

**Instruction Manual  
For  
Colour Changer  
RCC**



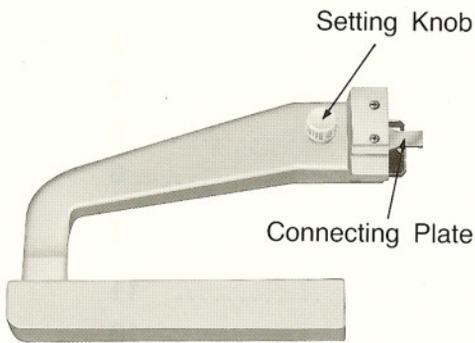
**knitking**

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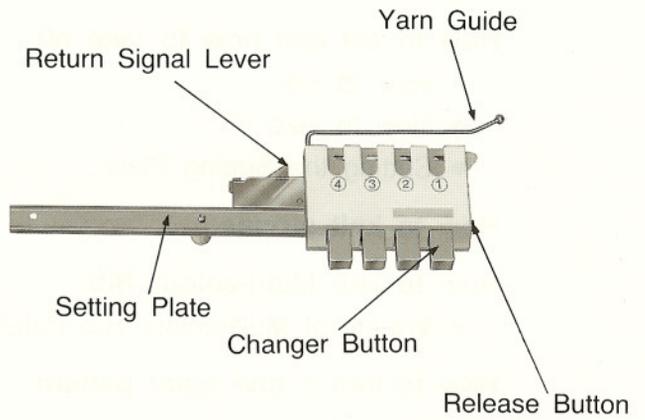
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# Name of parts

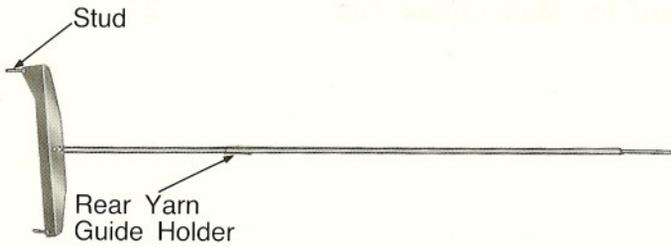
**Setting Arm**



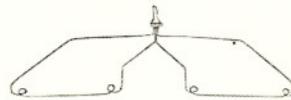
**Colour Changer**



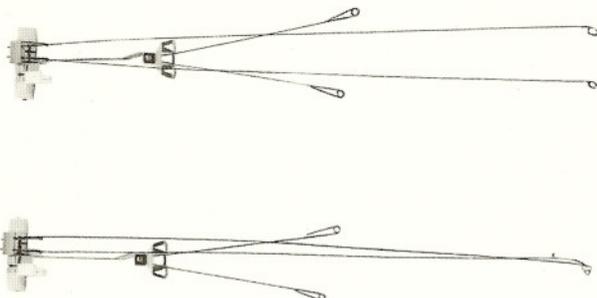
**Branch Tension Stand**



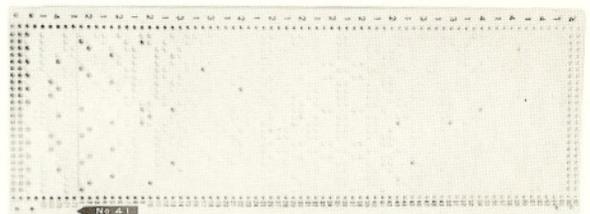
**Rear Yarn Guide**



**Yarn Tension Unit**



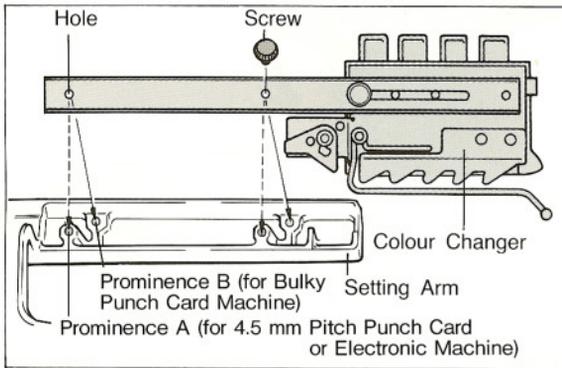
**Punch Card Set (No. 41~50)**



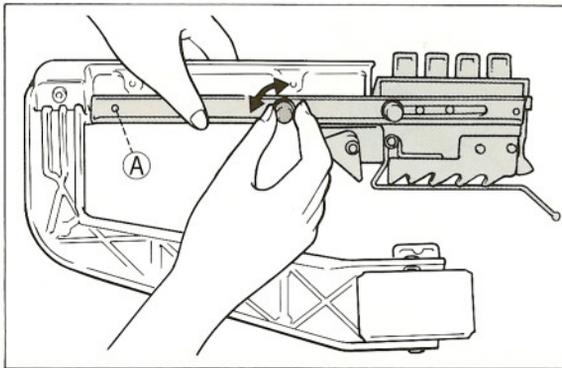
# How to set and how to take off

## How to set

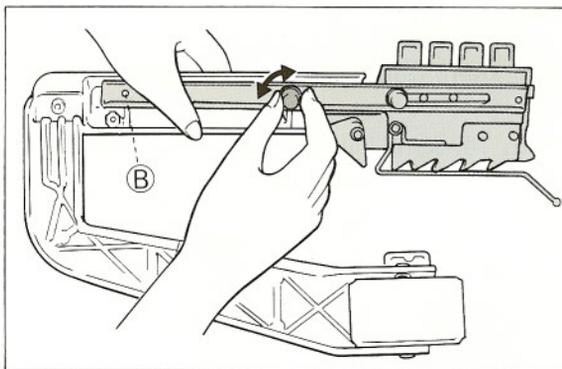
\* After setting the ribbing attachment to the knitter, set up the Colour Changer.



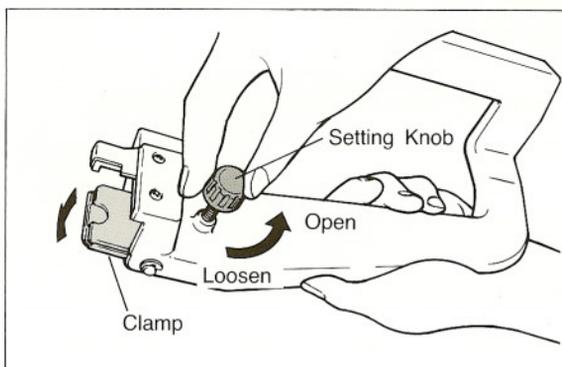
- (1) The place on which you put the Setting Plate depends on the knitting machine.
  - 1) Put the prominence on the Setting Arm into the hole on the Setting Plate.
  - 2) Tighten the screws on the Setting Plate.



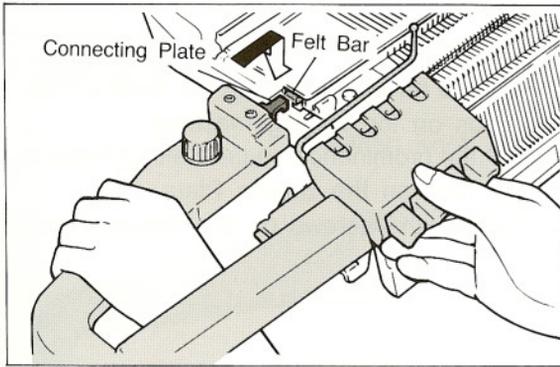
〈When you use 4.5 mm Pitch Punch Card or Electronic Machine〉



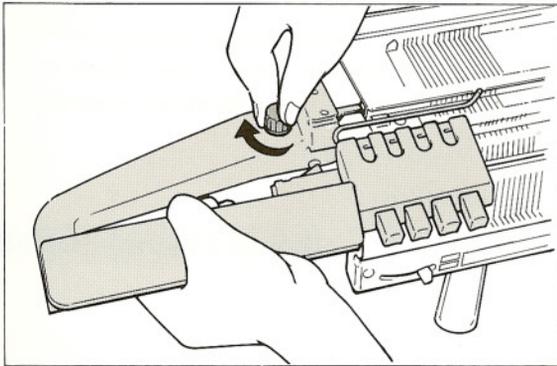
〈When you use Bulky Punch Card Machine〉



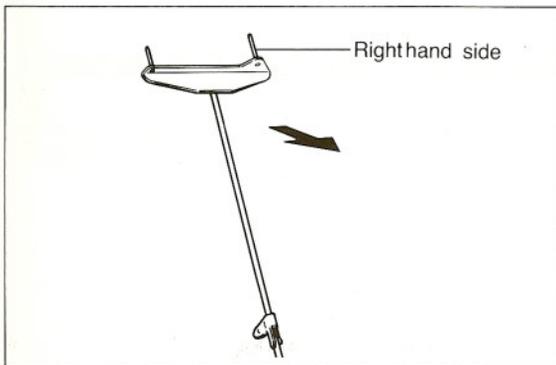
- (2) Loosen the Setting Knob as much as possible until the Connecting Clamp opens fully.



- (3) Push the projecting part of the Connecting Plate against the end of the Felt Bar and insert it as far as possible.



