

The background of the entire image is a close-up, textured view of a blue knitted fabric, likely made of wool or a similar material. The knit pattern is a standard rib or stockinette stitch, showing the characteristic V-shapes of the stitches. The color is a consistent, vibrant blue.

**TOYOTA**  
knitting machines

**KR310**



**Congratulations on your purchase of this Bulky Ribber, KR310**

By adding this Bulky Ribber to the Bulky Knitter, Mod. 610, your machine is converted into double-bed knitter, and performs wide variety of rib stitches in addition to the stitch types on the knitter.

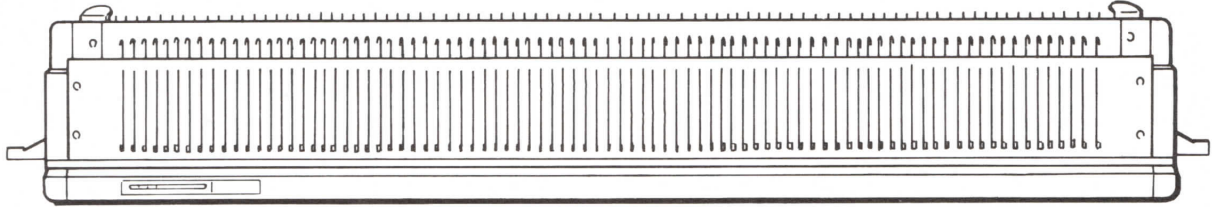
Read this instruction book carefully, and enjoy knitting of various rib stitches.

# CONTENTS

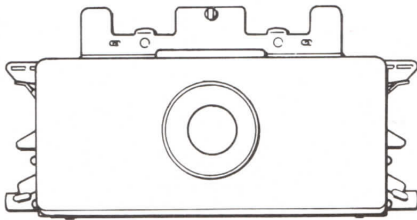
	Page
MACHINE AND ACCESSORIES .....	1
SET UP MACHINE.....	2
RIBBER NEEDLE BED .....	6
RIBBER CARRIAGE .....	8
YARN AND STITCH DIALS.....	9
OPERATION TABLE .....	10
CAST-ON AND KNITTING ON EVERY OTHER NEEDLE .....	12
REMOVE FABRIC FROM MACHINE.....	20
CAST-ON FOR TIGHTER EDGE .....	21
VARIOUS RIB STITCHES .....	
1×1 RIB.....	22
CLOSE RIB.....	22
2×2 RIB.....	23
WIDE RIB.....	24
TUBULAR KNITTING.....	25
PIN TUCK.....	25
ENGLISH RIB.....	26
SWUNG ENGLISH RIB .....	27
VARIATION SWING (1) .....	28
VARIATION SWING (2) .....	29
HERRINGBONE SWING .....	30
TUCK RIB (1).....	31
TUCK RIB (2).....	32
RAHBEN.....	33
SLIP RIB.....	34
DRIVE RIB.....	35
Crossing and transferring stitches .....	36
TAKING A TENSION GAUGE .....	38
KNITTING TECHNIQUES .....	
Increase .....	40
Decrease.....	41
Partial knitting.....	43
Waste knitting .....	46
Buttonhole.....	47
WHAT TO DO IF...	
If Carriage has jammed .....	48
If a needle has been damaged .....	49
If you have a mistake in knitting .....	49
If a stitch has dropped .....	50
If stitches float .....	50
MAINTENANCE .....	51
REPACK RIBBER.....	52

# MACHINE AND ACCESSORIES

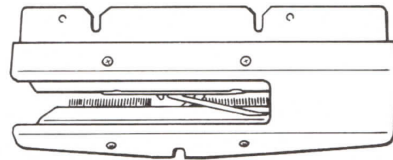
## RIBBER NEEDLE BED



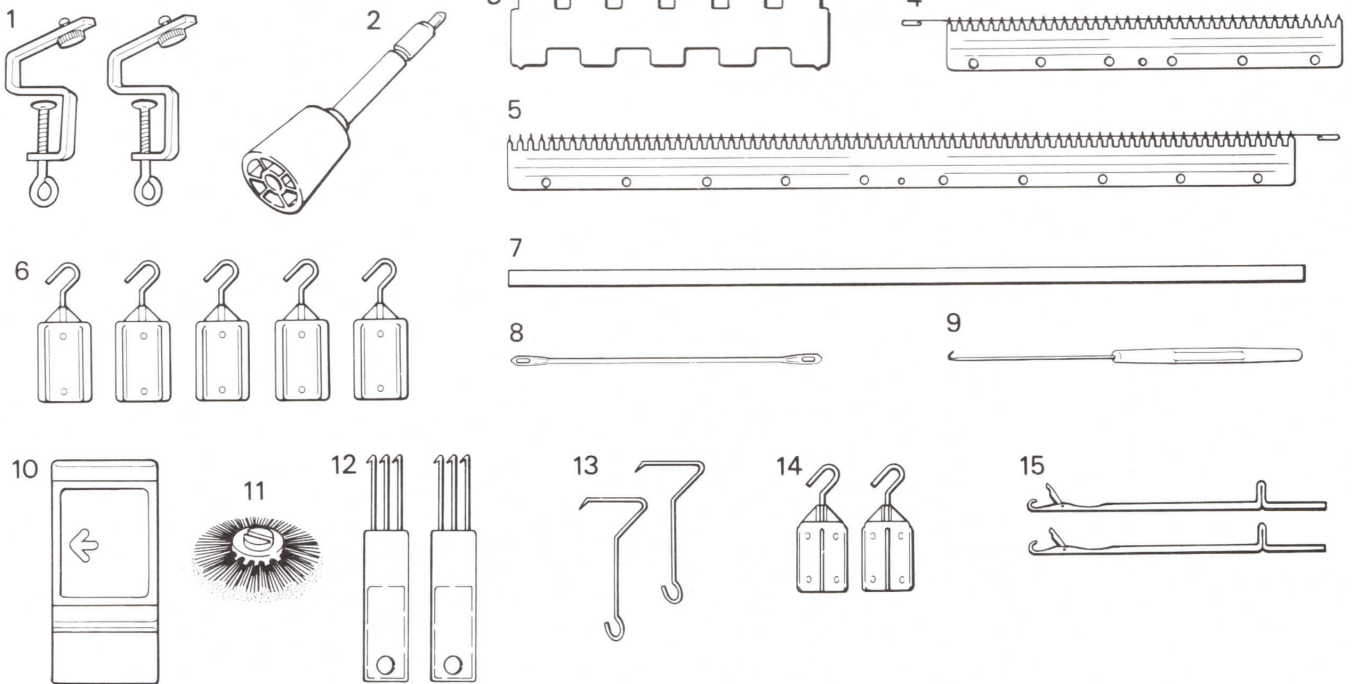
### CARRIAGE



### ARM

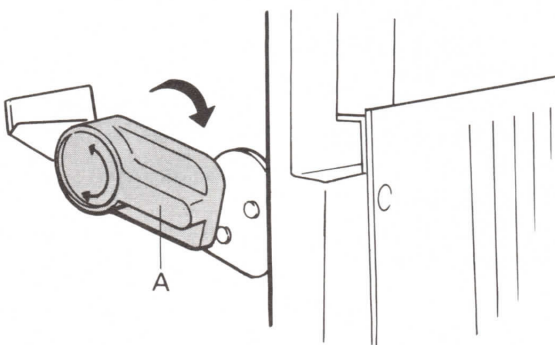
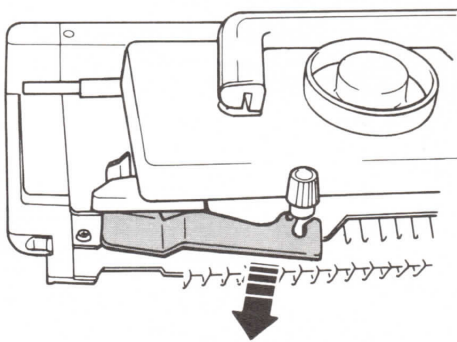
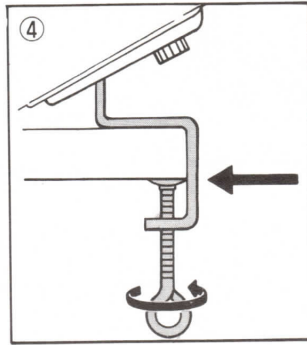
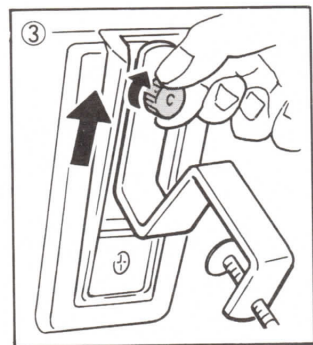
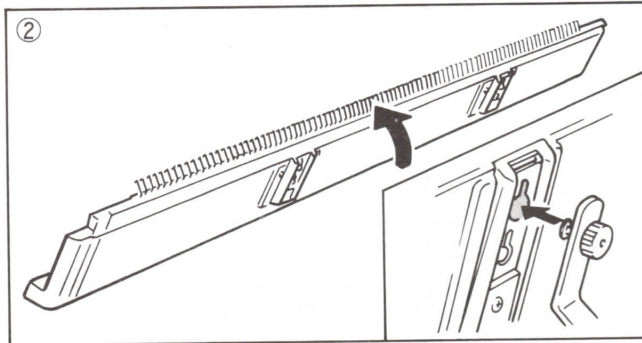
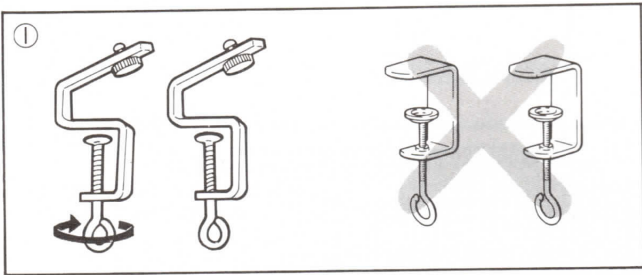


## ACCESSORIES



- |                              |                             |
|------------------------------|-----------------------------|
| 1. Ribber Clamp (2)          | 8. Double-eye Transfer Tool |
| 2. Swing Handle              | 9. Hook Tool                |
| 3. Needle Pusher             | 10. Needle Aligner          |
| 4. Cast-on Comb (short)      | 11. Ribber Tuck Brush       |
| Cast-on Wire (short)         | 12. Hanger Comb (2)         |
| 5. Cast-on Comb (long)       | 13. Side Hanger (2)         |
| Cast-on Wire (long)          | 14. Edge Weight (2)         |
| 6. Ribber Weight (large) (5) | 15. Spare Needle (2)        |
| 7. Close Knit Bar            |                             |

# SET UP MACHINE



## Set up Knitter

1. Fasten the Knitter to a table, using Ribber Clamps instead of Knitter Clamps.

① Take Ribber Clamps and turn screws in arrow direction as far down as they go.

② Raise front of Knitter and insert screw head into keyhole slot.

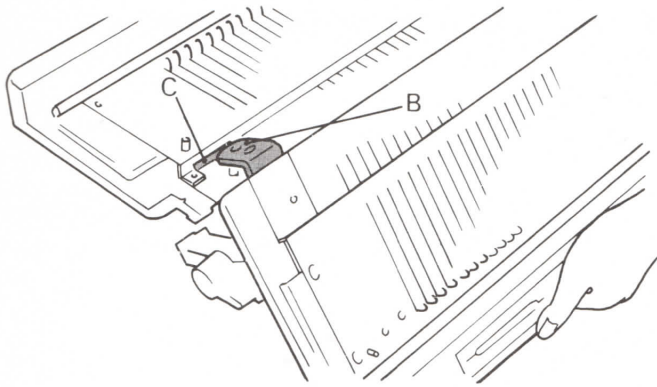
③ Pull clamps upwards and fasten screws.

④ Place clamps on table edge and push them backwards until they are flush with table.  
Tighten clamps firmly by turning screws in arrow direction.

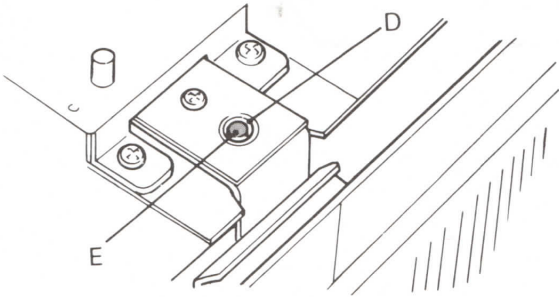
2. Remove Carriage Fastener.

## Attach Ribber Needle Bed to Knitter.

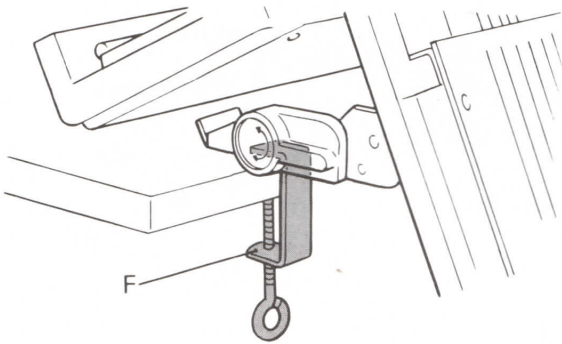
1. Bring down both Push-up Cams "A" forward.



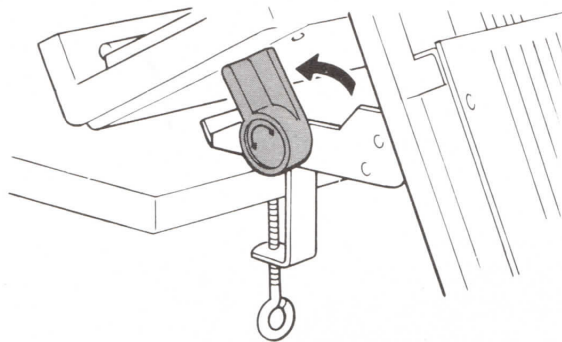
2. Hold the Ribber with both hands and insert the Ribber Joiners "B" at both ends of the Ribber into Ribber Joiner Sockets "C" at both ends of the Knitter.



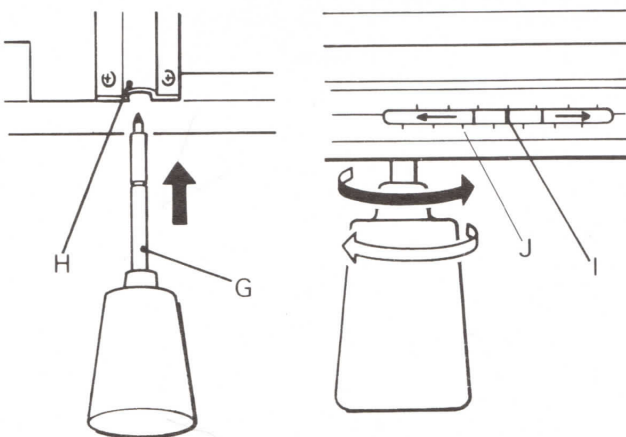
Fit the locational hole "D" on the Joiner to the locational pin "E" at each end of the knitter.



3. With Knitter Clamps "F", secure foot of Push-up Cams on table.



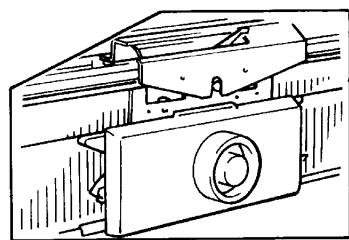
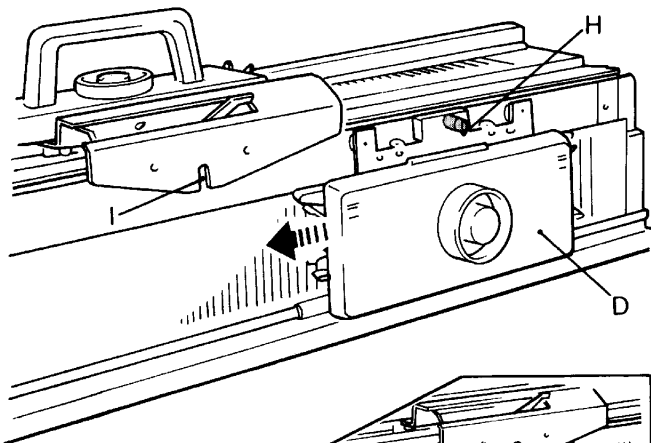
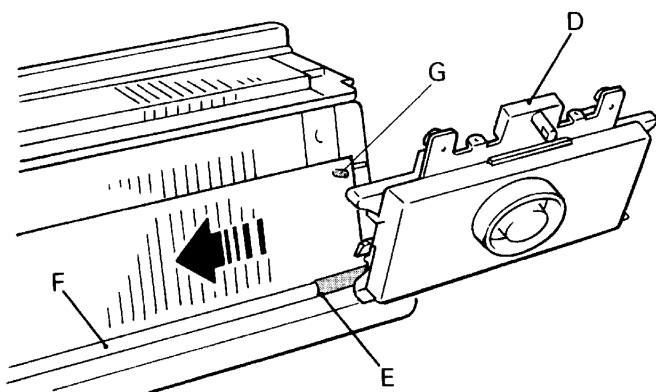
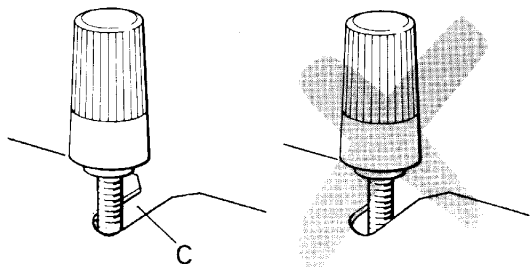
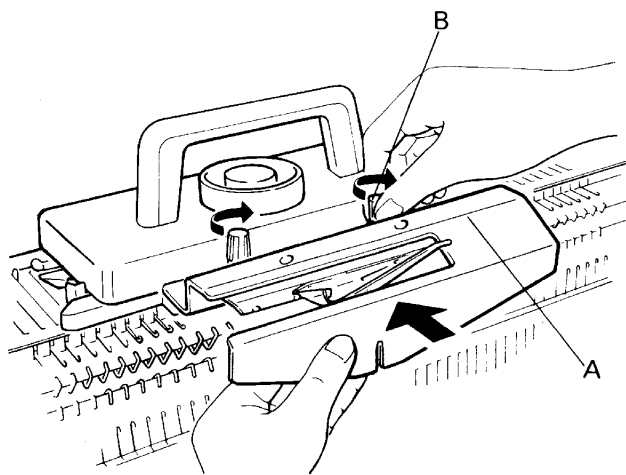
4. Raise both Push-up Cams in arrow direction.



5. On back of left side of Ribber, insert Swing Handle shaft "G" from underneath into Swing Bearing "H".

Push Handle in a twisting manner until you hear a click with a slight jerk.

Ensure that Pointer "I" on Swing Indicator "J" moves when the Swing Handle is rotated in the right or left direction.



### Coupling Ribber Carriage and Knitter Carriage.

1. Loosen both Arm Nuts of Knitter Carriage.  
Take Ribber Arm "A" and slide it under two Arm Nuts "B".  
Push Ribber Arm as far back as it goes and tighten Arm Nuts firmly by turning them in arrow direction.

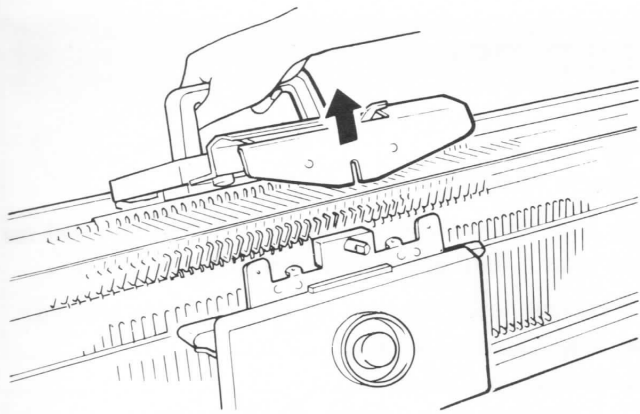
#### *Important*

*Ensure that Arm Nuts fit correctly into cutout "C" of Ribber Arm.*

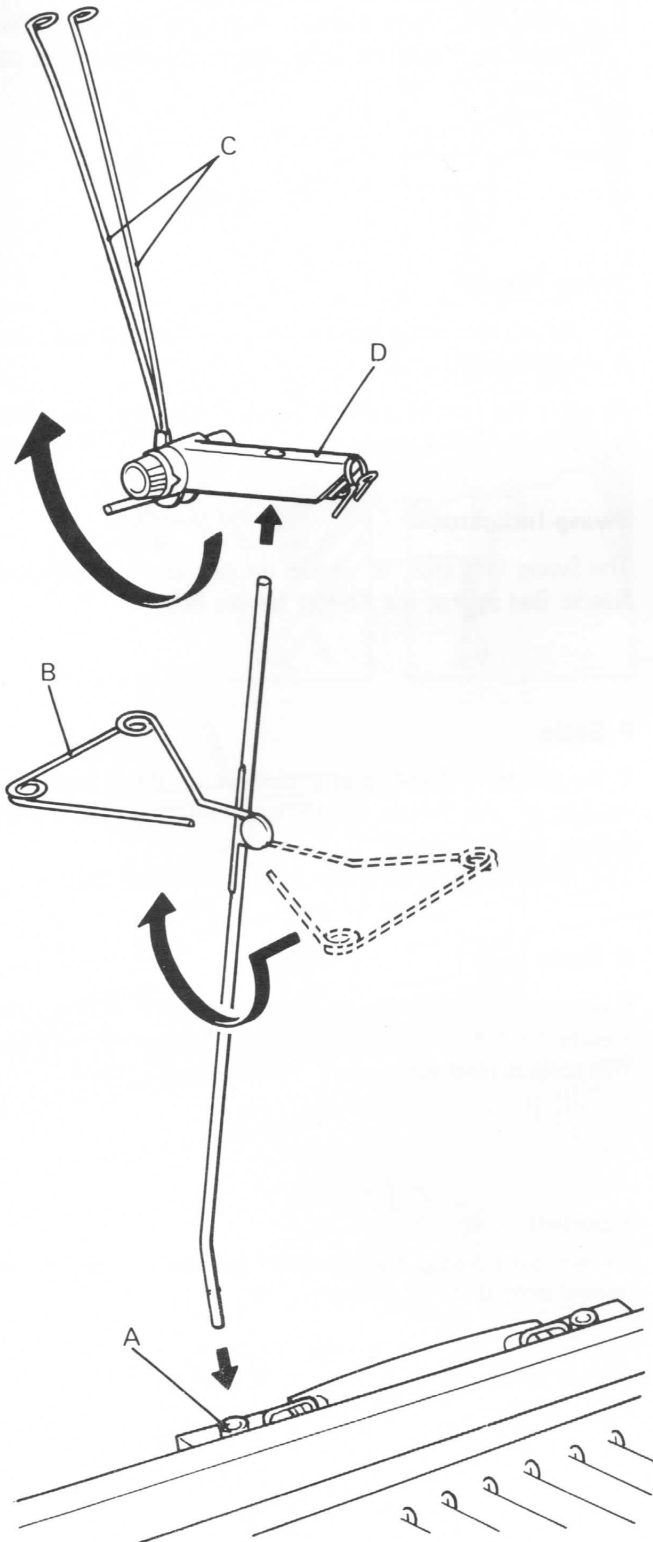
2. Take Ribber Carriage "D", and Pipe "E" to the Ribber Rail "F" from the right side.  
Tilt the Ribber Carriage towards you to clear the Stopper Pin "G".

