SERVICE MANUAL

FOR MODEL

SRP-50

RIBBING ATTACHMENT

CONTENTS

1. DEFECTS AND METHODS OF THEIR DETECTION

For correct and rapid repair or adjustment, it is important to understand clearly the causes of the defective part of the machine. This list is for your easy detection of any defects that might occur.

Condition of Defects	Check Points	Causes	Countermeasures	Ref.
In the case that the stitch size on the left end of the fabric is different from that on the right side.	Check if there is any clearance between the Drop Lever and Auxiliary Piece. There should be no clearance between them on either the right or left sides.	If there is a clearance between the Drop Lever and Auxiliary Piece (R) or (L), the stitch size will be larger on the side there is a clearance.	Reset the Ribber to the Knitter	(Inst. Book) Page 3
	Check if the weights are hung correctly.	If the hanging weights are unbalanced, the stitches will be larger on the side where the weights are heavier.	Confirm the balance of the stitches and the Cast on Comb and then hang the weights to keep their balance.	(Inst. Book) Page 18
	Check if the horizontal space between the Ribber Needle Bed and the Knitter is within the allowed measurement. (Reference Page - Page 14)	If the space between the Knitter and the Ribber varies from left to right, the length of the knitted fabric will differ on both the right and left sides.	Adjust the horizontal space between the Knitter and the Ribber.	Page 14
	Check if the vertical space between the Ribber Needle Bed and the Knitter is within the allowed measurememt (Reference Page - Page 17)		Check the vertical space between the Ribber and the Knitter	Page 17
	In the case that the stitch sizes on both the right and left sides of the fabric are different, most defects can be adjusted if the above four points are checked and countermeasures taken.			

Conditions of Defects	Check Points	Causes	Countermeasures	Ref.
	Check the L Dimension of the Ribber. (Reference Page - Page 23)	If the L Dimension varies by more than 2 m/m on the right and left sides, the stitch size on the right and left edges of the fabric will differ.	Adjust the L Dimension of the Ribber.	Page 23
In the case that the stitches float.	Check the opening and closing condition of the latch needles and/or if their is warpage on their hooks.	If the opening and closing of the latches are not smooth, or there is warpage on the hooks, stitches will float.	Adjust the latch needles or exchange them with new ones.	
	Check the weights.	If the number of weights are not sufficient, the stitches tend to float.	Increase the number of weights.	(Inst. Book) Page 18
	Check if the Close Knit Bar is being used (when the yarn is thinner than a fine yarn.	When knitting with a medium, thin or lightweight yarn, or if the gauge is too tight, the stitches tend to float because the hook cannot rise up.	Insert the Close Knit Bar between the Sinker Posts and the front edge of the Needle Bed of the Knitter.	
	Check if the stitch gauge is correct.	If the Stitch Dial is not set to the number equivalent to the thickness of the yarn, the stitches tend to float.	Adjust the Stitch Dial or increase the number of weights. (However, as there is a limit to the number of weights that can be used, loosen the gauge.	

Condition of Defects	Check Points	Causes	Countermeasures	Ref.
In the case that stitches sometimes float.	Check if the Edge Weight Hook or the Hanger Comb is in use (together with their respective weights).	If the Edge Weight Hooks or the Hanger Combs (together with their respective weights) are not in use, the stitches at both edges will become loose and float	Hang the Edhe Weight Hooks with weights or the Hanger Comb and reset them after every 10 - 15 rows of knitting.	(Inst. Book) Pages 13, 19 & 56
In the case that stitches drop.	Check the opening and closing of the Needle latches.	If the opening and closing of the Needle latches are not smooth, the stitches tend to drop.	Adjust the Needle latches or exchange them for new ones.	
	Check the vertical position of the Yarn Feeder.	If the Yarn Feeder is positioned too high, the Needles cannot catch the yarn.	Adjust the vertical position of the Yarn Feeder	Page 26
	Check the horizontal position of the Yarn Feeder.	If the Yarn Feeder is positioned too far away from the Ribber Needles, the stitches will easily drop.	Adjust the horizontal position of the Yarn Feeder.	Page 28
In the case that the latches and hooks bend.	Check if the vertical and/or horizontal position of the Ribber to the Knitter is within the standard measurement.	If the Ribber's Needle Bed is positioned too far away from the Knitter, the Ribber's Needles will touch the Yarn Feeder and may damage them.	Adjust the vertical and/or horizontal position of the Ribber	Pages 14 and 17

Conditions of Defects	Check Points	Causes	Countermeasures	Ref.
	Check the vertical position of the Yarn Feeder.	If the Yarn Feeder is positioned too near the Ribber Needles, the latches of the Needles will touch the Yarn Feeder and may be damaged.	Adjust the vertical position of the Yarn Feeder.	
	Check the horizontal position of the Yarn Feeder.	If the Yarn Feeder is positioned too low, it will touch the hooks of the Knitter Needles and the Needles may be damaged.	Adjust the horizontal position of the Yarn Feeder.	
	Check the position of the Ribber Needles relative to the Knitter Needles.	When the Half Pitch Lever is set at the H position, and double rib knitting is made, the Ribber Needles will touch the Knitter needles and be damaged.	Adjust the position of the Needlss.	Page 19
In the case that the stitches at both ends become loosened or slip off.	Check if there are burrs on the Ribber Arm or the Yarn Feeder.	If there are burrs on the Ribber Arm or Yarn Feeder, the yarn will be caught and it will become loosened and may slip off.	File the burr smoothly with sandpaper.	
	Check the Tension Dial.	If the yarn is threaded incorrectly or the Tension Dial is not set properly, the Tension Spring will not work effectively and the stitches may slip off.	Confirm if the yarn threading or Dial setting is proper.	

Condition of Defects	Check Points	Causes	Countermeasures	Ref.
In the case the fabric shows course stripes.	Check the position of the Ribber Needles relative to Knitter Needles.	If the Needles are positioned improperly, the stitches will be irregular in size and the fabric will be very poor looking.	Adjust the position of the Needles.	
	Check the Joint Stopper.	If the Joint Stopper is not positioned correctly, the size of the stitches will vary during every movement of the Carriage.	Adjust the position of the Joint Stopper.	
	Check the dimension between the inner surface of the Carriage Pipe and the Main Cams.	If there is a difference in size between the Main Cams and the Carriage Pipe, the size of the stitches will vary during every movement of the Carriage.	Adjust the dimension between the Main Cams and the Carriage Pipe so that there is no difference between them.	Page 32
In the case that the Carriage is too heavy to operate.	Check the lubrication of the sliding parts.	Lack of lubrication on those sliding parts will result in sluggish movement of the Carriage.	Wipe clean the surface and then wipe with an oiled cloth to apply oil to them.	

2. NOMENCLATURE OF RIBBER.

2-1 Ribber Body

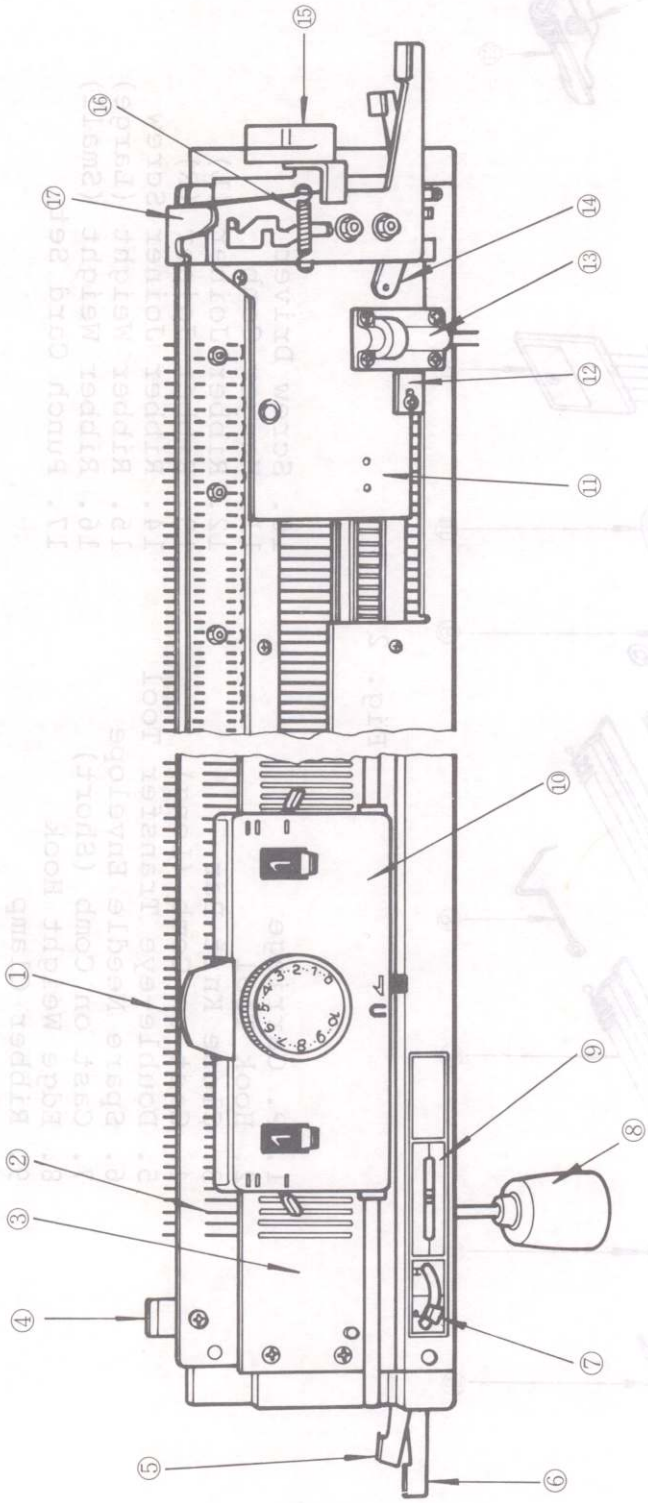


Fig. 1

1. Sinker
2. Latch Needle
3. Needle Bed
4. Ribber Stopper
5. Pile Lever
6. Drop Lever
7. Shift Scale
8. Swing Handle
9. Indicator
10. Carriage
11. Swing Plate (L)
12. Indicator Unit
13. Swing Bearing
14. Adjusting Lever
15. Supporting Cam
16. Drop Lever Spring
17. Ribber Joiner (L)

2-2 Accessories.

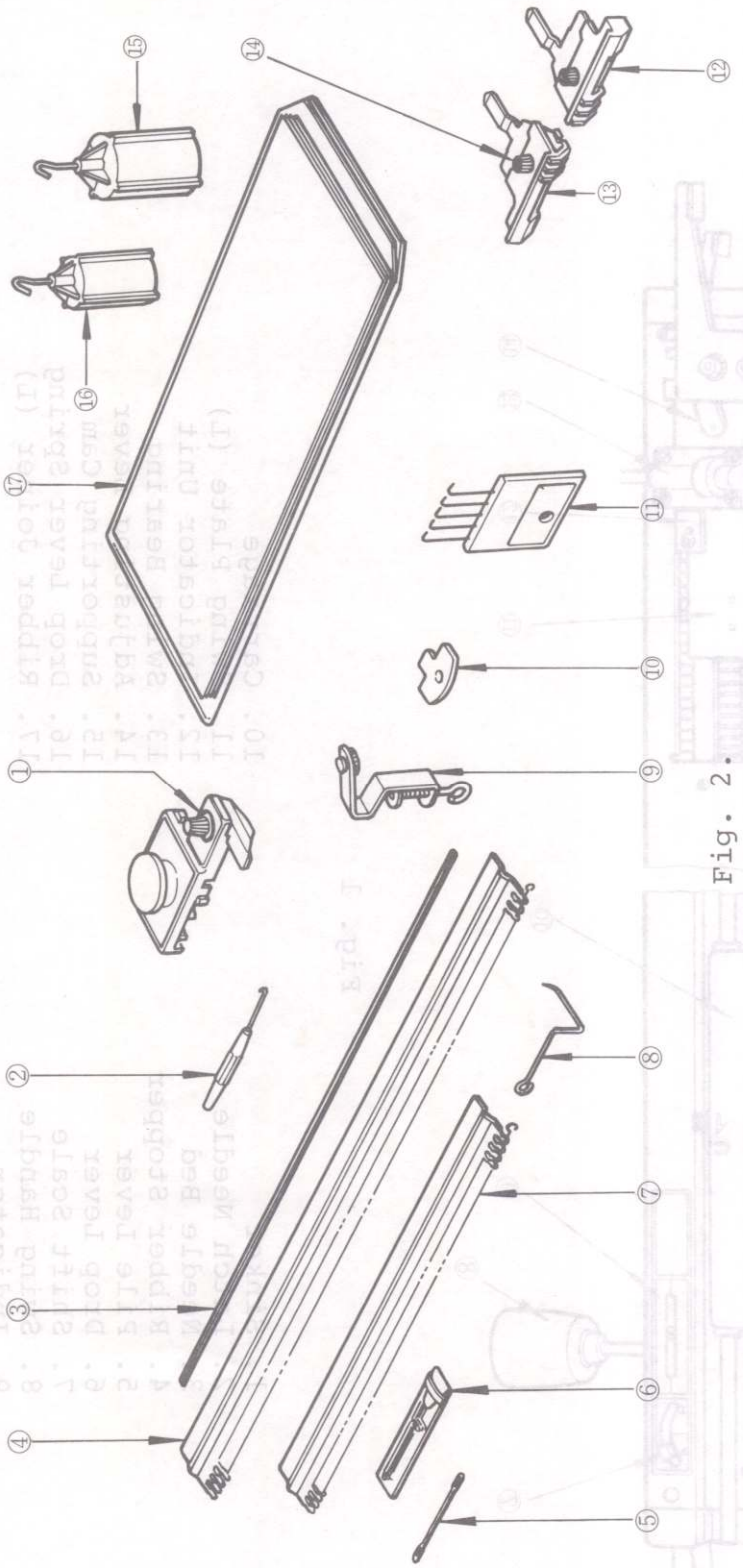


Fig. 2.