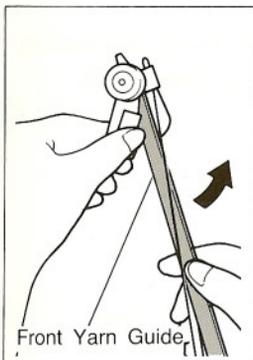
- (4) Pressing the Setting Arm to the knitter, fasten the Setting Knob.



- (5) Insert the Branch Tension Stand in the hole for the Yarn Tension Rod.

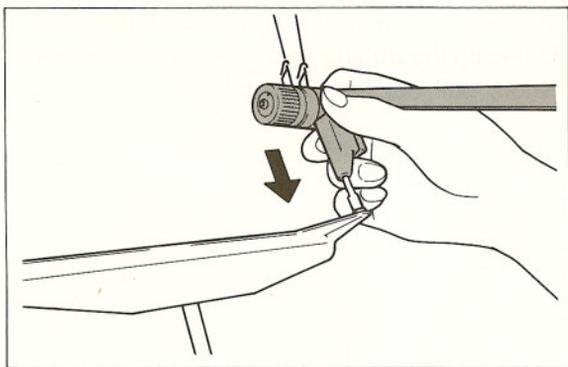
\* Be careful with the front and back direction.

\* Yarn Tension Unit provided as an accessory for the knitter is not used.

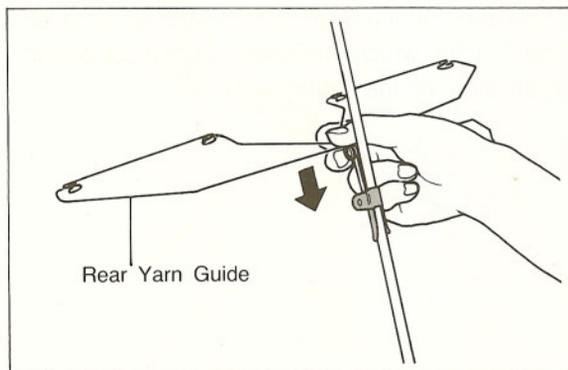


- (6) Open the Front Yarn Guide in the direction of the arrow.

- (7) Turn the Take Up Spring until it clicks.

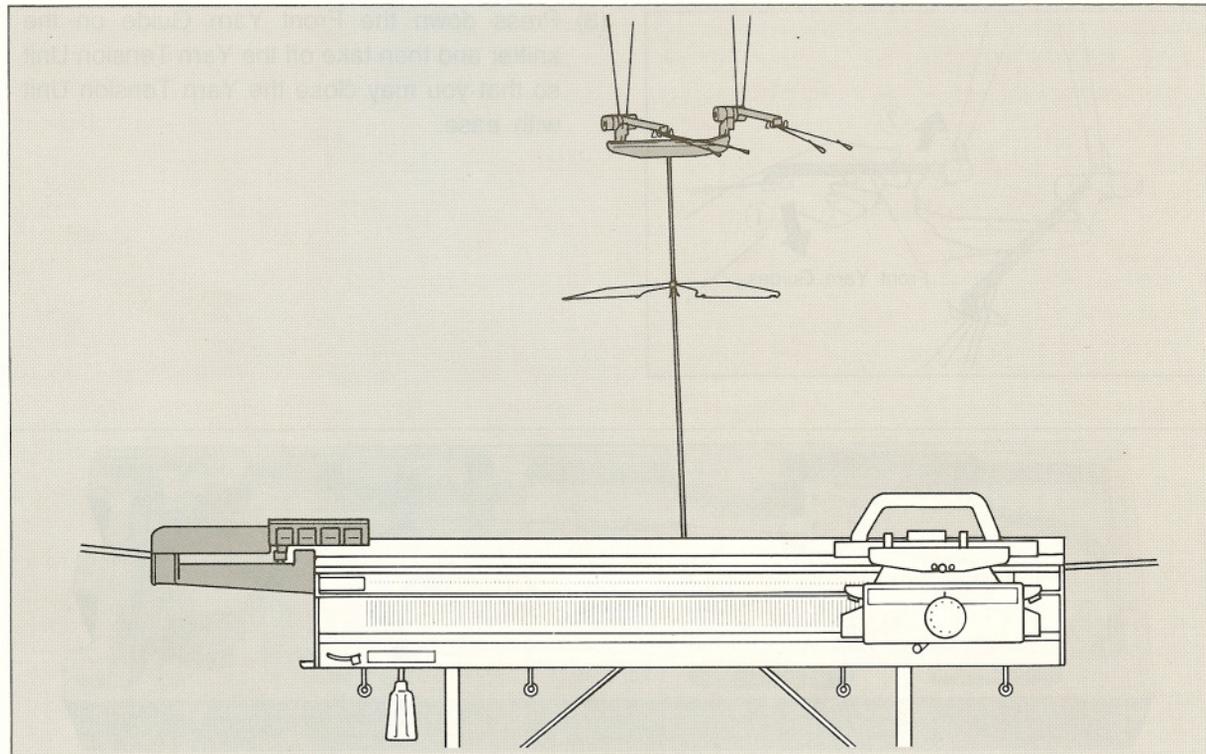


(8) Insert the Yarn Tension Unit into the Tension Stand.



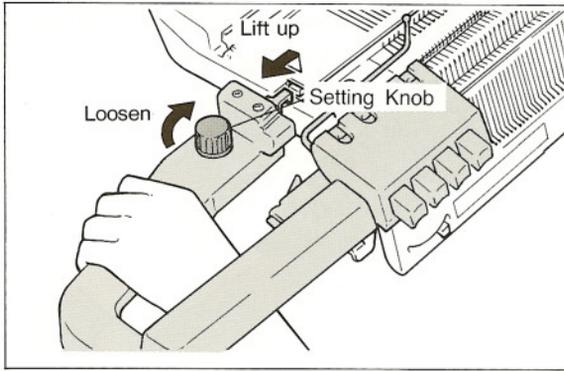
(9) Set the Rear Yarn Guide on the Tension Stand.

(10) When you use 4.5 mm Pitch Punch Card or Electronic Machine, set the Extension Rail on the left side of the knitter.

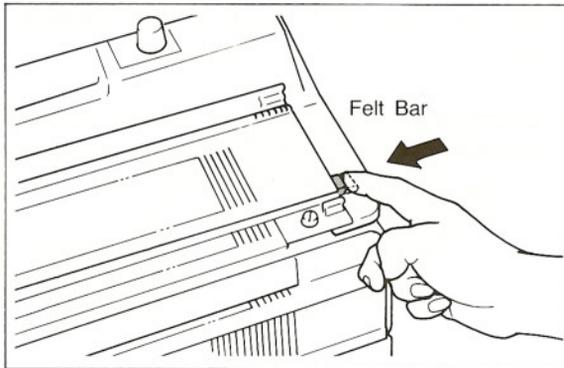


\* The above shows the Colour Changer set up on the knitter.

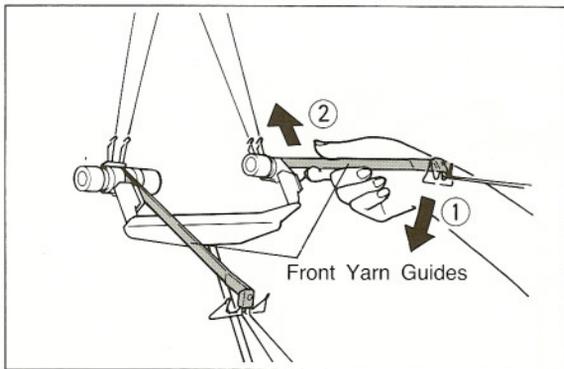
## How to take off



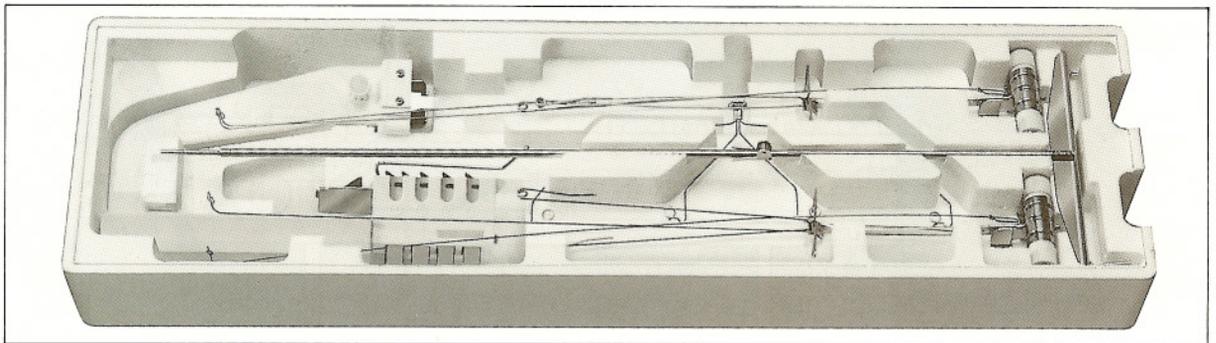
- (1) Loosen the Setting Knob on the Setting Arm. Lifting up the Setting Arm on the side of Setting Knob, pull out the Setting Arm.



- (2) After the Setting Arm is released, push back the Felt Bar which has been pushed out on the right side of the knitter.