3. Slowly move the Ribber Carriage toward the Knitter Carriage till the link pin "H" on the Ribber Carriage fits into the slot of the Arm "I".  
The link pin on the Ribber Carriage lifts up the Ribber Arm along its edge and fits into position at the slot.





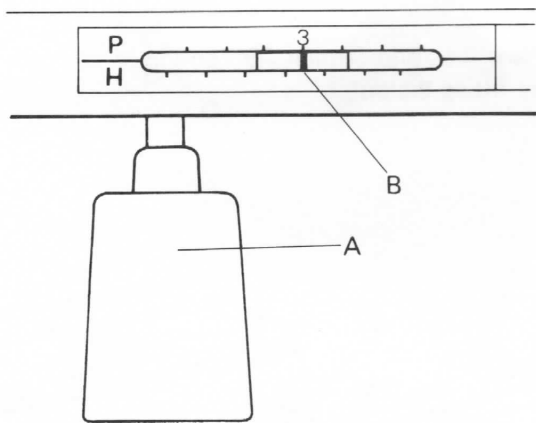
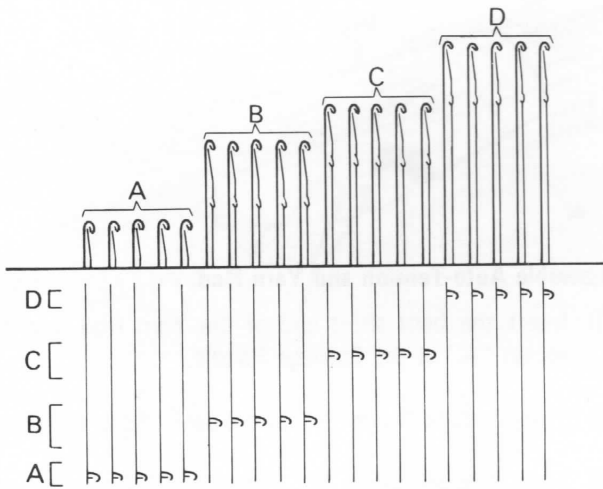
To disconnect Ribber Carriage from Arm, lift up Handle of Knitter Carriage and move the Carriage to the left or the right.



#### Assemble Auto-Tension and Yarn Rod.

- ① Insert the bent short end of the Yarn Rod into the socket "A" at the Carriage Handle.
- ② Turn Tension Guide "B" to the back of the Yarn Rod.
- ③ Turn Tension Spring "C" upwards till they click into position.
- ④ Place the Auto-Tension "D" on top of the Yarn Rod by fitting the slot.

# RIBBER NEEDLE BED



## Needle Positions

On both left and right sides of Needle Bed, you will see markings A, B, C and D associated with brackets "J".

These four needle positions are selected during knitting.

- A – Non-working position
- B – Working position
- C – Needles in this position always operate.
- D – Holding position (Needles in this position are knitted back to B position when Russel Levers are at = position.)

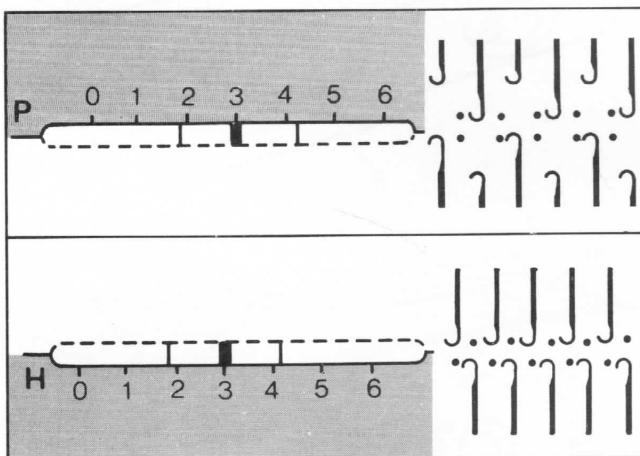
## Swing Handle

By rotating the Swing Handle "A", the Ribber Needle Bed is moved to right or left.

At every click position of the Swing Handle the Ribber Bed is moved by half a needle pitch.

## Swing Indicator

The Swing Indicator "B" shows the position of the Ribber Needle Bed against the Knitter Needle Bed.



## P Scale

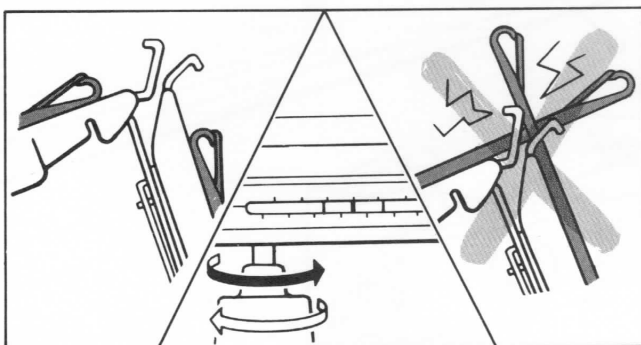
If the pointer is pointing at a number on the P Scale, the needles on the Ribber are in face to face position with Knitter needles.

This scale is used when every other needles are used.

## H Scale

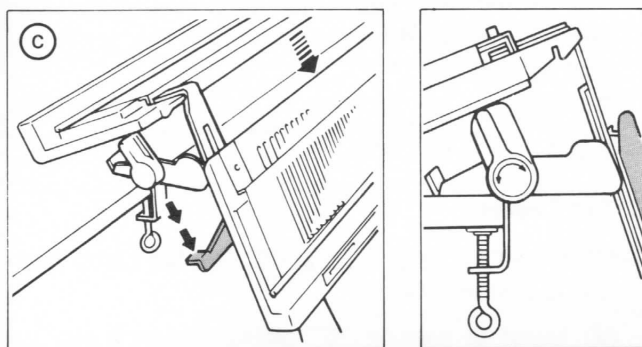
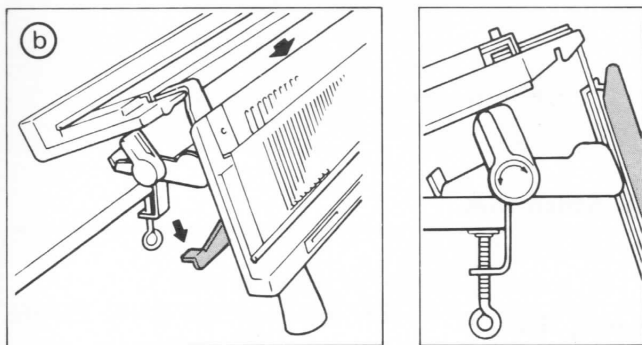
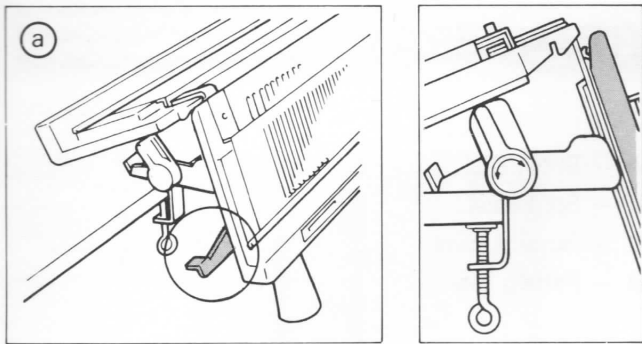
If the pointer is pointing at a number on the H Scale, the needles on the Ribber are shifted by half a needle pitch.

This scale is used when every needle is used.



## Important

*Do not turn Swing Handle when needles on Ribber are crossed with those of Knitter.*

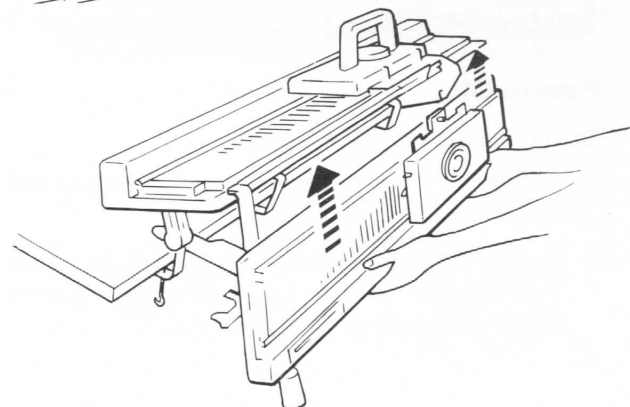
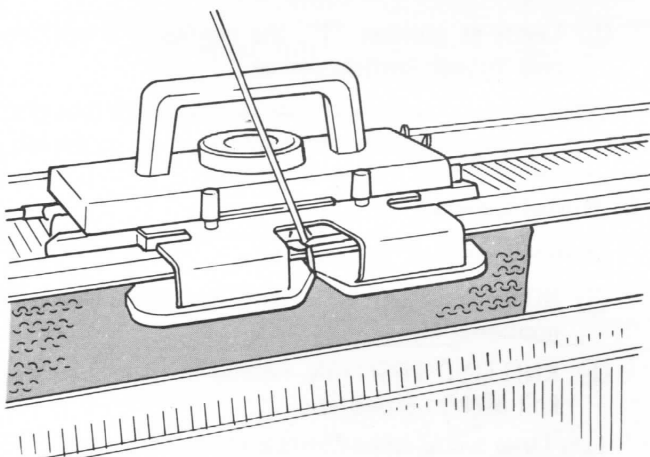


### Drop Levers

On both left and right sides of Needle Bed you will find Drop Levers. Using these levers you can change position of Needle Bed.

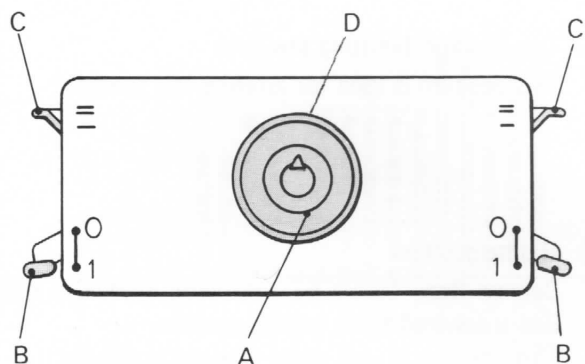
- (a) Top position (knitting position)  
This position is used for knitting Rib stitches.
  
- (b) Middle position  
Depress Drop Levers on both sides once, and Ribber Bed is lowered to its middle position.  
This position is used when picking up stitches.
  
- (c) Lowest position  
Depress Drop Levers twice, and Ribber Bed is lowered to its lowest position.  
This position is used when knitting only on Knitter.

When you knit only on Knitter, lower the Ribber to this position and install Knitter Arm instead of Ribber Arm and start knitting.

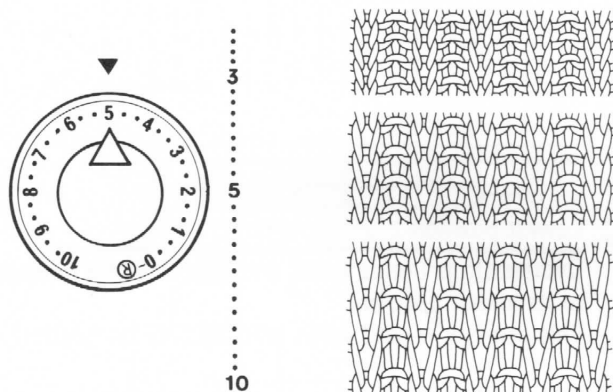


To restore Ribber Bed to its top position, lift up both ends of the Bed with your hands.

# RIBBER CARRIAGE



- A – Stitch Dial
- B – Set Levers
- C – Russel Levers
- D – Pattern Dial



## A. Stitch Dial

Controls stitch size.

Set a selected number or dot to ▼ mark.

The larger the number the larger the stitch, and the smaller the number the smaller the stitch.

The position ① produces the stitch size smaller than those knitted in the Stitch Dial at 0. This position is used for cast-on.

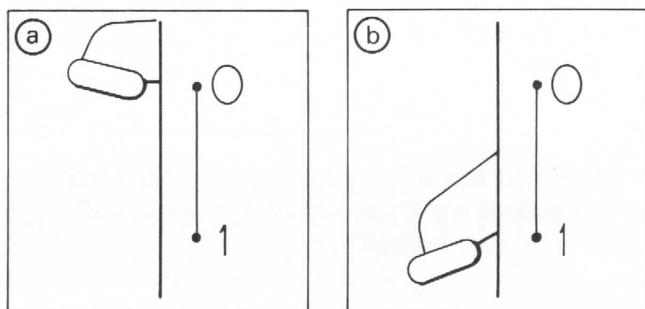
According to the thickness of yarn to be used, select proper setting of Stitch Dial. (Refer to page 9)

## B. Set Levers

When the Cam Lever is set at "0", the Set Levers function as described below:

- (a) Levers at position "0", the needles in B position pass through non-knitting course.
- (b) Levers at position "1", the needles in B position pass through knitting course.

Left Lever works when the Carriage moves to the right.  
Right Lever works when the Carriage moves to the left.

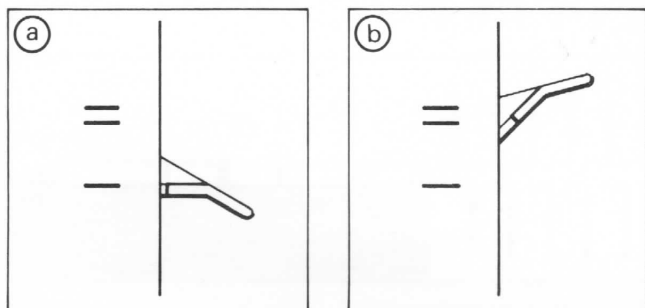


## C. Russel Levers

Control needles in "D" position.

- (a) NON KNITTING POSITION, needles remain in D position.
- (b) KNITTING POSITION, needles in D position will knit back to B position.

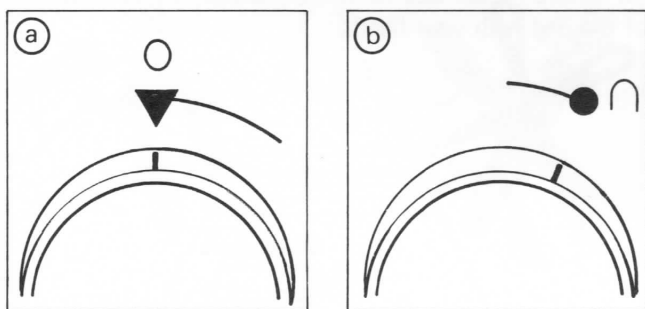
Left Lever works when Carriage moves to the left.  
Right Lever works when Carriage moves to the right.



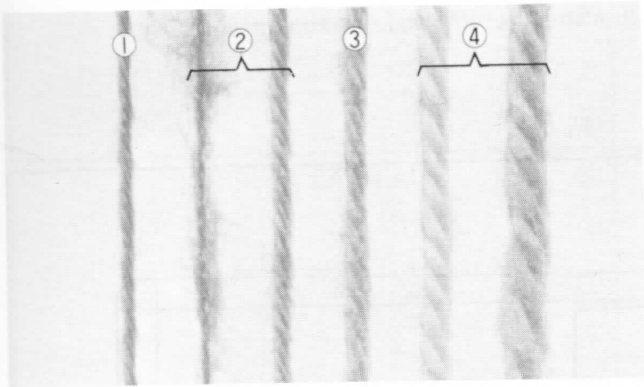
## D. Pattern Dial

Pattern Dial is given two positions.

- (a) Position "0", this position is selected for the normal rib knitting.
- (b) Position "∩", this position functions when the Set Lever is set at "0", and is selected for tuck stitches on the ribber side as for English Rib.



# YARN AND STITCH DIALS

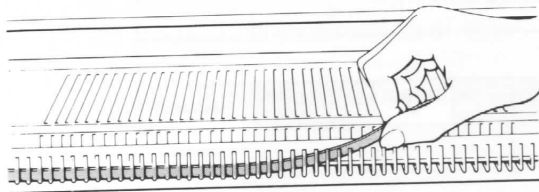


An appropriate Stitch Dial number must be selected to thickness of yarn and type of knitting.

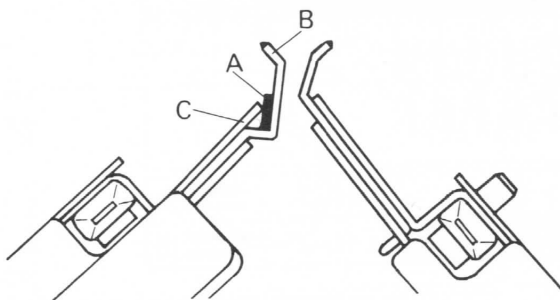
For your reference, recommended numbers are instructed below.

Photograph shows actual size of yarns.

TYPE OF YARN		① medium thick	② very thick	③ extra thick	④ super extra thick	
CAST-ON	every other needle selection	initial row	Ⓡ	Ⓡ	Ⓡ	
		subsequent rows	Ⓡ	Ⓡ	0	1
	every needle selection	initial row	Ⓡ	Ⓡ	-	-
		subsequent rows	Ⓡ	Ⓡ	-	-
MAIN KNITTING	1×1 RIB		Ⓡ - 1	0 - 2	2 - 4	7 - 8
	DOUBLE RIB		Ⓡ - 2	2 - 4	-	-
	2×2 RIB		0 - 1	2 - 3	3 - 4	8 - 9
	WIDE RIB	Knitter	Ⓡ - 1	3 - 5	5 - 6	8 - 9
		Ribber	0 - 2	4 - 6	6 - 7	9 - 10
	TUBULAR KNITTING	Knitter	Ⓡ - 1	3 - 4	5 - 6	8 - 9
Ribber		1 - 3	5 - 6	7 - 8	9 - 10	



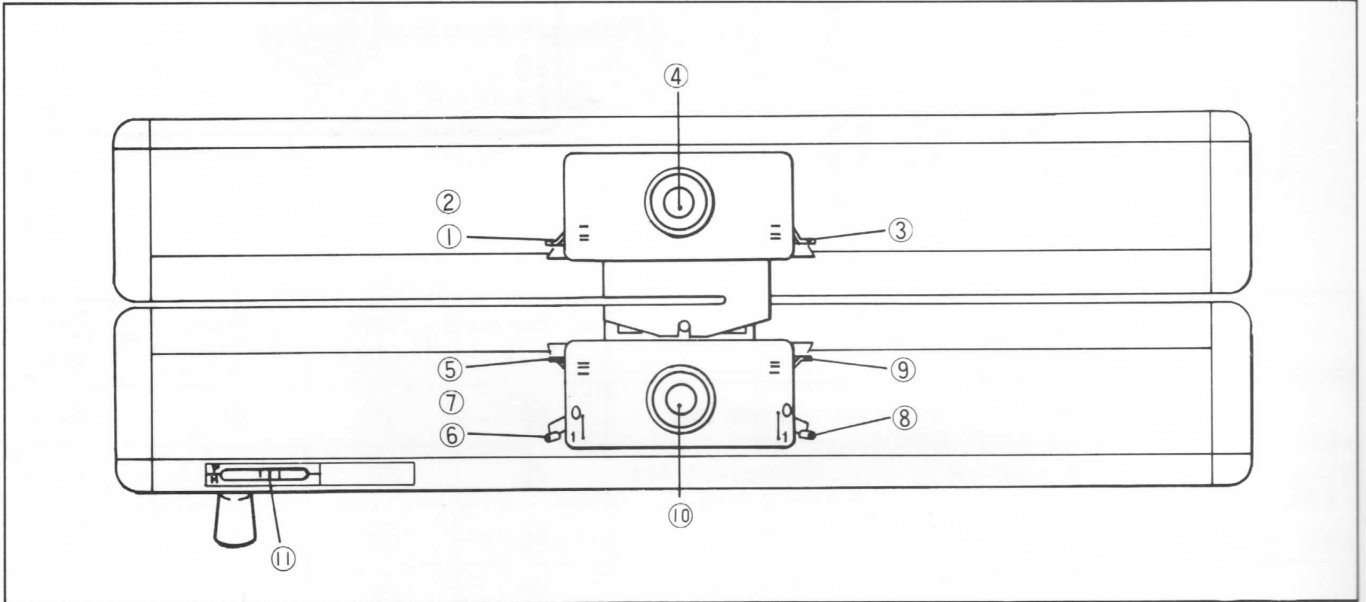
When knitting with medium thick yarn, use Close Knit Bar.



Before arranging needles, place Close Knit Bar "A" between Sinker Posts "B" and front edge "C" of Knitter Needle Bed.

# OPERATION TABLE

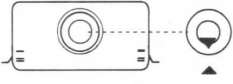
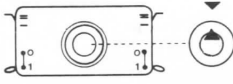
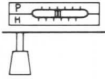
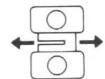
For cast-on and main knitting, Operation Table as shown is given to instruct settings and operation of machine.

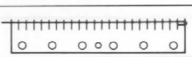



Relate the every operating parts of the machine, numbered as above, with the each column of the operation table below for their setting at each step of knitting.

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
<b>①</b>	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3	
2												→	
3													
4				0		0				0			←
5		S											→
6		0											←
7													
<b>②</b>	1	=	0	=	1	=	1	0	1	=	1	H-3	↔)2
2												H-2	↔)2

## How to read Operation Table

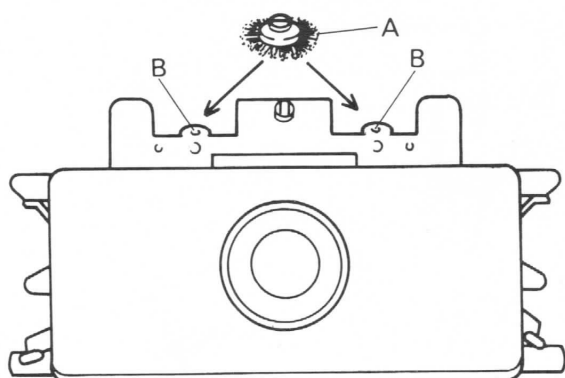
	①	Russel Lever (left)	* Set the Stitch Dials referring to table on page 9.
	②	Pattern Dial	
	③	Russel Lever (right)	
	④	Stitch Dial	
	⑤	Russel Lever (left)	
	⑥	Set Lever (left)	
	⑦	Pattern Dial	
	⑧	Set Lever (right)	
	⑨	Russel Lever (right)	
	⑩	Stitch Dial	
	⑪	Set the Point at the instructed number on either "H" or "P" scale. By rotating the Swing Handle.	
	⑫	Arrow mark indicates knitting direction of Carriage and number shows the number of rows required to be knitted.	

