

CHUNKY RIBBER
INSTRUCTION BOOK
MOD.SR-150



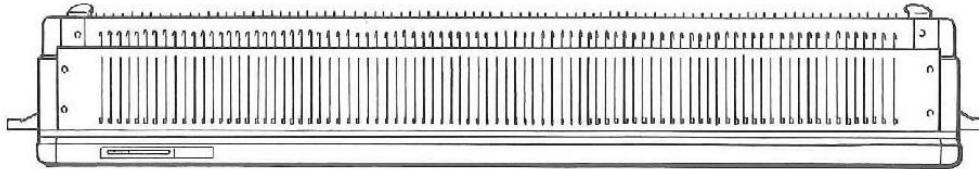
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INSTRUCTION BOOK
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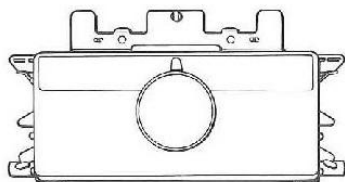
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MACHINE AND ACCESSORIES

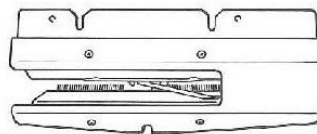
RIBBER NEEDLE BED



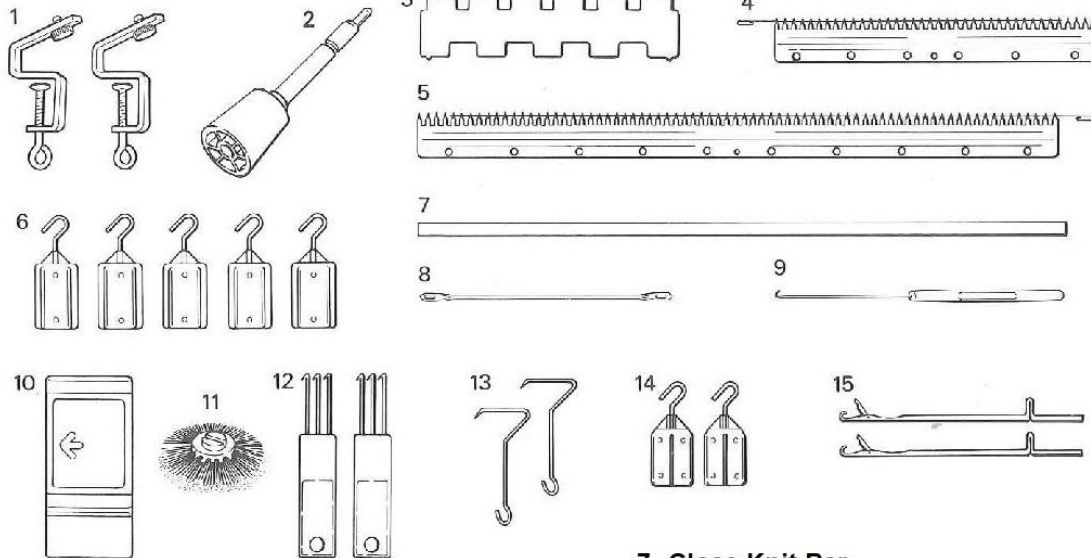
CARRIAGE



ARM



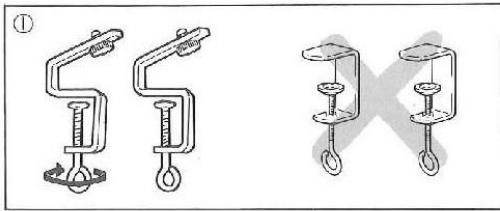
ACCESSORIES



- 1. Ribber Clamp (2)
- 2. Swing Handle
- 3. Needle Pusher
- 4. Cast on Comb - Short
- Cast on Comb Wire - Short
- 5. Cast on Comb - Long
- Cast on Comb Wire - Long
- 6. Ribber Weights Large (5)

- 7. Close Knit Bar
- 8. Double Eyed Transfer Tool
- 9. Hook Tool
- 10. Needle Aligner
- 11. Ribber Tuck Brush
- 12. Hanger Comb (2)
- 13. Side Hanger (2)
- 14. Edge Weight (2)
- 15. Spare Needles (2)

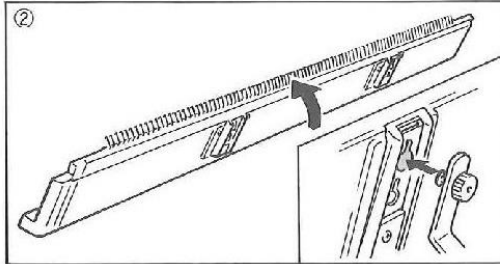
SET UP MACHINE



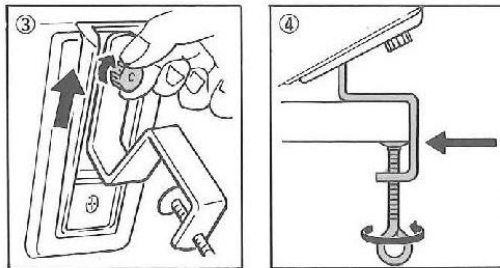
SET UP KNITTER

1. Fasten the ribber to a table using ribber clamps instead of knitter clamps.

(1) Take Ribber Clamps and turn screw in arrow direction as far as they go.

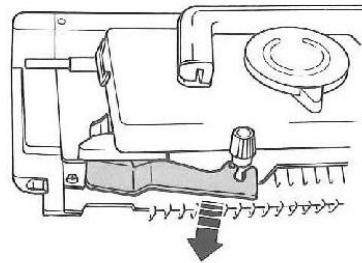


(2) Raise front of knitter and insert screw head into keyhole slot.



(3) Pull clamps upwards and fasten screws.

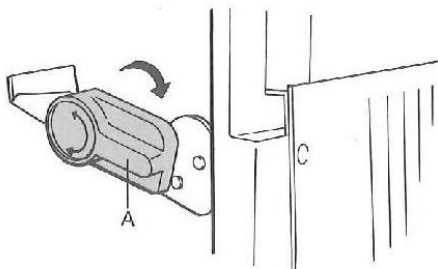
(4) Place clamps on table edge and push them backwards until they're flush with the table. Tighten clamps firmly by turning screws in arrow direction.

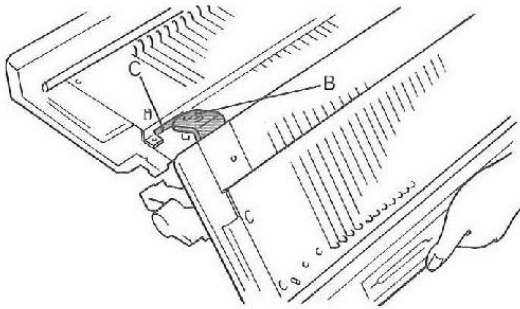


2. Remove carriage fastener.

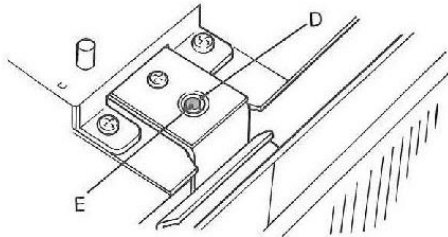
ATTACH RIBBER NEEDLE BE TO KNITTER

1. Bring down both push up cams "A" forward

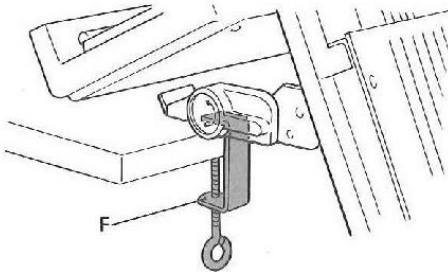




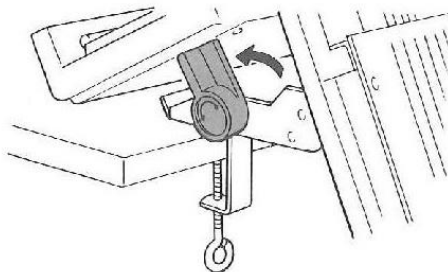
2. Hold the ribber with both hands and insert the ribber joiners "B" at both ends of the ribber, into the ribber joiner sockets "C" at each end of the knitting bed.



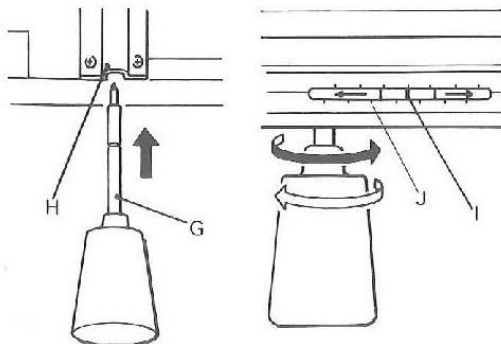
Fit the locational hold "D" on the Joiner, to the locational pin "E" at each end of the knitting bed.



3. With the knitter clamps "F", the feet of the Push Up Arms to the table.



4. Raise both the push up arms in the direction indicated by the arrow.

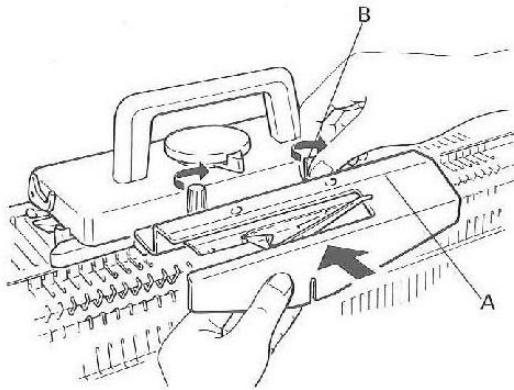


5. On the back of the left side of the ribber, insert the swing handle shaft "G" from underneath - to swing channel "H".

Push the handle in a twisting manner until you hear a click and a slight jerk.

Ensure that pointer "I" on the swing indicator "J" moves when the swing handle is rotated in the right and left direction.

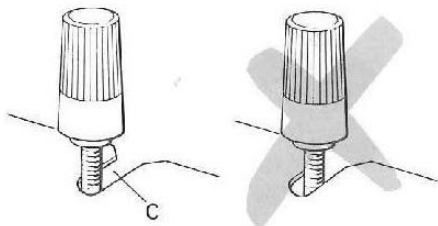
Coupling Ribber & Knitting Carriages



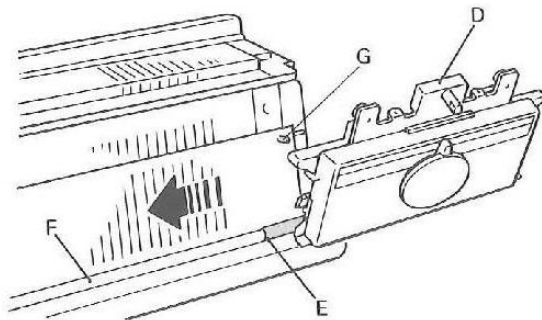
1. Loosen both arm nuts of the knitter carriage.

Take ribber arm "A" and slide it under the two arm nut "B".

Push ribber arm as far back as it will go and tighten the arm nuts firmly.

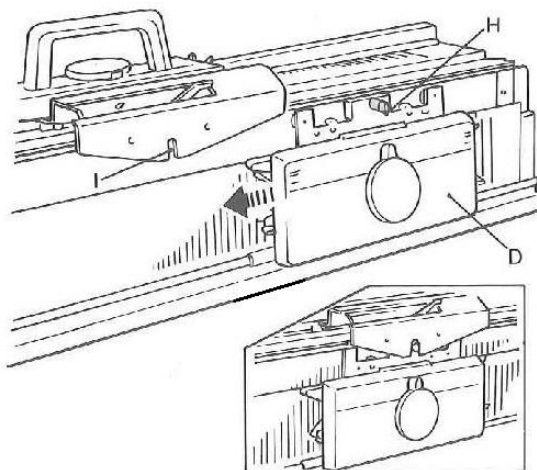


Important: Ensure that the arm nuts fit correctly into cutout "C" on the ribber arm.



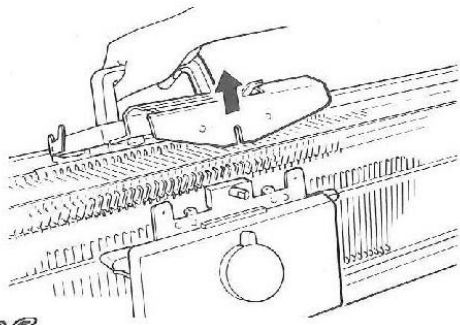
2. Take the ribber carriage "D" and Pipe "E" to the ribber carriage "F" from the right side.

Tilt the carriage toward you as you do this, to clear the stopper pin "G".

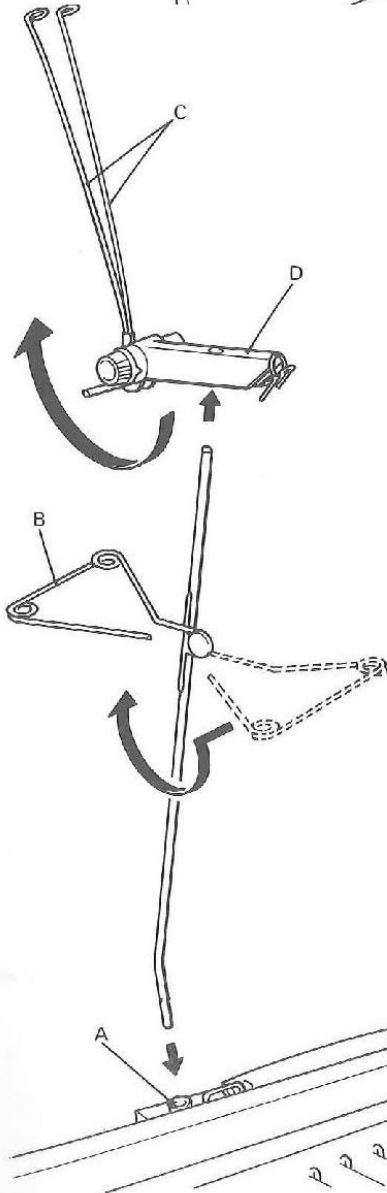


3. Slowly move the ribber carriage towards the knitter carriage, until the link pin "H" on the ribber carriage, fits into the slot of the arm "I".

The link pin of the ribber carriage lifts up the ribber arm along its edge and fits into position at the slot.