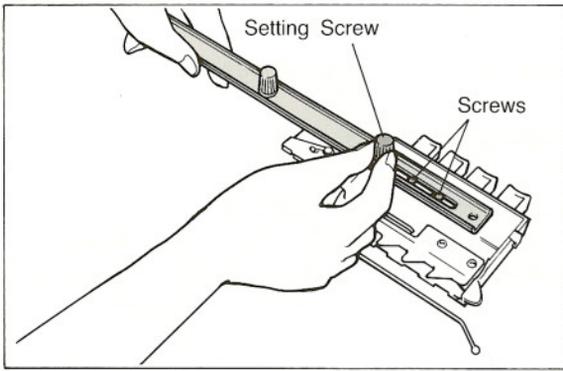


- (3) Press down the Front Yarn Guide on the knitter and then take off the Yarn Tension Unit so that you may close the Yarn Tension Unit with ease.

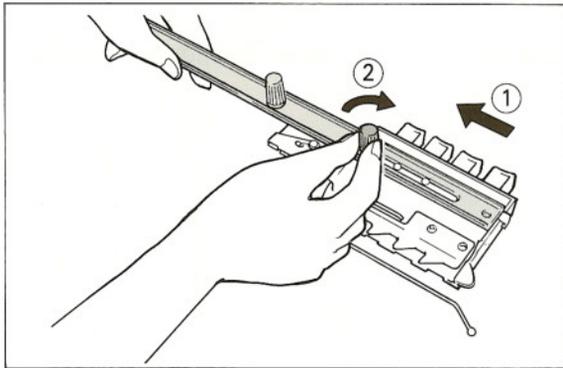


\* Place the Colour Changer in the container, as shown above.

## Setting the Setting Plate



- (1) Putting the heads of the two screws in the groove of the Setting Plate, fix the Setting Screw.



- (2) Slide the Changer towards the Setting Plate as far as it goes, and then tighten the Setting Screw.

# How to knit stripes



\* Let's try with a basic stripes first.

\* Prepare four yarns.

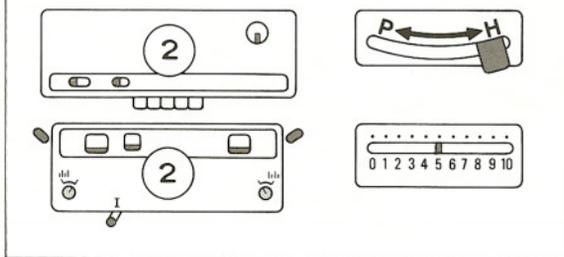
Ex.

4.5 mm Pitch Punch Card or

Electronic Machine ..... Fine yarn

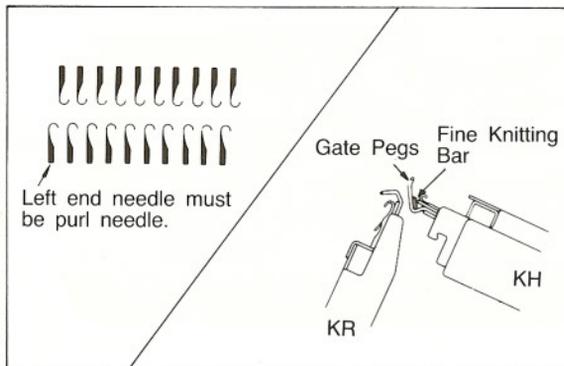
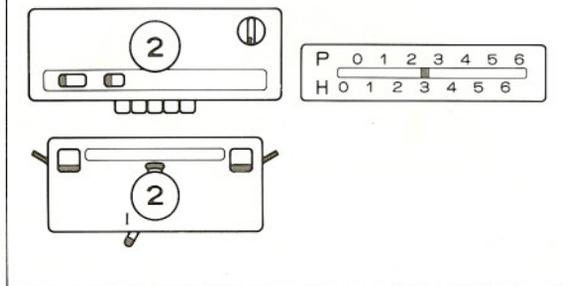
Bulky Punch Card Machine ..... Thick yarn

〈When using 4.5 mm Pitch Punch Card or Electronic Machine〉



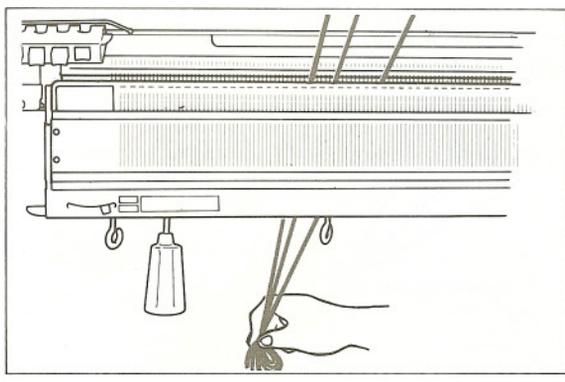
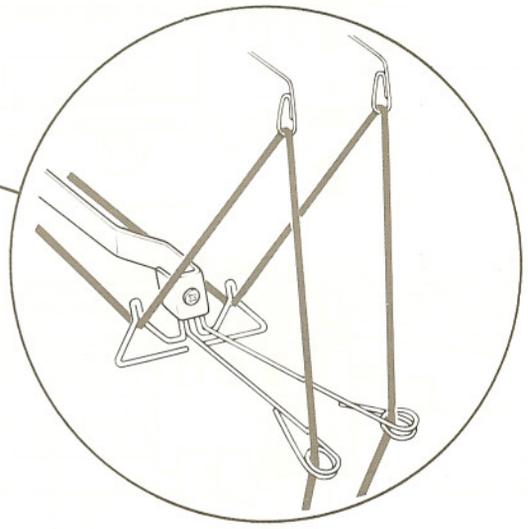
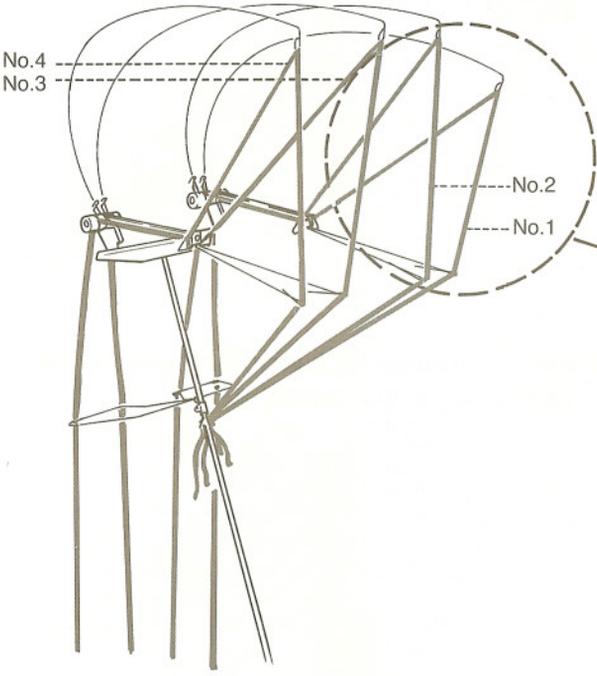
(1) Set the knitter and ribber as shown in the Fig.

〈When using Bulky Punch Card Machine〉

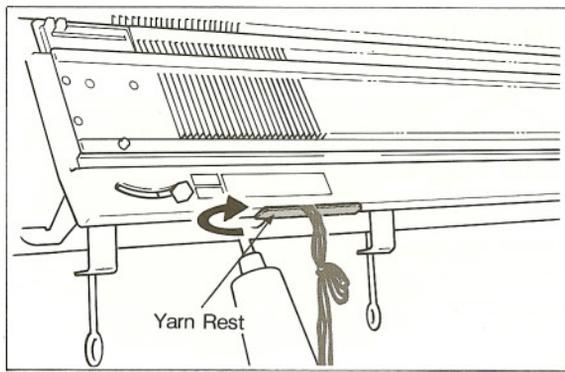


(2) Insert the Fine Knitting Bar behind the Gate Pegs on the knitter. So that it slips slightly underneath the needle bed. Aline both plain and purl needles in B position. (Bring forward a purl needle so that the left end needle is a purl needle and right end is a plain needle.) After operating the Carriages two or three times, place the Carriages on the right side.

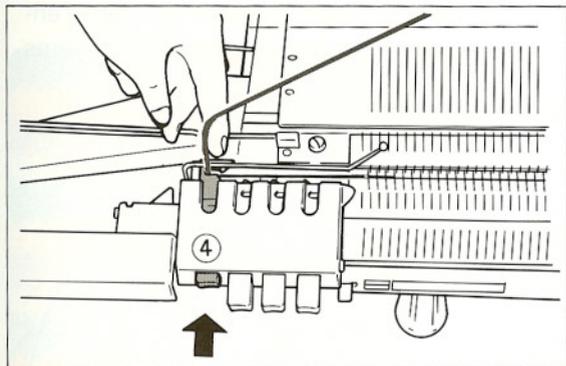
(3) Thread the four yarns through the Yarn Tension Unit, and then hook the ends of the yarns on the Yarn Clips.