CAST-ON	①	1	Set machine controls for the initial row.
		2	Arrange needles, and knit the initial row.
		3	Suspend Cast-on Comb with weights.  
		4-6	Change machine controls for knitting subsequent 3 rows.
CHANGES FOR MAIN KNITTING		7	Rearrange needles for main knitting by transferring stitches. (Not necessary if needle arrangement for main knitting is the same for cast-on.)
MAIN KNITTING	②		Re-set machine controls for working main knitting. Follow the sequence 1, 2.....and repeat the same.

### Ribber Tuck Brush

If a very thick yarn is used for English Rib, the stitches may tend to become loose on needles. In this case the Ribber Tuck Brush will be of help.

When  mark is shown above Operation Table, Attach the brush as instructed below.



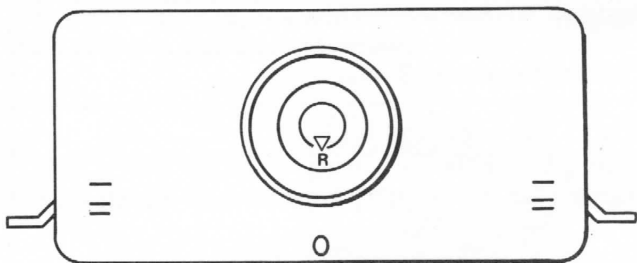
Disconnect the Ribber Carriage from the Arm. At both sides of the Ribber Arm, setting position is provided for the Ribber Tuck Brush. Attach the Ribber Tuck Brush at the side with the Set Lever set at "0".

Fix the screw of the brush "A" to screw hole "B", and fasten it using a coin.

# CAST-ON AND KNITTING ON EVERY OTHER NEEDLE

For practice, using extra thick yarn work cast-on and knit for 1x1 RIB following Operation Table below.

<b>1</b>	1 = 0 = $\textcircled{R}$ = 1 0 1 = $\textcircled{R}$	P-3			
2				→	
3					
4		0	0	0	←
5	S				→
6	0				←
<b>2</b>	= 0 = 3 = 1 0 1 = 3	P-3		↔	

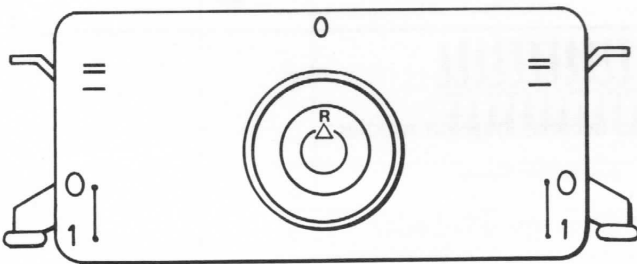


## CAST-ON

**1** – 1 Set machine controls for the initial row.

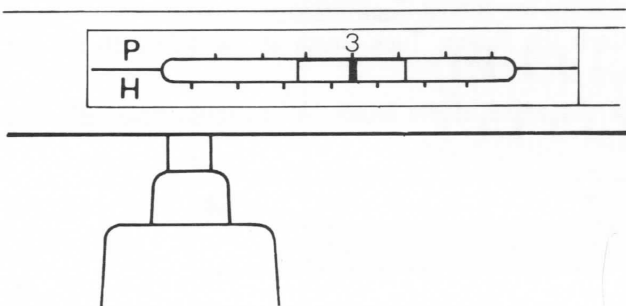
### KNITTER CARRIAGE

Russel Levers (left & right).....=  
 Pattern Dial.....0  
 Stitch Dial..... $\textcircled{R}$



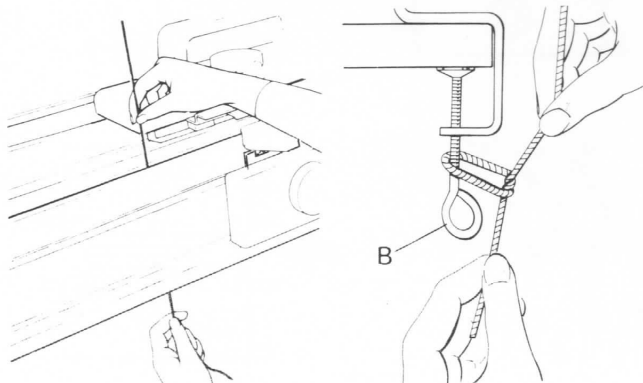
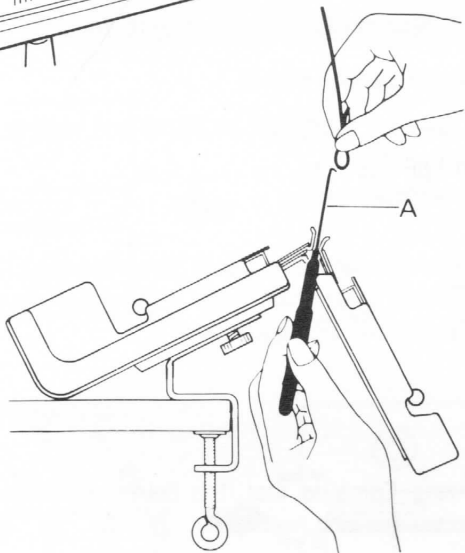
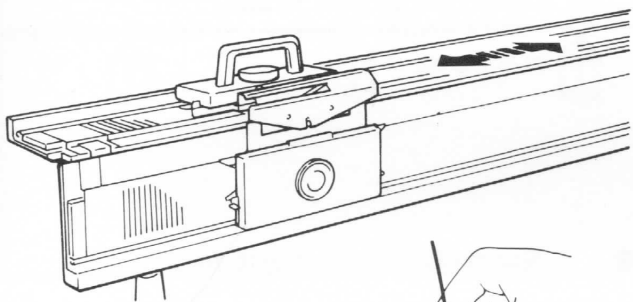
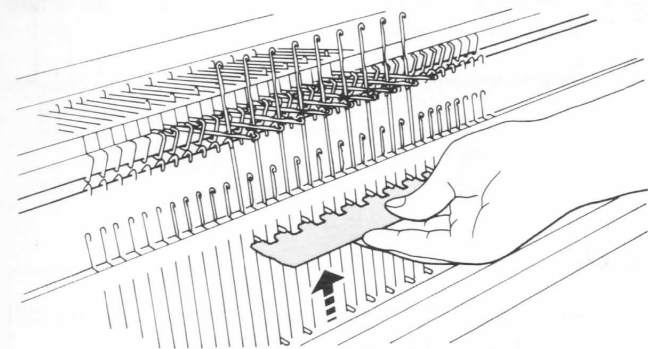
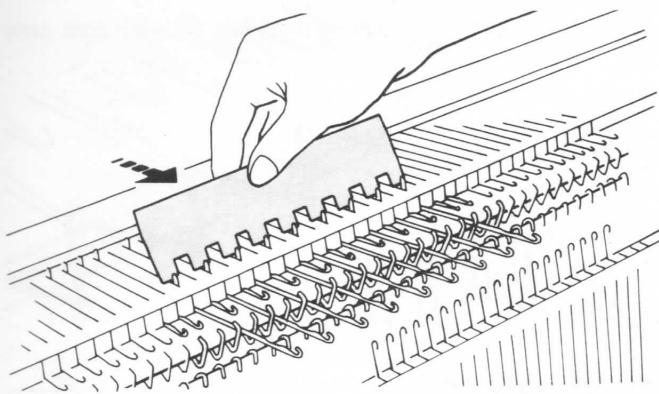
### RIBBER CARRIAGE

Russel Levers (left & right).....=  
 Set Levers (left & right).....1  
 Pattern Dial.....0  
 Stitch Dial..... $\textcircled{R}$



Swing Indicator.....P-3





① – 2 Arrange needles for knitting the initial row.

1. Arrange needles of both beds for cast-on.

(1) Using 1/1 Needle Pusher, bring 10 needles to D position on both sides of centre(0) of Knitter Needle Bed.

(2) Bring the needles of Ribber to D position while keeping them alternated with the needles of Knitter.

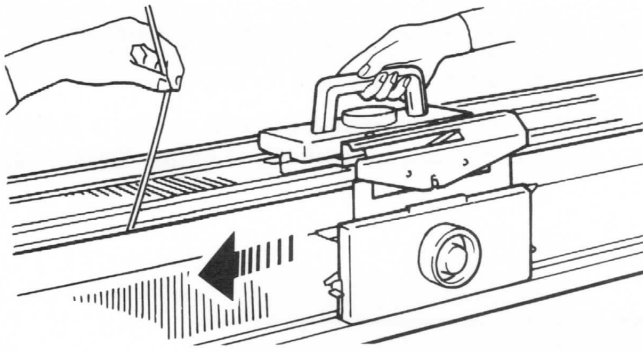
(3) Move Carriage 1 – 2 times carefully across needles in D position and leave it at right side.  
(Needles in D position will be aligned in B position on both beds.)

2. Thread yarn into Yarn Feeder.

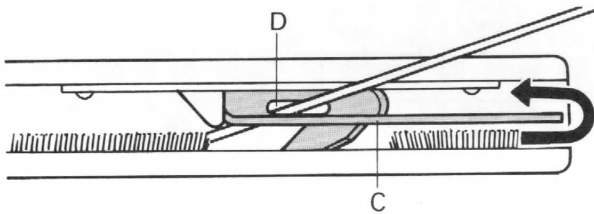
(1) After threading yarn through Auto-Tension, make a loop at the end of yarn and hold it at the left side of both beds.

(2) Insert Hook Tool "A" from underneath, catch yarn end, and pull it down.

(3) Hold yarn end and tie it around Clamp Screw Grip "B".

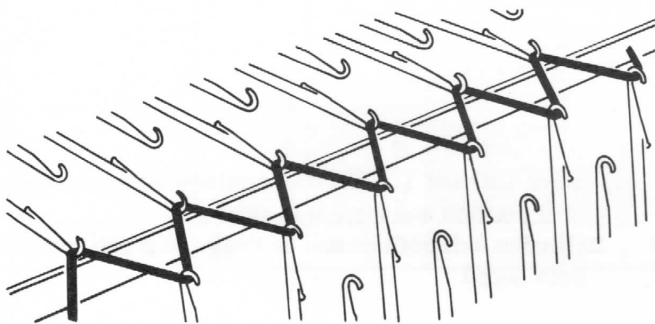


(4) Move Carriage from right to left till yarn goes onto Yarn Feeder.



(5) Guide yarn along Yarn Guide "C" to thread it into Main Yarn Feeder "D".

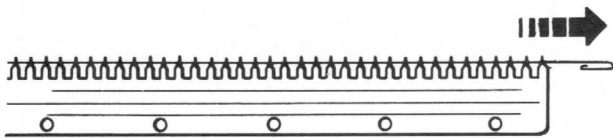
Move Carriage to left end of Needle Bed.



3. Knit the initial row.

Take up slack of yarn and move Carriage from the left to the right.

Yarn will be hooked alternately on Knitter and Ribber needles in zigzag.

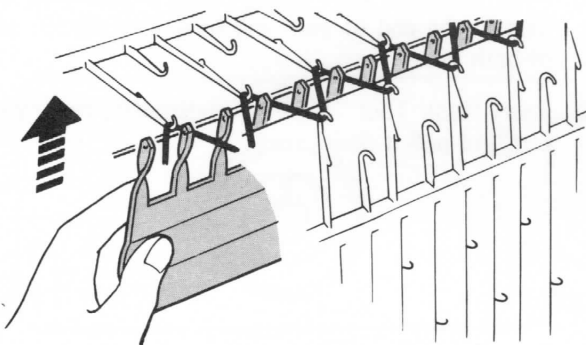


① - 3 Suspend Cast-on Comb with Weights.

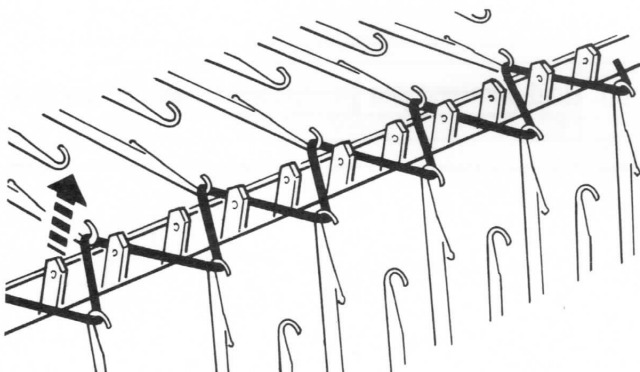
1. Suspend Cast-on Comb.

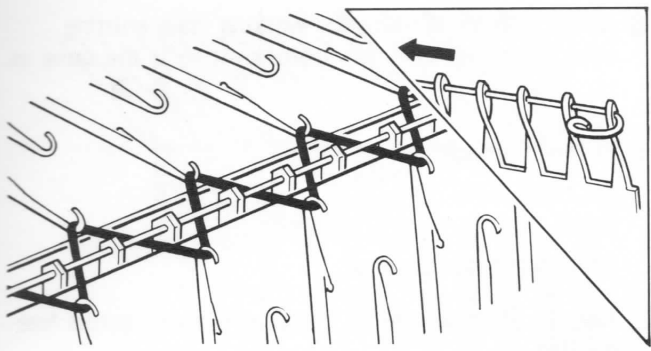
(1) Take out short Cast-on Comb and remove wire from its teeth.

(2) From underneath, insert Comb between Knitter and Ribber Bed, then push it carefully upwards until teeth clear zigzagged yarn.

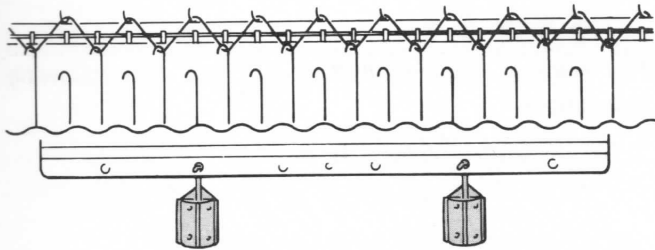


Hang Comb so that it is balanced horizontally between working needles.



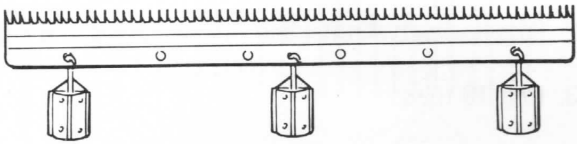


(3) Insert Wire through holes of Cast-on Comb teeth.



2. Hook Weights.

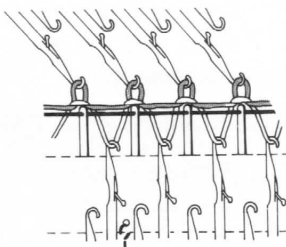
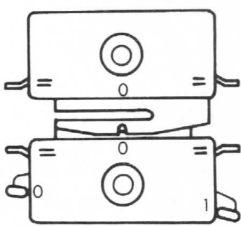
Use two Ribber Weights (large) and hook them onto left and right sides of Cast-on Comb.



for your reference use up to

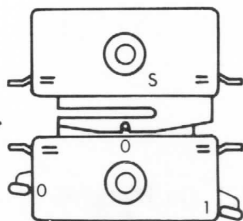
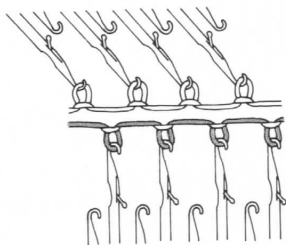
- 40 needles 2 Weights
- 60 needles 3 Weights
- 80 needles 4 Weights
- 110 needles 5 Weights

Hook Weights at even intervals.

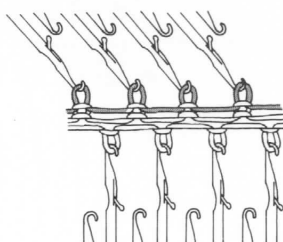
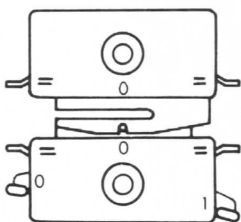


① - 4-6 Change machine controls for knitting subsequent 3 rows.

- 4 Set left Set Lever to "0" and both Stitch Dials to 0, then move Carriage from the right to the left. (Knitter needles will knit the first row of the subsequent rows.)



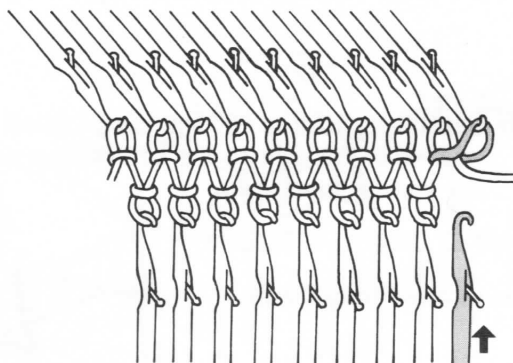
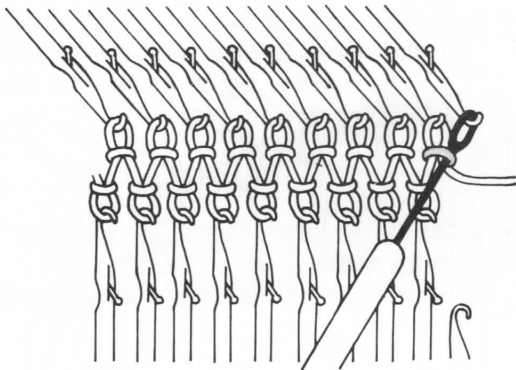
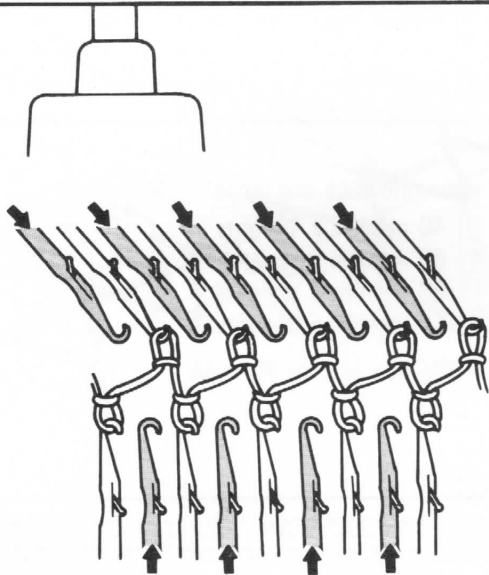
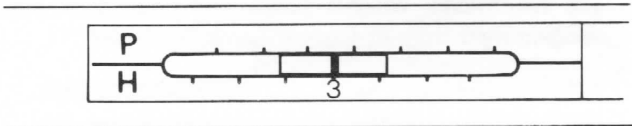
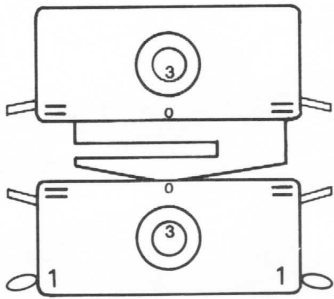
- 5 Set Knitter Pattern Dial to "S" and return Carriage to the right. (Ribber needles will knit the second row.)



- 6 Re-set Pattern Dial to "0" and move Carriage once more from the right to the left. (Knitter needles will knit the third row.)

CAST-ON IS COMPLETED.

Remove yarn end from Clamp.



② Re-set machine controls for working main knitting.  
(Needle arrangement for main knitting is the same as for cast-on.)

1. Change Carriage settings.  
Set Lever (left) ..... 1  
Stitch Dials (Knitter & Ribber) ..... 3  
Other settings unchanged.

2. Knit 15 rows by moving Carriage smoothly across Needle Bed.

For practice, continue to knit DOUBLE RIB following instructions.

1. Set the Swing Indicator to H-3.

2. Push up empty Knitter and Ribber needles to B position.

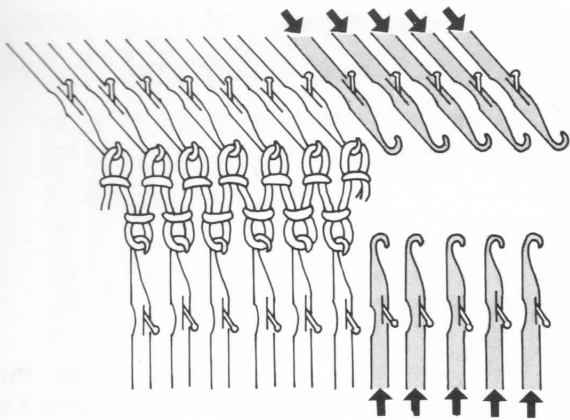
3. Knit 10 rows.

**Increasing one stitch**

POSSIBLE ONLY ON CARRIAGE SIDE

(1) Push an adjacent Knitter/Ribber needle at A position on Carriage side to B position. Pick loop of stitch below the end stitch and place it onto the needle.

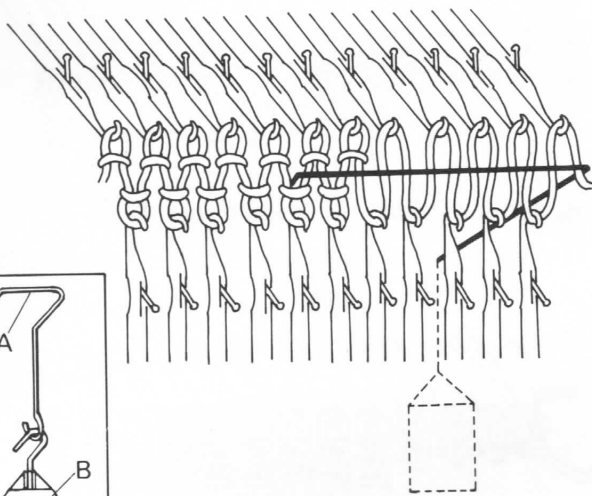
(2) On Ribber/Knitter, push needle in A position up to B position.



### Increasing multiple stitches

POSSIBLE ONLY ON OPPOSITE SIDE OF CARRIAGE

- (1) On opposite side of Carriage, push required Knitter and Ribber needles up to B position.

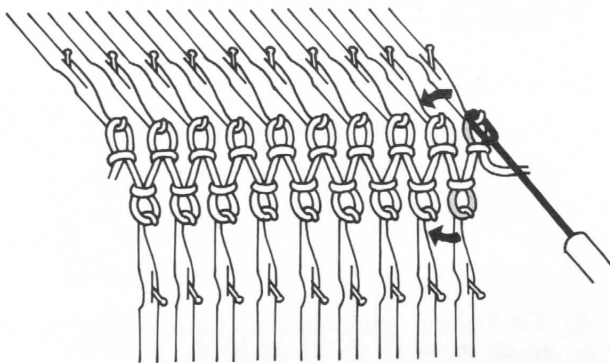
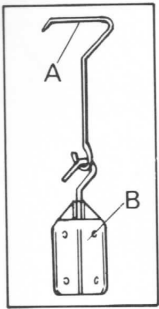


- (2) Knit 1 row.

Yarn lies alternately in a zigzag pattern in Knitter and Ribber needle hooks.

