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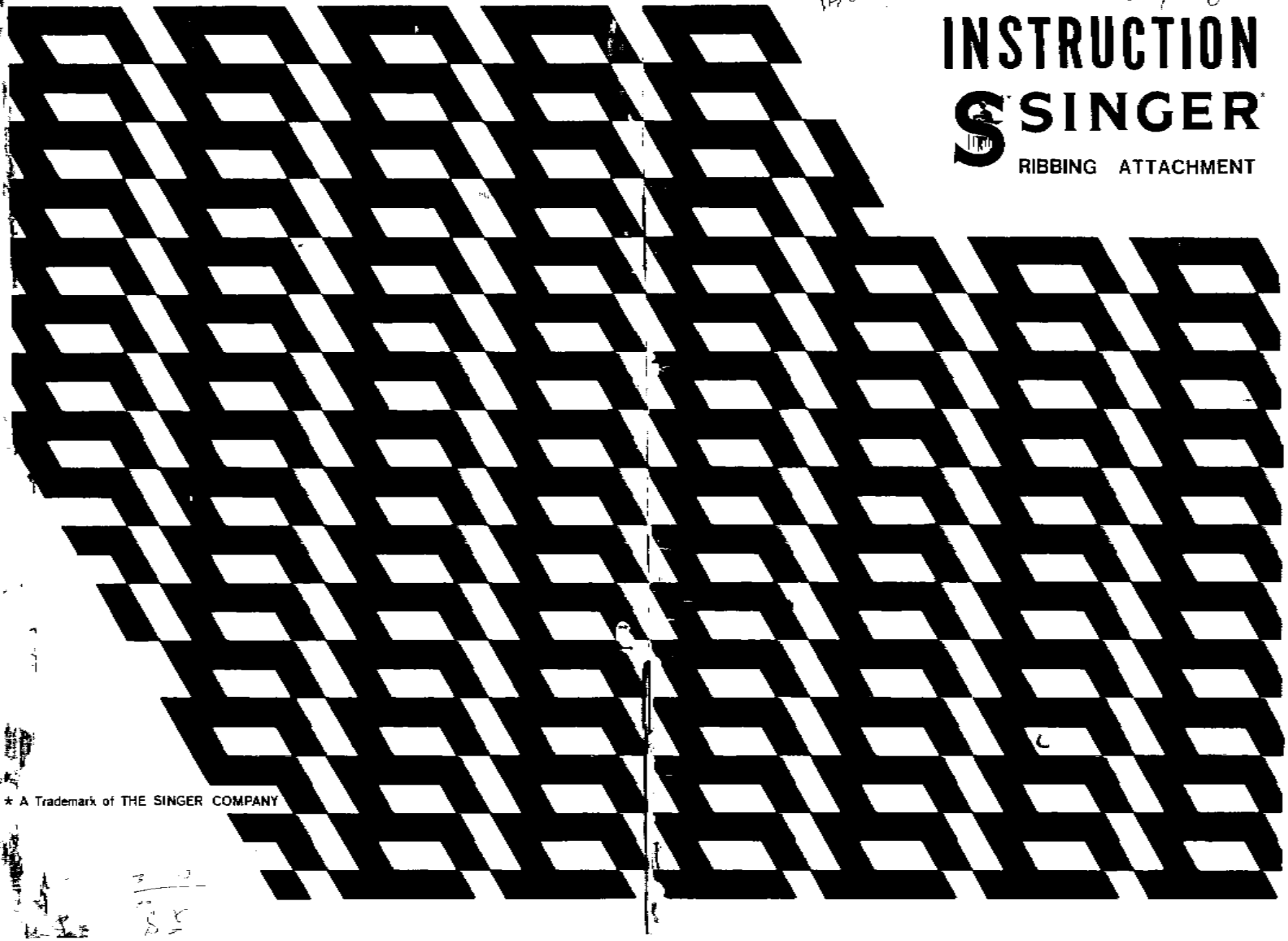
INSTRUCTION

SINGER*

RIBBING ATTACHMENT



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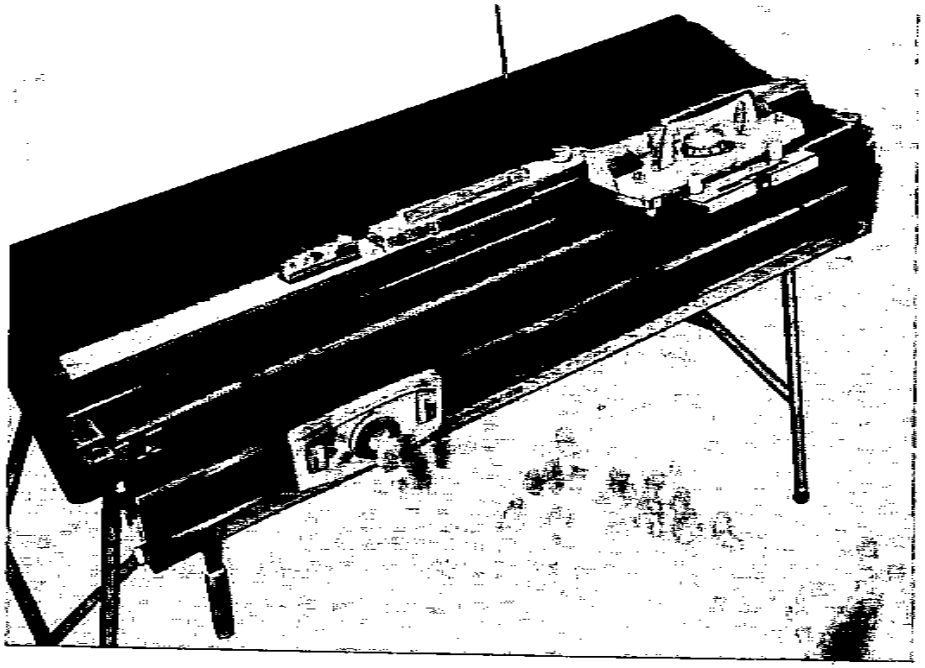
We thank you very much for your buying our SINGER Rib Knitter.

SINGER Rib Knitter is the fruit of our technical staff's painstaking efforts in research and development and we are confident that it will give you full and complete satisfaction. The new set-lever system and the improved swinging device make it easy to make many elaborate patterns such as 1Knit 1Purl rib, couble rib, 2Knit 2Purl rib, and also English rib, pop corn pattern, herring bone swing, pin tuck, variation knitting.

We hope that you will use the highly versatile and dependable SINGER Rib Knitter for many and many years and find a greater delight in your knitting work.



SALIENT FEATURES OF SINGER RIB KNITTER

Operational Features

★ Set levers make it possible to automatically remove the yarn from the latches of the needles simply by moving the carriage so that various elaborate patterns can be knit with great efficiency.

★ Swing scale clearly show the number of rows and the direction of swinging, eliminating the possibility of making an error in the operation of the swing.

★ If the drop levers is pushed down, the rib knitter will be lowered two centimeters so that you can work the main machine without detaching the rib knitter. It is also very convenient when you pick up dropped stitches.

★ The needle positions (A), (B) and (C) are engraved on the needle bed so that it may be very easy to find where the needles are located.

★ Half pitch lever makes pitch setting very easy. The sinker needles will be placed opposite the rib knitter needles simply by setting the half pitch lever to (P) and the sinker needles will be staggered with the rib knitter needles by setting the same lever to (H).

Constructional Features

★ The swing handle has six settings to give a great variety to pattern knitting. The swing scales clearly show the number of swing rows.

★ The sinker needles are made in U-shaped steel wire so that they may be smooth enough to eliminate the possibility of causing damage to the yarn to be knit on the machine.

★ A leaf spring is used for the needle brake. It is very strong and the needles will be held stable no matter how fast you may operate the carriage to knit fabric.

★ A damaged needle can be easily replaced simply by pulling out the needle retainer band without removing the fabric from the knitting machine.

Since the L-shaped arm is provided with a stopper, a constant clearance is maintained between the main machine and rib knitter and it is very easy to install the rib knitter onto the main machine and detach it.

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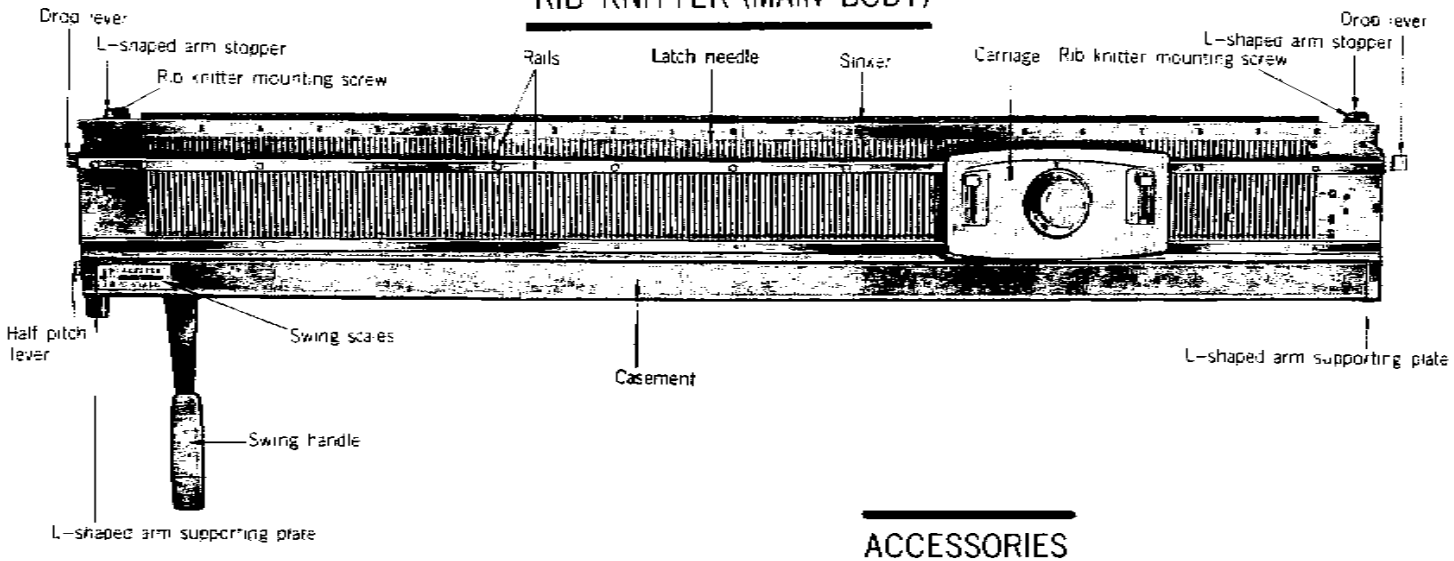
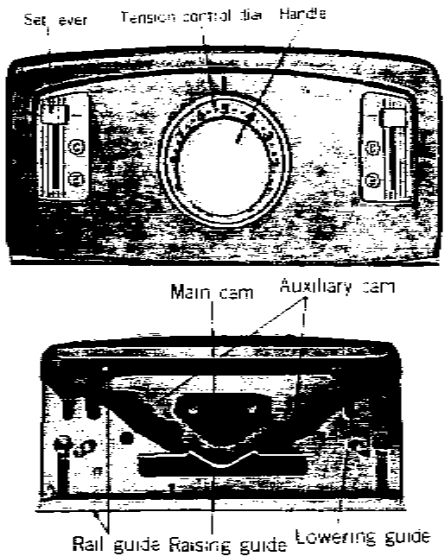
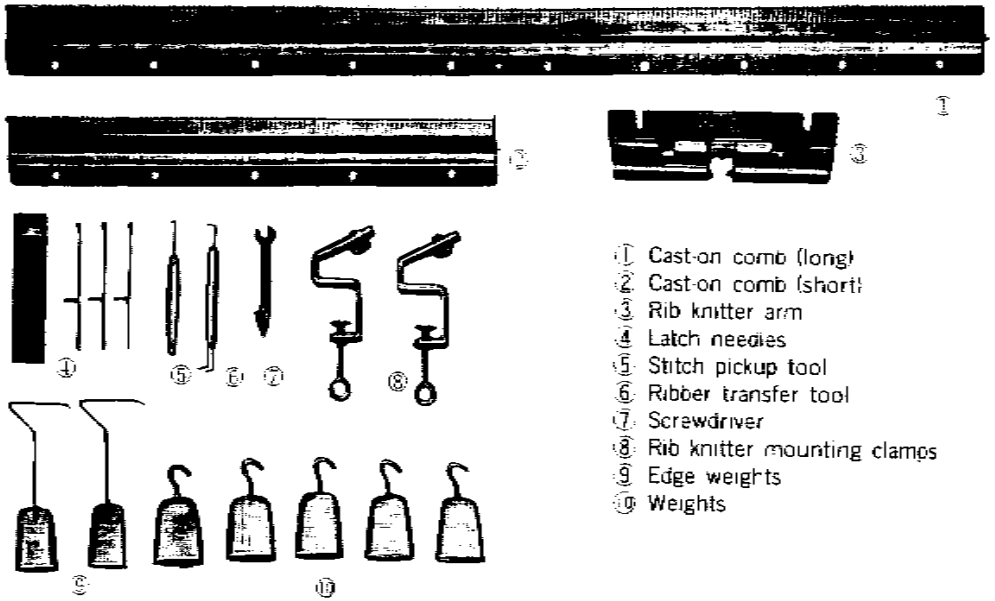
RIB KNITTER (MAIN BODY)



