Instruction Manual for Ribbing Attachment

MODEL **KR-850**

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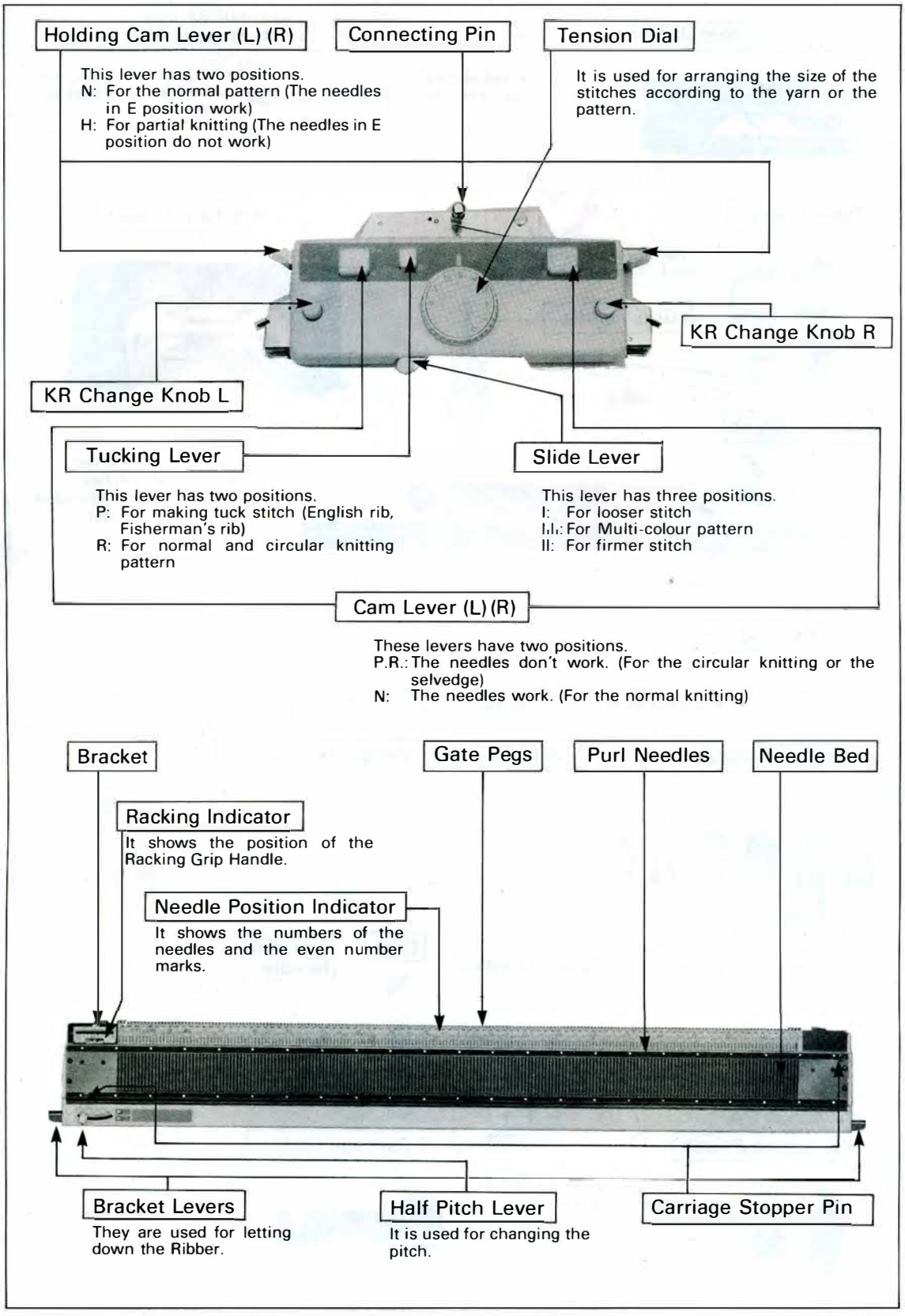
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I. NAMES OF PARTS



II. ACCESSORIES

Connecting Arm Assembly



It is used for connecting the KH carriage and the KR carriage.

End Stitch Presser Plates R & L



It is used for making the stitches at the edges securely.

Table Clamps



They are used for tilting the knitter to fix the ribber.

Grip Handle



Plating Yarn Feeder



Cast-on Comb



- short (130 stitches)
- long (200 stitches)

The short one can be used as a weight hanger.

Fine Knitting Bar

It is used for helping to kint very thin yarn.

Weights (Large, Small)



Wire-loop Type Weight Hangers



Claw Type Weight Hangers

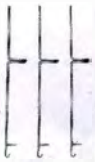


Spanner



Work Hook

Spare Needles



Case



Transfer Needle

1/2 × 2/2 Needle Pusher



KR Setting Plates



They are used for fixing the ribber to the knitter.

R Carriage Lock

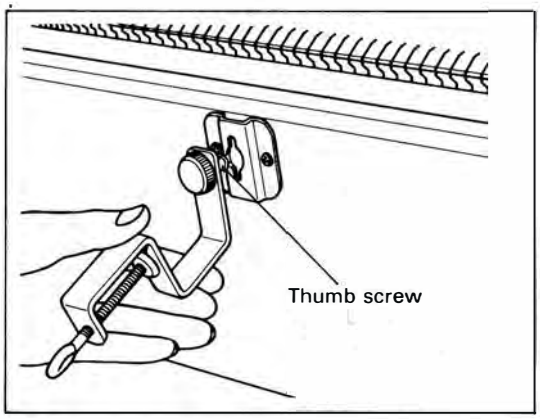


It is used for fixing the KH carriage when you put away the machine.

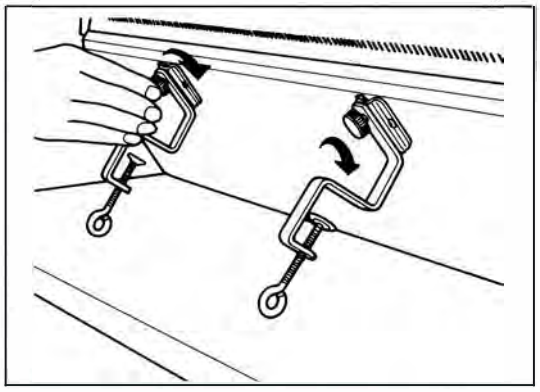
III. SETTING UP YOUR RIBBER TO THE KNITTER

(1) Secure the knitter onto a flat table using the Table clamps provided as an accessory for the ribber.

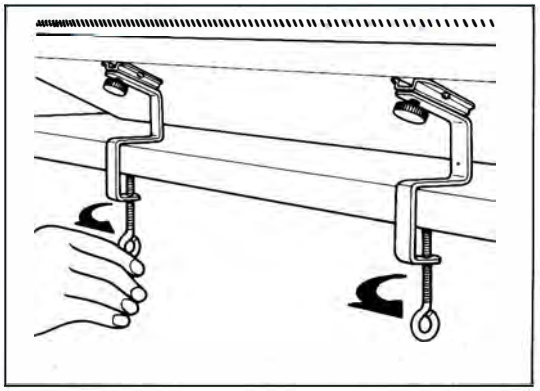
1) Insert the top of the thumb screws of the table clamps into the holes on the back of the knitter.



2) Fasten the screws.

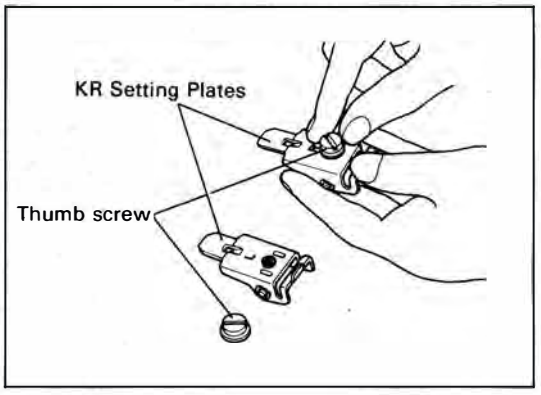


3) Secure the table clamps onto the table to tilt the knitter.

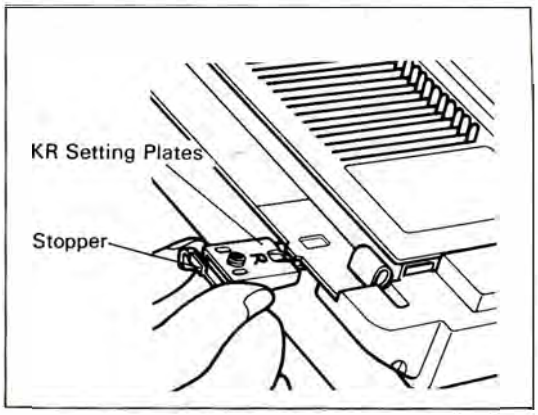


(2) Put the KR Setting Plates to the knitter.

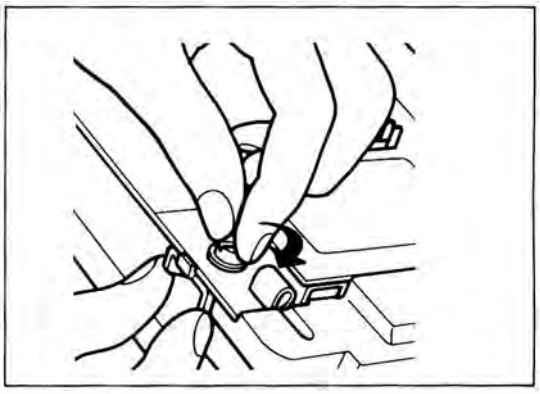
1) Remove the thumb screws from the KR Setting Plates.



2) Insert them into the holes of both sides of the knitter.
(Be careful of the R and L marks on the plates. R stands for right L stands for left.)

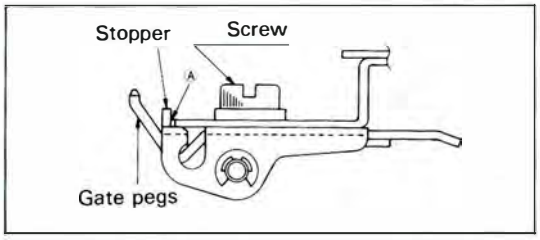


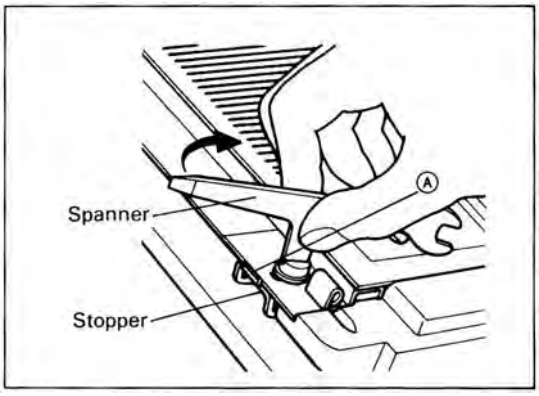
3) Screw the KR Setting Plates temporary.



4) Push the Setting Plates making sure that the stopper rests against the metal bed marked Ⓐ, do not let the stopper slip under the bed. Then tighten the screw up using the spanner.

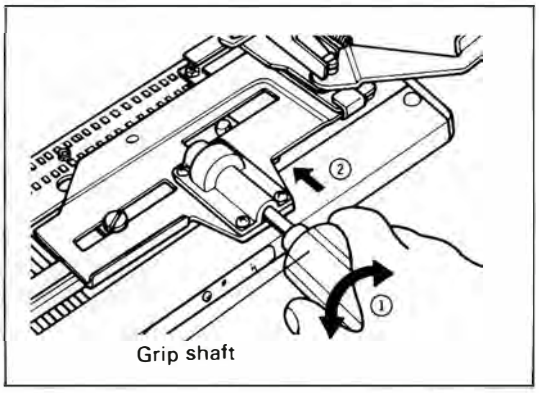
Cross-sectional view from right



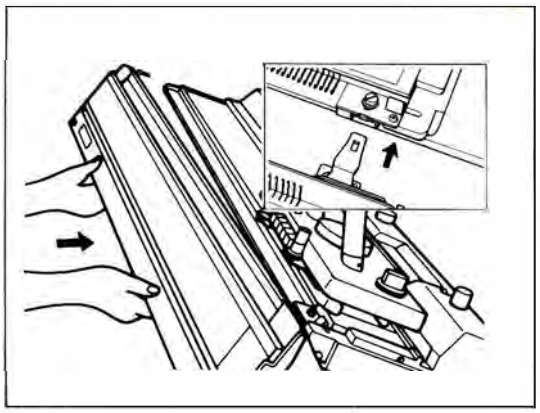


(3) Insert the shaft of the Grip handle into the Grip handle holder, and turning the grip handle, push it in until you hear the "click".

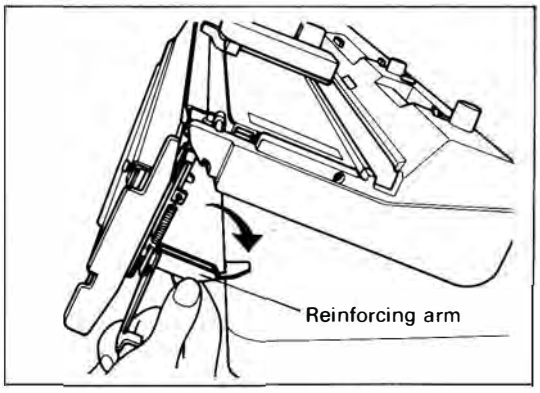
* After setting the grip handle, please check the working of the racking grip handle by turning it.



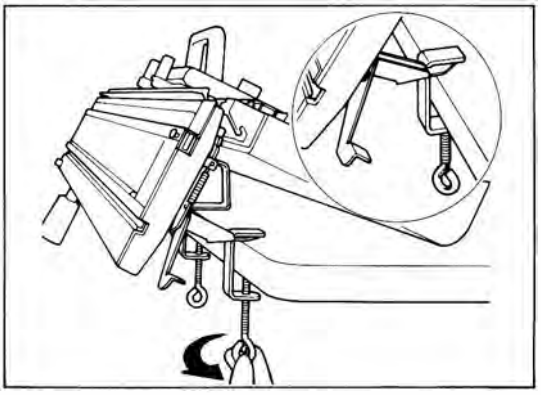
(4) Holding the ribber with both hands so that the gate pegs of the ribber are up and the purl needle butts are toward you.
Insert the lip of right bracket beneath the knitter bed as far as it will go, then insert the left bracket.



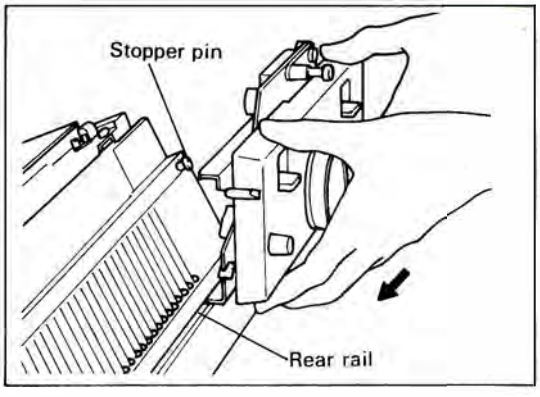
(5) Set up the reinforcing arms of the brackets, and place the flat parts of the arms on the table.



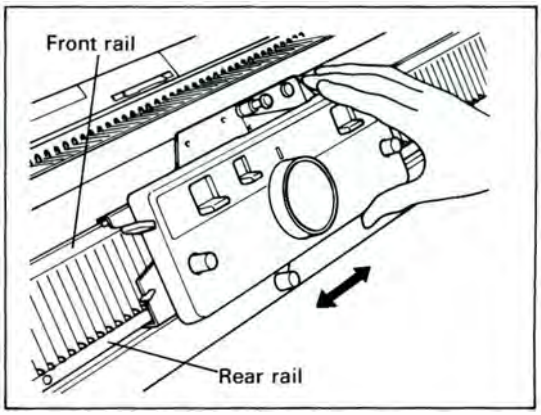
(6) Using the clamps of KH, fasten the arms to the table.



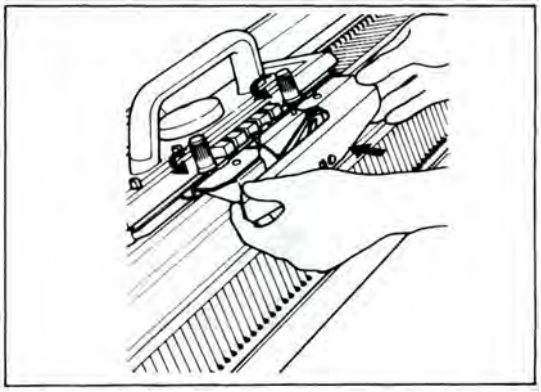
(7) Place the rear foot of the KR carriage into right end of the rear rail of the needle bed, and keeping off the front foot from the front rail, move the KR carriage to left as shown in the photograph.



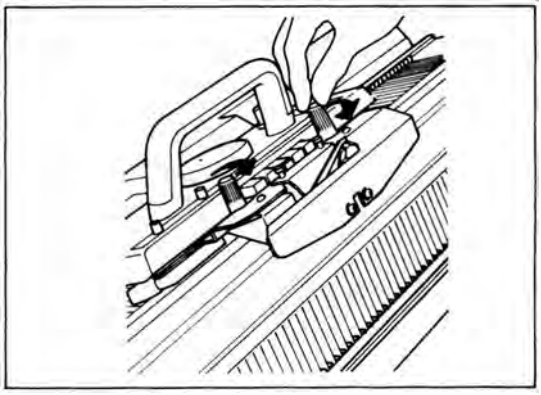
(8) Set the front foot of the KR carriage to the front rail of the needle bed. Please check whether the KR carriage moves on the needle bed smoothly.



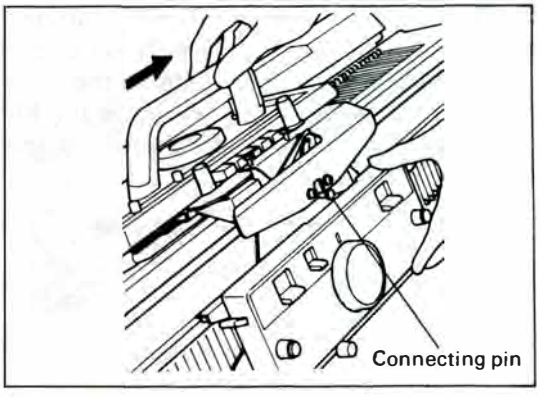
(9) Loosen both thumb screws of KH carriage and fit the Connecting Arm.



(10) Fasten the thumb screws.

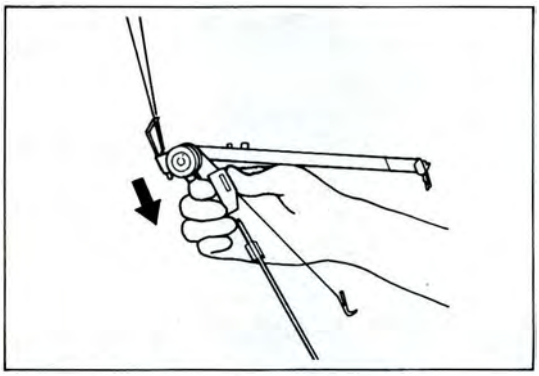


(11) Move the KH carriage toward the KR carriage slowly so that both carriages connect with the connecting arm automatically.

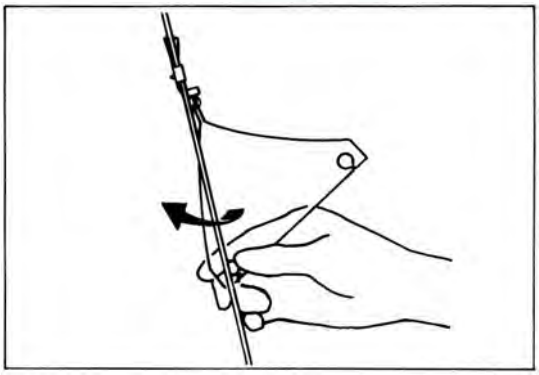


(12) Set up the Yarn Tension Unit

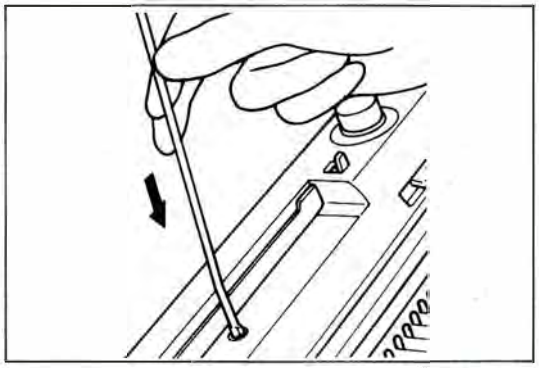
1) Take off the head of Yarn tension unit and put it to the rod reversely.



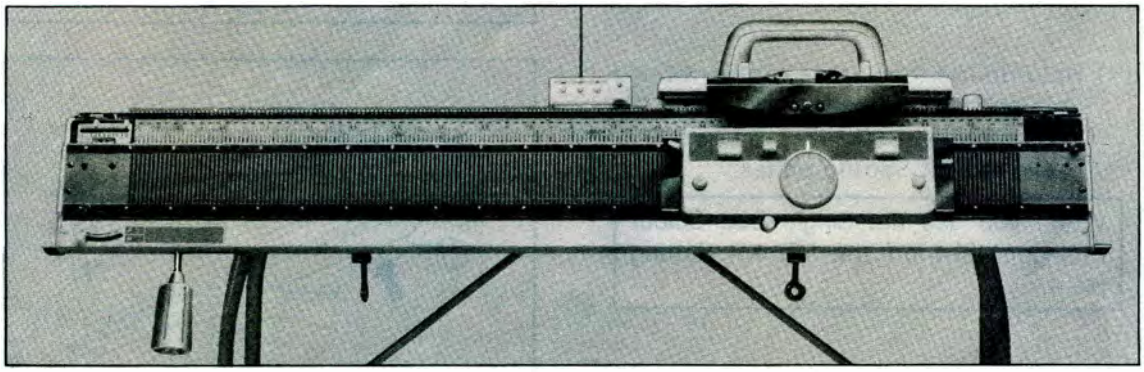
2) Turn the rear yarn guide opposite to the side on which the rear yarn guide is set when you use the knitter without attaching the ribber.