- (3) Use Side Hanger "A" with Edge Weight "B" attached, hereafter called Edge Weight. From underneath, insert hook of Side Hanger between Knitter and Ribber Bed, push upwards, and lay hook over zigzag stitches. Ensure yarn is hooked inside Side Hanger.

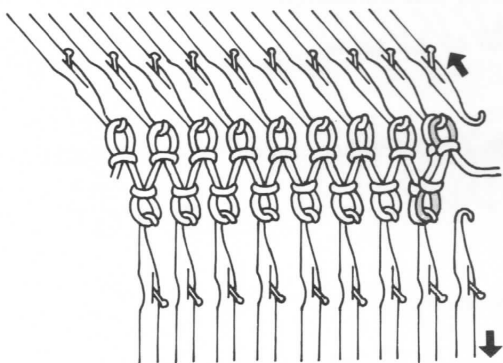
After approx. 10 rows are knitted, move Edge Weight up in order to obtain better results.



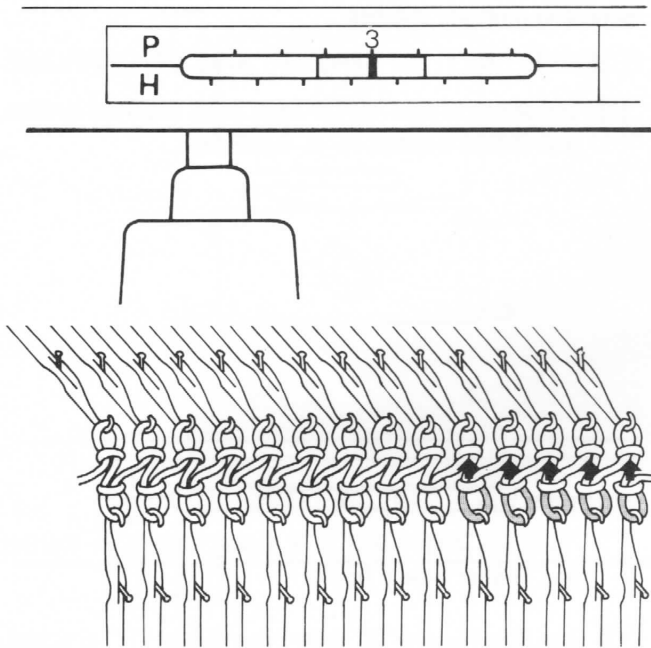
### Decreasing 1 stitch

POSSIBLE ON BOTH SIDES

- (1) Transfer end stitches on both Knitter and Ribber onto their adjacent inside needles at the same time.



- (2) Push back empty needles to A position. Continue to knit.

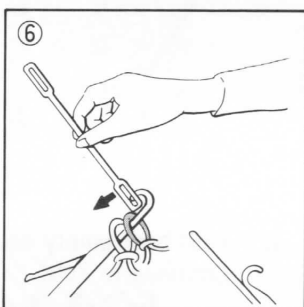
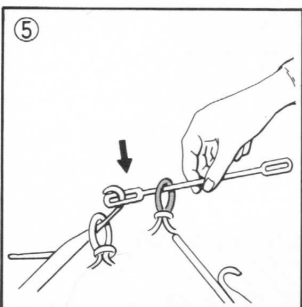
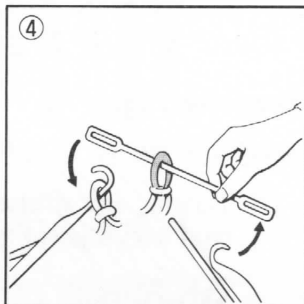
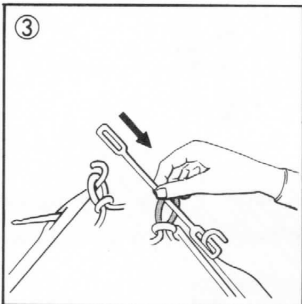
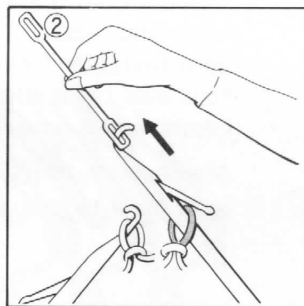
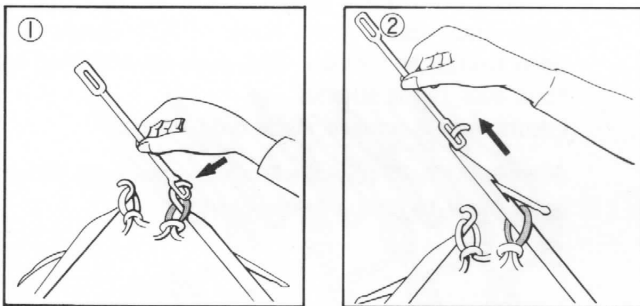


### Decreasing multiple stitches

POSSIBLE ONLY ON CARRIAGE SIDE

(1) Set the Swing Indicator to P-3.

(2) Using Double-eye Transfer Tool, transfer stitches from Ribber needles to their corresponding Knitter needles following the instructions below.



How to use Double-eye Transfer Tool.

① Insert eye of Double-eye Transfer Tool into Ribber needle hook.

② Pull Ribber needle to D position.

③ Push Ribber needle to A position.

④ Remove eye of Transfer Tool from Ribber needle hook.

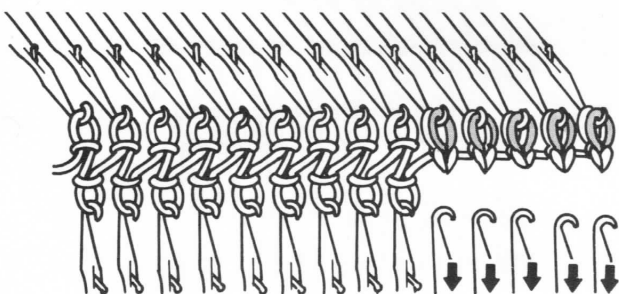
⑤ Insert opposite eye into Knitter needle hook.

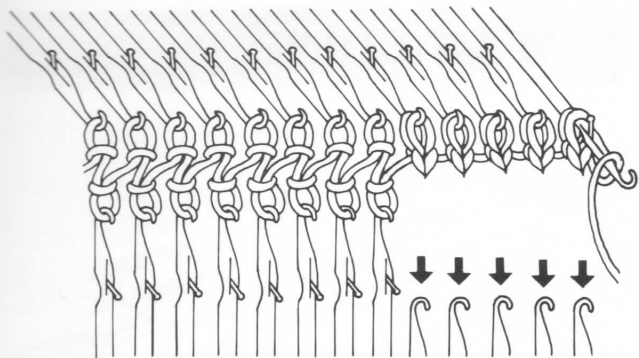
⑥ Tilt Transfer Tool until stitch slides into Knitter needle hook.

Remove Transfer Tool.

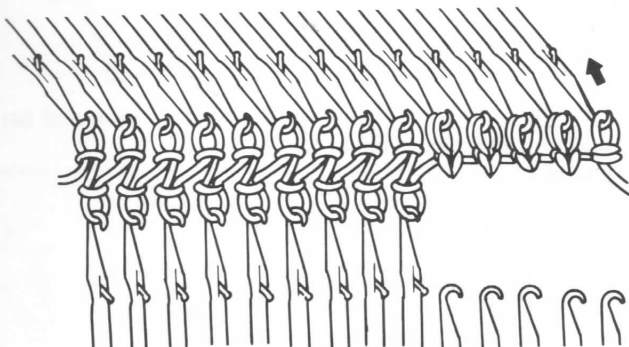
Push needle in B position slightly towards A position ensuring that transferred stitch lies correctly in needle hook.

(3) Push empty Ribber needles back to A position.

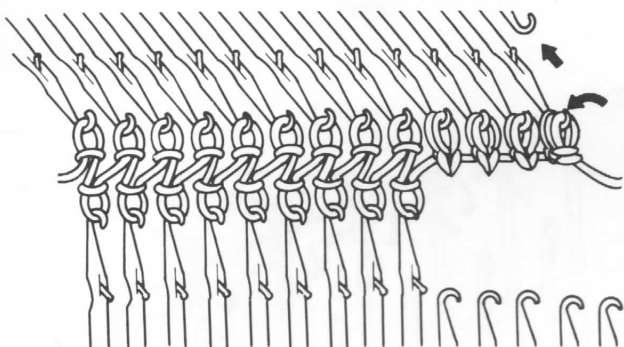




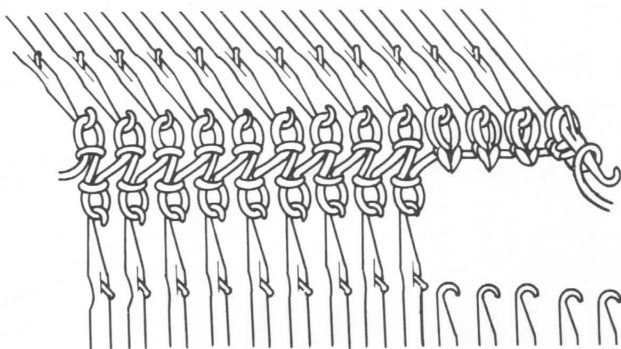
(4) On the side with the yarn end, push up the first needle until its stitches pass the latch and lay the yarn as shown.



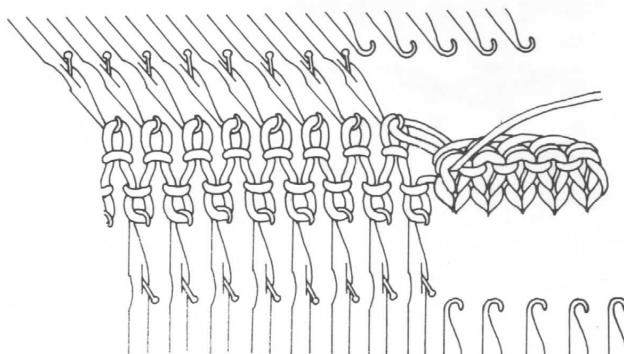
(5) Push back the needle to B position.



(6) Transfer the stitch onto the second needle and push back the empty needle to A position.

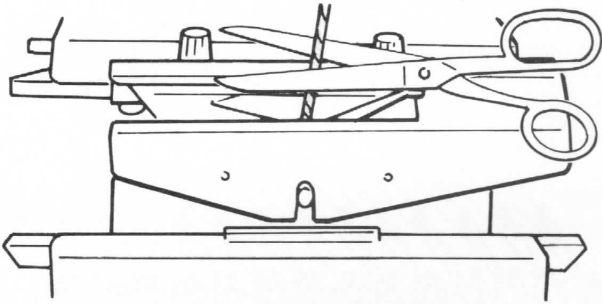


(7) Repeat steps (4) – (6) until required number of stitches have been decreased.

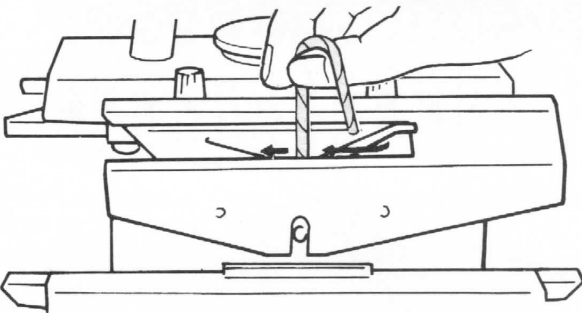


(8) Place the last stitch decreased onto adjacent needle.

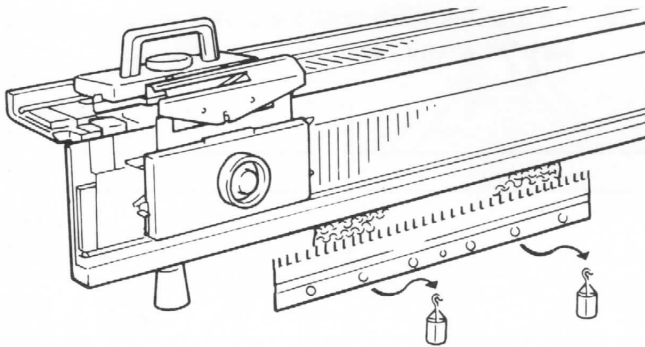
## REMOVE FABRIC FROM MACHINE



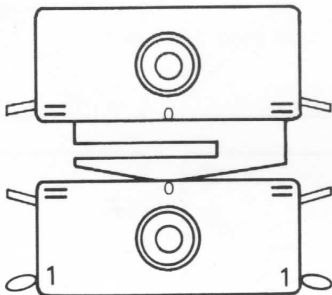
1. Cut yarn above Yarn Feeder.



2. Remove the yarn from Feeder and drop yarn end between Knitter and Ribber Sinker Posts.

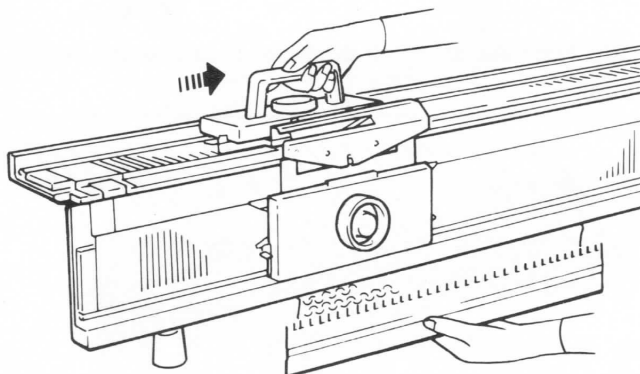


3. Remove Weights from Cast-on Comb.



4. Change Carriage settings as follows.

Pattern Dial..... 0  
 Set Levers (left & right)..... 1  
 Russel Levers (left & right)..... =

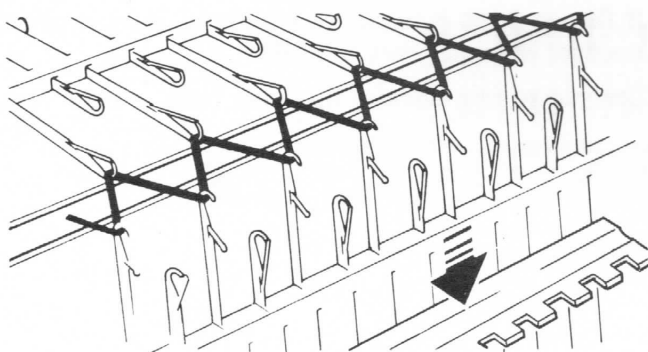
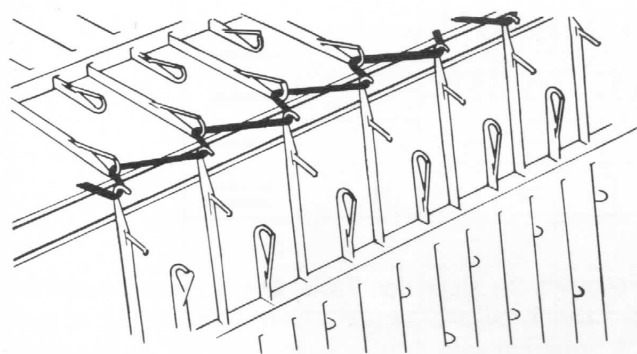
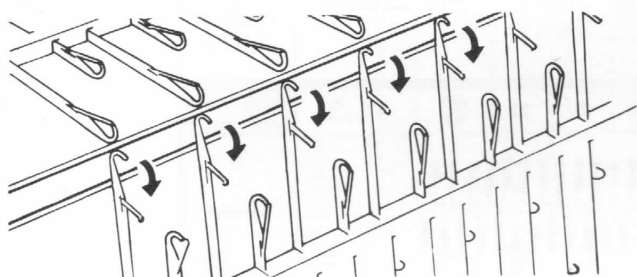
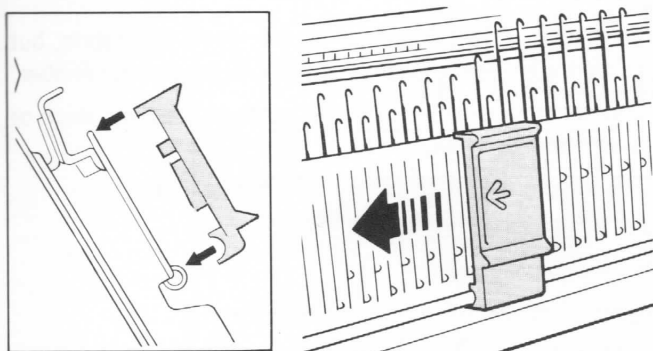
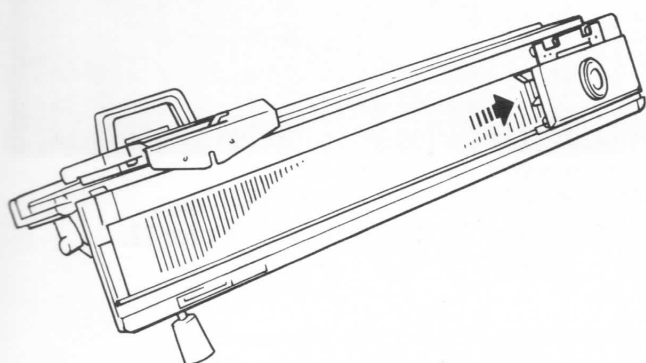


5. Holding Cast-on Comb, move Carriage once across needles.

The stitches are released from needles.



## CAST-ON FOR TIGHTER EDGE

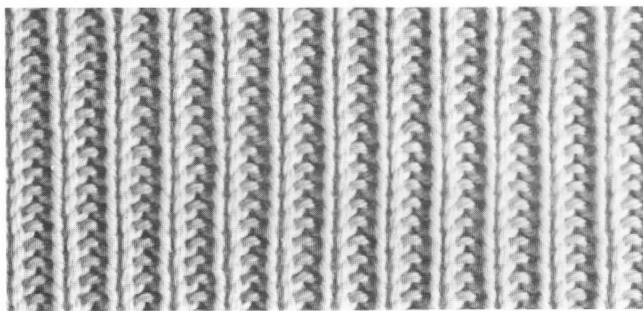


To make the cast-on edge of fabric tighter, when knitting with thinner yarn such as medium thick yarn, operate the initial row following the procedure below.

\* Place Close Knit Bar referring to page 9.

1. Set machine controls for the initial row as instructed in the Operation Table.
2. Disconnect the Ribber Carriage from Arm and have Knitter Carriage on the left and Ribber Carriage on the right.
3. Arrange the needles for 1×1 Rib or Double Rib (Refer to page 22) in B position.
4. Locate the Needle Aligner on the right side of the Ribber needle bed as illustrated. Move the Needle Aligner to the left and across the needle bed.
5. Remove the Needle Aligner. When all working needles are aligned in C position, open the latch of all the needles.
6. Thread the Yarn Feeder and move Knitter Carriage only from left to right. Yarn is now passed through hooks of Knitter needles and over open latches of Ribber needles.
7. With the needle pusher, push the Ribber needles in C position down to B position.
8. Attach the Cast-on Comb and Weights.
9. Connect the Ribber Carriage with the Knitter Carriage, continue to work subsequent 3 rows following the Operation Table.

# VARIOUS RIB STITCHES



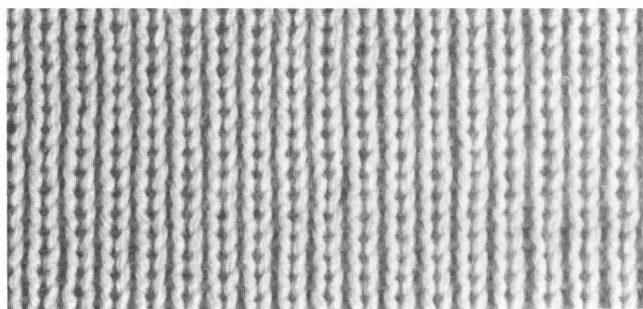
## 1x1 RIB

This is most basic ribbing formed on every other needles on the Knitter and Ribber.

Knit stitch alternates with purl stitch, and the fabric of this rib is very elastic crosswise.

The sample is knitted using extra thick yarn.

Knit following the Operation Table on page 12.



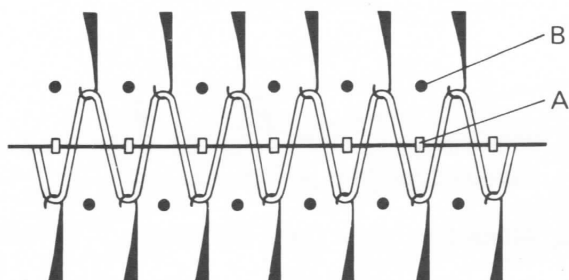
## CLOSE RIB

The fabric is very identical to the 1x1 Rib fabric, but knitted with every needles on the Knitter and the Ribber.

This method is applies for the yarns of medium thick or rather thinner types.

The sample is knitted using medium thick yarn.

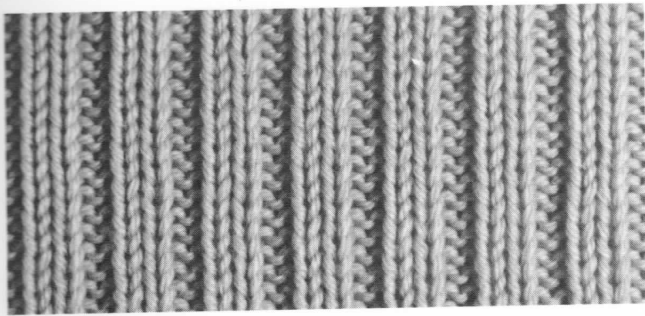
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2												→	
3													
4							0						←
5		S											→
6		0											←
②	=	0	=	1	=	1	0	1	=	1	H-3	↔	



Following the Operation Table ① – 1-3, set the machine and knit 1 row and suspend Cast-on Comb so that its teeth "A" confront with Knitter Sinkers "B" as illustrated.

If Cast-on Comb is suspended incorrectly, it will drop on the floor when you work Drive Rib.

Continue to knit following Operation Table.

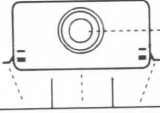

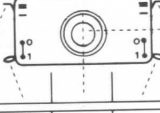

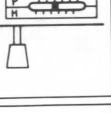
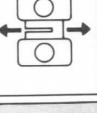
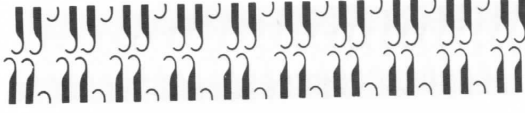
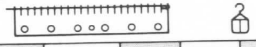


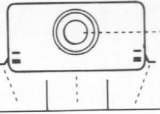

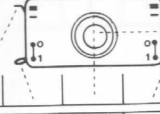

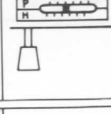
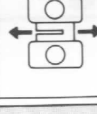
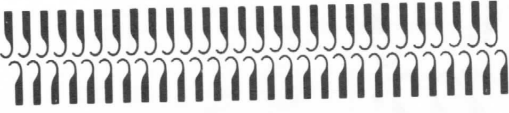
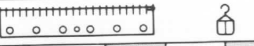
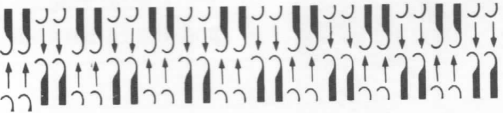
### 2x2 RIB

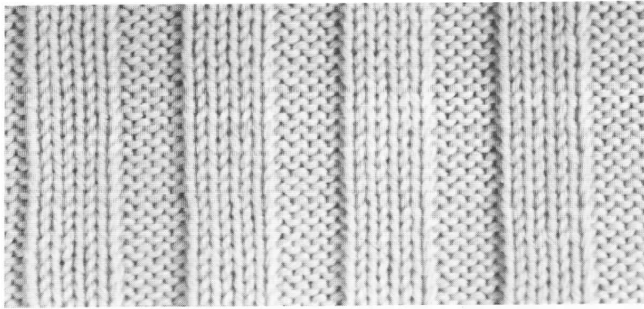
Two knit stitches alternate with two purl stitches.

