

# INSTRUCTION MANUAL

for **SK-101** model



**AUTOMATIC HOME KNITTER**

## Model SK-101

This is the paramount knitting machine on the market because it is of the finest quality and the mechanism has been studied for many years and of the untiring improvement protected by over one hundred patents and utility models.

With this newly completed automatic knitting machine, thousands of different patterns are available with ease by the help of one or two Russel buttons, Cam lever, and Pick lever. Starting with the simplest way of knitting with a single piece of wire, you can get any kind of design conceivable.

It is easily operated by beginners as well as experts and moreover, as the machine is durable, with no impediment whatsoever every one who possesses the model SK-101 may be proud of it.



## The Features of Model SK - 101

### Automatic Needle Selector with Unique Capacity

- ☆ By the combination of Russel buttons, cam lever with the needle selector any pattern can be easily knitted.
- ☆ With the needle selector and pick lever you can knit special patterns of three dimension effect.
- ☆ By using the selecting lever of the selector successive tuck patterns and lace pattern can be easily knitted.

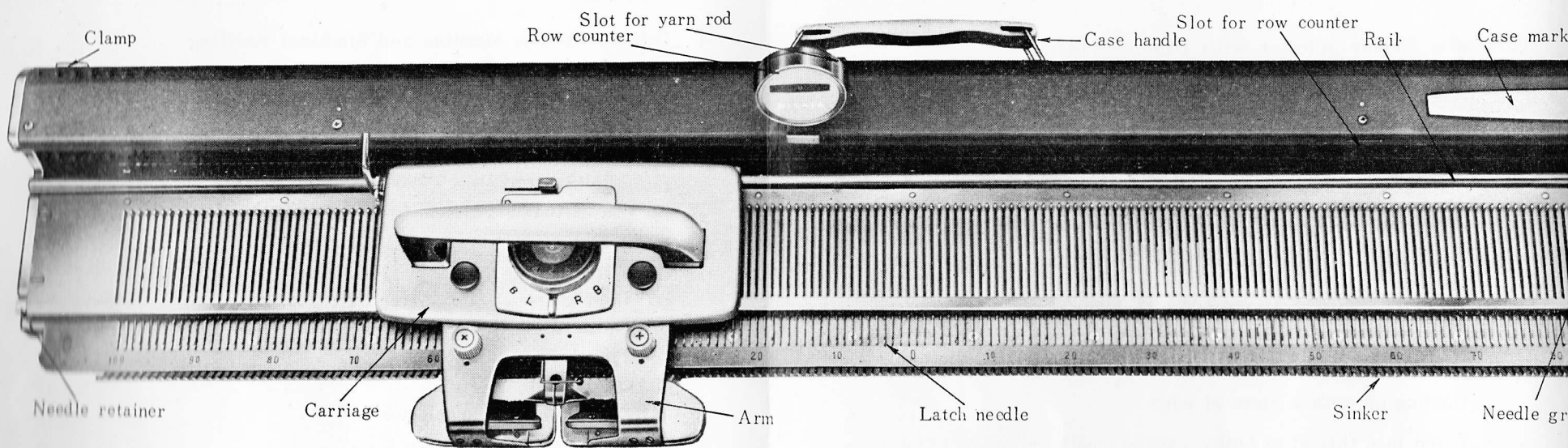
### Easy and Enjoyable Operation

- ☆ Casting on with a piece of wire.
- ☆ From lace thread to bulky yarn is easily knitted by adjusting dial.
- ☆ By using automatic tension feeder even a beginner can knit with one hand.

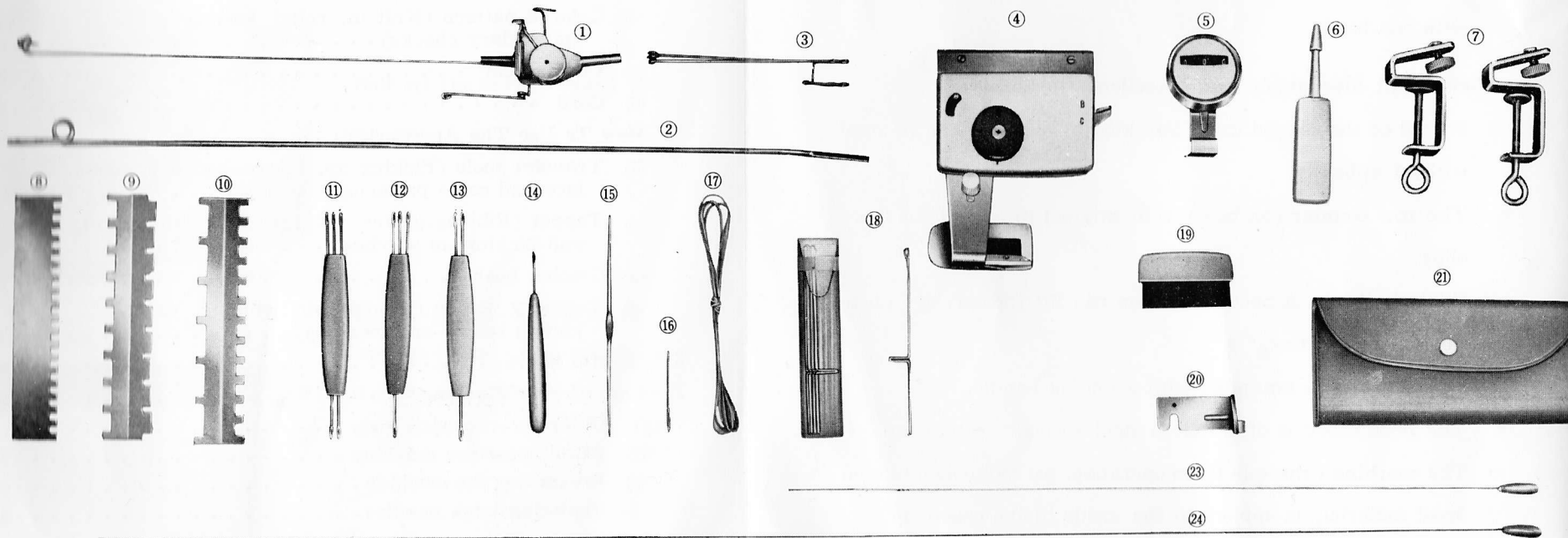
### The Convenient Mechanism and Excellent Durability

- ☆ By aid of the special cams any kind of material can be used without difficulty.
- ☆ The row counter can be conveniently set in any of the three clips.
- ☆ While knitting, if necessary, you can lift the carriage up to correct the knitting.
- ☆ The carriage is equipped with a folding handle.
- ☆ The needle bed is of stainless steel specially reinforced.
- ☆ The machine runs quietly in operation, for Moltopren (sound proof material) is applied to the inside of the casement.

