K-57		100281-0-01	G-2		107200-0-01	H-9	
009681-2-12	F-39		025060-3-32	C-27		"	J-59		"	Z-22	
"	F-41		025100-1-32	C-29		100289-0-04	A-8		107204-0-01	H-9	
009681-4-12	A-13		"	C-50		100366-0-02	G-8		"	Z-22	
"	H-6		025350-3-32	G-9		"	J-13		107206-0-01	H-9	
009682-0-11	A-1		025350-3-34	A-21		100388-0-01	A-49		"	Z-22	
"	P-28		025680-2-32	J-66		100388-0-04	B-67		107207-0-01	H-9	
009689-4-12	I-24		025680-2-34	A-55		100399-0-01	A-32		"	Z-22	
"	I-25		"	C-72		100402-0-02	A-30		107210-0-01	H-9	
"	L-45		025900-2-32	F-20		100472-0-01	Z-12		"	Z-22	
"	P-4		028050-2-40	C-56		100477-0-01	Z-14		107231-0-01	I-31	
009711-0-12	M-25		041170-2-04	A-37		100511-0-03	E-6		107274-0-02	K-32	
009711-0-13	M-37		047301-8-42	G-27		100522-0-02	M-23		107321-0-01	A-39	
009711-2-12	J-52		047400-8-42	G-47		100541-0-01	D-22		"	A-86	
009711-4-12	M-54		048010-3-42	C-81		"	D-23		107372-0-01	I-30	
009711-4-13	E-4		048030-3-42	I-16		100644-0-01	A-54		107404-0-00	P-48	
009761-0-12	C-19		"	K-59		"	A-105		107407-0-02	A-98	
"	C-25		048060-3-42	G-12		"	J-36		"	C-78	
"	K-39		"	J-60		100645-0-03	P-29		"	H-8	
"	K-50		"	P-10		100659-0-01	I-77		"	J-8	
009761-0-14	G-48		048060-3-43	G-15		100661-0-01	I-78		"	J-15	
009761-2-14	C-26		048070-3-42	C-36		100887-0-01	Z-4		"	P-44	
"	I-51		"	M-28		101125-0-00	I-6		"	Z-41	
"	I-70		048080-3-42	G-22		"	Z-51		107415-0-14	H-12	
009761-4-13	A-76		048090-3-42	I-12		101486-0-01	D-6		"	Z-31	
009762-0-13	A-80		048100-1-42	C-30		101572-0-01	Z-11		107419-0-02	L-57	
"	A-90		048110-1-42	E-46		101629-0-01	J-31		107453-0-01	K-2	
009771-8-12	H-36		048150-1-40	B-37		"	J-48		107488-0-02	Z-27	
013711-0-10	A-24		"	C-2		101671-0-01	A-10		107491-0-02	A-17	
013760-6-12	E-19		048200-1-42	M-60		101706-0-01	B-23		"	A-101	
013760-8-12	Z-53		072068-7-80	G-13		"	B-51		107491-0-03	G-11	
013771-4-10	B-62		072600-0-40	I-39		"	B-60		107550-0-02	G-30	
014770-6-22	B-1		072600-4-60	M-44		"	G-57		107602-0-01	A-73	
"	B-19		"	M-55		102023-0-01	A-102		107612-0-01	A-75	
"	B-24		072600-5-60	C-4		102424-0-02	A-69		107639-0-01	J-57	
"	B-26		072600-7-60	M-49		102438-0-04	K-17		107640-0-01	J-23	
"	B-31		072620-2-60	B-41		102538-0-02	L-67		107657-0-01	P-61	
"	B-33		082104-1-90	Z-48		"	M-4		107678-0-01	A-97	
"	B-35		082104-2-90	Z-48		102629-0-04	Z-10		107680-0-01	A-96	
"	B-46		100008-0-03	A-42		102716-0-03	A-59		107681-0-01	A-95	
"	B-55		100013-0-03	D-7		102843-0-04	B-44		107682-0-01	A-94	
"	B-58		100013-0-04	C-33		"	C-1		107744-0-01	K-60	
"	B-64		100016-0-03	B-49		102850-0-02	J-1		107779-0-01	Z-5	
"	B-75		"	B-53		103001-0-01	B-15		107780-0-01	Z-2	
"	C-9		100022-0-05	J-32		103950-0-01	A-31		108494-0-01	Z-36	
"	C-59		"	J-71		104449-0-01	A-46		108495-0-01	Z-35	
"	D-5		"	J-75		"	D-1		108520-0-01	M-66	
"	E-27		"	J-80		"	D-10		108721-0-01	A-34	
"	E-38		100032-0-01	G-61		104450-0-01	A-45		"	A-74	
"	F-6		"	K-9		"	A-109		"	F-59	
"	F-10		100052-0-01	L-65		"	E-17		108962-0-01	Z-30	
"	G-5		100062-0-03	G-39		104521-0-01	B-50		109173-0-01	B-78	
"	G-51		"	K-30		104525-0-01	A-71		109183-0-01	B-70	
"	G-52		"	K-44		104546-0-01	M-5		109184-0-01	B-71	
"	G-56		100086-0-01	A-2		104548-0-01	M-7		"	C-8	
"	G-59		"	A-106		104564-0-01	L-63		109203-0-01	M-47	
"	H-20		100086-0-03	B-40		104649-0-01	I-69		109837-0-01	H-9	

Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark
109837-0-01	Z-22		117348-0-01	C-18		141334-0-01	E-23		141440-0-01	G-60	
109838-0-01	H-9		117466-0-00	Z-13		-	E-24		141441-0-01	G-65	
-	Z-22		117598-0-01	E-31		141335-0-00	E-10		141442-0-01	G-63	
109857-0-01	B-73		117666-0-01	B-11		141336-0-01	E-7		141449-0-01	G-6	
109862-0-01	B-68		117874-0-01	B-54		141337-0-01	E-8		141450-0-01	G-4	
110032-0-02	H-16		117875-0-01	B-57		141338-0-01	E-9		141451-0-01	G-3	
-	M-58		-	M-19		141340-0-01	E-18		141454-0-01	G-1	
110067-0-01	P-42		118215-0-01	G-16		141341-0-01	E-28		141455-0-01	G-10-14	
110104-0-00	L-24		118244-0-01	P-18		141342-0-00	E-32		141456-0-01	G-14	
110140-0-01	G-45		118262-0-02	G-37		141343-0-01	K-51		141461-0-01	H-45	
110161-0-04	K-64		118735-0-02	C-42		141343-0-02	E-34		141462-0-01	H-32	
110173-0-01	J-22		118735-0-02	C-69		-	H-31		141463-0-01	H-33	
110185-0-02	I-37		-	H-35		-	J-63		-	J-81	
110367-0-01	B-22		118760-0-01	B-59		141344-0-01	D-26		141464-0-01	H-39	
110436-0-01	Z-1		118829-0-01	B-14		141345-0-01	E-29		141465-0-01	H-38	
110494-0-01	E-16		120018-0-02	A-61		141346-0-01	E-5		141466-0-01	H-34	
-	M-27		-	P-13		141347-0-01	E-3		141467-0-01	H-29	
110495-0-02	G-58		120774-0-01	L-39		141348-0-01	E-2		141468-0-01	H-26	
110641-0-01	M-48		120790-0-01	H-30		141351-0-01	E-37		141469-0-01	H-23	
110744-0-02	H-24		140004-0-01	B-10		141353-0-01	E-1		141471-0-01	H-27	
110767-0-01	K-36		140910-0-01	L-5		141354-0-00	E-15		141472-0-01	I-49	
110813-0-01	F-56		-	L-60		141355-0-01	E-12		-	K-65	
111048-0-01	C-71		140947-0-01	F-15		141356-0-01	E-14		-	K-67	
111048-0-02	J-21		141243-0-01	A-65		141357-0-01	E-26		141473-0-01	H-19	
-	P-26		141244-0-01	A-66		141358-0-01	E-25		141474-0-01	H-12	
111105-0-01	P-52		141245-0-01	I-22		141359-0-01	E-36		141475-0-01	H-21	
111237-0-01	B-13		141246-0-01	I-23		141363-0-01	E-45		141476-0-01	H-22	
111443-0-01	J-12		141247-0-01	I-33		141365-0-00	E-44		141477-0-01	H-3	
111468-0-01	B-18		141248-0-01	A-78		141366-0-01	E-43		141478-0-01	H-2	
111937-0-01	M-61		141249-0-01	A-79		141367-0-01	B-30		141479-0-01	H-5	
112144-0-01	H-41		141252-0-00	A-82		141368-0-00	F-7		141480-0-01	H-7	
112359-0-01	L-6		141254-0-01	A-93		141369-0-01	F-4		141481-0-01	I-50	
112547-0-01	A-5		141256-0-01	I-1		141374-0-00	F-3		141482-0-01	H-14	
112548-0-01	A-51		-	Z-50		-	Z-33		141484-0-01	G-25	
112657-0-03	D-18		141257-0-01	I-4		141375-0-00	F-3		141485-0-01	G-26	
-	E-35		141258-0-01	I-7		-	Z-33		141486-0-01	G-28	
-	H-30		141259-0-01	I-5		141376-0-00	F-3		141487-0-01	G-24	
-	J-64		141260-0-01	A-12		-	Z-33		141488-0-01	G-23	
-	K-41		141262-0-01	A-6		141377-0-00	F-3		141489-0-01	J-70	
112730-0-01	M-64		141261-0-01	A-41		-	Z-33		141490-0-01	J-79	
112744-0-01	L-44		141265-0-01	A-38		141378-0-00	F-3		141491-0-01	J-74	
112751-0-01	A-20		141267-0-01	A-92		141379-0-00	F-3		141492-0-01	J-61	
-	A-26		141268-0-01	A-48		-	F-33		-	J-72	
-	G-34		141271-0-01	B-29		141380-0-00	F-3		-	J-78	
113431-0-01	P-27		141272-0-00	B-28		-	Z-33		141494-0-01	J-62	
113897-0-01	J-29		141273-0-00	B-32		141381-0-00	F-3		-	J-73	
-	P-14		141274-0-00	B-39		-	Z-33		-	J-77	
114294-0-01	A-28		141275-0-01	B-42		141382-0-00	F-3		141495-0-01	J-56	
114483-0-01	Z-16		141276-0-01	B-43		141383-0-00	F-3		141519-0-01	K-61	
114747-0-01	L-8		141277-0-00	B-28		-	Z-33		141520-0-01	K-54	
115120-0-01	G-66		141278-0-01	C-5		141384-0-00	F-3		141521-0-01	K-66	
115493-0-01	J-76		141279-0-01	C-3		-	Z-33		141522-0-01	K-7	
115493-0-02	F-64		141280-0-01	C-6		141385-0-00	F-3		141523-0-01	K-56	
115503-0-01	H-11		141281-0-01	C-14		-	Z-33		141526-0-01	K-63	
115542-0-01	C-52		141282-0-01	C-7		141386-0-00	F-3		141528-0-01	K-42	
115544-0-01	C-53		141283-0-01	C-11		-	Z-33		-	K-48	
115545-0-01	C-54		141284-0-00	C-13		141389-0-01	F-10-14		141529-0-01	K-38	
115546-0-01	C-55		141285-0-01	C-12		141390-0-01	F-14		141530-0-01	K-31	
115548-0-01	C-44		141286-0-01	C-16		141391-0-01	F-11		141531-0-01	K-37	
115550-0-01	C-49		141289-0-01	C-17		141392-0-01	F-12		141532-0-01	K-33	
115551-0-01	C-51		141290-0-00	B-25		141393-0-01	F-13		141533-0-01	K-28	
115552-0-01	C-48		141293-0-01	B-4		141394-0-01	F-9		141534-0-01	K-26	
115558-0-02	C-24		141294-0-01	B-3		141395-0-01	F-42		141535-0-01	K-27	
115559-0-02	C-23		141295-0-01	B-2		141396-0-01	F-43		141537-0-01	K-23	
115585-0-01	I-43		141296-0-01	B-9		141397-0-01	F-44		141538-0-01	K-21	
-	I-53		141297-0-01	B-47		141398-0-01	F-47		141539-0-01	K-22	
-	K-55		141298-0-00	B-48		141399-0-01	F-48		141541-0-01	K-19	
115761-0-01	G-62		141303-0-00	B-56		141400-0-01	F-31		-	Z-46	
115958-0-01	A-35		141304-0-01	B-63		-	F-45		141542-0-01	K-20	
-	F-61		141305-0-00	B-61		141402-0-01	D-17		141543-0-01	K-14	
116016-0-01	Z-56		141306-0-01	B-74		141403-0-01	F-21		-	Z-47	
116185-0-01	Z-55		141308-0-01	K-16		141404-0-00	D-16		141544-0-01	K-15	
116231-0-01	A-111		141309-0-01	B-34		141408-0-01	F-30		141545-0-01	K-35	
116521-0-01	F-58		141310-0-01	D-9		141409-0-01	F-26		141546-0-01	C-66	
116662-0-02	A-104		141311-0-00	D-2		141410-0-01	F-24		141547-0-01	C-67	
-	Z-28		141312-0-00	D-8		141411-0-01	F-25		141548-0-01	C-65	
116725-0-01	A-87		141313-0-01	D-4		141412-0-01	F-16		141549-0-01	C-64	
116735-0-00	B-16		141316-0-01	I-38		141413-0-01	F-23		141550-0-01	C-63	
-	B-21		141317-0-01	D-3		141417-0-01	G-38		141553-0-01	C-41	
116755-0-01	A-108		141321-0-01	D-14		-	H-15		141554-0-01	C-47	
-	J-19		141322-0-01	D-20		141419-0-01	G-35		141555-0-01	C-39	
-	P-16		141323-0-00	D-13		141420-0-01	G-31		141556-0-01	C-20	
116774-0-01	B-36		141324-0-01	D-12		141421-0-01	G-53		141557-0-01	C-60	
116795-0-00	E-30		141326-0-01	D-11		141424-0-01	G-44		141558-0-01	C-46	
116958-0-02	L-28		141328-0-01	D-21		141426-0-01	G-54		141559-0-01	C-22	
116975-0-01	L-52		141329-0-01	D-25		141429-0-01	G-42		141560-0-01	I-42	
-	M-65		141332-0-01	E-20		141430-0-01	G-49		141561-0-01	I-44	
116999-0-01	B-45		141333-0-01	E-22		141431-0-01	G-17		141562-0-01	I-46	
117143-0-02	Z-25		141334-0-01	C-21		141434-0-01	G-50		141563-0-01	I-48	
117258-0-01	A-7		-	C-38		141439-0-01	G-67		141564-0-01	I-52	

