SEIKO

Operator's Guide

MODEL

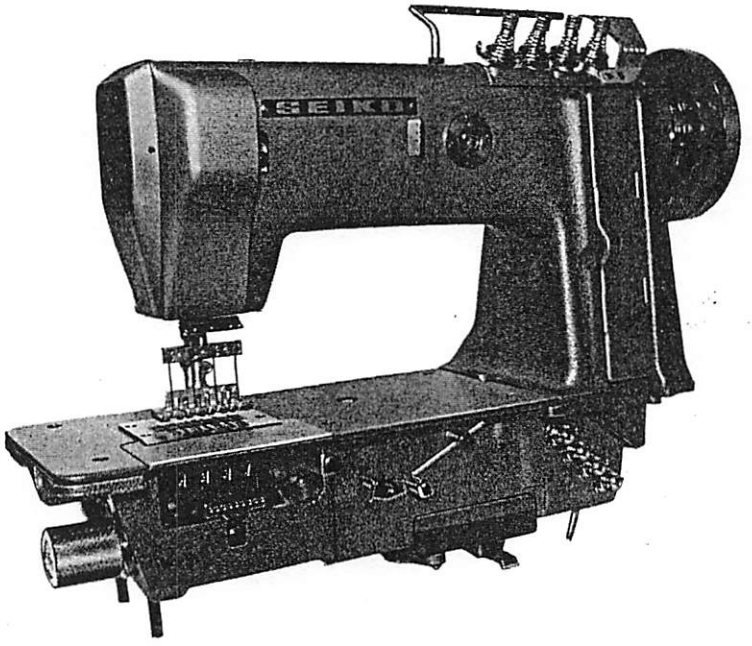
LD SERIES

SEIKO SEWING MACHINE CO., LTD.

TOKYO, JAPAN.

SPECIFICATIONS

Maximum speed :	3,000-Max.4,000 r.p.m. (Speed changes by number of needle and needle gauge)
Number of needle :	One, two, three and four
Needle :	DV x 59 #18 to #25 (#22 standard)
Thread :	Synthetic up to #2
Feed :	Upper, drop and needle feed (LD-8, 28, 38, 48) Needle and drop feed (LD-7, 27, 37, 47)
Stitch :	3 to 12 stitches per inch
Presser foot :	Alternating pressers (LD-8, 28, 38, 48) Flat presser foot (LD-7, 27, 37, 47)
Presser bar lift :	8mm by lever 13mm by knee lifter
Lubrication :	Full-automatic oiling
Oil volume :	550cc
Working space :	270mm x 135mm
Motor :	250W or 400W 2P clutch motor
Diameter of motor pulley :	50 cycle 80mm, 60 cycle 65mm



CONTENTS

SETTING UP MACHINE

Figure 1 indicates those sizes, shapes of holes for installation of machine, center line of motor, etc.
Figure 2 shows depth of four corners of table for machine.

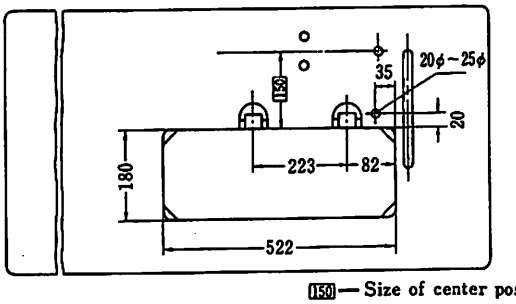
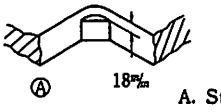
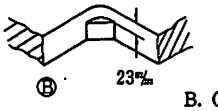


Fig. 1



A. Stationary table (Fig. 1)



B. Open type table (Fig. 3)

Fig. 2

Figure 3 represents a sewing type table so as to threading without tilting machine head.

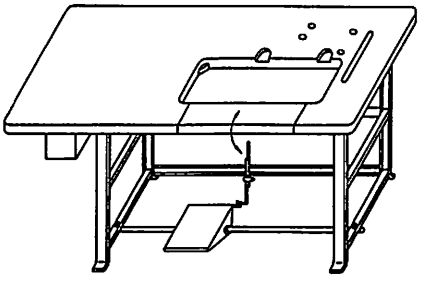


Fig. 3

To assemble oil pan, remove latches (B.C., Fig. 4) and four screws (1, 2 Fig. 4), hang both ends of latches (A) to cut-out of table and tighten latches B and C by said four screws. Then, place felt pads on cut-outs at four corners and nail them to cut-outs (Fig. 5) respectively.

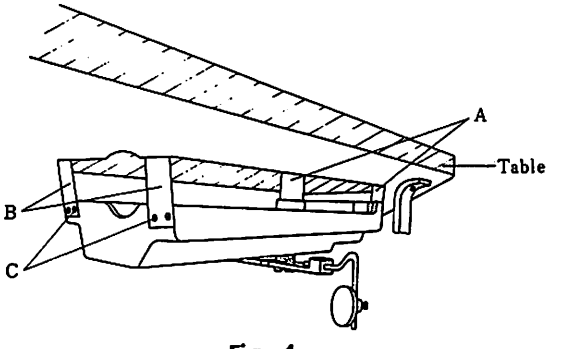


Fig. 4

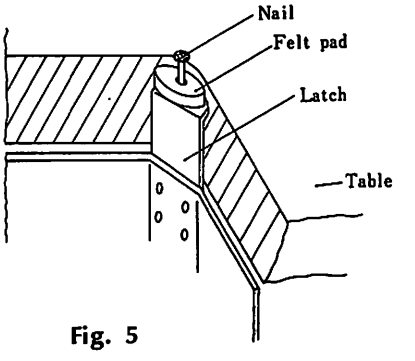


Fig. 5

Attach two L shape hinges (A, Fig. 6) to bed side and hook them to semi-circle hinges (B), then, push the support plate (a, Fig. 7) downward as far as it will go and set the machine on the table.