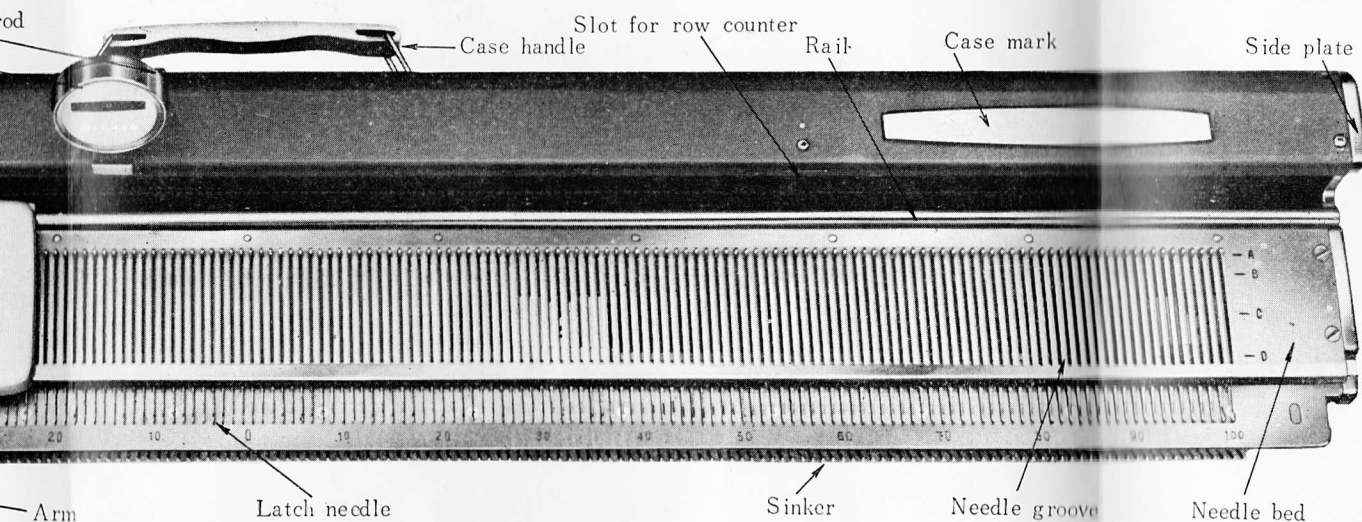
## The Machine



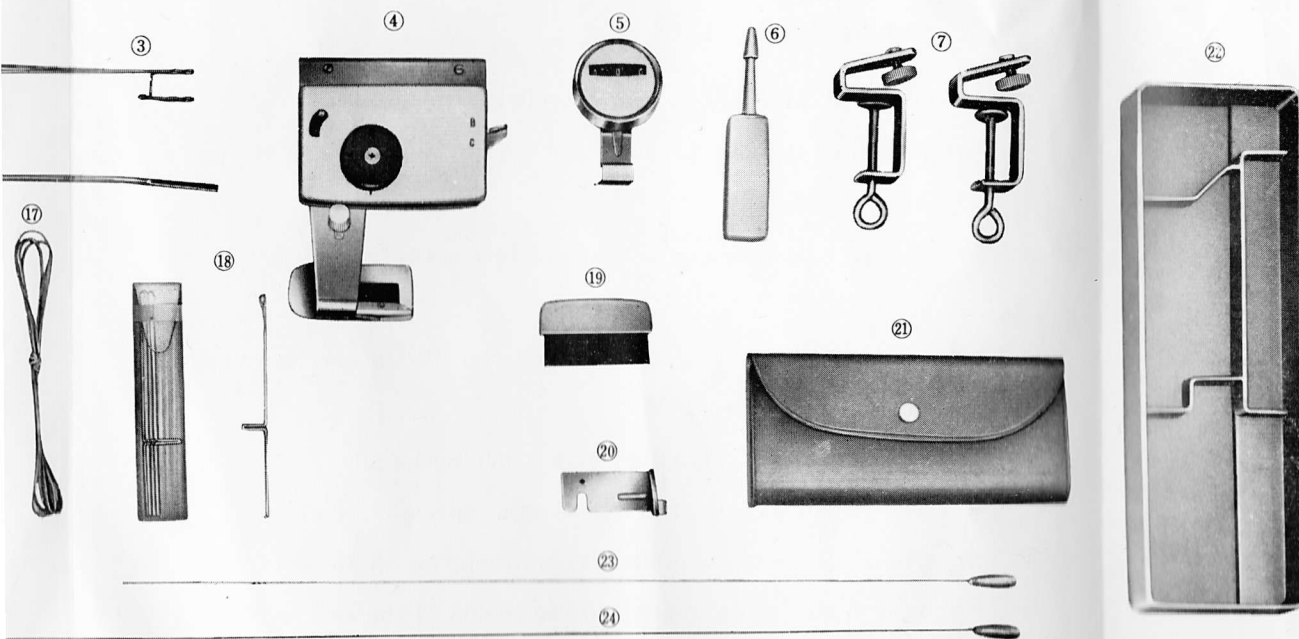
## Accessories



## The Machine



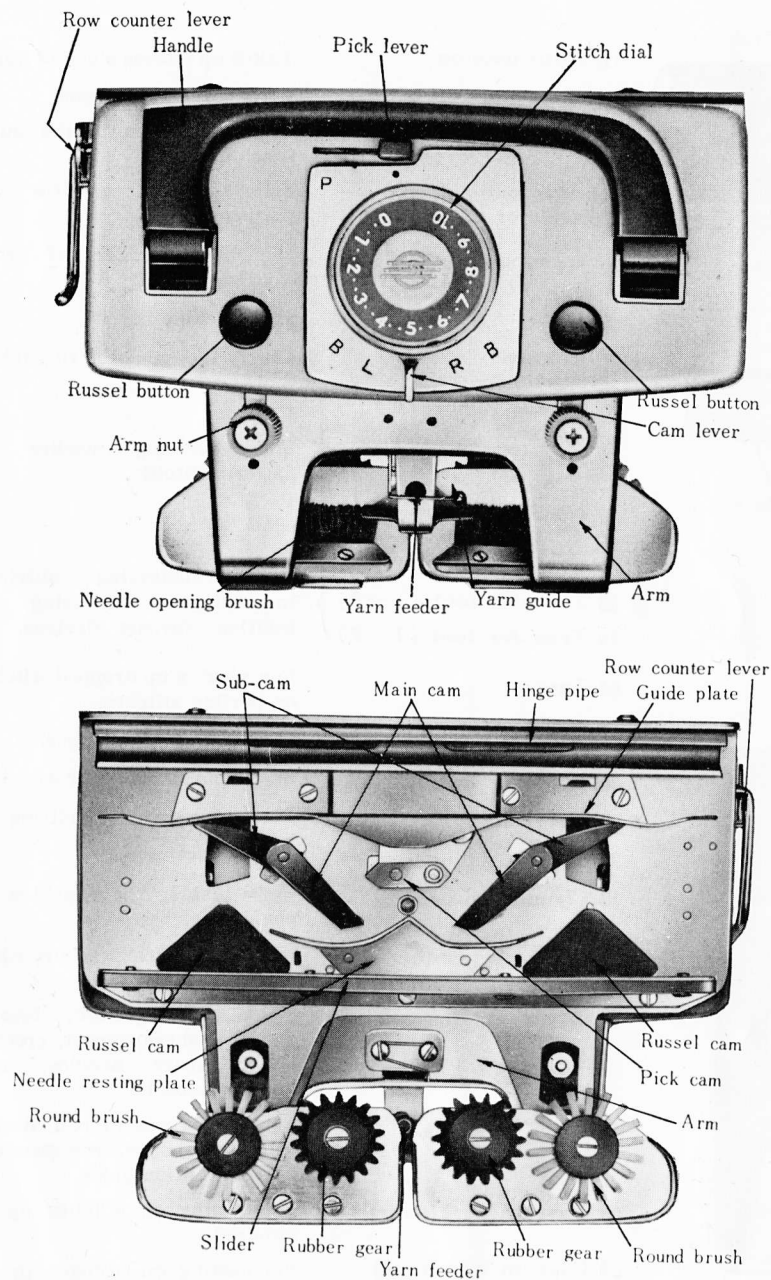
## Accessories



## Machine and Accessories

- |  |   |
|--|---|
| (1) <b>Auto-tension</b>                                      | Takes up excess slack of yarn.  |
| (2) <b>Yarn rod</b>  | Holds the auto-tension.   |
| (3) <b>Tension guide</b>                                     | Guides the yarn to the auto-tension.  |
| (4) <b>Automatic needle selector</b>                         | Selects latch needles for pattern knitting.   |
| (5) <b>Row counter</b>                                       | Indicates number of rows knitted.   |
| (6) <b>Oil</b>   | For machine use.  |
| (7) <b>Clamps</b>  | Clamp the machine to a table.   |
| (8) <b>Needle pusher</b> ( $0 \sim \frac{1}{1}$ )            | } For selecting needles for pattern stitches.   |
| (9) <b>Needle pusher</b> ( $\frac{1}{3} \sim \frac{3}{1}$ )  |   |
| (10) <b>Needle pusher</b> ( $\frac{1}{5} \sim \frac{1}{2}$ ) |   |
| (11) <b>Transfer tool</b> ( $2 \sim 3$ )                     | } For transferring stitches, increasing, decreasing or knitting various designs.                      |
| (12) <b>Transfer tool</b> ( $1 \sim 3$ )                     |   |
| (13) <b>Transfer tool</b> ( $1 \sim 2$ )                     |   |
| (14) <b>Tappet</b>   | For picking up dropped stitches or purling stitches.  |
| (15) <b>Crochet hook</b>                                     | For binding off stitches.   |
| (16) <b>Tapestry needle</b>                                  | For stitching seams or weaving.   |
| (17) <b>Raveling cord</b>                                    | For separating the knitting   |
| (18) <b>Spare needles</b> (5)                                | For replacement   |
| (19) <b>Cleaning brush</b>                                   | For cleaning the machine or opening latches.  |
| (20) <b>Carriage fastener</b>                                | Keeps the carriage secure when not in use.  |
| (21) <b>Accessory bag</b>                                    | Holds raveling cord, brush, needle pushers, tappet, crochet hook, spare needles, and tapestry needle. |
| (22) <b>Accessory box</b>                                    | Contains accessory bag, needle selector, clamps, row counter, oil and tension guide.                  |
| (23) <b>Cast-on wire</b> (short)                             | For casting on stitches up to hundred.  |
| (24) <b>Cast-on wire</b> (long)                              | For casting on stitches up to two hundred.  |

## Carriage



## The Features of Model SK - 101

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### Easy and Enjoyable Operation

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### The Convenient Mechanism and Excellent Durability

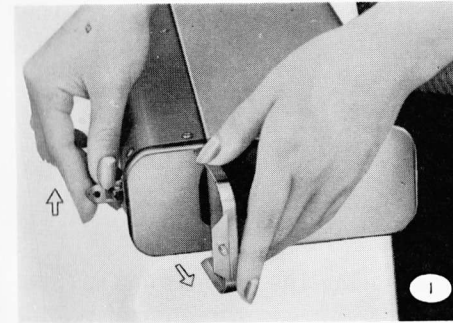
- ☆ By aid of the special cams any kind of material can be used without difficulty.
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## (1) Setting Up The Machine and Stockinet Knitting

### (1) Setting up



Place the machine on a table with its handle away from you,

**Remove the cover.**

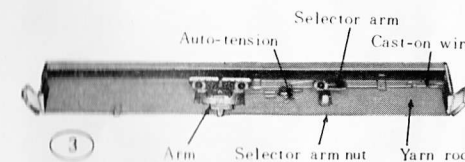
Unfasten the latch locks on the machine and open the side plates

(1)

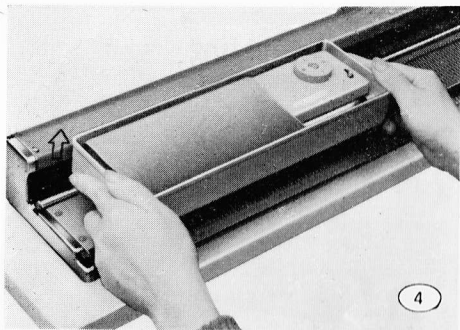


**Pull off the cover toward you.**

(2)



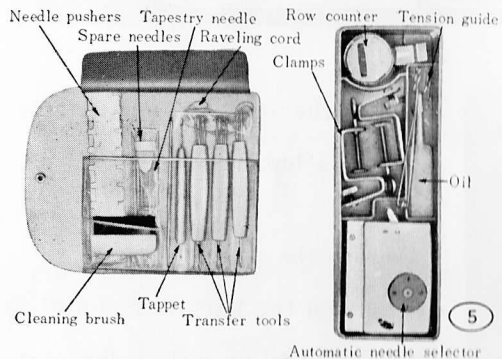
Inside the cover you will find two cast-on wires (long and short), a yarn rod, auto-tension, arm and selector arm. (3)



4

**Take out the accessory box.**

First take out the needle selector; then the accessory box. (4) (when you put them back, first the accessory box on the needle bed then the needle selector.)



5

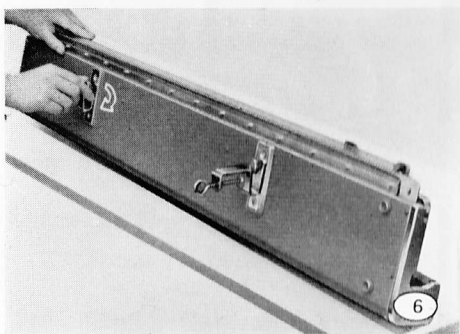
In the accessory box you find the row counter, clamps, tension guide, needle selector, oil and accessory bag. (5)

**Setting the machine on the table.**

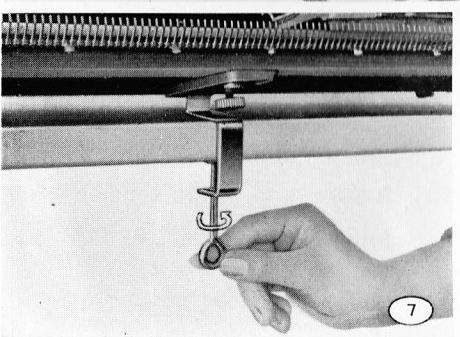
The rubber feet on the bottom of the machine will hold the machine firmly enough, but it is advisable to clamp it when you are going to use the ribbing attachment or if the table is not large enough.

Tip the machine away from you and put the head of the clamp into the clamp receiver, drawing the clamp head forward as far as possible, and screw it firmly. (6)

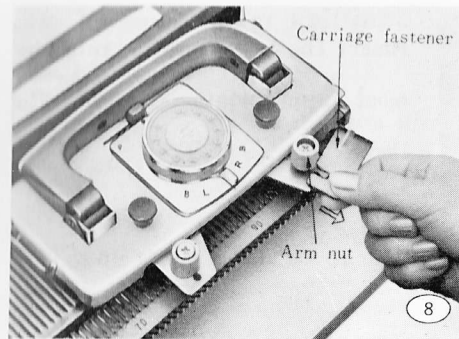
Clamps should be fixed on both sides of machine before it is clamped to the table. (7)



6



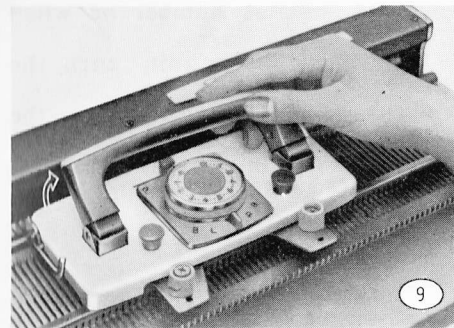
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8

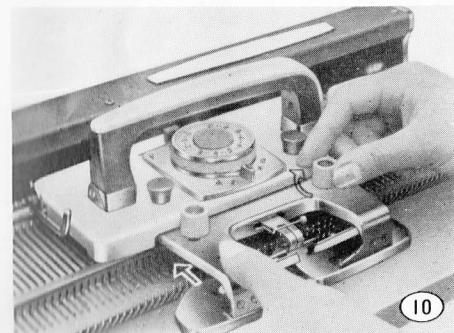
**Remove the carriage fastener. (8)**

Loosen the arm nut on the right side, remove the fastener, and the carriage is free to move.



9

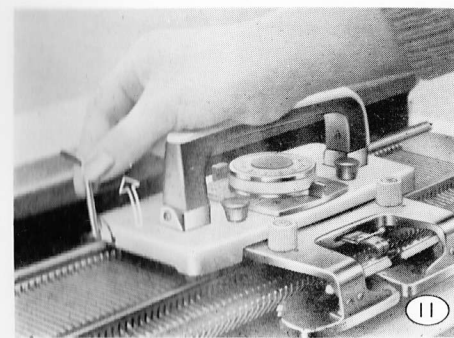
**Raise the handle toward you. (9)**



10

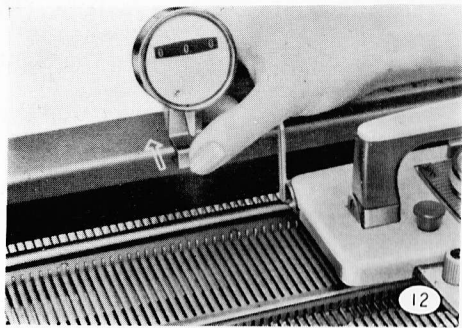
**Attach the arm to the carriage.**

Loosen the arm nuts, slide the arm as far as it will go and tighten screws firmly. (10)



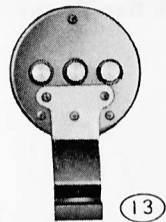
11

**Raise the lever of the row counter as the arrow points out. (11)**



Insert the row counter into the most appropriate clip of the three. (12)

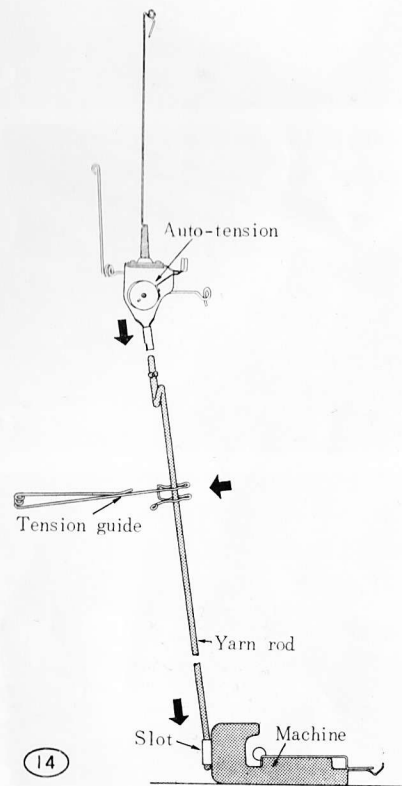
The row counter reads up to 999. To reset the figures to zero or to a smaller number or when you have over knit, turn the three knobs respectively on the back of counter. (13)



**Setting up the auto-tension.**

(14)

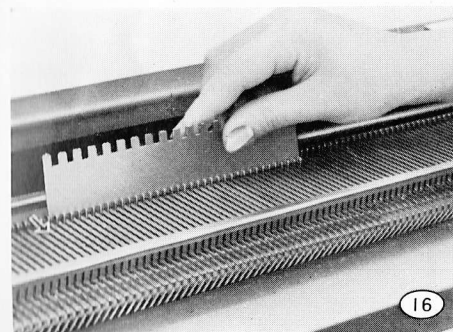
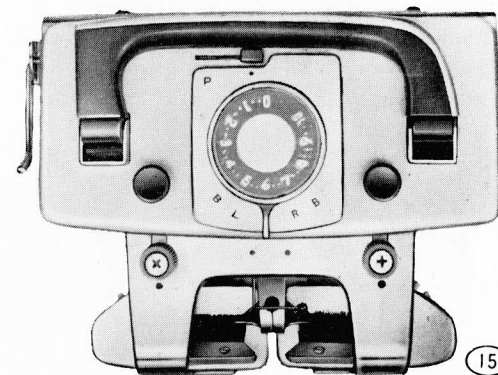
- (1) Insert the yarn rod into the slot inside the carrying handle.
- (2) Place the auto-tension on the top of the rod.
- (3) Place the tension guide on the middle of the rod.



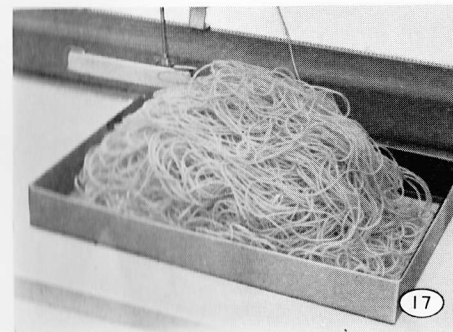
**(2) Preparation for knitting**

Set carriage as follows:- (15)

- Set the cam lever to the middle.
- Pull up both the Russel buttons.
- Set the pick lever at the red point.
- Set the stitch dial to 6.