1. P. Carriage
2. Hook Tool
3. Close Knit Bar
4. Cast on Comb (Long)
5. Double-eye Transfer Tool
6. Spare Needle Envelope
7. Cast on Comb (Short)
8. Edge Weight Hook
9. Ribber Clamp
10. Screw Driver
11. Hanger Comb
12. Ribber Joiner (L)
13. Ribber Joiner (R)
14. Ribber Joiner Screw
15. Ribber Weight (Large)
16. Ribber Weight (Small)
17. Punch Card Set

2-3 Carriage (Upper Side).

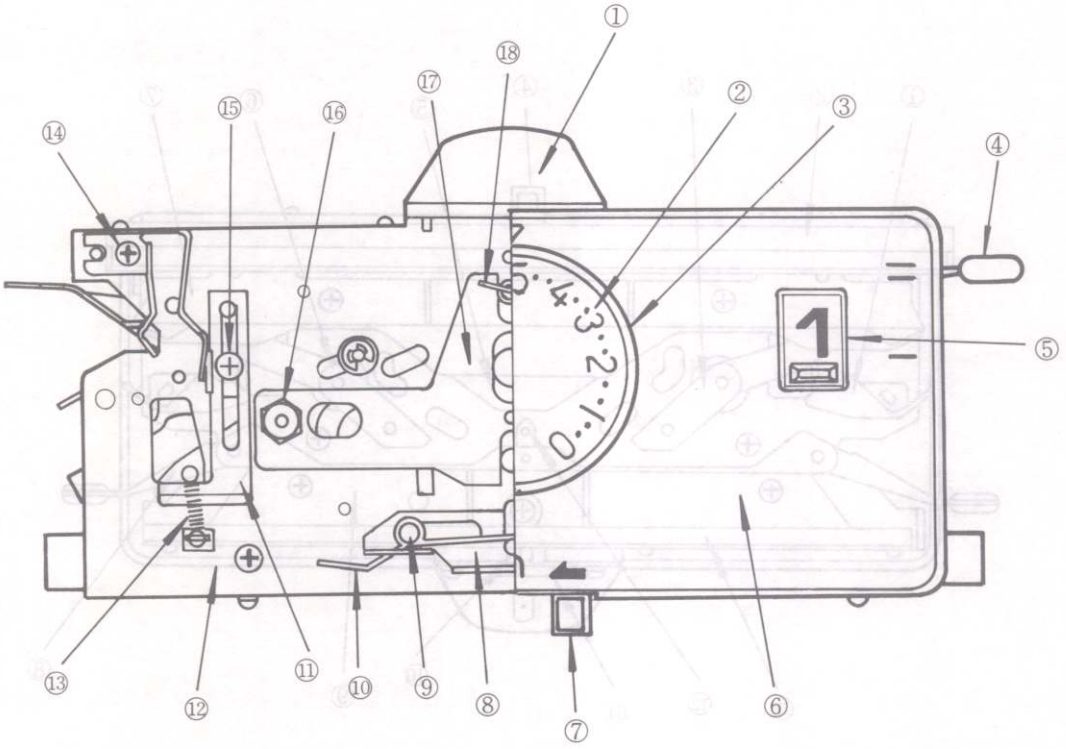


Fig. 3

1. Joiner Stopper
2. Dial Indicator
3. Stitch Dial
4. Russel Cam Knob
5. Set Lever Knob
6. Carriage Cover
7. Pick Lever Knob
8. Pick Lever
9. Pick Lever Screw
10. Pick Lever Spring
11. Set Lever (L)
12. Carriage Plate
13. Extension Spring
14. Set Lever Spring (L)
15. Set Lever Screw
16. Main Cam Nut
17. Travelling Plate
18. Dial Spring

2-4 Carriage (Rear)

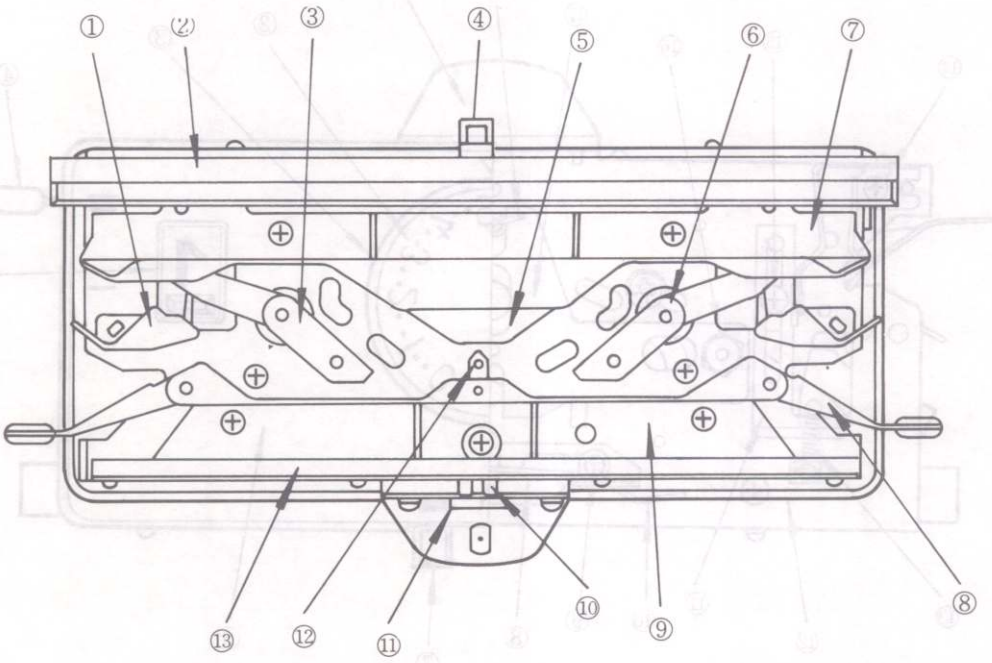
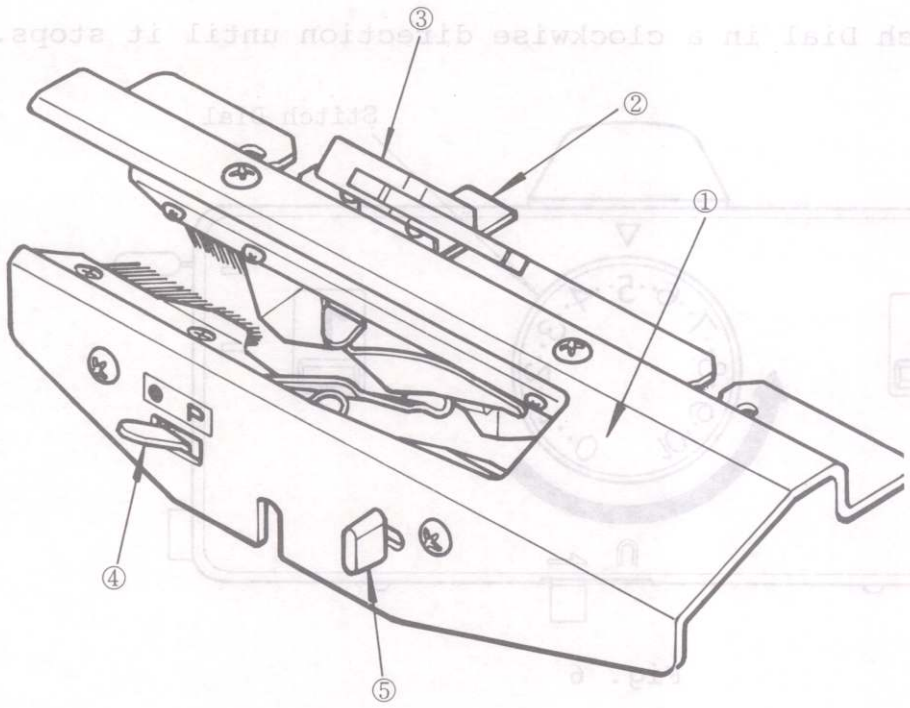


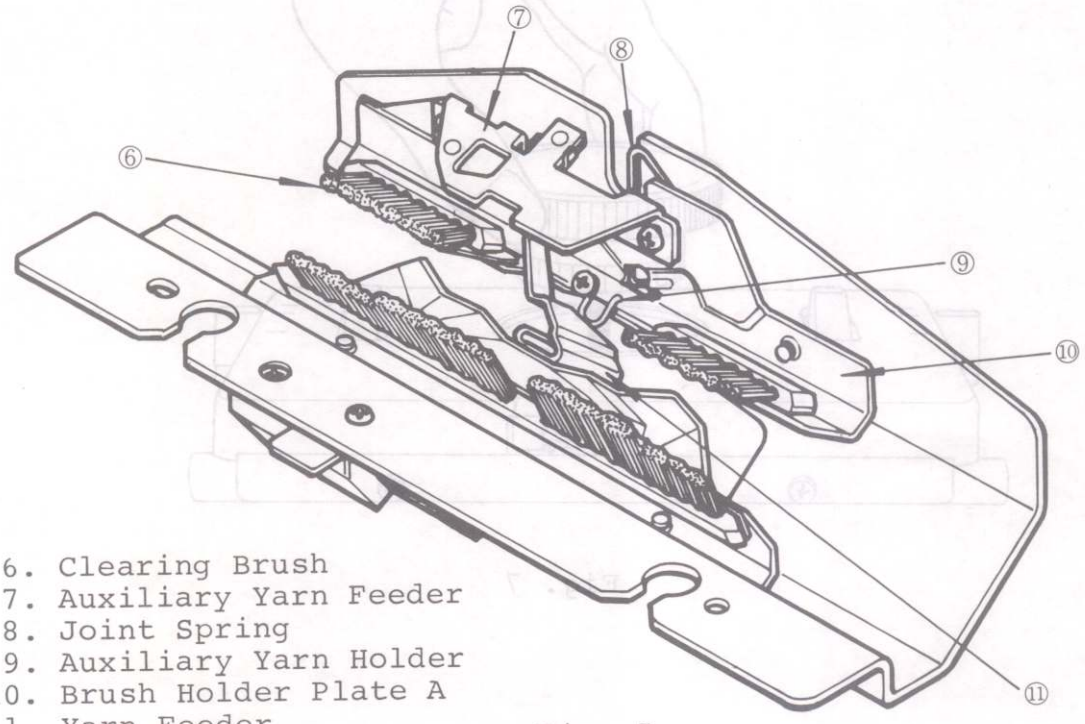
Fig. 4

1. Needle Guide B (L)
2. Carriage Pipe
3. Main Cam (L)
4. Pick Lever Knob
5. Pick Cam
6. Main Cam (R)
7. Guide Plate
8. Russel Cam (R)
9. Needle Guide A
10. Stitch Adjusting Plate
11. Joint Stopper Shaft
12. Lowering Cam
13. Carriage Slider

2-5 Arm



1. Arm
2. Driving Lever Plate
3. Driving Lever Unit
4. Auxiliary Yarn Feeder Lever
5. Joint Spring Knob



6. Clearing Brush
7. Auxiliary Yarn Feeder
8. Joint Spring
9. Auxiliary Yarn Holder
10. Brush Holder Plate A
11. Yarn Feeder

Fig. 5

3. CARRIAGE COVER DISASSEMBLY AND ASSEMBLY.

3-1 Carriage Cover Disassembly.