3) Insert the end of the rod into the stand hole at the center of the machine.
Look at the picture and be careful of the direction of the rod.



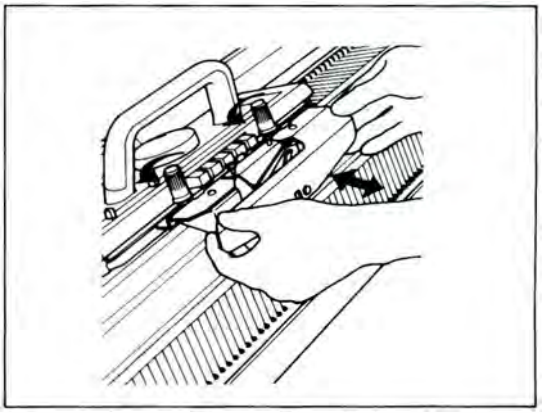
4) Set up the head of the unit.



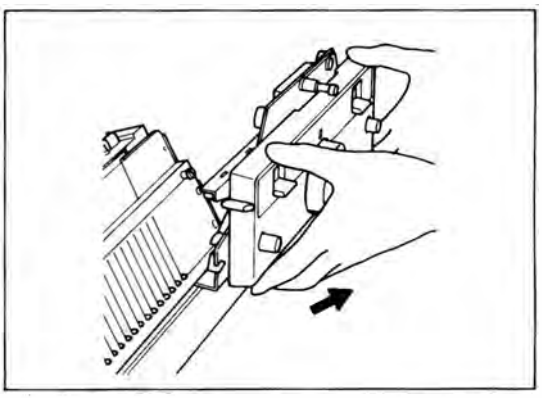
(13) Now you have finished setting up the ribber to the knitter.

IV. TAKING OFF YOUR RIBBER

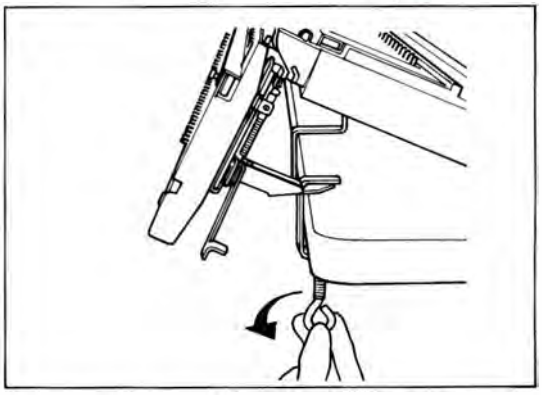
(1) Loosen the thumb screws and pull the Connecting arm towards you by lifting arm up slightly.
Then, take off the Connecting Arm.



(2) After disconnecting the KR carriage from the KH carriage, move the KR carriage to right end of the needle bed by keeping off the front foot from the needle bed as shown in the figure.

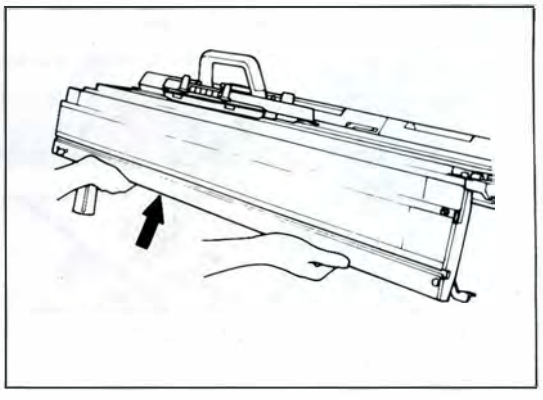


(3) Loosen the screws and take off the KH clamps.



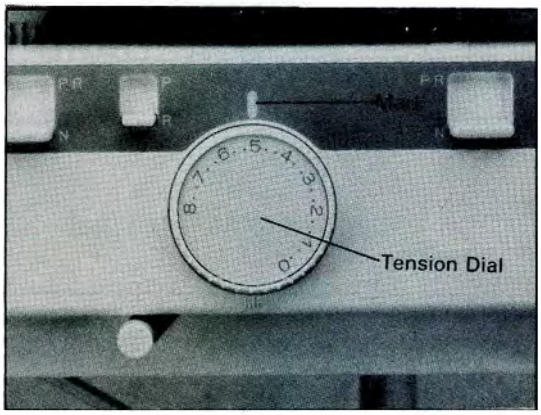
(4) Hold up the lower side of the ribber a little and pull it toward you.
You can take it off.
* Leave the KR Setting plates.

When you use the Single Bed Colour Changer, take off the left KR Setting plate.



V. HERE ARE A FEW IMPORTANT POINTS TO REMEMBER BEFORE YOU START KNITTING

1. Tension Dial



* The tension in knitting denotes the size of the stitch. The tension dial on the KR carriage is graduated from "0" to "8", each space between numbers being subdivided into three parts. The figure "0" denotes the tightest tension, i.e. the smallest stitch and the "8" denotes the loosest or largest stitch.
* The tension at which a garment is knitted depends not only on personal taste, but also on the type of garment required and the thickness of the wool.
* Set a figure or a point at the ▮ mark.

STANDARD TENSION CHART

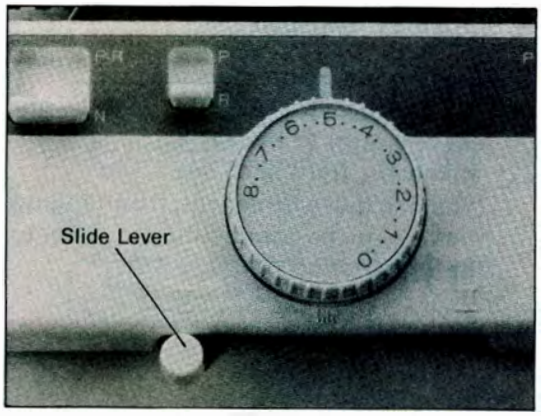
* You'd better knit on trial and find your favorite stitch size. This chart shows only a standard.

Yarn			1 × 1 rib	2 × 2 rib	full needle	Circular
Fine (ex. 2ply)	Cast-on	Tension Dial	0	0	0	0
		Slide Lever	II	II	II	I,II
	Selvedge	Tension Dial	0	0	0~1	
		Slide Lever	II	II	II	
	Knitting	Tension Dial	0~1	0~2	1~4	3~4
		Slide Lever	II	II	II	I
Medium (ex. 3ply)	Cast-on	Tension Dial	0	0	0	0
		Slide Lever	II	II	II	I,II
	Selvedge	Tension Dial	0	0	0~1	
		Slide Lever	II	II	II	
	Knitting	Tension Dial	0~1 / 3~5	1~3 / 2~4	1~2 / 4~6	4~5
		Slide Lever	I / II	I / II	I / II	I
Medium (ex. 4ply)	Cast-on	Tension Dial	0	0	0	0
		Slide Lever	II	II	II	I,II
	Selvedge	Tension Dial	0~1 / 1~2	0~1 / 2~3	0~1	
		Slide Lever	I / II	I / II	I	
	Knitting	Tension Dial	1~3	2~4	3~5	5~6
		Slide Lever	I	I	I	I
Bulky (ex. 5ply)	Cast-on	Tension Dial	0	0		0
		Slide Lever	I	I		I,II
	Selvedge	Tension Dial	1~2	1~2		
		Slide Lever	I	I		
	Knitting	Tension Dial	5~8	5~8		6~8
		Slide Lever	I	I		I

* In the casting-on of fine yarn refer to the explation of the way to make a tight selvedge on page 44.

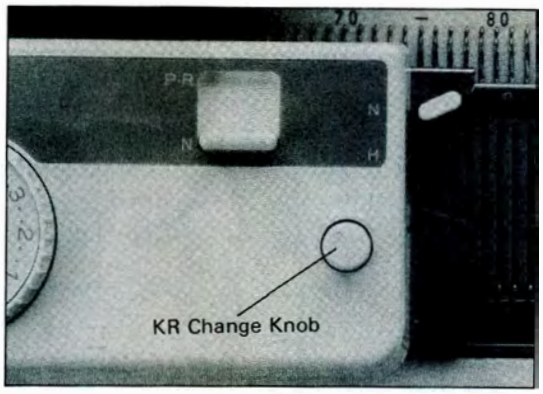
2. Slide Lever

*You can also change the size of the stitches by the Slide Lever.
*Look at the former chart and deside your favorite stitch.
I ... For a softer and looser stitch
II ... For a firmer stitch
III ... For knitting Multi-colour pattern by using KR Change Knob



3. KR Change Knob (R & L)

*Use this Knob when you knit Multi-colour pattern (1/1 needle selection on KR needles) using the Double Bed Colour Changer which is an option.
*Refer to the explanation on page 38.
*Make sure that the KR Change Knob is set at ■ mark when you knit usuall pattern. (except for Multi-colour pattern).

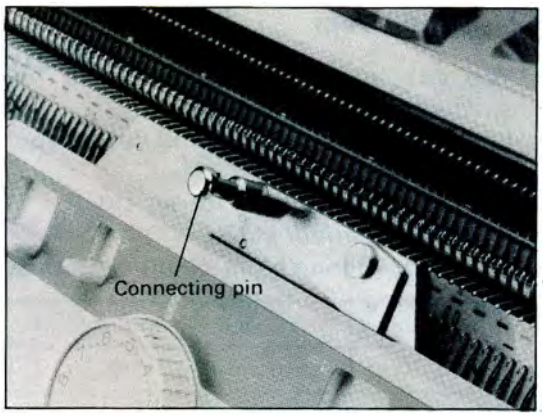


4. Connecting pin

Connecting pin has two usages.

(1) To connect the KH Carriage (Connecting arm) to the KR carriage.

(2) To make a tight selvedge.
(You can make firmer stitch by hanging the yarn on the connecting pin. Refer to the explanation on page 44).



5. Needle Position

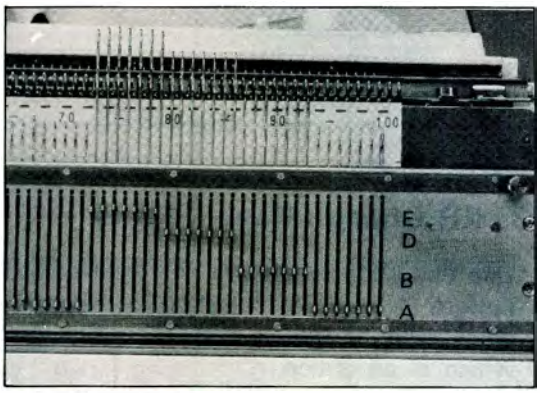
There are 4 positions on the needle bed of the ribber.

Position A : Resting or non-knitting position. (against the base of the needle grooves.)

Position B : Knitting or working position.

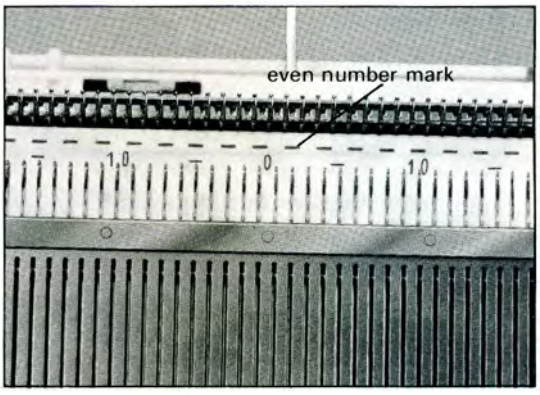
Position D : When the needles are brought in this position from the position E, they will automatically back to the position B by operation of the carriage.

Position E : Holding or partial knitting position.



6. Needle-position Indicator — (even number mark)

This indicator is used for arranging the number of needles when you knit Multicolour pattern by using KR Change Knob. Refer to the explanation on page 38.

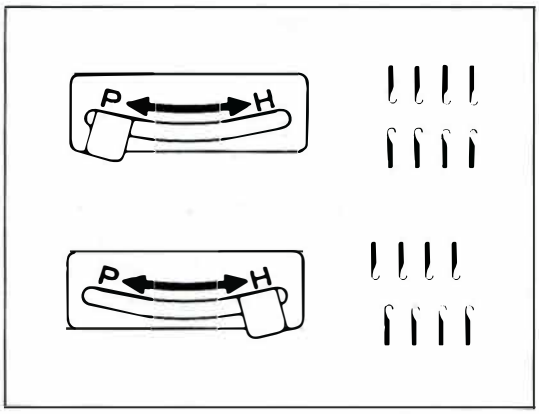


7. Half Pitch Lever

Half pitch lever is on the left end below the needle bed. Two positions of the Half pitch lever are shown on the indicating plate as P and H.

Position P: : Plain needles and purl needles directly opposite to each other.

Position H: : Purl needles are halfway between two plain needles.



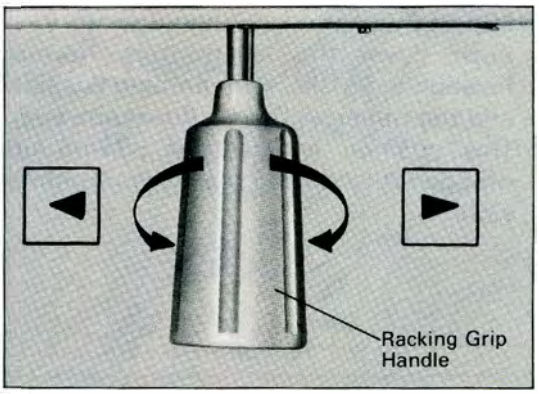
8. Racking Grip Handle

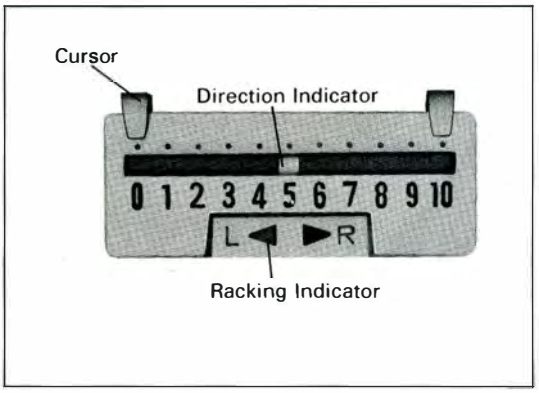
Racking grip handle is used for making the "Racking patterns" and "Zigzag patterns". The racking position is indicated on the racking indicator. By turning the Grip handle, ribber bed is moved right or left. Normally, set the indicator to No. 5 which shows center position.

The two cursors on the indicator plate are used as an index of the racking range.

The arrow head indicates the direction of racking movement.

Do not turn the handle when both knitters' needles come out of gate pegs.

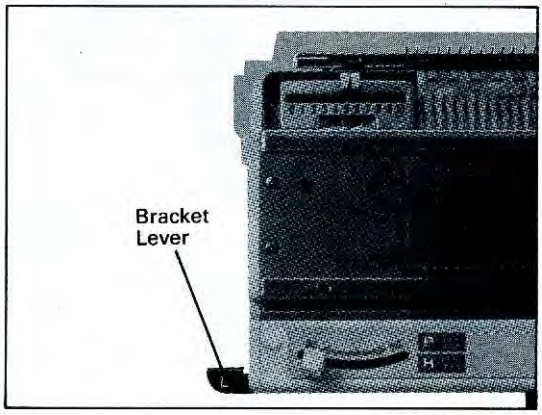




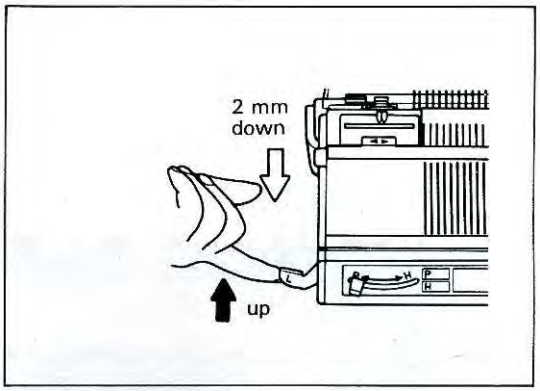
9. Bracket Lever

The Bracket levers are set at both ends of the KR needle bed. They are used for letting down the ribber.

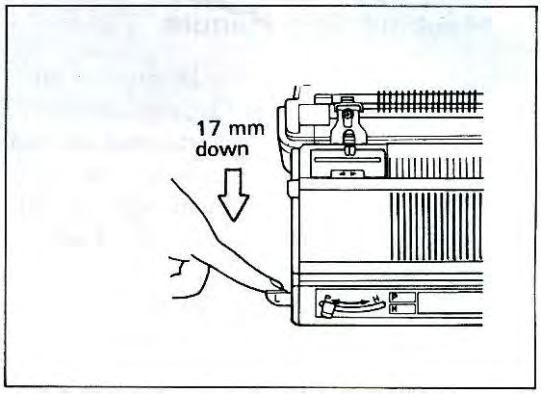
- Normal Position
  It is the highest and working position.
  To return to working position, push up the ribber with both hands as high as it will go until it stays still without holding.



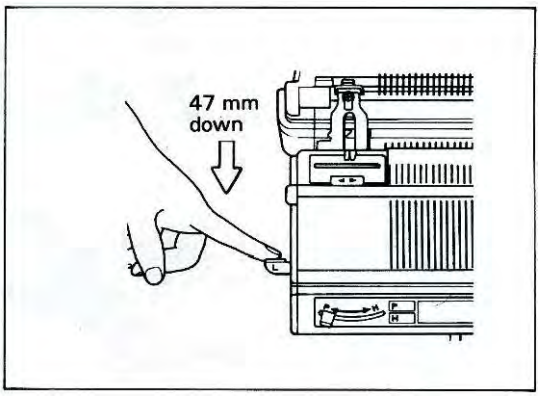
- Thicker Yarn Knitting Position — (2 mm down)
  Pull up the levers and the ribber will come down. Use this position when you knit thicker yarn (more than 5 ply).
  If you push back the ribber to Normal Position the levers will come down again.



- Middle Position — (17 mm down)
  Push down the levers from Normal Position or Thicker Yarn Knitting Position and the ribber will come down one step. This position is used for picking up dropped stitches and seeing your knitting work.

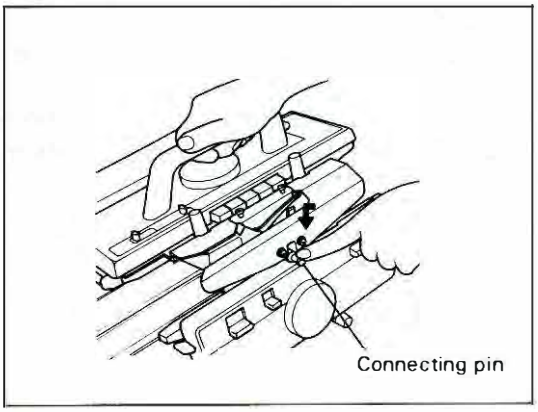


- Lowest Position — (47 mm down)
  Push down the levers again and the ribber will come down one more step (the lowest). This position is used for single bed knitting without removing the ribber.



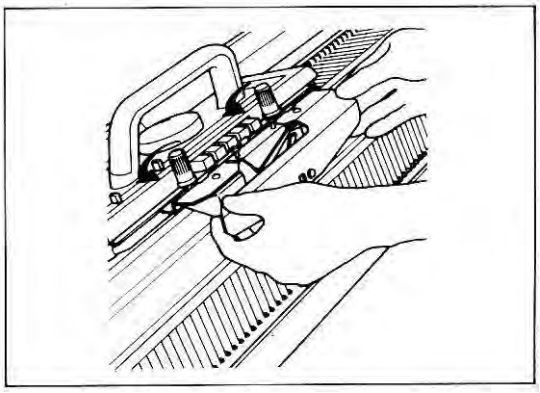
10. Disconnecting the Carriage

Push down the Connecting pin and slide the KH carriage (or KR carriage) to disconnect from KR carriage (KH carriage).



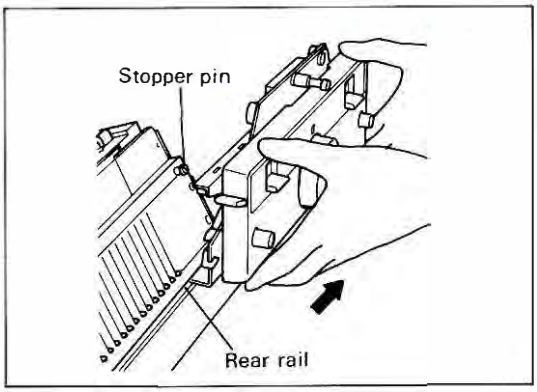
11. Taking off the Connecting Arm

Loosen the thumb screws and pull the Connecting arm towards you by lifting arm up slightly.



12. Taking off the KR Carriage

After disconnecting the KR carriage from the KH carriage, move the KR carriage to right end of the needle bed by keeping off the front foot from the needle bed as shown in the photograph.



If the carriage should jam during the knitting, please refer to page 55 to relase it.

VI. HOW TO USE THE ACCESSORIES

(1) Weights

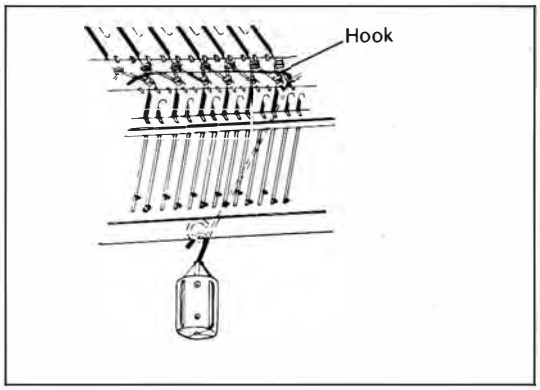
Number of weights to be used depends on the width of knitting and pattern. Hang the weights on the cast-on comb so that they hold the knitting work in balance.

