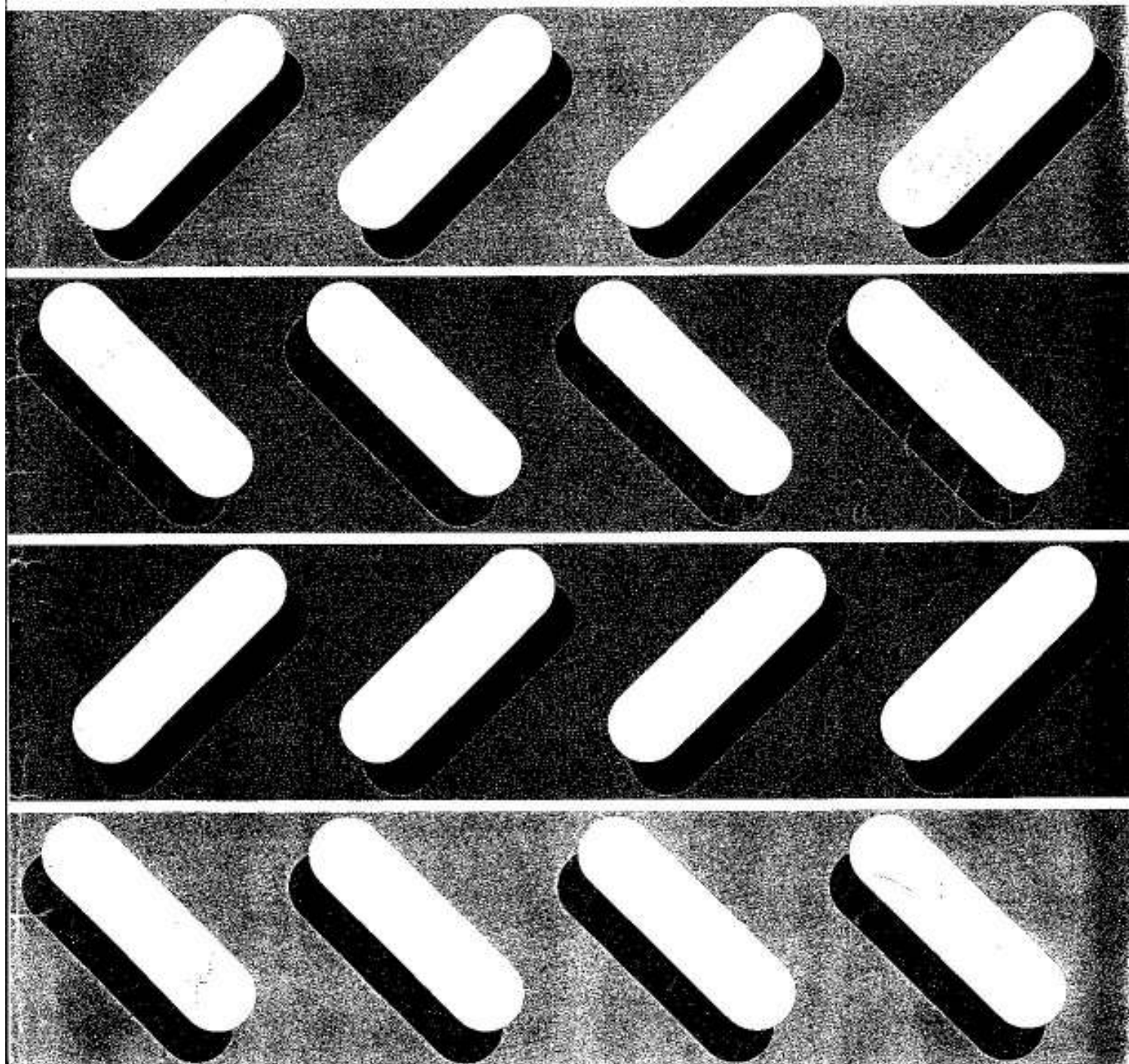


# INSTRUCTION BOOK



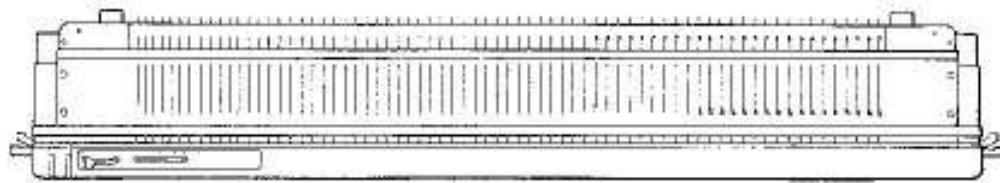
Ribbing Attachment **MOD. SRP 60**

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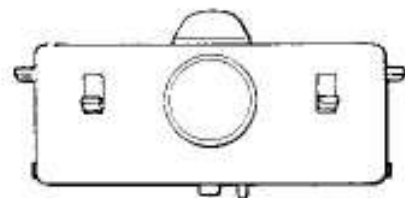
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# MACHINE AND ACCESSORIES

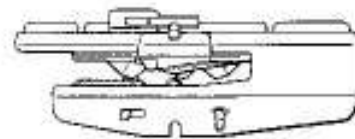
RIBBER  
NEEDLE BED



SWING HANDLE

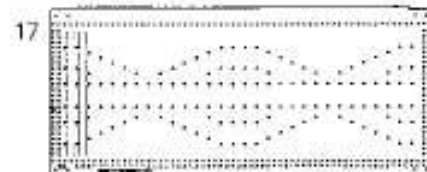
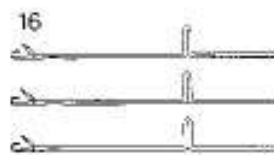
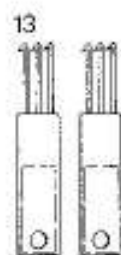
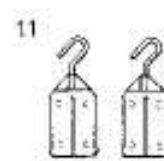
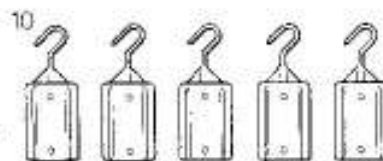
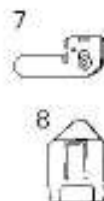
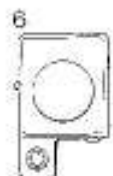
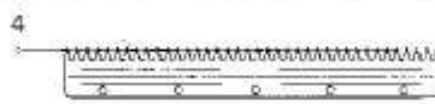
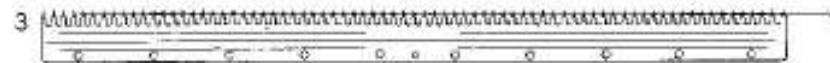
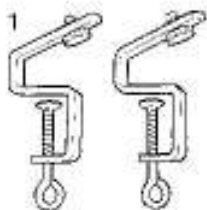


RIBBER CARRIAGE



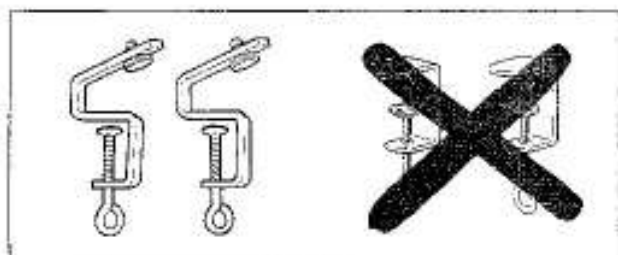
RIBBER ARM

## ACCESSORIES



1. Ribber Clamp (2)
2. Needle Pusher (2/2 — 2/1)
3. Cast-on Comb (long)  
Cast-on Wire (long)
4. Cast-on Comb (short)  
Cast-on Wire (short)
5. Close Knot Bar
6. P Carriage
7. P Presser
8. Driving Cam
9. Flating Yarn Feeder
10. Ribber Weight (large) (5)
11. Edge Weight (2)
12. Side Hanger (2)
13. Hanger Comb (2)
14. Double-eye Transfer Tool
15. Hook Tool
16. Spare Needle (3)
17. Punch Card (10)

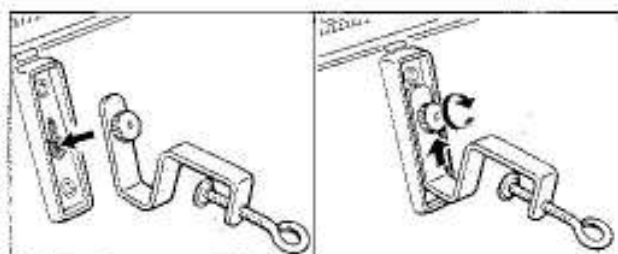
## SETTING THE RIBBER ON THE KNITTER



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

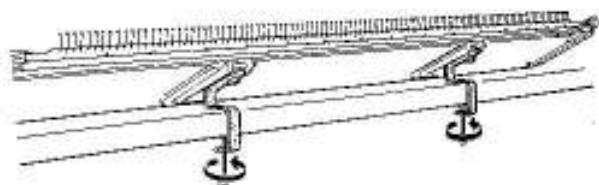
① Take Ribber Clamps and turn screws in arrowed direction as far as they go.

DO NOT USE KNITTER CLAMPS.



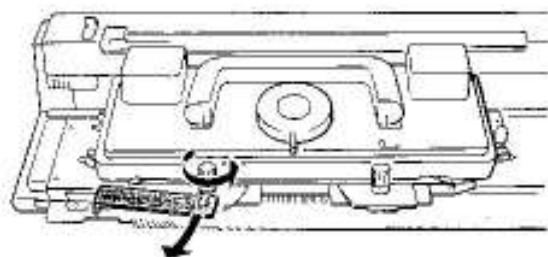
② Raise front of Knitter and insert screw head into keyhole slot.

③ Pull Clamps upwards and tighten screws.



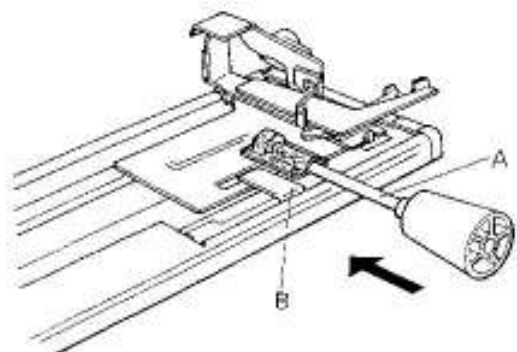
④ Place Clamps on table edge and push them backwards until they are against the table. Tighten Clamps firmly by turning screws in arrowed direction.

DO NOT OVER TIGHTEN.



2. Remove Carriage Fastener.

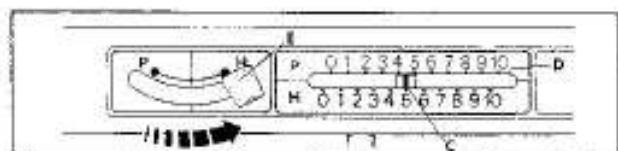
DO NOT ATTACH KNITTER ARM TO CARRIAGE. LACE CARRIAGE MUST NOT BE USED WITH RIBBER.



3. Insert Swing Handle shaft "A" into Swing Bearing "B" at the back of the left side of Ribber.

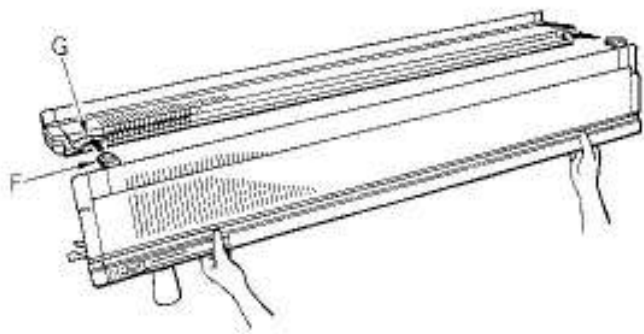
Push and twist handle until it clicks into position.

Ensure that Pointer "C" on Swing Indicator "D" moves when turning Handle to the left and the right.



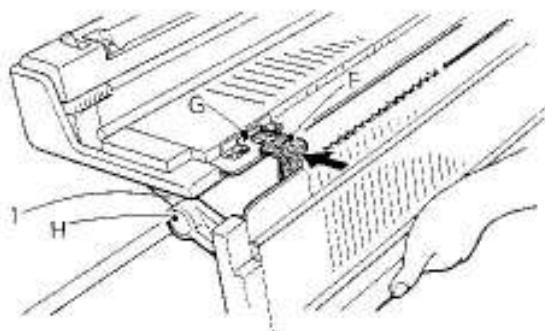
Set Half-Pitch Lever "E" to H.

By turning Handle, set Indicator Pointer "C" at 5 on lower scale H.

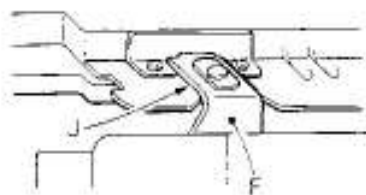


4. Hold Ribber with both hands and insert the Ribber Joiners "F" on both sides of the Ribber into Ribber Joiner Slots "G" at both ends of the Knitter.

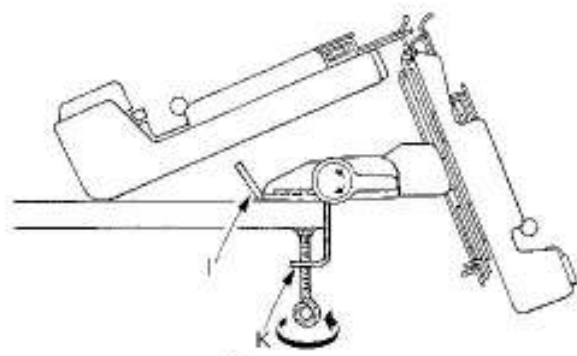
Insert the right side first, then the left side.



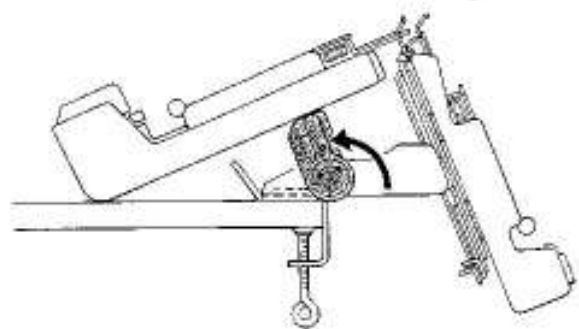
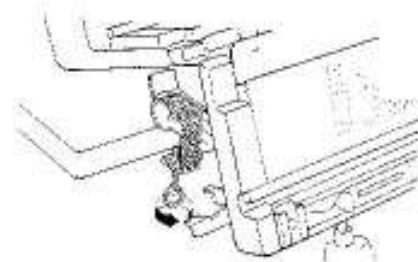
Ensure that the Push-up Cams "H" are in resting position, and Ribber Joiner Supports "I" are on the table.



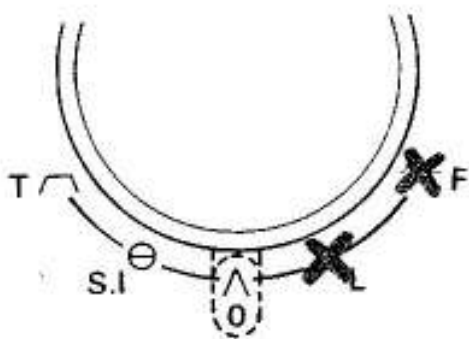
Fit closely between Ribber Joiner and edge of the Needle Bed "J".



5. With Knitter Clamps "K", secure front of Ribber Joiner Supports "I" on the table.



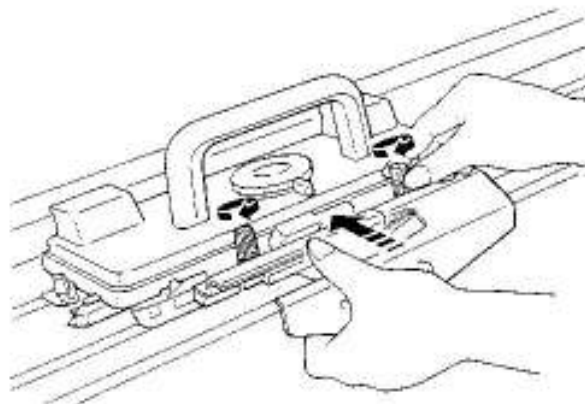
6. Rise both Push-up Cams in arrowed direction to avoid the Knitter becomes bent.



7. Set Cam Lever on Knitter to Stockinet (O).

**IMPORTANT**

Cam Lever should never be set to FAIR ISLE (X) or PUNCH LACE (A).



8. Loosen both Arm Nuts of Knitter Carriage.

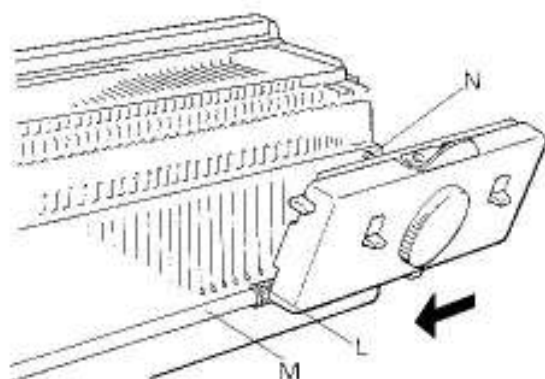
Take Ribber Arm and slide it under two Arm Nuts.

Push Ribber Arm as far back as it goes and tighten Arm Nuts firmly by turning them in arrowed direction.

**IMPORTANT**

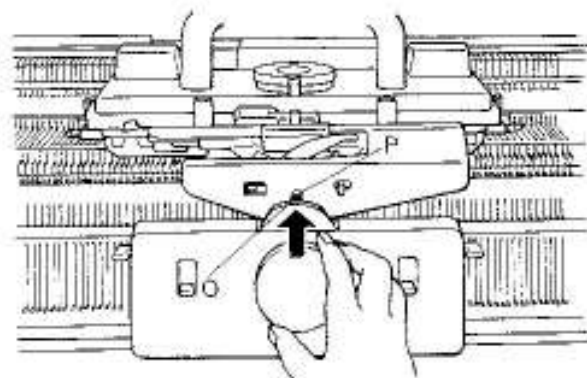
Ensure that Arm Nuts fit correctly into cutout of Ribber Arm.

Do not remove or attach Ribber to Knitter with the Ribber Arm on Knitter Carriage.



9. Take Ribber Carriage and fit its Pipe "L" on the Ribber Rail "M" from the right side.

Tilt the Ribber Carriage towards you to clear the Stopper Pin "N" on Ribber Needle Bed.



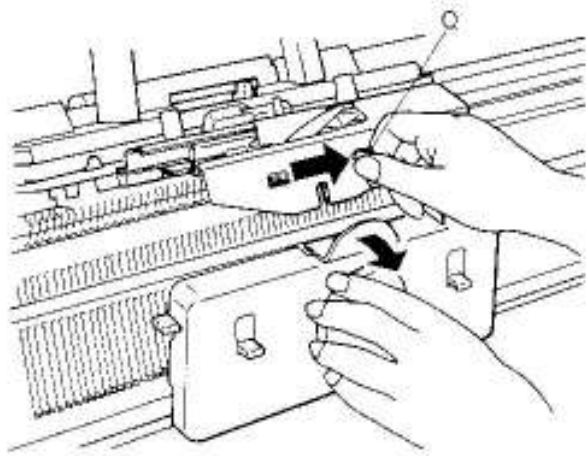
10. Slowly move the Ribber Carriage towards the Knitter Carriage

and tilt the Carriage to place it in front of the Ribber Arm.

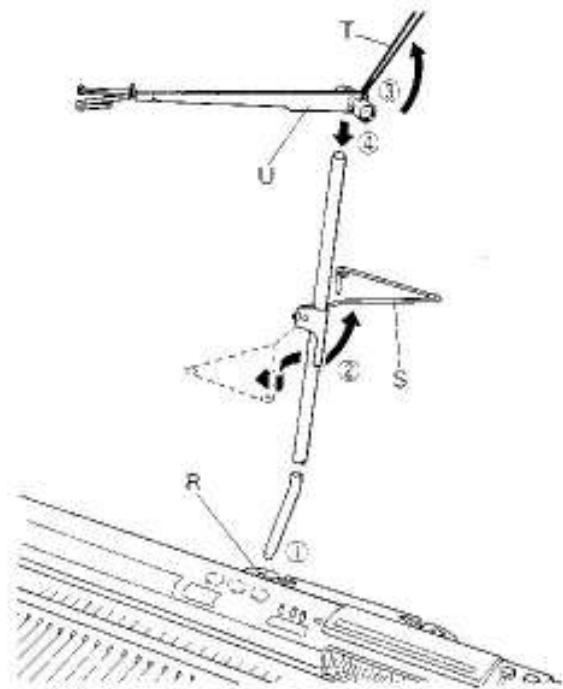
Insert Link Pin "G" into slot "P" of Ribber Arm until it clicks.

**CHECK POINT**

Move Carriage a few times across Needle Bed to ensure Knitter/Ribber Carriage and Ribber Arm are assembled correctly.



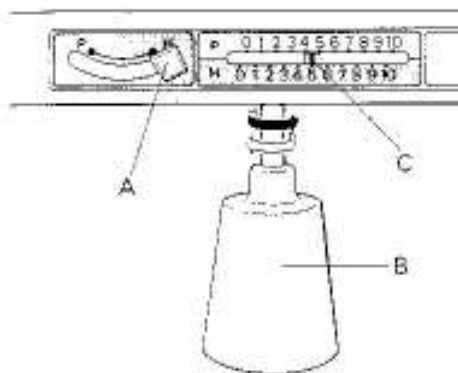
To release Ribber Carriage from Ribber Arm, push Link Knob "G" towards right and tilt the Carriage.



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

- ① Insert the bent end of Yarn-Rod into either bracket socket "R" at both sides of Carrying Handle.
- ② Turn Tension Guide "S" to the back of the Yarn Rod.
- ③ Turn Tension Spring "T" upwards till they click into position.
- ④ Place the Auto-Tension "U" on top of the Yarn-Rod by fitting the slot.

# RIBBER NEEDLE BED



## Half-Pitch Lever

There are two setting positions (**P** or **H**) for Half-Pitch Lever "A". Moving the Half-Pitch Lever changes the position of the ribber needles.

## Swing Handle

By rotating Swing Handle "B" to the right or left, Ribber Needle Bed can be moved right and left.

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

## Swing Indicator

Swing Indicator "C" shows position of Ribber Needle Bed against Knitter Needle Bed.

## P Scale

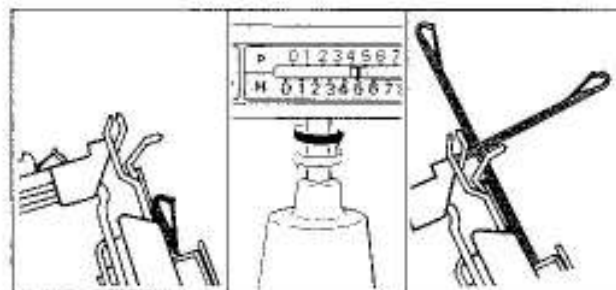
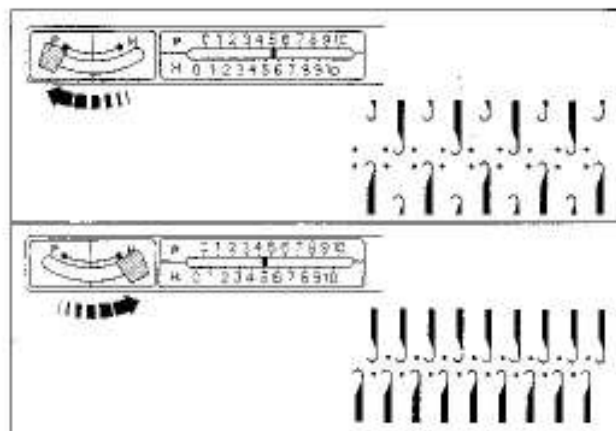
When the Half-Pitch Lever is set at **P** position, the needles on the Ribber are in face position with Knitter needles.

This scale is used when every other needles are used.

## H Scale

When the Half-Pitch Lever is set at **H** position, 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 while needles are in C or D position on both beds.*

## Needle Positions

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

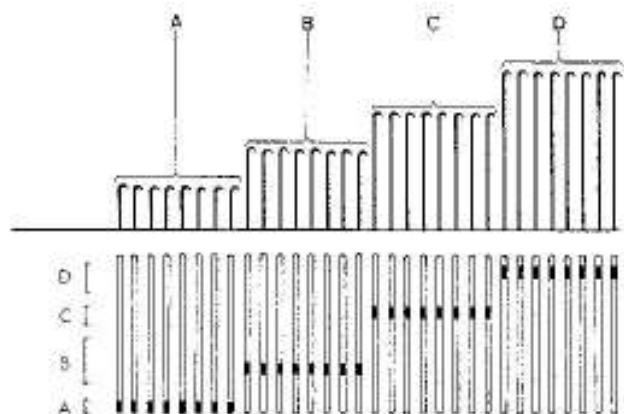
These four needle positions are used during knitting.

A — Non-working position

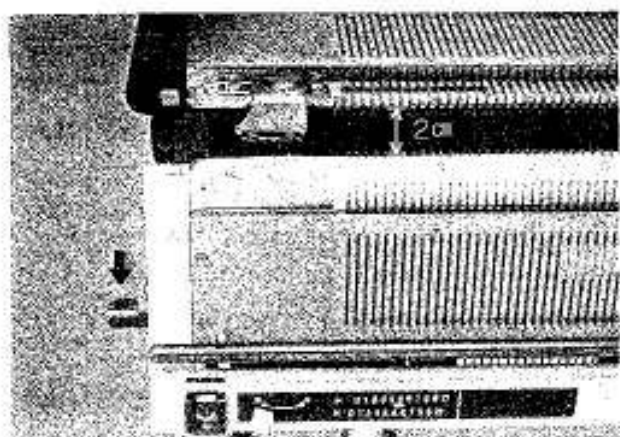
B — Working position

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  $\equiv$  position.)





