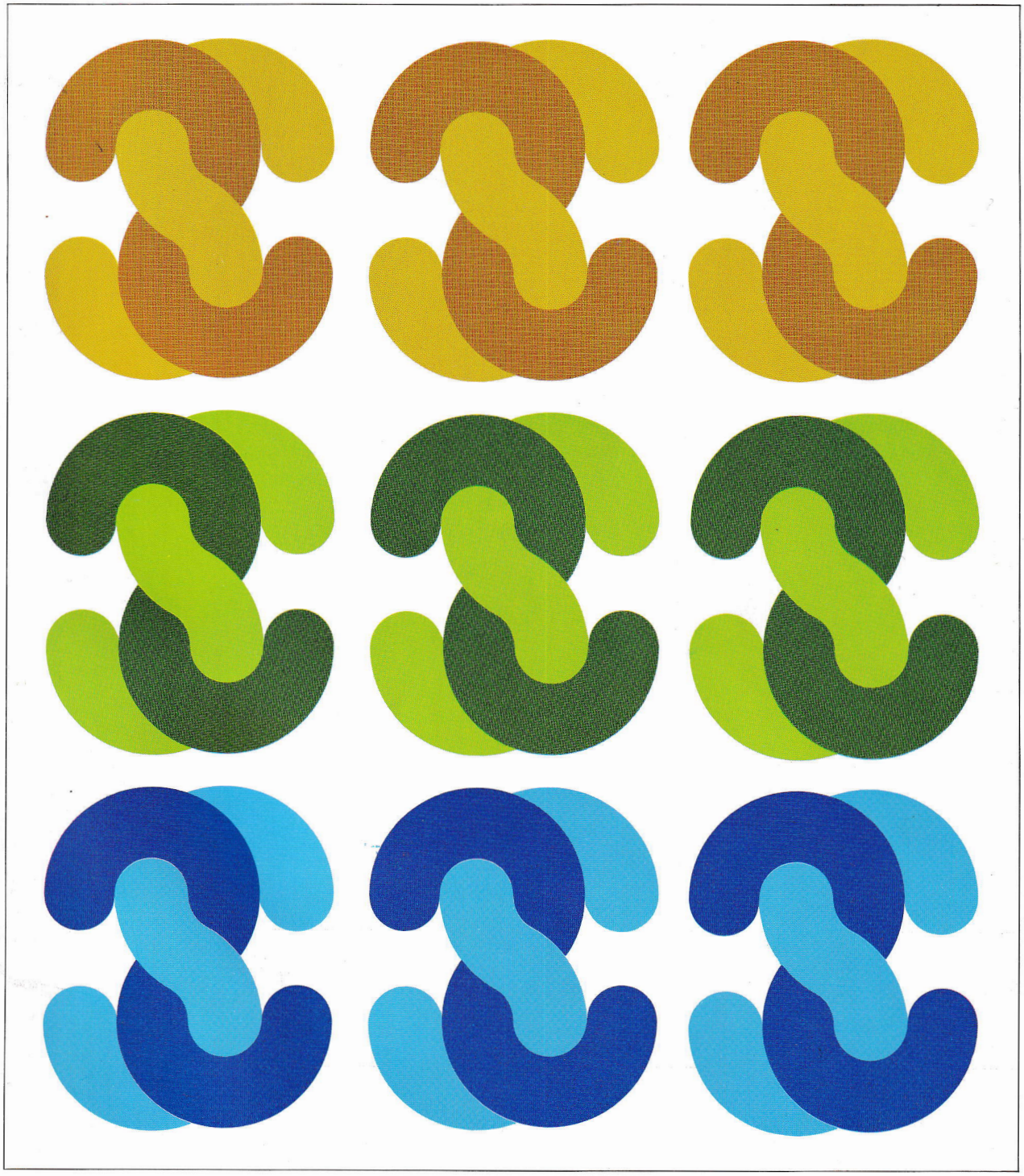
BULKY RIBBER

Model SR-120



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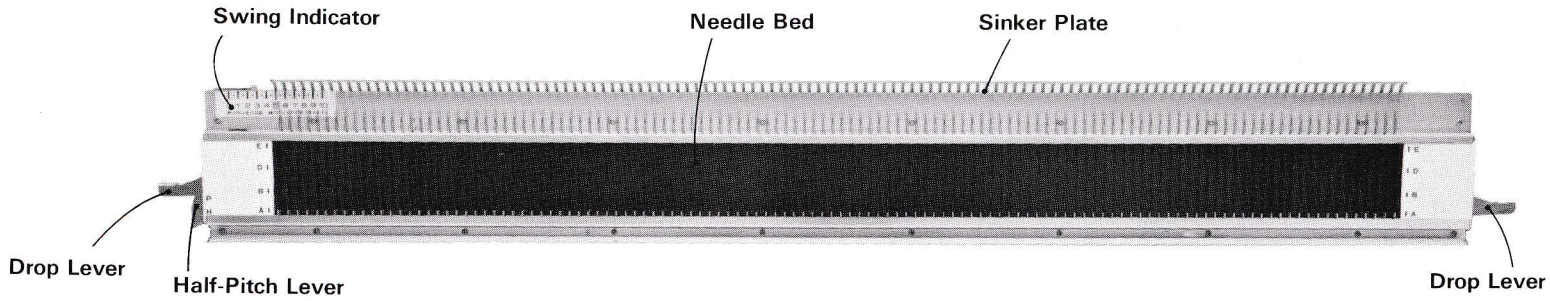
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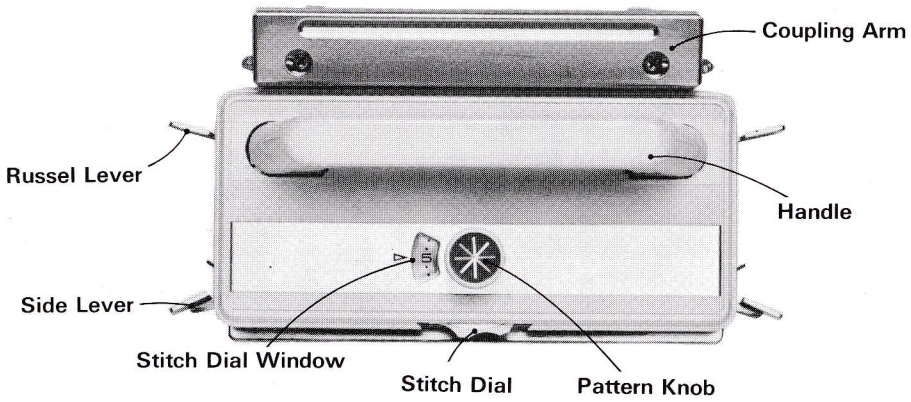
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Main Body (Ribber)

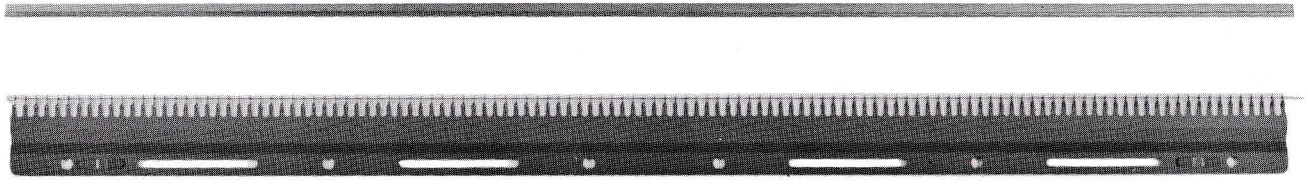


Carriage (Ribber)



Accessories

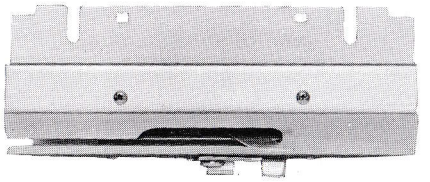
Knit Bar



Cast-on Comb (long)



Cast-on Comb (short)