Caution : When putting the machine on other places than table, pull up the support plate (a, Fig. 7) so as to keep the balance of the machine.

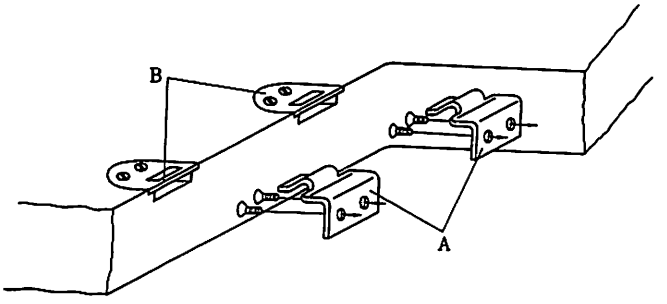


Fig. 6

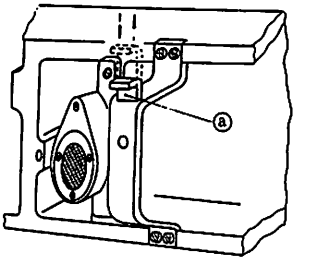


Fig. 7

Pass the rope from A to B and D through the V shaped groove C and in the order 1 to 3.

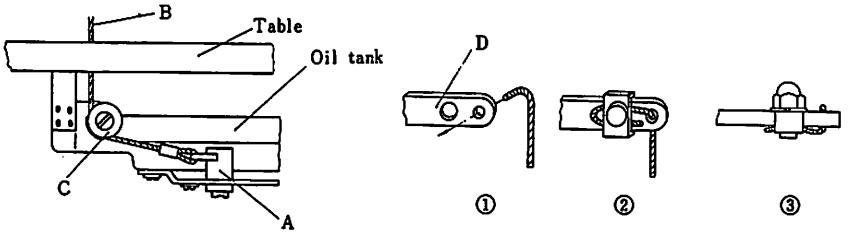


Fig. 8

OILING

Machine has an automatic oiling mechanism, but, oiling points (Arrows, Fig. 9) are provided for hand oiling for parts in movable contact which are not lubricated from oil reservior.

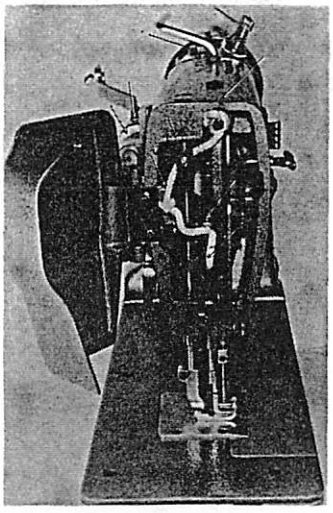


Fig. 9

Automatic lubrication system

(A) Automatic oiling system is composed of an oil reservior, hollow arm shaft and hollow bed shaft through which necessary amount of oil is delivered to all of parts in movable contact, except those parts described in the column (B), while machine is in operation. Oil is distributed by centrifugal force through small jets.

The amount of oil flow, which should be slow, can be seen in the oil window (B, Fig. 12), It can be adjusted with oil pump (C Fig. 11) by opening or closing it.
When running in, keep speed at 1,800 to 2,500 R.P.M.

(B) Keep clean oil reservoir and pour oil in the reservoir (oil pan) up to the center line (A, Fig. 10).
When oil has been soiled for several months use, release it through the hole (B, Fig. 10) and pour new oil in the oil reservoir.

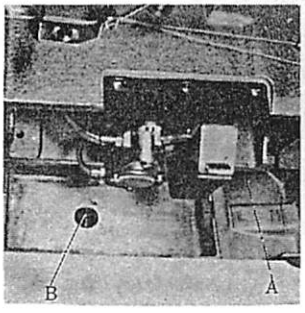


Fig. 10

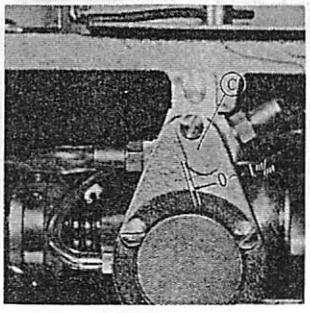


Fig. 11

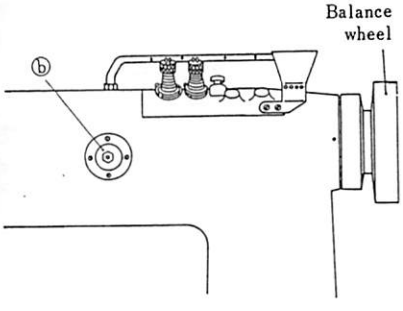


Fig. 12

INSERTING NEEDLES

Turn balance wheel toward you until needle bar reaches it's highest point, loosen needle set screws and insert needles up into needle clamp as far as they will go with scarf of needle toward left and securely tighten needle set screws.

The size of the needle to be used is determined by the size of the thread which must pass freely through eye of needle.

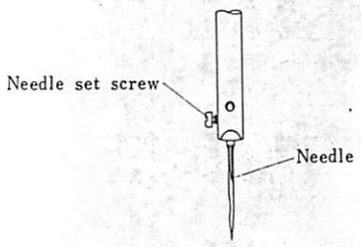


Fig. 13

THREAD

Left twist thread should be used for needles and either left or right twist thread can be used for loopers.

THREADING LOOPERS

Pass thread through threading points in the order from 1 to 9 as shown in the figure 14.