RIB KNITTER CARRIAGE



ACCESSORIES



1. Cast-on comb (long)
2. Cast-on comb (short)
3. Rib knitter arm
4. Latch needles
5. Stitch pickup tool
6. Rubber transfer tool
7. Screwdriver
8. Rib knitter mounting clamps
9. Edge weights
10. Weights

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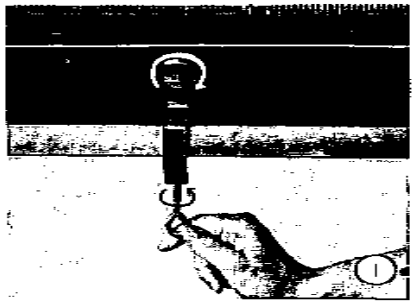
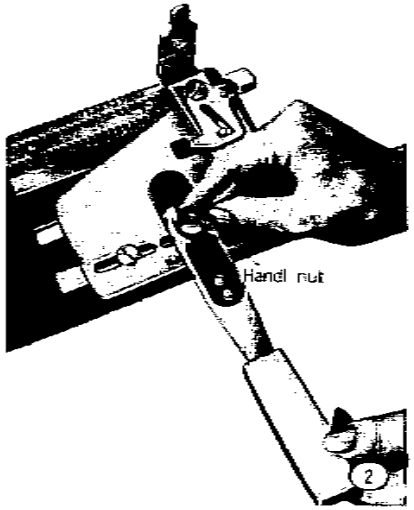
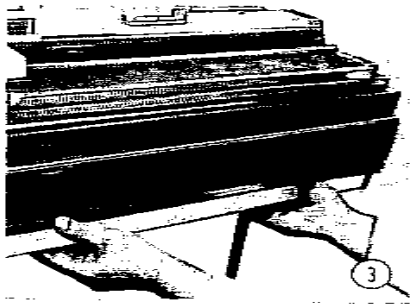
1. SETTING UP



Mount the knitting machine on the table.
Fasten a pair of the accessory clamps on the back of the main machine and hold the machine securely on the table by tightening the screws of the clamps.
(Be sure to use the accessory clamps.) (Phto. 1)



Install the swing handle to the back of the rib knitter.
Remove the swing handle nut, set the handle in place by aligning the hole in the handle with the pin, replace the nut and tighten it firmly. (Phto. 2)



Maunt the rib knitter to the main machine.
Make sure that the carriage is unlocked.
Remove the rib knitter mounting screws and vinyl washers from the L-shaped arms on both sides.
Place both L-arm supporting plates fitted to both ends of the rib knitter on the table and insert the L-arms into the rib knitter slots on the main machine as far as the L-arm stopoers come into contact with the front edge of the needle bed. (Phto. 3)

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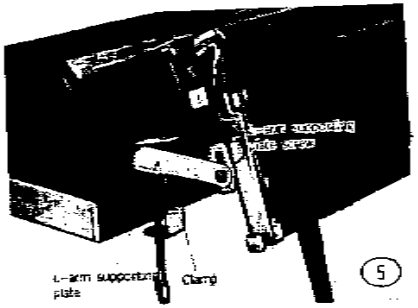
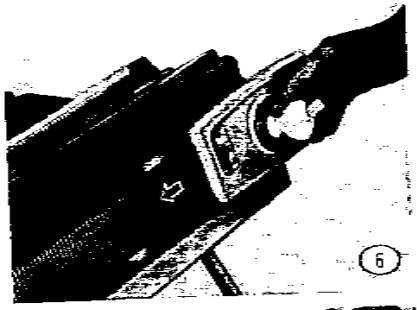
4

Replace the vinyl washers and rib knitter mounting screws and tighten the screws with a screwdriver to securely fasten the rib knitter to the needle bed of the main machine. (Phto.4)



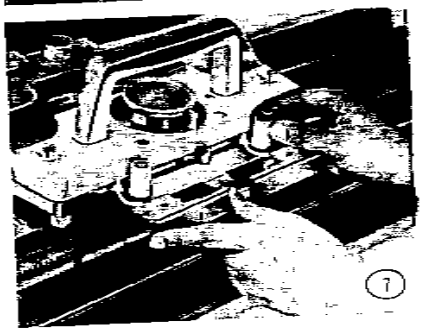
5

Loosen the L-arm supporting plate screw, move the L-arm up and down until it is parallel to the surface of the table and then fix the L-arm to the table with one of the accessory clamp, and finally tighten the screw of the L-arm supporting plate. (Phto.5)



6

Install the hand to the rib knitter carriage.
Mount the rib knitter carriage onto the rib knitter.
Set the carriage so that the rail guides may slide on the rails on the rib knitter. (Phto.6)

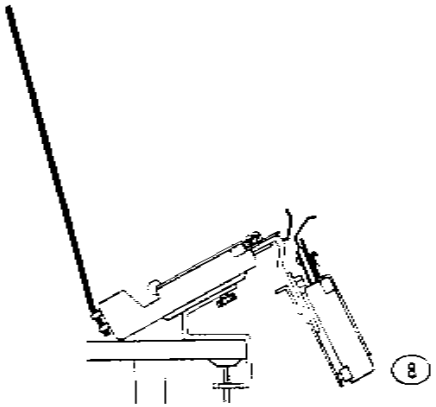


7

Attach the rib knitter arm to the main machine carriage.
Erect the carriage handle and the row counter lever. Loosen the arm nuts and push the rib knitter arm in until it stops and fixed it by tightening the arm nuts. (Phot.7)

Install the yarn pole on the main machine. Attach the auto-tension and the tension guide to the pole.

The yarn arm must be installed at an angle as shown in Fig. 8



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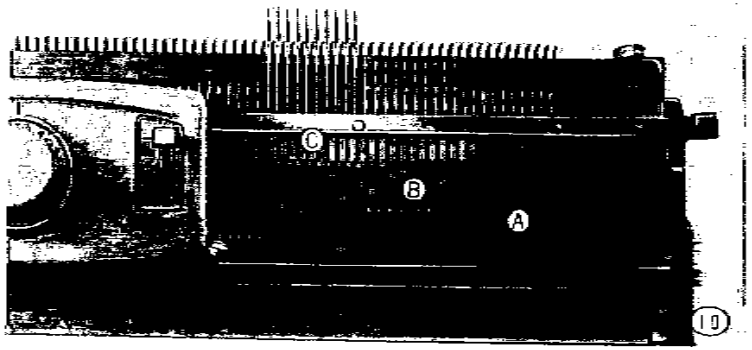
2. BASIC KNOWLEDGE OF RIB KNITTER OPERATION

(1) Position of the rib knitter needle

The rib knitter needles are used at the three positions, A B and C. (Photo. 10)

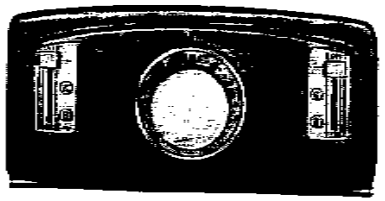


(10)

A. . . Inoperative position
The needles are in their lowest position.
The carriage remains inoperative (no knitting).

B. . . The needle butts are approximately 2cm up from "A" position.
Push up a required number of needles to this position when you start knitting.

C. . The needles butts are approximately 3cm up from "A" position.
When the yarn is caught inside the hook, stitches are made or loose yarn goes behind latches without making stitches.



(11)

(2) Set lever

Both set levers (on the right-hand and left-hands sides) have three positions marked with ▬, C and B. (Phto.11)
The following chart shows how to use these set levers.

(How to use the set levers) (When the carriage is moved from left to right)

Positions of set levers (Left / Right)	Positions of needles: C	Positions of needles: B	Applications
▬ ▬	Knit and come to C position.	Non-knitting, yarn goes behind latches and moved to B position.	1-stitch ribbing, double rib, 2-stitch ribbing, 2-stitch 1-stitch ribbing
C ▬	Knit and come to C position.	Non-knitting, yarn goes behind latches, and move to B position.	
B ▬	Knit and come to B position.	Non-affecting and come to B position.	Bound off cast-on, tubular knitting, pop corn pattern, half tubular knitting, pin tuck, Partial knitting
C B	Non-knitting, yarn goes behind latches, and needles come to C position.	Yarn goes behind latches, and needles come to C position.	
B C	•	Non-affecting and come to B position.	English rib, Swing English rib, Herring bone swing
▬ C	•	Yarn goes behind latches, and needles come to C position.	
B B	•	Non-affecting and come to B position.	Half tubular knitting
▬ B	•	Yarn goes behind latches, and needles come to C position.	Pop corn pattern, Pin tack, Partial knitting
C B	•	Yarn goes behind latches, and needles come to C position.	

(Note) When the carriage is moved from right to left, the positions of the left hand and right hand set levers must be reversed.

(3) Tension Dial (Stich Adjusting Dial)

The tension dial has graduations from 0 to 10. Select a dial setting suitable to the thickness of the yarn used. Use the same tension dial setting on the main machine and the rib knitter.