Ribber Arm



Swing Handle



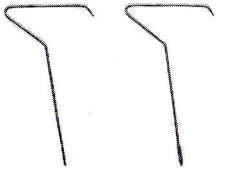
Spare Needle



Hook Tool



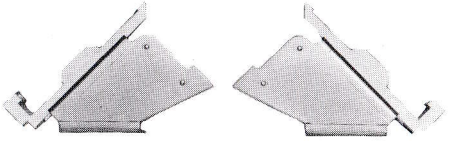
Rib Transfer Tool



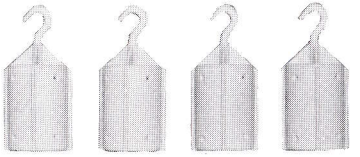
Edge Weight Holder



Yarn Rod Holder



Coupling Bracket



Ribber Weight

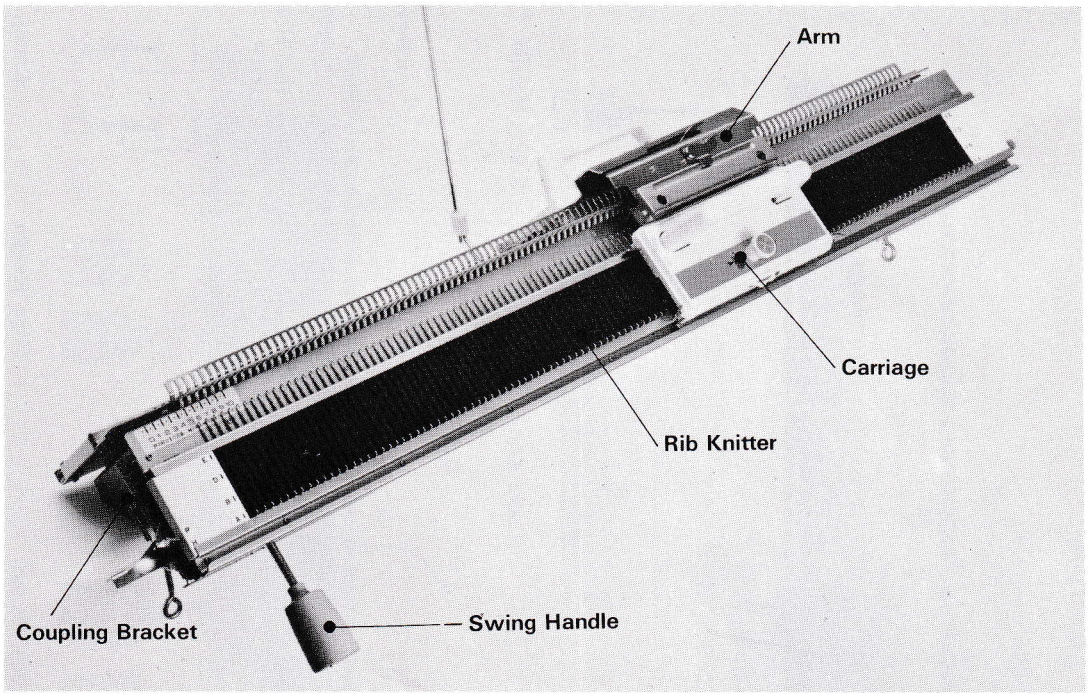


Edge Weight

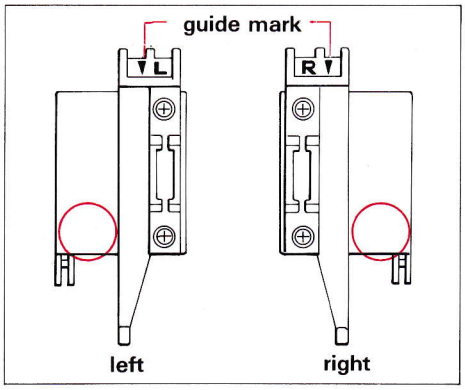


Clamp

HOW TO ASSEMBLE

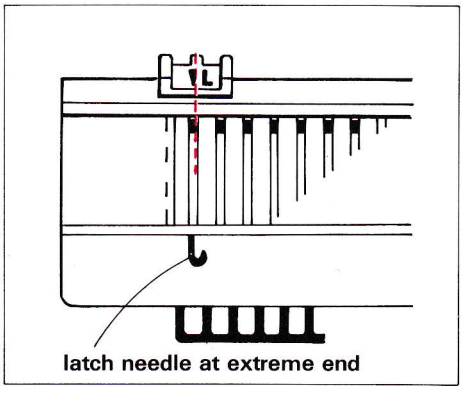


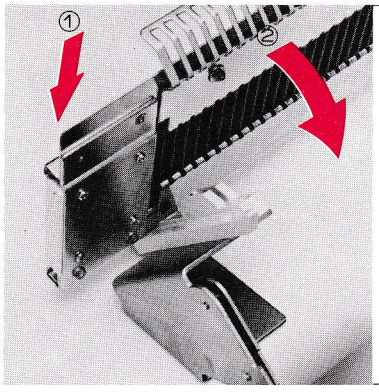
How to set the machine (setting of coupling Bracket)

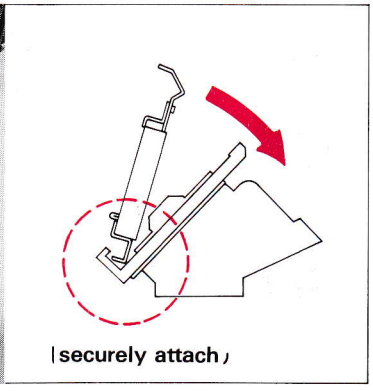


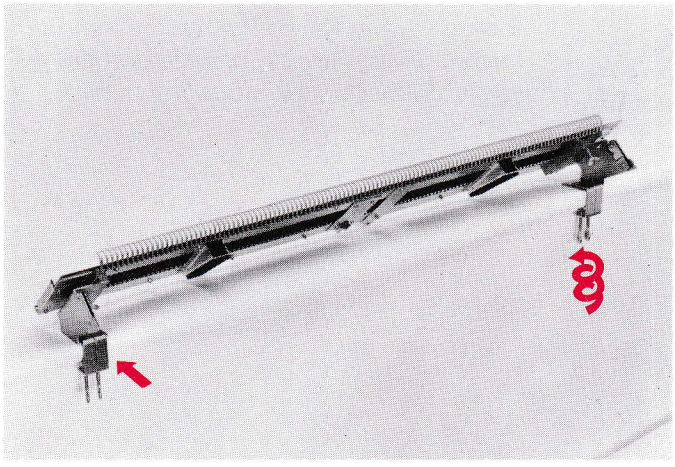
Set Coupling Bracket under the Knitter and clamp Coupling Brackets (right/left) on the both ends of the body while referring to the diagrams to follow.
(Match the guide mark to the latch needle at the extreme end, and set Coupling Bracket.)

Thumb screw attached on rear side as indicated in circles in drawing on the left shall be described in detail in the section "Setting of Carriage" P.8.

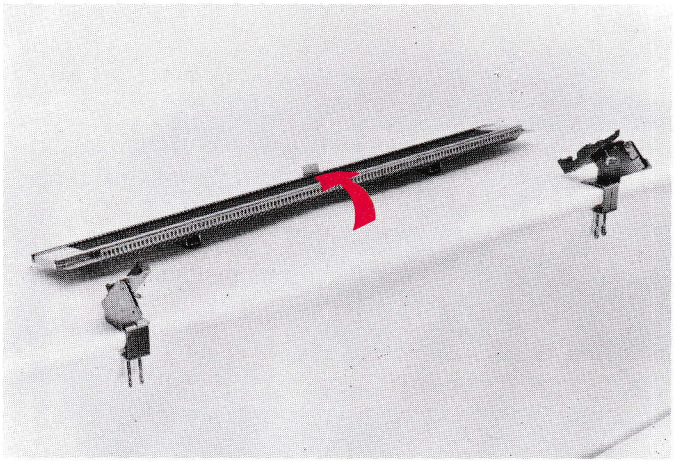








1. Securely fix the machine to the table using the Clamp.
   Use two Clamps for each side.

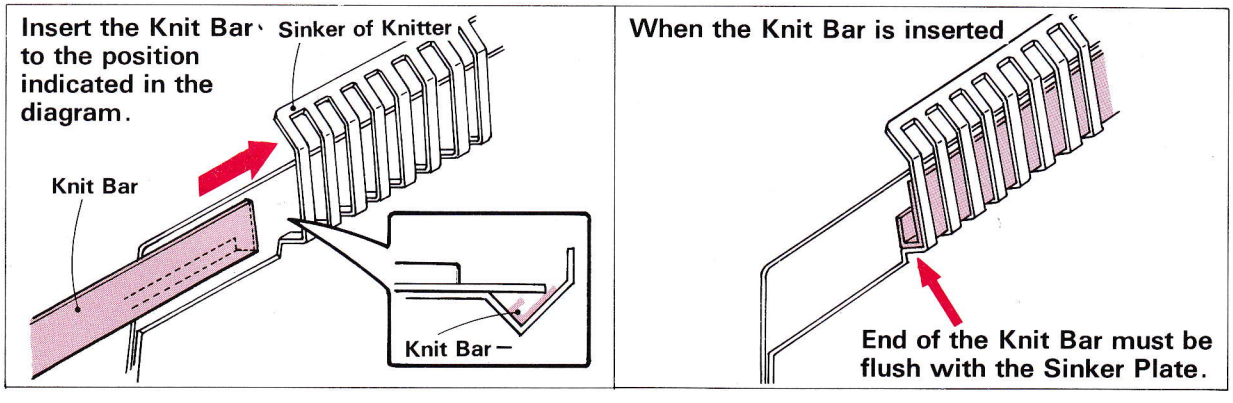


2. After the Clamps are securely fixed, remove the machine.
   (Remove the machine by lifting the side of the machine closer to you.)

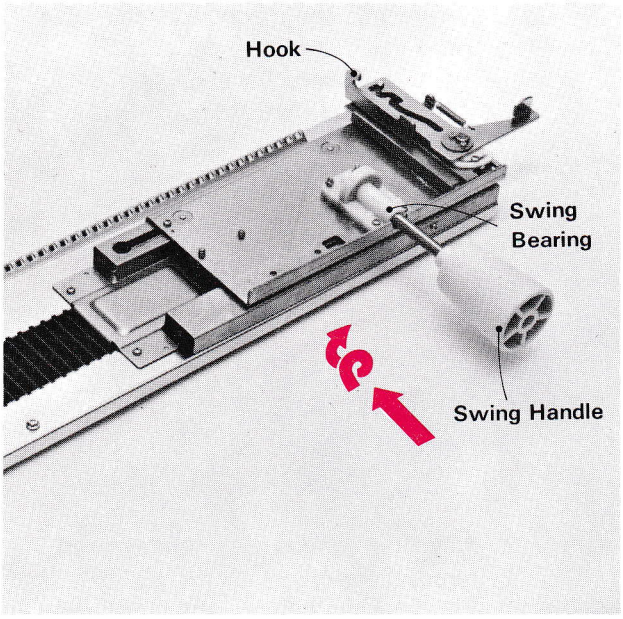
3. Attach the Row Counter to the main body which has been removed.

How to attach Knit Bar

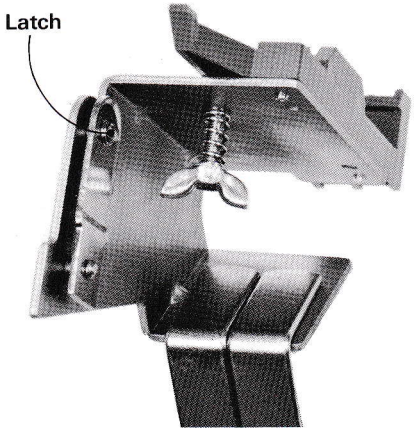
Before using a thin yarn or knitting with lower Stitch Dial settings, it is recommended to set the Knit Bar between the Sinker Plate and the front edge of Knitter as shown.



Setting the Rib Knitter Main Body

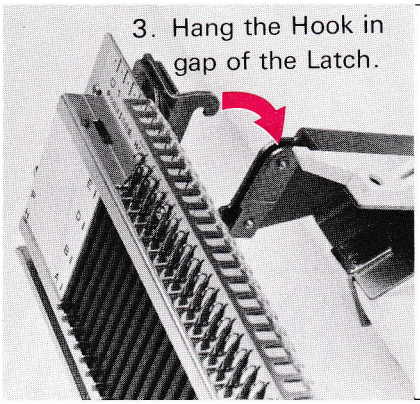


1. Push in Swing Handle with force into the hole of Swing Bearing provided on the rear of Ribber until it stops with a click.

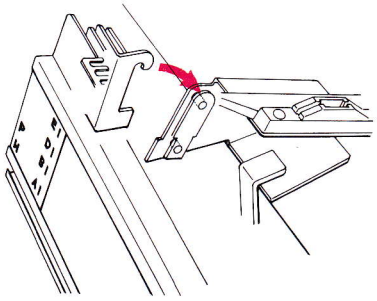


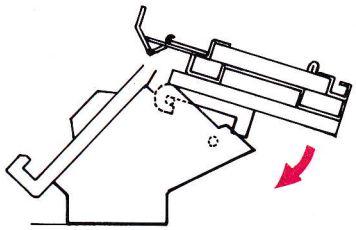
2. Hold the Rib Knitter with both hands and attach Hook on latch on Coupling Bracket (fig. on left) to attach Ribber.