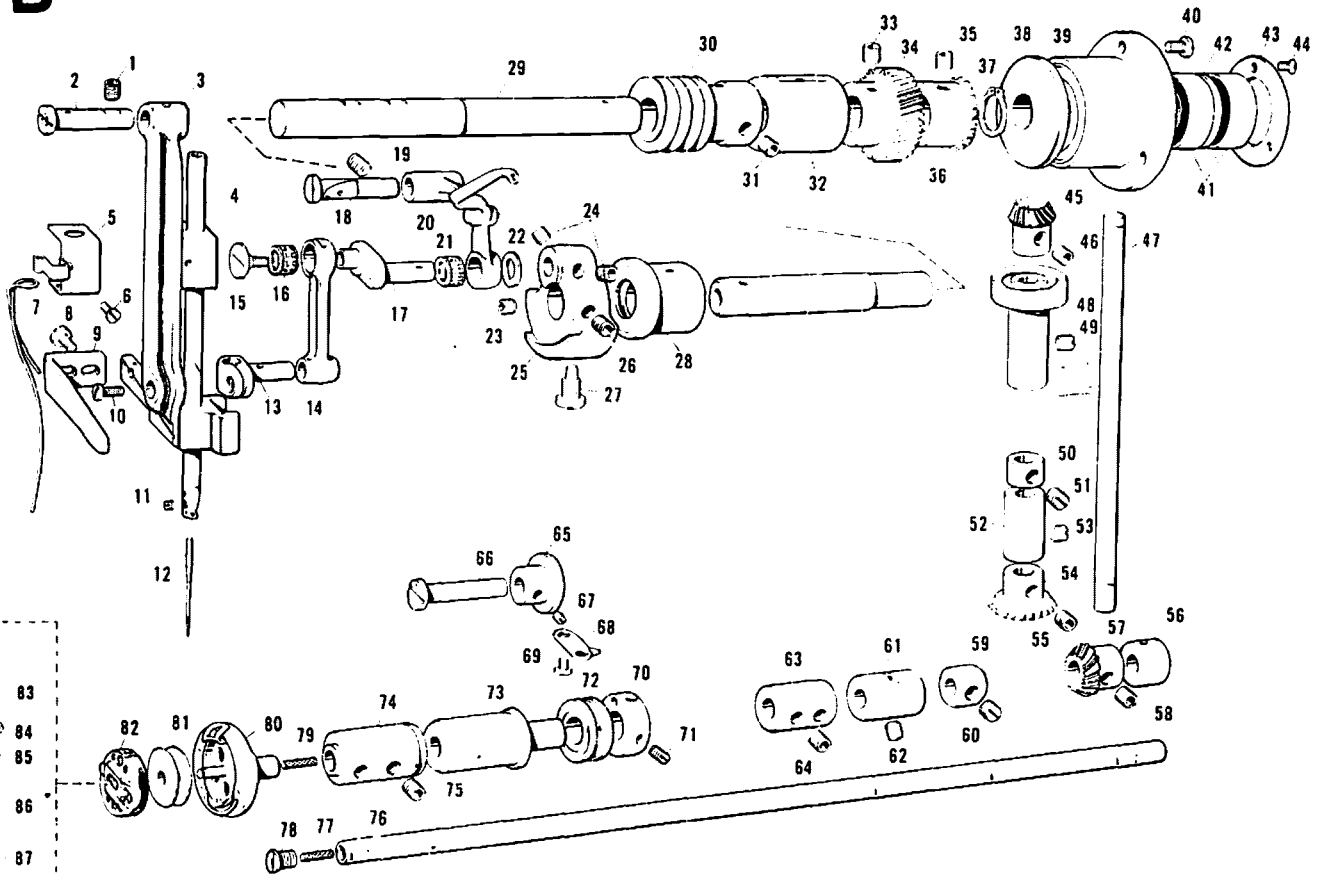
Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark	Parts. No.	Ref. No.	Remark
141567-0-01	M-59		141688-0-01	L-17		143713-0-01	A-57		145387-0-01	J-53	
141568-0-01	M-42		141689-0-01	L-56		143715-0-01	L-68		145388-0-01	H-28	
141569-0-00	M-50		141690-0-00	L-34		143716-0-01	L-69		145392-0-01	J-25	
141570-0-01	M-51		141692-0-01	L-55		143738-0-01	P-25		145393-0-01	J-27	
141571-0-01	M-43		141694-0-00	I-10		143739-0-01	G-32		145394-0-01	J-40	
141572-0-01	M-53		141695-0-01	I-9		143741-0-01	P-35		145395-0-01	J-45	
141573-0-01	M-45		141696-0-01	M-6		143742-0-01	P-34		145396-0-01	J-43	
	M-56		141697-0-00	G-40		143748-0-01	P-31		145397-0-01	J-49	
141574-0-01	C-82			H-17		143749-0-01	P-30		145398-0-01	J-47	
141575-0-01	I-61		141698-0-01	C-79		143750-0-01	Z-37		145399-0-01	J-46	
141576-0-01	I-62, 63		141699-0-01	C-80		143755-0-01	A-110		145400-0-01	F-63	
141577-0-01	I-63		141700-0-01	C-74		143767-0-01	Z-34 ~ 40		145401-0-01	F-54	
141578-0-01	I-62		141701-0-01	C-76		143780-0-01	H-9		145402-0-01	J-4	
141579-0-01	I-57		141702-0-01	C-77			Z-22		145403-0-01	J-7	
141580-0-01	I-59		141703-0-01	C-73		143788-0-01	K-6		145404-0-01	J-2	
141582-0-01	M-30		141704-0-01	C-40			P-19		145405-0-01	J-5	
141583-0-01	M-31		141705-0-01	Z-26			P-23		145406-0-01	J-50	
141584-0-01	M-34, 35		141706-0-01	Z-23		143890-0-01	Z-52		145407-0-01	P-11	
141585-0-01	M-34		141709-0-01	Z-52		143898-0-01	M-18		145411-0-01	P-3	
141586-0-01	M-35		141711-0-00	Z-49		143914-0-01	I-83		145412-0-01	P-15	
141588-0-01	M-32		141714-0-01	F-5		143915-0-01	M-17 ~ 20		145413-0-01	P-12	
141589-0-01	M-36		141716-0-00	E-42		143917-0-01	I-21		145414-0-01	J-24	
141592-0-01	J-68		141717-0-01	H-46		143927-0-01	K-3		145415-0-01	P-6	
141593-0-01	A-56		141718-0-01	J-33		143933-0-01	B-74 ~ 78		145416-0-01	P-7	
141594-0-01	A-18		141868-0-01	L-16		143945-0-01	K-4		145417-0-01	P-17	
141595-0-01	A-15		141953-0-01	C-34		143949-0-01	Z-6		145418-0-01	P-20	
141600-0-01	A-99		142214-0-01	C-32		143973-0-01	B-82		145419-0-01	P-22	
141602-0-01	I-71		142258-0-01	F-66		143976-0-01	Z-38		145420-0-01	K-45	
141603-0-01	I-73		142259-0-01	I-72		143978-0-01	Z-39		145421-0-01	K-46	
141604-0-01	I-74		142262-0-01	Z-54		143980-0-01	Z-40		145426-0-01	K-49	
141605-0-01	I-81		142268-0-01	L-38		143981-0-01	M-8		145428-0-01	J-41	
141606-0-01	I-80		142269-0-00	A-84		143982-0-01	M-21		145429-0-01	J-20	
141607-0-01	I-76		142271-0-00	L-58		143983-0-01	M-62		145430-0-01	J-18	
141608-0-01	I-78		142272-0-01	F-1		143984-0-01	A-91		145433-0-01	J-35	
141609-0-01	I-66		142273-0-01	F-2		143987-0-01	B-80		145434-0-01	J-34	
141610-0-01	I-75		142297-0-01	C-10		144226-0-01	Z-17		145435-0-01	J-38	
141611-0-01	I-67		142312-0-01	I-3		144504-0-01	A-62		145436-0-01	J-28	
141614-0-01	A-19		142342-0-00	I-40		144505-0-00	A-60		145437-0-01	A-33	
141616-0-01	A-23		142351-0-01	L-46		144541-0-01	G-36		145438-0-01	F-52	
141617-0-01	A-22		142352-0-01	L-51		144580-0-01	Z-45		145439-0-01	F-56	
141618-0-01	C-75		142353-0-01	L-33		144628-0-01	P-41		145440-0-01	F-57	
141619-0-01	A-9		142354-0-01	L-4, 5		144741-0-01	A-29		145445-0-01	G-43	
141620-0-01	A-11		142358-0-01	Z-24		144946-0-00	A-81		145673-0-01	J-65	
141622-0-01	I-13		142359-0-01	L-9		144998-0-01	P-37		145673-0-01	J-65	
141623-0-01	I-36			L-26		144999-0-01	P-36		145674-0-01	A-67	
141624-0-01	I-32			L-32		145245-0-01	K-8		145692-0-01	J-58	
141625-0-01	I-34			M-3		145246-0-01	K-10			B-10	
141627-0-01	I-27		142372-0-00	C-61		145247-0-01	K-11		145719-0-01	B-10	
141628-0-01	I-18			G-41		145277-0-01	Z-15			13 ~ 18	
141629-0-01	I-17			K-53			K-8, 10, 11			20 ~ 22	
141630-0-01	I-20		142373-0-00	I-54		145293-0-01	21, 22		145720-0-01	B-17	
141631-0-01	I-19			K-52		145339-0-01	A-100		145723-0-01	A-58 ~ 63	
141632-0-01	I-29		142374-0-00	G-19		145340-0-01	A-3		145724-0-01	A-58	
141633-0-01	I-14			G-20		145341-0-01	J-30		145725-0-01	A-63	
141636-0-00	M-41		142375-0-00	C-62		145342-0-01	E-40		145728-0-01	A-16	
141637-0-01	M-38			F-29		145343-0-01	A-89		145731-0-01	P-56	
141642-0-01	M-11		142376-0-00	H-18		145344-0-01	E-39			Z-43	
141643-0-01	M-12		142407-0-01	B-72		145345-0-01	A-44		145732-0-01	P-1	
141645-0-01	M-13		142408-0-01	B-66		145347-0-01	F-22		145739-0-01	P-47 ~ 58	
141646-0-01	M-10		142416-0-01	K-18		145348-0-01	F-38		145740-0-01	Z-42	
141647-0-00	M-2		142419-0-01	K-12		145349-0-01	F-40		145961-0-01	A-50	
141651-0-01	L-59		142420-0-01	K-13		145350-0-01	F-34		145983-0-01	P-5	
141652-0-01	L-64		142443-0-01	Z-8		145351-0-01	F-36		145987-0-00	A-16	
141653-0-01	L-66		142582-0-01	B-65		145352-0-01	F-27		145991-0-01	P-49	
141654-0-01	L-61		142702-0-01	F-46			Z-20		146025-0-01	B-81	
141655-0-00	L-48		142709-0-00	B-52		145353-0-01	F-32			Z-29	
141656-0-01	L-47		142721-0-01	Z-7			Z-19		146041-0-01	C-28	
141658-0-00	L-3		142733-0-01	A-27		145354-0-01	G-18		146130-0-01	F-50	
141659-0-01	E-41		142735-0-01	A-25		145356-0-01	G-55		180720-0-01	B-83	
141662-0-00	L-23		142739-0-01	A-107		145357-0-01	P-33		180721-0-01	B-84	
141663-0-01	L-22		142742-0-00	L-35		145358-0-01	P-39		180722-0-01	B-85	
141664-0-01	L-25		142743-0-00	A-53		145359-0-01	G-33			B-35, 36	
141665-0-01	L-27		142744-0-01	B-77		145362-0-01	P-47			45, 46	
141666-0-01	L-29			B-79			P-58		181093-0-01	B-54, 55	
141667-0-01	L-31		142745-0-01	Z-32		145366-0-01	P-53			57, 58	
141668-0-01	L-30		142748-0-01	L-50		145367-0-01	P-57		181398-0-01	B-86	
141670-0-00	L-40		142750-0-01	M-1			Z-44		181399-0-01	B-87	
141671-0-01	L-41		142751-0-01	C-15		145369-0-01	P-54		181400-0-01	B-88	
141672-0-00	L-13		142755-0-01	C-31		145370-0-01	P-55		403888-0-01	E-33	
141673-0-00	L-7		142763-0-01	M-22		145371-0-01	P-60		507142-0-02	I-82	
141674-0-01	L-13		142764-0-01	M-26		145373-0-01	P-59		511091-0-01	P-50	
141675-0-00	L-4		142766-0-01	M-39		145374-0-01	P-45, 46		512769-0-01	K-24	
141679-0-01	L-2		142768-0-01	M-16		145378-0-01	G-10				
141680-0-01	L-1		142771-0-01	C-37		145380-0-01	J-11				
141681-0-01	B-7		142776-0-00	M-24		145381-0-01	J-10				
	L-14		142779-0-01	H-42		145382-0-01	J-14				
	M-29		142788-0-01	D-24		145383-0-01	J-9				
141682-0-01	B-5		142973-0-01	Z-59		145384-0-01	J-16				
141683-0-00	L-36		143177-0-01	L-11		145385-0-01	J-55				
141685-0-01	L-20		143445-0-01	A-103		145386-0-01	J-54				

A



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-3	2 pcs.	009682-0-11		A-56	Thread guide	1 pce.	141593-0-01	
A-2	Set screw	1 pce.	100086-0-01		A-57	Oil gauge window	1 *	143713-0-01	
A-3	Rear cover	1 *	145340-0-01		A-58	Pre-tension	1 *	145724-0-01	
A-4	Set screw for A-5	2 pcs.	100191-0-03		A-59	Set screw	1 *	102716-0-03	
A-5	Name plate (60)	1 pce.	112547-0-01		A-60	Pre-tension spring	1 *	144505-0-00	145723-0-01
A-6	Set bolt for A-3	2 pcs.	141262-0-01		A-61	Set screw	1 *	120048-0-02	
A-7	Vinyl tube 7x8	1 pce.	117258-0-01		A-62	Pre-tension disc	2 pcs.	144504-0-01	
A-8	Set screw cor A-9	1 *	100289-0-04		A-63	Pre-tension stud	1 pce.	145725-0-01	
A-9	Cutter bar fixed plate	1 *	141619-0-01		A-64	Nut for A-63	1 *	107114-0-01	
A-10	Set screw for A-11	2 pcs.	101671-0-01		A-65	Top cover	1 *	141243-0-01	
A-11	Balance for A-9	1 pce.	141620-0-01		A-66	Top cover packing	1 *	141244-0-01	
A-12	Face plate	1 *	141260-0-01		A-67	Arm bed	1 *	145674-0-01	
A-13	Set screw SM4.37-40x14 for A-12	2 pcs.	009681-1-14		A-68	Oil cap	1 *	104833-0-01	
A-14	Set screw SM4.37-40x10 for A-12	1 pce.	009681-0-14		A-69	Set screw for A-65	8 pcs.	102424-0-02	
A-15	Arm thread guide (lower)	1 *	141595-0-01		A-70	Tension control nut	1 pce.	100136-0-01	
A-16	Thread guide for synthetic thread	1 *	145728-0-01		A-71	Tension spring	1 *	104525-0-01	
A-16	Felt	1 *	145987-0-00		A-72	Tension disc washer	1 *	100134-0-01	
A-17	Set screw	1 *	107491-0-02		A-73	Upper tension stud	1 *	107602-0-01	
A-18	Thread guide	1 *	141594-0-01		A-74	Tension disc	2 pcs.	108721-0-01	
A-19	Thread breakage perceiving wire	1 *	141614-0-01		A-75	Tension release pin	1 pce.	107612-0-01	
A-20	Set screw for A-19	1 *	112751-0-01		A-76	Set screw SM5.95-28x14 for A-79	3 pcs.	009761-1-13	
A-21	Washer for A-20	1 *	025350-3-34		A-77	Nut for A-78	1 pce.	105234-0-03	
A-22	Collar for A-23	1 *	141617-0-01		A-78	Belt cover stopper	1 *	141248-0-01	
A-23	Thread breakage perceiving wire bar	1 *	141616-0-01		A-79	Sub shaft cover upper	1 *	141249-0-01	
A-24	Set screw SM4.76-32x10 for A-27	1 *	013711-0-10		A-80	Set screw SM5.95-28x20 for A-79	1 *	009762-0-13	
A-25	Arm thread guide (upper)	2 pcs.	142735-0-01		A-81	Sub shaft inside cover	1 *	144946-0-00	
A-26	Set screw for A-25	2 *	112751-0-01		A-82	Packing (large) for A-81	1 *	141252-0-00	
A-27	Tension thread guide	1 pce.	142733-0-01		A-83	Set screw SM3.57-40x6 for A-81	3 pcs.	009670-6-12	
A-28	Packing for A-29	1 *	114294-0-01		A-84	Packing (small)	1 pce.	142269-0-00	
A-29	Tension bracket	1 *	144741-0-01		A-86	Stud screw for A-89	1 *	107321-0-01	
A-30	Set screw for A-33	1 *	100402-0-02		A-87	Oil cap	1 *	116725-0-01	
A-31	Set screw for A-29	1 *	103950-0-01		A-88	Spring washer for A-86	1 *	107017-0-01	
A-32	Thread take-up spring	1 *	100399-0-01		A-89	Cap plate	1 *	145343-0-01	
A-33	Tension stud	1 *	145437-0-01		A-90	Set screw SM5.95-28x20 for A-91	3 pcs.	009762-0-13	
A-34	Tension disc	2 pcs.	108721-0-01		A-91	Sub shaft cover lower	1 pce.	143984-0-01	
A-35	Tension spring	1 pce.	115938-0-01		A-92	Cam cover set bolt	1 *	141267-0-01	
A-36	Tension control nut	1 *	100136-0-01		A-93	Packing for A-91	1 *	141254-0-01	
A-37	Set pin for A-38	4 pcs.	041170-2-04		A-94	Bobbin winder tension control nut	1 *	107682-0-01	
A-38	Diagram for numbers of stitch	1 pce.	141265-0-01		A-95	Spring	1 *	107681-0-01	
A-39	Stud screw for A-41	1 *	107321-0-01		A-96	Disc	2 pcs.	107680-0-01	
A-40	Spring washer for A-39	1 *	107017-0-01		A-97	Stud	1 pce.	107678-0-01	
A-41	Gear case cover	1 *	141264-0-01		A-98	Set screw for A-99	1 *	107407-0-02	
A-42	Set screw for A-41	1 *	100008-0-03		A-99	Bobbin winder thread guide	1 *	141600-0-01	
A-43	Set screw SM3.57-40x6 for A-44	2 pcs.	009670-6-12		A-100	Cam cover	1 *	143339-0-01	
A-44	Gear separation plate	1 pce.	145345-0-01		A-101	Set screw for A-103	3 pcs.	107491-0-02	
A-45	Oil cap	1 *	104450-0-01		A-102	Set screw for A-92	1 pce.	102023-0-01	
A-46	Oil cap	1 *	104449-0-01		A-103	Sub cam cover	1 *	143445-0-01	
A-47	Set screw for A-49	1 *	105219-0-03		A-104	Washer for A-105	1 *	116662-0-02	
A-48	Thread take-up cover	1 *	141268-0-01		A-105	Set screw for A-100	1 *	100644-0-01	
A-49	Set screw 4.37-40x6 for A-50	1 *	100388-0-01		A-106	Set screw for A-100	2 pcs.	100086-0-01	
A-50	Thread retainer (rear)	1 *	145961-0-01		A-107	Handle lever stopper spring	1 pce.	142739-0-01	
A-51	Name plate (70)	1 *	112548-0-01		A-108	Stud screw for A-107	1 *	116755-0-01	
A-52	Set screw for A-51	2 pcs.	100191-0-03		A-109	Oil cap	1 *	104450-0-01	
A-53	Oil cap	1 pce.	142743-0-00		A-110	Model plate for B814-4	1 *	143765-0-01	
A-54	Set screw	1 *	100644-0-01		A-111	Set pin	2 pcs.	116231-0-01	
A-55	Washer SM4.37	1 *	025680-2-34						