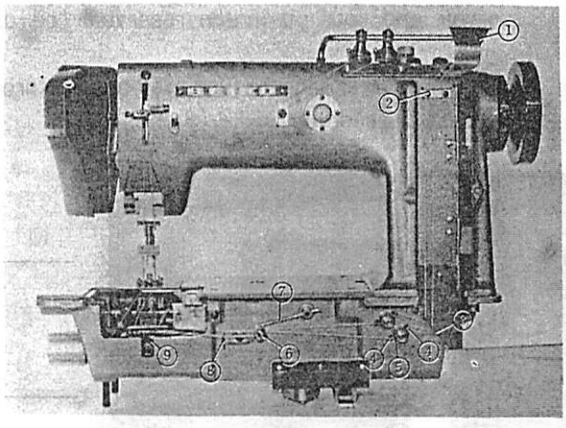


Fig. 14

Before threading further, turn balance wheel toward you so as to bring letter M on the wheel to the arm point as shown (B, Fig. 15), hold the dial (Fig. 16) pull it toward the arrow and slightly turn it toward right, then loopers can move toward you. This will make threading easier.

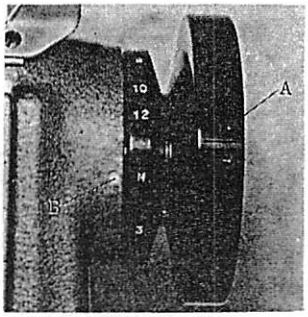


Fig. 15

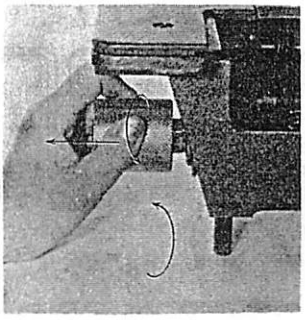


Fig. 16

Then, pass threads in the order from 10 to 12 and draw threads 50mm and pass them loopers, and return the dial to it's original position. Be sure not to make cross of threads.

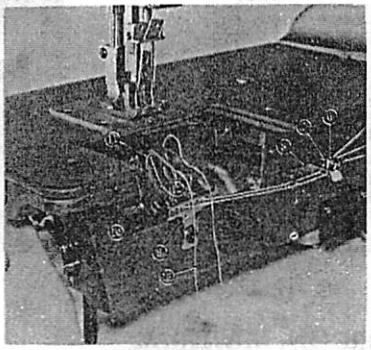


Fig. 17

THREADING NEEDLES

Pass threads through threading points in the order shown in the figure 18 from 1 to 10 and draw threads about 50mm. (Refer to Fig. 21 for threading tension discs).

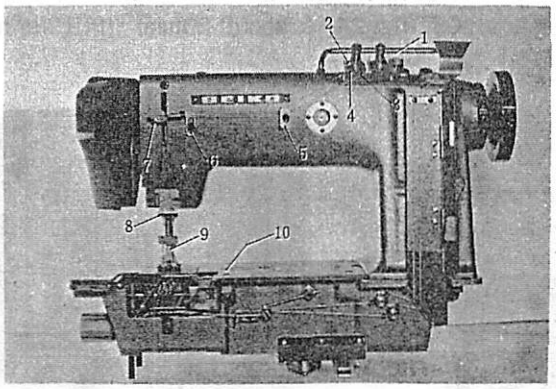
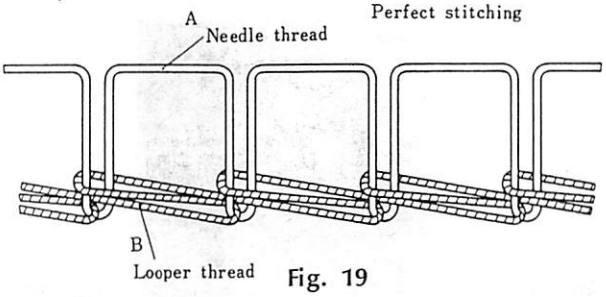


Fig. 18

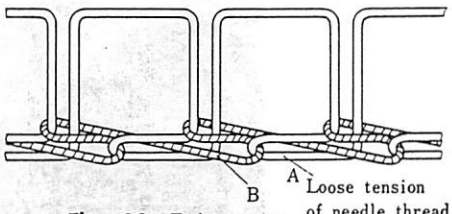
REGULATING TENSIONS

Tension should be just enough to set the stitch in the material, and it should be regulated according to the material.



Perfect stitching

Fig. 19



Imperfect stitching

Fig. 20

For more tension, turn the nuts (E, Fig. 21 and F, Fig. 22) toward ↘ arrow direction, and for less tension, turn them toward ↙ arrow direction.

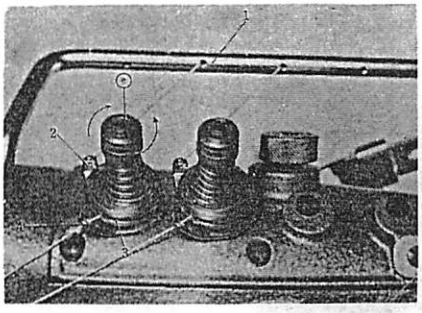


Fig. 21

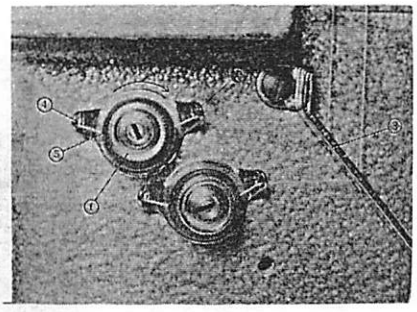


Fig. 22

REGULATING PRESSURE ON MATERIAL

Always use the lightest pressure possible to allow higher working speed. It can be adjusted by turning the regulating screw (A, Fig. 23) toward ↘ arrow direction with a screw driver for more pressure, and for less pressure turn it toward ↙ arrow direction. (B, Fig. 23). Before adjusting pressure, open the face plate (A, Fig. 24) and confirm the distance between (B) and (C) Fig. 24 is about 20mm. If it is not 20mm, adjust it by the screw on the (B).