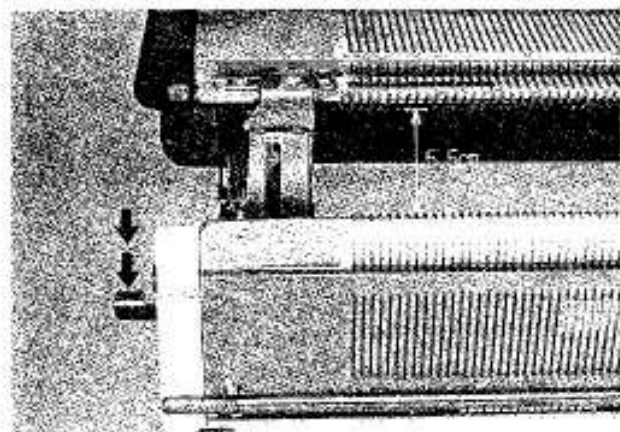


### Drop Levers

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

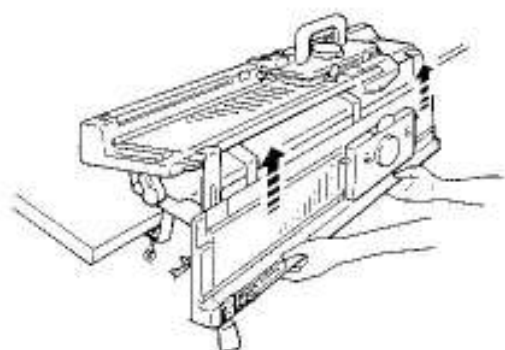
#### Middle position

Depress Drop Levers on both sides once, and Ribber Bed is lowered to its middle position. This position is used when picking up stitches.



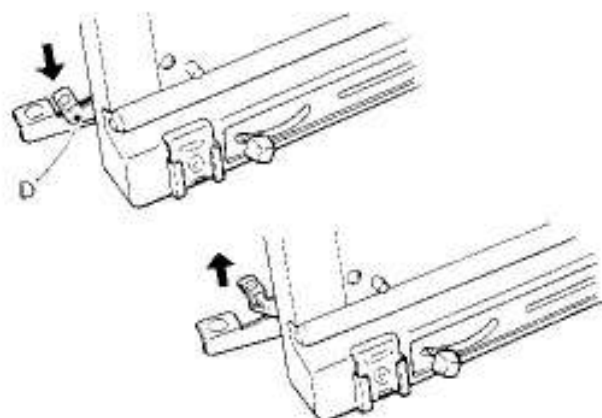
#### Lowest position

Depress Drop Levers twice, and Ribber Bed is lowered to its lowest position. This position is used when knitting only on Knitter.



To restore Ribber Bed to its top position, push up both ends of the Ribber simultaneously.

Knit Rib stitches with this position.



### Pile Levers

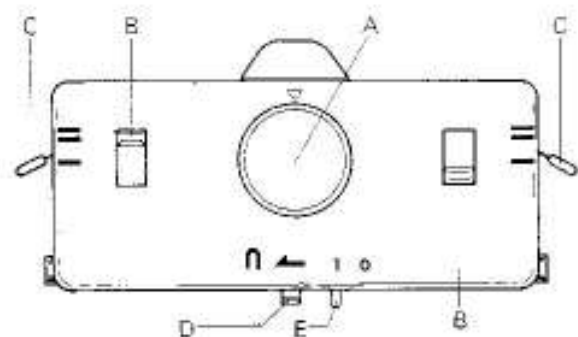
Pile Levers are located above Drop Levers and used to broaden the distance between Knitter and Ribber.

For pile knitting, press down the Pile Levers "D" until click.

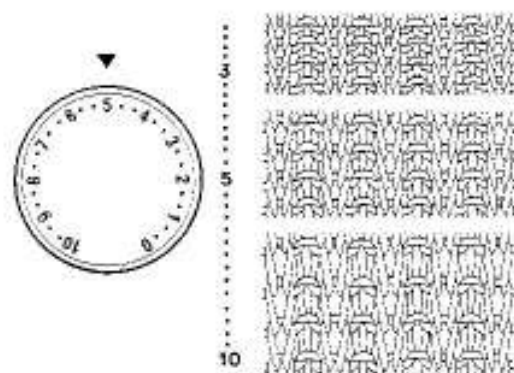
For normal knitting, ensure both Pile Levers are in upper position.

To restore the levers to upper position, raise them up with your fingers.

# RIBBER CARRIAGE



- A — Stitch Dial
- B — Set Levers
- C — Russel Levers
- D — Pick Knob
- E — Auto-set Lever



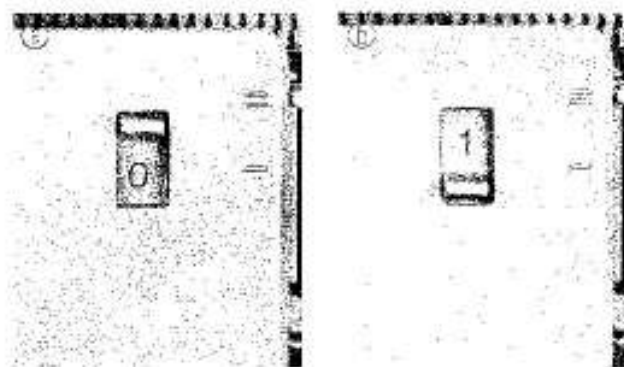
## Stitch Dial

Controls stitch size.

Set a selected number or set to  $\nabla$  mark.

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

According to the thickness of yarn to be used, select proper setting of Stitch Dial. (Refer to page 16)



## Set Levers

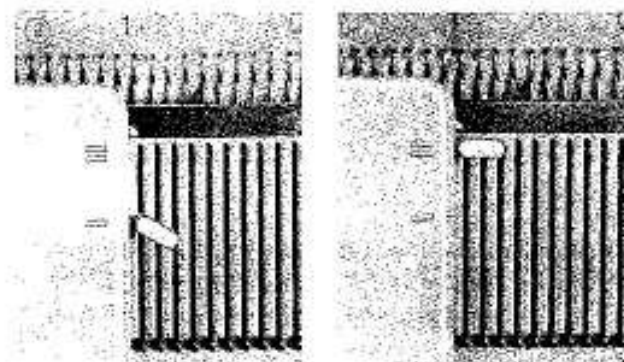
Control needles in "B" position.

When Pick Knob is set at " $\blacktriangleleft$ ", the Set Levers functions as described below.

- Ⓐ NON KNITTING POSITION, needles in B position will not knit.
- Ⓑ KNITTING POSITION, needles in B position will knit.

Left Lever works when the Carriage moves to the left.

Right Lever works when the Carriage moves to the right.



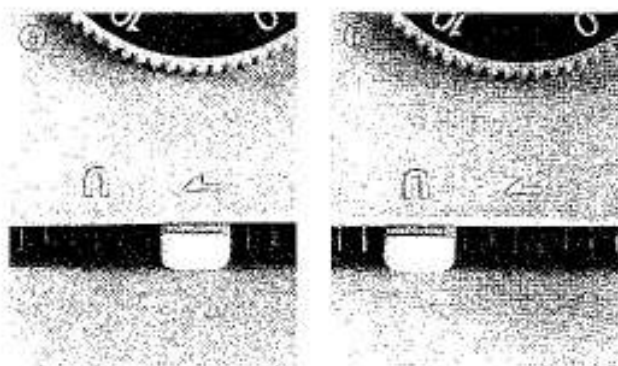
## Russel Levers

Control needles in "D" position.

- Ⓐ NON KNITTING POSITION, needles remain in D position.
- Ⓑ KNITTING POSITION, needles in D position will knit back to B position.

Left Lever works when the Carriage moves to the left.

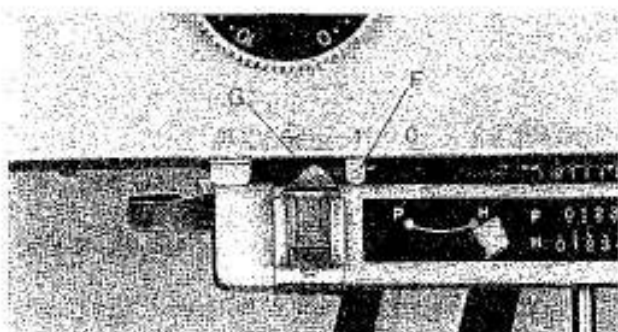
Right Lever works when the Carriage moves to the right.



### Pick Knob

Works on the needles in B position when Set Lever on the leading side is set at **0**

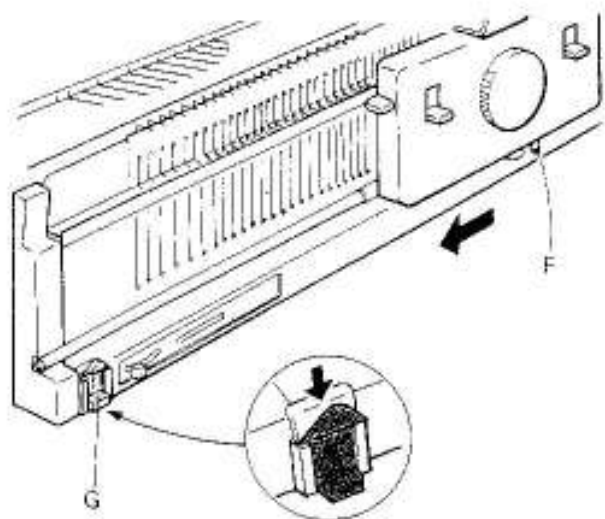
- Ⓐ NON-KNITTING POSITION, yarn is not knit.
- Ⓑ PICK POSITION, yarn is laid into needle hook on y.



### Auto-set Lever and Driving Cam

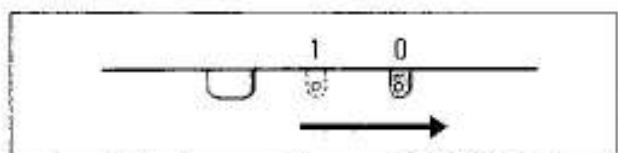
Auto-set Lever "F" controls the needles in B position instead of the Set Levers and select KNITTING or NON-KNITTING course automatically every second row in combination with Driving Cam "G".

Used to knit Pick R/B (refer to pages 35, 36) and Double-face knitting (refer to pages 50 ~ 52).



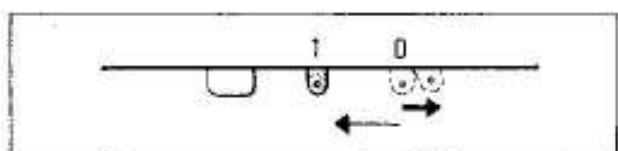
Operate the Auto-set Lever as follows:—

1. Set both Set Levers to 1.
2. Insert Driving Cam into the position at the left end of the Ribber.
3. Move the Carriage to the extreme left until the Auto-set Lever is actuated by the Driving Cam.



To change the position of Auto-set Lever manually,

(From 1 to 0)  
Push the Lever to the right.

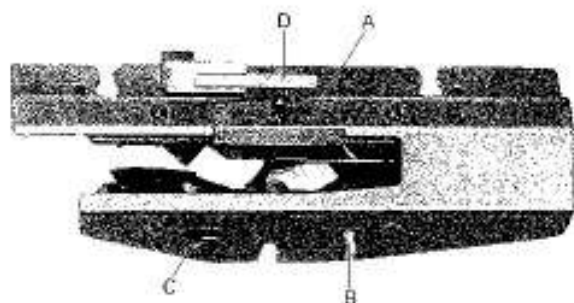


(From 0 to 1)  
Push the Lever slightly to the right, then release it.

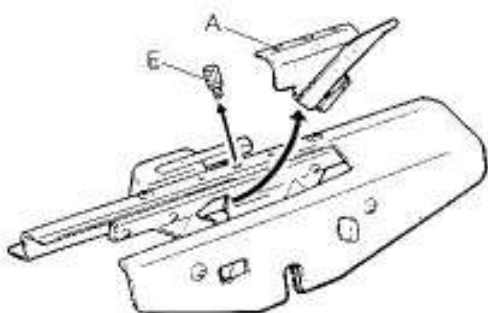
**Note:**

When the Auto-set Lever is not in use, remove Driving Cam from the Ribber and be sure to set Auto-set Lever to 1. (If the Auto-set Lever is at 0 position, Set Levers will not function properly.)

# RIBBER ARM



- A — Main Yarn Feeder
- B — Link Knot
- C — Auxiliary Yarn Feeder Lever
- D — Driving Lever



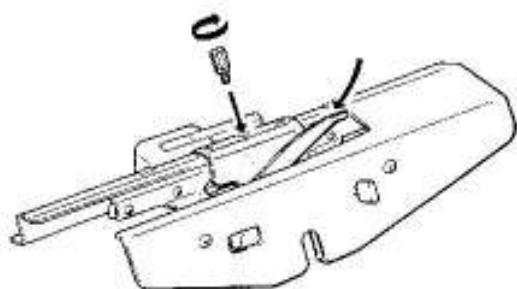
## Main Yarn Feeder

Use Main Yarn Feeder except plating rib knitting (refer to page 37 — 38).

When plating rib knitting, exchange Main Yarn Feeder for plating Yarn Feeder "F".

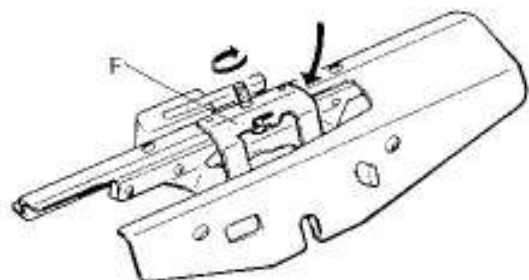
How to remove Yarn Feeders.

Remove Yarn Feeder Screw "E" by turning. Slide the Yarn Feeder "A" to the right and lift it off.

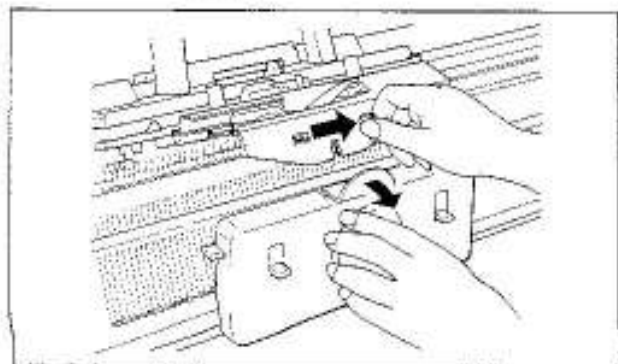


## How to attach Yarn Feeders

With feeder side facing you, insert it from the right side and match both securing holes of Yarn Feeder and Arm. Secure them with Yarn Feeder Screw.

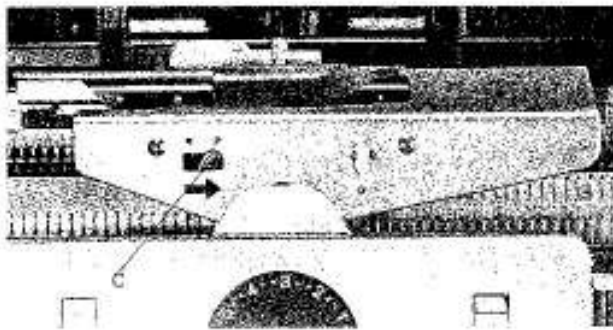


*Use Plating Yarn Feeder "F" only for plating rib knitting.*



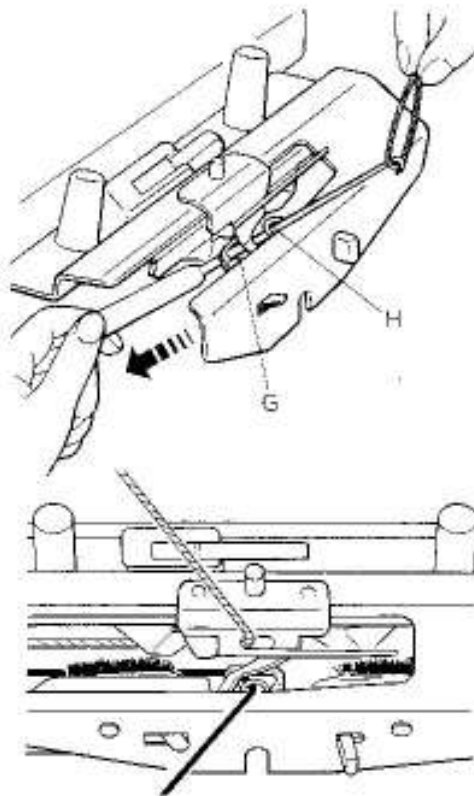
## Link Knob

Push the Knob to the right to disconnect Ribber Carriage.



### Auxiliary Yarn Feeder Lever

Set Auxiliary Yarn Feeder Lever "C" to **P** mark to work pile knitting, and Auxiliary Yarn Feeder comes out to the operating position.

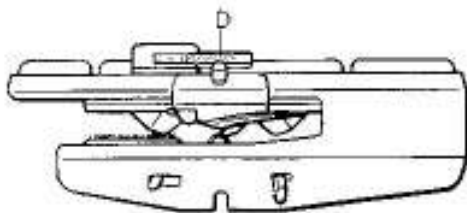


### How to feed Auxiliary Yarn Feeder

1. Remove Ribber Carriage from Arm using Link Knob, and lower the Ribber to the middle position by depressing Drop Levers once.
2. Move the Carriage to the left end of the Needle Bed until the Yarn Feeder comes out of Bed.
3. Make a loop on yarn end and hold it above Auxiliary Yarn Feeder.
4. Insert Hook Tool from underneath through Auxiliary yarn Feeder "G" and Yarn Guide "H", then catch yarn loop.
5. Pull Hook Tool downwards, threading yarn through Yarn Guides and Auxiliary Yarn Feeder.
6. Insert the yarn between both Needle Beds, tigh the yarn end to hook of Weight on Cast-on Comb and restore the Ribber.
7. Connect Ribber Carriage to Arm.

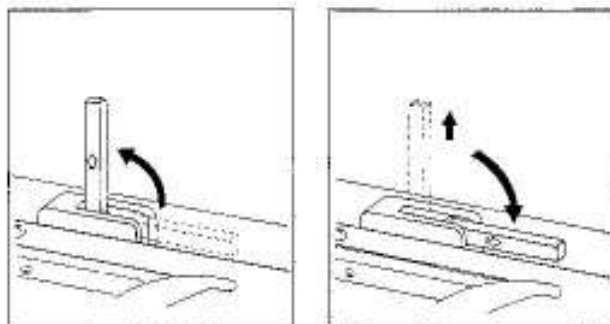
Ensure Ribber needles are correctly lined up in B position.

*Set Auxiliary Yarn Feeder Lever always to ● mark except pile knitting.*



### Driving Lever

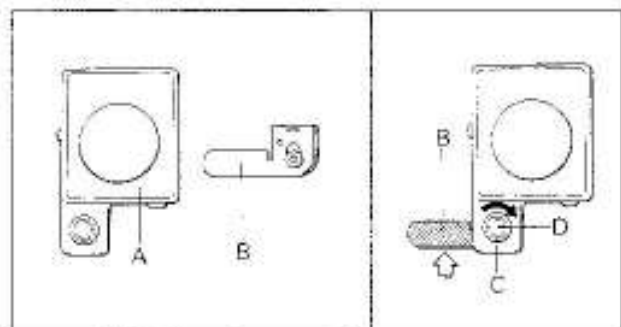
When knitting with Yarn Changer, raise this lever "D".



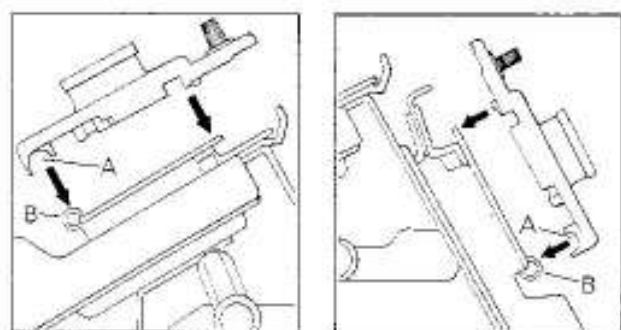
When knitting without Yarn Changer, keep this lever in the rest position.

To put lever in the rest position, lift it slightly, then lay it down.

## P CARRIAGE

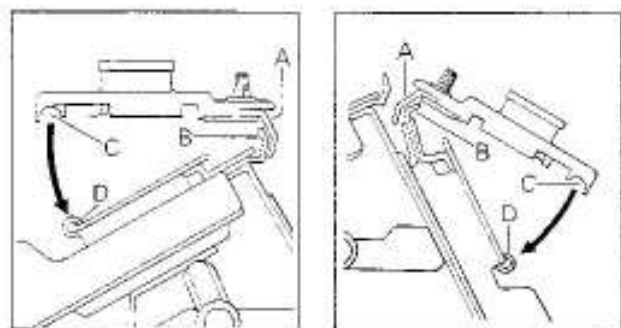


In drive lace knitting, use P Carriage "A" without P Presser "B".  
In pile knitting, use P Carriage "A" with P Presser "B" attached.  
Place P Presser "B" underneath Arm "C" and secure with fastening screw "D".



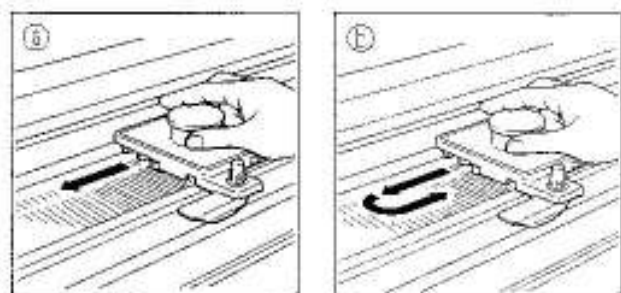
### WITHOUT P PRESSER

Place P Carriage straight onto Knitter or Ribber Needle Bed ensuring rail guide "A" fits correctly on rail "B".



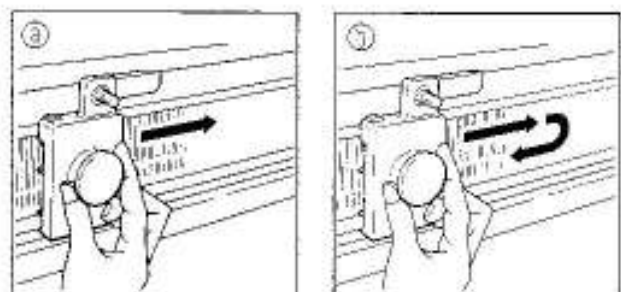
### WITH P PRESSER ATTACHED

Place P Presser "A" over sinker posts "B" first, then place rail guide "C" onto rail "D".



On Knitter always start from the right side.

- (a) Move P Carriage once (right → left).  
Stitches will be behind latches and needles are aligned in C position.
- (b) Move P Carriage twice (right → left → right).  
Stitches have slipped off needles.

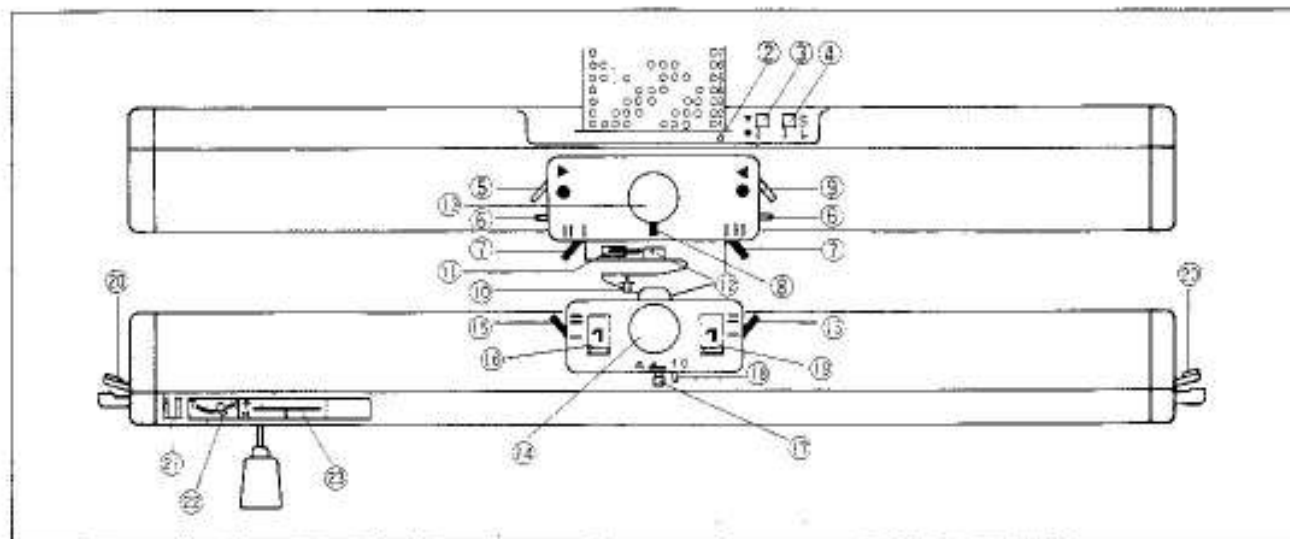


On Ribber always start from the left side.

- (a) Move P Carriage once (left → right).  
Stitches will be behind latches and needles are aligned in C position.
- (b) Move P Carriage twice (left → right → left).  
Stitches have slipped off needles.

# OPERATION TABLE

For Cast-on and main knitting, Operation Table gives settings and operation of machine.



PATTERN PANEL	②	Pattern Row Number *	*Set the Punch Card only when ↓ mark is denoted. **Always set L Knob to <b>S</b> .
	③	Stop Knob	
	④	L Knob **	
KNITTER CARRIAGE	⑤	Side Lever (left)	*Always set Intarsie Levers at <b>I</b> . **Except partial knitting, set Russe' Levers at <b>II</b> .
	⑥	Intarsie Levers *	
	⑦	Russe' Levers **	
	⑧	Cam Lever	
RIBBER ARM	⑨	Side Lever (right)	*Except plating, install Main Yarn Feeder.
	⑩	Auxiliary Yarn Feeder Lever *	
	⑪	Driving Lever	
STITCH DIALS	⑫	Yarn Feeder *	*Set the Stitch Dials referring to table on page 15!
	⑬	Knitter Stitch Dial *	
RIBBER CARRIAGE	⑭	Ribber Stitch Dial *	*Except partial knitting, set Russe' Levers at <b>II</b> .
	⑮	Russe' Levers *	
	⑯	Set Lever (left)	
	⑰	Pick Knob	
	⑱	Auto-set Lever	
RIBBER NEEDLE BED	⑲	Set Lever (right)	*Set Pile Lever to upper position when ↑ mark is denoted and set them to lower position when ↓ mark. **Install Driving Cam only for Pick Rib and Double Face knitting.
	⑳	Pile Levers *	
	㉑	Driving Cam **	
	㉒	Half-Pitch Lever	
	㉓	Swing Indicator	





# YARN AND STITCH DIALS



Stitch Dial setting will vary according to thickness of yarn and type of knitting. Picture shows actual size of yarns.