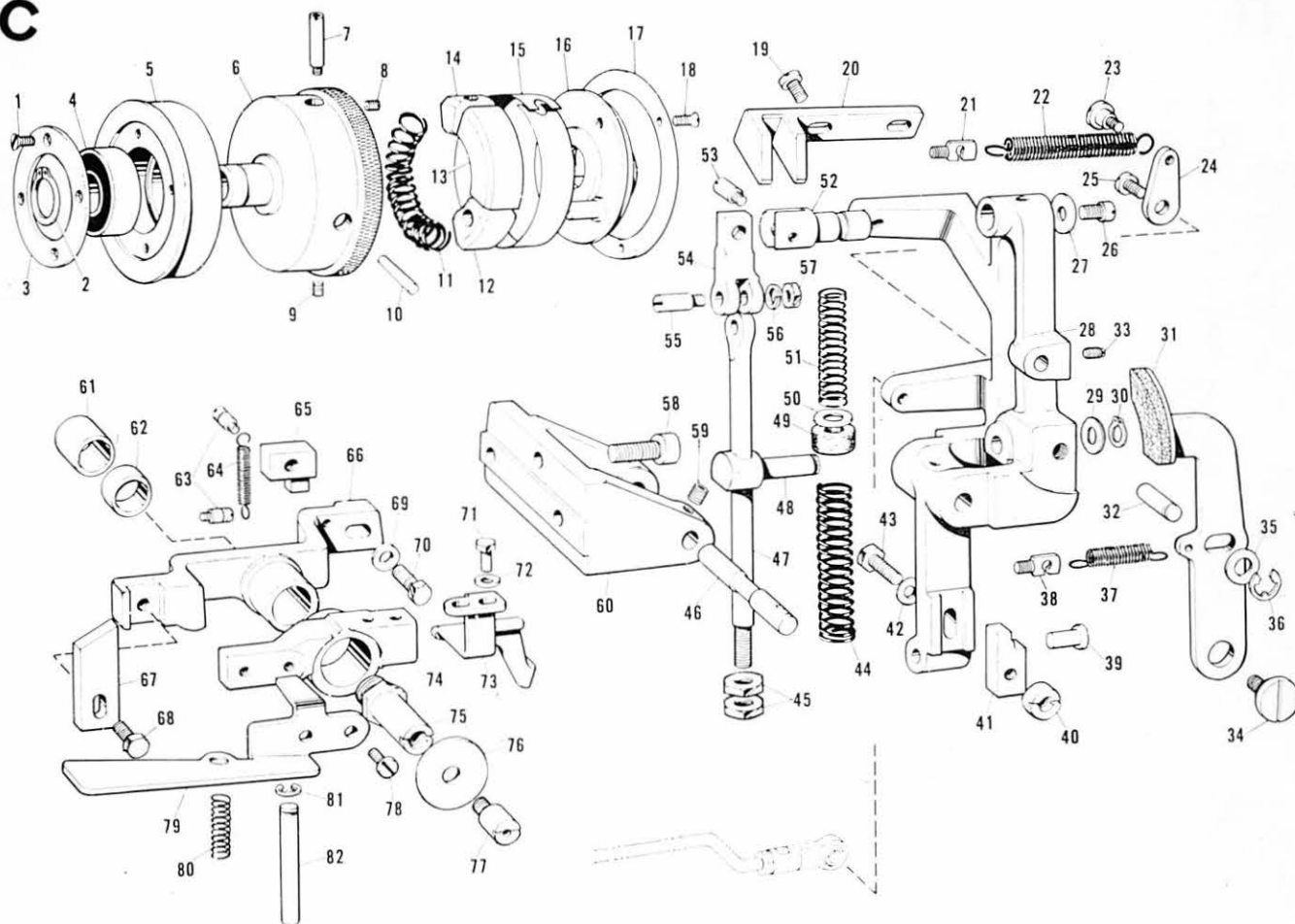
B



Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.
B-1	Set screw SM6.35-40 x 6 for B-2	1 pce.	014770-6-22		B-43	Bearing cap	1 pce.	141276-0-01	
B-2	Stud for B-3	1 -	141295-0-01		B-44	Set screw for B-43	3 pcs.	102843-0-04	
B-3	Needle bar support	1 -	141294-0-01		B-47	Vertical shaft	1 pce.	141297-0-01	
B-4	Needle bar	1 -	141293-0-01		B-48	Vertical shaft upper bushing	1 -	141298-0-00	
B-5	Wick holder	1 -	141682-0-01		B-49	Set screw for B-48	1 -	100016-0-03	
B-6	Set screw for B-5	1 -	100130-0-03		B-50	Collar for B-52	1 -	104521-0-01	
B-7	Wick 1 x 4	1 -	141681-0-01		B-51	Set screw for B-50	2 pcs.	101706-0-01	
B-8	Set screw for B-9	2 pcs.	107093-0-02		B-52	Vertical shaft lower bushing 1	1 pce.	142709-0-00	
B-9	Needle bar support guide	1 pce.	141296-0-01		B-53	Set screw for B-52	2 pcs.	100016-0-03	
B-11	Set screw for needle	1 -	117666-0-01		B-54	Vertical shaft lower gear	1 pce.	117874-0-01	
B-12	Needle DP x 5	1 -	107415-0-14		B-55	Set screw SM13.65-40 x 6 for B-54	2 pcs.	014770-6-22	
B-10	Set screw for B-13	1 -	140004-0-01		B-57	Lower shaft gear	1 pce.	117875-0-01	
B-13	Needle bar connecting stud	1 -	111237-0-01		B-58	Set screw SM6.35-40 x 14 for B-57	2 pcs.	014770-6-22	
B-14	Needle bar crank rod	1 -	118829-0-01		B-56	Lower shaft bushing (right)	1 pce.	141303-0-00	
B-15	Cap screw for B-14	1 -	103001-0-01		B-59	Collar (right) for B-61	1 -	118760-0-01	
B-16	Needle roller	1 -	116735-0-00		B-60	Set screw for B-59	2 pcs.	101706-0-01	
B-17	Needle bar crank	1 -	145720-0-01	145719-0-01	B-61	Lower shaft bushing (intermediate)	1 pce.	141305-0-00	
B-18	Stud for B-20	1 -	111468-0-01		B-62	Set screw SM6.35-40 x 14 for B-61	1 -	013771-4-10	
B-20	Thread take-up lever	1 -			B-63	Collar (left) for B-61	1 -	141304-0-01	
B-21	Needle roller	1 -	116735-0-00		B-64	Set screw for B-63	4 pcs.	014770-6-22	
B-22	Needle bar crank washer	1 -	110367-0-01		B-65	Oil adjusting knob	1 pce.	142582-0-01	
B-19	Set screw SM6.35-40 x 6 for B-18	1 -	014770-6-22		B-66	Oil adjusting stud	1 -	142408-0-01	
B-23	Set screw	1 -	101706-0-01		B-67	Set screw for B-65	2 pcs.	100388-0-04	
B-24	Set screw SM6.35-40 x 6 for B-17	2 pcs.	014770-6-22		B-68	Ratchet for B-72	1 pce.	109862-0-01	
B-25	Counter weight	1 pce.	141290-0-00		B-69	Set screw for B-68	2 pcs.	100242-0-03	
B-26	Set screw SM6.35-40 x 6 for B-25	1 -	014770-6-22		B-70	Collar for B-72	1 pce.	109183-0-01	
B-27	Set screw for B-25	1 -	100250-0-01		B-71	Set screw for B-70	2 pcs.	109184-0-01	
B-28	Upper shaft bushing (left)	1 -	141272-0-00		B-72	Oil adjusting ring	1 pce.	142407-0-01	
B-29	Upper shaft	1 -	141271-0-01		B-73	Lower shaft bushing (left)	1 -	109857-0-01	
B-30	Worm	1 -	141387-0-01		B-74	Collar for B-80	1 -	141306-0-01	
B-31	Set screw SM6.35-40 x 6 for B-30	2 pcs.	014770-6-22		B-75	Set screw for B-74	4 pcs.	014770-6-22	
B-32	Upper shaft bushing (intermediate)	1 pce.	141273-0-00		B-76	Lower shaft	1 pce.		143933-0-01
B-33	Set screw SM6.35-40 x 6 for B-34	2 pcs.	014770-6-22		B-77	Felt 2.8 x 30	1 -	142744-0-01	
B-34	Speed reduction gear	1 pce.	141309-0-01		B-78	Oil cap for B-76	1 -	109173-0-01	
B-35	Set screw SM6.35-40 x 6 for B-36	2 pcs.	014770-6-22		B-79	Felt 2.8 x 30	1 -	142744-0-01	
B-36	Upper shaft gear	1 pce.	116774-0-01		B-80	Rotary hook assembly	1 -	143987-0-01	
B-45	Vertical shaft upper gear	1 -	116999-0-01	181092-0-01	B-81	Bobbin	1 -	146025-0-01	
B-46	Set screw SM6.35-40 x 6 for B-45	2 pcs.	014770-6-22		B-82	Bobbin case assembly	1 -	143973-0-01	
B-37	Stop ring	1 pce.	048150-1-40		B-83	Thread tension spring	1 -	180720-0-01	
B-38	Oil rejector	1 -	141277-0-00		B-84	Tension adjusting screw	1 -	180721-0-01	
B-39	Bearing case	1 -	141274-0-00		B-85	Set screw for B-83	1 -	180722-0-01	
B-40	Set screw for B-39	3 pcs.	100086-0-03		B-86	Bobbin tension spring	1 -	181398-0-01	
B-41	Bearing 6202VV	2 -	072620-2-60		B-87	Bobbin tension adjusting screw	1 -	181399-0-01	
B-42	Bearing washer	1 pce.	141275-0-01		B-88	Set screw for B-86	1 -	181400-0-01	

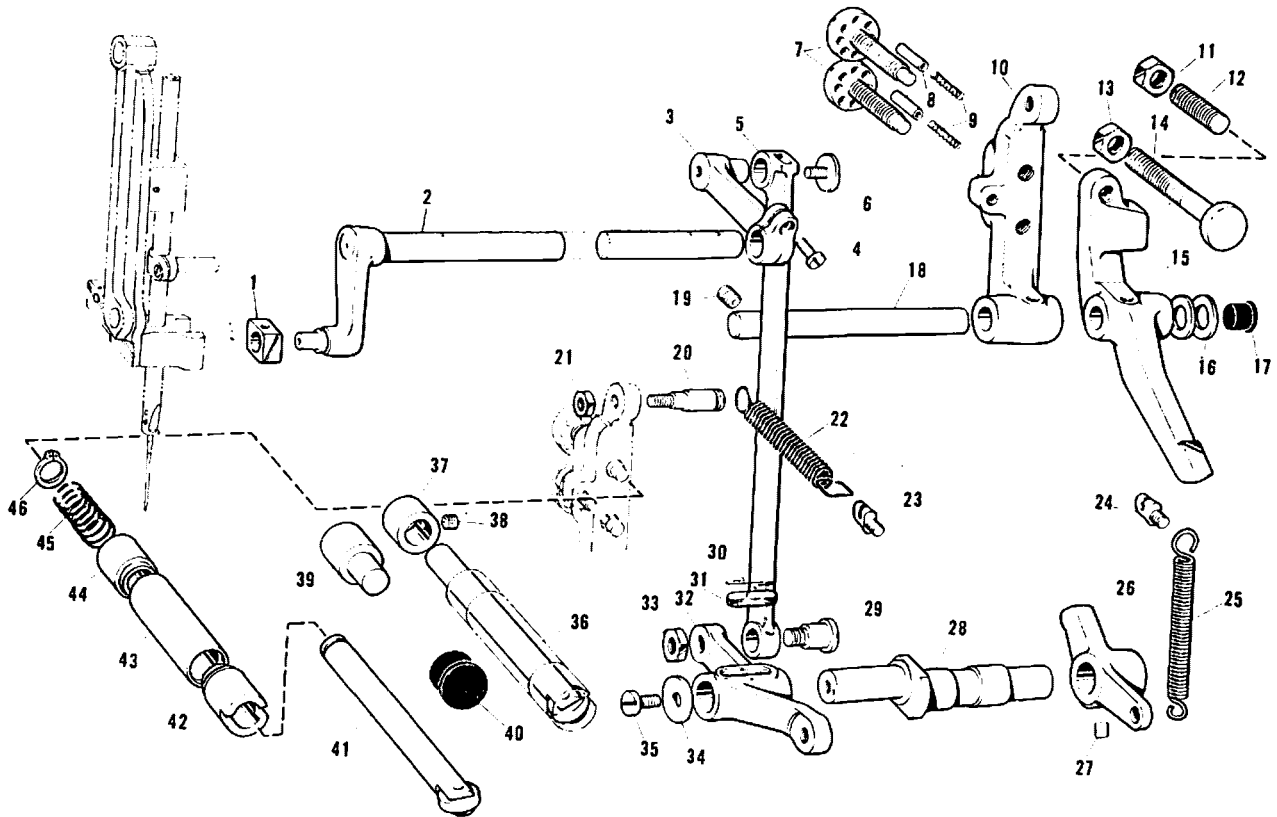
※ If you need of  mark, please advise assembly number.