(Standard dial settings for different sizes of yarns)

Type of yarn \ Type of knitting	1 knit 1 purl	Double	2 knit 2 purl	Circular
Light weight	2	3 – 4	4 – 5	2 – 3
Medium weight	5 – 6	5 – 6	6 – 7	5 – 6
Heavy weight	7 – 8		8	6 – 8

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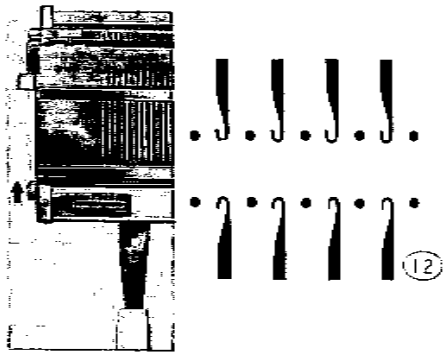
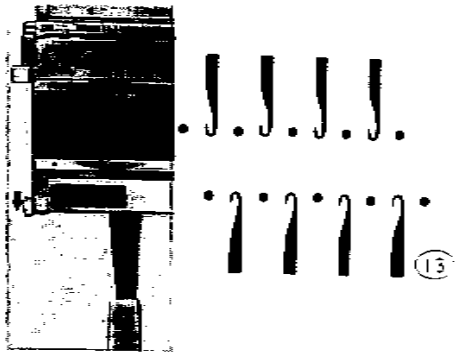
(4) Half pitch lever

This lever is used to set the ribber needles right in front of the main machine needles or to stagger them in between the main machine needles. This lever has two positions, P and H.

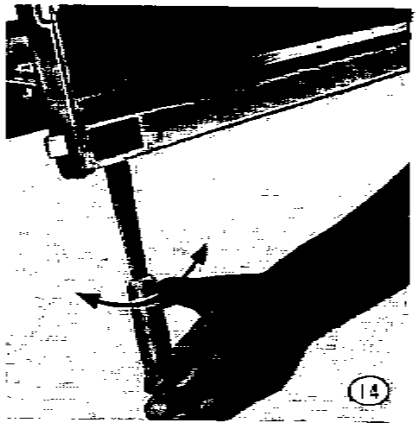


P ..When the ribber needles are to be set right in front of the main machine needles as in the case of 1 Knit 1 Purl knitting, the half pitch lever is raised to P position. (Fig.12) The swing index indicates the numbers in P position (upper row).



H. When the ribber needles are to be set in a position in which they are staggered with the main machine needles, the half pitch lever is lowered to H position. (The rib knitter will shift a half pitch to the right)

The index indicates the numbers in H position (lower row).



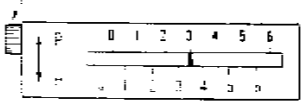
Pitch means the distance between the needles.

(5) Swing handle

The swing handle is used to swing the ribber lengthwise for knitting "swing patterns" such as "herring bone", "web", etc. (Photo.14)

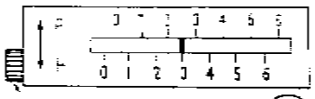
The swing handle can be moved over the range of six graduations from 0 to 6 on the scale. The swing index is usually set to 3 in the center of the scale. When the half pitch lever is set in P position, the index indicates the numbers in P position. (Fig.15)

Half pitche lever



(15)

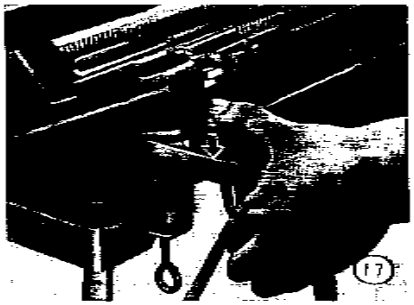
When the half pitch lever is in H position, the swing index indicates the numbers in H position. (Fig.16)



Half pitche lever (16)

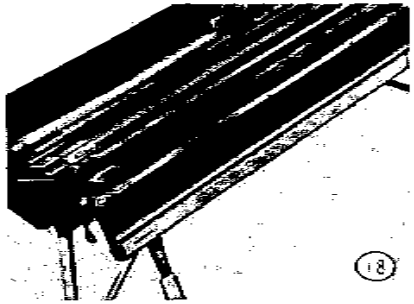
The number indicated by the swing index shows the number of swing rows.

(6) Drop lever



Push down the drop levers located at both ends of the rib knitter and the main body of the rib knitter is lowered about 2 centimeters.

(Photo .17)



The rib knitter is set in this lowered position when the knit fabric is set on the main machine with the rib knitter attached or when only the main machine is operated or when dropped stitches are picked up.

(Photo. 18)

To return the rib knitter to its original position, simply push it up and it will easily click back into its former position.

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3. ACCESSORIES

(1) Cast-on comb

The long comb is used to make stitches up to 200 while the short comb up to 100 stitches. Use either of them according to the number of stitches desired.

(2) Weights

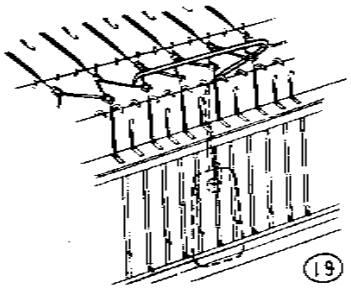
There are five weights provided for use according to the number of stitches to be knitted. The more stitches you knit the more weight are needed. Hang the weights from their holes in the cast-on comb so that it may be well balanced and remain in a horizontal position.

(KThe standard numbers of weights for different numbers of stitches)

Number of stitches	Weights	Edge weights
Up to 40	1	2
40 – 80	2	"
80 – 120	3	"
120 – 160	4	"
160 – 200	5	"

(3) There are two edge weights.

Which are used for weighing down both edges of the knitted fabric by putting the hanger over the yarn alternately caught by the needles of the main machine and the rib knitter. (Fig.19)
As you knit on (20 to 30 rows), advance both edge weights.



(19)

(4) Ribber transfer tool

This tool is used to pick up dropped stitches or to transfer the stitches.

(5) Hook tool

This is to pick up dropped stitches or to transfer stitches.

4. KNITTING INSTRUCTIONS

(1) 1 Knit 1 Purl Knit

This is the most typical form of ribbed stitches. The main machine needles and the rib knitter needles are used alternately. This elastic fabric has knit and pur stitches on alternate rows running on both sides of the fabric. These stitches make a soft and elastic fabric.
Shown in the figure is the ribbing in medium weight yarn.

(1) Bound off cast on.

A. Pitch setting

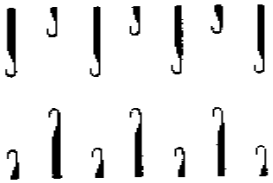
Set the half pitch lever to P.

B. Needle arrangement

(a) Pull out every other needles as many as the desired stitches on the main machine to B position.

(b) On the rib knitter, move every other needles up to B position in a manner in which they will be staggered with the main machine needles that have previously been pulled out.

(Note) Mare sure that both of the end needles on the main machine are pulled out. (Fig. 20)



(20)

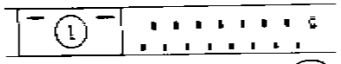
C. Carriage setting

<Rib knitter carriage>

Set lever Right ..... ▬
Left ..... ▬

Tension control dial 1

Move the carriage back and forth two or three times to align the needles and leave it on the left side of the needle bed.
The needles are now aligned in C position with their latches open.
(Fig.21)



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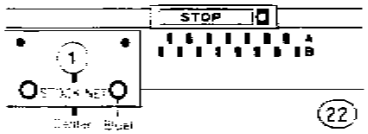
<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Tension control dial	1
Stop lever	● (Stockinet card is used)

Move the carriage back and forth two or three times and leave it on the left side of the needle bed. Now the needles are aligned in B position with their latches open.



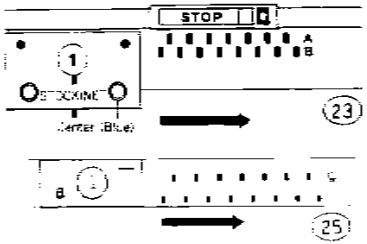
(Fig. 22)

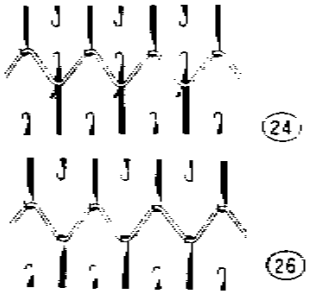
D. Threading

Pass the yarn through the auto-tension and the yarn feeder and let its end go down between the main machine and the rib knitter

(a) Move the main machine's carriage from left to right. (Fig. 23)
(The yarn is hooked zigzag alternately by the main machine and the rib knitter needles.) (Fig. 24)

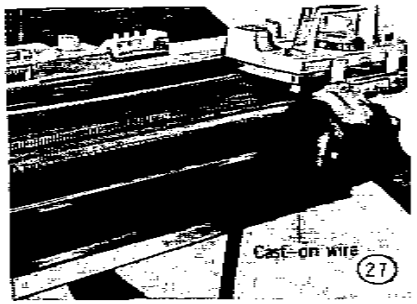
(b) Turn the set lever on the rib knitter carriage to B and move the carriage from left to right. (Fig. 25) (The rib knitter needles with the yarn hooked on move down to B position.) (Fig. 26)





E. Lowering the cast-on comb

Place the cast-on comb behind the rib knitter and move it up between the main machine and the rib knitter sinker hooks.



Pull out the cast-on comb wire until the comb's teeth come out through the yarn that is hooked alternately on the main machine and the rib knitter needles and then replace the wire so that the cast-on comb is hung, by means of the wire, onto the stitches. (Fig. 27)

Make sure that tha cast-on comb remains in a horizontal position when it hangs down from the stitches.

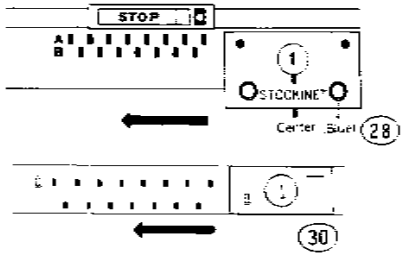
F. Weights

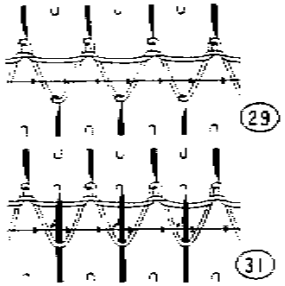
Hang a required number of weights onto the cast-on comb so that it may be balanced in a horizontal position.