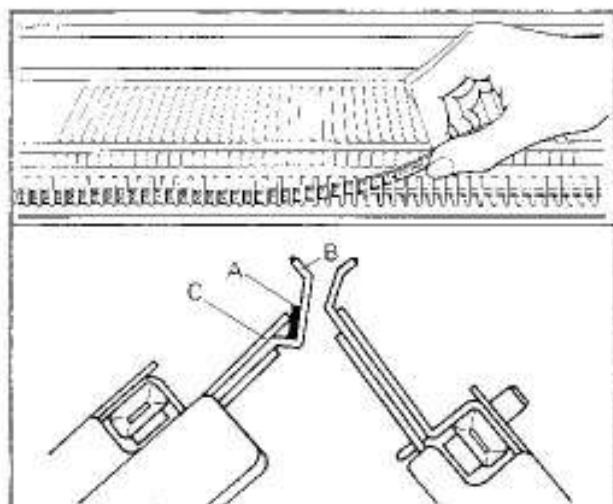
Very thick yarns (⑥, ⑦) are not suitable for rib knitting.

The table below shows the recommended Stitch Dial settings for each type of yarn and type of knitting.

For your reference, recommended numbers are shown below:

TYPE OF YARN		thin ① ②		light ③ ④		medium ⑤ ⑥		thick ⑦ ⑧	
TENSION DIAL		7		5-7		3-5		1-3	
STITCH DIAL									
CAST-ON (every needle selection)	initial row	0	0	0	0	0	0	-	-
	subsequent rows	0	0	1	1	2	2	-	-
CAST-ON (every other needle selection)	initial row	-	-	0	0	0	0	0	0
	subsequent rows	-	-	0	0	0	0	2	2
DOUBLE RIB		0-1		1-2		3-4		-	
K1, P1, RIB		-		0-1		2-3		6-7	
K2, P2, RIB		-		2-3		3-4		6-7	
WIDE RIB *		-		3-4	5-6	4-5	6-7	6-7	8-9
TUBULAR KNITTING *		2-3	4-5	4-5	6-7	5-6	7-8	-	

\* Set the Ribber Stitch Dial two full numbers higher than that of the Knitter.



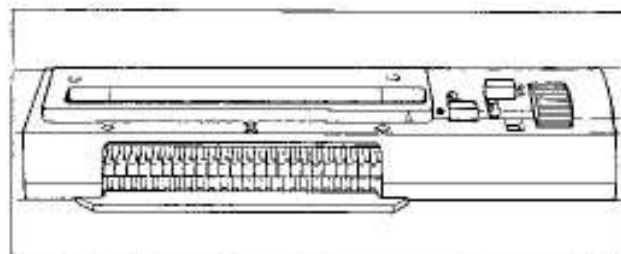
When knitting with thin or light yarns or in tuck ribs with Punch Card, use Close Knit Bar.

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

# CAST-ON AND KNITTING

Following the Operation Table, cast on and knit K1, P1, Rib using medium type of yarn.

① 1	●	●	Λ	●		0 0		
2								→
3								
4						0		→
5			⊖					→
6			Λ					→
②						3 3		→



## CAST-ON

- ① → Set machine controls for the initial row.

### PATTERN PANEL

Punch Card not in use.

Stop Knob.....●

### KNITTER CARRIAGE

Side Levers (left & right).....●

Cam Lever.....Λ

### RIBBER ARM

Auxiliary Yarn Feeder Lever.....●

Driving Lever.....resting position

### STITCH DIALS

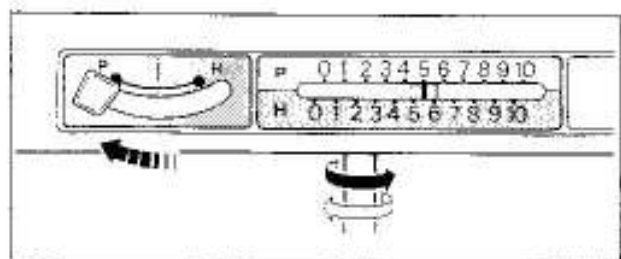
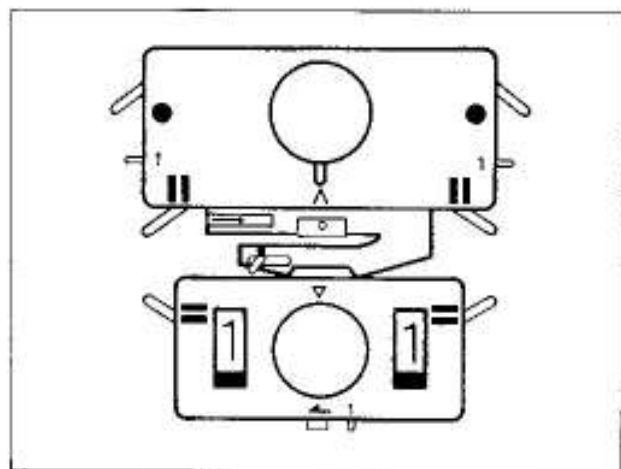
Knitter & Ribber.....0

### RIBBER CARRIAGE

Set Levers (left & right).....

Pick Knob.....↑

Auto-set Lever.....1

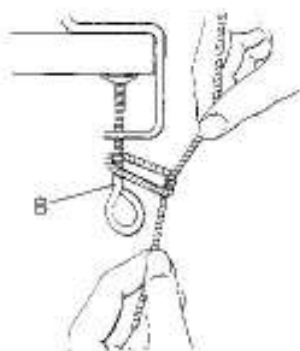
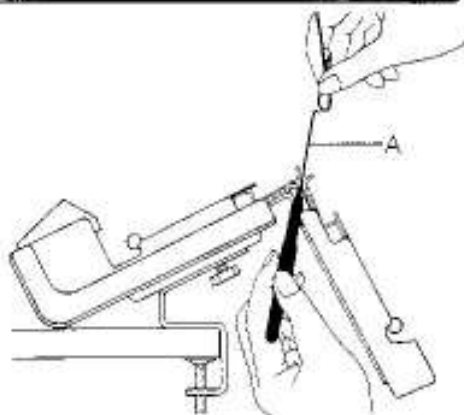
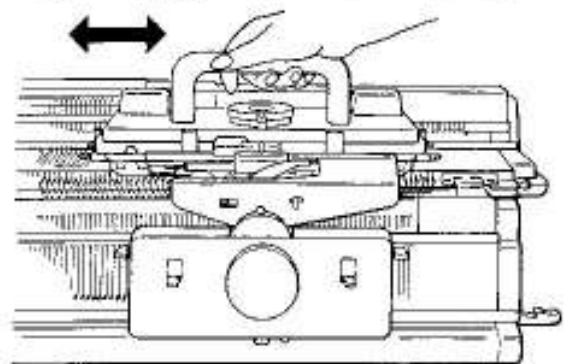
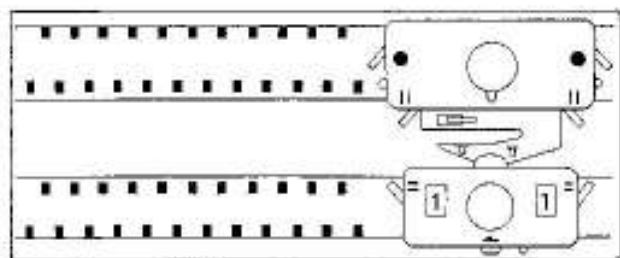
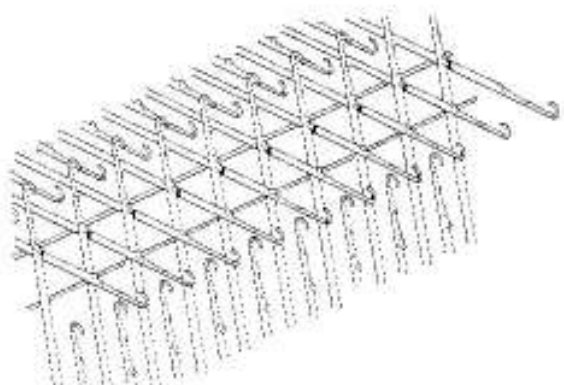


### RIBBER NEEDLE BED

Pile Levers (left & right).....↑

Half-Pitch Lever.....P

Swing Indicator.....5



## 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 25 needles to D position on both sides of centre(C) of Knitter Needle Bed.

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

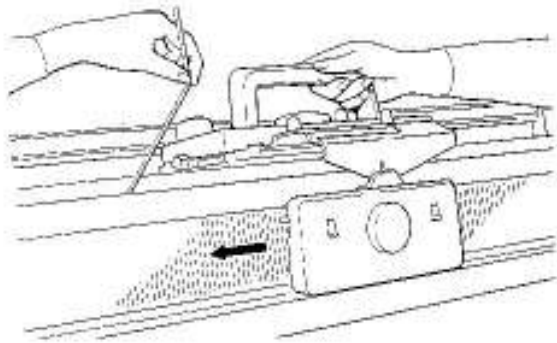
- (3) Move Carriage 1—2 times carefully across needles in D position and leave it at right side. (Needles in D position will be aligned in B position on both beds.)

## 2. Thread yarn into Yarn Feeder.

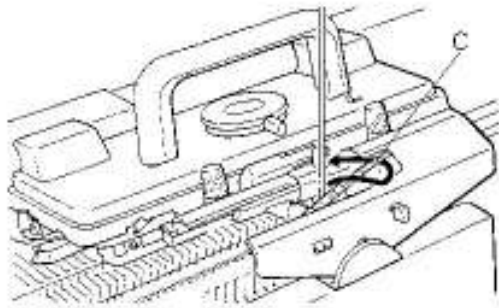
- (1) After threading yarn through Auto-Tension, make a loop at the end of yarn and hold it at the left side of both beds.

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

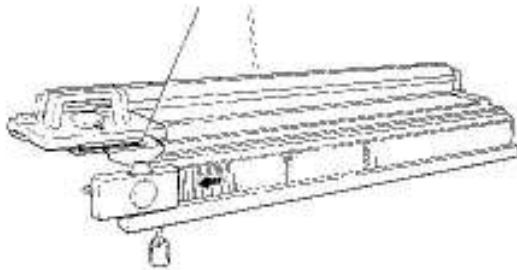
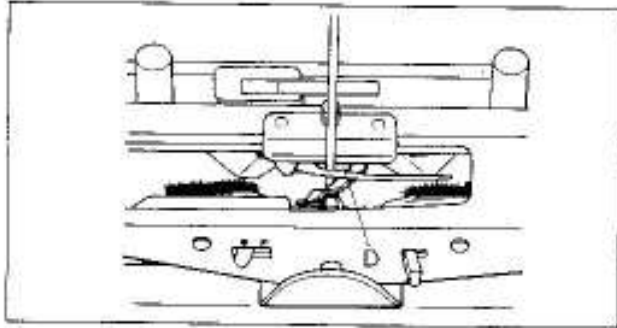
- (3) Hold yarn end and tie it around Clamp Screw Grip "B".



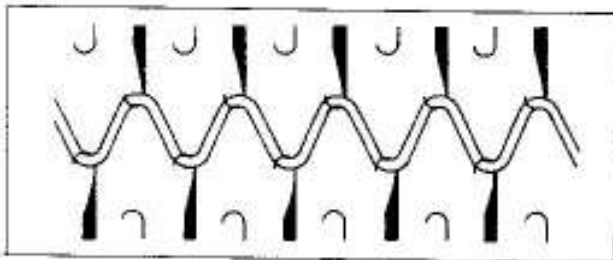
14] Move Carriage from right to left till yarn goes into Yarn Feeder.



15] Guide yarn along Yarn Guide "C" to thread it into Main Yarn Feeder "D".



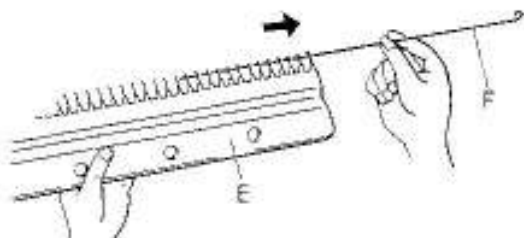
Move Carriage to left end of Needle Bed.



3. Knit the initial row.

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

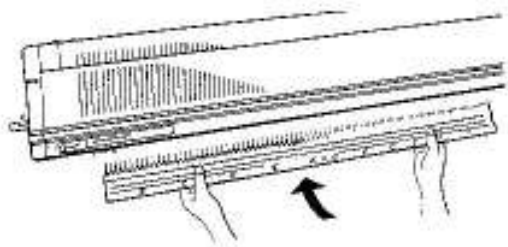
Yarn will be hooked alternately on Knitter and Ribber needles in zigzag.



1 — 3 Suspend Cast-on Comb with Weights.

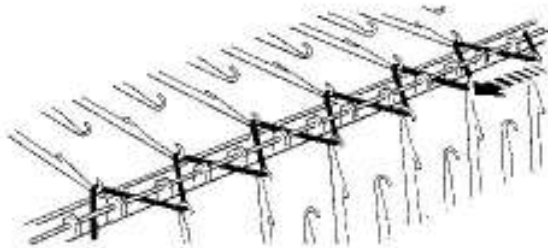
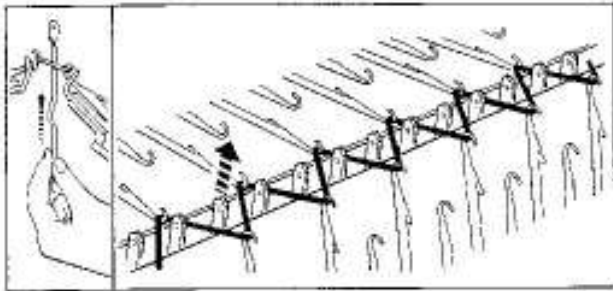
1. Suspend Cast-on Comb.

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



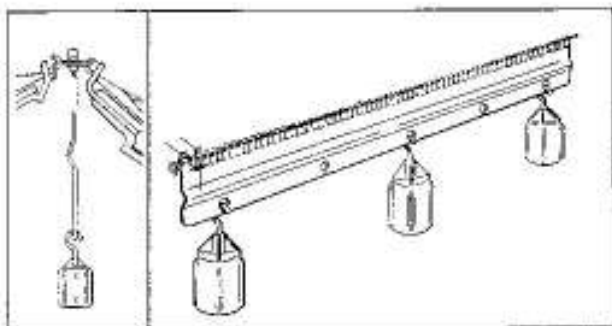
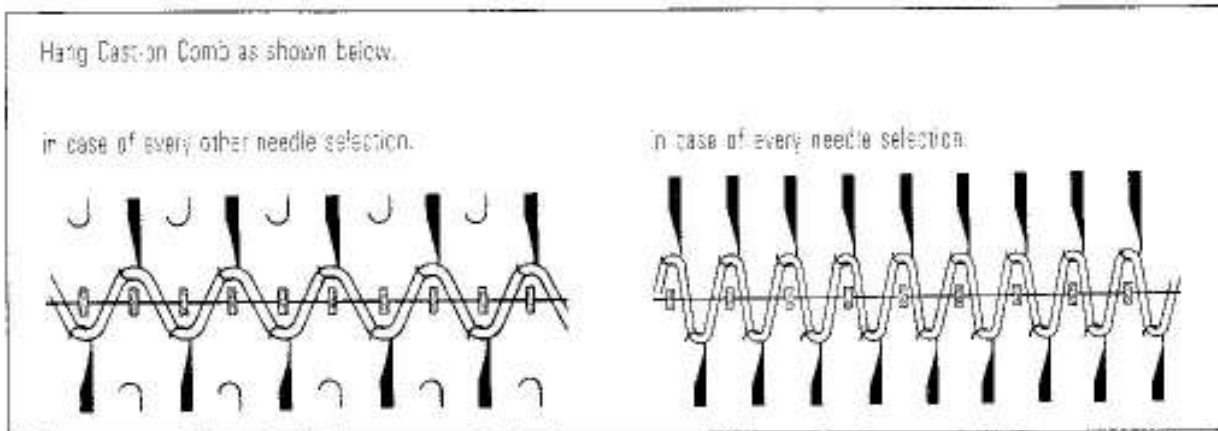
(2) From underneath, insert Comb between Knitter and Ribber Bed, then push it carefully upwards until teeth clear zig-zagged yarn.

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



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

*Make sure the comb is centred on yarn, i.e. an equal length of comb shows at each side of the needles in working position.*



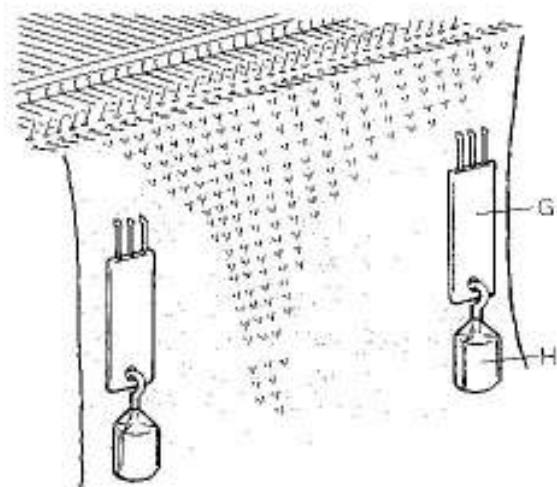
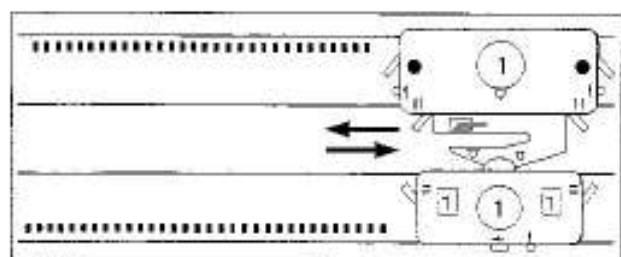
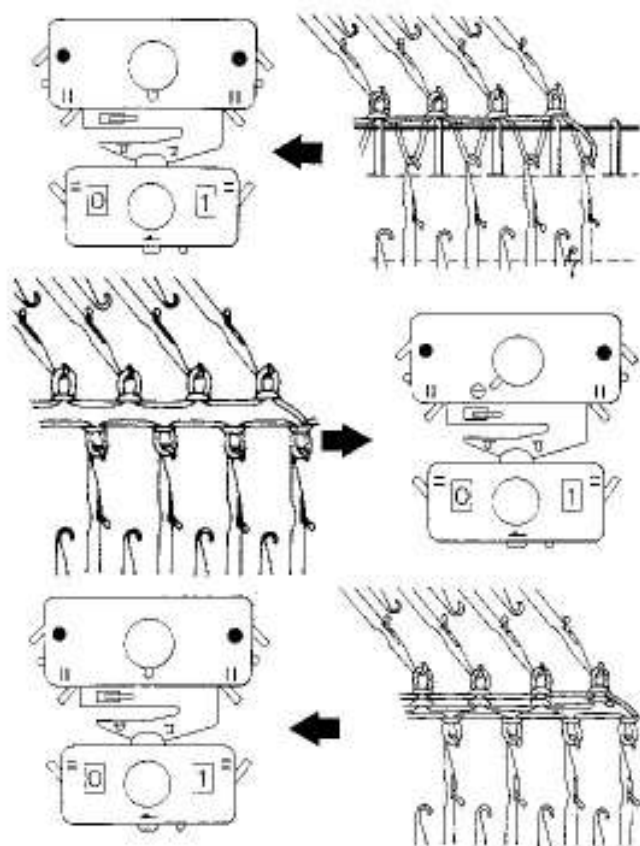
2. Hook Weights.

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

For your reference use as to

- 80 needles 2 Weights
- 120 needles 3 Weights
- 160 needles 4 Weights
- 200 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 move Carriage from the right to the left. (Knitter needles will knit the first row of the subsequent rows.)

— 6 Set Knitter Dam Lever to "E" and return Carriage to the right. (Ribber needles will knit the second row.)

— 6 Re-set Knitter Dam Lever to "A" and move Carriage once more from the right to the left. (Knitter needles will knit the third row.)

**CAST-ON IS COMPLETED.**

Remove gait and from Clamo.

**2 Main knitting**

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

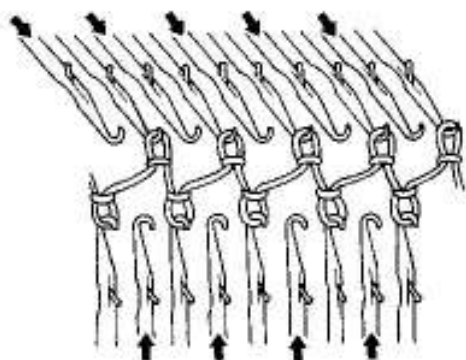
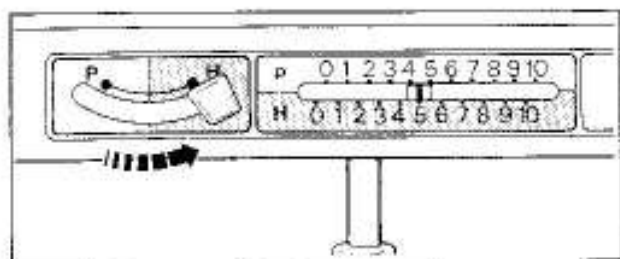
**1. Change Carriage settings:**

Set Lever (left)..... **1**  
 Stitch Die: (Knitter & Ribber)..... **3**  
 Other settings are unchanged.

**2. Knit several rows of K1, P1, Rib and hang Hanger Comb "G" with Edge Weight "H" on both sides of the fabric.**

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

\* If the Cast-on Comb reaches the floor, remove the Weights from the Comb, roll the fabric up with the Comb, and hook Weights again.

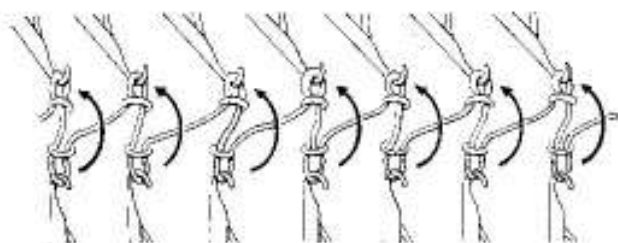
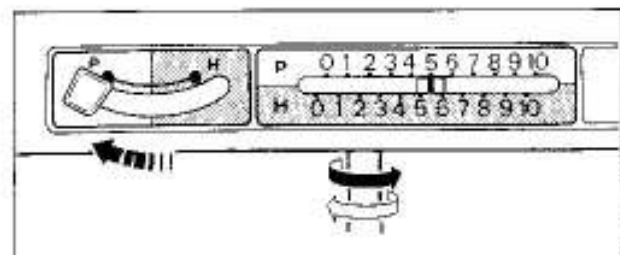


For practice, continue to knit DOUBLE RIB following instructions below.

1. Set Half-Pitch Lever to H.

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

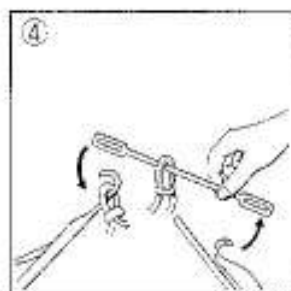
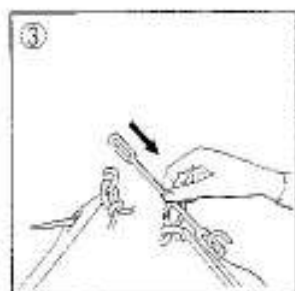
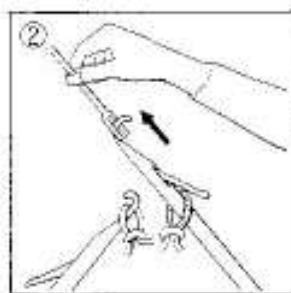
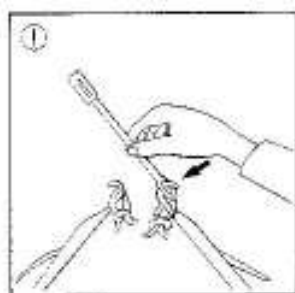
3. Knit 15 rows.



For practice, continue to knit only on the Knitter following instructions.

1. Set Half-Pitch Lever to P.

2. Transfer every Ribber stitches to the corresponding Knitter needles using Double-eye Transfer Tool following the instructions below.

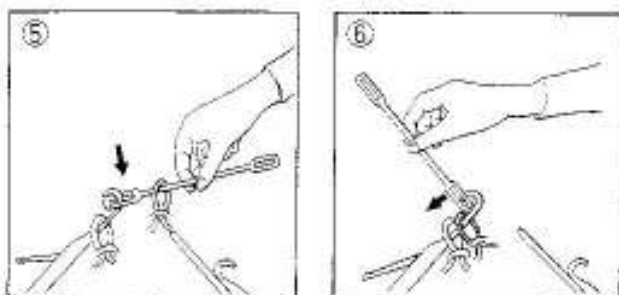


① Place eye of Double-eye Transfer Tool into Ribber needle hook.

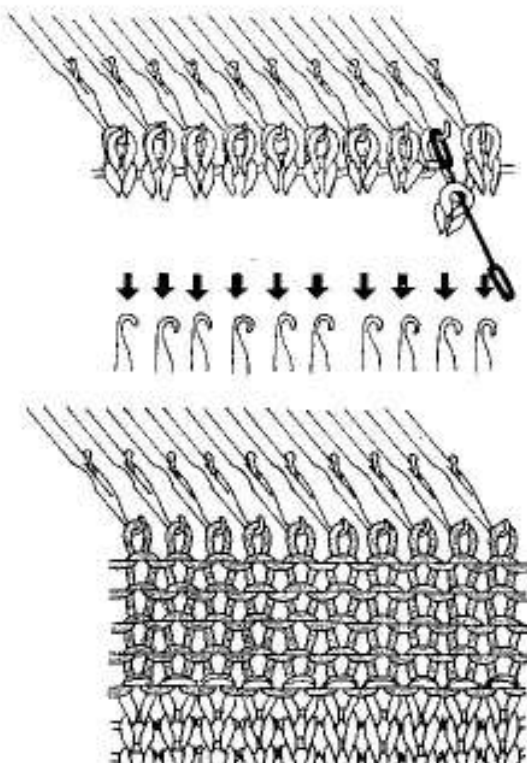
② Pull Ribber needle to D position.

③ Push Ribber needle to A position.

④ Remove eye of Transfer Tool from Ribber needle hook.



- ⑤ Place opposite eyes 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 to ensure that transferred stitch lies correctly in needle hook.

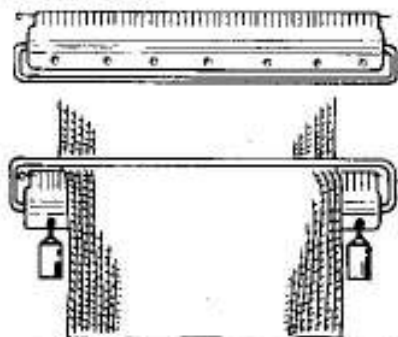


3. Push every Ribber needle in B position to A position.
4. Disconnect Ribber Carriage from the Arm and depress Drop Levers twice to have Ribber Bed lowered.
5. Exchange Ribber Arm for Knitter Arm and thread yarn into Yarn Feeds. Continue to knit.