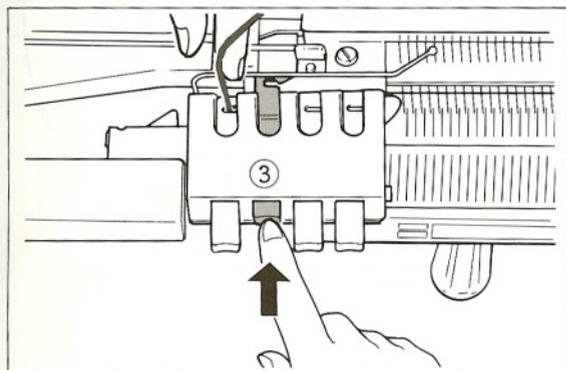
(4) Remove the ends of yarns from the Yarn Clips except the right end yarn, and tie three yarns together. Pass them between the Gate Pegs.



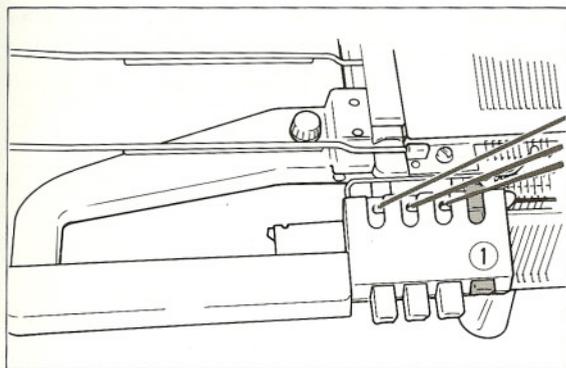
(5) Hold the ends of the yarns on the Yarn Rest on the lower portion of the ribber.



- (6) Pushing button ④ on the Colour Changer, thread the left end yarn through the hook on the top of the button.

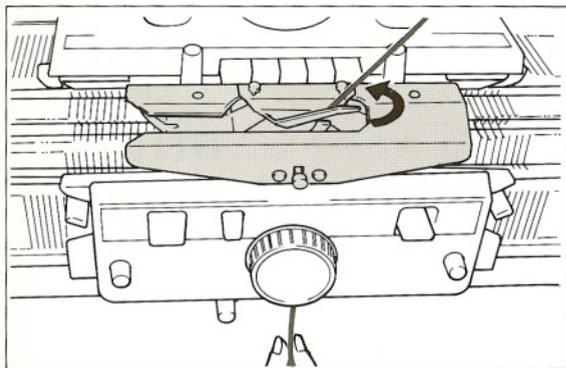
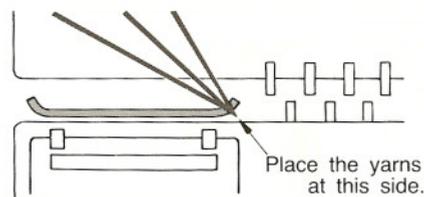


- (7) If you push button ③, button ④ returns and the yarn is set in that button.



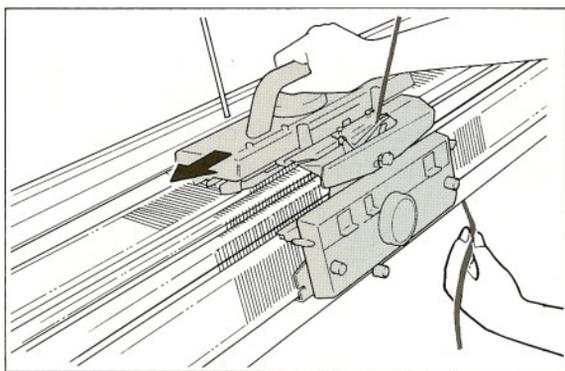
- (8) In the same way, thread the yarn in buttons ③ and ②. Press button ① and leave right end yarn free from the changer.

〈When using 4.5 mm Pitch Punch Card Machine〉

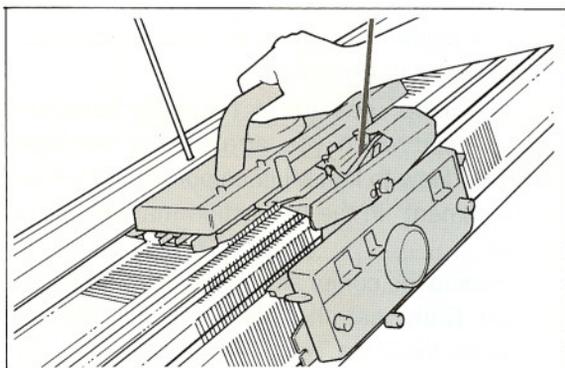


- (9) Thread the right end yarn into the Yarn Feeder.

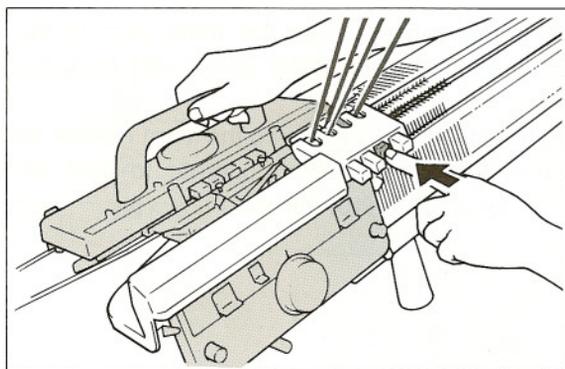
\* Make sure that the yarn is not caught on the Gate Pegs or other parts of the machine.



- (10) Move the Carriages to the left to cast on the yarn. Hang the Cast-on Comb and then the Weights.

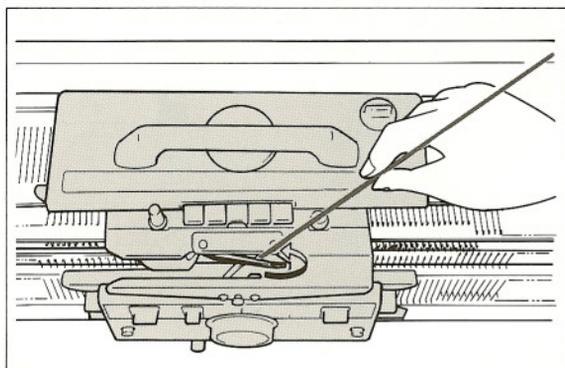


- (11) You can make a Full Needle Rib with yarn ① (right end one) by moving the Carriages.



- (12) To change the yarn, push the button for the yarn you want to knit after moving the carriage towards the Colour Changer until you hear the "CLICK"

\* If the yarn slackens, pull it back on the Rear Yarn Guide.



- (13) If the Carriages is moved to right, the yarn is changed.

\* Occasionally, you will find that the yarn you have selected has not been picked-up into the Yarn Feeder, particularly on the Bulky Punch Card Machine. If this occurs, place the yarn into the Feeder by hand.

- (14) After all of the yarns are knitted in, remove the ends of the yarns from the Yarn Rest.

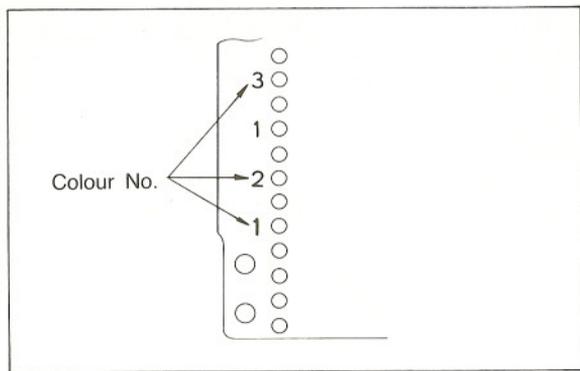
Repeat the steps (12)–(13) and you can produce the stripes with ease.

# How to knit Multi-colour Rib

Machine Yarn	4.5 mm Pitch Punch Card or Electronic Machine	Bulky Punch Card Machine
Very fine	2-3	—
Fine	3-4	—
Medium	4-5	1-2
Thick	—	2-3
Very thick	—	3-4

\* If your ribber has the 1/1 needle selection system, refer to "How to knit Multi-colour Rib" in the instruction manual of the ribber.

\* Use the Fine Knitting Bar.



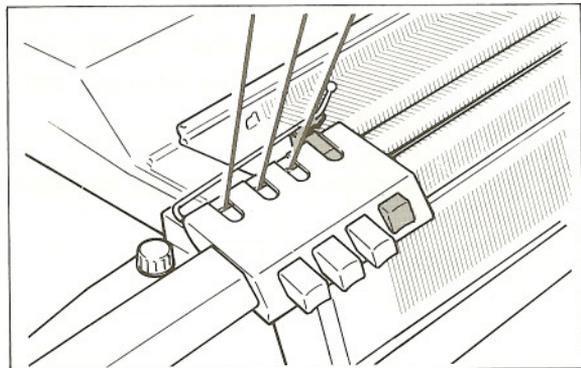
(1) Set the knitter and ribber for Full Needle Rib. (Refer to (1)-(2) on p.7.)

\* If your ribber has the 1/1 needle selection system and when you arrange the needles, refer to "How to knit Multi-colour Rib - Needle arrangement" in the instruction manual of the ribber.