G. Bound off casting on

(a) Move the main machine's carriage from right to left. (Fig. 28)
(Only the main machine needles will work.) (Fig. 29)

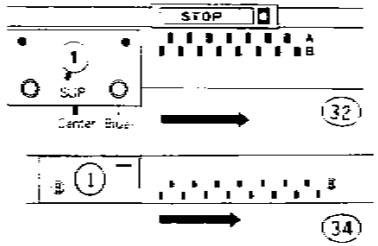
(b) Move the rib knitter carriage from right to left. (Fig. 30)
(The yarn is behind the latches and the needles come to C position.) (Fig. 31)

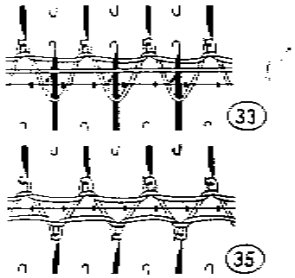




(c) Move the main machine's carriage with its cam lever set at SLIP from left to right. (Fig. 32)
The yarn is threaded over the rib knitter needles. (Fig. 33)

(d) Move the rib knitter carriage from left to right. (Fig. 34)
(The rib knitter needles will knit and come to B position.) (Fig. 35)





(e) Set the cam lever on the main machine's carriage to STOCKINET and move the carriage from right to left. (Fig. 36)
(The main machine needles alone will knit) (Fig. 37)

(f) Move the rib knitter carriage from right to left. (Fig. 38)
(The yarn is behind the latches and the needles go to C position.) (Fig. 39)

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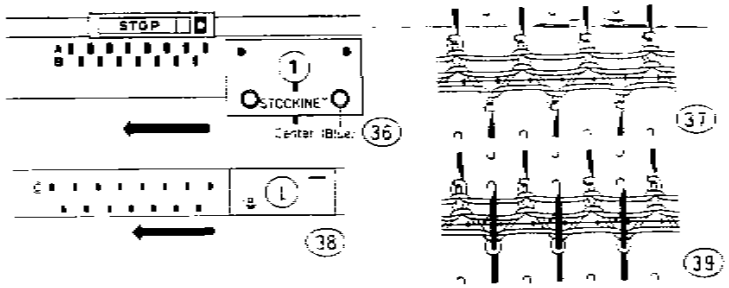
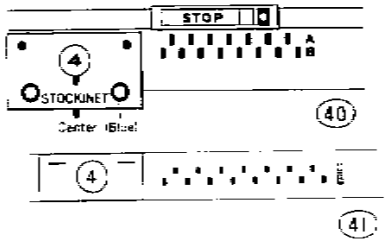


(2) 1 knit 1 purl ribbing



<Mainm achine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Tension control dial	4
Stop lever	● (Stockinet card is used)

<Rib knitter carriage>

Set lever	Right	▬
	Left	▬
Tension control dial		4

(a) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

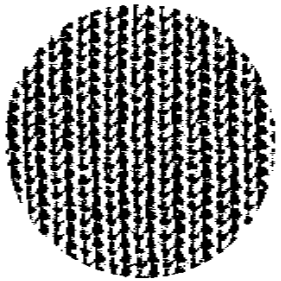
(b) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to C position.)

(c) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needle catch the yarn.)

(d) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

The above operations from (a) to (d) are repeated to knit a continuous length of fabric.

(2) Double rib



This is 1 knit 1 purl rib that is knit with all needles of the main machine and the rib knitter.
Shown here is the ribbing knit in light weight yarn.

(1) Bound off cast on

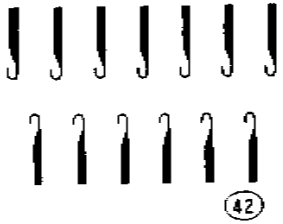
A. Pitch setting

Set the half pitch lever to H.
(The rib knitter needles will be staggered with the needles of the main machine.)

B Needle arrangement

(a) Pull out a required number of the main machine needles to B position with the teethless side of the needle pusher.

(b) Move the rib knitter needles to B position in the same manner. (Fig. 42)
(Note) Both end needles of the main machine should be pulled out.

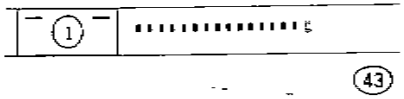


C. Carriage setting

<Rib knitter carriage>

Set lover	Right	▬
	Left	▬
Teusion control dial		I

Move the carriage back and forth two or three times and leave it on the left side of the needle bed. The needles are now aligned in C position with their latches open. (Fig. 43)



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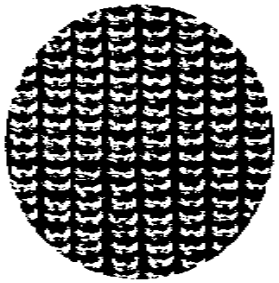
(c) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(d) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

Repeated the above operations from (a) to (d).

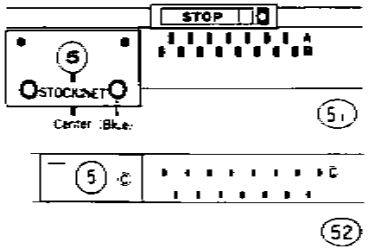
(1) English Rib



This is the 1 knit 1 purl or double rib with one side tucked.

Shown here is 1 knit 1 purl enigsh rib in medium weight yarn. Bound off cast on for 1 knit 1 purl rib is applied. (Refer to page 11)

(When light weight yarn is used, double rib is preferred and therefore bound off cast on for double rib is applied.) (Refer to page 15)



<Main machine>
Cam lever ..... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 5
Stop lever ..... ● (Stockinet card is used)

<Rib knitter carriage>
Set lever Right C
Left ..... ▬
Tension control dial 5

(a) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(b) Move the rib knitter carriage from left to right.
(The yarn is behind the latches and the rib knitter needles come to C position.)

(c) Move the main machine's carriage from right to left.
(Only the main machine needles knit and the rib knitter needles catch the yarn.)

(d) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

Repeated the above operations from (a) to (d).

(2) Swung English Rib

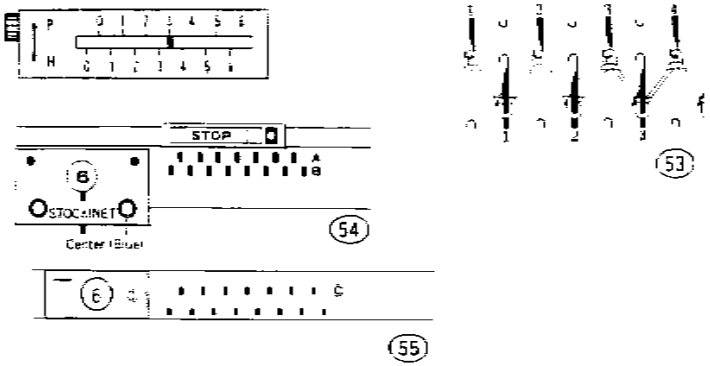
This is a variation of English rib which is worked by a 2 pitch swing in 1 knit 1 purl or a 1 pitch swing in double rib.

Shown here is the Swung English rib of 1 knit 1 purl and 1 knit 1 purl bound off cast on is applied. (Refer to page 11)

(For the Swung English double rib, use light weight yarn.) (Refer to page 15)

Set the swing index to 3 on P scale.

(And the needles of both machines will position as shown in Fig. 53.)



<Main machine>
Cam lever ..... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 6
Stop lever ..... ● (Stockinet card is used)

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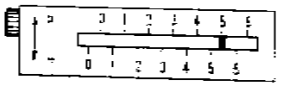
<Rib knitter carriage>

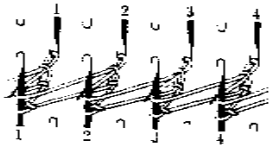
Set lever Right C
Left ..... ▬
Tension control dial 6

(a) Move the main machine's carriage from left to right.
(Only the main machine needles knit and the rib knitter needles catch the yarn.)

(b) Move the rib knitter carriage from left to right.
(The yarn is behind the latches and the rib knitter needles come to C position.)

(c) Swing the rib knitter two pitches to the left, using the swing handle.
(The swing index points at 5 on P scale.) (Fig. 56)





(56)

(d) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(e) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

(f) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(g) Move the rib knitter carriage from left to right.
(The yarn is behind the latches and the rib knitter needles come to C position.)

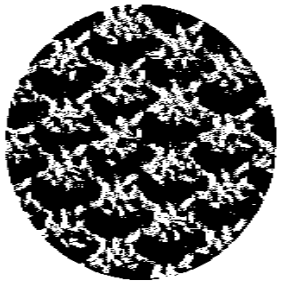
(h) Swing the rib knitter two pitches to the right.
(The swing index points at 3 on P scale.)

(i) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

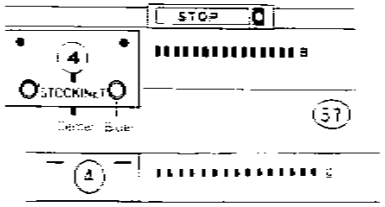
(j) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

Repeated the above operations from (a) to (j).

(3) Pop Corn Pattern



This is a variation of the double rib, which is tucked on the rib knitter for three rows with every other stich staggered and slip tucked. Shown here is a fabric knit in light weight yarn. Bound off cast on for double rib is applied.



(57)

(58)

<Main machine>

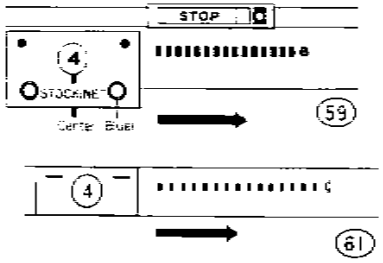
Cam lever ..... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 4
Stop lever ..... ● (Stockinet card is used.)

<Rib knitter carriage>

Set lever Right ..... ▬
Left ..... ▬
Tension control dial 4

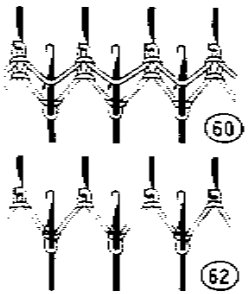
(a) Move the main machine's carriage from left to right. (Fig. 59)
(The main needles knit and the rib knitter needles catch the yarn.) (Fig. 60)

(b) Move the rib knitter carriage from left to right. (Fig. 61)
(The rib knitter needles knit and come to C position.) (Fig. 62)



(59)

(61)



(60)

(62)

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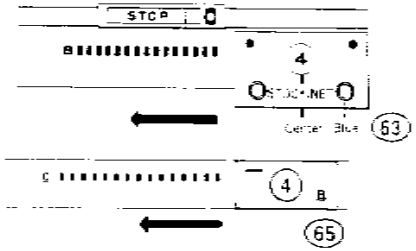
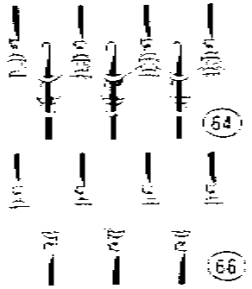
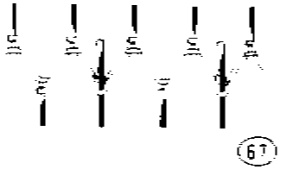
(c) Move the main machine's carriage from right to left. (Fig. 63)
(The main machine needles knit and the rib knitter needles catch the yarn.) (Fig. 64)

(d) Set the right-hand set lever on the rib knitter carriage to B and move the carriage from right to left. (Fig.65)
(The rib knitter needles knit and come to B position.) (Fig. 66)



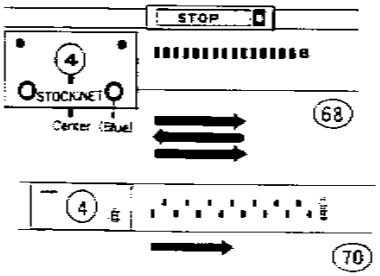


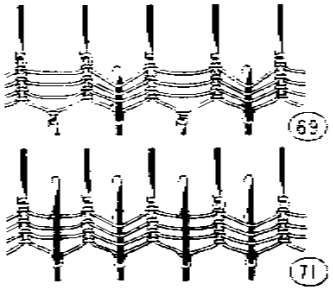
(e) Move up the rib knitter needles, using the needle pusher, to C position, leaving the needle on the left-hand side in B position.
(The rib knitter needles are now positioned alternately in B and C positions.) (Fig. 67)



(f) Move the main machine's carriage back and forth three times. (Fig.68)
(The main machine needles knit three rows and the rib knitter needles in C position catch three strands of yarn.) (Fig. 69)

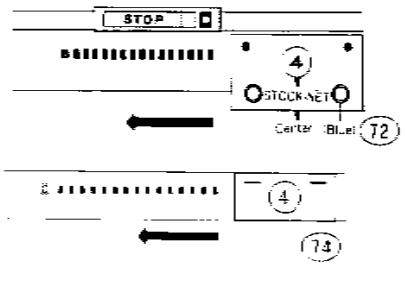
(g) Move the rib knitter carriage from left to right. (Fig. 70)
(The rib knitter needles both in B and C positions come to C with the yarn behind them.) (Fig. 71)

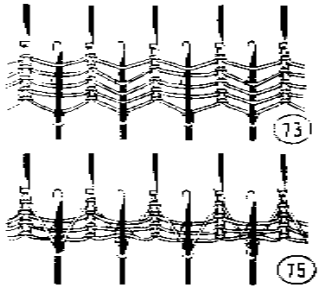




(h) Move the main machine's carriage from right to left. (Fig.72)
(The main machine needles knit and the rib knitter needles catch the yarn.) (Fig. 73)

(i) Set the right-hand set lever on the rib knitter carriage to ▬ and move the carriage from right to left. (Fig. 74)
(The rib knitter needles knit and come to C position.) (Fig. 75)





(j) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(k) Set the left-hand set lever on the rib knitter carriage to B and move the carriage from left to right.
(The rib knitter needles knit and come to B position.)