1. Turn the Stitch Dial in a clockwise direction until it stops.

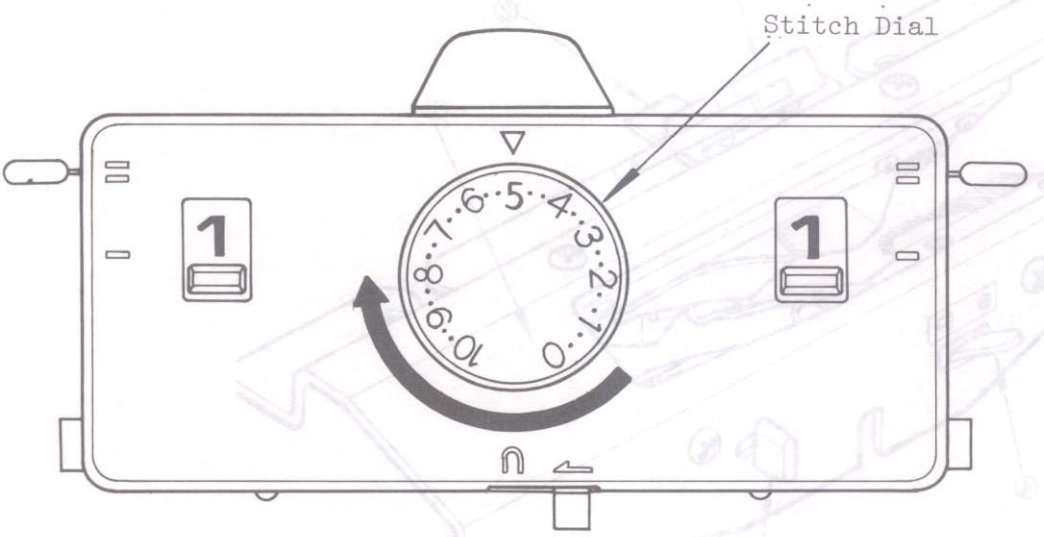


Fig. 6

2. Remove the Stitch Dial as shown in Fig. 7, below.

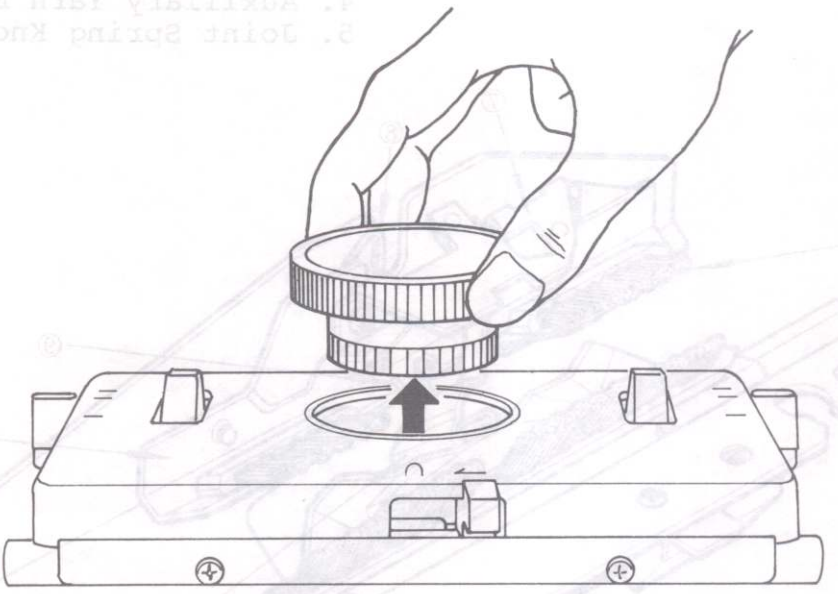


Fig. 7

3. From the rear of the Carriage, remove two + Pan Head Tapping Screws (3x12) which secures the Carriage Cover.

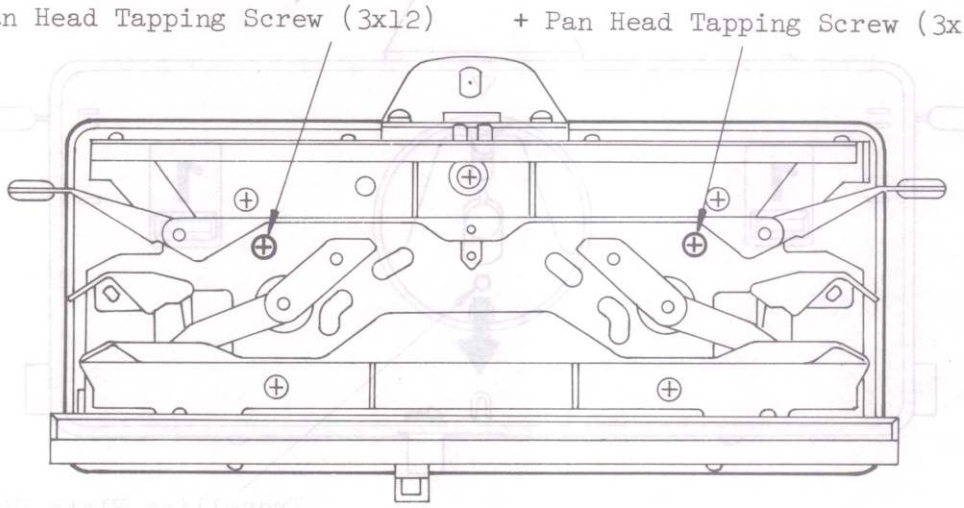


Fig. 8

3-2 Carriage Cover Assembly.

1. Place the Carriage Cover in position and fasten it with two + Pan Head Tapping Screws (3x12) as indicated in Fig. 9.

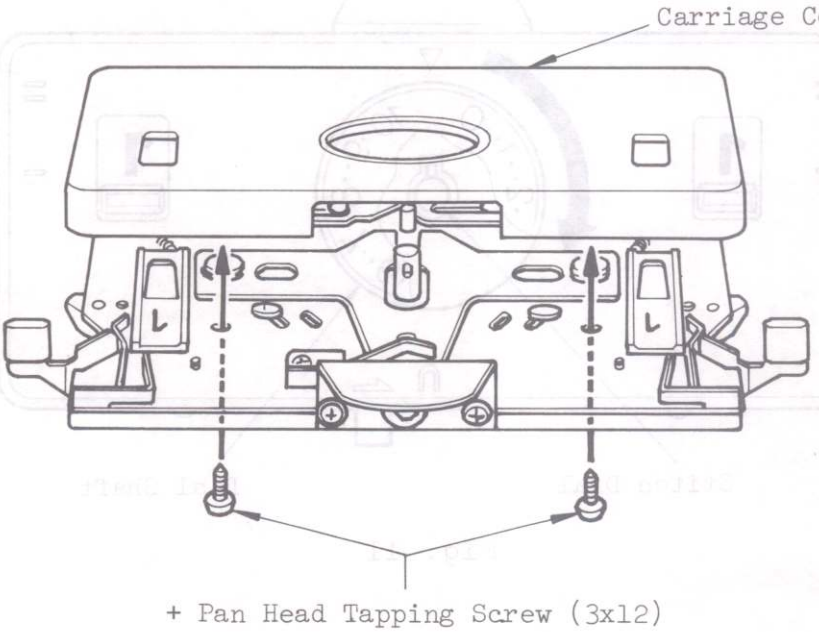


Fig. 9

2. As shown in the below Fig. 10, move the Travelling Plate Pin forward.

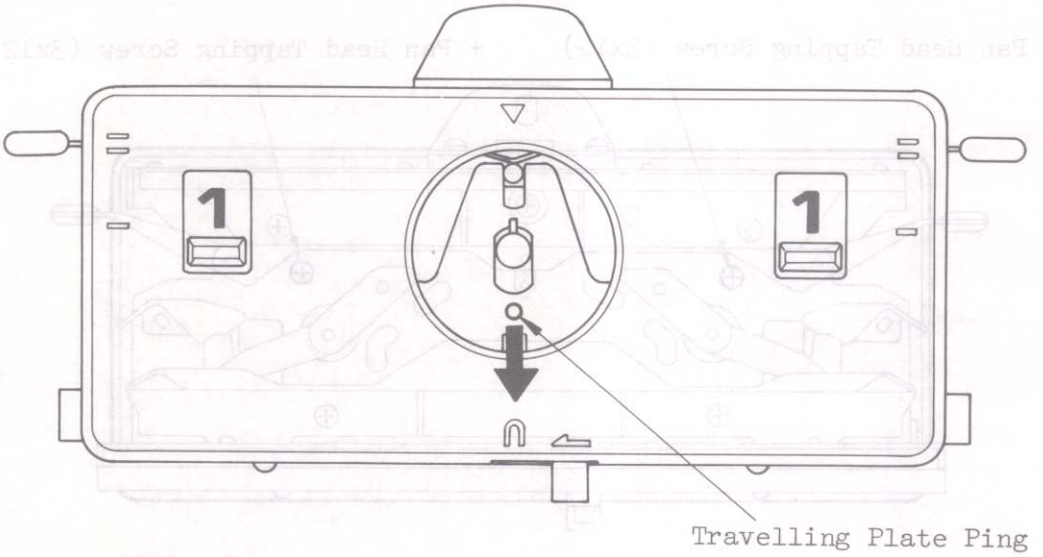


Fig. 10

3. Place the Stitch Dial onto the Dial Shaft and turn it in an anti-clockwise direction to secure it to the Carriage.

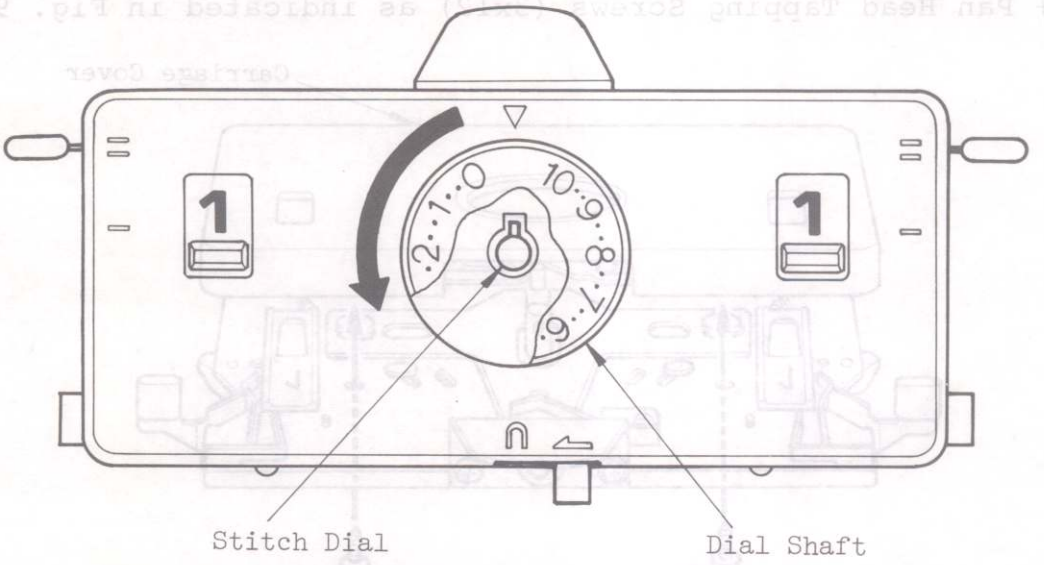


Fig. 11

4. ADJUSTMENT FOR EACH PART OF THE NEEDLE BED.

4-1 The Horizontal Measurement between Ribber and Knitter.

* Check the horizontal measurement prior to adjustment.

1. Position the Half-Pitch Lever at P.

2. Turn the Swing Handle to 5 on the P Scale.

3. On both sides of the Ribber Needle Bed, bring 5 needles to D position. The measurement between the Ribber needles and the sinkers of the Knitter must be within 0.5 m/m ± 0.2 m/m. This measurement is done with a Thickness Gauge. (If a Thickness Gauge is not available for this measurement the Gauge Scale, found in the Knitter accessories, which has a thickness of 0.5 m/m, can be used instead.)

4. If the measurement is not within the range of 0.3 m/m - 0.7 m/m, please refer to Fig. 13 on page 14 for the relevant adjustment.

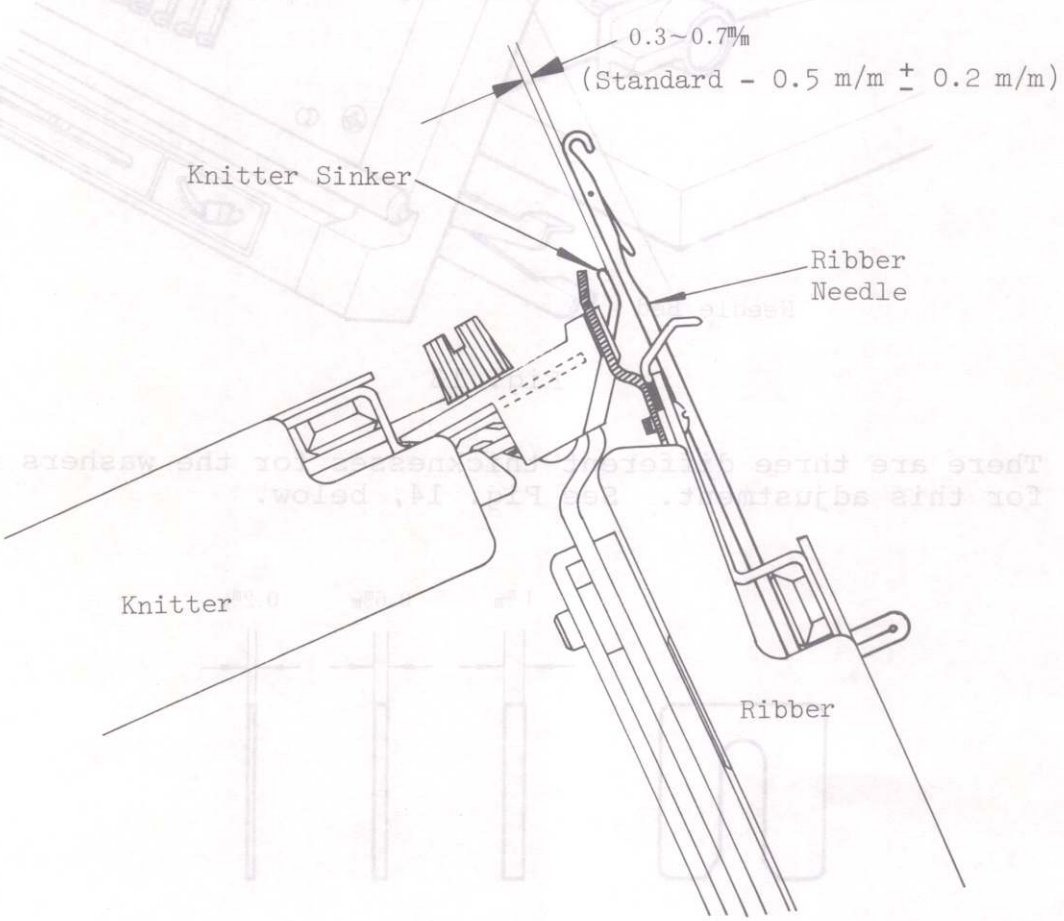


Fig. 12

A. If the space measures more than 0.7 m/m:

1. Turn the Supporting Cam (L) towards you.

2. Loosen the + Binding Head Screw (3x6), which secures the Ribber Stopper, and exchange the washer for a thinner one in order to reduce the space to the standard measurement.