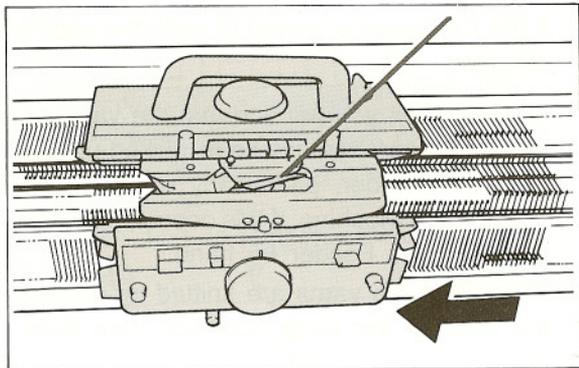
(2) By reading the colour No. on the left side of the Punch Card, set the necessary number of yarns on the Yarn Tension Unit. (Refer to (3) on p.8.)

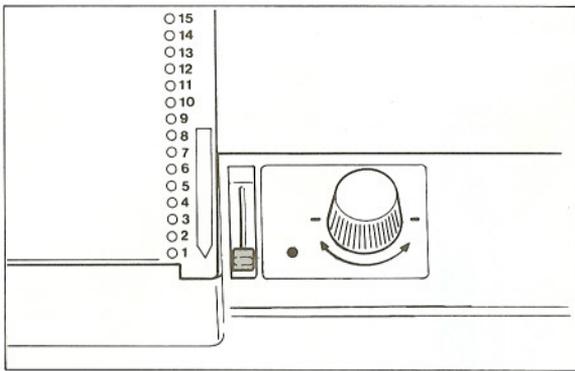
(3) Set the yarns except the main yarn in the Colour Changer. (Refer to (4)-(8) on p.8.)

(4) Thread the main yarn into the Yarn Feeder on the Carriage and then operate to cast on. (Refer to (9)-(10) on p.9.)



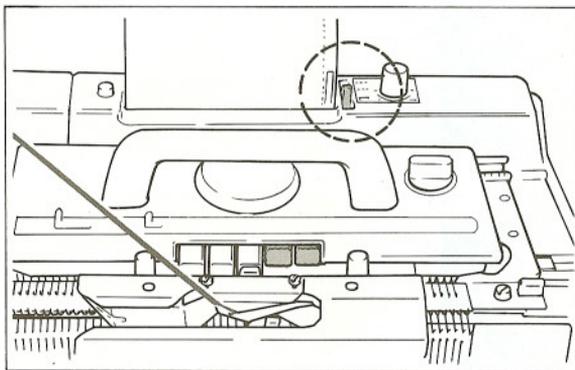
(5) After knitting the correct number of the rows for the welt, finish with the Carriages on the left side.





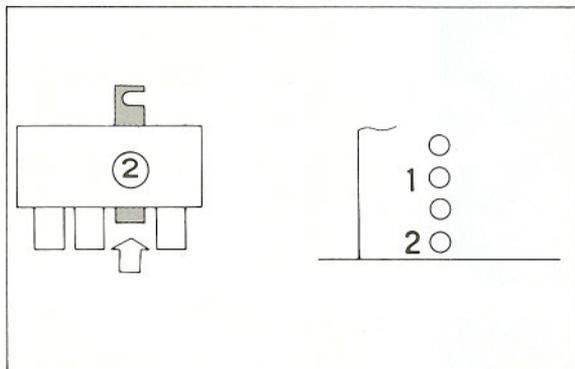
(6) Set the Card at the start and then set the Card Lock Lever at “●”.

(7) Set the Change Knob for “KC”, and then move the Carriages to the right. This selects the needles on the knitter.

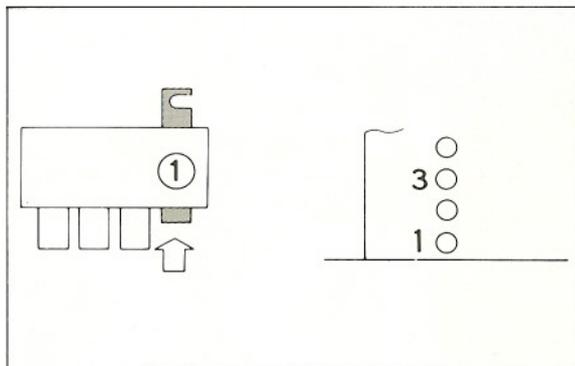


(8) Set the card lock lever at “▼” and then push both Part buttons at the same time.

\* If your ribber has the 1/1 needle selection system, refer to (6) in “How to knit Multi-colour Rib” in the instruction manual of the ribber.



(9) Move the Carriages towards the Colour Changer until you hear the click and then push the button which corresponds to the number shown on the left side of the Punch Card.

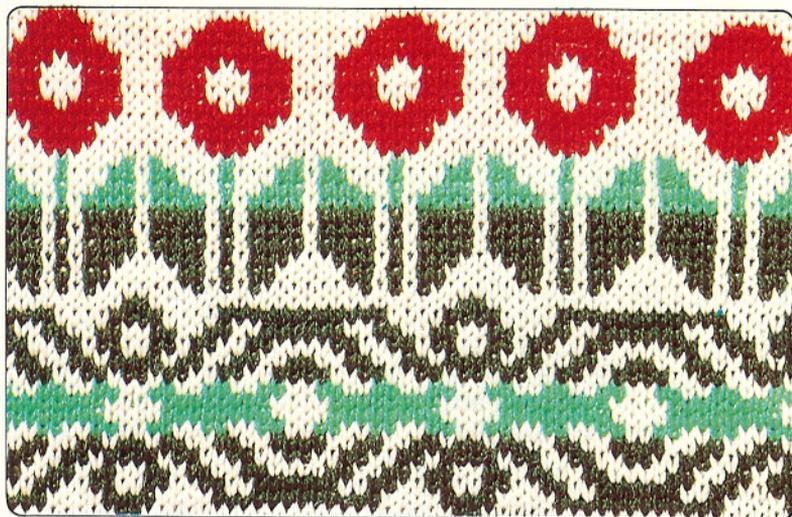


(10) Move the Carriages from left to right and back again, and then push the next button indicated on the card.

Repeat the step (10) to knit Multi-coloured Rib.

## Variety of Multi-colour Rib Pattern

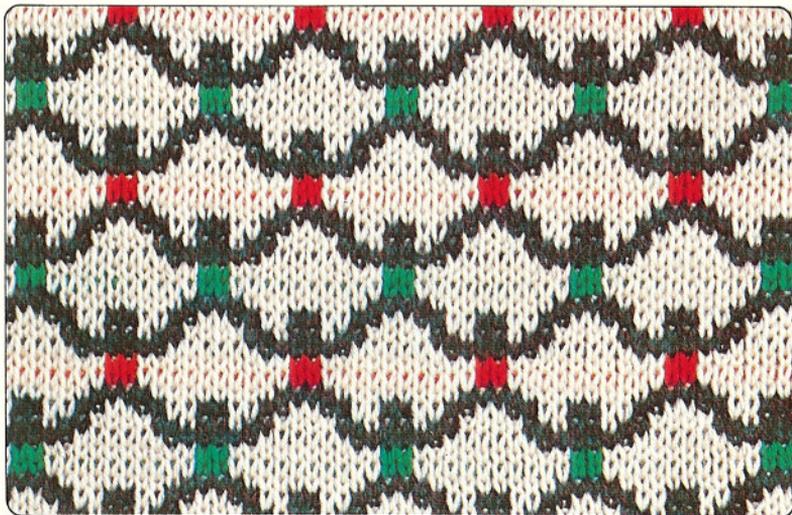
\* Number of rows for the pattern is that on the plain side.



**Card No.41**

24 sts. × 36 rows for one pattern

- ① colour ... white
- ② colour ... green
- ③ colour ... grass green
- ④ colour ... red



**Card No.42**

12 sts. × 12 rows for one pattern

- ① colour ... beige
- ② colour ... black
- ③ colour ... green
- ④ colour ... red



**Card No.43**

24 sts. × 32 rows for one pattern

- ① colour ... green
- ② colour ... grass green
- ③ colour ... red
- ④ colour ... beige

\* 28 rows are knitted for the multi-colour pattern and 4 rows for the rib, making a total of 32 rows.



#### Card No.44

8 sts. × 12 rows for one pattern

- ① colour ... sky blue
- ② colour ... grass green
- ③ colour ... yellow
- ④ colour ... white

\* Contrast colour yarn is changed for each pattern in the direction of the row until three pattern. The number of the row for the colour pattern is 36 (12 × 3).



#### Card No.45

8 sts. × 12 rows for one pattern

- ① colour ... white
- ② colour ... black
- ③ colour ... brown
- ④ colour ... beige

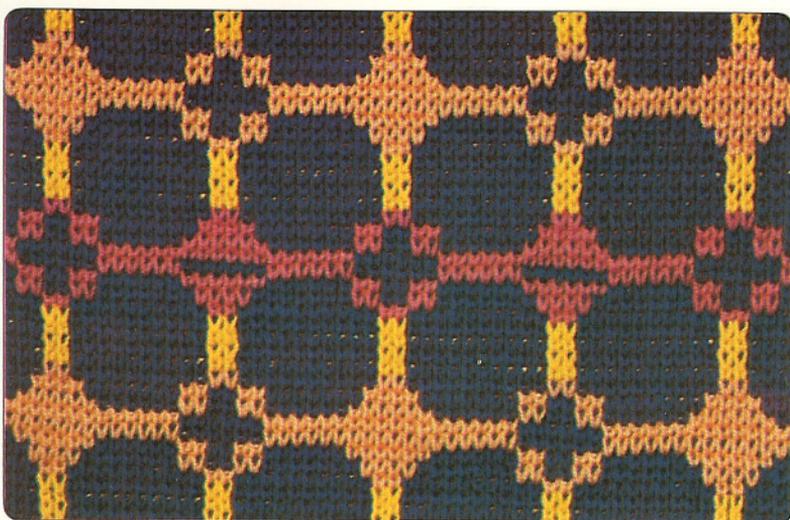
\* 10 rows are knitted for multi-colour pattern, and 2 rows for rib knitting and one pattern is completed with 12 rows. As the yarn is changed for each pattern in the direction of the row until two patterns, the number of the row is 24 (12 × 2).