## Useful Optional Accessories

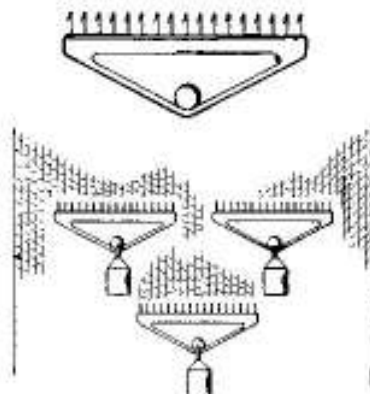
### Cast-on Hanger Comb

This 140-needle wide Cast-on Comb with cross bar is for use in place of the Ribber Cast-on Comb. When the Hanger Comb reaches the floor, remove the Cast-on Comb from the fabric by pulling out the wire. Insert the fabric between Comb and Bar as shown below. Also comes with a 50-needle wide Cast-on Comb for narrower fabrics.



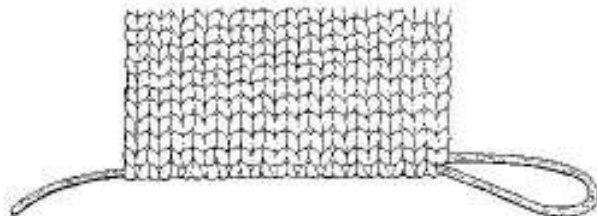
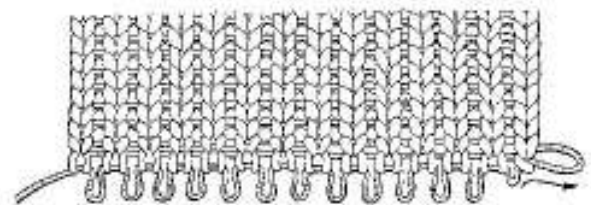
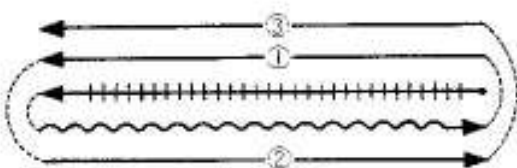
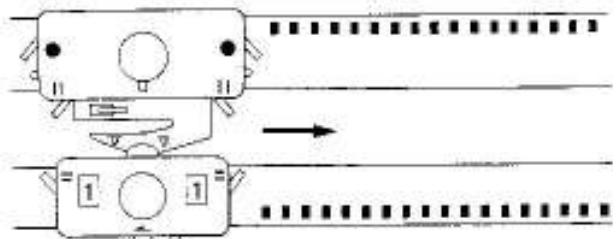
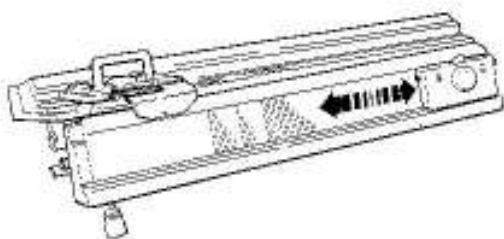
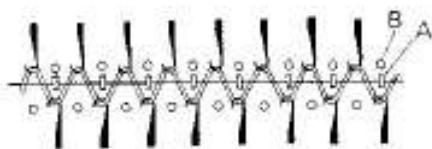
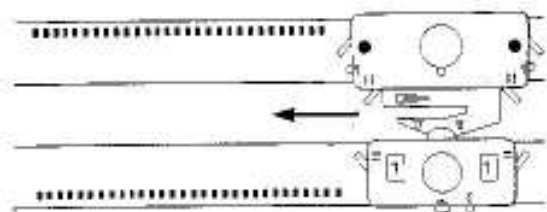
### Hanger Comb Set

Consists of three separate hanger combs for use with the ribber edge weights. Each comb covers 35-needle wide fabric and they can be used singly or all together. Weight Set (Hanger Comb) with three small weights) is also available.





## CAST ON FOR TIGHTER EDGE



To make the cast-on edge of fabric tighter, when knitting with thin yarn, operate the initial row following the procedure given below.

\* Place Close Knit Bar referring to page 15.

- ① — 1 Set machine controls for the initial row as instructed in the Operation Table.
- 2 Arrange the needles and knit the initial row from the right to the left.
- 3 Suspend Cast-on Comb with Weights.

*Insert Cast-on Comb so that its teeth "A" confront with knitter Sinker Posts "B" as illustrated.*

\* Disconnect the Ribber Carriage from Arm and move it twice across the needles to drop stitches on Ribber needles.

*If Cast-on Comb is suspended incorrectly, it will drop onto the floor.*

\* Connect Ribber Carriage with Arm and knit one row with the same Carriage settings.

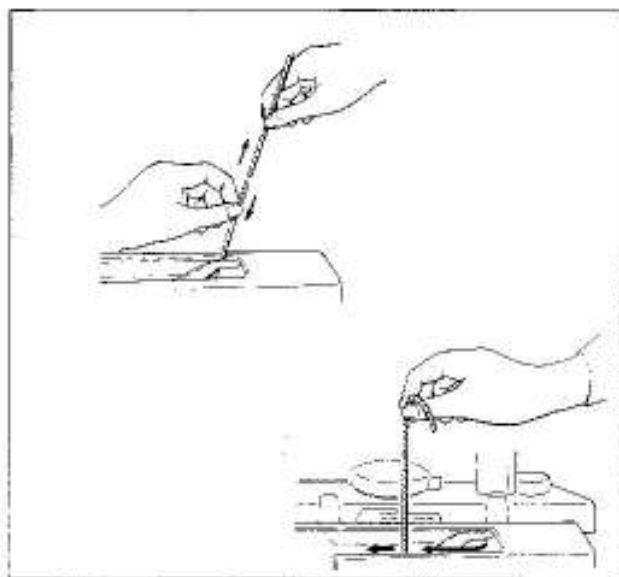
- ① — 4 ~ 5

As required in Operation Table, knit subsequent 3 rows.  
CAST-ON FOR TIGHTER EDGE IS COMPLETED.

\* When the garment has been completed, pull the yarn of the initial row from the opposite side to the yarn end.

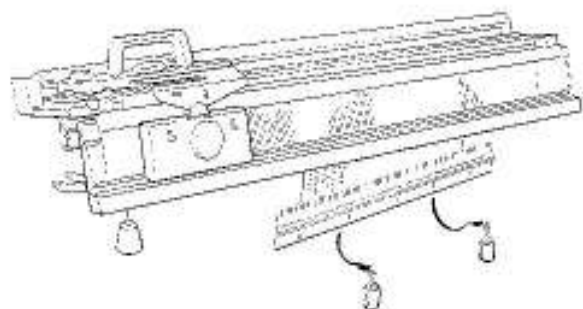
After steaming, pull out the yarn completely in the same direction as above.

## REMOVE THE FABRIC FROM THE MACHINE

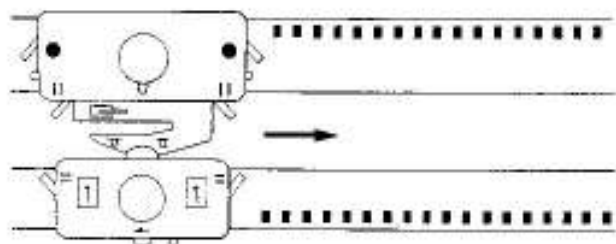


1. Cut yarn above Yarn Feeder.

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

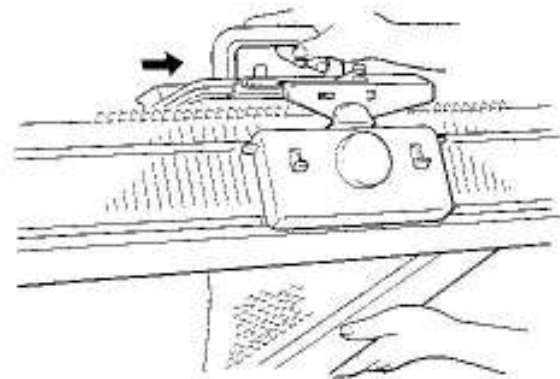


3. Remove Weights from Cast-on Comb.



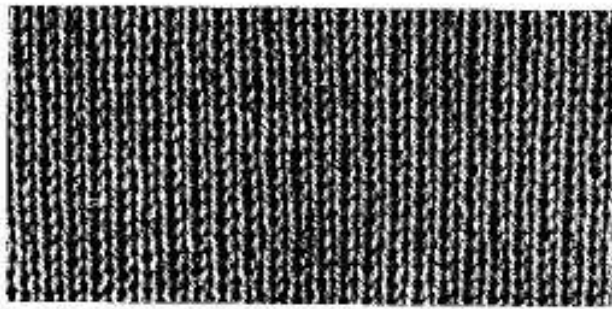
4. Change Carriage settings as follows.

Cam Lever.....	△
Set Levers.....	■
Russel Levers.....	=



5. Holding Cast-on Comb, move Carriage once across needles.  
The stitches are released from needles.

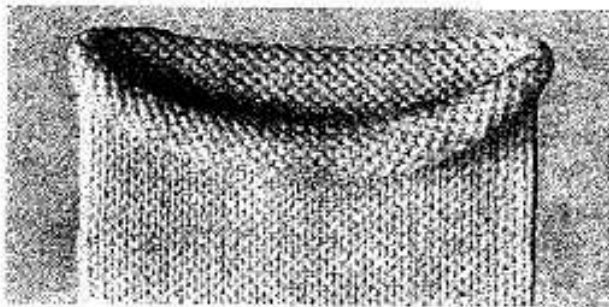




## DOUBLE RIB

The fabric is very identical to the K1.P1. Rib fabric, but knitted with every needle on the Knitter and the Ribber.  
This method is applied for the yarns of thin type.  
Use Close Knit Bar (refer to page 16.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
①	1	•	•	Λ	•	•	⇄	0	0	0	←	1	0	↑	H	5				
	2																			→
	3																			
	4																			⇄
	5			⊖																⇄
	6			Λ																⇄
②																				⇄



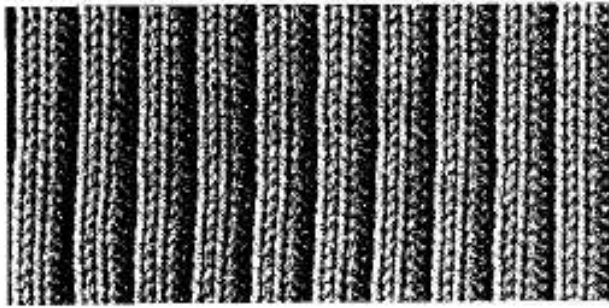
## TUBULAR KNITTING

As you move Carriage back and forth, Knitter Carriage and Ribber Carriage knit alternately.  
This is mainly used for waste knitting.  
The sample is knitted using medium yarn.  
Set the Ribber Stitch Dial 2 numbers looser than that of the Knitter.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
①	1	•	•	Λ	•	•	⇄	0	0	0	←	1	0	↑	H	5				
	2																			→*
	3																			
②			▲	⊖				6	8	0					P					⇄**

\* Knit with Ravel Cord, or waste yarn when using a lot of needles.

\*\* When moving Carriage from left to right, knit bringing four to five needles at both ends of Ribber to D position, or push all needles of Ribber to C position using P Carriage (without P Presser).



## K2.P2. RIB

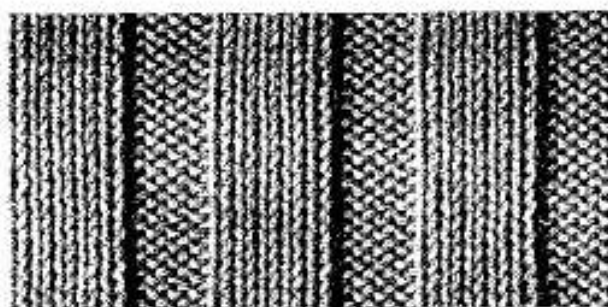
Two methods for K2.P2. Rib are introduced below:—

One is for using medium yarn (Operation Table "A") and the other is for thick yarn (Operation Table "B").

The sample is knitted using medium yarn.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>①</b>	1	•	•	Λ	•	•	▬	0	0	▬	←	1	▬	↑	H	5				
	2																			→
	3																			
	4										▬									→
	5			⊖																→
	6			Λ																→
<b>②</b>								4	4	▬									6	→

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<b>①</b>	1	•	•	Λ	•	•	▬	0	0	▬	←	1	▬	↑	H	5					
	2																			→	
	3																				
	4										▬									→	
	5			⊖																→	
	6			Λ																→	
<b>②</b>								7	7	▬									P	6	→



## WIDE RIB

This is the rib with more than K2, P3, stitches aligned alternately. (K5, P5) rib is shown as an example.)

Two methods for wide rib are introduced below.—

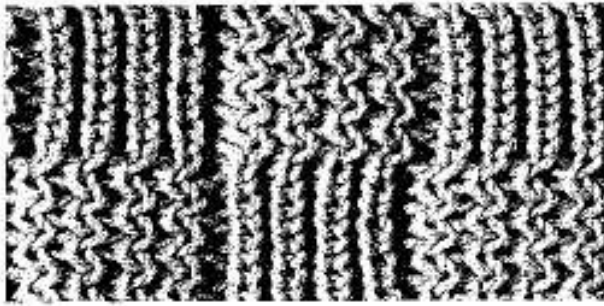
One is for using medium yarn (Operation Table "A") and the other is for thick yarn. (Operation Table "B").

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
①	1	●	●	Λ	●	●	▬	0	0	▬	←	1	▬	↑	H	5				
	2																			→
	3																			
	4							4	8	▬										→
	5			⊖																→
	6			Λ																→
	7																			
②																				→

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
①	1	●	●	Λ	●	●	▬	0	0	▬	←	1	▬	↑	P	5				
	2																			→
	3																			
	4							6	8	▬										→
	5			⊖																→
	6			Λ																→
	7																			
②										▬										→

\* One end needle on the Knitter end on the Ribber must be in B position. This may change the needle arrangement, but it is essential.





## VARIATION OF ENGLISH RIB

This is a knitted fabric in combination with English Rib and Swang English Rib at the same time using the needle arrangement shown in the operation table.

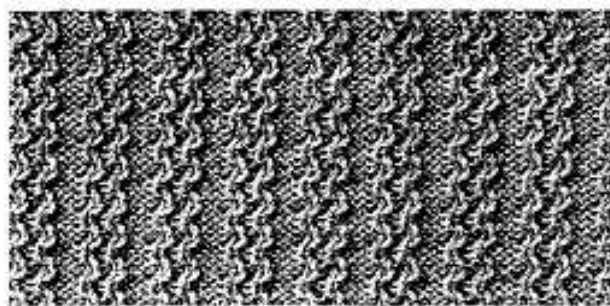
The sample is knitted using medium yarn.

<b>1</b>	1	●	●	Λ	●	●	⇒	0	0	□	←	1	□	↑	H	5	
	2															→	
	3																
	4								2	□							←
	5			⊖													→
	6			Λ													→
<b>2</b>	1			⊖	▲				4	4	□						
	2																



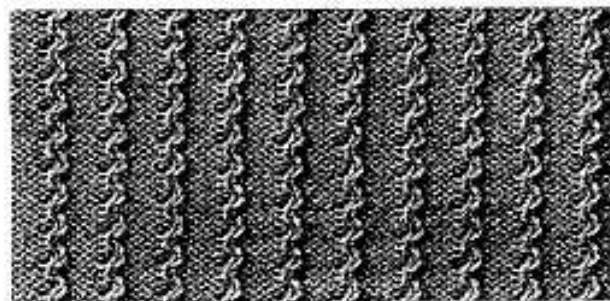
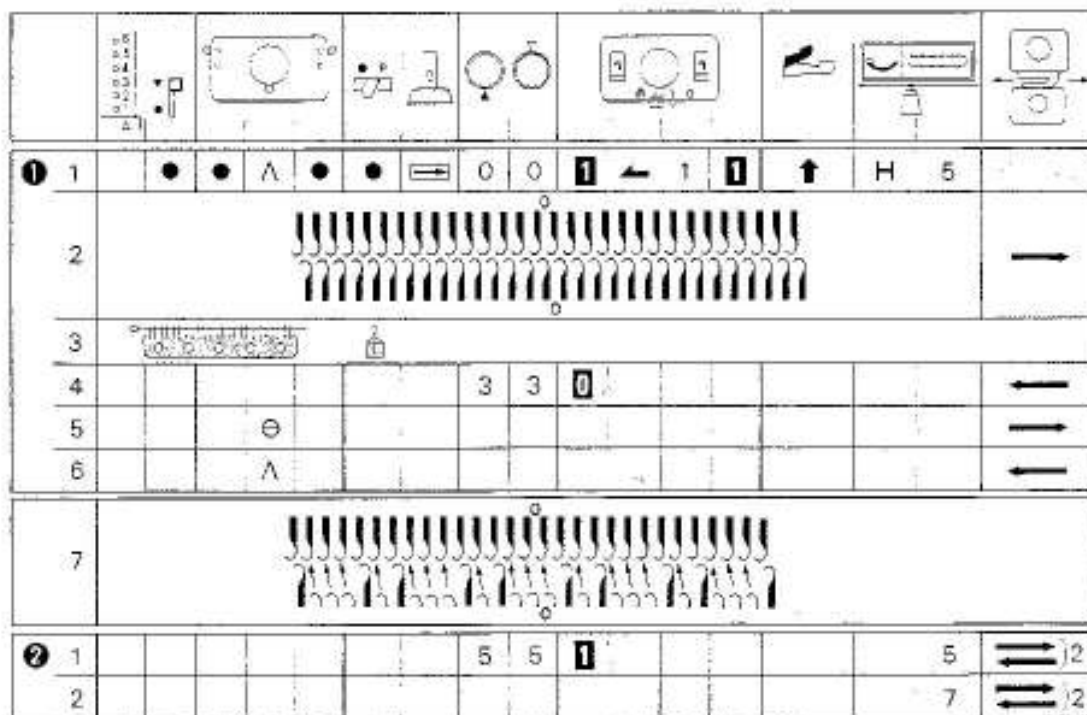




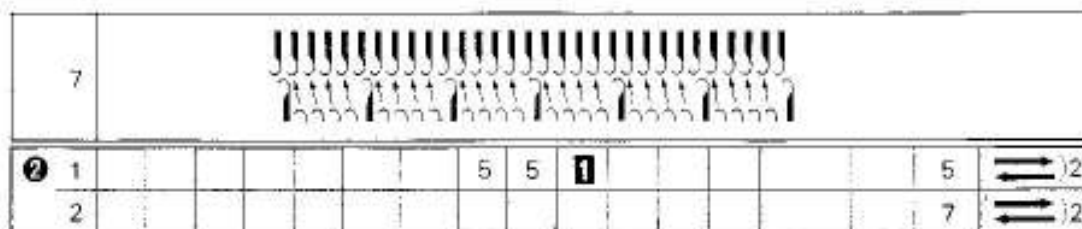


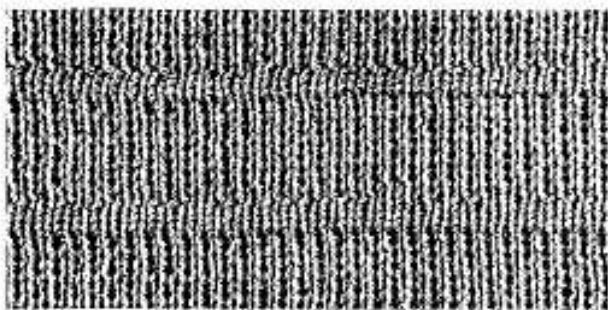
With a different needle arrangement on Ribber, different effect is created.

Two samples as shown below are knitted using medium yarn.



Knit in the same manner as for above ① — 7 ~ 6.  
At step 7, follow diagram below.





## PIN TUCK

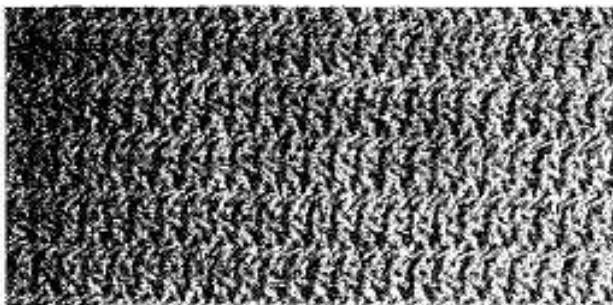
In Double Rib, knit extra 4—5 rows on the knitter side.  
The sample is knitted using thin yarn.

①	1	● ●	Λ	● ●	≡	0 0		1		↑	H	5	
	2											—	
	3												
	4					2							—
	5		⊖										—
	6		Λ										—
②	1		Λ			2 3							—)10
	2		⊖										—)4
	3	Move Hanger Comb up.											

### If stitches tend to float...

Knit pushing needles on Knitter to C position using P Carriage.



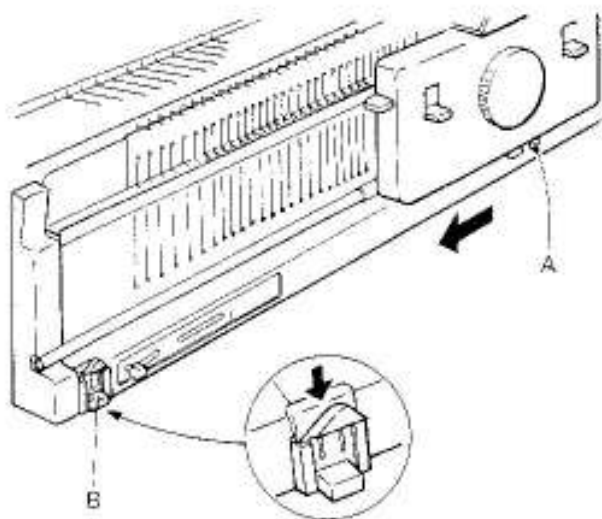


## SWUNG PICK RIB

This rib has a tuck pattern on the Knitter side with a 1-pitch swing in double rib or a 2-pitch swing in K1, P1 rib.

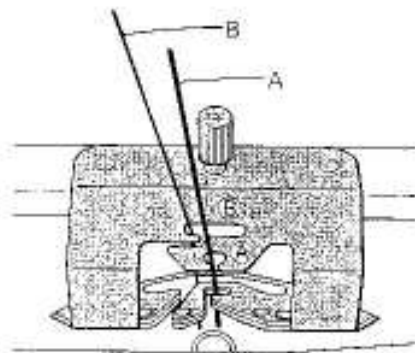
The sample is knitted in double rib using thin yarn.

① 1	●	●	Λ	●	●	⇌	0	0	□	←	1	□	↑	H: 5	
2													→		
3															
4									□						→
5								⊖							→
6								Λ							→
7							4	4	□						→
8	Install Driving Cam.														
② 1									n						→
2									0						→)2
3									1			6			→)2
4									0						→)2
5									1				5		→



In main knitting, be sure to move the Carriage to the extreme left until Carriage Level "R" is actuated by Driving Cam "B".





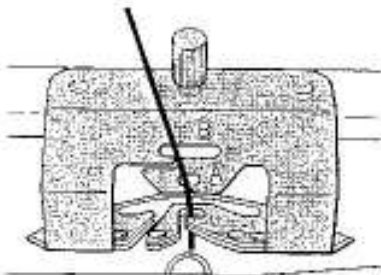
— 7 Rearrange needles for main knitting by transferring stitches.

Replace plating yarn into Yarn Feeder (B).

\* Main yarn "A" in Yarn Feeder (A) will appear on the plain side of the knitting.

\* Plating yarn "B" in Yarn Feeder (B) will appear on the purl side of the knitting.

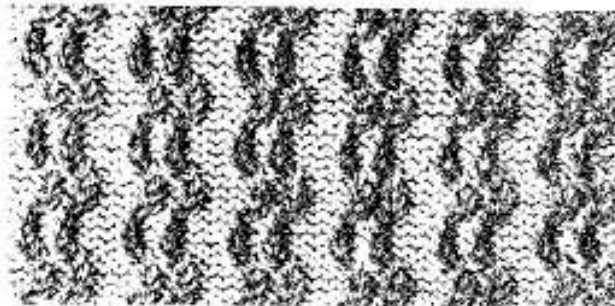
② Knit following the Operation Table.



\* To cast-on with every needle selection, thread one of these yarns into Yarn Feeder (A). Thread another yarn into Yarn Feeder (B) before main knitting.

*Do not cross the yarns between Auto-Tension and Yarn Feeders.*

*If threading yarn is difficult, depress Drop Levers once and restore the Ribber after threading.*

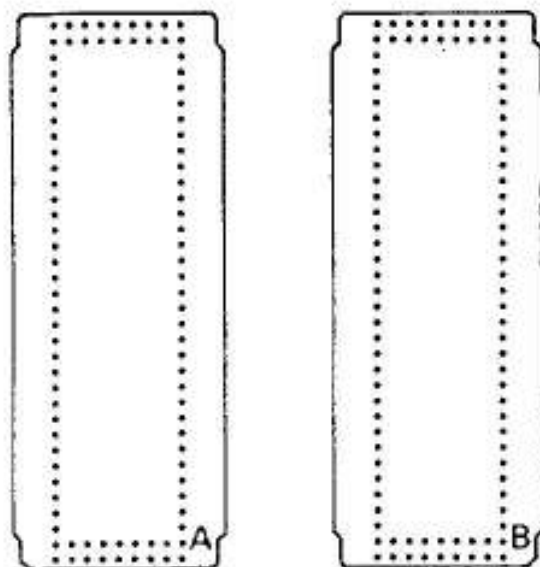


With a different needle arrangement and swinging on the Ribber, different effect is created.

	Yarn Feeder	Auto-Tension	Drop Lever	Needle Selection	Knitting	Transfer	Transfer	Transfer	Transfer	Transfer	Transfer	Transfer
① 1	●	●	Λ	●	○	○	0	0	0	1	↑	H 5
2												→
3												
4					3	3	0					→
5			⊖									→
6			Λ									→
7												
②					6	6	0					→



## ● Rib stitches using Punch Card



### STANDARD PUNCH CARDS FOR RIB KNITTING

10 Punch Cards No. 1 (P.2) — No. 10 (P.2) are supplied.

Each Punch Card can be used in two ways and is marked "A" and "B".

Instructions for setting Punch Card are given in Instruction Book of Knitter (Operation Manual).

Card No.	A	B	C	D	E	F
No.1 (P.2)				○		
No.2 (P.2)				○		
No.3 (P.2)				○		
No.4 (P.2)				○		
No.5 (P.2)				○		
No.6 (P.2)				○		
No.7 (P.2)					○	○
No.8 (P.2)					○	○
No.9 (P.2)	○				○	○
No.10 (P.2)	○				○	○

No.1					○	
No.2		○	○			
No.4		○	○			
No.7		○	○			
No.9		○	○			
No.10		○	○		○	
No.12		○	○			
No.13					○	
No.17					○	

With Punch Cards, the following patterns can be knitted.