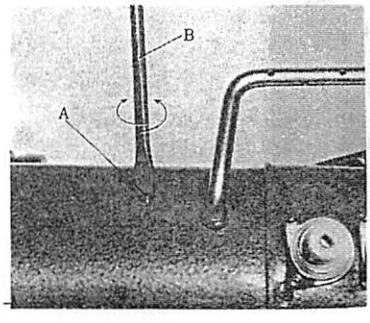


Fig. 23

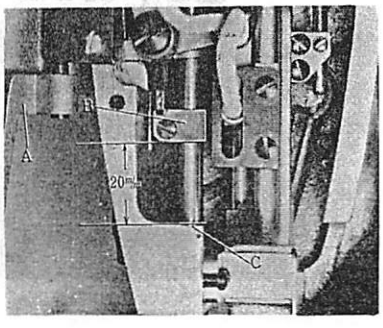


Fig. 24

ADJUSTING STITCH LENGTH

Numeral numbers on the stitch indicator show the number of stitch per inch. To change length of stitch, turning parts (G, Fig. 25) toward right, at the same time turn balance wheel over toward you until plunger enters a notch in adjustable eccentric on arm shaft. Then, turn the (G) 1/4 turn.
Now, press the button (11, Fig. 26) and at the same time turn balance wheel over toward you to increase length of stitch or over from you to shorten stitch, until desired length on the stitch indicator. Then, release the button (H) and turn the plunger (G) until it springs outwardly. Then, the machine is ready for operation.

CAUTION : Be sure to operate the machine after the plunger (G) has sprung outwardly.

After determination of the stitch length, adjustment for loopers (page 10) and for spreader (page 12) must be made.

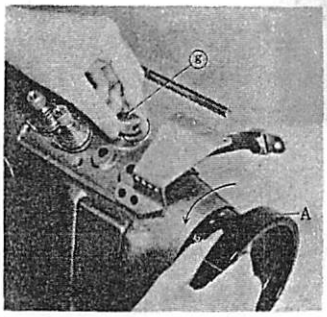


Fig. 25

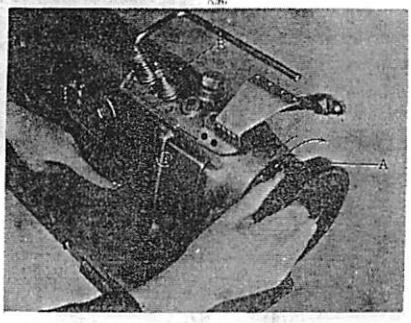


Fig. 26

ADJUSTING LIFT OF PRESSERS

The lift of vibrating and lifting presser foot is controlled by the wing nut (1, Fig. 27). Loosen wing nut and raise it for higher lift or lower it for less lift, then securely tighten the nut.

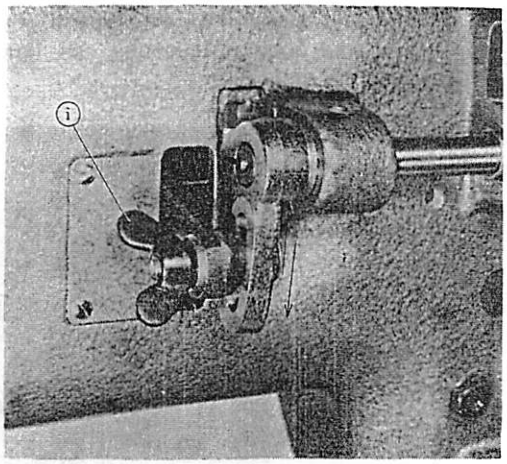


Fig. 27

ADJUSTING FEED DOG

It is the correct position of feeder where teeth of feeder are parallel with surface of needle plate and teeth protrude 1.5mm from surface of needle plate, when needle bar is at the lowest point.
The parallel adjustment is made by the screw (J, Fig. 28) tilting machine head.

Adjustment for height, loosen the nut (A, Fig. 29) and the screw (H, Fig. 30), turn the adjusting screw (B, Fig. 29) to right to raise the feeder and turn it to left to lower it. After the feed dog has correctly been set, securely tighten the nut and screw (H, Fig. 30).

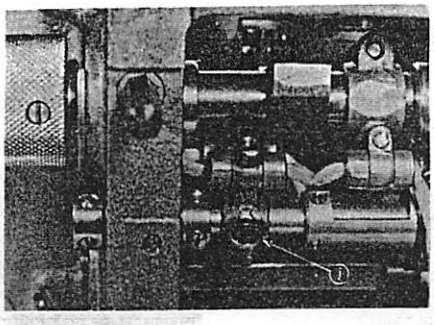


Fig. 28

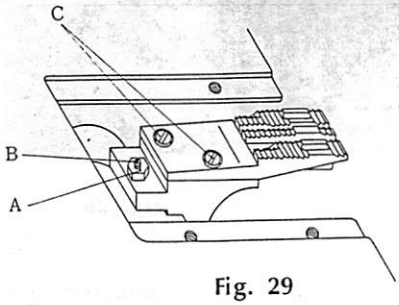


Fig. 29

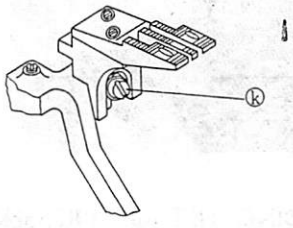


Fig. 30

TO SET FEED DOG SIDEWISE IN RELATION TO NEEDLES

Remove the needle plate (A, Fig. 31), loosen two set screws (A, Fig. 32, C, Fig. 27), adjust so that needles enter into needle hole of feed dog, set feeder parallel with slots of needle plate for feeder, then tighten feeder.