C



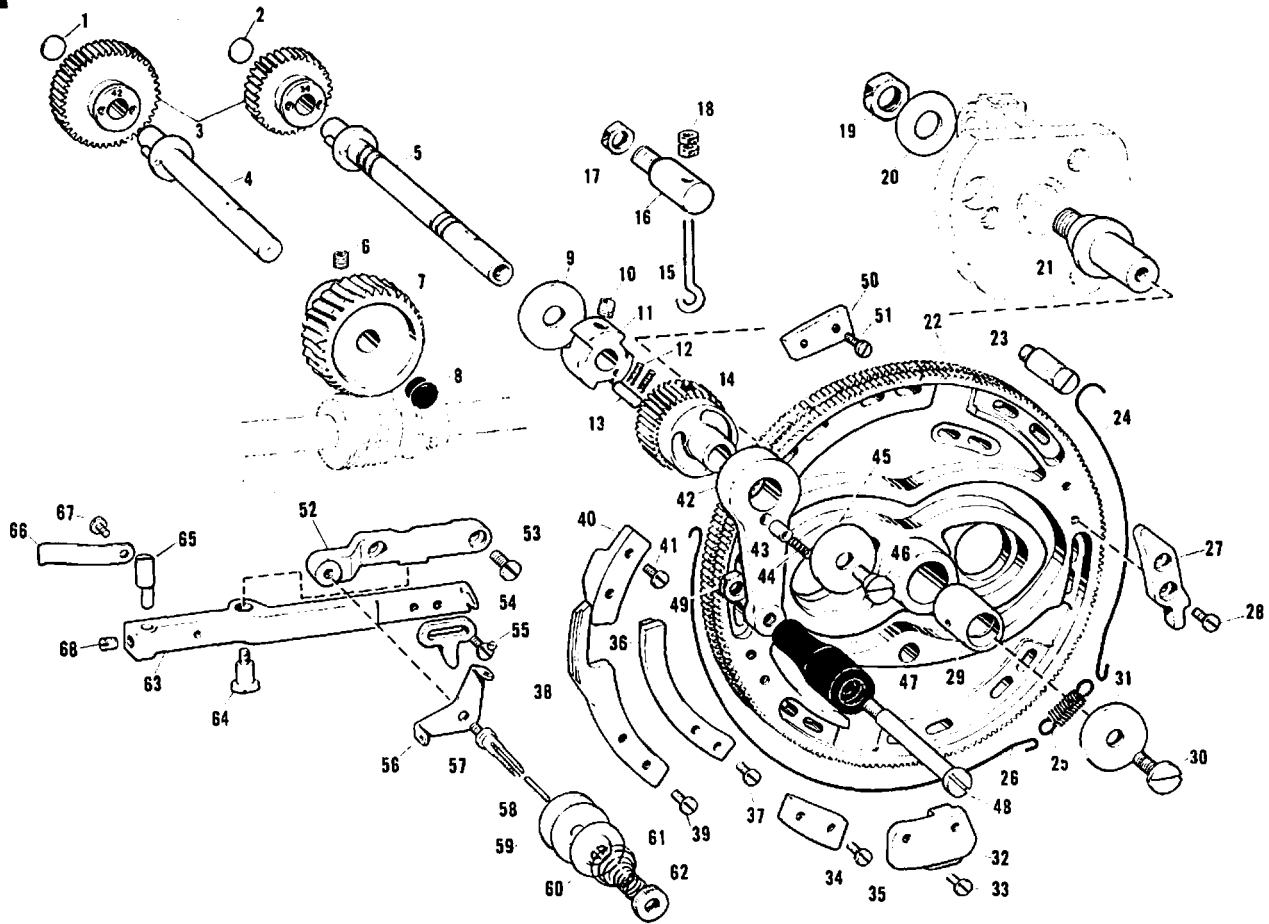
Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
C-1	Set screw for C-3	4 pcs.	102843-0-04		C-42	Washer for C-43	1 pce.	118735-0-02	
C-2	Stop ring	1 pce.	048150-1-40		C-43	Set bolt SM6.35-28×25 for C-41	1 "	017782-5-12	
C-3	Bearing cap (large)	1 "	141279-0-01		C-44	Stopper spring (A)	1 "	115548-0-01	
C-4	Bearing 6005VV	1 "	072600-5-60		C-45	Nut SM9.52-28 for C-47	2 pcs.	021860-2-02	
C-5	Idle pulley	1 "	141278-0-01		C-46	Clutch lever shaft	1 pce.	141558-0-01	
C-6	Pulley	1 "	141280-0-01		C-47	Stopper bar	1 "	141554-0-01	
C-7	Stopper screw for C-14	1 "	141282-0-01		C-48	Stopper bar clamp	1 "	115552-0-01	
C-8	Set screw for C-7	1 "	109184-0-01		C-49	Stopper spring felt	1 "	115550-0-01	
C-9	Set screw SM6.35-40×6 for C-6	1 "	014770-6-22		C-50	Washer for C-55	1 "	025100-1-32	
C-10	Taper pin 4×36	1 "	142297-0-01		C-51	Stopper spring (B)	1 "	115551-0-01	
C-11	Plunge spring	1 "	141283-0-01		C-52	Clutch stopper stud	1 "	115542-0-01	
C-12	Block for pulley stop cam	1 "	141285-0-01		C-53	Stud screw for C-53	1 "	115544-0-01	
C-13	Plunge spring supporter	1 "	141284-0-00		C-54	Clutch stopper	1 "	115545-0-01	
C-14	Block for pulley	1 "	141281-0-01		C-55	Stud screw for C-54	1 "	115546-0-01	
C-15	Pulley inside cover	1 "	142751-0-01		C-56	Spring washer for C-57	1 "	028050-2-40	
C-16	Stop cam assembly	1 "	141286-0-01		C-57	Nut SM4.76-32 for C-55	2 pcs.	021710-2-02	
C-17	Cap for stop cam	1 "	141289-0-01		C-58	Set bolt M8×25 for C-60	3 "	018082-5-22	
C-18	Set screw for C-17	3 pcs.	117348-0-01		C-59	Set screw SM6.35-40×6 for C-46	1 pce.	014770-6-22	
C-19	Set screw SM5.95-28×10	2 "	009761-0-12		C-60	Clutch lever bracket	1 "	141557-0-01	
C-20	Belt shifter	1 pce.	141556-0-01		C-61	Bushing	1 "	142372-0-00	
C-21	Spring hook	1 "	141334-0-01		C-62	Bushing 13×7	1 "	142375-0-00	
C-22	Clutch return spring	1 "	141559-0-01		C-63	Spring hook for C-64	2 pcs.	141550-0-01	
C-23	Stud screw for C-22	1 "	115559-0-02		C-64	Stop lever spring	1 pce.	141549-0-01	
C-24	Adjusting plate for C-22	1 "	115558-0-02		C-65	Clutch claw (A)	1 "	141548-0-01	
C-25	Set screw SM5.95-28×10 for C-24	1 "	009761-0-12		C-66	Stop lever	1 "	141546-0-01	
C-26	Set screw SM5.95-28×12 for C-54	1 "	009761-2-14		C-67	Stop cam segment (B)	1 "	141547-0-01	
C-27	Washer for C-26	1 "	025060-3-32		C-68	Set bolt SM5.95-28×14 for C-84	1 "	017761-4-12	
C-28	Clutch lever	1 "	146041-0-01		C-69	Washer for C-70	1 "	118735-0-02	
C-29	Washer for C-30	1 "	025100-1-32		C-70	Set bolt SM6.35-28×14 for C-68	1 "	017781-4-12	
C-30	Stop ring	1 "	048100-1-42		C-71	Set bolt	2 pcs.	111048-0-01	
C-31	Brake lever assembly	1 "	142755-0-01		C-72	Washer	1 pce.	025680-2-34	
C-32	Brake lever pin	1 "	142214-0-01		C-73	Retainer for C-74	1 "	141703-0-01	
C-33	Set screw	1 "	100013-0-04		C-74	Emergency stop supporter	1 "	141700-0-01	
C-34	Stud screw	1 "	141953-0-01		C-75	Emergency stop lever shaft	1 "	141618-0-01	
C-35	Washer for C-36	1 "	107153-0-02		C-76	Washer for C-77	1 "	141701-0-01	
C-36	Stop ring	1 "	048070-3-42		C-77	Stud screw for C-75	1 "	141702-0-01	
C-37	Brake spring	1 "	142771-0-01		C-78	Set screw for C-79	2 pcs.	107407-0-02	
C-38	Spring hook	1 "	141334-0-01		C-79	Emergency stop lever	1 pce.	141698-0-01	
C-39	Clutch lever pin	1 "	141555-0-01		C-80	Spring for C-79	1 "	141699-0-01	
C-40	Emergency stop joint	1 "	141704-0-01		C-81	Stop ring	1 "	048010-3-42	
C-41	Clutch claw (B)	1 "	141553-0-01		C-82	Belt shifter bar	1 "	141574-0-01	

E



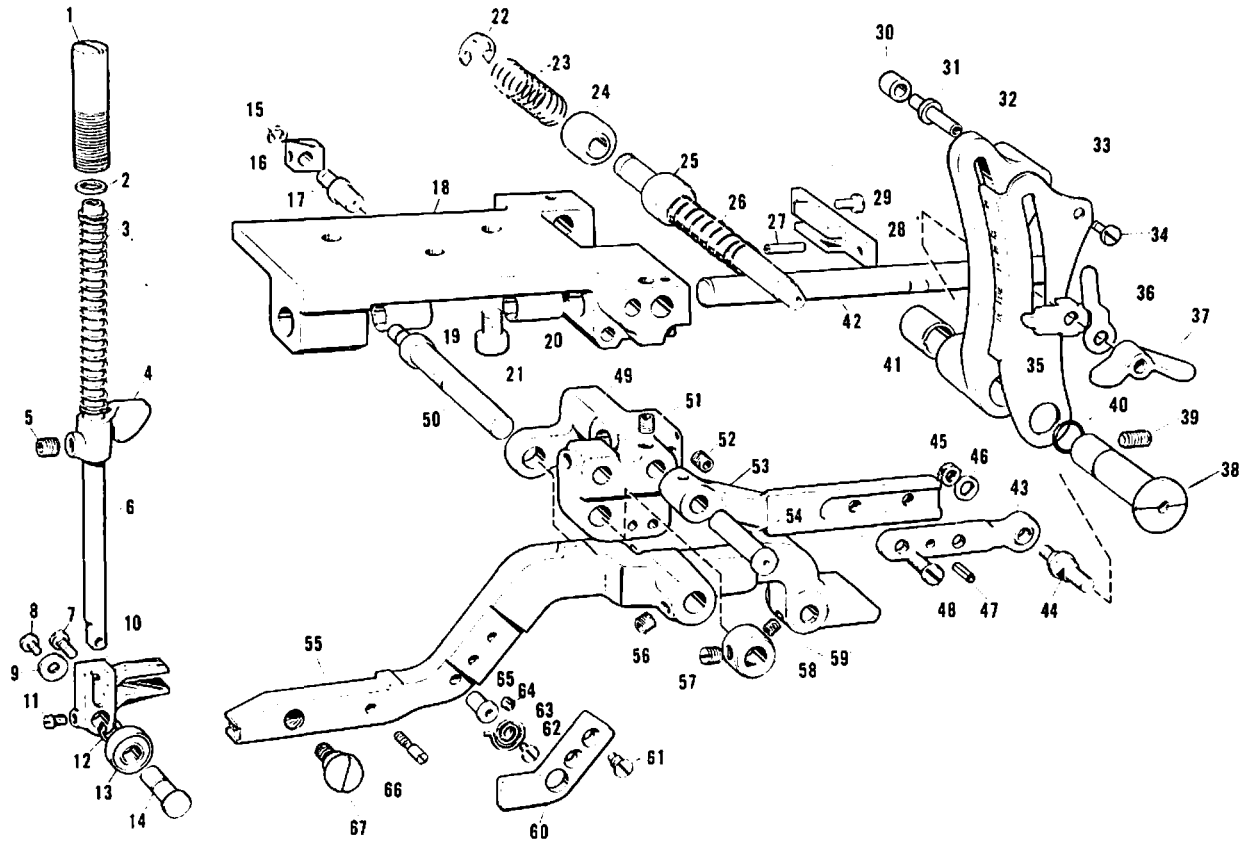
Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
E-1	Slide block for E-2	1 pce.	141353-0-01		E-24	Spring hook	1 pce.	141334-0-01	
E-2	Zigzag connecting lever (B)	1 *	141348-0-01		E-25	Spring for E-26	1 *	141358-0-01	
E-3	Zigzag connecting lever (A)	1 *	141347-0-01		E-26	Stopper for E-15	1 *	141357-0-01	
E-4	Set screw SM4.76-32×14 for E-3	1 *	009711-4-13		E-27	Set screw SM5.95-28×6 for E-26	2 pcs.	014760-6-22	
E-5	Zigzag connecting rod	1 *	141346-0-01		E-28	Zigzag eccentric shaft	1 pce.	141341-0-01	
E-6	Cap screw for E-5	1 *	100511-0-03		E-29	Stud screw for E-5	1 *	141345-0-01	
E-7	Zigzag adjusting screw	2 pcs.	141336-0-01		E-30	Clip	1 *	116795-0-00	
E-8	Zigzag adjusting screw stopper pin	2 *	141337-0-01		E-31	Felt	1 *	117598-0-01	
E-9	Spring for E-8	2 *	141338-0-01		E-32	Zigzag eccentric shaft link	1 *	141342-0-00	
E-10	Zigzag adjusting lever	1 pce.	141335-0-00		E-33	Nut for E-29	1 *	403888-0-01	
E-11	Nut for E-12	1 *	105812-0-01		E-34	Washer for E-35	1 *	141343-0-02	
E-12	Left zigzag adjusting screw	1 *	141355-0-01		E-35	Set screw for E-28	1 *	112657-0-03	
E-13	Nut for E-14	1 *	105812-0-02		E-36	Zigzag connecting shaft	1 *	141359-0-01	
E-14	Right zigzag adjusting screw	1 *	141356-0-01		E-37	Collar for E-36	1 *	141351-0-01	
E-15	Zigzag position changing lever	1 *	141354-0-00		E-38	Set screw SM6.35-40×6 for E-37	1 *	014770-6-22	
E-16	Washer for E-15	2 pcs.	110494-0-01		E-39	Stud	1 *	145344-0-01	
E-17	Oil cap	1 pce.	104450-0-01		E-40	Oil cap	1 *	145342-0-01	
E-18	Zigzag adjusting lever shaft	1 *	141340-0-01		E-41	Bar tack connecting shaft	1 *	141659-0-01	
E-19	Set screw SM5.95-28×6 for E-18	1 *	013760-6-12		E-42	Bushing (right) for E-41	2 pcs.	141716-0-00	
E-20	Zigzag adjusting lever screw pin	1 *	141332-0-01		E-43	Collar for E-41	2 *	141366-0-01	
E-21	Nut for E-20	1 *	106588-0-01		E-44	Bushing (left) for E-41	2 *	141365-0-00	
E-22	Spring for E-10	1 *	141333-0-01		E-45	Spring for E-41	1 pce.	141363-0-01	
E-23	Spring hook	1 *	141334-0-01		E-46	Stop ring	1 *	048110-1-42	