(l) Move up every other needle on the rib knitter, using the needle pusher, to C position, including the one on the left-hand end.
(These needles are staggered with those previously brought up.)

(m) Move the main machine's carriage back and forth three times, starting from the right.
(The main machine needles knit three rows and the rib knitter needles in C position catch three strands of yarn.)

(n) Move the rib knitter carriage from right to left.
(The rib knitter needles both in B and C positions come to C position with the yarn behind them.)

(o) Move the main machine's carriage from left to right
(The main machine needles knit and the rib knitter needles catch the yarn.)

(p) Set the left-hand set lever on the rib knitter carriage to ▬ and move the carriage from left to right.
(The rib knitter needles knit and come to C position.)

(q) Move the main machine's carriage from right to left
(The main machine needles knit and the rib knitter needles catch the yarn.)

(r) Set the right-hand set lever on the rib knitter carriage to B and move the carriage from right to left.
(The rib knitter needles knit and come to B position.)

Repeated above operations from (a) to (r).

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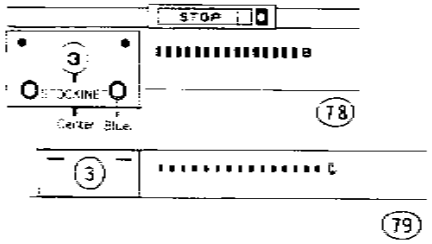
(5) Pin Tuck

This is a variation of double rib. In the course of knitting double rib, knit three or four rows more on the main machine only. The extra row knit on one side give the pin tucked effect. Shwon here is pin tuck in light weight yarn, using the bound off cast on double rib. (Refer to page 15)



<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	●
Tension control dial	3
Stop lever	● (Stockinet card is used)

<Rib knitter carriage>

Set lever Right	▬
Set lever Left	▬
Tension control dial	3

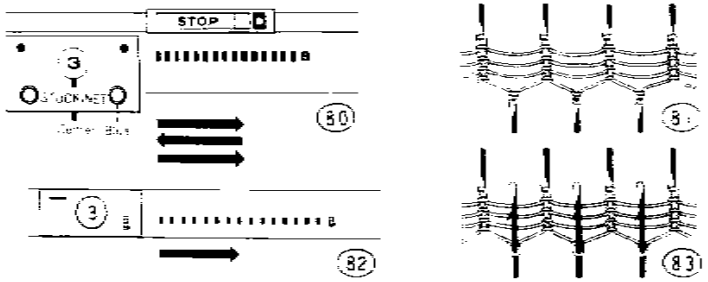
(a) Knit in double rib for a desired number of rows.
(Terminate the last row with both main machine and rib knitter carriages coming to the right-hand side of the needle bed.)

(b) Move the main machine carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(c) Set the right-hand set lever on the rib knitter carriage to B and move the carriage from right to left.
(The rib knitter needles knit and come to B position.)

(d) Move the main machine's carriage back and forth three times, starting from the left. (Fig. 80)
(The main machine needles knit three rows.) (Fig. 81)

(e) Move the rib knitter carriage from left to right. (Fig. 82)
(The rib knitter needles come to C position with the yarn behind the latches.) (Fig. 83)

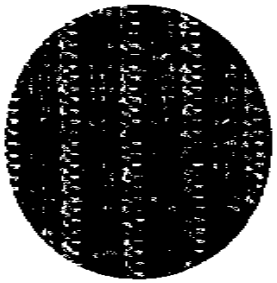


(f) Move the main machine,s carriage from right to left.
(The main machine needls knit and the rib knitter needles catch the yarn.)

(g) Set the right-hand set lever on the rib knitter carriage to ▬ and move the carriage from right to left.
(The rib knitter needles knit and come to C position.)

(h) Repeated the above operations from (a) to (g) to obtain a pick tuck pattern.

(6) 2 knit 2 purl rib



This is a rib with 2 knit and 2 purl alternating stiches. Shwon here is knit in medium weight yarn.

(1) Bound off cast on for 2 knit 2 puvl

A. Pitch setting

Set the half pitch lever to H.
(The main machine needles are staggered with those of the rib knitter by half pitch.)

B. Needle arrangement

(a) *The total number of stiches to be cast on should be a multiple of 4* plus 2.

(b) On the main machine, bring out three-fourths of the required needles (fractions, if any, should be counted as one) to B position by using the flat side of the needle pusher.

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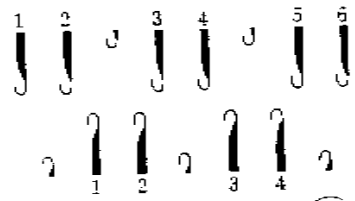
(c) Push back every third needle from the left end back to A position.

(c) On the rib knitter, bring up needles to B position, leaving every third needle in A position. (Fig. 84)



(84)

C. Needle arrangemement

<Rib knitter carriage>

Set lever Right ....
Left ....

Tension control dial 1

Move the carriage back and forth two or three times to align the needles and leave it on the left side of the needle bed.

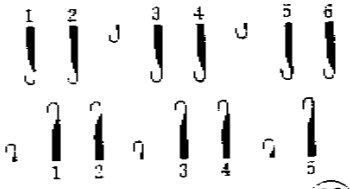
The needles are now aligned in C position with their latches open.

<Main machine>

Cam lever ... ... Stockinet
Russel lever .... Center (Blue)
Side levers .... ● on both sides
Tension control dial .. 1
Stop lever .. .. ● (Stockinet card is used)

Move the main machine's carriage back and forth two or three times to align the needles and leave it on the left side of the needle bed.

The needles are now aligned in B position.



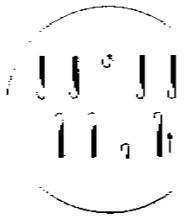
(85)

D. Threading

★ Swing the rib knitter one pitch to the left. (Fig. 85)

★ On the right side of the rib knitter, bring out to C position one more needle second from the one at the right end that has already been pulled out into C position. (Fig. 86)

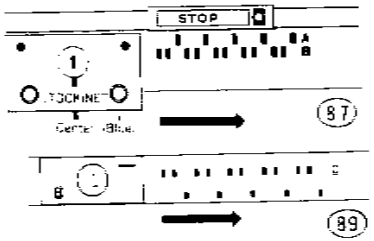
★ Pass the yarn through the auto-tension and yarn feeder and let its end hang down between the main machine and the rib knitter.



(86)

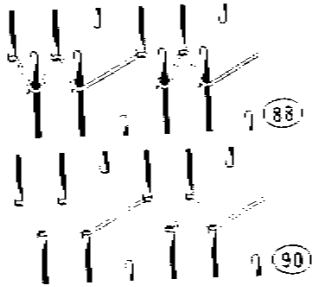
(a) Move the main machine's carriage from left to right. (Fig. 87)
(The yarn is hooked zigzag between the main machine and rib knitter needles.) (Fig. 88)

(b) Set the left-hand set lever on the rib knitter carriage to B and move the carriage from left to right. (Fig. 89)
(The rib knitter needles come down to B position with the yarn caught in their hooks.) (Fig. 90)



(87)

(89)



(88)

(90)

E. Lowering the cast-on comb

Follow the instructions given on page 12.

F. Weights

Hang an appropriate number of weight onto the comb in a manner in which the comb may be balanced in a horizontal position. (Refer to page 10)

G. Bound off casting on

(a) Move the main machine's carriage from right to left.
(Only the main machine needles knit.)

(b) Move the rib knitter carriage from right to left.
(The rib knitter needles come to C position with the yarn behind the latches.)

(c) Set the cam lever on the main machine's carriage to SLIP and move the carriage from left to right.
(The yarn pass over the rib knitter needles.)

(d) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to B position.)

(e) Set the cam lever on the main machine's carriage to STOCKINET and move the carriage from right to left.
(Only the main machine needles knit.)

(f) Move the rib knitter carriage from right to left.
(The rib knitter needles come to C position with the yarn behind the latches.)
Since you had swung the rib knitter one pitch to the left for casting on, now swing it back one pitch to the right.

Transfer the stitch on the right end of the rib knitter to the needle on the right end of the main machine.

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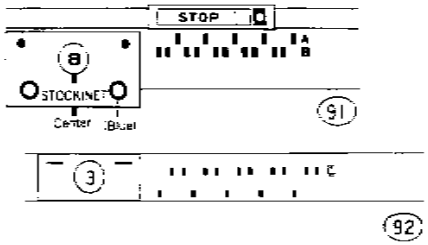
(2) 2 Knit 2 Purl 1 Rib



<Main machine>

Cam lever ..... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 8
Stop lever ..... ● (Stockinet card is used)

<Rib knitter carriage>

Set lever Right ..... ▬
Left ..... ▬
Tension control dial 3

(a) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)
(b) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to C position.)
(c) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)
(d) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

Repeated the above operations from (a) to (d) for knitting a 2 knit 2 purl rib pattern.

★The following is another method of needle arrangement for the knitting of 2 knit 2 purl rib.

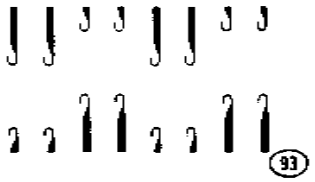
A. Pitch setting

Set the half pitch lever to P as in the case of 1 knit 1 purl rib.

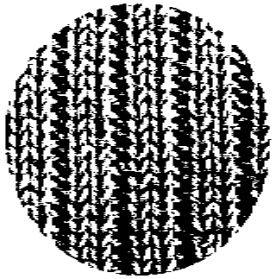
B. Needle arrangement (Fig. 93)

Set the half pitch lever to H and swing the rib knitter one pitch to the left and then apple bound off cast on for 1 knit 1 purl rib.

Set the half pitch lever to P and swing the rib knitter one pitch back to the right and do the knitting in the same manner as 2 knit 2 purl rib.



7) 2 Knit 1 Purl Rib



This is another variation of ribbing with two knit stiches and one purl stitch.
Shown here is knit in medium weight yarn.