For more sideways adjustment of feeder is necessary, after tightening the screw (J, Fig. 28), remove the cover plate (B, Fig. 31), and loosen position screw (B, Fig. 32) and screw (C, Fig. 32), and set position of feed bar. Then securely tighten screws.

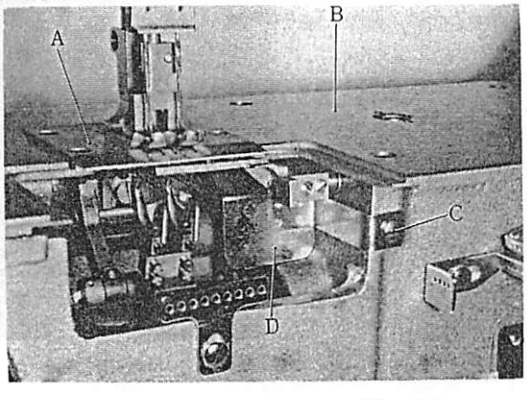


Fig. 31

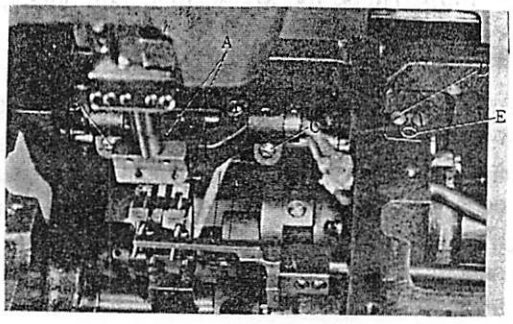


Fig. 32

TO SET FEED DOG FORWARD AND BACKWARD IN RELATION TO SLOTS IN NEEDLE PLATE

Adjustment of feed dog forward and backward is made by the screws (D, E, Fig. 32) after removing the cover plate (B, Fig. 31).

TIMING OF FEED LIFT ECCENTRIC

Remove the screw (C, Fig. 31) and remove the cover plate (D, Fig. 31). Loosen two screws (L, Fig. 33), hold the L screw with a screw driver and at the same time slightly turn balance wheel forward, then the feed lift eccentric moves backwards to make feed dog rise later. To make feed dog rise earlier, slightly turn balance wheel backward and after the adjustment, securely tighten screws and replace the cover plate.

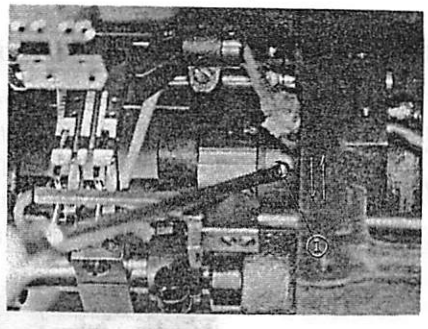


Fig. 33

ADJUSTING NEEDLE BAR FORWARD AND BACKWARD POSITION IN RELATION TO FEED DOG

Remove arm top cover (A, Fig. 34), loosen screw (B, Fig. 34), holding bottom of feed bar (see Fig. 35), adjust needle bar rock frame so that needles descend 1.5mm from front end of needle hole of feeder. After setting position, securely tighten the screw and replace the top cover.

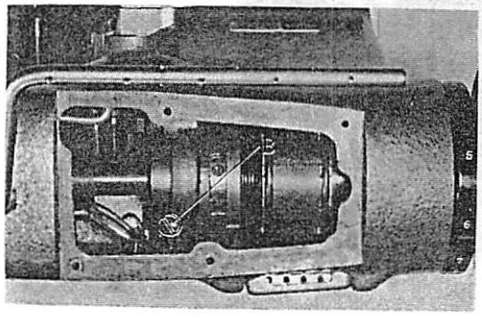


Fig. 34

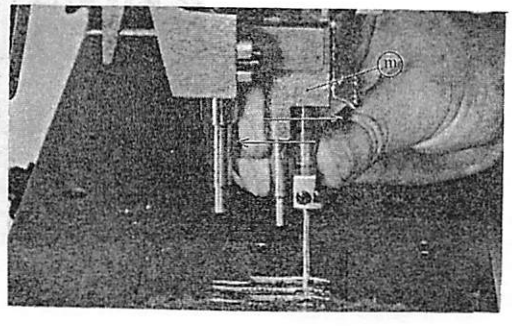


Fig. 35

ADJUSTING LOOPERS POSTTION IN RELATION TO NEEDLES

A. POSITION OF LOOPERS

Set loopers to looper holder (B, Fig. 36) slightly tilting their back portion to left. In this case, clearance between looper holder and bottom of loopers should be 0~1.5mm as figure 36 (only for compound and walking foot machine). For needle feed machine, it should be 0. Tighten looper set screws (C, Fig. 36). Further, when loopers are in front position, clearance between right side surface of back of loopers and loop deflector (M, Fig. 37) should also be 1.5mm.

B. LOOPER SIDEWAY ADJUSTMENT

It is so made that clearance between groove of needle and looper point is 0.05 to 0.2 mm and tighten screw (N, Fig. 38).