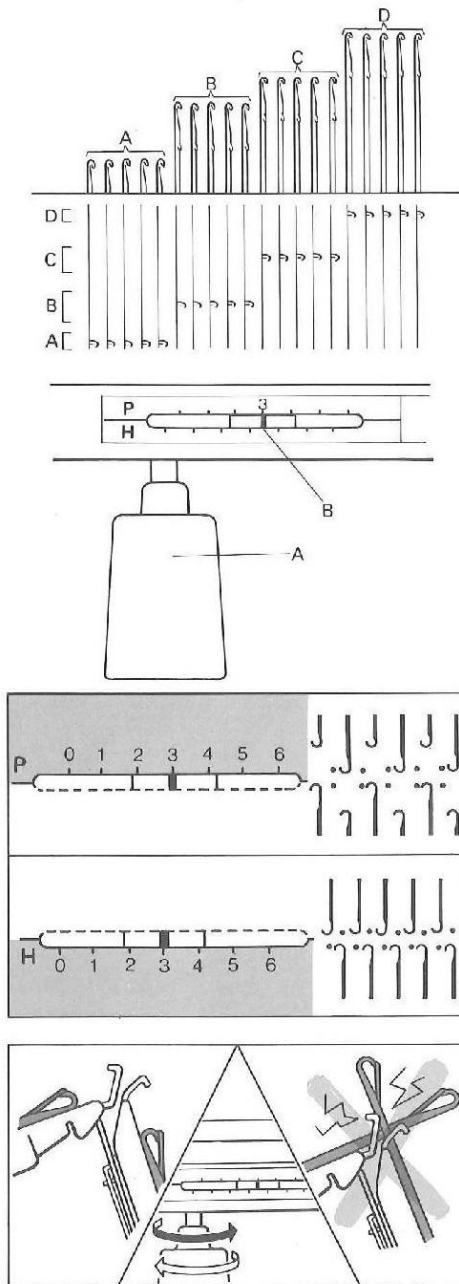
To disconnect the ribber carriage from the coupling arm, lift up the handle of the knitter carriage and move it to the left or the right.



Assembling Auto-Tension & Yarn Rod when using the Ribber

- (1) Insert the bent short end of the Yarn Rod into the socket "A" next to the Carrying Case Handle.
- (2) Turn Tension Guide "B" so it's at the back of the yarn rod.
- (3) Lift Tension Spring "C" upwards from its base, until it clicks into position.
- (4) Place the Auto Tension "D" on top of the yarn rod by fitting it into the slot.

RIBBER NEEDLE BED



NEEDLE POSITIONS

On both left and right sides of the needle bed, you will see markings A, B, C and D associated with brackets "[]".

These four positions are selected during knitting.

A - Non Working Position

B - Working Position

C - Needles in this position always operate

D - Holding Position. (Needles in this [position are knitted back to 'B' position when Russel Levers are at = position.)

SWING HANDLE

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

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

SWING INDICATOR

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

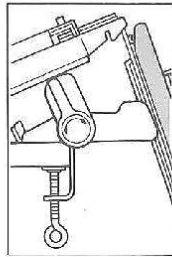
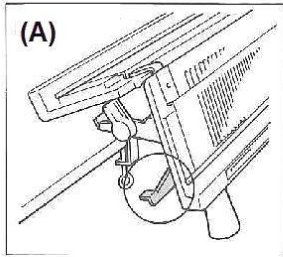
P SCALE

If the pointer is pointing at a number on the P scale, the needles on the Ribber are face to face with the needles on the Knitter. This scale is used, when every other needle will be used.

H SCALE

If your pointer is pointing at a number on the H scale, the needles on the ribber are shifted by half a needle pitch (sideways). This scale is used when every needle will be used.

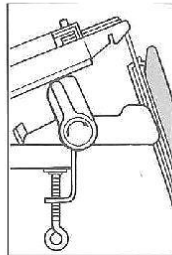
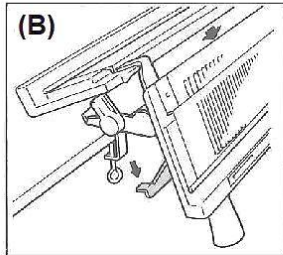
Important: Do not turn the swing handle when needles on Ribber are crossed with those on the Knitter.



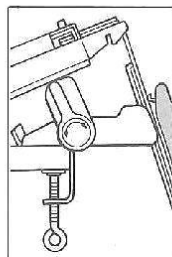
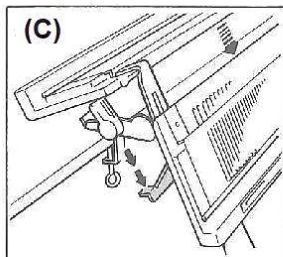
DROP LEVERS

On both left & right sides of the Needle Bed, you will find the drop levers. Using these levers will change the vertical position of the Needle Bed.

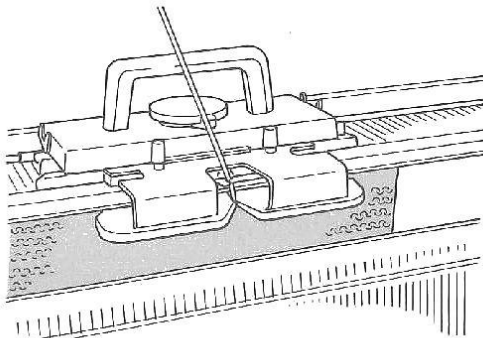
(A) TOP POSITION (knitting position). This position is used for knitting rib stitches.



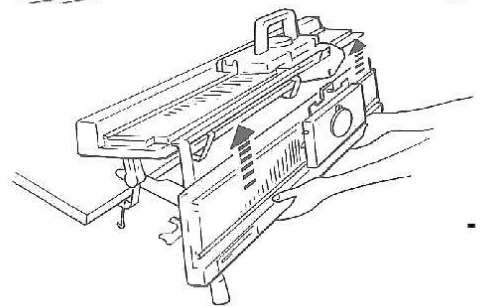
(B) MIDDLE POSITION - Press Drop Levers on both sides - once - and ribber is lowered to its middle position. This is used for picking up stitches.



(C) LOWEST POSITION - Press Drop Levers twice and the ribber bed drops to its lowest position. This position is used for knitting only on the knitting bed.

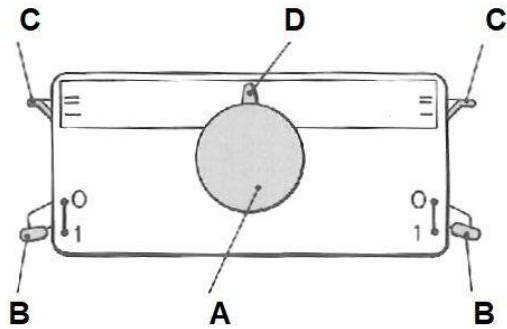


When you work on the knitter bed only - use this position and install the main carriage knitting arm instead of the ribber connecting arm - and knit.

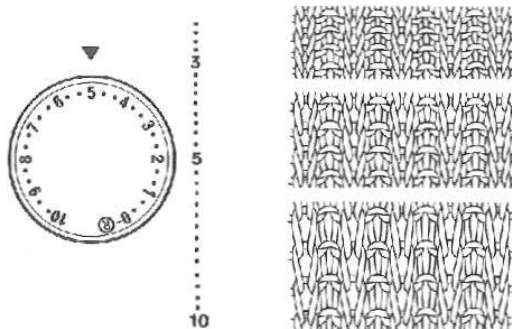


To restore the ribber to any of the above positions, lift up both ends of the ribber, with your hands.

RIBBER CARRIAGE



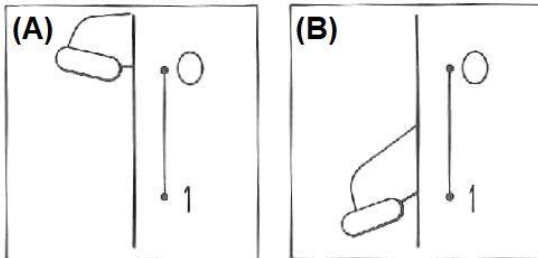
- A - Stitch Dial
- B - Set Levers
- C - Russel Levers
- D - Cam Lever



STITCH DIAL - controls stitch size. Set a selected number or dot to the ▼ mark. The higher the number, the larger the stitch. The position ① produces smaller stitches than '0' setting. This position is used for cast on. Refer to page 9 for stitch dial setting, according to the thickness of the yarn.

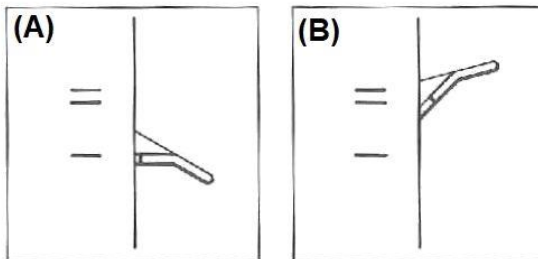
USING SET & CAM LEVERS INDIVIDUALLY

Left side levers engage when the carriage moves to the right.
Right side levers engage when the carriage is moved to the left



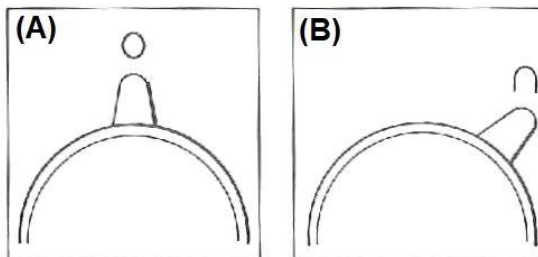
SET LEVERS - When Cam lever is at '0' Set Levers function as follows:

- (A) Levers at '0' the needles in B position are not knitted
- (B) Levers at '1' needles in B position are knitted.



RUSSEL LEVERS - Control needles in 'D' position.

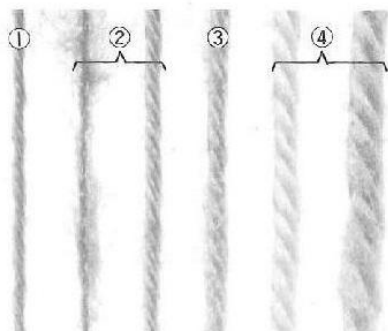
- (A) NON KNITTING POSITION - needles remain in 'D' position.
- (B) KNITTING POSITION - needles at 'D' position will knit back to 'B' position.



CAM LEVER - has two positions

- (A) Position '0' which is selected for normal rib knitting.
- (B) Position '1' functions when the set lever is at '0' and is selected for tuck stitch on the ribber bed - as for English Rib.

YARN THICKNESS & STITCH DIAL

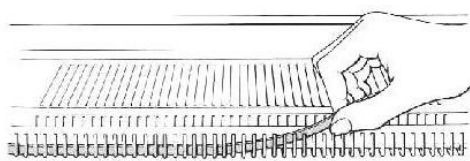


An appropriate Stitch Dial number must be selected - according to the type of knitting and the thickness of yarn you are using.

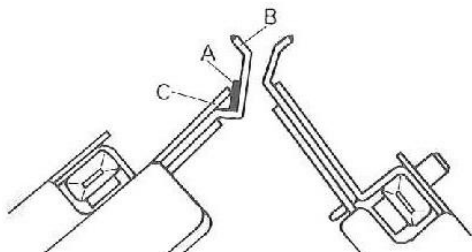
For your reference - recommended numbers are shown below.

Photograph show actual size of yarns.

TYPE OF YARN			① medium thick	② very thick	③ extra thick	④ super extra thick
CAST-ON	every other needle selection	initial row	Ⓜ	Ⓜ	Ⓜ	Ⓜ
		subsequent rows	Ⓜ	Ⓜ	0	1
	every needle selection	initial row	Ⓜ	Ⓜ	-	-
		subsequent rows	Ⓜ	Ⓜ	-	-
MAIN KNITTING	K1.P1. RIB		Ⓜ - 1	0 - 2	2 - 4	7 - 8
	DOUBLE RIB		Ⓜ - 2	2 - 4	-	-
	K2.P2. RIB		0 - 1	2 - 3	3 - 4	8 - 9
	WIDE RIB	Knitter	Ⓜ - 1	3 - 5	5 - 6	8 - 9
		Ribber	0 - 2	4 - 6	6 - 7	9 - 10
	TUBULAR KNITTING	Knitter	Ⓜ - 1	3 - 4	5 - 6	8 - 9
Ribber		1 - 3	5 - 6	7 - 8	9 - 10	



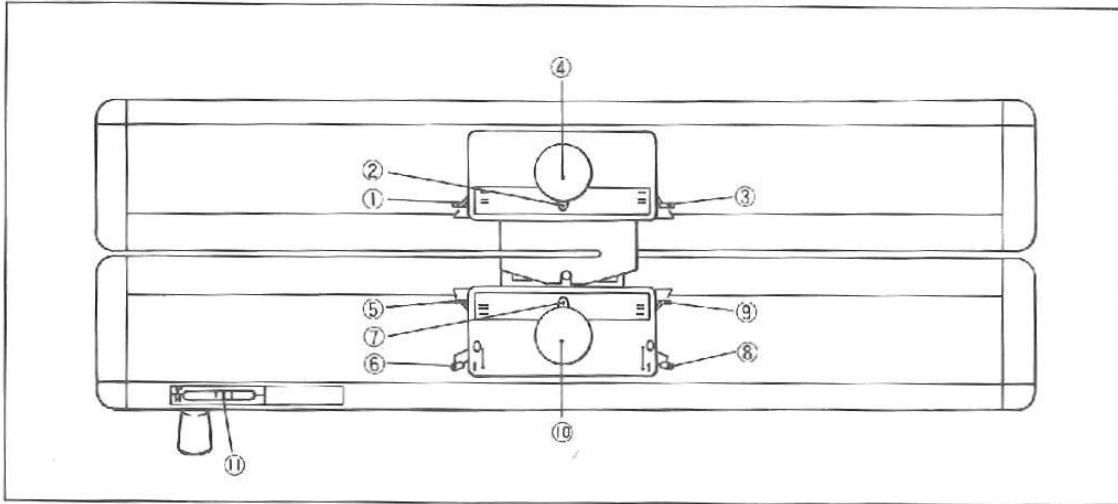
When knitting with medium thick yarn, use the Close Knit Bar.



Before arranging the needles, place Close Knit bar 'A' between sinker posts 'B' and front edge 'C' of the Knitter Needle Bed.

OPERATION TABLE

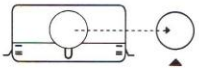
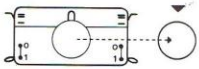


For cast on and main knitting, Operation Table as shown below, is given, to show settings and operation of the machine for knitting.

