

INSTRUCTION BOOK

# Memo-Matic

The Knitting Computer

**SINGER\***



# CONTENTS

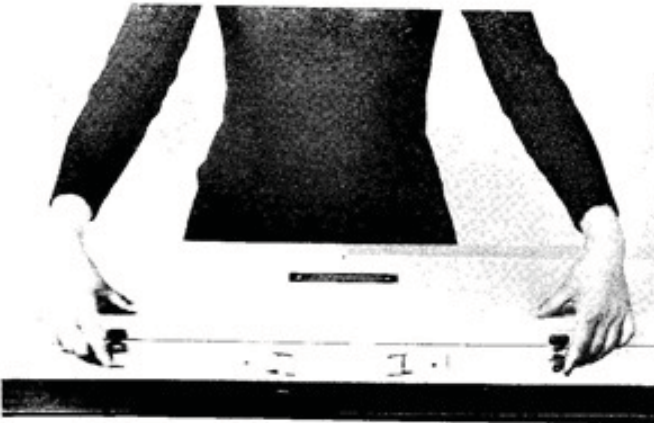
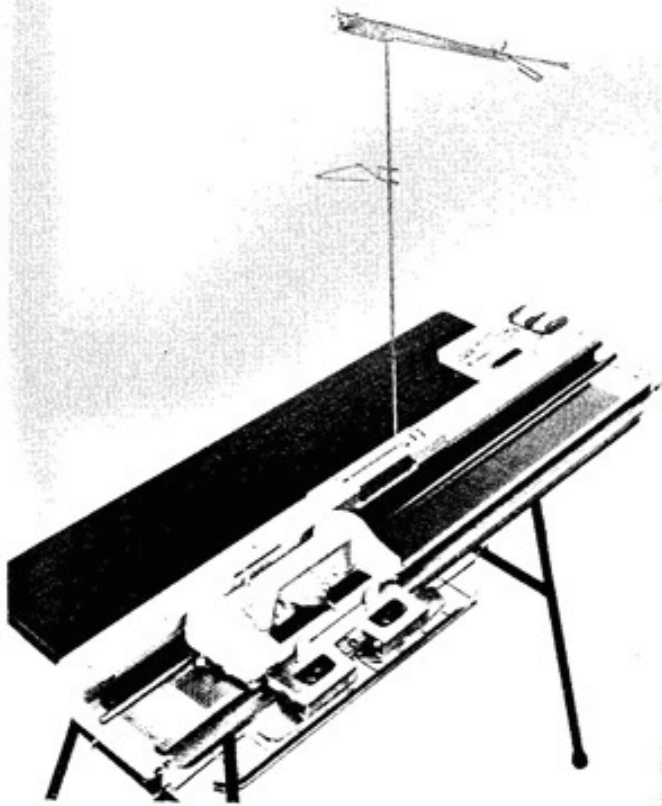
Names and function of component parts	
Accessories	
Carriage	
Main body of machine	
1. Assembling procedure . . . . .	1
2. preparations for knitting . . . . .	6
3. Casting on and stockinet knitting . . . . .	9
How to unthread . . . . .	11
The Relation between the tension dial and yarns . . . . .	14
How to make a gauge (Swatch) . . . . .	15
Waste knitting . . . . .	15
4. Pattern knitting . . . . .	16
How to read the punched card . . . . .	16
How to use the markings A, B, C and D on the card . . . . .	16
Installing the card guide . . . . .	17
How to set the punched card . . . . .	17
First setting position . . . . .	17
How to read the operation table . . . . .	18
Preparations for knitting pattern stitches . . . . .	19
Tuck knitting . . . . .	20
Tuck knitting in colors . . . . .	24
Slip stitch pattern . . . . .	29
Slip stitch pattern in colors . . . . .	32
Knit-in (Fair Isle) . . . . .	35
Weaving (or Threading) . . . . .	40
Punch lace knitting . . . . .	46
Lace knitting . . . . .	49
If incorrect stitches are knitted . . . . .	52
Correct improper knitting in the following manner . . . . .	52
If the carriage has jammed while knitting . . . . .	52
How to repair incorrect knitting . . . . .	53
When the carriage is accidentally pulled off the rail in the middle of pattern knitting . . . . .	54
The Relation Between the punched card and the touch levers . . . . .	54
The Relation Between the pattern marks on the needle bed and patterns . . . . .	55
How to correct a dropped stitch while knitting . . . . .	56
Pattern stitches without using pattern card . . . . .	58
Open work . . . . .	58
Cable stitches . . . . .	59
K1, P1 ribbing . . . . .	61
Garter stitches . . . . .	62
Solid pattern of knit and purl stitches . . . . .	63
Cord knitting . . . . .	64
5. Fundamental techniques of knitting . . . . .	65
Methods of increasing . . . . .	65
Increasing one stitch at the edge . . . . .	65
Increasing two or more stitches at the edge . . . . .	65
Methods of decreasing . . . . .	66
Decreasing one stitch at the edge . . . . .	66
Decreasing two or more stitches at the edge . . . . .	66
Method of partial knitting . . . . .	67
Partial knitting by decreasing stitches . . . . .	67
Partial knitting by increasing stitches . . . . .	69
Finishing . . . . .	71
How to remove the garment from machine . . . . .	71
Binding off with crochet hook . . . . .	71
Winding method . . . . .	72
Binding off K1, P1 ribbing . . . . .	73
How to join the garments . . . . .	74
Kitchner stitch or weaving . . . . .	74
Seaming on machine or Binding off . . . . .	75
Seaming the side edges . . . . .	75
Hemming a garment . . . . .	76
Mock ribbing . . . . .	77
6. Helpful hints . . . . .	78
Replacing damaged needles . . . . .	78
If the yarn gets loose or entangled at the edge of fabric . . . . .	79
If the yarn is entangled in the memory bank . . . . .	79
If the yarn is wound around the fabric gear . . . . .	80
7. Maintenance instruction . . . . .	81
Lubrication . . . . .	81
After using the machine . . . . .	81
8. How to pack the machine away . . . . .	82
Bound off Cast-on (Permanent) . . . . .	84
Let's knit . . . . .	85
Knitting symbols . . . . .	

# 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 on each stitch.

		<b>KNIT STITCH</b> Face loop of stockinet	\		<b>LEAN STITCH TO THE LEFT</b> Transfer the stitch to the left	∩		<b>TUCK STITCH</b> A few loops on marked rows pulled up onto one needle
-		<b>PURL STITCH</b> Back loop of stockinet	└		<b>INCREASED STITCH TO THE RIGHT</b> Increase one stitch to the right	∩		<b>TUCK STITCH IN SIDEWAY TO THE RIGHT</b> A few loops on marked rows pulled up in sideways onto a right needle
∧		<b>TWO STITCHES TOGETHER</b> Transfer right stitch to adjacent left needle	└		<b>INCREASED STITCH TO THE LEFT</b> Increase one stitch to the left	∩		<b>TUCK STITCH IN SIDEWAY TO THE LEFT</b> A few loops on marked rows pulled up in sideways onto a left needle
∧		<b>TWO STITCHES TOGETHER</b> Transfer left stitch to adjacent right needle	∨ <sup>3</sup>		<b>THREE STITCHES INCREASED</b> Increased three stitches out of one stitch	∩		<b>TWISTED TUCK STITCH</b> A stitch twisted and pulled up onto a needle above
∧		<b>THREE STITCHES TOGETHER</b> Center stitch on top of the left and right stitches	×		<b>CROSSING, RIGHT OVER LEFT</b> Cross the stitches with the right stitch over the left	∩		<b>TWISTED STITCH</b> A stitch is twisted
∧		<b>THREE STITCHES TOGETHER</b> Right stitch on top	×		<b>CROSSING, LEFT OVER RIGHT</b> Cross the stitches with the left stitch over the right	∩		<b>WINDING STITCH</b> A loop formed by winding yarn around a needle
∧		<b>THREE STITCHES TOGETHER</b> Left stitch on top	∨		<b>SLIP STITCH</b> A loop marked is pulled up with yarn across behind it.	○		<b>HOLE</b> A hole made by transferring the stitch to the next needle
/		<b>LEAN STITCH TO THE RIGHT</b> Transfer the stitch to the right	∨		<b>FLOAT STITCH</b> A loop marked is pulled up with yarn across in the front			

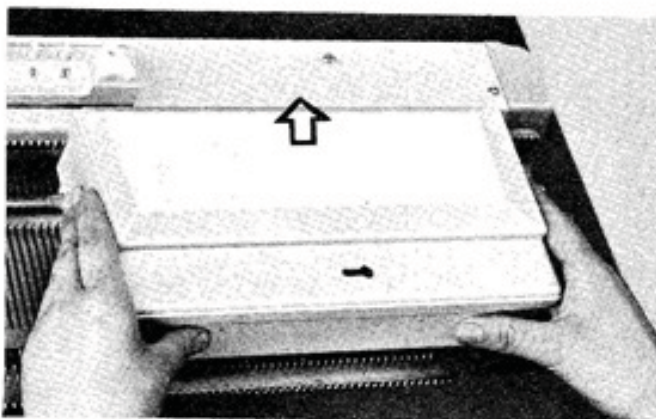
# I. ASSEMBLING PROCEDURE



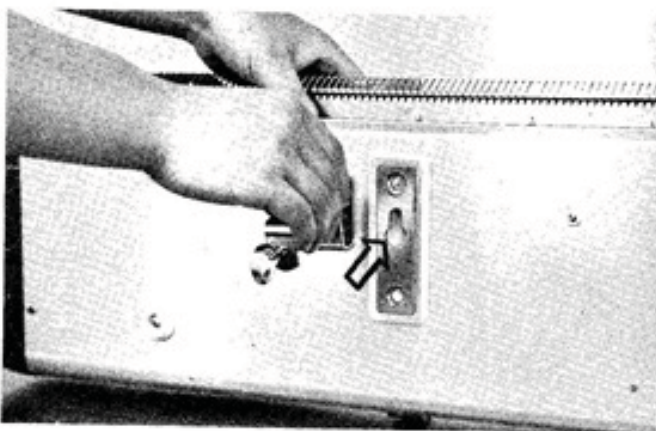
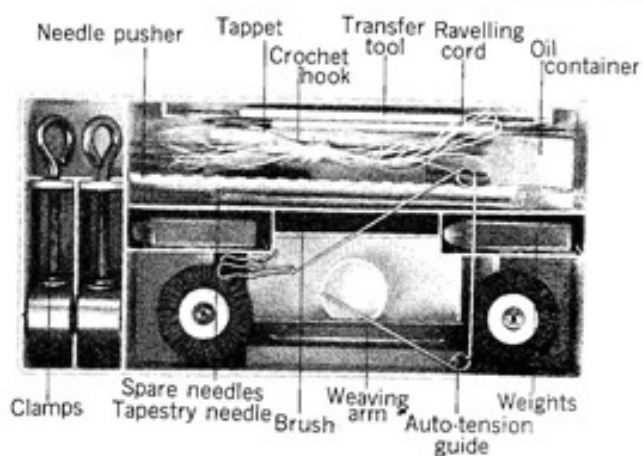
- (1) Put the machine on the table with the case mark up and the handle at the opposite side from you, and unfasten the latches.



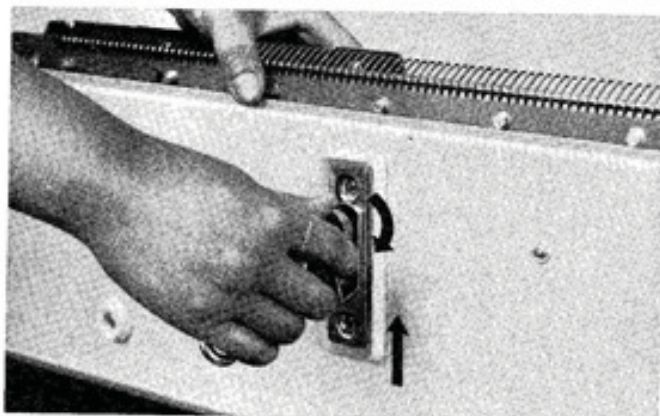
- 2 To remove the cover, pull it toward you tilting the handle side a little at a upward motion and lifting.



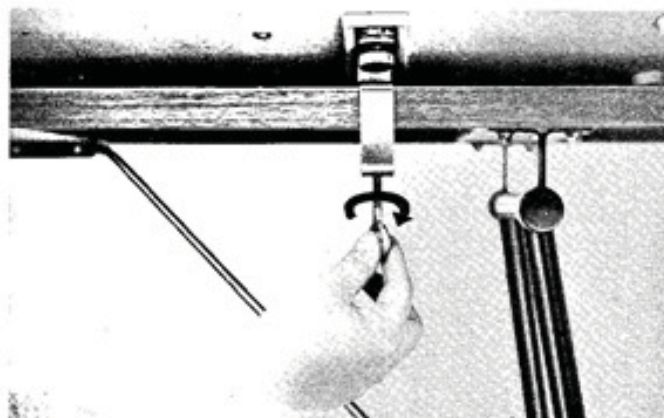
(3) Remove the accessory box.



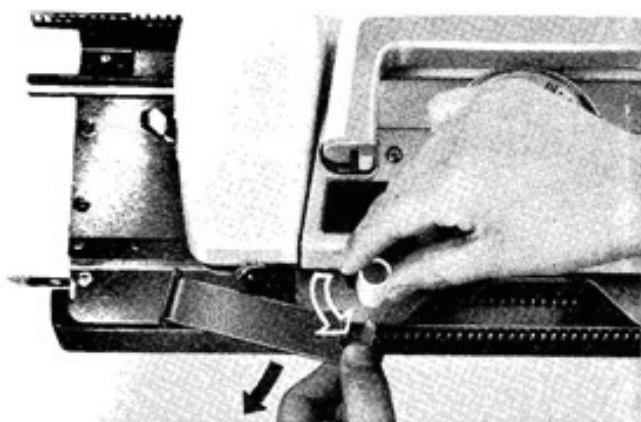
(4) Remove the clamps from the accessory box and insert the head of the clamp screw into the center of the hole on the bottom of the machine.



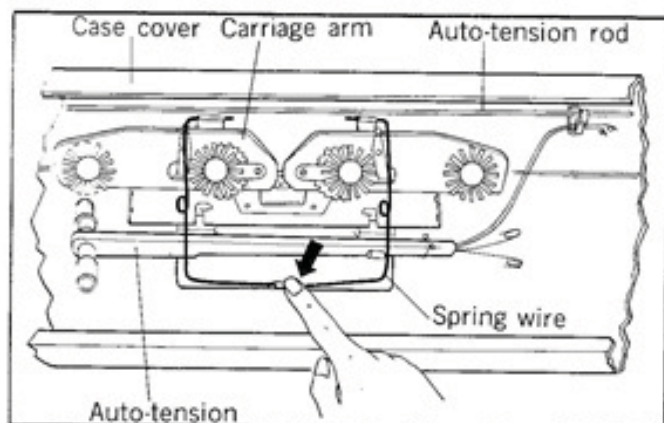
(5) Slide the clamp upward and tighten it firmly by the screw.



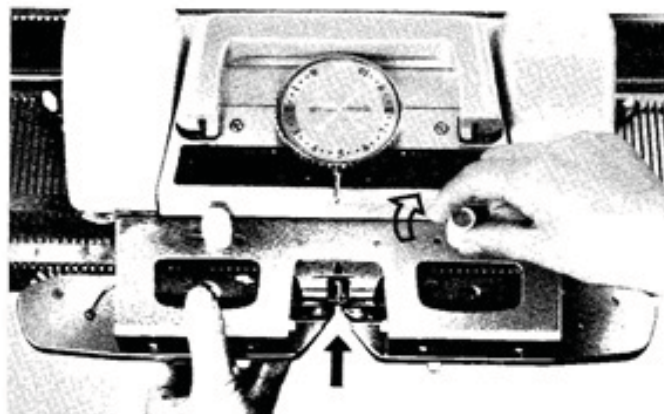
- (6) After both clamps have been tightened in position, fasten the clamp securely to the table. Rubber feet are provided on the under side of the machine case so it may be held steady on the table without using the clamps. However, it is recommended to use the clamps when knitting heavy yarns.



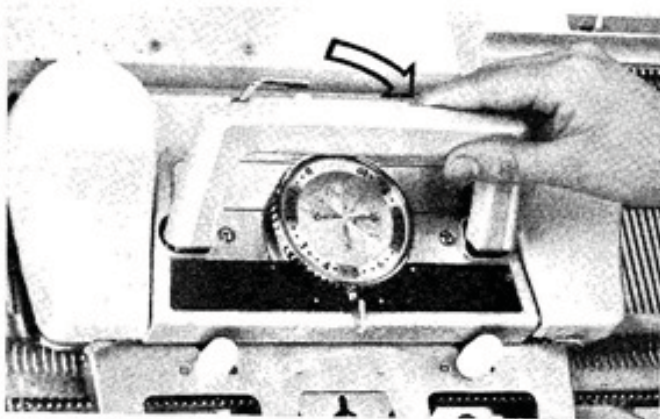
- (7) Loosen the left arm nut and remove the carriage fastener.



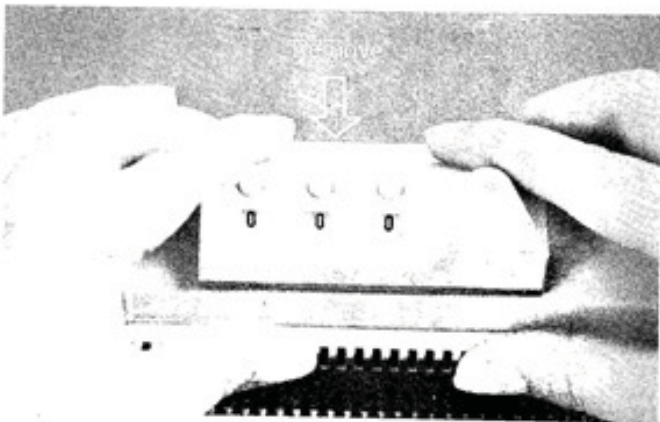
- (8) Release the wire spring which holds the accessories in position inside the case cover and remove the carriage arm.



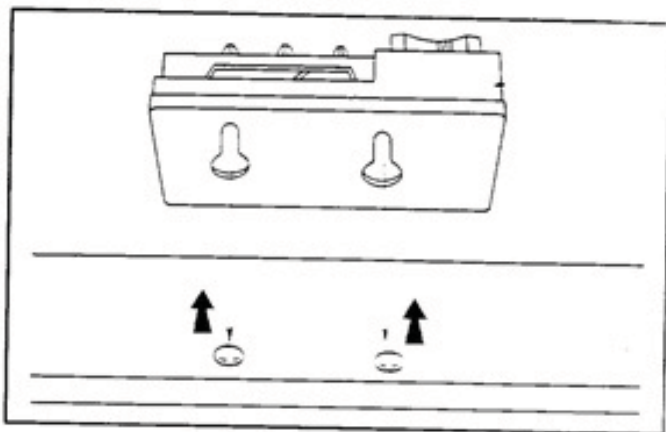
- (9) Loosen the arm nuts and push the arm as far as it will go and tighten the nuts firmly.



(10) Raise the carriage handle.



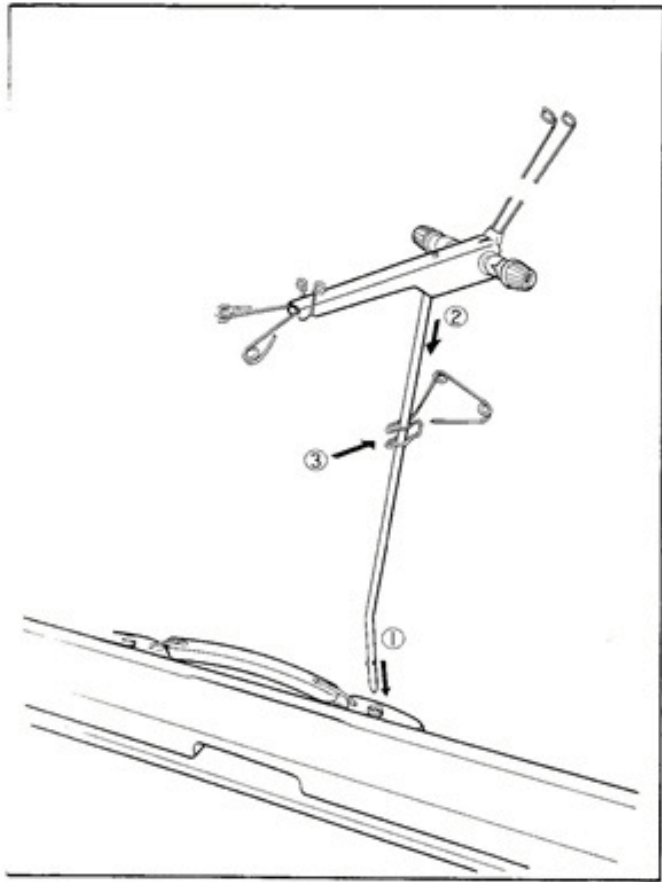
(11) The row counter can be installed on either the right or left side of the pattern panel. However, when the knit radar is to be used, install the row counter on the right side. To remove it, slide it toward you.



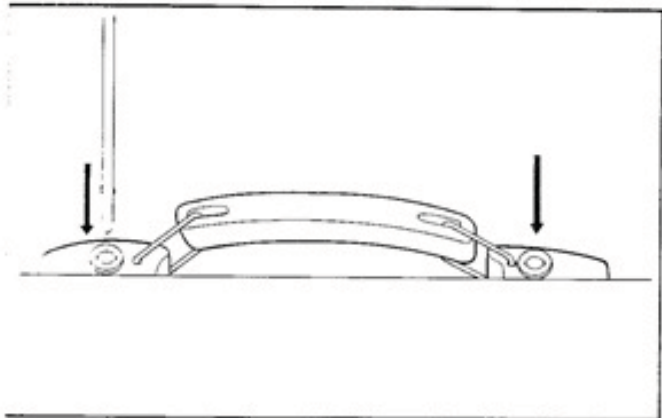
To install it, fit the holes to the studs and push it away from you.



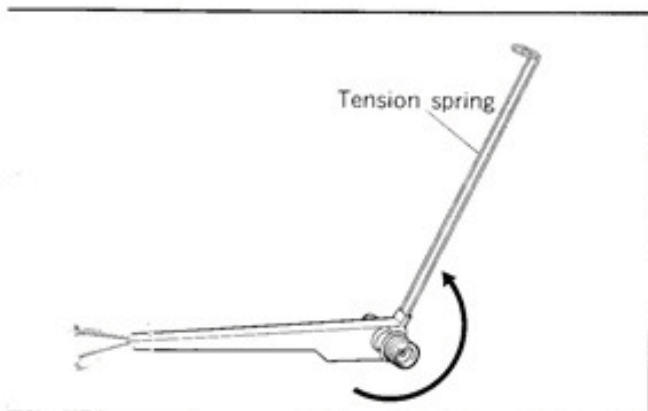
(12) Attach the cover of the accessory box onto the screw at the right end of the machine so that it may serve as an accessory tray.



(13) Install the auto-tension in the order indicated in the diagram.



The auto-tension rod can be installed on either side of the case handle. By using an additional auto-tension complete (sold separately) you can knit four different yarns at a time.



The yarn tension spring must be turned until it comes to a stop, making a clicking sound.



## 2. PREPARATIONS FOR KNITTING

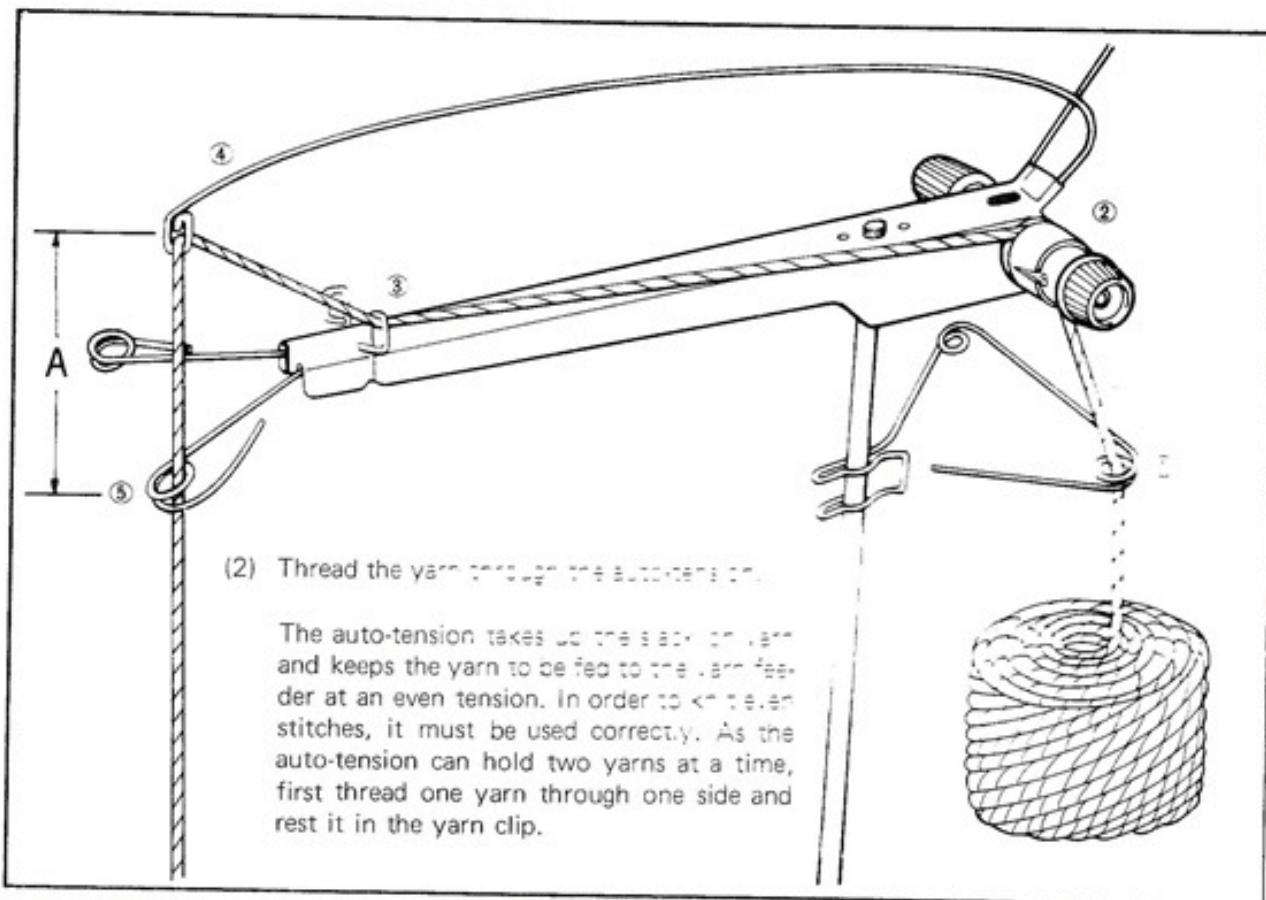


- (1) The yarn must be unwound in an orderly pile in a basket, or wind into a ball using a yarn winder and pulling from center of ball. After winding into a ball, pull yarn from center before taking it off the winder. Then, check to see if the yarn pulls smoothly. (If not, rewind again.)



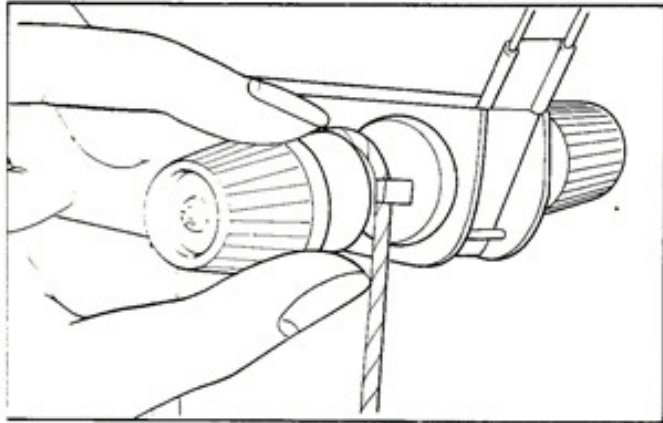
Note: \* The yarn must be placed well behind the machine so that it will not touch the carriage. If the yarn hangs loosely over the machine, it may get entangled in the memory bank. Care should be taken to prevent this.

\* For practice, it is recommended to use medium size, 4 ply wool in light color.

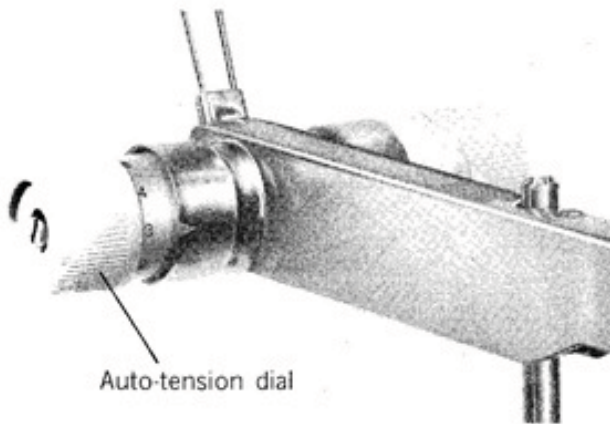


- (2) Thread the yarn through the auto-tensioner.

The auto-tension takes up the slack on yarn and keeps the yarn to be fed to the yarn feeder at an even tension. In order to knit even stitches, it must be used correctly. As the auto-tension can hold two yarns at a time, first thread one yarn through one side and rest it in the yarn clip.



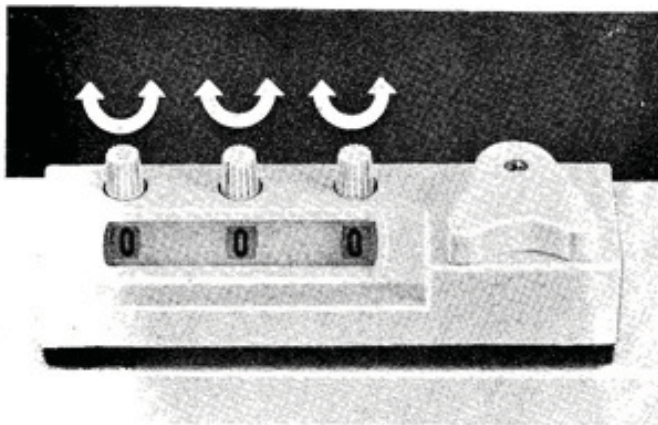
\* Be sure the yarn passes under the copper colored guide pin.



- (3) Turn the auto-tension dial to set the numerals to the ► shaped cut according to the thickness of the yarn to be knitted. With any kind of yarn, adjust the tension dial so the tension spring will keep the distance (A-space) in 10–20cm (4 to 8 inches).

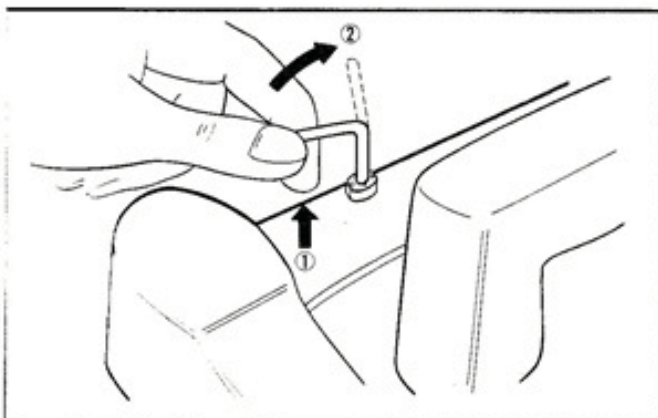
Standard auto-tension dial number.

Fine yarn	4–5
Medium yarn	3
Heavy yarn	2–1

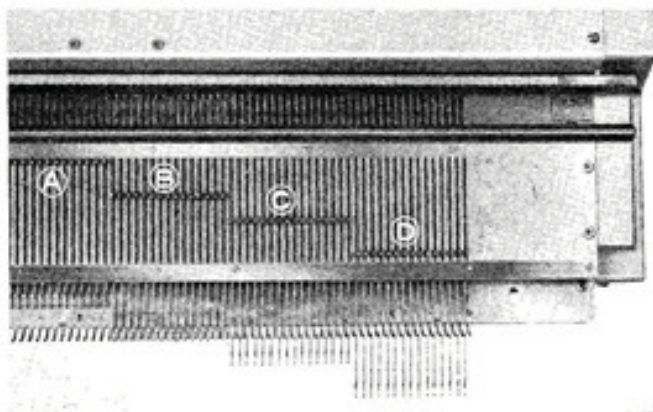


### \* Adjust the Row Counter \*

- (4) The row counter can be adjusted by turning the knobs on top in either direction.



- (5) Lift the row counter lever upward, then turn it straight. (Keep the lever turned inside when the row counter is not in use).

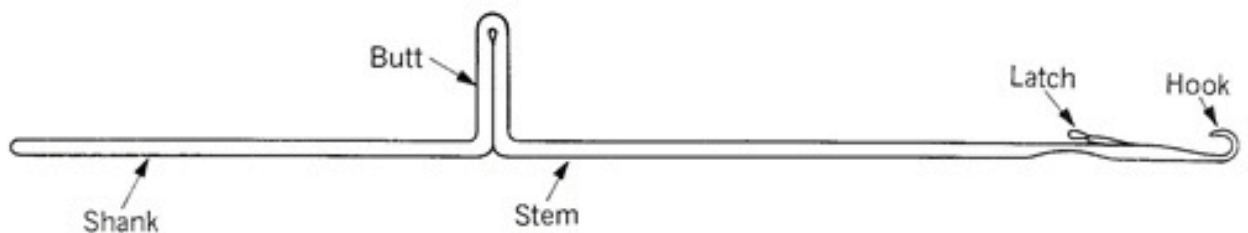


(6) Each end of the needle bed is marked A, B, C, D and each is accompanied with the mark "]" which indicates the range of needle selection.

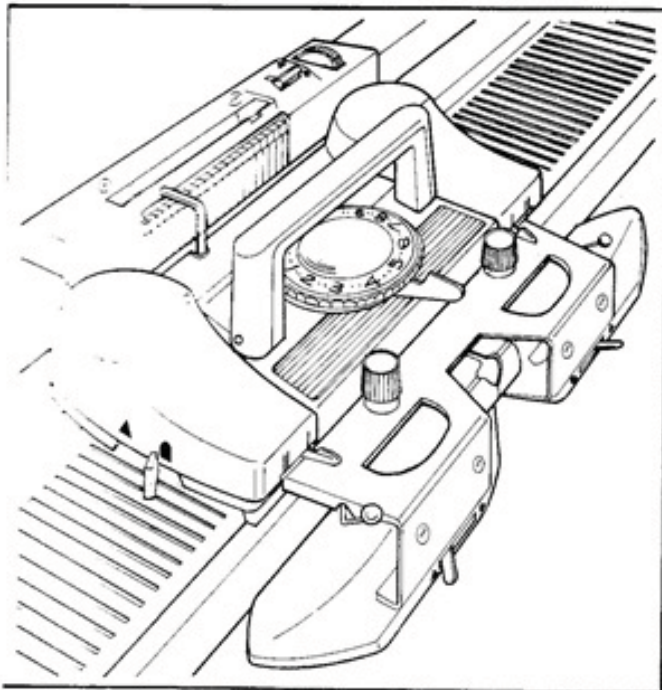
- A position. . . . . The needles in this position do not operate when the carriage is moved across.
- B position. . . . . Normally the needles are used in this position. (For stockinet and pattern knitting)
- C position. . . . . The needles knit in this position at all cam settings.
- D position. . . . . The needles are set in this position for partial knitting and working pattern manually.

### \* Needle \*

Let's learn the name of each part of a needle.



### 3. CASTING ON AND STOCKINET KNITTING

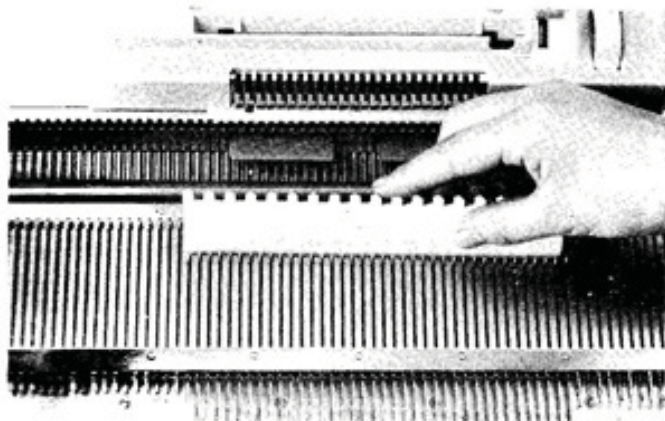


- (1) Set the stop knob and each part on the carriage as follows.