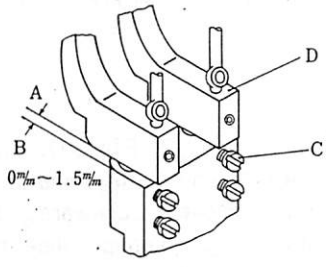


Fig. 36

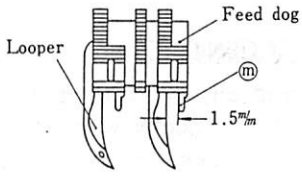


Fig. 37

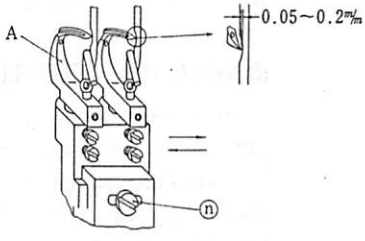


Fig. 38

C. LOOPERS FORWARD AND BACKWARD POSITION

In loopers forward and backward movement, crossing point of needles and looper points should be same position in grooves of needles. To adjust this, remove cover plate (D, Fig. 31), loosen screw (A, Fig. 39), adjust loopers movement faster or slower against needles by strength or weakness of tightening two screws (B, C, Fig. 39). After setting the position, tighten the screw and replace the cover plate.

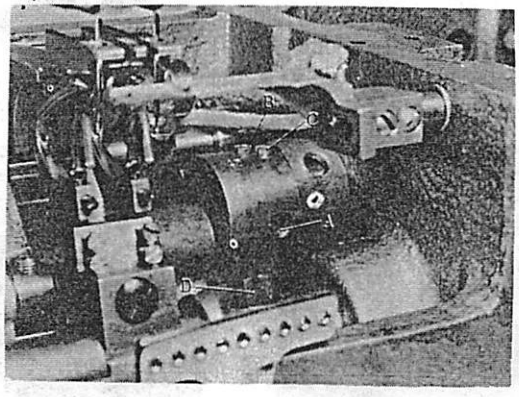


Fig. 39

Turn balance wheel toward you, and align the point (B, Fig. 40) and arrow on balance wheel, loosen the screw (D, Fig. 39) and set looper point to the center of needles (Fig. 41).

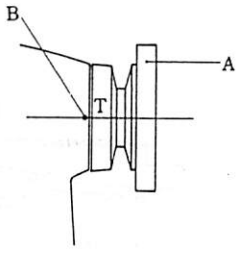


Fig. 40

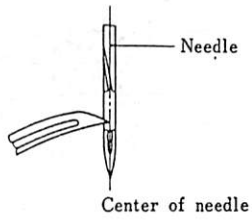


Fig. 41

D. NEEDLE GUARD

Turn balance wheel toward you, when looper points are 2.5mm (Fig. 42) from the center of needle, adjust so that right side of needle guard touches to side of needle (Fig. 44) but looper does not touch to needle, and tighten screws (A, B, Fig. 43).

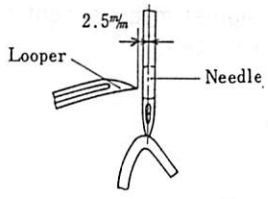


Fig. 42

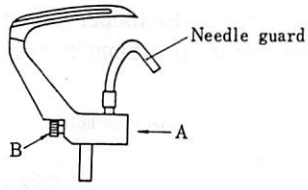


Fig. 43

Fig. 44

HEIGHT OF NEEDLE BAR

Adjustment is made after looper position has been determined, open face plate (A, Fig. 46), adjust needle position so that the measurement from looper point to upper end of needle eye is 2 to 3mm (Fig. 45) by two screws (B, Fig. 46).

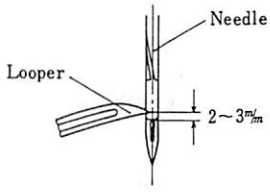


Fig. 45

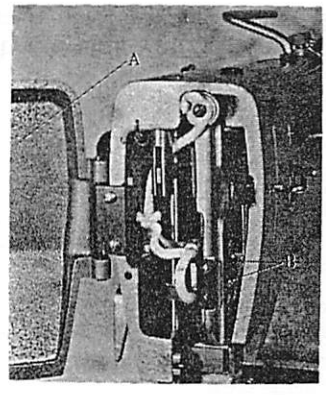


Fig. 46

LOOP DEFLECTOR

Tilt machine and turn balance wheel, when looper is in front; loosen screw (O, Fig. 47) and adjust clearance between left side of loop deflector and right side of needle from 0.5mm to 1mm.

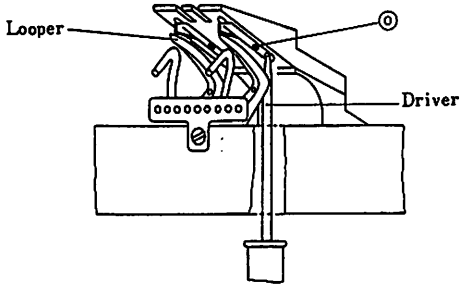


Fig. 47

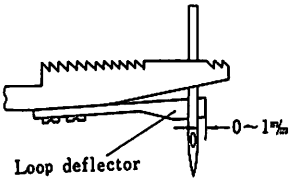


Fig. 47-1

Adjust loop deflector so that it comes out 0 to 1mm from the needle (Fig. 47-1).

SPREADER

Adjusting spreader point, turn balance wheel toward you to lower needle, when point of needle reaches to circumference of looper (A, Fig. 48), adjust measurement between side of needle and spreader point to 1.5mm by screw (B, Fig. 48).

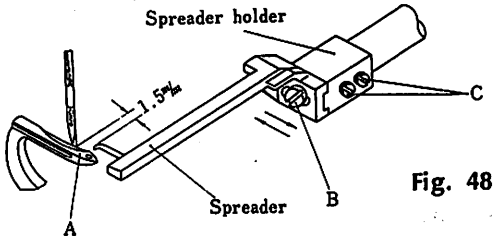


Fig. 48

Spreader sideway

When spreader holder is at extreem left end, adjust clearance between spreader point and left side of looper to 0.2 to 0.5mm by the screw (C, Fig. 48). Clearance (Fig. 50) through which spreader point pass upper portion of the looper (Fig. 50) is adjusted by the screw (C, Fig. 48) from 0.5 to 2mm.