Standard Weight Chart

No. of stitches	Large weight	Small weight
~ 50	1	—
50 ~ 100	2	—
100 ~ 150	3	2
150 ~ 200	4	2

(2) Wire-loop type weight hangers

The wire-loop type weight hangers are used for hanging small weights to give tension to the edges of the knitting work and also used as a small cast-on comb for casting-on work of less than 20 stitches.



(3) Work hook

The hook is used for picking up dropped stitches.

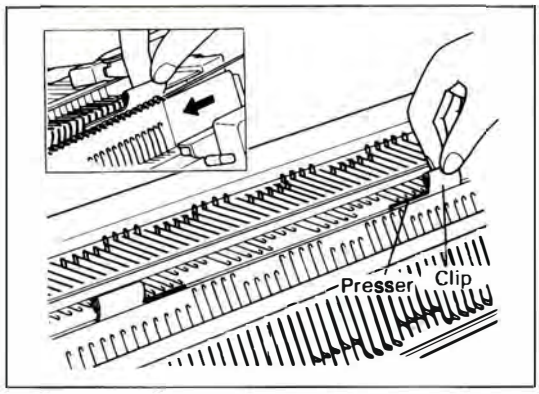
(4) Claw-type weight hangers

The claw type weight hangers are used for hanging the small weights to give tension to the edge of the knitting work.

(5) End stitch presser plate

The end stitch presser plates are used for making the stitches at the edges securely.

Put the end stitch presser plates on both ends of the KH needle gate pegs. And slide to inside until the presser plates cover the edge of knitting work. It is recommendable to use the claw weights for the edge together with the presser plates.

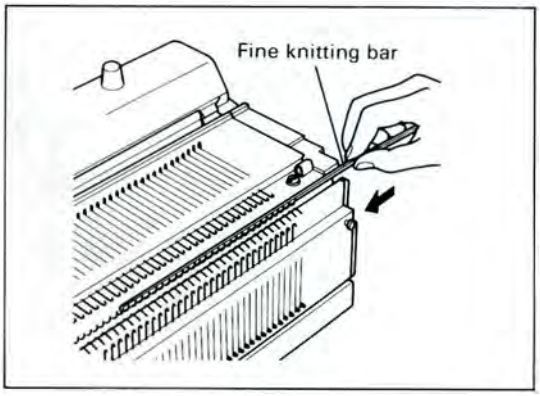


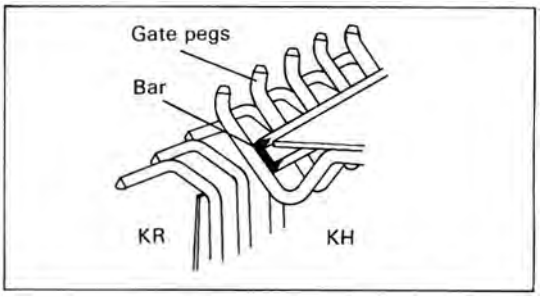
(6) Fine knitting bar

The fine knitting bar is used only for knitting the thinner yarn at the tension number 0 ~ 3.

Insert the bar from the end of the KH needle bed as shown in the photograph and illustration.

The Fine knitting bar can help the stitches to slip out of the hooks of needles securely.





(7) Cast-on comb

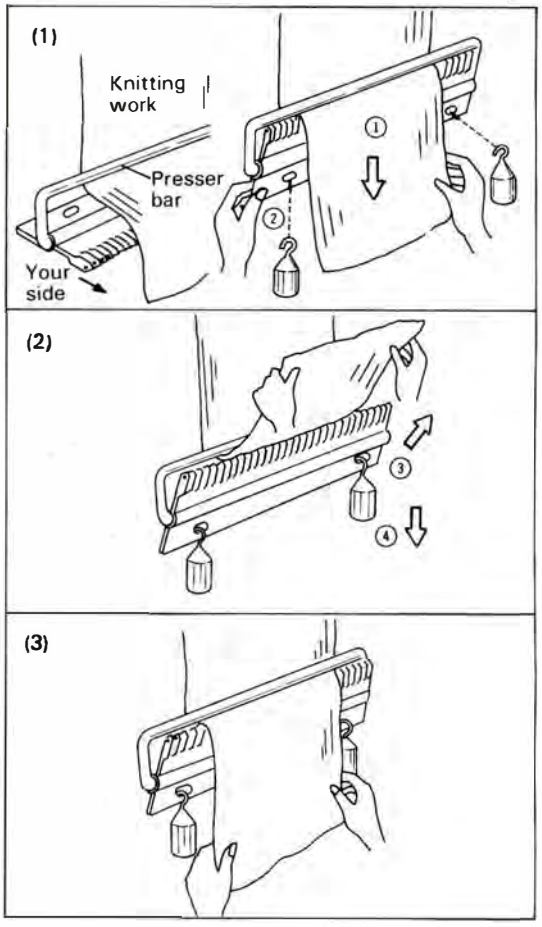
Cast-on comb is used for casting-on the first stitches which is the selvedge of the knitting. Choose long or small comb depending on the knitting width.

* Also you can use the Short cast-on comb as a weight hanger, as detailed below:

1) Hold the Short cast-on comb with points facing you. Lift the presser bar up, then pass the knitting work between the presser bar and comb from back side.

2) Pull the end of knitting work down ①, and turn the cast-on comb ② as shown in the Fig. (1) so that the cast-on comb may buckle on the knitting work. Then hang the weights on the cast-on comb.

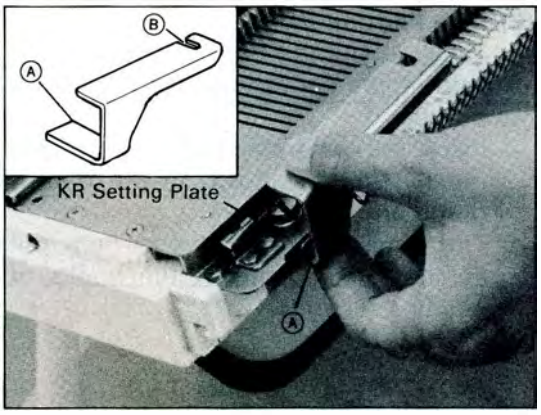
3) When you reset the cast-on comb, simply pull the knitting work up so that the cast-on comb may go up. Then pull the knitting work down to lock up.



(8) R Carriage Lock

R Carriage Lock is used for fixing the KH Carriage without removing the KR Setting Plates when you put away the machine.

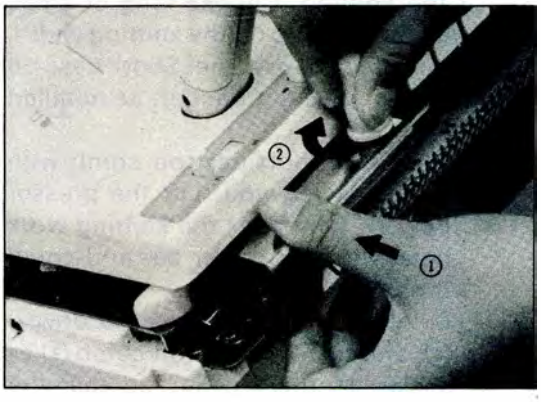
1) Put Ⓐ in the left side of KR Setting Plates.



2) Loosen the left knob of KH Carriage and put Ⓑ around the axis.

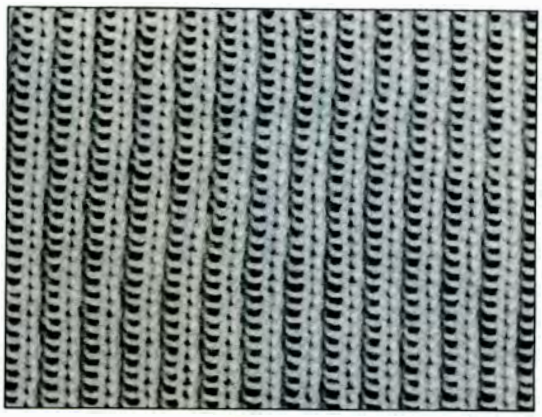


3) Insert the R Carriage Lock as far as it goes and screw the knob.



VII. THE WAY OF KNITTING

1. How to Knit 1 × 1 rib



1 × 1 rib is most widely used for waist bands in sweaters, cuffs, collars, pockets and for many other decorative purposes. The rib is produced by having knit stitch over knit stitch and purl stitch over purl stitch, in vertical lines, and is soft and elastic.
In the following example, medium thickness wool is used for the practice.

CASTING-ON FOR 1 × 1 RIB

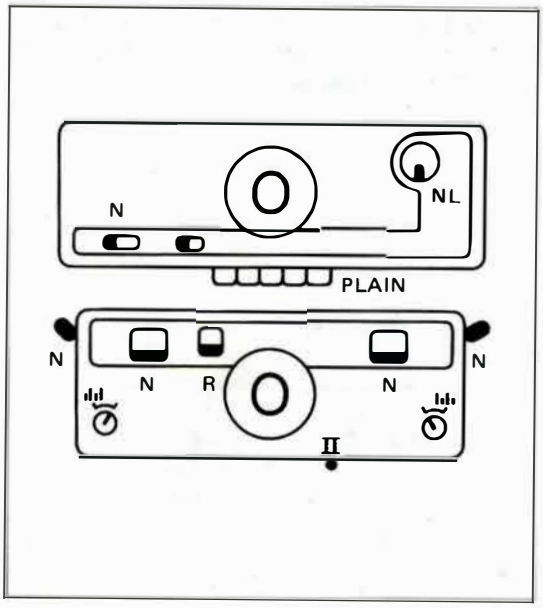
(1) Setting of carriage

Carriage (KH)

Change knob	: NL
Tension dial	: O
Holding cam lever	: N
Pattern selector button	: PLAIN

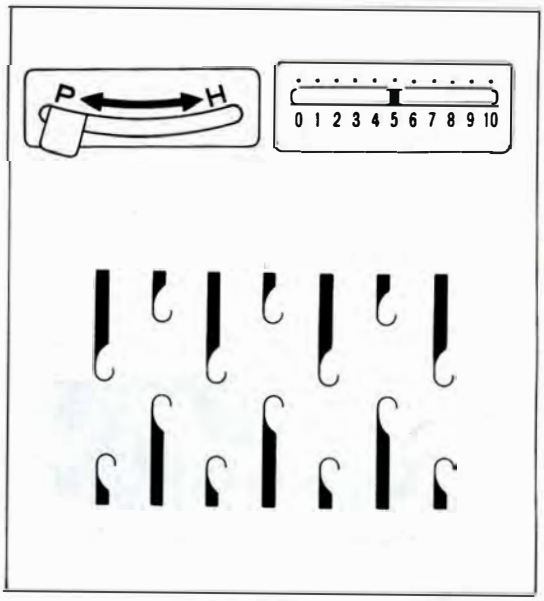
Carriage (KR)

Slide lever	: II
Tension dial	: O
Cam lever	: (L) N (R), N
Tucking lever	: R
Holding cam lever	: (L) N, (R) N



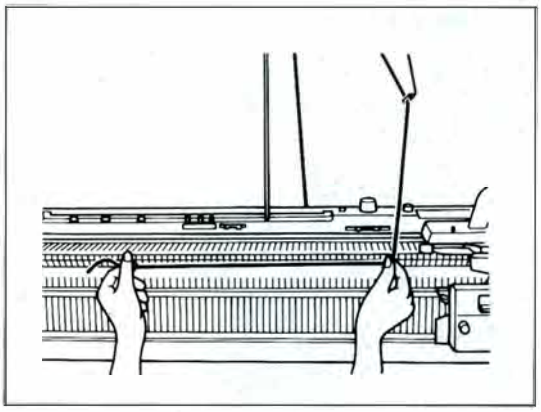
(2) Needle arrangement

a. Set the half pitch lever on "P".
b. By using 1/1 needle pusher, arrange the plain needles and purl needles in position B of each bed.
   Note: Both end needles must be plain needles.
c. By operating the connected carriage a few times over all arranged needles, the needles on KH and KR needle beds will be set in a line on position B.
d. Place the connected carriage at right end of the needle beds.

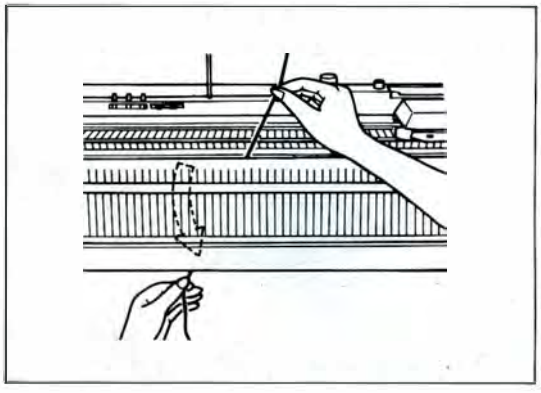


(3) First row knitting

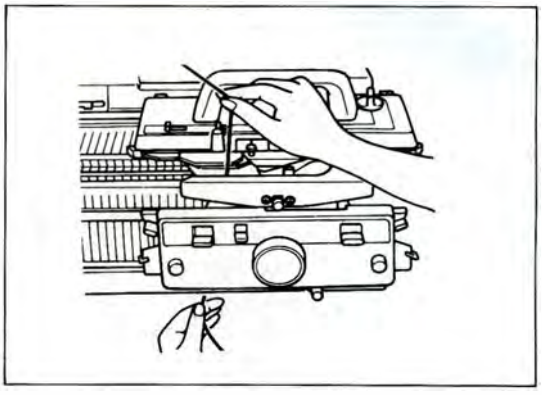
a. Thread the yarn into the Yarn tension unit, and hold the end of yarn as shown in the Fig.



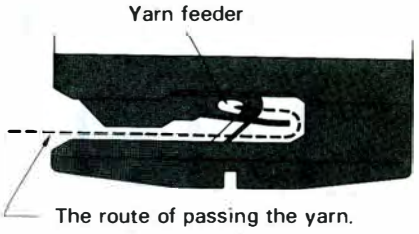
b. Pass the yarn between both gate pegs, and catch the end of yarn with left hand.

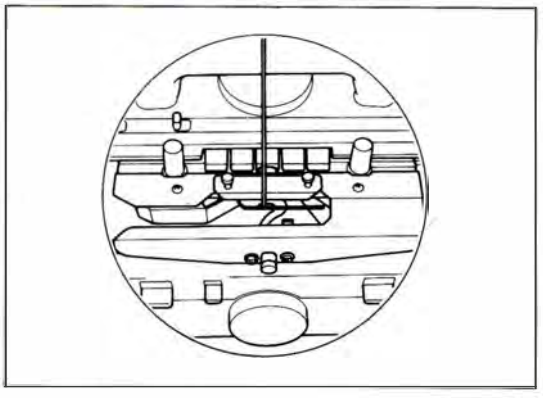


c. Hold the yarn with right hand (continue to hold the end of yarn with left hand), pass to the yarn feeder.

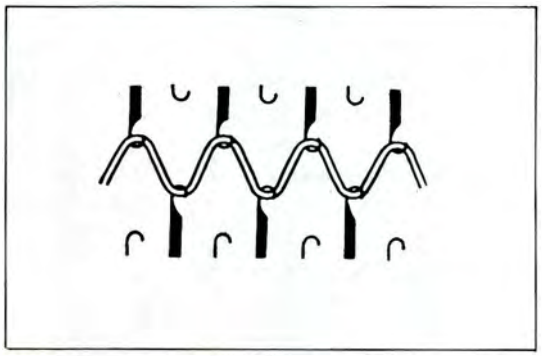


d. Pass the yarn into the yarn feeder securely.





e. Continue to hold the end of yarn with left hand, and move the connected carriage from right to left.
(The yarn will hang on plain and purl needles.)

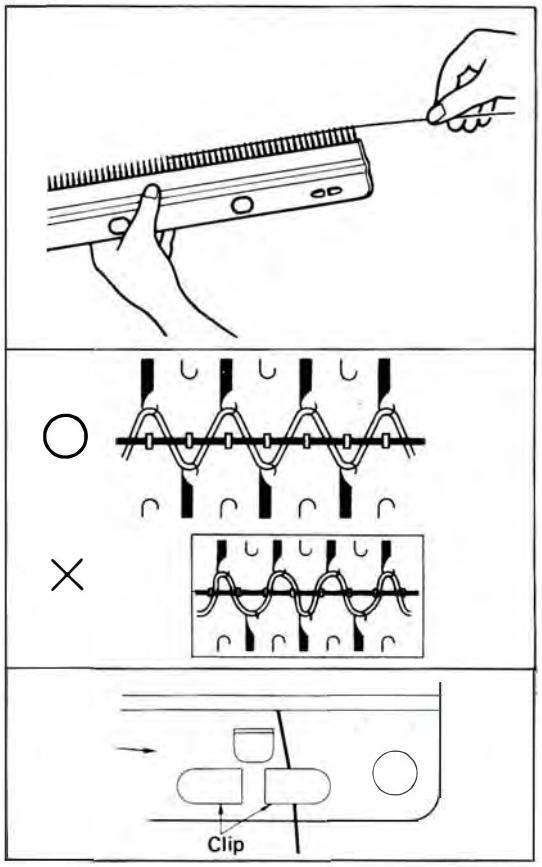


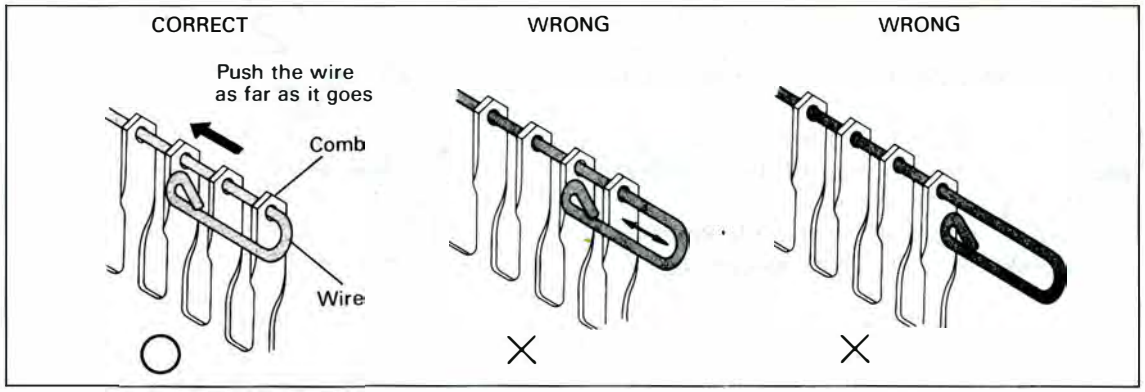
(4) Hang on the cast-on comb

a. Pull out the wire from the cast-on comb.
(Choose long or short one depending on the knitting width.)
Hold the cast-on comb with the face having the protrusions facing you and the comb on top.

b. Put the cast-on comb between the knitter and the ribber from underneath and insert the comb between the plain and purl needles in such a way that the top of the comb does not disturb or drop the yarn hanging the needles.
Pass the wire through the top of the combs with your right hand, while holding the comb with your left hand.

c. Hook the loose end of the yarn around the yarn clip to keep it out of the way and to tense the first stitch.





(5) Hang on the weights

Hang the weights as per Standard weights chart on page 16 on the cast-on comb to keep balance.

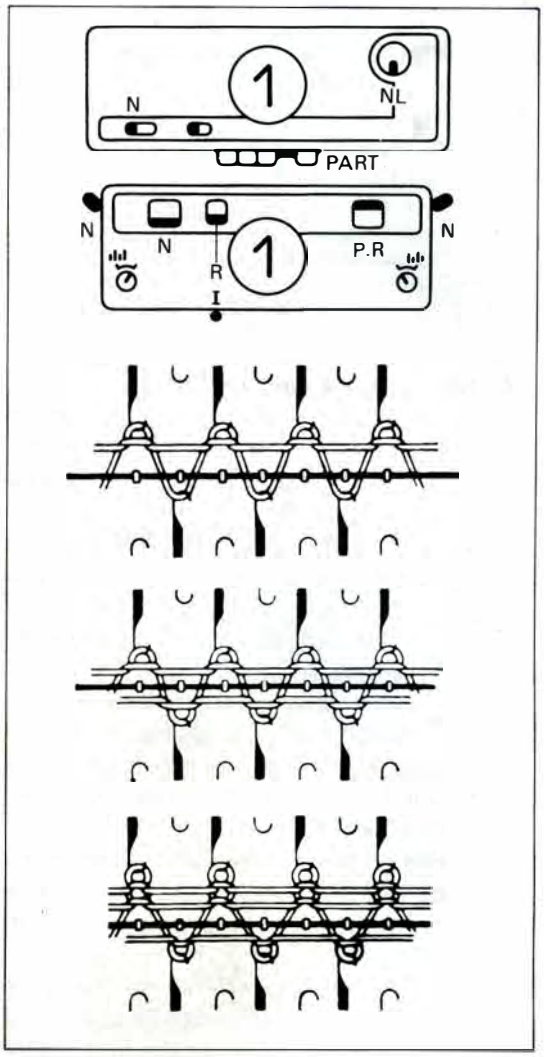
(6) Perfect selvedge

a. Set the carriages as shown in the Fig.

b. Move the connected carriage from left to right. (Only the plain needles knit.)

c. Move the connected carriage from right to left.
(The purl needles knit.)

d. Move the connected carriage from left to right.
(The plain needles knit.)
The perfect selvedge has completed.



1 × 1 RIB KNITTING

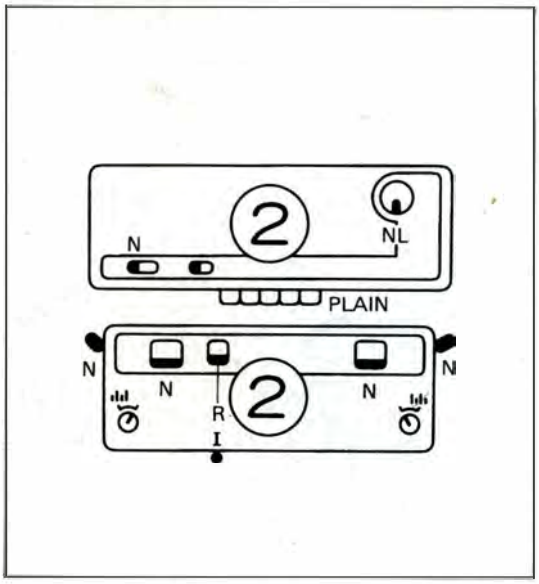
* After knitting the selvedge, set the carriages as shown in the Fig.
Then, continue the knitting.

