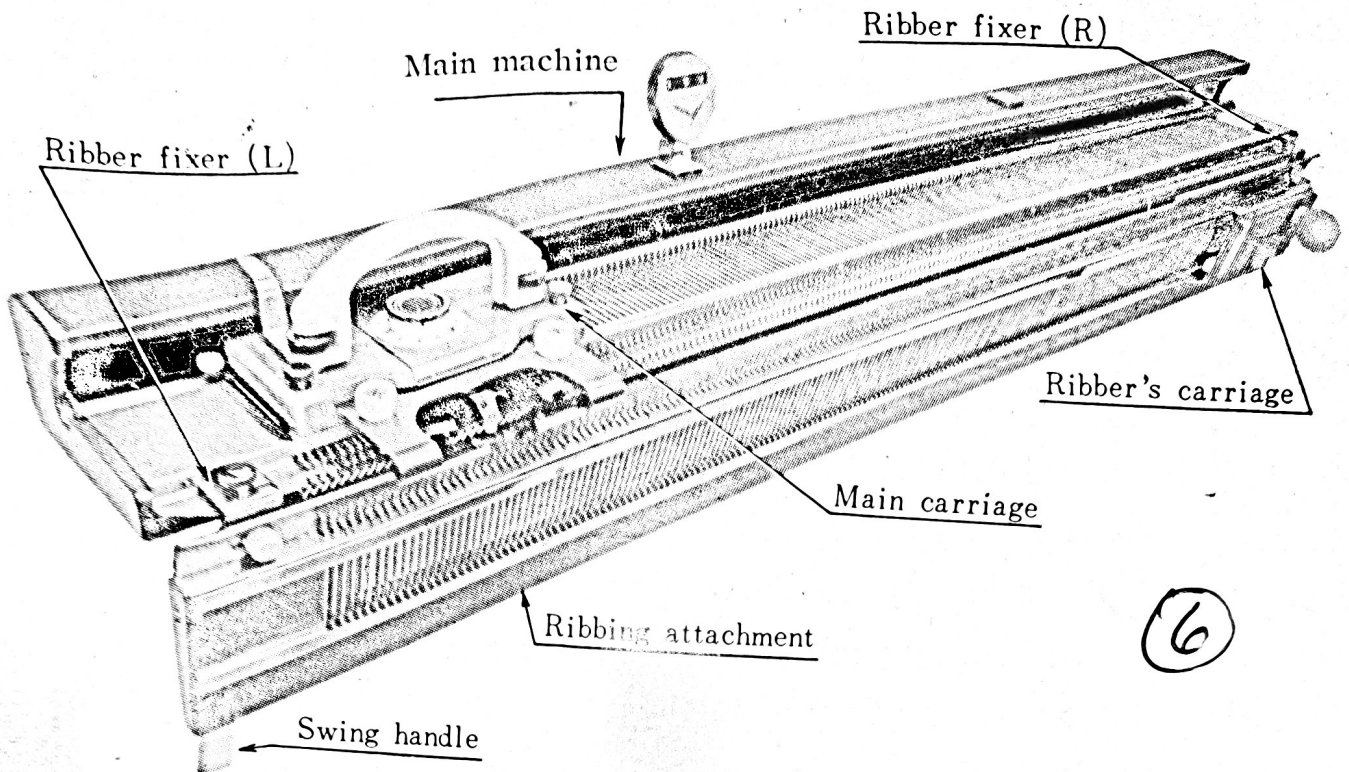


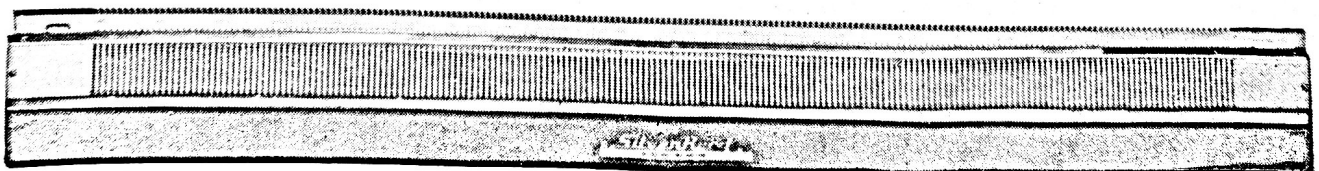
Instructions For Ribbing Unit



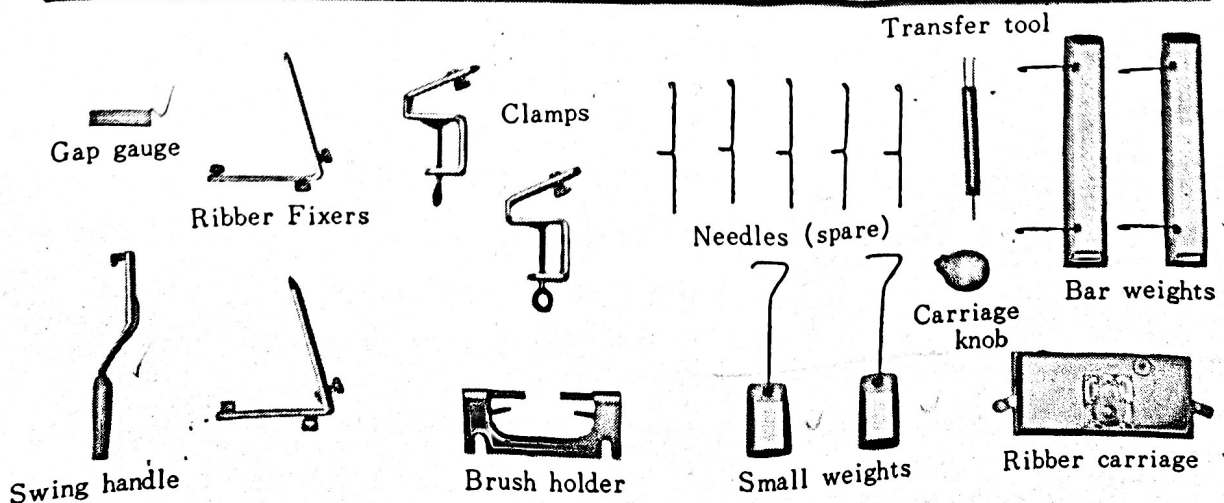
SETTING UP RIBBING UNIT

Before attaching the ribber to your machine, clamp the machine firmly on a table. Replace the fabric presser with the brush holder which is among the ribbing accessories.

Ribbing attachment

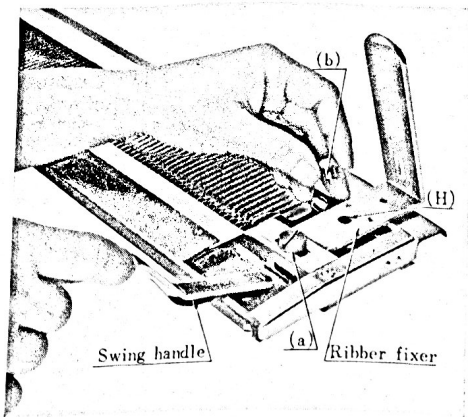


Cast-on comb



Take your ribber and turn it over on the table.

Take the two "L" shaped ribber fixers, remove the screws, place the ribber fixers in their respective places (as shown in the picture) and tighten with the screws(a). The ribber fixers are respectively marked "L" and "R" showing their position...left and right. Take the swing handle, remove the screw (b), and insert it under the left ribber fixer through the square hole (picture above). Replace the screw through the hole (H) on the ribber fixer. You should be able to swing it over about 1/4"; and by pressing it down you can swing it twice as much. The swing handle may be attached to the right side of the machine if you are left handed or vice versa.