- A — PUNCH PUK TUCK
- B — PUNCH TUCK RIB
- C — TUCK RIB STITCH
- D — DRIVE LACE
- E — MESH KNITTING
- F — PILE RIB

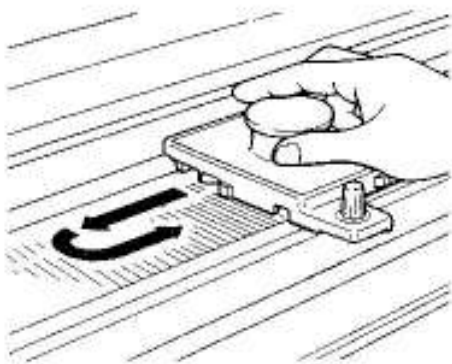
With the Knitter Punch Cards as listed opposite are usable for rib stitches.





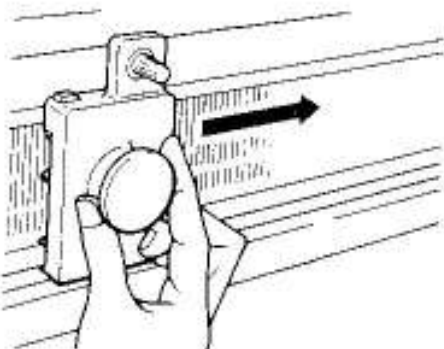






- 4 Place P Carriage (without P Presser) on the right side of Needle Bed (refer to page 12). Move P Carriage to the left and back again so that stitches are removed and the needles align in B position again.

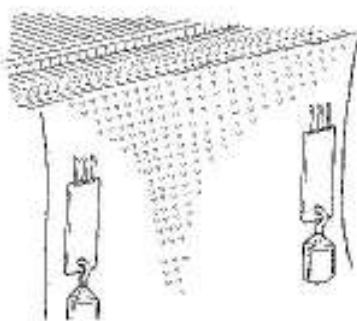
- 5 Set Cam Lever to SLIP (S, ⊖) and knit 3 rows with waste yarn. (only the ribber needles will knit.)



- 6 Place P Carriage on the left side of Ribber Needle Bed (refer to page 12), and slide it to the right to push up needles to C position.



- 7 Exchange waste yarn for main yarn in Yarn Feeder and knit from the left to the right.
- 8 Slide P Carriage on Ribber from the left to the right.
- 9 Knit from the right to the left.
- 10 Push both end needles on Knitter to A position.



- ② — 1 Slide P Carriage on Ribber from the left to the right to push up needles to C position.

- 2 Set Stop Knob to ▼ and right Side Lever to ▲, then knit 1 row from the left to the right. (On Ribber, all the needles in C position knit, and on Knitter, only selected needles knit.)

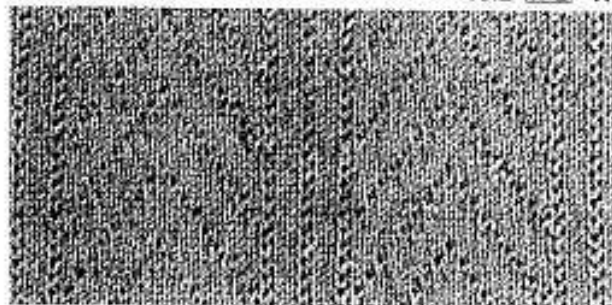
- 3 Push up Ribber needles to C position using P Carriage.
- 4 Knit one row from the right to the left.
- 5 Remove stitches on Knitter using P Carriage.

Repeat ② — 1 ~ 5 for main knitting.

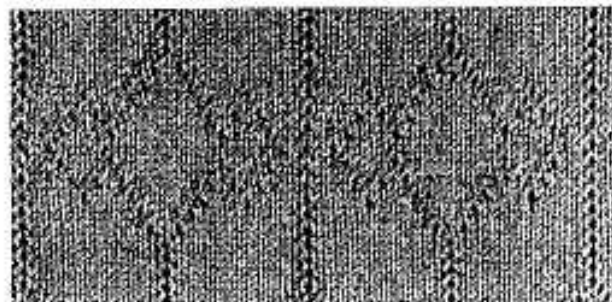
Suspend Hanger Combs with Weights after 10 rows and move them up every 10 rows.

The following samples can be knitted in the same way as above.

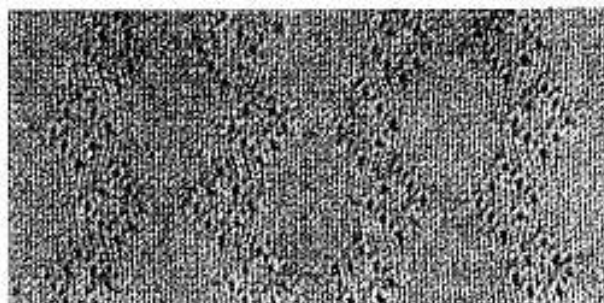
No.2 R-2 -A



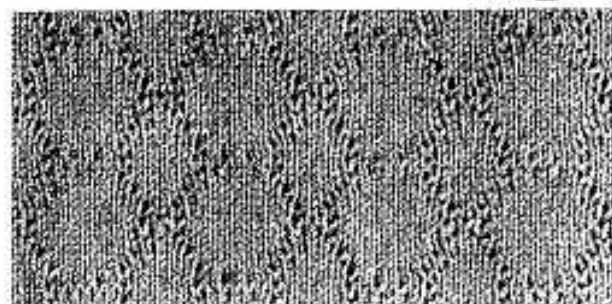
No.3 R-2 -A



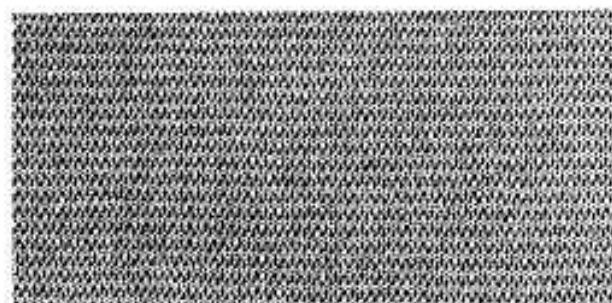
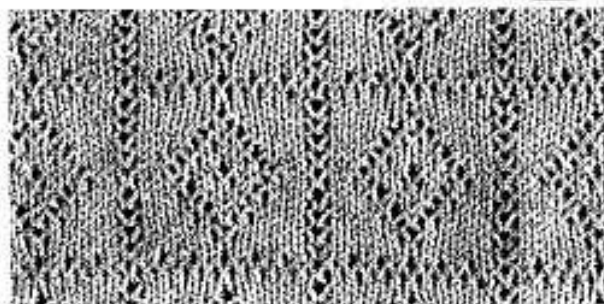
No.4 R-2 -A



No.5 R-2 -A



No.6 R-2 -A



No.7 R-2 -A

### MESH KNITTING

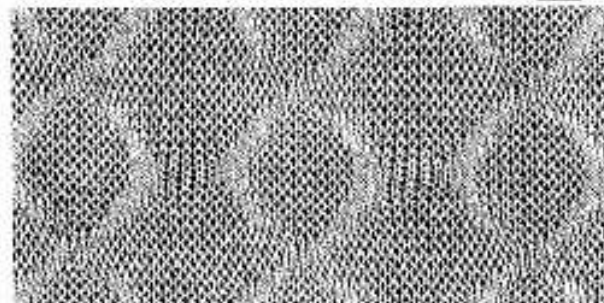
Mesh knitting is worked in the same manner as for drive lace knitting using this yarn.

The sample on left is knitted with a Punch Card.

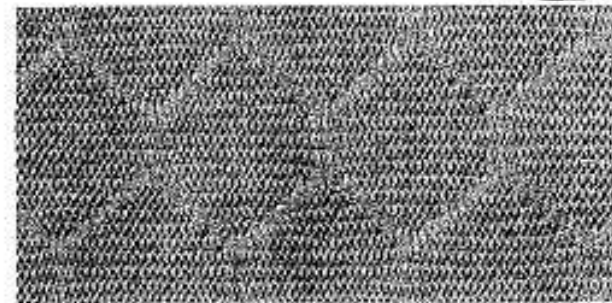
The samples below are knitted with Punch Cards.

*When steaming, slide the iron from top to bottom of the fabric, not from side to side.*

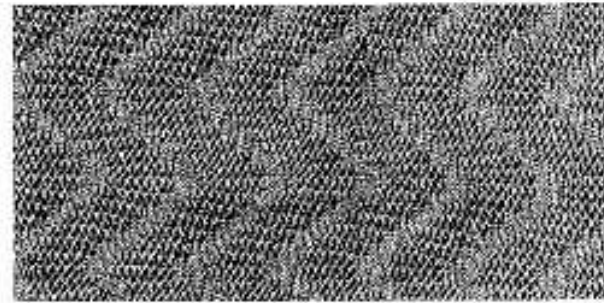
No.8 R-2 -A



No.9 R-2 -A

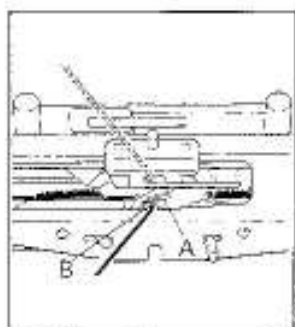
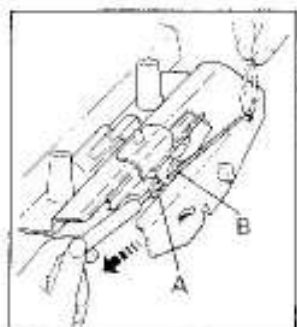
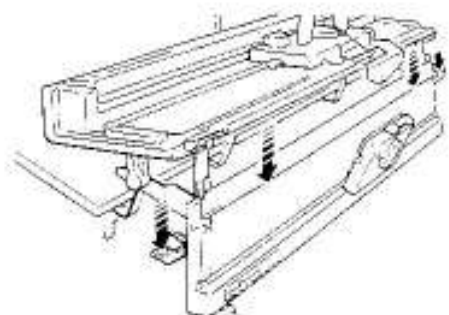
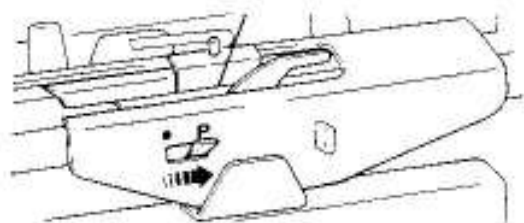
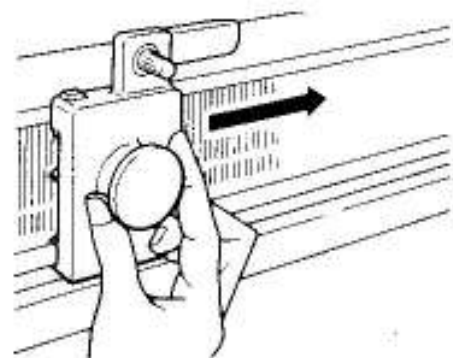
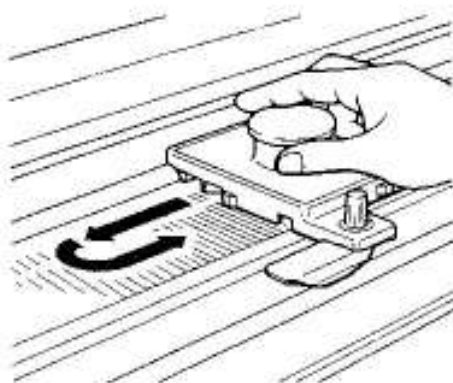


No.10 R-2 -A









① — 4 Place P Carriage with P Presser attached on the right side of Knitter Needle Bed (refer to page 12). Move P Carriage to the left and back again so that stitches on knitter are removed and the needles are aligned in B position again.

— 5 Set Cam Lever to SLIP (S,  $\ominus$ ) and knit 2 rows with waste yarn.

— 6 Place P Carriage on the left side of Ribber Needle Bed (refer to page 12) and slide it to the right to push up needles to C position.

— 7 Exchange waste yarn for pile yarn in main Yarn Feeder. Set Auxiliary Yarn Feeder Lever to P (right) position, and thread ground yarn into Auxiliary Yarn Feeder following instructions below.

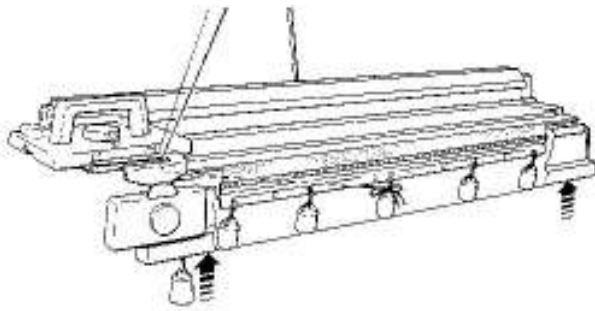
(1) Lower Ribber Needle Bed to the middle position by depressing Drop Lever (marked red) once.

(2) Thread ground yarn through Auto-Tension.

(3) Make a loop on yarn end and hold it above Auxiliary Yarn Feeder.

(4) Insert Hook Tool from underneath through Auxiliary Yarn Feeder "A" and Yarn Guide "B", then catch yarn loop.

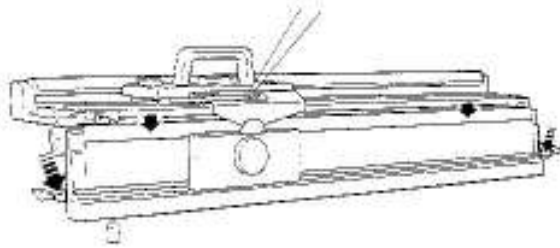
(5) Pull Hook Tool downwards threading yarn through Yarn Guide and Auxiliary Yarn Feeder.



- (6) Tie yarn end to hook of Weight on Cast-on Comb.
- (7) Push up Ribber Needle Bed to its top position. Ensure Ribber needles are correctly lined up in B position.

**IMPORTANT:**

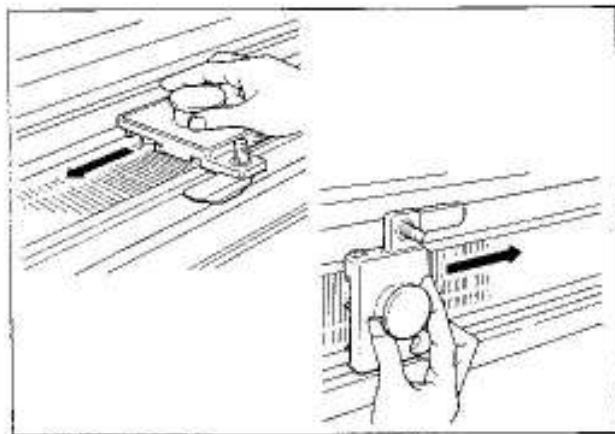
*Ensure Link Pin on Ribber Carriage is joined properly to Ribber Arm.*



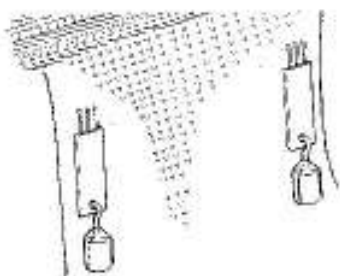
- (8) Depress both Pie Levers (marked blue) to widen space between Knitter and Ribber Needle Bed.
- (9) Knit from the left to the right.  
*If the yarns, pile yarn and ground yarn, get entangled or loosened, pull the yarns back to yarn balls at the back of Auto-Tension before moving Carriage.*



- 8 Slide P Carriage on Ribber from the left to the right.
- 9 Knit from the right to the left.
- 10 On Knitter: push 6 needles back to A position at both sides of fabric to have plain edge for seaming.



- ② — 1 Slide P Carriage on Ribber from the left to the right to push up needles to D position.
- 2 Set Stop Knob to ▼ and right; Side Lever to ▲, then knit from the left to the right.
- 3 Slide P Carriage on Ribber from the left to the right.



- 4 Knit 1 row from the right to the left.
- 5 Remove stitches on Knitter using P Carriage.

Repeat ② — 1 — 5 for main knitting.

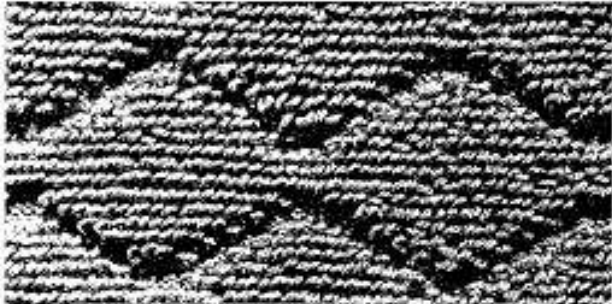
Suspend Hanger Combs with Weights after 10 rows and move them up every 10 rows.

No.8 R-2 -A

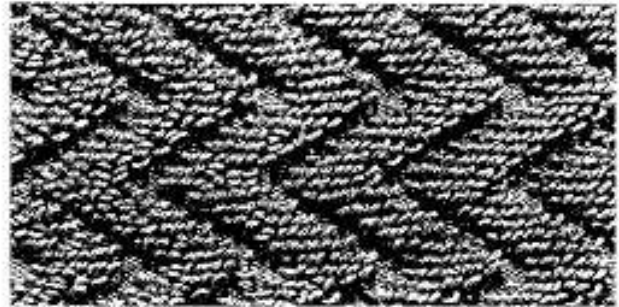


You can use Punch Cards below in Pile knitting.

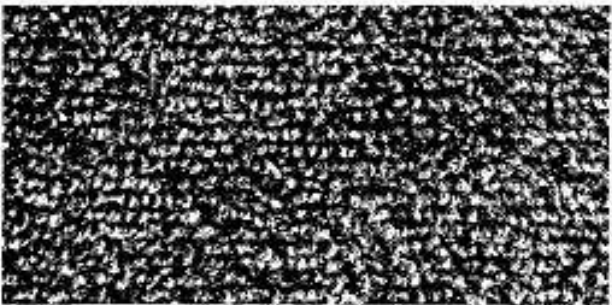
No.9 R-2 -A



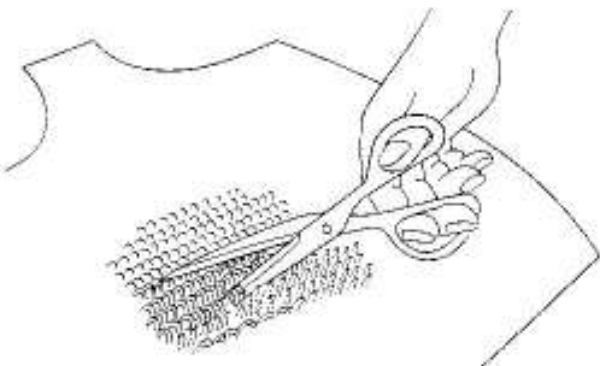
No.10 R-2 -A



The sample on the left is knitted without using Punch Card.



You can cut the loops of pile knitting if you wish.



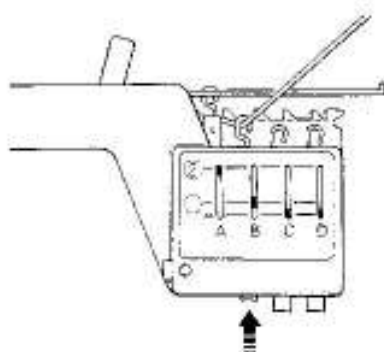
To cut loops, spread fabric on a flat surface.

Insert one scissor blade into centre of loops and cut open.

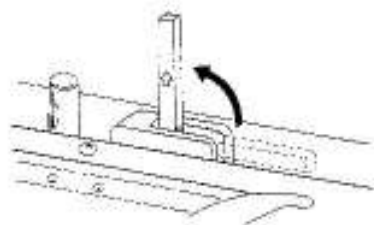
Give steam to the surface of the fabric.

**DO NOT PRESS.**

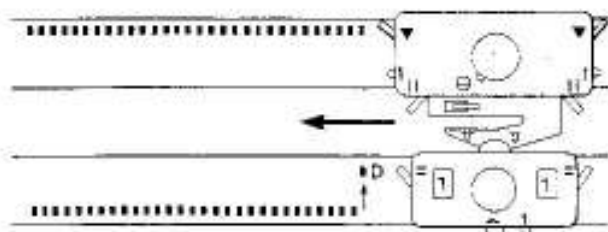




- ② — 1 Set Stop Knob to ▼.  
 Bring Holder A to ② position and Holder B to ① position.  
 Set Cam Lever to SLIP (S. ⊖).

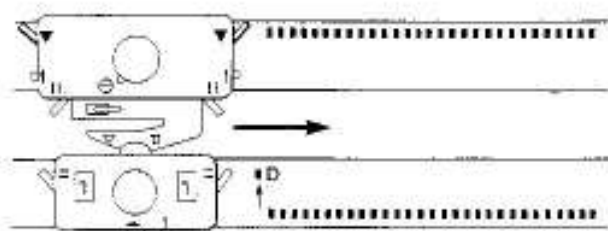


Set Driving Lever to the upright position.



Bring one end needle of Ribber on Carriage side to D position.  
 Knit 1 row from the right to the left.

*Be sure to move the Carriage to the extreme left until Auto-set Lever is actuated by Driving Cam and Driving Lever hits Feeding Lever.*



- 2 — 3 Pushing the end Carriage side Ribber needle to D position, continue to knit.

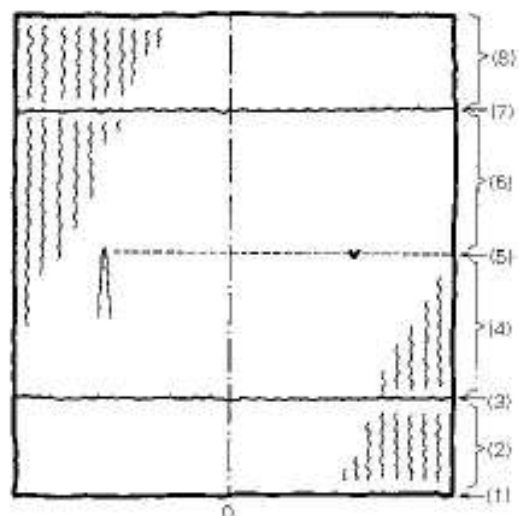
The operation of Auto-set Lever in Double Face knitting is as follows:—

- Set Lever "1" ..... Main yarn is knitted.  
 Set Lever "0" ..... Contrast yarn is knitted.

\* If you set the Lever at "0" on Operation Table ② — 1, contrast colour will be appeared on the back of the fabric.



# TAKING A TENSION GAUGE

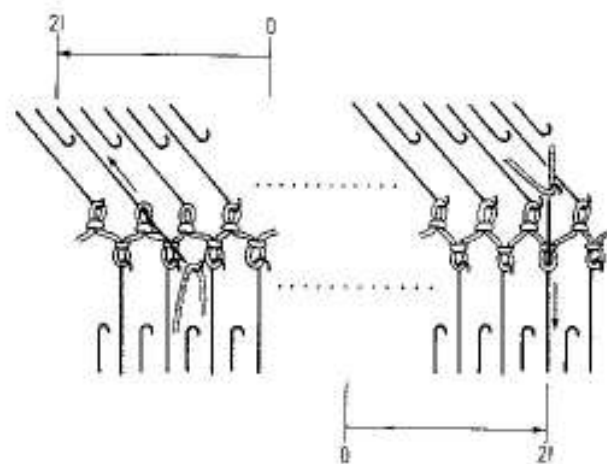
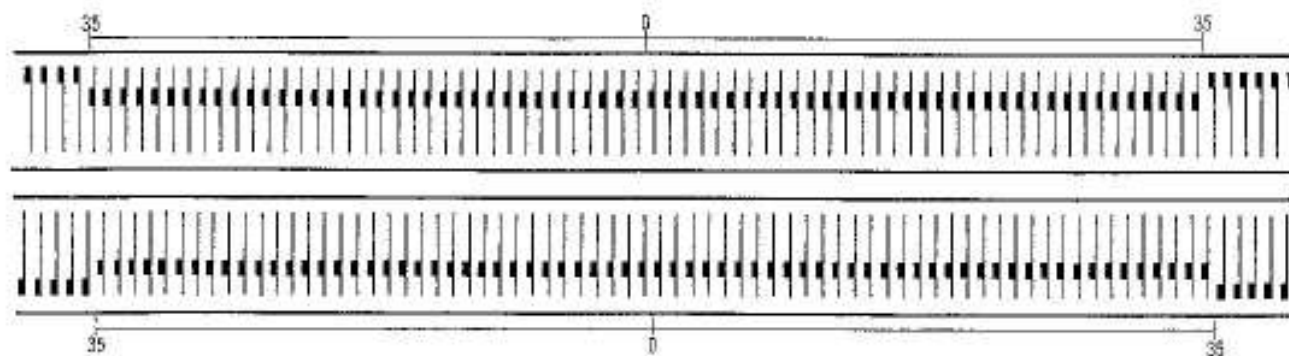


## Tension Gauge

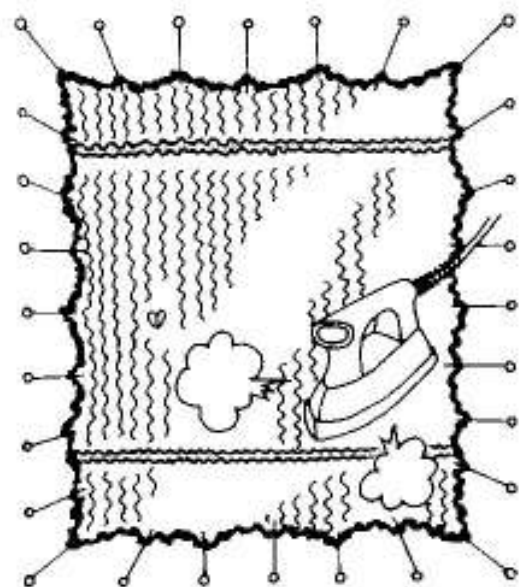
The following instructions should be used when knitting the tension swatch and also in taking a tension gauge.

It is recommended that you try different stitch dial settings till you obtain a suitable tension for the yarn and stitch pattern chosen.

- (1) Regardless of stitch type, always arrange needles between 35th needles on both sides of centre(0) on both beds.
- (2) Cast-on and knit 20 rows.
- (3) With contrast yarn, knit 2 rows.
- (4) With main yarn, knit 30 rows.



- (5) Put yarn marks on the 21st needles on both sides of centre(0) on either Knitter or Ribber. (Yarn marks do not both have to be on same bed.)
- (6) Knit 30 rows.
- (7) With contrast yarn, knit 2 rows.
- (8) With main yarn, knit 20 rows.
- (9) Remove the swatch from the machine.