F



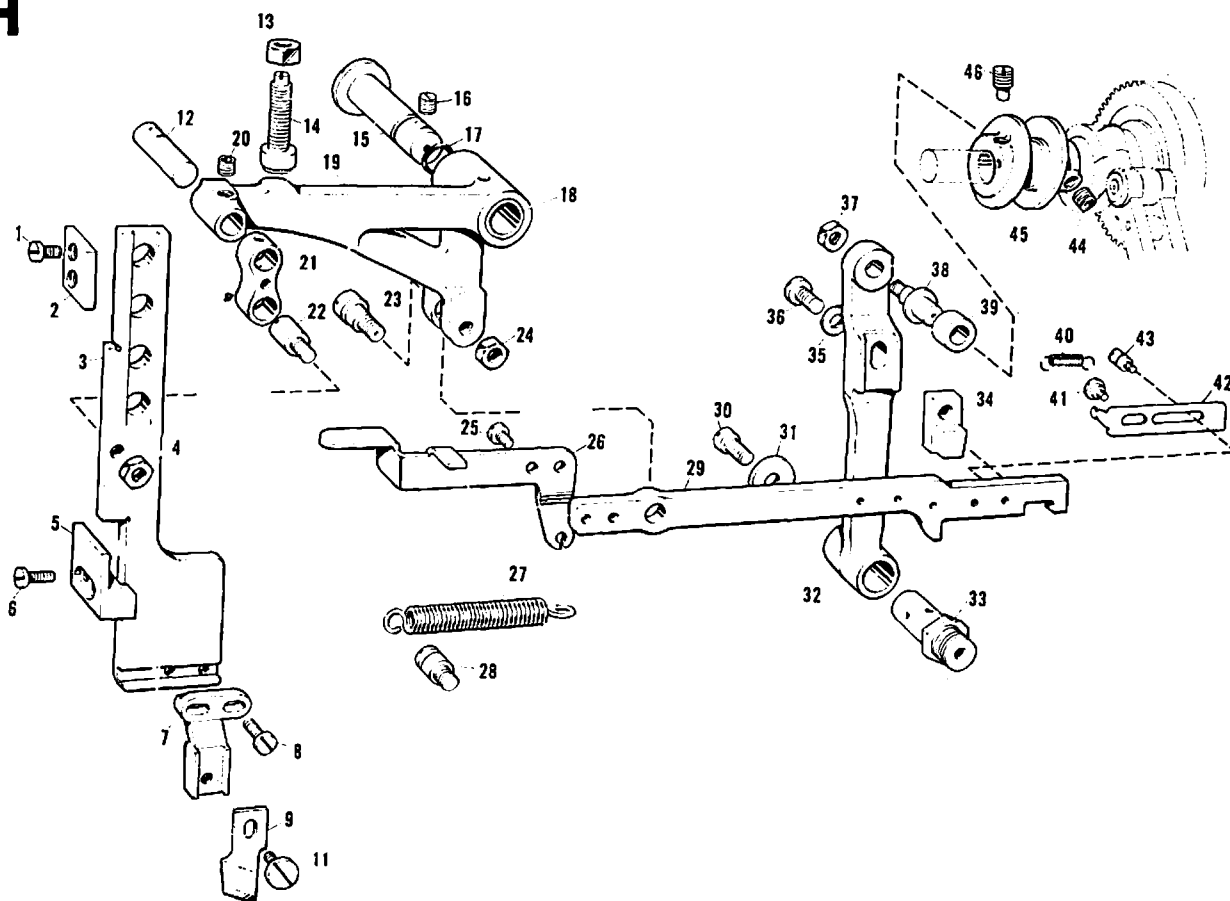
Ref. No.	Name of Parts	Q'ty	Parts No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts No.	Assembly No.
F-1	Gear indicator R	1 pce.	142272-0-01		F-29	Feed cam bushing	1 pce.	142375-0-00	
F-2	Gear indicator L	1 "	142273-0-01		F-30	Set screw for F-21	1 "	141408-0-01	
	Gear 26	1 "	141374-0-00		F-31	Washer for F-30	1 "	141400-0-01	
	- 28		141375-0-00		F-32	Cutter segment	1 "	145353-0-01	
	- 30		141376-0-00		F-33	Set screw 4.73×10	2 pcs.	009681-0-12	
	- 32		141377-0-00		F-34	Zigzag segment F	1 pce.	145350-0-01	
	- 34		141378-0-00		F-35	Set screw 4.73×10	2 pcs.	009681-0-12	
	- 36		141379-0-00		F-36	Bar tack segment	2 "	145351-0-01	
F-3	- 38		141380-0-00		F-37	Set screw 4.37×8	4 "	009680-8-12	
	- 40		141381-0-00		F-38	Push segment	2 "	145348-0-01	
	- 42		141382-0-00		F-39	Set screw 4.37×12	4 "	009681-2-12	
	- 44		141383-0-00		F-40	Zigzag segment B	2 "	145349-0-01	
	- 46		141384-0-00		F-41	Set screw 4.37×12	4 "	009681-2-12	
	- 48		141385-0-00		F-42	Handle lever	1 pce.	141395-0-01	
	- 50		141386-0-00		F-43	Roller pin	1 "	141396-0-01	
F-4	Worm wheel shaft	1 pce.	141369-0-01		F-44	Spring	1 "	141397-0-01	
F-5	Gear shaft	1 "	141714-0-01		F-45	Washer	1 "	141400-0-01	
F-6	Set screw SM6.35-10×6 for F-7	2 pcs.	014770-6-22		F-46	Stud screw	1 "	142702-0-01	
F-7	Worm wheel	1 pce.	141368-0-00		F-47	Handle	1 "	141398-0-01	
F-8	Oil cap	1 "	104821-0-01		F-48	Handle shaft	1 "	141399-0-01	
F-9	Washer for F-11	1 "	141394-0-01		F-49	Nut	1 "	021780-3-03	
F-10	Set screw SM5.95-28×6 for F-11	2 pcs.	014760-6-22		F-50	Zigzag segment F, B	1 "	146130-0-01	
F-11	Free wheel cam	1 pce.	141391-0-01	141389-0-01	F-51	Set screw 4.37×10	2 pcs.	009681-0-12	
F-12	Spring for F-11	6 pcs.	141392-0-01		F-52	Gimp tension bracket	1 pce.	145438-0-01	
F-13	Pin for F-11	3 "	141393-0-01		F-53	Set screw	2 pcs.	009681-0-14	
F-14	Free wheel gear	1 pce.	141390-0-01		F-54	Stopper	1 pce.	145401-0-01	
F-15	Adjusting hook for F-26	1 "	140947-0-01		F-55	Set screw 4.37×8	2 pcs.	009680-8-12	
F-16	Cam brake hook bracket	1 "	141412-0-01		F-56	Gimp guide	1 pce.	110813-0-01	
F-17	Nut for F-16	1 "	106147-0-01		F-57	Tension stud	1 "	145440-0-01	
F-18	Nut for F-15	2 pcs.	021400-1-03		F-58	Pin	1 "	116521-0-01	
F-19	Nut for F-21	1 pce.	021910-3-02		F-59	Tension disc	2 pcs.	108721-0-01	
F-20	Washer for F-19	1 "	025900-2-32		F-60	Tension disc washer	1 pce.	100134-0-01	
F-21	Feed cam shaft	1 "	141403-0-01		F-61	Tension spring	1 "	115958-0-01	
F-22	Feed cam assembly	1 "	145347-0-01		F-62	Nut	1 "	100136-0-01	
F-23	Hook for F-24	1 "	141413-0-01		F-63	Gimp guide lever	1 "	145400-0-01	
F-24	Cam brake wire B	1 "	141410-0-01		F-64	Stud screw	1 "	115493-0-02	
F-25	Spring for F-24 & F-26	1 "	141411-0-01		F-65	Gimp release pin	1 "	145439-0-01	
F-26	Cam brake wire A	1 "	141409-0-01		F-66	Spring plate	1 "	142258-0-01	
F-27	Stop cam segment	1 "	145352-0-01		F-67	Set screw	1 "	100242-0-03	
F-28	Set screw SM4.37-40×10 for F-27	2 pcs.	009681-0-12		F-68	Set screw	1 "	100218-0-03	

G

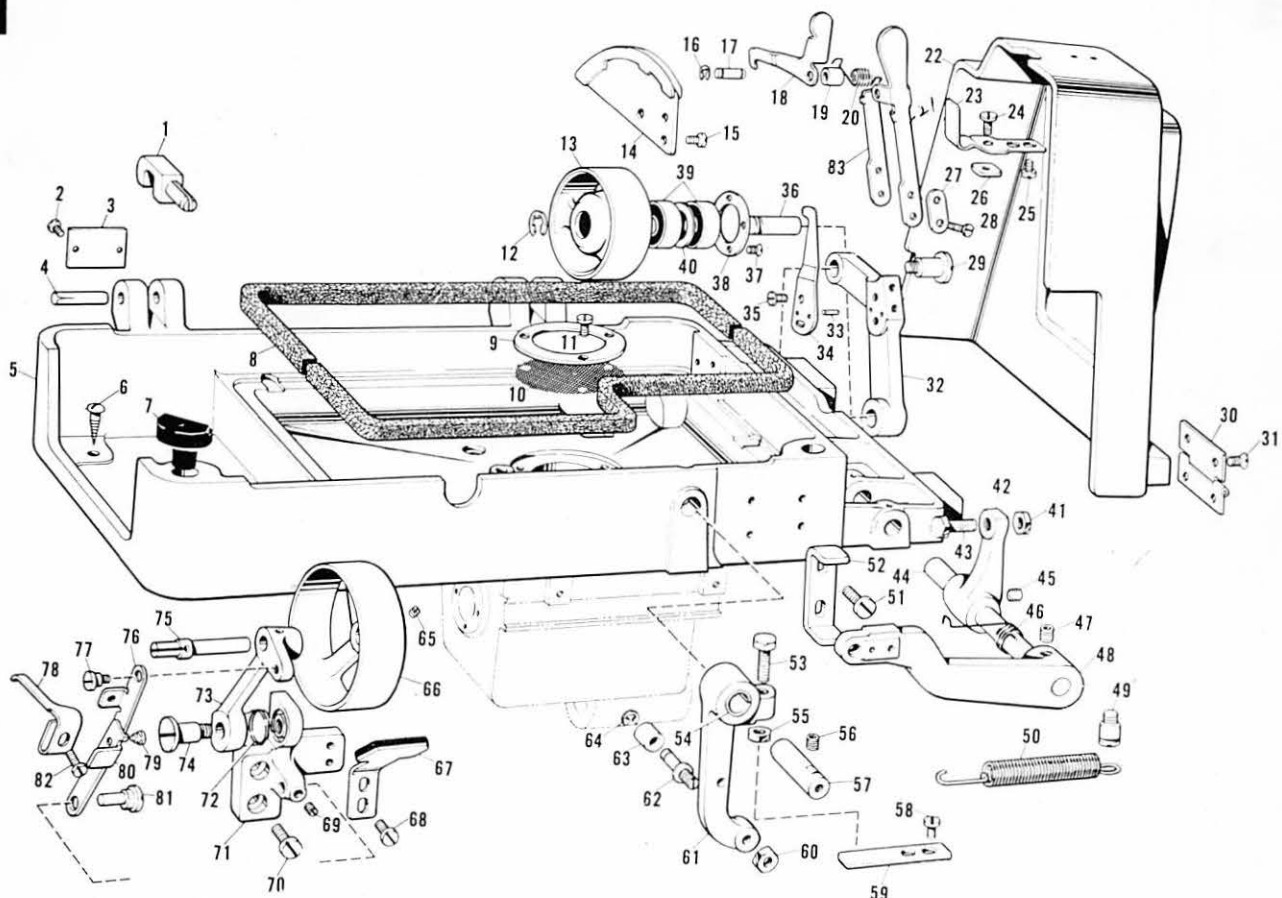


Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
G-1	Paressure adjusting screw	1 pce.	141454-0-01	141455-0-01	G-35	Length feed indicator	1 pce.	141419-0-01	
G-2	Washer for G-1	1 -	100281-0-01		G-36	Stopper for G-35	1 -	144541-0-01	
G-3	Presser bar spring (large)	1 -	141451-0-01		G-37	Wing nut	1 -	118262-0-02	
G-4	Presser bar bracket	1 -	141450-0-01		G-38	Length feed adjusting lever shaft	1 -	141417-0-01	
G-5	Set screw SM6.35-40×6 for G-4	1 -	014770-6-22		G-39	Set screw for G-38	1 -	100062-0-03	
G-6	Presser bar	1 -	141449-0-01		G-40	Packing for G-38	1 -	141697-0-00	
G-7	Set screw SM4.37-40×10 for G-10	1 -	009681-0-12		G-41	Bushing for G-38	2 pcs.	142372-0-00	
G-8	Set screw for G-10	1 -	100366-0-02		G-42	Feed guide shaft	1 pce.	141429-0-01	
G-9	Washer for G-8	1 -	025350-3-32		G-43	Feed lever B	1 -	145445-0-01	
G-10	Presser bar roller bracket	1 -	145378-0-01		G-44	Feed lever joint	1 -	141424-0-01	
G-11	Set screw for G-14	1 -	107491-0-03		G-45	Nut for G-44	1 -	110140-0-01	
G-12	Stop ring	1 -	048060-3-42		G-46	Washer for G-43	1 -	107175-0-02	
G-13	Roller 697 ZZ	1 -	072068-7-80		G-47	Spring pin	1 -	047400-8-42	
G-14	Roller stud	1 -	141458-0-01		G-48	Set screw SM5.95-28×10 for G-43	2 pcs.	009761-0-14	
G-15	Stop ring	1 -	048060-3-43		G-49	Feed arm bracket	1 pce.	141430-0-01	
G-16	Feed bar guide block	1 -	118215-0-01		G-50	Feed arm shaft	1 -	141434-0-01	
G-17	Stud for G-49	1 -	141431-0-01		G-51	Set screw SM5.95-20×6 for G-53	1 -	014760-6-22	
G-18	Feed guide shaft bracket	1 -	145354-0-01		G-52	Set screw SM6.35-40×6 for G-32	1 -	014770-6-22	
G-19	Bushing	1 -	142374-0-00		G-53	Feed lever A	1 -	141421-0-01	
G-20	Bushing	1 -	142374-0-00		G-54	Stud for G-53	1 -	141425-0-01	
G-21	Set bolt M8×14 for G-18	3 pcs.	018081-4-22		G-55	Length feed arm	1 -	145356-0-01	
G-22	Stop ring	1 pce.	048080-3-42		G-56	Set screw Sm6.3-40×6 for G-20	1 -	014770-6-22	
G-23	Cutter clutch spring (B)	1 -	141488-0-01		G-57	Set screw for G-58	2 pcs.	101706-0-01	
G-24	Cutter clutch	1 -	141487-0-01		G-58	Set collar for G-20	1 pce.	110495-0-02	
G-25	Cutter clutch bar	1 -	141484-0-01		G-59	Set screw	1 -	014770-6-22	
G-26	Cutter clutch spring (A)	1 -	141485-0-01		G-60	Guide plate for G-75	1 -	141440-0-01	
G-27	Pin for G-25	1 -	047301-8-42		G-61	Set screw	2 pcs.	100032-0-01	
G-28	Cutter clutch bar buide	1 -	141486-0-01		G-62	Set screw for G-63	1 pce.	115761-0-01	
G-29	Set screw for G-28	2 pcs.	100137-0-02		G-63	Upper clamping foot spring	1 -	141442-0-01	
G-30	Roller	1 pce.	107550-0-02		G-64	Set screw for G-65	1 -	100218-0-03	
G-31	Roller stud	1 -	141420-0-01		G-65	Stud for G-63	1 -	141441-0-01	
G-32	Length feed adjusting lever	1 -	143739-0-01		G-66	Screw pin	1 -	115120-0-01	
G-33	Length feed indicator plate	1 -	145359-0-01		G-67	Stud screw for G-75	1 -	141439-0-01	
G-34	Set screw for G-44	1 -	112751-0-01						