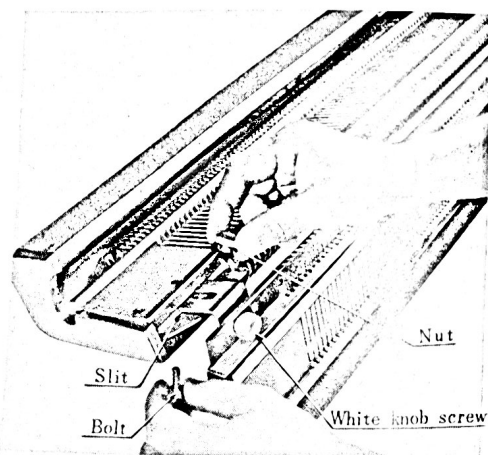


White knob screw will tighten the ribber to the ribber fixer, but not too tight.

After you have fixed both fixers and swing handle to the ribber, insert the other ends or free ends of "L" shaped fixers into both slits on the bed of the main machine. You are supposed to tighten the ribber fixers to the bed of main machine with bolts and nuts, but you may find that this is not necessary.

Make sure the two white head screws are not too tight. Try to swing the ribber holding the swing handle with your left hand and see if the ribber swings over one pitch or one needle space. Try to pull the swing handle toward you and swing it; then see if the ribber swings over two needle space.

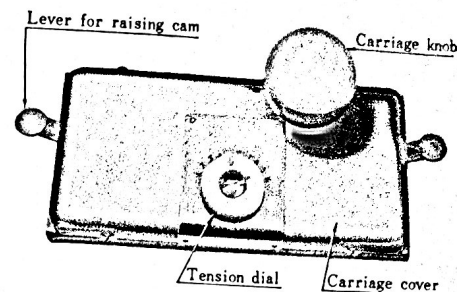
Thickness of the gap gauge is the proper gap between the main machine and the ribber.



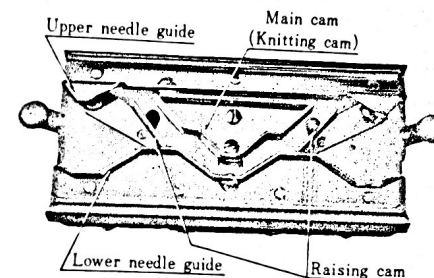
RIBBING CARRIAGE

The ribber carriage has two functions,
1) bringing down the needles or knitting by bringing them down - this is done by main cam or knitting cam,
2) raising needles - this is done by one of the two raising cams which ever happens to be in the opposite side of proceeding direction.

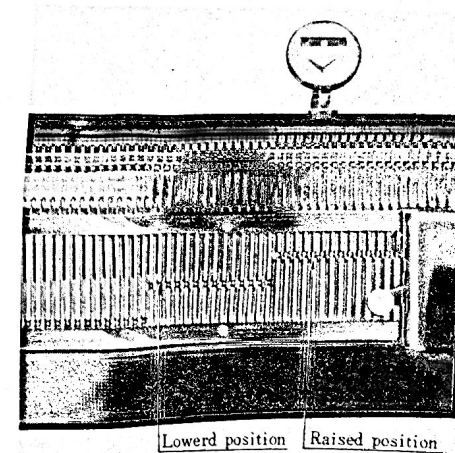
The raising cam in proceeding direction has no purpose.



To perform one row of knit and purl stitches with the ribber, you should raise the needles on the ribber and go across with the main carriage and then run the ribber carriage across - this will complete one row of knit and purl stitches.



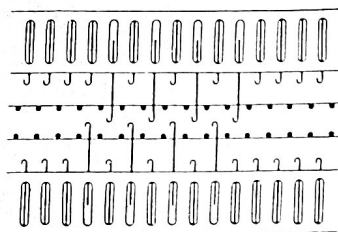
While the ribber carriage does bring down or knit and bring up needles into working zone at the same time by one stroke, two strokes (one on the main and another on the ribber) will make one complete row of ribbing.