Note: Don't take the carriage back until you hear the "click" or the carriage passes the last working needle.

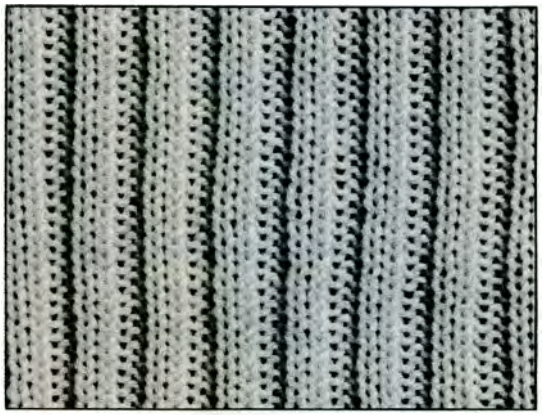
You are now able to do a finished end cast-on.

This method is very important, therefore please practice this cast-on two or three times.

If the carriage should jam while knitting, please refer to page 55 to release it.



2. How to knit 2 × 2 rib



2 × 2 rib is 2 knit and 2 purl rib.
In one row, 2 knit stitches alternate with 2 purl stitches and vertically form knit stitch over knit stitch and purl stitch over purl stitch.
In the following example, medium thickness wool is used.

CASTING-ON FOR 2 × 2 RIB

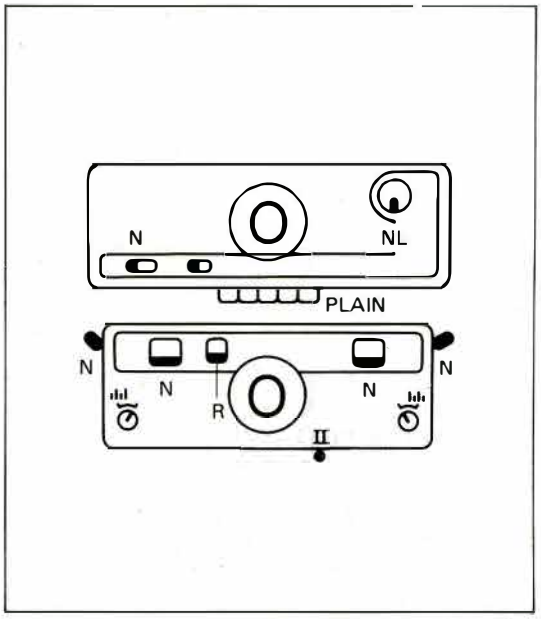
(1) Setting of carriage

Carriage (KH)

Change knob	: NL
Tension dial	: O
Holding cam lever	: N
Pattern selector button	: PLAIN

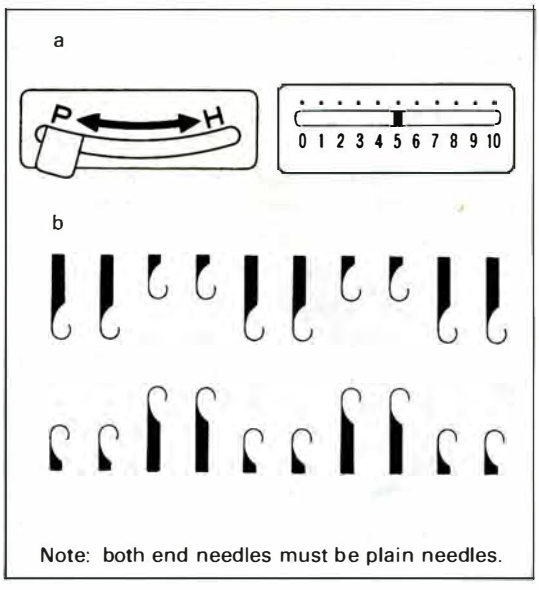
Carriage (KR)

Slide lever	: II
Tension dial	: O
Cam lever	: (L) N, (R) N
Tucking lever	: R
Holding cam lever	: (L) N, (R) N



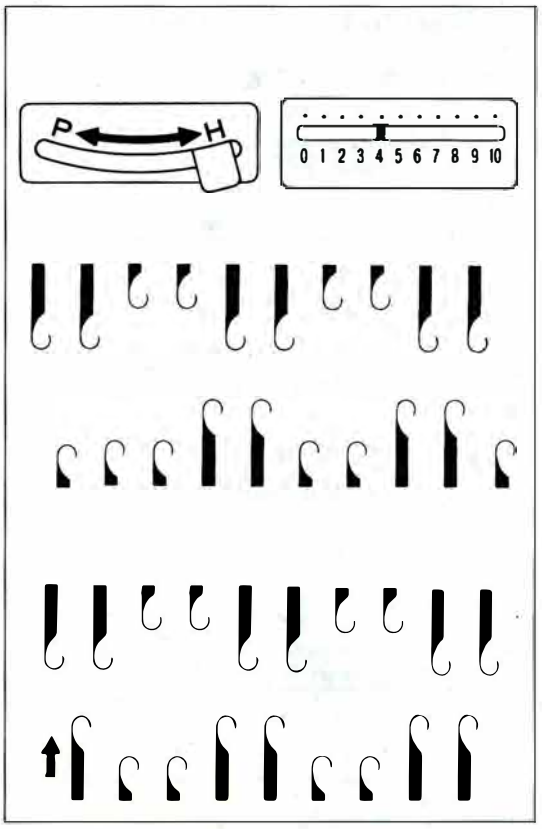
(2) Needle arrangement

a. Set the half pitch lever on "P", and racking indicator on No. 5.
b. By using 2/2 needle pusher, arrange the plain needles and purl needles in position B of each bed.



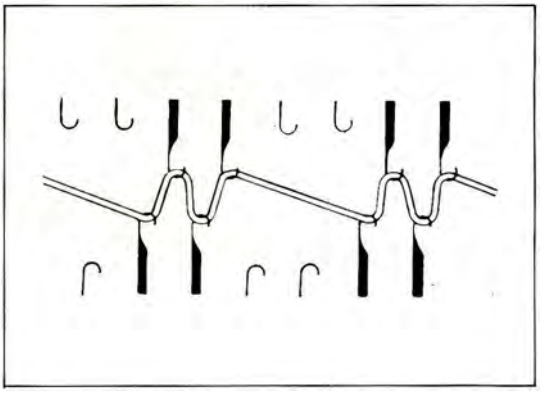
Note: both end needles must be plain needles.

c. Set the half pitch lever on "H".
d. Set the racking indicator on No. 4.
e. Raise a purl needle in the left side to position B.
f. Move the connected carriage a few times over all arranged needles to set them in a line.
Then, place the carriage at right end of the bed.



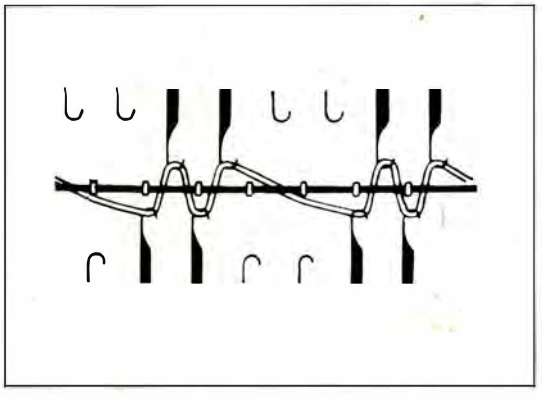
(3) First row knitting

a. Thread the yarn into the yarn feeder.
b. Move the connected carriage from right to left. (The yarn will hang on plain and purl needles.)



(4) Hang on the cast-on comb

* This is in the same way as 1 × 1 rib.
a. Hold the cast-on comb with the face having the protrusions facing you and the comb on top.
b. Put the cast-on comb between the knitter and the ribber from underneath and insert the comb between the yarn hanging on the needles. And pass the wire.
c. Hook the loose end of the yarn around the yarn clip.



(5) Hang on the weights

Hang the weights as per Standard weights chart on page 16 on the cast-on comb to keep balance.

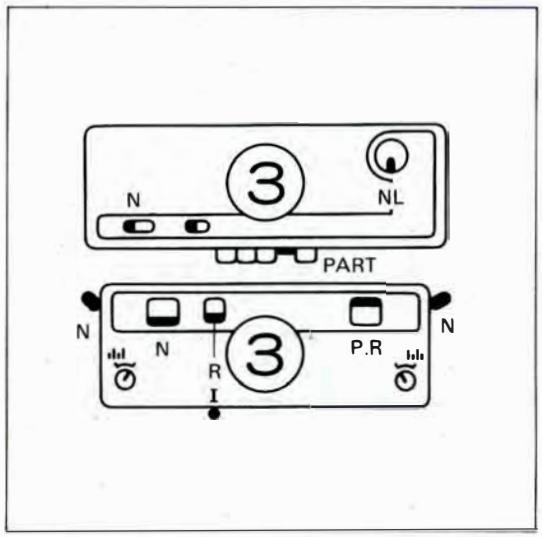
(6) Perfect selvedge

a. Set the carriages as shown in the Fig.

b. Move the connected carriage from left to right.
(Only the plain needles knit.)

c. Move the connected carriage from right to left.
(The purl needles knit.)

d. Move the connected carriage from left to right.
(The plain needles knit.)



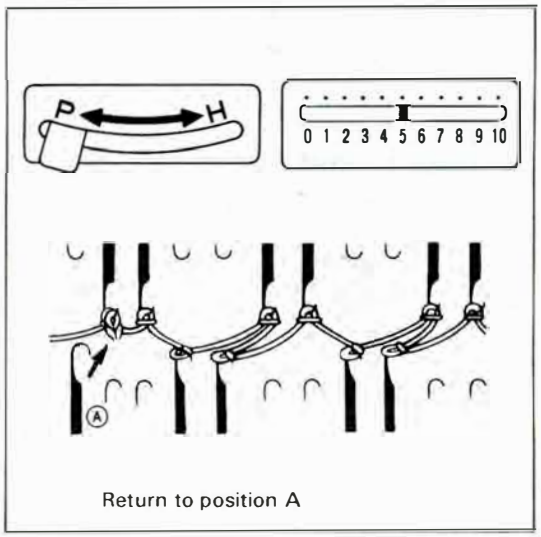
(7) Needle arrangement to change from selvedge of the 2 × 2 rib knitting.

a. Set the half pitch lever to position "P".

b. Set the racking indicator on No. 5.

c. By using the Double eyelet transfer needle, transfer the stitch of left end purl needle to the left end plain needle which has one stitch, and return the empty purl needle to position "A" of KR bed.

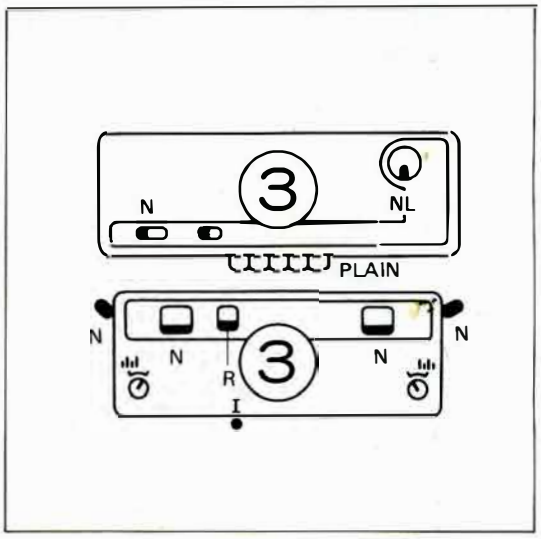
* How to transfer ..... see on page 52.



Return to position A

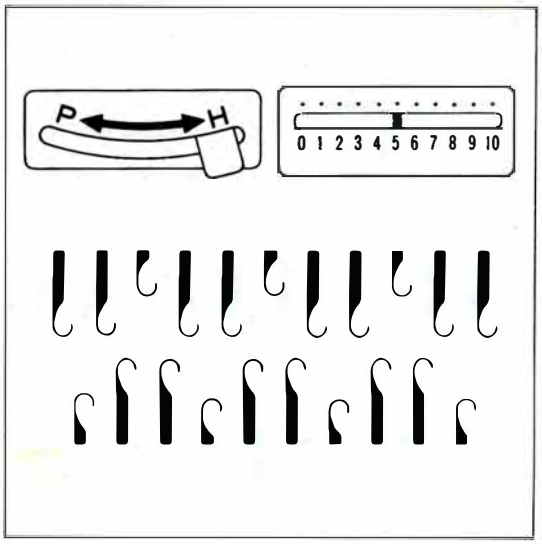
2 × 2 RIB KNITTING

* After knitting the selvedge, set the carriages as shown in the Fig.
Then, continue the knitting.



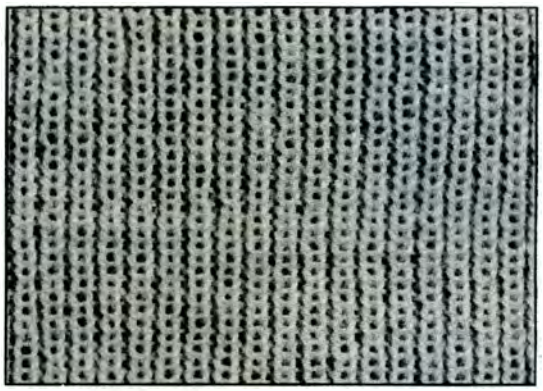
DIFFERENT METHOD OF 2 × 2 RIB KNITTING

a. Set the half pitch lever to "H", and arrange the needles as shown in the Fig.
b. Set the racking indicator on No. 4. Raise the left end purl needle to position B of KR bed.
c. From the step "first row knitting" to "selvedge" are the same as original method. After selvedge, set the racking indicator on No. 5.
d. Transfer the left end purl stitch to the plain needle, and return the empty needle to A position of KR bed.
e. The knitting is the same as original method.



3. How to knit full needle rib

Knitting method of full needle rib is the same as for 1 × 1 rib. Difference is the needle arrangement only. In 1 × 1 rib, every other needles are used but in full needle rib, all needles are used. Fine wool (ex. 2ply) is suitable for this rib knitting.
You'd better use the Fine Bar to knit very thin yarn smoothly. Refer to page 17 and set the Fine Bar.



CASTIMG-ON FOR FULL NEEDLE RIB

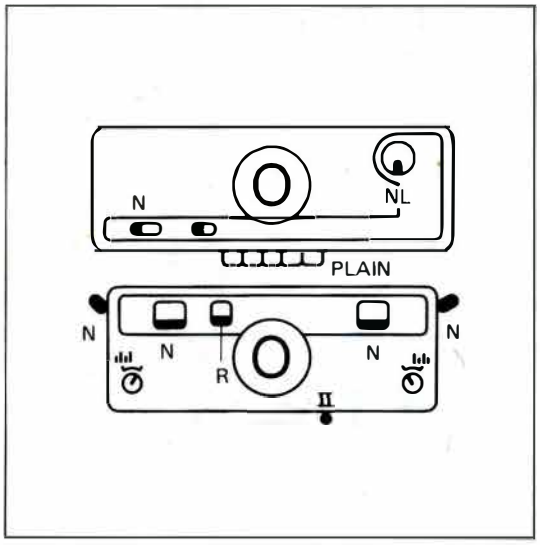
(1) Setting of carriage

Carriage (KH)

Change knob	: NL
Tension dial	: O
Holding cam lever	: N
Pattern selector button	: PLAIN

Carriage (KR)

Slide lever	: II
Tension dial	: O
Cam lever	: (L) N (R), N
Tucking lever	: R
Holding cam lever	: (L) N, (R) N

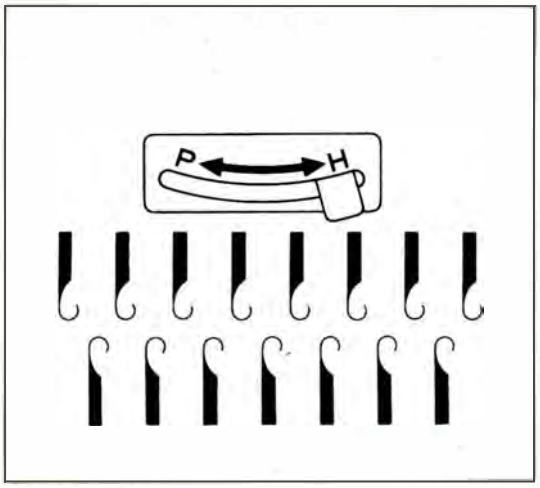


(2) Needle arrangement

a. Set the half pitch lever to "H"

b. Arrange the plain and purl needles in position B of each bed.
Note: Both end needles must be plai needles.

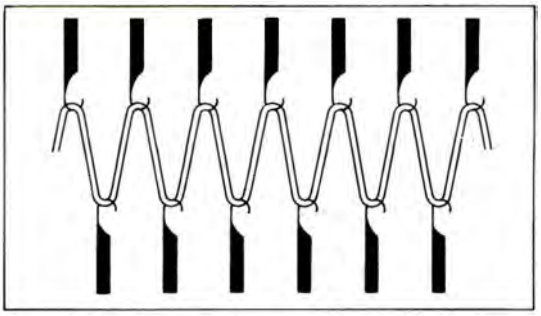
c. Move the connected carriage a few times over all arranged needles to set them in a line. Then, place the carriage at right end of the bed.



(3) First row knitting

a. Thread the yarn into the yarn feeder.

b. Move the connected carriage from right to left. (The yarn will hang on plain and purl needles.)



(4) Hang on the cast-on comb

This is the same as 1 × 1 rib.

(5) Hang on the weights

Hang the weights as per Standard weights chart on page 16 on the cast-on comb to keep balance.

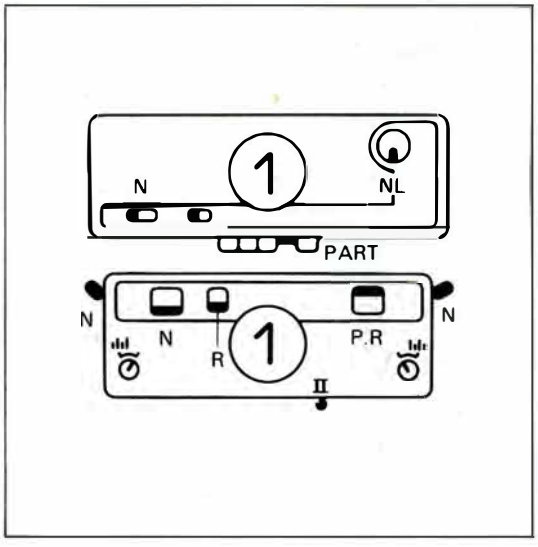
(6) Perfect selvedge

a. Set the carriages as shown in the Fig.

b. Move the connected carriage from left to right. (Only the plain needles knit.)

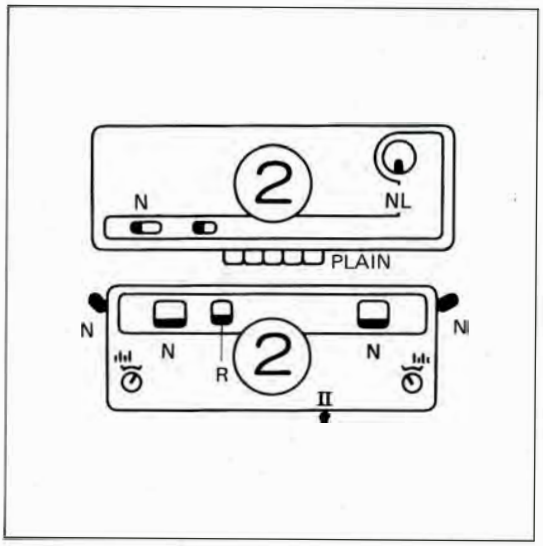
c. Move the connected carriage from right to left.
(The purl needles knit the stitches.)

d. Move the connected carriage from left to right. (The plain needles knit.)

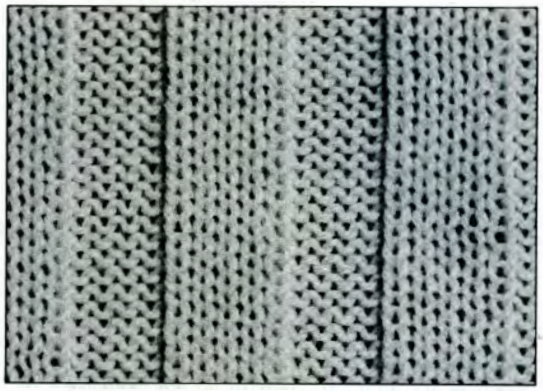


FULL NEEDLE RIB KNITTING

* After knitting the selvedge, set the carriages as shown in the Fig. Then, continue the knitting.



4. How to knit 5 × 5 rib



5 × 5 rib is called 5 knit 5 purl rib. In one row, there are 5 knit stitches alternating with 5 purl stitches, and vertically, from knit stitch over knit stitch and purl stitch over purl stitch.
The following example is knitted with medium thickness wool.
You can knit 3 × 3 rib or 4 × 4 rib or so in the same way.