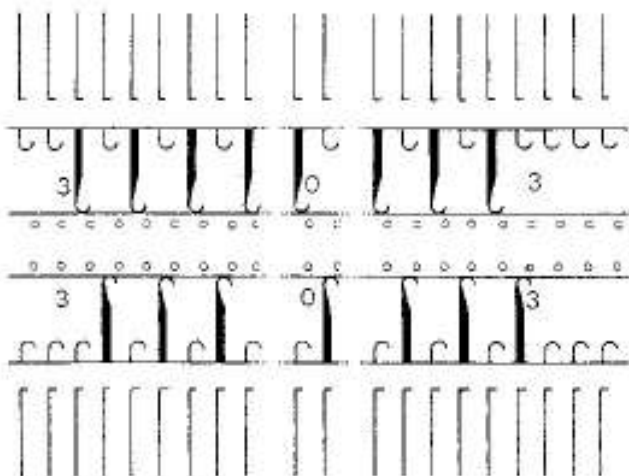
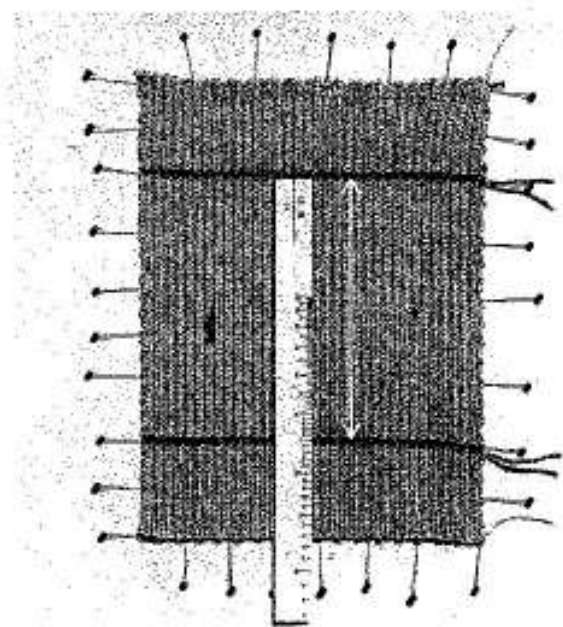
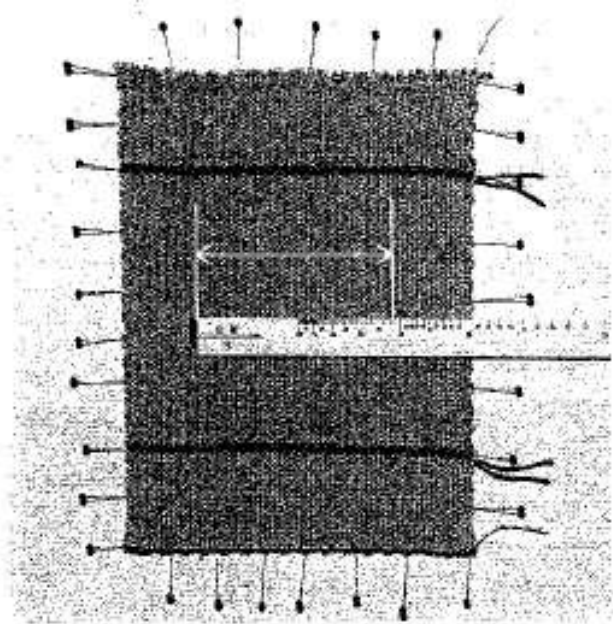


When the tension switch is completed, remove it from the machine and leave it for several hours so that it can relax, then stretch the switch widthways, until it looks how you want the finished garment. Pin it flat and secure.

Hold a steam iron above the knitting, and blow steam evenly all over the switch.

After the switch is dry, take a tension gauge over it pinned down.

Measure the tension switch to obtain the correct tension gauge using Gauge Scale between yarn marks.

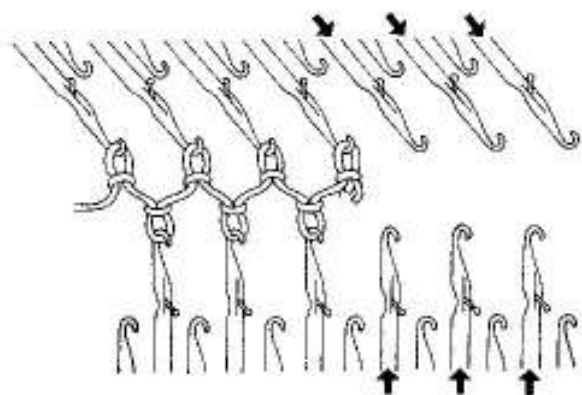
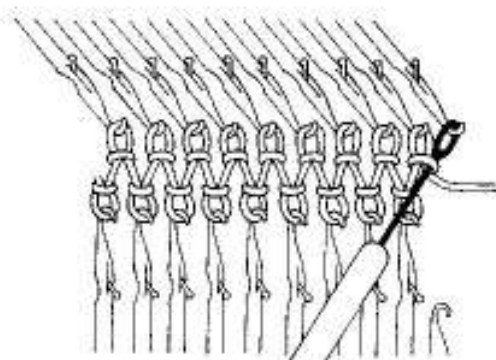
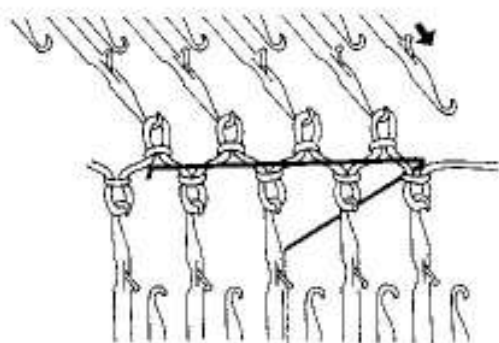
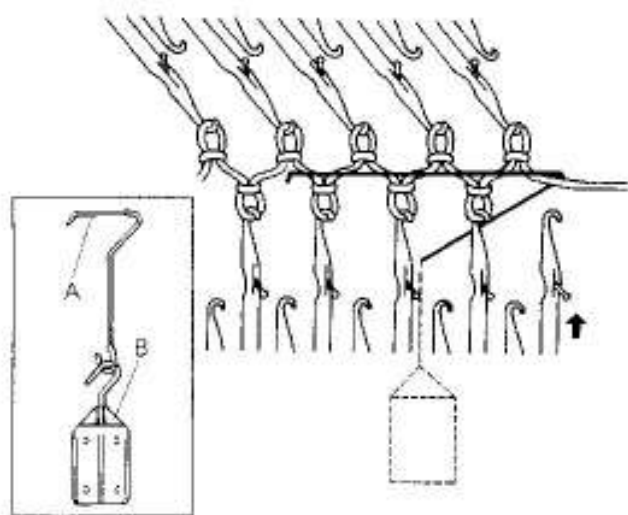


After taking tension gauge, arrange needles for the width of the total number of needles, including re-working needles.

Example: If 60 stitches are counted in the tension gauge for the switch of K1 P1 rib, arrange needles for 1 x 1 within the total of 60 needles.



# KNITTING TECHNIQUES



## Increasing 1 stitch

In case of K1, P1, rib:

You can increase only on the Carriage side.

1. Push 1 needle on opposite needle bed of the end needle from A to B position.

↳ If end needle is on knitter, push needle to B position on Ribber.

2. Use Side Hanger "A" with Edge Weight "B", hereafter called Edge Weight.

From underneath, insert hook of Side Hanger between Knitter and Ribber needle bed and lay hook over zigzag stitches. Ensure the yarn is hooked inside the Side Hanger. (See diagram)

*Move the Edge Weight up as knitting progresses.*

3. Continue to knit.

## In case of double rib:

1. Push 1 adjacent Knitter/Ribber needle at Carriage side from A to B position.

Pick up the loop below the end stitch and place it onto the empty needle as shown.

2. Push 1 Ribber/Knitter needle from A to B position.

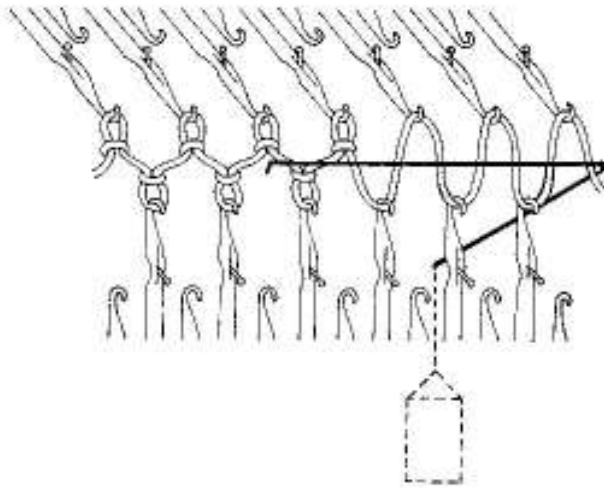
3. Hang Edge Weight and continue to knit.

## Increasing multiple stitches

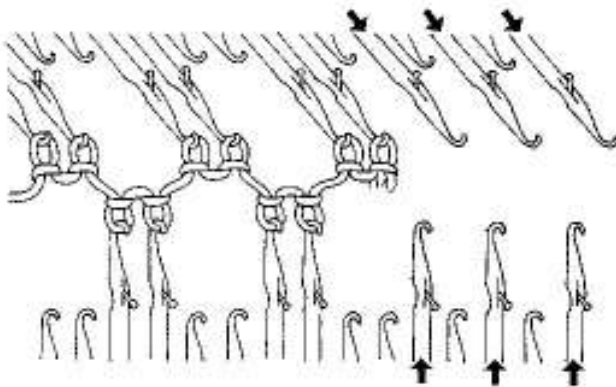
You can increase on the opposite side of the Carriage.

## In case of K1, P1, and double rib:

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

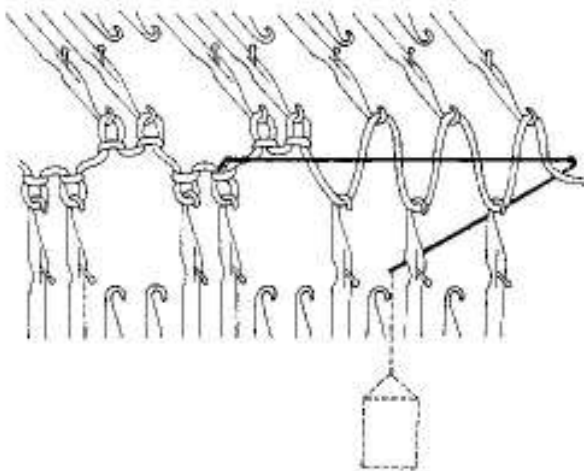


2. Knit 3 row.  
Yarn lies alternately in Knitter and Ribber needle hooks.
3. Hang Edge Weight and continue to knit.

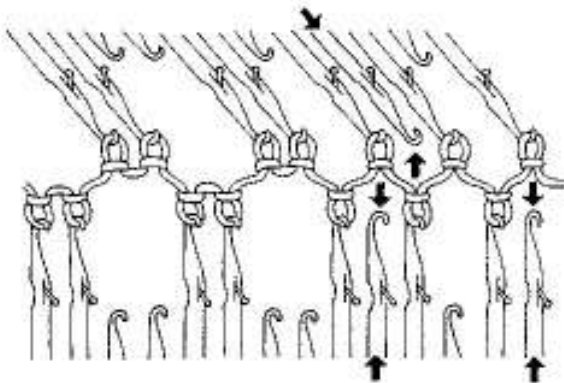


In case of K2.P2. rib:

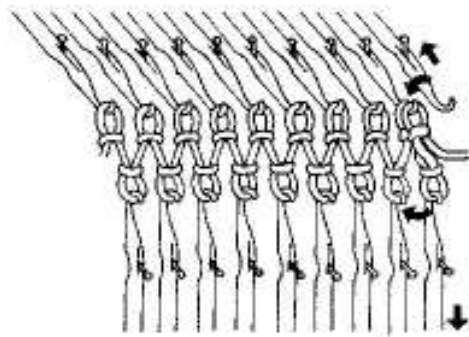
1. On the side opposite the Carriage, push required Knitter and Ribber needles to B position as shown in diagram.



2. Knit 1 row and hang Edge Weight.



3. Knit 1 row and rearrange needles by transferring stitches as shown opposite.
4. Push empty needles back to A position.  
Continue to knit.

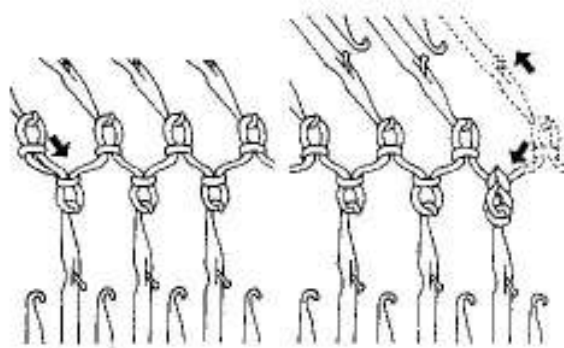


### Decreasing 1 stitch

You can decrease 1 stitch at both edges of the row at the same time.

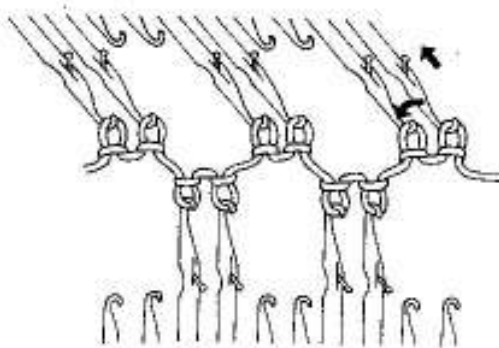
#### In case of double rib:

1. Transfer the end stitch on both Knitter and Ribber onto adjacent needles.
2. Push the empty needles to A position and continue to knit.



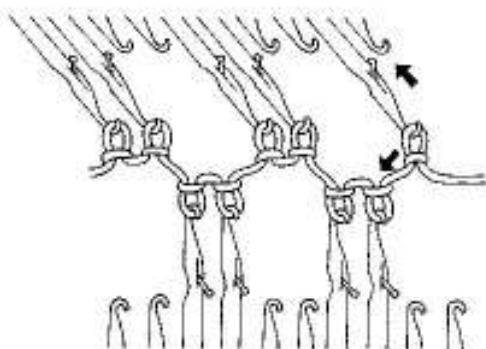
#### In case of K1.P1, rib:

1. Using Double-eye Transfer Tool, transfer the end stitch from Knitter to Ribber or vice versa.
2. Push empty needle back to A position and continue to knit.

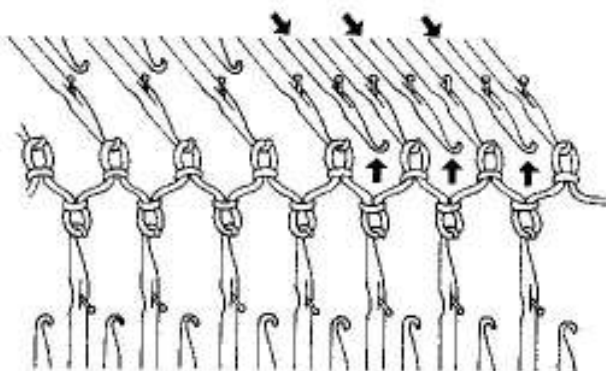


#### In case of K2.P2, rib:

If two end stitches are on the same Needle Bed, transfer the end stitch to its adjacent needles.



If the two end stitches are on different Needle Beds, transfer the end stitch to the needle on the opposite needle bed.

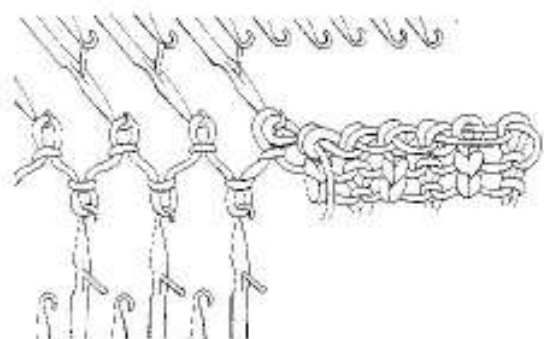
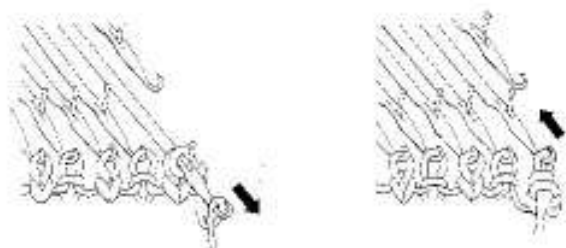
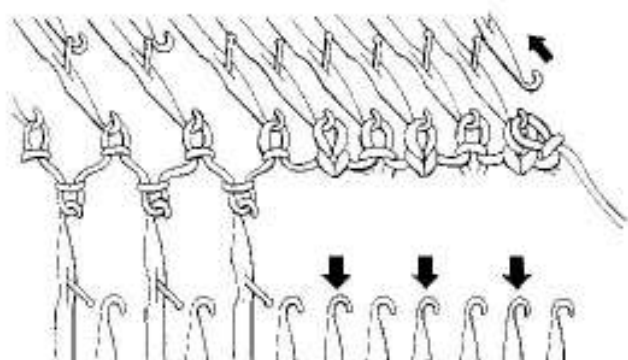


### Decreasing multiple stitches

You can decrease only on the Carriage side.

#### In case of K1.P1, and K2.P2, rib:

1. Push required number of empty Knitter needles to B position.
2. Transfer stitches from Ribber to their corresponding empty Knitter needles.



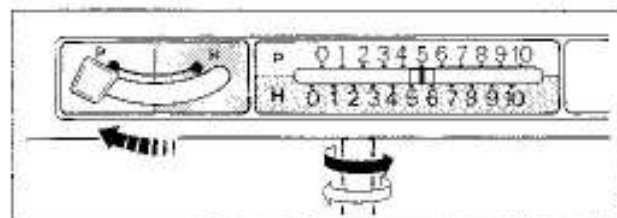
3. Push empty Ribber needles back to A position.
4. Transfer the end stitch to its adjacent needle and push empty needle back to A position.

5. Push the end working needle to D position. The two stitches are behind latch. Lay the yarn inside the needle hook.

6. Holding yarn end slightly downwards, push the needle back to B position.

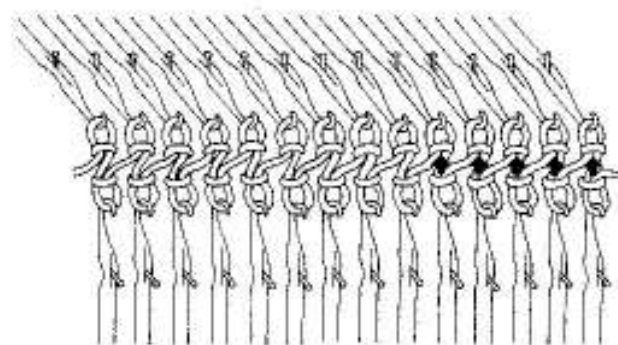
Repeat steps 4 — 6 until required number of stitches have been decreased.

7. Place the last stitch onto adjacent needle.



#### In case of double rib:

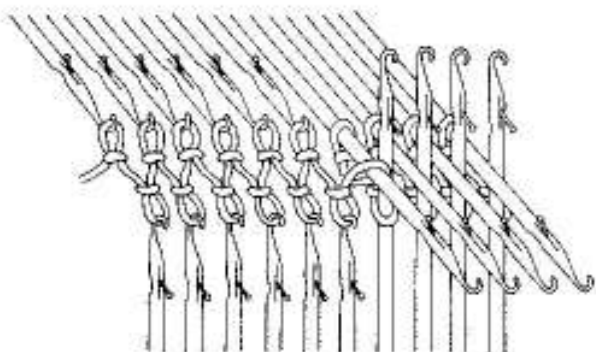
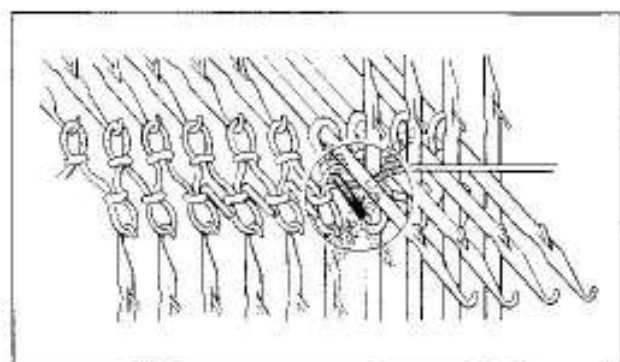
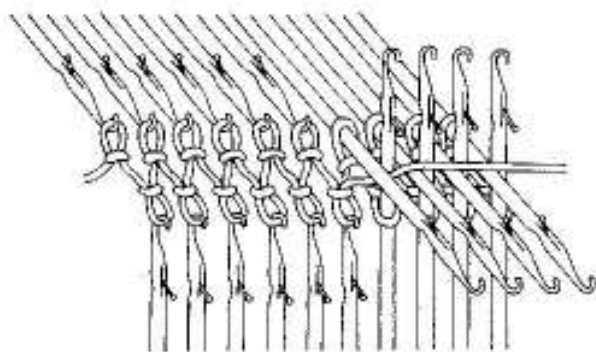
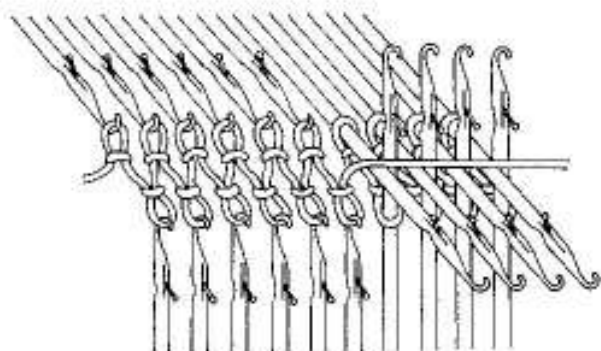
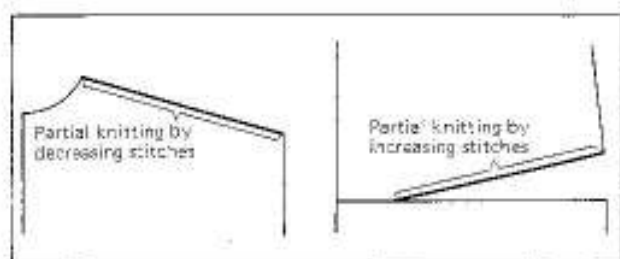
1. Set Half-Pitch Lever to P.



2. Transfer the required number of Ribber stitches to their corresponding Knitter needles.

3. Cast off the stitches in the same way as given for K1, P1 rib.

Set Half-Pitch Lever to H to continue knitting.



## Partial knitting

PARTIAL KNITTING is used to shape a gentle slope, such as shoulder, caps, etc.

You can do partial knitting only to the opposite end to the Carriage. If you wish to shape both sides, work left and right alternately.

## Decreasing stitches

Set Russel Levers on Knitter and Ribber Carriage to **I** and **—** positions respectively.

1. On the side opposite the Carriage, push needles to be decreased to D position.
2. Knit 1 row. (The needles in B position knit the yarn. The needles in D position remain inactive and the yarn passes over them.)
3. To prevent a hole forming, pass the yarn under the first inside needle in C position and over the remaining needles.

(If partial knitting is required at both sides, repeat step 1 before knitting next row.)

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

4. Knit 1 row. (If partial knitting is required at both sides, apply step 3.)
5. Repeat steps 1 — 4.

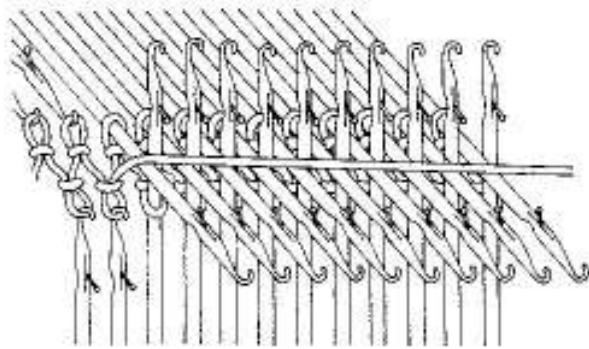
After completing partial knitting, continue as follows.

### A. Rib without pattern

Push the needles in D position at the opposite end to the Carriage back to C position. Knit 1 row. Repeat this step if partial knitting has been worked at both ends.

### B. Pattern knitting

Using a Transfer Tool, return the needles in D position to B position, at the opposite end to the Carriage. Knit 1 row. Repeat this step if partial knitting has been worked at both ends.



### Increasing stitches

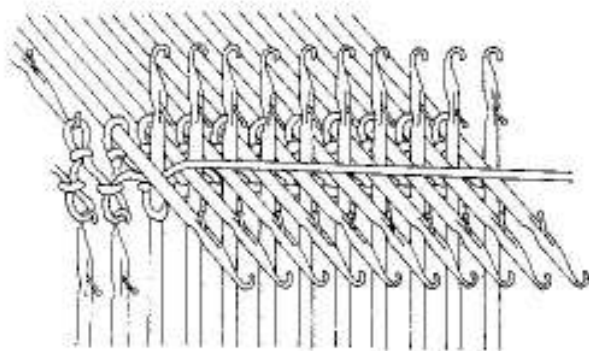
Set Russel Levers on Knitter and Riaber Carriage to **I** and **—** positions respectively.

1. On the side opposite the Carriage, push needles for the width to be shaped by partial knitting to D position.

2. Knit 1 row. The needles in B position knit the yarn. The needles in D position remain inactive and the yarn passes over them.

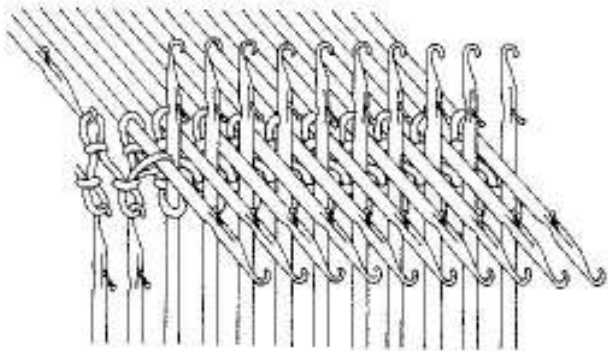
3. To prevent a hole forming, pass the yarn under the first inside needle to D position and over the remaining needles.

(If partial knitting is required at both sides, repeat step 1.)