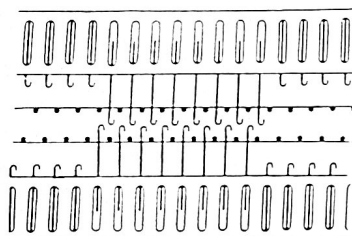
CASTING ON WITH RIBBING UNIT

1. Thread the carriage. Set tension dial on main carriage to 0 and ribber carriage 1.
2. Select needles.

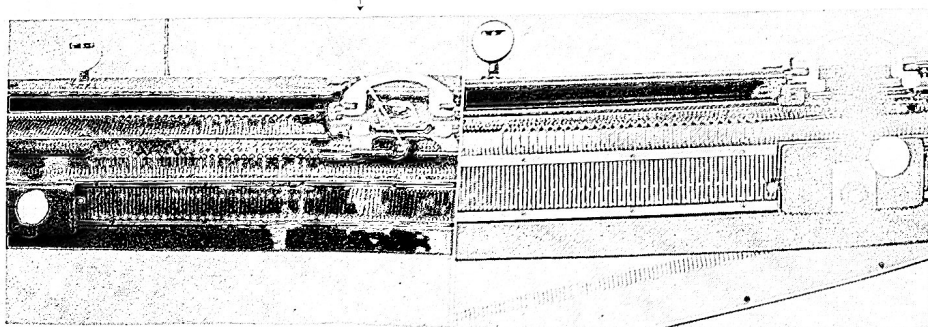
One knit-one purl



Double Rib



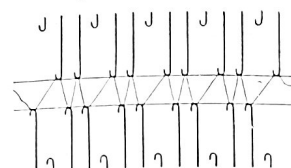
3. Run the ribber carriage with rear lever up. This will raise needles on the ribber.
4. Run the main carriage across (left picture); yarn is hooked.



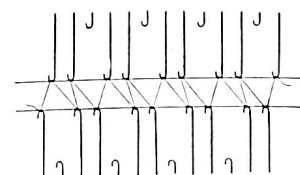
5. Run the ribber carriage with rear lever down. This will not raise needles, but ribber needles will hook yarn down. (see above)
6. Give some tension to zigzag hooked yarn by pushing needles on the main machine backward and those of ribber downward. This will make next step easier.
7. Take the cast on comb and remove the wire.

TWO KNIT TWO PURL

(a) Cast on & binding off position

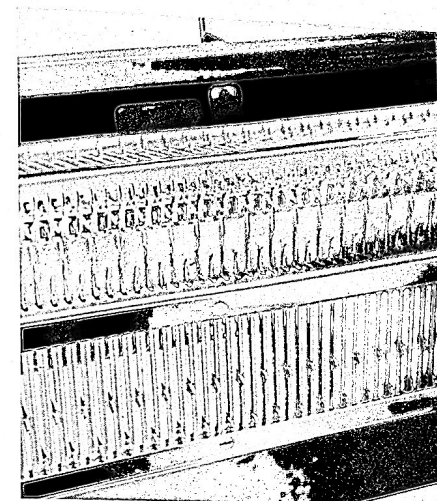


(b) Knitting position



8. Holding the comb under the machine, insert the teeth of the comb through the zigzag yarn and replace the wire. (see picture) The comb will hang freely between the main machine and the ribber. Hang some weights on the cast on comb.

Make certain the flat side of the cast on comb is away from you; so you can feel the holes on the comb with your fingertips. This makes it easier to hang your weights on.

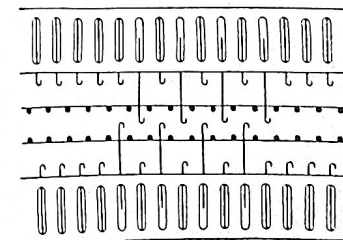


9. Run the main carriage across leaving the ribber idle. You have knit one row on the main machine.
 10. Run the ribber carriage with rear lever up. This will raise needles.
 11. Run the main carriage with a cam lever in proceeding direction up or off position; feeding the ribber needles with yarn but without knitting.
 12. Have the ribber carriage follow the main carriage with both levers up.
 13. Place both cam levers of main carriage in ON position. (ON at both sides)
 14. You are now ready to start your ribbing. Change tension on both carriages to desired tension. Main carriage first then ribber carriage and repeat.
- ★ Procedures 9 to 12 are necessary for closing or binding off the starting edge.

PLAIN RIBBING

ONE-KNIT ONE-PURL RIBBING:

Using the swing handle, swing the ribber and set it so that the needles on the ribber meet the needles on the main machine.