Bring required numbers of latch needles into the working position about half an inch from the most rear position that is, into position "B" (16).

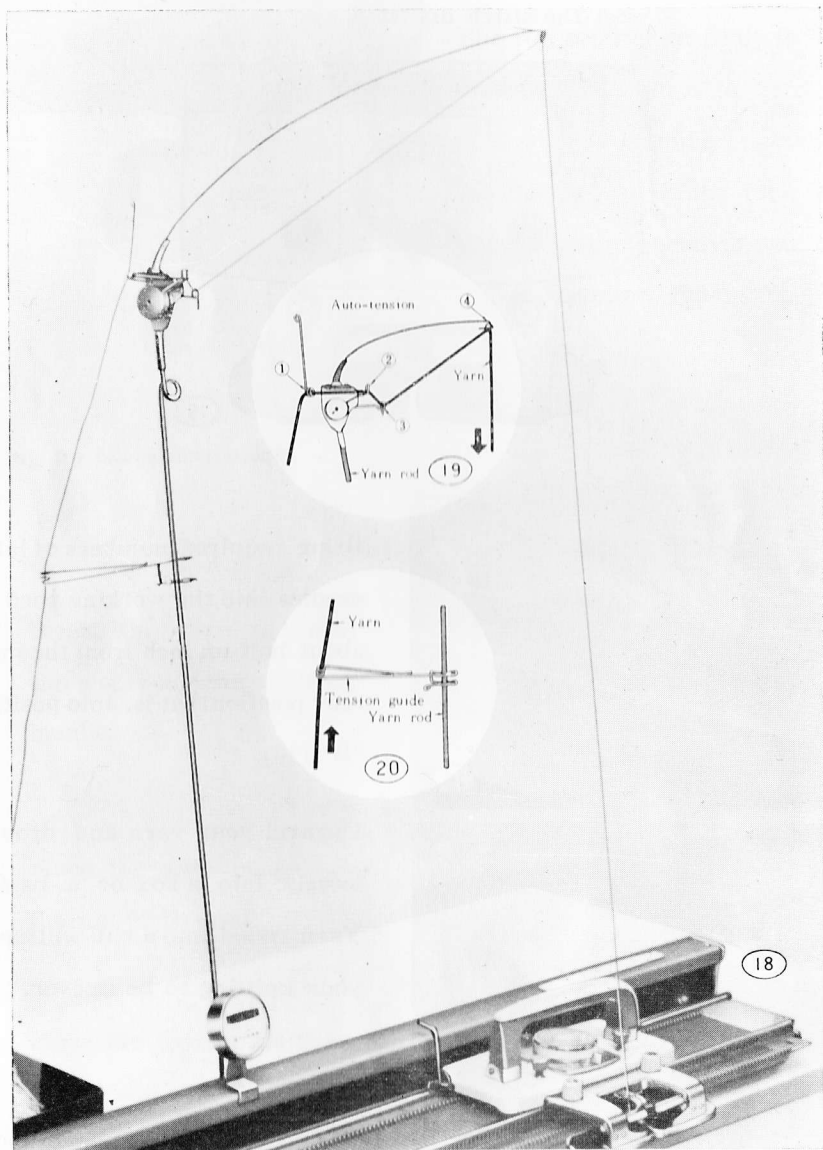


Unravel your yarn and drop it loosely into a box or a basket. Yarn rolled into a ball will cause your knitting to be uneven. (17)



### (3) Threading the yarn

Thread the yarn through the auto-tension following the numbers indicated in Fig. 19, down into the yarn feeder of the carriage.



### (4) Casting on and waste knitting

Always use medium size yarn for your waste knitting. Set the stitch dial to 6, which is higher than standard number.

Hold the yarn and leaving about 6" hanging loosely below the yarn feeder, move the carriage slowly (21) so that the latch needles and sinker needles catch the yarn alternately.

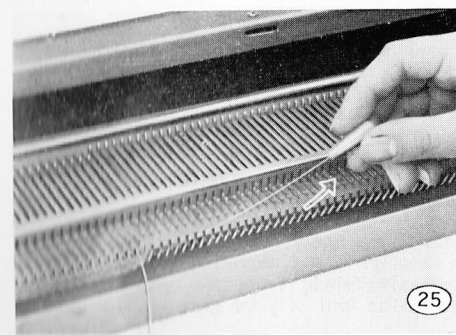
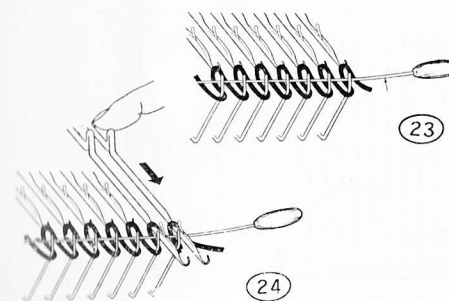
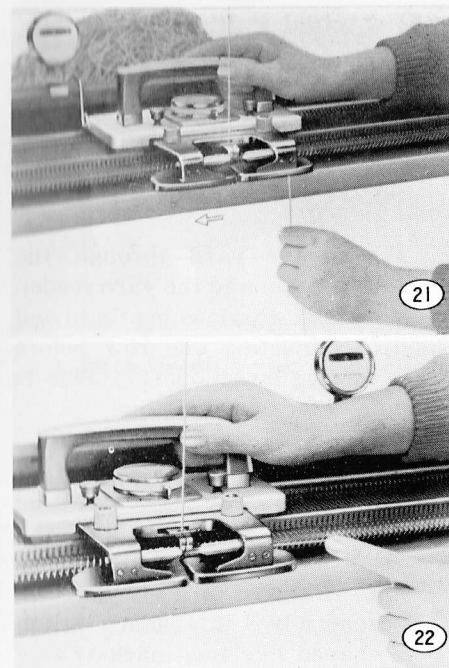
Still holding down the yarn end with your finger push the carriage forward. (22)

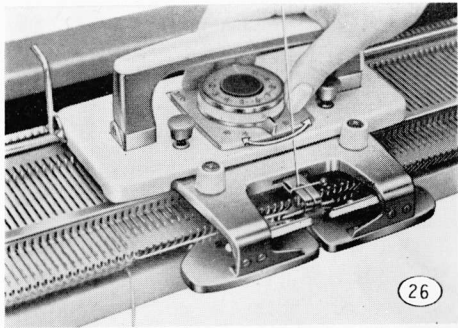
Place a cast-on wire over the yarn between the latch needles and sinker needles. (23)

In order to keep the cast-on wire securely in place pull out one or two latch needles about  $\frac{1}{2}$ " forward over the wire at both ends and also approximately every twentieth needles. (24)

Knit about 4 rows by moving the carriage across the operating needles, ensuring that, after completing each row, the carriage is completely past the operating needles before the direction is changed for knitting the next row. The cast-on wire can now be removed as shown in (25).

Remove the yarn used for the initial rows from auto-tension and the yarn feeder and replace it by the raveling cord (the raveling cord need net be placed in the auto-tension). Knit one row and remove the raveling cord from yarn feeder.





**(5) Actual knitting**

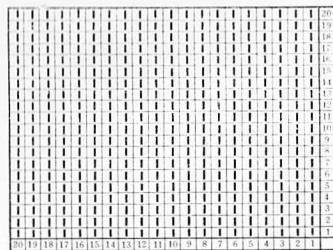
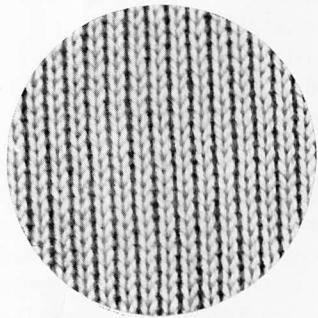
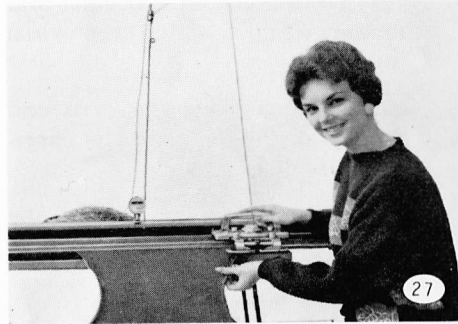
Adjust your stitch dial according to the size of yarn and the type of your garment. (26)

Set the row counter to zero.

Thread the yarn through the auto-tension and the yarn feeder. Move the carriage gently to and fro, completing one row before reversing direction. (27) This is called stockinet knitting.

**[Stockinet knitting]**

Stockinet is the basic knitting stitch. On your machine the wrong side of the stitch faces you. Ratio of stitches to rows is generally 3 to 4. Each stitch is shaped like this mark—v

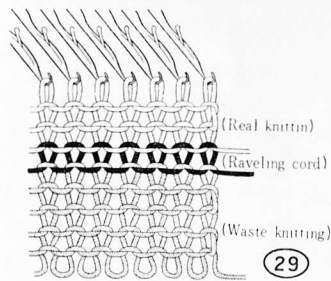


(28)

**About waste knitting**

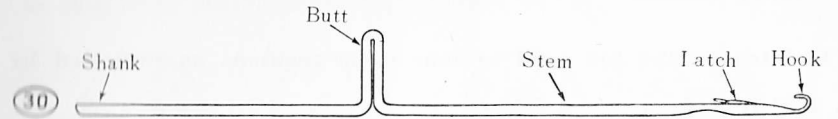
In order to prevent the starting row of your garment from being loose, use any scrap of yarn (medium size preferable) to knit first few rows. Then with a raveling cord knit one row before you start your actual garment. (29)

When you want to continue knitting your fabric upside down, to join it to another piece of fabric, or to make neat bind off stitches, you can pick up the stitches from the first row of the real knitting just above the raveling cord. This enables your work to be done much more neatly. The raveling cord serves to separate the main fabric from the waste knitting. Do the same at the end of your garment to have a nicer finish.

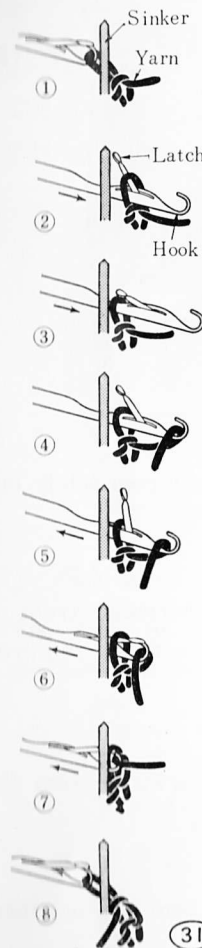


(29)

**(2) How a Stitch is Formed**



[A latch needle forms a stitch in the following process.]



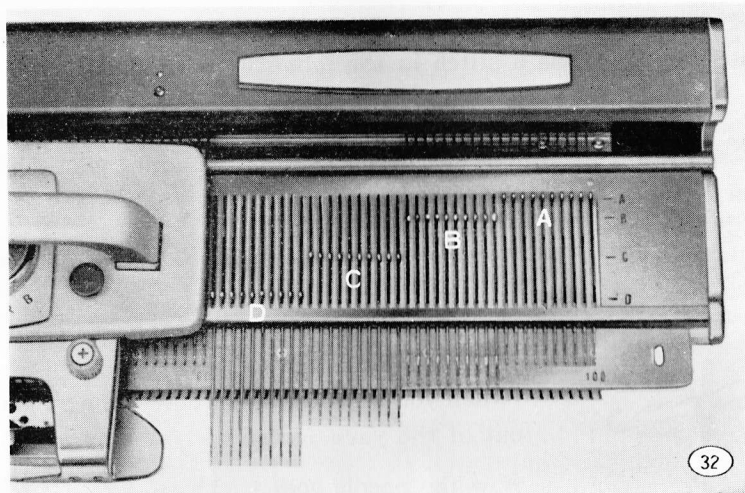
- ① A stitch is caught in the hook of a latch needle.
- ② The needle moves forward and the stitch opens the latch automatically.
- ③ The needle moves further forward and the stitch slides behind the latch.
- ④ The yarn is automatically fed into the hook preparing for a new stitch.  
(when you work on the machine, the yarn comes out of the yarn feeder without any help.)
- ⑤ Now the needle goes backward.
- ⑥ Accordingly the latch closes by itself being pushed back by the stitch.
- ⑦ The needle moves further backward, the latch closes completely catching the yarn on the hook inside the closed latch.
- ⑧ When the needle is fully in the backward position the stitch drops off the hook.  
(The sinker needle serves the stitch to be regulated.) Now a new stitch is on the hook.

This same cycle of the movements of a needle from 1 to 8 is repeated and stitches are formed. With one stroke of the carriage on the needle bed 200 latch needles form as many stitches in the same manner explained above.

## (3) Basic Operation

### (1) Latch needles

The latch needles are used in four basic positions as indicated by A. B. C. D. (32)



#### A.....Non knitting position

(The needle butts are fully to the rear. They are completely out of action even if you move the carriage.)

#### B.....Normal knitting position

(The needle butts are in a position about  $\frac{1}{2}$ " forward from A position. Before you start knitting bring the needles required into this position.)

#### C.....Always knitting position

(The needle butts are in a position about  $1\frac{1}{2}$ " forward from the A Position)

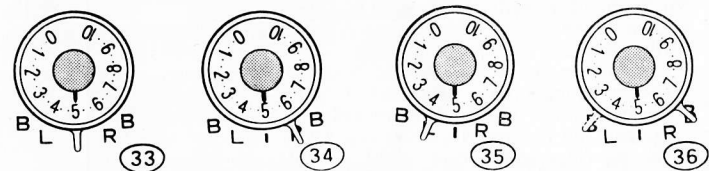
#### D.....Resting position

(The needle butts are drawn fully to the front and will not form any stitches)

### (2) The cam lever

The cam lever can be set to five positions and with the help of the Russel buttons it enables you to knit various patterns.