   Hook the left side first, then the right side.

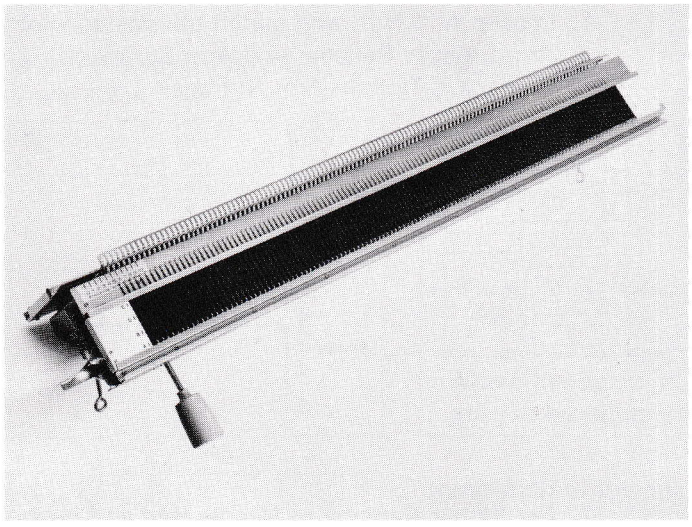


3. Hang the Hook in gap of the Latch.

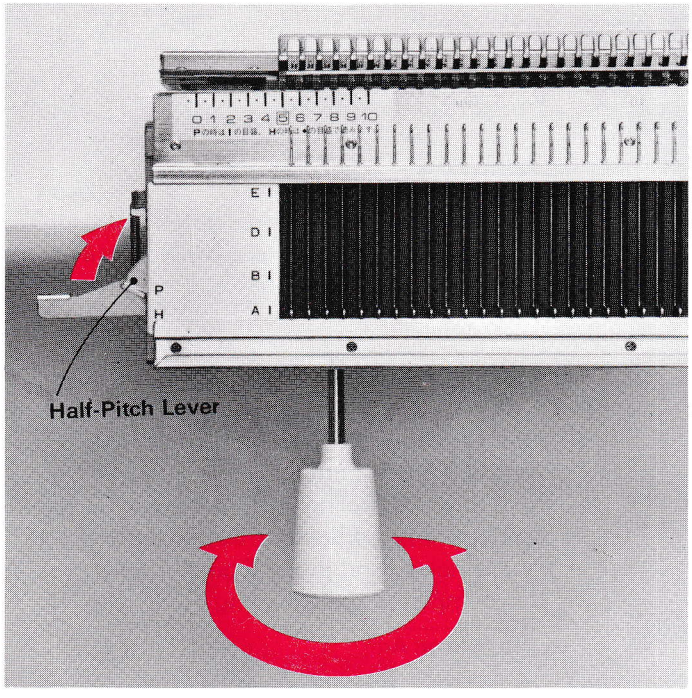




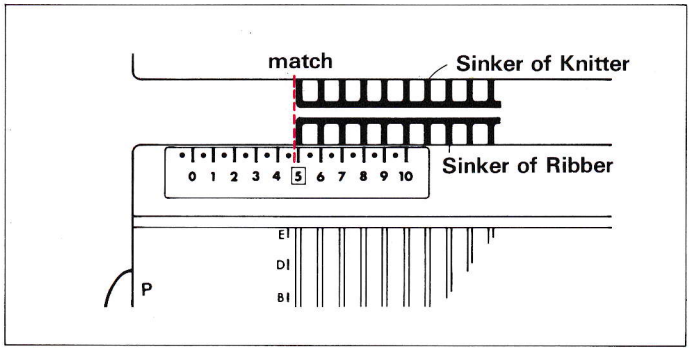
4. When both the left and right sides are hooked, press Ribber down until it stops.



5. Set Knitter on Coupling Bracket again.

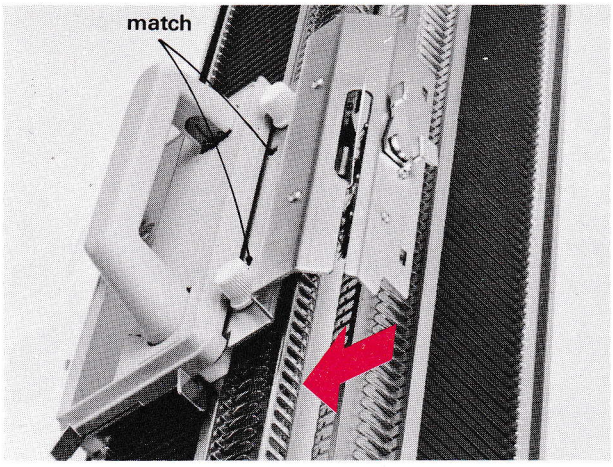


6. Set Half-Pitch Lever provided on left side of Ribber to P(up), and turn Swing Handle. Use Swing Handle to move Ribber to the right and left.

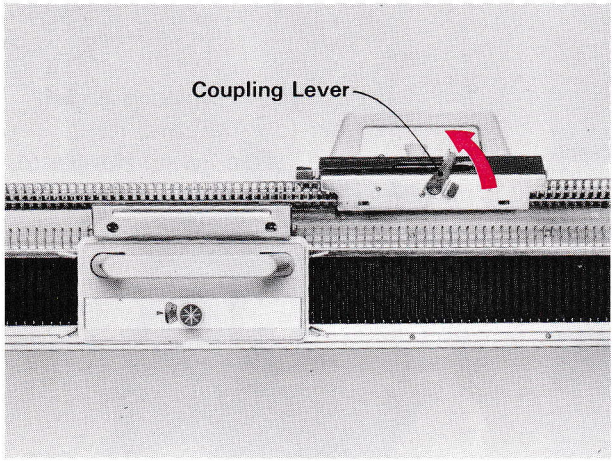


7. Slide Ribber to the right and left to match the ends of Sinker of Knitter and that of Ribber.

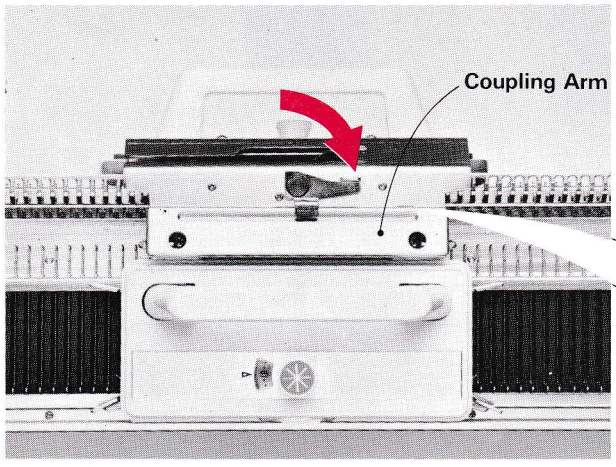
Setting the Carriage



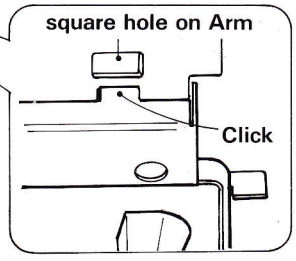
1. Loosen Arm Nut, and match the positions of Arm Stopper Retainer and Arm Stopper of Carriage. Tighten Arm Nut again.



2. Set Ribber Carriage to Needle Bed and push coupling Lever up.

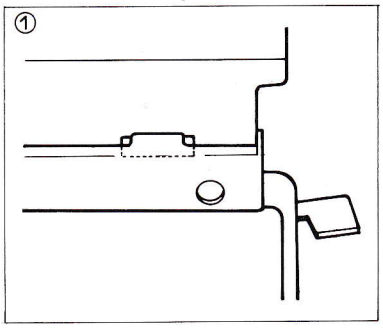


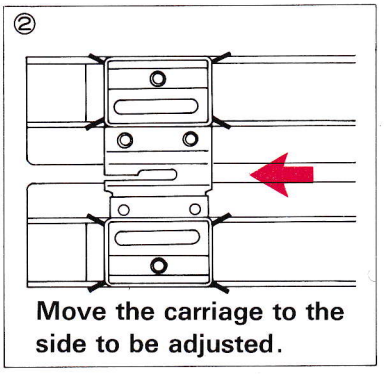
3. Slide Carriage of Ribber to move it to the front of Knitter Carriage.
Push down Coupling Arm of Ribber Carriage so that the two Clicks on Arm fit into the square holes, and lower Coupling Lever.
This completes the Coupling.



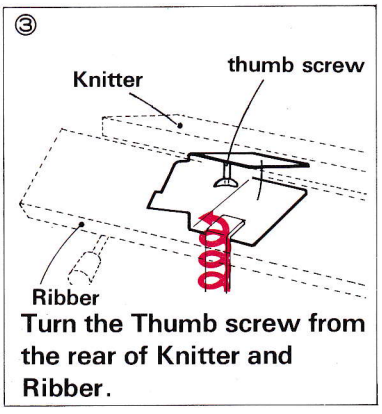
If the square holes of Arm and the clicks of the Coupling Arm do not locate together, adjust as follows.

When the square hole is under Click.

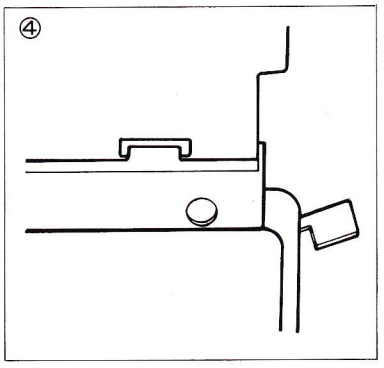




1. Slide Carriages of Knitter and Ribber to left side of respective Needle Bed, and see the positions of square holes and Clicks [fig. ① and ②].
Make adjustment as required with Thumb screw on Coupling Bracket as shown in fig. ④.



completion of the adjustment



2. Slide Both Carriages to right side and adjust Thumb screws.

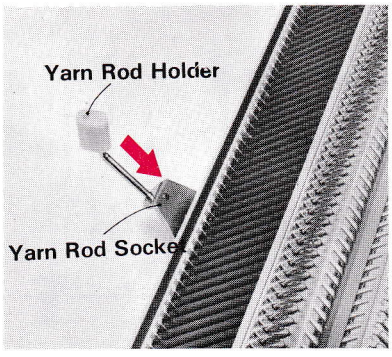
Bring Carriages to the right end on completion of the adjustment.