TWO-KNIT TWO-PURL RIBBING:

Swing the ribber so that the needles on the main machine and the ribber are located alternatively.

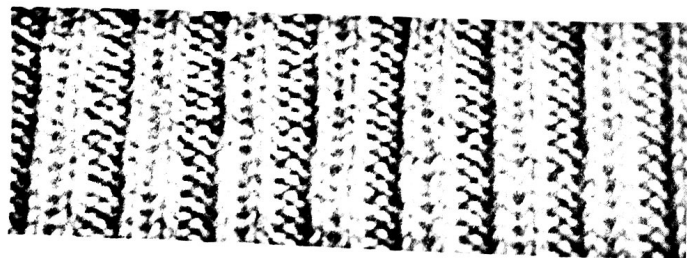
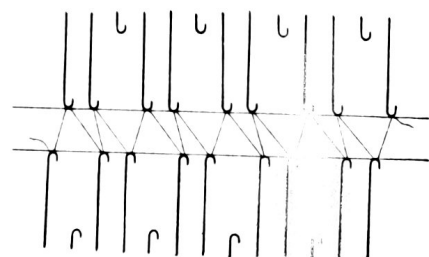
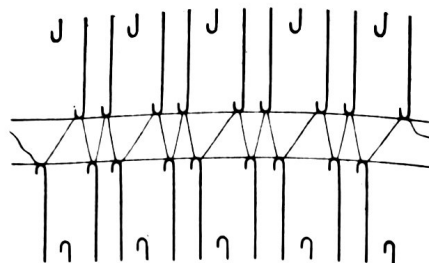
Push forward needles on the main machine and the ribber leaving every third needle in inoperative position.

Mutual position of the main machine and the ribber should be as shown by the upper drawing for casting on and binding off only.

Then, after binding off, swing the ribber to the right over one needle.

The mutual position now should be as shown by the lower drawing.

Proceed for two-knit two-purl ribbing.



2-knit 2-purl rib

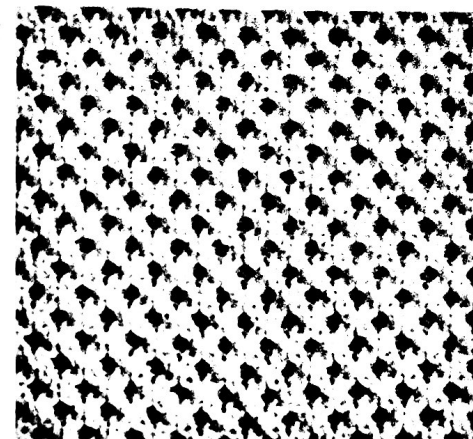
DOUBLE RIB:

The mutual position of the main machine and the ribber is same as for two-knit two-purl ribbing. The needles of both machines are located alternatively and you will cast on with every needle on both machines. This rib can be considered as one-knit one-purl ribbing of twice tighter gauge.

TUCKING PATTERNS

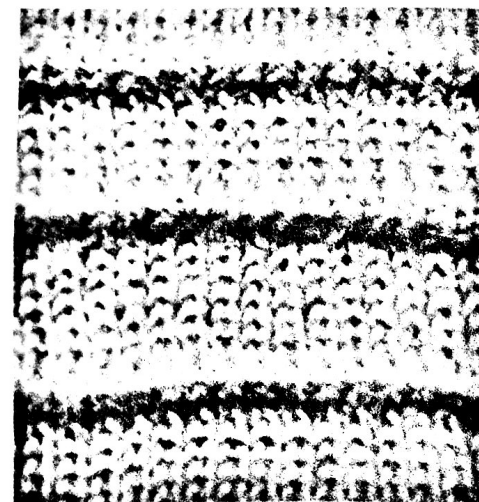
1. POP CORN STITCHES

- Cast on with every needle and make a bound off edge.
- You are now knitting a double rib. Make 2 rows plain.
- To start this tucking pattern, run the ribber carriage with rear lever down leaving the ribber needles in lower position or non-knitting position on the last row of plain knitting.
- With one by one needle selector, push up every other needles on the ribber so that the stitches go behind the latches and then push them down back to the normal knitting position.
- Run the main carriage across three times.
- Now, push up all the ribber needles so that all the yarn goes behind the latches and push them down back to the normal knitting position.
- Run the main carriage and then the ribber carriage across, and repeat once more. (Altogether 2 plain rows.)
- Back to "d" and repeat, alternating the needles to be pushed up in procedure "d".