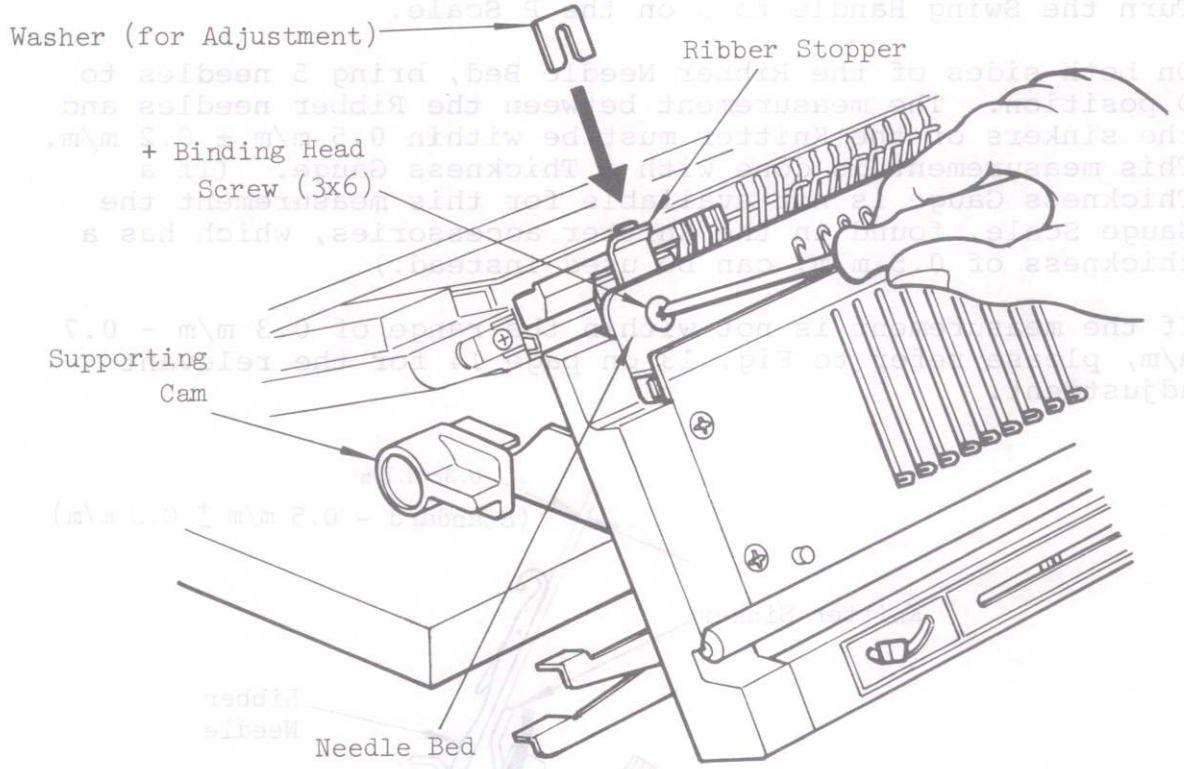


Fig. 13

* There are three different thicknesses for the washers used for this adjustment. See Fig. 14, below.

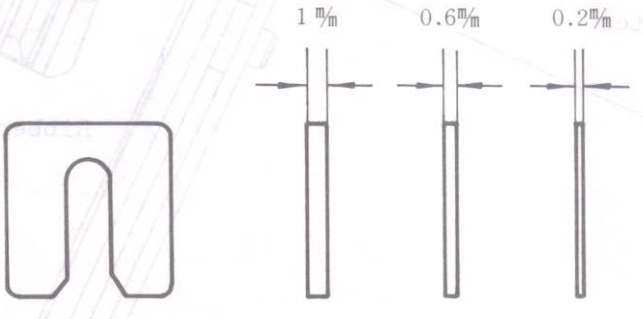


Fig. 14

B. If the space measures less than 0.3 m/m:

The adjustment is the same as that explained under "A" on page 13, the only exception being that, the washer must be exchanged for one that is thicker in width in order to increase the space to the standard measurement.

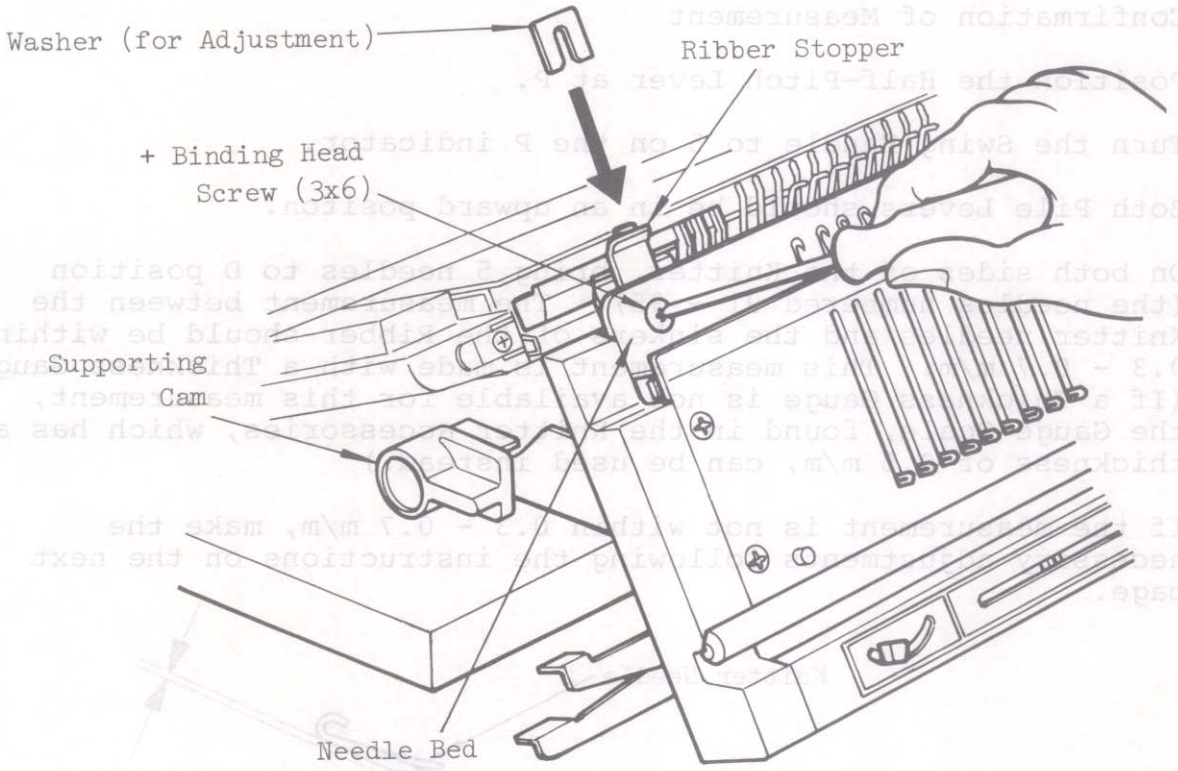


Fig. 15

4-2 The Vertical Measurement between the Ribber and Knitter.

* Confirm the vertical measurement between the Ribber and Knitter prior to adjusting the same. Position the Supporting Cam so that it is in contact with the Knitter for the relative confirmation, follow the below stated instructions.

1. Confirmation of Measurement

a) Position the Half-Pitch Lever at P.

b) Turn the Swing Handle to 5 on the P indicator.

c) Both Pile Levers should be in an upward positon.

d) On both sides of the Knitter, bring 5 needles to D position (the needles numbered 91 - 95). The measurement between the Knitter needles and the sinkers of the Ribber should be within 0.3 - 0.7 m/m. This measurement is made with a Thickness Gauge. (If a Thickness Gauge is not available for this measurement, the Gauge Scale, found in the Knitter accessories, which has a thickness of 0.5 m/m, can be used instead.)

e) If the measurement is not within 0.3 - 0.7 m/m, make the necessary adjustments following the instructions on the next page.

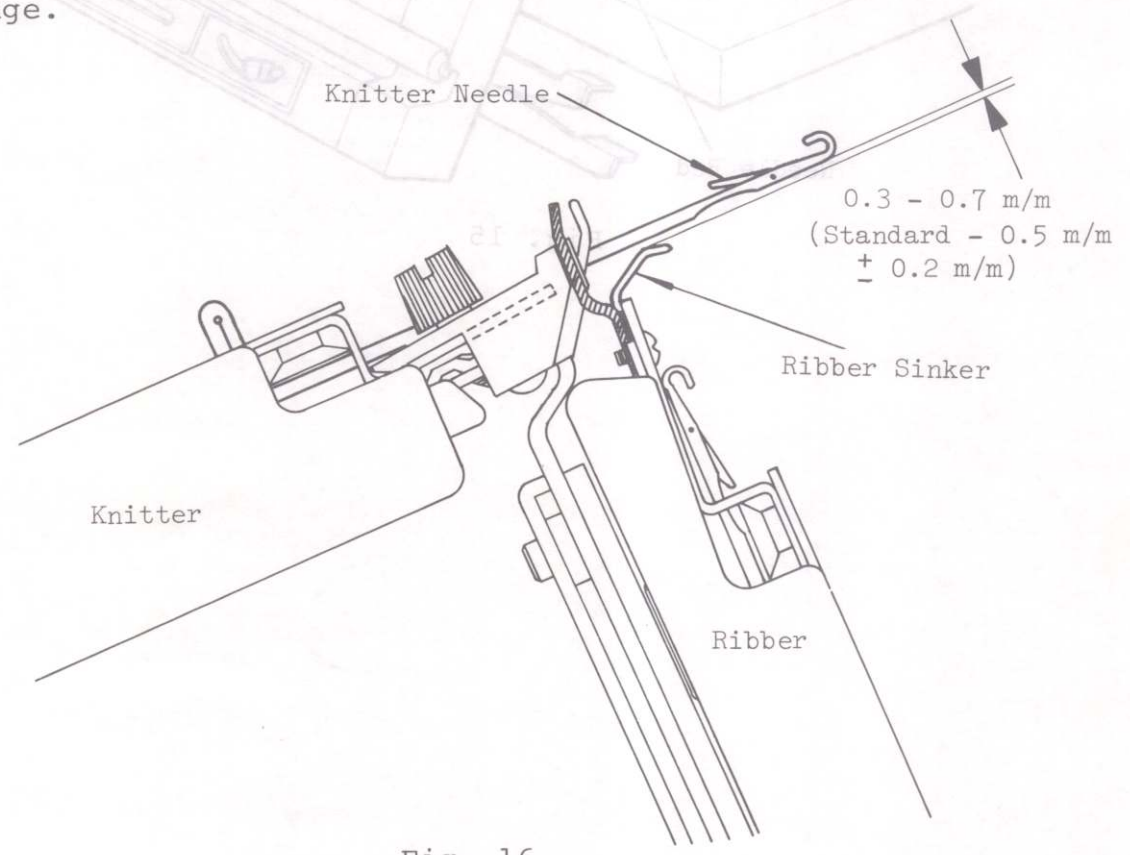


Fig. 16

2. Method of Adjustment.

1. Loosen the hexagonal nut, found behind the Drop Lever, with a 7 m/m spanner. The Adjusting Lever will now be movable.

Note: Be sure to hold the Ribber with your hand as indicated in Fig. 17, or else the Ribber will drop.

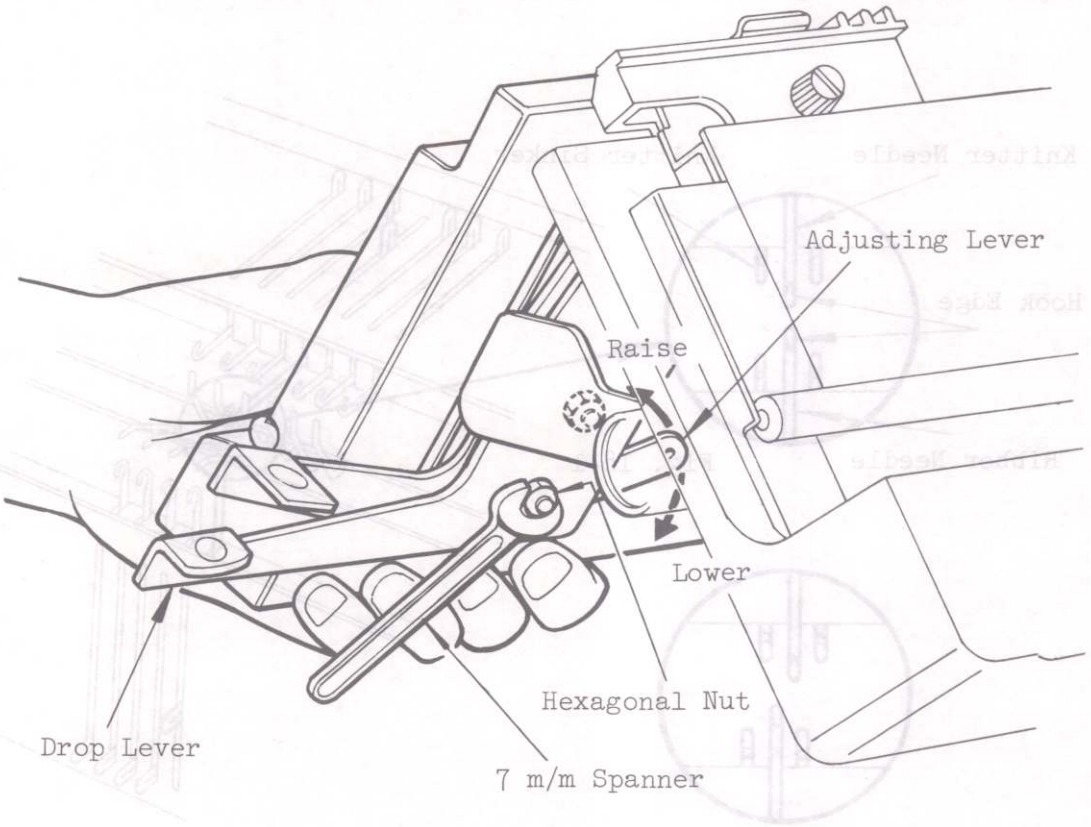


Fig. 17

2. After loosening the hexagonal nut, adjust the position by moving the Adjusting Lever in the direction of the arrow as shown in Fig. 17.

* If the vertical measurement is too wide, the Adjusting Lever must be raised.

* If the vertical measurement is too narrow, the Adjusting Lever must be lowered.

3. Fasten the hexagonal nut after the Adjustment has been completed.

4-3 Needle Alignment.

Set the Ribber to the Knitter with the Half Pitch Lever in the P position and confirm that the needles of both beds are facing each other, when in B position, see Fig. 18-1.

If the needles are not aligned, as shown in Fig. 18-2, adjust then so as they face each other.