The sample is knitted using very thick yarn.

Two methods for 2x2 Rib are introduced below:—

<b>A</b>													
<b>①</b>	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
	2											→	
	3												
	4			0		0				0			←
	5	S											→
	6	0											←
<b>②</b>		=	0	=	3	=	1	0	1	=	3	H-4	↔

<b>B</b>													
<b>①</b>	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
	2											→	
	3												
	4			0		0				0			←
	5	S											→
	6	0											←
	7											P-3	
													
<b>②</b>		=	0	=	3	=	1	0	1	=	3	P-3	↔

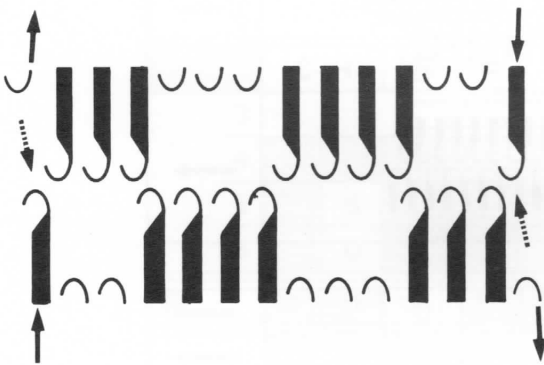


## WIDE RIB

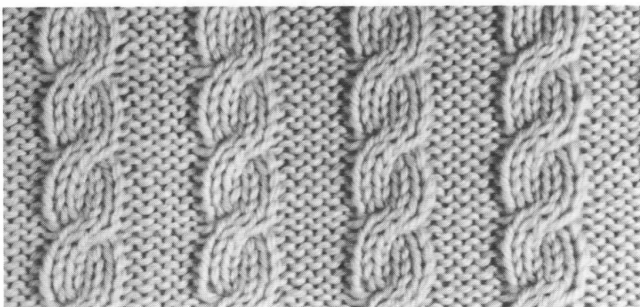
Wider than three knit stitches alternate with more than three purl stitches.

The sample is knitted using very thick yarn over 4 knit stitches alternating with 4 purl stitches.

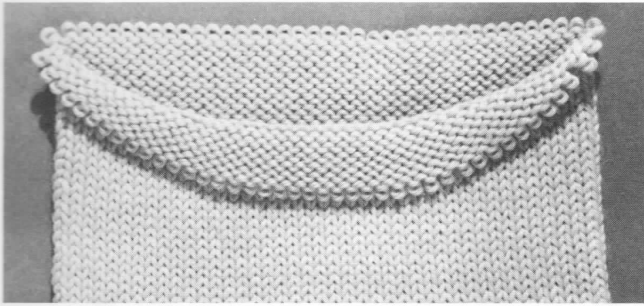
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2												→	
3													
4					1		0					1	←
5		S											→
6		0											←
7													
②		=	0	=	3	=	1	0	1	=	4	H-3	↔



Before starting main knitting, transfer a stitch at the side edge onto the corresponding needle on the Ribber or Knitter if more than two stitches are knitted on one side at the edge.



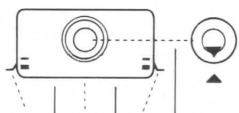
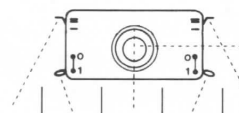
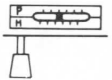

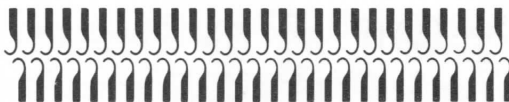
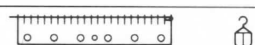
As an application of this Wide Rib, cross the stitches on the knitter side to have cable stitch if the yarn is smooth and the Stitch Dial is loose enough.

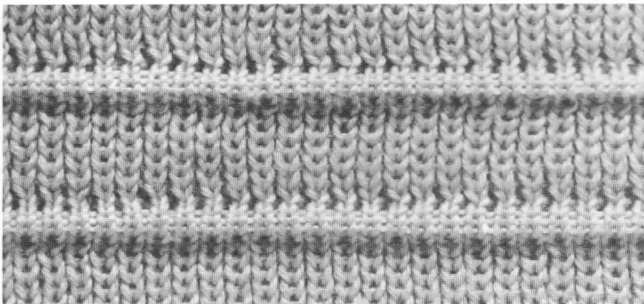


## TUBULAR KNITTING

Tubular knitting is performed by knitting on the Knitter side in a direction and on the Ribber side in a direction and on the Ribber side in a reversing direction.

Cast-on over the every needles on the Knitter and the Ribber.

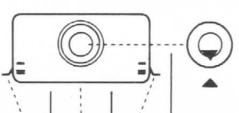
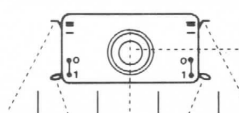
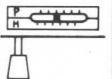


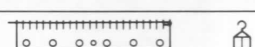
					
①	1 = 0 =	Ⓜ =	1 0 1 =	Ⓜ H-3	
2					→
3					
②	1 = 0 =	2 =	0 0 1 =	4 H-3	←
2	S				→

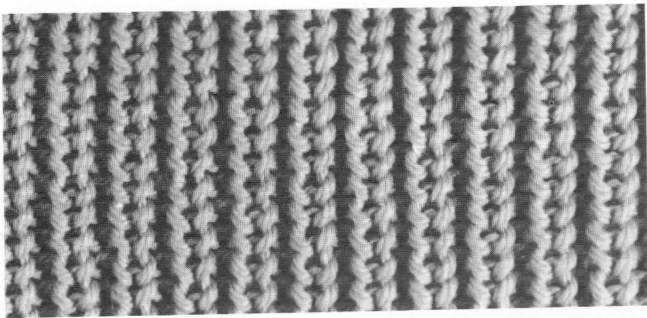


## PIN TUCK

In the Double Rib, knit extra 4-5 rows on the knitter side.

The sample is knitted using medium thick yarn.

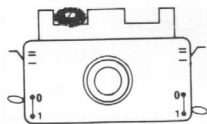
					
①	1 = 0 =	Ⓜ =	1 0 1 =	Ⓜ H-3	
2					→
3					
4			0		←
5	S				→
6	0				←
②	1 = 0 =	1 =	1 0 1 =	1 H-3	→→→)8
2	S				→→→)4



### ENGLISH RIB

This fabric is formed in 1×1 Rib or Close Rib by tucking the stitches on every other row on the Ribber side.

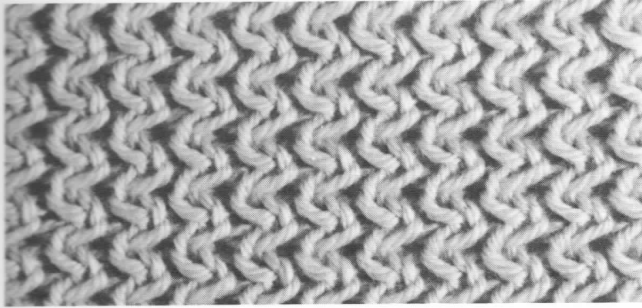
The sample is knitted using extra thick yarn over the 1×1 Rib.



Attach the Ribber Tuck Brush on the side with the Set Lever set at "0", referring to page 11.

①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	P-3	
2												→	
3													
4				1							1		←
5		S											→
6		0											←
②		=	0	=	3	=	0	∩	1	=	3	P-3	↔

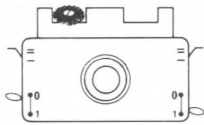
When making the English Rib over Close Rib, set the Swing Indicator at "H-3" and the Stitch Dial to the number suitable for the thickness of the yarn.



### SWUNG ENGLISH RIB

While knitting English Rib, swing the Ribber by 1 needle if knitted over every needle, or by 2 needles if knitted over every other needles.

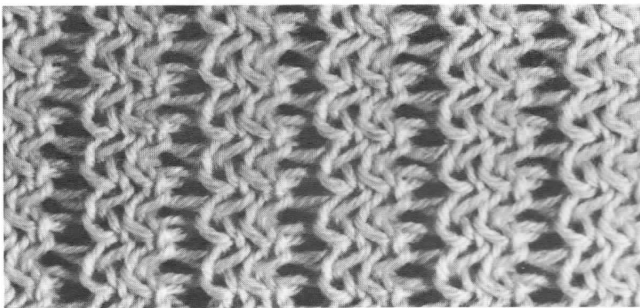
The sample is knitted using very thick yarn over every other needles.



Attach the Ribber Tuck Brush on the side with the Set Lever set at "0", referring to page 11.

①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	P-3	
	2											→	
	3												
	4				1		0				1		←
	5	S											→
	6	0											←
②	1	=	0	=	3	=	0	∩	1	=	3	P-3	→→)2
	2											P-5	→→)2

If the Swung English Rib is knitted over every needles, change the setting of the Swing Indicator in the Operation Table, "P-3" for "H-3" and "P-5" for "H-4".



Swung English Rib over different needle arrangement.

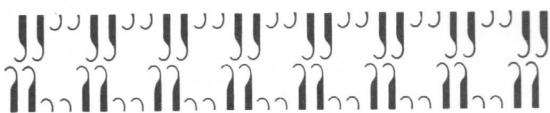
Cast-on over every needles and change the needle arrangement by transferring stitches as shown on opposite.

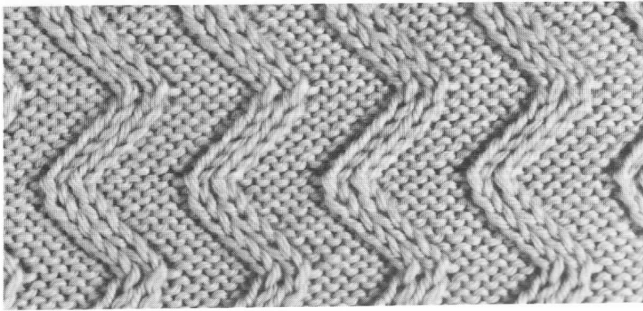
Knit following the instruction below.

Set the Knitter and the Ribber Carriages in the same as for knitting Swung English Rib.

1. Set the Stitch Dial at 1.
2. Set the Swing Indicator at "H-3", and knit 2 rows.
3. Set the Swing Indicator at "H-2", and knit 2 rows.

Repeat above steps 2-3.

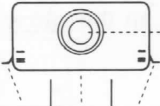
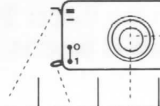
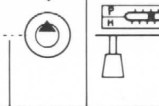


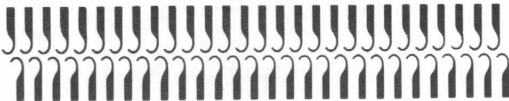
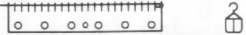





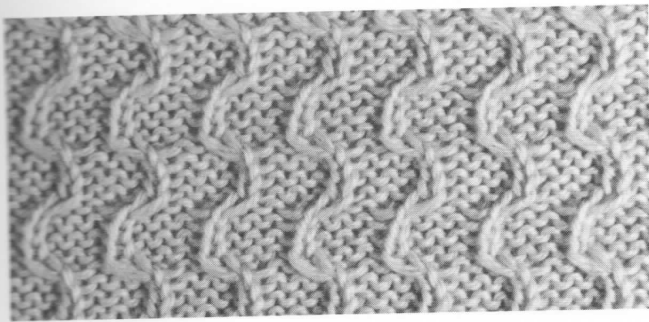
### VARIATION SWING (1)

On the knitter side, use every needles, and on the Ribber side, push up needles in intervals desired for the pattern.

The sample is knitted using very thick yarn.

													
<b>①</b>	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2												→	
3													
4							0						←
5		S											→
6		0											←
7													
<b>②</b>	1	=	0	=	3	=	1	0	1	=	3	H-3	→
2												H-2	←
3												H-1	→
4												H-0	←
5												H-1	→
6												H-2	←
7												H-3	→
8												H-4	←
9												H-5	→
10												H-6	←
11												H-5	→
12												H-4	←





### VARIATION SWING (2)

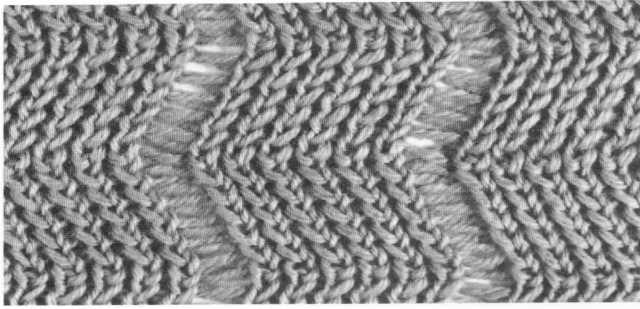
A pattern made through swinging the Ribber to right and left by three needles.

The sample is knitted using medium thick yarn

<b>1</b>	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2												→	
3													
4						0							←
5	S												→
6	0												←
7													
<b>2</b>	1	=	0	=	1	=	1	0	1	=	1	H-3	↔)4
2												H-0	↔)4

This pattern is made by swinging every 4th rows, but you can swing every 3rd or 2nd or every row.

And you can change the needle arrangement on the Ribber, you should avoid pushing up two needles together.

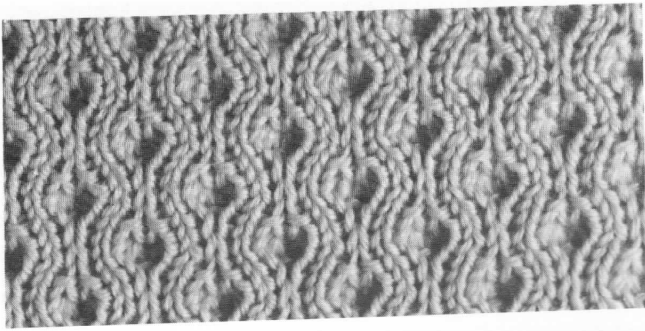


### HERRINGBONE SWING

Place non-working needle at the desired position, and swing the Ribber by two needles if knitted on every other needles, or one needle if knitted on every needle in the knitting for English Rib.

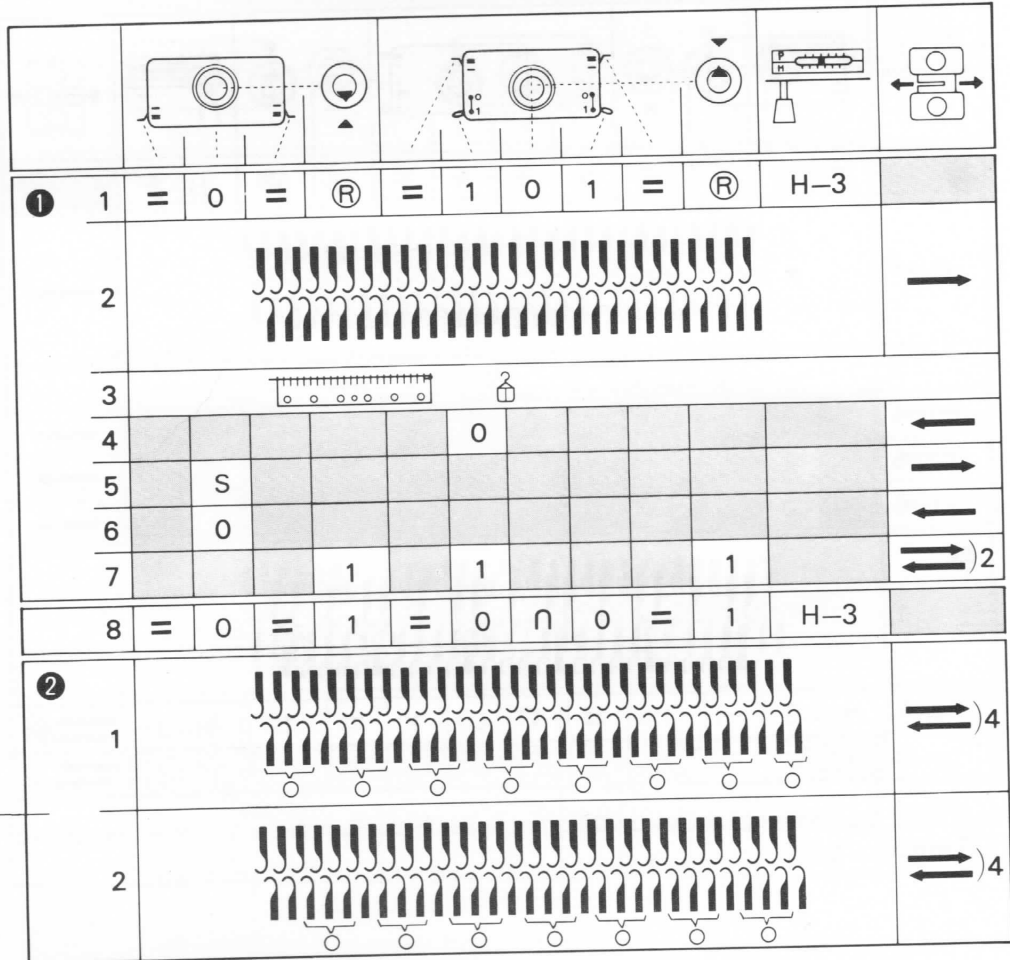
<b>1</b>	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3		
2												→	
3													
4						0							←
5	S												→
6	0												←
7													
<b>2</b>	=	0	=	1	=	0	∩	1	=	1	H-3	→	}12
1											H-4	←	
2											H-4	→	}12
											H-3	←	



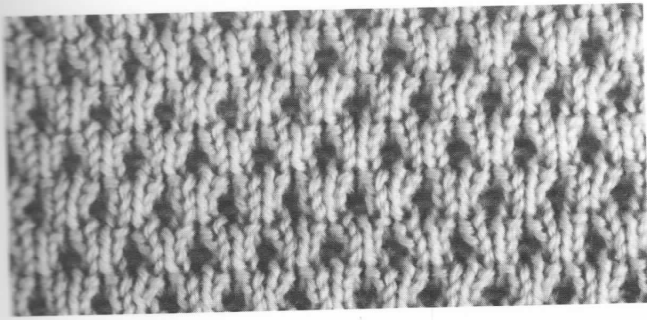


### TUCK RIB (2)

On the Ribber side, tuck the stitches four rows.  
The sample is knitted using medium thick yarn.



Push up ○ marked needles to D position on each row.



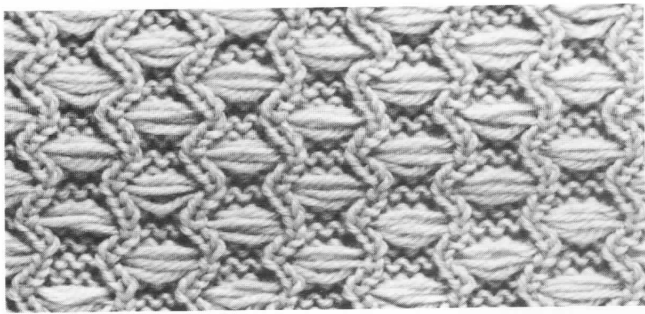
## RAHBEN

On the Ribber side, knit 3 tuck rows and 3 slip rows alternately.

The sample is knitted using medium thick yarn.

<b>1</b>	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3	
2											→		
3													
4							0						←
5		S											→
6		0											←
7	=	0	=	1	=	1	0	1	=	1	H-3		↔)4
<b>2</b>													
2	=	0	=	1	-	0	0	0	-	1	H-3		↔)3
3					=	1		1	=				↔)2
4													
5					-	0		0	-				↔)3
6					=	1		1	=				↔)2

— Push up ○ marked needles to D position.



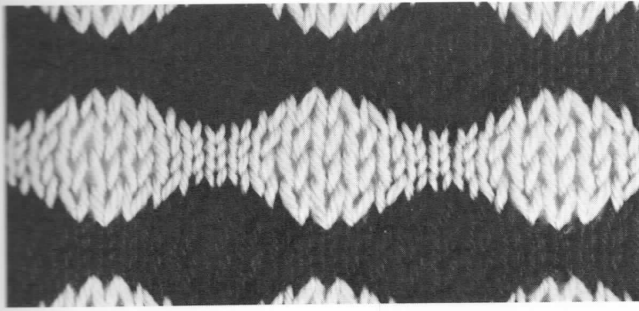
### SLIP RIB

Knit slip for every fifth needles on the knitter.

The sample is knitted using medium thick yarn.

<b>1</b>	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2											→	
3												
4					0							←
5		S										→
6		0										←
7				1		1				1		→)2
8	=	S	=	1	=	1	0	1	=	1	H-3	
<b>2</b>											→)4	
2											→)4	

Arrange the needles as shown by transferring stitches, then knit pushing up o marked needles to D position on each row.