The cam lever positions are as follows:-



[Middle]

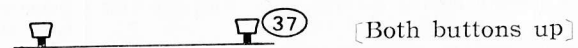
[Right]

[Left]

[B(either of the two)]

### (3) Russel buttons

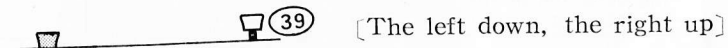
The Russel buttons, right and left are usually pulled upward except when you operate the needles in D position.



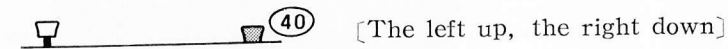
[Both buttons up]



[Both buttons down]



[The left down, the right up]

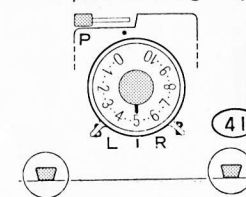


[The left up, the right down]

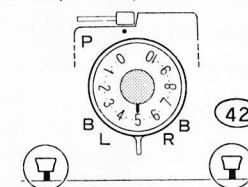
### (4) Pick lever

The pick lever is usually set to red mark except when you knit garments in pick stitches by setting it to P.

For pick knitting only



For ordinary knitting  
(except for pick knitting)



[The latch needles, cam lever, Russel buttons, and pick lever are related to each other in their functions.]

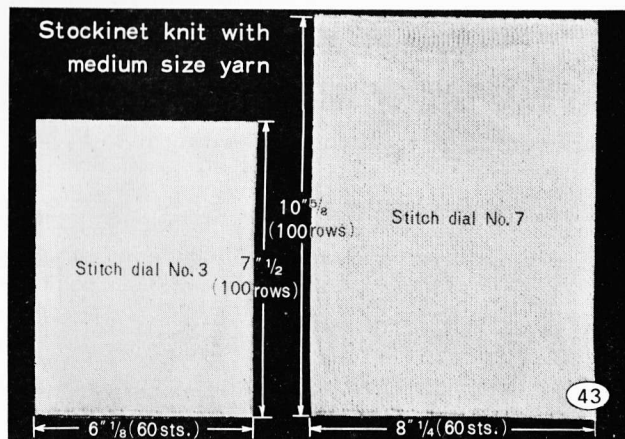
Needle position	Carriage	Application
A	The needles are completely out of action having no connection with the cam lever, Russel buttons or the pick lever.	Pattern in vertical stripe
B	No connection with the Russel buttons:— * Cam lever set to middle . . . . The needles operate as the carriage moves both ways * Cam lever set to the left. . . The needles operate as the carriage moves from left to right, but not from right to left. The Pick lever being set to P the needles operate as the carriage moves from left to right; if the carriage goes from right to left the needles do not operate but only catch the yarn over them.	Castings on Plain knitting
	* Cam lever set to the right. . . The needles operate as the carriage moves from right to left but not from left to right. The Pick lever being set to P the needles work as the carriage goes from right to left but if in the opposite way the needles do not operate but just catch the yarn over them, * Cam lever set to B either side. . . The needles do not operate. Pick lever being set to P the needles do not operate but catch the yarn as the carriage moves either to the right or to the left.	Pick knitting
C	The needles operate having nothing to do with the cam lever, Russel buttons and pick lever:—	Successive tuck stitches
D	Without any connection with the cam lever and pick lever:— * With both Russel buttons up the needles do not operate. * With forward Russel button of advancing carriage pushed down the needles operate. * With the Russel button at the opposite side of proceeding direction of the carriage down the needles do not operate but move into C position.	Partial knitting Tuck knitting knit-in pattern

### (5) The stitch dial

Just as you would choose hand knitting needles for the thickness of the yarn, the machine

adjusts the stitch size by using the stitch adjusting dial,

With the same yarn the knitting will feel tight when the dial is set to a lower number, and it will feel soft if the dial number is



high, and the length of the knitting differs as well.

For example, medium size yarn knitted 60 stitches 100 rows by dial number 3 will measure 6 1/2" by 7 1/2" and by dial number 7 the knitting will measure 8 1/4" by 10 1/2".



The standard number of the stitch dial to the thickness of yarn.

Weight of yarn	Dial number
Thin (lace thread)	0-3
Medium	3-6
Thick	6-9
Very thick or loop yarn	9-10

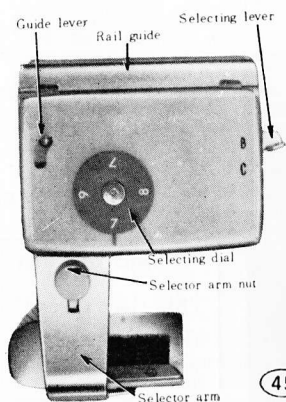
When bulky yarn is used every other needle should be used.

### [About the stitch gauge]

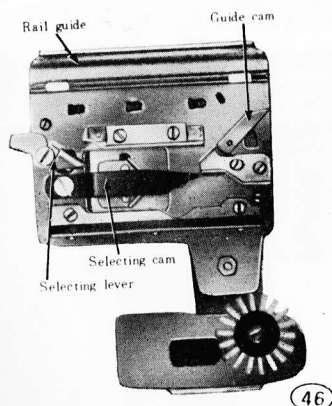
Before starting each garment, find out how many stitches and rows the yarn makes per inch. This is done by making a swatch of 60 stitches and 60 rows. Make swatch at different tensions. Remove from machine, crumple it well and lay on a flat surface. Do not stretch. With ruler or tape measure, count number of stitches per inch (width) and rows per inch (length). Then choose the tension preferred. The importance of checking your stitch gauge is emphasized.

An error of one stitch or one row will result in incorrect size of garment. Make a swatch for each new garment even though the yarn is the same type or ply. Yarns vary and the gauge may not be the same.

## (6) Automatic needle selector



(45)



(46)

The automatic needle selector is used for knitting patterns, such as tuck stitches, pick stitches, knit-in stitches and lace patterns. The selecting dial assort the needles by groups of 6, 7, and 8 respectively, which will produce various patterns as you see in the charts. The selecting lever enables you to knit successive tuck stitches and the guide lever serves to select needles partially required for knitting solid pattern.

### [How to use the automatic needle selector]

- Fix the selector arm to the selector by the arm nut and set the dial to one of three, 6, 7, 8 according to the pattern chart on the next page.
- When you knit tuck stitches, pick stitches, knit-in patterns or lace knitting, the selecting lever is set to B. (The needles are selected into B and D positions). For knitting successive tuck stitches, the selecting lever is set to C. (The needles are selected into C and D positions)
- Following the pattern chart from the right side pull out the needles marked with a symbol O into D position with your finger.
- Move the selector gently from right to left and the chosen needles are automatically assorted. Move your selector only from right to left.
- When you want to select needles at the middle of a row pull out the needles where you start selecting into D position and move the selector from right to left.
- When you want to terminate your selecting at the middle of a row, pull the guide lever toward you when the guide cam has passed the last needle to be selected, and move on the selector to the end still holding the lever.
- The selector should be removed from machine when it is not in use.

[The pattern chart]

6-stitch patterns. (The dial at 6)

6	5	4	3	2	1	
X	X	X	X	X	O	1
X	X	X	X	O	O	2
X	X	X	O	X	O	3
X	X	O	X	X	O	4
X	X	X	O	O	O	5
X	X	O	X	O	O	6
X	O	X	X	O	O	7
X	O	X	O	X	O	8
X	X	O	O	O	O	9
X	O	X	O	O	O	10
X	O	O	X	O	O	11
X	O	O	O	O	O	12

7-stitch patterns. (The dial at 7)

7	6	5	4	3	2	1	
X	X	X	X	X	X	O	1
X	X	X	X	X	O	O	2
X	X	X	X	O	X	O	3
X	X	X	O	X	X	O	4
X	X	X	O	X	O	O	5
X	X	O	X	X	O	O	6
X	O	X	X	X	O	O	7
X	X	O	X	O	X	O	8
X	X	X	X	O	O	O	9
X	X	X	O	O	O	O	10
X	X	O	X	O	O	O	11
X	O	X	X	O	O	O	12
X	O	X	O	X	O	O	13
X	X	O	O	X	O	O	14
X	X	O	O	O	O	O	15
X	O	X	O	O	O	O	16
X	O	O	X	O	O	O	17
X	O	O	O	O	O	O	18

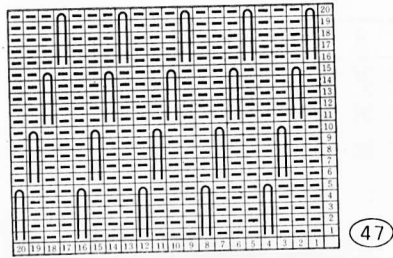
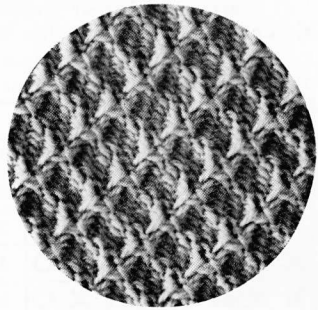
O = Pull out the needles to D position with your finger.

X = Leave the needles either in B or C position.

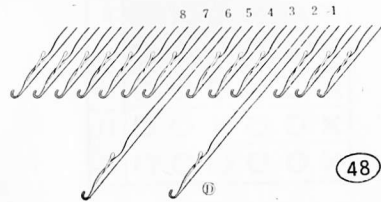
8-stitch patterns. (The dial at 8)

8	7	6	5	4	3	2	1	
X	X	X	X	X	X	X	O	1
X	X	X	X	X	X	O	O	2
X	X	X	X	X	O	X	O	3
X	X	X	X	O	X	X	O	4
X	X	X	O	X	X	X	O	5
X	X	X	X	X	O	O	O	6
X	X	X	X	O	X	O	O	7
X	X	X	O	X	X	O	O	8
X	X	O	X	X	X	O	O	9
X	O	X	X	X	X	O	O	10
X	X	X	O	X	O	X	O	11
X	X	O	X	X	O	X	O	12
X	X	X	X	O	O	O	O	13
X	X	X	O	X	O	O	O	14
X	X	O	X	X	O	O	O	15
X	O	X	X	X	O	O	O	16
X	X	X	O	O	X	O	O	17
X	X	O	X	O	X	O	O	18
X	X	O	O	X	X	O	O	19
X	X	O	O	X	O	O	O	20
X	O	X	O	X	X	O	O	21
X	X	X	O	O	O	O	O	22
X	X	O	X	O	O	O	O	23
X	O	X	X	O	O	O	O	24
X	X	O	O	X	O	O	O	25
X	O	X	O	X	O	O	O	26
X	X	O	O	O	X	O	O	27
X	O	X	O	O	X	O	O	28
X	X	O	O	O	O	O	O	29
X	O	X	O	O	O	O	O	30
X	O	O	X	O	O	O	O	31
X	O	O	O	X	O	O	O	32
X	O	O	O	O	O	O	O	33

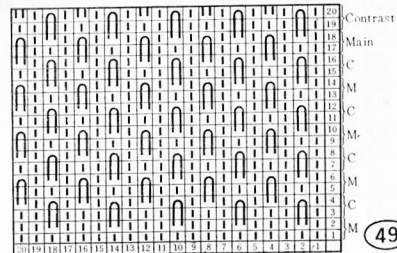
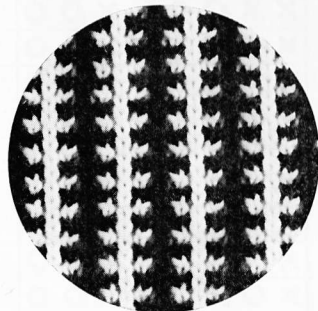
**Application 1. (Tucked ground pattern with a unit of 4 stitches.)**



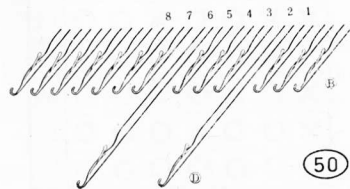
- Set the selecting dial to 8, the selecting lever to B.
- Pull out 4th and 8th needles from the right side to D position following the pattern chart. (48)
- Move the selector from right to left and all the needles for tuck stitches come into D position.
- Set the cam lever of the carriage in the middle, the Russel buttons up and knit four rows.
- Push down the Russel button in proceeding direction before you knit another row. (The needles in D position are pushed back to B position having knitted the row.)
- Following the chart repeat this procedure from (b) to (f).



**Application 2. (Colored pattern successively tucked with a unit of 4 stitches)**

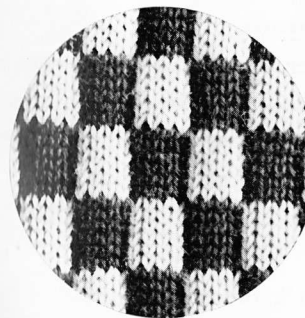


- Set the selecting dial to 8; the selecting lever to C.

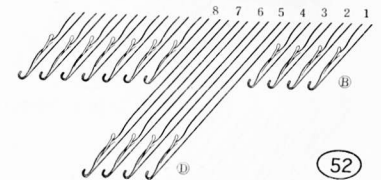


- Following the pattern chart bring out two needles for tuck stitches, 4th and 8th to D position. (50)
- The cam lever in the middle, both Russel buttons up, knit one row with a contrasting color; push down the Russel button at the rear of the advancing carriage, knit another row. (The needles in D position are pushed back into C position.)
- Then with your finger pull out the needles for tuck stitches to D position before you use the selector. Knit 2 rows with main color as indicated in section c). In the same manner knit two rows with the contrasting color, two rows with the main color respectively.

**Application 3. (Knit-in pattern with a unit of 8 stitches)**



- Set the selecting dial to 8. the selecting lever to B.
- As the pattern chart indicates bring out four needles (5th, 6th, 7th, 8th) for contrasting color into D position (52) before you use the selector.
- Set the cam lever to B on either side, both Russel buttons down, knit one row with the contrasting color. Remove the color yarn from the carriage and move it back without knitting.
- Now select another 4 needles and knit one row with main color, which will complete one row.
- Repeat from b) to d) six times.
- Alternate the contrasting color with the main color every 7th row by 6 times so that you can knit pretty check pattern in two colors.