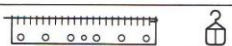


Relate the operational parts of the machine - numbered as above - with each column of the operation table below, for their correct setting at each step of the knitting.

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


How to read Operation Table

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

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

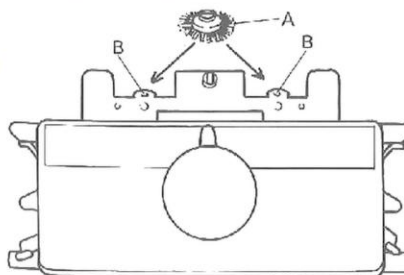
RIBBER TUCK BRUSH

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

When  mark is shown above in the Operation Table - attach the brush as instructed below.

Disconnect the Ribber Carriage from the Arm. At both sides of the Ribber Arm, a Setting Position is provided for the Ribber Tuck Brush.

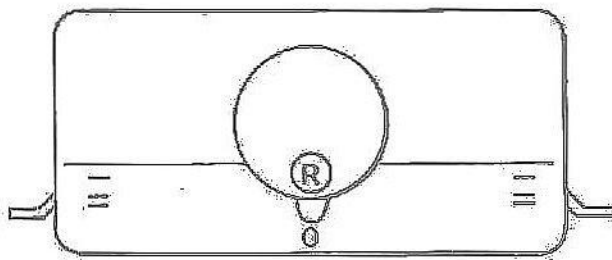
Attach the Ribber Tuck Brush at the side, with the Set Lever at '0'. Fix the brush screw 'A' to screw hole 'B' and tighten with a coin.



CAST ON AND KNITTING EVERY OTHER NEEDLE

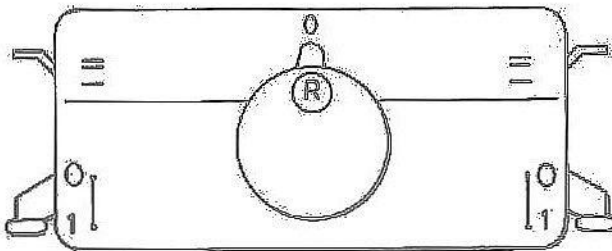
For practice, using extra thick yarn, work cast on and knit
K1 P1 rib following table below

①	1 = 0 = (R) = 1 0 1 = (R)		P-3		
2				→	
3					
4		0	0	0	←
5	S				→
6	0				←
②	= 0 = 3 = 1 0 1 = 3		P-3	↔	



CAST ON

(1) Set machine controls for initial row

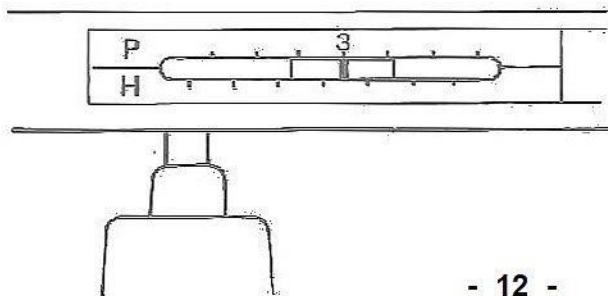


KNITTER CARRIAGE

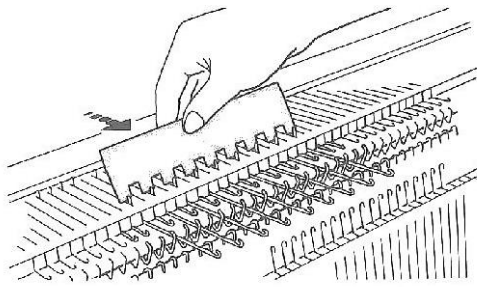
Russel Levers L & R =
Cam Lever 0
Stitch Dial (R)

RIBBER CARRIAGE

Russel Levers L & R =
Set Levers L & R 1
Cam Lever 0
Stitch Dial (R)



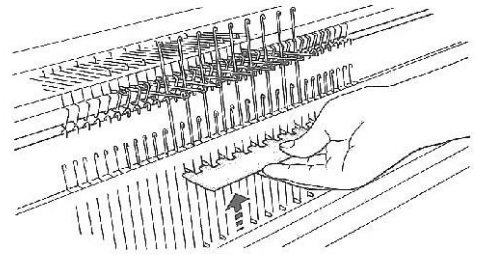
Swing Indicator P-3



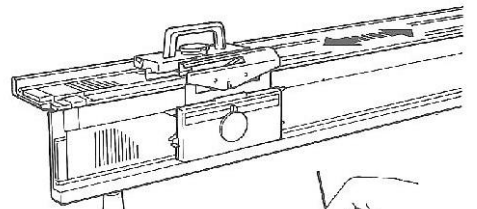
① - 2 Arrange needles for knitting initial row.

1. Arrange needles of both beds for cast on

(1) Using 1 x 1 needle pusher, bring 10 needles to D position on both sides of centre 0 on Main Bed.

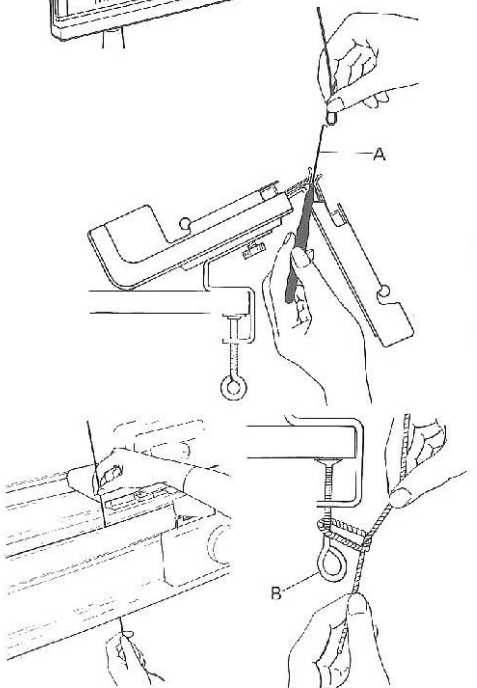


(2) Bring the corresponding needles of Ribber to D position, alternating with Main bed needles.



(3) Move joined carriages carefully across the needles in D position and leave carriages at right side.

(Needles in D position will be aligned in R position on both beds).

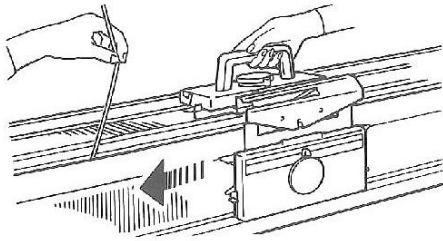


2. Thread yarn into the feeder

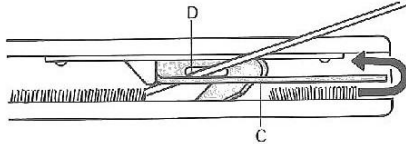
(1) After threading yarn through auto-tension unit, make a loop at the end of the yarn and hold it with your left hand, at the left side of both beds.

(2) Insert Hook Tool 'A' from underneath the beds, to catch the yarn and pull it down.

(3) Hold the yarn end and tie it around the clamp screw grip 'B'.



(4) Move carriage from right to left until the yarn enters the carriage yarn feeder.



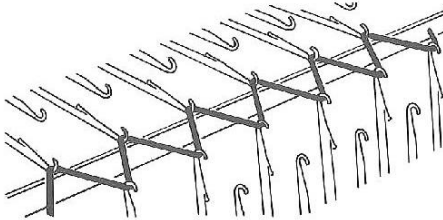
(5) Guide the yarn along Yarn Guide 'C' to thread it into Main Yarn Feeder 'D'.

Move carriage to the left end of the needle bed.

3. Knit the initial row.

Take up slack in the yarn and move carriage from left to right.

Yarn will be hooked alternately on Knitter & Ribber needles in zig zag form.

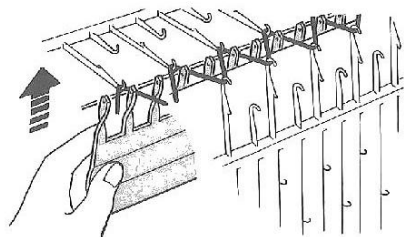
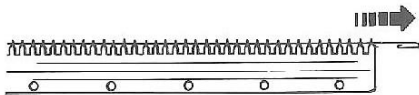


① - 3 Suspend Cast on Comb with weights

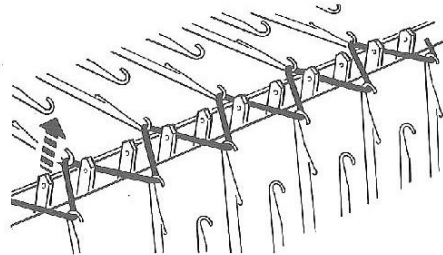
1. Suspend Cast on Comb

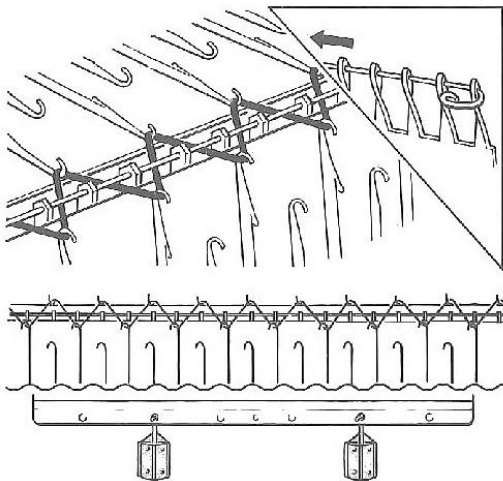
(1) Take out short cast on comb and remove the wire from its teeth.

(2) From underneath, insert the comb between the the ribber and main bed, then push it upwards until the teeth of the comb, clear the zig-zag row



Hang weights on the comb, so that it is balanced horizontally between the working needles.

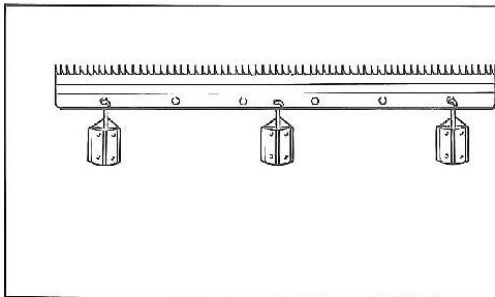




(3) Insert Ribber Wire through the holes of the Cast on Comb teeth.

2. Hook Weights

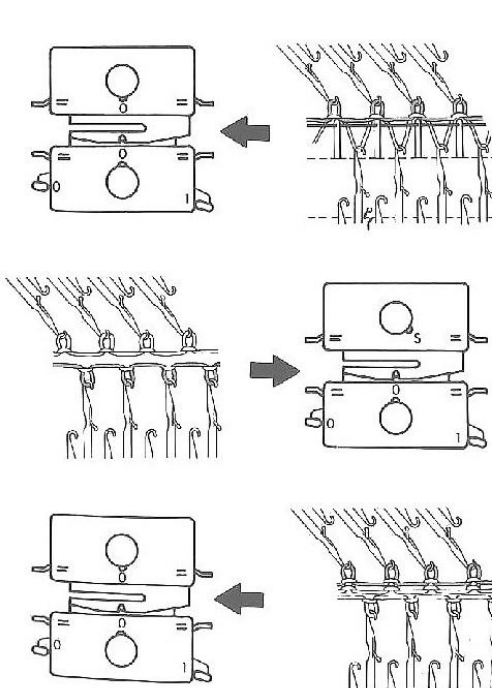
Use two Large Ribber Weights and hook them on to the left and right ends of the Cast on Comb.



For your reference - use up to :

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

Hook Weights at even intervals along the comb



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

4. Set Left Set lever and both Stitch Dials to '0' then move Carriage from right to left.

(Knitter needles will knit the first row of the subsequent rows.)

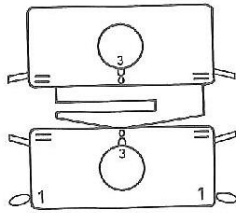
5. Set Knitter Cam Lever to 'S' and return carriage to right.

(Ribber needles will knit the second row.)

6. Re-set Cam Lever to '0' & move carriage from right to left.

(Knitter needles will complete the third row.)

Cast on is complete. Remove yarn end from clamp.



1 Reset machine controls for working main knitting.

(Needle arrangement for main knitting is the same as the cast on.)

1. Change Carriage Settings.

Set Lever Left 1
Stitch dials (both) 3

Other settings unchanged.

2. Knit 15 rows.

For practice, continue to knit DOUBLE RIB following instructions.

1. Set Swing Indicator to H3.

2. Push up empty Knitter & Ribber needles to 'B'.

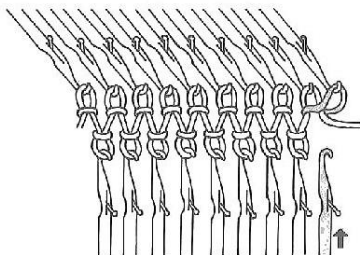
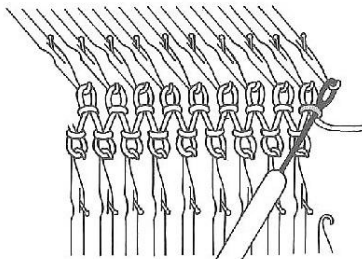
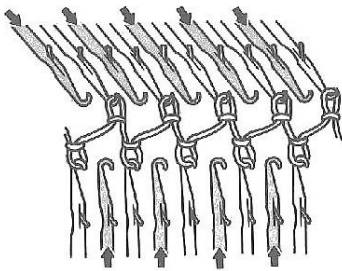
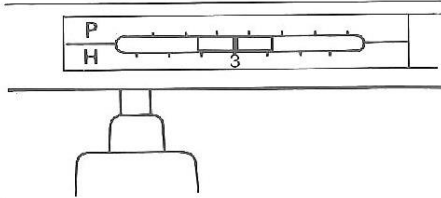
3. Knit 10 rows.

Increasing one stitch

POSSIBLE ONLY ON CARRIAGE SIDE.

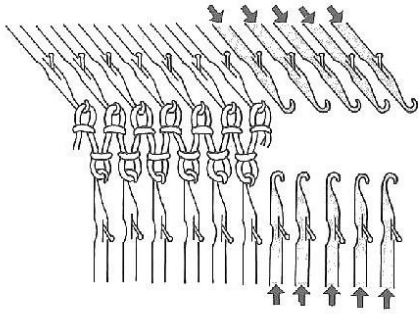
1. Push an adjacent Knitter & Ribber needle at 'A' position on Carriage side to 'B' position. Pick up loop of stitch below the end stitch and place onto needle.