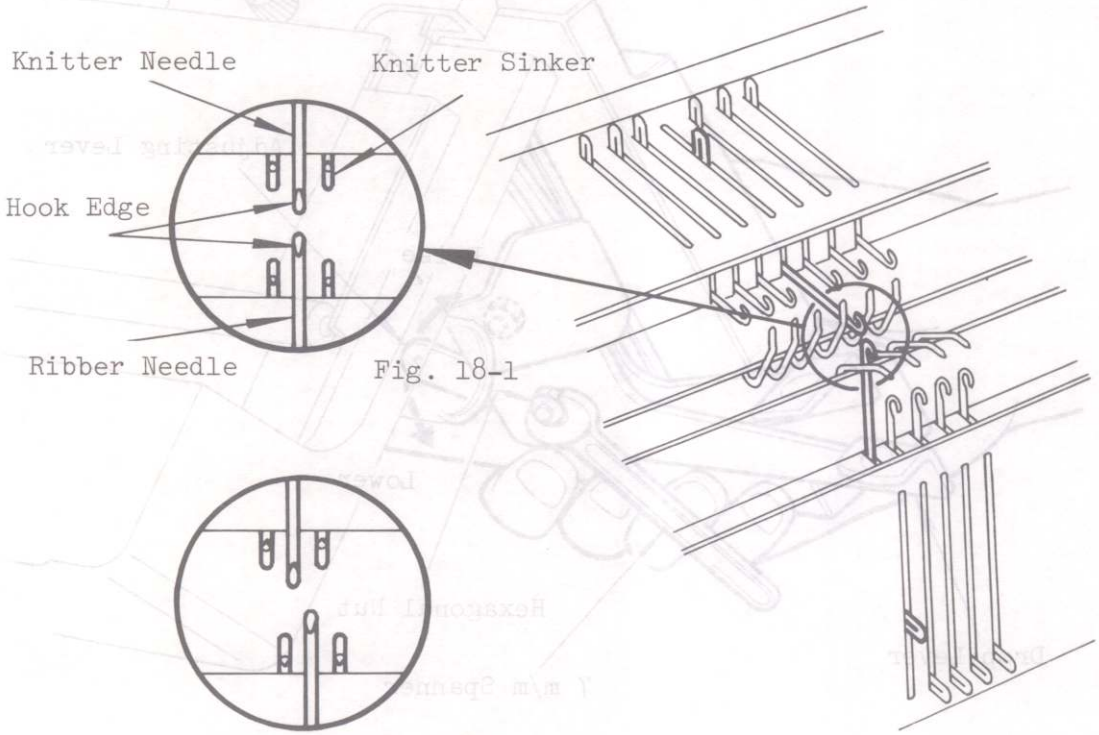


Fig. 18-1

Fig. 18-2

Fig. 18

1. Method of Adjustment

In the case that the needles are not aligned, loosen two + Binding Head Screws (3x4) which secure the Half Pitch Adjusting Plate, and adjust then so as they face each other, by tapping the Ribber lightly with your hand.

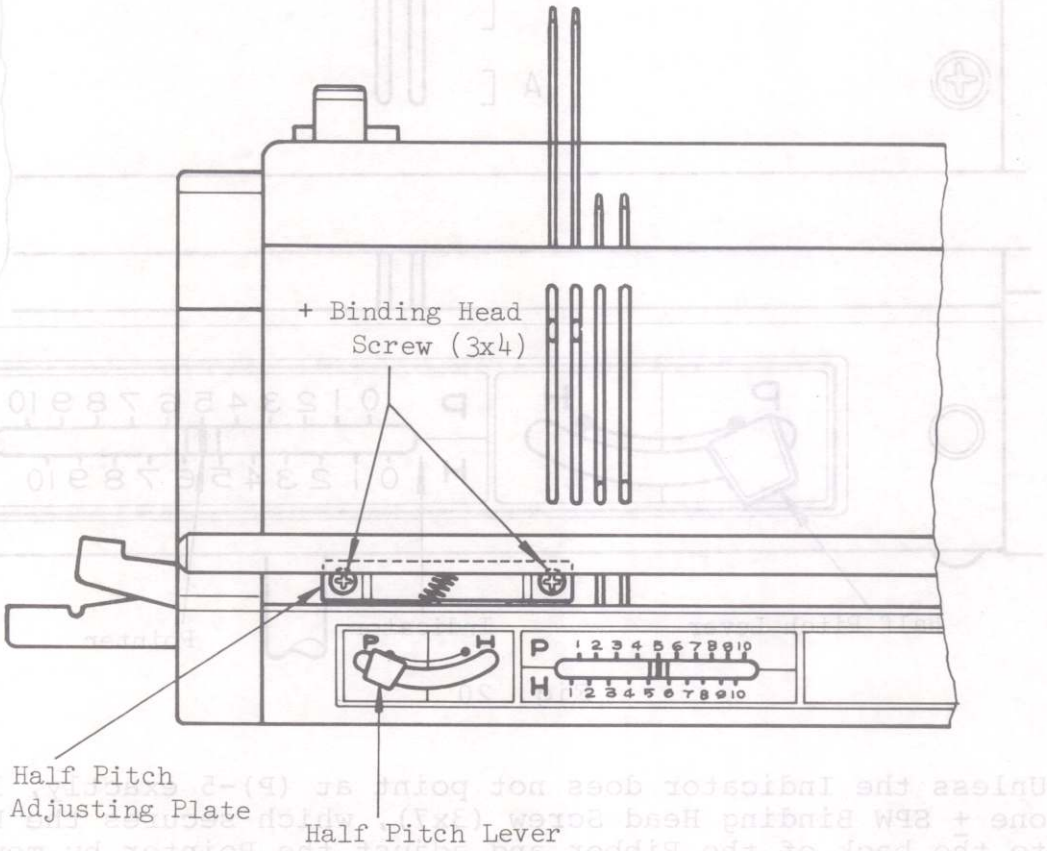


Fig. 19

Note: When this is done, adjustment of the Swing Indicator is also required.

4-4 Swing Indicator Adjustment.

1) Swing the Half-Pitch Lever to P and turn the Swing Handle to 5 as indicated on the Swing Indicator.

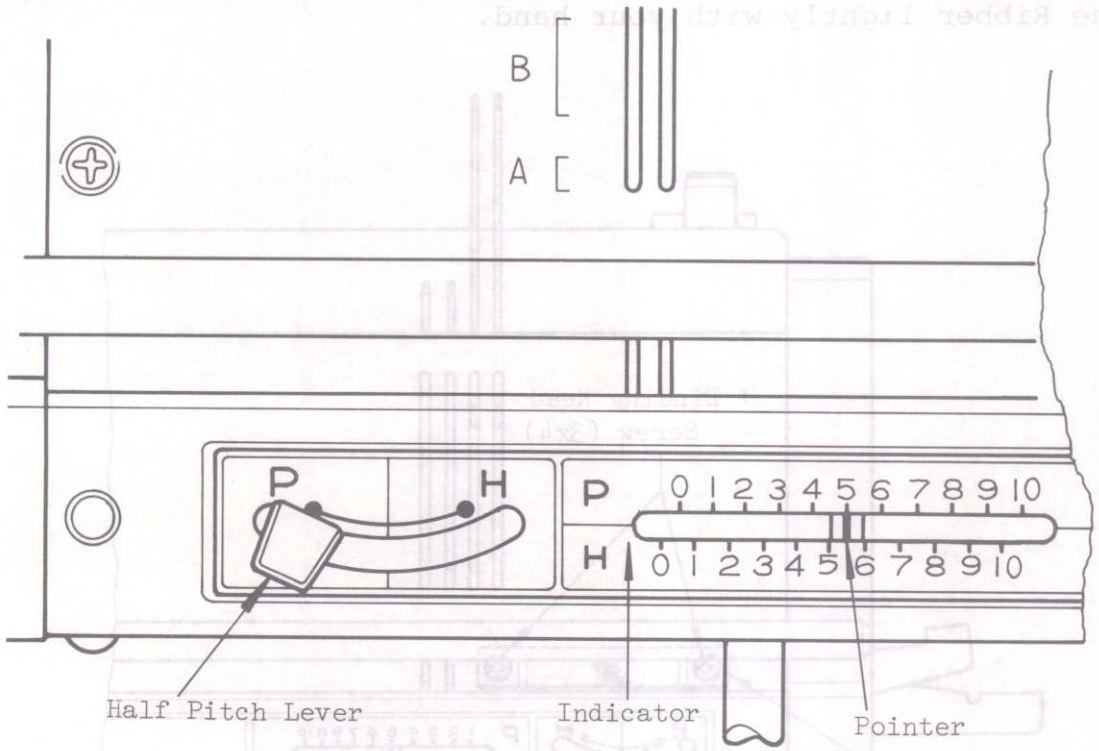


Fig. 20

2) Unless the Indicator does not point at (P)-5 exactly, loosen one ± SPW Binding Head Screw (3x7), which secures the Pointer to the back of the Ribber and adjust the Pointer by moving it to either side.

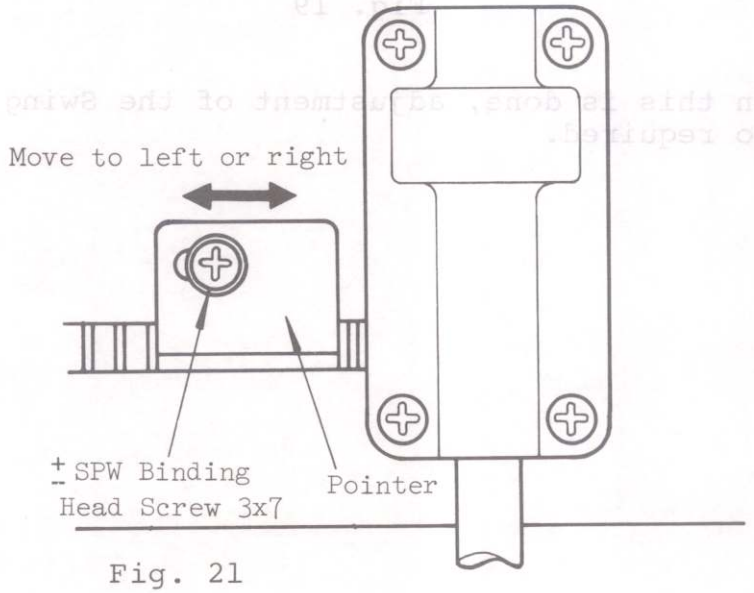


Fig. 21

4-5 Warpage of Needle Bed.

(1) The Needle Bed of the SRP-50 Ribber is warped as indicated in Fig. 22 (the vertical space between the Ribber and the main machine is 0.3 - 0.5 m/m, wider at the centre in comparison with the space at the edges).

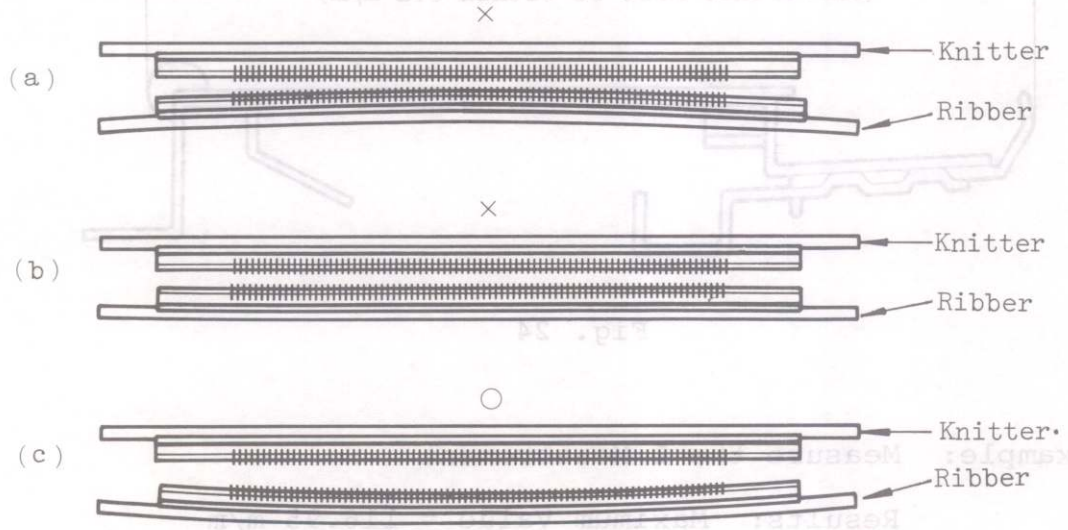


Fig. 22

(2) Adjustment of the warpage.

If the Needle Bed is warped as indicated in Fig. 22 (a) or (b), the stitches will be apt to float or drop. In this case, position the Needle Bed as shown in Fig. 23 and adjust it.

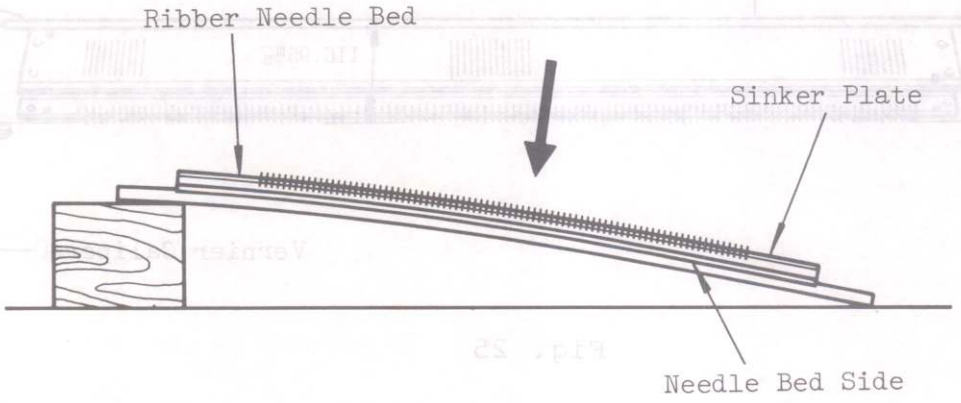


Fig. 23

4-6 L Dimension of the Needle Bed (the distance between the Sinker Post and the Carriage Rail).