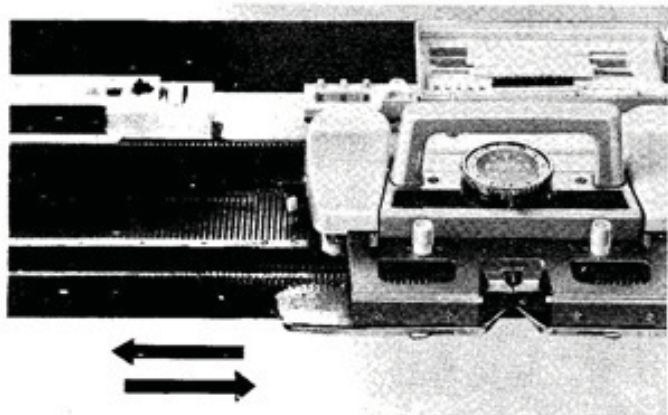
Stop knob . . . . . ●  
Cam lever . . . . . STOCKINET  
Tension dial . . . . . 5 (for 4 ply wool of  
medium thickness)  
Side levers . . . . . ▲ (Both)  
Russel levers . . . . . 1 (Both)  
Arm levers . . . . . ▲ (Both)

\* The stop knob should be set directly on the ● mark. (Do not stop it in the half way position).

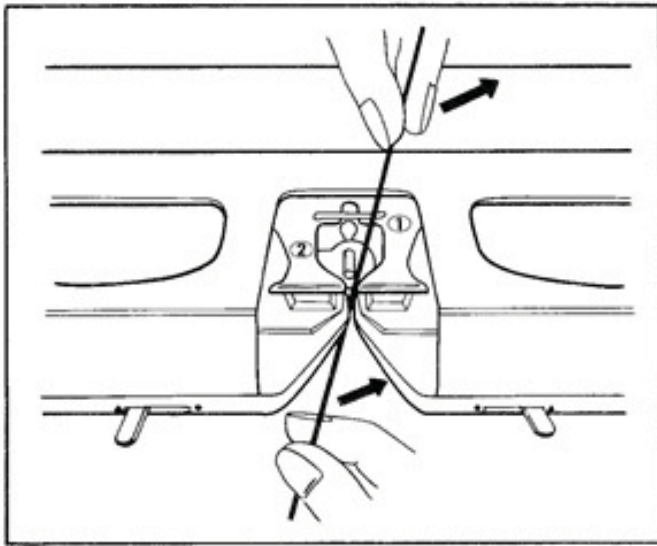
Note: \* This setting of the carriage is only for casting on. When starting stockinet knitting set the side levers on the ▲ mark, and the arm levers on the ● mark.



- (2) Select the required number of needles to B position using the smooth side of a needle pusher, according to the width of desired knitting.

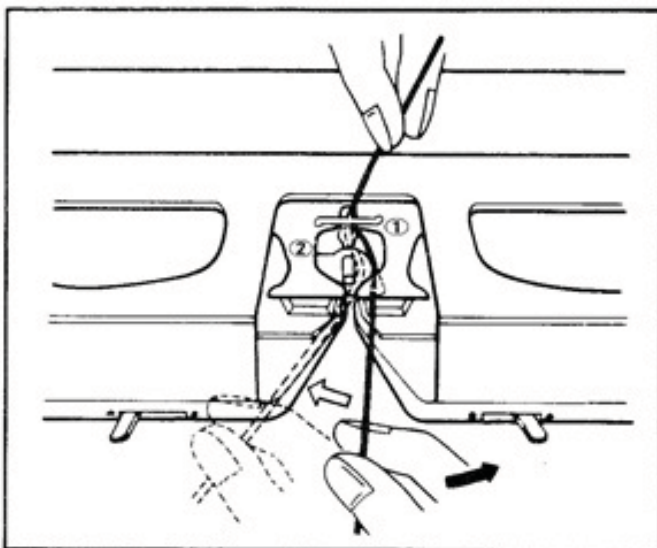


- (3) Move the carriage slowly from side to side to line the needles in B position, leaving the carriage on the right side of the needle bed.

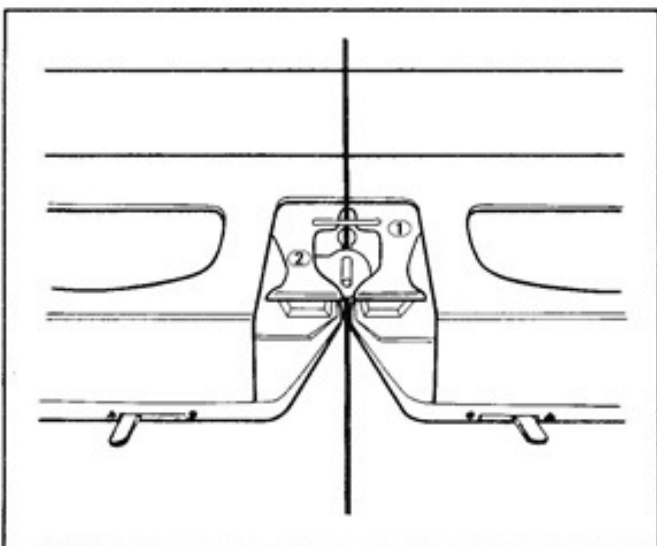


(4) Threading the yarn feeder ①.

Hold the yarn with both hands as illustrated, and slip it in to the slit in front of the yarn feeder at the right side of the pin.

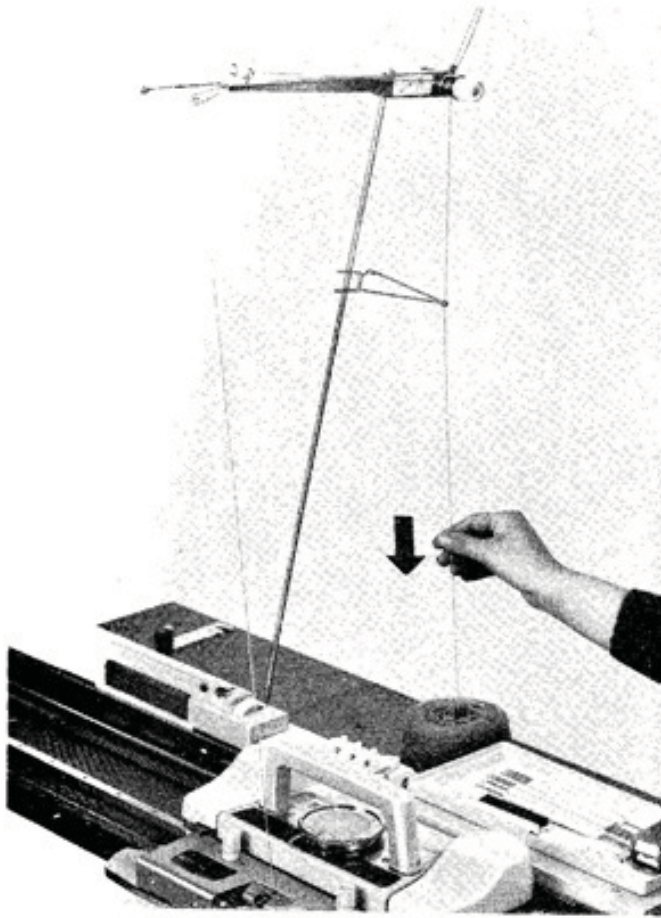


Next, pass the upper part of the yarn under the yarn guide and hold it lightly at the upper part of the yarn feeder. With the right hand, slip the lower part of the yarn to the right and backward. Then, slide it to the left side. In this manner, the yarn feeder ① will be threaded correctly.

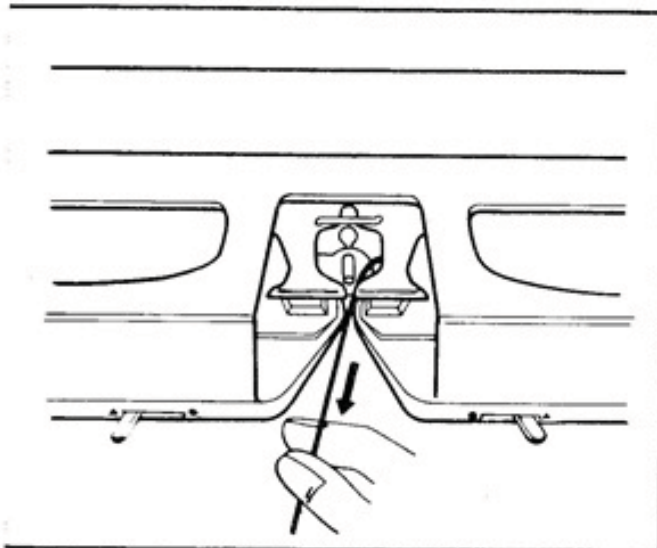


After threading, let the yarn end hang down 10–20cm (4–8 inches) from the feeder and hold it with your hand.

Hint \* A clothes pin can be attached to the end for an anchor.

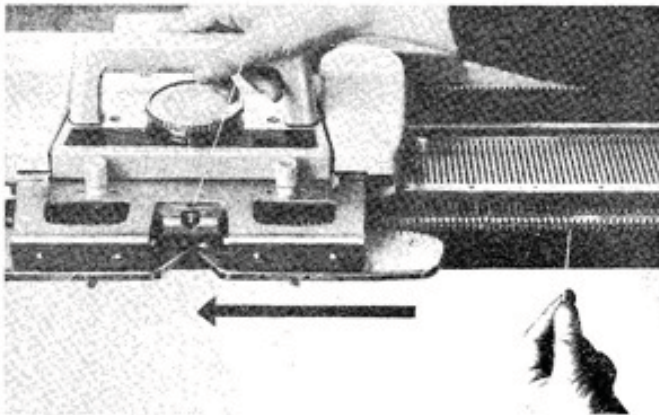


- \* At this time, the yarn which is threaded through the yarn feeder should have tension on it. If it is loose, pull it from the back through the auto-tension to give it a proper tension.



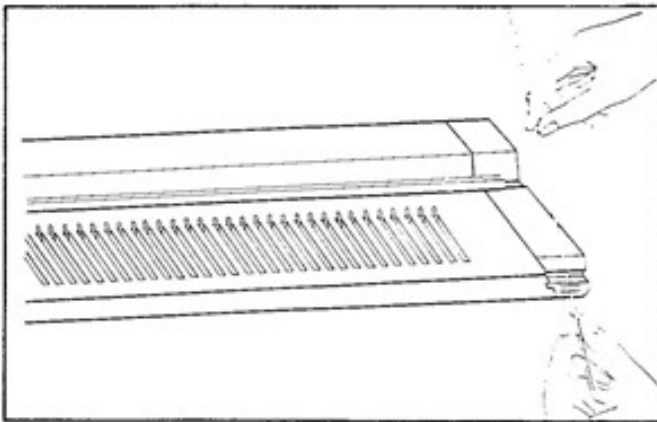
### \* How to unthread \*

- \* To unthread the yarn, unlock the upper part of the yarn by passing it under the yarn guide, then pull it downward through the slit in front of the yarn feeder.

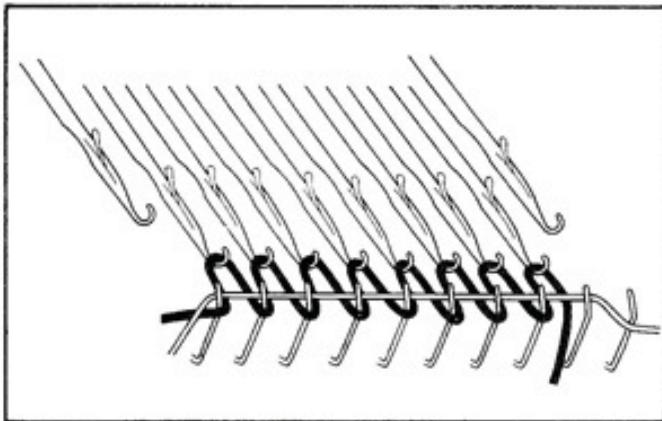


- (5) Move the carriage slowly to the left and the yarn will be hooked by the needles and sinker posts alternately.

Note: \*If the yarn is pulled tight at the last few needles, loosen the yarn from the feeder and push the needles back to B position, one by one starting from the tighter stitch farthest from the carriage.

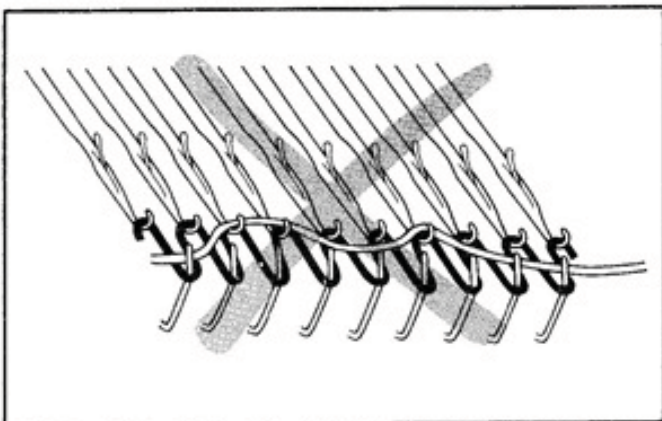


- (6) Insert the ravel cord in the yarn clip at the right side of the needle bed.

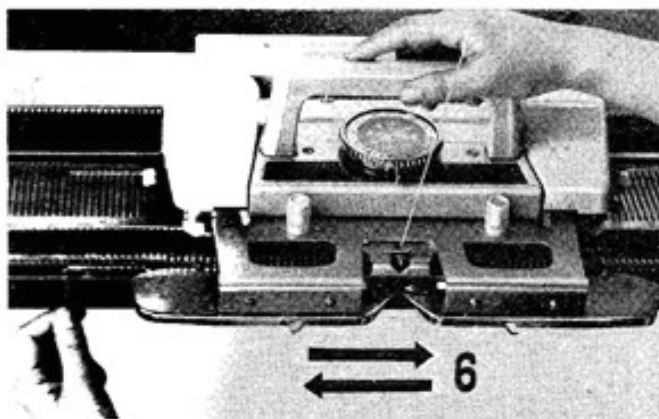


- (7) Lay the ravel cord over the knitted yarn between the needles and sinker posts.

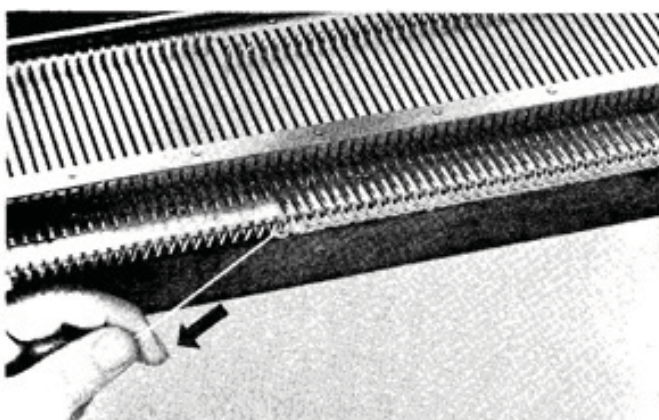
- (8) With the left hand, pull the ravel cord tight so the cord will lay straight.



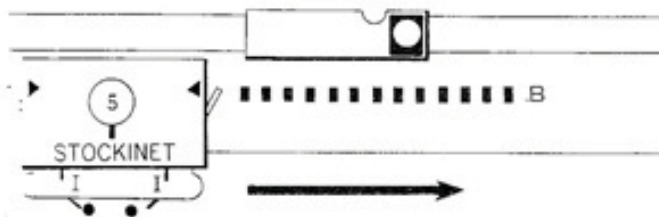
Note: \*If the ravel cord is not laid correctly, or if it is not pulled tight enough, it will become loose as illustrated and will not be anchored to begin knitting.



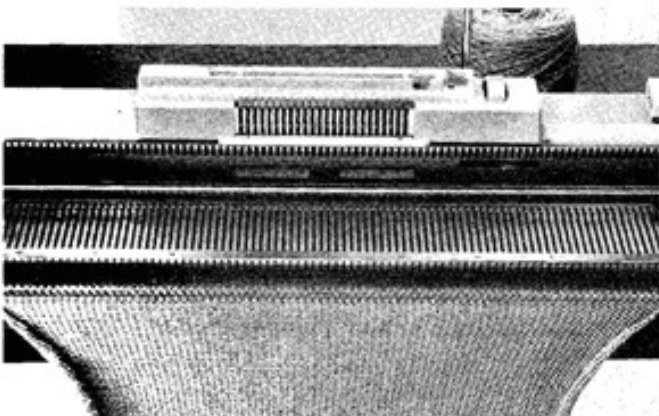
- (9) Keep the ravel cord tight with the left hand and slowly move the carriage back and forth, knitting 6 rows. The carriage will be on the left side at the end of this procedure.



- (10) Remove the ravel cord from the yarn clip and pull it out from the left side. Now the casting on procedure has been completed.



- (11) Adjust the row counter to zero (0) and turn the row counter lever to operating position. (Refer to "Adjusting the row counter" on page 7.) Set the side levers to ▲ mark and both arm levers to ● mark.



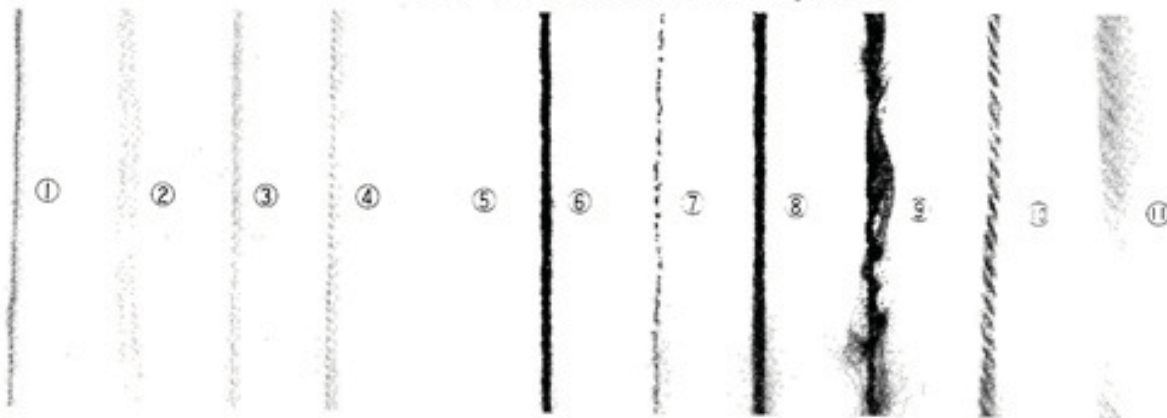
- (12) Continue to move the carriage back and forth for stockinet knitting.



(Move the carriage at an even speed)

- Note: \*If the carriage has jammed and its movement is prevented, do not try to move it by force. Follow the instructions given on page 52, "If the carriage has jammed while knittinting" and repair the knitting.
- \*The carriage should be returned as soon as clicking sound is heard, approximately 3-5cm (1 to 2 inches) passed the end needle.
- \*Do not try to return the carriage after beginning a row.

**\* The Relation between the tension dial and yarns \***



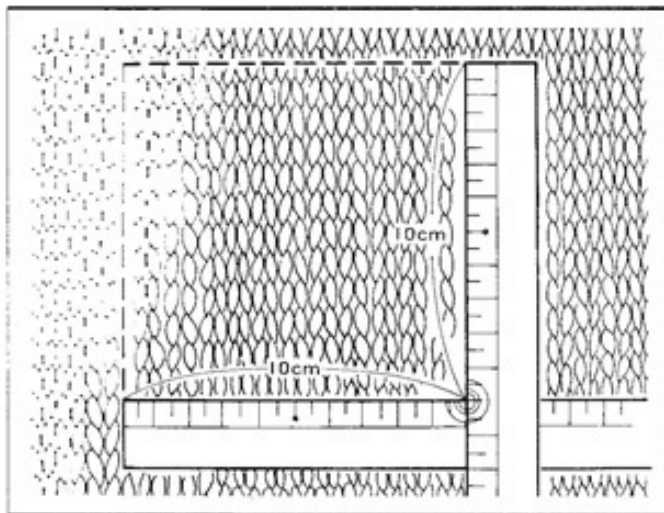
(Actual size)

Kinds of yarn	Standard tension No.
1. Cotton thread	2~3
2. 2 ply wool	2~3
3. Summer yarn (synthetic)	3~4
4. Summer yarn (synthetic)	3~4
5. 3 ply wool	4~5
6. 4 ply wool (medium)	4~6
7. Boucle	5~6
8. Thick wool	6~9
9. Mohair (Use e/o needle)	8~10
10. Very thick wool (Use e/o needle)	6~7
11. Super heavy wool (Use e/o needle)	8~10

- (13) The tension dial is used to change the size of the stitches. It is adjusted by setting the dial number to the ▲ mark at the center. The numerals on the dial are so arranged that the higher the numeral, the larger the stitch, and the lower the numeral the smaller the stitch.

Note: \* For heavy or bulky yarns use every other needle or even every third needle.

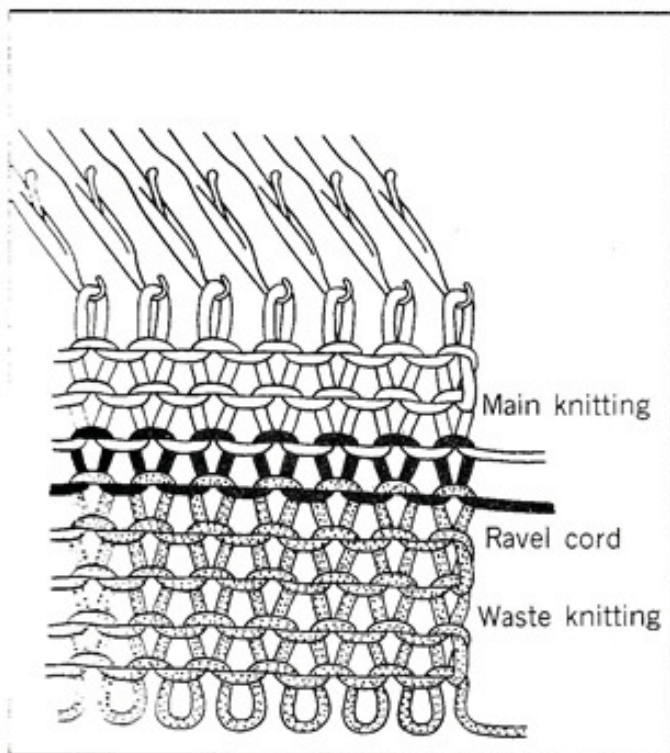




### \* How to Make a Gauge (Swatch) \*

Knit a gauge approximately 60 stitches wide and 80 rows long for "each" tension tested (about 8" in length). When you have obtained a desirable swatch, press it lightly with a steam iron for a finished product, spread it on a flat surface and count the number of stitches and rows within 10cm. (4 inches) in the center of the swatch.

Note: \* Counting the gauge correctly is very important. The garment size will be incorrect if counted wrong. Let the swatch set until settled completely before counting for best results.



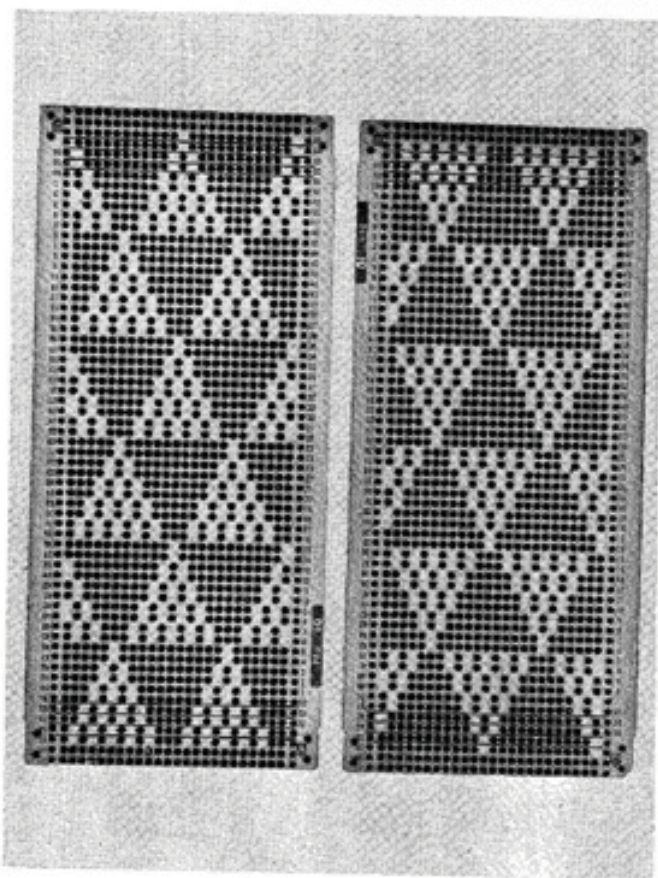
### \* Waste Knitting \*

It is desirable to knit approximately 8 to 10 rows of odd waste yarn (or scrap yarn) as the first row is always loose and easily damaged. Knit one row with ravel cord only before beginning main yarn for garment. This will enable you to knit ribbing after bodice is completed by picking up stitches of main yarn interlooped with ravel cord or make a finished hem at the beginning of garment.

The waste yarn is removed by pulling the ravel cord from the garment. It is also convenient to remove the work from the machine by knitting 8-10 rows of waste knitting.

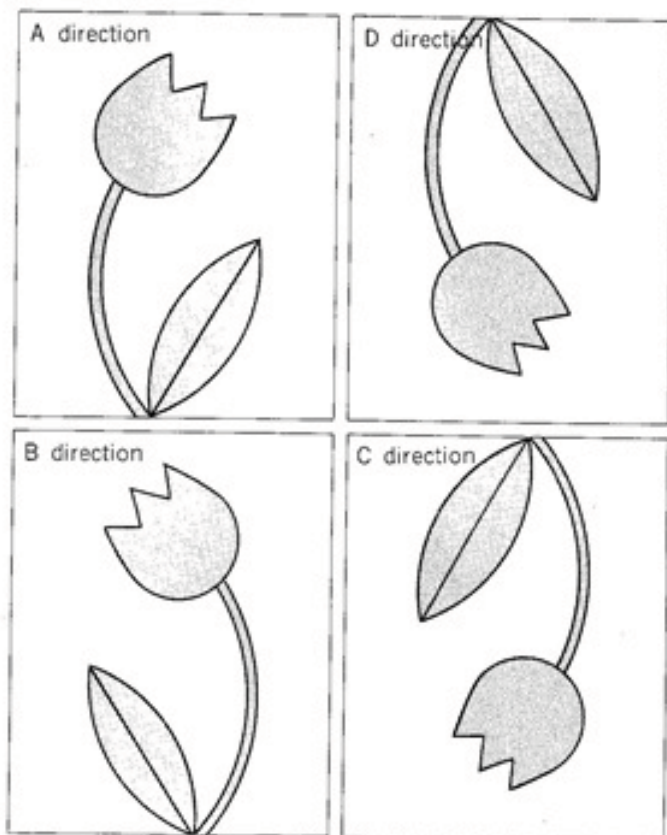
To remove the garment from the machine, set the carriage as in stockinet, remove the yarn from the yarn feeder, then move the carriage across. The garment is removed from the machine very easily and neatly.

## 4. PATTERN KNITTING



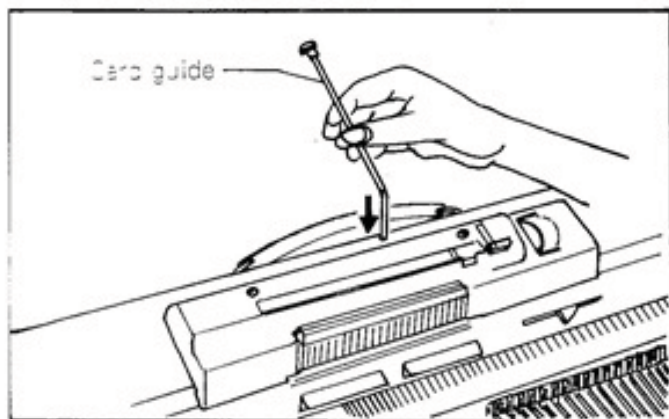
### \* How to read the punched card \*

- The twenty punched cards (each representing a different pattern) that come with the knitting machine have a serial number beginning with No. 1 through 20 and alphabetical markings A, B, C and D respectively.  
Example: No. 10-A
- When using a punched card, insert into the pattern panel with the indication marking (any one of the markings A, B, C, D) pointing toward the bottom of the right side.
- The red lines on the card are guide lines for lining the punched card correctly in the machine.



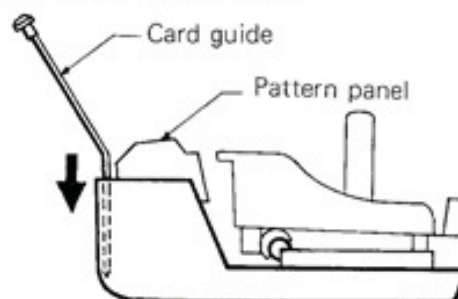
### \* How to use the marking A, B, C, D on the card \*

- "A" direction is the basic pattern. By changing the direction, the pattern also changes direction as shown in the diagrams.



### \* Installing the Card Guide \*

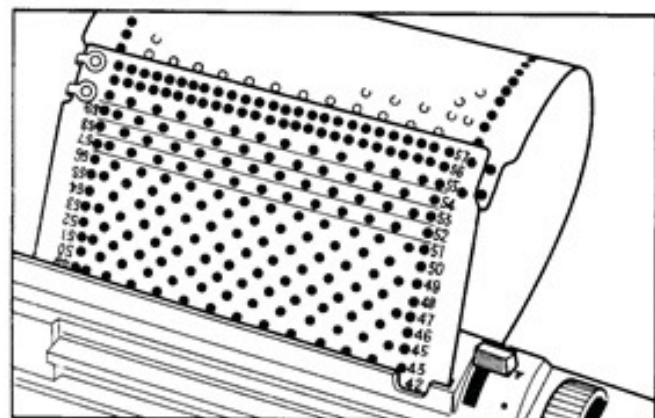
- \* Insert the card guide vertically as illustrated into the receiving hole in center of the case behind the pattern panel.



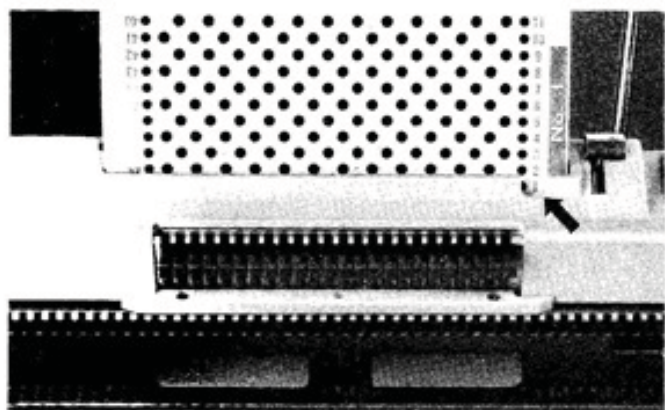
### \* How to set the Punched Card \*

- (1) Set the stop knob to ▼ mark.
- (2) Insert the punched card into the slit in the pattern panel by holding it straight with your hand. Turn the feeding dial toward you. Turn the dial until the end of the card comes out from the back of the pattern panel.

Note: \* When inserting the punched card, be sure it is not crooked or folded.



- (3) Overlap the ends of the card, with the end facing you on top of the other. Then, fitting the holes at the corners, join both ends with the card snaps. Be sure there is no mistake in overlapping the ends.

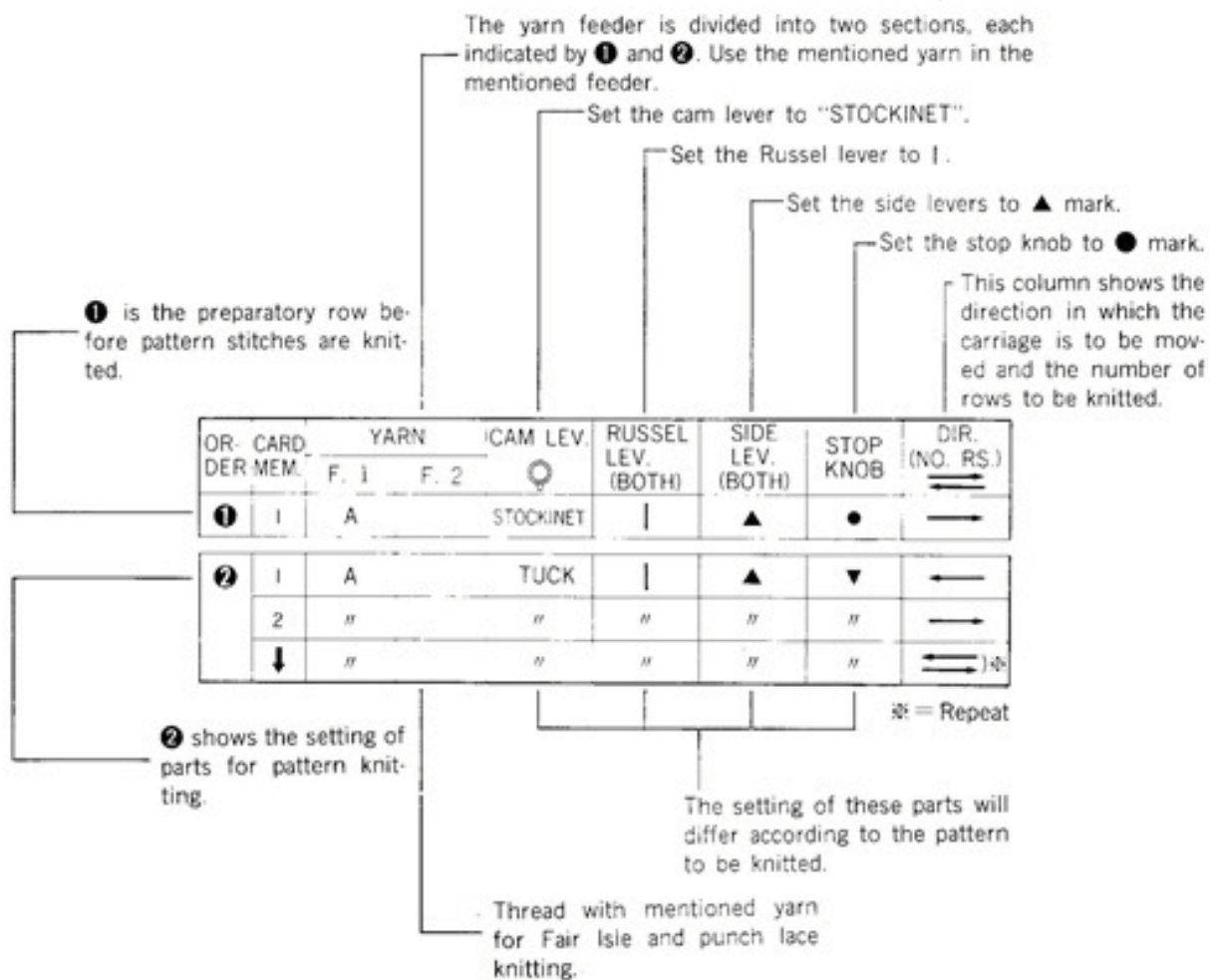


### \* First Setting Position \*

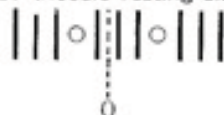
- \* Turn the punched card until "1" on the card memory appears in the window slot. "1" is always the starting point of knitting when a punched card is used.