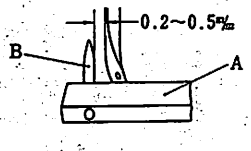


Fig. 49

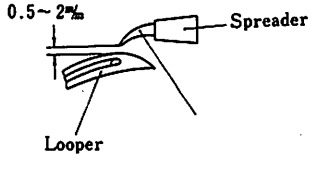


Fig. 50

Tilt machine, loosen spreader driving eccentric screw and its counter balance screws (A, B, Fig. 51), move them toward left for bigger spreader stroke, and move them toward right for smaller spreader stroke. After position of spreader has been determined, securely tighten screws.

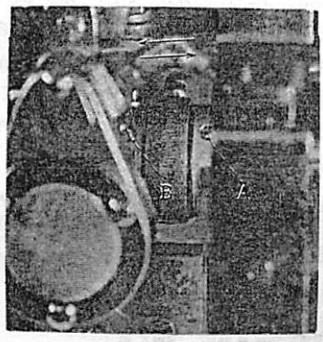


Fig. 51

ADJUSTING THREAD GUIDE

To increase amount of thread drawn at the top of the needle bar stroke, move needle thread take-up (A, Fig. 52) upward or to move needle thread guard (B, Fig. 52) downward.

To decrease the amount, reverse the adjustment by either lowering thread take-up or raising the thread guide.

LOOPER THREAD TAKE-UP

To increase amount of thread, move looper thread guide (A, Fig. 53) and looper thread take-up rod (B, Fig. 53) to left or move looper thread guide downward. To decrease amount of thread, reverse the adjustment. After the adjustment, securely tighten screws.

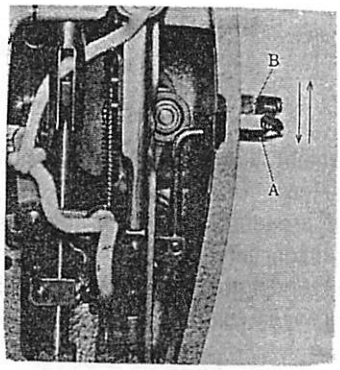


Fig. 52

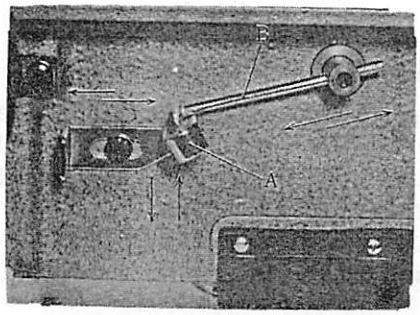


Fig. 53

ADJUSTING NEEDLE THREAD TENSION RELEASER

Remove arm top cover, lower lifting lever (A, Fig. 54), loosen screw (C, Fig. 54) on collar and move the collar toward right to open tension more, move the collar toward left to open tension less.

Normally, opening of tension is 1.5mm when lifter lever works. After setting position, tighten the screw.

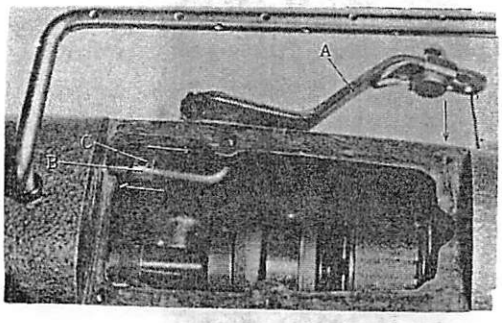


Fig. 54

REPLACING ARM SHAFT CONNECTING BELT

Turn balance wheel to raise needle bar to its highest point, turn lower shaft and adjust so that arrow mark (B, Fig. 55) on lower shaft pulley (A, Fig. 55) is parallel with bed rim (D, Fig. 55) and is toward arm shaft (see Fig. 55), in this position, assemble a new belt to arm and lower shaft pulley.

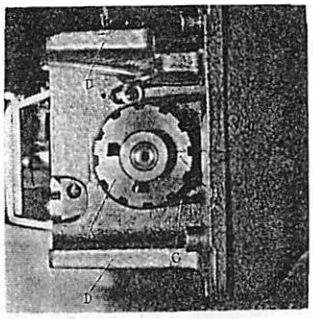


Fig. 55

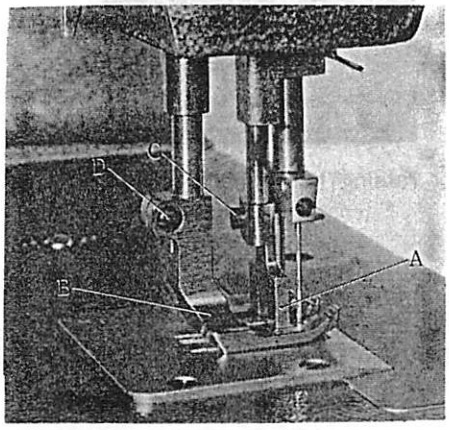


Fig. 56

SIDEWAY ADJUSTMENT OF PRESSER FEET

Insert vibrating and lifting presser feet into respective presser bar as far as they will go, adjust so that they are parallel and vertical against slots of needle plate and feed dog.

In this position, set screws (C, D, Fig. 56).

ADJUSTMENT OF PRESSER HEIGHT

Raise presser bar lifter (A, Fig. 57), adjust measurement between upper surface of needle plate (B, Fig. 57) and bottom of lifting presser foot (C, Fig. 57) to 8mm.