(1) Bound off cast on

A. Pitch setting

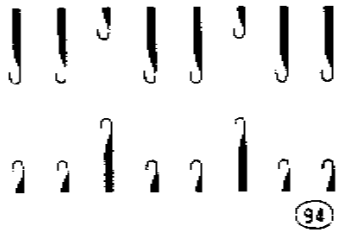
Set the half pitch lever to P
(The main machine and rib knitter needles are staggered with one another.)

B. Needle arrangement

The total number of stiches to be cast on should be a multiple of 3 plus 2.

(a) Bring out a required number of the main machine needles to B position.
Push back every third needle from the left end back to A position.

(b) On the rib knitter, pull out to B position every third needle that is directly opposite to the every third needle pushed back to A psosition on the main machine. (Fig. 94)



C. Carriage setting

<Rib knitter carriage>

Set lever Right ..... ▬
Left ..... ▬
Tension control dial 3

Move the carriage back and forth two or three times to align the needles and leave it on the left side of the needle bed. The needles are now aligned in C position with their latches open.

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<Main machine>

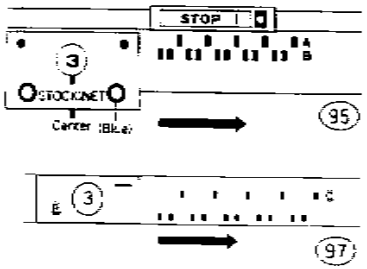
Cam lever ..... Stockinet
Russel lever ..... Center (Blue
Side levers ..... ● on both sides
Tension control dial 3
Stop lever ..... ● (Stockinet card is used)

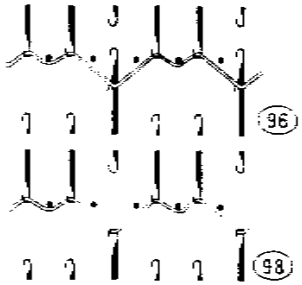
Move the carriage back and forth two or three times to aligned the needles. The needles are now aligned in B position with their latches open.

D. Threading

Pass the yarn through the auto-tension and yarn feeder and let its end hang down between the main machine and the rib knitter.

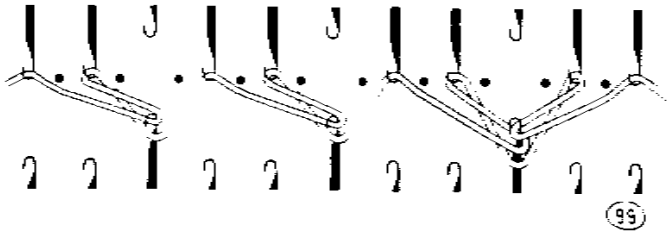
(a) Move the main machine's carriage from left to right. (Fig. 95)
(The yarn is hooked zigzag between the main machine and rib knitter needles.) (Fig. 96)





(b) Set the left-hand set lever on the rib knitter carriage to B and move the carriage from left to right. (Fig. 97)
(The rib knitter needles are lowered to B position with the yarn behind their latches.) (Fig. 98)

(c) Pick up the yarn between the main machine needles and hook it onto the rib knitter needles in B position by using the stich pickup tool. (Fig. 99)



E. Hanging the cast-on comb

Follow the instructions given on page 12.

F. Weights

Hang an approoriate number of weights onto the comb so that it may be balanced in a horizontal position. (Refer to page 10.)

G. Bound off cast on

(a) Move the main machine's carriage from right to left.
(Only the main machine needles knit.)

(b) Move the rib knitter carriage from right to left.
(The rib knitter needles come to C position with the yarn behind their latches.)

(c) Set the cam lever on the main machine's carriage to SLIP and move the carriage from left to right.
(The yarn is passed over the rib knitter needles.)

(d) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to B position.)

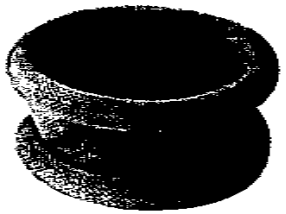
(e) Set the cam lever on the main machine's carriage to STOCKINET and move the carriage from right to left.
(Only the main machine needles knit.)

(f) Move the rib knitter carriage from right to left.
(The rib knitter needles come to C position with the yarn behind their latches.)

(2) 2 knit 2 purl rib

Set the tension control dial to 5 on both main machine and rib knitter and proceed as in the case of knitting 2 knit 2 purl rib.

(8) Tubular Knitting



This is a tubular form of stockinet knitting. Shown here is knit in medium weight yarn.

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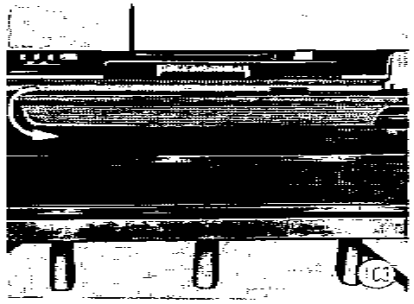
(9) Half Tubular (Double Width) Knitting

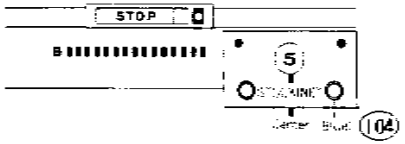
This is a tubular stockinet knitting with one side open to provide a fabric of double width.

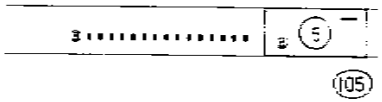


(1) Cast on

Pitch setting, needle arrangement, and threading are done in the same manner as in the case of tubular knitting.

(2) Half tubular knitting





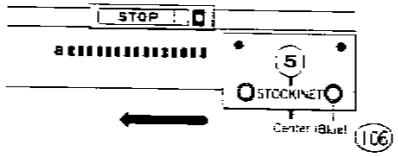
<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Tension control dial	5
Stop lever	● (Stockinetcard is ussd)

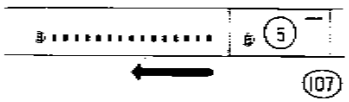
<Rib knitter carriage>

Set lever	Right	▬
	Left	B
Tension control dial		5

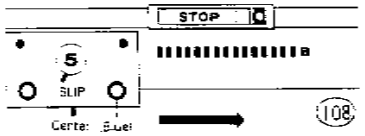
(a) Move the main machine's carriage from right to left. (Fig. 106)
(Only the main machine needles knit)



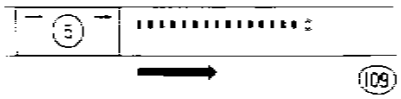
(b) Move the rib knitter carriage from right to left. (Fig. 107)
(The rib knitter needles come to C position with the yarn behind their latches.)



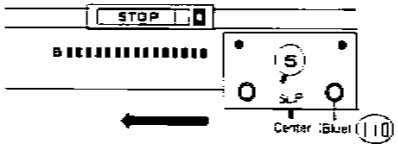
(c) Set the cam lever on the main machine's carriage to SLIP and move the carriage from left to right. (Fig. 108)
(The yarn goes over the rib knitter needles.)



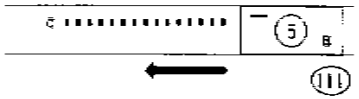
(d) Set the left-hand set lever on the rib knitter carriage to (▬) and move the carriage from left to right. (Fig. 109)
(The rib knitter needles knit and come to C position.)



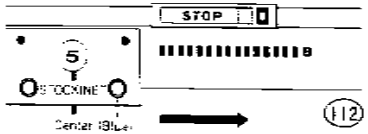
(e) Move the main machine's carriage from right to left (Fig. 110)
(The yarn goes over the rib knitter needles.)



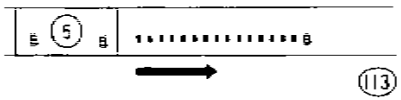
(f) Set the right-hand set lever on the rib knitter carriage to B and move the carriage from right to left. (Fig. 111)
(The rib knitter needles knit and come to B position.)



(g) Set the cam lever on the main machine's carriage to STOCKINET and move the carriage from left to right. (Fig. 112)
(Only the main machine needles knit.)



(h) Set the left-hand set lever on the rib knitter carriage to B and move the carriage to the right. (Fig. 113)
(Set the right-hand set lever to ▬.)



Repeated the above operations from (a) to (h) to make a half tubular knitting.

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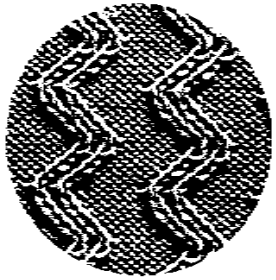
(10) Variation Swing

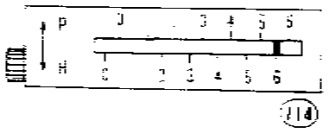


This is one of the many possible patterns that can be knit by swinging the rib knitter.
Shown here is in medium weight yarn.

(1) Cast on

A. Pitch setting

Set the half pitch lever to H.
Swing the rib knitter full to the left. (Fig. 114)



(114)

(The swing index points at 6 on H scale and the main machine needles are staggered with the needles of the rib knitter.)

B. Needle arrangement

(a) Bring out a required number of the main machine needles to B position by using the flat side of the needle pusher.

(b) Bring out to B position the rib knitter needles that are required for the desired pattern. (Fig. 115)

(115)

(Example: 8, 10, 18, 28, 30 needles are pulled out.)

C. Carriage setting

<Rib knitter carriage>
Set lever Right ..... ▬
Left ..... ▬
Tension control dial 5

Move the carriage back and forth two or three time to align the needles and leave it on the left side of the needle bed. The needles are now aligned in C position with their latches open.

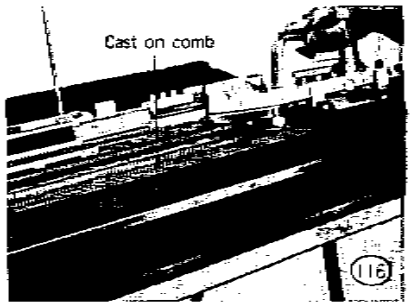
<Main machine>
Cam lever .... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 5
Stop lever ..... ● (Stockinet card is used.)

Move the carriage back and forth two or three times to align the needles and leave it on the left side of the needle bed. The needles are now aligned in B position with their latches open.

D. Threading

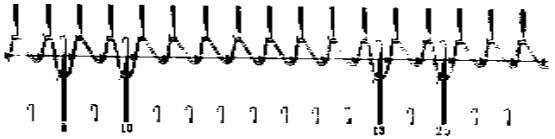
(a) Thread the yarn through the auto-tension and the yarn feeder and let its end hang down between the main machine and the rib knitter.

(b) Hold the cast-on comb in one hand and lift it up in between the main machine and the rib knitter to the height of the main machine sinkers, and move the main machine's carriage from left to right. (Fig. 116)



(116)

(The ravelling cord is hooked on the needles of the main machine and rib knitter, passing through the teeth of the comb.) (Fig. 117)


(117)

(c) Move the rib knitter carriage from left to right.
(The rib knitter needles come to C position with the yarn behind their latches.)

E. Weights

Following instructions given on page 10.
Pull the ravelling cord out of the yarn feeder and thread a medium weight yarn through the feeder.

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(2) Knitting

(a) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(b) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

(c) Swing the rib knitter one pitch to the right.
(The swing index points at 5 on H scale.)

(d) Repeated the above operations from (a) to (c) six times

(e) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(f) Move the rib knitter carriage from right to left
(The rib knitter needles knit and come to C position.)