## \* How to Read the Operation Table \*

The operation table is divided into two sections, line ① and line ②. Line ① is the preparatory step to memorize the pattern in the memory bank. The actual pattern knitting begins with line ②



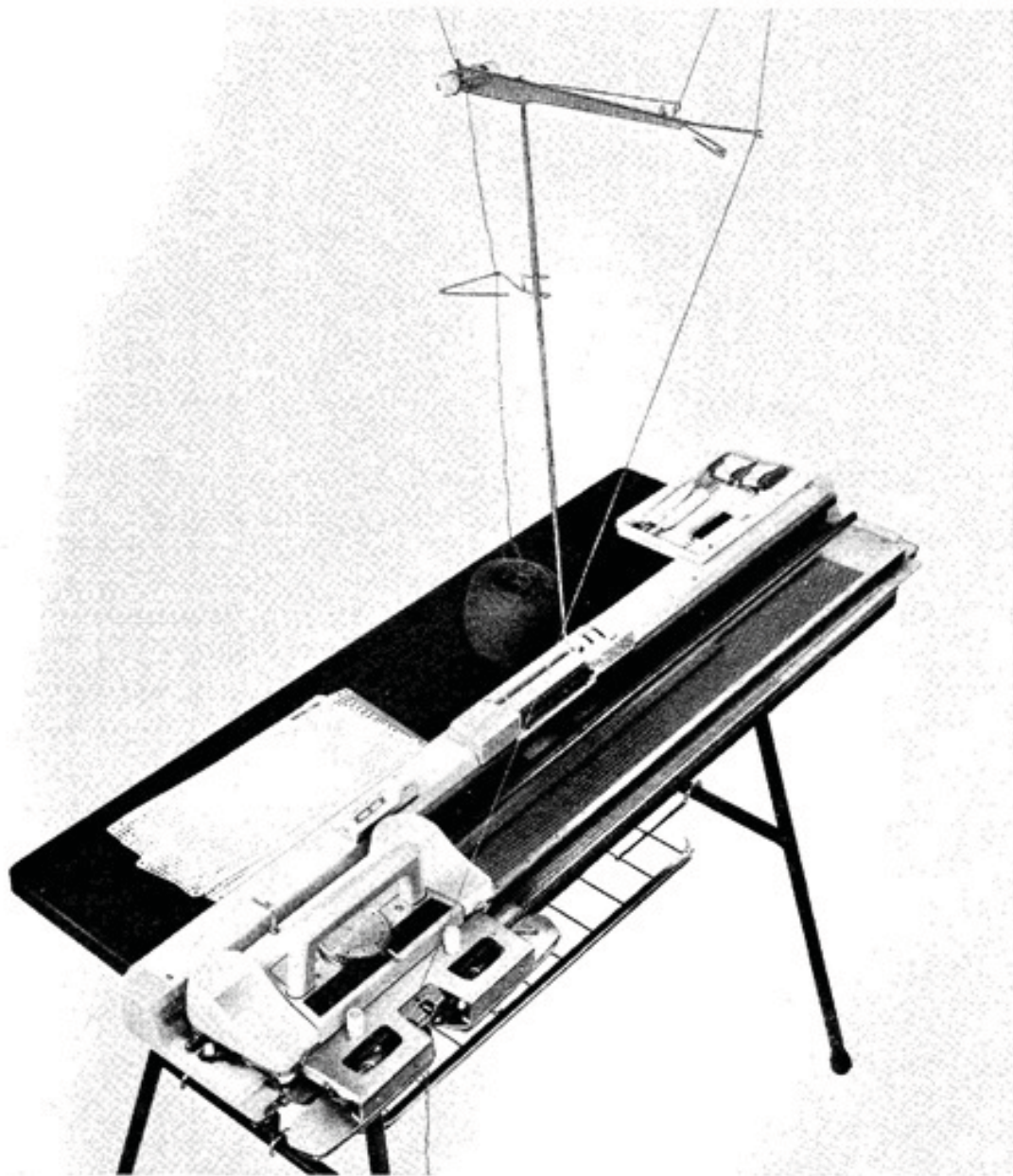
N. R. D. (Needle resting diagram)



Select the needles to knit and the needle to rest beginning at the zero (0) mark in the center of the needle bed. The circle dot (○) indicates the needles to be pushed back to A position and the bar (|) mark the needles to be knitted.

Note: The preparatory operation before starting pattern knitting in line ①, is the same for ALL pattern stitches.

\* Preparations for Knitting Pattern Stitches \*



- \* Before practicing the pattern knitting, knit 7-8 rows of stockinet, ending with the carriage on the left side of the needle bed.
- 2. Caution on pattern knitting.
  - \* Do not pull the carriage off the rail on the needle bed. If this is done, it is the same as a mistake in knitting. Refer to "When the Carriage is Accidentally Pulled off the rail in the Middle of Pattern Knitting" on page 54.
  - \* When operating the carriage, move it past the pattern panel in each direction.
  - \* Move the carriage at an even pace.
  - Put accessory weights on both sides of the garment.
  - \* Except in special cases, it is recommended to use ordinary 4 ply wool for practice.

# TUCK KNITTING

CARD No. 12-A

TUCK(Solid) < 1 >



A = Pink

1 Pat = 12 sts, 24 rows.

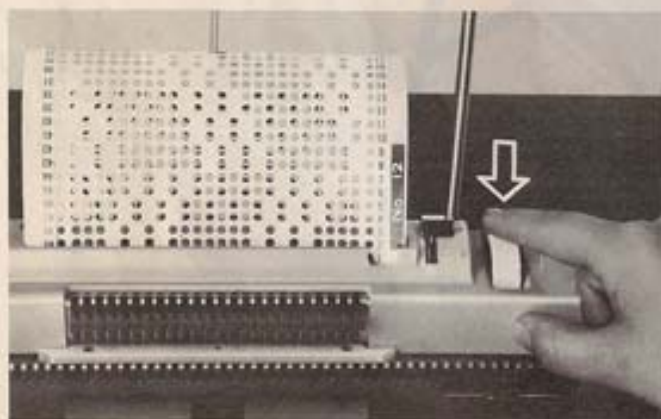
OR. CARD DER MEM.	YARN		CAM LEV. ⊙	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
	F. 1	F. 2					
①	1	A	STOCKINET		▲	●	—
②	1	A	TUCK		▲	▼	—
	2	#	#	#	#	#	—
	↓	#	#	#	#	#	— ⊕

\* Set both arm levers to ▲ mark.

Tuck stitches are formed by knitting together the yarns crossed over the needles and the loops below which are pulled up by the needle selection.

Note: \* When using fine yarn or special yarn or to prevent the knitted patterns from being shaped wrong, change the Russel levers in line ② to 11 and the two end needles at the side opposite the carriage must always be brought to D position.

(When partial knitting, bring the needles to C position.)

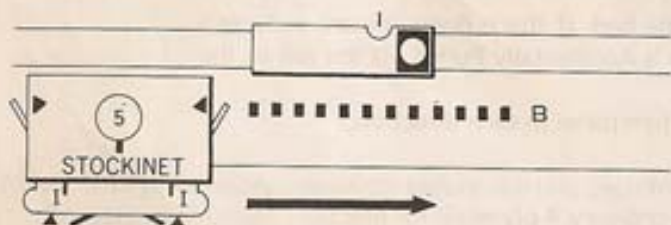


Let's learn how to do pattern knitting by following the instructions on the operation table.

- (1) Insert punched card No. 12 in the pattern panel with the A mark at the right bottom. Join both ends using the card snaps. (Refer to page 17)
- (2) Turn the feed dial so the card memory "1" will appear in the window slot.

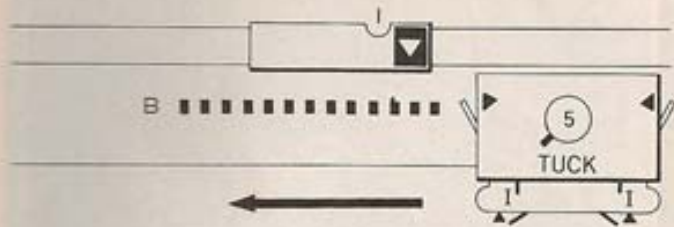
Note: \* If the stop knob is set to the ● mark, the punched card will not feed. Do not try to pull the card by force. Be sure to set the stop knob to the ▼ mark before turning the feed dial.

\* When inserting the punched card, be sure that it is not crooked or folded.

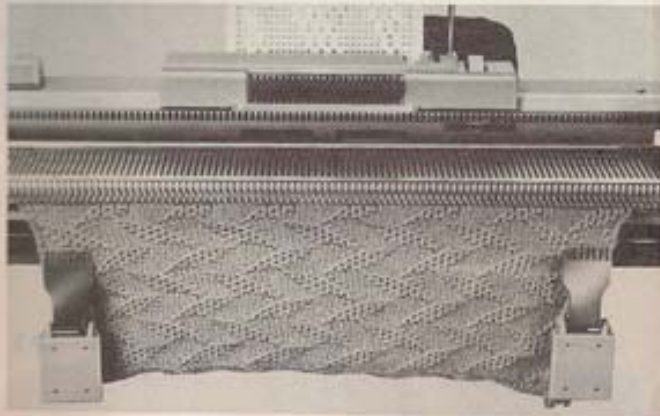


- (3) Thread the yarn feeder ① with the yarn.

- (4) Set each of the regulating parts of the carriage following line ①. Knit a row by moving the carriage in the direction indicated by the arrow.



Note: \* This is a preparatory row before the pattern knitting begins and is not counted in the number of rows for pattern knitting.



(5) Change the setting of the regulating parts of the carriage in line ⑤ and start knitting.

\* The following patterns are knitted in the same manner.

CARD No. 1-A

TUCK(Solid) < 2 >



A = Yellow

1 Pat. = 2 sts, 2 rows.

CARD No. 8-A

TUCK(Solid) < 3 >



A = Light green

1 Pat. = 3 sts, 18 rows.



CARD No. 7-A

TUCK(Solid) < 4 >



A = Green

1 Pat. = 2 sts, 4 rows

CARD No. 10-A

TUCK(Solid) < 5 >



A = Light blue

1 Pat. = 12 sts, 20 rows

CARD No. 19-A

TUCK(Solid) < 6 >



A = Pink

1 Pat. = 24 sts, 24 rows

CARD No. 9-A

TUCK(Solid) < 7 >



A = Yellow

1 Pat. = 12 sts, 24 rows

CARD No. 3-A

TUCK(Solid) < 8 >

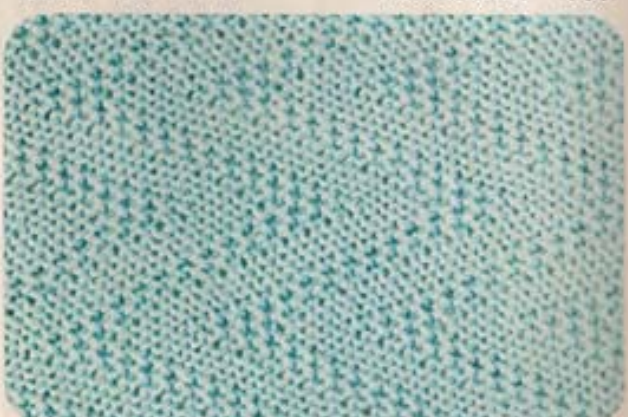


A = Emerald green

1 Pat. = 4 sts, 8 rows

CARD No. 11-A

TUCK(Solid) < 9 >



A = Light blue

1 Pat. = 8 sts, 24 rows

CARD No. 18-A

TUCK (Solid) <10>



A = Light green

1 Pat. = 24 sts, 44 rows.

CARD No. 6-A

TUCK (Solid) <11>



A = Brick color

1 Pat. = 6 sts, 16 rows.

CARD No. 4-A

TUCK (Solid) <12>



A = Light blue

1 Pat. = 4 sts, 4 rows.

CARD No. 3-A

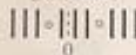
TUCK (Resting Needles) <1>



A = Red brown

1 Pat. = 4 sts, 8 rows.

(N. R. D.)



0

CARD No. 4-A

TUCK (Resting Needles) <2>



A = Mustard

1 Pat. = 6 sts, 4 rows.

(N. R. D.)



0

CARD No. 7-A

TUCK (Resting Needles) <3>



A = Green

1 Pat. = 6 sts, 4 rows.

(N. R. D.)

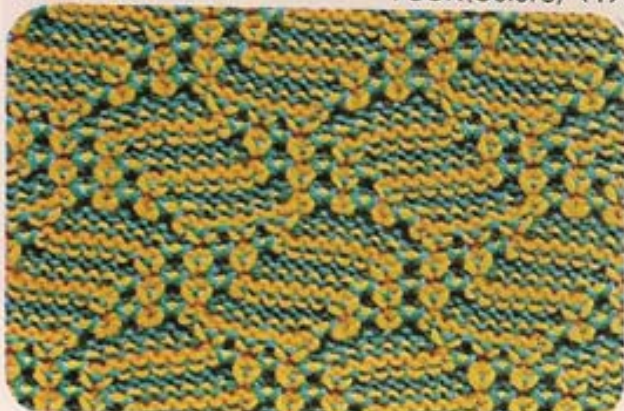


0

# TUCK KNITTING IN COLORS

CARD No. 12-A

TUCK(Colors) <1>



A = Blue  
B = Yellow

1 Pat. = 12 sts, 24 rows.

OR. DER MEM.	CARD	YARN		CAM LEV	RUSSEL LEV (BOTH)	SIDE LEV (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	—
②	1	A		TUCK		▲	▼	—
	2	"		"	"	"	"	—
	3	B		"	"	"	"	—
	4	"		"	"	"	"	—
	↓	*		"	"	"	"	—

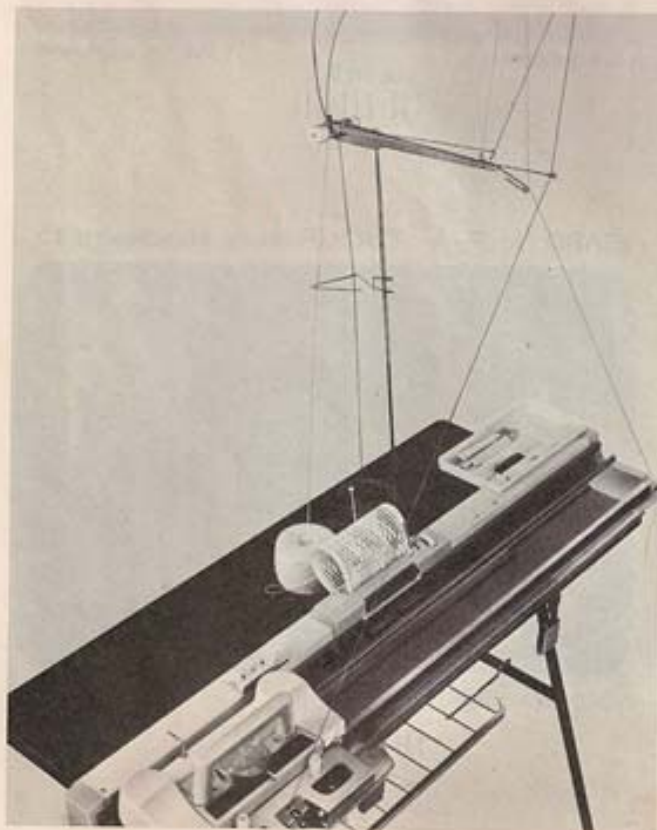
\* Set both arm levers to ▲ mark.

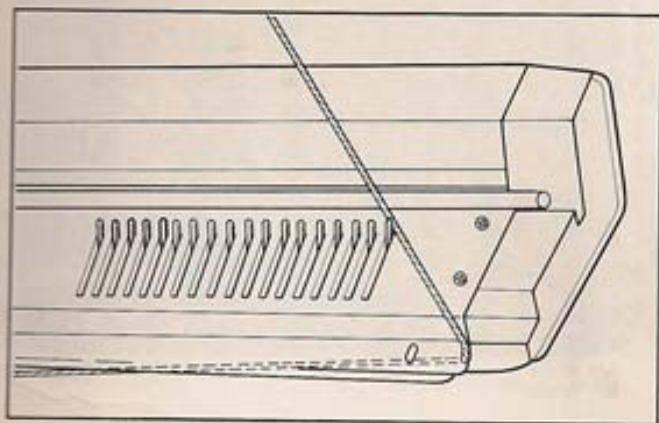
(1) Let's learn pattern knitting using two colors.

Note: \* When using fine yarn or special yarn or to prevent the knitted patterns from being shaped wrong, change the Russel levers in line ② to || and the two end needles at the side opposite the carriage must be brought to D position.

(When partial knitting, bring the needles to C position.)

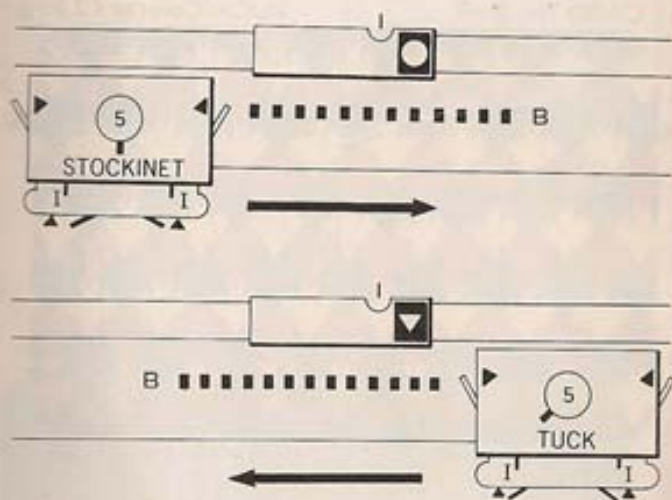
- \* Thread the yarn through the empty side of the auto-tension, and rest it by inserting the end into the yarn clip.





- As the yarn in the yarn feeder is to be changed at the mentioned row, rest the yarn (color B) in the yarn clip at the end of the needle bed. Be sure the two yarns do not become entangled with each other. Also be sure the yarn is threaded correctly through the yarn feeder to prevent it from coming unthreaded.

- Thread the yarn feeder ①.



- (1) Insert card No. 12-A in the pattern panel.
- (2) Set the carriage and the stop knob following the instructions in line ① of the operation table and knit 1 row in color A. (This is a preparatory row for starting pattern knitting.)
- (3) Change the setting of the carriage and the stop knob according to line ② and start knitting. Knit 2 rows in color B then change the yarn to color A and knit 2 rows. Continue knitting, changing colors every 2 rows.

- The following patterns are knitted in the same manner.

CARD No. 7-A

TUCK(Colors) < 2 >



A = White  
B = Green

1 Pat. = 2 sts, 4 rows.

CARD No. 7-A

TUCK(Colors) < 3 >



A = White  
B = Purple

1 Pat. = 2 sts, 4 rows.

CARD No. 1-A

TUCK(Colors) < 4 >



A = White  
B = Brown

1 Pat. = 2 sts, 4 rows.

CARD No. 4-A

TUCK(Colors) < 5 >



A = White  
B = Green

1 Pat. = 4 sts, 4 rows.

CARD No. 3-A

TUCK(Colors) < 6 >



A = White  
B = Cherry red

1 Pat. = 4 sts, 8 rows.

Change the two colors every 4 rows.

CARD No. 3-A

TUCK(Colors) < 7 >



A = White B = green  
C = Red

1 Pat. = 4 sts, 24 rows.

Change the three colors every 4 rows.

CARD No. 6-A

TUCK(Colors) < 8 >



A = green B = White  
C = Brown

1 Pat. = 6 sts, 16 rows.

Change the three colors every 4 rows.

CARD No. 6-A

TUCK(Colors) < 9 >



A = blue B = White  
C = Red

1 Pat. = 6 sts, 32 rows.

Change the three colors every 8 rows.

CARD No. 7-A

TUCK(Appli.) &lt;1&gt;



A = Yellow

1 Pat. = 2 sts, 4 rows.

OR. DER MEM.	CARD	YARN		CAM LEV.	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		♀		▲	●	—
②	1	A		TUCK		▲	▼	—
	2	"		STOCKINET	"	"	"	—
	↓	"		*	"	"	"	—

\* Set both arm levers to ▲ mark.

CARD No. 6-A

TUCK(Appli.) &lt;2&gt;



A = Emerald

1 Pat. = 6 sts, 2 rows.

OR. DER MEM.	CARD	YARN		CAM LEV.	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		♀		▲	●	—
②	1	A		TUCK		▲	●	—
	"	"		STOCKINET	"	"	"	—
	"	"		*	"	"	"	—

\* Set both arm levers to ▲ mark.

CARD No. 1-A

TUCK(Appli.) &lt;3&gt;



A = Light Green

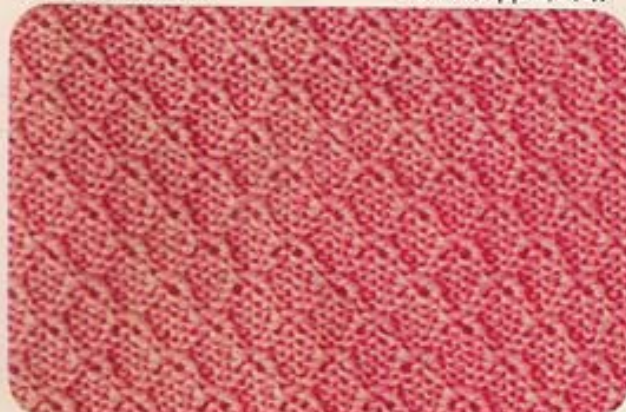
1 Pat. = 2 sts, 2 rows.

OR. DER MEM.	CARD	YARN		CAM LEV.	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		♀		▲	●	—
②	1	A		TUCK		▲	●	—
	"	"		STOCKINET	"	"	"	—
	"	"		*	"	"	"	—

\* Set both arm levers to ▲ mark.

CARD No. 3-A

TUCK(Appli.) &lt;4&gt;



A = Pink

1 Pat. = 4 sts, 8 rows.

OR. DER MEM.	CARD	YARN		CAM LEV.	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		♀		▲	●	—
②	1	A		TUCK		▲	▼	—
	2	"		"	"	"	"	—
	3	"		STOCKINET	"	"	"	—
	4	"		"	"	"	"	—
	↓	"		*	"	"	"	—

\* Set both arm levers to ▲ mark.

CARD No. 3-A

TUCK (Appli) < 5 >



A = Blue

1 Pat. = 4 sts, 3 rows.

CARD No. 12-A

TUCK (Appli) < 6 >



A = Red  
B = White

1 Pat. = 12 sts, 4 rows.

OR. DER MEM	CARD	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKNET		▲	●	—
②	1	A		TUCK		▲	●	—
	"	"		"	"	"	"	—
	"	"		STOCKNET	"	"	"	—
	"	"		*	"	"	"	—*

\* Set both arm levers to ▲ mark.

OR. DER MEM	CARD	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKNET		▲	●	—
②	1	A		TUCK		▲	●	—
	"	"		"	"	"	"	—
	"	B		STOCKNET	"	"	"	—
	"	"		"	"	"	"	—
	"	*		*	"	"	"	—*

\* Set both arm levers to ▲ mark.

# SLIP STITCH PATTERN

CARD No. 18-A SLIP STITCH(Solid) < 1 >

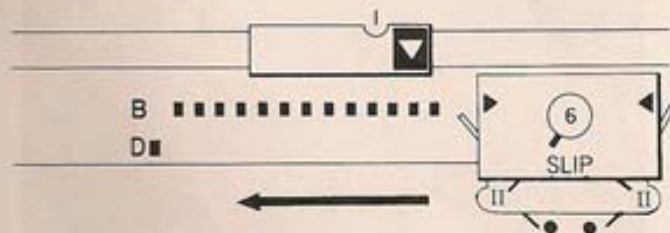
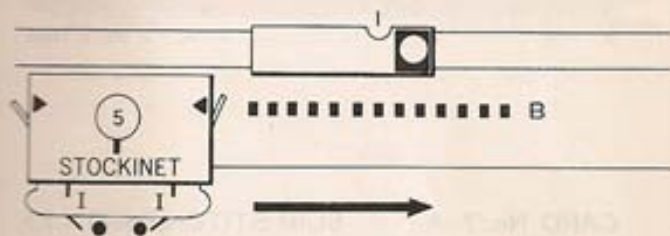


A = Emerald green

1 Pat. = 24 sts, 44 rows.

OR. CARD DER MEM	YARN		CAM LEV ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
	F. 1	F. 2					
①	1	A	STOCKINET		▲	●	—
②	1	A	SLIP		▲	▼	—
	2	"	"	"	"	"	—
	↓	"	"	"	"	"	—

\* Set both arm levers to ● mark.



Slip stitch patterns are formed by the yarns crossing at the back of the loops which were not knitted and pulled up by needle selection.

- (1) Insert punched card No.18-A in the pattern panel.
- (2) Thread the yarn feeder ①.
  - \* The tension memory should be loosened by one number from the tension used for stockinet at this point.
- (3) Knit 1 row following the instructions given in line ①

Note: \* Set both arm levers to ● mark.

- (4) Change the setting as instructed in line ② of the operation table and bring the end needle at the side opposite the carriage to D position. Continue knitting.
  - \* When partial knitting, bring the end needle at the side opposite the carriage to C position every row.
  - \* The following patterns are knitted in the same manner.



CARD No. 8-A SLIP STITCH(Solid) < 2 >



A = Pink

1 Pat. = 3 sts, 18 rows.

CARD No. 10-C SLIP STITCH(Solid) < 3 >



A = Yellow

1 Pat. = 12 sts, 20 rows.

CARD No. 9-A SLIP STITCH(Solid) < 4 >



A = Light blue

1 Pat. = 12 sts, 24 rows.

CARD No. 1-A SLIP STITCH(Solid) < 5 >



A = Grey

1 Pat. = 2 sts, 2 rows.

CARD No. 2-A SLIP STITCH(Solid) < 6 >



A = Light blue

1 Pat. = 4 sts, 4 rows.

CARD No. 7-A SLIP STITCH(Solid) < 7 >



A = Mustard color

1 Pat. = 2 sts, 4 rows.

CARD No. 3-A

SLIP STITCH(Solid) < 8 >



A= Yellow

1 Pat. = 4 sts, 8 rows.

CARD No. 11-A

SLIP STITCH(Solid) < 9 >



A= Brown

1 Pat. = 8 sts, 24 rows.

CARD No. 12-A

SLIP STITCH(Solid) < 10 >



A= Yellow

1 Pat. = 12 sts, 24 rows.

# SLIP STITCH PATTERN IN COLORS

CARD No. 18-A SLIP STITCH(Colors) <1>

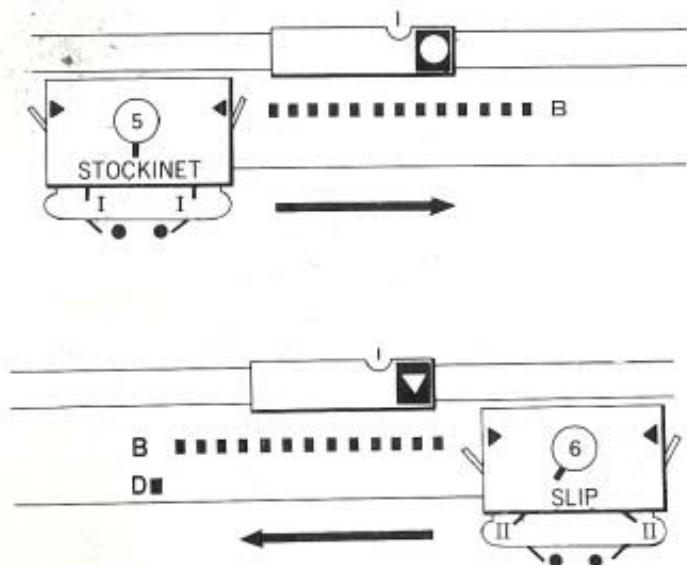


A = Green  
B = Grey

1 Pat. = 24 sts, 44 rows.

OR- DER	CARD MEM.	YARN		CAM LEV.	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2	♀				→
①	1	A		STOCKINET		▲	●	→
②	1	A		SLIP		▲	▼	→
	2	"		"	"	"	"	→
	3	B		"	"	"	"	→
	4	"		"	"	"	"	→
	↓	≠		"	"	"	"	→

\* Set both arm levers to ● mark.



- \* Let's practice the slip stitch patterns using two colors.
- \* Knit, changing the yarn in the yarn feeder ① as for colored tuck knitting.

- (1) Insert punched card No.18 at (A) direction.
- (2) Set the carriage and the stop knob following the instructions in line ① and knit one row in color A.
  - \* The tension memory should be loosened by one number from the tension used for stockinet at this point.
- (3) Change the setting as instructed in line ② of the operation table and continue knitting each time bringing one end needle at the side opposite the carriage to D position.
  - \* When partial knitting, bring the end needle at the side opposite the carriage to C position every row.
  - \* The following patterns are knitted in the same manner.

CARD No. 12-A SLIP STITCH(Colors) < 2 >



A = White  
B = Red

1 Pat. = 12 sts, 24 rows.

CARD No. 3-A SLIP STITCH(Colors) < 3 >



A = Light blue  
B = Brown

1 Pat. = 4 sts, 8 rows.

CARD No. 9-A SLIP STITCH(Colors) < 4 >



A = Pink  
B = Red

1 Pat. = 12 sts, 24 rows.

CARD No. 2-A SLIP STITCH(Colors) < 5 >



A = Emerald green  
B = White

1 Pat. = 4 sts, 4 rows.

CARD No. 7-A SLIP STITCH(Colors) < 6 >



A = Grey  
B = White

1 Pat. = 2 sts, 4 rows.

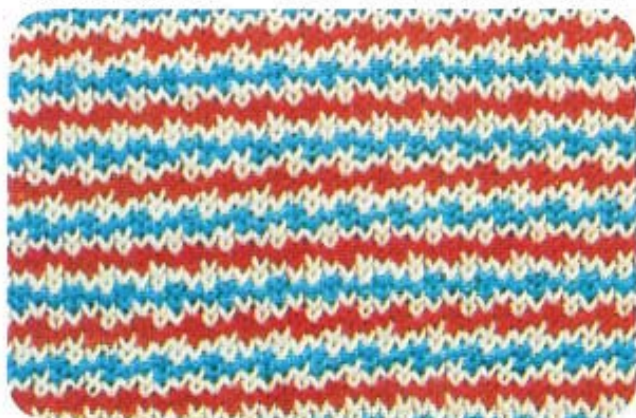
CARD No. 10-A SLIP STITCH(Colors) < 7 >



A = Pink  
B = Navy blue

1 Pat. = 12 sts, 20 rows.

CARD No. 8-A SLIP STITCH(Colors) < 8 >



A = Red  
B = White  
C = Blue  
1 Pat. = 8 sts, 24 rows.

OR- DER	CARD MEM	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	—
②	1	A		SLIP		▲	▼	→
	2	"		"	"	"	"	→
	3	B		"	"	"	"	→
	4	"		"	"	"	"	→
	5	C		"	"	"	"	→
	6	"		"	"	"	"	→
	7	B		"	"	"	"	→
	8	"		"	"	"	"	→
	↓	※		"	"	"	"	→

\* Set both arm levers to ● mark.

CARD No. 11-A SLIP STITCH(Colors) < 9 >

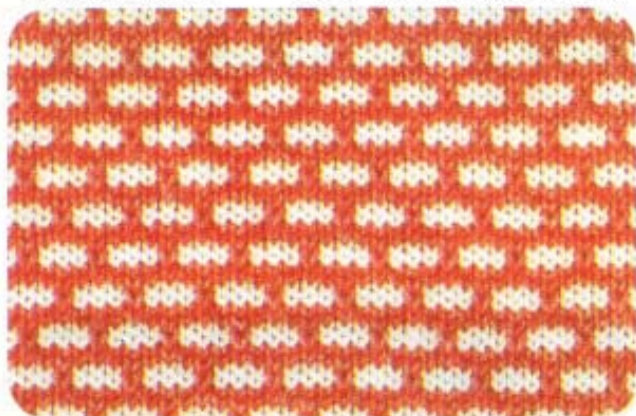


A = Light blue  
B = White  
C = Brown  
1 Pat. = 8 sts, 24 rows.

OR- DER	CARD MEM	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	—
②	1	A		SLIP		▲	▼	→
	2	B		"	"	"	"	→
	3	C		"	"	"	"	→
	↓	※		"	"	"	"	→

\* Set both arm levers to ● mark.

CARD No. 3-A SLIP STITCH(Appli.) < 1 >

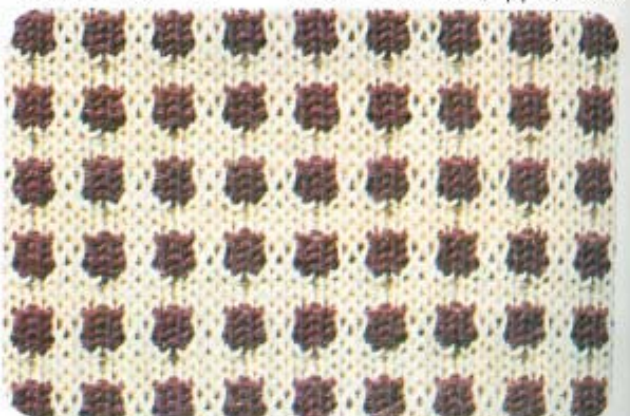


A = White  
B = Brick color  
1 Pat. = 4 sts, 8 rows.

OR- DER	CARD MEM	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	—
②	1	A		SLIP		▲	▼	→
	2	"		"	"	"	"	→
	3	B		STOCKINET	"	"	"	→
	4	"		"	"	"	"	→
	↓	※		"	"	"	"	→

\* Set both arm levers to ● mark.

CARD No. 2-A SLIP STITCH(Appli.) < 2 >



A = Purple  
B = White  
1 Pat. = 4 sts, 8 rows.

OR- DER	CARD MEM	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	—
②	1	A		SLIP		▲	●	→
	2	"		"	"	"	"	→
	3	B		STOCKINET	"	"	"	→
	4	"		"	"	"	"	→
	↓	※		"	"	"	"	→

\* Set both arm levers to ● mark.

# KNIT-IN (FAIR ISLE)

CARD No. 20-A

FAIR ISLE < 1 >

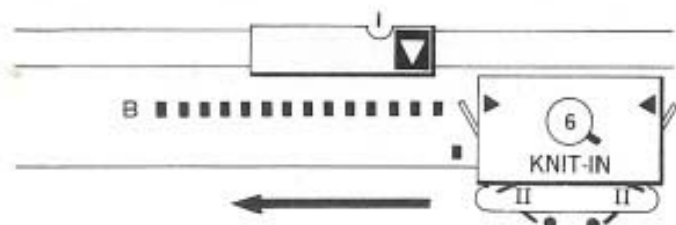
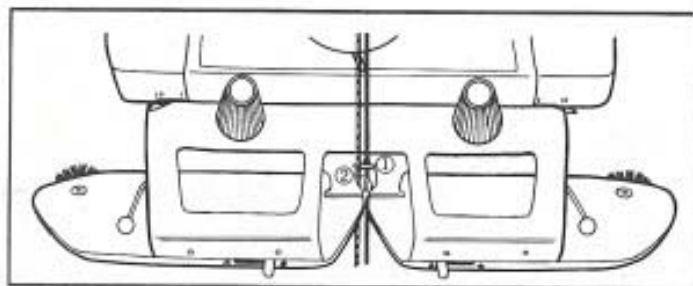
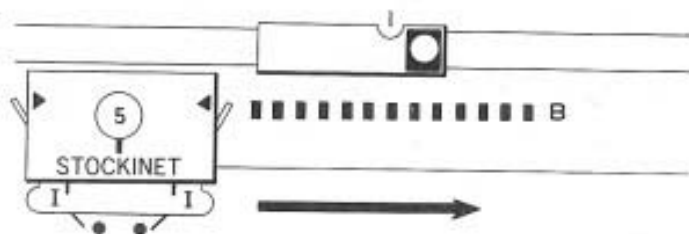


A = Purple  
B = Yellowish green

1 Pat. = 24 sts, 54 rows.

OR- DER	CARD MEM	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET	I	▲	●	→
②	1	A	B	KNIT-IN	II	▲	▼	→
	2	"	"	"	"	"	"	→
	↓	"	"	"	"	"	"	→

\* Set both arm levers to ● mark.



- \* In Fair Isle knitting, two yarns of different colors are knitted simultaneously at one operation.
- \* The two yarns are threaded through yarn feeder ① and ② respectively.
- \* Thread the two yarns through the auto-tension. Rest the yarn of color B in the yarn clip and thread color A through the yarn feeder ①
- \* Knit several rows of stockinet and stop the carriage on the left side of the needle bed. Attach the accessory weights to both ends of the knitted piece.

(1) Insert punched card No.20-A in the pattern panel.

(2) Set the carriage following instructions given in line ① of the operation table.

(3) Knit 1 row with the yarn in the yarn feeder ① (color A).

\* The tension memory should be loosened by one number from the tension used for stockinet at this point.

(4) Remove the yarn of color B from the yarn clip and thread it through the yarn feeder ② as illustrated. (Be sure the yarn is threaded at the left side of the guide pin.)

(5) Change the setting of the carriage following the instructions given in line ② of the operation table.

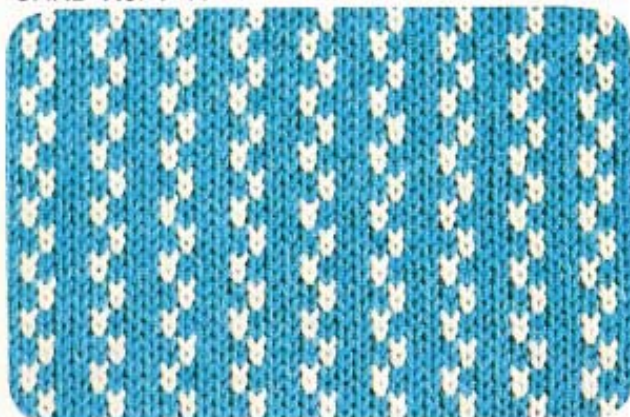


(6) Continue knitting by moving the carriage back and forth each time bringing one end needle on the carriage side to D position to prevent the knitted patterns from being shaped wrong.