2. On Ribber and Knitter, push needles in 'A' position up to 'B' position.



INCREASING MULTIPLE STITCHES

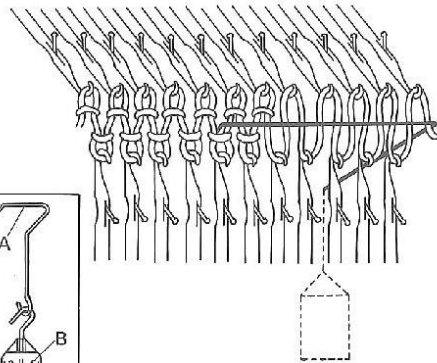
Possible only on opposite sides of the carriage



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

(2) Knit 1 row

Lay yarn alternately in a zig zag pattern, in both Knitter & Ribber needle hooks.

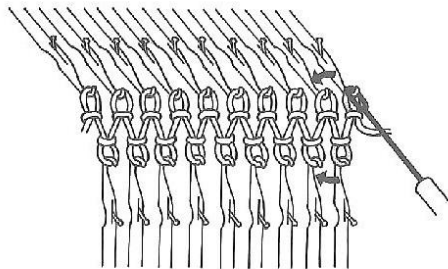
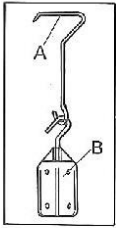


(3) Use Side Hanger 'A' with Edge Weight 'B' attached, hereafter called the 'Edge Weight'.

From underneath, insert the hook of Side Hanger between Knitter & Ribber Bed - push upwards and lay hook over the zig zag stitches.

Ensure yarn is hooked inside the Side Hanger.

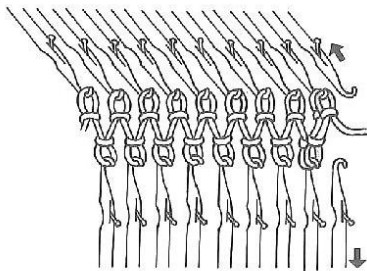
After approx. 10 rows are knitted, move the Edge Weight up and continue to do so, every 10 rows.



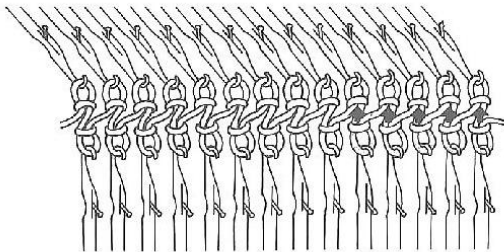
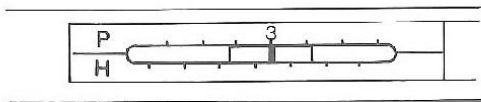
DECREASING 1 STITCH

Possible on both sides of the beds.

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



(2) Push back empty needles to 'A' position and continue to knit.



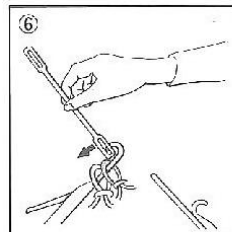
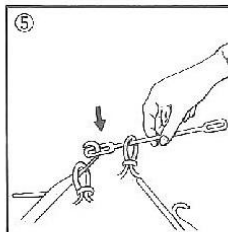
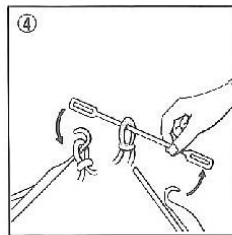
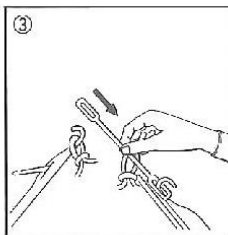
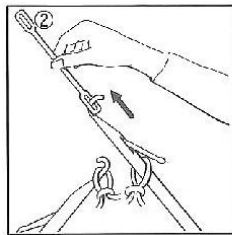
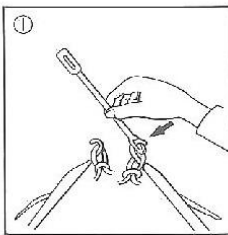
DECREASING MULTIPLE STITCHES

Possible only on the Carriage Side.

(1) Set the Swing Indicator to P-3

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

USING THE DOUBLE EYED TRANSFER TOOL.



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

2. Pull Ribber Needle up to 'D' position.

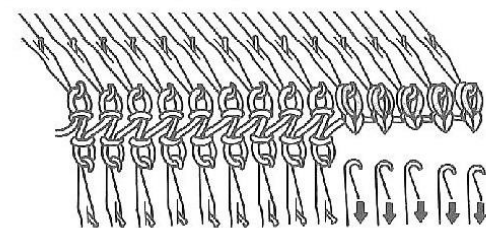
3. Push Ribber Needle to 'A' position.

4. Remove eye of Transfer Tool from Ribber needle hook.

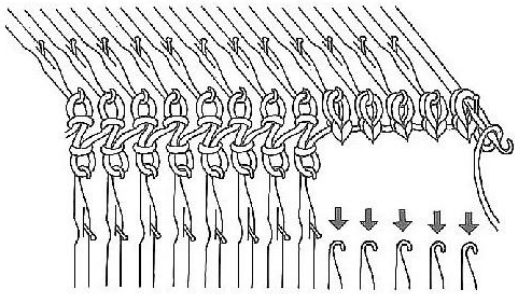
5. Insert opposite eye of transfer tool into Knitter needle hook.

6. Tilt transfer tool, until stitch slides into Knitter needle hook. Remove Transfer Tool.

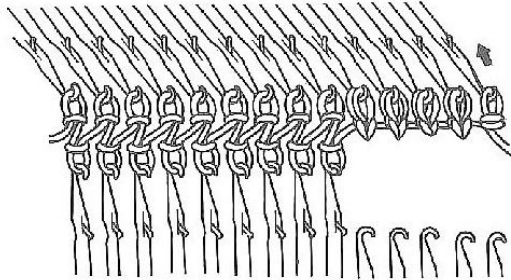
Push needle in 'B' position, slightly towards 'A' position, ensuring that the transferred stitch lies correctly in the needle hook.



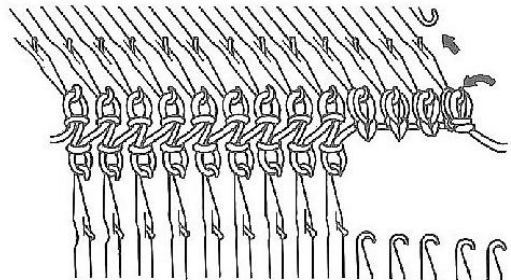
(3) Push empty Ribber needles back to 'A' position.



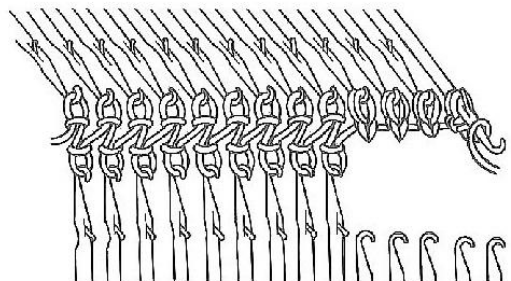
(4) On the side with the yarn end, push up the first needle until its stitch passes the latch and lay the yarn as shown.



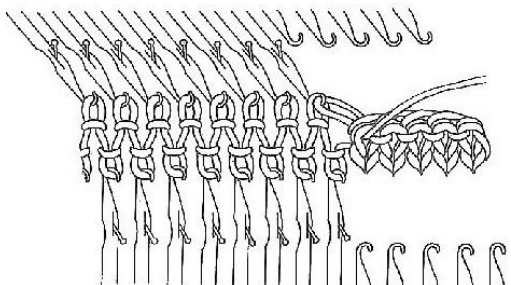
(5) Push the needle back to 'B' position



(6) Transfer the stitch onto the 2nd needle and push back the empty needle to 'A' position.

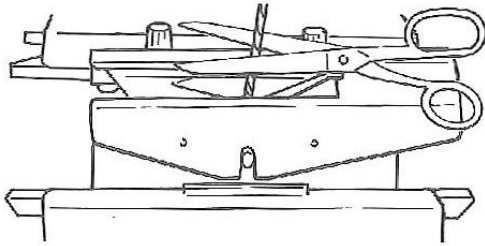


(7) Repeat steps (4) to (6) until required number of stitches have been decreased.

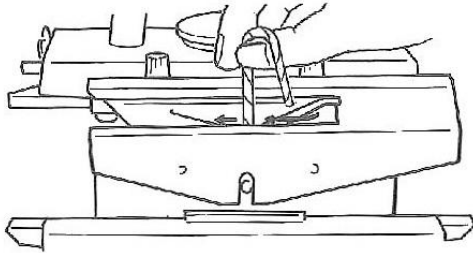


(8) Place the last stitch decreased, onto its adjacent needle.

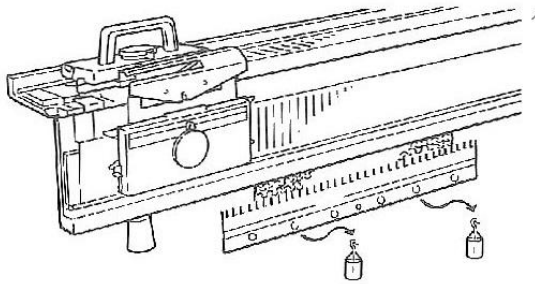
REMOVING FABRIC FROM THE MACHINE



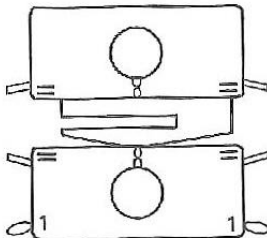
(1) Cut the yarn off, above the yarn feeder.



(2) Remove yarn from the feeder and drop yarn end between Kitter & Ribber Sinker Posts.

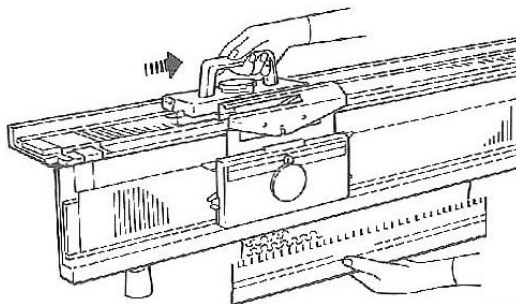


(3) Remove Weights from the Cast on Comb.



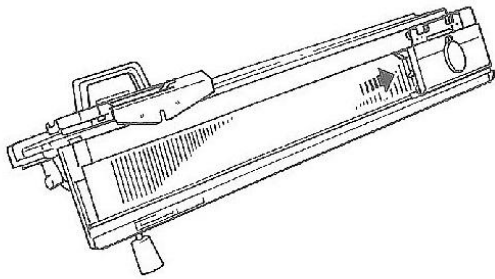
(4) Change carriage settings as follows:

Cam Lever 0
 Set Levers Left & Right 1
 Russel Levers Left & Right =



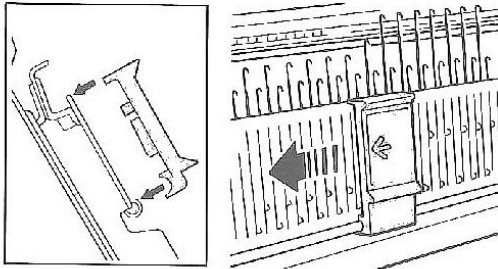
(5) Holding Cast on Comb, move carriage once across the beds, and the stitches are released from the needles.

CAST ON FOR TIGHTER EDGE



To make the cast on edge of the fabric tighter, when knitting with thinner yarn, operate the initial row as given below:

(Put Close Knit Bar in place - see Page 9.)

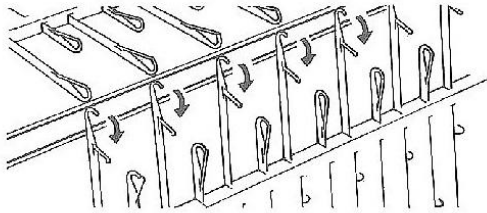


1. Set machine controls for the initial row as per the Operation Table.

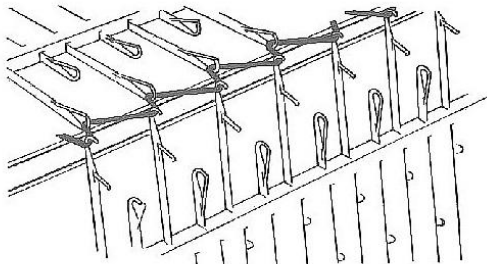
2. Disconnect the Ribber Carriage from the Arm and have Knitter Carriage on the left and Ribber Carriage on the right.

3. Arrange the needles for K1 P1 rib of Double Rib into 'B' position' (See page 22.)

4. Locate the needle Aligner on the left side of the Ribber needle bed as illustrated. Move the Aligner to the left - across the needle bed.

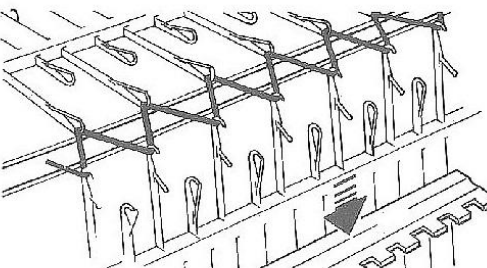


5. Remove the Needle Aligner. When all needles are aligned in 'C' position, open all the needle latches.



6. Thread the Yarn Feeder and move the Knitter Carriage only from left to right. Yarn has now passed through the hooks of Knitter needles and over open latches of the Ribber needles.

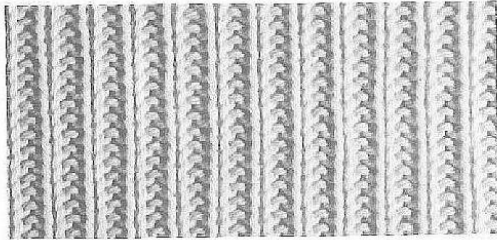
7. With the needle pusher, push the Ribber needles in 'C' position, down to 'B' position.



8. Attach the Cast on Comb and Weights.

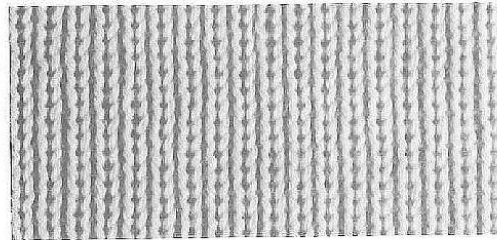
9. Re-connect the Ribber Carriage and Knitter Carriage and continue to work the subsequent 3 rows - following directions in the Operation Table.