H



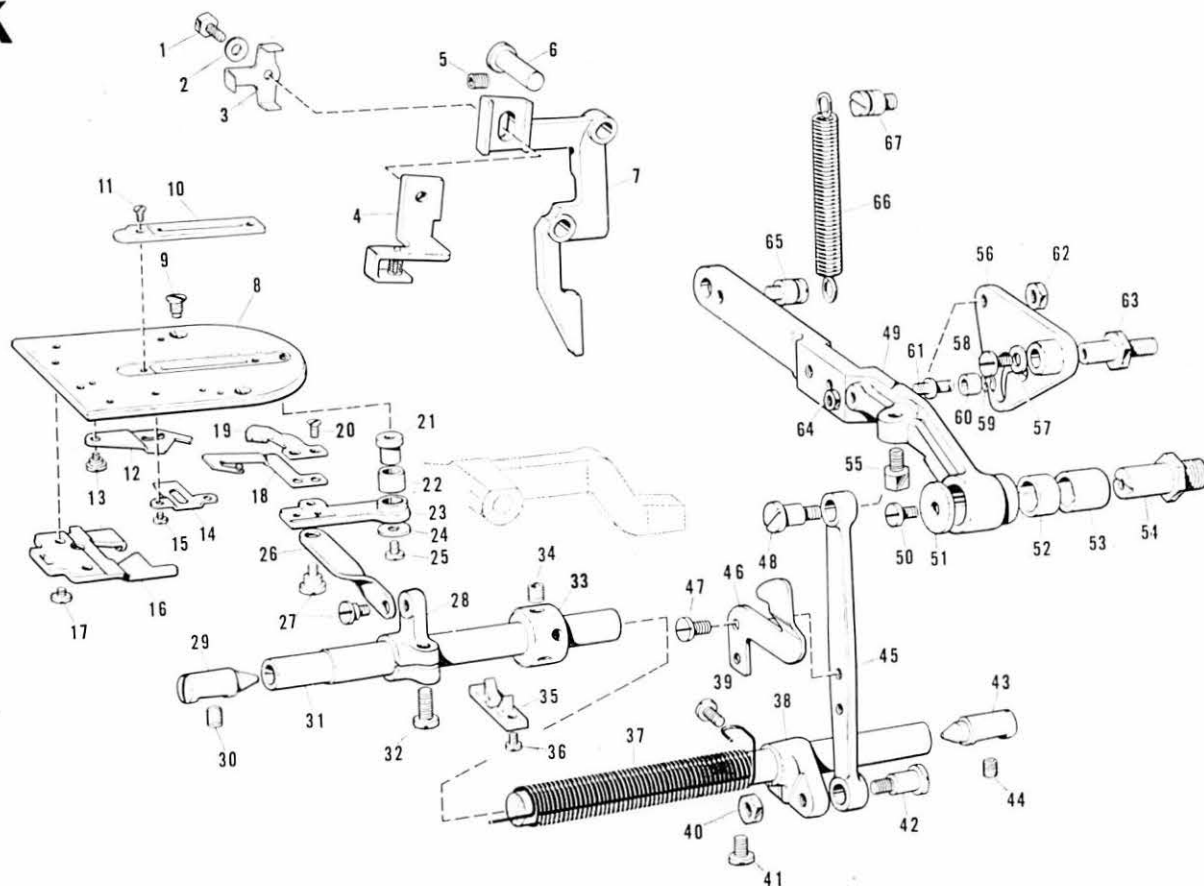
Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
H-1	Set screw SM4.37-40×7 for H-2	2 pcs.	009680-7-12		H-21	Cutter base connecting link	1 pce.	141475-0-01	
H-2	Cutter base guide (upper)	1 pce.	141478-0-01		H-22	Stud screw for H-3	1 -	141476-0-01	
H-3	Cutter base	1 -	141477-0-01		H-23	Stud screw for H-18	1 -	141469-0-01	
H-4	Nut for H-22	1 -	107114-0-01		H-24	Nut for H-23	1 -	110744-0-02	
H-5	Cutter base guide (lower)	1 -	141479-0-01		H-25	Set screw SM4.37-40×8 for H-26	2 pcs.	009680-8-14	
H-6	Set screw SM4.37-40×14	2 pcs.	009681-4-12		H-26	Cutter stop lever	1 pce.	141468-0-01	
H-7	Cutter holder	1 pce.	141480-0-01		H-27	Cutter lever spring	1 -	141471-0-01	
H-8	Set screw for H-7	2 pcs.	107407-0-02		H-28	Spring hook	1 -	145388-0-01	
	Cutter $\frac{1}{2}$ "	1 pce.	107204-0-01		H-29	Cutter lever	1 -	141467-0-01	
	" $\frac{1}{2}$ "	1 -	107200-0-01		H-30	Set screw for H-32	1 -	112657-0-03	
	" $\frac{3}{8}$ "	1 -	107205-0-01		H-31	Washer for H-33	1 -	141343-0-02	
	" $\frac{1}{4}$ "	1 -	109837-0-01		H-32	Cutter connecting lever	1 -	141462-0-01	
H-9	" $\frac{1}{8}$ "	1 -	107207-0-01		H-33	Stud for cutter connecting lever	1 -	141463-0-01	
	" $\frac{1}{16}$ "	1 -	109838-0-01		H-34	Cutter connecting slide block	1 -	141466-0-01	
	" $\frac{1}{32}$ "	1 -	107210-0-01		H-35	Washer for H-36	1 -	118735-0-02	
	" $\frac{1}{64}$ "	1 -	143780-0-01		H-36	Set screw SM6.35-40×18 for H-34	1 -	009771-8-12	
H-11	Set screw for H-9	1 -	115503-0-01		H-37	Nut for H-38	1 -	106588-0-01	
H-12	Stud for H-19	1 -	141474-0-01		H-38	Stud for H-32	1 -	141465-0-01	
H-13	Nut for SM9.52-18 for H-14	1 -	022870-1-04		H-39	Roller for H-38	1 -	141464-0-01	
H-14	Cutter base lifter stopper	1 -	141482-0-01		H-40	Spring for H-29	1 -	120790-0-01	
H-15	Cutter base lifter shaft	1 -	141417-0-01		H-41	Stud screw for H-42	2 pcs.	112144-0-01	
H-16	Set screw for H-15	1 -	110032-0-02		H-42	Clutch for H-34	1 pce.	142779-0-01	
H-17	Packing for H-15	1 -	141697-0-00		H-43	Spring hook for H-40	1 -	107126-0-01	
H-18	Lever for H-19	1 -	142376-0-00		H-44	Set screw for SM6.35-40×6	1 -	014770-6-22	
H-19	Cutter base lifter	1 -	141473-0-01		H-45	Cutter cam	1 -	141461-0-01	
H-20	Set screw SM6.35-40×6 for H-12	1 -	014770-6-22		H-46	Stopper screw for H-45	1 -	141717-0-01	



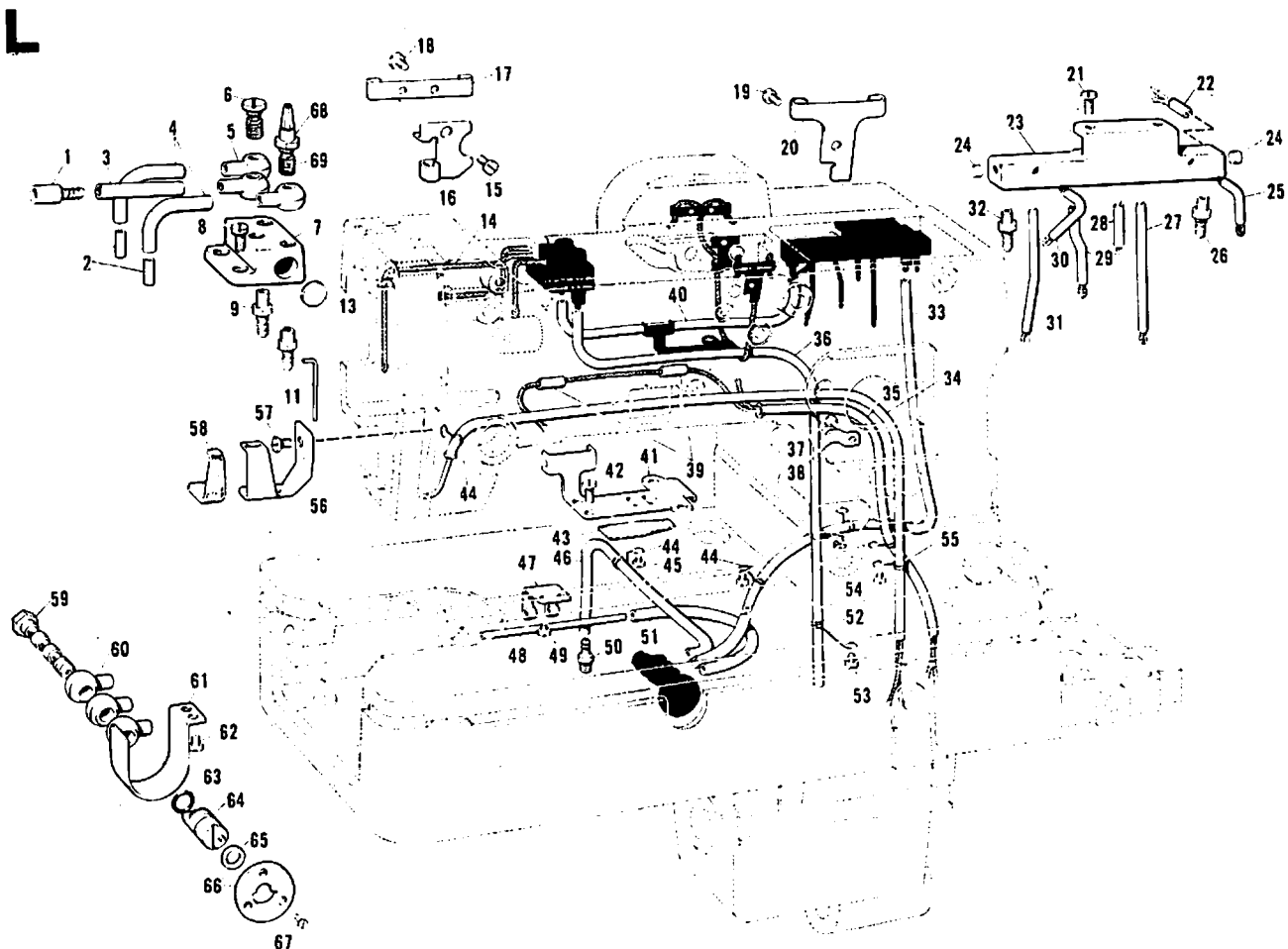
Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
1-1	Head hook	2 pcs.	141256-0-01		1-42	Clutch starting lever	1 pce.	141560-0-01	
1-2	Set screw SM4.37-40×7 for 1-3	4 *	009680-7-12		1-43	Stopper bolt for 1-42	1 *	115585-0-01	
1-3	Head hook plate	2 *	142312-0-01		1-44	Clutch starting lever shaft	1 *	141561-0-01	
1-4	Spring pin	2 *	141257-0-01		1-45	Set screw SM6.35-40×6 for 1-42	1 *	014770-6-22	
1-5	Head base	1 pce.	141259-0-01		1-46	Clutch starting lever spring	1 *	141562-0-01	
1-6	Set screw for 1-5	4 pcs.	101125-0-00		1-47	Set screw SM6.35-40×6 for 1-48	2 pcs.	014770-6-22	
1-7	Head cushion	2 *	141258-0-01		1-48	Clutch starting lift lever	1 pce.	141563-0-01	
1-8	Head base packing	1 pce.	114747-0-01		1-49	Spring hook	1 *	141472-0-01	
1-9	Oil filter flange	1 *	141695-0-01		1-50	Spring for 1-61	1 *	141481-0-01	
1-10	Oil filter	1 *	141694-0-00		1-51	Set screw SM5.95-28×12	2 pcs.	009761-2-14	
1-11	Set screw SM4.37-40×7 for 1-9	3 pcs.	009680-7-12		1-52	Stopper for 1-48	1 pce.	141564-0-01	
1-12	Stop ring	1 pce.	048090-3-42		1-53	Stopper bolt for 1-61	1 *	115585-0-01	
1-13	Tension pulley	1 *	141622-0-01		1-54	Bushing for 1-61	1 *	142373-0-00	
1-14	Tension pulley ratchet	1 *	141633-0-01		1-55	Nut SM7.94-18 for 1-53	1 *	022840-3-03	
1-15	Set screw SM4.37-40×8 for 1-14	3 pcs.	009680-8-12		1-56	Set screw SM6.35-40×6 for 1-57	1 *	014770-6-22	
1-16	Stop ring	2 *	048030-3-42		1-57	Belt shift lever pin	1 *	141579-0-01	
1-17	Stud for 1-18	1 pce.	141629-0-01		1-58	Set screw SM4.37-40×8 for 1-59	2 pcs.	009680-8-12	
1-18	Tension pulley pawl	1 *	141628-0-01		1-59	Stopper plate for 1-61	1 pce.	141580-0-01	
1-19	Collar for 1-17	1 *	141631-0-01		1-60	Nut for 1-62	1 *	021750-1-03	
1-20	Spring for 1-18	1 *	141630-0-01		1-61	Belt shift lever	1 *	141575-0-01	
1-21	Tension pulley lever	1 *	143917-0-01		1-62	Roller stud	1 *	141578-0-01	
1-22	Belt cover	1 *	141245-0-01		1-63	Roller for 1-62	1 *	141577-0-01	141576-0-01
1-23	Belt cover spring plate	1 *	141246-0-01		1-65	Set screw for 1-66	1 *	100218-0-03	
1-24	Set screw SM4.37-40×45 for 1-23	1 *	009689-4-12		1-66	Bobbin winder wheel	1 *	141609-0-01	
1-25	Set screw SM4.37-40×45 for 1-23	2 pcs.	009689-4-12		1-67	Bobbin winder brake	1 *	141611-0-01	
1-26	Nut for 1-24	1 pce.	105234-0-03		1-68	Set screw SM4.37-40×7 for 1-71	2 pcs.	009680-7-12	
1-27	Washer for 1-21	1 *	141627-0-01		1-69	Set screw for 1-81	1 pce.	104649-0-01	
1-28	Set screw for 1-21	2 pcs.	105205-0-01		1-70	Set screw SM6.95-28×12 for 1-71	2 pce.	009761-2-14	
1-29	Stud screw for 1-32	1 pce.	141632-0-01		1-71	Bobbin winder bracket	1 pce.	141602-0-01	
1-30	Belt cover hinge	2 pcs.	107372-0-01		1-72	Spring for 1-73	1 *	142259-0-01	
1-31	Set screw for 1-30	8 *	107231-0-01		1-73	Bobbin winder arm	1 *	141603-0-01	
1-32	Tension pulley arm	1 pce.	141624-0-01		1-74	Stud screw for 1-73	1 *	141604-0-01	
1-33	Belt cover stopper pin	1 *	141247-0-01		1-75	Bobbin winder shaft	1 *	141610-0-01	
1-34	Tension pulley indicator	1 *	141625-0-01		1-76	Bobbin winder link (B)	1 *	141607-0-01	
1-35	Set screw for 1-34	2 pcs.	100257-0-10		1-77	Stud screw for 1-76	1 *	100659-0-01	
1-36	Tension pulley shaft	1 pce.	141623-0-01		1-78	Bobbin holder	1 *	141608-0-01	
1-37	Set screw for 1-38	3 pcs.	110185-0-02		1-78	Pin for 1-76 & 1-80	1 *	100661-0-01	
1-38	Cap plate for 1-39	1 pce.	141316-0-01		1-80	Bobbin winder link (A)	1 *	141606-0-01	
1-39	Bearing 6000DD	2 pcs.	072600-0-40		1-81	Stud for 1-80	1 *	141605-0-01	
1-40	Washer for 1-39	1 pce.	142342-0-00		1-82	Set screw for 1-78	1 *	507142-0-02	
1-41	Nut SM7.94-18 for 1-43	1 *	022840-3-03		1-83	Tension pulley lever plate	1 *	143914-0-01	

Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.
J-1	Set screw	2 pcs.	102850-0-02		J-42	Set screw	2 pcs.	018400-8-22	
J-2	Position supporter	2	145404-0-01		J-43	Gimp guide push lever (B)	1 pce.	145396-0-01	
J-3	Set screw	2	009681-0-12		J-44	Set screw	1	009681-0-12	
J-4	Gimp guide position bracket	1 pce.	145402-0-01		J-45	Push lever shaft	1	145395-0-01	
J-5	Adjusting screw	2 pcs.	145405-0-01		J-46	Shaft	1	145399-0-01	
J-6	Set screw	2	105123-0-03		J-47	Lever (B)	1	145398-0-01	
J-7	Gimp guide positioner	1 pce.	145403-0-01		J-48	Set screw	1	101629-0-01	
J-8	Set screw	2 pcs.	107407-0-03		J-49	Lever (A)	1	145397-0-01	
J-9	Gimp guide changing plate	1 pce.	145383-0-01		J-50	Lever supporter	1	145406-0-01	
J-10	Gimp guide bar	1	145381-0-01		J-51	Set screw	1	100137-0-02	
J-11	Gimp guide pipe	1	145380-0-01		J-52	Set screw	1	009711-2-12	
J-12	Set screw	1	111443-0-01		J-53	Washer	1	145387-0-01	
J-13	Set screw	1	100366-0-02		J-54	Roller	1	145386-0-01	
J-14	Gimp guide bar supporter	1	145382-0-01		J-55	Gimp guide hinge	1	145385-0-01	
J-15	Set screw	2 pcs.	107407-0-02		J-56	Upper thread trimming lever holder	1	141495-0-01	
J-16	Gimp guide connector	1 pce.	145384-0-01		J-57	Spring hook	1	107639-0-01	
J-17	Set screw	1	009680-6-12		J-58	Spring	1	145692-0-01	
J-18	Spring	1	145430-0-01		J-59	Washer	1	100281-0-01	
J-19	Stud screw	1	116755-0-01		J-60	Stop ring	1	048060-3-42	
J-20	Work clamp lifter stopper	1	145429-0-01		J-61	Joint	1	141492-0-01	
J-21	Bolt	1	111048-0-02		J-62	Stud screw	1	141494-0-01	
J-22	Spring	1	110173-0-01		J-63	Washer	1	141343-0-02	
J-23	Spring hook	1	107640-0-01		J-64	Set screw	1	112657-0-03	
J-24	Gimp trimming detach lever	1	145414-0-01		J-65	Thread release plate	1	145673-0-01	
J-25	Gimp guide pushing plate	1	145392-0-01		J-66	Washer	2 pcs.	025680-2-32	
J-26	Set screw	2 pcs.	107093-0-01		J-67	Set screw	2	009680-8-12	
J-27	Spring	1 pce.	145393-0-01		J-68	Thread guide pin	1 pce.	141592-0-01	
J-28	Detach lever stopper	1	145436-0-01		J-69	Set screw	1	014760-6-22	
J-29	Spring	1	113897-0-01		J-70	Connecting bar (long)	1	141489-0-01	
J-30	Bolt	1	145341-0-01		J-71	Nut	1	100022-0-05	
J-31	Set screw	2 pcs.	101629-0-01		J-72	Joint	1	141492-0-01	
J-32	Nut	1 pce.	100022-0-05		J-73	Stud screw	1	141494-0-01	
J-33	Connecting pipe	1	141718-0-01		J-74	Connecting block	1	141491-0-01	
J-34	Detach lever bush	1	145434-0-01		J-75	Nut	1	100022-0-05	
J-35	Thread trimming detach lever	1	145433-0-01		J-76	Stud screw	1	115493-0-01	
J-36	Set screw	2 pcs.	100644-0-01		J-77	Stud screw	1	141494-0-01	
J-37	Set screw	1 pce.	018400-8-22		J-78	Joint	1	141492-0-01	
J-38	Detach lever holder	1	145435-0-01		J-79	Connecting bar (short)	1	141490-0-01	
J-39	Set screw	1	014770-6-22		J-80	Nut	1	100022-0-05	
J-40	Gimp guide push lever (A)	1	145394-0-01		J-81	Stud	1	141463-0-01	
J-41	Lower thread trimming lever stopper	1	145428-0-01						