- \* When partial knitting, bring the end needle at the carriage side to C position every row.
- \* The weights which are attached on both sides of the garment are to be moved up every 30-40 rows.
- \* When knitting with fine yarn, such as 2 ply wool or similar yarn it is recommended to set both arm levers to ▲ mark.
- \* The following patterns are knitted in the same manner.

CARD No. 4-A

FAIR ISLE < 2 >

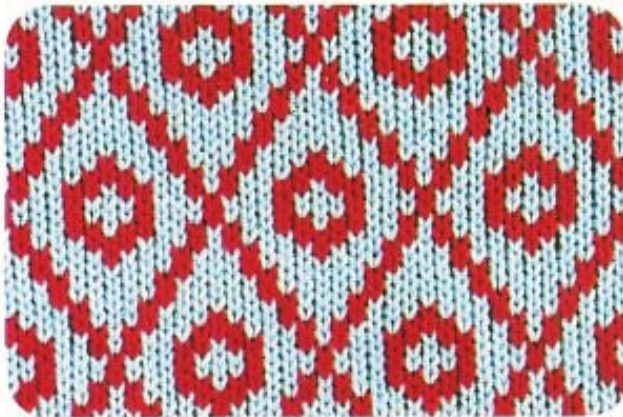


A = White  
B = Light blue

1 Pat. = 4 sts, 4 rows.

CARD No. 15-A

FAIR ISLE < 3 >



A = Light blue  
B = Red

1 Pat. = 12 sts, 24 rows.

CARD No. 9-A

FAIR ISLE < 4 >

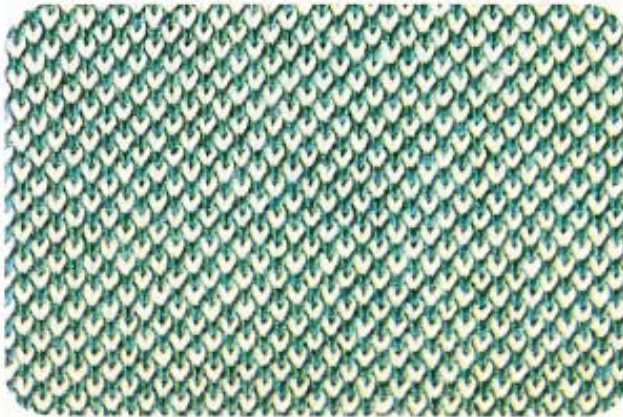


A = Light blue  
B = Orange

1 Pat. = 12 sts, 24 rows.

CARD No. 1-A

FAIR ISLE < 5 >



A = Green  
B = White

1 Pat. = 2 sts, 2 rows.

CARD No. 17-A

FAIR ISLE <6>



A = White  
B = Light blue

1 Pat. = 24 sts, 30 rows.

CARD No. 16-A

FAIR ISLE <7>



A = White  
B = Green

1 Pat. = 24 sts, 30 rows.

CARD No. 12-A

FAIR ISLE <8>



A = Yellow  
B = Grey

1 Pat. = 12 sts, 24 rows.

CARD No. 2-A

FAIR ISLE <9>



A = Red  
B = White

1 Pat. = 4 sts, 4 rows.

CARD No. 10-A

FAIR ISLE <10>



A = Cherry red  
B = Grey

1 Pat. = 12 sts, 20 rows.

CARD No. 18-A

FAIR ISLE <11>



A = Brown  
B = Beige

1 Pat. = 24 sts, 44 rows.



CARD No. 14-A

FAIR ISLE <12>



A = White  
B = Blue

1 Pat. = 24 sts, 12 rows.

CARD No. 13-A

FAIR ISLE <13>



A = Green  
B = Beige

1 Pat. = 8 sts, 8 rows.

CARD No. 19-A

FAIR ISLE <14>

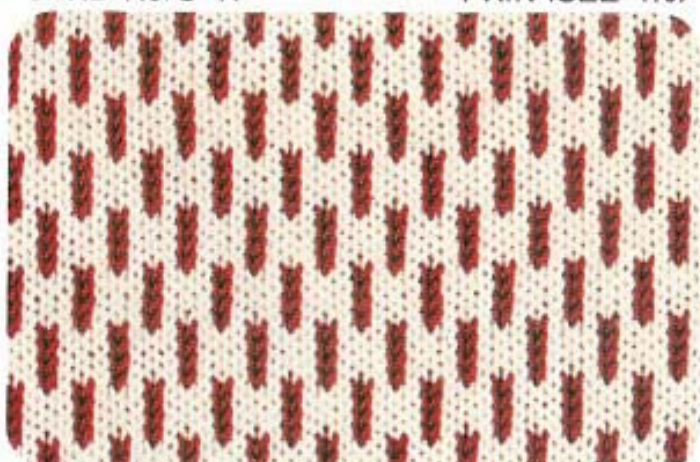


A = Blue  
B = White

1 Pat. = 24 sts, 24 rows.

CARD No. 3-A

FAIR ISLE <15>



A = Beige  
B = Brown

1 Pat. = 4 sts, 8 rows.

CARD No. 11-A

FAIR ISLE <16>



A = Pink  
B = Grey

1 Pat. = 8 sts, 24 rows.

CARD No. 7-A

FAIR ISLE <17>

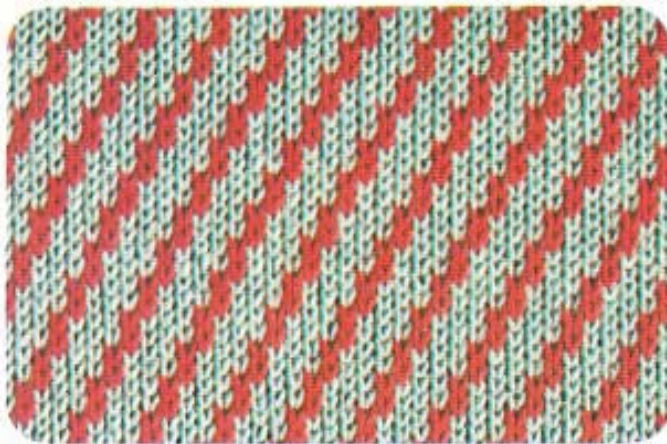


A = Red  
B = White

1 Pat. = 2 sts, 4 rows.

CARD No. 5-A

FAIR ISLE <18>



A = Grey  
B = Cherry red

1 Pat. = 4 sts, 8 rows.

CARD No. 8-A

FAIR ISLE(Appli.) <1>



A = White  
B = Navy blue  
C = Light blue

1 Pat. = 3 sts, 18 rows.

CARD No. 2-A

FAIR ISLE(Appli.) <2>



A = White  
B = Yellow  
C = Red  
D = Navy blue  
E = Green

1 Pat. = 4 sts, 8 rows.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	I	A		STOCKINET		▲	●	—
②	1	A	B	KNIT-IN		▲	▼	—
	10	"	"	"	"	"	"	—
	11	"	C	"	"	"	"	—
	18	"	"	"	"	"	"	—
	↓	"	⊗	"	"	"	"	—

- \* Set both arm levers to ● mark.
- \* Knit 10 rows with color B in the yarn feeder ⊗ and 8 rows in color C alternately.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	I	A		STOCKINET		▲	●	—
②	1	A	B	KNIT-IN		▲	▼	—
	2	"	"	"	"	"	"	—
	3	"	C	"	"	"	"	—
	4	"	"	"	"	"	"	—
	5	"	D	"	"	"	"	—
	6	"	"	"	"	"	"	—
	7	"	E	"	"	"	"	—
	8	"	"	"	"	"	"	—
	↓	"	⊗	"	"	"	"	—

- \* Set both arm levers to ● mark.

Change the four colors every 2 rows.

# WEAVING (OR THREADING)

CARD No. 14-A

WEAVING <1>



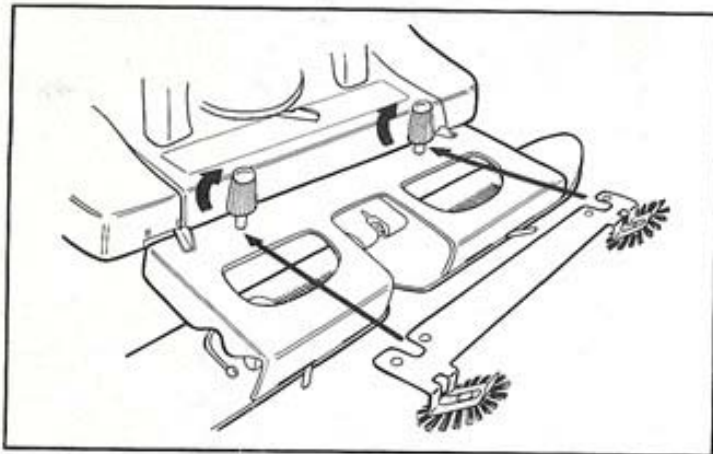
A = Black  
B = Red

1 Pat. = 24 sts, 12 rows.

OR. CARD DER MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)	
	F. 1	Y. H						
①	1	A		STOCKINET		▲	●	→
②	1	A	B	STOCKINET		▲	▼	→
	2	"	"	"	"	"	"	→
	↓	"	"	"	"	"	"	→

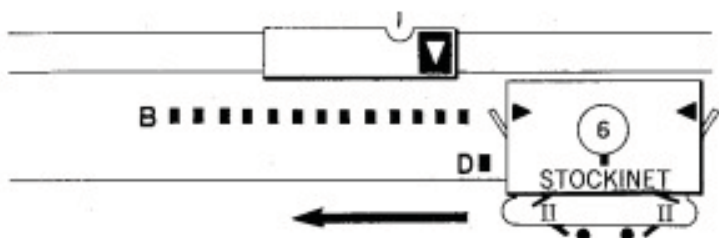
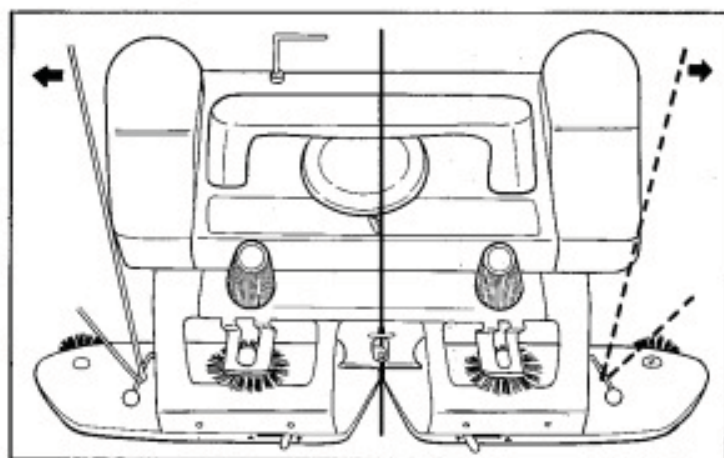
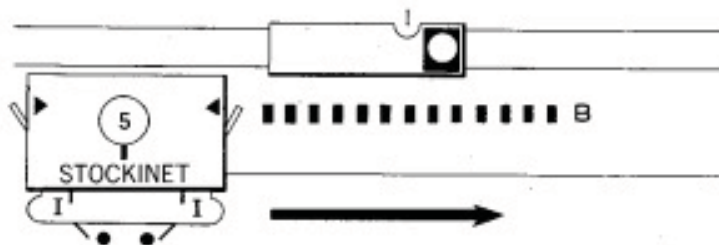
\* Set both arm levers to ● mark.

Y. H = Yarn Holder



- \* Install the threading arm. Loosen the arm nuts and put the threading arm on top of the arm, inserting it as far as it will go. Then tighten the arm nuts.

- (1) Insert punched card No.14-A.
- (2) Thread the knitting yarn (color A) through the yarn feeder ①.



(3) Set the carriage following the instructions given in line ① of the operation table and knit one row.

\* The tension dial should be loosened by one number from the tension used for stockinet at this point.

(4) Attach the accessory weights to both ends of the garment.

\* Thread the weaving yarn through the auto-tension.

(5) Hook the threading yarn into the yarn holder on the arm in the direction in which the carriage is to be moved.

(6) Change the setting of the carriage as instructed in line ② of the operation table.

\* When partial knitting, bring the end needle at the carriage side to C position.

(7) To prevent the knitted patterns from being shaped wrong, bring the end needle nearest the carriage to D position and knit one row.

(8) Repeat operations in (7).

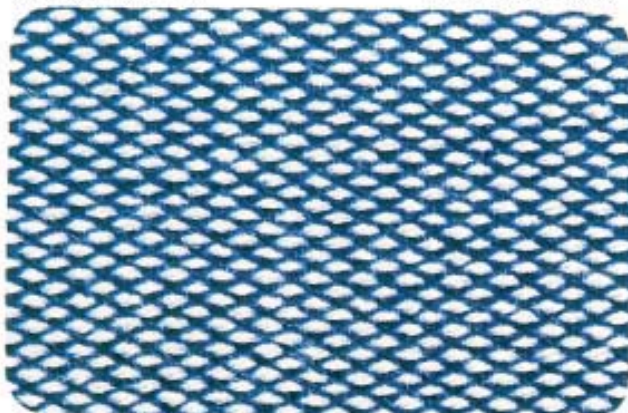
Note: \*The yarn tension dial must be adjusted as follows for threading yarn.

Medium yarn	} 2 - 3
(Ordinary 4 ply)	
Thick yarn	

\* The patterns on the next page are knitted in the same manner.

CARD No. 1-A

WEAVING < 2 >



A = Blue  
B = White

1 Pat. = 2 sts, 2 rows.

CARD No. 9-A

WEAVING < 3 >



A = Emerald green  
B = White

1 Pat. = 12 sts, 24 rows.

CARD No. 19-A

WEAVING < 4 >

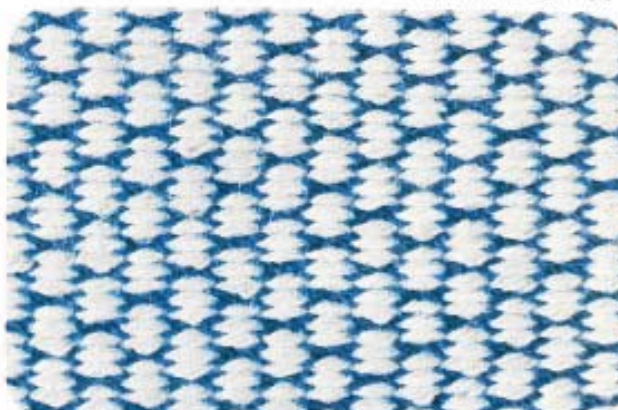


A = Brown  
B = Yellow

1 Pat. = 24 sts, 24 rows.

CARD No. 2-A

WEAVING < 5 >



A = Blue  
B = White

1 Pat. = 4 sts, 4 rows.

CARD No. 8-A

WEAVING < 6 >



A = Red  
B = White

1 Pat. = 3 sts, 18 rows.

CARD No. 3-A

WEAVING < 7 >



A = White  
B = Emerald green

1 Pat. = 4 sts, 8 rows.

CARD No. 4-A

WEAVING < 8 >



A = White  
B = Grey

1 Pat. = 4 sts, 4 rows.

CARD No. 18-A

WEAVING < 9 >



A = White  
B = Navy blue

1 Pat. = 24 sts, 44 rows.

CARD No. 5-A

WEAVING < 10 >



A = Beige  
B = Green

1 Pat. = 4 sts, 8 rows.

CARD No. 16-A

WEAVING < 11 >



A = Brown  
B = White

1 Pat. = 24 sts, 30 rows.

CARD No. 7-A

WEAVING < 12 >

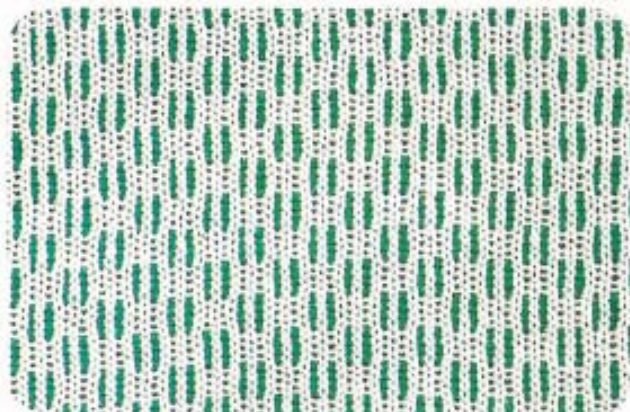


A = White  
B = Red

1 Pat. = 2 sts, 4 rows

CARD No. 3-A

WEAVING < 13 >



A = Grey  
B = Green

1 Pat. = 4 sts, 8 rows.



CARD No. 1-A

WEAVING(Appli.) < 1 >



A = White  
B = Cherry red

1 Pat. = 2 sts, 1 rows.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	Y. H					
①	1	A		STOCKNET		▲	●	→
②	1	A	B	STOCKNET		▲	●	→
	2	∅	∅	∅	∅	∅	∅	→
	∅	∅	∅	∅	∅	∅	∅	→

\* Set both arm levers to ● mark.

CARD No. 2-A

WEAVING(Appli.) < 2 >



A = Light green  
B = Green

1 Pat. = 4 sts, 1 rows.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	Y. H					
①	1	A		STOCKNET		▲	●	→
②	1	A	B	STOCKNET		▲	●	→
	2	∅	∅	∅	∅	∅	∅	→
	∅	∅	∅	∅	∅	∅	∅	→

\* Set both arm levers to ● mark.

CARD No. 3-A

WEAVING(Appli.) < 3 >



A = White  
B = Cherry red

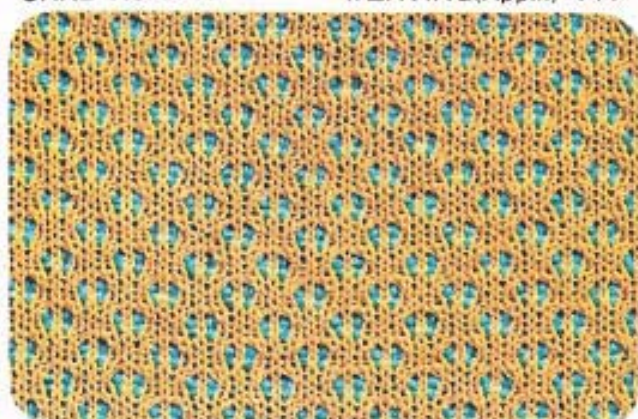
1 Pat. = 4 sts, 8 rows.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	Y. H					
①	1	A		STOCKNET		▲	●	→
②	1	A	B	STOCKNET		▲	▼	→
	2	∅	∅	∅	∅	∅	∅	→
	3	∅	∅	∅	∅	∅	∅	→
	4	∅	∅	∅	∅	∅	∅	→
	Pick up 2 Rows of yarn and put on CENTER needle.							
	∅	∅	∅	∅	∅	∅	∅	→

\* Set both arm levers to ● mark.

CARD No. 3-A

WEAVING(Appli.) < 4 >



A = Yellow  
B = Blue

1 Pat. = 4 sts, 8 rows.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	Y. H					
①	1	A		STOCKNET		▲	●	→
②	1	A	B	STOCKNET		▲	▼	→
	2	∅	∅	∅	∅	∅	∅	→
	3	∅	∅	TUCK	∅	∅	∅	→
	4	∅	∅	∅	∅	∅	∅	→
	↓	∅	∅	∅	∅	∅	∅	→

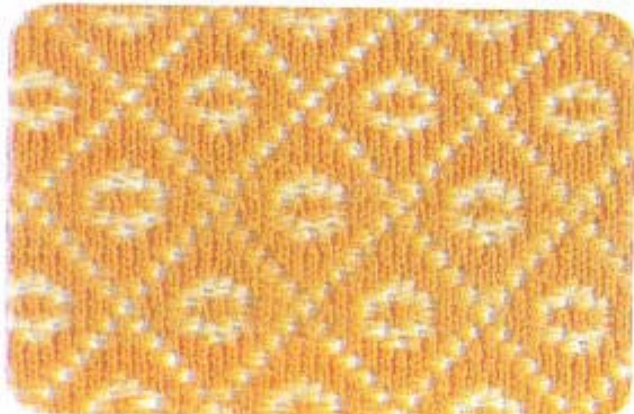
\* Set both arm levers to ● mark.



# PUNCH LACE KNITTING

CARD No. 15-A

PUNCH LACE <1>

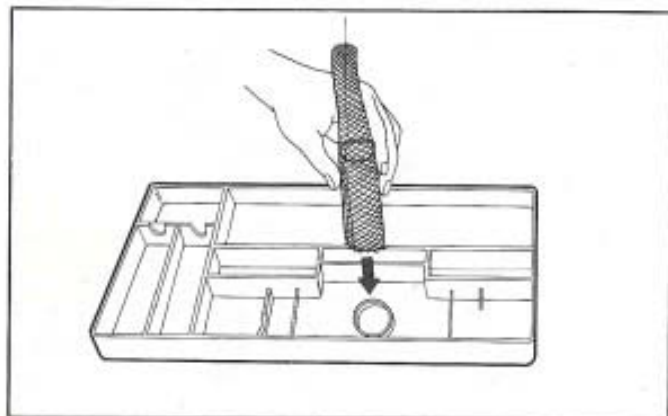


A = Cream color  
B = Nylon thread

1 Pat. = 12 sts, 24 rows.

OR- DER	CARD MEM	YARN		CAM LEV ♀	RUSSEL LEV (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	—
②	1	A	NYLON	P. LACE	L   · R.	▲	▼	—
	2	⊘	⊘	⊘	⊘	⊘	⊘	—
	↓	⊘	⊘	⊘	⊘	⊘	⊘	≡③

\* Set both arm levers to ▲ mark.



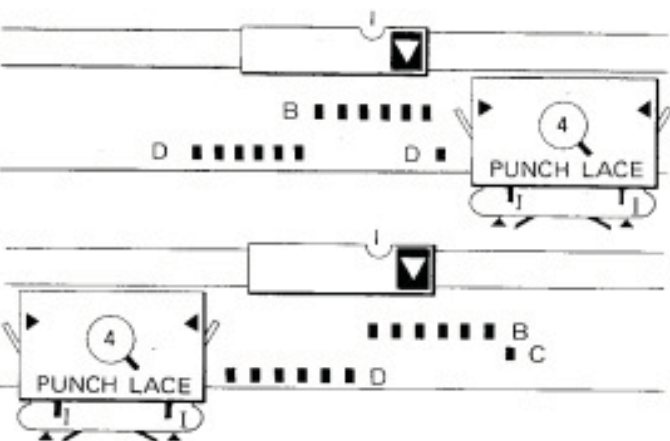
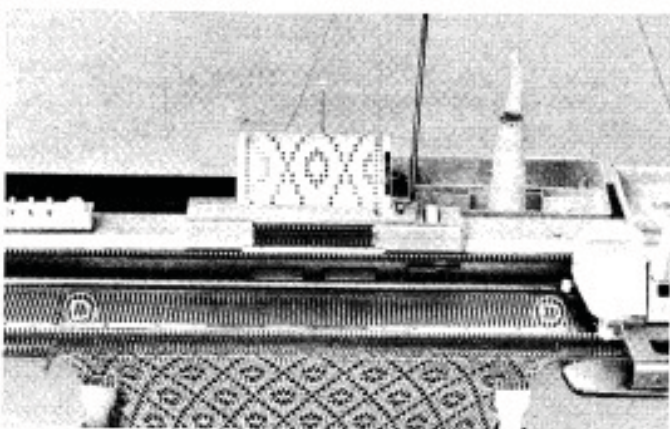
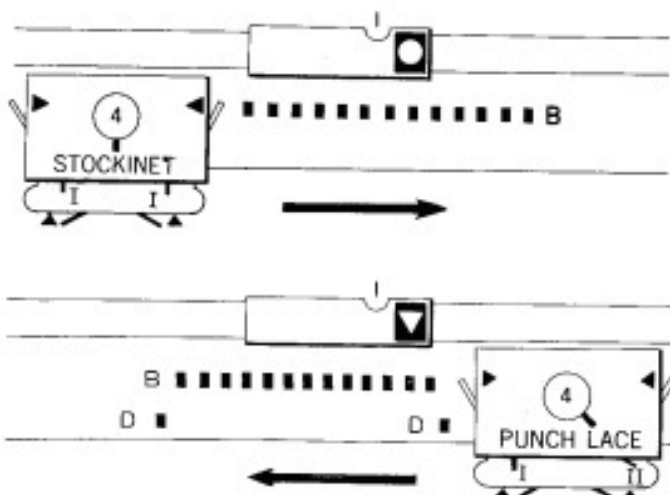
\* Punch lace knitting is a unique feature of this machine. By using a fine transparent nylon thread and wool or synthetic yarns together, beautiful lace garments which have never been designed can be created.

\* Thread the nylon thread and the yarn to be used together respectively through the auto-tension. As the nylon thread is very easy to get tangled, put the stop net (sold individually) over the spool and put it in the stand at the bottom of the accessory box as illustrated. In the beginning, rest the nylon thread at the yarn clip and thread the yarn feeder ① with the yarn to be used.

\* The tension dial is to be adjusted according to the thickness of the yarn to be used with nylon thread.  
For example, if the yarn is medium (4 ply), adjust the tension dial memory to 5.

\* Tension dial memory for nylon thread is . . . . . 5

\* Do not move the carriage too fast.



- (1) Insert punched card No.15-A.
- (2) Set the carriage as instructed in line 1 of the operation table and knit one row.
- (3) Change the setting of the carriage as instructed in line 2 of the operation table.
- (4) Use the accessory weight on each end of the garment.
- (5) Thread the nylon thread through the yarn feeder 2 (Be sure it is at the left side of the guide pin.)
- (6) Bring one needle on each side to D position and knit two rows. Continue knitting each time bringing one needle on each side to D position before the carriage is moved from right to left.

Note: \* When you desire to knit a certain number of rows in stockinet between punch lace knitting, adjust the cam lever to "STOCKINET" and remove the nylon thread from the yarn feeder before knitting.

\* When partial knitting, set both Russel levers to I position. Before operating the carriage from right to left, bring one end needle opposite the needles in D position (resting) to D position.

When operating the carriage from left to right, bring the needle to C position.

\* The patterns on the next page are knitted in the same manner.

CARD No. 5-A

PUNCH LACE < 2 >

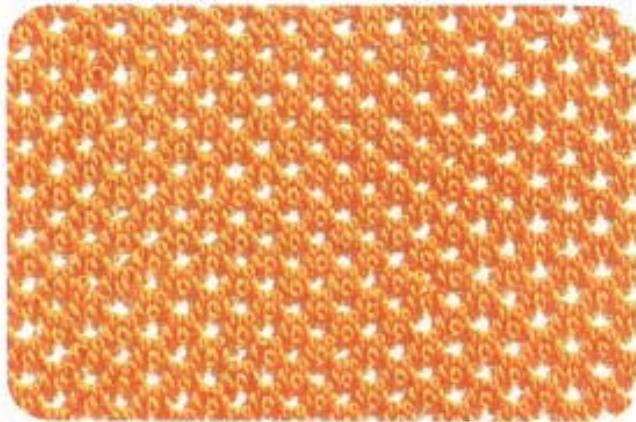


A = Light blue  
B = Nylon thread

1 Pat. = 4 sts, 8 rows.

CARD No. 2-A

PUNCH LACE < 3 >



A = Orange  
B = Nylon thread

1 Pat. = 4 sts, 4 rows.

CARD No. 7-A

PUNCH LACE < 4 >

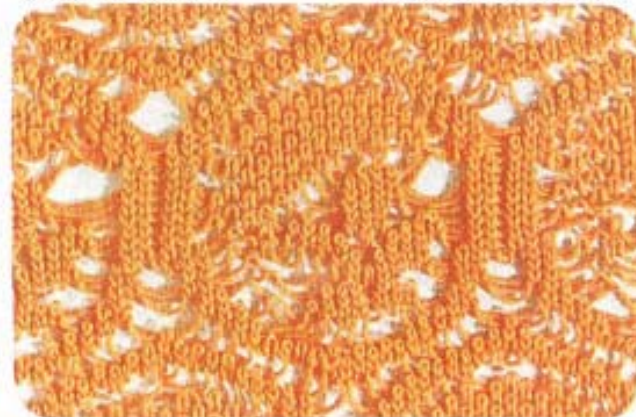


A = Light blue  
B = Nylon thread

1 Pat. = 2 sts, 4 rows.

CARD No. 20-A

PUNCH LACE < 5 >

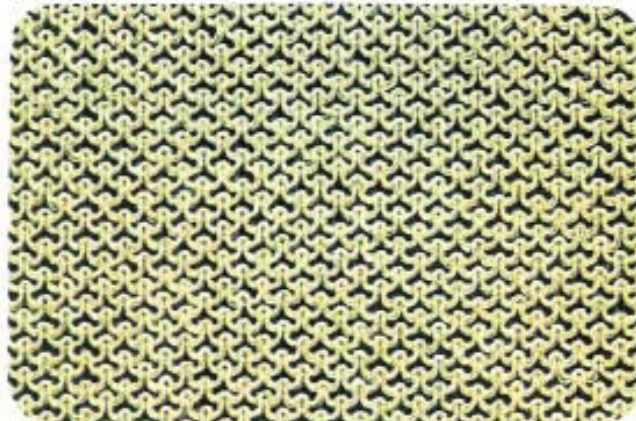


A = Orange  
B = Nylon thread

1 Pat. = 24 sts, 54 rows.

CARD No. 1-A

PUNCH LACE < 6 >



A = Yellowish green  
B = Nylon thread

1 Pat. = 2 sts, 2 rows.

CARD No. 17-A

PUNCH LACE < 7 >



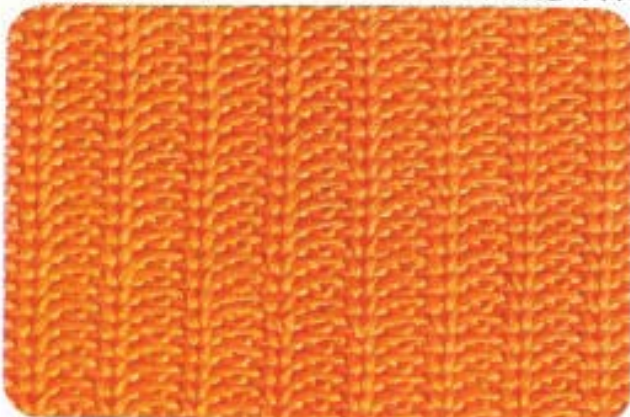
A = Pink  
B = Nylon thread

1 Pat. = 24 sts, 30 rows.

# LACE KNITTING

CARD No. 1-A

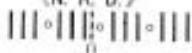
LACE KNITTING <1>



A = Yellow

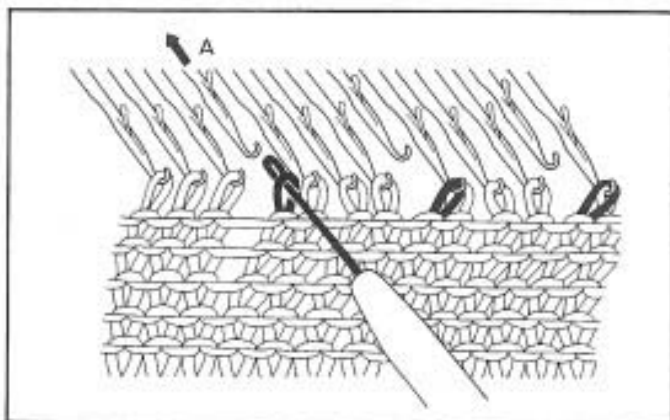
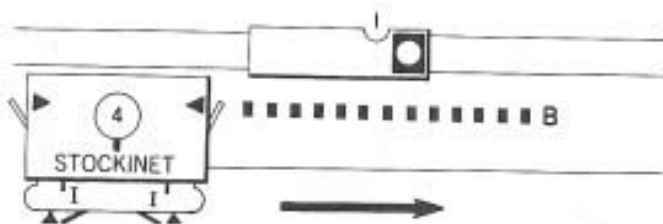
(N. R. D.)

1 Pat. = 4 sts, 2 rows.



OR. DER MEM.	CARD	YARN		CAM LEV.	RUSSEL LEV (BOTH)	SIDE LEV (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKINET		▲	●	→
②	1	A		TUCK		▲	▼	→
	2	"		"	"	"	"	→
	↓	"		"	"	"	"	→

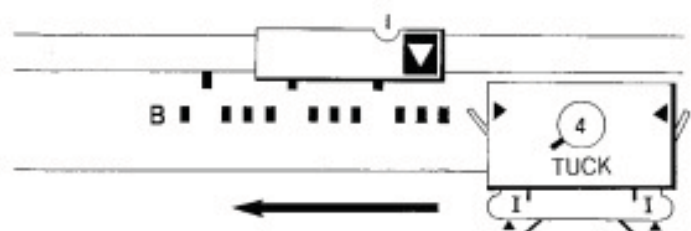
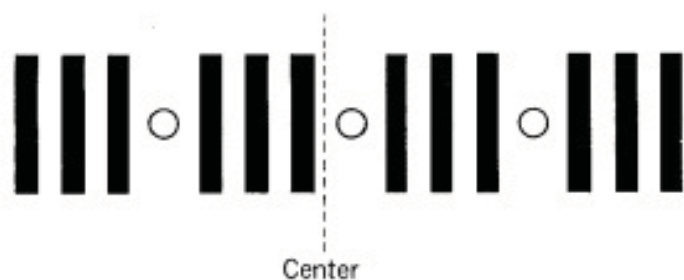
\* Set both arm levers to ▲ mark.



This is an open work knitted with thin cotton yarn, summer yarns or very fine wool. By using the technique of resting needles and tucking stitches, delicate lacy fabric can be knitted very easily.

- (1) Insert punched card No.1-A in the pattern panel.
- (2) Thread the yarn through the yarn feeder ②.
- (3) Set the carriage as instructed in line ① of the operation table and knit one row.
- (4) Arrange the needles as shown in the operation table (N.R.D.). With the (O) mark at the center, transfer stitches on the needles at | marks to their adjacent needles as in the diagram. Push the vacant needles to A position.

- \* You may also start knitting with the needles at O mark being brought to A position.



- (5) After needle arrangement is completed, pattern knitting can begin. Change the setting of the carriage as instructed in line ④ of the operation table and continue knitting.
- \* The patterns on the next page are knitted in the same manner.

CARD No. 4-A

LACE KNITTING < 2 >



A = Yellow

(N. R. D.) 1 Pat. = 4 sts, 4 rows.  

$$\begin{array}{c} || \circ \circ | : | \circ \circ || \\ 0 \end{array}$$

CARD No. 3-A

LACE KNITTING < 3 >



A = Blue

(N. R. D.) 1 Pat. = 4 sts, 8 rows.  

$$\begin{array}{c} | \circ | \circ | : \circ | \circ | \\ 0 \end{array}$$

CARD No. 3-A LACE KNITTING (Appli.) < 1 >



A = Blue

(N. R. D.) 1 Pat. = 4 sts, 8 rows.  

$$\begin{array}{c} ||| \circ ||| : \circ ||| \\ 0 \end{array}$$

CARD No. 2-A LACE KNITTING (Appli.) < 2 >



A = Light blue

(N. R. D.) 1 Pat. = 4 sts, 4 rows.  

$$\begin{array}{c} | \circ | \circ | : \circ | \circ | \\ 0 \end{array}$$

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKNET		▲	●	→
②	1	A		TUCK		▲	▼	← 3
	3	*		*	*	*	*	
	4	*		STOCKNET	*	*	*	
	↓	*		*	*	*	*	→

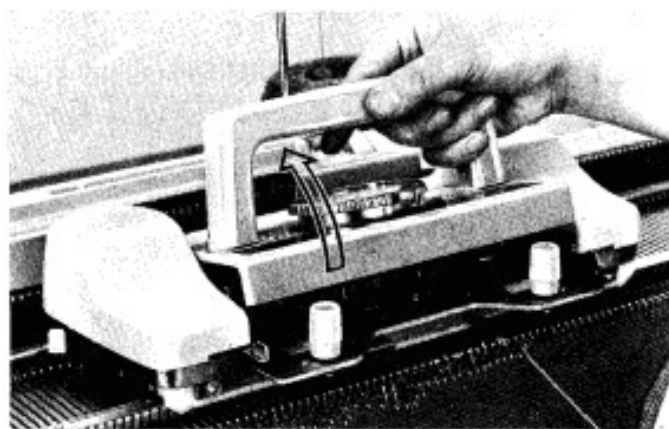
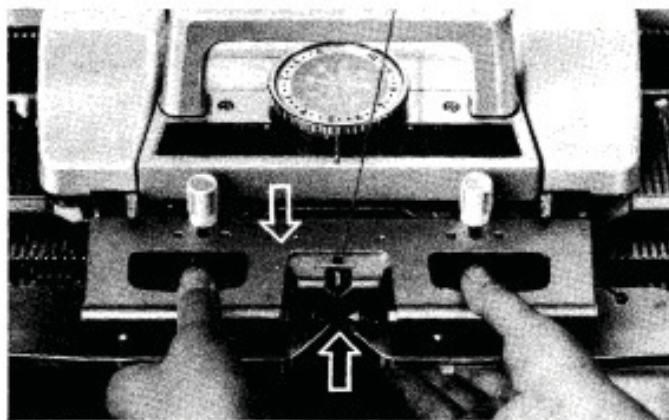
\* Set both arm levers to ▲ mark.