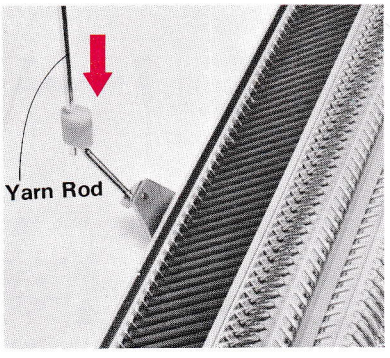
Auto-Tension setting

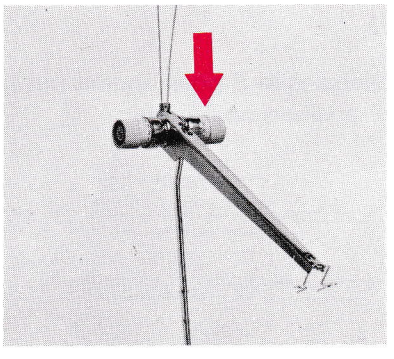
(1) Insert Yarn Rod Holder into Yarn Rod Socket on Knitter.

(2) Insert Yarn Rod for Knitter into Yarn Rod Holder.

(3) Set the Auto-Tension on the top of Yarn Rod.



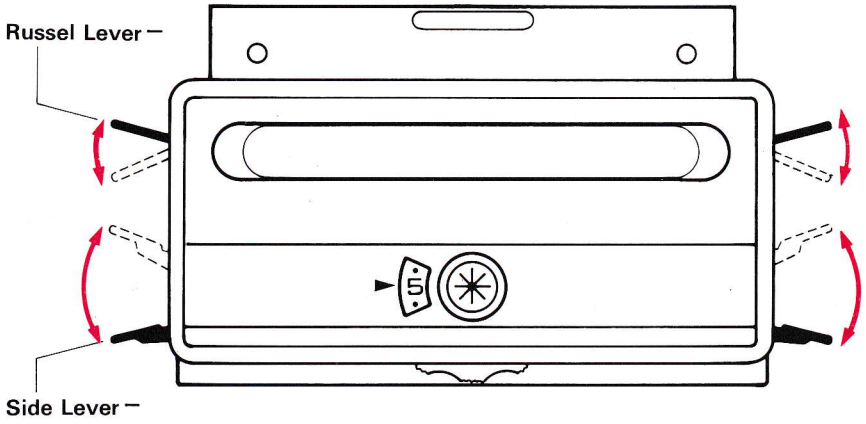




BASIC FUNCTIONS OF RIBBER

"Latch Needle Positions", "Stitch Dial Settings", and function of the Pattern Knob are the same as described in the instruction book for the Bulky Knitter, Model 120.

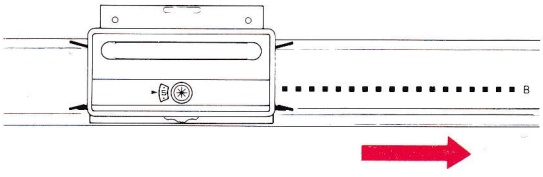
Function of Russel Levers and Side Levers



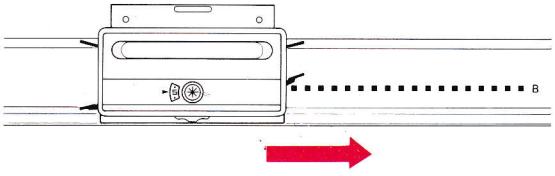
The settings of the Russel Levers and the Side Levers are varied according to the respective purposes as illustrated below.

Set the Pattern Knob to "UP" position.

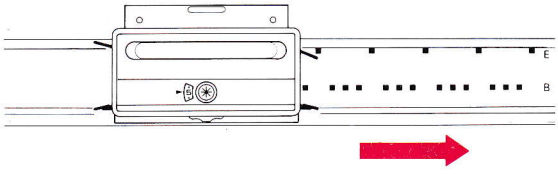
Needles in B position knit



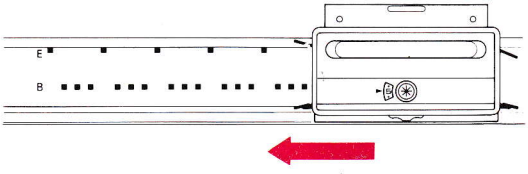
Needles in B position do not knit



Needles in B position knit but those in E position do not knit.

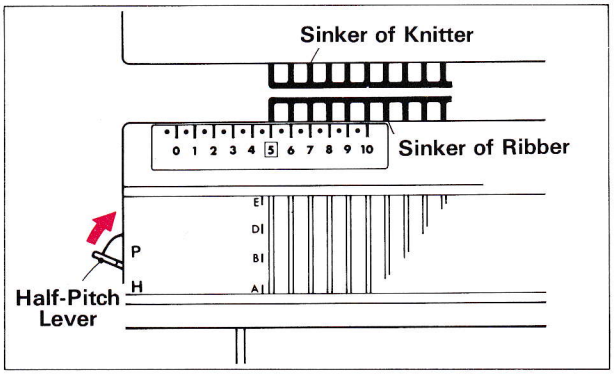


Needles in B and E positions knit.



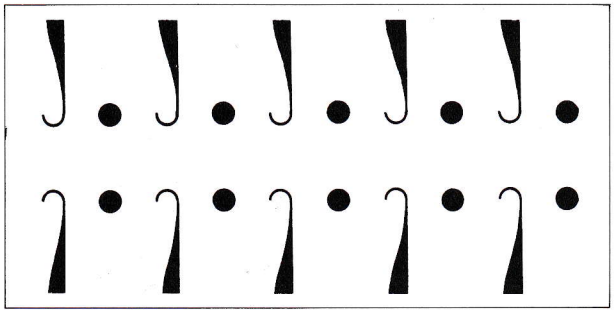
Function of Half-Pitch Lever and Swing Handle

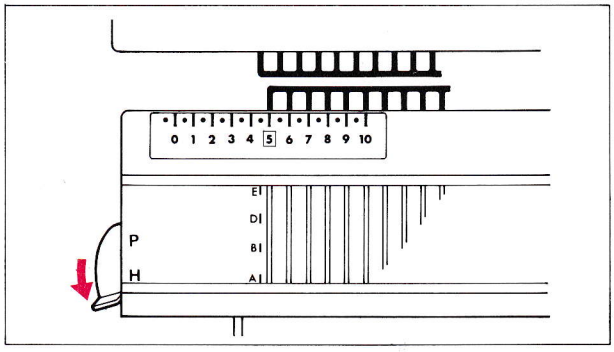
By operating Half-Pitch Lever, the relation between needles of Knitter and those of Ribber changes as described below.



Half-Pitch Lever set at "P" position

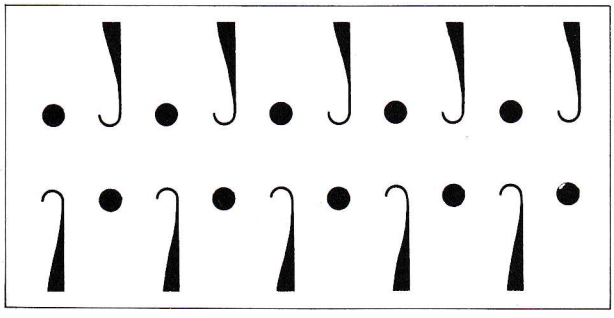
Needles of Knitter and Ribber are placed in line facing each other.
Lower either needles of Knitter or Ribber otherwise they will collide with each other if they are pushed forward simultaneously.
The left end Sinker of the Knitter must confront with a **I** mark on the Indicator Scale.



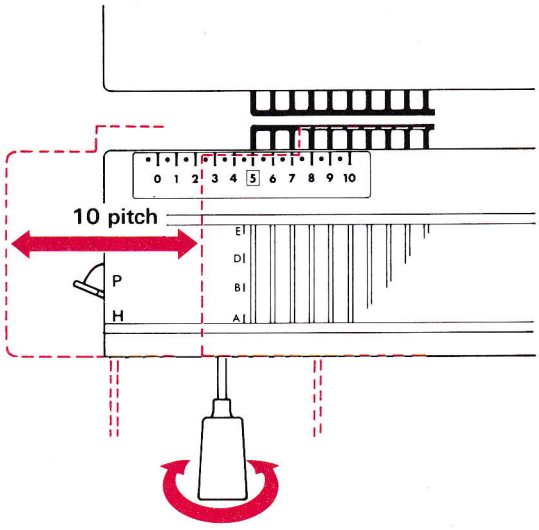


Half-Pitch Lever set at "H" position

Needles of Knitter and Ribber are positioned half pitch off against each other.
All needles of Knitter and Ribber may be pushed without colliding.
The left end Sinker of the Knitter must confront with a ● mark on the Indicator Scale.

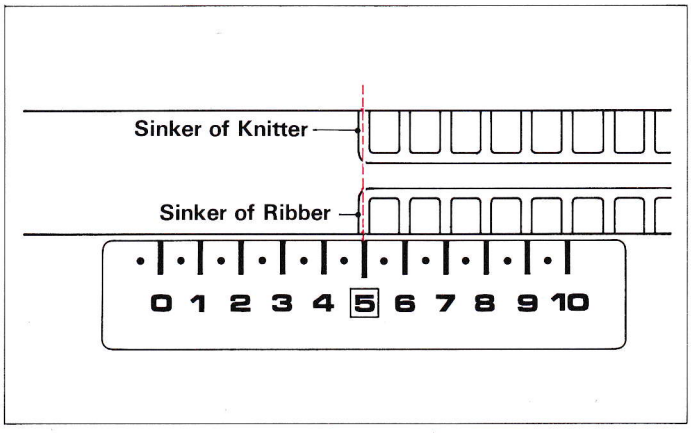


Function of Swing Handle



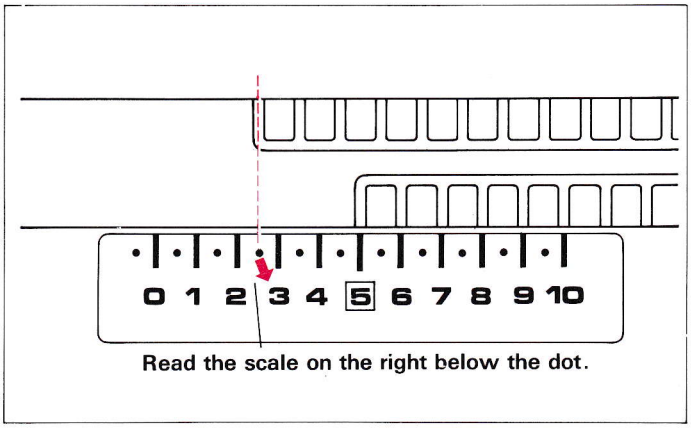
Sinker Plate of Ribber can be swung horizontally by turning Swing handle up to maximum "10 pitch" to the right and left.
This is used to swing the Ribber stitches horizontally against the Knitter stitches. Use the Indicator Scale for Swing guidance.