K

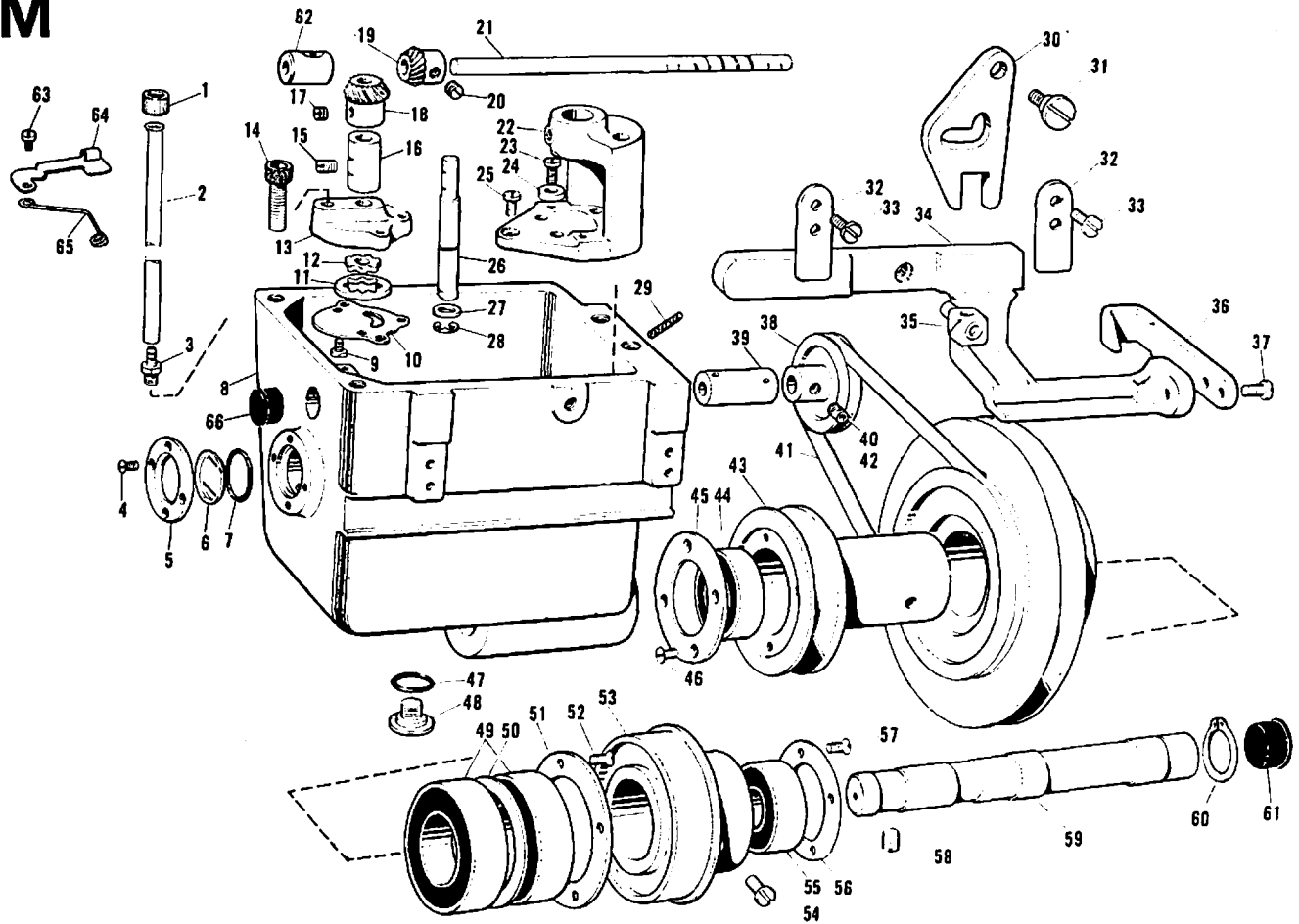


Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.
K-1	Bolt	1 pce.	017751-4-13	145293-0-01	K-35	Shaft supporter	1 pce.	141545-0-01	
K-2	Washer for K-1	1 *	107453-0-01		K-36	Set screw	2 pcs.	110767-0-01	
K-3	Fixed washer for K-4	1 *	143927-0-01		K-37	Spring for K-31	1 pce.	141531-0-01	
K-4	Cutter lever supporting plate	1 *	143945-0-01		K-38	Lower thread trimming shaft arm (A)	1 *	141529-0-01	
K-5	Set screw SM5.95-28×6 for K-6	1 *	014760-6-22		K-39	Set screw SM5.95-28×10 for K-37	1 *	009761-0-12	
K-6	Stud for K-7	1 *	143788-0-01		K-40	Nut SM6.35-28 for K-42	1 *	021780-3-02	
K-7	Lower thread trimming safety stopper	1 *	141522-0-01		K-41	Set screw for K-38	1 *	112657-0-03	
K-8	Base plate	1 *	145245-0-01		K-42	Stud screw for K-45	1 *	141528-0-01	
K-10	Needle plate	1 *	145246-0-01		K-43	Taper pin (right)	1 *	104848-0-01	
K-11	Set screw	2 pcs.	145247-0-01		K-44	Set screw	1 *	100062-0-03	
K-21	Bushing (A)	1 pce.	141538-0-01		K-45	Lower thread trimming connecting link	1 *	145420-0-01	
K-22	Bushing (B)	1 *	141539-0-01		K-46	Gimp pulling plate	1 *	145421-0-01	
K-9	Set screw for K-8	2 pcs.	100032-0-01		K-47	Set screw	2 pcs.	107093-0-02	
K-12	Lower thread releaser	1 pce.	142419-0-01		K-48	Stud screw for K-45	1 pce.	141528-0-01	
K-13	Stud screw for K-12	1 *	142420-0-01		K-49	Clamping foot lifter lever	1 *	145426-0-01	
K-14	Fixed knife	1 *	141543-0-01		K-50	Set screw SM5.95-28×20 for K-54	1 *	009761-0-12	
K-15	Set screw for K-14	2 pcs.	141544-0-01		K-51	Washer for K-50	1 *	141343-0-01	
K-16	Rotary hook holder position bracket	1 pce.	141308-0-01		K-52	Bushing (small)	1 *	142373-0-00	
K-17	Set screw for K-16	2 pcs.	102438-0-04		K-53	Bushing (large)	1 *	142372-0-00	
K-18	Lower thread release plate	1 pce.	142416-0-01		K-54	Lower thread trimming lever shaft	1 *	141520-0-01	
K-19	Movable knife	1 *	141541-0-01		K-55	Stopper screw	1 *	115585-0-01	
K-20	Set screw for K-19	2 pcs.	141542-0-01		K-56	Lower thread trimming cam	1 *	141523-0-01	
K-23	Knife setting plate	1 pce.	141537-0-01		K-57	Washer for K-58	1 *	025050-2-33	
K-24	Washer	1 *	512769-0-01		K-58	Set screw for K-55	1 *	106629-0-01	
K-25	Set screw	1 *	100137-0-02		K-59	Stop ring for K-61	1 *	048030-3-42	
K-26	Link for K-28	1 *	141534-0-01		K-60	Roller for K-61	1 *	107744-0-01	
K-27	Stud screw	2 pcs.	141535-0-01		K-61	Roller stud	1 *	141519-0-01	
K-28	Lower thread trimming shaft arm (B)	1 pce.	141533-0-01		K-62	Nut SM6.35-28 for K-48	1 *	021780-3-02	
K-29	Taper pin (left)	1 *	104847-0-01		K-63	Stud for K-56	1 *	141526-0-01	
K-30	Set screw	1 *	100062-0-03		K-64	Nut for K-61	1 *	110161-0-04	
K-31	Lower thread trimming shaft	1 *	141530-0-01		K-65	Spring hook	1 *	141472-0-01	
K-32	Set screw for K-28	1 *	107274-0-02		K-66	Spring for K-49	1 *	141521-0-01	
K-33	Set collar for K-31	1 *	141532-0-01		K-67	Spring hook	1 *	141472-0-01	
K-34	Set screw SM6.35-40×6	2 pcs.	014770-6-22						



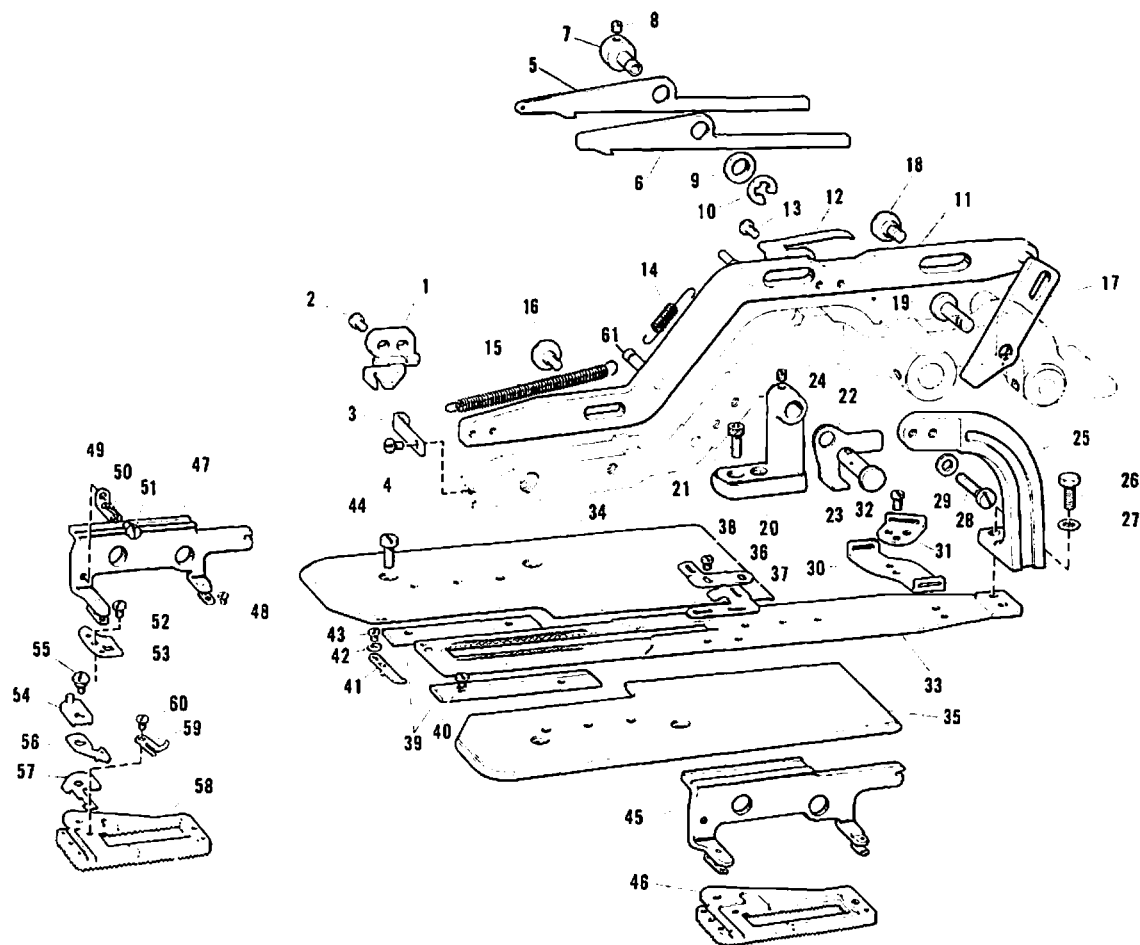
Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Qty	Parts-No.	Assembly No.
L-1	Oil feeding pipe (B)	1 pce.	111680-0-01	112351-0-01	L-37	Set screw for L-38	1 pce.	100242-0-03	
L-2	Vinyl tube (B)	2 pcs.	141679-0-01		L-38	Tube holder	1 -	142368-0-01	
L-3	Vinyl tube 4 x 34	1 pce.	141658-0-00		L-39	Vinyl tube 3 x 20	2 pcs.	120774-0-01	
L-4	Vinyl tube 4 x 48	2 pcs.	141675-0-00		L-40	Vinyl tube 3 x 230	1 pce.	141670-0-00	
L-5	Vinyl tube joint	2 -	140910-0-01		L-41	Vinyl tube holder	1 -	141671-0-01	
L-6	Set screw for L-5	3 -	112359-0-01		L-42	Set screw for L-41	2 pcs.	100137-0-02	
L-7	Wick base (A)	1 pce.	141673-0-00		L-43	Felt for L-41	1 pce.	141672-0-00	
L-8	Set screw for L-7	2 pcs.	100137-0-02		L-44	Tube stopper	4 pcs.	112744-0-01	
L-9	Oil feeding pipe	2 -	142359-0-01		L-45	Set screw for L-44	4 -	009089-4-12	
L-11	Vinyl tube 0.5	1 pce.	143177-0-01		L-46	Vinyl tube 4 x 210	1 pce.	142351-0-01	
L-13	Cap for L-7	1 -	141674-0-01		L-47	Tube holder for L-48	1 -	141656-0-01	
L-14	Wick 4 x 4	1 -	141681-0-01		L-48	Oil pipe for rotary hook	1 -	141655-0-00	
L-15	Set screw for L-16	1 -	009680-6-12		L-49	Set screw for L-47	2 pcs.	009670-6-12	
L-16	Wick holder (B)	1 -	141688-0-01		L-50	Oil feeding pipe	1 pce.	142748-0-01	
L-17	Wick holder (C)	1 -	141688-0-01		L-51	Vinyl tube 4 x 160	1 -	142352-0-01	
L-18	Set screw for L-17	2 pcs.	100242-0-03		L-52	Tube stopper	1 -	116975-0-01	
L-19	Set screw for L-20	1 pce.	009680-6-12		L-53	Set screw for L-52	1 -	100242-0-03	
L-20	Wick holder (A)	1 -	141685-0-01		L-54	Set screw L-55	1 -	100242-0-03	
L-21	Set screw for L-23	2 pcs.	100137-0-02		L-55	Tube stopper	2 pcs.	141692-0-01	
L-22	Oil tube (A)	1 pce.	141663-0-01		L-56	Wick holder (D)	1 pce.	141689-0-01	
L-23	Wick base (B)	1 -	141662-0-00		L-57	Set screw for L-56	1 -	107419-0-02	
L-24	Oil cap	1 -	110104-0-00		L-58	Felt for L-57	1 -	142271-0-00	
L-25	Oil tube (B)	1 -	141664-0-01		L-59	Oil feeding pipe	1 -	141651-0-01	
L-26	Oil feeding pipe	1 -	142359-0-01		L-60	Vinyl tube joint	1 -	140910-0-01	
L-27	Oil tube (C)	1 -	141663-0-01		L-61	Cover for L-64	1 -	141654-0-01	
L-28	Oil tube (H)	1 -	116958-0-02		L-62	Set screw for L-61	2 pcs.	009670-6-12	
L-29	Oil tube (E)	1 -	141666-0-01		L-63	Packing	1 pce.	104564-0-01	
L-30	Oil tube (G)	1 -	141668-0-01		L-64	Oil adjusting bracket	1 -	141652-0-01	
L-31	Oil tube (F)	1 -	141667-0-01		L-65	Washer for L-66	1 -	100052-0-01	
L-32	Oil feeding pipe	1 -	142359-0-01		L-66	Cap plate for L-64	1 -	141653-0-01	
L-33	Vinyl tube 3 x 460	1 -	142353-0-01		L-67	Set screw for L-66	3 pcs.	102538-0-02	
L-34	Vinyl tube 3 x 440	1 -	141690-0-00		L-68	Pipe for oil gauge window	1 pce.	143715-0-01	
L-35	Vinyl tube 3 x 190	1 -	142742-0-00		L-69	Pipe screw for L-68	1 -	143716-0-01	
L-36	Vinyl tube 3 x 420	1 -	141683-0-00						