L Dimension: 116.7 ± 0.25 m/m (Difference must be within 0.2 m/m)

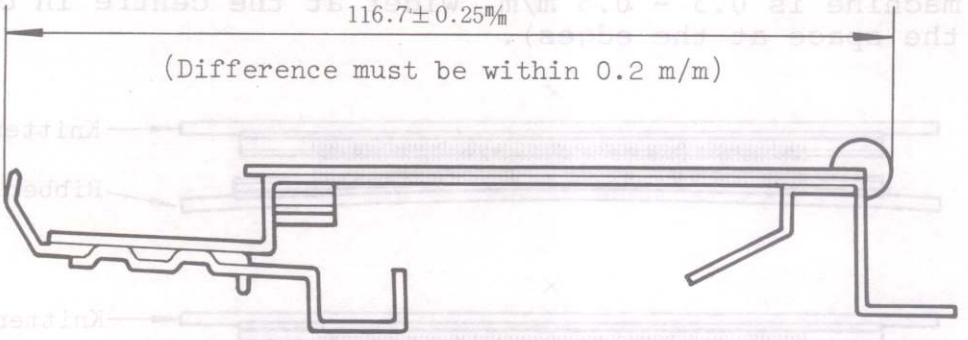


Fig. 24

Example: Measure the L Measurement

Results: Maximum Value = 116.95 m/m
Minimum Value = 116.0 m/m
116.95 - 116.0 = 0.95 m/m
Difference = 0.95 m/m

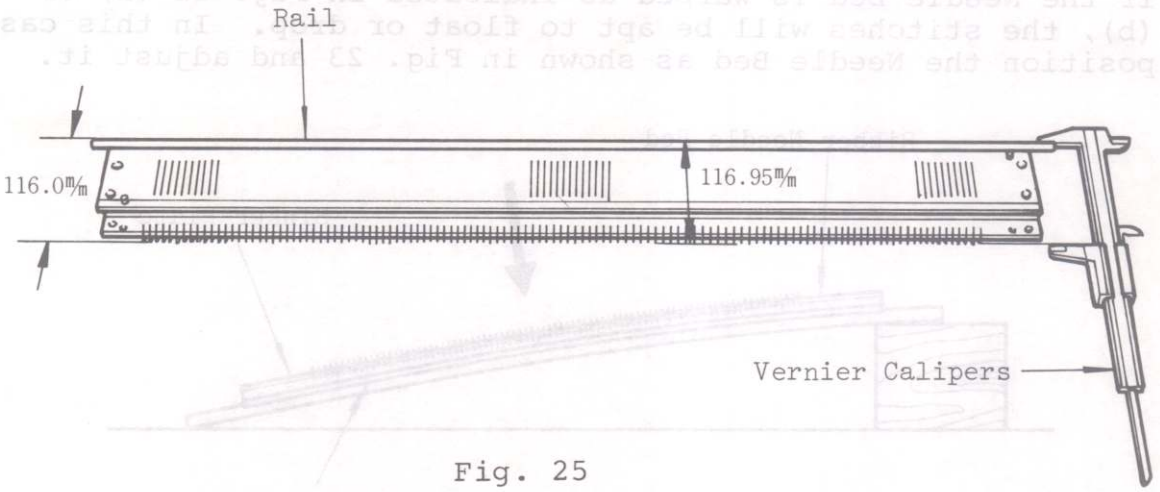


Fig. 25

1. Method of Adjustment.

To remedy the difference, adjust the sinkers to 0 - 0.2 m/m.

a) When moving the sinkers forward.

1. Loosen the hexagonal nut, nearest the position to be adjusted, by a quarter turn, and make the adjustment.

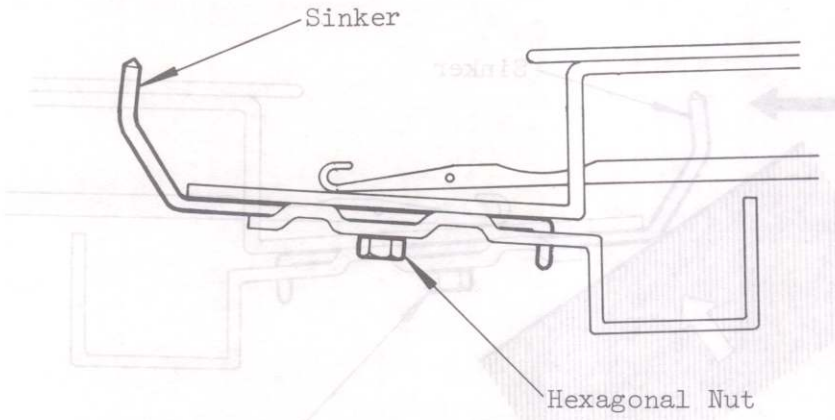


Fig. 26

2. Insert a 1 m/m thick steel plate or a metal Needle Pusher between the front edge of the Needle Bed and the sinkers as shown in Fig. 27, with the steel plate kept pressed downwards, bring it down in the arrow-marked direction and the sinkers can be moved forwards. Repeat the above method for correct alignment of the sinkers.

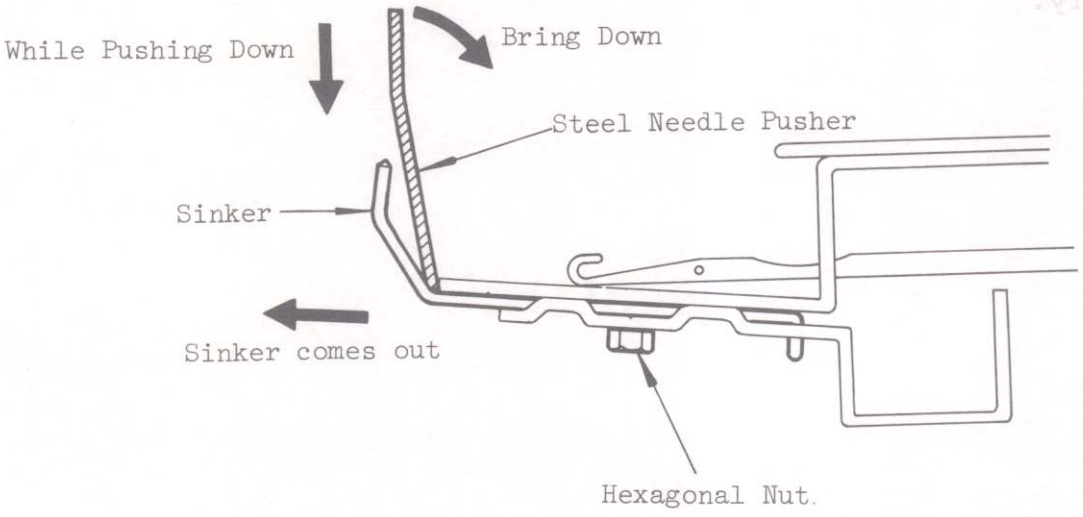


Fig. 27

3. Measure the L Dimension, after fastening the hexagonal nut tightly.

b) In the case that the sinkers are moved backwards.

1. Loosen a hexagonal nut by a quarter turn, nearest the portion to be adjusted.

2. Press the bottom of the sinkers, as shown in Fig. 28 and indicated by the white arrow, with the rounded side of a wooden hammer, or any wooden material available, as if you were rubbing it, and the sinkers can be moved towards the Needle Bed.

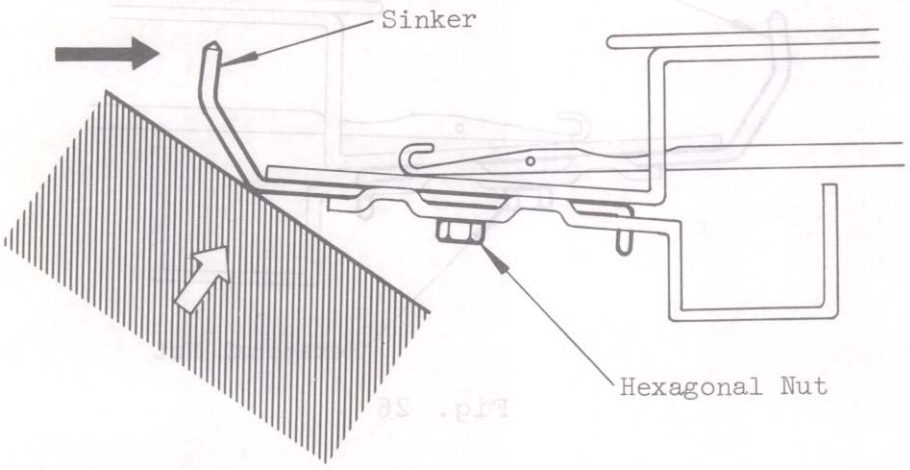
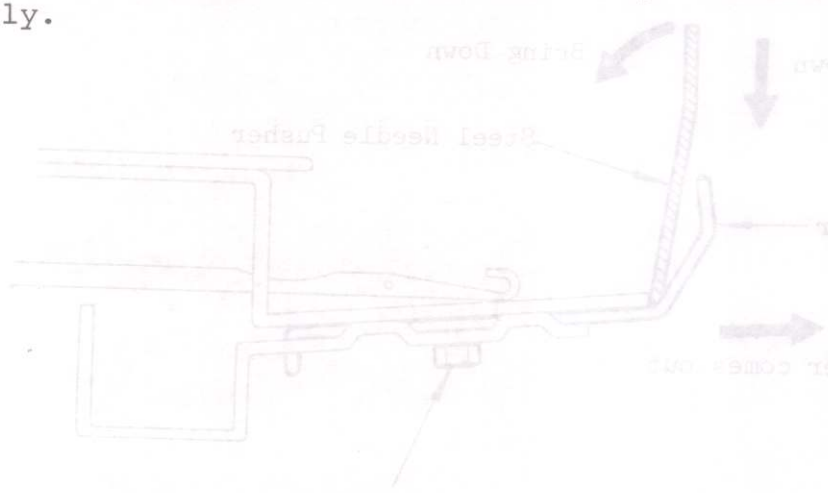


Fig. 28

3. Measure the L Dimension after fastening the hexagonal nut tightly.



5. ARM ADJUSTMENT.

5-1 Vertical Adjustment of the Yarn Feeder.

* Check the vertical clearance prior to making the relative adjustment.

1. On the left side of the Knitter Needle Bed, push 5 needles (91st - 95th) to B position.

2. Position the Cam Lever of the Knitter Carriage to Stockinet.

3. Move the Carriage to the centre of the 5 needles which were pushed to B position.

4. The clearance between the rear of the Yarn Feeder and the hook of the Knitter needle (vertical position of the Yarn Feeder), must be within the range of 0.2 - 0.8 m/m.

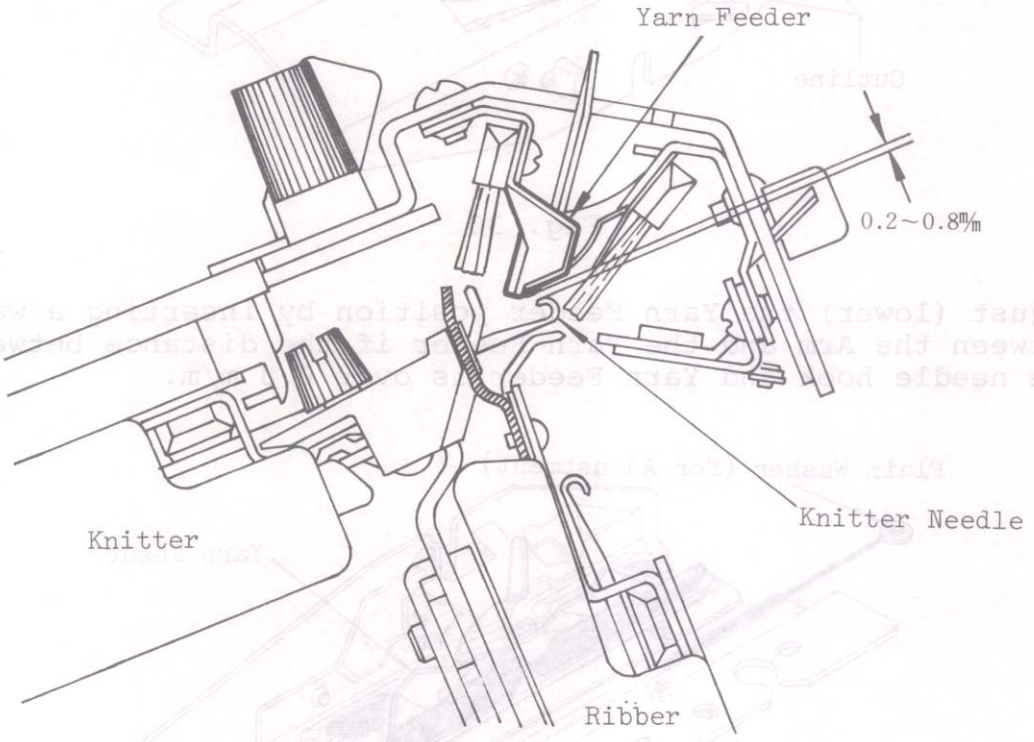


Fig. 29

1. Method of Adjustment.

1. As indicated in Fig. 30 below, trace the outline of the two Special + Truss Head Screws (3x6) situated on the top of the Arm.

2. By removing the two Special + Truss Head Screws (3x6) the Yarn Feeder can be removed. Be careful so as not to lose the washers that are held in place by the above two screws.

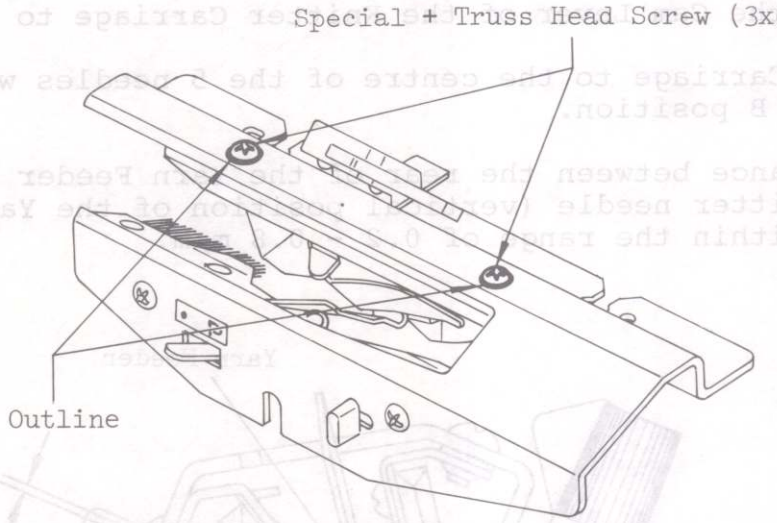


Fig. 30

3. Adjust (lower) the Yarn Feeder position by inserting a washer between the Arm and the Yarn Feeder if the distance between the needle hook and Yarn Feeder is over 0.8 m/m.