OR- DER	CARD MEM.	YARN		CAM LEV. ♀	RUSSEL LEV. (BOTH)	SIDE LEV. (BOTH)	STOP KNOB	DIR. (NO. RS.)
		F. 1	F. 2					
①	1	A		STOCKNET		▲	●	→
②	1	A		TUCK		▲	●	← 3
		*		*	*	*	*	
		*		STOCKNET	*	*	*	
		*		*	*	*	*	→

\* Set both arm levers to ▲ mark.

## \* If Incorrect Stitches Are Knitted \*

This knitting machine is designed so the "memory bank" reads the intended pattern from a punched card and memorizes it. When the carriage is moved, the machine will knit the pattern that has been memorized by the bank in the direction in which the carriage moves and at the same time the other bank at the rear memorizes the pattern to be knitted next. A person who uses this machine for the first time will be able to knit an elaborate pattern easily.



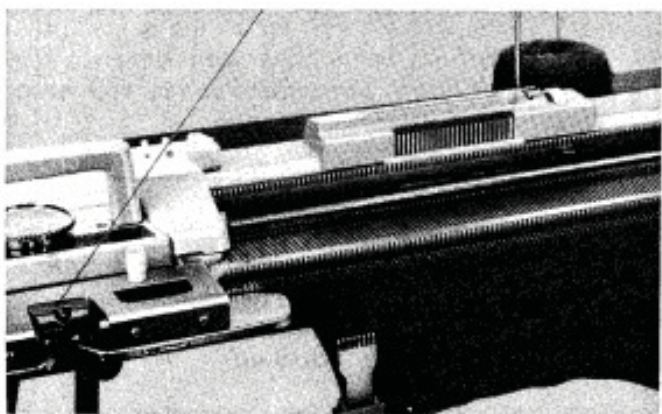
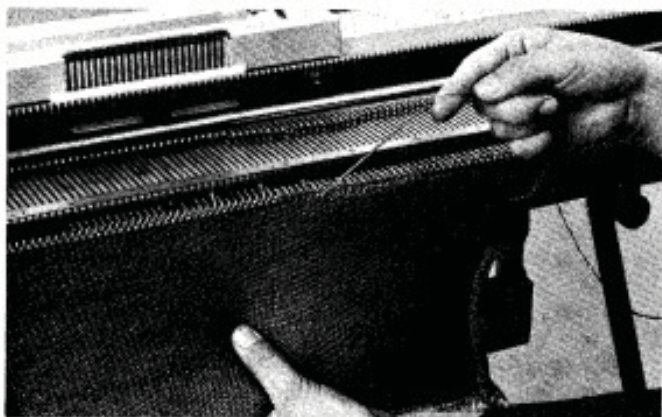
## \* Correct improper knitting in the following manner.

### 《1》 If the carriage has jammed while knitting.

If the needles are advanced to C or D position leaving the loops behind the latches, push them back to B position using a transfer tool. Refer to the chapter of "Partial Knitting" (Page 70).

- (1) Loosen the arm nuts and make sure to raise the carriage arm strongly upward before pulling it towards you. Unless strongly pulled out, the carriage arm can not be pulled out because the yarn feeder is caught by hooks of the needles.
- (2) By lifting the handle backward the center part of the carriage will be raised. Advance the carriage holding it in that position. Replace the arm.

## 《2》 How to repair incorrect knitting.

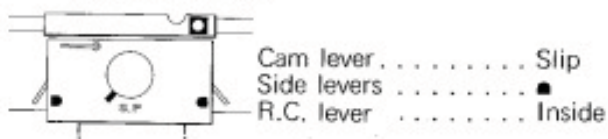


### 《1》 In stockinet.

- \* Attach weights at intervals on the garment so it will hang firmly. Holding the garment downward with the left hand, pull the yarn paralleled with the machine for a tight row, then pull in an upward and backward motion to open the latches. Repeat this procedure for each row unraveled.

Hint: Push needles back to B position firmly when unravelling to prevent dropped stitches.

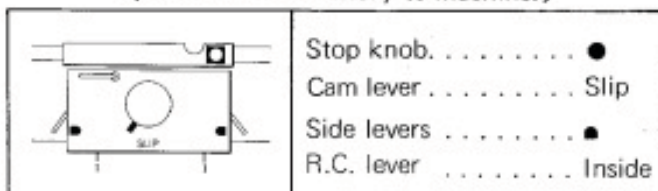
- \* If the carriage is on the opposite side of the yarn after ripping out the rows, set the controls as follows:



Move the carriage to the side with the yarn.

- \* Turn the row counter back the number of rows unraveled. Reset the cam lever and the row counter to working position and continue knitting.

### 《How to Give Memory to Machine.》



Set the parts on the carriage as above and move it to the yarn side. If the carriage is on the same side with the yarn, move the carriage across the needle bed two times.

### 《2》 In pattern knitting.

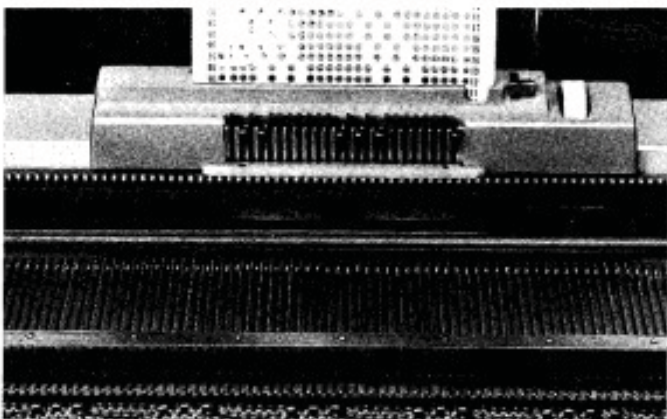
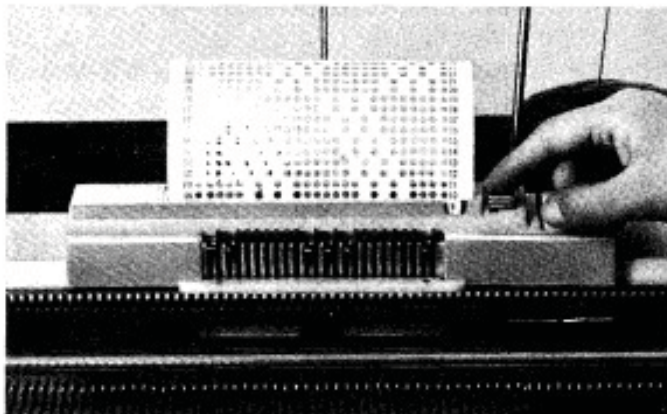
- (1) Rip out as many rows as needed to repair the knitting, then line the needles in B position.
- (2) Turn the punched card and the row counter back by the number of rows unravelled.
- (3) Set the stop knob and controlling parts on the carriage as shown in the diagram at the left, and operate the carriage to memorize the pattern of the next row. (The carriage will pass without knitting.)
- (4) Reset the stop knob to the ▼ mark and the controlling parts on the carriage and continue knitting.

Note: \*When patterns are knit with stop knob set to the ● mark, repair it in the same manner as stockinet knitting.



### 《3》 When the Carriage is Accidentally Pulled Off the Rail in the Middle of Pattern Knitting.

If the carriage is pulled off the rail in the middle of pattern knitting, the pattern will be dislocated. To correct this mistake, renew the memory to the memory bank referring to the previous chapter.

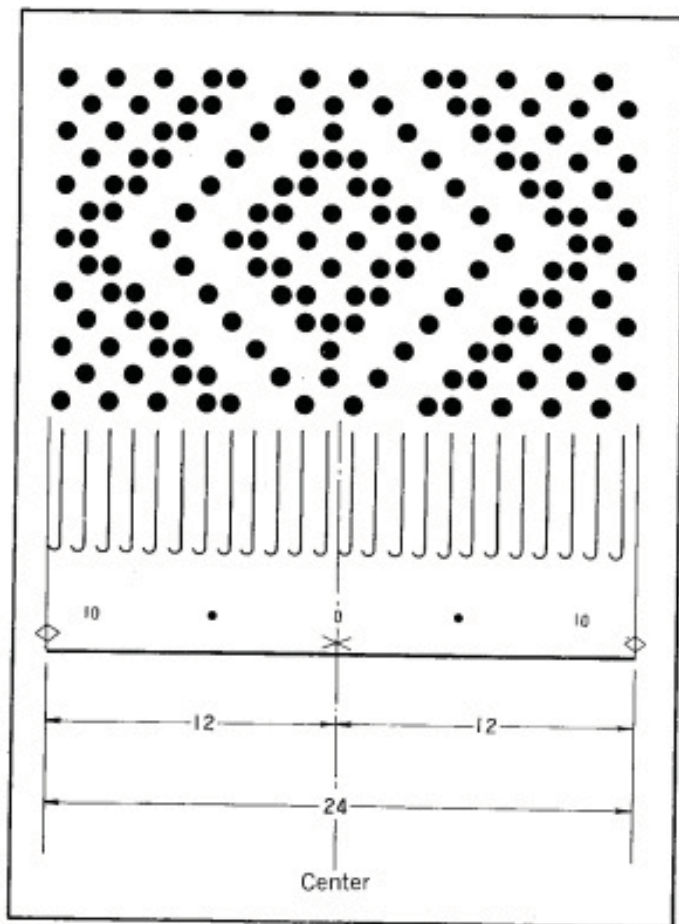


The Relation between the punched card and the touch levers.

- \* If the stop knob is set to the ● mark, the pattern on the punched card is shown by the touch levers. This pattern will be knit when the carriage is moved across.
- \* If you want to see the pattern of the last row, rewind the punched card by one memory number and set the stop knob to the ● mark. The pattern on the row will be shown by the touch levers.

Note: \* If the stop knob is set to the ● mark, the feeding dial will not operate.

Operation of touch lever	Perforated area of punched card (Touch lever rises) Needle comes out	Unperforated area of punched card (Touch lever lowers) Needle goes back
Tuck knitting	Knit	Tucked (Non-knitting, yarn is over the hook)
Slip stitch	Knit	Slipped (Non-knitting, yarn crosses in front)
Fair Isle (Knit-In)	Knit with yarn from yarn feeder 2	Knit with yarn from yarn feeder 1
Weaving	Weaving yarn is threaded above.	Weaving yarn is threaded below.
Punch lace knitting	Knit nylon thread.	Knit nylon thread and yarn together.
Lace knitting	Knit	Pulled up



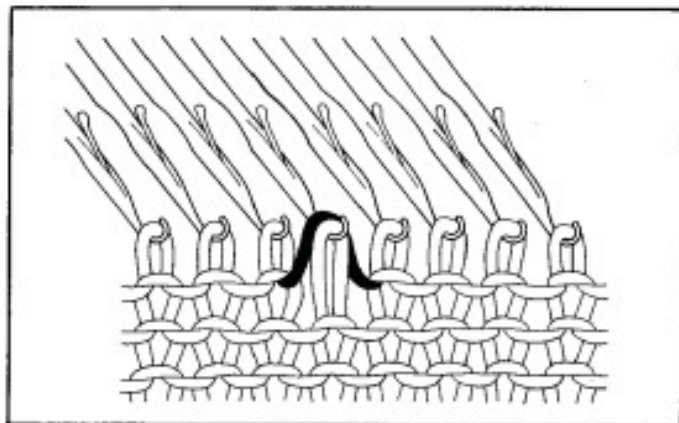
#### 《4》 The Relation Between the Pattern Marks on the Needle Bed and Patterns.

On the needle bed are the X marks and ◇ marks in addition to the numbers that indicate the number of needles.

X mark, . . . . Indicates the center position of the punched card.

◇ mark, . . . . Indicates the width of the pattern (24 stitches) on the punched card which is knitted in the position between the marks.

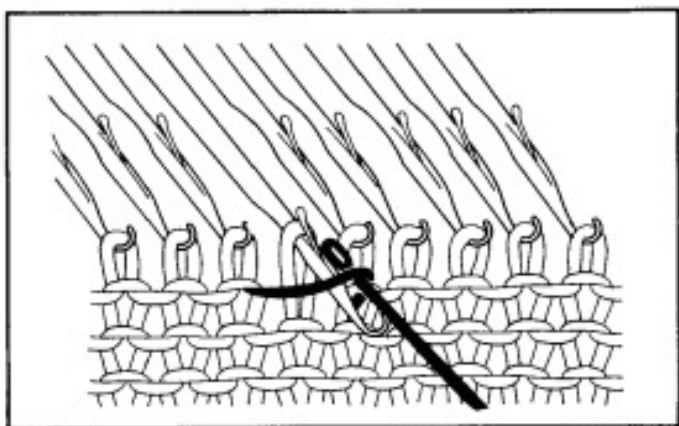
- \* Half of the pattern (12 stitches) on each side is indicated between the marks X and ◇.
- \* These markings help adjust the pattern when knitting a garment or when the garment is decreased to a narrow piece and away from the center of the needle bed to move it over to the center by adjusting the pattern position.



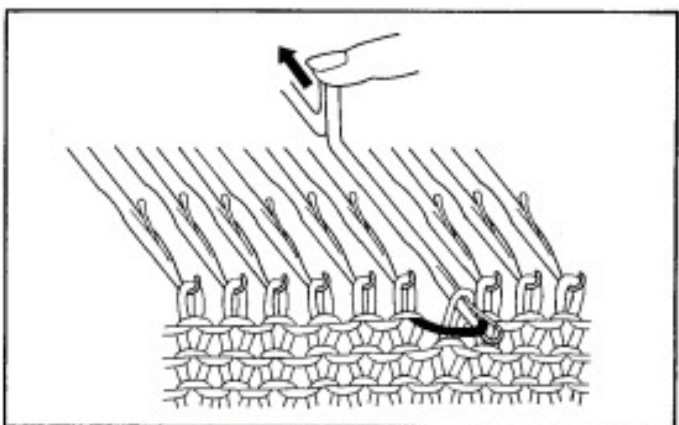
## 《5》 How to Correct a Dropped Stitch While Knitting.

### 〈1〉 Correcting a dropped stitch.

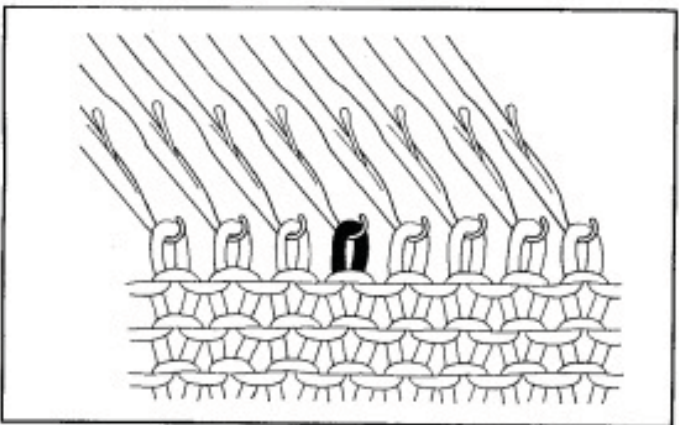
- (1) Insert a one eye transfer tool into the stitch below the dropped stitch, and replace the stitch into the hook of the needle together with the loose yarn.



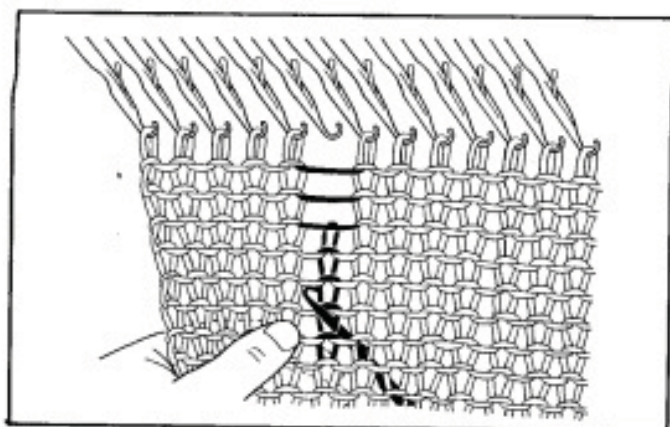
- (2) Slowly pull the needle out until the stitch is behind the open latch leaving the loose yarn in the hook.



- (3) Push the needle back so the latch will close and the stitch behind will slide over the hook reforming a stitch.



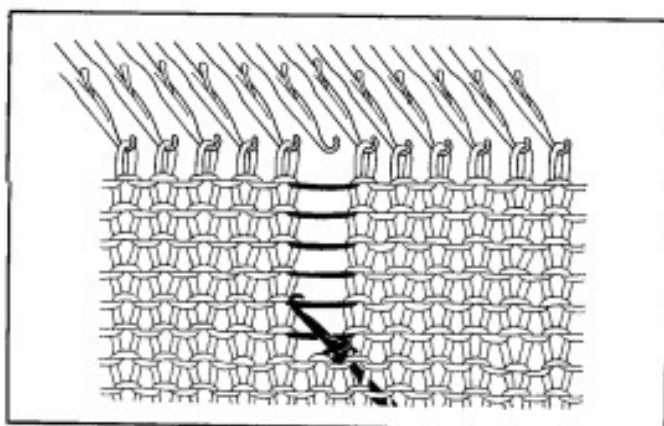
Note: \* If a stitch has dropped for a few rows, you may repair it in the same manner.



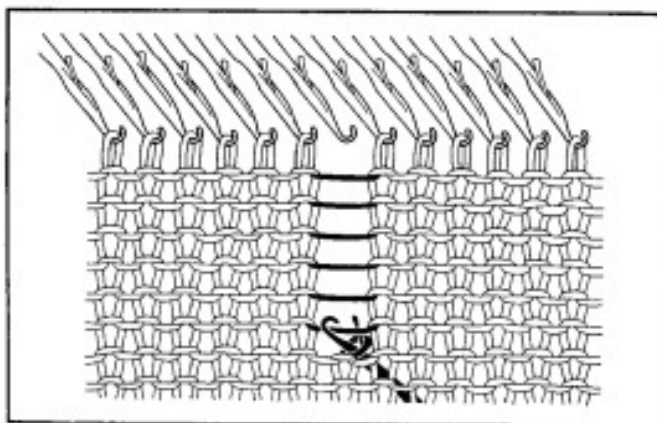
<2> Correcting a dropped stitch for several rows.

- (1) Insert the tappet into the stitch a few rows below the dropped stitch from the side away from you. Unravel the stitches down to the tappet.

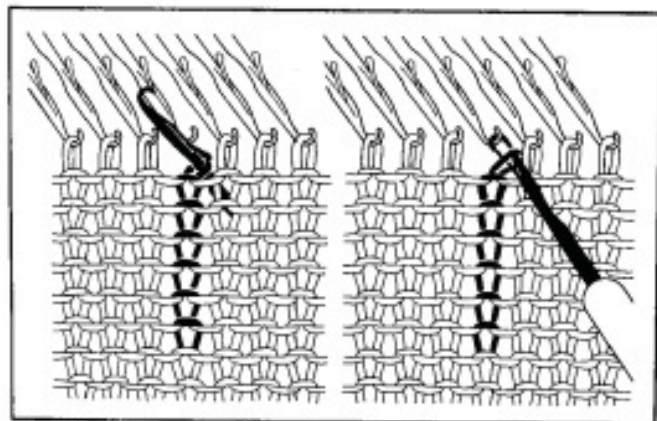
Note: \*With the other hand, pull the garment downward near the dropped stitch. This separates the yarn acrossing and makes the operation easier.



- (2) Push the tappet toward you so the stitch will be behind the open latch. Catch the yarn crossing above in the hook.



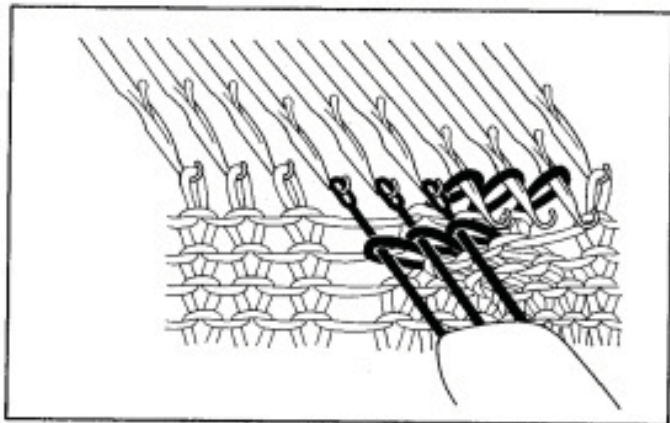
- (3) By pulling the tappet backward, the latch will close and the loose yarn will be trapped in the hook. Continue pulling and the old stitch will slide down over the closed latch forming a new stitch in the hook. Repeat this operation to the top.



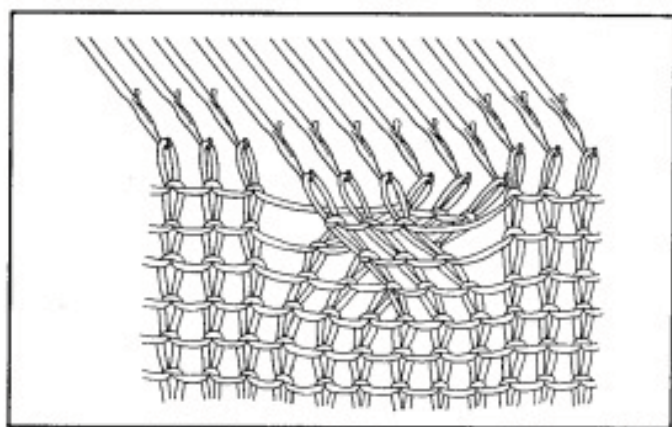
- (4) Pull the last loop rather tight and remove the tappet. Insert the tappet into the stitch from your side and put it onto the needle.







(4) Hook the stitches onto the empty needles.

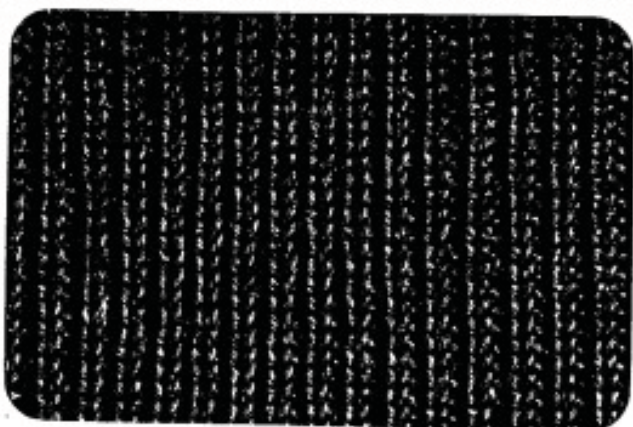


(5) Pull these 6 needles to D position and knit 6 rows.

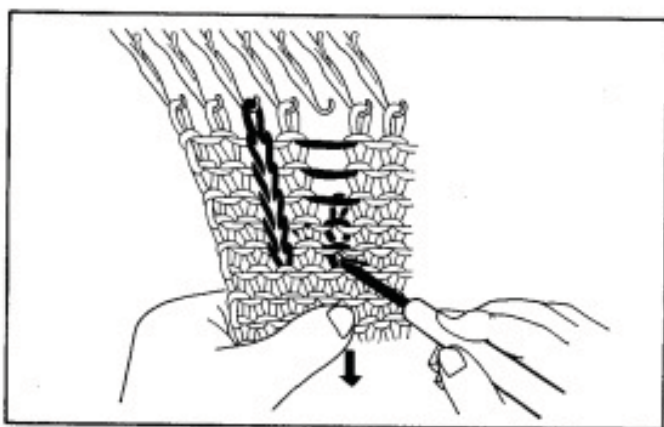
(6) Repeat the above procedure crossing the stitches in the same direction. After three or four patterns have been worked, purl one stitch on each side beginning at the bottom stitch. For purling the stitches, refer to the next chapter "Ribbing"

Note: \* More than 6 rows can be knit between cables, according to stitch gauge and size of cable desired.

# K1. P1 RIBBING

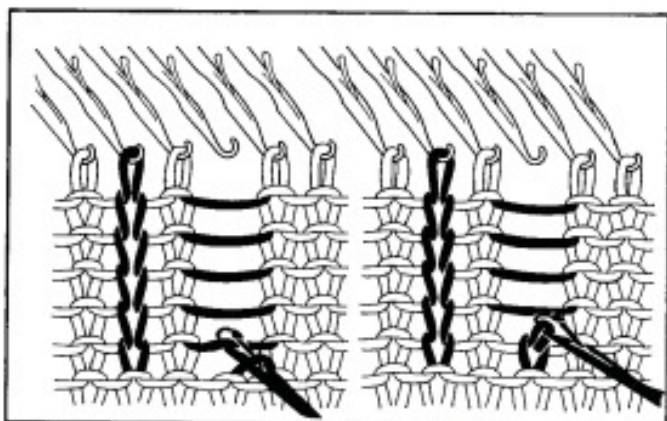


—		—		—		—		—		—		—		12
—		—		—		—		—		—		—		11
—		—		—		—		—		—		—		10
—		—		—		—		—		—		—		9
—		—		—		—		—		—		—		8
—		—		—		—		—		—		—		7
—		—		—		—		—		—		—		6
—		—		—		—		—		—		—		5
—		—		—		—		—		—		—		4
—		—		—		—		—		—		—		3
—		—		—		—		—		—		—		2
—		—		—		—		—		—		—		1
12	11	10	9	8	7	6	5	4	3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



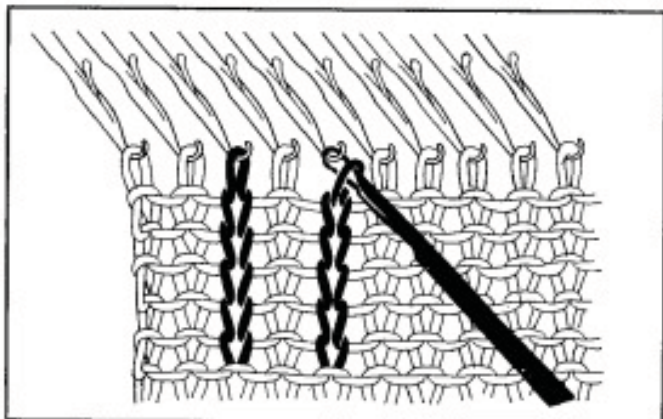
(1) For ribbing, use the tension dial one number smaller than in stockinet.

(2) Work the same number of rows for ribbing in stockinet. Bring the third needle from the left-hand side to D position. Then by pushing it back to B position, the stitch will drop. Unravel the desired rows. Insert the tappet into the stitch where the ribbing is to begin and unravel the rows above.



(3) Push the tappet toward the opposite side of the garment. The loop of the stitch will be behind the latch and the hook will catch the yarn crossing above.

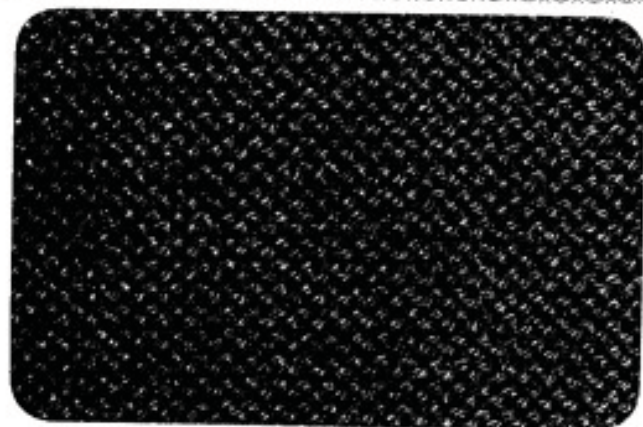
(4) Pull the tappet toward you until the latch of the needle is closed on the trapped cross yarn. The old stitch will slip off the tappet, and the yarn will be pulled through the dropped stitch forming a new stitch.



(5) Repeat the operation until the last cross yarn has been knitted, and place the stitch on its original needle.

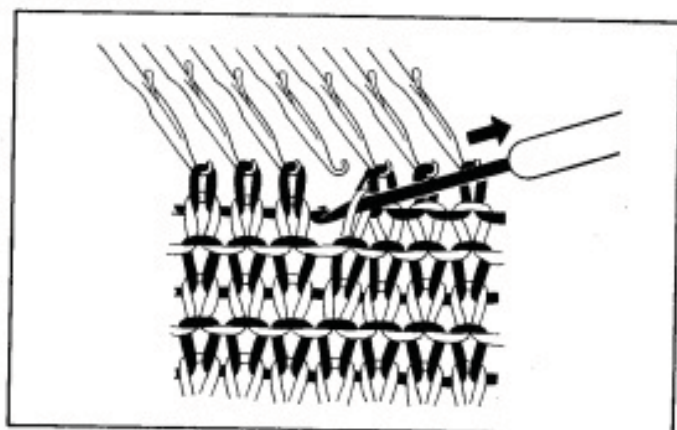


# GARTER STITCHES

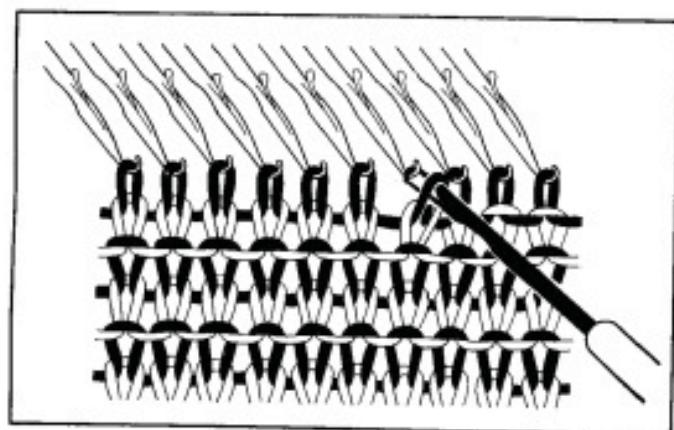


—	—	—	—	—	—	—	—	—	—	—	—	12
												11
—	—	—	—	—	—	—	—	—	—	—	—	10
												9
—	—	—	—	—	—	—	—	—	—	—	—	8
												7
—	—	—	—	—	—	—	—	—	—	—	—	6
												5
—	—	—	—	—	—	—	—	—	—	—	—	4
												3
—	—	—	—	—	—	—	—	—	—	—	—	2
												1
12	11	10	9	8	7	6	5	4	3	2	1	

- (1) Set the tension dial one number lower than in stockinet.
- (2) Knit 2 rows.



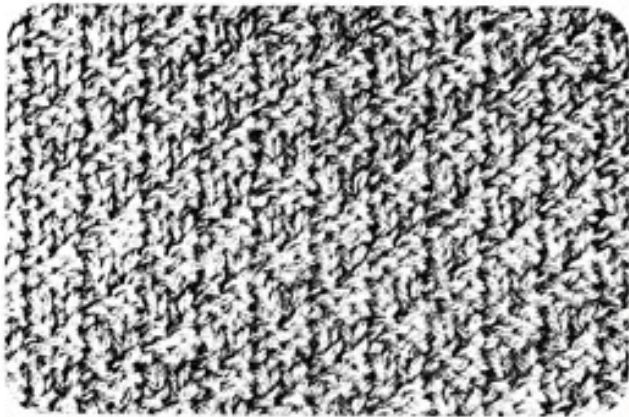
- (3) Open the latch of all the needles and purl all the stitches of the last row using a tap-pet.



- (4) Repeat operation (2) and (3).

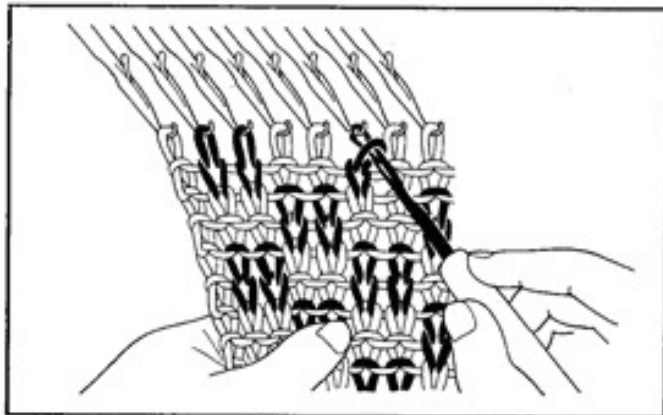
Note: \*The garter stitch is often avoided because of the time consumed in hand purling. The "Garter Bar" transfer tool makes this process easy and fast. It can also be used for multiple transferring and many designs.

## SOLID PATTERN OF KNIT AND PURL STITCHES



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

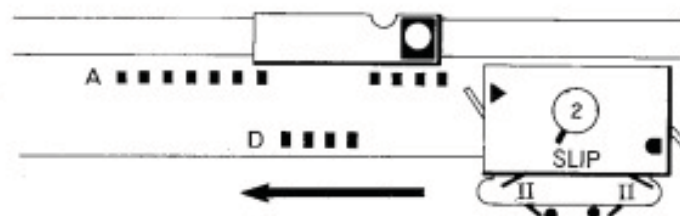
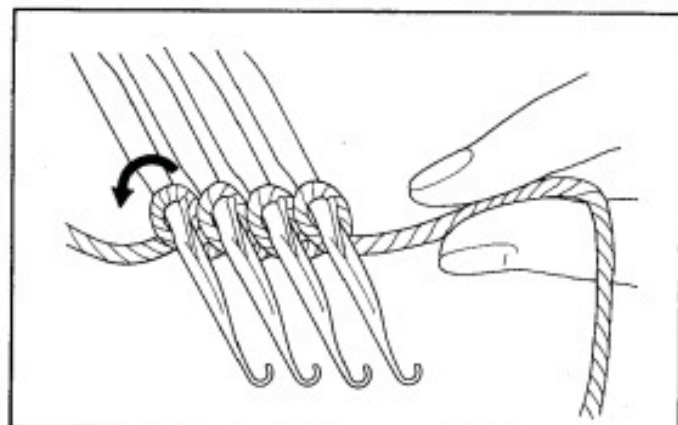
(1) Knit two rows in stockinet.



(2) Referring to the knitting symbols of the diagram, drop the stitch marked with (-) and purl them with a tappet one by one.

(3) Repeat the procedure (1) and (2).

## CORD KNITTING

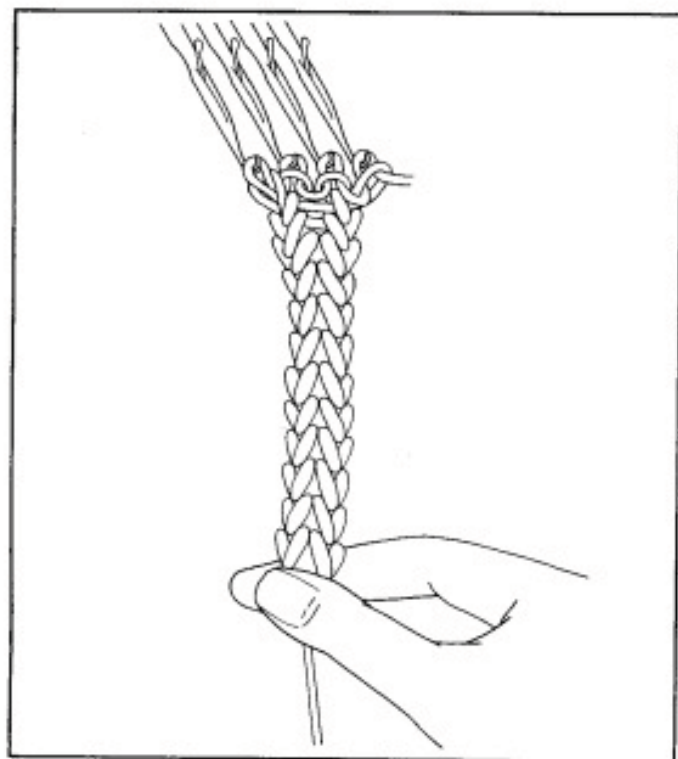


\* Knitted cords are often used for capes, hoods, belt, etc.