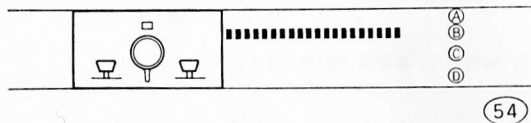
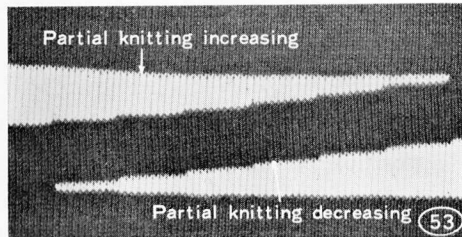


## (4) Basic Knitting

### (1) Partial knitting (Every two rows)

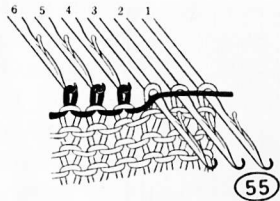
In knitting, shaping garments is achieved not by cutting but by decreasing stitches, increasing stitches and partial knitting.

The partial knitting can be done by the aid of the Russel buttons and the arrangement of needles.



[Partial knitting decreasing]

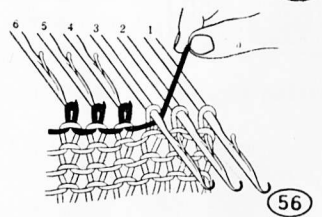
(54)



(55)

- a) The number of needles to decrease on this row should be drawn out into D position on the opposite side to where the carriage is and knit one row.

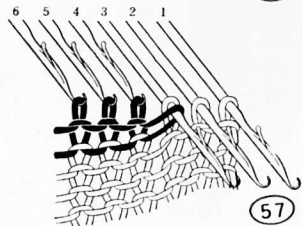
(55)



(56)

- b) In order to avoid making a hole draw the yarn under the first resting needle, letting it rest over any remaining needle.

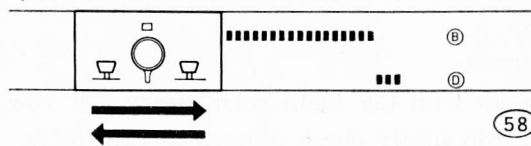
(56) (yarn over needle)



(57)

- c) Continue knitting another row, which completes the first partial knitting.

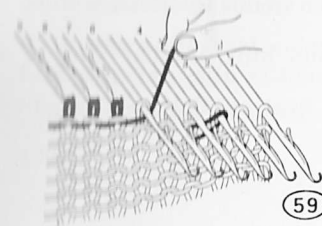
(57)



B...Knitting

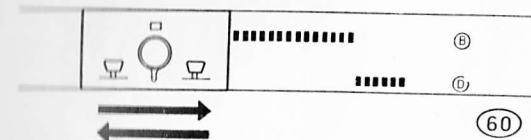
D...Resting Position

(58)



(59)

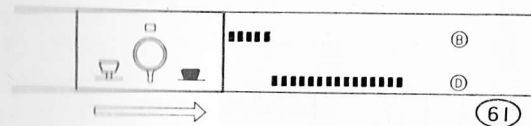
- d) In the same manner, bring out next group of needle to decrease into D position before you begin the 3rd row. Repeat b) and knit 4th row. (59)



(60)

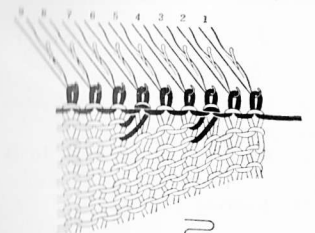
B...Knitting

D...Resting Position



(61)

- e) This completes the second partial knitting.

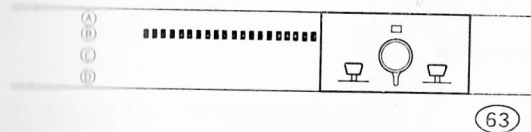


(62)

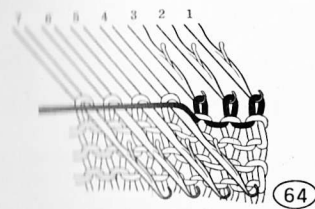
- f) After completing your partial knitting push down the forward Russel button in the proceeding direction, (61) knit one row. All the needles in B and D position are now working. (62)

[Partial knitting increasing]

This partial knitting is used to shape a sleeve cap.



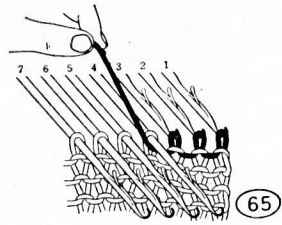
(63)



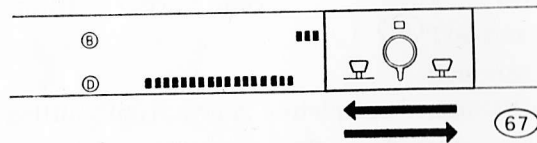
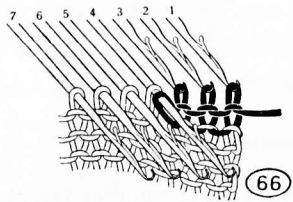
(64)

- a) Place the number of needles to start with in B position and the rest in D position before you knit one row.

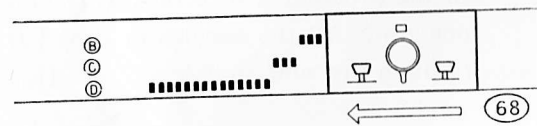
(64)



b) Draw the yarn under the next resting needle (65) and knit another row to complete the first partial knitting. (66)

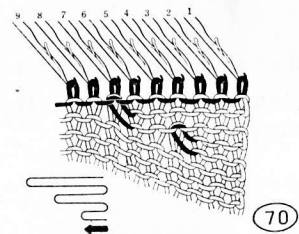
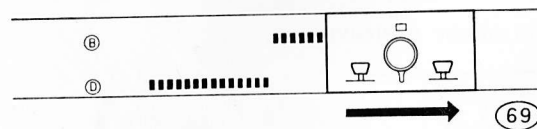


B...Knitting  
D...Resting Position



B...Knitting  
C...Knit and move back to B  
D...Resting Position

c) Push back next group of the needles to increase to C position and knit the 3rd row.

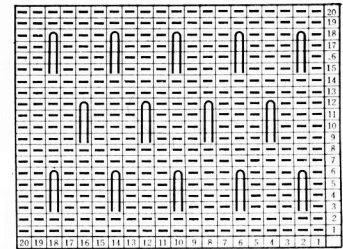
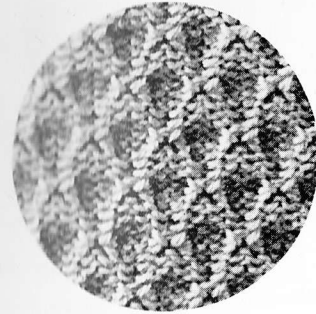


d) With the yarn under the stem of the next needle, knit 4th row which will complete the second partial knitting. The repetition of this procedure results in natural curve in your garment. (70)

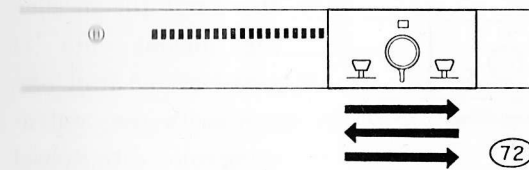
## (2) Tucked patterns

With one or several colors, various kinds of tucked patterns such as tuck stitches, slip stitches and pick stitches can be knit.

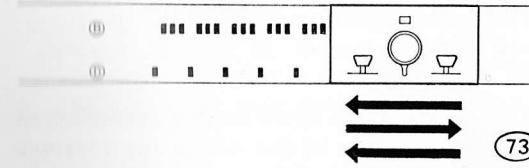
[Tucked ground pattern]



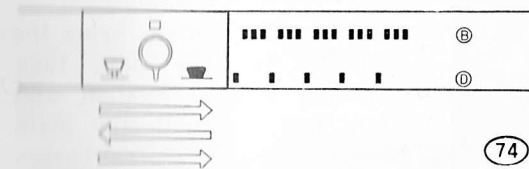
a) With the main color knit 3 rows. (72)



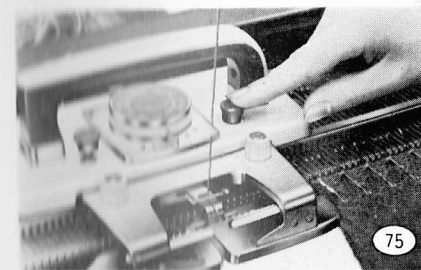
b) Push out needles required for tuck stitches into D position either by the selector or with the needle pusher, knit 3 rows with Russel buttons up. (73)



B...Knitting  
D...Resting Position



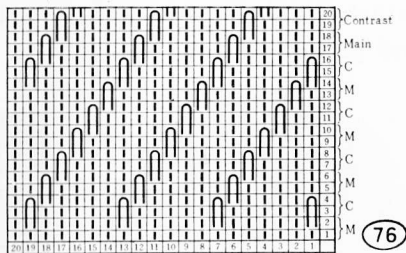
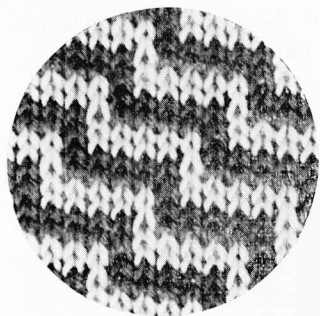
B...Knitting  
D...Knit and move back to B



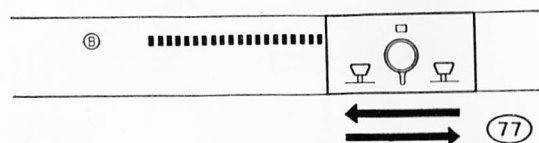
c) Push down Russel button in proceeding direction of the carriage and knit 3 rows to complete first unit of tuck pattern.



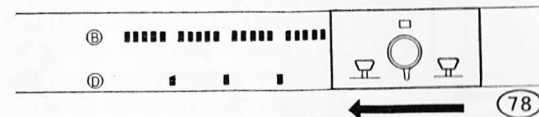
(Colored pattern successively tucked)



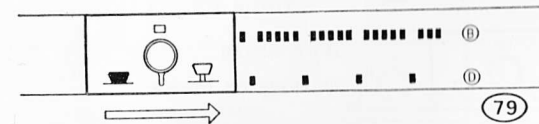
76



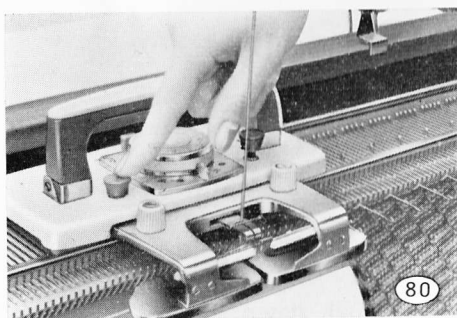
a) with the main color knit two rows.



b) Bring out the needles for tucking into D position and knit one row with the contrasting color with Russel buttons up.



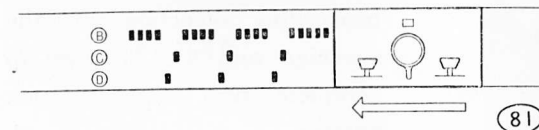
79



80

c) Push down the Russel button at rear of the advancing carriage (80), knit another row.

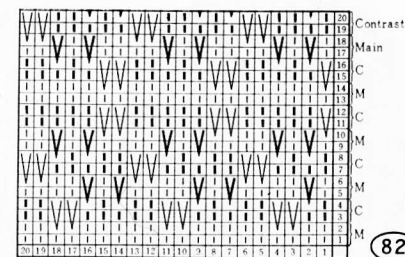
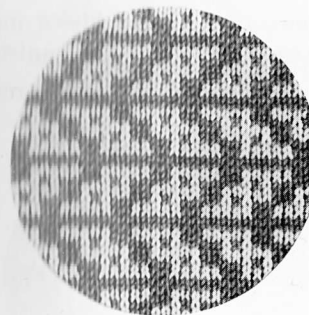
d) Pull up the button, bring the needles for the next tuck stitches into D position, and knit one row with the main color. With the Russel button down at rear knit another row. Repeat from b) to d).



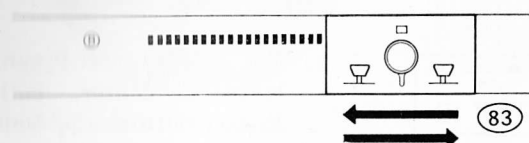
81

(Note) When working with the selector, set selecting lever to C so that the selected needles come to C position.

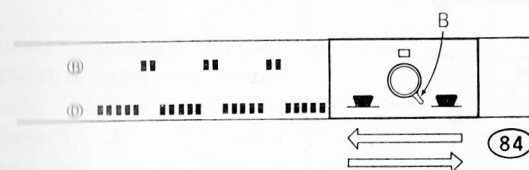
(Colored pattern with slip stitches)



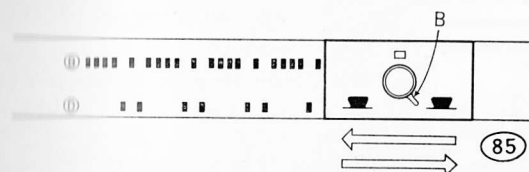
82



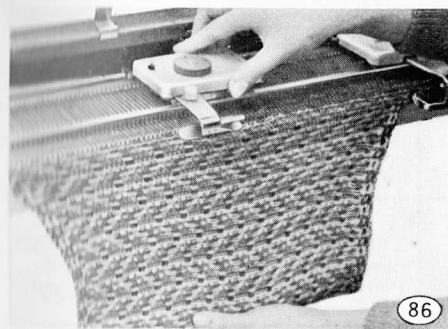
a) With Russel buttons up knit 2 rows with the main color.



b) Bring needles except those required for slip stitches into D position. Cam lever at B, Russel buttons down, and knit one row with the contrasting color. Bring out the same needles in D position, knit another row with contrasting color.