2. PIN TUCKING

- Cast on with every needle and make a bound off edge.
- Do some double rib for desired length.
- To do the pin tuck, your last stroke on the ribber should be done with rear lever down. (This will not raise needles on the ribber.)
- Knit three (or four) rows on the main machine only.

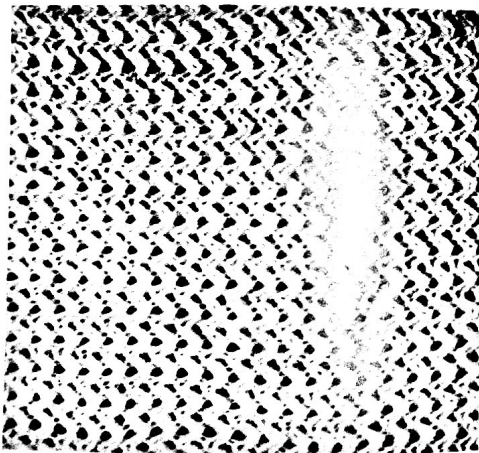


- e) Put both levers up on the ribber carriage in normal ribbing position and go across the ribber.
- f) You have tucked three (or four) rows here. Knit some rows of double rib and repeat the tucking; on the last row of plain double rib, make sure that the rear lever of ribber carriage is down.

SWING PATTERNS

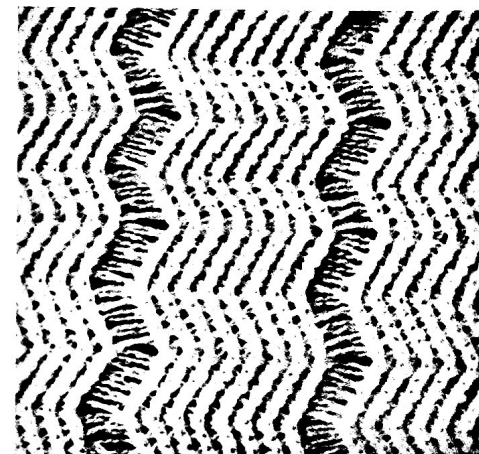
1. WEB

- a) Cast on with every needle and make a bound off edge.
- b) Raise needles on the ribber. (To do this, go across with ribber carriage both levers up.)
- c) Run the main carriage across.
- d) Hold the swing handle and swing the ribber over one needle to the right.
- e) Push up all the needles on the ribber so that the stitches go behind the latches and push them back down to the normal knitting position. The stitches should be behind the latches.
- f) Run the main carriage and then the ribber carriage.
- g) Go back to "c", and then in "d" swing the ribber back to the left. Continue with "e" and "f".
- h) Repeat pattern from "c" to "f". In procedure "d", the ribber should be swung back and forth alternatively.



2. HERRING BONE

- a) Cast on with every needle and make a bound off edge.
- b) Raise the needles on the ribber. (To do this, go across with ribber carriage both levers up.)
- c) Run the main carriage. (ON at both sides)
- d) Swing the ribber over one pitch or one needle to the right.
- e) Push up the ribber needles sliding the yarn behind the latches and push them down back to usual knitting position.
- f) Go across with the main carriage and then the ribber carriage.
- g) Swing back your ribber (to the left).
- h) Repeat "c" through "g" for desired length.
- i) To change the direction of your swing, omit "g" and repeat "c" through "f" once.
- j) Now, starting from "c", repeat the procedures from "c" to "g"; swinging the ribber to the left in "d" and swinging it back to the right in "g".