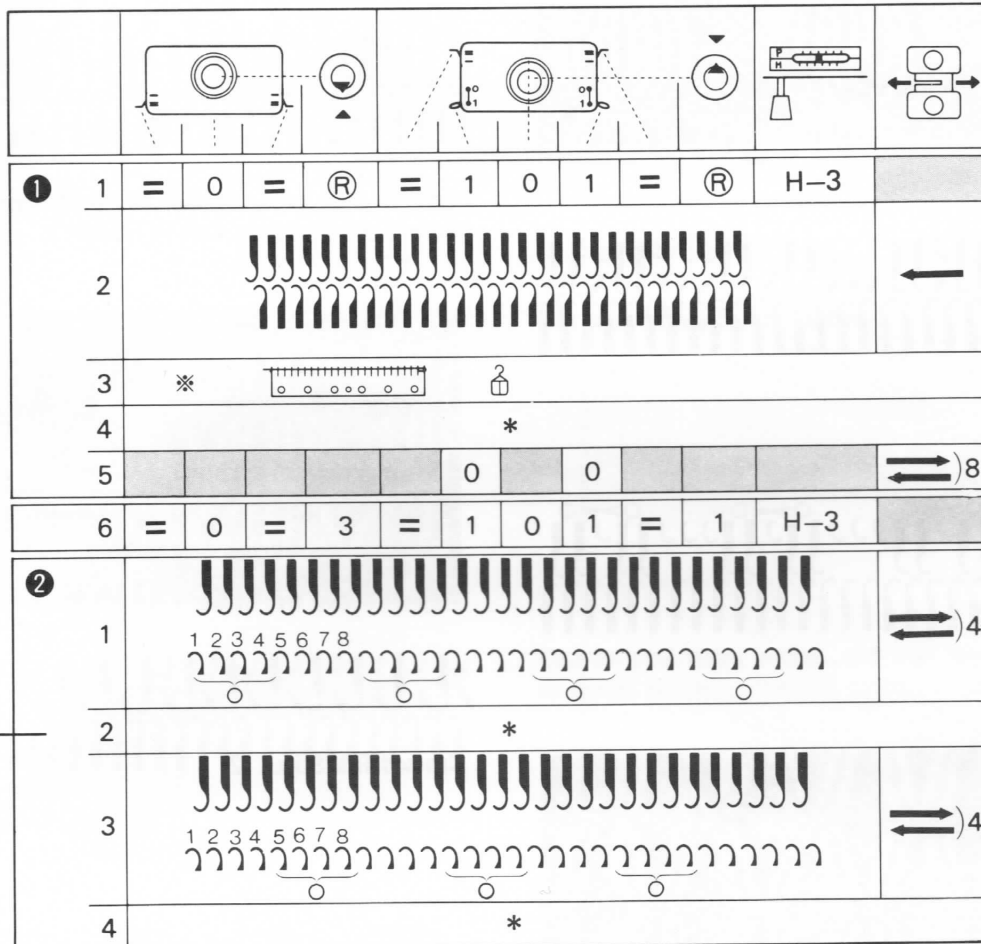


## DRIVE RIB

Plain Stitch on the knitter side, and on the Ribber side, push up needle at intervals from A to D position, then drop the stitches on those needles.

Knit two different coloured yarns A and B alternately.

The sample is knitted using very thick yarn.



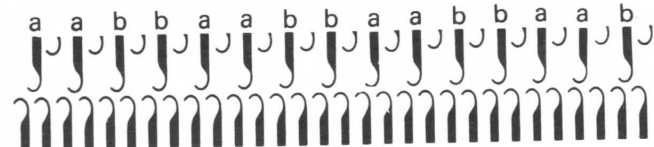
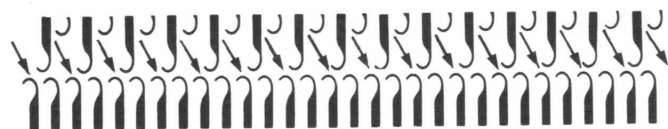
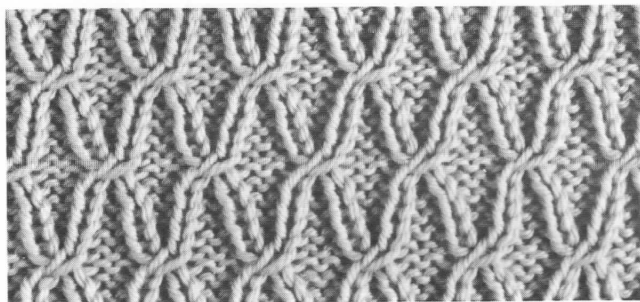
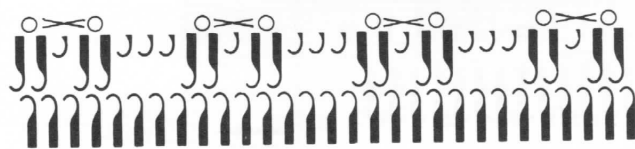
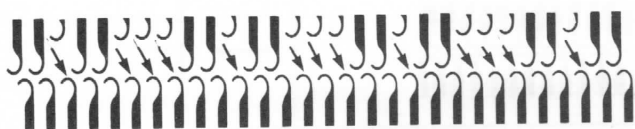
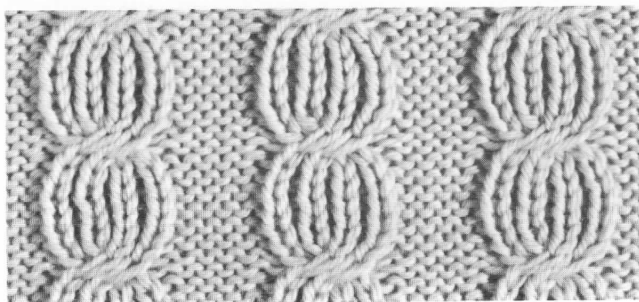
※ Suspend Cast-on Comb referring to page 22 or it will drop on the floor when you drop the stitches from the Ribber.

\* Drop the stitches from the Ribber. (Push up the needles to D position, then push back to A position using plain Needle Pusher.)

— Push up ○ marked needles to D position on each row.

## Crossing and transferring stitches

In the knitting of Close Rib or other type of rib stitches, cross the stitches or transfer the stitches on the knitter side for making pattern.



### Crossed Rib Stitch (1)

Cast-on over every needle, and then rearrange the stitches before continuing to knit in rib stitch.

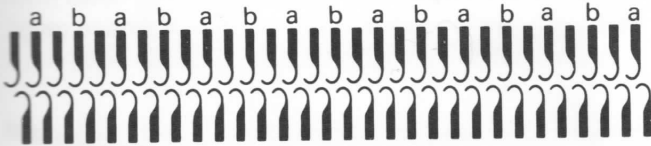
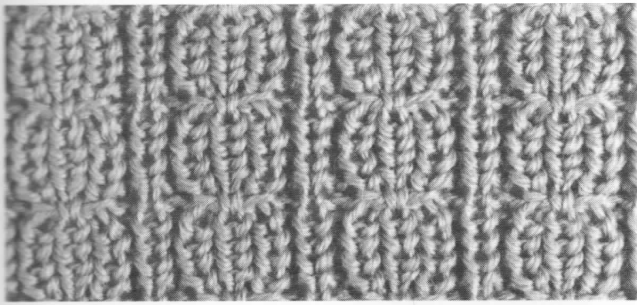
1. Knit 8 rows in rib stitch.
  2. Skipping one stitch, cross two stitches with their adjacent two stitches on the knitter side.
- Repeat above two steps.

### Crossed Rib Stitch (2)

Cast-on over every needle, and then rearrange the stitches as shown before continuing to knit in rib stitch.

1. Knit 6 rows in rib stitch.
  2. On the knitter, cross the stitches with the same markings.
  3. Knit 6 rows in rib stitch.
  4. On the Knitter, cross the neighbouring stitches.
- Repeat steps 1 – 4.

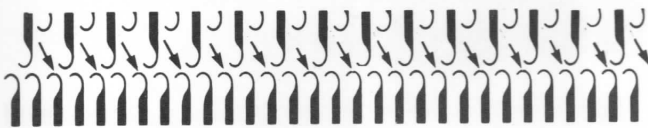
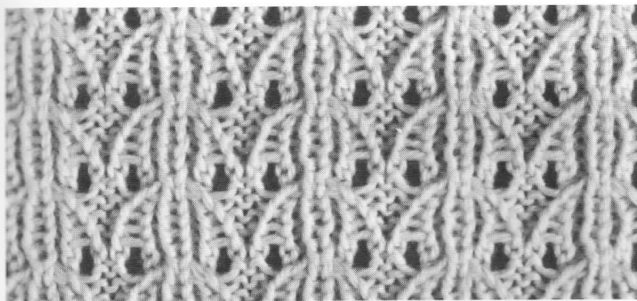




### Crossed stitch in English Rib

While knitting in English Rib, cross the Knitter stitches at every few rows of knitting.

1. Knit 10 rows in English Rib.
  2. On the Knitter cross the stitches on needles (a) with those on needles (b).
- Repeat above two steps.



### Rib transferring Stitch Pattern

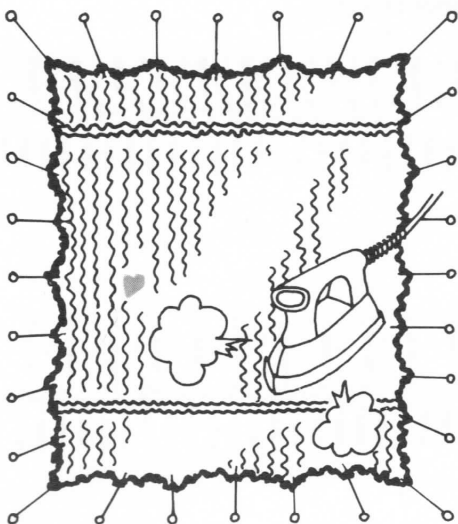
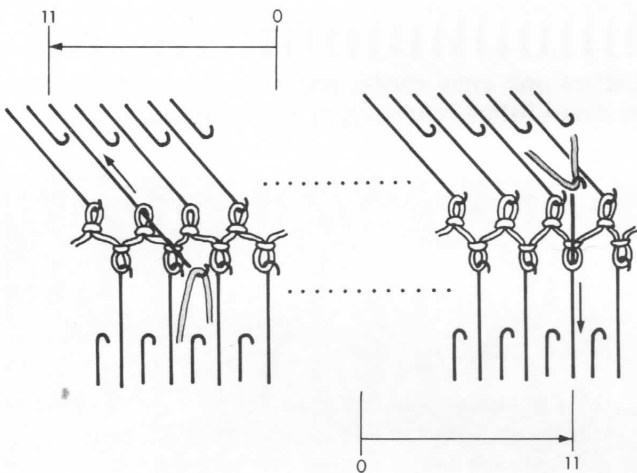
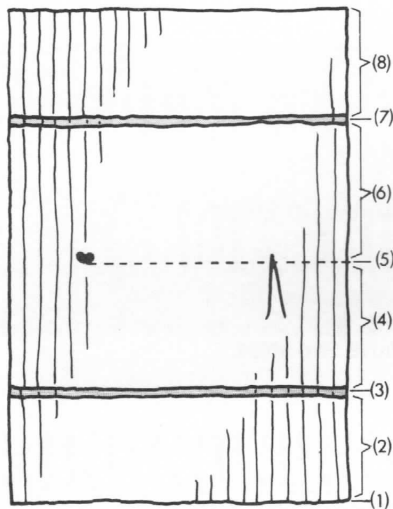
Cast-on over every needle, and then rearrange the stitches as shown before continuing to knit in rib stitch.



1. Knit 6 rows in rib stitch.
2. On the knitter side, for every three needles, transfer stitches on right and left needle onto the centre needle, and leave the empty needles in B position.

Repeat above two steps.

# TAKING A TENSION GAUGE



## Tension gauge

When Ribber is used for knitting a garment, stitches are knitted on both Knitter and Ribber, and in many cases, not all the needles within the range of fabric are used.

Therefore, the following instructions should be noted when knitting tension swatch and also in taking a tension gauge.

## To knit a tension swatch

Before knitting tension swatch, try knitting till you obtain suitable Stitch Dial number for the selected yarn.

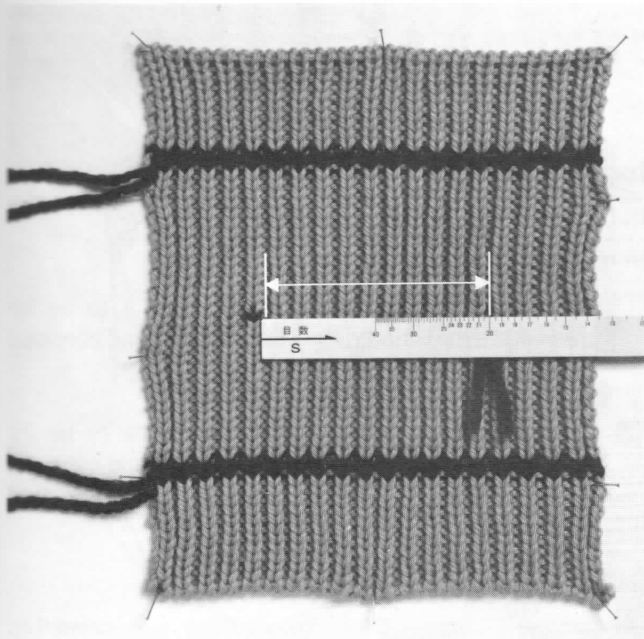
Then knit the swatch in the manner instructed below.

- (1) Regardless of stitch type, always arrange needles within range of 20th needles on both sides of centre (0) on both beds.
- (2) Cast-on and knit 10 rows.
- (3) With a contrast yarn, knit 2 rows.
- (4) With main yarn, knit 15 rows.
- (5) Put yarn marks on the 11th needles on both sides of centre(0) on either Knitter or Ribber.
- (6) Knit 15 rows continuously.
- (7) With a contrast yarn, knit 2 rows.
- (8) With main yarn, knit 10 rows.
- (9) Remove the swatch from the machine.

## How to take tension gauge

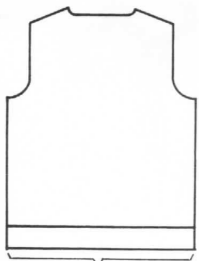
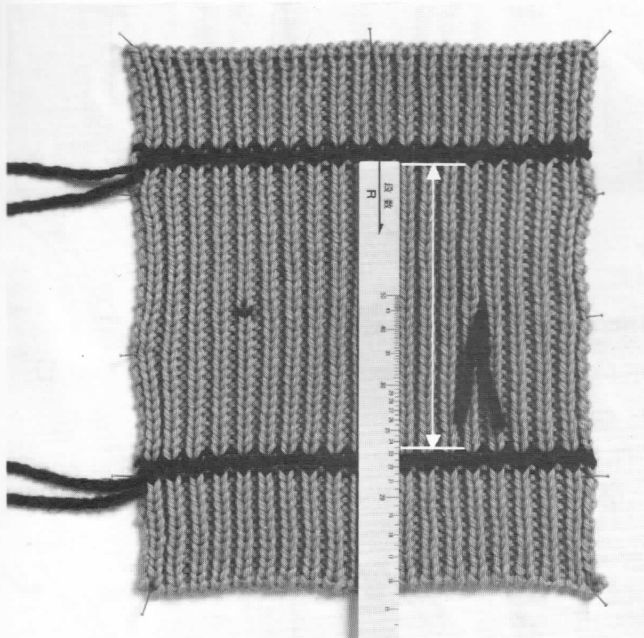
Leave the swatch for several hours so that it can relax, then stretch it as much as if it is worn, then pin it down.

Hold a steam iron close to the swatch and distribute its steam evenly over the swatch.



Allow the swatch to dry, take a tension gauge over it as it is pinned down.

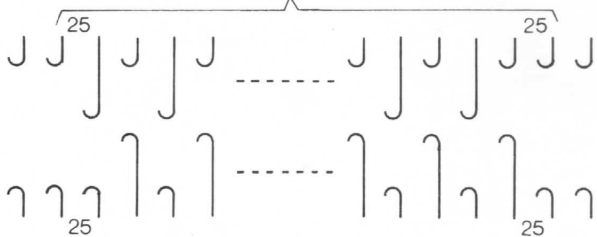
Measure the number of stitches and rows using Gauge Scale between yarn marks.



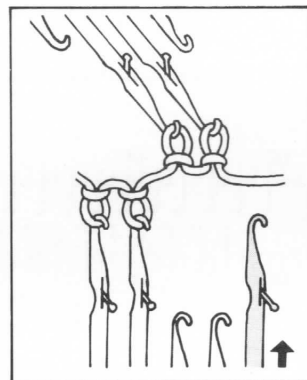
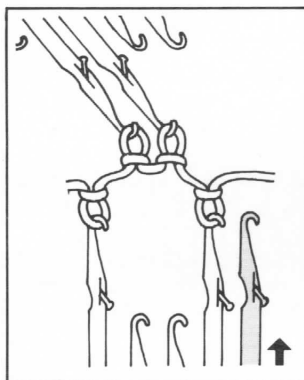
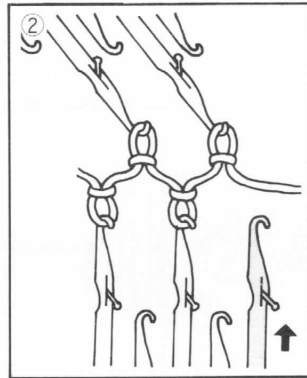
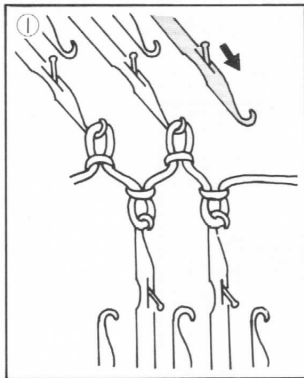
When knitting a garment based on the tension gauge taken in the foregoing procedure, arrange needles for the width of the total number of needles, including non-working needles.

Example:

If 50 stitches are necessary to cast-on for the swatch of 1x1 Rib, arrange needles for 1 x 1 within the 25th needle on both side of centre(0).



# KNITTING TECHNIQUES



## Increase of single stitch

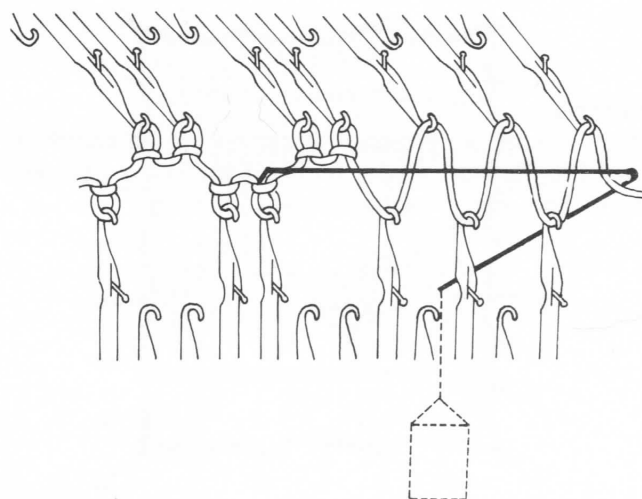
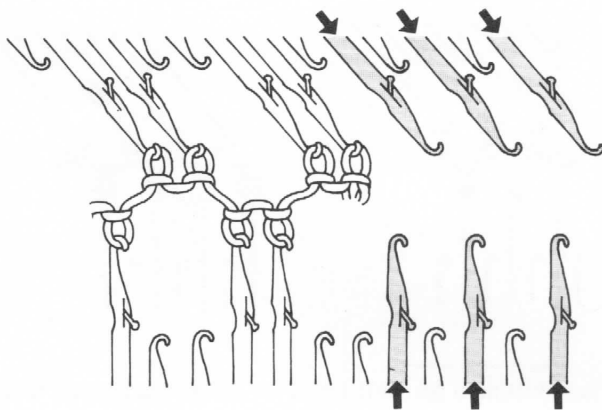
In case of Close Rib, refer to page 16.

In case of 1×1 Rib.

- ① On Carriage side push the Knitter needle to be increased to B position. Hang Edge Weight and continue to knit.
- ② On Carriage side, push the Ribber needle to be increased to B position. Hang Edge Weight and continue to knit.

In case of 2×2 Rib:

On Carriage side, push the Ribber needle to be increased to B position. Hang Edge Weight and continue to knit.

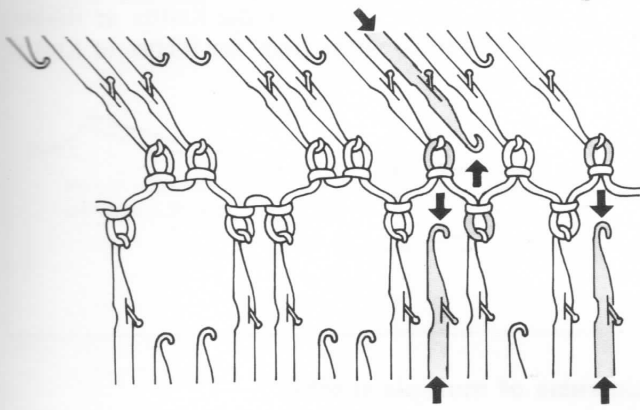


## Increase of multiple stitches

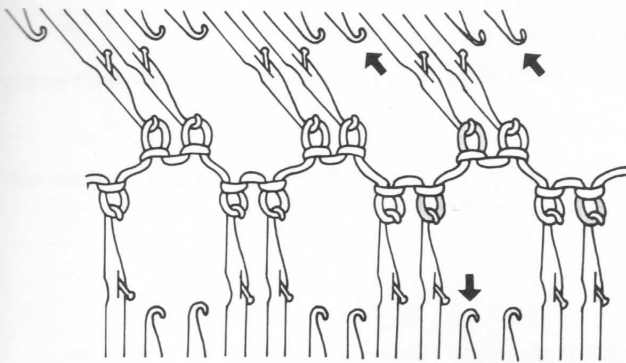
In case of Close Rib and 1×1 Rib, refer to page 17.

In case of 2×2 Rib:

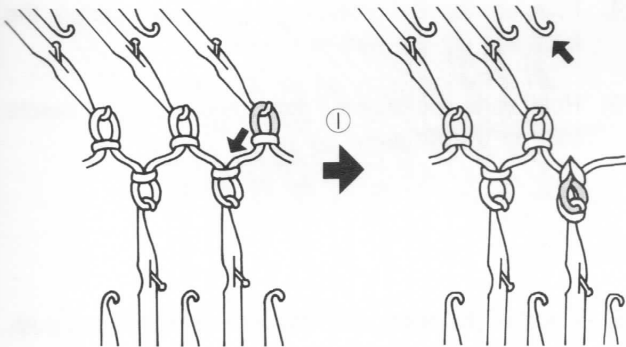
- (1) On the side opposite Carriage, push up required number of needles for increase to B position on both Beds as shown.
- (2) Knit 1 row and hang Edge Weight.



- (3) Knit 1 row.  
Rearrange needles by transferring stitches as arrow-marked.



- (4) Push back needles to A position.  
Continue to knit.

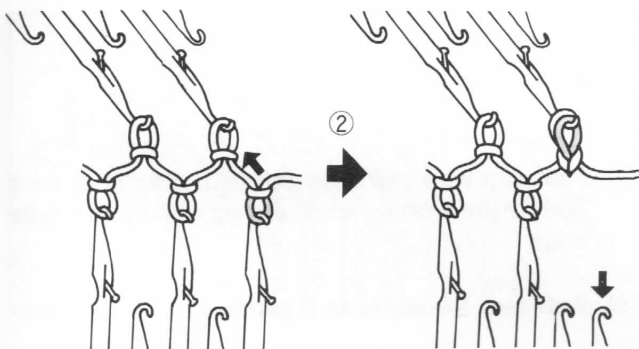


### Decrease of single stitch

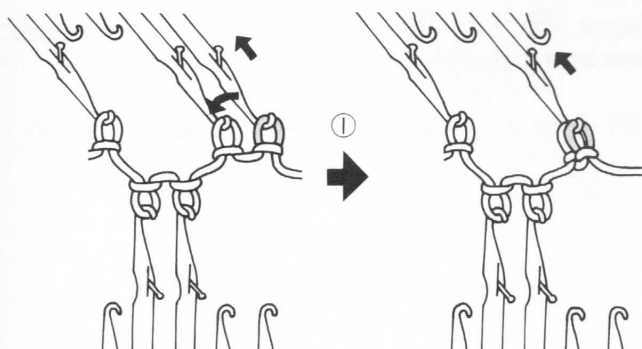
In case of Close Rib, refer to page 17.