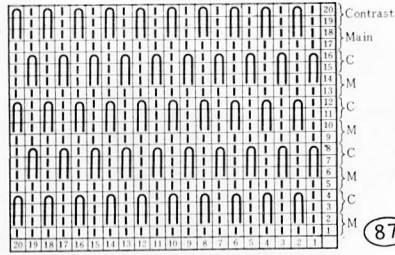
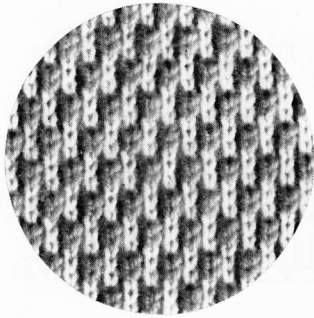
85



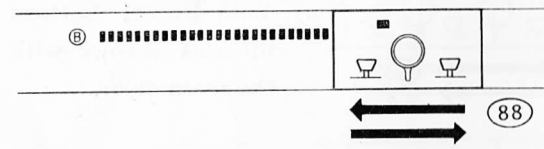
86

c) Pull out needles except those for the next slip stitches into D position before you knit another row with the main color. Pull out, again, the same needles into D position and knit a row with the main color. Repeat the above mentioned procedure (86). Rows without symbols of slip stitches are knit in stockinette with the main color.

(Pick stitches)

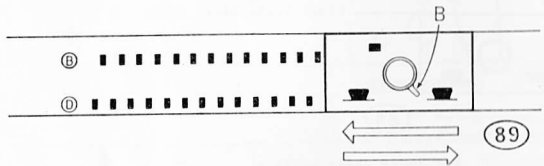


87



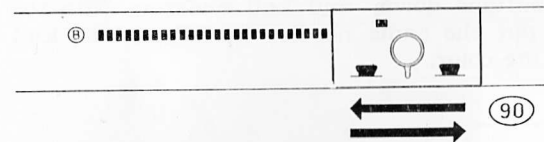
88

a) Set pick lever at P, cam lever at center, both Russel buttons up, knit two rows with main color.



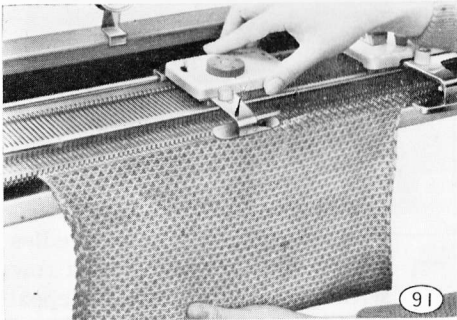
89

b) Bring out needles except those for pick stitches into D position; cam lever at B, Russel buttons down, knit one row with the contrasting color. Again bring out the same needles into D position and knit another row with the contrasting color.



90

c) With cam lever back to center knit two rows with the main color. (91) Repeat this procedure.



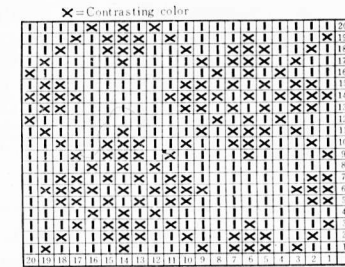
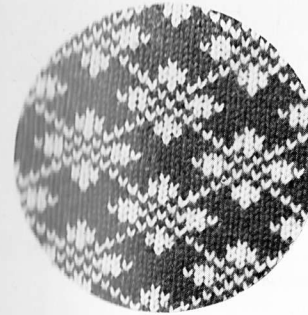
91

**About pick knitting**  
Tuck stitches and pick stitches are indicated by the same symbol. The former is knit by bringing the needles into D position. The needles do not operate but yarn passes over them, which are to tuck on the next row or rows. The latter is worked with pick lever. All the needles except those required for picking should be in D position. The pick lever is set to P, and the needles in B position will pick. Patterns knit in this way have soft and raised effect.

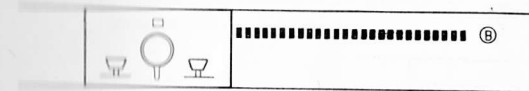
(B) Colored pattern

If you would like to knit your garment full of pretty colored patterns the following directions will be a great help to you.

(Colored pattern)

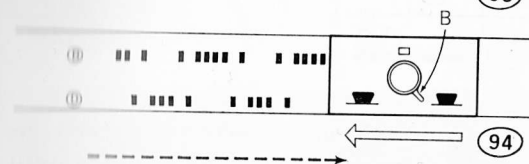


92

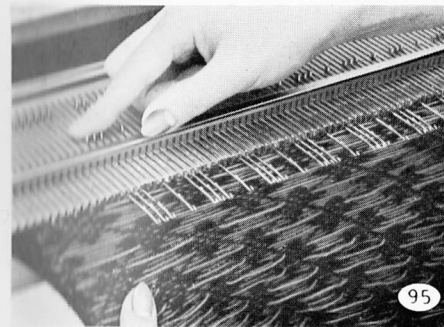


93

a) With the main color knit one row.

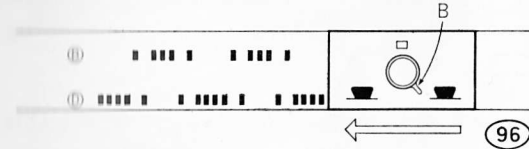


94



95

b) Cam lever at B, Russel buttons down, bring out the needles marked for contrasting color into D position (95) and knit one row with the color. Remove the color yarn and return the carriage without knitting.



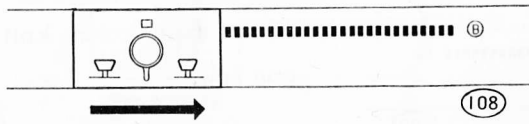
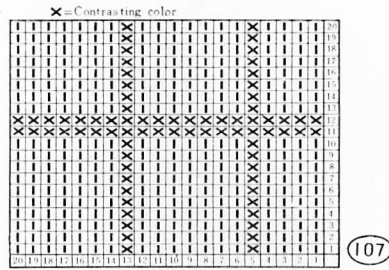
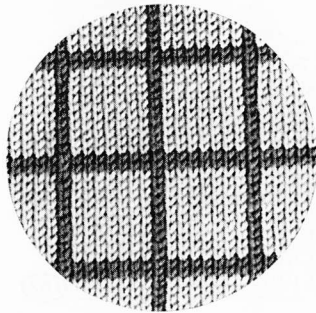
96

c) Bring out the needles marked for main color into D position and knit one row with the main color, which completes knitting one knitted-in

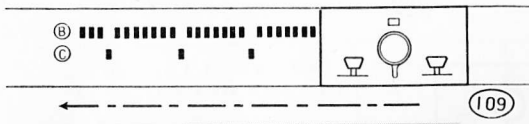
row. Repeat from a) to c). Keep in mind to put yarn around the needles next to the last stitch every time you knit back with contrasting color.



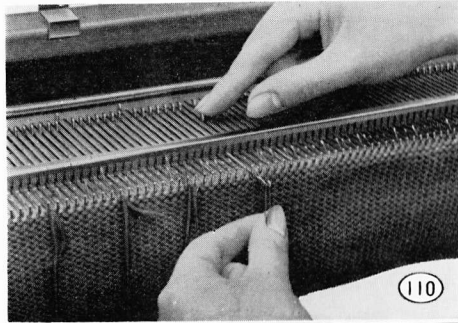
(Knit-in check pattern)



a) With main color knit one row.



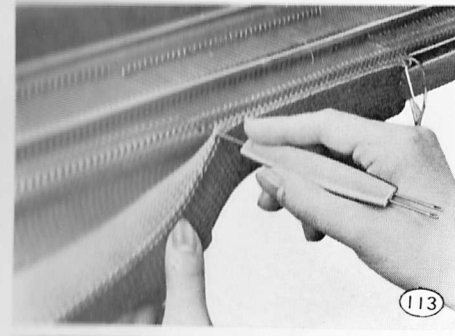
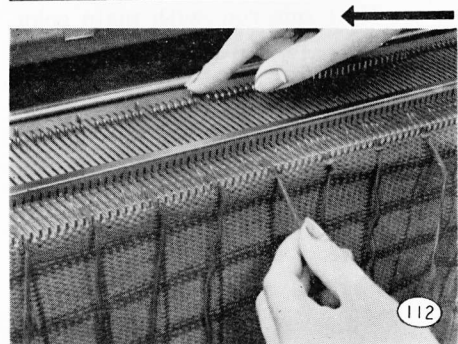
b) Push the needles marked for contrasting color into C position, placing the contrasting color in required length on needle hook and push them back into A position.



c) With main color knit one row. (The needles pushed back into A position do not knit.)



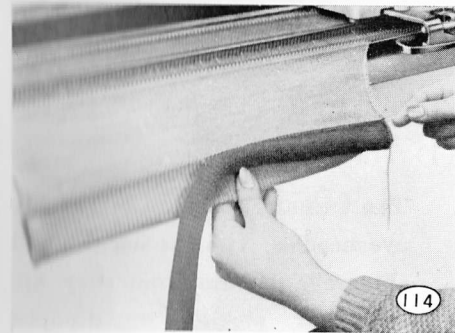
d) Bring out the needles knitted with the contrasting color slowly into C position. The repetition from b) to d) forms a vertical stripe. (112) To form a horizontal stripe of the color yarn, change the yarn into the contrasting color and knit two rows.



(4) Double hem

a) First knit twice as many rows as required for hem and open the needle latches.

b) With a transfer tool pick up the stitches on the starting row of the main knitting (the next row to the raveling cord) and place them on the latch needles. (113)

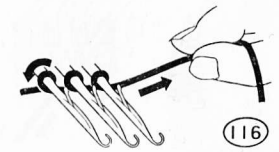
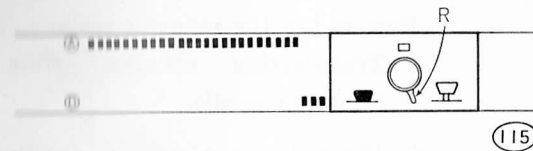


c) Set the stitch dial to a number which is higher by two figures than you are now using and knit one row.

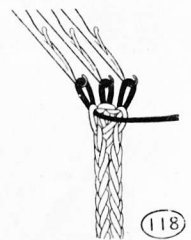
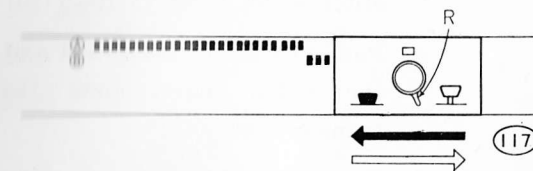
d) Set the dial back to the previous number and continue knitting. Unravel a stitch on both edges of garment. Pull the raveling cord sideways so as to make the waste knitting fall off. (114)

(B) Cord knitting

A cord for a cape or hood

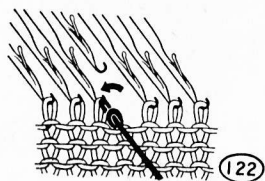
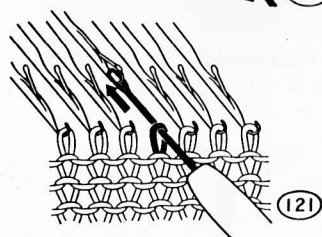
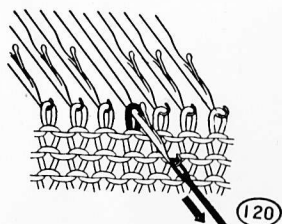
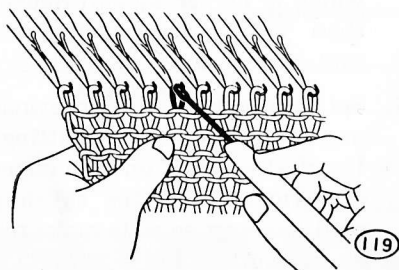


a) Bring forth into D position some needles from two to five depending on the thickness of a cord you require. Cast on stitches by way of winding the yarn around the needles. (116)



b) Set cam lever to R, left Russel button down, move the carriage back and forth and you can knit a tube cord. The carriage effects the needles only when it goes to the left not on its way back. (118)

## (5) How To Use The Accessories



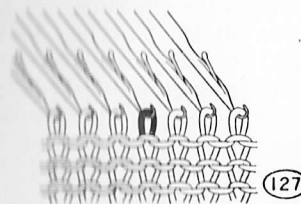
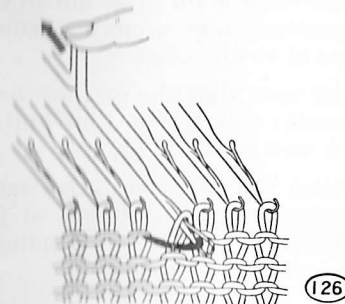
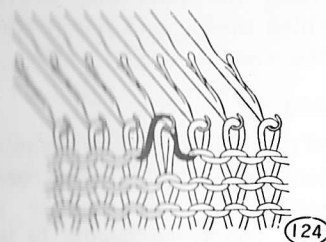
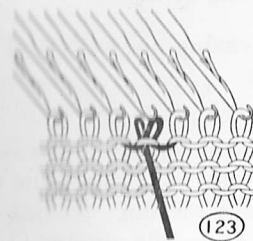
### (1) Transfer tools

The transfer tools consists of one eye needles, two eye needles and three eye needles, and they are used for picking up dropped stitches or transferring stitches from needle to needle.

#### (How to use the transfer tools)

★ Transferring stitches from needle to needle.