CASTING-ON FOR 5 × 5 RIB

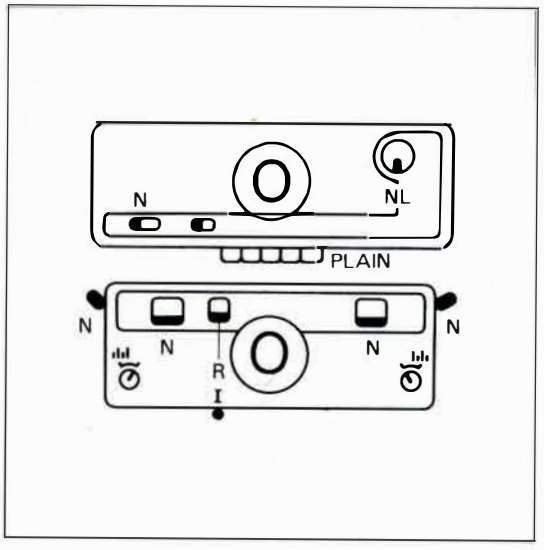
(1) Setting of carriage

Carriage (KH)

Change knob	: NL
Tension dial	: 0
Holding cam lever	: N
Pattern selector button	: PLAIN

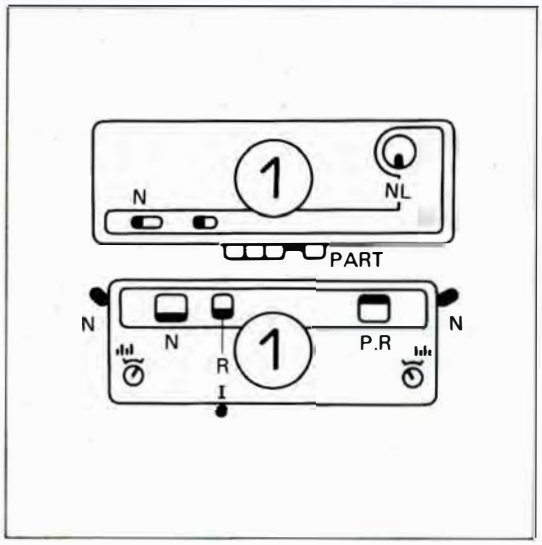
Carriage (KR)

Slide lever	: II
Tension dial	: 0
Cam lever	: (L) N (R), N
Tucking lever	: R
Holding cam lever	: (L) N, (R) N



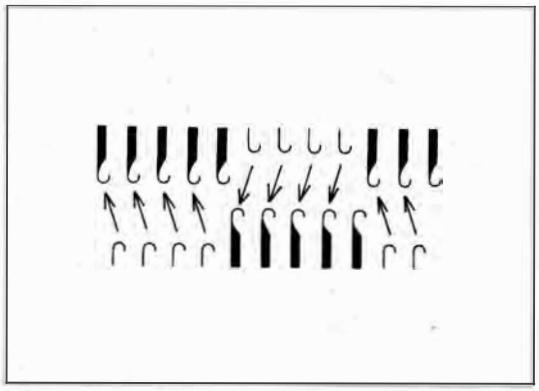
(2) "Needle arrangement", "First row knitting", "Hang on the cast-on comb" and "Hang on the weights" are the same as full needle rib.

(3) Perfect selvedge
   a. Set the carriages as shown in the Fig.
   b. Move the connected carriage from right to left.
      (Only the plain needles knit.)
   c. Move the connected carriage from left to right.
      (The purl needles knit.)
   d. Move the connected carriage from right to left.
      (The plain needles knit.)

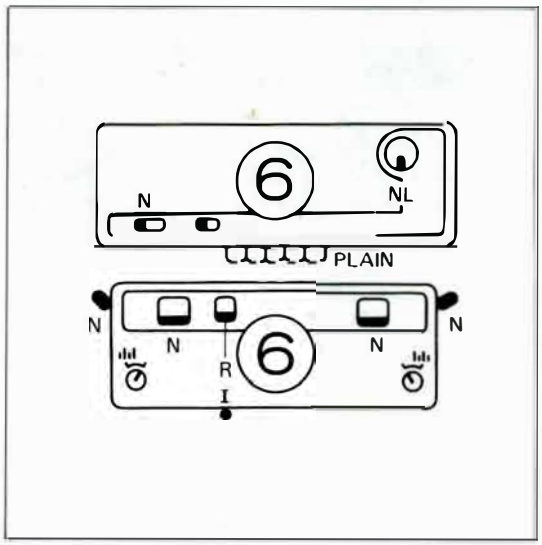


5 × 5 RIB KNITTING

(1) After knitting the selvedge, by using the Double eyelet transfer needle, transfer the stitches to corresponded needles, and return the empty needles to position A of each bed.



(2) Set the carriages as shown in the Fig. Then, continue the knitting.



5. How to knit circular knitting

Circular knitting is made up of only plain knit stitches, and is a jointless tube. Size of tube depends on the number of needles. Before you start to knit the garment, make the test piece to check the tension guage. If there is slacken on the side, please adjust by the tension dial on the KR carriage. The example is knitted with medium thickness wool.



CASTING-ON FOR CIRCULAR KNITTING

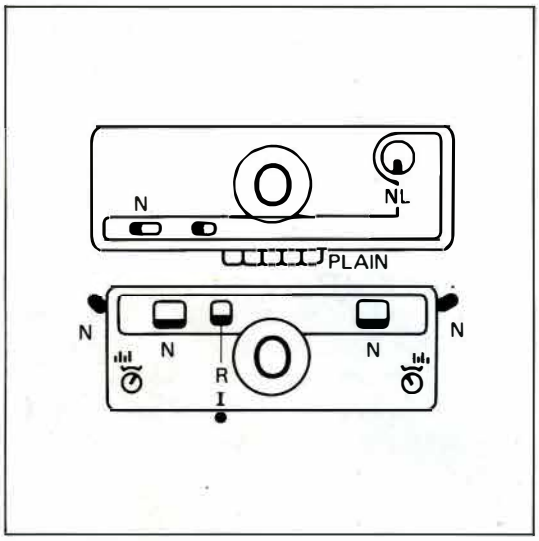
(1) Setting of carriage

Carriage (KH)

Change knob	: NL
Tension dial	: 0
Holding cam lever	: N
Pattern selector button	: PLAIN

Carriage (KR)

Slide lever	: I
Tension dial	: 0
Cam lever	: (L) N (R), N
Tucking lever	: R
Holding cam lever	: (L) N, (R) N



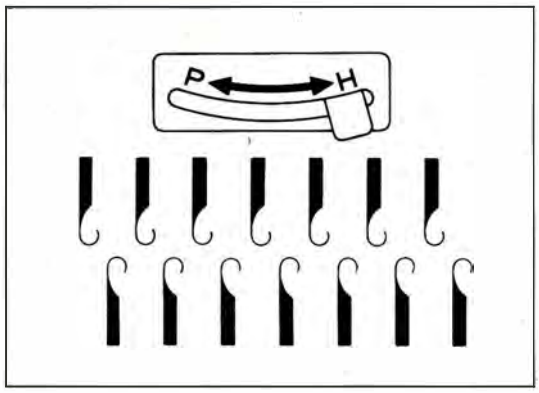
(2) Needle arrangement

a. Set the half pitch lever to "H".

b. Arrange the plain and purl needles in position B of each bed.

Note: The number of needles between plain and purl needle must be same.

c. Move the connected carriage a few times over all arranged needles to set them in a line. Then, place the carriage at right end of the bed.



(3) First row knitting

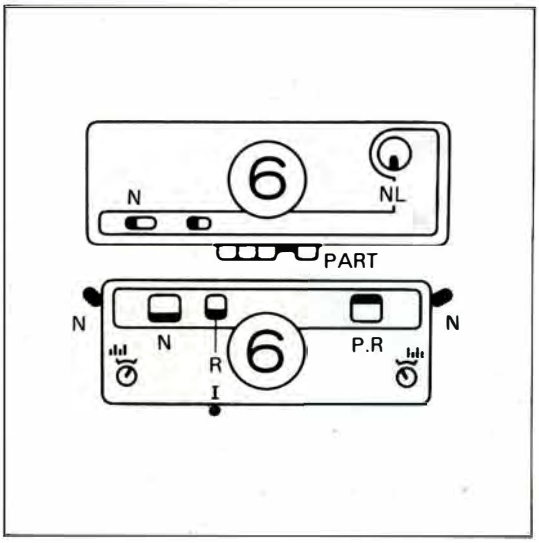
a. Thread the Cast-on thread provided in the accessories of KH into the yarn feeder.

b. Move the connected carriage from right to left. (The cast-on thread will hang on plain and purl needles.)

(4) Hang on the cast-on comb
*This is the same way as 1 × 1 rib.
(5) Hang on the weights
Hang the weights as per Standard weights chart on page 16 on the cast-on comb to keep balance.
(6) Remove the cast-on thread from the yarn feeder, and rethread the knitting yarn into the feeder.

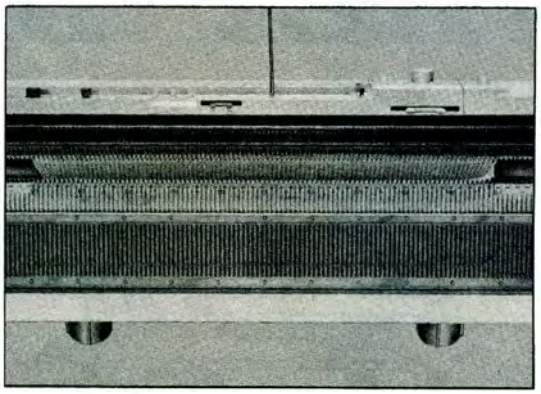
CIRCULAR KNITTING

*Set the carriages as shown in the Fig. Then, continue the knitting.



6. How to knit "U" style knitting

This garment is made of all plain knitting stitches. The knitter side and the ribber side are connected at only one side. This knitting is used for work of more than 200 stitches width. In the following, the garment is knitted with closed right side and open left side.

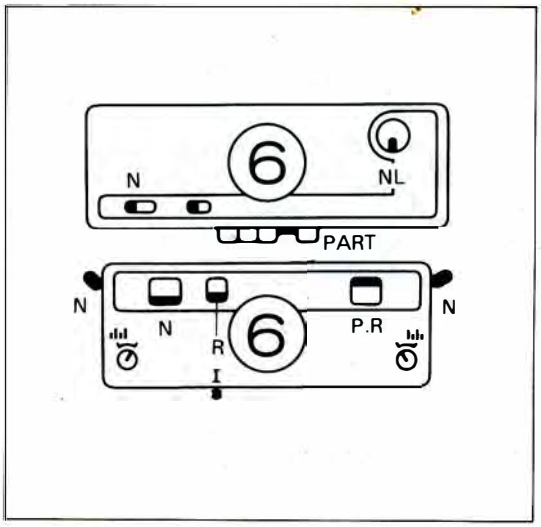


CASTING-ON FOR "U" STYLE KNITTING

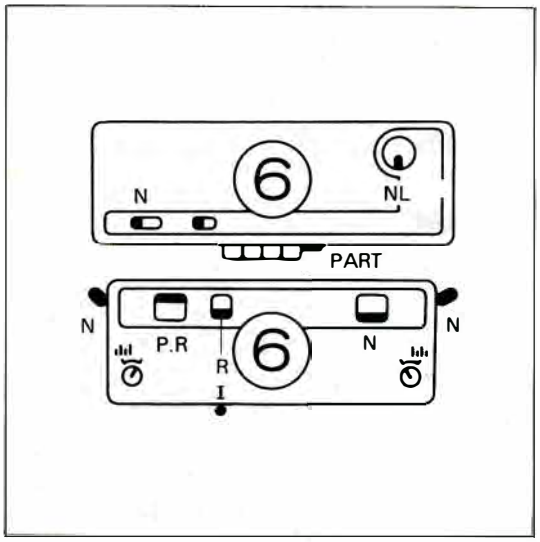
*This is the same as for circular knitting. The connected carriages is on the left side of the bed after casting-on.

"U" STYLE KNITTING

(1) Set the carriages as shown in the figure and knit 2 rows.



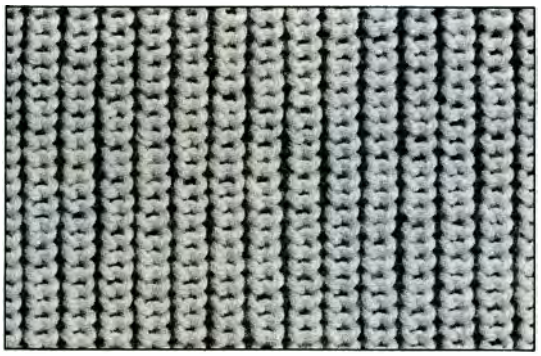
(2) Then, reset the carriages as shown in the figure and knit 2 rows.



(3) Repeat step (1) to (2), then you can make "U" style knitting.

7. How to knit English rib

English rib is a variety of 1 × 1 and knitter side is plain stitch but ribber side is tuck stitch.
The example is knitted with medium thickness wool



CASTING-ON FOR ENGLISH RIB

*This is the same as for 1 × 1 rib.

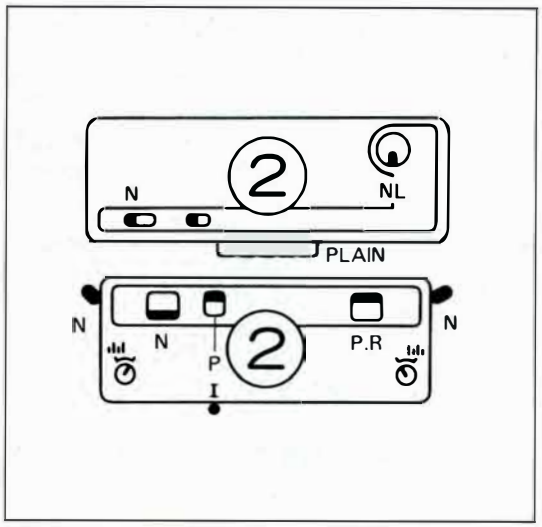
ENGLISH RIB KNITTING

* Set the carriages as shown in the Fig. and continue the knitting.

Note: Hang the Wire-loop type weight hanger and small weight on the edge of the knitting work to avoid stitch dropping.

How to use ..... see on page 16.

When the end of the needles are in the ribber's side in knitting English rib and fisherman's rib, bring forward the end needles to position E.
(Position D in partial knitting.)



8. How to knit fisherman's rib

Fisherman's rib is made of tucking stitches on both sides of garment.
The example is knitted with medium thickness wool.

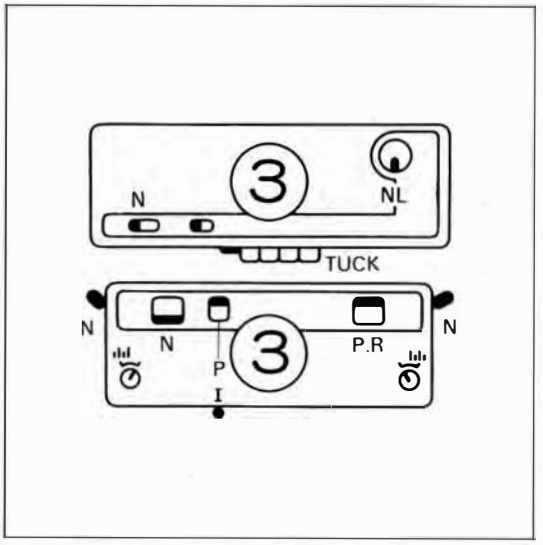


CASTING-ON FOR FISHERMAN'S RIB

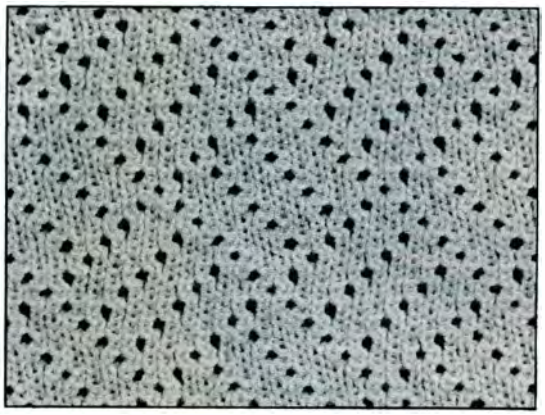
* This is the same as for 1 × 1 rib.

FISHERMAN'S RIB KNITTING

* Set the carriages as shown in the figure and continue the knitting.



9. How to knit tucking pattern



Tucking pattern is a variation of 1 × 1 rib or full needle rib. In the following description, tucking pattern of full needle rib is made. The example is knitted with fine wool (Ex. 2ply)

* You'd better use the Fine Bar.

CASTING-ON FOR TUCKING PATTERN

* This is the same as for full needle rib.

TUCKING PATTERN KNITTING

(1) Take the punch card provided in the KH punch cards, and set it to the knitting machine.

(2) After knitting the selvedge, move the connected carriage from right to left. (Remaining the carriage setting.)

(3) Set the starting line of the punch card, and card lock lever to ●.

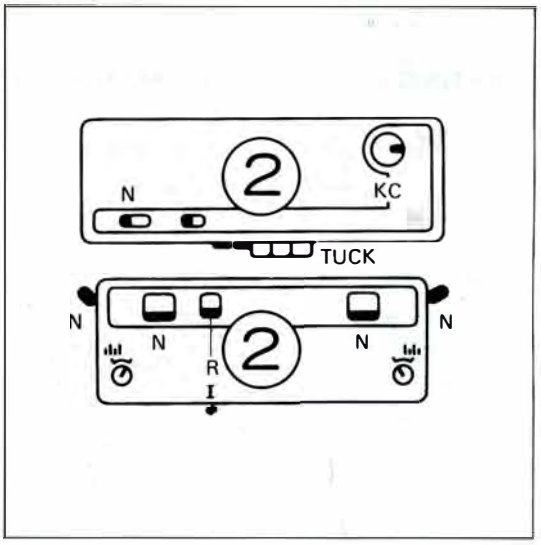
(4) Set the change knob to "KC".

(5) Move the connected carriage from left to right.
(The plain needles knit, and corresponded needles to the punch card are brought to position D of KH bed.)

(6) Set the card lock lever to ▼.

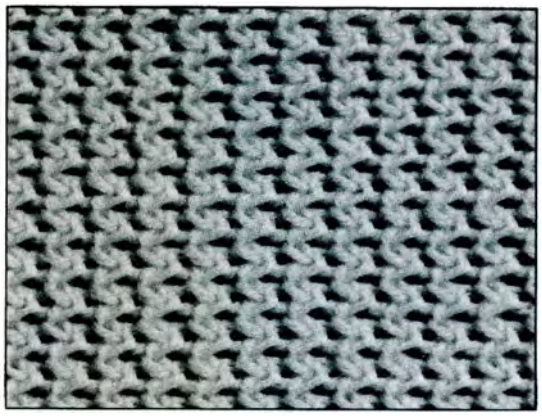
(7) Set the carriages as shown in the Fig.

(8) Continue the knitting.
Note: If the end needles of KH bed is not brought by the carriage, bring to position D by hand.



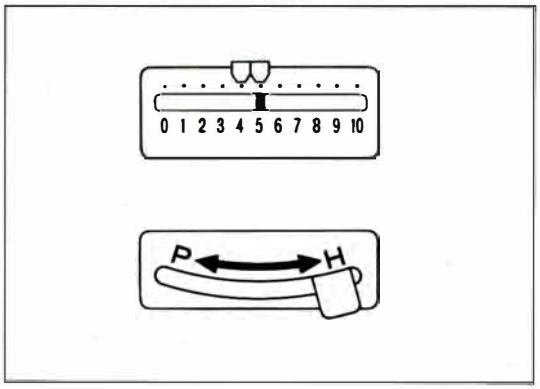
10. How to knit racking pattern of English rib

This garment is added racking operation to English rib knitting.
The garment is not so elastic.
The example is knitted with medium thickness wool.



CASTING-ON FOR RACKING PATTERN OF ENGLISH RIB

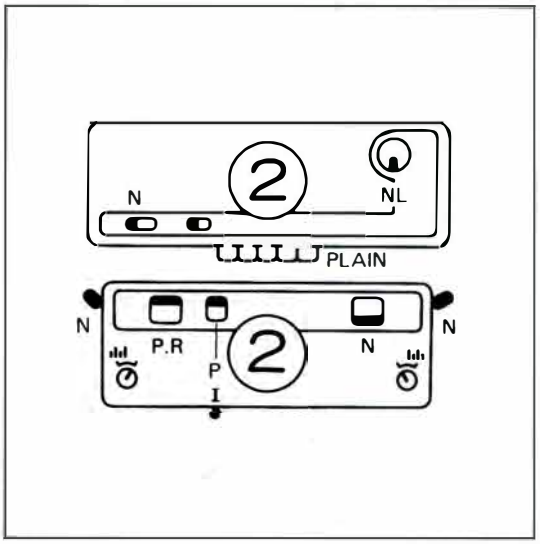
(1) Set the racking indicator on No. 5, and cursors on the indicator to No. 4 and No. 5.
(2) The other steps are the same as for 1 × 1 rib.
(3) After knitting the selvedge, set the half pitch lever on "H".



RACKING PATTERN KNITTING

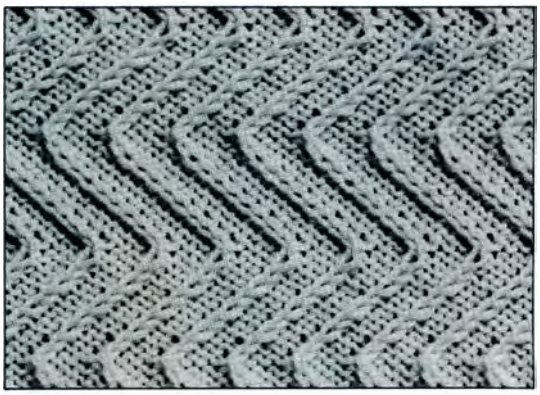
(1) Set the carriage as shown in the Fig.

(2) Move the connected carriage from right to left. (The plain needles knit and purl needles have two loops each on their hooks.)
(3) Set the racking indicator on No. 4.
(4) Knit two rows.
(5) Set the racking indicator on No. 5.
(6) Move the connected carriage from left to right. (One row)
(7) repeat step (2) to (6).



11. How to knit racking pattern (I)

You can knit this pattern by racking the ribber pitch by pitch.
The example is knitted with medium thickness wool.