How to read Indicator Scale



Half-Pitch Lever set to "P"

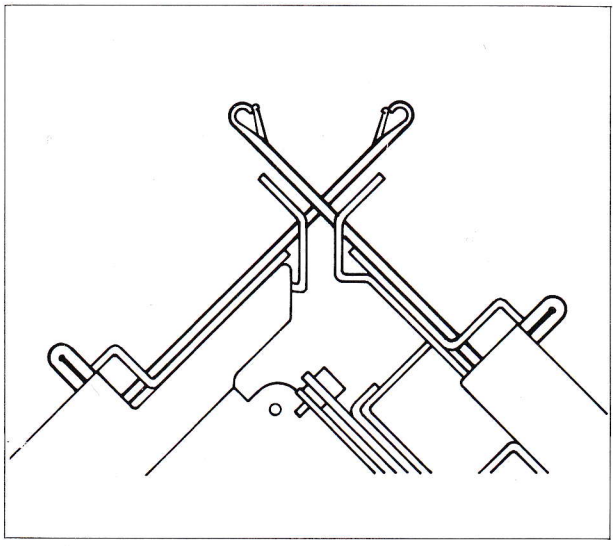
Read the number under the dotted line at the left end of sinker on Knitter (correct reading in the diagram on the left is "5").
The space between the Scale read and the next is one pitch.



Half-Pitch Lever Set to "H"

Read number to the right of the dot under the left end of sinker on Knitter (correct reading in the diagram on the left is "3").

CAUTIONS

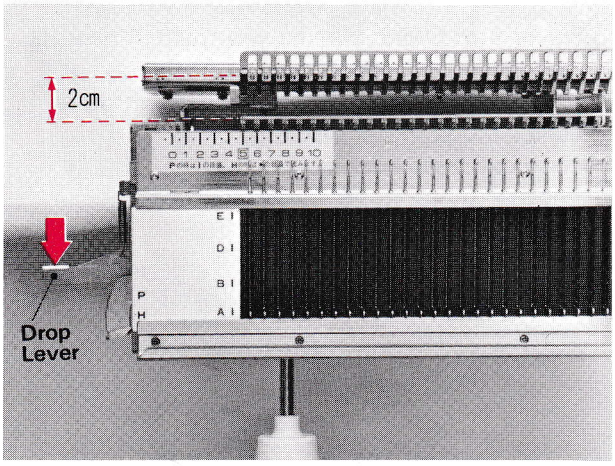


Never turn Swing Handle when Latch needles of both knitter and Ribber are positioned at E or D positions so that they cross each other as illustrated in the diagram.
(This damages latch Needles.)
Set the Ribber to "5" on the Indicator Scale when the swing is not in use.

Care should be taken when using the maximum 10 pitch swing if latch needles over the full width of Needle Bed (120 stitches) are used, as it may cause Carriage to come off Needle Bed.

* It is advised to rewind the yarn into a new yarn ball before knitting.
* Apply wax on the yarn while rewinding the yarn.
* When the Ribber is lowered, remove its Carriage from the needle bed since it is apt to drop.
* Be sure to adjust the Arm Coupling Screw so as the Ribber Arm properly fit the Coupling Arm.

Function of Drop Lever

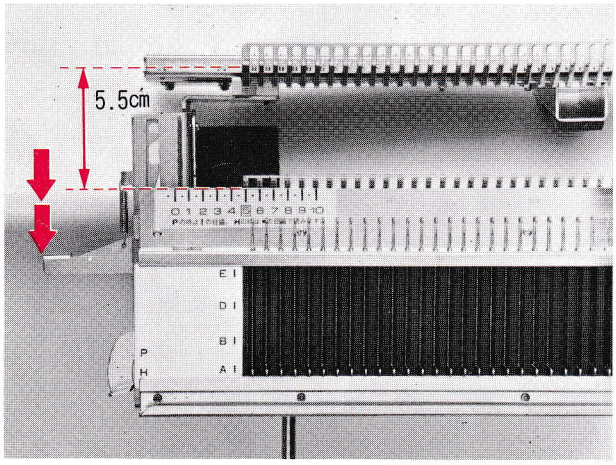


1. Disconnect Carriage of Knitter from Ribber before operating Drop Lever.

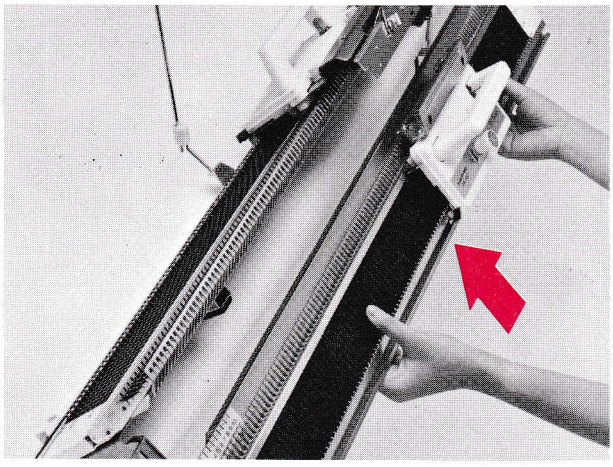
Note ; Care should be taken as Ribber Carriage comes off the Needle Bed easily when two carriages are disconnected.

Drop Lever can change the position of Ribber Needle Bed ; (Top), (Middle) and (Lowest).

Press down Drop Levers provided at the right and left ends of Ribber to bring down Ribber Needle Bed approximately 2cm to middle position.
(Middle position is used to pick up dropped stitches or transfer the fabric.)



2. Push down Drop Lever further to move Needle Bed for approximately 5.5cm to "Lowest" position.
(Lowest position is used when knitting only on the Knitter while ribber is still attached.)

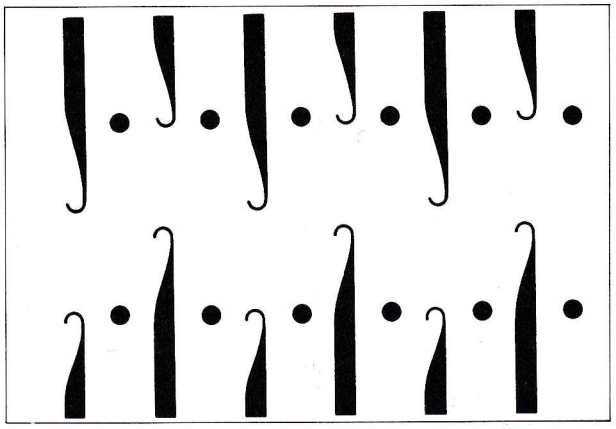


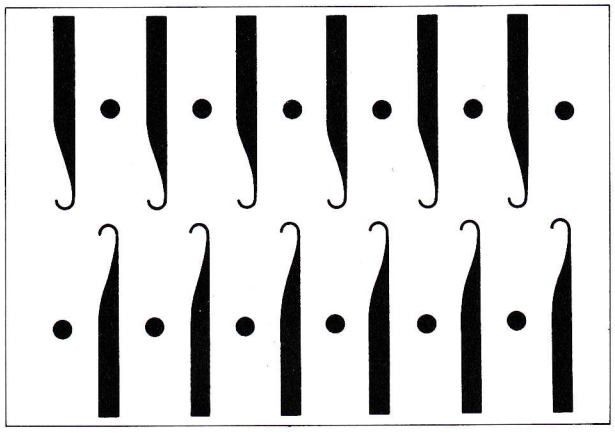
3. To reset Needle Bed to original "Top" position, push up Ribber until it stops with a click as shown in the picture on the left.
(Push up Ribber in the same manner when resetting Needle Bed from Middle to Top position.)

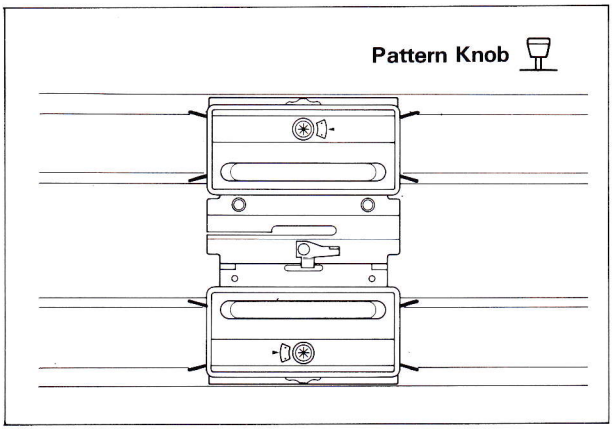
CAST-ON

To cast-on with Knitter and Ribber, set both Carriages for cast-on and operate together.
The cast-on is a closed edge without using waste knitting.

Needle Arrangements







Although the method of cast-on differs depending on stitch (knitting), two basic methods are described below.

K1. P1. Rib

Set Half-Pitch Lever to P, using 1/1 Needle Pusher, bring the required number of needles, according to the width of knitting, to B position on both sides of "0" of Needle Bed. . Bring the needles of Ribber to B position while keeping them in the alternated position against the needles of Knitter. (Make sure to bring out one extra needle on Knitter.)

Double Rib

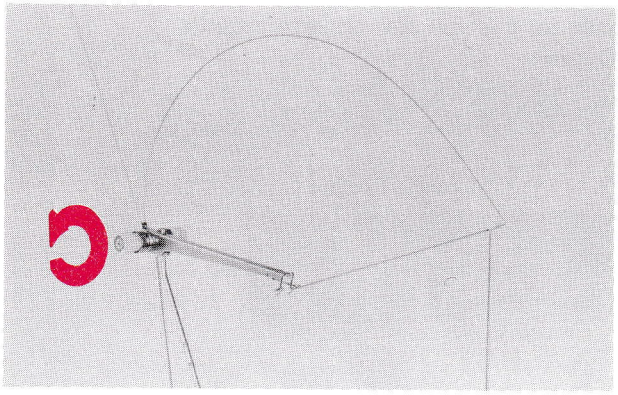
Set Half-Pitch Lever to H, and bring the required number of needles, according to the width of the fabric, to B position on both sides of "0" on Needle Bed. In the same manner, bring the required number of needles of Ribber to B position. (Bring forward an extra needle on Knitter. Needle Arrangement for other types of knitting is described in the sectibn "Various Rib Stitches".)