VARIOUS RIB STITCHES



K1 P1 RIB. The most basic ribbing formed on every other needle on the Knitter & Ribber.

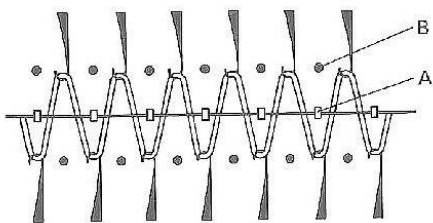
Knit stitch alternates with purl stitch and fabric is very elastic crosswise. Sample shown was knitted with extra thick yarn.



DOUBLE RIB. Fabric is similar to K1 P1 Rib but is knitted using every needle on Knitter and Ribber beds. Medium thick or thinner yarns is best for this type of rib.

Sample shown was knitted using medium thick yarn.

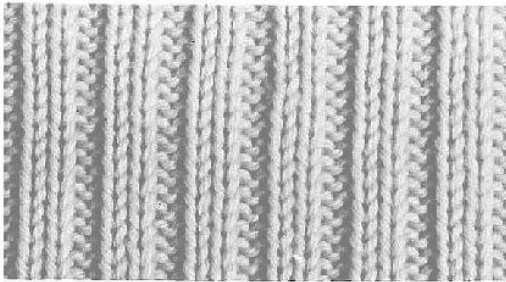
①	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3	
2											→	
3												
4					0							←
5		S										→
6		0										←
②	=	0	=	1	=	1	0	1	=	1	H-3	↔



Following operation Table ① - 1-3, set the machine and knit 1 row and suspend Cast on Comb so that its teeth 'A' confront with Knitter Sinker Posts 'B' as illustrated.

If the Cast on Comb is suspended incorrectly, it will drop to the floor as you work drive rib.

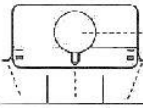

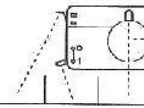




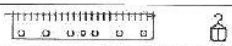
Continue to knit following operation table.

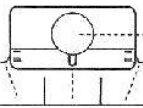
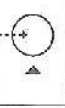
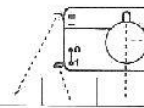


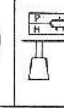

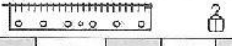



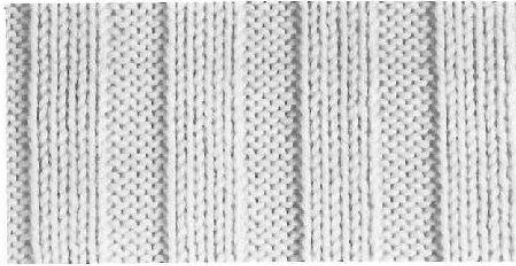
K2 P2 RIB

Two knit stitches alternate with two purl stitches. The sample here used very thick yarn.

Two methods for knitting K2 P2 Rib are shown below:

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

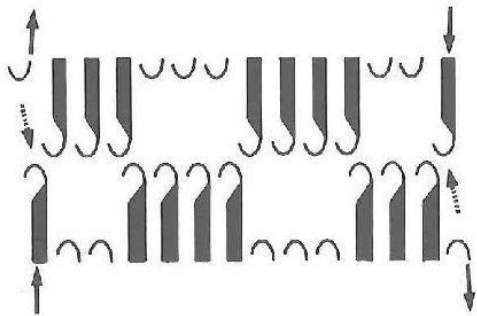
B															
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3			
	2											→			
	3														
	4				0						0		←		
	5	S											→		
	6	0											←		
	7											P-3			
	7														
②		=	0	=	3	=	1	0	1	=	3	P-3	↔		



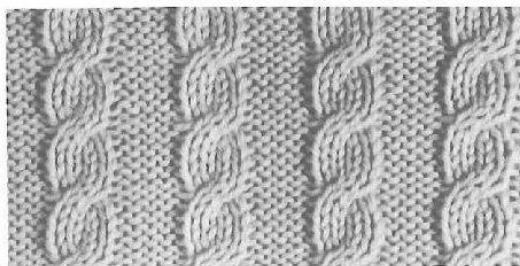
WIDE RIB - wider than 2 knit stitches, alternated with more than 3 purl stitches.

Sample is knitted with very thick yarn over 4 knit & 4 purl stitches.

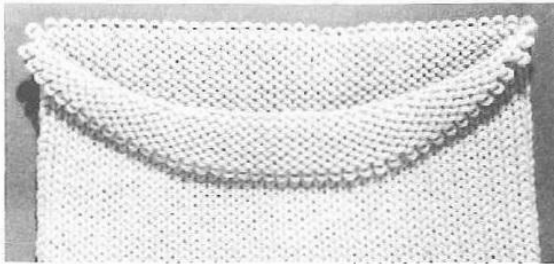
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2													
3													
4				1				0				1	
5	S												
6	0												
7													
②	=	0	=	3	=	1	0	1	=	4	H-3		



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



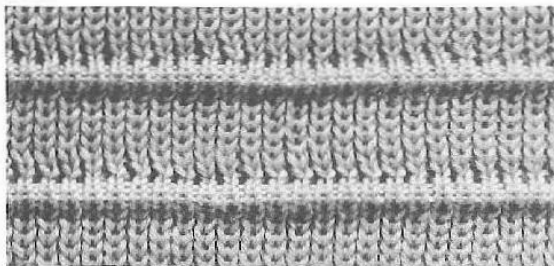
Another variation of this Wide Rib can be produced by crossing the stitches on the Knitter side, to form a cable stitch (using a smooth yarn and a loose Stitch Dial tension.)



TUBULAR KNITTING - is achieved by knitting one row on the Knitter side, then two rows on the Ribber side. See operation table below.

Cast on using all needles on both beds

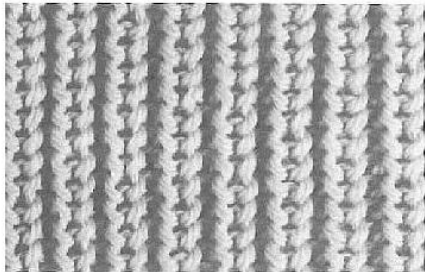
①	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3	
	2											→	
	3												
②	1	=	0	=	2	=	0	0	1	=	4	H-3	←
	2	S											→



PIN TUCK - in Double Rib - knit an extra 4-5 rows on the Knitter side.

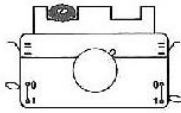
This sample is made using medium thick yarn.

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



ENGLISH RIB; This fabric is formed in K1 P1 Rib or Double Rib, by tucking the stitches on every other row, on the Ribber side.

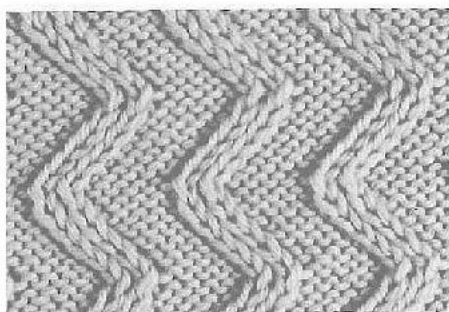
This sample was knitted using extra thick yarn over K1 P1 Rib.



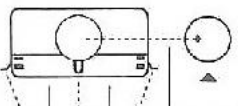
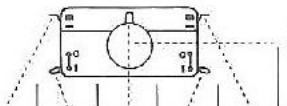

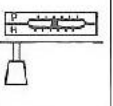
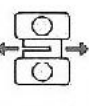



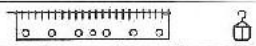
















Attach the Ribber Tuck Brush at the side, with Set Lever at '0' - referring to page 11.

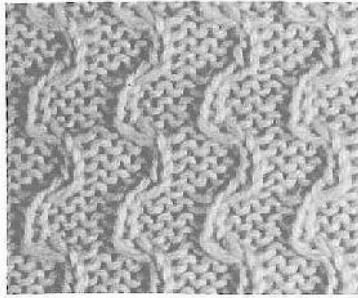
①	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	P-3	
2													
3													
4				1		0					1		←
5		S											→
6		0											←
②	=	0	=	3	=	0	∩	1	=	3	P-3		↔

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



Variation Swing (1). On the Knitter, use every needle & on the Ribber side, push up the needles in intervals desired for the pattern. This sample is knitted with very thick yarn

													
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
2													
3													
4						0							
5		S											
6		0											
7													
②	1	=	0	=	3	=	1	0	1	=	3	H-3	
2												H-2	
3												H-1	
4												H-0	
5												H-1	
6												H-2	
7												H-3	
8												H-4	
9												H-5	
10												H-6	
11												H-5	
12												H-4	



VARIATION SWING(2) A pattern made by swinging the ribber right and left by three needles.

The sample is knitted with medium thick yarn.

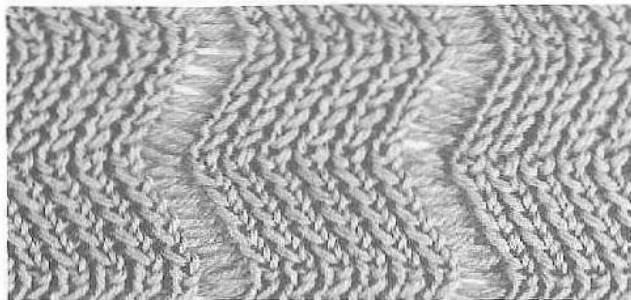
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
	2											→	
	3												
	4					0							←
	5	S											→
	6	0											←
	7												
②	1	=	0	=	1	=	1	0	1	=	1	H-3	→)4
	2											H-0	→)4

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

You can also change the needle arrangement on the Ribber, but avoid pushing up two needles together.

HERRINGBONE SWING.

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

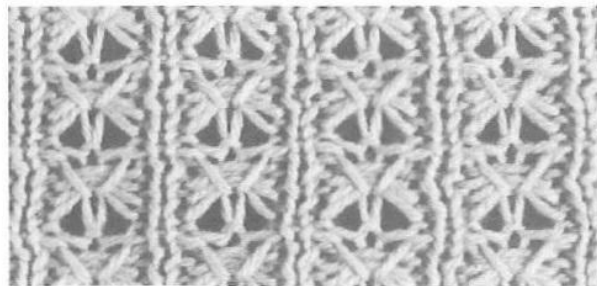


①	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3	
	2											→	
	3												
	4					0							←
	5	S											→
	6	0											←
	7												
②	1	=	0	=	1	=	0	∩	1	=	1	H-3	→
												H-4	←
	2											H-4	→
												H-3	←

TUCK RIB (1)

The sample is knitted over the needle arrangement as shown below but you can try on different needle arrangements, too.

Cast on over every needle or every other needle, then re-arrange the needles by transferring the stitches.



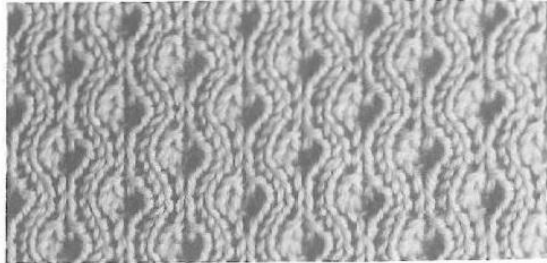
①	1	=	0	=	Ⓜ	=	1	0	1	=	Ⓜ	H-3	
	2											→	
	3												
	4					0							←
	5	S											→
	6	0											←
②	1												
	2	-	0	-	1	=	1	0	1	=	1	H-3	→)4
	3	=		=									→)2

Arrange the needles as shown by transferring stitches and push up O marked needles to D position.

TUCK RIB (2).

On the Ribber side - Tuck the stitches four rows.

The sample shown used medium thick yarn.



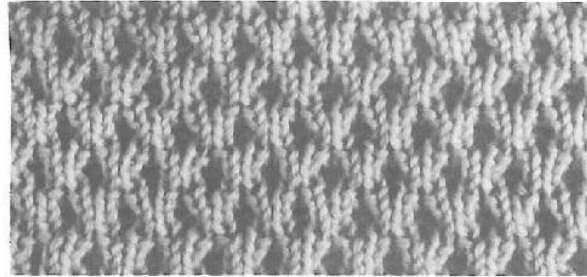
①	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3	
	2												
	3												
	4						0						←
	5	S											→
	6	0											←
	7						1	1				1	↔)2
	8	=	0	=	1	=	0	∩	0	=	1	H-3	
②	1												
	2												

Push up O marked needles to 'D' position on each row.

RAHBEN

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

The sample is knitted using medium thick yarn



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




















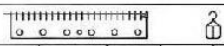
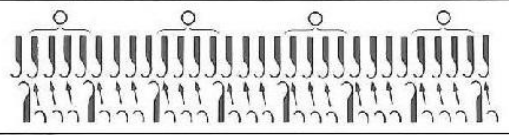
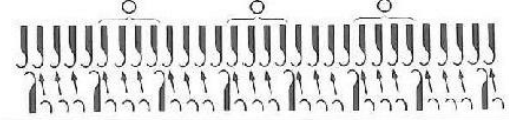
Push up 0 marked needles to 'D' position

SLIP RIB

Knit slip for every fifth needle on the Knitter.

The sample was knitted using medium thick yarn.



																			
①	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3							
2															→				
3																			
4							0												←
5		S																	→
6		0																	←
7					1		1					1							→)2
8	=	S	=	1	=	1	0	1	=	1	H-3								
②	1															→)4			
2	2															→)4			

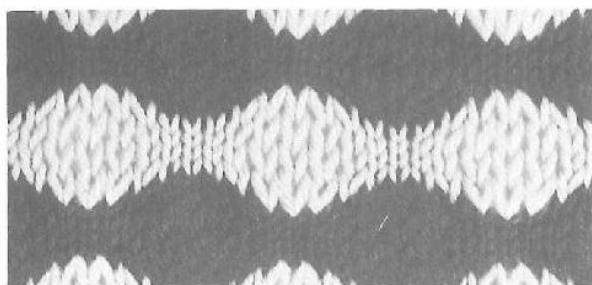
Arrange the needles as shown by transferring stitches then knit - pushing up O needles to D position on each row

DRIVE RIB

Stockinet on the Knitter side and on the Ribber side, push up needles at intervals from A to D position then drop the stitches onto those needles.

Knit two different coloured yarns A & B alternately.

The sample was knitted using very thick yarn.