4. Knit 1 row.

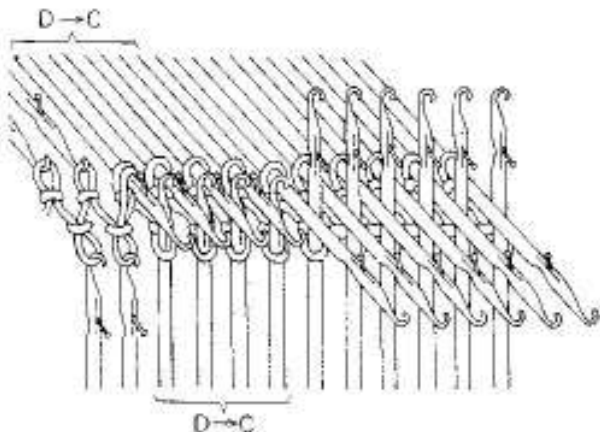
(If partial knitting is required at both sides, apply step 3.)

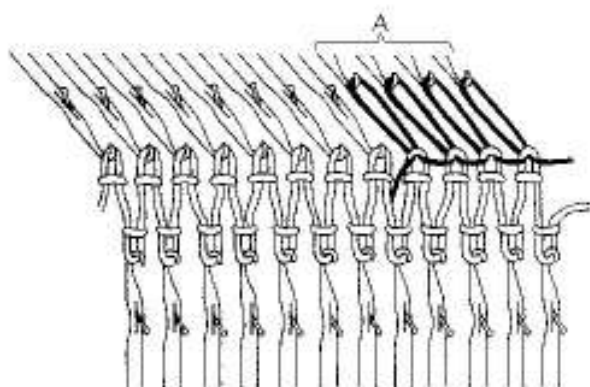


5. On the side opposite Carriage, push needles in D position to be increased back to C position, and knit 1 row.

*When the pattern knitting is required, using a Transfer Tool, return the needles to be increased to B position, and knit 1 row.*

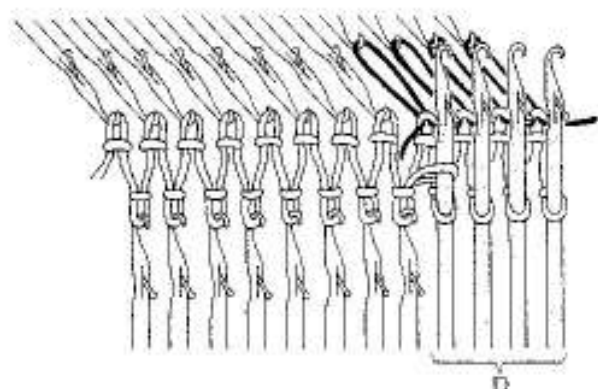
6. Repeat steps 3 — 5. (If partial knitting has been worked at both sides, repeat steps 3 and 5 only.)





### Partial knitting involving "swing"

*Knitter needles in D position cross the opposite Ribber needles 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, swung pick rib and like stitches, all of which involve "swing".*



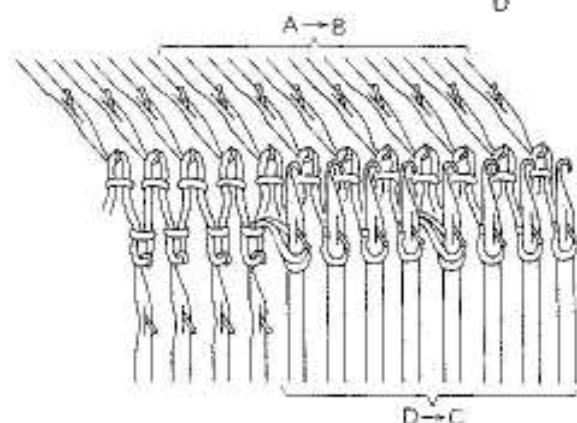
*\*When working partial knitting in variation swing, knit pushing up 4 or 5 needles in B position to D position.*

### Partial knitting by decreasing stitches

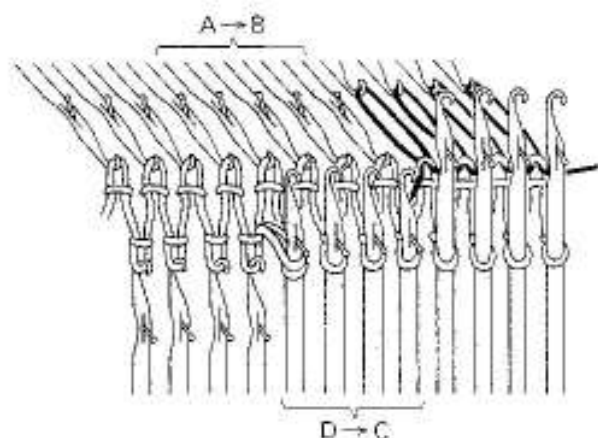
*Work in the same manner as for "Partial knitting without involving swing", but work as follows instead of step (1).*

*On the side opposite Carriage, to hold stitches on Knitter to be decreased, knit Ravel Cord by hand and push needles back to A position.*

*Push up corresponding Ribber needles to D position.*



*At the completion of partial knitting, push needles in D position on Ribber back to C position and replace stitches held on Ravel Cord into hooks of needles on Knitter.*



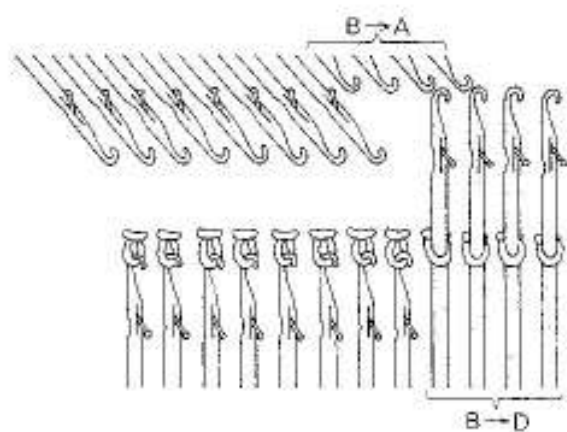
### Partial knitting by increasing stitches

*On the side opposite Carriage, hold Knitter stitches to be shaped by partial knitting, with Ravel Cord, in A position and corresponding Ribber needles in D position.*

*At each step in increasing stitches, replace Knitter stitches back into hooks and push corresponding Ribber needles in D position back to C position, before knitting.*

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

*To prevent the Ravel Cord from catching in the Knitter or Ribber Carriage, drop the ends between the needle beds.*



### Partial knitting in pile knitting and drive lace knitting.

Set Russe Levers on Knitter and Ribber Carriage to I and — positions respectively.

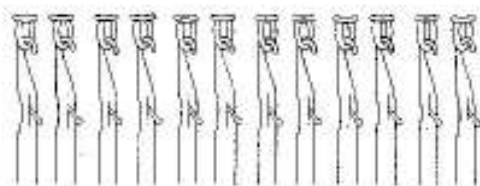
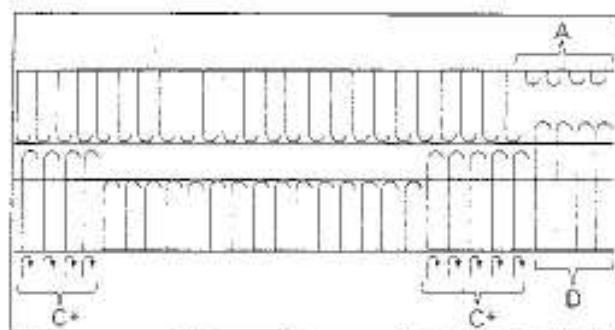
Begin partial knitting after removing stitches on knitter using P Carriage.

#### Decreasing stitches at the right edge.

Carriage at left.

1. On the side opposite the Carriage, push Knitter needles to be decreased back to A position and Ribber needles to be decreased to D position.
2. On both sides of Ribber Bed, push the end 4 or 5 working needles up to D position and then back to C position (\*) instead of bringing Ribber needles with P Carriage because it cannot be used in partial knitting.
3. Knit 1 row.
4. To prevent a hole forming, pass the yarn under the first inside Ribber needle in D position.
5. Repeat step 2 and knit 1 row.

Repeat steps 1 — 5.

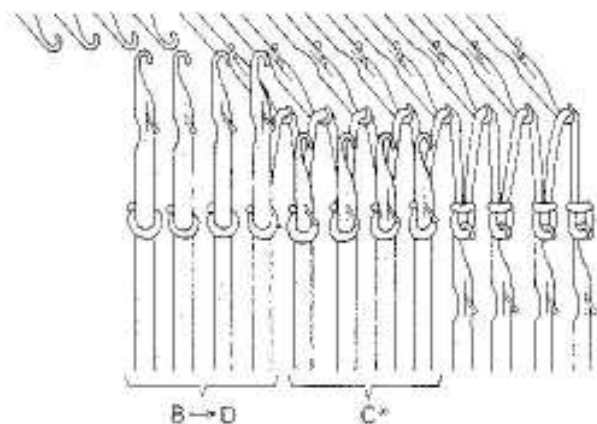


#### Decreasing stitches at the left edge.

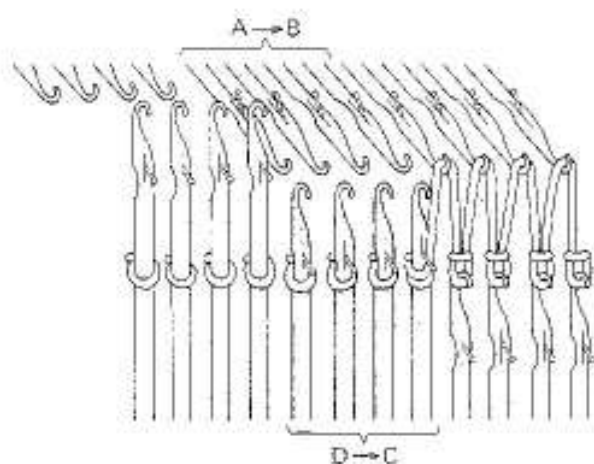
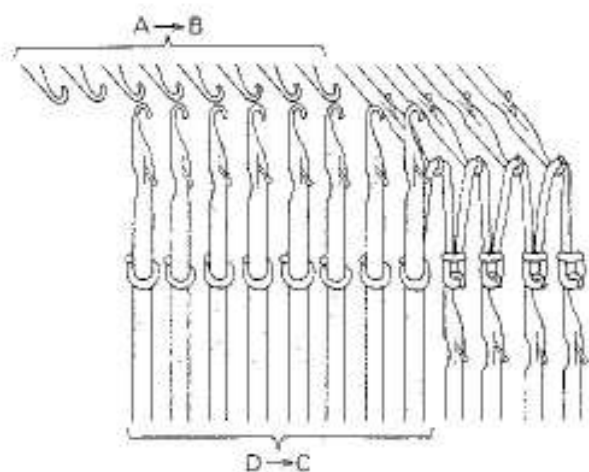
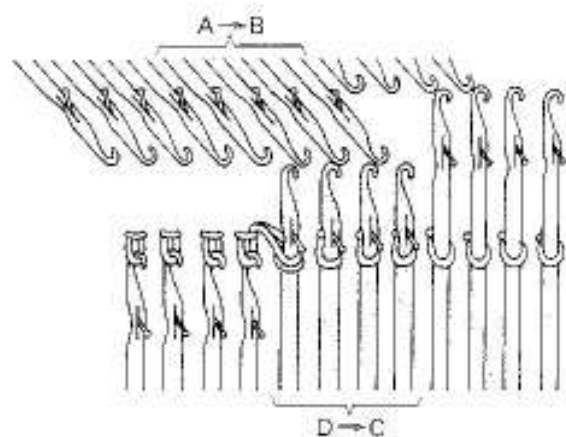
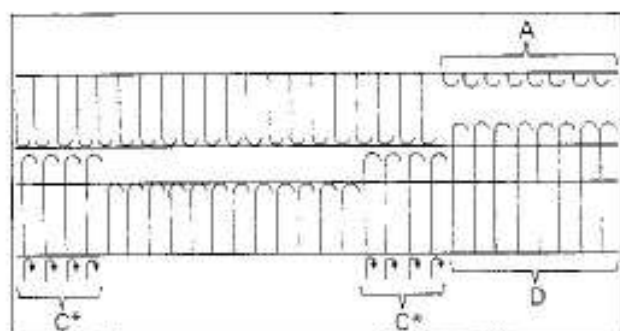
Carriage at left.

1. Push Knitter needles to be decreased back to A position on the Carriage side.
2. On both sides of Ribber Bed, push the end 4 or 5 working needles up to D position and then back to C position instead of bringing Ribber needles up with P Carriage.
3. Knit 1 row.
4. Push Ribber needles to be decreased to D position on the side opposite the Carriage.  
Repeat step 2 and knit 1 row.  
To prevent a hole forming, pass the yarn under the first inside Ribber needle in D position.

Repeat steps 1 — 5.







### Increasing stitches at the right edge

Carrage at left.

1. On the side opposite the Carrage, push Knitter needles back to A position, and Ribber needles to D position for the width to be shaped by partial knitting.
2. On both sides of Ribber bed, push the end 4 or 5 working needles up to D position, and then back to C position (\*) instead of bringing up Ribber needles with P Carrage.
3. Knit 1 row.
4. To prevent a hole forming, pass the yarn under the first inside Ribber needle in D position.  
Repeat step 2 and knit 1 row.
5. At the side opposite the Carrage, push Knitter needles to be increased to B position, and Ribber needles to be increased back to C position.  
Repeat step 2 and knit 1 row.

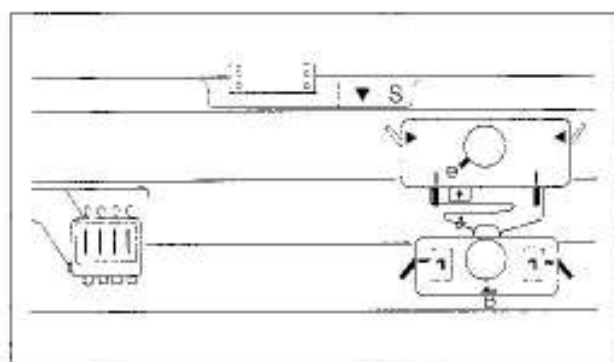
Repeat steps 4 — 5.

### Increasing stitches at the left edge.

Carrage at left.

1. Push Knitter needles for the width to be shaped back to A position on the Carrage side.
2. On both side of Ribber bed, push the end 4 or 5 working needles up to D position and then back to C position.
3. Knit 1 row.
4. Push Ribber needles for the width to be shaped by partial knitting to D position on the side opposite the Carrage.  
Repeat step 2 and knit 1 row.
5. To prevent a hole forming, pass the yarn under the first inside Ribber needle in D position.  
Repeat step 2 and knit 1 row.
5. At the side opposite the Carrage, push Knitter needles to be increased to B position and Ribber needles to be increased back to C position.  
Repeat step 2 and knit 1 row.

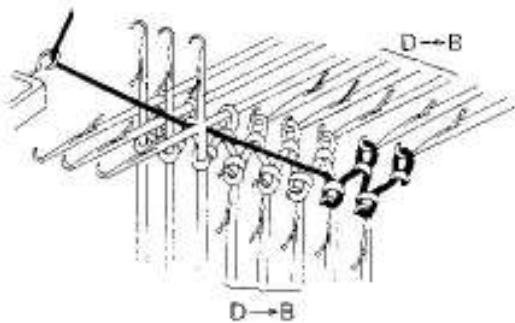
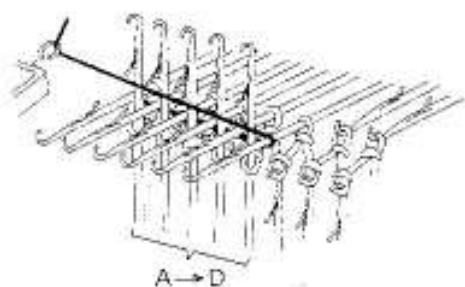
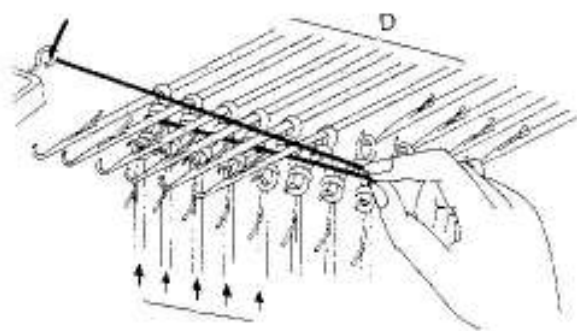
Repeat steps 5 — 6.



### Partial knitting while knitting double jacquard

Partial knitting at right side is worked in the same way as given for double rib.

For partial knitting at left side, Set Russel Levers on Knitter and Ribber Carriage to **1** and **—** positions respectively and follow the instructions below.

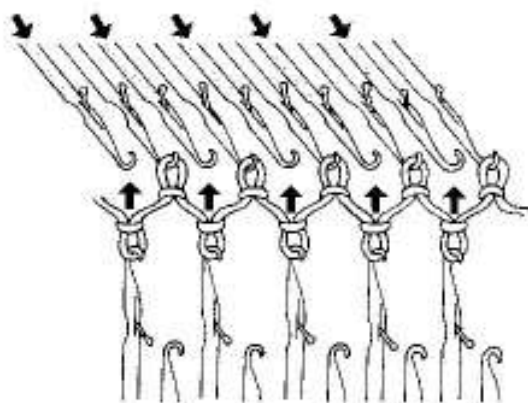


### Decreasing stitches

1. Carriage is at the right side.  
Push the Knitter needles to be decreased to D position.
2. Pull yarns in the Holders and hook them around the needles in D position, as shown in diagram.
3. Push the corresponding Ribber needles to D position. Ensure that each yarn lies over both sets of needles as shown in diagram.
4. Knit 1 row from right to left.  
Change the yarn and knit left to right.
5. Repeat steps 1 — 4.

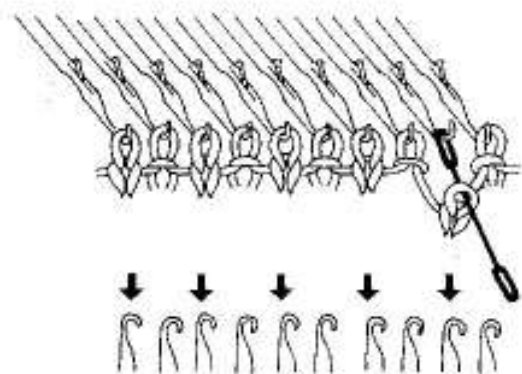
### Increasing stitches

1. Carriage is at right side.  
Using Transfer Tool, transfer the needles in D position to be increased, back to B position.
2. Bring the yarns in the Holders behind the first inside Ribber needles and under the first inside Knitter needle in D position.
3. Knit 1 row from right to left changing the yarn and from the left to the right.
4. Repeat steps 1 — 3.

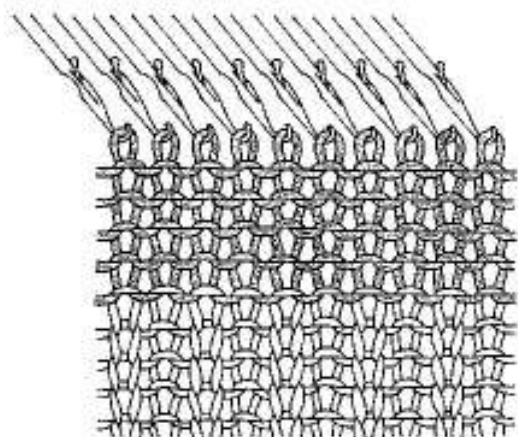


## Waste knitting

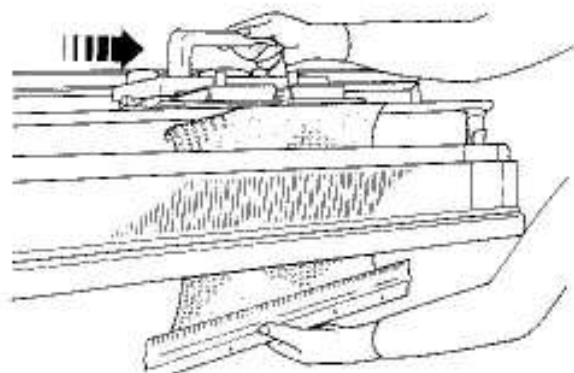
1. On Knitter, push empty needles to B position.



2. Transfer Ribber stitches to the corresponding Knitter needles.  
Drop Ribber to its lowest position.

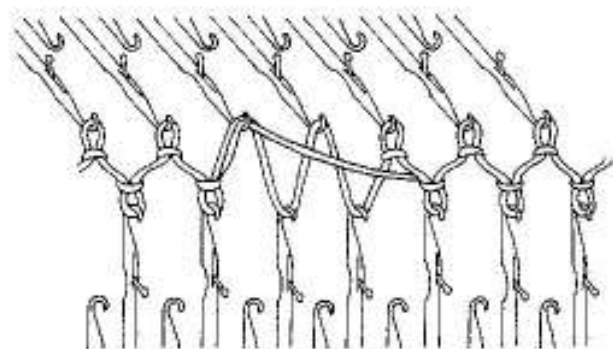
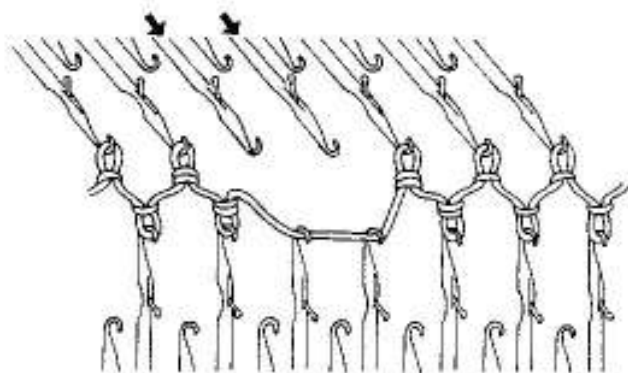
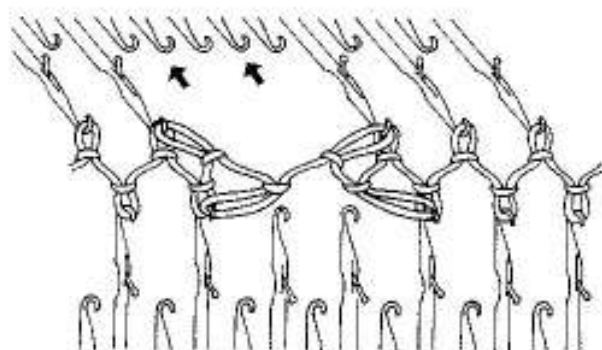
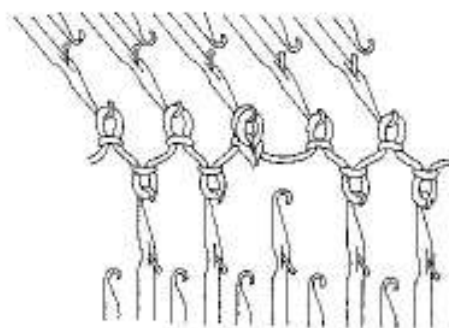
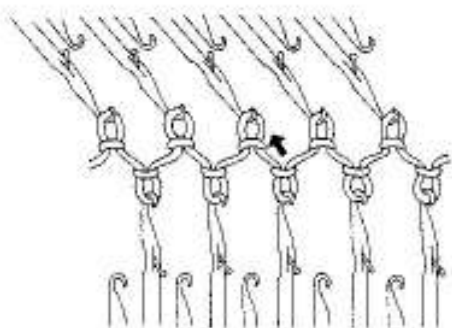


3. Exchange Ribber Arm for Knitter Arm and thread contrast yarn into Yarn Feeder.  
Knit 8 — 10 rows with Stitch Dial 4 — 5 higher than for double bed knitting, with Cam Lever set to Stocknet (0, Λ).



4. Remove yarn and Weights.

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



## Buttonhole

### Single stitch eyelet

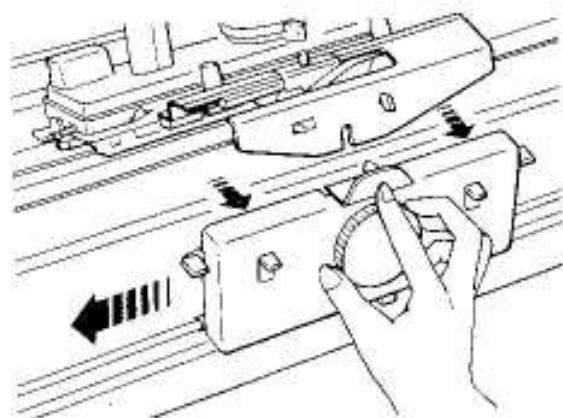
1. At the point for eyelet, transfer 1 stitch from Ribber to Knitter.
2. Leave empty needles in B position.  
Continue to knit.

### Double stitch eyelet

1. Transfer 2 stitches at the point of the buttonhole to their adjacent needles on Knitter and Ribber.
2. Push empty needles on Knitter back to A position.  
Leave empty needles on Ribber in B position.
3. Knit 1 row and push the needles left in A position on step 2 to B position.
4. Knit 1 row.

5. Hook hanging yarn on a Knitter needle.  
Continue to knit.

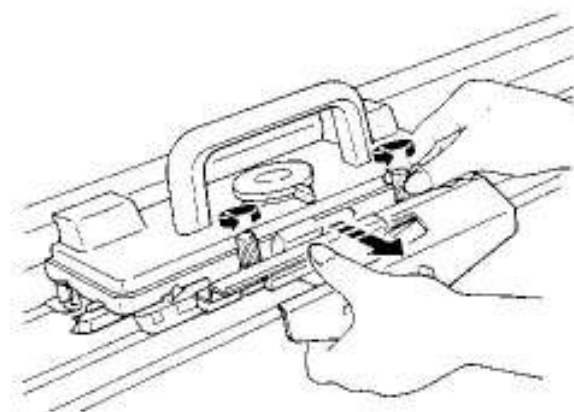
## WHAT TO DO IF



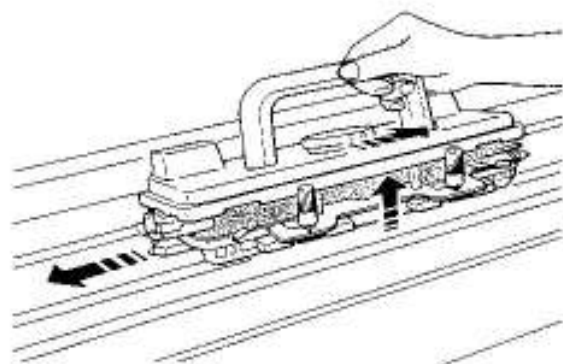
### If the Carriage has jammed during knitting...