(g) Swing the rib knitter one pitch to the left.
(The swing index points at 1 on H scale.)

(h) Repated the above operations from (e) to (g) six times.

Repeated all the above operations from (a) to (h)

(Swing the rib knitter alternately 6 pitches to the right and 6 pitches to the left.)

5. PARTIAL KNITTING

Example 1: Partial knitting (decreasing) applied to 1 knit 1 purl rib in medium weight yarn.

The carriages of both main machine and rib knitter are on the right side and there is one row to go before starting partial knitting.

<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Tension control dial	4
Stop lever	● (Stockinet card is used)

<Rib knitter carriage>

Set lever	Right	B
	Left	▬
Tension control dial		4

(a) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

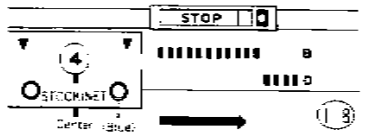
(b) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to B position.)

(Partial knitting)

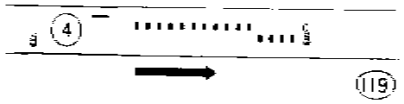
(a) Bring out to D position the first group of the needles on the right side of the main machine to be decreased.

(b) Leave the first group of needles on the right side of the rib knitter in B position and bring out the rest of needles to C position.

(c) Move the main machine's carriage from left to right. (Fig. 118)
(The main machine needles in B position knit and the rib knitter needles in C position catch the yarn.)

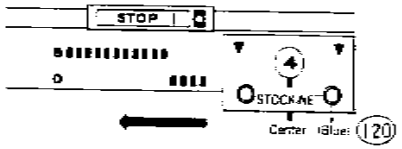


(d) Set the right-hand set lever on the rib knitter carriage to ▬ and the left-hand set lever to B and move the carriage from left to right. (Fig. 119)



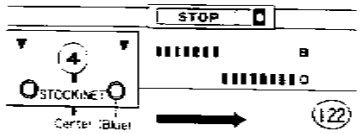
(e) Bring all the working needles out again to C position with the resting needles remaining in B position.

(f) On the main machine, pass the yarn around the innermost resting needles and move the main machine's carriage fromright to left.. (Fig. 120)

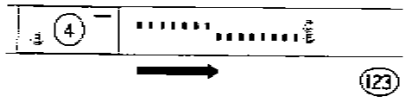


(g) Set the left-hand set lever on the rib knitter carriage to ▬ and the right-hand set lever to B and move the carriage from right to left. (Fig. 121)
(The rib knitter needles in C position knit and come to B position.)

One partial knitting (two short rows) is now comoleted.



Repeated the above operations for desired stitches and rows. On the main machine, place the resting needles in D position and on the rib knitter place the working needles in C position while the resting needles remaining in B position. (Fig. 112, 123)



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NOTE: For partial knitting (increasing), first place resting needles of the main machine in D position and push back to C position each group of needles as you proceed. On the rib knitter, repeat placing working needles in C position each time.

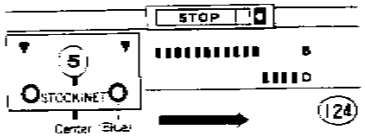
Example 2: Partial knitting decreasing applied to english rib

<Main machine>	
Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	▼ on both sides
Tension control dial	5
Stop lever	● (Stockinet card is used)
<Rib knitter carriage>	
Set lever Right	B
Set lever Left	B
Tension control dial	5

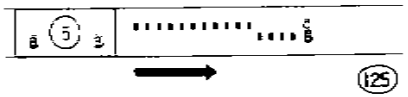
Place the group of the main machine needles to be decreased in D position and the grou of the rib knitter needles to be decreased in B position, and operate the carriages in the same manner as 1 knit 1 purl rib knitting, referring to Fig. 124, 125, 126 and 127.

This method can be apllied to swing English rib, herring bone swing and so forth.

NOTE: For partial knitting increasing, knit in the same manner as partial knitting increasing with 1 knit 1 purl rib, pushing back the group of needles to be increased in D position back to C position. (Refer to Fig. 124, 125 and 127)

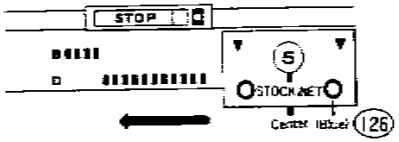


(124)

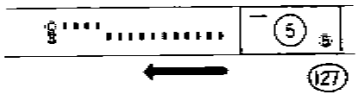


(125)

(Ribben needles in C position have loops behind latches and ribber needles in B position remain inactive.)



(126)



(127)

(Ribber needles in C position knit and come to B position.)

Example 3: Partial knitting decreasing applied to variation swing.

(a) It is necessary to reset the main machine and rib knitter carriages which have been set for variation swing.

(b) Transfer the loops on the rib knitter needles to be decreased to the main machine needles to be decreased. Push the vacated needles back to A position. (Fig. 128)

(128)

(c) Bring the resting needles of the main machine to D position and knit on.

(d) Pass the yarn under the first resting needles in D position on the main machine needle bed and knit another row

(e) Repeated the above operations from (a) to (d)

NOTE: This method of transferring the loops on the resting needles of the rib knitter to the resting needles of the main machine and bringing out those resting needles to D position is the same with as the method for partial knitting only on the main machine needle bed, and can be applied to any pattern knitting.

NOTE: Partial knitting increasing.
Knit in the same manner as 1 knit 1 purl rib knitting, transferring the group of loops to be increased, which have been resting on the main machine needles, to the needles of the rib knitter.

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6. INCREASING STICHES

★Increasing one stitch at the edge of the fabric.

Method No. 1

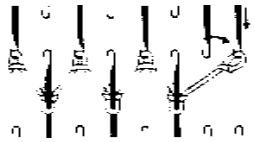
Bring out to C position one resting needle at the end on the side where the carriage is placed (Fig. 129) and knit on.

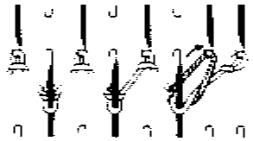
Method No. 2

Transfer the stitch at the edge to the next resting needle. (Fig. 130)

Pick the next back loop and hook it onto the vacated needle. (Fig. 131)

(129)


(130)


(131)

7. DECREASING STITCHES

★Decreasng one stitch at the edge of the fabric.

Method No 1

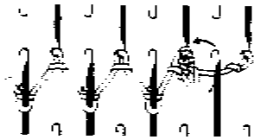
Transfer the edge stitch to the next inside needle (from the main machine to the rib knitter or vice versa). Push the vacated needle back to A position. (Fig. 132)

Methed No. 2

Transfer the second stitch from the edge to the third needle. (Fig. 133)

Transfer the edge stitch to the second needle and push the vacated edge needle back to A position. (Fig. 134)

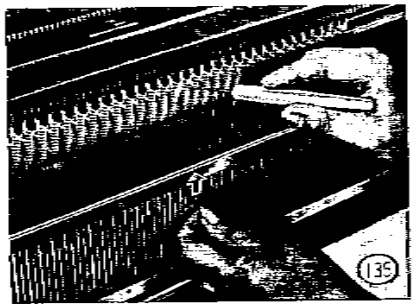
(132)


(133)

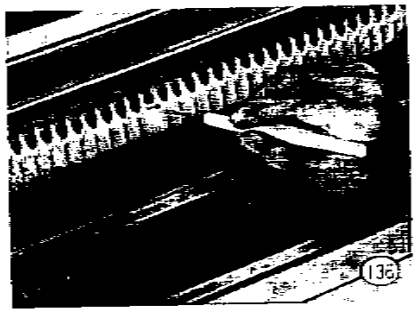
(134)

8. HELPFUL HINTS

1. How to pick up dropped stitches


(135)

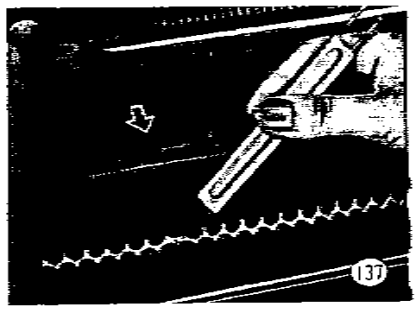
Remove the weight from the cast-on comb to prevent the dropping of further stitches by the downward pulling force of the weight.
Using a needle pusher, bring up the ribber needles to their highest position. Then, press down the drop lever gently to lower the ribber.
Pick up the dropped stitch with the stitch pick up tool and hook it back onto the needle. (Fig 135)


(136)

When a stitch is dropped several rows down, pick up the stitch with the tappet and crochet up before putting it back onto the needle. (Fig. 136)

2. How to use the ribber transfer tool

<For converting 1 Knit 1 Purl rib to stockinet knitting>


(137)

(a) Bring out every other resting needle on the main machine to B position and open their latches.

(b) Transfer stitches on the rib knitter to the resting needles on the main machine. (Fig. 137)

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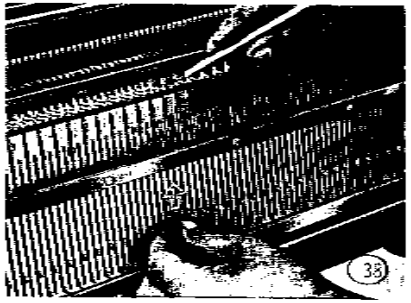
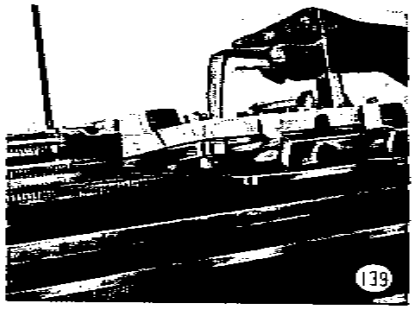




<For converting stockinet to 1 knit 1 purl rib>

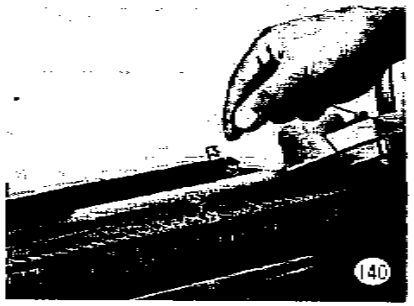
Transfer the stitches from the main machine needles to the rib knitter needles in the same manner as in the previous case. (Fig. 138)

<For knitting only on the main machine fitted with the rib knitter>

Transfer the stitches on the rib knitter needles to the resting needles on the main machine by using the ribber transfer tool. Pushd own on the drop lever to lower the rib knitter. Replace the rib knitter arm fixed to the main machine's carriage with the arm for the main machine and thread the yarn through the yarn feeder, and knit on. (Fig. 139)

3. When the rib knitter is jammed while knitting

Avoid using force to move the carriage when it is jammed while knitting or when an error is made in casting on. In such case, set the right-hand and left-hand set levers on the carriage to B position and puch the carriage backward gently. If the carriage still refuse to move, push it forward two or three millimeters and push it backward.



4. How to unravel the knit fabric on the machine

place the rib knitter needlee in B position.