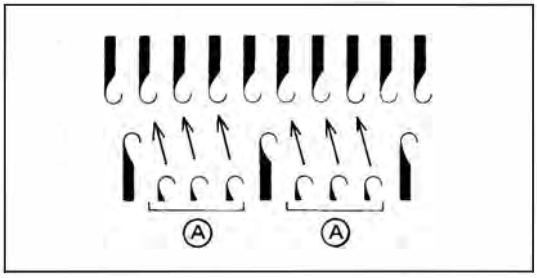


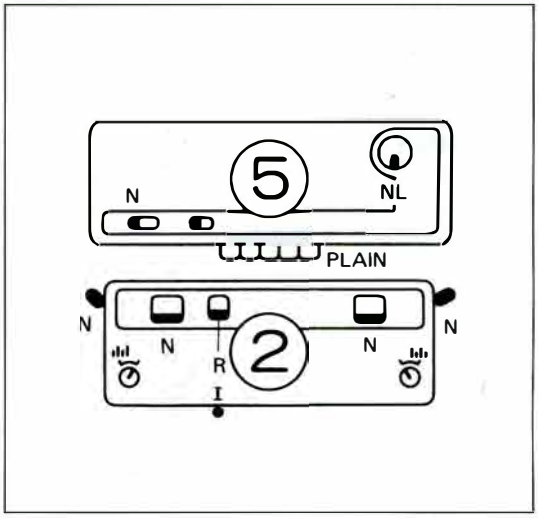
CASTING-ON FOR RACKING PATTERN (I)

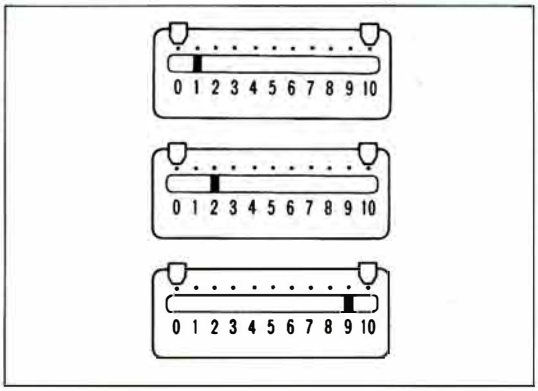
* Set the racking indicator on No. 0.
The other steps are the same as for full needle rib.

RACKING PATTERN (I) KNITTING

(1) After knitting the selvedge, using the Double eyelet transfer needle, transfer the part (A) stitches to opposite plain needles, and return the empty needles to position A of KR bed.
How to use ..... see on page 52.
(2) Set the carriages as shown in the Fig.
(3) Move the connected carriage from right to left. (The plain and purl needles knit.)
(4) Set the racking indicator on No. 1.
(5) Move the connected carriage from left to right.
(6) Set the racking indicator on No. 2.
(7) Continue the same manner until the racking indicator indicates No. 10.
(8) Move the connected carriage from right to left.
(9) Set the racking indicator on No. 9.
(10) Continue the same manner until the racking indicator indicates No. 0.
(11) The pattern knitted from step (3) to (10) is one cycle.
Note: Don't turn the racking grip handle when the needles are raised over the gate pegs.







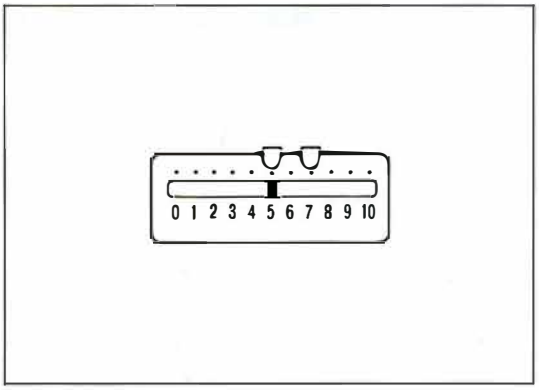
12. How to knit racking pattern (II)

This pattern can be knitted by racking the ribber two pitches in every other row.
The example is knitted with fine (ex. 2ply) wool.



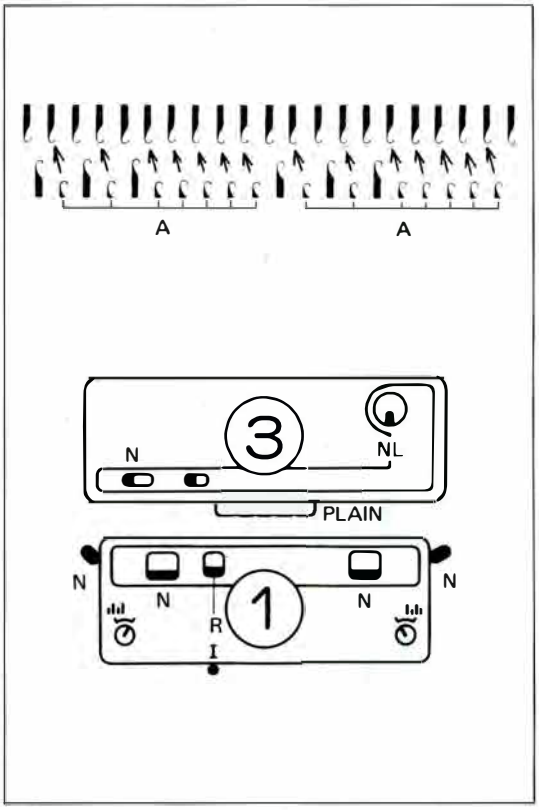
CASTING-ON FOR RACKING PATTERN (II)

* This is the same as for full needle rib, and set the cursors to No. 5 and No. 7.

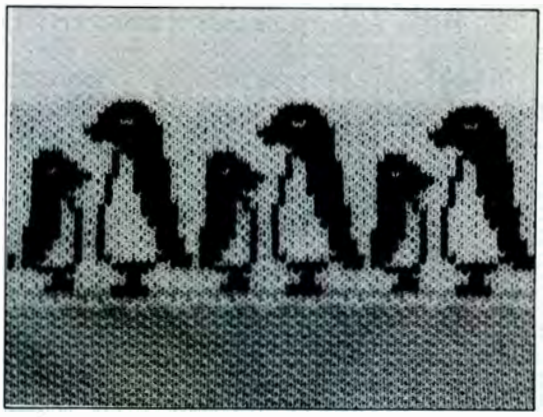


RACKING PATTERN (II) KNITTING

(1) After knitting the selvedge, using the Doubel eyelet transfer needle, transfer the part (A) stitches to opposite plain needles, and return the empty needles to position A of KR bed.
(2) Set the carriages as shown in the figure.
(3) Move the connected carriage from right to left.
(4) Move the connected carriage from left to right.
(5) Set the racking indicator on No. 7.
(6) Move the connected carriage from right to left.
(7) Move the connected carriage from left to right.
(8) Set the racking indicator on No. 5.
(9) Repeat the step (3) to (8).



13. How to knit Multi-colour rib knitting pattern using the Double Bed Colour Changer (1/1 Needle Selection)



★ In this pattern you need to use the Double Bed Colour Changer that is an option, so read its instruction manual as well as this explanation.

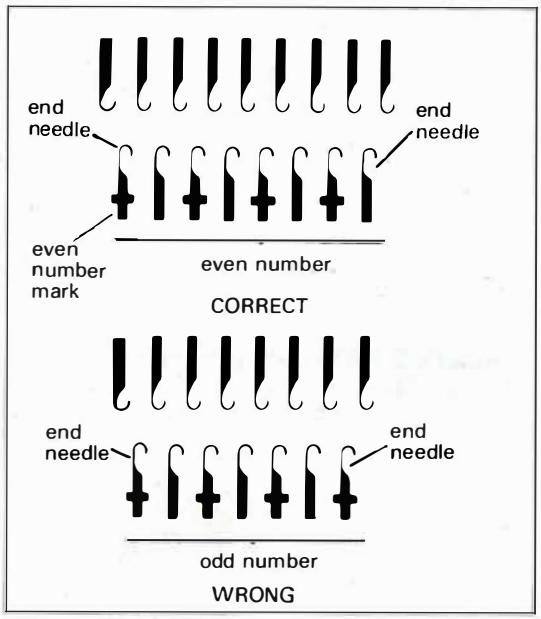
★ You can knit beautiful multi-colour rib knitting pattern with the 1/1 needle selection system that have the needles of KR side selected alternately.

NEEDLE ARRANGEMENT

Arrange the needles of KR side in even number. You can see the number easily by the even number marks on the Needle Position Indicator.

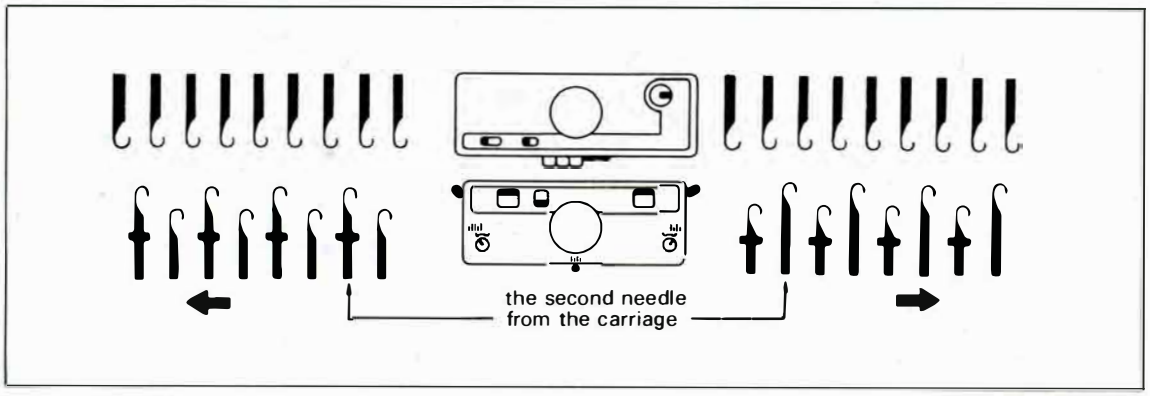
★ If you knit with odd number needles, you shall not able to knit any more after a few rows.

Arrange the right or left needle on the even number mark. (not both needles)



NEEDLE SELECTION (BY KR CHANGE KNOB)

The needles of KR are always selected alternately from the second needle looking from the carriage side.



HOW TO KNIT MULTI-COLOUR RIB KNITTING PATTERN

(1) Set the Colour Changer (KRC830) and make preparation to use it. (Refer to its instruction manual.)

(2) Knit several rows and place the Carriage at the left side.

(3) Set the card for the start and then set the card lock lever at "●".

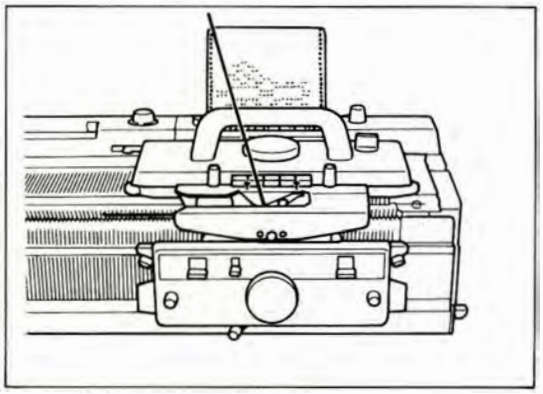
(4) Set the change knob of K carriage for "KC" and then move the carriage to right. The knitting needles in KH are selected.

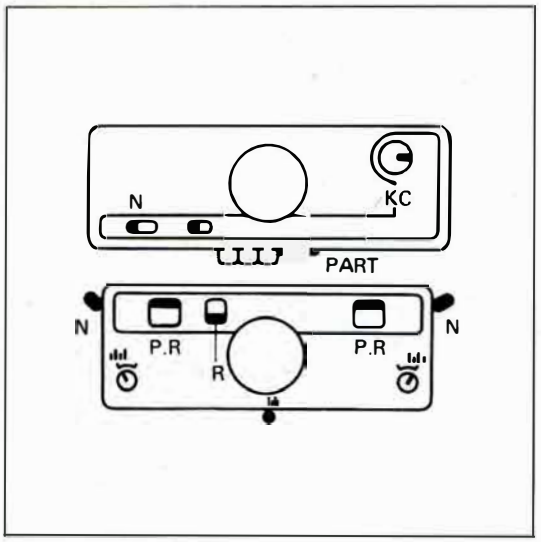
(5) Set the knobs and levers as follows.

KH: a. Set the card lock lever at "▼".
b. Push both cam buttons for PART at the same time.

KR: c. Set the Cam Lever (L) & (R) to PR.
d. Push KR Change Knob (L) & (R) and turn to the |||| mark. (The knobs remain pushed in.)
e. Change the Slide Lever to the |||| mark.
f. Change the Tension Dial accoding to the following chart.

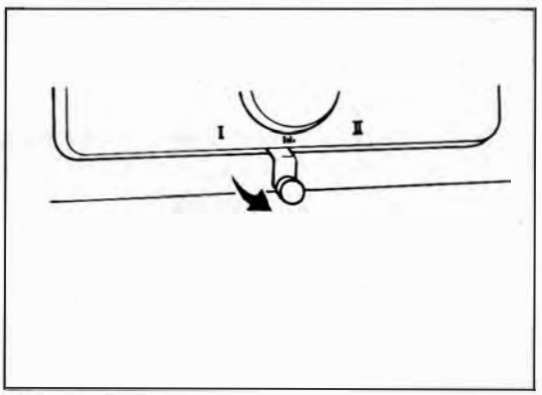
(1 ply) very fine yarn	(2 ply) fine yarn	(3 ply) medium yarn
1 ~ 2	2 ~ 3	3 ~ 4



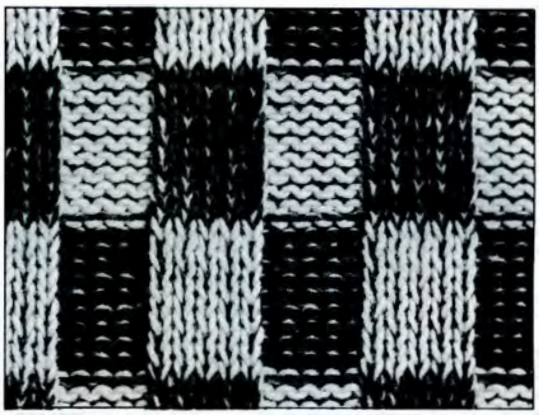


(6) Hang Claw Type Weight Hangers and Small Weights at both edges of the garment.
Operate the Carriage to left.
Change the yarn according to the number in the left side of the punch card.

* Rehang the weights at every 30 rows.



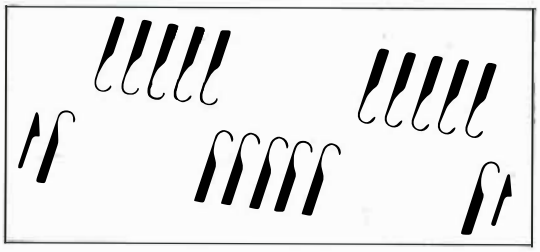
14. How to knit plating yarn knitting



You can enjoy Plating yarn knitting with a double bed by changing the yarn feeder to the Plating Yarn Feeder.
It is possible to use two yarns at the same time and the main yarn will appear on the plain side and the plating yarn will appear on the purl side.
In ribbing pattern, the plain stitch and purl stitch appear on the same side of the garment so you can enjoy various patterns. (1 × 1 rib, 2 × 2 rib, 5 × 5 rib, Full needle rib, Racking pattern, are possible.)

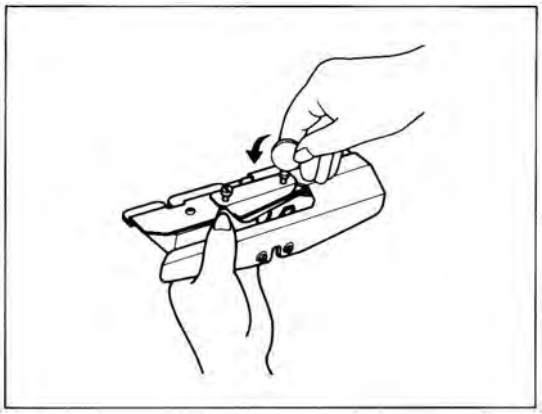
Standard Tension Chart for Plating Yarn Knitting				
	1 × 1 rib	2 × 2 rib	5 × 5 rib	full needle rib
Medium (3ply) & Fine (2ply)	5 ~ 6	5 ~ 6	7 ~ 8	—
Fine & Fine	3 ~ 4	4 ~ 5	6 ~ 7	5 ~6
Very fine (1ply) & Very fine	2 ~ 3	3 ~ 4	5 ~ 6	4 ~ 5
Super fine & Very fine	0 ~ 1	1 ~ 2	3 ~ 4	3 ~ 4

★ Set the Slide Lever to I whenever you knit plating yarn knitting.
* Hang Claw Type Weight Hangers and Small Weights at both edges of the garment. (Hang them again at every 30 rows.)
* When you knit with very fine yarn (T.D. 0 ~ 3) use the Fine Knitting Bar and bring forward the edge needles of KH to E position to make edge stitches securely.
* When the edge needles are KH needles in 5 × 5 rib or Racking Pattern, bring forward the next KR needles to B position.

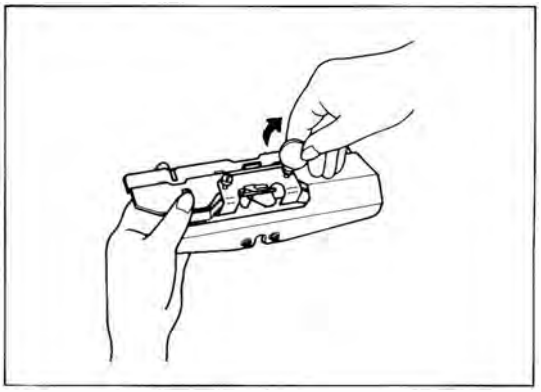


When the Plating Yarn Feeder is attached, do not set the Tucking Lever on P. (The needles might be damaged.)

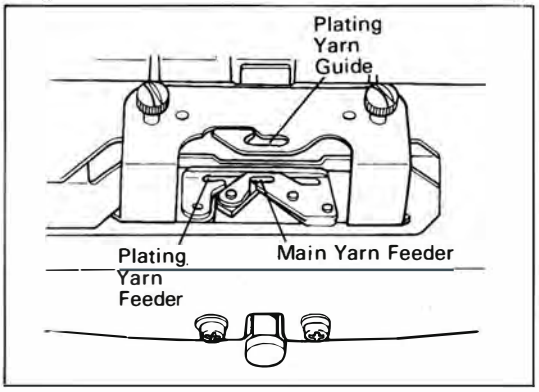
(1) Loosen two screws by the accessory spanner or a coin and remove the Yarn Feeder from the Connecting Arm.

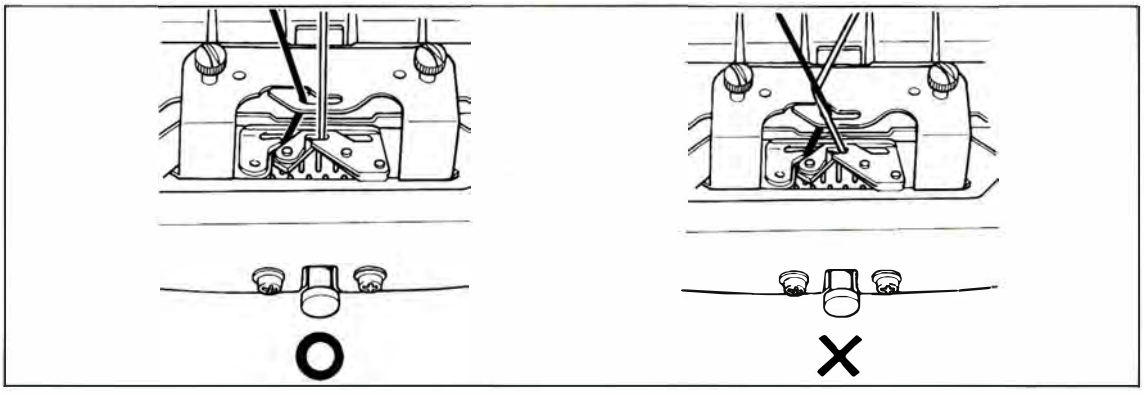


(2) Set the Plating Yarn Feeder to the Connecting Arm as shown in the figure.
(3) Then fasten the screws.
(4) Thread the main yarn to the right side of the Yarn Tension Unit and the plating yarn to the left side of it.



(5) Disconnect the KR carriage from the Connecting Arm.
Thread the main yarn into the Main Yarn Feeder and the plating yarn into the Plating Yarn Feeder.
* Thread only the Plating yarn into the Plating Yarn Guide.
* Make sure that the two yarns do not cross.

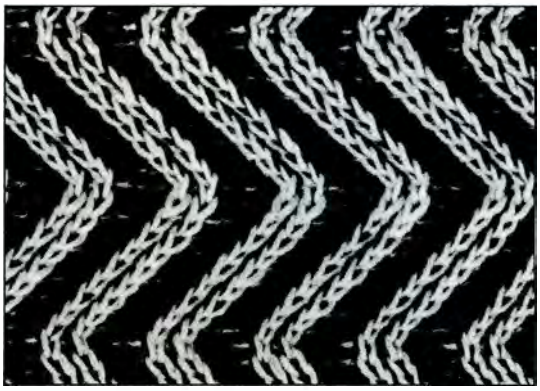




★ If you want to reverse the main yarn and the plating yarn, change them after putting the Carriage at the right side of the machine.
Change the yarns after disconnecting the KR carriage from the Connecting Arm.
Operate the carriage with pulling the yarn by hand lest the yarn should slacken when you start knitting again.

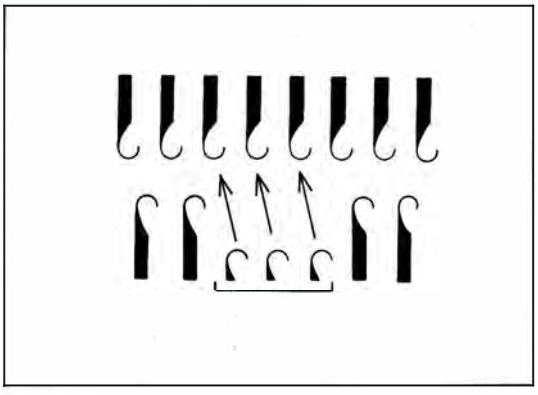
Racking Pattern in Plating Yarn Knitting
In this pattern, the Racking (KR side) stitches are distinguished from the ground as they are knitted different colours.
You can enjoy a beautiful contrast pattern.