- (1) Place the carriage on the right side of the needle bed. Depending upon the thickness of the cord, bring 3–5 needles to D position. Cast on the stitches by the wrapping method as illustrated.
- (2) Set the stop knob and the parts on the carriage as follows.

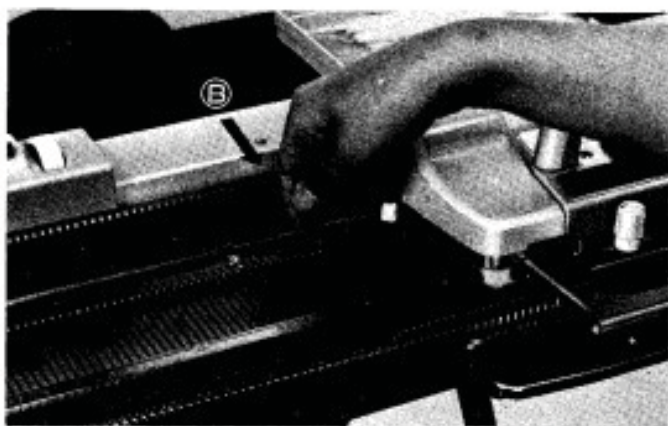
Stop knob . . . . .	●
Cam lever . . . . .	Slip
Tension dial . . . . .	1–2 (for medium thick yarn)
Side lever . . . . .	▲ at proceeding direction of the carriage.
Side lever . . . . .	● at rear direction of carriage.
Russel levers . . . . .	II
Arm levers . . . . .	●

- (3) Move the carriage back and forth knitting two rows. Holding the stitches with your fingers, bring the needles to D position.



- (4) Repeat (3) a few more times. Continue knitting by moving the carriage back and forth while pulling the cord lightly downward with your hand for desired length.

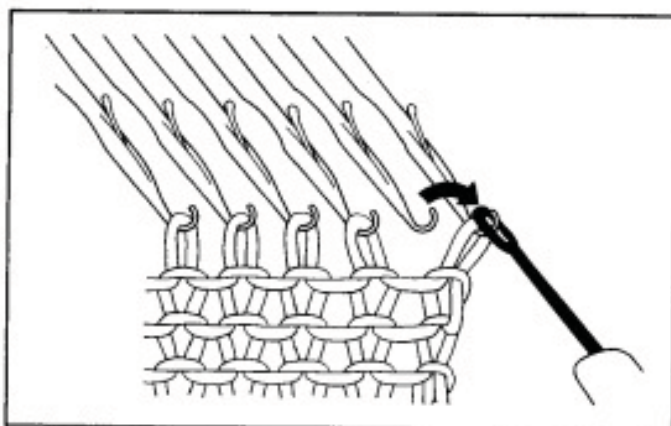
## 5. FUNDAMENTAL TECHNIQUES OF KNITTING



- \* Different from the woven fabric, the knitted garments are shaped by increasing, decreasing, or partial knitting as they are being knitted.

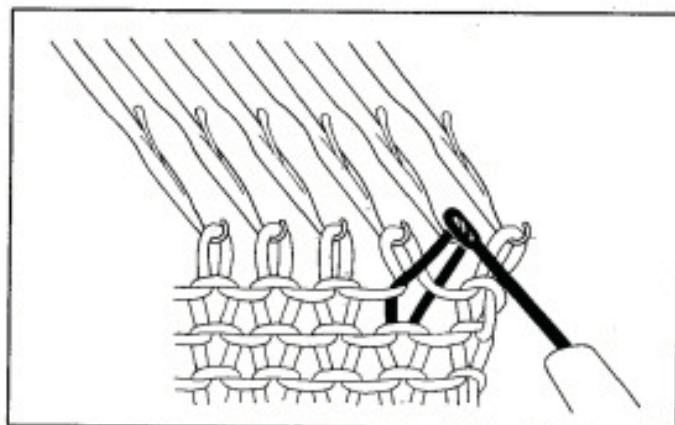
### \* Methods of Increasing \*

#### 《1》 Increasing one stitch at the edge.



- \* The first way:

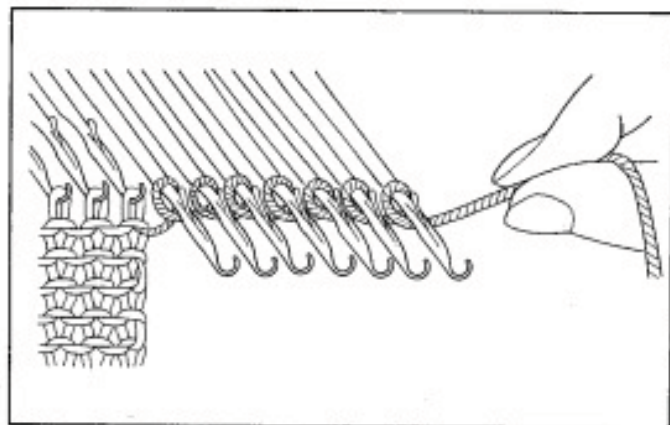
Bring one empty needle to B position on the side with the carriage and continue knitting.



- \* The second way:

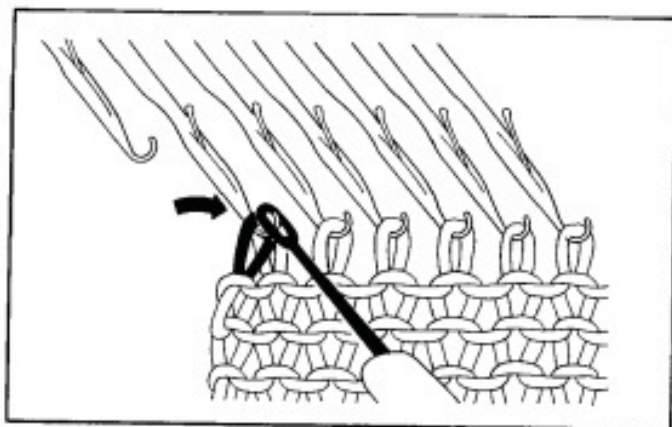
- (1) Using a one-eye transfer tool, transfer the edge stitch onto the hook of the next vacant needle leaving the second needle vacant.
- (2) Take the heel of the second stitch and place it onto the empty second needle.

#### 《2》 Increasing two or more stitches at the edge.



- \* This method should be practised on the side with the carriage.
- (1) Bring the required number of needles to D position.
  - (2) Starting with the inside needles, wrap the yarn loosely around the needles forming small "e"s as illustrated. After all the needles are wound, set the Russel levers at II and continue knitting.

Note: \* There should be no slack on the yarn before knitting.

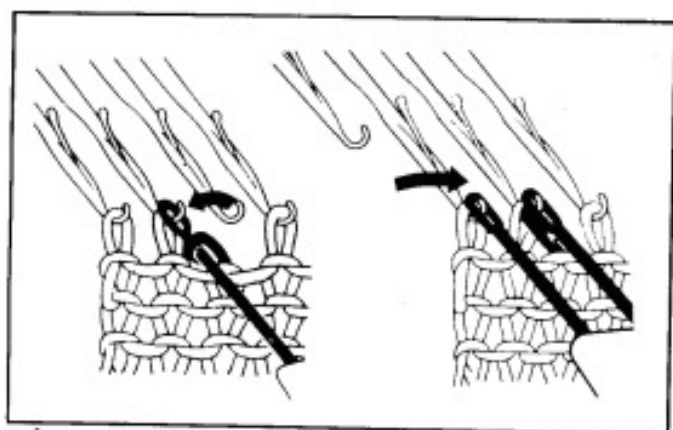


## \* Methods of decreasing \*

### 《1》 Decreasing one stitch at the edge.

#### \* The first way:

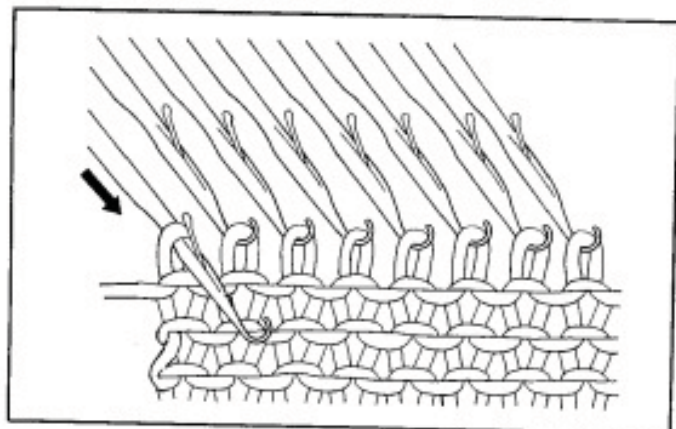
Using a one-eye transfer tool, transfer the first stitch onto the second stitch. Push the empty needle to A position, and continue knitting.



#### \* The second way:

Using a one-eye transfer tool, transfer the third stitch from the edge onto the second stitch.

With a two-eye transfer tool, transfer the two stitches on the end to fill in the empty needle.



### 《2》 Decreasing two or more stitches at the edge.

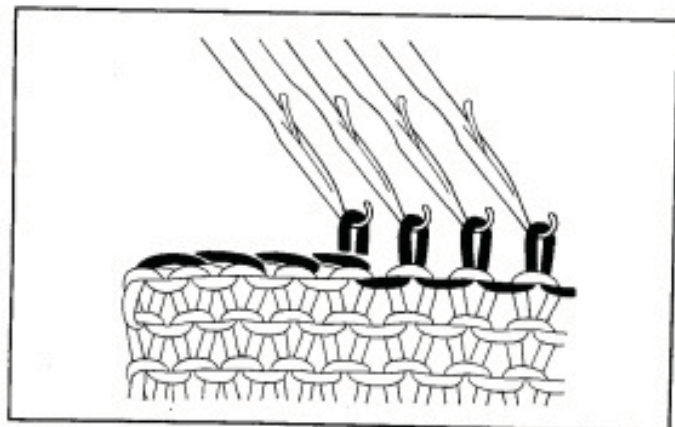
\* This method is used for shaping the base of armholes, neck opening, etc.

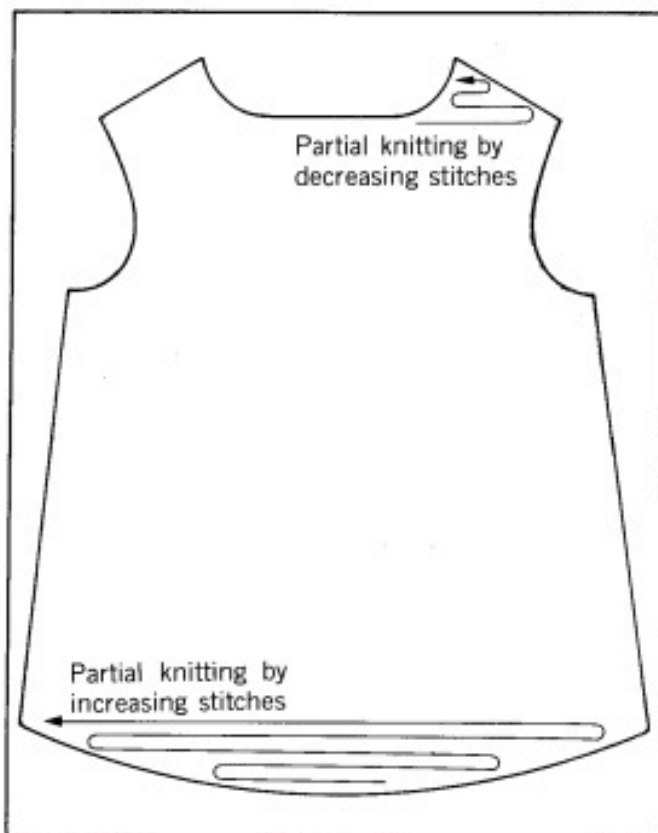
(1) Push the needles forward until the stitch is behind the latch. (C position)

(2) Transfer the second stitch onto the first stitch and move the double stitch to the empty needle.

(3) Lay the yarn onto the hook from out side. Push the needle back to knit a stitch.

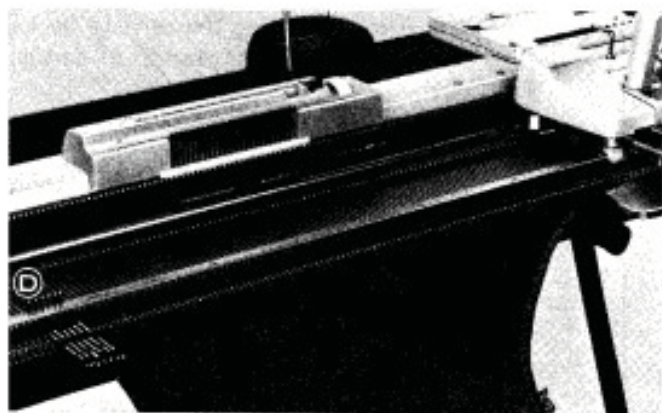
(4) Do not knit the last stitch by hand. Knit the next row with the carriage.





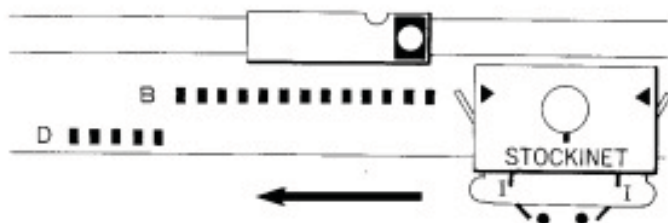
## \* Method of Partial Knitting\*

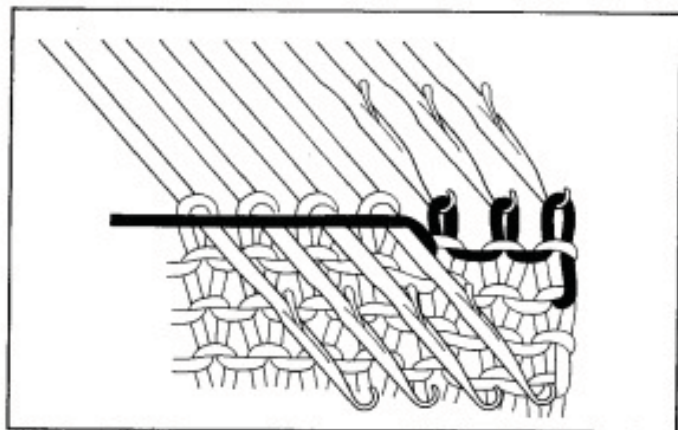
- \* Partial knitting is often used to shape a gentle slope such as shoulder slope, darts, curve of lower edge, etc.
- \* When partial knitting, set both Russel levers to I position. With the Russel levers at II position, the needles resting in D position will be knit.
- \* With slip stitch, Fair Isle (knit-in), or weaving patterns, one edge needle is brought to D position as previously explained. But, when partial knitting, bring the needle to C position. The needle placed in D position is not knitted.
- \* In punch lace knitting, bring one end needle opposite the needles in D position (resting) to D position before operating the carriage from right to left. When operating the carriage from left to right, bring the needle to C position.
- \* The cam lever and both side levers should be set correctly, as required by the type of knitting.



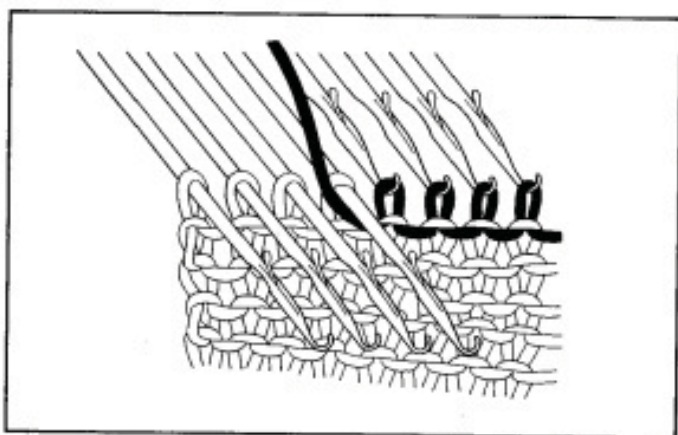
### 《1》 Partial knitting by decreasing stitches.

In both stockinet and pattern knitting, set the cam lever and the side levers correctly as required by the type of knitting, and the needles to be rested must be brought to D position. Continue knitting, following the instructions on the following pages.

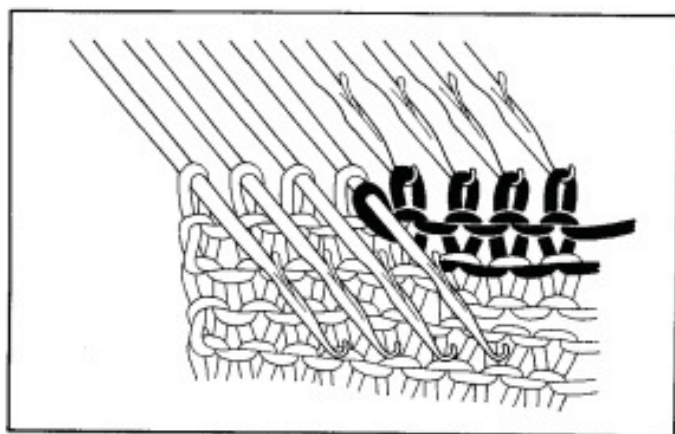




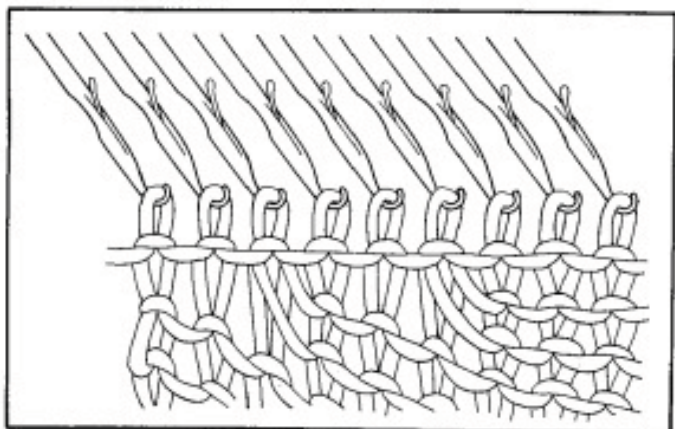
- (1) Bring the needles on the opposite side of the carriage which are not used to D position, and knit one row. (The needles in B position knits the yarn. The needles in D position remain inactive and the yarn passes over them.)



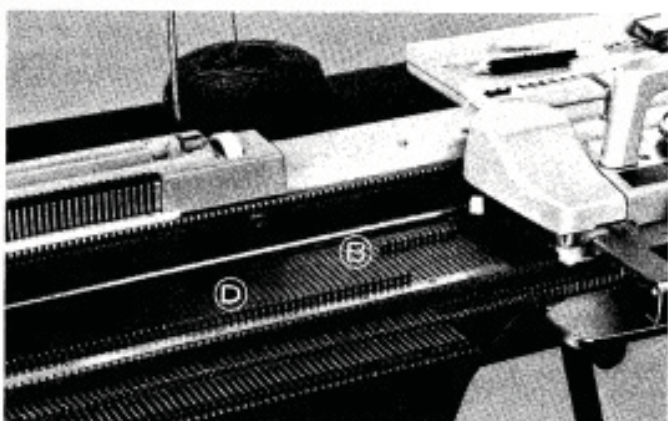
- (2) To prevent a hole from being formed in the fabric, pass the yarn under the first resting needle and over the other needles.



- (3) Knit one row by moving the carriage back. This completes the first operation of partial knitting.

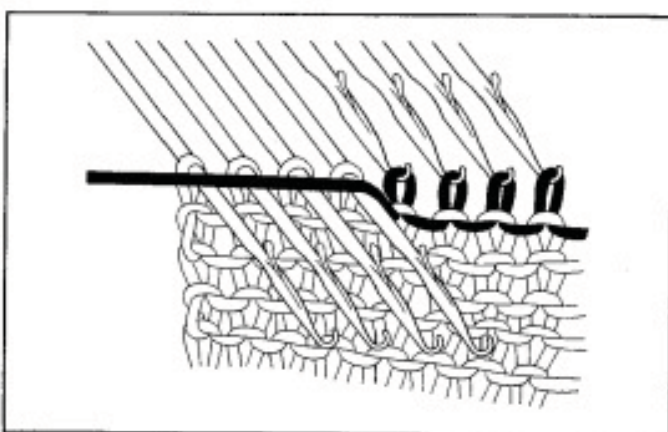


- (4) Repeat procedures (2) and (3), bringing an increased number of needles to D position. After completion of Partial knitting, set the Russel lever at the proceeding direction of the carriage to II and knit one row. All the needles in both B and D position have been knit and are all lined in B position.



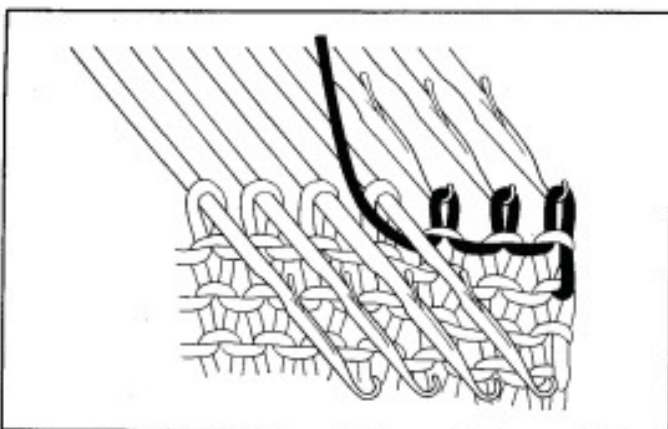
## 〈2〉 Partial knitting by increasing stitches.

Knit, returning the desired number of needles which have been rested in D position, to the position where they can be operated. Return the needles as instructed below.

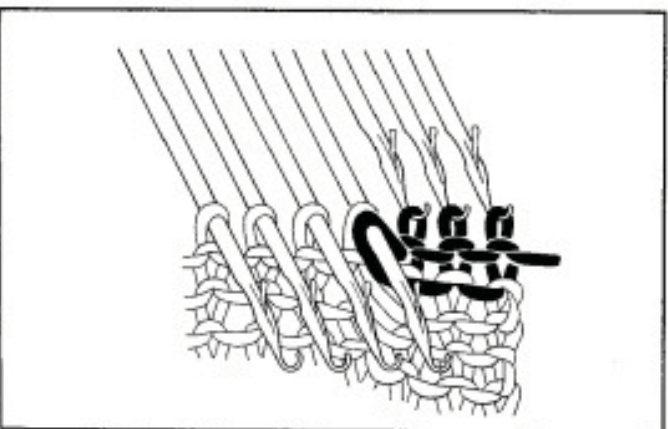


(A) In stockinet (without using a punched card.)

- (1) Leaving the first set of needles in B position on the carriage side, bring the other needles to D position. Knit one row.

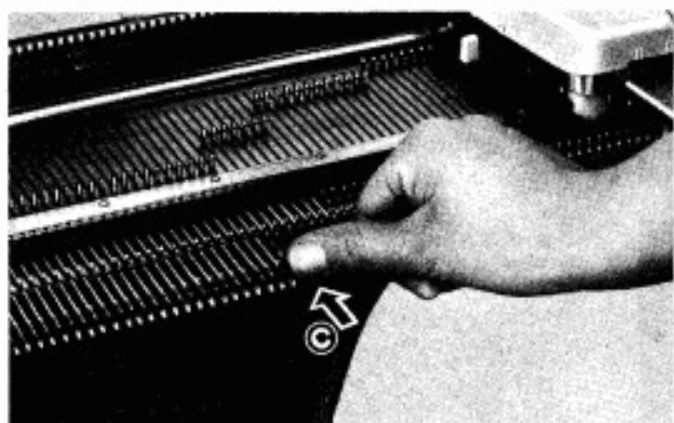


- (2) To prevent a hole from being formed in the fabric, pass the yarn under the first resting needle and over the other needles.



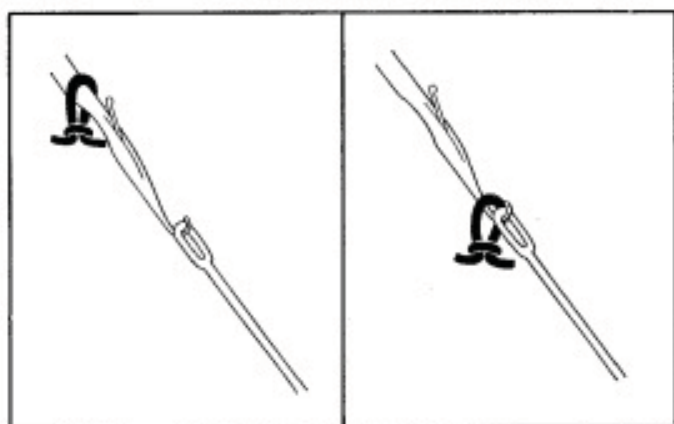
- (3) Knit one row by moving the carriage back. This completes the first operation of partial knitting.



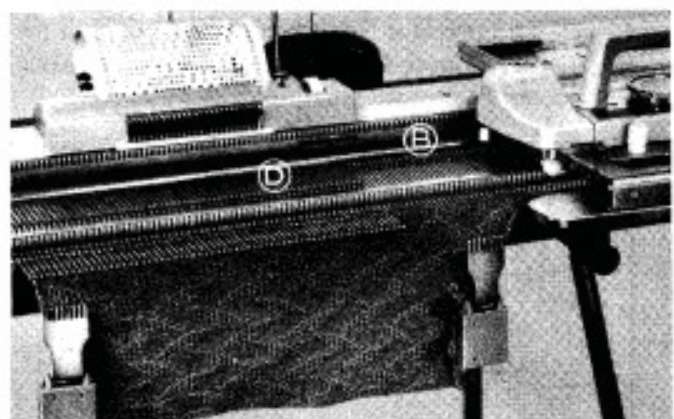


(4) Push the desired number of needles which have been resting in D position, back to C position and knit the third row.

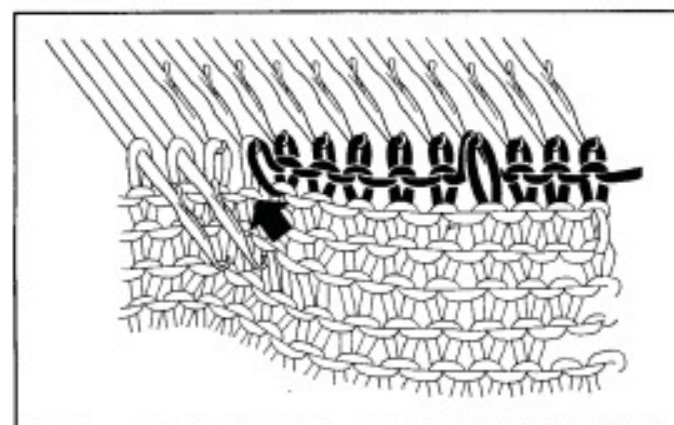
- \* When the needles are pushed back to C position, be sure they are correctly positioned within the range marked by the sign ])

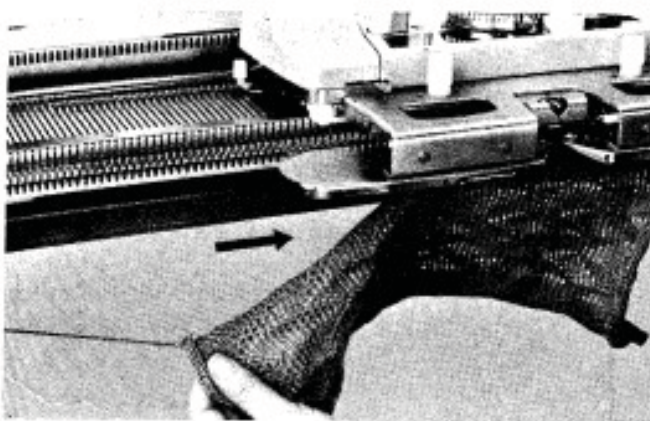


(B) In pattern knitting (tuck knitting, slip stitch patterns, Fair Isle, Weaving, punch lace knitting and lace knitting)



Though the number of needles rested in D position are to be gradually increased as in stockinet, the loops on the needles to be increased must be placed in the hook of the needle using a transfer tool as illustrated. Then line them in B position.

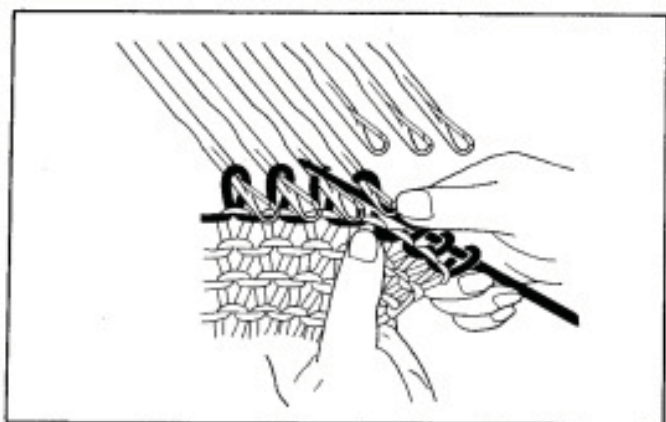




## \* Finishing \*

### 《1》 How to remove the garment from machine.

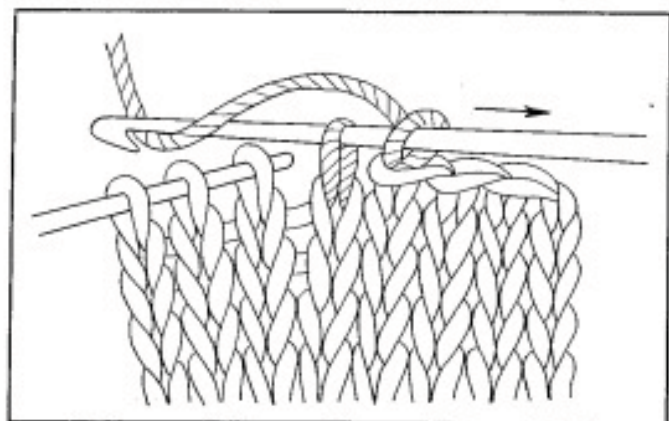
- \* After knitting is completed, knit 8–10 rows using scrap yarn. Remove the yarn from the yarn feeder and move the carriage across. (Be sure the cam lever is set at "STOCKINET".)



- \* Depending upon the way of finishing, the stitches can be taken off on a hand knitting needle.

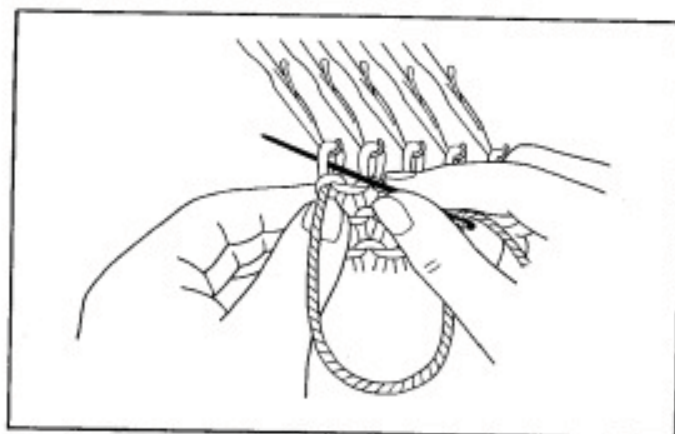
- (1) Holding the garment with the left hand, insert the tip of the hand knitting needle into the first stitch from the back, then slide the stitch toward you, pushing the needle back at the end of the hook. Take the stitches off onto the hand knitting needle one after another until all stitches are transferred in this manner.

Note: For the above purpose, a fine hand knitting needle is recommended.



### 《2》 Binding off with crochet hook.

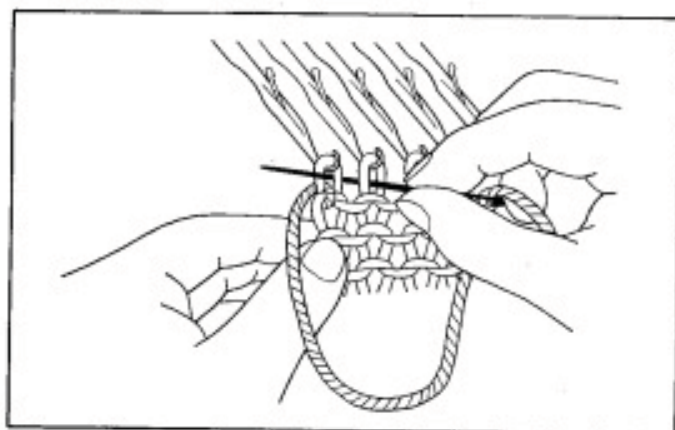
- (1) Insert the crochet hook into the first stitch, hook the yarn and pull through the stitch.
- (2) Insert the crochet hook into the second stitch, hook the yarn and pull through the two stitches.
- (3) Repeat procedure (2) and at the last step, cut the yarn and pull through the remaining last stitch.



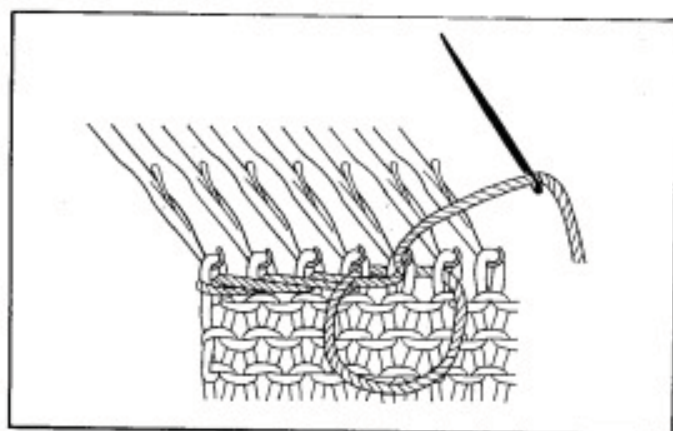
### 《3》 Winding Method.

When the garment is completed, measure the yarn across the garment 3 times and cut it. Thread the tapestry needle with the yarn. (It is easier to weave with the carriage on the left side if you are right handed).

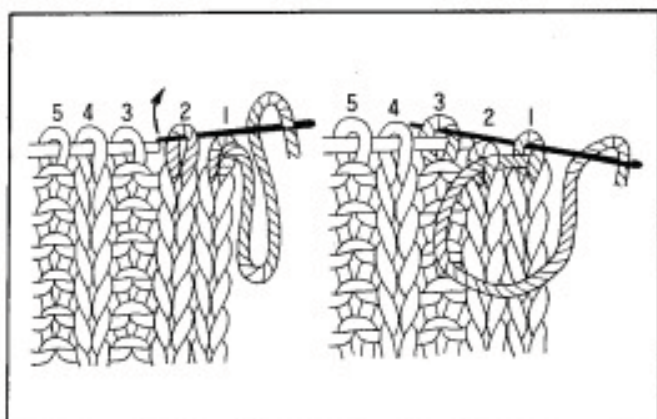
- (1) Insert the tapestry needle into the first stitch from the front. Pull the yarn through lightly.



- (2) Insert the tapestry needle through the second stitch from front and pass it through the first stitch again from the back. Pull the yarn lightly.



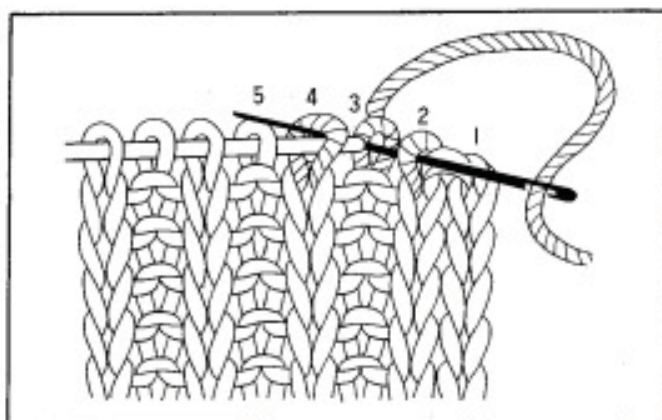
- (3) Repeat (2) until all stitches are bound off inserting the needle twice in each stitch, then remove the work from the machine.