- Place the eye onto a needle hook. (119)
- Draw out the needle so that a stitch slides behind latch. (120)
- Push the needle backward and the stitch moves onto the transfer tool. (121)
- Transfer this stitch onto another needle by placing the eye on the hook and slipping the stitch onto it. (122)

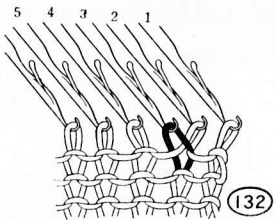
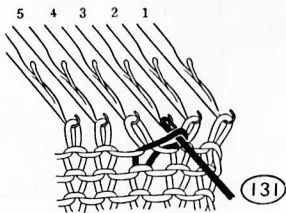
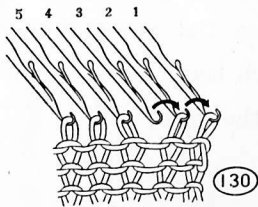
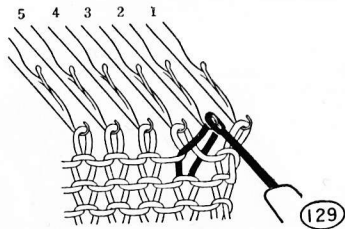
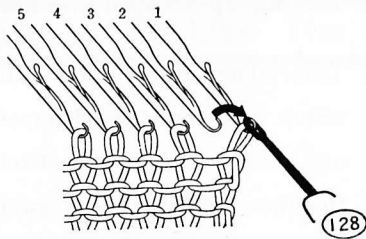


### ★ Picking up dropped stitches

- Insert the one eye tool into stitch just under the dropped one (123), raise that stitch together with the loose yarn (dropped stitches) onto the needle. (124)

- As you pull out the needle, place the stitch behind the latch leaving the loose yarn in the hook. (125)

- Push back the needle (126) so that the stitch behind latch slides over the closed latch and form a stitch of the last row. (127)



### (Increasing stitches)

#### ★ Increasing one stitch at the edge

##### Method #1

- With the one eye tool transfer the edge stitch onto the next vacant needle, leaving the second needle empty. (128)
- Take the purl loop of the third needle and put it onto the vacant needle. (129)

##### Method #2

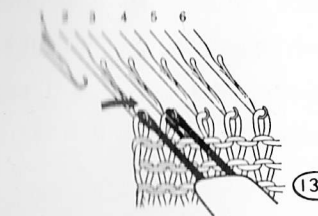
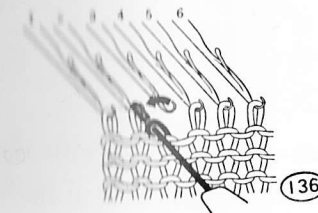
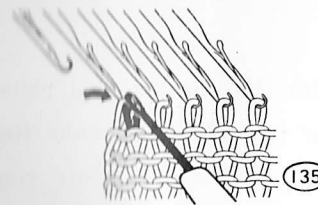
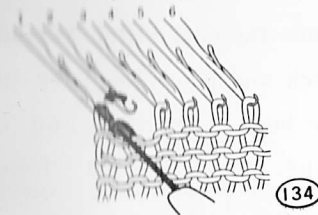
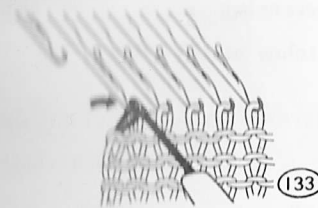
- With two eye tool transfer last two edge stitches onto outside vacant needles so that the third needle is left vacant. (130)
- Take the purl loop from the fourth needle and place it onto the vacant needle. (131) (132)

##### Method #3

- On the side where the carriage is on draw out to C position one unused needle next to the edge.
- Be sure that the yarn passes under this needle and knit. A new stitch is made.

(Note) When you increase more than two stitches at a time, cast on by winding yarn around needles.

- ★ **To increase one stitch in the center** with the three eye tool move all the stitches to the right or left of where a new stitch is made over one needle toward edge. Take the purl loop from either side of the vacant needle and fill the vacant needles.



### (Decreasing stitches)

#### ★ Decreasing one stitch at the edge

##### Method #1

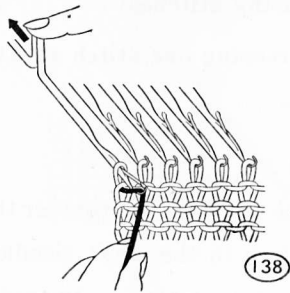
With the one eye tool transfer the edge stitch to the next needle. (133) Push back the empty needle into non knitting position (A).

##### Method #2

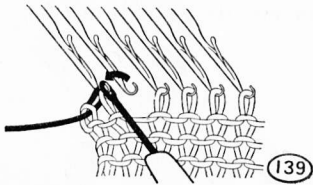
With the one eye tool transfer the second loop first onto the edge stitch (134). Place both stitches together on the second needle. (135) Push back the empty needle into non knitting position (A).

##### Method #3

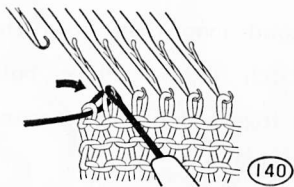
With one eye tool transfer the third stitch onto the second needle (136), with the two eye tool move them together with the edge stitch over one needle. (137) Push back the empty needle into non knitting position (A).



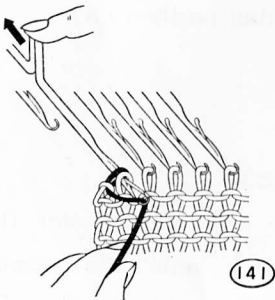
138



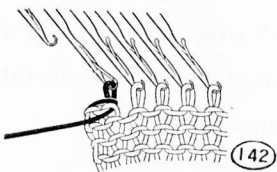
139



140



141



142

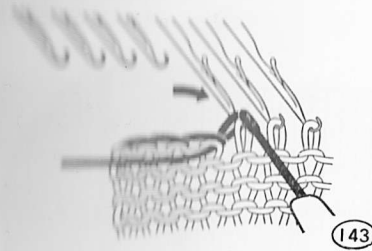
★ **Decreasing more than two stitches at the edge**

Decrease by this method on the side where the carriage is on.

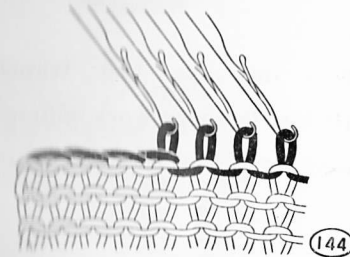
- a) Move the edge stitch behind latch and place the yarn in the hook. You will knit a stitch by pushing back needle. (138)

- b) With the one eye tool place the second stitch onto the edge stitch (139) before you transfer them together onto the vacant needle. (140)

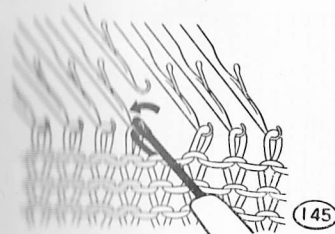
- c) Pull out the needle with the two stitches on so that those stitches go behind the latch. Place the yarn in hook and push back the needle (141) causing the two stitches dropped to be bound. (142)



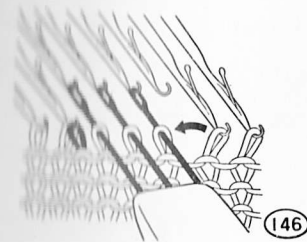
143



144



145



146

- d) Repeat this procedure until you have decreased all except last stitch that you desired to decrease. For the last stitch simply transfer the stitch from the latch hook onto the adjacent needle (143) and work with carriage (144).

★ **Decreasing one stitch in the center of your knitting.**

- a) With the one eye tool transfer a stitch to be decreased onto the next needle (145)

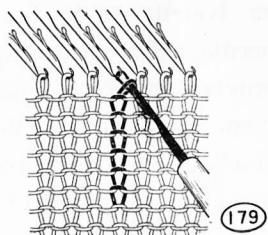
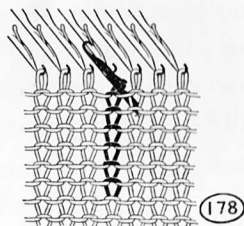
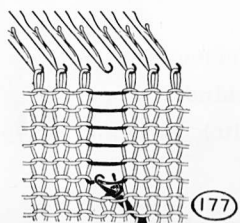
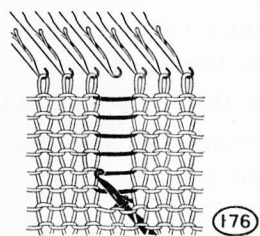
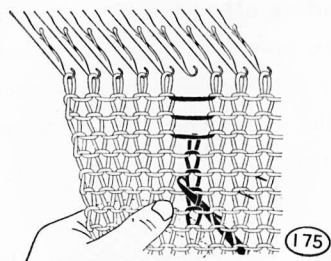
- b) With the three eye tool move three stitches at a time over to fill the vacant needle until every needle is filled. (146)







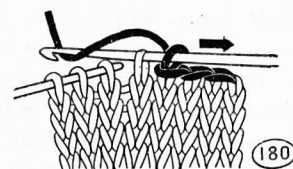




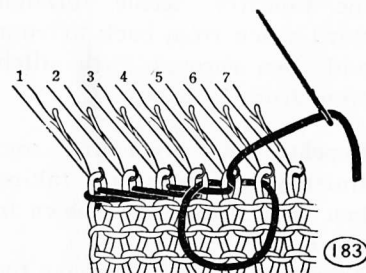
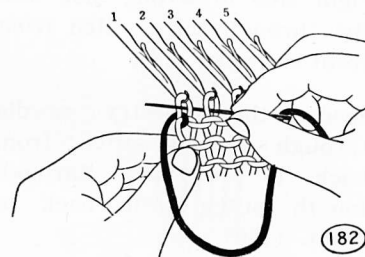
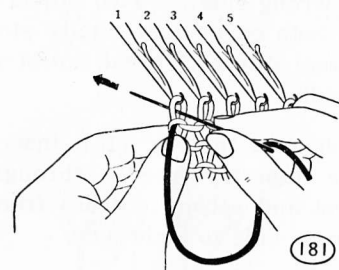
**(How to correct dropped stitches)**

- a) Insert the tappet from the opposite side of your knitting through a stitch a few rows below dropped stitch, (175) and undo stitches down to the tappet.
- b) Push the tappet toward you so that the stitch comes behind the latch of tappet and catch cross thread. (176)
- c) Draw back the tappet and the cross thread is trapped in the closed latch. (177) The stitch behind the latch slides down over the closed latch forming stitch. Repeat this procedure to the top. (178)
- d) Pull the last stitch rather tight. Carefully remove the stitch from tappet and place it on the needle with your tappet from front. (179)

**(3) Crochet hook**



**(4) Tapestry needle**



A crochet hook is used to bind off stitches on a knitting needle or to crochet around garment (180)

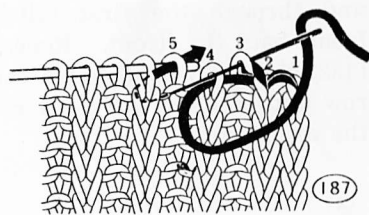
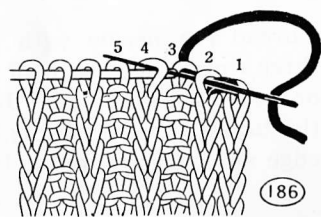
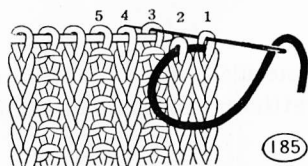
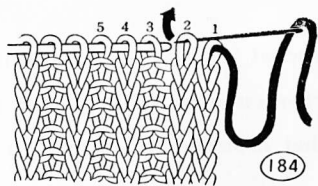
This needle is used for binding off last stitches, seaming or embroidering.

(To bind off stitches by winding yarn)

- a) Thread the needle with yarn three times the length of hem or seam to be bound off. Insert the tapestry needle through the edge stitch from front to back. (181)
- b) Insert the needle through the second stitch from front to back and through the first stitch from back to front. Repeat (182) and (183) all through the row and take the garment off the machine

(How to join seams on the machine needles)

Seams joined on the latch needles are neat and firm, and therefore suitable for shoulders. Place on the needles the two pieces of the knitting to be joined on the right side in. Bind them off in the same way as previously shown.



(To bind off in rib stitches)

☆ Knit one, purl one ribbing

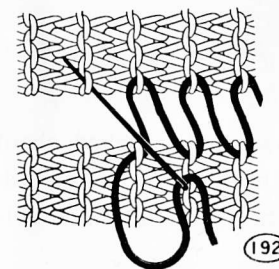
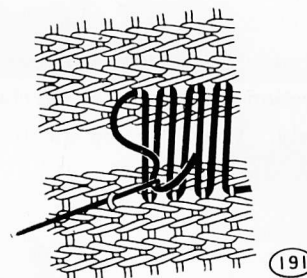
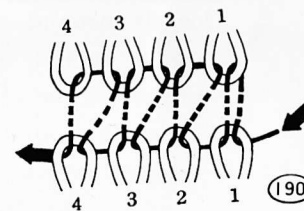
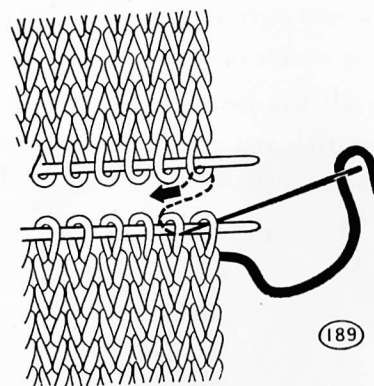
Finish your work with your carriage on the left side when you bind off ribbing stitches. Measure the thread three times as length necessary for the stitches you are to bind off. With a knitting needle take off stitches on the machine from back to front (from right side to wrong side). Two stitches on both edges are usually stockinet stitches. Thread tapestry needle.