Adjustment is made through the hole (D, Fig. 57) by presser bar lifting bracket screw, after removing rubber stopper from hole. Lower the presser bar lifter (A, Fig. 57), adjust distance between the position guide (A, Fig. 58) and guide lever (B, Fig. 58) to 12.5mm by guide lever screw, when bottom of lifting presser reaches to needle plate.

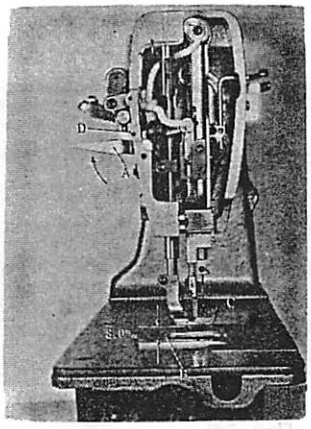


Fig. 57

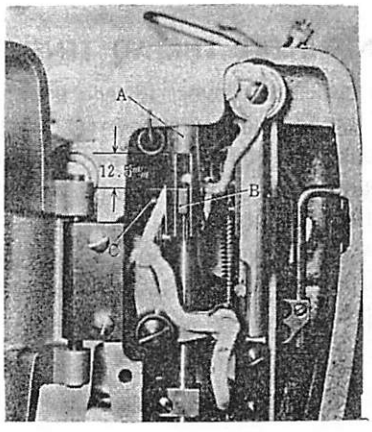


Fig. 58

TIMING OF VIBRATING PRESSER FOOT

To set position of lifting eccentric, lower the presser bar lifter (A, Fig. 57), turn balance wheel toward you to lower needle, and adjust so that vibrating presser reaches to feed dog, after needle eye has reached to feed dog. To adjust this, remove side cover plate (A, Fig. 59), loosen screw (A, Fig. 60), move lifting eccentric (B, Fig. 60) to left, then vibrating presser foot reaches to needle plate faster than needle, if moves to right, it becomes slower.

Amount of lift of vibrating presser foot and lifting presser foot should normally be equal height. Adjustment is made by screw (B, Fig. 59).

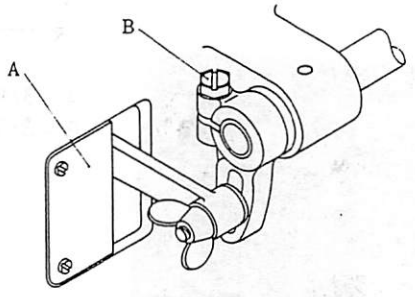


Fig. 59

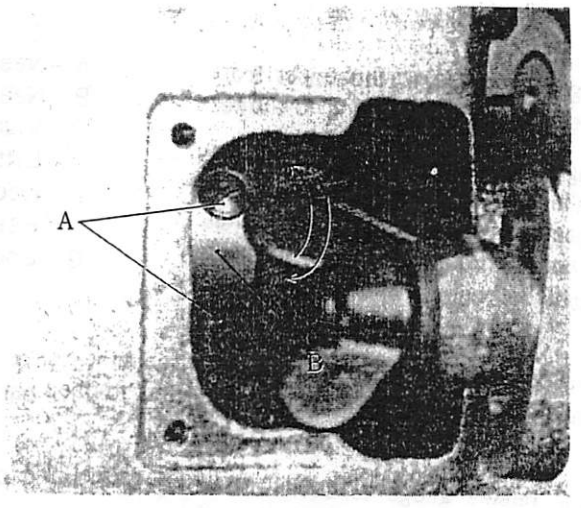
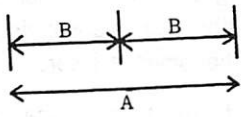
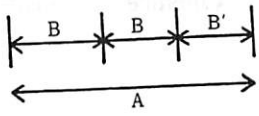


Fig. 60

GAUGE

LD-27	3/16" 1/4" 1/2" 5/8" 3/4" 1-1/4" (3/16" to 2")
LD-28	1/4" 3/4" (3/16" to 2")
LD-38	1/4" - 1/4" (1/2" to 2")
LD-48	1/4" - 1/4" - 1/4" 5/16" - 5/16" - 5/16" 3/8" - 3/8" - 3/8" 1/2" - 1/2" - 1/2" 1/4" - 1" - 1/4"





(A=3/4" to 2")
(B=3/16".. Minimum)

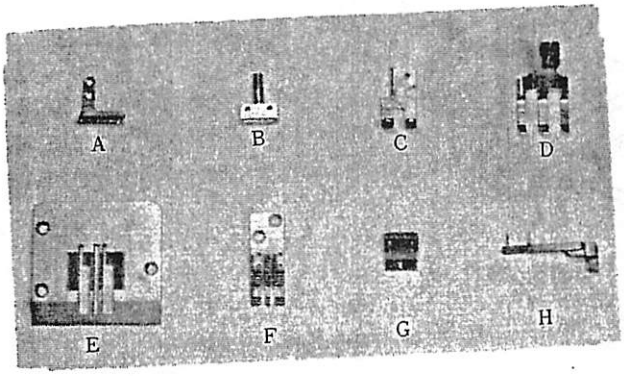


Fig. 61

A. Needle bar thread guard
B. Needle clamp
C. Vibrating presser foot
D. Lifting presser foot
E. Needle plate
F. Feed dog
G. Looper holder

1. When exchanging gauge size, those parts from A. to G must be replace according to the size.
2. When exchanging gauge parts, for instance from three needle machine to two or four needle machine or viceversa, needle thread tension release set, looper thread tension release set and looper must be replace in addition to these parts A to G.
3. When exchanging gauge size from one needle machine to two, three or four needle machine, needle bar must be replaced in addition to these parts mentioned in the item 2.
4. When exchanging needle guage to such a wider gauge, $1\frac{1}{2}$" to 2" (38 to 50mm), bed plate and bed plate slide must be replaced.