1. By pushing the Link Knob, disconnect the Ribber Carriage from the Arm and tilt it towards you, then move it to either end of the needle bed.

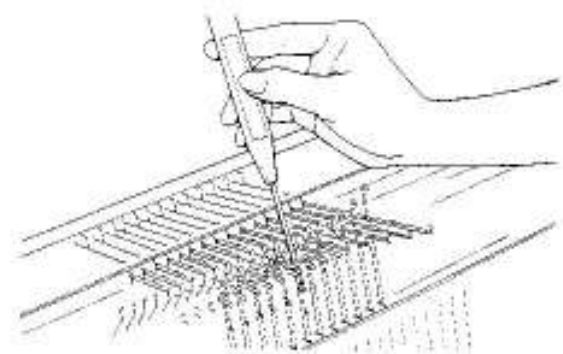
DO NOT PUSH OR PULL THE CARRIAGE BY FORCE.



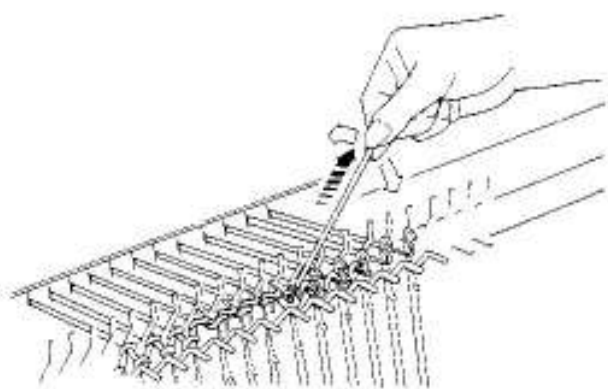
2. Remove the Ribber Arm from the Standard Carriage.



3. Lift open the Carriage by pushing the Release Lever, and move it in the direction it was going, until it clears the working needles.



4. Check the stitches, and if stitches have moved behind the hitches, replace them into the hocks using a Transfer Tool.  
If a stitch has dropped, refer to page 68.



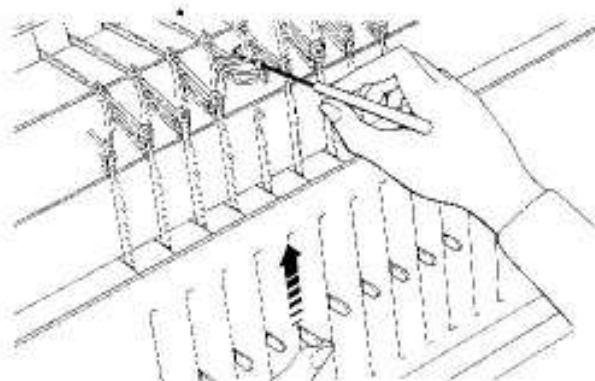
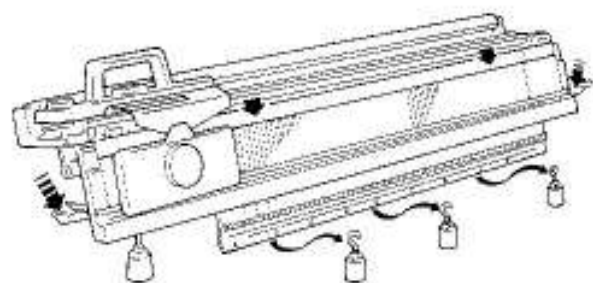
- Align the working needles in B position and unravel the incomplete row as follows.  
Hold the yarn and unhook it from Knitter and Ribber needle hooks by pulling it in the arrowed directions in a snagging manner.

- Pass the Carriage to the side with the yarn end and press down the Carriage to continue knitting.

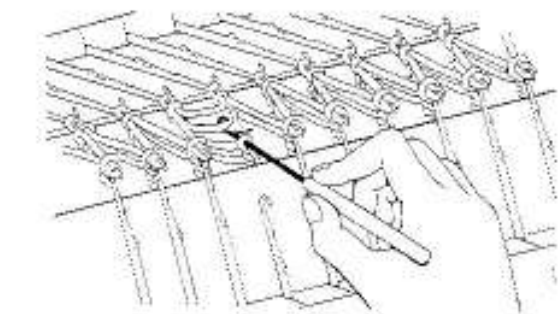
If the Row Counter, the Knit Counter (Rader) and/or the Punch Card is/are in use, refer to "If incorrectly knitted..." on pages 62 before knitting again.

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

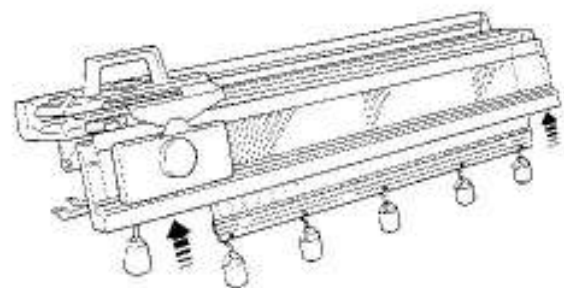
- Remove Weights from Cast-on Comb as they may cause dropped stitches to run.
- Depress Drop Lever and bring down Ribber to middle position.



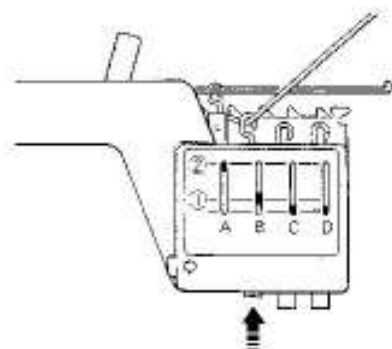
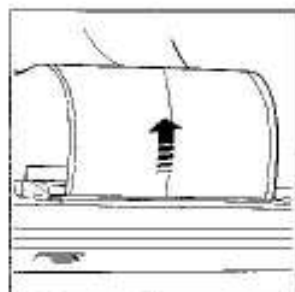
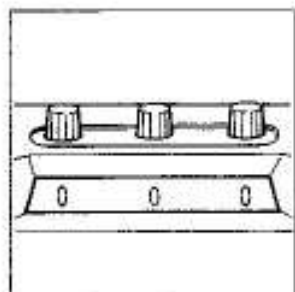
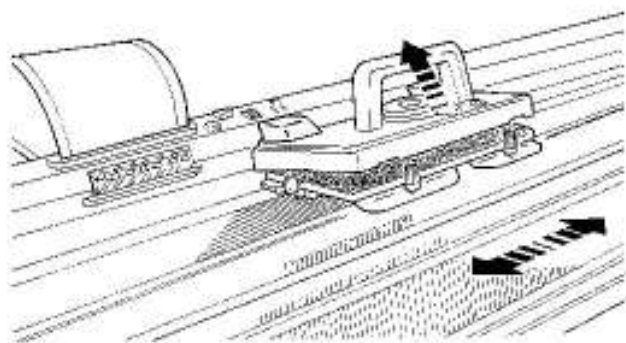
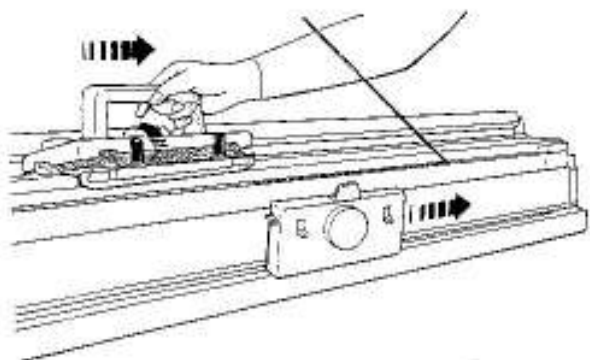
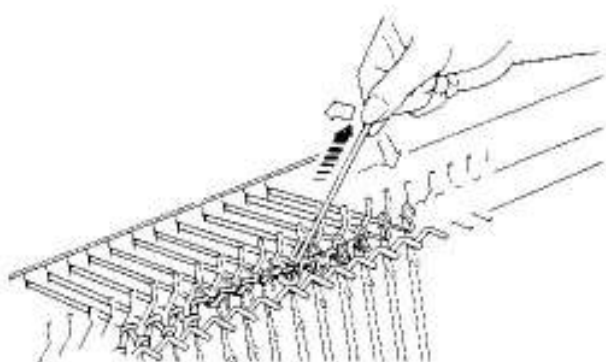
- With Hook Tool, pick up dropped stitch end place it back on needle hook.



- Reform stitches by moving needles back and forth or by using Tapet Tool.



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



### If incorrectly knitted...

1. Remove the yarn from the Yarn Feeder and unravel the incorrectly knitted row as follows.

Hold yarn and unhook it from Knitter and Ribber needle hooks by pulling it in the arrowed directions in a zigzagging manner.

*In case of double jacquard:*

*If the yarn end is the left side, unravel an additional row so that it comes to the right side.*

2. Align needles in B position, and replace the yarn into the Yarn Feeder.

### If the Carriage is at the side opposite the yarn:

- (1) Disconnect Ribber Carriage from Arm and move it to yarn side while tilting Carriage.
- (2) Remove the Ribber Arm from the Standard Carriage.
- (3) Operate the Carriage Release Lever, and move the Carriage to the side of the yarn.
- (4) Connect the Ribber Carriage and Arm to the Standard Carriage.

### If a Punch Card is in use:

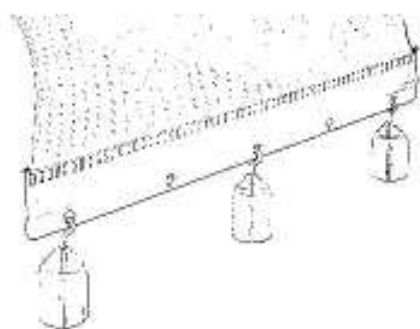
- (1) Return the Card by the same number of rows as unraveled and set Stop Knob to ●.
- (2) Work in the same manner as above, "If the Carriage is at the side opposite the yarn".

### If a Row Counter and Knit Contour (Rader) are in use:

Return them by the same number of rows as unraveled.

### In case of double jacquard:

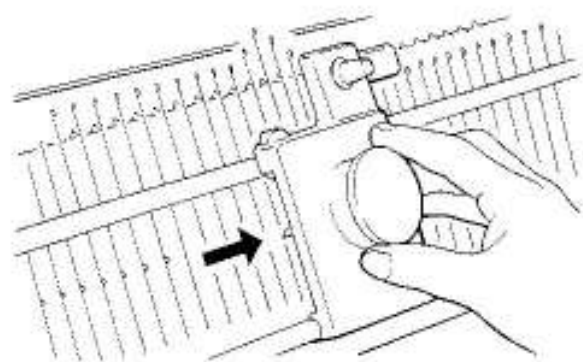
Re-arrange the Holder Buttons of the Yarn Changer and thread the right yarn into Yarn Feeder.



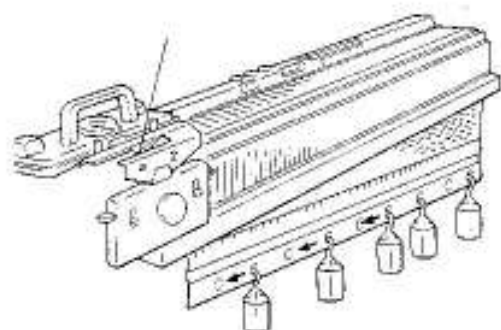
### If stitches float...

#### When stitches on full length float

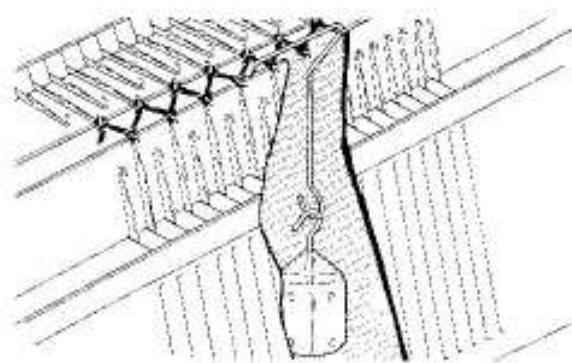
- \*Increase the number of Weights.
- \*Check the yarn and Stitch Dials.



- \*Push the needles to C position every row using P Carriage without P Presser.

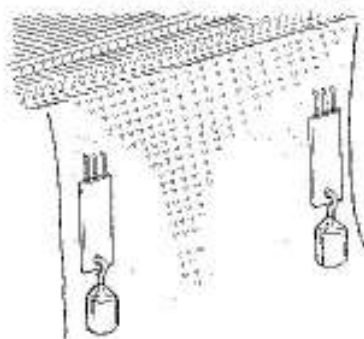


- When stitches of half length of knitting float, check to see if Cast-on Comb with Weights is suspended horizontally.



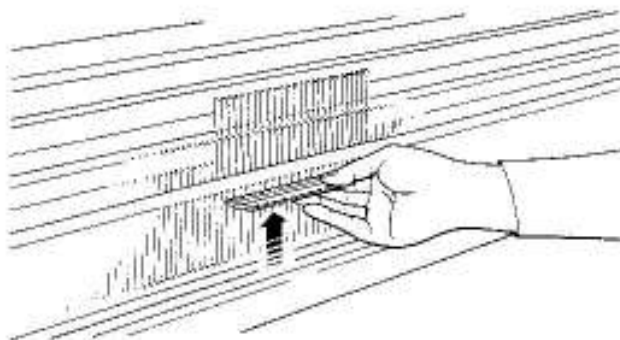
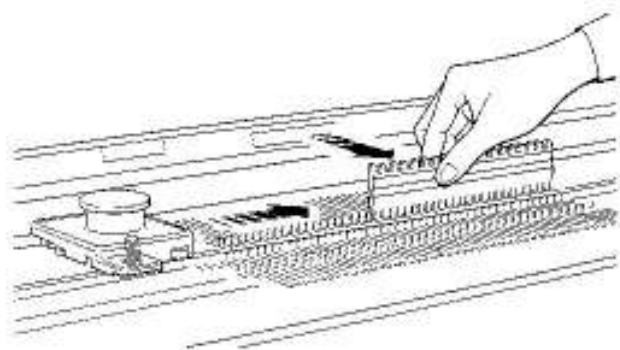
#### When edge stitches tend to float

- \*Suspend Edge Weight when increasing multiple stitches.



- \*Suspend Hanger Comb with Weight when partial knitting or knitting sectionally.





### If P Carriage has jammed...

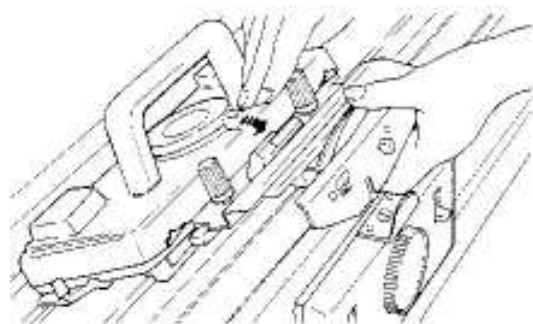
#### If it jammed on the Knitter...

Regardless of direction in which you are moving P Carriage, remove it and push all the needles to D position, then move P Carriage from the left to the right.

#### If it Jammed on the Ribber...

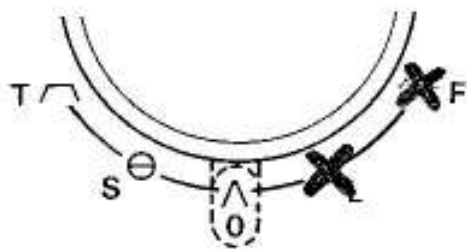
Remove P Carriage and push all the needles to D position using Needle Pusher, then knit the next row.

*If you have failed to align needles into C position for cast-on using P Carriage, push all the needles to D position and move P Carriage twice across the needles starting from right side. (Needles will align in C position.)*

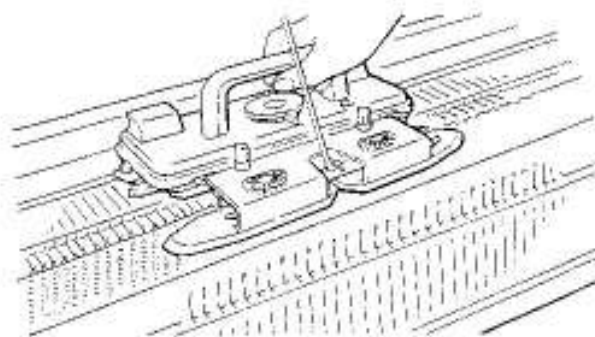


### If the Ribber Arm does not fit on the Standard Carriage properly...

1. Check to see if the top of the Standard Carriage closed properly. The top of the Carriage must be down.



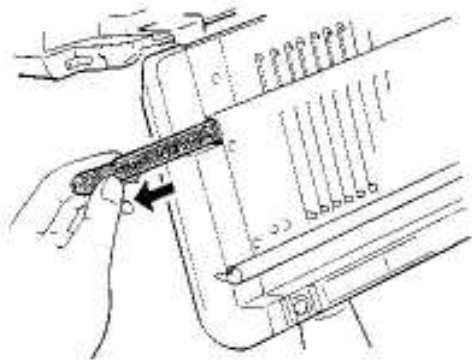
2. Check the setting of the Cam Lever. It should be set at "A" before mounting the Ribber Arm, never at "S" (FAIR ISLE) or "F" (PUNCH LACE).



### If you knit with the Knitter only with the Ribber connected...

1. Disconnect Ribber Arm and Carriage from Knitter Carriage.
2. Lower Ribber to its fullest extent by pushing down Drop Levers twice.
3. Fit Knitter Arm and start knitting.

To use the Lace Carriage when the Ribber is connected, refer to Operation Manual.

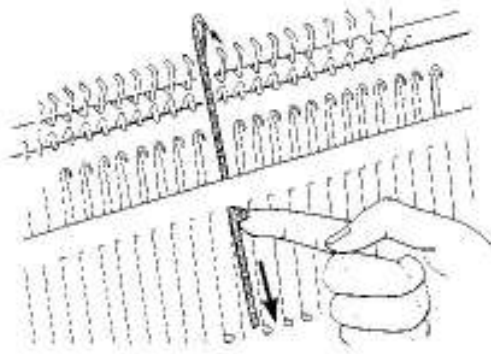


### If a needle has been damaged...

Using a pencil or a screw driver, push the Needle Retainer in either direction.

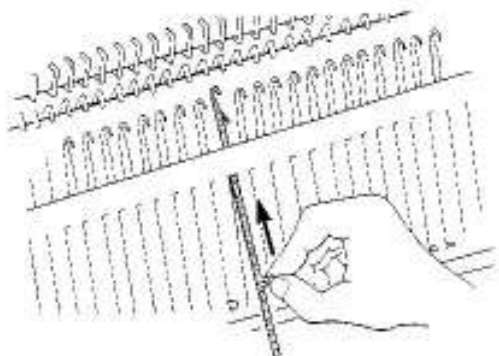
Pull the Needle Retainer toward one end until it clears the needle to be replaced.

*If a stitch is hooked on the needles, use the Tappet Tool to pick up the stitch and transfer it to the new needle.*



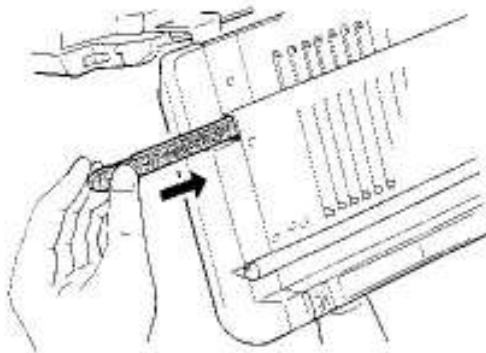
Push the damaged needles to C position. Close the latch. The shank will come out of the needle bed.

Pull it out from the Needle Bed.



To replace a new needle, open its latch and slide it into the Needle Bed groove until the hook comes out of the top opening of the Needle Bed.

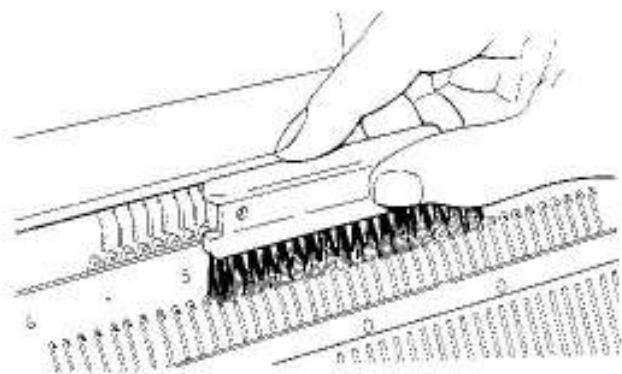
Push the needle back to A position by holding the butt.



Insert the Needle Retainer back into the Needle Bed by pushing the protruding end. To insert the Needle Retainer, press the fluted needles at the front edge of the Needle Bed using the Needle Pusher.

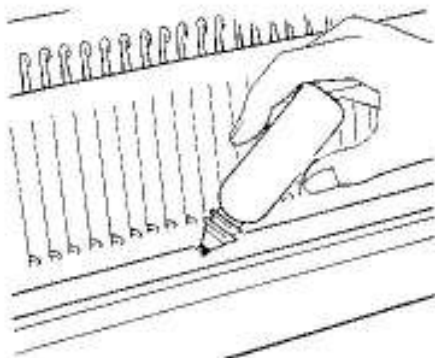
If a stitch is held on a Tappet Tool, replace it on the new needle.

## MAINTAINING THE MACHINE



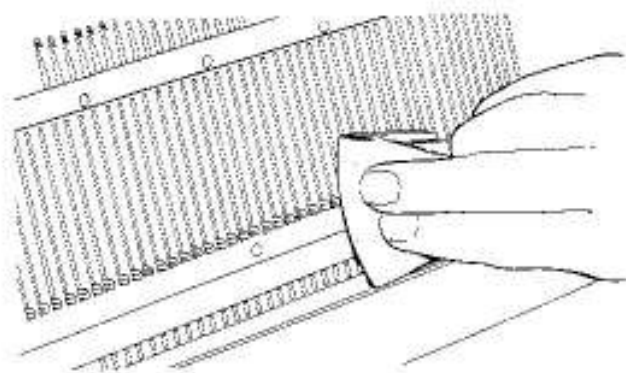
### Needle Bed

With Cleaning Brush removes lint or dust from Needle Bed.

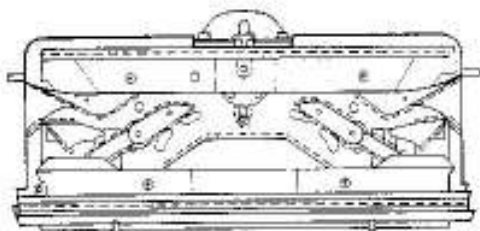


Apply oil along the rail, front guide of the Needle Bed and needle butts.

(Do not apply excessive oil.)



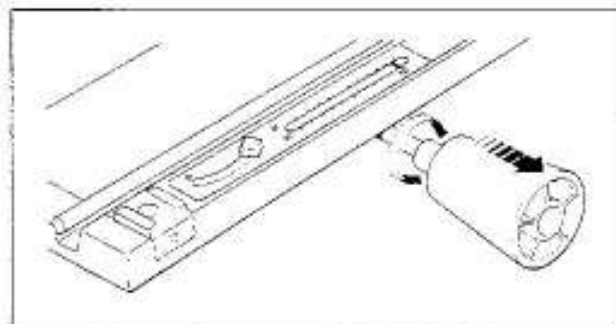
Rub latch-needle butts with oil-damped cloth.



### Carriage

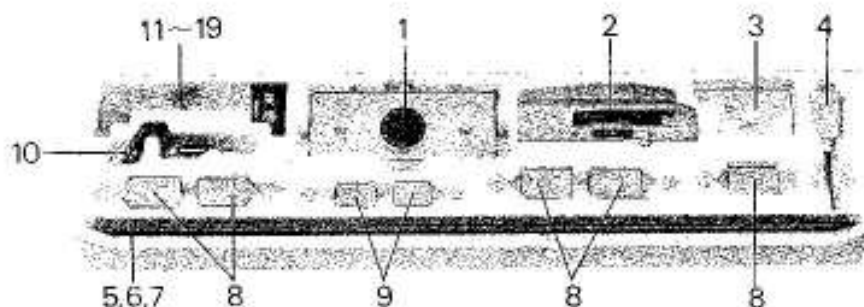
Clean underside of Carriage and apply oil over-slicing parts with oil-damped cloth.

## REPACKING THE RIBBER

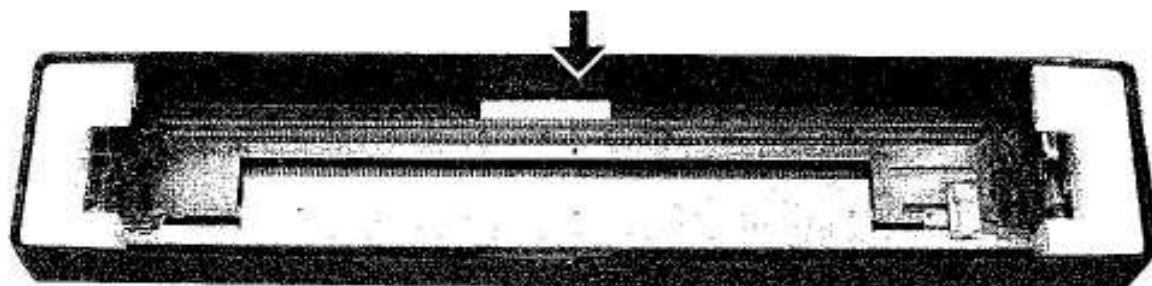


1. Disassemble Ribber by reversing the Procedure for assembling. Set Swing Handle at H-10 and pull it out by twisting and pulling it.
2. Before putting back Needle Bed into the box, fit polystyrene packings to both ends of Needle Bed in the following manner.—

With the back of the Needle Bed facing you, and with the sinker posts at the top, fit the polystyrene marked "R" to the right end, and "L" to the left end.



3. Replace Accessories as shown above, then place polystyrene on top of Needle Bed in box.



- |  |  |
|--|--|
| 1 Ribber Carriage                              | 10 Ribber Clamp                            |
| 2 Ribber Arm                                   | 11 P. Presser                              |
| 3 P. Carriage                                  | 12 Needle Pusher (2/1, 2/2)                |
| 4 Swing Handle                                 | 13 Driving Cam                             |
| 5 Cross Knit Bar                               | 14 Plecting Yarn Feeder                    |
| 6 Cast-on Comb (long)<br>Cast-on Wire (long)   | 15 Side Hanger                             |
| 7 Cast-on Comb (short)<br>Cast-on Wire (short) | 16 Hanger Comb                             |
| 8 Ribber Weight (large)                        | 17 Hook Tool                               |
| 9 Edge Weight                                  | 18 Double-eye Transfer Tool                |
|  | 19 Spare Needle Envelope (incl. 3 needles) |