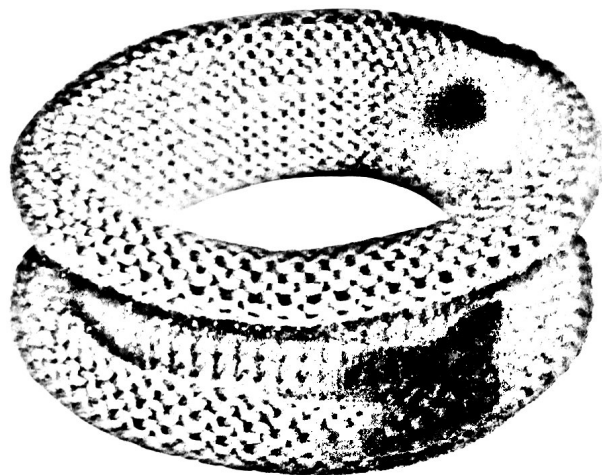


★ Changing the direction of your swing, after a set of procedures, you will have a herring bone pattern or zigzag pattern. If you don't change the direction at all, you will simply have a diagonal pattern.

TUBULAR FABRIC

To obtain tubular fabric with closed bottom, cast on with every needle as in case of double rib.

After you have hung the cast on comb, just start knitting without changing the position of cam levers (cam lever on one side is partial or OFF at one side on main machine, and cam lever of ribber's carriage on other side is down or in non-raising position).



Knit one row with main carriage and follow it with ribber carriage without knitting but raising ribber's needles. Then go across with main carriage without knitting but just feeding the yarn over the ribber's needles. Have the ribber carriage follow the main carriage, this time knitting with ribber needles only. Repeating the procedures you are having tubular fabric with the bottom closed.

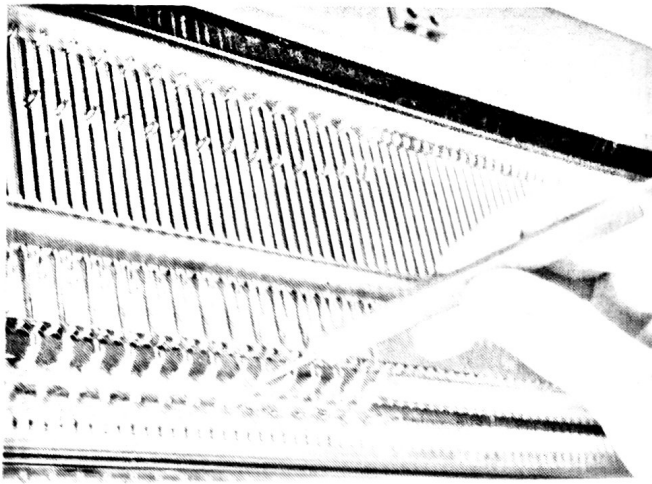
For tubular fabric with open bottom, cast on with every needle using a ravelling thread, and do the same procedures.

HALF TUBULAR

Doing the similar procedures and leaving one side open, you will have fabric of double width or half tubular.

- a) Cast on with a ravelling thread.
- b) Make round trip with the main carriage (two consecutive rows on the main machine).
- c) Go across with the ribber carriage with both levers up to raise needles on the ribber.
- d) With both levers of main carriage partial (off at both sides), go across and feed the yarn over the needles on the ribber. Have the ribber carriage follow the main carriage with rear lever up (knitting one row on the ribber).
- e) Come back with the main carriage with cam levers partial or in off position and have the ribber carriage follow the main carriage with rear lever down (non-raising position). You have knit two consecutive rows on the ribber.
... go back to "b" (Put both levers of main carriage in knitting position or backward position - on at both sides. Knit two consecutive rows on the main machine.) And, then to "c".

※ Repeat "b" through "e", for desired length.



This picture shows how to use the transfer tool for the ribber, when transferring stitches from the ribber needles to the machine needles or vice versa and picking up dropped stitches.

TO REPLACE A NEEDLE:

1. Take off either side-holder by removing four screws as shown in the picture.
2. Pull out the needle retaining band to that point where the damaged needle is situated.
3. Lift the damaged needle out of its slot and replace it with a new one.
4. Re-insert the needle retaining band and replace the side-holder.
5. When pulling out and replacing the needle retaining band, please see that the spring coil will stay in its place.