Carriage setting

Set Carriages of Knitter and Ribber as illustrated in the diagram. Set pattern Knob of both Carriages to "UP" position, and Stitch Dial to "0", and set Side Levers and Russel Levers as shown in the diagram on the left.

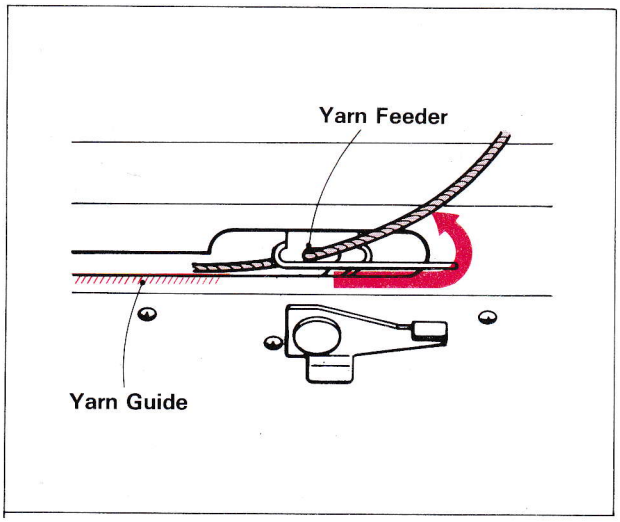
How to thread yarn

Have the Carriages at the left end of the needle beds before threading the yarn.



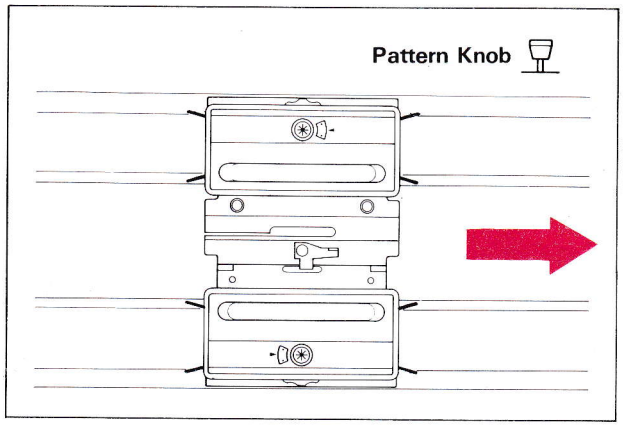
1. Thread the yarn through the Auto-Tension. Set the Tension Dial of the Auto-Tension at "1" regardless of the thickness of the yarn so as the yarn is fed into the machine freely.

Note ; It is advised to unwind the yarn orderly before threading it through the Auto-Tension.



2. Guide the yarn end between both needle beds, and hold the end below the machine with your left hand.

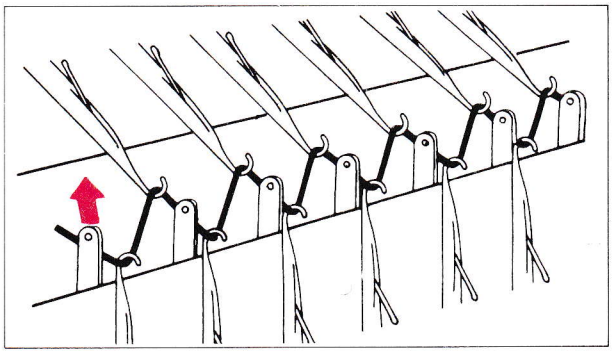
   Holding the yarn below the machine with your left hand, and above the machine with your right hand, guide the yarn along the slit of the Arm, and into the Yarn Feeder as indicated by the arrow mark in the illustration.



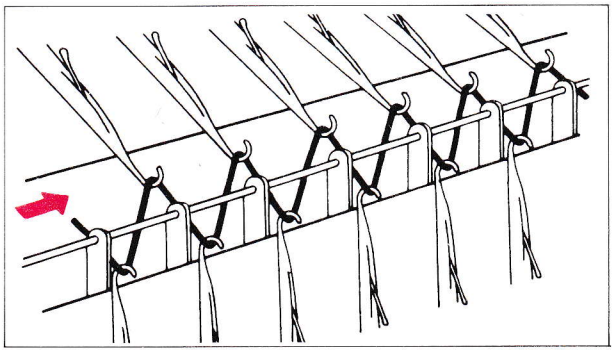
3. Holding the yarn end below the machine, move the Carriages from left to right.

How to attach the Cast-on Comb

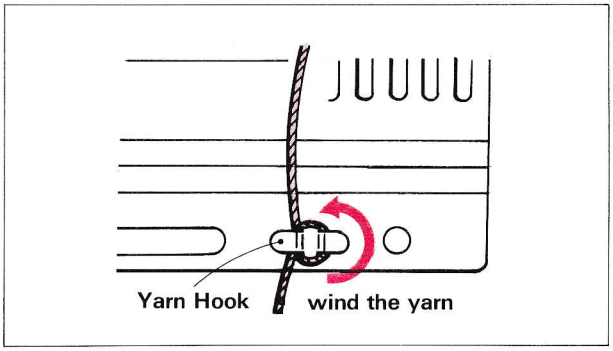
Two Cast-on Combs are provided.
Select one in accordance with the width of the knitted fabric.



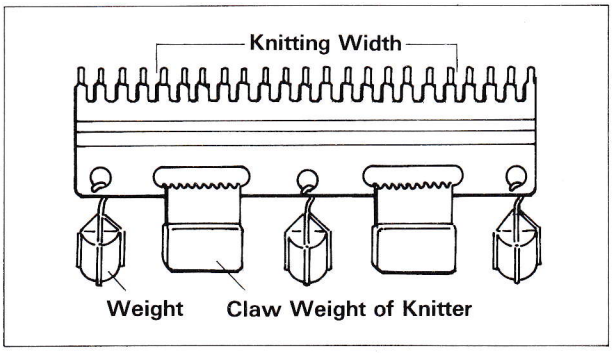
1. Remove Wire from Cast-on Comb.
   As shown in the diagram on the left, carefully insert Cast-on Comb from under the machine so that it is exposed between the yarn.



2. Insert Wire again into the holes on teeth of the Comb that are projected above the yarn.
   Note ; To suspend Cast-on Comb horizontally insert right and left of Cast-on Comb evenly against the working needles.



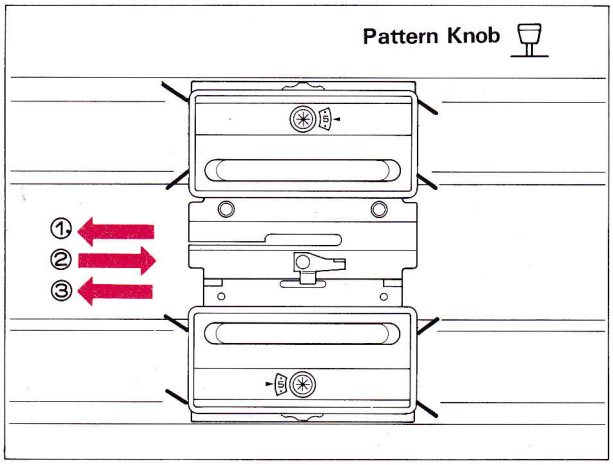
3. To prevent the yarn from loosening, wind the end of the yarn round Yarn Hook on the Cast-on Comb.



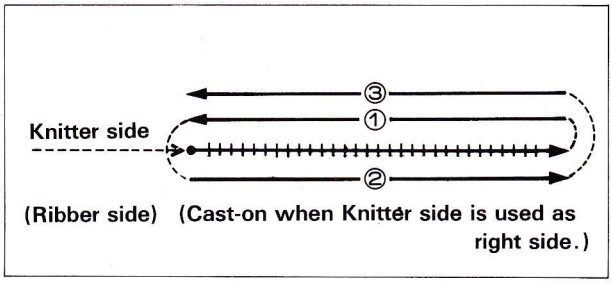
4. Hook Weight of Ribber to the circular hole on the lower side of Cast-on Comb and Weight of Knitter to the oval hole to keep right and left horizontal.

   Note ; Adjust the eveness of the right and left adequately by choosing a right size of weights for respective knitting pattern.

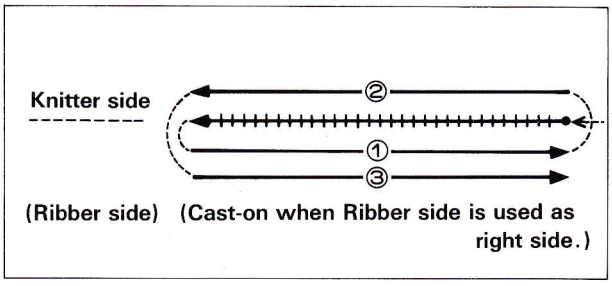
Closed edge cast-on



1. Set Carriages as illustrated on the left.

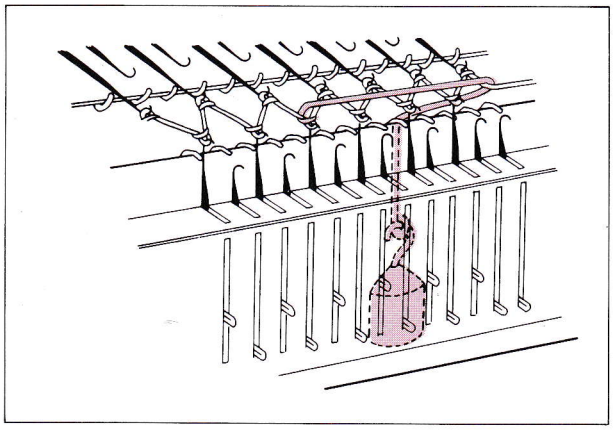


2. Knit 3 rows.
   1st row : Knit only on Knitter side
   2nd row : Knit only on Ribber side
   3rd row : Knit only on Knitter side
   (circular knitting)



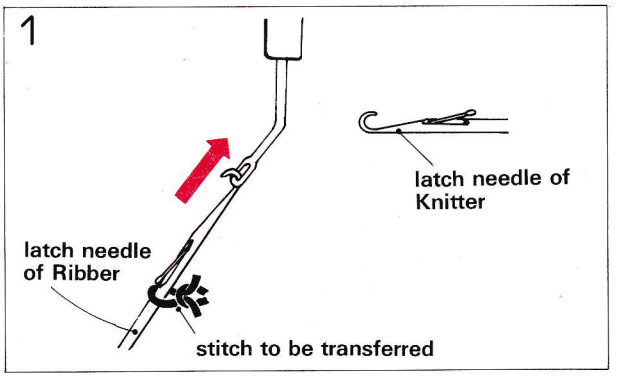
3. The method described above is to use Knitter side of the fabric as right side. If the knitting direction is reversed, Ribber side of the fabric can be used as right side.