The example is knitted with the conbination of fine yarns. (2 ply)

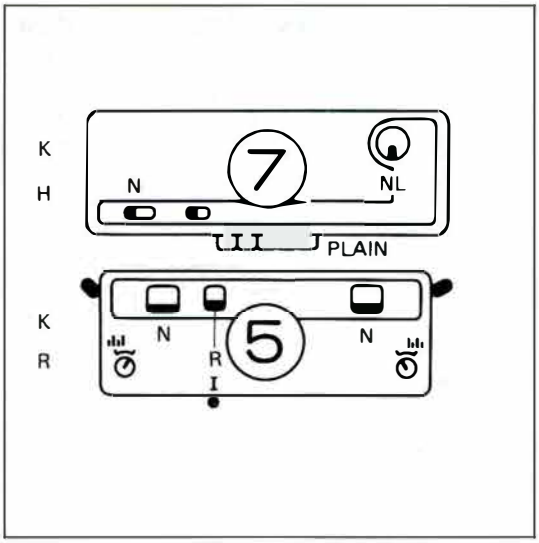


(1) Set the Racking Indicator on No. 0.
Thead the main yarn into the Yarn Feeder and make a selvedge.
* In plating yarn knitting, you can't set the Slide Lever to II. So do not thread two yarns when you make a selvedge with setting the lever to II.

(2) Arrange the needles as shown in the figure by using the Transfer Needle.



(3) Set the Carriages as shown in the figure.



(4) Swing the ribber pitch by pitch in every row. After swinging ten pitch, swing back the ribber to No. 0 again. Repeat these steps.

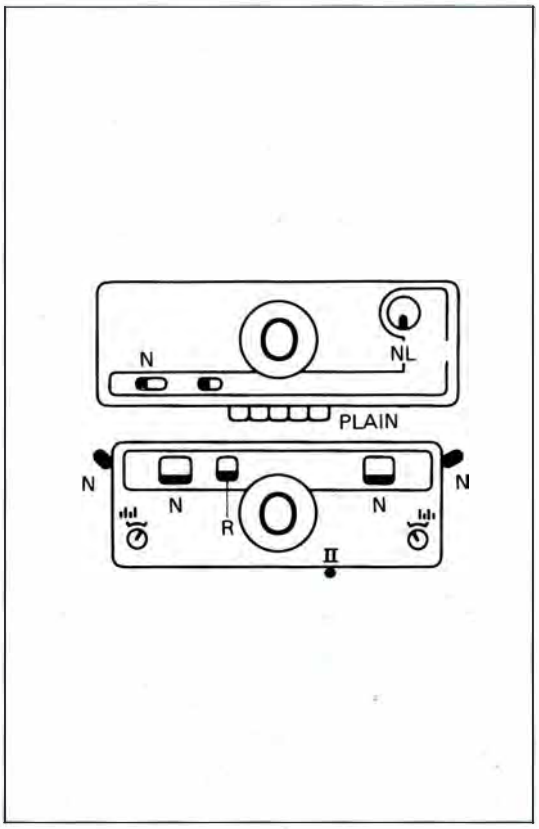
* Do not use End Stitch Presser Plate when you knit racking pattern.

VIII. MAKING GARMENTS

1. How to make a tight selvedge

You can make a tight selvedge with adding more tension to the yarn especially when you knit fine yarn.

(1) Carriage setting



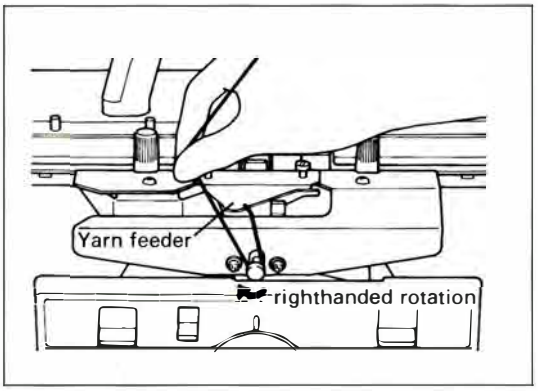
(2) Bring forward the required needles and place the carriage at the right side after moving it a few times.

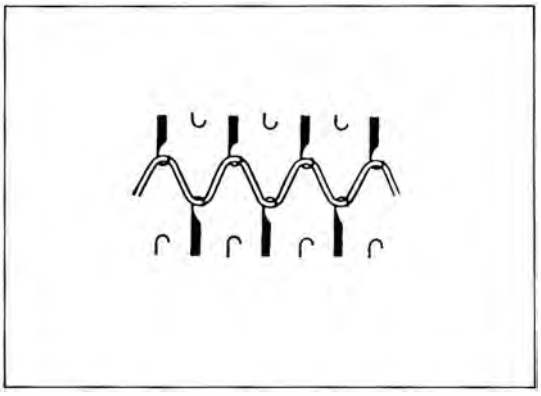
(3) Thread the yarn into the yarn feeder and hang it around the Connecting pin as shown in the figure.

(4) Operate the Carriage slowly from right to left.
After you hear "click", stop the carriage and take the yarn off from the Connected pin.

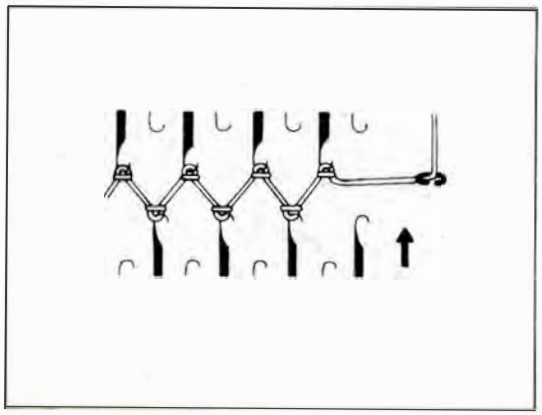
(5) Continue to move the Carriage to left end.
Make sure that the yarn hang on both knitter perfectly.

(6) Now you have finished the casing-on. Make a selvedge according to the procedure as we told before.





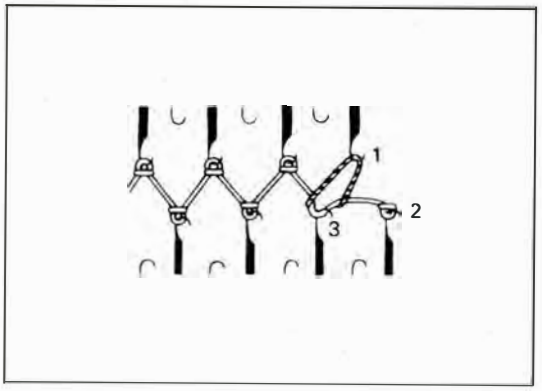
2. Increasing the stitches



(1) Increasing one stitch on one side of knitting width.

SIMPLE METHOD

a. Place the carriage on the side which you want to increase.
b. Raise the end needle to the working position B.
c. The empty needle will pick up the yarn, as it knits the next row.



FULL FASHIONED METHOD

a. Use the transfer needle, move the first stitch ① onto the adjacent empty needle ②.
Now second needle from the end becomes empty.
b. Pick up either neighbouring lower loop ③, and hook on the empty needle ①.

(2) Increasing more than two stitches on either side of the garment.

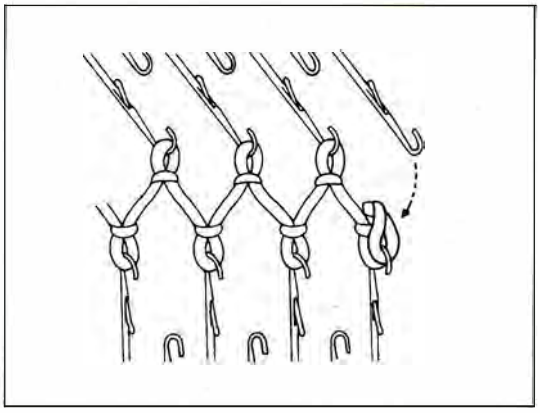
a. Place the carriage opposite to the side you want to increase.
b. Bring into action on the side opposite to the carriage as many needles as the number of stitches to be increased.
c. Move the carriage.
d. The yarn will hang on the increased needles on both sides.
e. Hang the wire loop type weight hangers and small weights on both side of the knitting.
f. Continue the knitting.

3. Decreasing the stitches

(1) Decreasing one stitch on either end.

SIMPLE METHOD

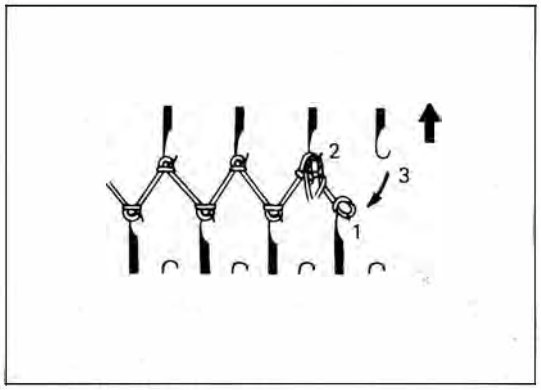
* By using the transfer tool, transfer the end stitch to the second needle, and take the empty needle out of action.



SECOND METHOD

a. Use the two eyelet transfer needle. Transfer the stitch ① to the needle ② and the end stitch to the needle ①. Put back the empty needle ③ to position A.

b. Take the empty needle out of action.



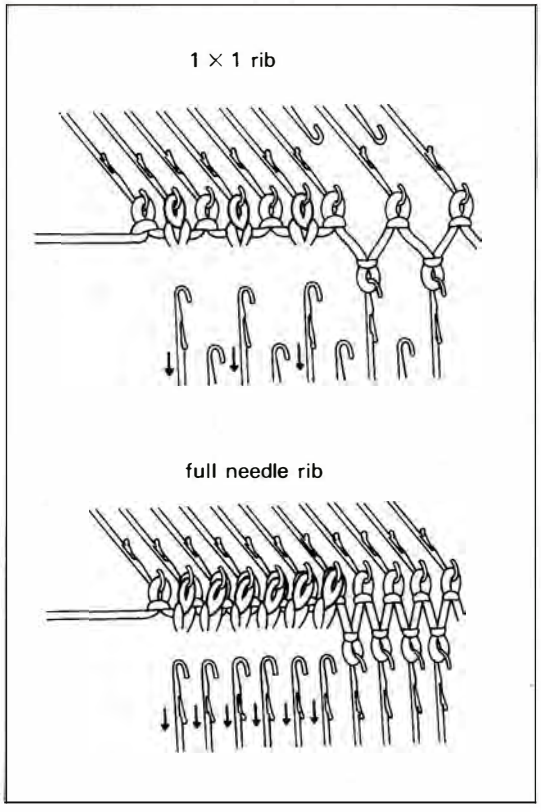
(2) Decreasing more than two stitches.

If you decrease more than two stitches, decrease them at the side where the carriage is placed to avoid the stitches become too tight.

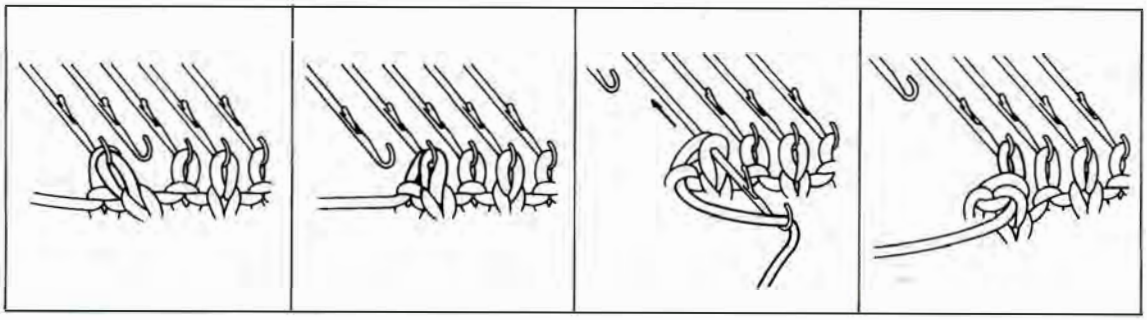
In this method decrease them in the KH side.

1) Transfer the stitches of KR side that you want to decrease to the KH needle.

2) Return the empty needles to position A.



(3) By using the transfer tool decrease the stitches in the same way as you do in the single bed.



* In other kinds of rib's case decrease in the same way.

Increasing and Decreasing in Multi-Colour Rib Knitting Pattern with 1/1 Needle Selection.

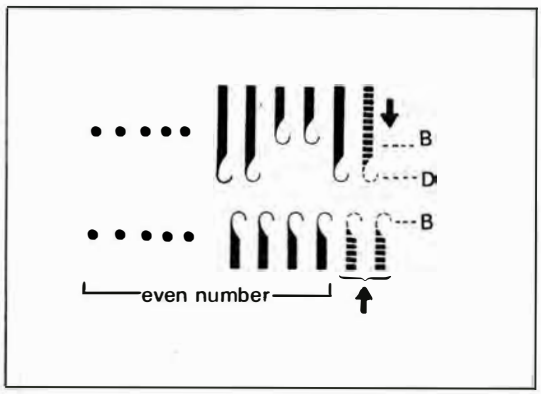
When you want to increase or decrease the stitches in Multi colour rib (1/1 Needle Selection) pattern, pay attention to the number of KR needles.
(As we mentioned on page 38, the number of KR needles should be even number.)

INCREASING

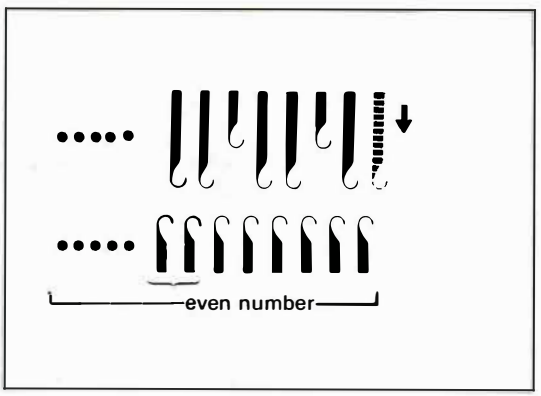
★ Increase one stitch at right side.

(1) Place the carriage on the side which you want to increase.
(In this case right side)

(2) Bring forward a KH needle to position D and two KR needles to position B.
* Bring forward the increased needle of KH to position D (not position B) regardless of the pattern.



(3) If you want to increase one more stitch, bring the next needle of KH to position D again.
In this case you don't have to increase KR needles.



(4) Repeat these steps to increase more stitches.
* Hang the Weights every time you increase the stitches.
* If you want to increase at left side, do the same thing.

★ In case of increasing more than two stitches...
Refer to the explanation on page 45, and increase them in the same way.
You need to pay attention to the number of the KR needles, too.

DECREASING

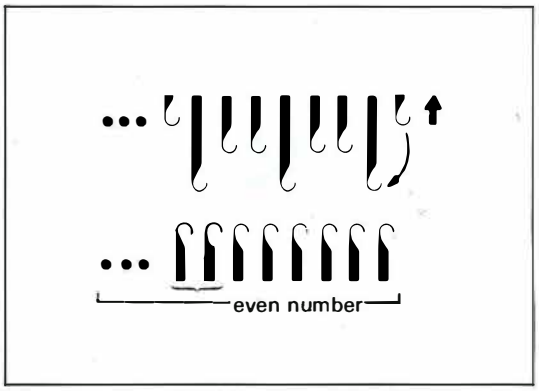
★ Decrease one stitch at right side.

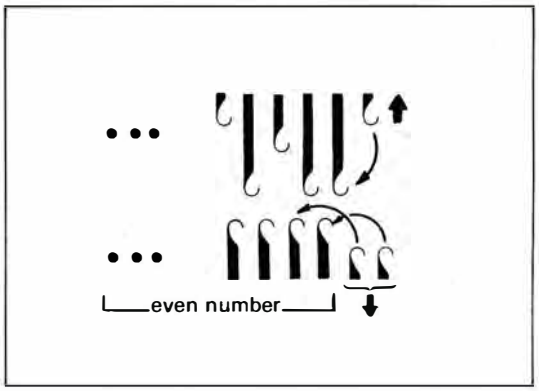
(1) Decrease one KH stitch by using the Transfer tool.
Bring forward the new end needle of KH to position D regardless of the pattern. You don't have to decrease KR stitch this time.

(2) If you want to decrease one more stitch, decrease KH stitch and two KR stitches by using the Transfer tool.

(3) Repeat these steps to decrease more stitches.

* Hang the Weights again as you decrease the stitches.
* If you want to decrease at left side, do the same thing.
* Make sure that the end needles of KH are always at position D.



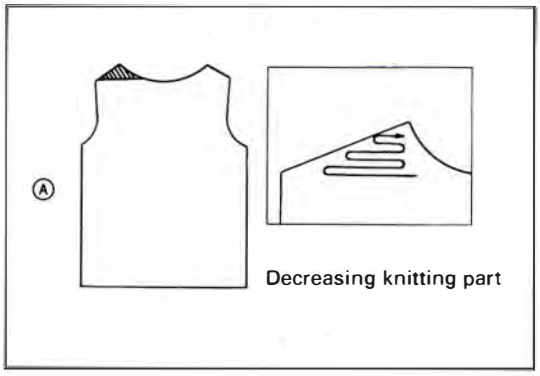


★ In case of decreasing more than two stitches
Refer to page 46, and decrease them at KH side.
You need to pay attention to the number of the KR needles, too.

★ **Making garments with Multi Colour rib pattern**
In shaping of shoulder line, neck line etc., knit by increasing and decreasing method instead of partial knitting.

4. Partial knitting of ribbing

Partial knitting is used for shaping of garment, making darts, shaping of a heel, vertical and horizontal buttonhoels, neck opening, pockets etc. There are two cases, one is decreasing of knitting part, another one is increasing of knitting part.



Decreasing knitting part

PARTIAL KNITTING OF 1 × 1 RIB

* The example is partial knitting of 1 × 1 rib, however, 2 × 2 rib, full needle rib, 5 × 5 rib, English rib, Fisherman's rib and Tucking pattern rib are the same manner as 1 × 1 rib.

(1) Decreasing knitting part

It is the example when you decrease in left side. Bring the needles to E position when the carriage is placed the other side. (in this case right side)

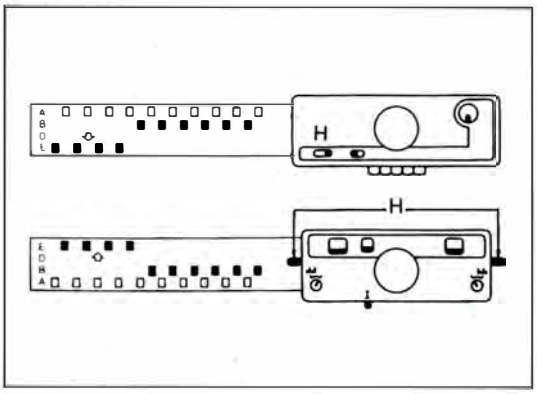
* You can increase the stitches only at the side opposite to the carriage.

a. Set the both carriages as shown in the figure.

b. Bring the nonknitting needles of KH and KR beds to position E.

c. Move the connected carriage from right to left. (The needles on position B knit, and the yarn is across on the needles on position E.)

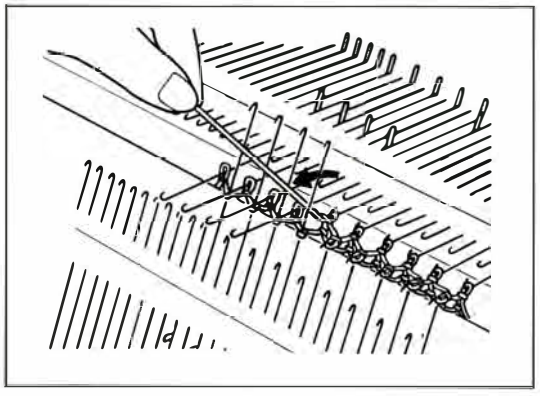
d. To avoid a hole in the knitting, hook the yarn laying across on the needles on position E to the next needle of KR or KH as shown in the figure.



e. Move the connected carriage from left to right.

f. Repeat step (b) to (e) according to the shape of the garment.

* After partial knitting, if you want to knit all needles, simply set Holding Cam Levers of both carriages to normal position. And move the carriage.



(2) Increasing knitting part

a. Set the both carriages as shown in the figure.

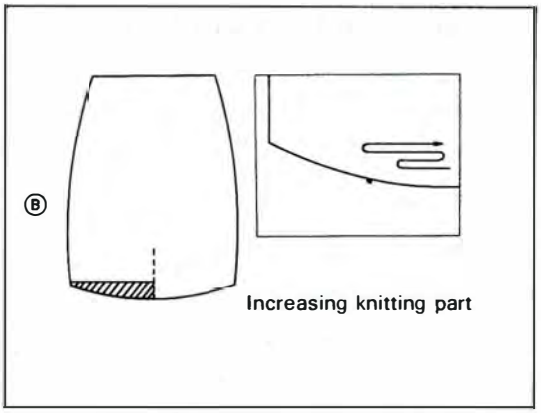
* For 1 × 1 rib, 2 × 2 rib and full needle rib, bring back the required needles you want to knit to position D of each bed from position E. (see the figure.)
* For English rib, Fisherman's rib and Tucking pattern rib, bring back the required needles you want to knit to position D, and using the transfer tool, place the stitch behaind the latch into the hook. Then, return these needles to position B.

b. Move the connected carriage from right to left.
(The needles on position B and D knit, and the yarn is across on the needles on position E.)