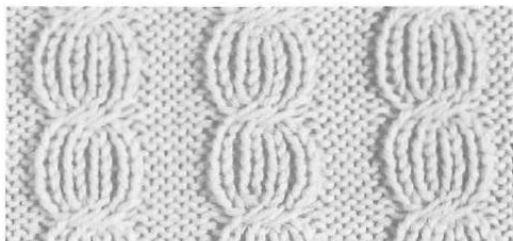
①	1	=	0	=	Ⓡ	=	1	0	1	=	Ⓡ	H-3		
2														
3														
4														
5							0		0					
6	=	0	=	3	=	1	0	1	=	1	H-3			
②	1													
2														
3														
4														

Suspend Cast on Comb referring to page 22 or it will drop to the floor when you drop the stitches from the Ribber.
 Drop the stitches from the Ribber. (Push up the needles to D position then push back to A position using plain needle pusher.)

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

Crossing and Transferring stitches

When knitting Double Rib or other types of rib stitches, cross the stitches or transfer the stitches on the Knitter side, to make the pattern.



CROSSED RIB STITCH (1)

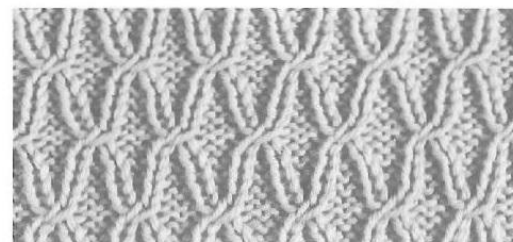
Cast on over every needle and then re-arrange the stitches before continuing to knit in rib stitch.



1. Knit 8 rows rib stitch
2. Skipping one stitch, cross two stitches with their adjacent two stitches on the Knitter side.



Repeat above two steps to continue.

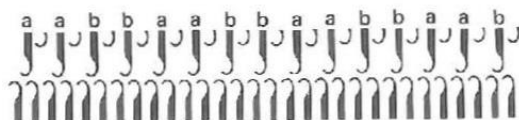


CROSSED RIB STITCH (2)

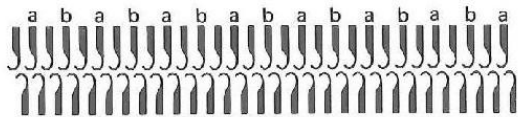
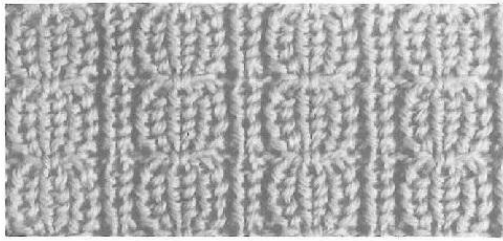
Cast on over every needle and then re-arrange the stitches as shown, before continuing to knit in rib stitch.



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



Repeat steps 1 - 4

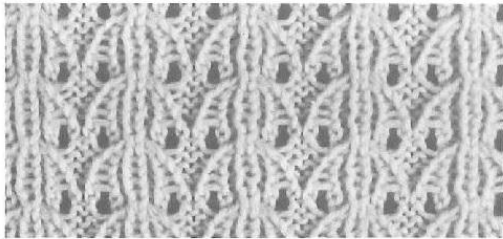


CROSSED STITCH IN ENGLISH RIB

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

1. Knit 10 row English Rib.
2. On the Knitter, cross stitches on needles (a) with those on needles (b) .

Repeat above two steps.



RIB TRANSFERRING STITCH PATTERN

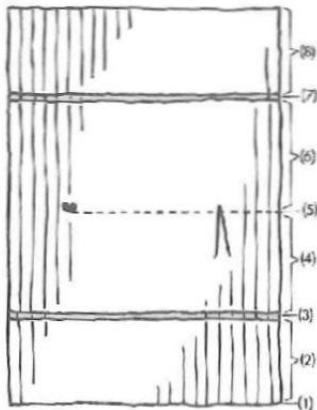
Cast on over every needle then rearrange the stitches as shown, before continuing to knit rib stitch.

1. Knit 8 rows in rib stitch.
2. On the Knitter side, for every three needles, transfer stitches on right and left needle onto the centre needle and leave the empty needles in D position.

Repeat above two steps.



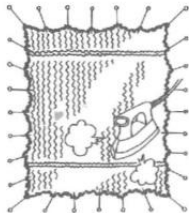
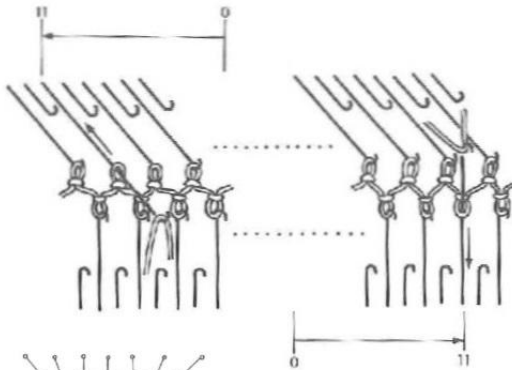
TAKING A TENSION GAUGE



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

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

Before knitting a tension swatch, try knitting the selected yarn so you can ascertain the correct Tension Dial number for that particular yarn.

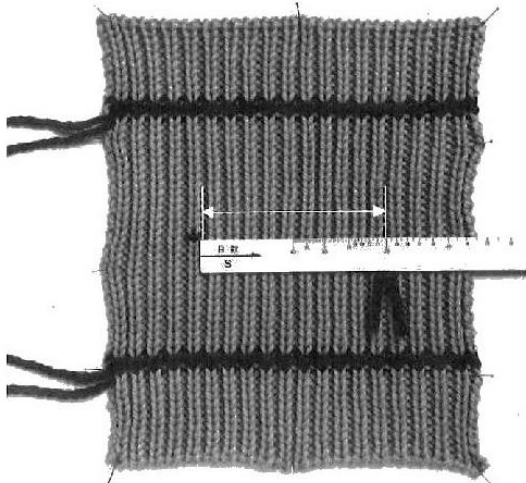


Knitting the Swatch:

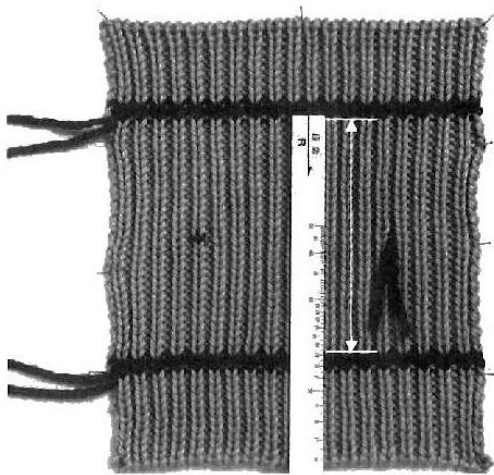
1. Regardless of stitch type always arrange needles with range of the 20th needles on both sides of the centre '0' on both beds.
2. Cast on and knit 10 rows.
3. Knit 2 rows with a contrast yarn.
4. With main yarn, knit 15 rows.
5. Put yarn markers on the 11th needles on both sides centre '0' on either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

Leave the swatch for several hours to relax, then stretch it as much as possible before pinning it down.

Hold a steam iron close to (not on) the swatch - and distribute the steam evenly over the knitted fabric.

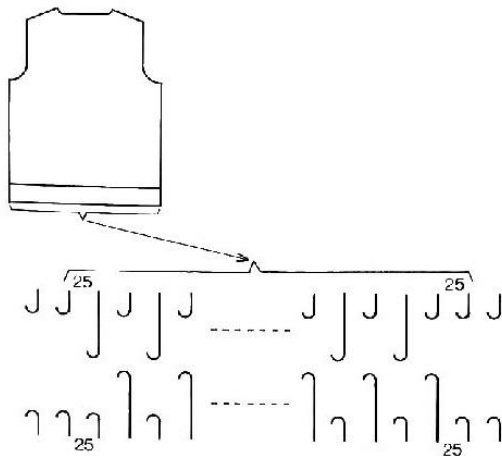


Allow the swatch to dry and once pinned down, take a tension gauge to measure the number of stitches going across - and the number of rows going down, between the yarn marks.

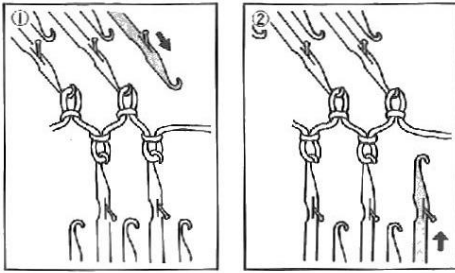


When knitting a garment based on the tension gauge taken in the procedure above, arrange needles for the width of the total number of needles, including non-working needles.

Example: if 50 stitches are necessary to cast on for the swatch of K1 P1 Rib arrange needles for 1 x 1 within the 25th needles on both sides of the centre (0).



KNITTING TECHNIQUES

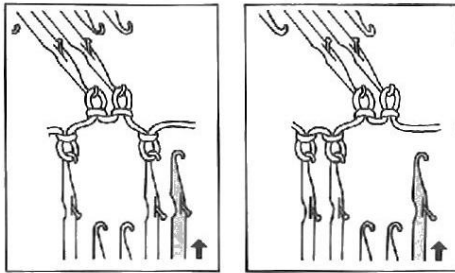


INCREASE SINGLE STITCH :

In the case of Double Rib, refer to page 16.

In the case of K1 P1 Rib :

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

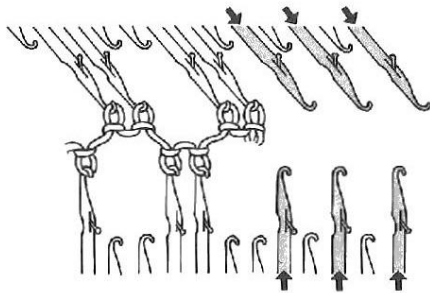


In the case of K2 P2 Rib :

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

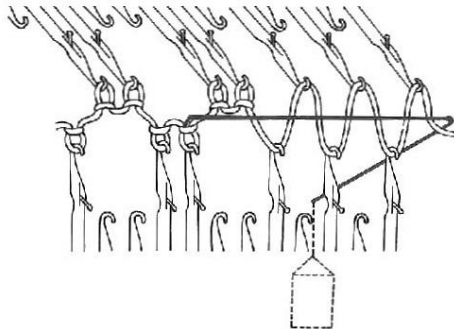
INCREASING MULTIPLE STITCHES :

In case of Double Rib and K1 P1 Rib, refer to page 17.

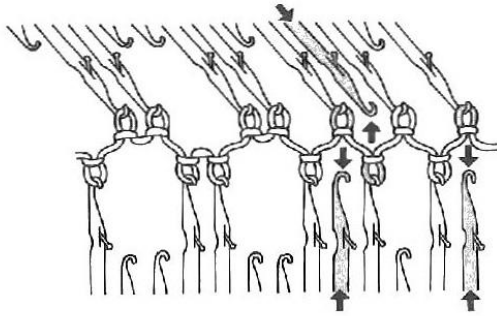


In the case of K2 P2 Rib :

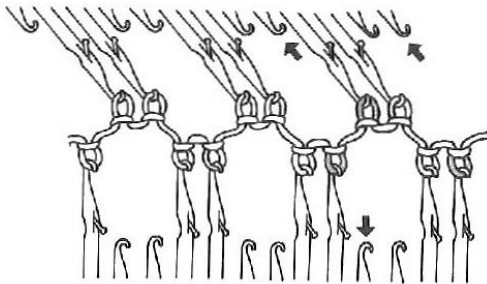
- (1) On the side opposite the Carriage, push up required number of needles for increase to B position, on both Beds as shown.



- (2) Knit 1 row and hang Edge Weight.



(3) Knit 1 row. Re-arrange needles by transferring stitches as marked by the arrows.

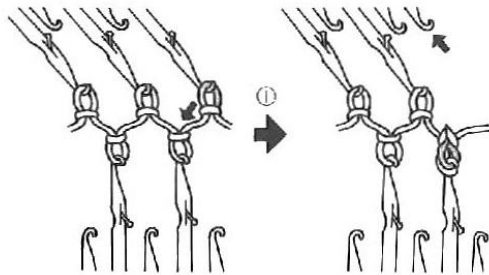


(4) Push back needles to A position and continue to knit.

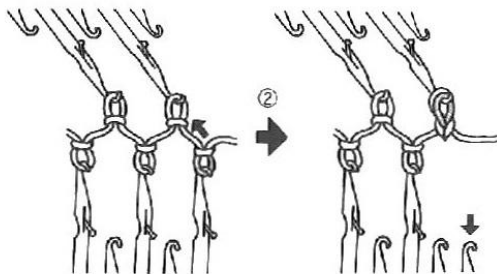
Decrease of Single Stitch

In case of Double Rib, refer to page 17.

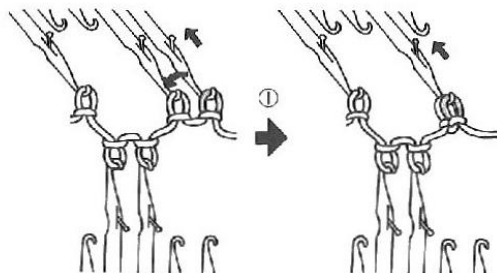
In case of K1 P1 Rib



① Transfer the stitch from Knitter to Ribber. Push back the end empty need on the Knitter to A position. Continue to Knit.

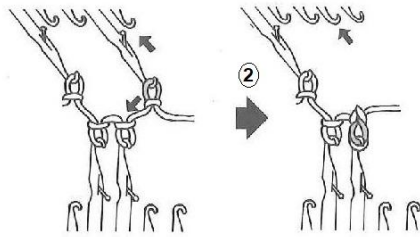


② Transfer the stitch from the Ribber to the Knitter. Push back the empty needle to A position. Continue to Knit.



In case of K2 P2 Rib ;

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

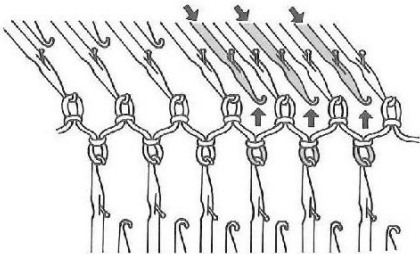


- ② If one end stitch is only on the Knitter or Ribber, transfer the stitch either from the Ribber to Knitter or vice versa.