How to attach Edge Weight



When a several rows have been knitted, attach Edge Weight.
Attach Edge Weight to Edge Weight Holder and bring it out from between Knitter and Ribber. Hang it on the yarn placed between latch needles at the ends of Knitter and Ribber, as illustrated on the left.
This prevents the edges of the fabric from floating. Reattach Edge Weight at every 10 or so rows.

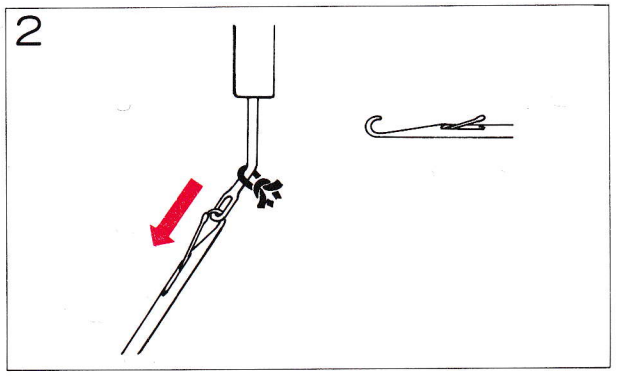
How to use Rib Transfer Tool



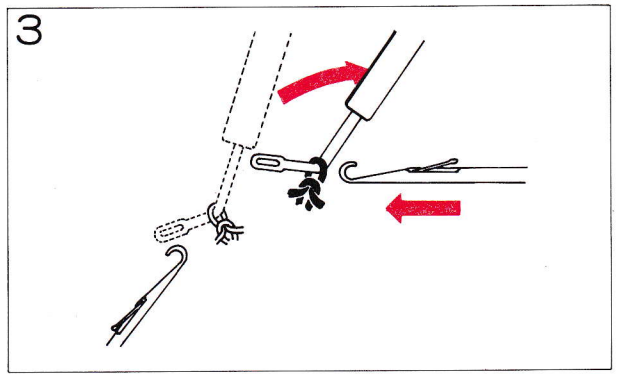
Rib Transfer Tool is used to transfer a stitch to opposite needle.
Particulary when the stitch is to be transferred from Ribber to Knitter, or vice versa.

To transfer from Ribber to Knitter

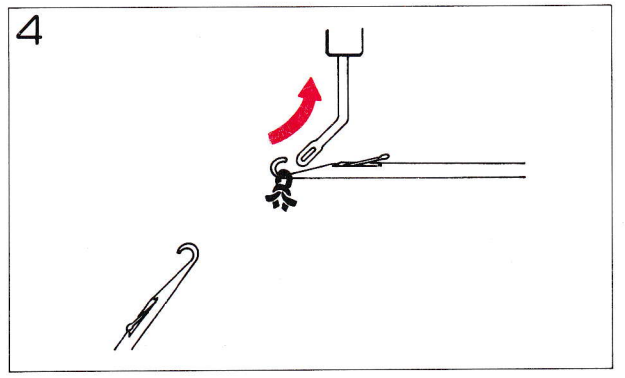
1. Catch the hook of Ribber needle with the eyelet of Rib Transfer Tool, and pull the needle.



2. Push back the needle, and the stitch on it will slip onto Rib Transfer Tool.



3. Holding rib stitch on Rib Transfer Tool, push the corresponding Knitter needle into the stitch.

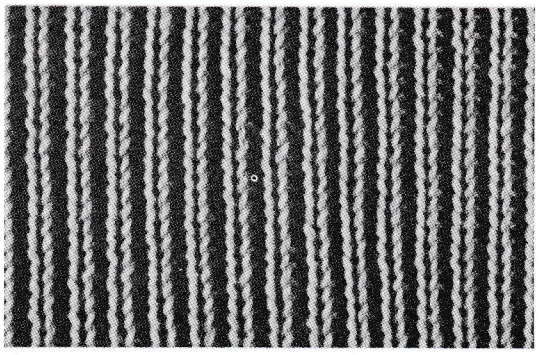


4. When Knitter needle catches the stitch, release it from Rib Transfer Tool.

Note ; Be careful not to hook the eyelet of Rib Transfer Tool to Knitter needle hook when releasing the stitch onto the needle.

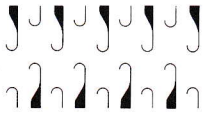
VARIOUS RIB STITCHES

K1. P1. RIB



This is the most basic type of ribbing.
The needles of Knitter and Ribber are arranged alternately for knitting.
The knitted fabric has knit and purl alternately on both the front and back. The fabric is soft to the touch and has horizontal elasticity.
Ordinary medium yarn is used here.

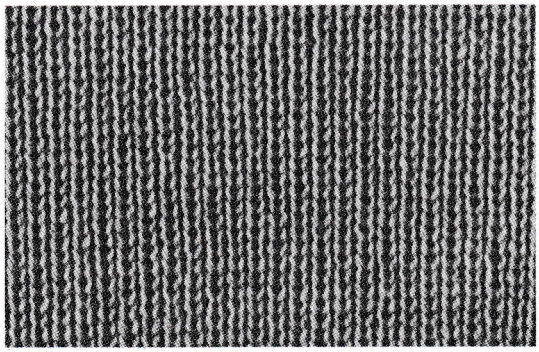
① Needle Arrangement



Operating Procedure		Knitter: Side Lever / Russel Lever	Knitter: Stitch Dial Number	Knitter: Pattern Knob	Ribber: Russel Lever / Side Lever	Ribber: Stitch Dial Number	Ribber: Pattern Knob	Ribber: Half-Pitch Lever	Ribber: Indicator Scale	Knitting direction / No. of rows	Remarks
② Cast-on	1		0			0		P	5	→	Start knitting from the left side. (Knitter side is to be worn)
	2	Suspend Cast-on Comb with Weights.									
	3		〃	〃		〃	〃	〃	〃	⇄ 3	
③ Main Knitting			3	〃		3	〃	〃	〃	→	Repeat
		〃	〃	〃	〃	〃	〃	〃	〃	←	

When knitting, bring first working needle of Knitter on Carriage side to E position on every row.

DOUBLE RIB



The stitch structure is same as that of the K1. P1. Rib.
Ordinary medium yarn is used here.
This is knitted with all the needles of Knitter and Ribber brought into working position.

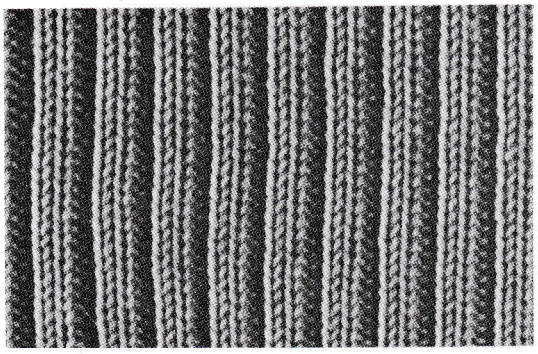
① Needle Arrangement



Operating Procedure		Knitter			Ribber						Remarks
		Side Lever / Russel Lever	Stitch Dial Number	Pattern Knob	Russel Lever / Side Lever	Stitch Dial Number	Pattern Knob	Half-Pitch Lever	Indicator Scale 5 ~ 10	Knitting direction/ No. of rows	
② Cast-on	1		0			0		H	5	→	Start knitting from the left side. (Knitter side is to be worn)
	2	Suspend Cast-on Comb with Weights.									
	3		〃	〃		〃	〃	〃	〃	⇄ 3	
③ Main Knitting			5	〃		5	〃	〃	〃	→	Repeat
		〃	〃	〃	〃	〃	〃	〃	〃	←	

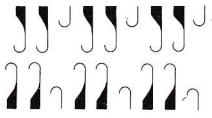
Bring out first working needle of Knitter on Carriage side to E position at every row while knitting.

K2. P2. RIB



Ribbing which has K2. P2.
Ordinary medium yarn is used here.

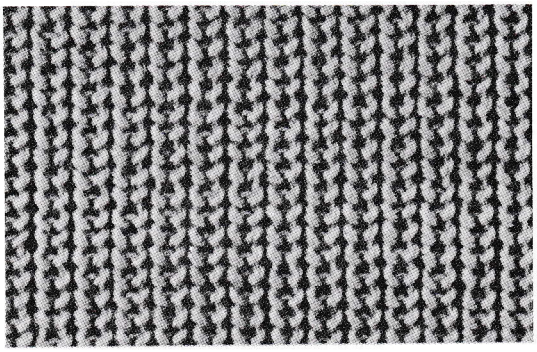
① Needle Arrangement



Operating Procedure		Knitter			Ribber						Remarks
		Side Lever / Russel Lever	Stitch Dial Number	Pattern Knob	Russel Lever / Side Lever	Stitch Dial Number	Pattern Knob	Half-Pitch Lever	Indicator Scale	Knitting direction/ No. of rows	
② Cast-on	1		0			0		H	5	→	Start knitting from the left side. (Knitter side is to be worn)
	2	Suspend Cast-on Comb with Weights.									
	3		〃	〃		〃	〃	〃	5	⇄ 3	
③ Main Knitting			3	〃		3	〃	〃	6	→	Change the needle arrangement for main knitting.
		〃	〃	〃	〃	〃	〃	〃	〃	←	

Bring out first working needle of Knitter on Carriage side to E position at every row while knitting.

ENGLISH RIB



One side of ribbing is tucked.
In this example, ordinary medium yarn is used and knitted in K1. P1. Rib.

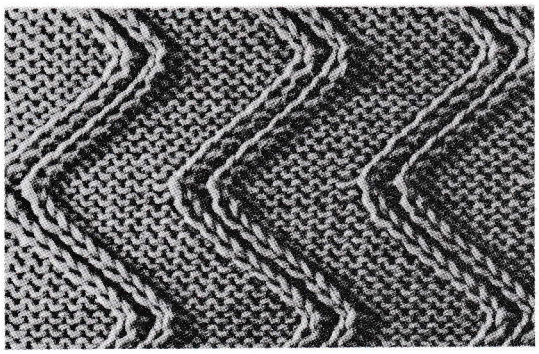
① Needle Arrangement



Operating Procedure		Knitter			Ribber						Remarks
		Side Lever / Russel Lever	Stitch Dial Number	Pattern Knob	Russel Lever / Side Lever	Stitch Dial Number	Pattern Knob	Half-Pitch Lever	Indicator Scale 5 ~ 10	Knitting direction/ No. of rows	
② Cast-on	1		0			0		P	5	←	Start knitting from the right side. (Ribber side is to be worn)
	2	Suspend Cast-on Comb with Weights.									
	3		〃	〃		〃	〃	〃	〃	⇄ 3	
③ Main Knitting			3	〃		3		〃	〃	←	Repeat
		〃	〃	〃	〃	〃	〃	〃	〃	→	

Bring out first working needle of Knitter on Carriage side to E position at every row while knitting.