In case of 1×1 Rib:

- ① Transfer the stitch from the Knitter to Ribber.  
Push back the end empty needle on the Knitter to A position.  
Continue to knit.

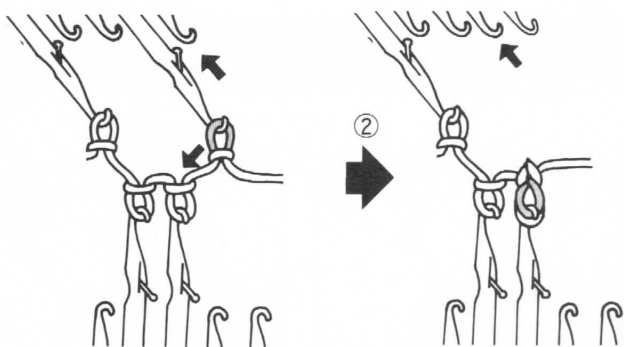


- ② Transfer the stitch from the Ribber to the Knitter.  
Push back the empty needle to A position.  
Continue to knit.

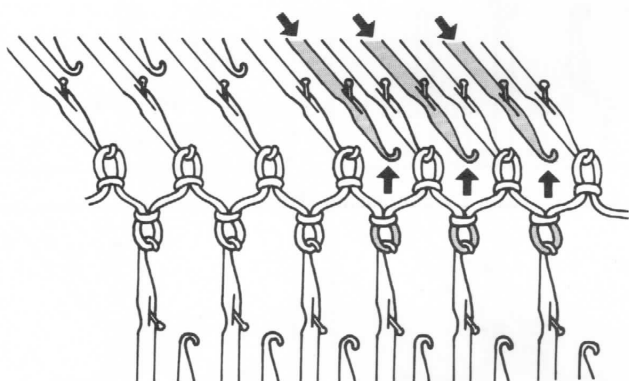


In case of 2×2 Rib:

- ① If two end stitches are aligned on the Knitter or the Ribber, transfer the first end stitch to its adjacent needle.



- ② If one end stitch is only on the Knitter or Ribber, transfer the stitch either from the Ribber to Knitter or vice versa.

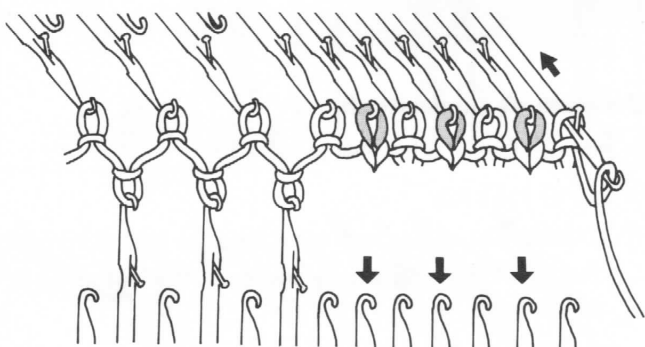


### Decrease of multiple stitches

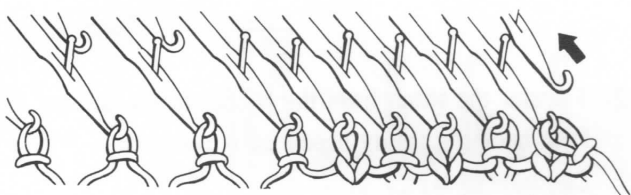
In case of Close Rib, refer to page 18.

In case of 1 × 1 and 2 × 2 Rib.

- (1) On Carriage side, push up required number of empty Knitter needles to B position.
- (2) Transfer stitches from Ribber needles to their corresponding Knitter needles.



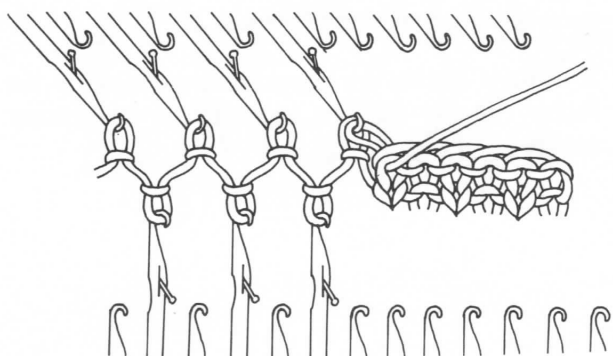
- (3) Push empty Ribber needles back to A position.
- (4) Push up the end needle until its stitch passes the latch and lay the yarn as shown.
- (5) Hold yarn end slightly down and push the needle back to B position.



- (6) Transfer the stitch onto the second needle and push back the empty needle to A position.

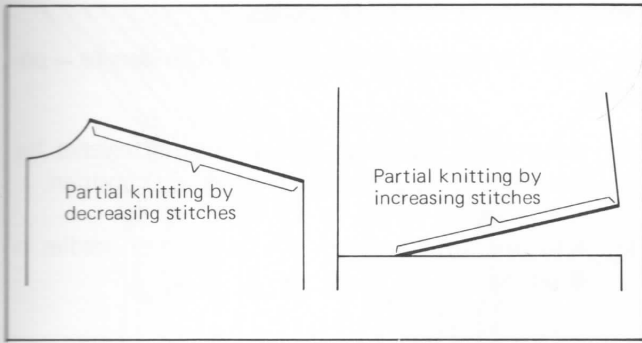


- (7) Push end working needle up to D position to have both stitches behind latch, and lay yarn inside needle hook.
- (8) Push back the needle to B position.



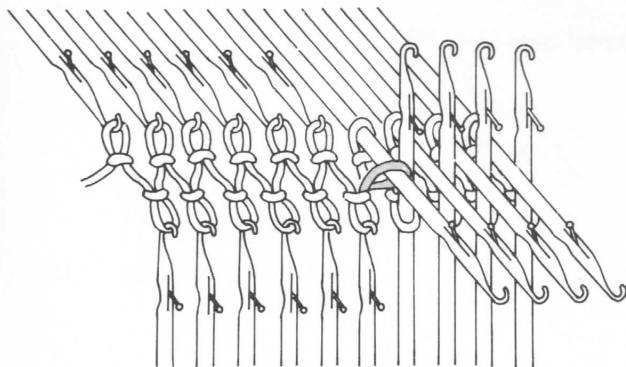
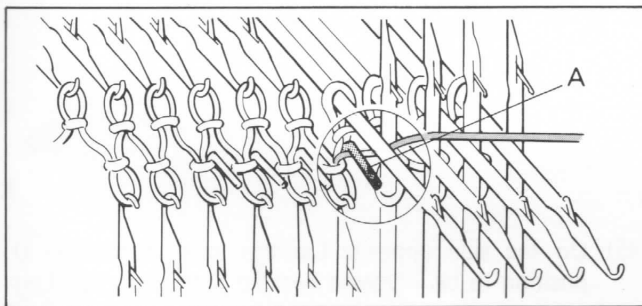
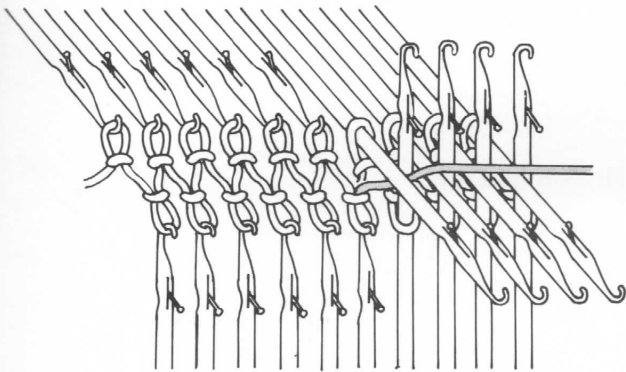
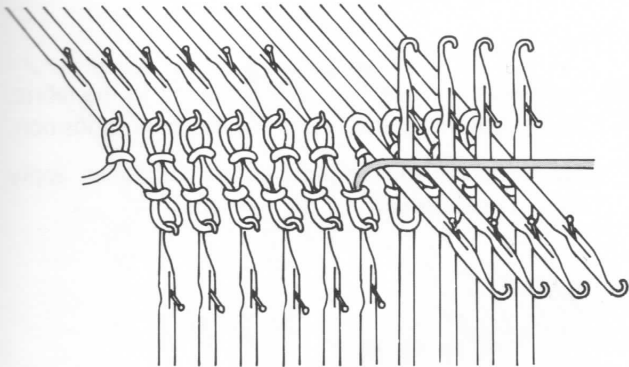
Repeat steps (6) – (8) until required number of stitches have been decreased.

- (9) Place the last stitch decreased onto adjacent needle.



PARTIAL KNITTING is a practical method for shaping a gentle slope such as a shoulder, back of slacks and so on.

In Tuck Rib, Rahben, Slip Rib and Drive Rib, work referring to "decreasing multiple stitches" on page 18 instead of partial knitting.



### Partial knitting without involving "swing"

This method applies to Close Rib, 1×1 Rib, Wide Rib, English Rib, Double English Rib and Pin Tuck, etc.

### Partial knitting by decreasing stitches.

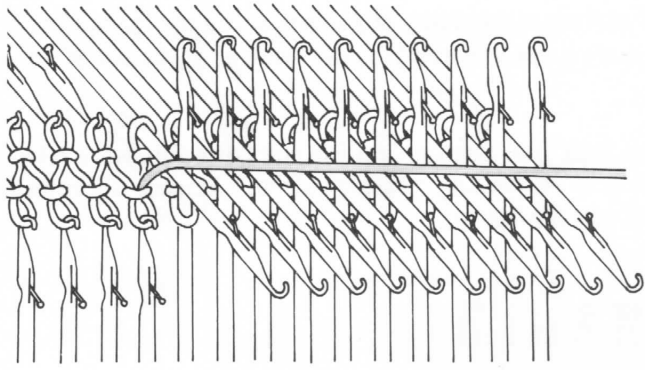
Set Russel Levers on Knitter and Ribber Carriage to — position.

- (1) On the side opposite Carriage, push up needles for the width to be shaped by partial knitting to D position.
- (2) Knit one row, then yarn will be laid over needles in D position.
- (3) To prevent a hole from being formed in the fabric, bring yarn under the first inside needle in D position.  
(If partial knitting is required on both sides, apply step (1) before knitting the next row.)

*Be sure that yarn is not caught in Sinker Post "A".*

- (4) Knit one row.
- (5) On the side opposite Carriage, push needles to be increased to D position, and knit one row.

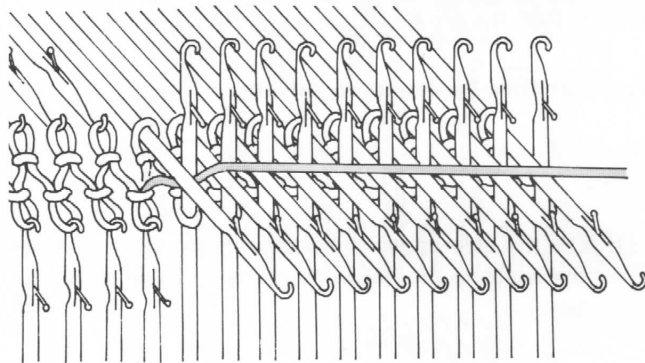
Repeat steps (3) – (5).



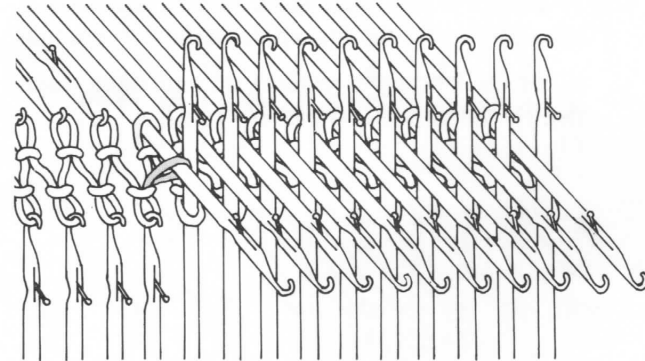
### Partial knitting by increasing stitches

Set Russel Levers on Knitter and Ribber Carriages to — position.

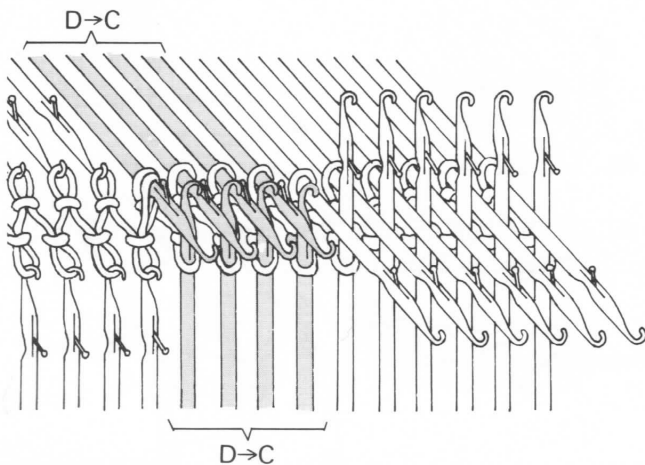
- (1) On the side opposite Carriage, push up needles for the width to be shaped by knitting to D position.
- (2) Knit one row, then yarn will be laid over needles in D position.



- (3) To prevent a hole from being formed in the fabric, bring yarn under the first inside needle in D position. (If partial knitting is required on both sides, apply step (1) before knitting the next row.)



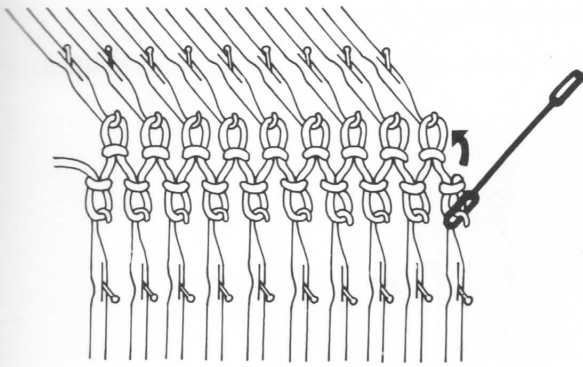
- (4) Knit one row.



- (5) On the side opposite Carriage, push needles in D position to be increased back to C position, and knit one row.

Repeat steps (3) – (5).





### Partial knitting involving "swing"

Knitter needles in D position cross the opposite Ribber needle in D position. Under this condition of needles, you must not swing (by using Swing Handle) Needle Bed, or you will damage the crossed needles. So, a special technique of partial knitting as undermentioned is required for swung English Rib, Variation Swing, Herringbone Swing and the like, all of which involve "swing".

### Partial knitting by decreasing stitches

Set the Russel Levers to — position respectively.

(1) At the position to start partial knitting, transfer the stitches to be decreased from the Ribber to the Knitter on the side opposite the Carriage.

(2) Push up the needle holding two stitches to D position and back the empty needles on the Ribber to A position.

(3) Knit one row.

(4) Bring the yarn under the first inside needle in D position. (If partial knitting is required on both sides, apply steps (1)–(2) on the opposite side of the Carriage.)

(5) Knit one row. (If partial knitting is required on both sides, apply step (4).)

Repeat the steps (1)–(5).

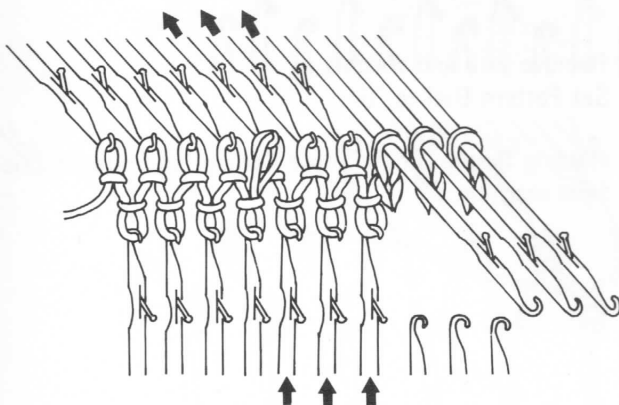
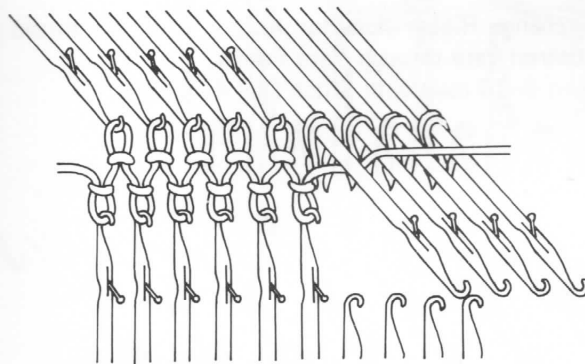
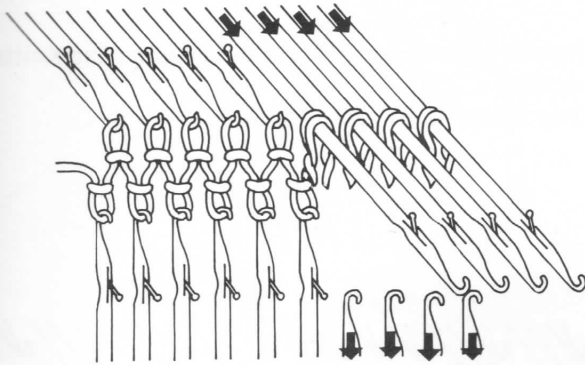
### Partial knitting by increasing stitches

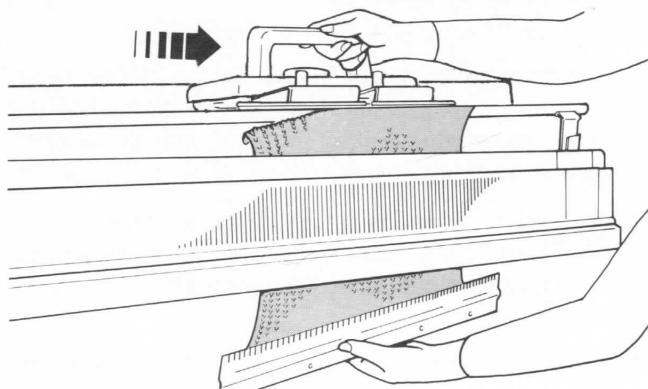
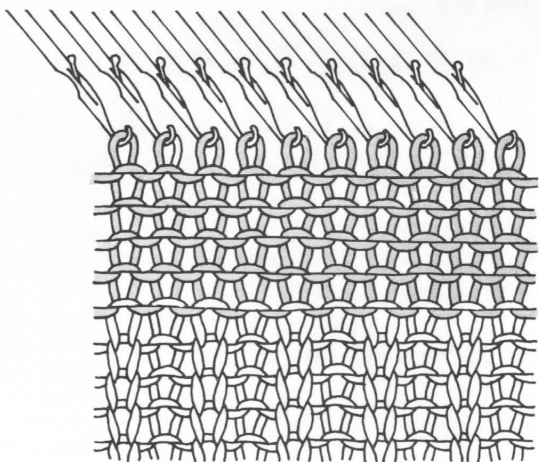
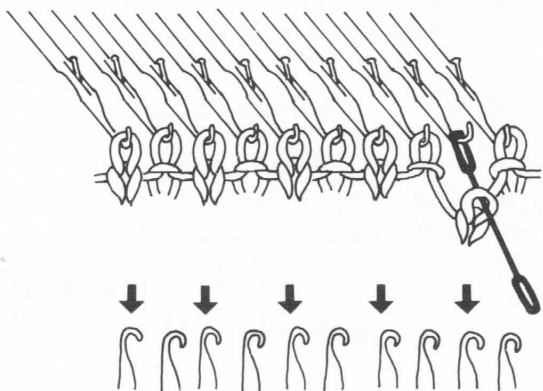
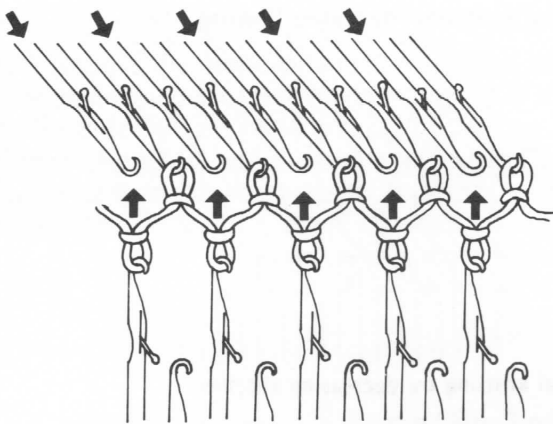
Set the Russel Levers to — position respectively.

On the side opposite Carriage, transfer Ribber stitches to be shaped by partial knitting to corresponding Knitter needles and push back empty needles to A position. Push the Knitter needles having the Ribber stitches up to D position.

At each step in increasing stitches, transfer required number of Ribber stitch from the knitter to corresponding Ribber empty needles pushing back the Knitter needles to B position.

Other operations should be carried out in the same manner as decreasing.





## Waste knitting

1. On Knitter, push up empty needles to B position.

2. Transfer stitches from Ribber to corresponding Knitter needles.

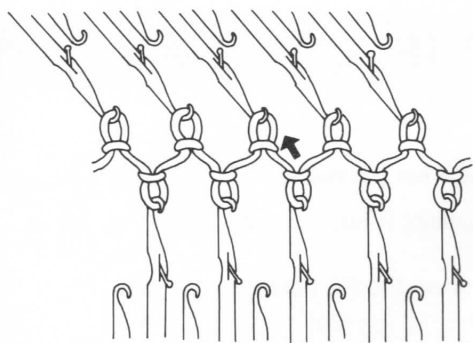
Drop Ribber to its lowest position.

3. Exchange Ribber Arm for Knitter Arm and thread a contrast yarn through Yarn Feeder.

Knit 9–10 rows with Stitch Dial 4–5 higher.

4. Remove yarn and Weights.  
Set Pattern Dial to "0".

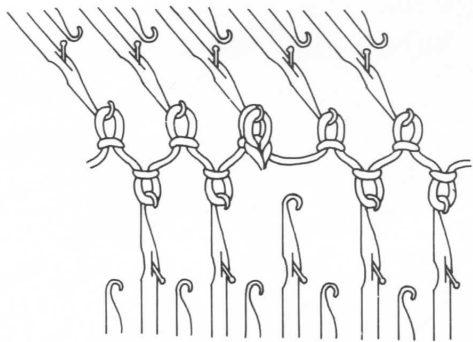
Holding Cast-on Comb, move Carriage to remove fabric from machine.



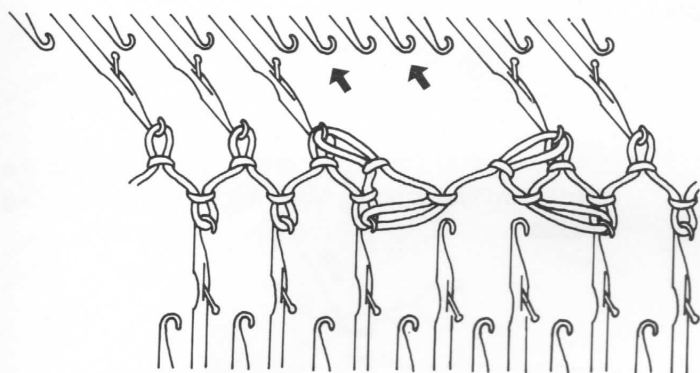
## Buttonhole

Single stitch eyelet.