Decrease of Multiple Stitches

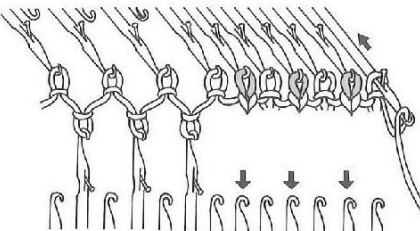
In the case of Double Rib, refer to page 18.

In case of K1 P1 or K2 P2 Rib



- (1) On Carriage side, push up required number of empty Knitter needles to B position.

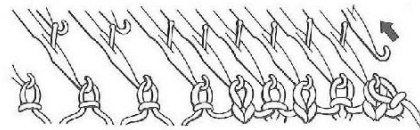
- (2) Transfer stitches from their Ribber needles to their corresponding Knitter needles.



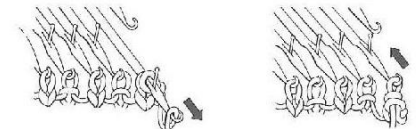
- (3) Push empty needles back to A position.

- (4) Push up the end needle until its stitch passes the latch and lay the yarn as shown.

- (5) Hold yarn end slightly down and push the needle back to B position.

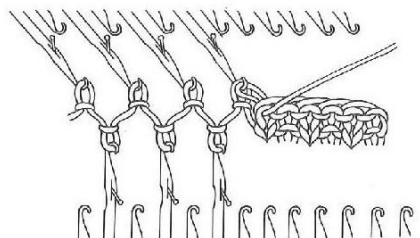


- (6) Transfer the stitch onto the second needle and push back the empty needle to A position.



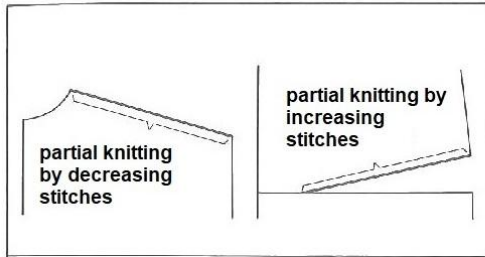
- (7) Push end working needle up to D position to have both stitches behind latch and lay yarn inside the needle hook.

- (8) Push the needle back to B position.



Repeat steps 6-8 until required number of stitches have been decreased.

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



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

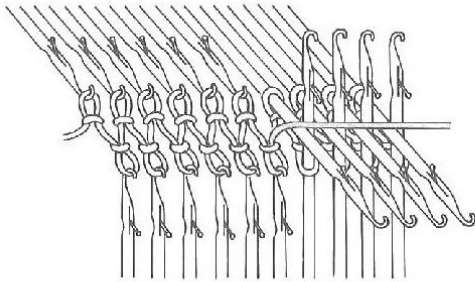
In Tuck Rib, Rahben, Slip Rib and Drive Rib - work referring to 'decreasing multiple stitches,' on page 18 instead of using Partial Knitting.

PARTIAL KNITTING INVOLVING 'SWING'

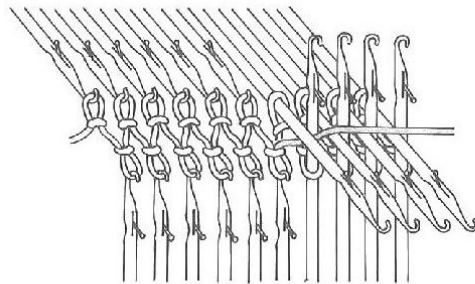
This method applies to Double Rib, K1 P1 Rib, Wide Rib, English Rib and Pin Tuck etc.

Partial knitting by decreasing stitches:

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

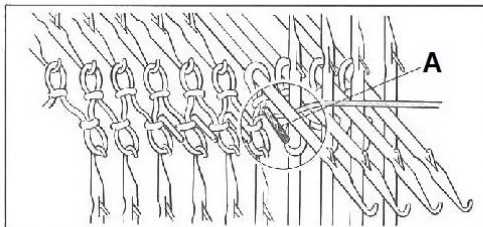


(1) On the side opposite Carriage, push up needles for the width to be shaped by Partial Knitting - to D position.



(2) Knit one row, then yarn will be laid over needles in D position.

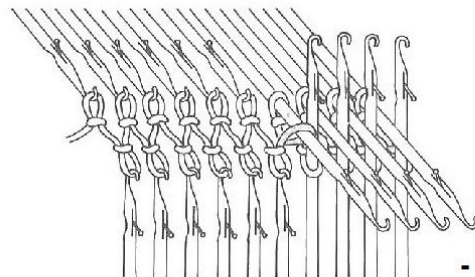
(3) To prevent a hole from being formed in the fabric, bring yarn under the first inside needle in D position.



(If partial knitting is required on both sides, apply step (1) before knitting the next row.)

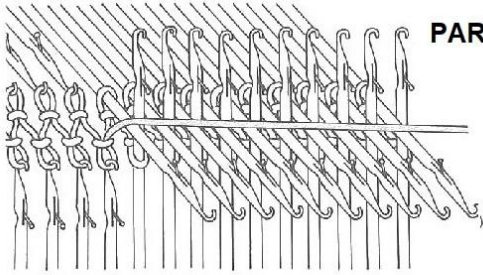
Make sure yarn is not caught in Sinker Post 'A'

(4) Knit one row.



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

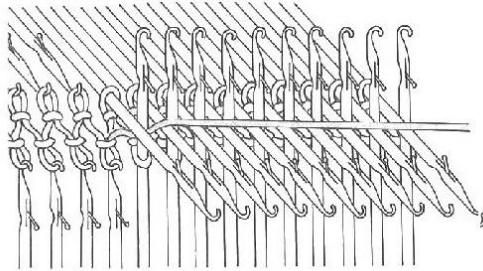
Repeat steps (3) - (5)



PARTIAL KNITTING BY INCREASING STITCHES

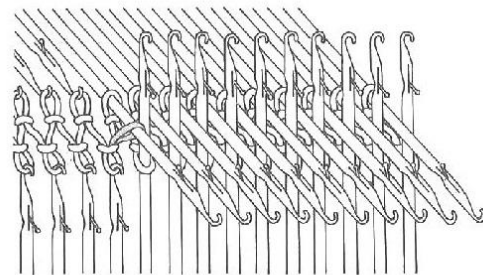
Set Russel levers on Knitter and Ribber Carriages to - position.

(1) On the side opposite Carriage, push up needles for the width to be shaped, by knitting - in D position.

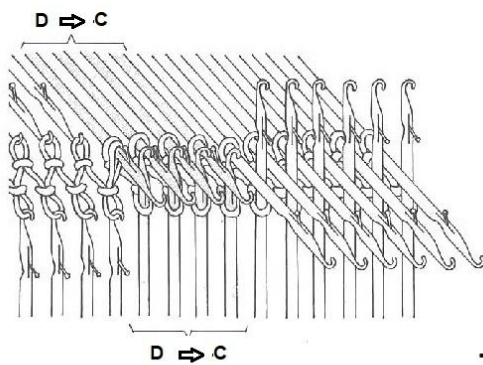


(2) Knit one row, then yarn will be laid over needles in D position.

(3) To prevent a hole from being formed in the fabric, bring yarn under the first inside needle in D position.

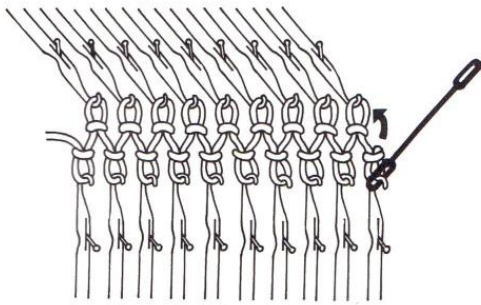


(4) Knit one row.



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

Repeat steps (3) - (5)

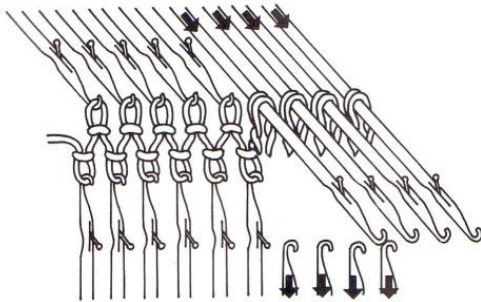


Partial knitting involving 'swing'.

Knitter needles in D position cross the Ribber needles in D position. Using this arrangement of needles you must not use the 'swing' handle on the needlebed or you will damage the crossed needles. So, a special technique of partial knitting as shown below is required for Swung English Rib, Variation Swing, Herringbone Swing etc., all of which involve 'Swing'.

Partial Knitting by decreasing stitches

Set both Russel Levers to - positions.

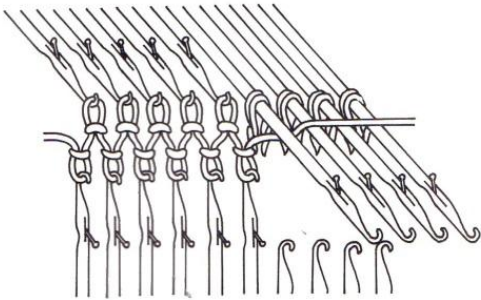


(1) At the position to start partial knitting, transfer the stitches to be decreased from the Ribber to the Knitter on the opposite side to the Carriage.

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

(3) Knit one row.

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



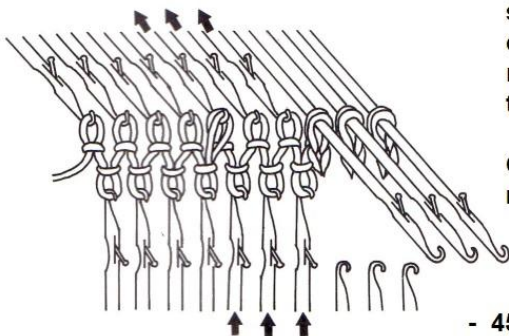
(5) Knit one row. If partial knitting is required on both sides, apply step (4).

Repeat the steps (1) - (5).

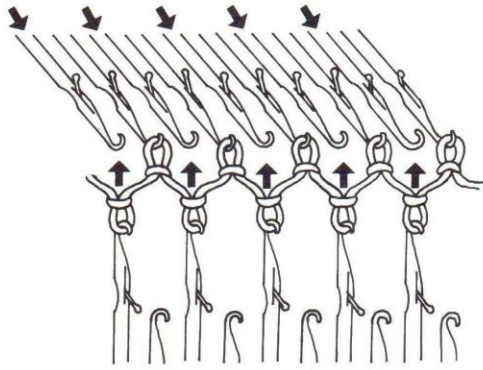
Partial knitting by increasing stitches.

Set both Russel Levers to - positions.

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

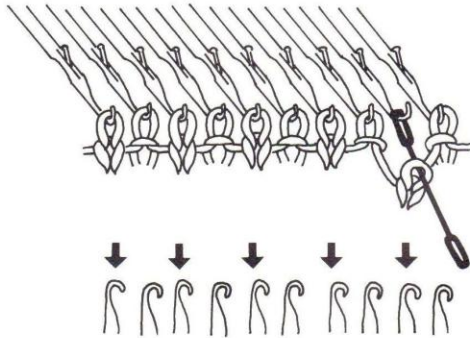


Other operations should be carried out in the same manner as decreasing.



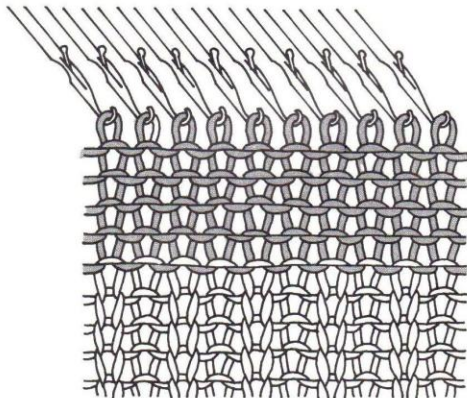
Waste Knitting

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



2. Transfer stitches to corresponding Knitter needles

Drop Ribber to its lowest position.



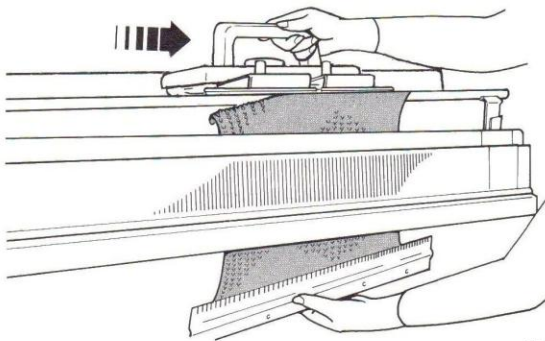
3. Exchange Ribber Arm for Knitter Arm and thread a contrast colour yarn through the Yarn Feeder.

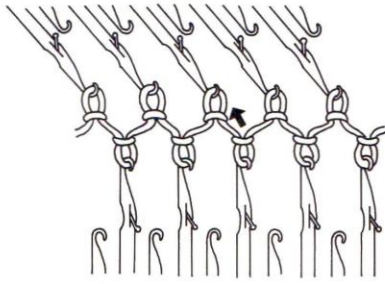
Knit 9 - 10 rows with Stitch Dial 4-5 numbers higher.

4. Remove Yarn and Weights.

Set Cam Lever to '0'.

Holding Cast on Comb, move carriage across the bed to remove fabric from the machine.

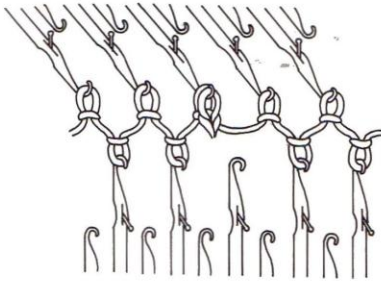




BUTTONHOLE

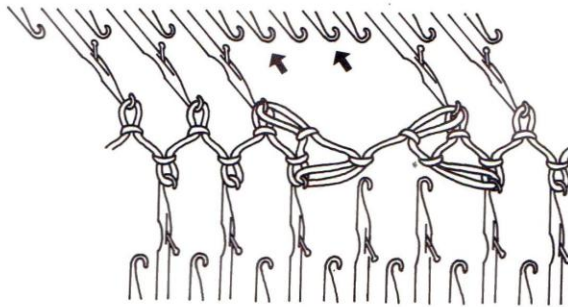
Single stitch eyelet

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



- (2) Leave empty needle in B position.