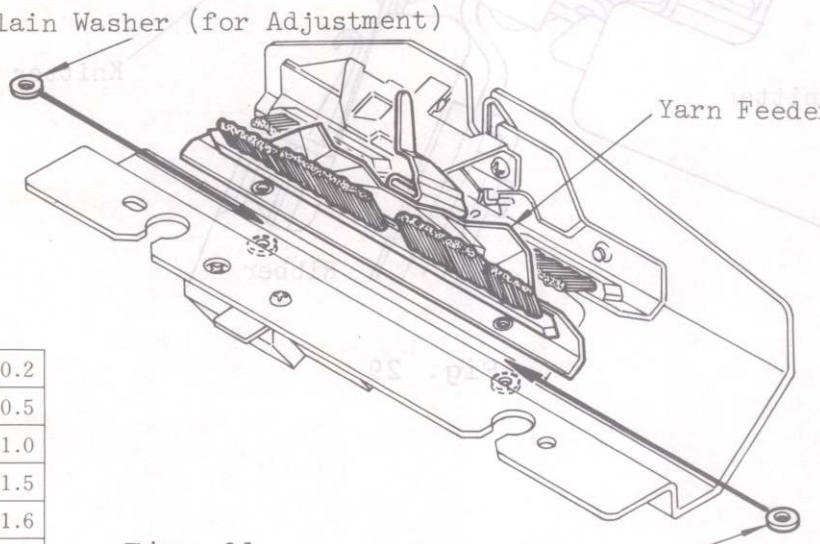


Fig. 31

List-1

Washer	4 × 8 × 0.2
〃	4 × 8 × 0.5
〃	4 × 8 × 1.0
〃	4 × 8 × 1.5
〃	4 × 8 × 1.6
〃	4 × 8 × 1.7
〃	4 × 8 × 1.8
〃	4 × 8 × 1.9
〃	4 × 8 × 2.0

5-2 Horizontal Adjustment of the Yarn Feeder.

* Check the horizontal clearance prior to making the relative adjustment.

1. On the left side of the Ribber Needle Bed push 5 needles (91st - 95th) to B position and align them in C position by using the P Carriage.

2. Move the Carriage to the centre of the 5 needles which were pushed to C Position.

3. The clearance between the rear of the Yarn Feeder and the stem of the Ribber needle (horizontal position of the Yarn Feeder) must be within the range of 0.2 - 0.6 m/m.

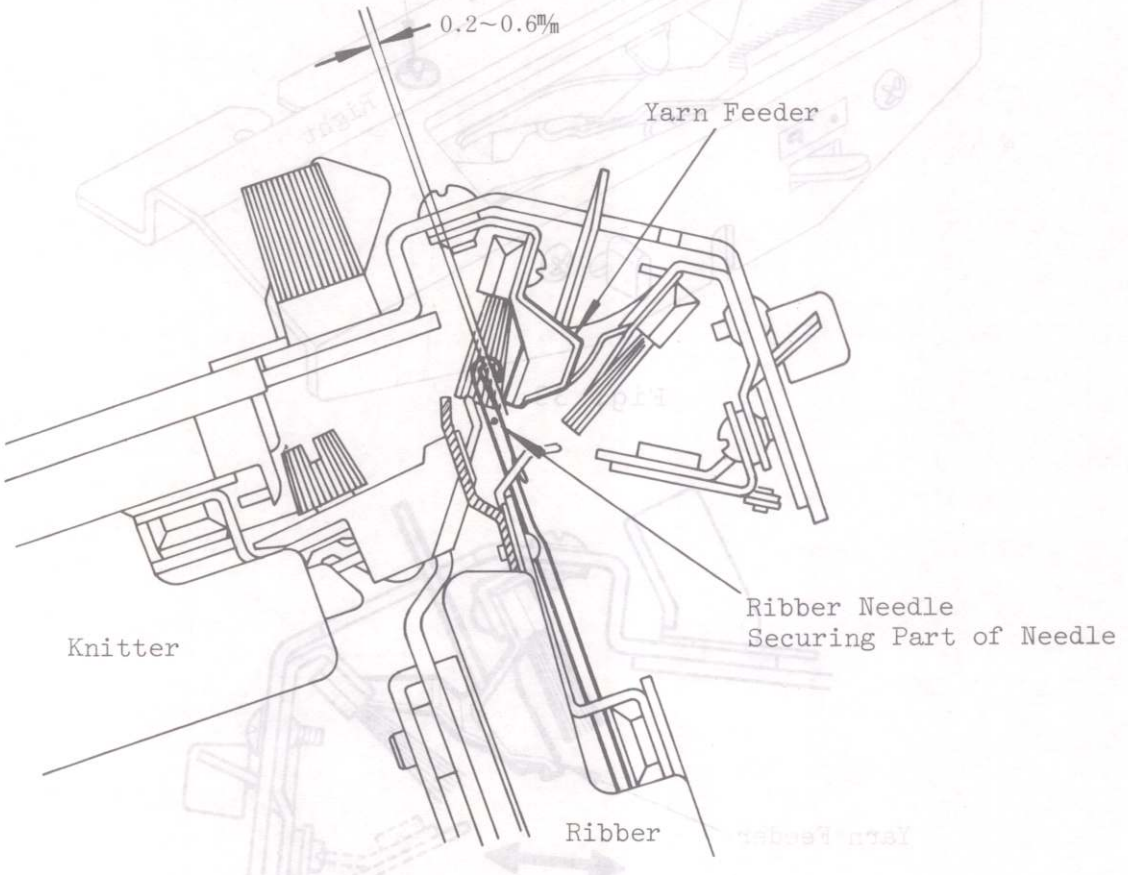


Fig. 32

1. Method of Adjustment.

1. Of the two Special + Truss Head Screws (3x8) loosen the screw positioned on the left side by a quarter or half turn, and move the Yarn Feeder either forward or backward as the case may be. Likewise, make the same adjustment with the screw positioned on the right side.

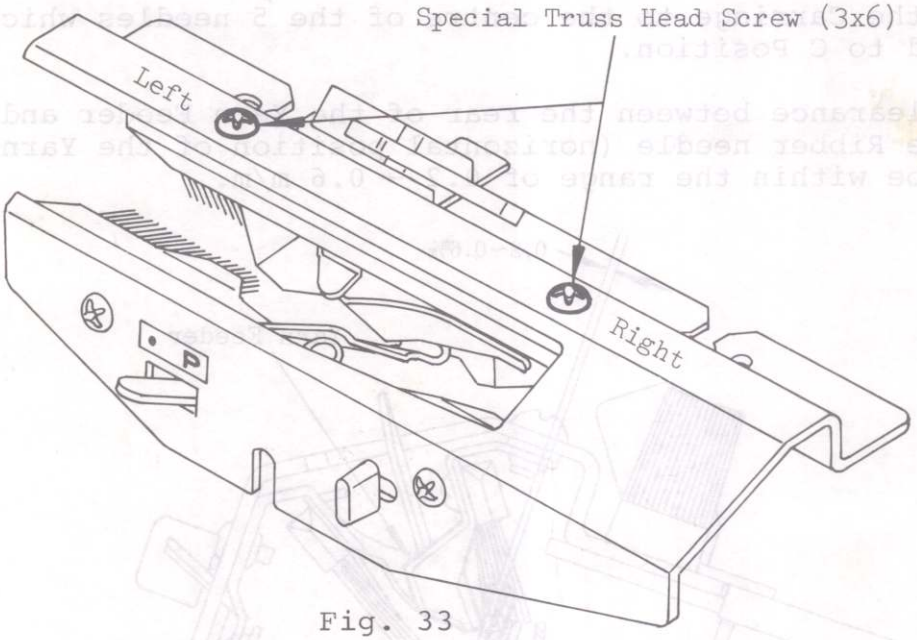


Fig. 33

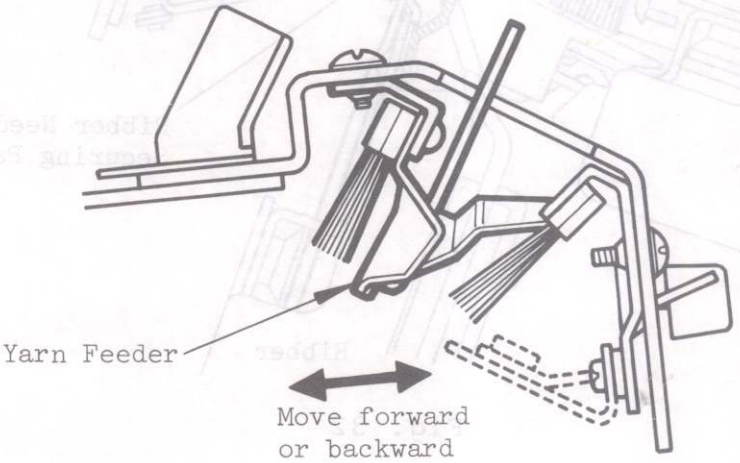


Fig. 34

* Confirmation of Adjustment.
The measurement between the Yarn Feeder and the Ribber needles (0.2 - 0.6 m/m) can be judged by the eye, but if this is difficult, insert the butt of a needle into the space. If the needle butt touches both the Yarn Feeder and Ribber needle, then the adjustment must be done over again.

6. ADJUSTMENT OF THE AUXILIARY YARN FEEDER.

* Adjust both the vertical and horizontal positions of the Auxiliary Yarn Feeder simultaneously.

6-1 Each Measurement of the Auxiliary Yarn Feeder.

a) Vertical Position of the Auxiliary Yarn Feeder.

* The distance between the tip of the needle hook of the Knitter and part "A" in the diagram below, should lie within the range of 0.3 - 1.4 m/m.

b) Horizontal Position of the Auxiliary Yarn Feeder.

* The distance between the forehead of the needle hook of the Knitter and part "A" in the below diagram, should lie within the range of 0.3 - 1 m/m.

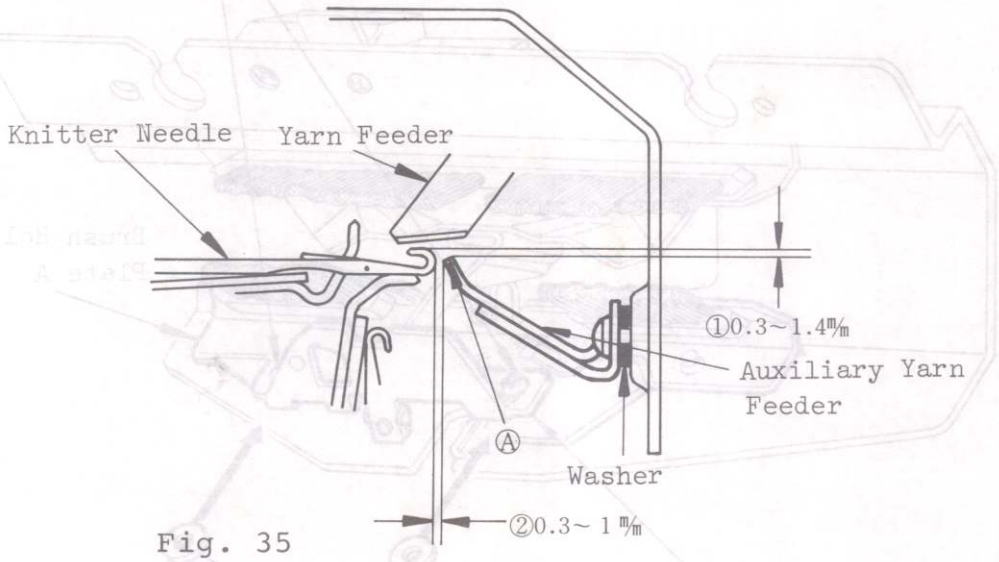


Fig. 35

6-2 How to Adjust the Vertical Position at the Auxiliary Yarn Feeder.

* Adjust the vertical position of the Auxiliary Yarn Feeder by loosening two + Pan Head Screws (3x5) and sliding the Auxiliary Yarn Feeder upward or downward.

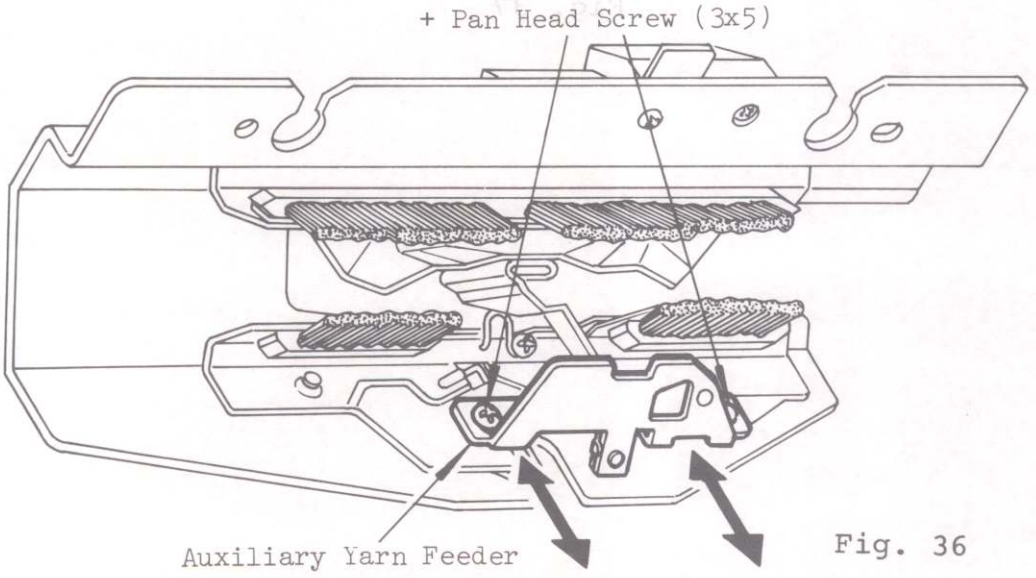


Fig. 36

6-3 How to Adjust the Horizontal Position of the Auxiliary Yarn Feeder.

* Adjust the horizontal position of the Auxiliary Yarn Feeder by inserting washers between it and the Brush Holder A, after loosening two + Pan Head Screws (3x5) which secures the Auxiliary Yarn Feeder to the Arm.

a) Insert washers to narrow the distance.
b) Remove washers to widen the distance.