#### Card No.46

24 sts. × 24 rows for one pattern

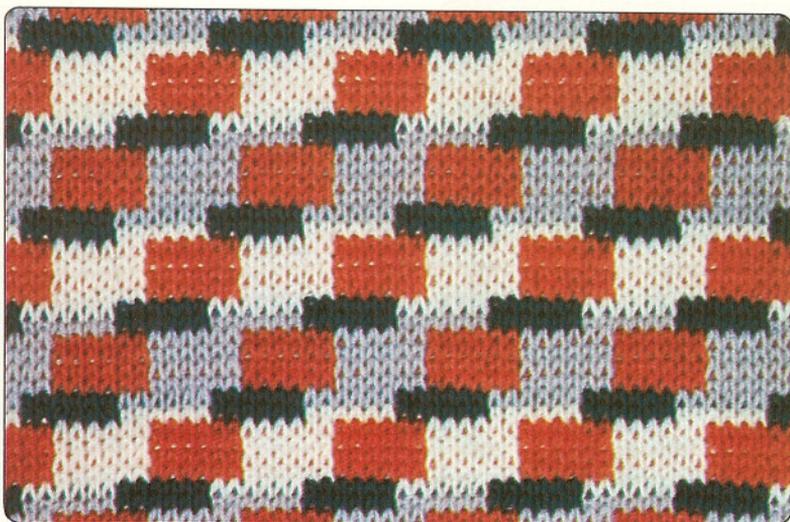
- ① colour ... white
- ② colour ... red
- ③ colour ... dark green
- ④ colour ... orange



**Card No.47**

24 sts. × 24 rows for one pattern

- ① colour ... dark blue
- ② colour ... yellow
- ③ colour ... red
- ④ colour ... orange



**Card No.48**

12 sts. × 12 rows for one pattern

- ① colour ... white
- ② colour ... gray
- ③ colour ... dark blue
- ④ colour ... red

\* The main yarn is changed from ① to ②, and from ② to ① every six rows.



**Card No.49**

24 sts. × 24 rows for one pattern

- ① colour ... orange
- ② colour ... white
- ③ colour ... dark blue
- ④ colour ... yellow

\* This pattern is produced by changing the second colour yarn at the third row after the card turns round, and at the fourth yarn after another turn of the card. So 72 rows are knitted for the colour pattern.



**Card No.50**

24 sts. × 36 rows for one pattern

- ① colour ... dark blue
- ② colour ... orange
- ③ colour ... white
- ④ colour ... black

\* The main yarn is changed from ① to ③.

**One point pattern**



**Card No.50**

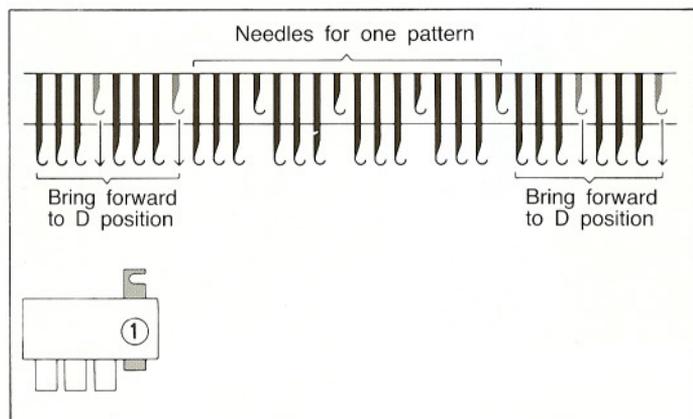
24 sts. × 36 rows for one pattern

- ① colour ... dark blue
- ② colour ... orange
- ③ colour ... white
- ④ colour ... black

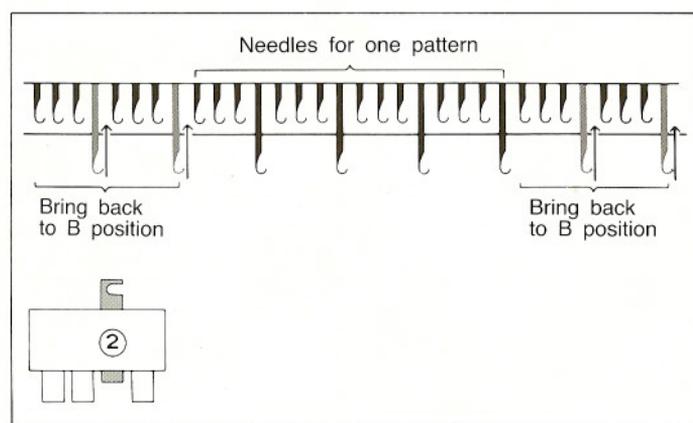
\* Refer to "How to knit a one point pattern" on next page.

# How to knit a one point pattern

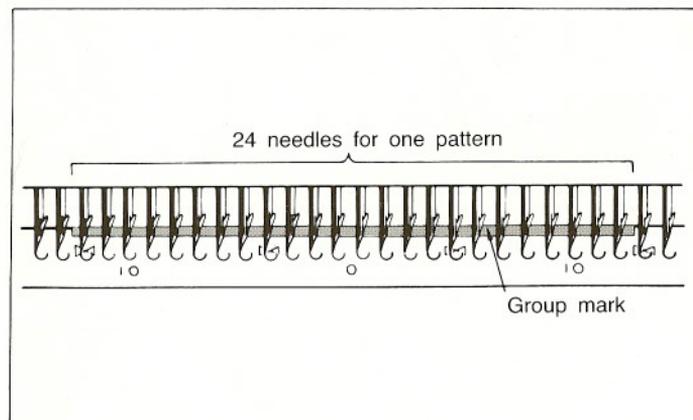
The way of casting-on and changing the yarn is the same as for knitting Multi-colour Rib but the needle arrangement for eliminating unnecessary pattern on the knitter is different.



- (1) When the button for the main yarn is pushed (button No. ①), bring forward the needles where the pattern is not required from B position to D position. And then move the Carriages.



- (2) When the button for the contrasting yarn (other buttons except button No. ①) is pushed, bring back the needles where the pattern is not required from D position to B position and then move the Carriages.



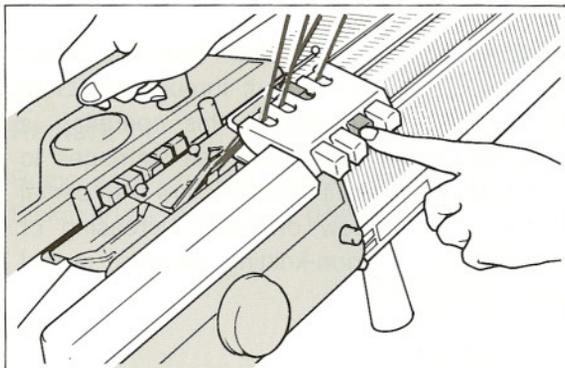
\* As the same yarn is knitted from one side to another and back again, this operation is required for every row.

\* It is easy to see which needles should be brought forward or back if you use the needle selection mark on the Needle Position Indicator (number strip under the needles).

# Important points to remember

## How to correct an error when pattern knitting

- (1) Set the Card Lock Lever at "●".
- (2) Remove both the KH and KR carriages, and place the KH carriage at the right side of the work and KR carriage at the left side of the work.
- (3) Unravel the incorrect row. Putting the ends of all yarns on the left side, thread each of the yarns into respective buttons on the Colour Changer.
- (4) After unravelling, align the needles on both the knitter and the ribber at B position.
- (5) Rewind the Punch Card as many rows as you unravelled.
- (6) Leave the KH carriage as it is (Cam button : PART L.R Change knob : KC) and move the KH carriage from right to left. (The yarn is free from the yarn feeder this time.) (The plain needles are selected.)
- (7) Connect both KH and KR carriages with the connecting arm.



- (8) Move the Carriages until the yarn changing position, and then push the button for the colour No. indicated on the Punch Card.
- (9) Set the Card Lock Lever at "▼".

\* If you find an error when pushing the button on the Colour Changer before the Carriages are on the work, set the Change Knob on the KH Carriage to N. L and then return the Carriages to the yarn changing position.

After pushing the correct button, set the Change knob to KC and push the both Part Button. Then continue knitting.