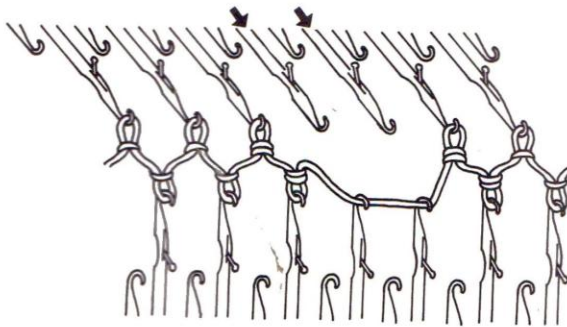
Continue to Knit.



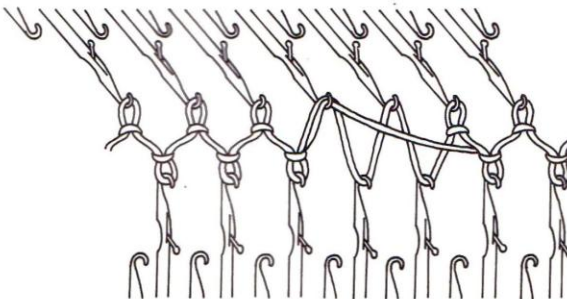
Double stitch eyelet.

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

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



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



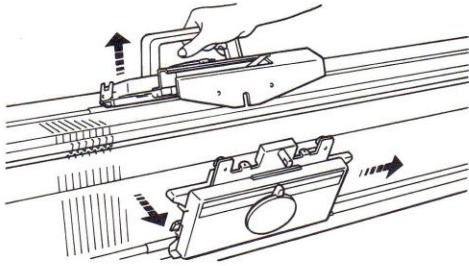
- (4) Knit one row.

- (5) Hook the hanging yarn onto Knitter needle.

Continue to Knit.

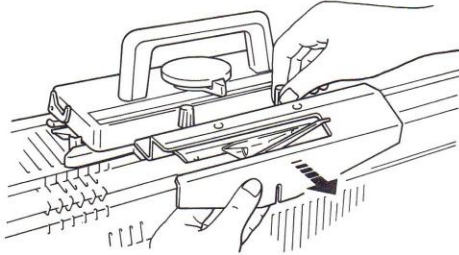
WHAT TO DO IF

A Carriage has jammed.

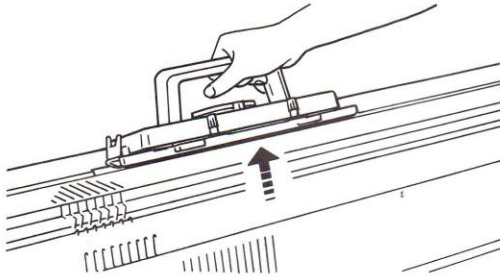


1. Disconnect Ribber Carriage from Arm.
2. Drop down the RC and KC Levers.
3. Tilt Carriage towards you and move it to either end of the Needle Bed.

DO NOT USE FORCE TO MOVE THE CARRIAGE.



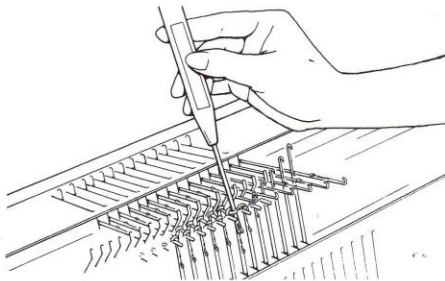
4. Remove the Ribber Arm from the Knitter Carriage.



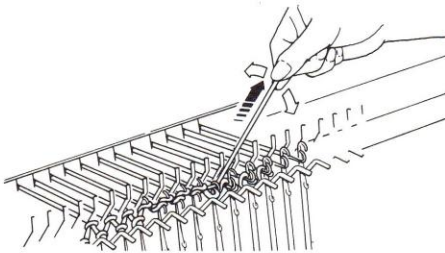
5. Lifting front of Carriage as shown, move it across the needles without knitting - until it has cleared the working needles.

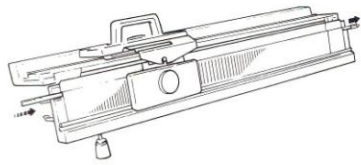
6. Align Knitter and Ribber needles in their original position.

If a stitch has slipped behind a latch of a needle to be aligned, use the transfer tool to put it back into the needle hook - then align needles.



7. Hold yarn and unhook it from the Knitter and Ribber needle hooks, by pulling it in the arrowed directions in a back and forth, zigzagging manner, until the yarn is at the Carriage side of the needle bed.

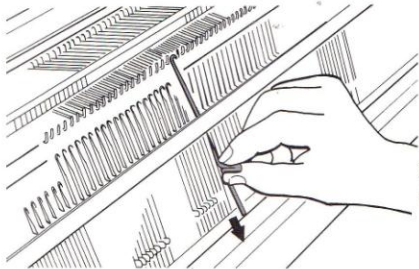




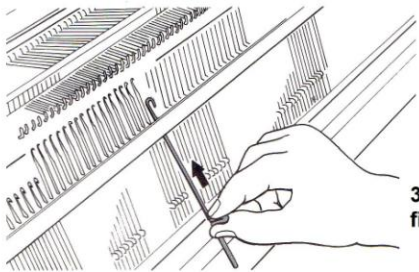
IF A NEEDLE HAS BEEN DAMAGED

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

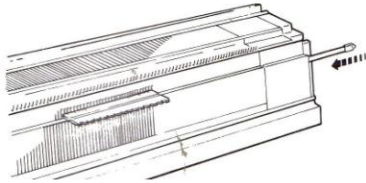
1. Pull Needle Retainer out of the Ribber needle bed.



2. Push damaged needle to D position and with the latch closed, lift it out of the groove by holding the butt.



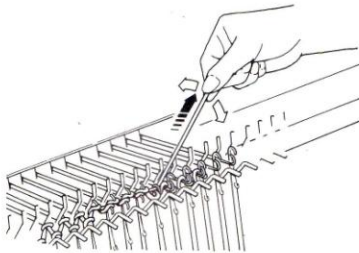
3. To replace the new needle, insert it into the groove (open latch) hook first.



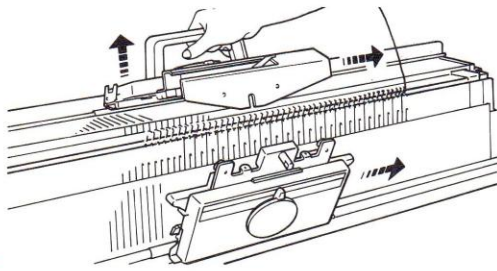
4. Pressing down on the needles with the straight back of the needle pusher, replace Needle Retainer bar.

IF YOU HAVE MADE A MISTAKE IN THE KNITTING ...

1. Unravel the row incorrectly knitted. To unravel stitches, hold the yarn and unhook them from the Knitter and Ribber needles by pulling yarn in the arrowed direction and in a zigzag manner.

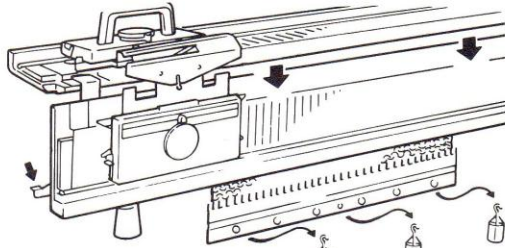


2. Align needles in B position and if Row Counter and Knit Contour are in use - turn their counters back - by the same number of rows you are unravelling.



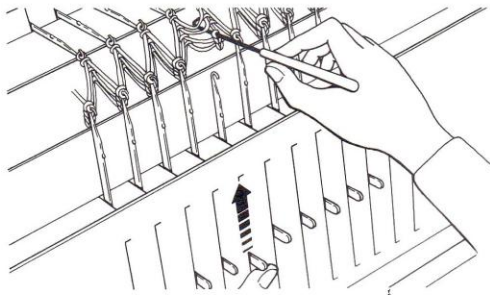
IF YARN COMES TO THE SIDE OPPOSITE CARRIAGE:

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



IF A STITCH HAS DROPPED:

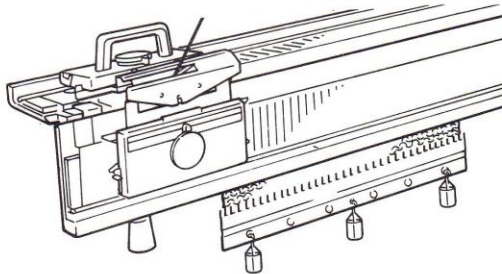
1. Remove weights from cast on combs to prevent the stitch running down any further.



2. Depress drop lever and bring down Ribber to middle position.

3. With hook tool, pick up the dropped stitch and place it back on the needle hook.

Reform the stitch with back & forth movement of the needle - or by hand - using the Latch Tool.



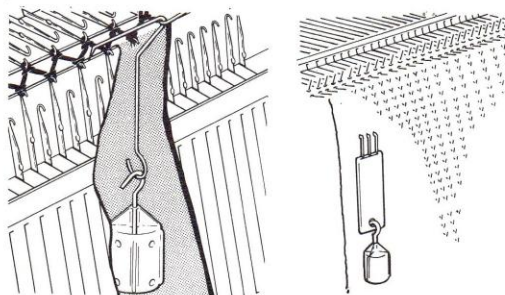
4. Raise Ribber to original position, hook Weights back onto the Cast on Comb and align needles.

IF STITCHES FLOAT:

When edge stitches tend to float, suspend an edge weight and advance it every 10 - 15 rows.

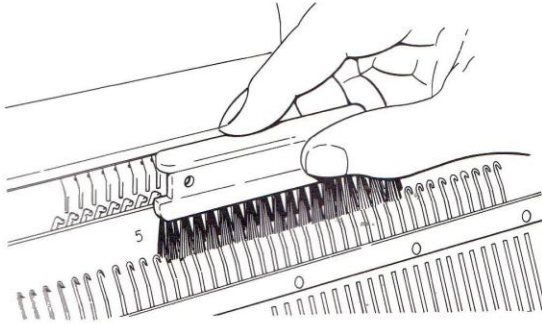
For stitches in between the bed ends, check that the weight comb is hanging straight - horizontally.

Use of the Hanger Comb with Weights is also effective.

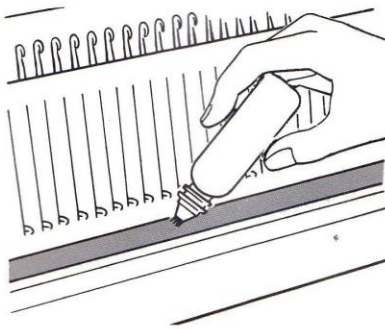


MAINTENANCE

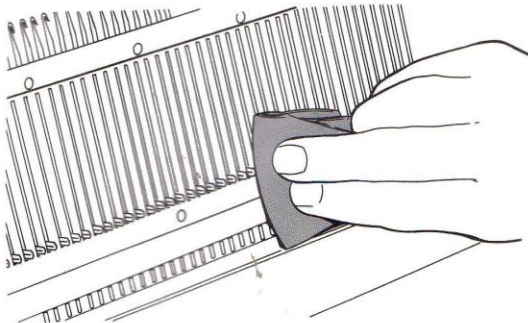
1. With cleaning brush, remove dust or lint from the Needle Bed.



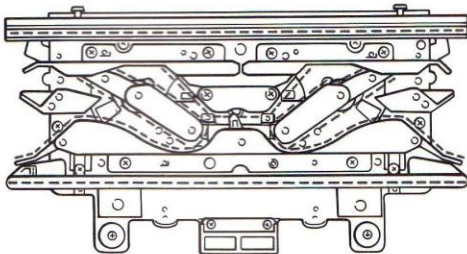
2. Apply lubricant to sliding parts of Needle bed. Do not apply excessive lubricant and rub off any excess with a cloth.



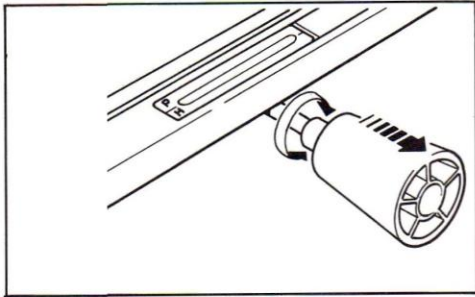
3. Rub latch needle butts with an oiled cloth.



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



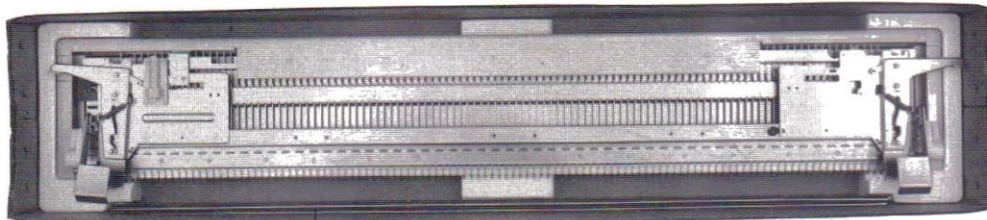
REPACKING THE RIBBER



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

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

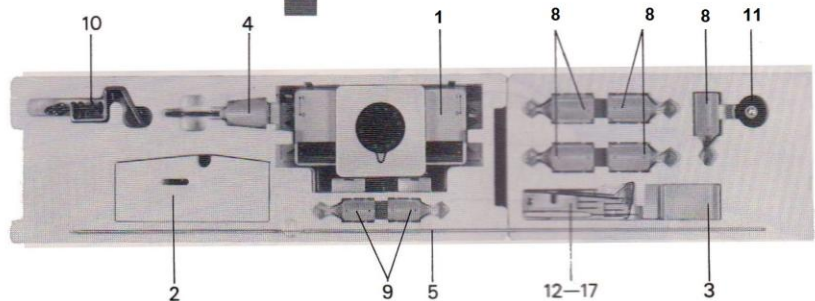
Place the Styrene foam rest at each end of the box and Place the Ribber Bed with its rear side up on those rests, properly.



6-7 Put back the Ribber Carriage, Arm and all accessories into the Styrene container.



Place those containers on the Ribber Needle Bed



- | | |
|---|------------------------------|
| 1. Ribber Carriage | 9. Edge Weight |
| 2. Ribber Arm | 10. Ribber Clamp |
| 3. Needle Aligner | 11. Ribber Tuck Brush |
| 4. Swing Handle | 12. Needle Pusher |
| 5. Close Knit Bar | 13. Side Hanger |
| 6. Cast On Comb Long
Cast On Wire Long | 14. Hanger Comb |
| 7. Cast On Comb Short
Cast On Wire Short | 15. Hook Tool |
| 8. Ribber Weight Large | 16. Double Eye Transfer Tool |
| | 17. 2 Spare Needles in bag |