M



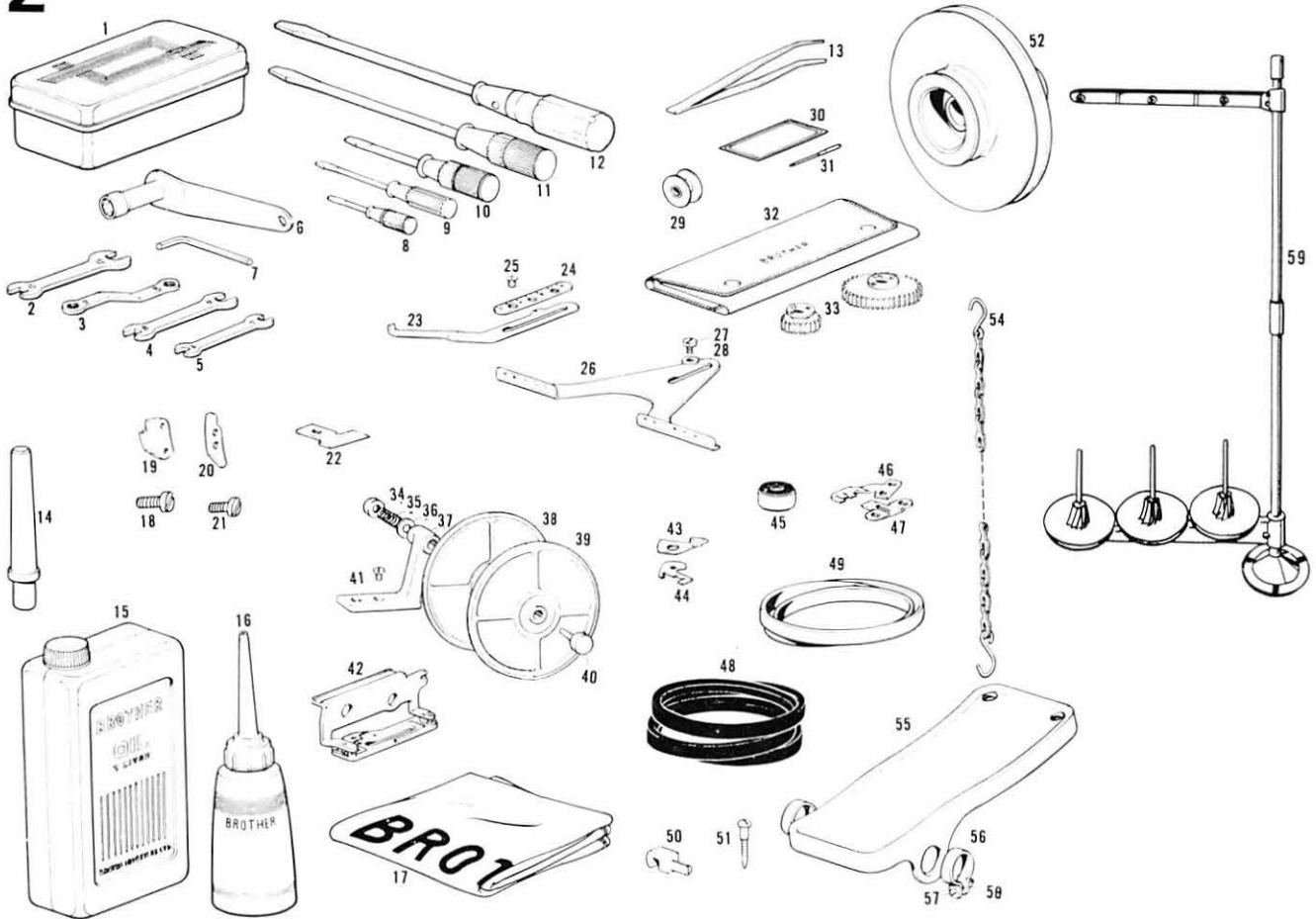
Ref. No.	Name of Parts	Q'ty	Parts No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts No.	Assembly No.
M-1	Nut for M-2	1 pce.	142750-0-01		M-31	Belt shifter bracket	1 pce.	141585-0-01	141584-0-01
M-2	Vinyl tube	1 -	141647-0-00		M-35	Slide block for M-30	1 -	141586-0-01	
M-3	Oil feeding pipe	1 -	142359-0-01		M-36	Belt shifter	1 -	141589-0-01	
M-4	Set screw for M-5	4 pcs.	102538-0-02		M-37	Set screw SM4.76-32 x 10 for M-36	2 pcs.	009711-0-13	
M-5	Oil gauge flange	1 pce.	104546-0-01		M-38	Pulley for oil pump	1 pce.	141637-0-01	
M-6	Oil gauge window	1 -	141696-0-01		M-39	Bushing for M-21	1 -	142766-0-01	
M-7	Packing for M-6	1 -	104548-0-01		M-40	Set screw for M-38	2 pcs.	100251-0-01	
M-8	Transmitter base	1 -	143981-0-01		M-41	V-belt 430	1 pce.	141636-0-00	
M-9	Set screw for M-10	1 pce.	100137-0-02		M-42	Slow speed pulley	1 -	141568-0-01	
M-10	Pump cap plate	1 pce.	141646-0-01		M-43	High speed pulley (A)	1 -	141571-0-01	
M-11	Pump outer rotor	1 -	141642-0-01		M-44	Bearing 6004 VV	1 -	072600-4-60	
M-12	Pump inner rotor	1 -	141643-0-01		M-45	Bearing cap	1 -	141573-0-01	
M-13	Pump body	1 -	141645-0-01		M-46	Set screw SM3.18-40 x 8 for M-45	4 pcs.	003660-8-12	
M-14	Set bolt M8 x 25 for M-13	3 pcs.	018082-5-22		M-47	Packing for M-48	1 pce.	109203-0-01	
M-15	Set screw SM5.95-28 x 6 for M-16	1 pce.	014760-6-22		M-48	Set screw for	1 -	110641-0-01	
M-16	Bushing for M-26	1 -	142768-0-01		M-49	Bearing 6007VV	2 pcs.	072600-7-60	
M-17	Set screw for M-18	2 pcs.	014770-6-22		M-50	Bearing washer	1 pce.	141569-0-00	
M-18	Pump shaft gear	1 pce.	143988-0-01	143915-0-01	M-51	Bearing cap	1 -	141570-0-01	
M-19	Pump pulley shaft gear	1 -	117875-0-01		M-52	Set screw SM3.18-40 x 8 for M-51	4 pcs.	003660-8-12	
M-20	Set screw for M-19	2 pcs.	014770-6-22		M-53	High speed pulley (B)	1 pce.	141572-0-01	
M-21	Pump pulley shaft	1 pce.	143982-0-01		M-54	Set screw SM4.76-32 x 14 for M-53	2 pcs.	009711-4-12	
M-22	Pump supporter base	1 -	142763-0-01		M-55	Bearing 6004 VV	1 pce.	072600-4-60	
M-23	Set screw for M-22	2 pcs.	100522-0-02		M-56	Bearing cap	1 -	141573-0-01	
M-24	Washer for M-23	2 -	142776-0-00		M-57	Set screw SM3.18-60 x 8 for M-56	4 pcs.	003660-8-12	
M-25	Set screw SM4.76-32 x 10 for M-22	3 -	009711-0-12		M-58	Set screw for M-59	2 -	110032-0-02	
M-26	Pump shaft	1 pce.	142764-0-01		M-59	Transmitter shaft	1 pce.	141567-0-01	
M-27	Washer for M-28	1 -	110494-0-01		M-60	Stop ring	1 -	048200-1-42	
M-28	Stop ring	1 -	048070-3-42		M-61	Oil cap	1 -	111937-0-01	
M-29	Wick 4 x 4	1 -	141681-0-01		M-62	Bushing (front) for M-21	1 -	143983-0-01	
M-30	Belt shifter cam	1 -	141582-0-01		M-63	Set screw for M-64	1 -	005123-0-01	
M-31	Stud screw for M-30	1 -	141583-0-01		M-64	Wick holder spring plate	1 -	112730-0-01	
M-32	Belt shifter guide	2 pcs.	141588-0-01		M-65	Oil tube holder	1 -	116975-0-01	
M-33	Set screw SM4.37-40 x 32	4 -	009680-8-13		M-66	Cap for M-8	1 -	108520-0-01	

P



Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
P-1	Gimp trimming bracket	1 pce.	145732-0-01		P-31	Tape guide upper	1 pce.	143748-0-01	
P-2	Set screw	2 pcs.	009680-6-12		P-32	Set screw	2 pcs.	100130-0-03	
P-3	Spring hook	1 pce.	145411-0-01		P-33	Length feed plate	1 pce.	145357-0-01	
P-4	Set screw	1 -	009689-4-12		P-34	Bed cover left	1 -	143742-0-01	
P-5	Gimp trimming safety plate	1 -	145983-0-01		P-35	Bed cover right	1 -	143741-0-01	
P-6	Gimp trimming set plate	1 -	145115-0-01		P-36	Tape guard C	1 -	144999-0-01	
P-7	Stud pin	1 -	145116-0-01		P-37	Tape guard B	1 -	144998-0-01	
P-8	Set screw	1 -	100218-0-03		P-38	Set screw	2 pcs.	105288-0-02	
P-9	Washer	1 -	100197-0-02		P-39	Length feed guide plate	2 -	145358-0-01	
P-10	Stop ring	1 -	048060-3-12		P-40	Set screw	4 -	106568-0-01	
P-11	Gimp trimming connector	1 -	145407-0-01		P-41	Tape guard F	1 pce.	144628-0-01	
P-12	Spring plate	1 -	145413-0-01		P-42	Washer	1 -	110067-0-01	
P-13	Set screw	2 pcs.	120048-0-02		P-43	Set screw	1 -	105282-0-01	
P-14	Spring	1 pce.	113897-0-01		P-44	Set screw	4 pcs.	107407-0-02	
P-15	Spring	1 -	145412-0-01		P-45,46	Clamping foot (32mm)	1 pce.	145374-0-01	
P-16	Stud screw	1 -	116755-0-01		P-47,58	Clamping foot (25mm)	1 -	145362-0-01	
P-17	Gimp trimming arm	1 -	145417-0-01		P-48	Set screw	1 -	107404-0-00	
P-18	Stud screw	2 pcs.	118244-0-01		P-49	Gimp stopper	1 -	145991-0-01	
P-19	Stud	1 pce.	143788-0-01		P-50	Gimp stopper spring	1 -	511091-0-01	
P-20	Gimp pulling bracket	1 -	145418-0-01		P-51	Set screw	1 -	100130-0-03	
P-21	Bolt	2 pcs.	018401-6-22		P-52	Set screw	2 pcs.	111105-0-01	
P-22	Gimp trimming link	1 pce.	145419-0-01		P-53	Thread presser	1 pce.	145366-0-01	145739-0-01
P-23	Stud	1 -	143788-0-01		P-54	Gimp trimming crank	1 -	145369-0-01	
P-24	Set screw	1 -	100218-0-03		P-55	Stud screw	1 -	145370-0-01	
P-25	Lower feed arm	1 -	143738-0-01		P-56	Movable knife for gimp	1 -	145731-0-01	
P-26	Bolt	2 pcs.	111048-0-02		P-57	Fixed knife for gimp	1 -	145367-0-01	
P-27	Washer	2 -	113431-0-01		P-59	Gimp detach lever	1 -	145373-0-01	
P-28	Set screw	2 -	009682-0-11		P-60	Stud screw	1 -	145371-0-01	
P-29	Washer	2 -	100645-0-03		P-61	Spring hook	1 -	107657-0-01	
P-30	Tape guide lower	1 pce.	143749-0-01						

Z



Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.	Ref. No.	Name of Parts	Q'ty	Parts-No.	Assembly No.
● Z-1	Accessory box	1 pce.	110436-0-01			Gear 28	1 pce.	141375-0-00	
Z-2	Wrench 10 × 12	1 "	107780-0-01			" 30	1 "	141376-0-00	
Z-3	Spanner 8 × 9	1 "	105343-0-01			" 32	1 "	141377-0-00	
Z-4	Wrench 8 × 9	1 "	100887-0-01			" 36	1 "	141379-0-00	
Z-5	Wrench 6 × 7	1 "	107779-0-01			" 38	1 "	141380-0-00	
Z-6	Box wrench (12mm)	1 "	143949-0-01			" 40	1 "	141381-0-00	
● Z-7	Allen wrench (3mm)	1 "	142721-0-01			" 44	1 "	141383-0-00	
Z-8	Screwdriver 2 × 50	1 "	142443-0-01			" 46	1 "	141384-0-00	
Z-9	Screwdriver 2.6 × 70	1 "	105344-0-01			" 48	1 "	141385-0-00	
Z-10	Screwdriver 5.5 × 75	1 "	102629-0-01			" 50	1 "	141386-0-00	
Z-11	Screwdriver 5.5 × 200	1 "	101572-0-01		Z-34	Nut	1 "	100136-0-01	
Z-12	Screwdriver 6.4 × 204	1 "	100472-0-01		Z-35	Spring	1 "	108495-0-01	
● Z-13	Tweezer	1 "	117466-0-00		Z-36	Washer	1 "	108494-0-01	
Z-14	Head rest	1 "	100477-0-01		Z-37	Tape winder bracket	1 "	143750-0-01	143767-0-01
Z-15	Oil	1 "	145277-0-03		Z-38	Tape winder wheel (left)	1 "	143976-0-01	
Z-16	Oiler	1 "	114483-0-01		Z-39	Tape winder wheel (right)	1 "	143978-0-01	
Z-17	Head cover	1 "	144226-0-01		Z-40	Screw	1 "	143980-0-01	
● Z-18	Screw for Z-19	2 pcs.	009681-0-12		Z-41	Screw	1 "	107407-0-02	
● Z-19	Cutter cam	1 pce.	145353-0-01		● Z-42	Clamping foot (32mm) assembly	1 "	145740-0-01	
● Z-20	Stop cam	1 "	145352-0-01		● Z-43	Movable knife for gimp	1 "	145731-0-01	
● Z-21	Screw for Z-20	2 pcs.	009680-8-12		● Z-44	Fixed knife for gimp	1 "	145367-0-01	
● Z-22	Cutter 3/8"	1 pce.	109837-0-01		Z-45	Collar	4 pcs.	144580-0-01	
●	" 3/16"	1 "	107204-0-01		● Z-46	Movable knife	1 pce.	141541-0-01	
●	" 1/2"	1 "	107200-0-01		● Z-47	Fixed knife	1 "	141543-0-01	
●	" 3/8"	1 "	107205-0-01			V belt 41" for 50Hz	2 pcs.	082104-1-90	
●	" 3/4"	1 "	107207-0-01		Z-48	V belt 42" for 60Hz	1 pce.	082104-2-90	
●	" 7/8"	1 "	109838-0-01			V belt 41" for 60Hz	1 "	082104-1-90	
●	" 1"	1 "	107210-0-01		Z-49	Flat belt	1 "	141711-0-00	
●	" 1 1/4"	1 "	143780-0-01		Z-50	Head hook	2 pcs.	141256-0-01	
● Z-23	Cloth guide (A)	1 "	141706-0-01		Z-51	Screw	4 "	101125-0-00	
● Z-24	Indicator plate	1 "	142358-0-01		Z-52	Motor pulley for 50Hz	1 pce.	141709-0-01	
● Z-25	Screw	2 pcs.	117143-0-02			Motor pulley for 60Hz	1 "	143890-0-01	
Z-26	Cloth guide (B)	1 pce.	141705-0-01		Z-53	Screw	2 pcs.	013760-8-12	
Z-27	Bolt	2 pcs.	107488-0-02		Z-54	Chain	2 "	142262-0-01	
Z-28	Washer	2 "	116662-0-02		Z-55	Foot pedal	1 pce.	116185-0-01	
● Z-29	Bobbin	3 "	146025-0-01		Z-56	Foot pedal stopper	2 pcs.	116016-0-01	
● Z-30	Needle bag	1 pce.	108962-0-01		Z-57	Screw	2 "	001401-4-06	
● Z-31	Needle DP × 5 # 14	10 pcs.	107415-0-14		Z-58	Nut	2 "	021400-1-06	
Z-32	Gear case	2 "	142745-0-01		Z-59	Thread stand assembly	1 pce.	142973-0-01	
Z-33	Gear 26	1 pce.	141374-0-00						

Remark

※ The parts with mark (●) are in accessory box.



118-814-4
192814-0-31
Printed in Japan
750318005

From the library of: Superior Sewing Machine & Supply LLC