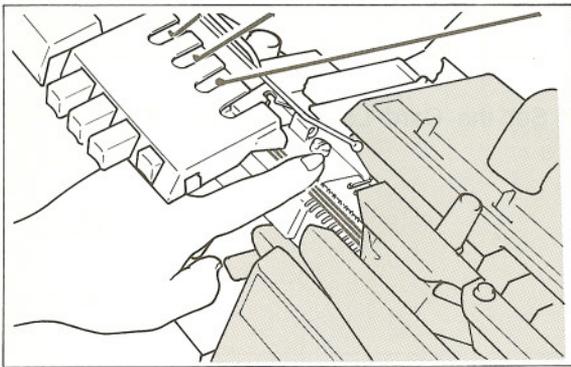
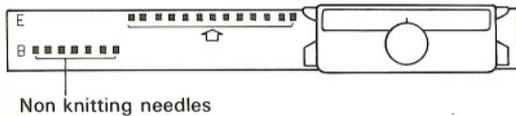
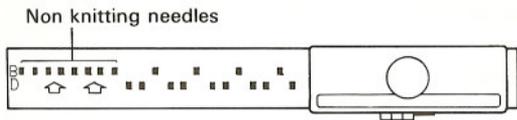
\* If you find an error when pushing the button on the Colour Changer before you move the Carriages, just push the correct button.

## Partial knitting of Multi-colour Rib.

Explanation is made of left side partial knitting.

(1) Place the Carriages at the right side of the machine.

(2) Set the Cam Lever R. L on the KR Carriage to P. R.  
(Tucking Lever is set at R and Holding Cam Lever R. L is at N.)



(3) Bring the knitting needles selected at non-knitting position back to B position and bring forward the purl needles for the knitting to E position.

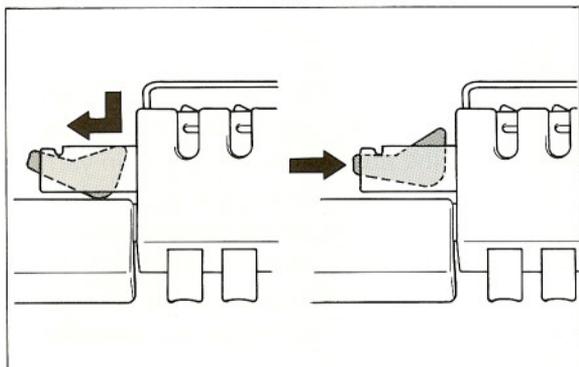
(4) Move the Carriages to left and then change the yarn.

(5) Bring the knitting needles selected at non-knitting position back to B position and bring forward the purl needles for knitting to E position.

(6) Holding the non-knitting yarn from the Colour Changer so as to pass it through the Gate Pegs by hand (hereafter this operation is repeated.) and then move the Carriages to right. Now you completed first row with partial knitting. From now on, with increasing or decreasing the non-knitting needles, repeat steps (3) to (6).

When you knit multi-colour rib using 1/1 needle selection system and shape neck line or shoulder line, etc., knit by increasing and decreasing method instead of partial knitting.

## Others



- \* **You can silence the sound of Return Signal Lever.**

You can silence the click showing the changing position of the yarn, if necessary.

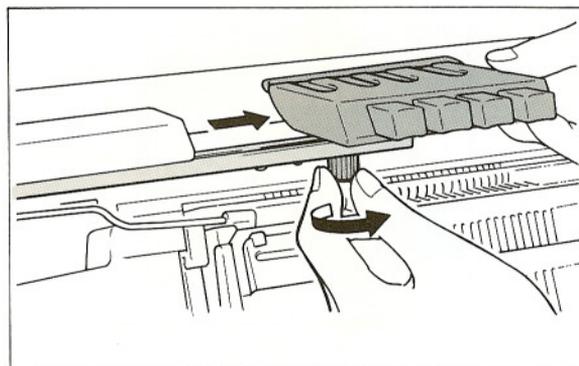
The Return Signal Lever stops if you push it towards you and slide it to the left.

The Return Signal Lever clicks again if you push the end of the lever on the left side.

- \* **Colour Changer can be moved horizontally.**

If the knitting width is within 80 stitches (40 stitches when using Bulky Punch Card Machine) on the left side, you can lessen the operation of the Carriages by sliding the Changer towards right.

Loosen the screw on the lower part of the Colour Changer and move it towards the right as far as it goes and then fasten the screw.



## Remark

Remove the Changer Arm when using the Sinker Plate Assembly on the knitter. As the Arm touches the Sinker Plate Assembly. (Please refer to p.6 for how to remove the Colour Changer.)

# How to produce a Punch Card for Multi-colour Rib

## ● BEFORE MAKING A CARD

We can work Fairisle patterns on the single bed in one operation of Carriage using a Punch Card. However, the same card cannot be used for the double bed as well because two yarns cannot be knitted in one operation of Carriages when using the ribber. You knit the main yarn and the contrast yarn separately when knitting Multi-colour Rib. So the first row is punched for the needle selection for the main yarn, then, the second row is punched for the needle selection for the contrast yarn. In order to avoid the trouble of changing the yarn every row, the card is so arranged to change the yarn every other row. Punch the 3rd row of the card for the contrast yarn, then, 4th row for the main yarn. After the first four rows have been knitted two complete rows of the Multi-colour Rib have been completed.

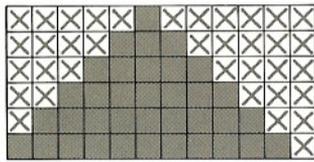
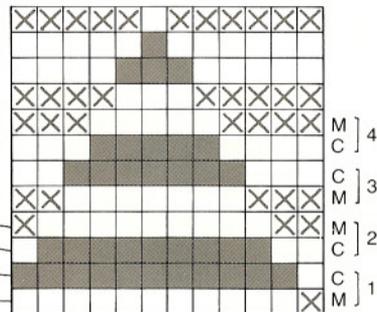


Diagram for Fairisle pattern

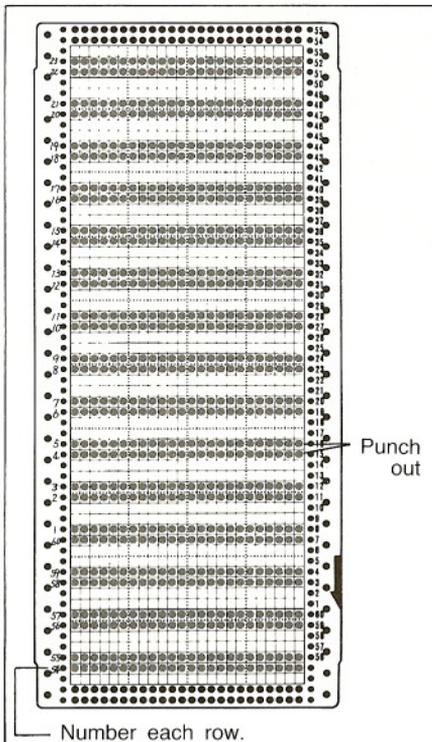
Main yarn for the 2nd row  
 Contrast yarn for the 2nd row  
 Contrast yarn for the 1st row  
 Main yarn for the 1st row



Revised diagram for Multi-colour Rib

( x ..... Knit with the main yarn )  
 ( ■ ..... Knit with the contrast yarn )

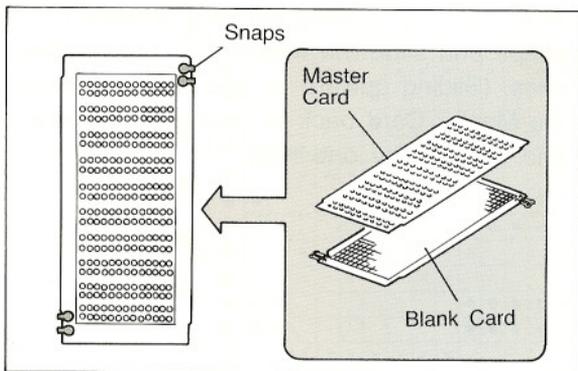
## Let's make a card



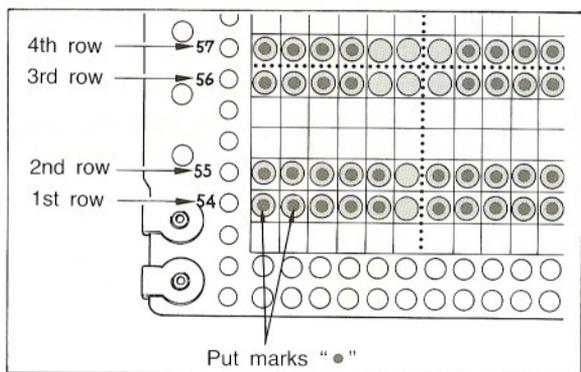
Prepare the Blank Card and Puncher (They are available separately.)

\* You can easily make the Punch Card for the Multi-colour Rib using the Master Card.

- (1) Prepare the Master Card as follows.
  - 1) You will see that working from the bottom of the card, upwards, 1st row is left blank.
  - 2) Then two rows are punched out, then two rows are left blank.
  - 3) Repeat step 2) and the last row is left blank.
  - 4) Again working upwards, number each row you have punched out on the left hand side of the card starting with the number 54 then 55, 56, 57, 58, 59, 60, 1, 2, 3 etc. up to 23.