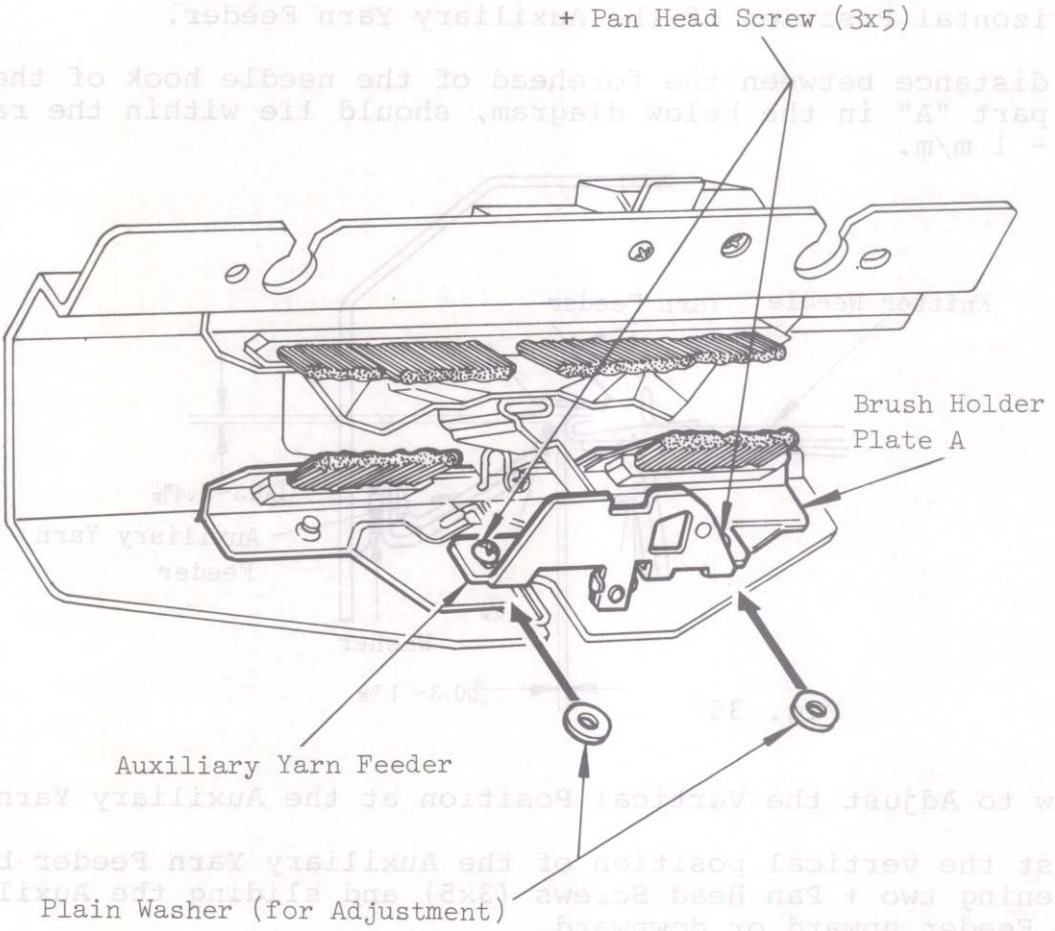


Fig. 37

7. HOW TO ADJUST THE MACHINE WHEN INCORRECT STITCHES ARE FORMED.

7-1 Causes

1. The distance between one of the Main Cams to the inner surface of the Carriage Pipe differs from that of the other.
2. The Ribber Carriage falls behind the Main Carriage, engaging the Knitter needles and Ribber needles with a time lag. The Knitter loops differ in size to the Ribber loops.
3. The needles on both beds do not meet each other.

7-2 Correcting Methods.

* Cause 1.

a) Position both Set Levers to "0" and the Stitch Dial to "1" and insert the Course Standard Gauge into the Carriage between the Carriage Pipe and Main Cams.

b) Loosen the + PW Pan Head Screw (3x6), indicated in Fig. 38 below, and turn the Stitch Dial so that the Main Cams move towards and touch the Course Standard Gauge. Once the Cams touch the Gauge, tighten the + Pan Head Screw (3x6).

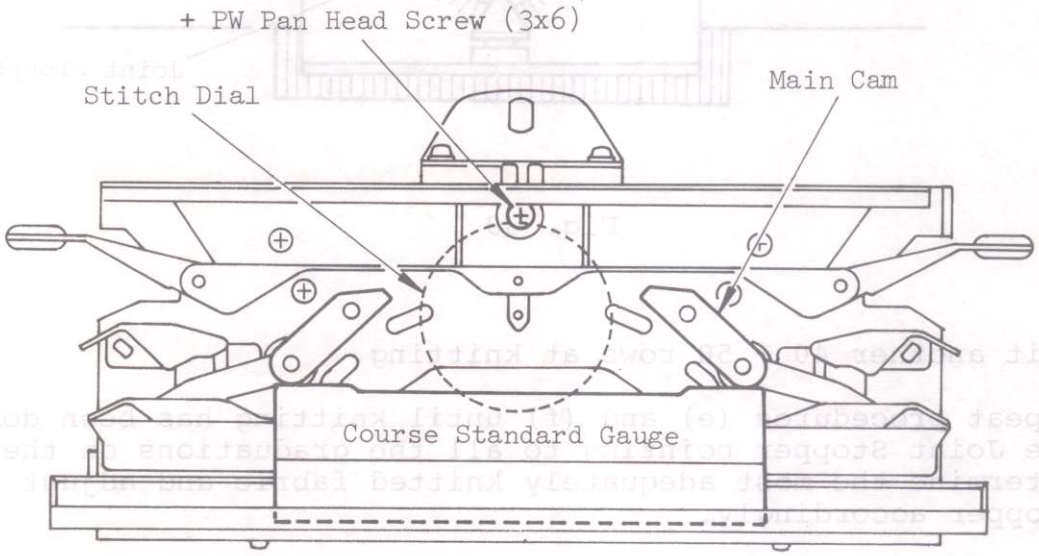


Fig. 38

* Cause 2.

a) Thread a light coloured medium sized yarn into the Yarn Feeder.

b) Set the Stitch Dial on both the Knitter and Ribber Carriages to 3.

c) Push 30 needles on both the Knitter and Ribber to B position and Cast on.

d) Prior to any adjustment, knit 40 - 50 rows, and check at what graduation the Joint Stopper is pointing to (see Fig. 39).

e) Loosen two + SPW Pan Head Screws (3x8) securing the Joint Stopper and using a Common Screw Driver (-), turn the Joint Stopper Shaft one graduation and place a mark on the Scale, after fastening the above two screws.

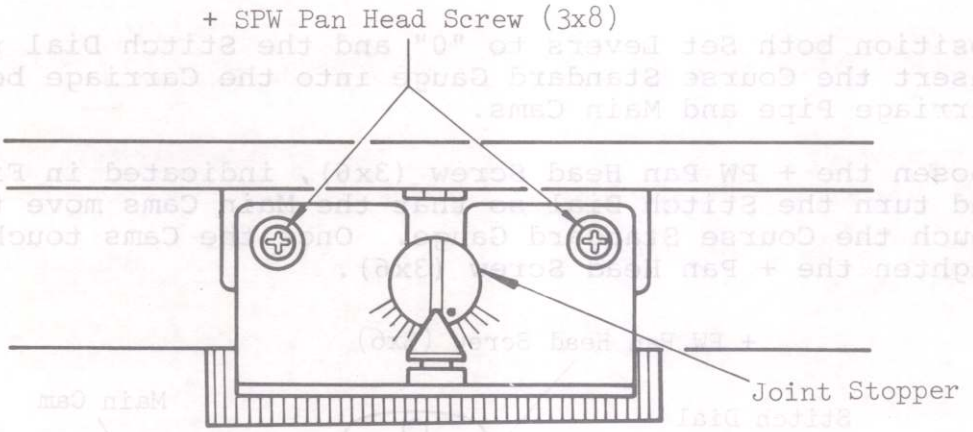


Fig. 39

f) Knit another 40 - 50 rows at knitting.

g) Repeat procedures (e) and (f) until knitting has been done with the Joint Stopper pointing to all the graduations on the Scale. Determine the most adequately knitted fabric and adjust the Joint Stopper accordingly.

List - 2

		Knitter Carriage			Ribber Carriage			Stitch Dial	H. P. Lever	Direction		Position of the Joint Stopper Shft
		Cam Lever	Russel Lever	Side Knob	Set Lever	Pick Knob	Russel Lever					
①	(1)	Stockinet	‖ ‖	∩ ∩	① ①	◢	= =	5	H	→	40 - 50 rows	 Before Adjustment
	(2)	"	"	"	"	"	"	"	"	←		
	(3)	"	"	"	① ⓪	"	"	"	"	→	2 rows	
	(4)	"	"	"	① ①	"	"	"	"	←		
②	(1)	"	"	"	"	"	"	"	"	→	40 - 50 rows	 First Movement
	(2)	"	"	"	"	"	"	"	"	←		
	(3)	"	"	"	① ⓪	"	"	"	"	→	2 rows	
	(4)	"	"	"	① ①	"	"	"	"	←		
③	(1)	"	"	"	"	"	"	"	"	→	40 - 50 rows	 Second Movement
	(2)	"	"	"	"	"	"	"	"	←		
	(3)	"	"	"	① ⓪	"	"	"	"	→	2 rows	
	(4)	"	"	"	① ①	"	"	"	"	←		
④	(1)	"	"	"	"	"	"	"	"	→	40 - 50 rows	 Third Movement
	(2)	"	"	"	"	"	"	"	"	←		
	(3)	"	"	"	① ⓪	"	"	"	"	→	2 rows	
	(4)	"	"	"	① ①	"	"	"	"	←		
⑤	(1)	"	"	"	"	"	"	"	"	→	40 - 50 rows	 Fourth Movement
	(2)	"	"	"	"	"	"	"	"	←		
	(3)	"	"	"	① ⓪	"	"	"	"	→	2 rows	
	(4)	"	"	"	① ①	"	"	"	"	←		

* Cause 3

Refer to page 19 (4-3 Needle Alignment) and adjust accordingly.

8. HOW TO USE PUNCH CARDS WHEN KNITTING WITH THE RIBBING ATTACHMENT.

1. Check the horizontal space.
   If the Ribber is attached to the Knitter at a greater distance than the standard measurement, the relative measurements come out incorrect and the Yarn Feeder will strike the Ribber needles.

2. Check the vertical space between the Knitter and the Ribber.

3. Check the powition of the Yarn Feeder.

4. If there is warpage on the Needle Bed, the Yarn Feeder on the Ribber Arm will hit the Ribber needles and damage them on the middle of the Needle Bed. If the adjustment is carried out on a Needle Bed with warpage, the relative measurements of respective parts will be incorrect, which requires readjustment.

5. It is recommended that when knitting with a Punch Card, the Close Knit Bar be positioned between the edge of the Needle Bed and the Sinker Posts, so that the stitches pass over the needle hooks easily.

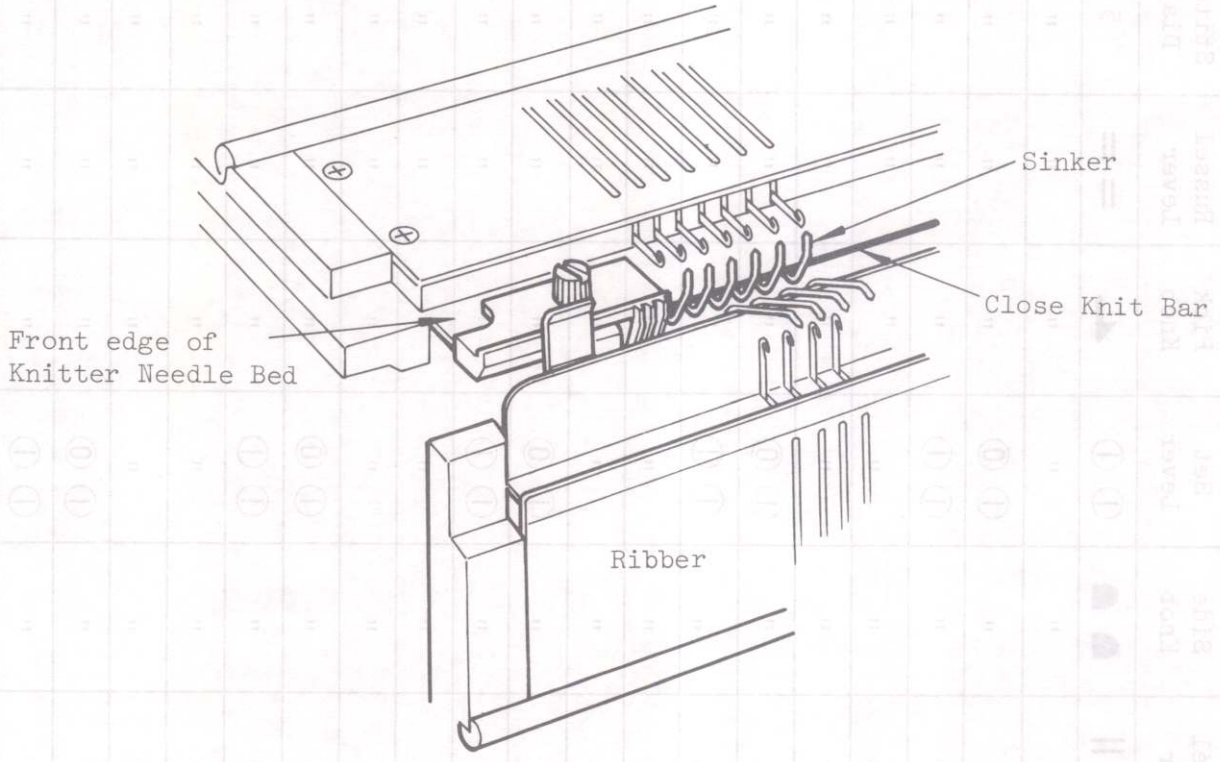


Fig. 40