- Following the Fig. (184) insert the tapestry needle through first and second stitches from wrong side to right side.
- Insert the tapestry needle through first stitch again from right side to wrong side and the through third stitch from front to back. (185)
- Insert the tapestry needle through second stitch from back to front and through fourth stitch from back to front. (186)
- Following the figure(187) insert the tapestry needle through third stitch from back to front and then through fifth stitch from front to back.
- Repeat this procedure and finish your binding off taking last two stitches as shown in the Fig. (188)  
Needle always goes through the same stitch twice.

(Seaming stitches)

☆ How to seam in stockinet stitches.

- Put your knitting onto holders. Lay two pieces of stockinet knitting closely together with right side out. Break the thread as three times long as the width to seam.
- Following the Fig. (189) insert the tapestry needle through first stitch on front holder from back to front.
- Insert the tapestry needle through first stitch on back holder from back to front.
- Pass the tapestry needle through first stitch on the front holder from front to back and continually through second stitch from back to front.
- Pass the tapestry needle through first stitch on back holder from front to back and through second stitch from back to front. Repeat this procedure. (190)



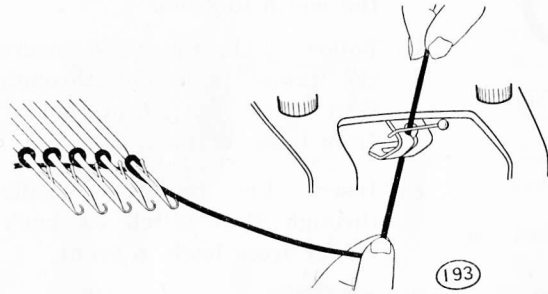
(Joining seams)

Measure the thread as one and half times length as the seam to join. Thread tapestry needle. Lay two pieces of the knitting with right side out. Pass the tapestry needle through the cross thread of every row and stitch inside from the edge and draw the thread joining the edge neatly (191). Another way of seaming is shown in the Fig. (192).

## (6) Helpful Hints

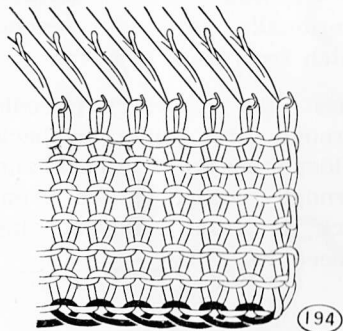
### ☆ Casting on by way of winding yarn

Without using a raveling cord or waste knitting you can cast on stitches in the following way. The starting row is bound off by winding stitches.



193

- a) Place the carriage on the right side. Pull out the needles required into D position.
- b) Wind the yarn loosely around the needle behind the latches. If the yarn is tightly wound it is hard to knit.



194

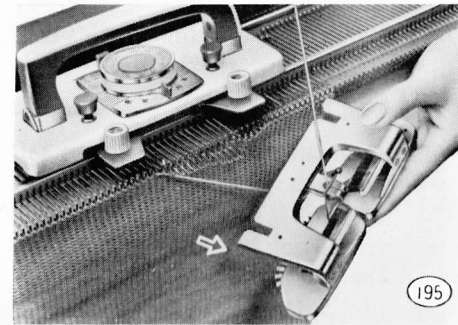
- c) Thread the yarn feeder with the yarn, push down the Russel button at the advancing direction and move the carriage slowly. The first row is automatically bound off. (194)

☆ Move the carriage smoothly. It is best to knit at the rate of 30 rows a minute.

☆ In case of tuck stitches the number of rows to be tucked should be calculated in proportion to the gauge and the space of tucked stitches. If the proportion of the tucked rows to the space of the stitches is too large the stitches will slip or float.

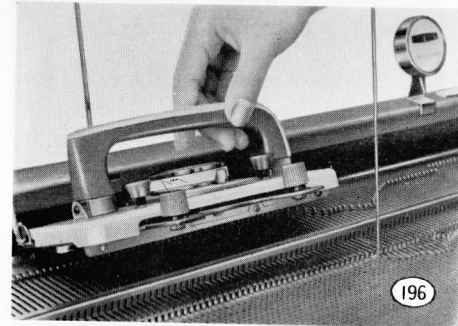
### ☆ How to move back the carriage while knitting

Do not force the carriage backward when it jams on the way of knitting and when you wish to renew your knitting, or it may damage the needle bed. Remove the arm and the carriage will easily be moved back.



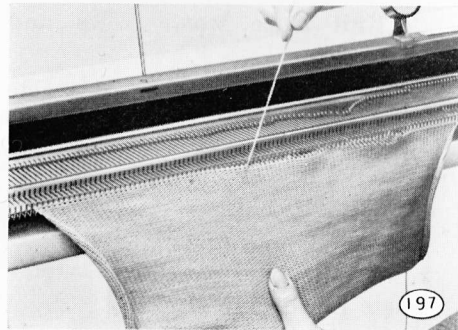
195

- a) Loosen the arm nuts and remove the arm. (195)



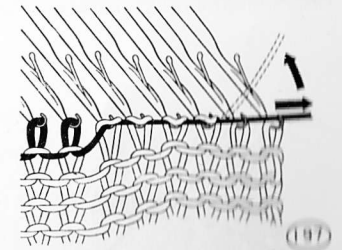
196

- b) Slightly lift the front of the carriage (196) and move it back to starting position.



197

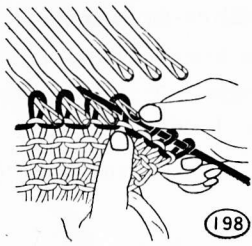
- c) Undo the stitches of the incomplete row (197) and start it again.



197

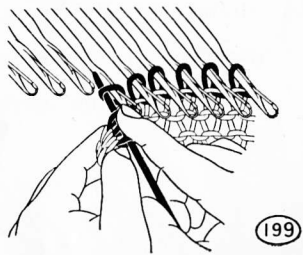
### (How to remove knitting from the machine)

There are two methods: 1) remove onto a holder 2) do some waste knitting and remove.



#### (1) Taking the stitches off on a holder

- a) Bring out working needles into D position, then stitches slide on behind latches.
- b) Hold the knitting with your left hand and insert the holder through the right edge stitch from back to front. Push back the latch needle as you slightly pull forward the holder, then stitch is on the holder. Repeat this for each stitch. (198)

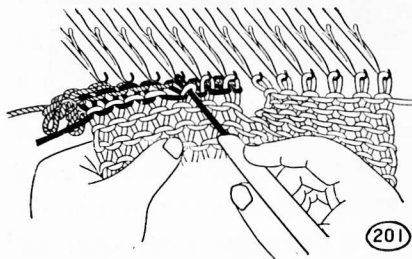
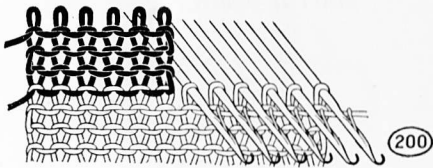


As shown in the Fig. (199) you could take the stitches from left edge by inserting the holder through a stitch from front to back and push the hook away so as to make the stitch slide onto the holder.

#### (2) Knit some waste rows and remove

Knit four or five rows with waste yarn and move your carriage without yarn in the yarn feeder, then the knitting will be separated from the needles.

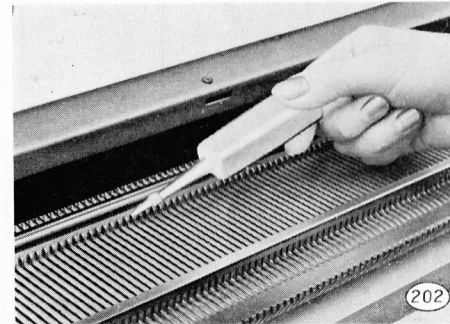
After finishing or joining the last row of the garment, separate the waste knitting by undoing it from the last stitch. When you want to hold some stitches while knitting other part, apply this way. (200) The stitches held by waste knitting can be re-cast on the needles as shown in Fig. (201)



## (7) Care of Your Machine

### (1) Oiling

The best machine would not work well without being oiled properly. Make sure to oil your machine after using it in order to knit well. Use the oil belonging to the machine; machine oil or rust proof oil will also do. Oil the following places:



#### a) The rail

The rail where the carriage glides should be carefully oiled all over.

#### b) Grooves of the needle bed

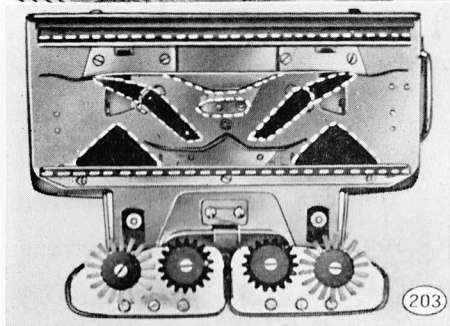
The grooves of the needle bed in where the needle butts are always running and rubbing should be constantly oiled. (202)

#### c) Back of the carriage

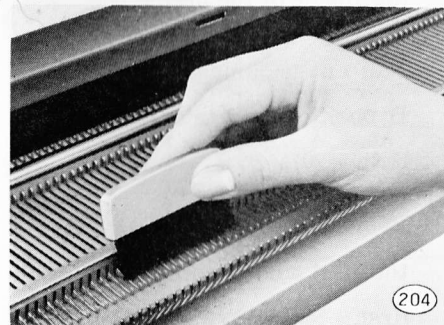
Oil the cams carefully following the dotted line (203). The needle butts hit them all the time

#### d) Back of the automatic needle selector

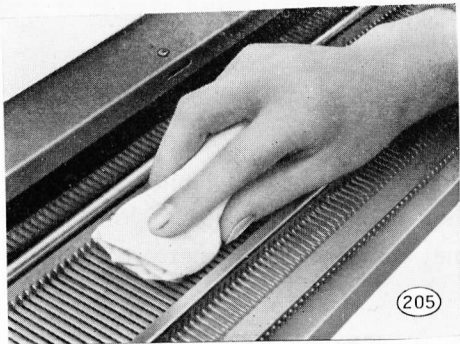
Oil the relating cam from time to time referring to Fig. 46 on page 18. Especially take good care of the black part.



### (2) After using the machine



- a) Brush off wool dust as often as possible. (204)



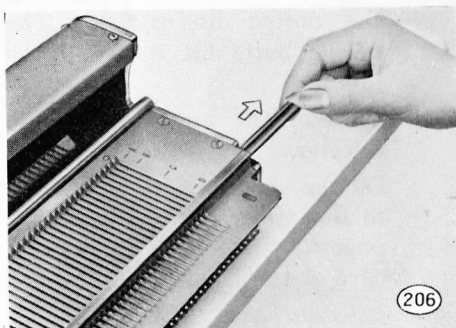
b) With oiled cloth, wipe all the metal parts which are not painted. (205)

Clean the painted parts with soap and water.

### (3) Preserving the machine

- a) Keep the well oiled machine in a dry place.
- b) If the machine has been unused for some time, you should carefully wipe off the excess oil before you use it. It is also advisable for you to knit a piece of fabric with waste yarn before you start the real knitting.

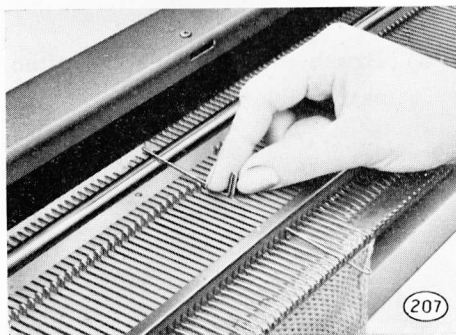
### (4) Replacing latch needles



You can replace a damaged needle with one of the five spare ones among the accessories.

You can replace it even with your knitting on the machine.

Pull off the needle retainer from the inside of the needle bed. (206)



Pull out a damaged needle into D position and take it out by the butt. (207)

Replace a new needle by holding the butt and pushing in the hook first.
























## Knitting symbols

The following set of symbols has been adopted to help you understand your patterns at a glance and to save countless lines of description for each stitch.

		Knit stitch	Face loop of stockinet
		Purl stitch	Back loop of stockinet
		Two stitches together	Transfer right stitch to adjacent left needle
		Two stitches together	Transfer left stitch to adjacent right needle
		Three stitches together	Center stitch on top of the left and right stitches
		Three stitches together	Right stitch on top
		Three stitches together	Left stitch on top
		Lean stitch to the right	Transfer the stitch to the right
		Lean stitch to the left	Transfer the stitch to the left
		Increased stitch to the right	Increase one stitch to the right
		Increased stitch to the left	Increase one stitch to the left

## Knitting symbols

The following set of symbols has been adopted to help you understand your patterns at a glance and to save countless lines of description for each stitch.

	Knit stitch	Face loop of stockinet
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	Three stitches together	Left stitch on top
	Lean stitch to the right	Transfer the stitch to the right
	Lean stitch to the left	Transfer the stitch to the left
	Increased stitch to the right	Increase one stitch to the right
	Increased stitch to the left	Increase one stitch to the left
	Three stitches increased	Increased three stitches out of one stitch
	Crossing, right over left	Cross the stitches with the right stitch over the left
	Crossing, left over right	Cross the stitches with the left stitch over the right
	Slip stitch	A loop marked is pulled up with yarn across behind it
	Float stitch	A loop marked is pulled up with yarn across in the front
	Tuck stitch	A few loops on marked rows pulled up onto one needle
	Tuck stitch in side way to the right	A few loops on marked rows pulled up in sideway onto a right needle
	Tuck stitch in side way to the left	A few loops on marked rows pulled up in sideway onto a left needle
	Twisted tuck stitch	A stitch twisted and pulled up onto a needle above
	Twisted stitch	A stitch is twisted
	Winding stitch	A loop formed by winding yarn around a needle
	Empty stitch	Hole made by transfer ring the stitch to the next needle



The left page of the document features a large, faint grid pattern. The grid consists of approximately 10 columns and 10 rows, forming a large rectangular area. The lines are very light and the overall appearance is that of a technical drawing or a table that has been scanned with low contrast. The grid is centered on the page and occupies most of the left half of the document.