SWING RIB

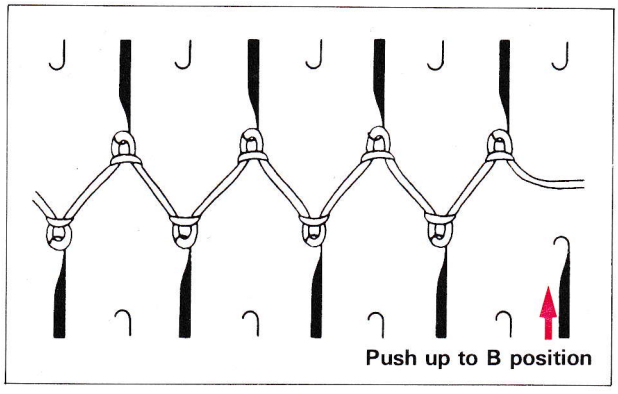


In this Rib stitch, Knitter knits plain stitches and Ribber has the needle arrangement as desired to make a pattern by swinging.
Ordinary medium yarn is used in the example.
Cast-on is same as that for the Double Rib.

① Needle Arrangement



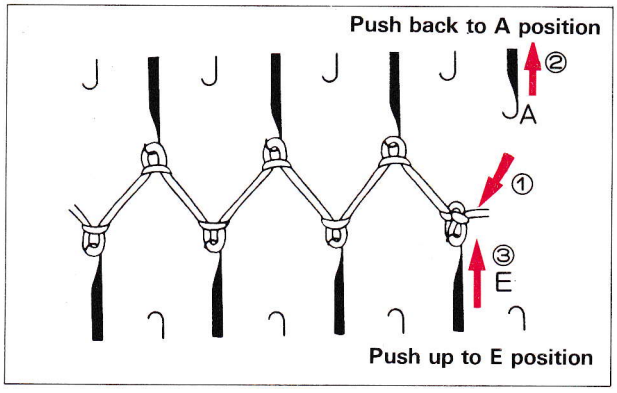
Operating Procedure		Knitter			Ribber						Remarks
		Side Lever / Russel Lever	Stitch Dial Number	Pattern Knob	Russel Lever / Side Lever	Stitch Dial Number	Pattern Knob	Half-Pitch Lever	Indicator Scale	Knitting direction / No. of rows	
② Cast-on	1		0			0		H	5	←	Start knitting from the right side. (Ribber side is to be worn)
	2	Suspend Cast-on Comb with Weights.									
	3		〃	〃		〃	〃	〃	〃	→ ← → 3	
	4	Change to the main knitting. From the left, leave the needles of Ribber, 8th, 10th, 18th, 20th in the working position, and transfer the stitches on the other needles of Ribber onto their opposite needles on knitter, then push them back into A position.									
③ Main Knitting	1		5	〃		3	〃	〃	5	←	Rotate the swing handle at every row (to make zig-zag pattern) and bring out one to five needles at both ends of Knitter to E position before knitting.
	6		〃	〃		〃	〃	〃	0	→	
	11		〃	〃		〃	〃	〃	5	←	
	16		〃	〃		〃	〃	〃	10	→	
	20		〃	〃		〃	〃	〃	6	←	



How to increase stitches

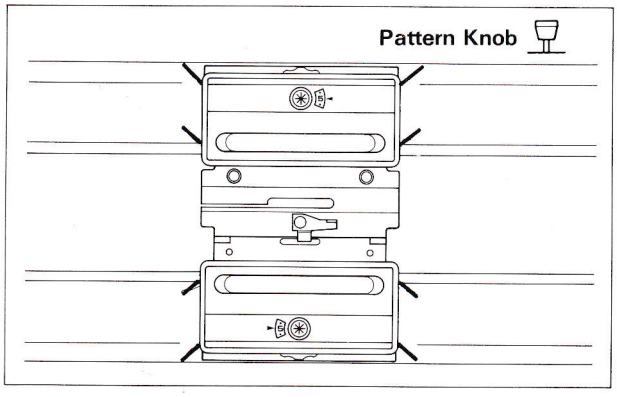
(on Carriage side)

Bring out one needle to B position and continue to knit. The stitch is increased. (When the stitch is increased, bring needle next to Carriage to E position on each row.)



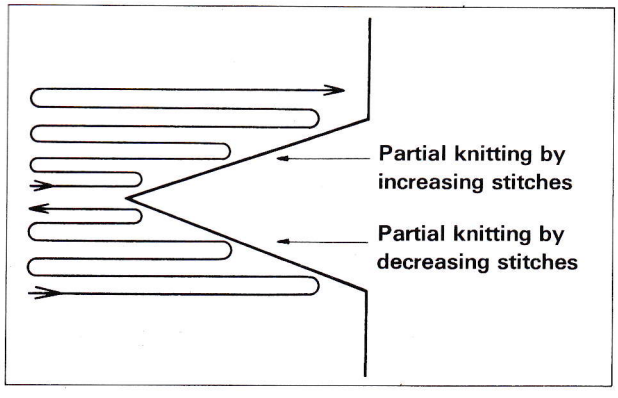
How to decrease stitches

① Use Rib Transfer Tool, hook the stitch at the edge to the next needle (from Knitter to Ribber or vice versa).
② Push the empty needle to A position.
③ Bring out the latch needle on which the stitch is hooked to E position.
(When the decrease has been completed, bring out the extreme end needle on the side with Carriage to E position before knitting the next row.)

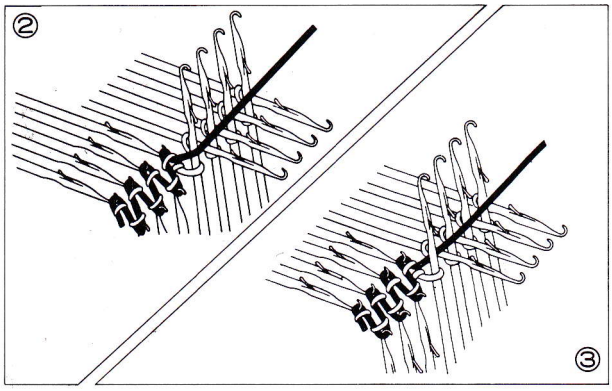


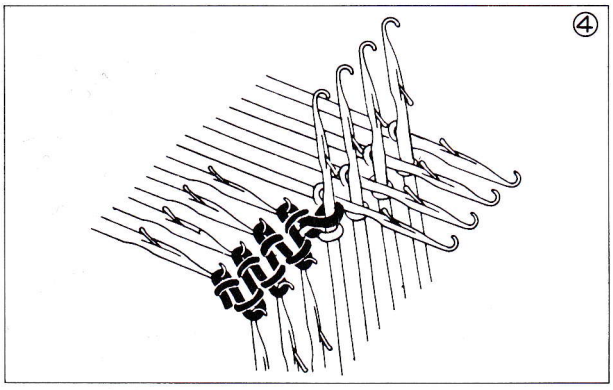
Partial knitting method

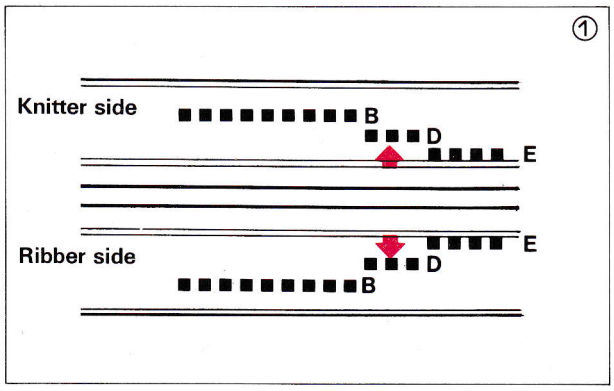
Set Carriages as illustrated on the left for partial knitting.

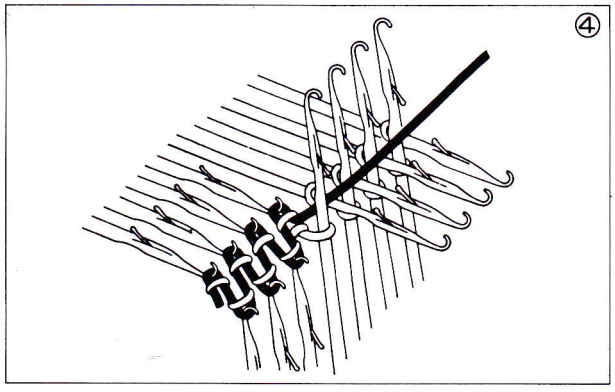


There are two methods of partial knitting : partial knitting by increasing stitches, and that by decreasing stitches.









Partial knitting by decreasing stitches

① Push the number of needles to be decreased on the opposite side of Carriage to E position. Set Carriage on the left side, and push the needles to be decreased to E position on the right side (in the example shown).

② Knit 1 row.
The needles in E position remain as they are and the yarn is passed over them.

③ To prevent a hole from being formed in the fabric, pass the yarn under the needle in E position which is nearest to the last needle knitted.
(If the partial knitting is to be done on both the right and left sides, repeat operation described in Step ① above on the needles on the opposite side.)

④ Knit one row.
To continue partial knitting, repeat the operation described in above Steps ① to ④.
To continue knitting on all needles, break yarn, and rethread.
Reset Russel Lever of Carriage to original position and knit one row. All the needles are now knitted and set to B position.

Note ; In partial knitting, make sure to attach Edge Weight to the fabric to be knitted.

Partial knitting by increasing stitches

① Of the needles set to E position, the number of needles to be increased are pushed back to D position.
Be sure to do this on the opposite side of Carriage.
The needles must be pushed back into D position correctly.

② Knit one row.
The needles in B and D positions are knitted while those on E position are not knitted and the yarn is passed over them.

③ To prevent a hole from being formed in the fabric, pass the yarn under the needle in E position which is nearest to the last needle knitted. (If the partial knitting is to be done on both the right and left sides, carry out the operation described in above ① on the needle on the opposite side.)

④ Knit one row.
To continue partial knitting, repeat the work described in above Steps ① to ④.

Note ; Make sure to attach Edge Weight to the fabric to be knitted in partial knitting.