Move the yarn up and down while pulling it so that it may come off the hooks of the needles of the main machine and the rib knitter alternately and the next stitches may slide into the hooks of needles. (Fig. 140)

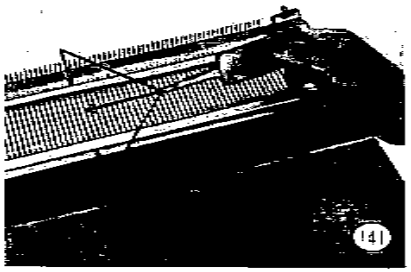
5. How to remove the fabric from the machine

Do 5 or 6 rows of waste knittings with a different yarn and remove the weights from the cast-on comb and the knitting yarn from the feeder and move the main machine carriage across the fabric. Now the fabric can be readily removed from the machine.

9. MAINTENANCE

1. Lubrication

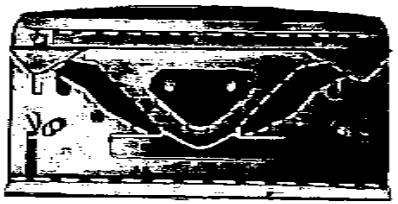
Be sure that the rib knitter is lubricated properly before after it s used as in the case of the main machine



The same oil as that used for the main machine is used for the rib knitter. It should be applied to the following points.

(a) Rails

The depressed surfaces on the outsides of the two parallel rails (where the carriage fit on and side back and forth) (Fig.141)



(b) The slits on the needle bed.

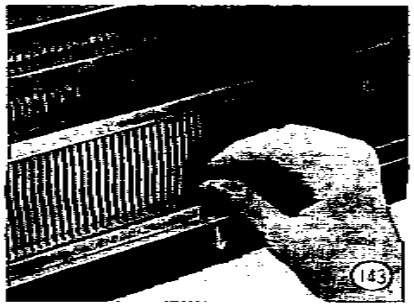
(c) The backside of carriage.

Apply oil particularly to the parts indicated by dotted lines. (Fig. 143)

2. How to Replace the Needles

Replace a damaged needle with one of the spare needles.

It can be changed without removing the fabric from the machine.



Pull out the needle retainer band and remove the damaged needle in the same manner as in the case of the main machine. (Fig. 144)

Insert a new needle, the hook first, holding the butte in thumb and forefinger.

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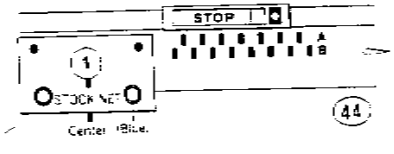
<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Tension control dial	1
Stop lever	● (Stockinet card is used)

Move the carriage back and forth two or three times and leave it on the left side of the needle bed. The needles are now aligned in (B) position with their latches open. (Fig. 44)

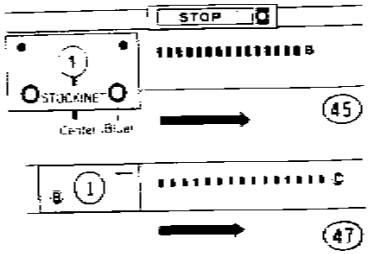


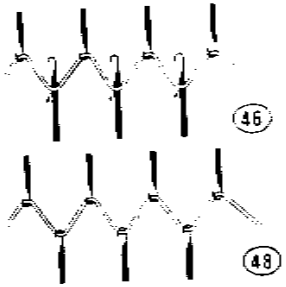
D. Threading

Pass the yarn through the auto-tension and the yarn feeder and let its end hang down between the main machines and the rib knitter.

(a) Move the main machine's carriage from left to right. (Fig. 45)
(The yarn is hooked alternately onto the needles of the main machine and the rib knitter.) (Fig. 46)

(b) Turn the set lever on the rib knitter carriage to B and move the carriage from left to right. (Fig. 47)
(The rib knitter needles with the yarn hooked up are lowered to B position.) (Fig. 48)





E. Hanging the cast-on comb

Follow the instructions given on page 12.

F. Weights

Hang a required number of weights onto the comb so that it may be balanced in a horizontal position. (Refer to page 10)

G. Boundoff cast on

(a) Move the main machine's carriage from right to left.
(Only the main machine needles will knit.)

(b) Move the rib knitter carriage from right to left.
(The yarn is behind the latches and the needles come to C position.)

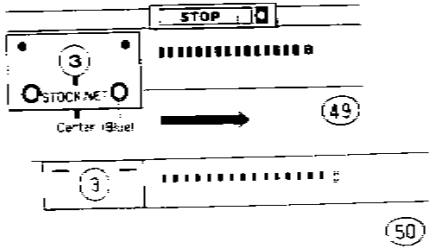
(c) Set the cam lever on the main machine's carriage to SLIP and move the carriage from left to right.
(The yarn is threaded over the rib knitter needles.)

(d) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to B position.)

(e) Set the cam lever on the main machine's carriage to STOCKINET and move the carriage right to left.
(Only the main machine needles will knit.)

(f) Move the rib knitter carriage from right to left.
(The yarn is behind the latches and the needles come to C position.)

(2) Double ribbing



<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Tension control dial	3
Stop lever	● (Stockinet card is used)

<Rib knitter carriage>

Set lever	Right	▬
	Left	▬
Tension control dial		3

(a) Move the main machine carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(b) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to C position.)

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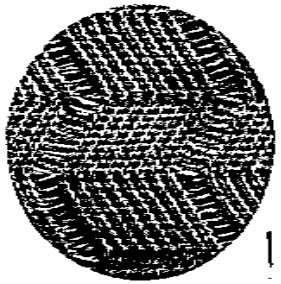
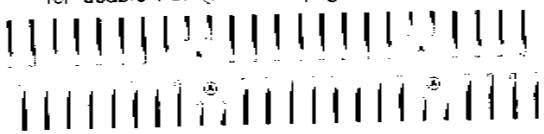
(4) Herring Bone Swing

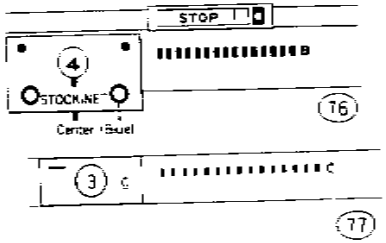


This is a combination of tucking and swing. Swing the rib knitter two pitches for 1 knit 1 purl rib and one pitch for double rib and tuck one row on the rib knitter before swinging it back. Repeat the swinging back and forth for a desired number of rows, then change the direction of swing. Shown here is a herring bone in light weight yarn, a variation of double rib, bound off cast for double rib. (Refer to page 15)



(Needle Arrangement)

Referring to the above diagram, transfer stitches on the main machine and rib knitter to the next needles, and push the empty needles back to A and A positions, respectively.



<Main machine>

Cam lever	Stockinet
Russel lever	Center (Blue)
Side levers	● on both sides
Stop lever	● (Stockinet card is used)

<Rib knitter carriage>

Set lever	Right	C
	Left	▬
Tension control dial		3

(a) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(b) Move the rib knitter carriage from left to right.
(The yarn is behind the latches and the needles come to C position.)

(c) Swing the rib knitter one pitch to the left.
(The swing index points at 4 on H scale.)

(d) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(e) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

(f) Swing the rib knitter one pitch back to the right.
(The swing index points at 3 on H scale.)

(g) Repeated the above operations from (a) to (f) nine times.

(h) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(i) Move the rib knitter carriage from left to right.
(The yarn is behind the latches and the needles come to C position.)

(j) Swing the rib knitter one pitch to the left.
(The swing index points at 4 on H scale.)

(k) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(l) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

NOTE: From here the direction of the swing is changed.

(m) Move the main machine carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(n) Move the rib knitter carriage from left to right.
(The rib knitter needles come to C position with the yarn behind the latches.)

(o) Swing the rib knitter one pitch to the right.
(The swing index points at 3 on H scale.)

(p) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(q) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

(r) Swing the rib knitter one pitch back to the left.
(The swing index points at 4 on H scale.)

(s) Repeat the the above operations from (m) to (r) nine times.

(t) Move the main machine's carriage from left to right.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(u) Move the rib knitter carriage from left to right.
(The rib knitter needles come to C position with the yarn behind the latches.)

(v) Swing the rib knitter one pitch to the right
(The swing index points at 3 on H scale.)

(w) Move the main machine's carriage from right to left.
(The main machine needles knit and the rib knitter needles catch the yarn.)

(x) Move the rib knitter carriage from right to left.
(The rib knitter needles knit and come to C position.)

NOTE: Here, the direction of the swing changes again.

Repeat all the operations from (a) to (x) for knitting a herring bones swing pattern.

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[1] Cast on

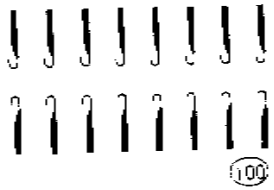
A. Pitch setting

Set the half pitch lever to P.

B. Needle arrangement

(a) Bring out a required number of main machine needles to B position by using the flat side of the needle pusher.

(b) Bring out an equal number of needles on the rib knitter, too. (Fig.100)



100

C. Carriage setting

Set the half pitch lever to H.

<Rib knitter carriage>

Set lever Right ..... ▬
Left ..... ▬

Tension control dial 1

Move the rib knitter carriage back and forth two or three times to align the needles, and leave it on the left side of the needle bed. The needles are now aligned in C position with their latches open.

<Main machine>

Cam lever ..... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 1
Stop lever ..... ● (Stockinet card is used)

Move the carriage back and forth two or three times to align the needles and leave it on the left side of the needle bed. The needles are now aligned in B position with their latches open.

D. Threading

(The main machine needles are staggered half pitch with the rib knitter needles.)

(a) Thread the ravelling cord through the yarn feeder and move the main machine's carriage from left to right.
(The ravelling cord is hooked zigzag between the needles of the main machine and the rib knitter.)

(b) Set the left-hand set lever on the rib knitter carriage to B and move the carriage from left to right.
(The rib knitter needles come to B position with the ravelling cord caught in their hooks.)

E. Hanging the cast-on comb

Follow the instructions given on page 12.

F. Weights

Follow the instructions given on page 10

Set the half pitch lever to P.

Replace the ravelling cord with a medium weight yarn threaded through the yarn fedder

[2] Tubular knitting

<Main machine>

Cam lever ..... Stockinet
Russel lever ..... Center (Blue)
Side levers ..... ● on both sides
Tension control dial 5
Stop lever ..... ● (Stockinet card is used)

<Rib knitter carriage>

Set lever Right ..... ▬
Left ..... B

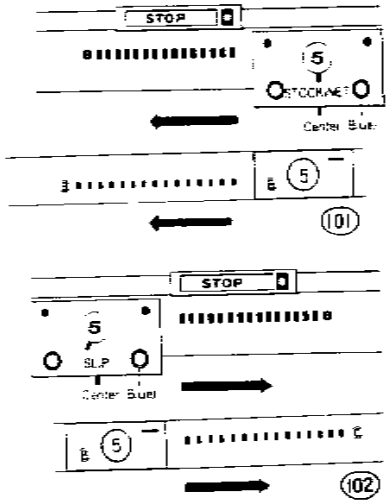
Tension control dial 5

(a) Move the main machine's carriage from right to left. (Fig. 101)
(Only the main machine needles knit.)

(b) Move the rib knitter carriage from right to left.
(The rib knitter needles come to C position with the yarn behind their latches.)

(c) Set the cam lever on the main machine's carriage to SLIP and move the carriage from left to right. (Fig. 102)
(The yarn go over the rib knitter needles.)

(d) Move the rib knitter carriage from left to right.
(The rib knitter needles knit and come to B position.)



Repeated the above operations from (a) to (d) to make a tubular form of knitting.

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