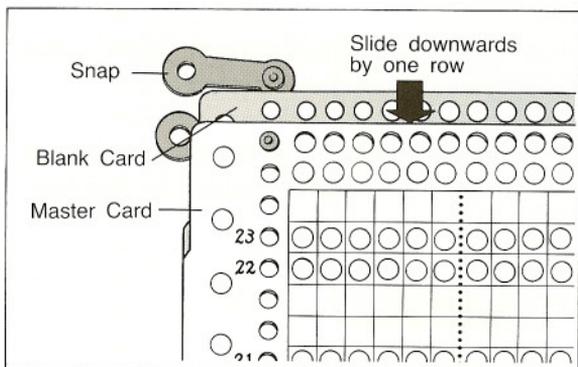
(2) Take a Blank Card and put the Master Card which you have produced on top of this and fasten them together with your plastic Punch Card Snaps.



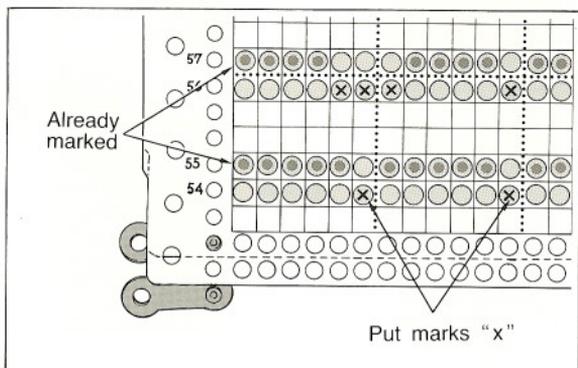
(3) You are now ready to copy your pattern. This is done by marking the holes to be punched, through the punched holes on the Master Card, onto the Blank Card underneath. (Put marks "•").

\* Copy the 1st and 2nd row of the pattern diagram on Row 54 and 55 of the Master Card, 3rd and 4th row of the diagram on Row 56 and 57 of the Master Card and so on until the Master Card is completed.

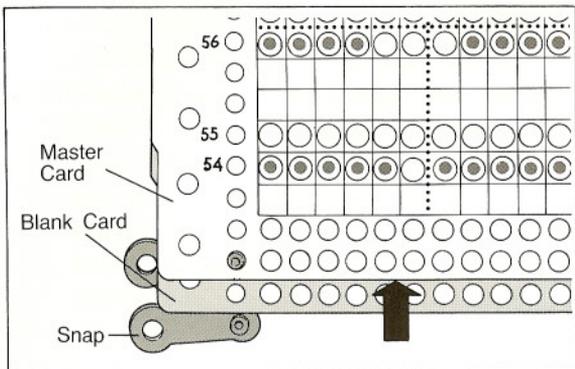
\* When you copy from the diagram of the pattern book, remember that rows 54 and 55 on the Master Card are the first two rows on the pattern diagram. (These have no numbers against them on the diagram). Row 56 and 57 on the Master Card are rows 56 and 57 on the diagram and so on.



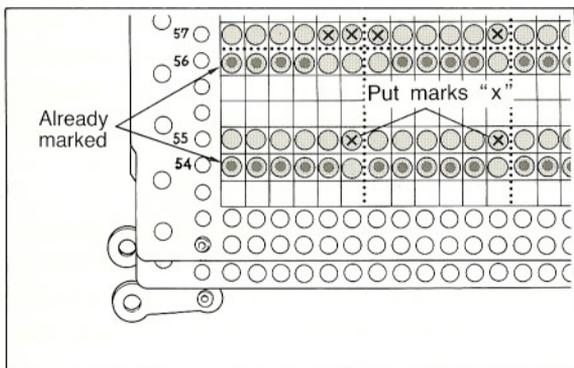
(4) When the Master Card is completely marked, unfasten the snaps and move the Master Card down by one row. Fasten the cards together again.



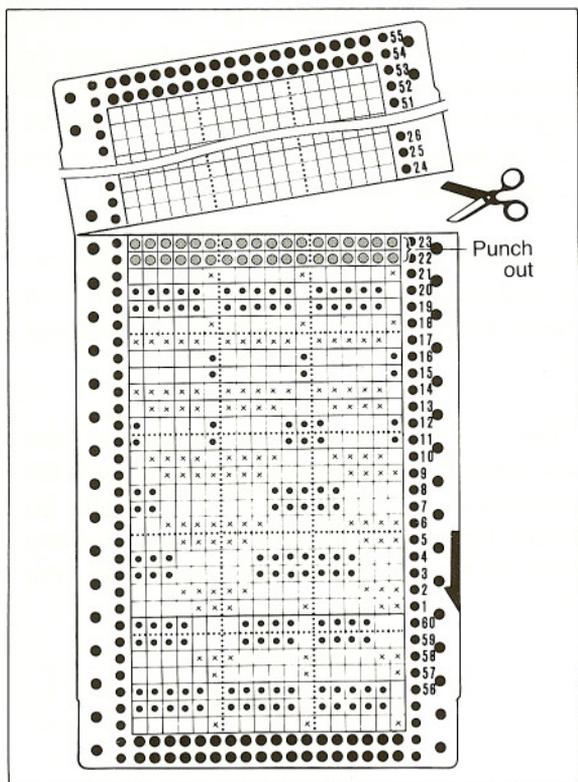
(5) Now you will see that the marks you have made on the blank card only show through the top row of each set on the Master Card. So mark through each lower row opposite any hole on the top row which is not marked. (Put marks "x").



(6) Again after completing the card, unfasten the snaps and slide the Master Card up by two rows. (Sliding upward by one row has taken the Master Card back to its original position, and then up by one row).

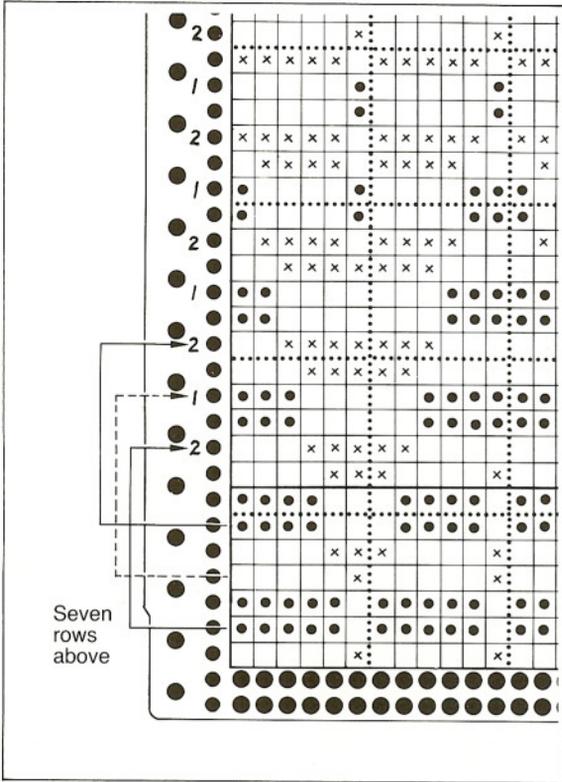


(7) Now you will see that the marks you have made on the Blank Card only show through the bottom row of each set on the Master Card. So mark through each upper row opposite any hole on the lower row which is not marked. (Put marks "x").



(8)

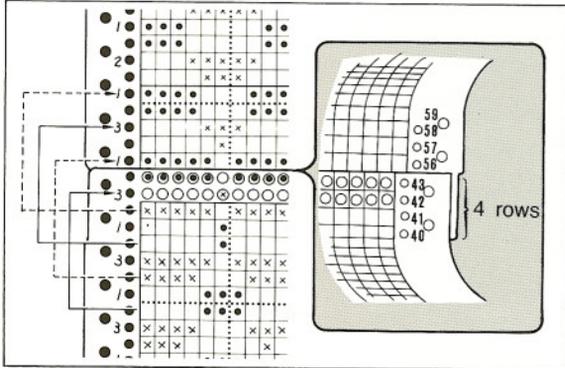
- 1) After completing the card remove the snaps and take away the Master Card.
- 2) If there is blank space, punch out two rows over the last row of the pattern for coupling.
- 3) Cut off the blank space.



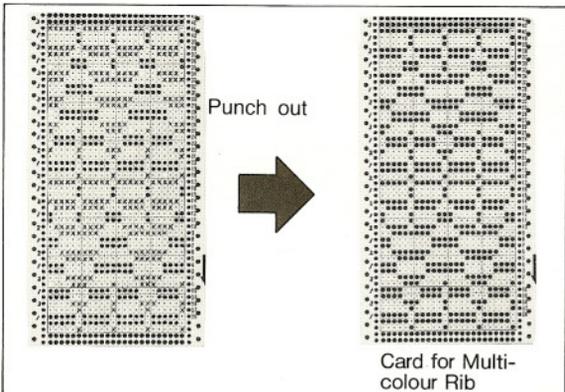
- (9) Print a yarn reference number on the left hand side of the Punch Card so that you know when to change yarns.

Row marked with "x" ... No.1  
 Knit with the main yarn.  
 Row marked with "●" ... No.2, 3, 4  
 Knit with the contrast yarn.

Print the number seven rows above the row at which you change the yarn, because Punch Card moves down by 7 rows before it reaches the patterning mechanism.



- (10) Overlap the card end by four rows and print the yarn reference number of the upper row of the card.



- (11) Punch out the both marks, then the card for Multi-colour Rib is completed.