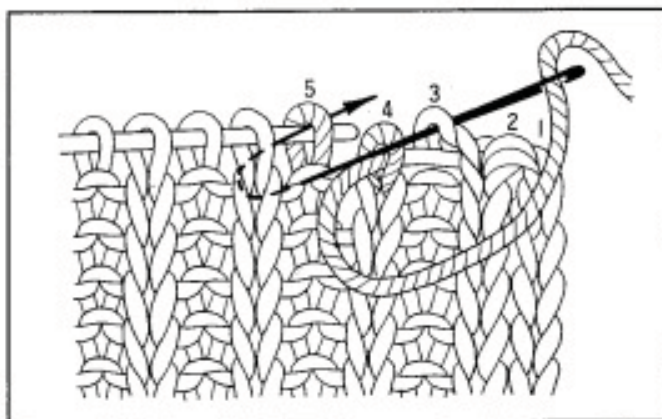
#### 《4》 Binding off K1, P1 Ribbing.

The knitting should be completed with the carriage on the left side for easier work. Cut the yarn with the end  $2\frac{1}{2}$  times the width of the garment on the machine. Take the stitches off on a hand knitting needle. Thread a tapestry needle with the yarn.

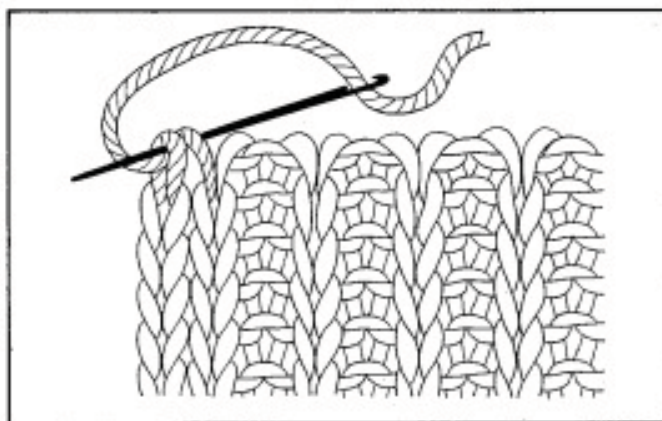
- (1) Hold the garment with the left hand and the right side of the garment facing you. Insert the tapestry needle into the two stitches at the edge from the back as illustrated. Pull the yarn lightly.



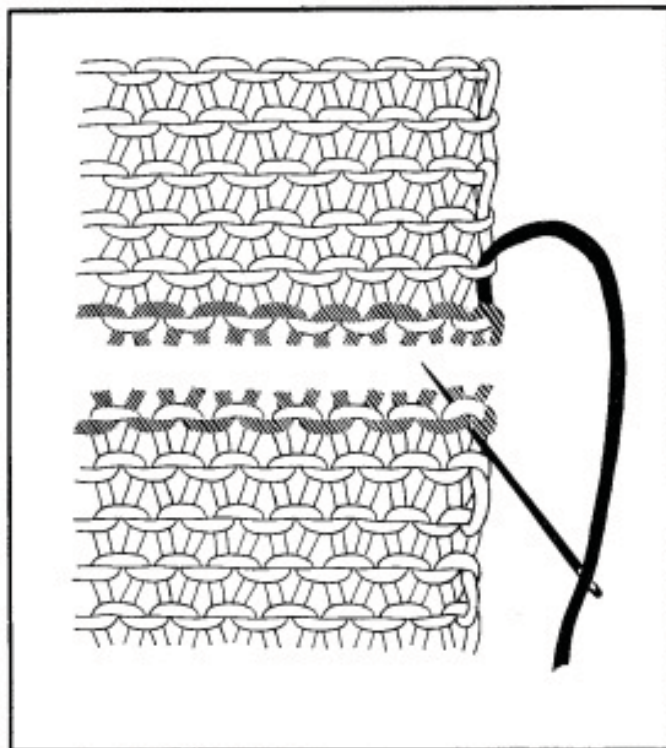
- (2) Insert the tapestry needle into the first stitch again from the front, drop the stitch and pass the needle to the third stitch from the front as illustrated. Pull the yarn lightly.



- (3) Insert the needle into the second stitch from the front, drop the stitch and insert the needle into the fourth stitch from the back. Pull the yarn lightly.



- (4) Insert the tapestry needle into the third stitch again from the back and drop the stitch, then pass the needle through the fifth stitch from the front. Pull the yarn lightly.
- (5) Repeat steps (3) and (4) to the last stitch, then pass the needle through the last two stitches and pull the yarn.



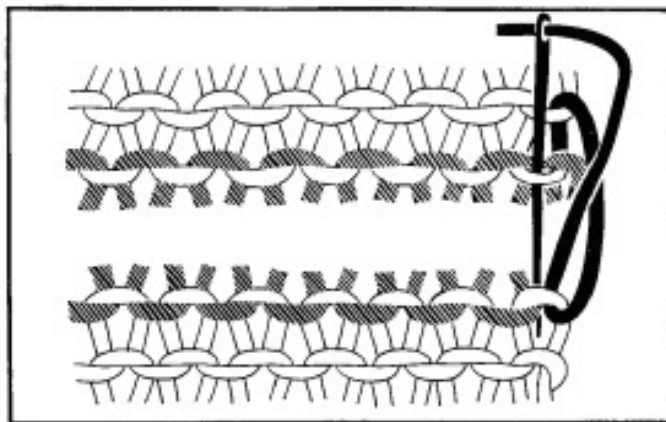
## 《5》 How to join the garments.

### \* Kitchner stitch or weaving \*

Remove both pieces from machine after knitting 8-10 rows of waste knitting. Hold the two pieces in the left hand with right sides facing each other.

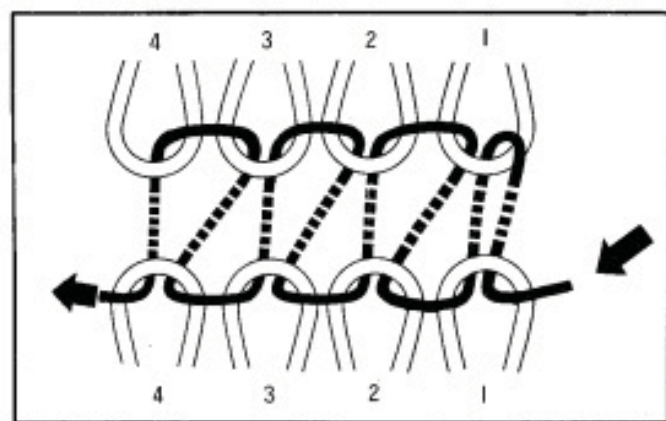
- (1) Insert the threaded tapestry needle into the first stitch on the piece facing you from the out side. Pull the yarn lightly.

- (2) Insert the tapestry needle into the first stitch on the opposite piece from the out side and run the needle through the first stitch on the piece facing you from inside. Pull the yarn lightly.

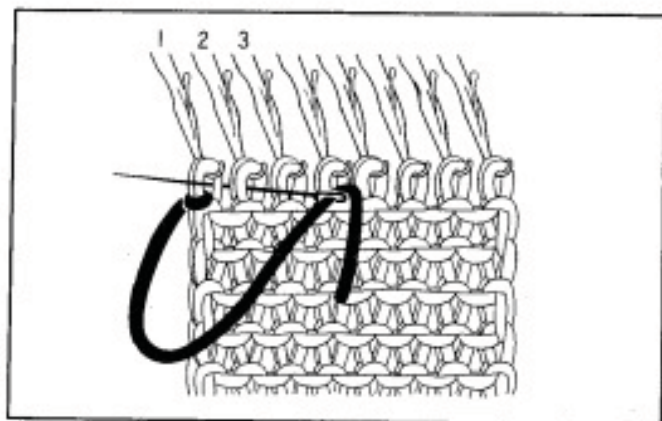


- (3) Insert the tapestry needle into the next stitch on the piece facing you from the out side and run the needle through the first stitch on the opposite piece from inside. Pull the yarn lightly.

- (4) Insert the tapestry needle into the next stitch on the same piece from out side and run the needle through the second stitch on the piece facing you from inside. Pull the yarn lightly. (The needle goes into each stitch twice).



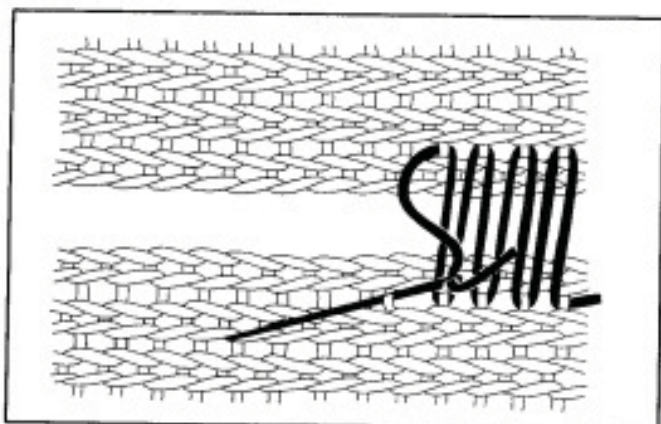
- (5) Repeat (3) and (4) until the two pieces are joined. Unravel the waste knitting.



### \* Seaming on machine or Binding off

The seam made on the machine needles are smooth and have adequate elasticity. They are widely used for seaming shoulders, dolman sleeves, etc. At the end of either garment leave the yarn 6 times the width of the garment to be seamed.

- (1) Attach both garments on the machine with the right sides facing each other and so the yarn will be on the right-hand side of the garments. Knit one row from right to left with the yarn that was measured 6 times.
- (2) Thread the tapestry needle with the remaining yarn and finish the stitches by the winding method, referring to "Finishing by winding method" on page 72.
- (3) As you get accustomed to this method, you may desire to finish the stitches without knitting a row as the illustration shows.



### 《6》 Seaming the side edges.

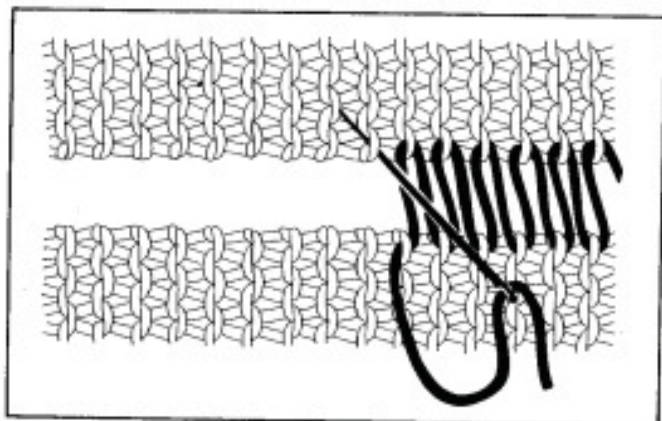
Thread a tapestry needle with the yarn 1 1/2 or 2 times the length of the seam.

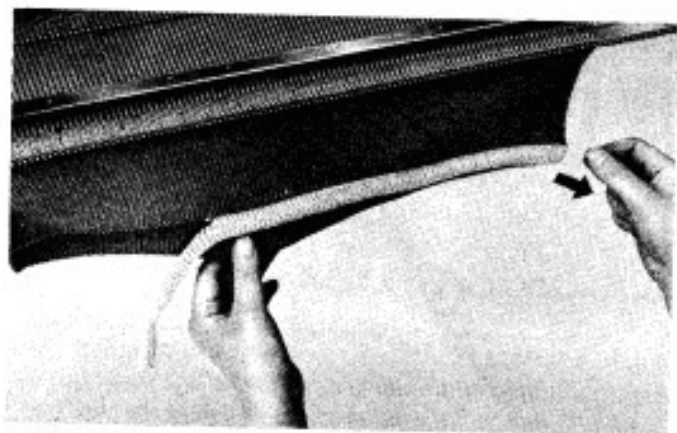
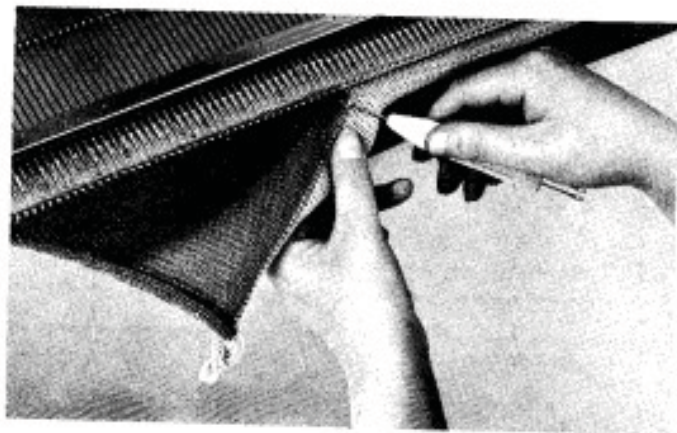
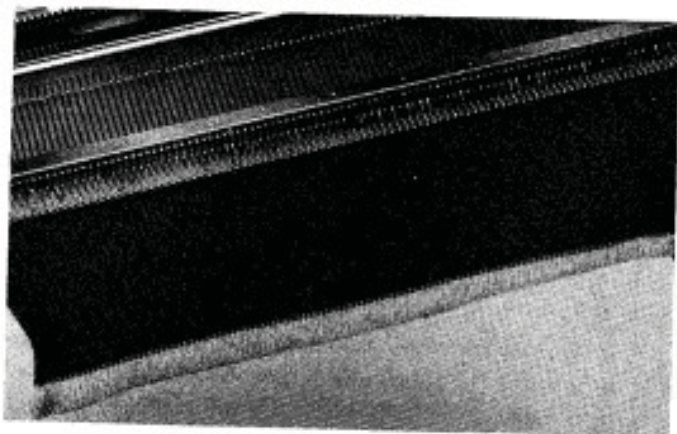
#### \* Matress stitches (Blind stitches)

The side edges can be seamed neatly without showing the seam. This method is especially recommended for seaming stockinet and Fair Isle knitting.

Hold the two garments closely together with the right sides out. With the tapestry needle, scoop the yarn crossing between the first and the second stitches alternately from each garment one by one. After every 4 or 5 stitches have been seamed, pull the yarn firmly but not too tight. There are many ways to seam the garments.

- \* When the wrong side of the knitting is used join the pieces by picking up the edge stitches one by one at the wrong side as illustrated.

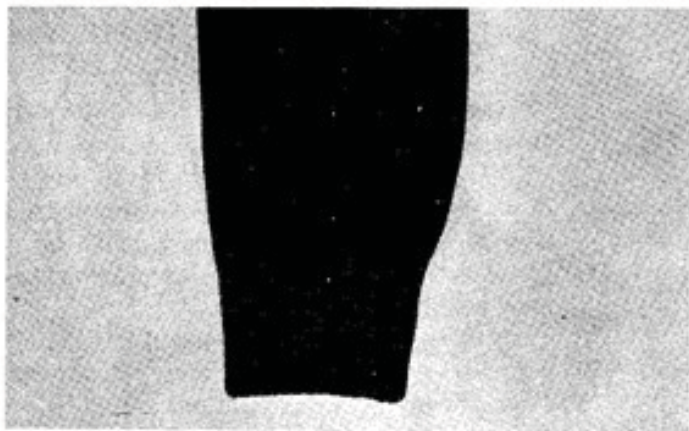




## 《7》 Hemming a garment.

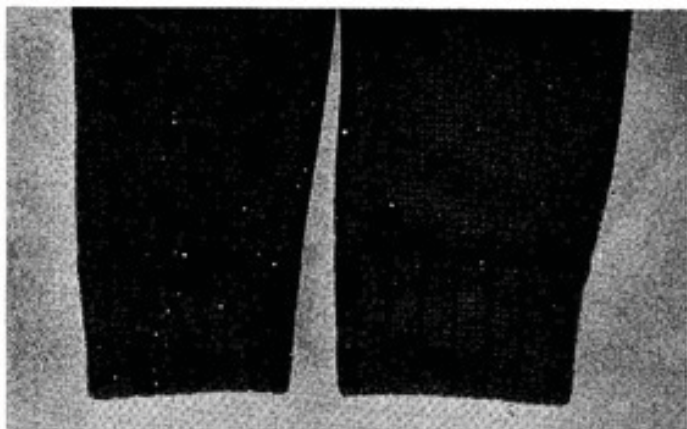
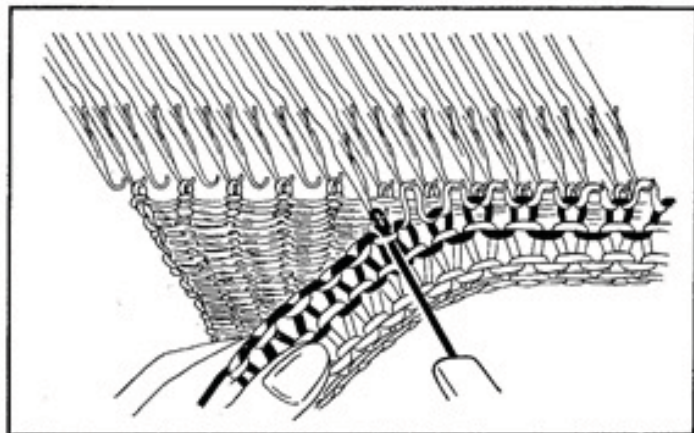
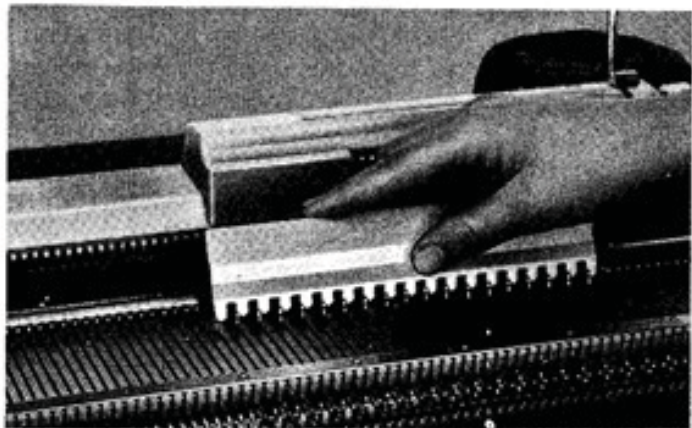
A double hem is often used for the lower edge and cuffs of ladies' and children's wear.

- (1) After knitting 8–10 rows of waste knitting, knit one row with a nylon ravel cord.
- (2) Tighten the tension dial  $\frac{2}{3}$  (2 points) from the number used for the garment. (Example: If the garment is knitted at tension 5, use tension 4.1 for the hem).  
Knit twice the number needed for the hem.
- (3) Using a one-eye transfer tool, pick up the stitches in the yarn for the garment above the ravel cord and put them on the needles one after another starting from the second needle. Transfer the two remaining stitches onto the second needle from the end.
- (4) Loosen the tension dial 2 numbers (tension 6.1) and knit one row.  
This row closes the hem.
- (5) Readjust the tension dial to the main garment tension (tension 5) and continue knitting. After the knitting is completed, pull the ravel cord from one side. The waste knitting will drop from the garment revealing a neatly finished hem.



## 《8》 Mock Ribbing.

Mock ribbing is very easy to knit and makes a nice hem. It is especially recommended for cuffs and waist bands for child and sports wear.



- (1) Bring the required number of needles to B position, using a 1 x 1 needle pusher, push every other needle back to A position.
  - (2) Knit 8–10 rows of waste knitting. Then, knit one row with a ravel cord.
  - (3) The tension for mock ribbing is usually set 3–4 numbers lower than the tension for the garment. Tension 1 is used in this case.
  - (4) Knit double the number of rows for the length of ribbing.
  - (5) Bring the needles which have been resting in A position to B position. Using a one-eye transfer tool, pick up the loop above the ravel cord and place it onto the first empty needle. Continue picking up each loop and placing it onto the empty needles until the complete hem has been picked up.
  - (6) Adjust the tension dial to the garment tension (5) and knit one row. This row closes the hem. Continue knitting required number of rows until the garment is completed. Pull the ravel cord from one side and the waste knitting will drop from the garment revealing an imitation ribbed border.
  - (7) The stitches on the border are separated when the knitting is first completed. Insert a ruler into the border and stretch it lengthwise. When the stitches are adjusted as desired press it lightly with a steam iron to give it shape.
- \* Ribbing of 2 x 1 or 3 x 1 can be achieved by the same needle arrangement. (Use the tension dial, 2 tension tighter for 2 x 1 and 1 tension tighter for 3 x 1 (here tension 4).



## 6. HELPFUL HINTS

### 《1》 Replacing damaged needles.

When replacing damaged needles, follow the steps below.

- (1) Push the needle retainer under the needle bed in either direction using a pencil or a screw driver. Try to push upward along the needle bed when pushing it out.

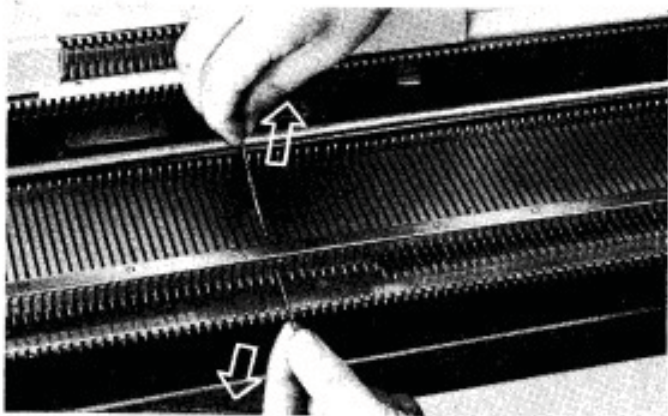
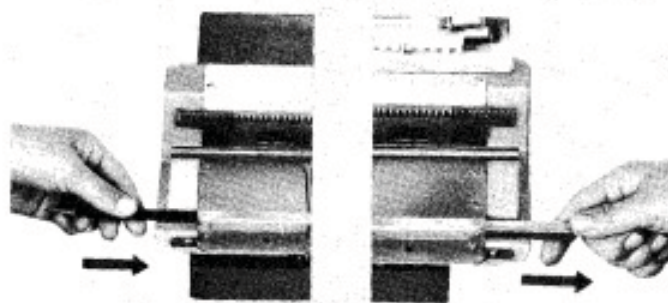
- (2) Pull the needle retainer at one end until it clears the needle to be replaced.

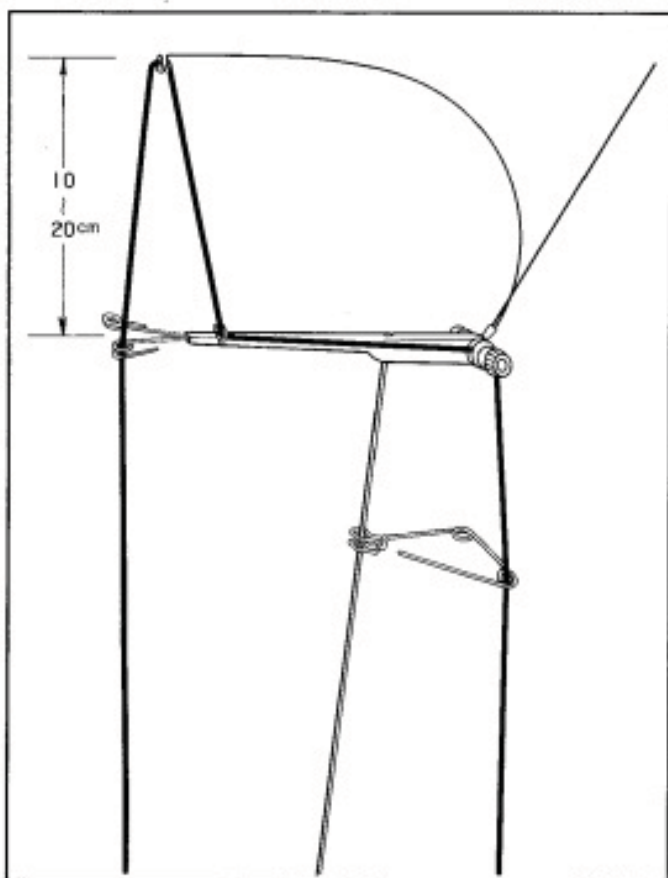
- (3) Bring the damaged needle to D position. Close the latch and push the hook downward. The shank will come out of the needle bed. Pull the needle out of the needle bed lifting the shank upward. If the needle is removed in the middle of the needle bed, it will hit the pattern panel. In this case, pull the shank firmly upward, then pull the needle from the bed.

- (4) To install a new needle in the needle bed, hold the butt with the latch open and slip the needle with the hook part first and reversing the order of the previous paragraph (3).

- (5) Replace the needle retainer. If it hits against the needles, push the needles down as illustrated.

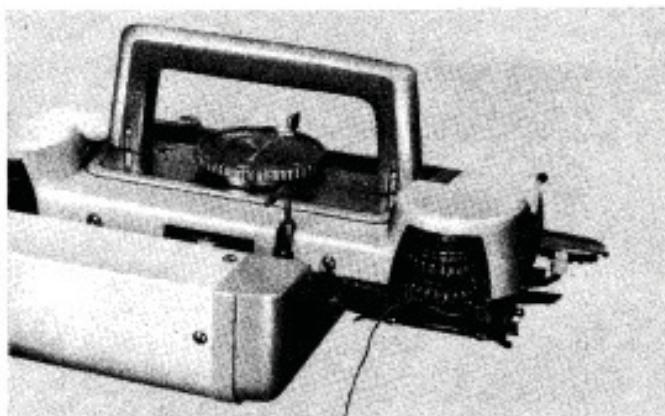
Push the needle retainer toward the edge of the needle bed so it will not go in crooked.





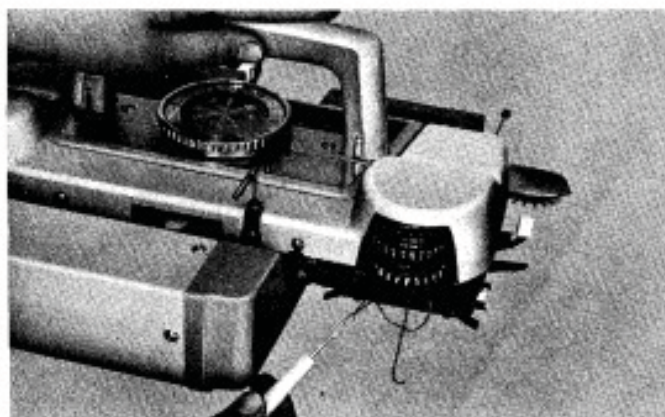
《2》 If the yarn gets loose or entangled at the edge of fabric.

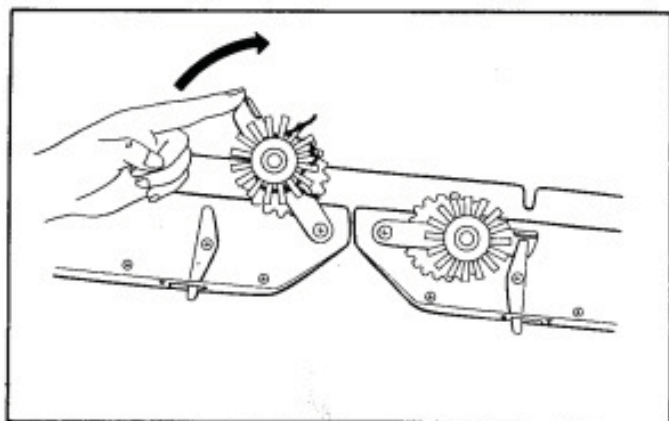
- \* Loosen yarn.  
Check to see if the yarn is correctly threaded through the auto-tension.
- \* Entangled yarn.  
If the yarn is entangled in any part of the machine, or if the yarn does not pull smoothly from the yarn ball it will prevent proper operation of the machine. Therefore, the yarn should be prepared in good condition and the machine cleared of disorder while knitting.



《3》 If the yarn is entangled in the "Memory Bank".

- (1) If the yarn is entangled on the gear wheel of the "Memory Bank" shift the carriage to the side of the machine as illustrated.
- (2) Carefully disentagle the yarn using a tappet.

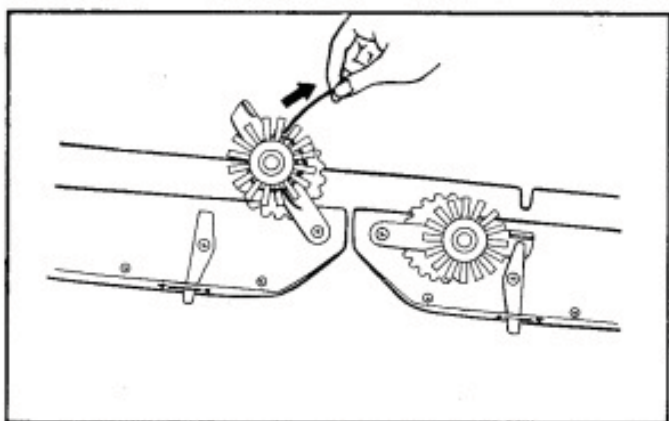




《4》 If the yarn is wound around the fabric gear.

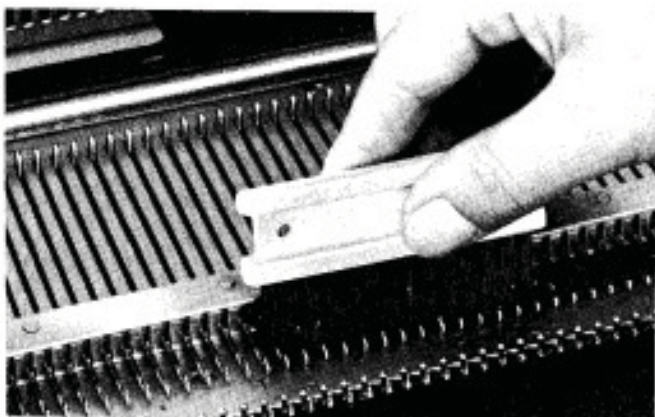
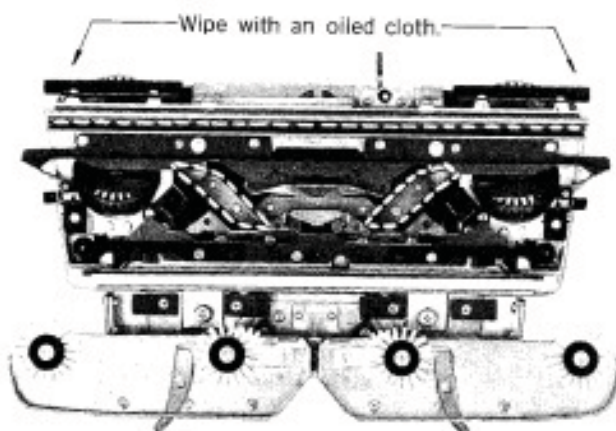
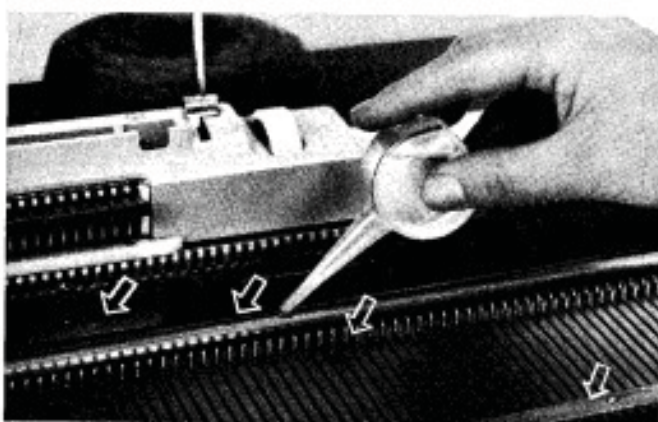
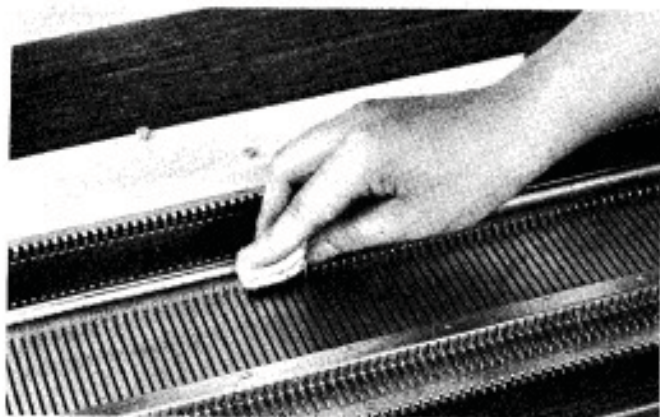
(1) Loosen the arm nuts and remove the arm.

(2) Push out the metal bar as illustrated.



(3) Remove the entangled yarn, then reset the metal bar.

## 7. MAINTENANCE INSTRUCTION



All types of machines need proper cleaning and lubrication for a long usable life. Keep this machine clean and well lubricated at all times for a happier lifetime of excellent performance.

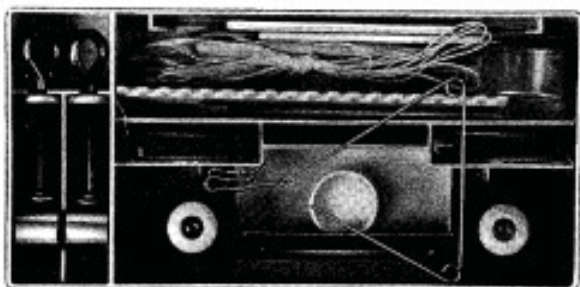
### 《1》 Lubrication

- (1) Wipe the rails of back and front needle bed and the bottom of the carriage with a dry cloth.
- (2) Apply the lubricant, drop by drop, to the places marked with the arrows. (At a few places for the rail). Move the carriage back and forth a few times and the oil will spread over the back and front rails.
- (3) Wipe the places indicated by the dotted line in the diagram with a piece of oiled cloth.

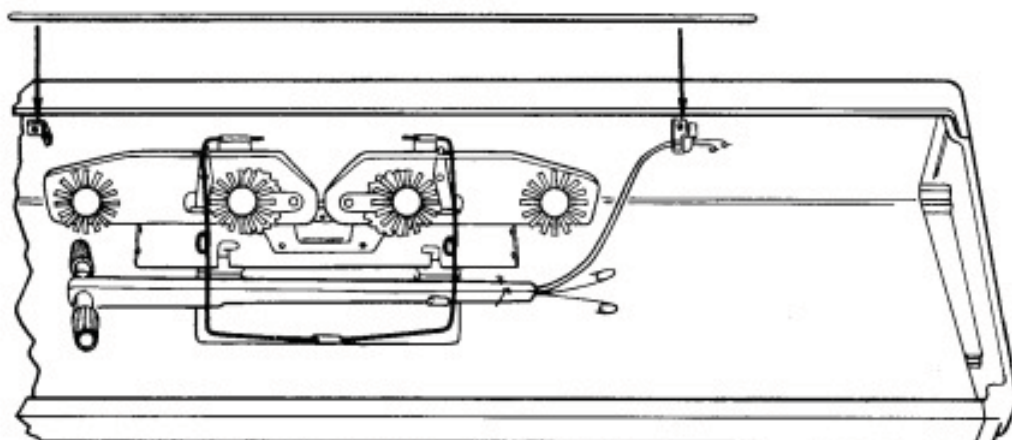
### 《2》 After using the machine.

- (1) Use the accessory brush to remove the yarn lint from all parts of the machine.
- (2) Carefully wipe all the metal parts with an oiled cloth to remove lint and dirt.
- (3) The case can be cleaned by wiping with a piece of soft cloth saturated with synthetic detergent.

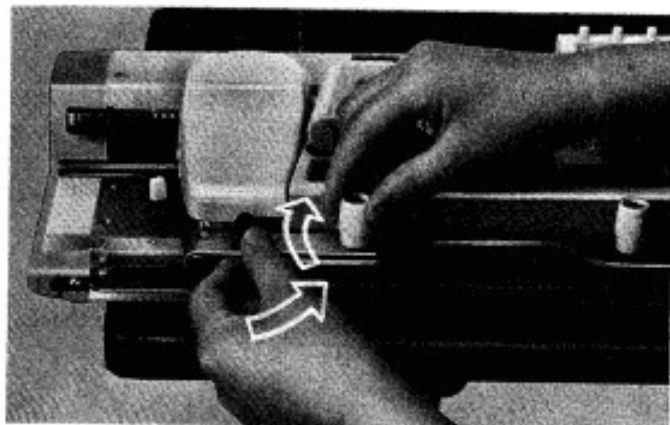
## 8. HOW TO PACK THE MACHINE AWAY



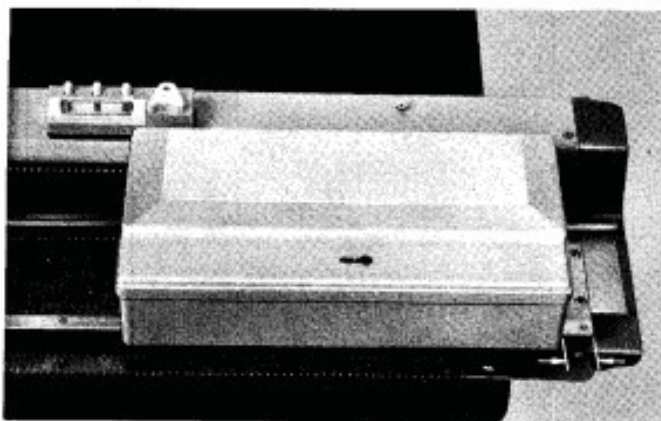
- (1) Remove the punched card from the pattern panel while turning the feed dial.
  - \* Special care should be taken not to make a crease on the punched card.
- (2) Replace all the accessories in the accessory box in an orderly manner as they were originally packed.
  - \* The weaving arm should be placed in the correct position so the brushes will not be damaged.