- (1) At the point for eyelet, transfer 1 stitch from Ribber to Knitter.



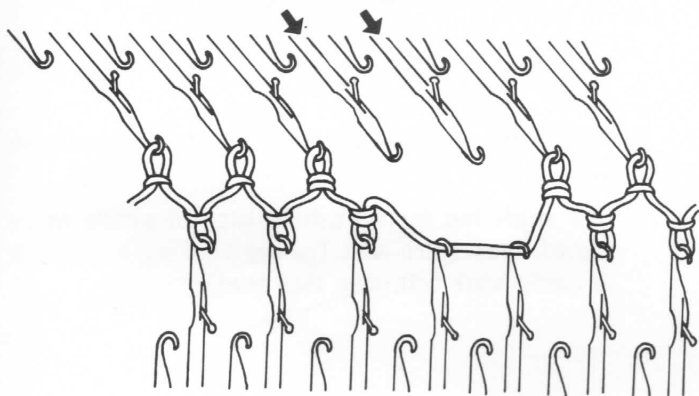
- (2) Leave empty needle in B position. Continue to knit.



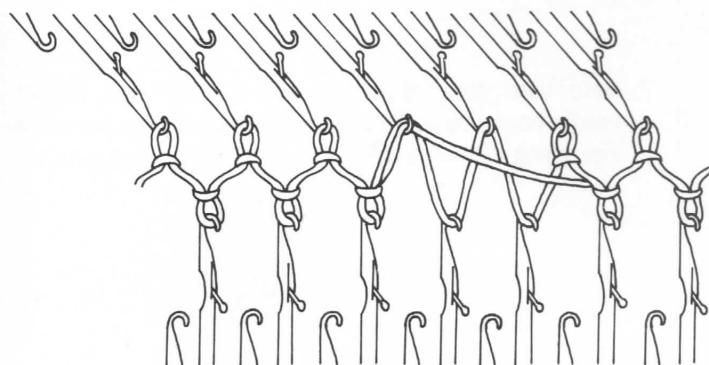
Double stitch eyelet.

- (1) Transfer 2 stitches on Knitter onto their adjacent stitches at the point for the buttonhole. Work the same on Ribber.

- (2) Push empty needles on Knitter to A position. Leave empty needles on Ribber in B position.



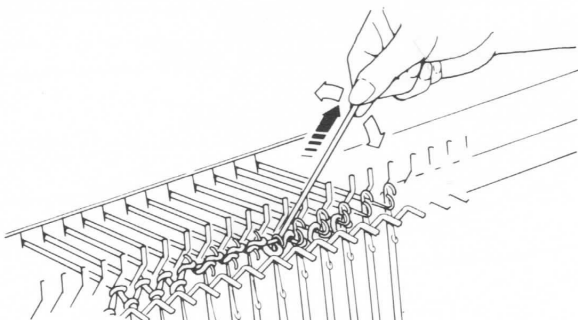
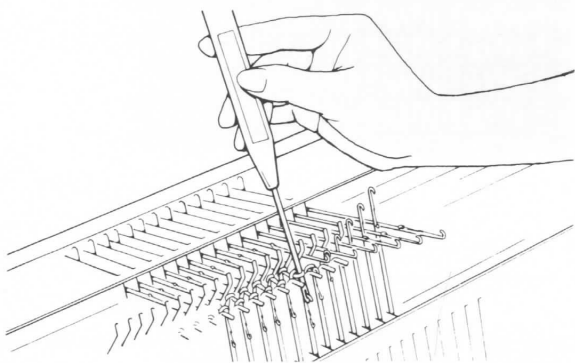
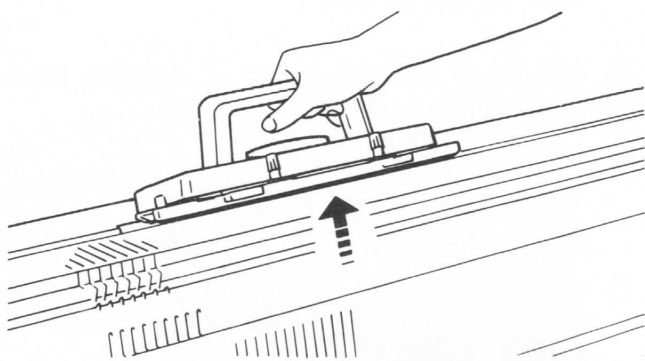
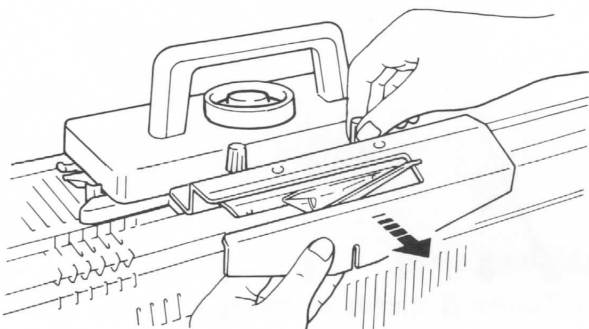
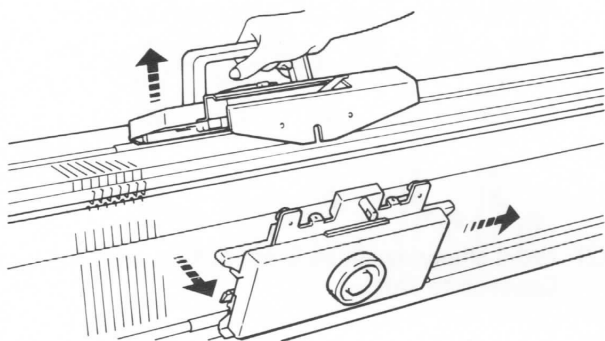
- (3) Knit 1 row, then on Knitter, push up needles to B position from which stitches were transferred to adjacent needles.



- (4) Knit one row.

- (5) Hook hanging yarn on Knitter needle. Continue to knit.

## WHAT TO DO IF



### If Carriage has jammed...

1. Disconnect Ribber Carriage from Arm.
2. Lay down the RC Lever.
3. Tilt Carriage towards you and move it to either end of Needle Bed.  
DO NOT PUSH OR PULL THE CARRIAGE BY FORCE.

4. Remove Ribber Arm from Knitter Carriage.

5. Lifting front of Carriage as shown, move it across the needles without knitting till it has cleared the working needles.

6. Align Knitter and Ribber needles in their original position.

If a stitch has slipped behind latch of needle to be aligned, catch stitch with Transfer Tool and put it back to needle hook first, then align needles.

7. Hold yarn and unhook it from Knitter and Ribber needle hooks by pulling it in the arrowed directions in a zigzagging manner until yarn comes to Carriage side.

### If a needle has been damaged...

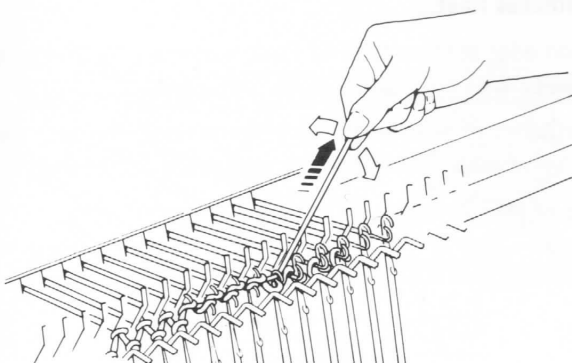
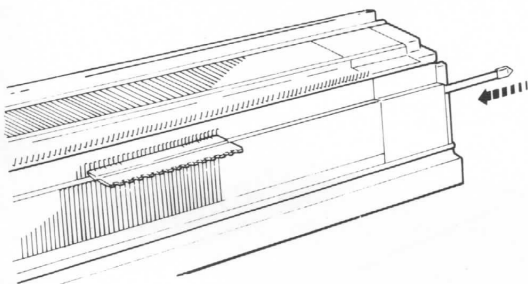
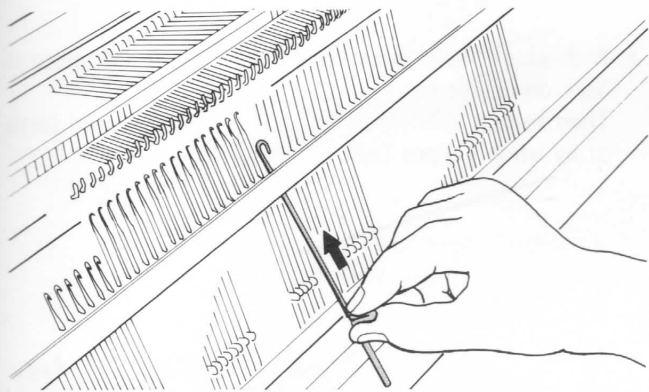
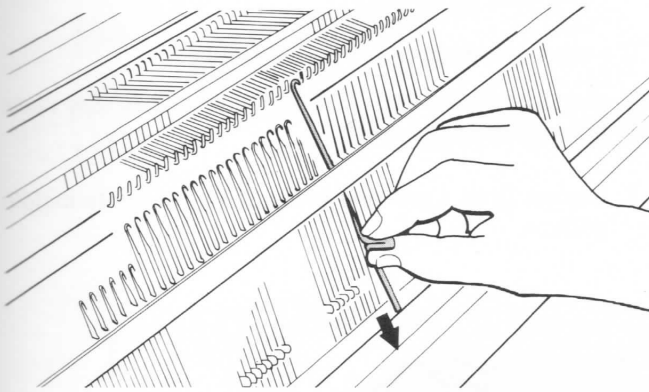
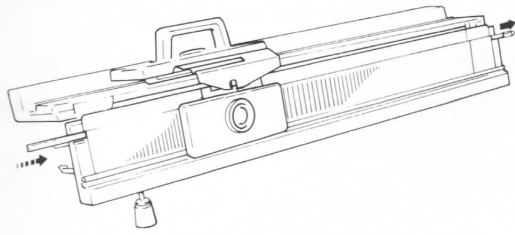
A Ribber needle can be replaced in the same manner as applied for replacing a needle on Knitter.

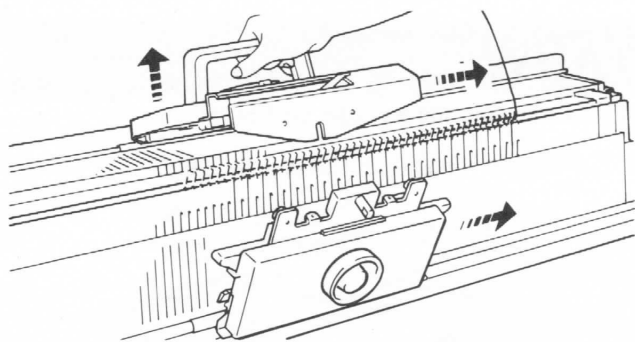
1. Pull Needle Retainer out of Needle Bed.
2. Push damaged needle to D position and lift it out of groove by lifting butt.
3. To replace a new needle, insert it into groove with its hook first.

4. Depressing needles with Needle Pusher, insert Needle Retainer.

### If you have made a mistake in knitting...

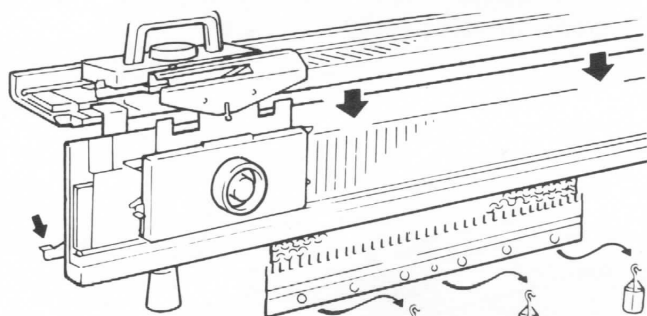
1. Unravel the row incorrectly knitted. To unravel stitches, hold yarn and unhook them from Knitter and Ribber needles by pulling yarn in the arrowed directions in a zigzag manner.
2. Align needles in B position, then...
  - a. If row Counter and Knit Tracer (option) are in use, return the same number of rows as unravelled.





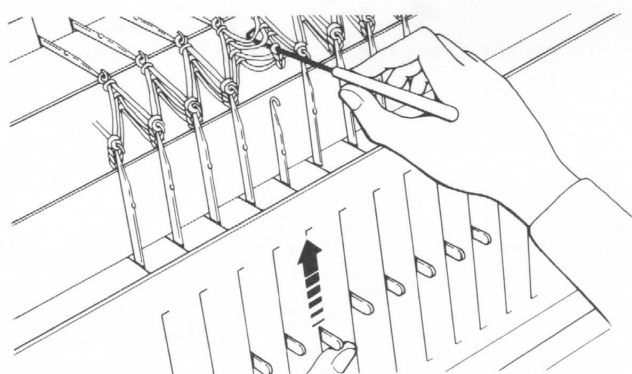
b. If yarn comes to the side opposite Carriage.

- (1) Disconnect Ribber Carriage from Arm and move it to yarn side while tilting Carriage.
- (2) Remove Ribber Arm from Knitter Carriage.
- (3) Lifting up front of Carriage, move the Carriage to the side of the yarn.

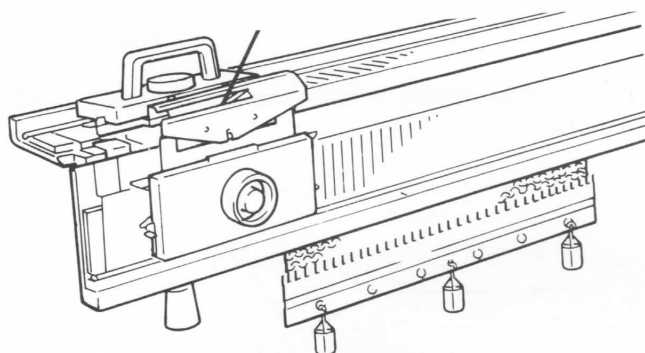


#### If a stitch has dropped...

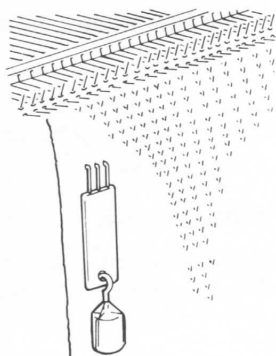
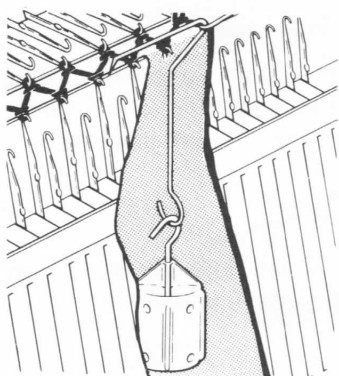
1. Remove Weights from Cast-on Comb as they may cause dropped stitches to run.
2. Depress Drop Lever and bring down Ribber to middle position.



3. With Hook Tool, pick up dropped stitch and place it back on needle hook. Then reform stitches by moving needle back and forth or by using Tappet Tool.



4. Raise Ribber to original position, hook Weights on Cast-on Comb and align needles.



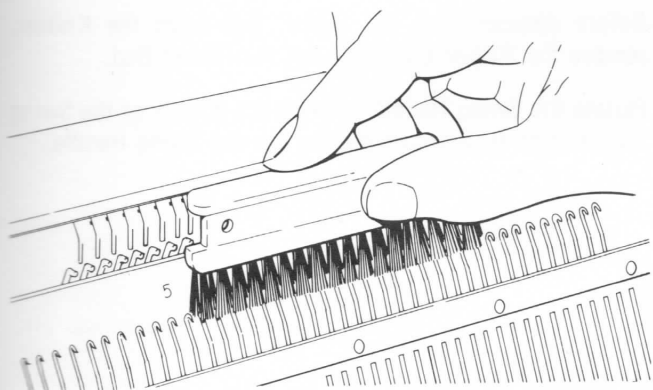
#### If stitches float...

When edge stitches tend to float, suspend Edge Weight and advance it at an interval of 10 – 15 rows.

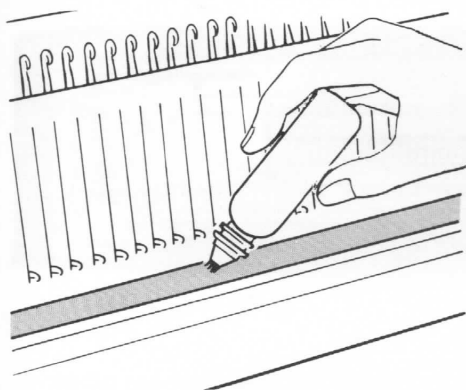
If stitches of half length of knitting float, check to see if Cast-on Comb with Weights is suspended horizontally.

Use of Hanger Comb with Weight is also effective.

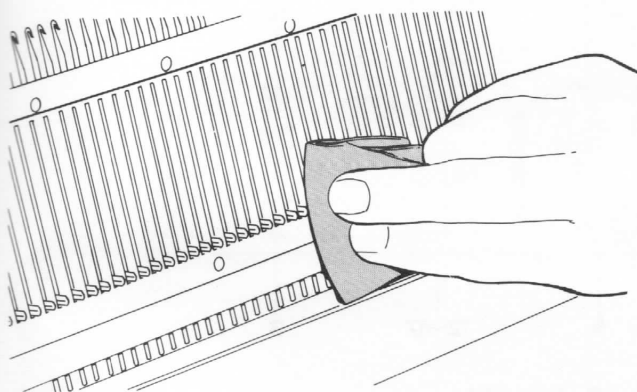
## MAINTENANCE



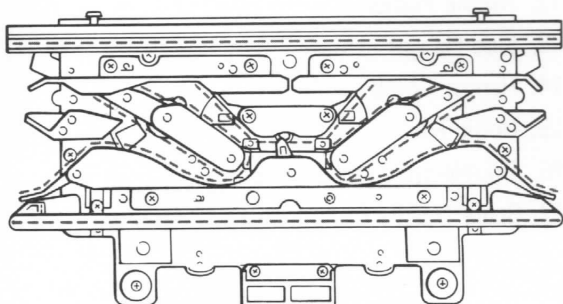
1. With cleaning Brush remove lint or dust from Needle Bed.



2. Apply lubricant to sliding parts of Needle Bed. Do not apply excessive lubricant. (Rub off the excessive oil with a cloth.)

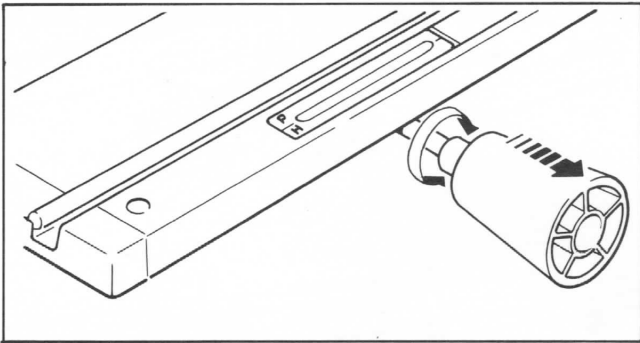


3. Rub latch needle butts with oil damped cloth.



4. Clean underside of Carriage and apply oil over sliding parts with oil damped cloth.

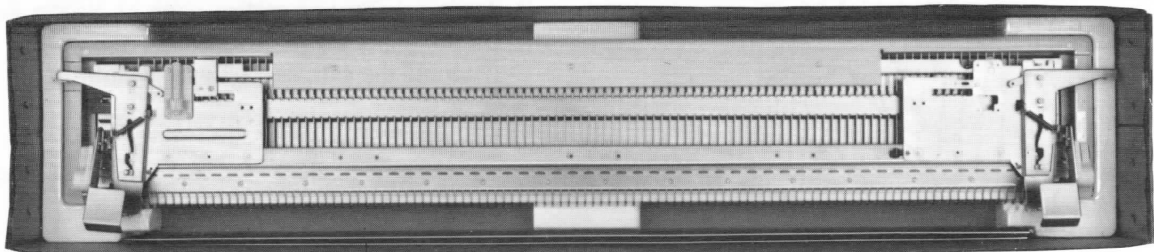
## REPACK RIBBER



Before disassembling the Ribber Bed from the Knitter, remove the Ribber Carriage from the Ribber Bed.

Rotate the Swing Handle to bring the pointer of the Swing Indicator to H-6 before pulling out the Swing Handle.

Place the Styrene foam rest at each end of the carton box, and place the Ribber Bed with its rear side up on those rests properly.

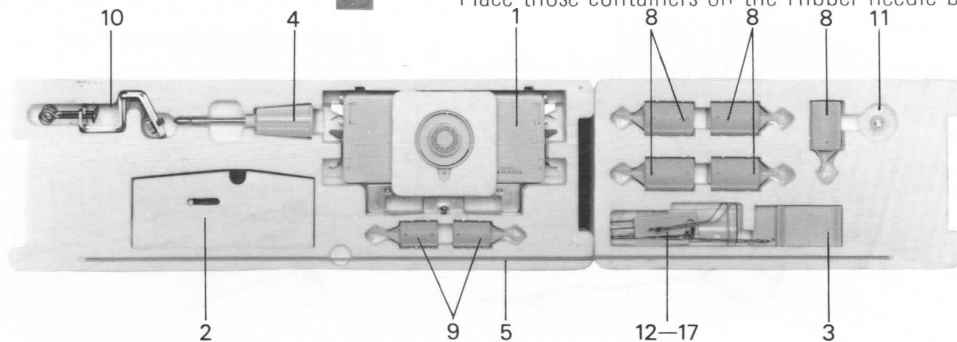


6-7



Put back the Ribber Carriage, Arm and all the accessories to the styrene foam accessory container.

Place those containers on the Ribber needle bed.



- |   |  |
|---|--|
| 1. Ribber Carriage                              | 9. Edge Weight                             |
| 2. Ribber Arm                                   | 10. Ribber Clamp                           |
| 3. Needle Aligner                               | 11. Ribber Tuck Brush                      |
| 4. Swing Handle                                 | 12. Needle Pusher                          |
| 5. Close Knit Bar                               | 13. Side Hanger                            |
| 6. Cast-on Comb (long)<br>Cast-on Wire (long)   | 14. Hanger Comb                            |
| 7. Cast-on Comb (short)<br>Cast-on Wire (short) | 15. Hook Tool                              |
| 8. Ribber Weight (large)                        | 16. Double-eye Transfer Tool               |
|   | 17. Spare Needle Envelope (inc. 2 needles) |



# MEMO

# MEMO





"TOYOTA" Sewing & Knitting Machines by  
AISIN, a Member of The TOYOTA Group.

3812411-948

ENGLISH

PRINTED IN JAPAN

"TOYOTA" FASHIONS YOUR FUTURE

**AISIN SEIKI CO., LTD.**

Kariya City 448, Japan.