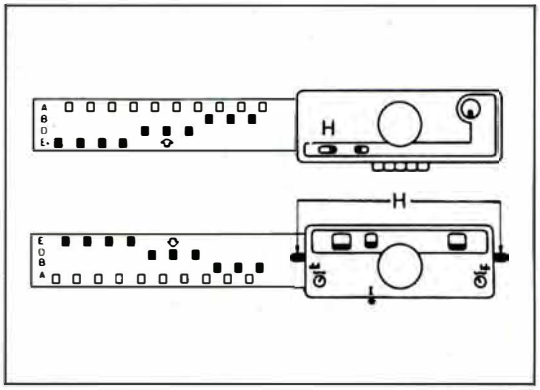
c. To avoid a hole in the knitting, hook the yarn lying across on the needles on position E to the next needle to the knitting.

d. Move the connected carriage from left to right.

e. Repeat step (a) to (d) according to the shape of garment.



Increasing knitting part



PARTIAL KNITTING OF RACKING PATTERN

* In the racking pattern, it is impossible to bring both needles to position E, so, please knit partial knitting of racking pattern according to the following method.

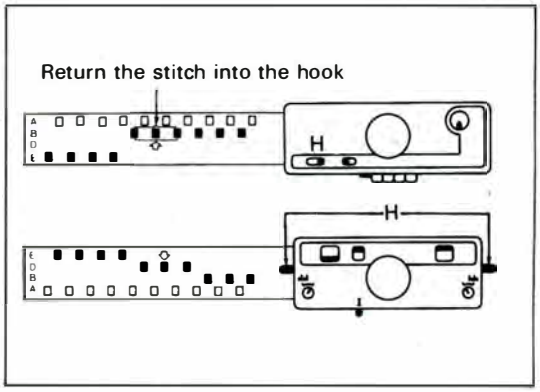
The example is racking pattern of English rib.

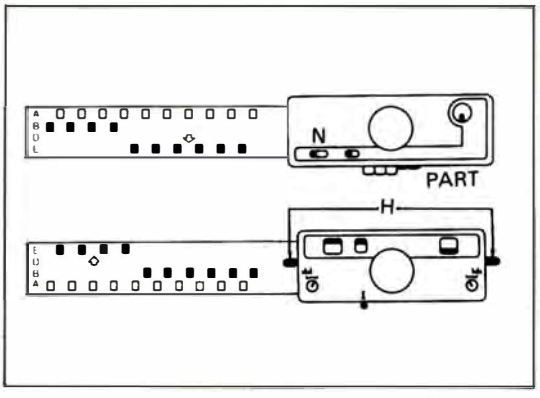
(1) Decreasing knitting part

a. Set the carriages as shown in the Fig.

b. Bring the nonknitting needles of KR bed to position E.

c. Bring the knitting needles of KH bed to position E.



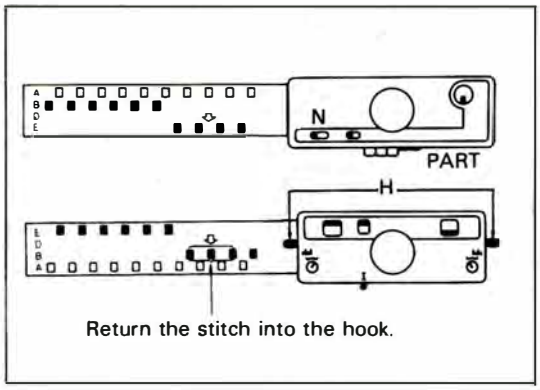


d. Move the connected carriage from right to left. (The plain needles on position E and purl needles on position B knit, and the yarn is across on the purl needles on position E.)
e. To avoid a hole in the knitting, hook the yarn laying across on the purl needles on position E to the next needle to the knitting.
f. Set the racking indicator on next number.
g. Bring the knitting needles of KH bed to position E.

(2) Increasing knitting part

a. Set the carriages as shown in the Fig.
b. Bring back the required needles you want to knit to position D, and using the transfer tool, place the stitch behaind the latch into the hook. Then, return these needles to position B.
c. Bring the knitting needles of KH bed to position E.
d. Move the connected carriage from right to left. (The plain needles on position E and purl needles on position B knit, and the yarn is across on the purl needles on position E.)
e. To avoid a hole in the knitting, hook the yarn laying across on the purl needles on position E to the next needle to the knitting.
f. Set the racking indicator on next number.
g. Bring the knitting needles of KH bed to position E.
h. Move the connected carriage from left to right.
i. Repeat step (b) to (e).
j. Set the racking indicator on next number.
k. Bring the knitting needles of KH bed to position E.
l. Move the connected carriage from left to right.
m. Repeat step (b) to (l) according to the shape of garment.

h. Move the connected carriage from left to right.
i. Repeat step (b) to (e).
j. Set the racking indicator on next number.
k. Bring the knitting needles of KH bed to position E.
l. Move the connected carriage from left to right.
m. Repeat step (b) to (l) according to the shape of garment.



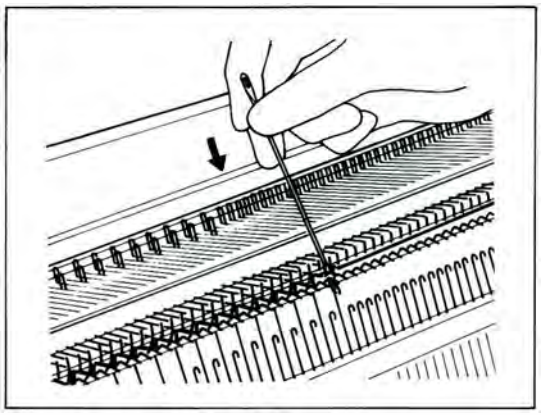
5. How to transfer the stitch from the purl needle to plain needle or from plain needle to purl needle.

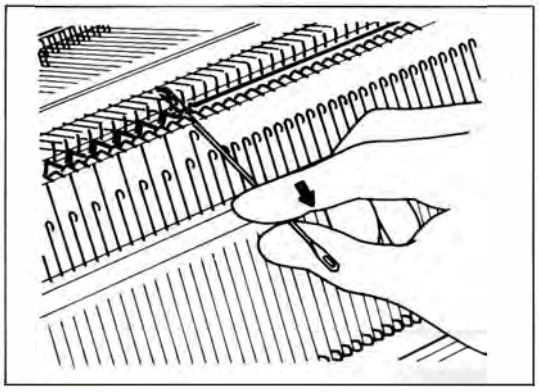
HOW TO TRANSFER THE STITCHES

(1) How to transfer from purl needle to plain needle.

a. Raise the plain needle from position A to B, and open the latch.

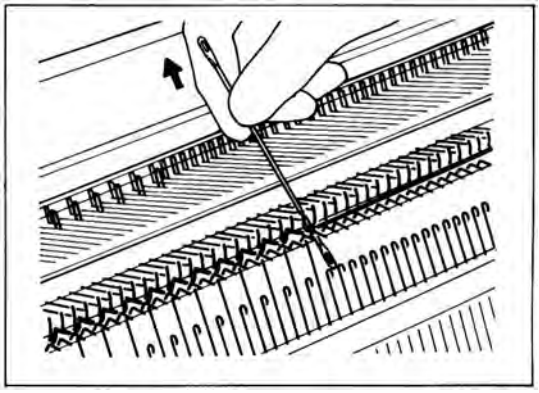
b. By using the transfer needle, transfer the stitch on the purl needle to the empty plain needle.

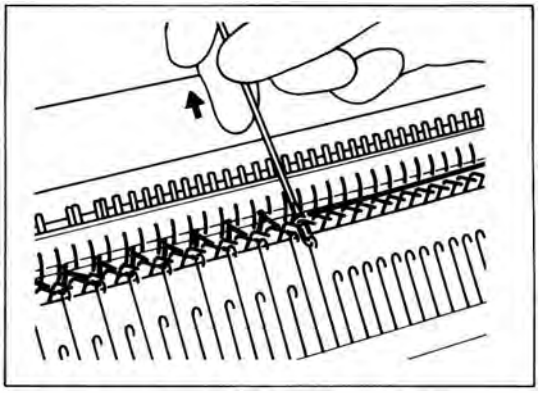




(2) How to transfer from plain needle to purl needle.

a. by using the transfer needle, transfer the stitch on every other plain needle to the corresponding purl needle.





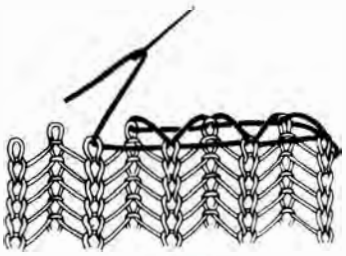
6. Binding off and finishing edge of rib knitting

BINDING

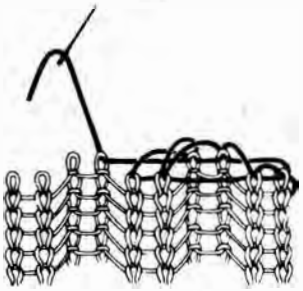
*This method is used for binding up the stitches of the last row by using the yarn of rib knitting. Binding up is the same as selvedge.

When you cast off, knit several rows of circular knitting with waste yarn, then bind the last row by using the tapestry needle as shown in the figures.

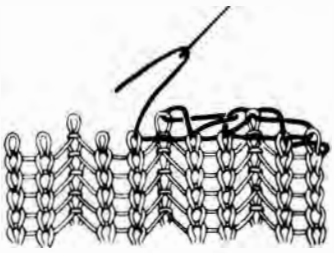
The length of the yarn for binding is 3 times the width of knitting.



1 × 1 rib



2 × 2 rib

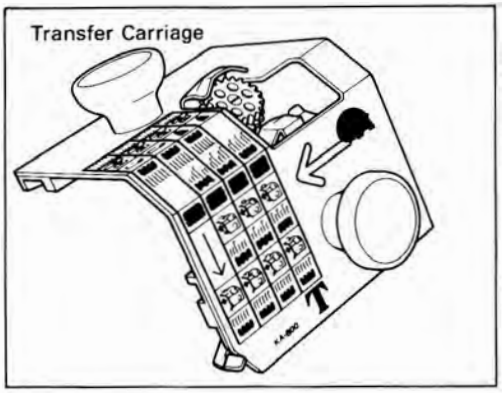


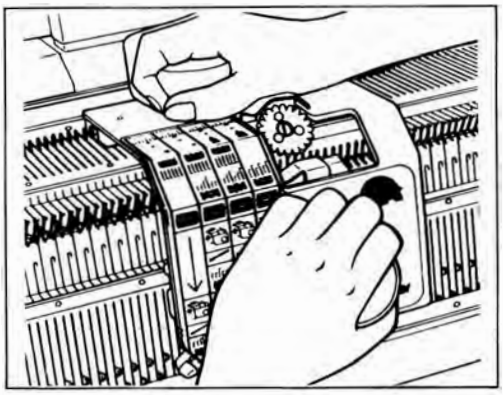
2 × 1 rib

YOU CAN TRANSFER THE STITCHES EASILY BY USING THE OPTIONAL TRANSFER CARRIAGE

You can transfer the stitches from KR needles to KH needles at an operation by the Transfer Carriage.

The Transfer Carriage is used for 1 × 1 rib, 2 × 2 rib, 2 × 1 rib and full needle rib pattern.





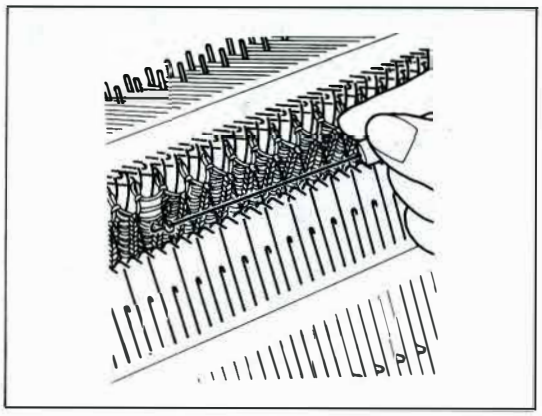
IX. USEFUL HINTS

1. How to pick up dropped stitch and Unravelling the rows

* First, take off the weights and prevent dropping of multiple rows.

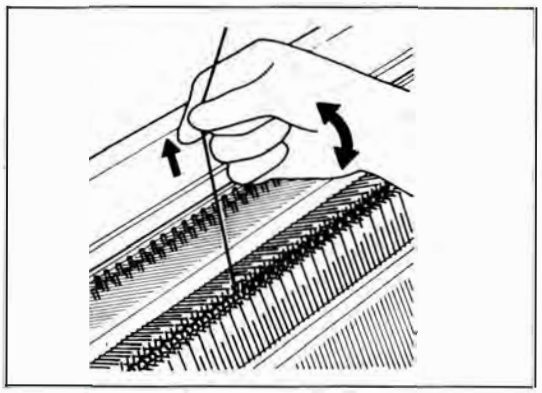
(1) In case one stitch is dropped.
   a. With the single transfer tool or work hook, pick up the stitch and the unknitted yarn and put them on the empty needle.

(2) In case multiple rows are dropped.
   a. Open the gate by pushing down both bracket levers, and catch the lowest loop of the dropped stitches with latch tool
   b. With the latch tool, make the stitches, and hang the final stitch on the empty needle.



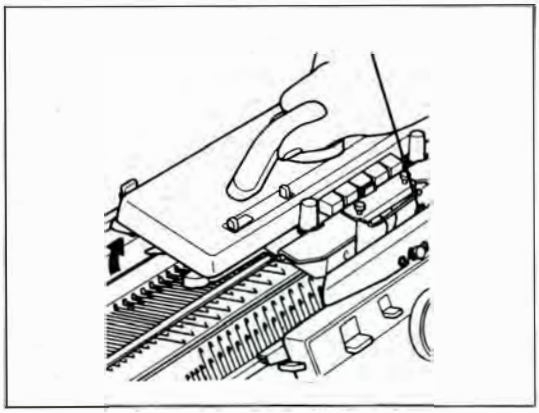
Unravelling the rows

* If you have knitted more than necessary rows do not remove the work from the knitter and ribber. Simply unravel one or several rows by doing the following.
  Pull the yarn slightly, drawing it out of the stitches.
  The stitches of the previous row will slip into the hook of the needles automatically as the yarn is raised in an upward movement lowards the needle bed.

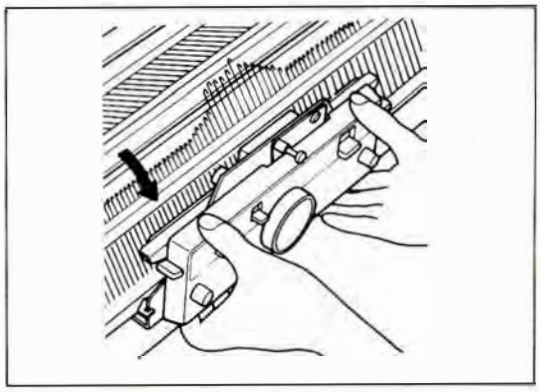


2. If the carriage should jam...

(1) Disconnect the carriage
See on page 15.
   a. Set the Change knob on KH carriage to "CR" position, and lift up the KH carriage.
   b. Place the KH carriage to the side from where the row commenced, then return the Change knob to the position which has set before jamming.

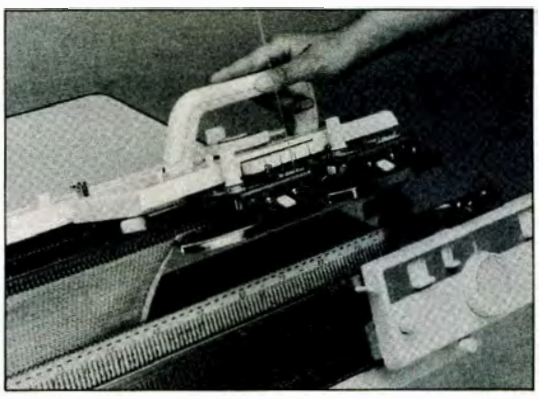


(2) Remove the front foot from the front rail of KR needle bed. And place the KR carriage at the same side of KH carriage.
(3) Connect both carriages.
(4) Work the corrections if required.
(5) Continue the knitting.



3. How to use the knitter as a single bed with the ribber attached

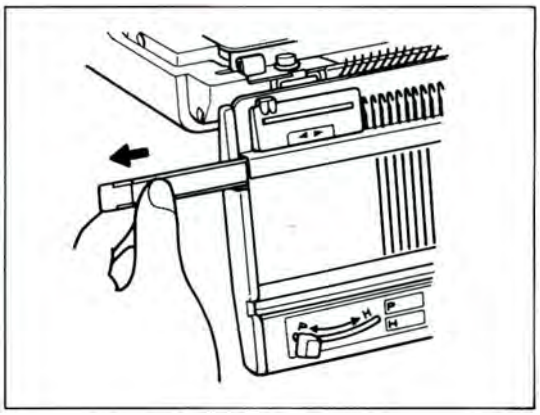
   a. Disconnect the carriage.
   b. Push down both bracket levers of the ribber and the ribber will come down one step.
   c. Take off the connecting arm from the KH carriage, and convert it to the sinker plate assembly of knitting machine.
   d. The knitter can be used as a single bed.

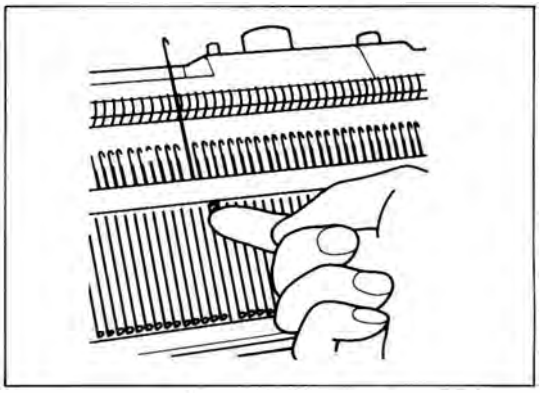


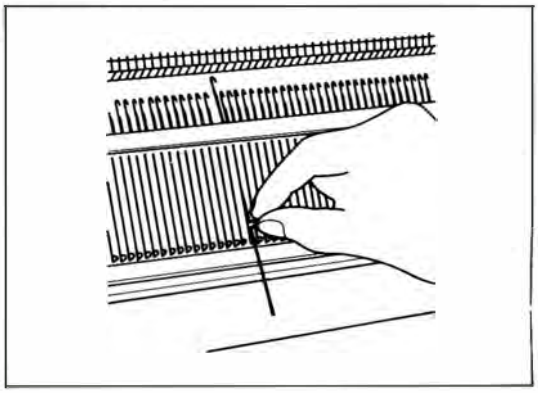
4. How to replace the purl needle

How to replace the purl needle.

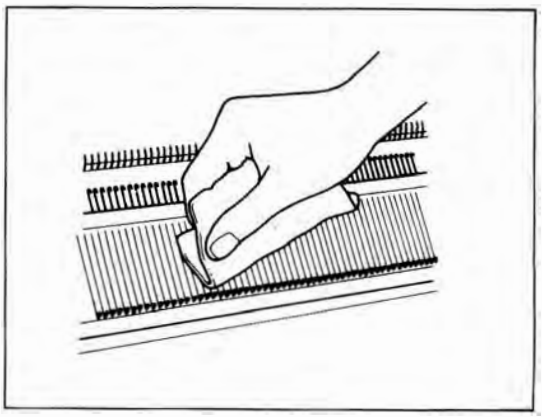
a. Push the plastic bar from either side.
b. Draw out by hand from the other side of the ribber until the needle you wish to change is free.
c. Bring forward the needle as fare as it will go.
d. Push down the hook of the needles until the shank of the needle rises free of the needle bed.
e. Grasp the shank and draw it out backwards.
f. Replace new needle with latch opened.
g. Push in the bar, making sure that the flat face is down.







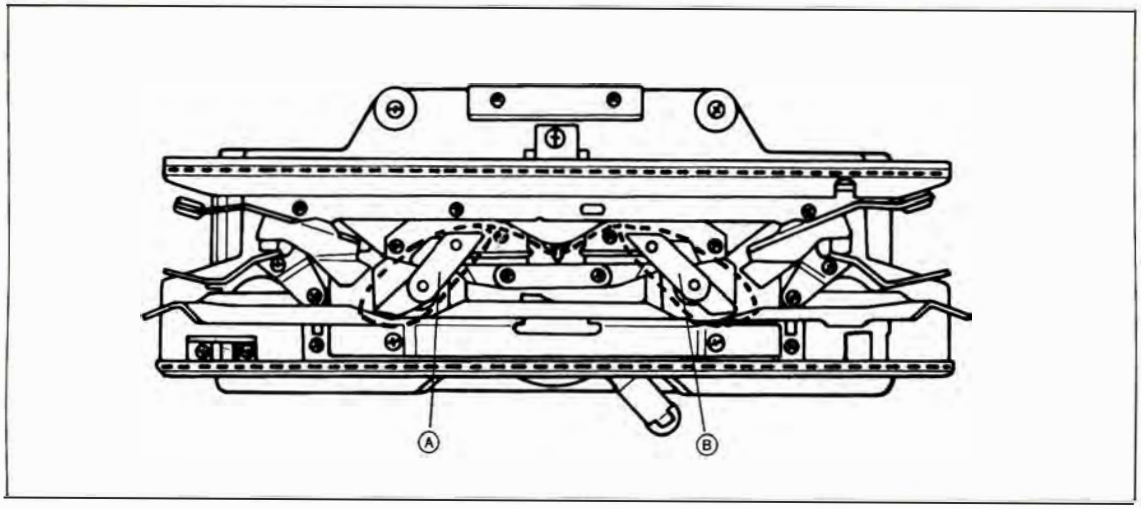
5. Maintenance



*Each time you finish work, service your machine as follows:

a. Clean the machine of all wool lint with hand brush.
b. Polish each part with soft oil cloth.
c. Oiling the following parts.

(1) Needle butts
(2) Rails of the needle bed
(3) Back side of the Carriage
After clean up with cloth oil the dotted line parts and the side of the Cam Ⓐ and Ⓑ.



d. Wipe off stained oil.
e. Keep your machine in a dry place.

*When you use the machine again after you leave it for a long time, polish it well with soft oil cloth.
You had better knit full needle knitting 20 ~ 30 rows or so with old yarn to clean up soiled oil before you start knitting.