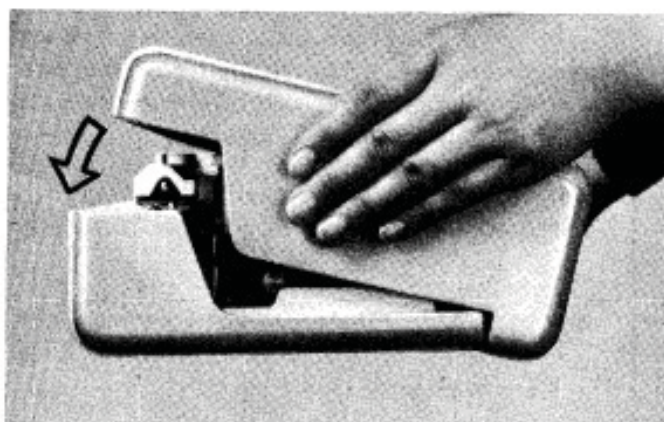
- (3) Replace the carriage arm, auto-tension, and auto-tension rod orderly inside the case cover and fasten with the spring wire. When replacing the carriage arm place it in position by inserting the top part of the carriage arm into the key shaped catch from underneath.



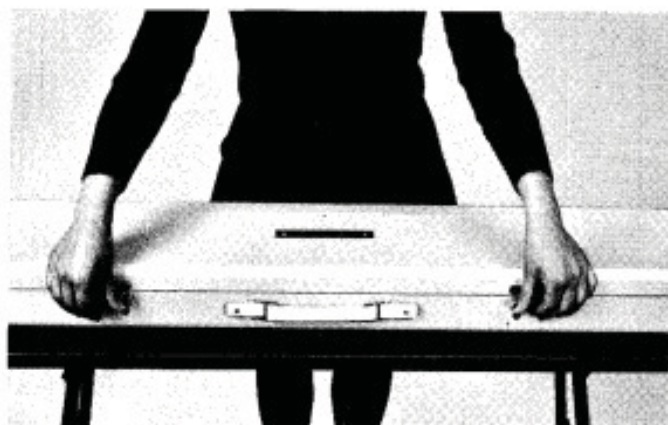
- (4) Replace the carriage faster to lock the carriage securely and fold the carriage handle.



- (5) Place the accessory box on the right-hand side of the needle bed 2–3cm (3/4–1") from the end.



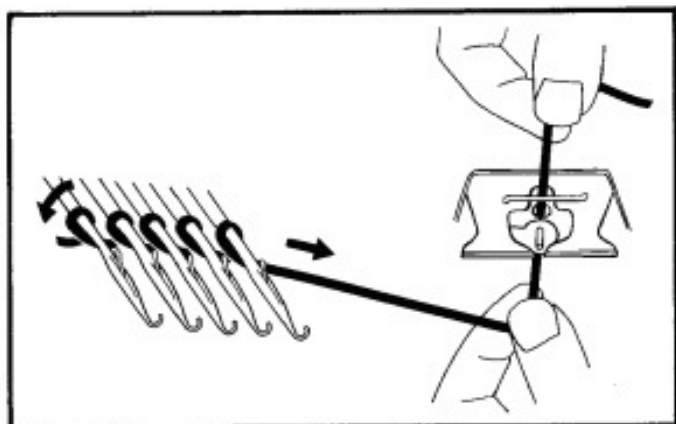
- (6) Replace the cover.



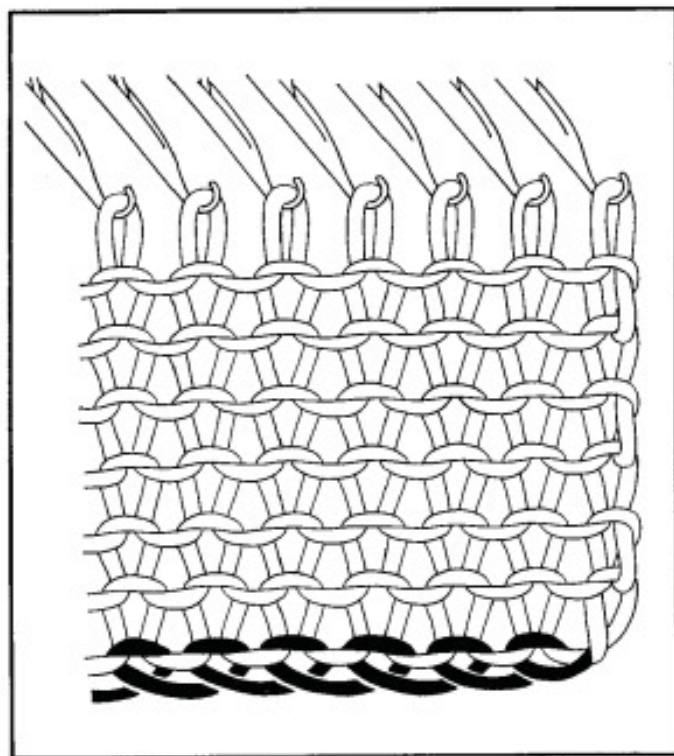
- (7) Fasten the latches.

- (8) Store the well cleaned machine in a dry place.

### \* Bound off Cast-On (Permanent) \*



- (1) Referring to article (1) of the chapter "Casting on and Stockinet Knitting" (page 9) set each part on the carriage and the stop knob.
- (2) Place the carriage on the right side of the needle bed and bring the required number of needles to D position.
- (3) Thread the auto-tension and insert the end of the yarn in the yarn clip at the left side. Wrap the yarn loosely around the stem of each needle in the counter-clockwise direction, starting from the left side. After all the needles have been wound, pass the yarn through the yarn feeder. Take up slack on yarn through the auto-tension.



Note: \* Do not wind the yarn too tightly, otherwise the carriage will not operate smoothly.

- (4) Set the left Russel lever to II and move the carriage from right to left. This way knitting can begin with a finished edge.

# LET'S KNIT



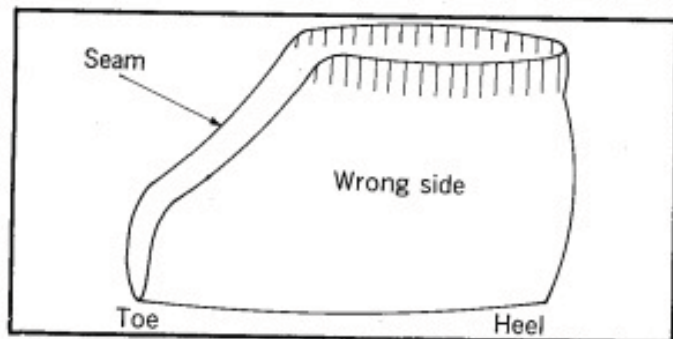
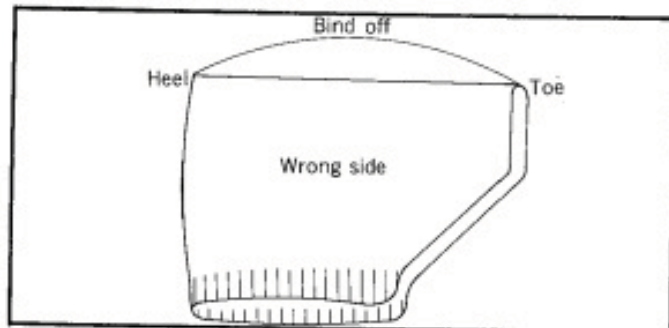
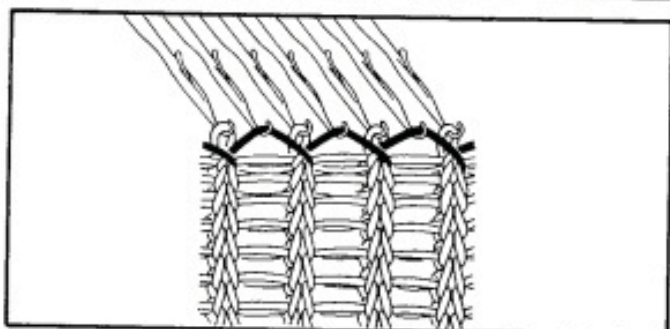
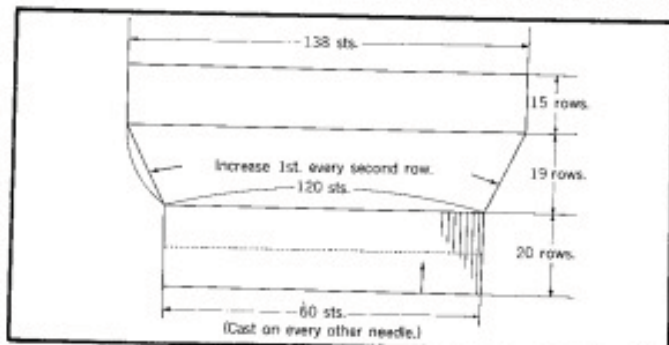
For your first step practice, the following two articles are recommended to be knit in stockinet stitches. After you have knitted one or two garments it will be easier for you to knit in pattern stitches.

## LADY'S BEDROOM SLIPPERS

Materials: 4 ply wool of medium thickness ... 2oz.  
Elastic .....20 ins. (51 cm)

Tension: Around 5

Gauge: 1 in. (2.54 cm) = 8 stitches, 11 rows  
4 ins. (10 cm) square = 32 stitches,  
44 rows)



- (1) Bring out 120 needles (60 needles on each side of 0) to B position.

With the needle pusher, push back to A position every other needle beginning from the second needle.

Place the other needles still in work to D position.

Cast on these needles by winding method. (Refer to P. 84.)

- (2) Set the tension dial to 3. Set both Russel levers to II and knit 20 rows for cuff.

- (3) Pull out to B position the 60 needles that were pushed back to A position. Hang every stitch of the starting row onto each of the 60 empty needles. Now, 120 stitches are on machine.

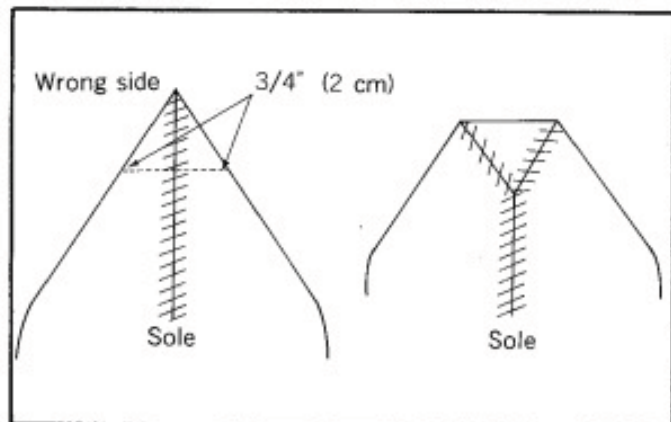
- (4) Reset tension dial to 5 and knit one row.

- (5) Shape instep by increasing one stitch on each side every second row 9 times. The last increase will be made on the 18th row. (138 stitches are on machine.)

- (6) Knit 15 rows without increase or decrease. Put a marker at the middle. Knit 6-7 rows of waste knitting and remove the work from machine.

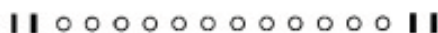
- (7) Push half of the needles back into A position retaining the other 69 needles in B position. Fold the work into half with the right sides together. With toe side on the right, hang the stitches of the lower side until the marker at the center. Then, hang the stitches of the upper side on corresponding needles. Undo the waste knitting. (Every needle should now have two stitches on it.)





- (8) Knit one row from right to left with the carriage.
- (9) Measure the yarn to be three times the length of the width of garment and cut. Bind off the stitches using a tapestry needle referring to p.72.
- (10) Seam instep and hem leaving an opening for elastic on the wrong side.
- (11) Sew approximately 3/4 in. (1.8 cm) of the heel portion from the wrong side. Fold over and sew down to the sole side.
- (12) Pull the elastic through the hem. One of a pair is now completed.
- (13) Work the other one in the same manner.
- (14) Make two pom-poms and put one in front of each slipper.

Pom-pom: Set your machine needles as illustrated.

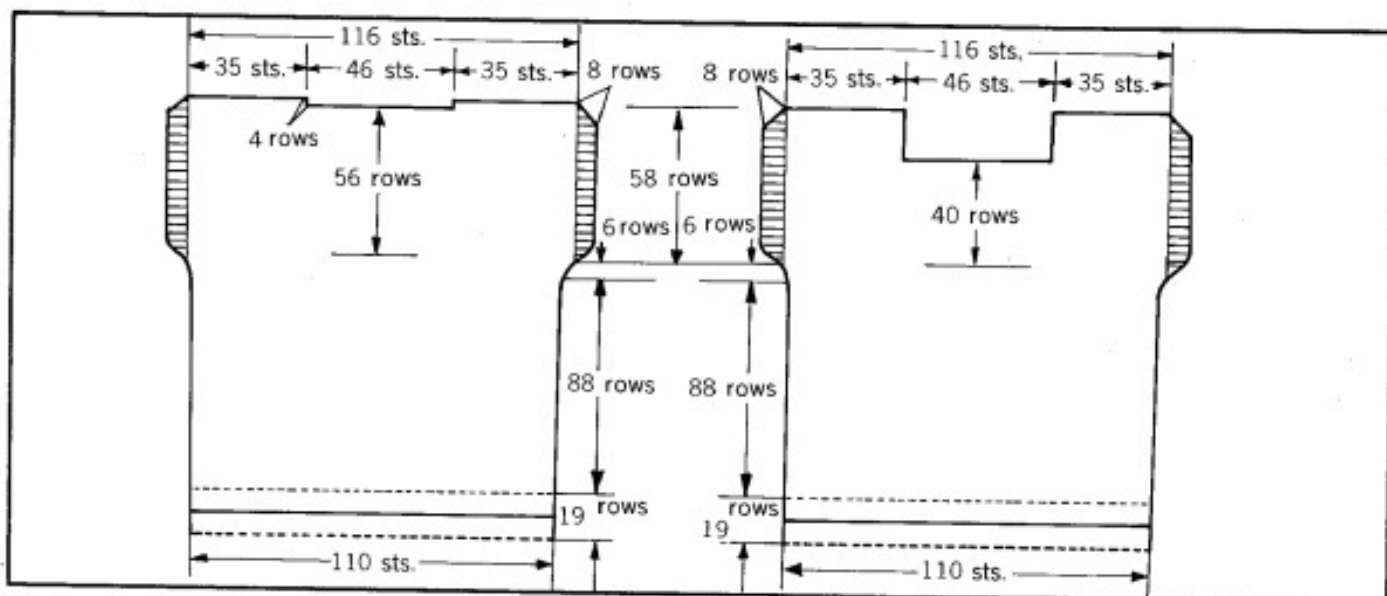


Place the working needles to D position with the latches closed. Wrap yarn around the needles about 100 times. Tie a tight knot around the center using cotton thread. Do not cut the thread. Push back the needles. Cut loops and trim.



### CHILD'S PULLOVER-FOR 5~6 YEARS

- Materials: 4 ply wool of medium thickness  
.....6 ozs.
- Measurements: Length ..... 15 ins.  
(38 cm)  
Width at underarm .... 13-3/4 ins.  
(35 cm)
- Tension: Around 5
- Gauge: 1 in. (2.54 cm) square = 8 stitches, 11 rows  
(4 ins. (10 cm) square = 32 stitches, 44 rows)

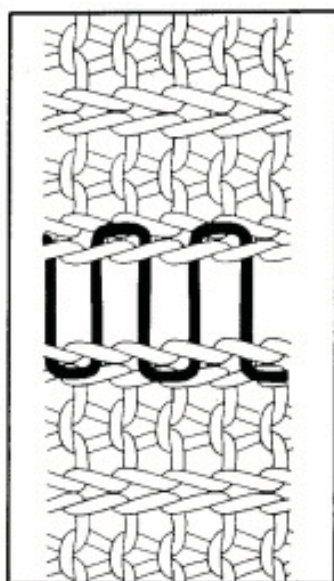


**\*BACK**

- (1) Bring out 110 needles to D position and cast on by waste knitting. Knit one row with a raveling cord.
- (2) With main yarn and one tension tighter than garment (T4) knit 19 rows.
- (3) Pick up the stitches of the first row of garment yarn and hang on the corresponding needles. (All needles have two stitches.)
- (4) Loosen the tension by 2 numbers (T6) and knit one row to close the hem. Adjust the row counter to 0.
- (5) Reset tension one number tighter (T5) and knit 88 rows.
- (6) Increase one stitch on both sides every second row 3 times. (6 rows and 116 stitches are on machine.)
- (7) Reset row counter to 0 and knit 58 rows without increasing or decreasing.
- (8) Retaining 35 needles at the side with the carriage, rest the other needles in D position. Set both Russel levers to I and knit 4 rows on these 35 needles for one shoulder.
- (9) Cut the yarn leaving approximately six times the width of the shoulder. Knit several rows of waste knitting and remove from the machine. Push back the empty needles to A position.
- (10) Push back next 46 needles for neck opening to C position. Knit several rows of waste knitting and remove from the machine. Push back the empty needles to A position.
- (11) Push back remaining 35 needles to C position. Knit 4 rows. Then, knit several rows of waste knitting and remove from the machine.

**\*FRONT**

- (12) Repeat operation 1~6.
- (13) Knit 40 rows without increase or decrease.
- (14) Retaining 35 needles at the side with the carriage rest all the other needles in D position. Set both Russel levers to I and knit 22 rows.
- (15) Cut the yarn leaving 2~3 ins. (5~8 cm) at the end. Remove the shoulder after knitting several rows of waste knitting. Push back the empty needles to A position.
- (16) Push back 46 needles at the middle to C position. Knit several rows of waste knitting and remove from the machine. Push back the empty needles to A position.
- (17) Push back remaining 35 needles to C position. Knit 22 rows with main yarn and remove from the machine after knitting several rows of waste knitting.

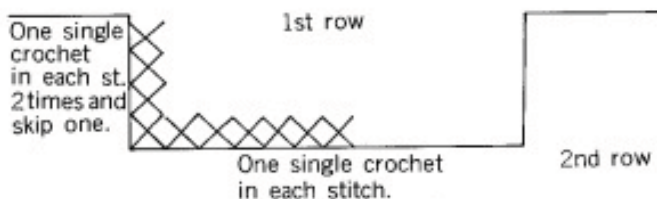


#### \*FINISHING

- (18) Hang left shoulder of back on machine with right side facing you. Undo the waste knitting. Hang the left shoulder of front on the same needles with wrong side facing you. (The two pieces are on machine with the right sides together.) Undo the waste knitting.
- (19) Thread the carriage with the yarn from the end of the work and knit one row from right to left. Bind off the stitches with a tapestry needle. Remove from machine.
- (20) Finish the other shoulder in the same manner as explained in paragraphs 18 and 19.

#### \*SLEEVE BAND

- (21) Pull out 87 needles to B position. With the wrong side toward you, hang the loop picked up from each side of the shoulder seam onto the needles at the middle, and the last loop on each side onto the last needle on each side. Then, hang the stitches evenly picked up from each side between these needles.
- (22) Set tension dial to 4 and knit across from left to right. Knit 7 more rows. Purl every other stitch for ribbing, starting from the 3rd stitch. Cut yarn leaving the length three times the length of cuff to be finished. Yarn is on the left hand side of the needle bed.
- (23) Take off the stitches onto a hand knitting needle. Bind off the stitches in ribbing. (Refer to page 73.)
- (24) Finish the sleeve band in the same manner as explained in paragraphs 21, 22 and 23.
- (25) Seam together the edges of the ribbed sleeve band by holding the work with wrong side facing you as illustrated.
- (26) Seam sides referring to page 75.



Work shell stitches all around.

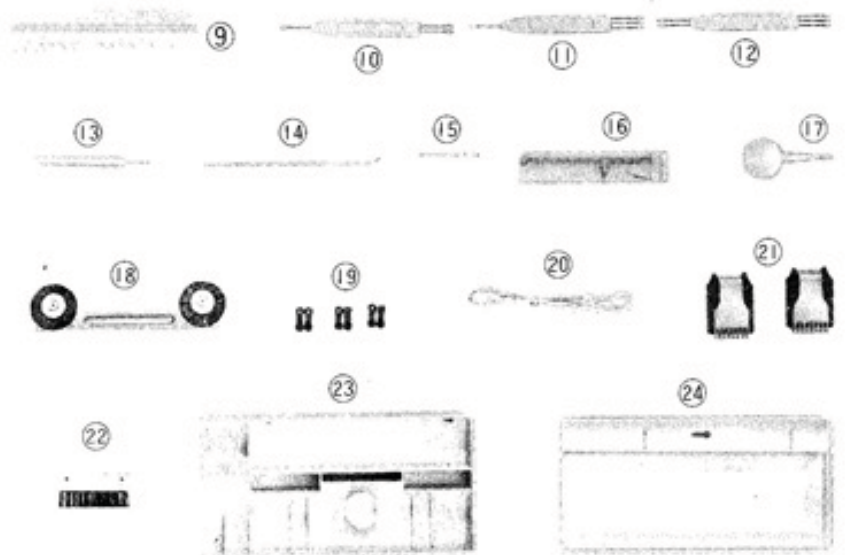
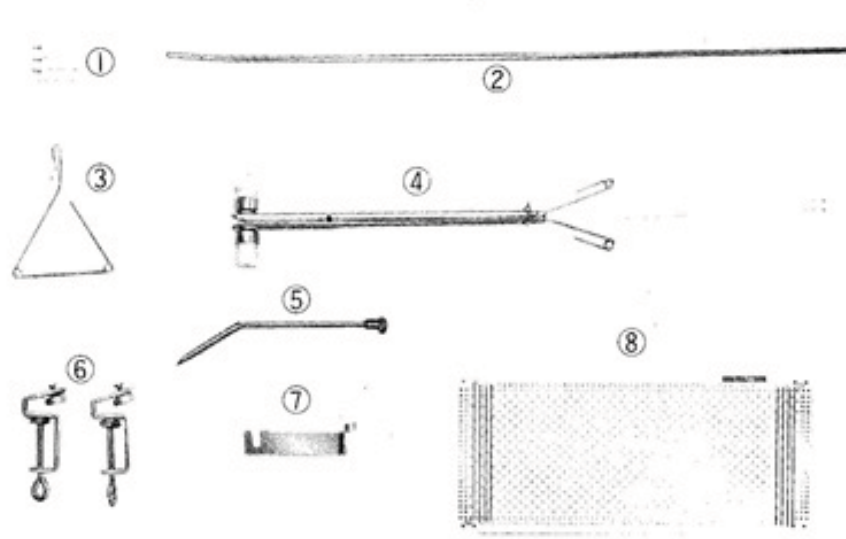


Roll the end and sew.

#### \*FINISHING THE NECK LINE

- (27) Finish around the neck opening by one row of single crochet and the next row in shell stitches all around.
- (28) Work a cord of 3 stitches as shown on page 64 for 47 ins. in length. Run the cord through each shell. Curl each end of the cord and stitch together to fasten. Tie in a small bow.

**\* NAMES AND FUNCTION OF COMPONENT PARTS \***  
**\* ACCESSORIES \***



- ① Name paper.....Used for identification of the possessor of the machine.
- ② Auto-tension rod.....Holds the auto-tension and the auto-tension guide.
- ③ Auto-tension guide.....Guides the yarn smoothly to the auto-tension.
- ④ Auto-tension.....Adjusts the tension of yarn automatically.
- ⑤ Card guide .....Holds the punched card in position.
- ⑥ Clamps.....Used to clamp the machine to the table.
- ⑦ Carriage fastener.....Used to fasten the carriage to the needle bed when the machine is not in use.
- ⑧ Punched card.....Perforated vinyl sheets used for pattern knitting. There are 20 sheets with the machine.
- ⑨ Needle pusher.....Two sided plastic plate, one edge smooth and the other 1 × 1. Used to select the needles.
- ⑩ Transfer tool 1 × 2      Used to transfer the stitches for increases, decreases and patterns.
- ⑪ Transfer tool 1 × 3
- ⑫ Transfer tool 2 × 3
- ⑬ Tappet.....Used to change knit stitch to purl stitch for ribbing and other patterns.

- ⑭ Crochet hook.....Used to finish the stitches.
- ⑮ Tapestry needle.....Used to finish the stitches or to seam the garments.
- ⑯ Spare needles.....For replacement of damaged needles.
- ⑰ Oil container.....Contains oil for lubrication of the knitting machine.
- ⑱ Weaving arm.....Used for weaving patterns.
- ⑲ Card snaps.....Used to join both ends of the punched card.
- ⑳ Ravel cord.....Used for cast on and separating the waste knitting from main knitting.
- ㉑ Weights.....Used on the garment while pattern knitting.
- ㉒ Brush.....Used to clean the machine.
- ㉓ Accessory case.....Holds the accessories.
- ㉔ Accessory tray.....The top of the accessory case is attached to the machine to hold the accessories while knitting.

**\* CARRIAGE \***

**Memory Bank**  
The memory bank is installed inside the carriage cover.

**Side Lever**  
The side levers have two positions.  
● For casting on and when moving the carriage without knitting.  
▲ For stockinet and pattern knitting.

**Arm Nut**

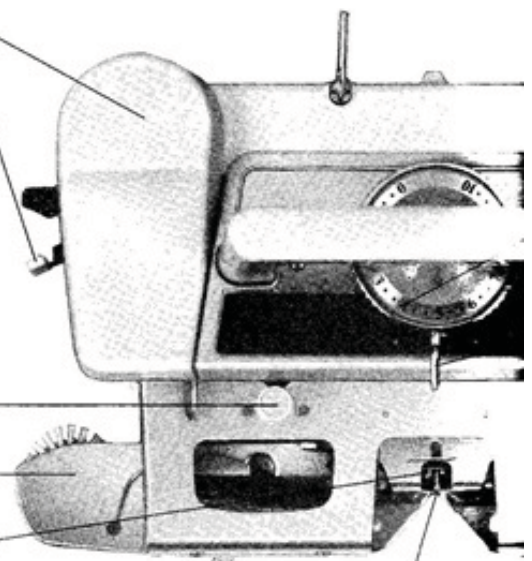
**Fabric Presser**  
This prevents the knitting from coming up or floating.

**Yarn Guide**

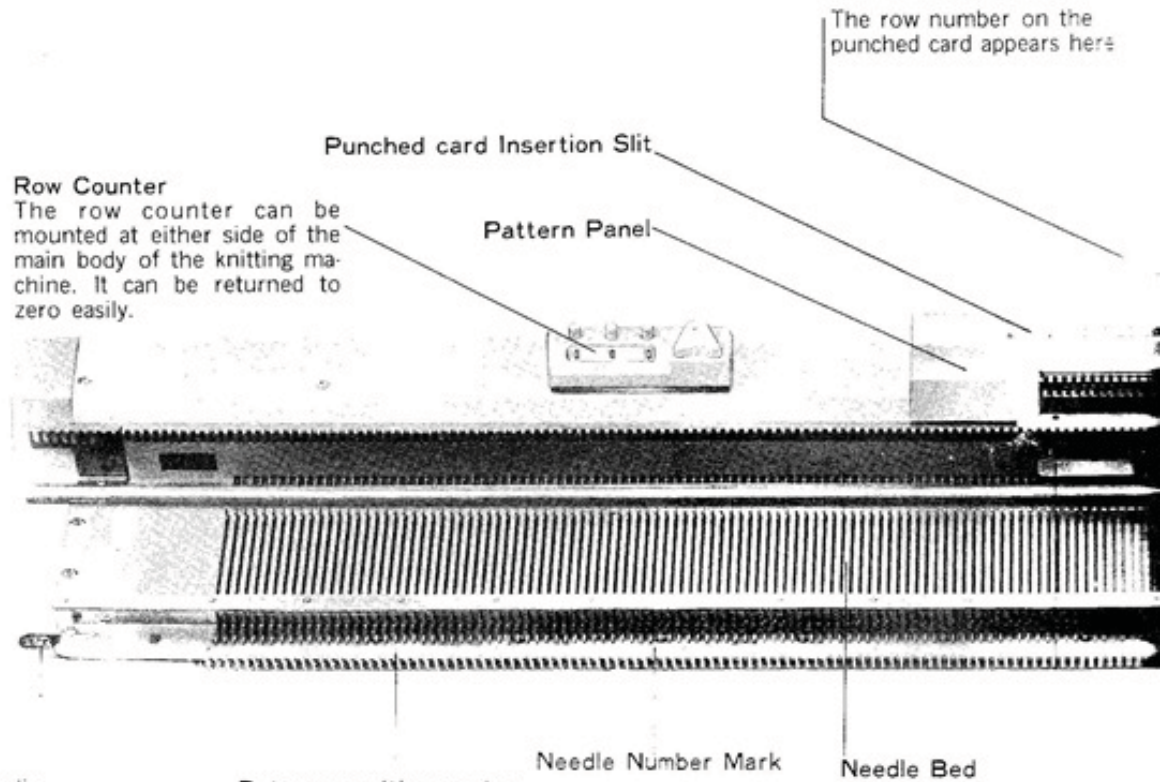
**Arm Lever**  
The arm levers are set to ▲ mark for casting on, punched lace knitting, lace knitting, knitting fine yarns or when knitting at a tension higher than usual. In other cases, they are set to the ● mark.

**Row Counter Lever**  
A lever for advancing the row counter.

**Yarn Feeder**  
The yarn feeder is divided into two parts. For normal knitting, yarn feeder ① is used but for punch lace knitting the yarn feeds at the same time.



**\* MAIN BODY OF KNITTING MACHINE \***



**Row Counter**  
The row counter can be mounted at either side of the main body of the knitting machine. It can be returned to zero easily.

**Punched card Insertion Slit**

**Pattern Panel**

The row number on the punched card appears here

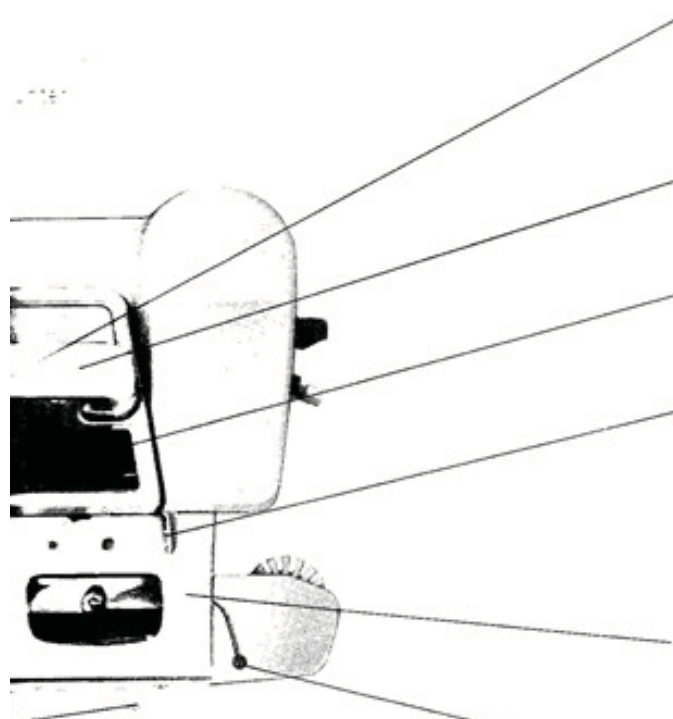
**Yarn clip**  
This clip holds the ravel cord for casting on or the yarn end.

**Pattern position marks**  
There are X and ◊ marks at every twenty-fourth needles to make it easy to find the position of a pattern which repeats every twenty-fourth needles.

**Needle Number Mark**

**Needle Bed**

**Under Lever**



**Tension Dial (Stitch Dial)**  
 This dial is used for adjusting to the weight of yarn for the size of the stitches. By adjusting this dial a wide variety of yarns from very fine yarn to bulky yarns can be knitted.

**Handle**  
 The handle can be folded readily and is ready for use when raised. It is very easy to pack away.

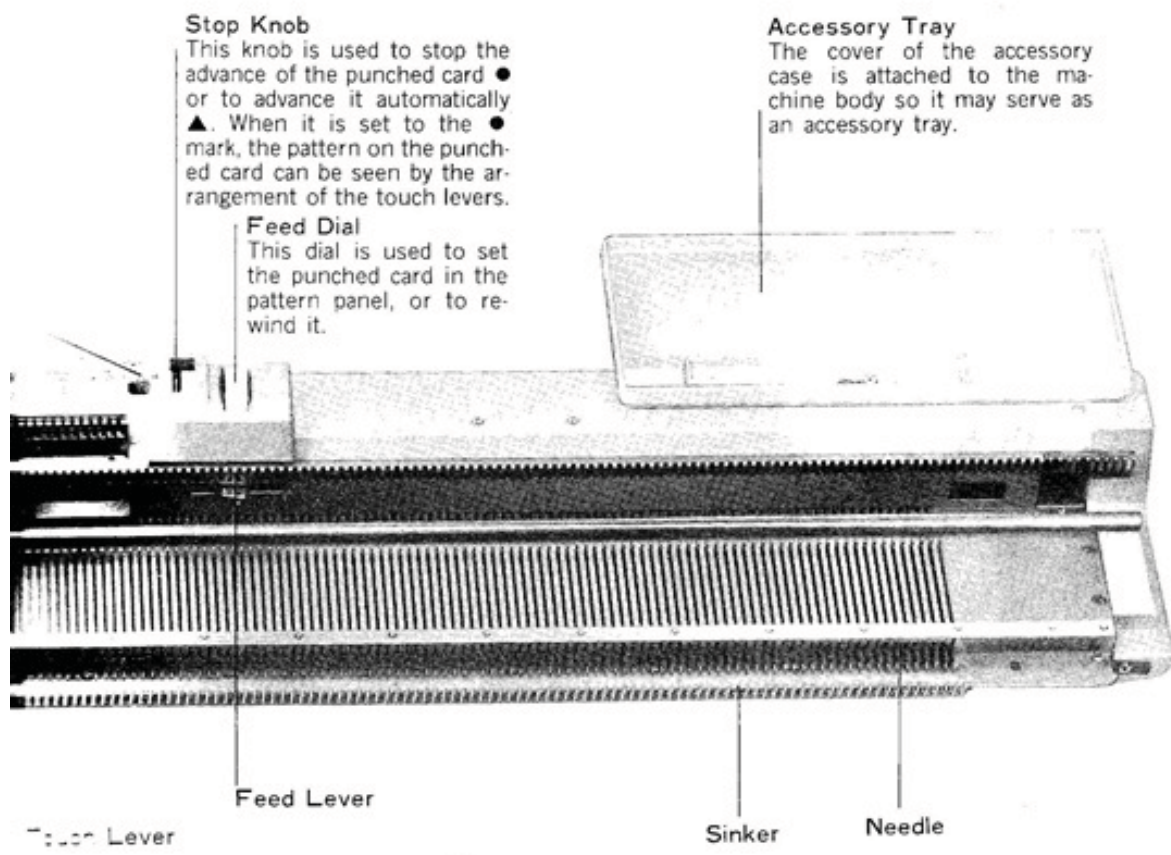
**Cam Lever**  
 By setting this lever to a desired position on the carriage, the pattern stitches can be worked simply by moving the carriage back and forth.

**Russel Lever**  
 I ..... With the Russel lever in this position the needles placed in B and C position knit while those placed in D position do not knit.  
 II ..... This position is used when knitting the needles placed in D position.

**Carriage Arm**  
 When the carriage jams remove the carriage arm and the front of the carriage can be lifted to be moved freely.

**Yarn Holder**  
 In weaving, the yarn to be woven is hooked here.

..... sections. Usually  
 For use (Knit-in) and  
 For use are used



**Stop Knob**  
 This knob is used to stop the advance of the punched card ● or to advance it automatically ▲. When it is set to the ● mark, the pattern on the punched card can be seen by the arrangement of the touch levers.

**Feed Dial**  
 This dial is used to set the punched card in the pattern panel, or to re-wind it.

**Accessory Tray**  
 The cover of the accessory case is attached to the machine body so it may serve as an accessory tray.

Touch Lever

Feed Lever

Sinker

Needle