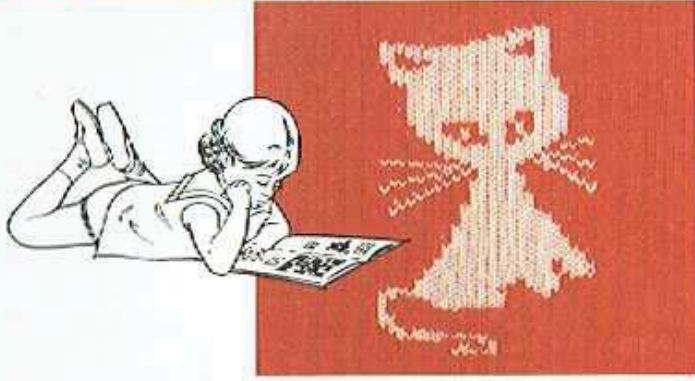
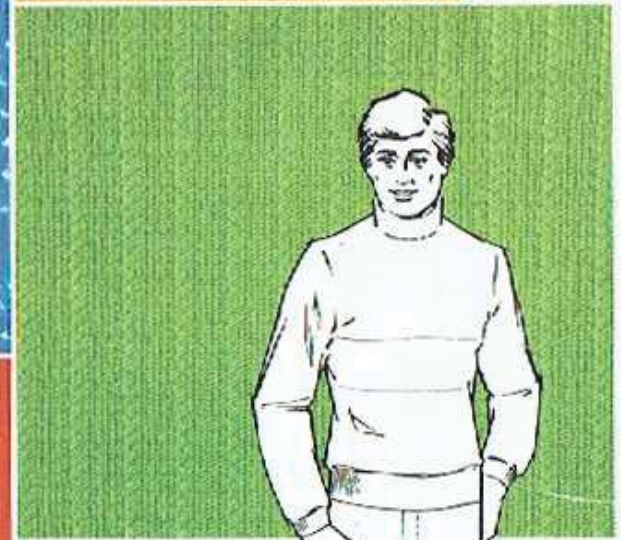




SINGER*

Electronic Knitting Machine



MODEL 500



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INTRODUCTION

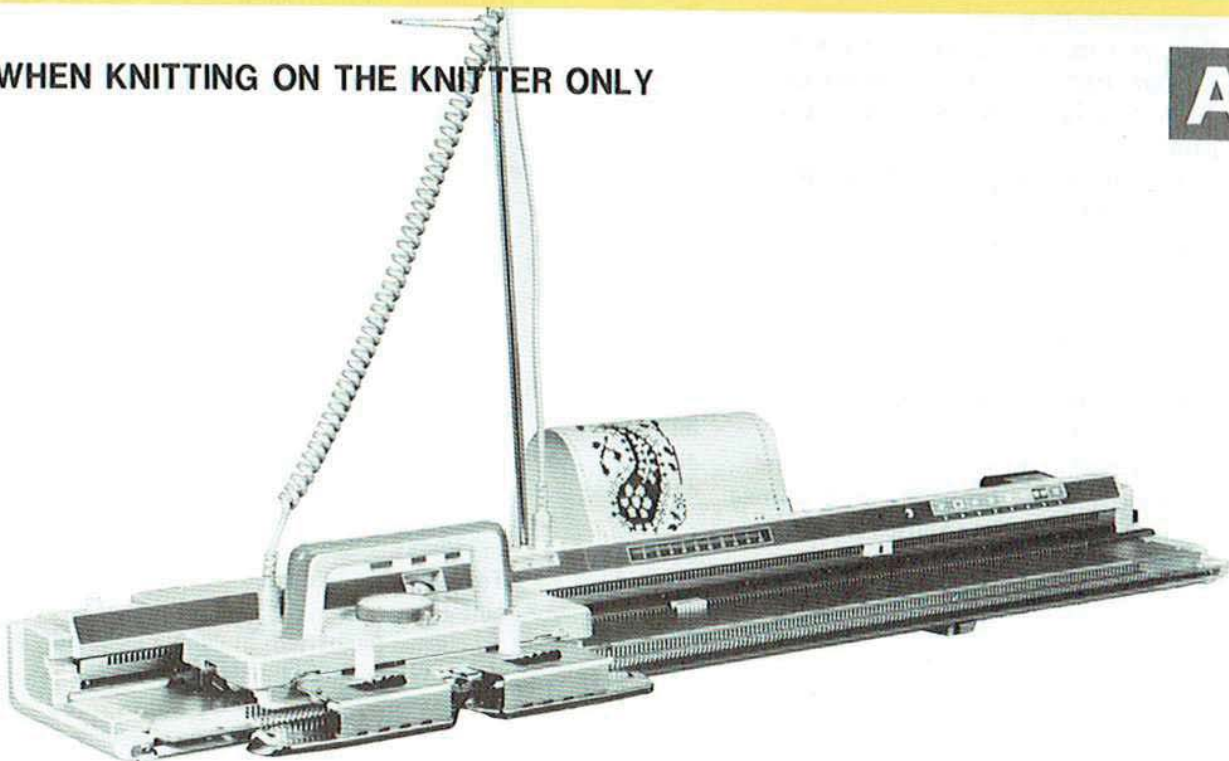
This operation manual presents consolidated instructions for the use of the Model 500 Knitter itself and also in combination with the Ribber and Automatic Yarn Changer as well.

The manual is divided into three sections and classified as A, B, and C. The section A presents in-depth instruction for the Knitter, B for the Knitter with the Ribber and C for the complete combination. You should read carefully the necessary section according to the combination of your machine.

This operation manual is accompanied by the "Knitting Manual" which presents concepts of the Knit Contour incorporated in the Knitter, collection of necessary knitting techniques, knitting a lady's pullover with use of the Knit Contour and without use of the Knit Contour.

WHEN KNITTING ON THE KNITTER ONLY

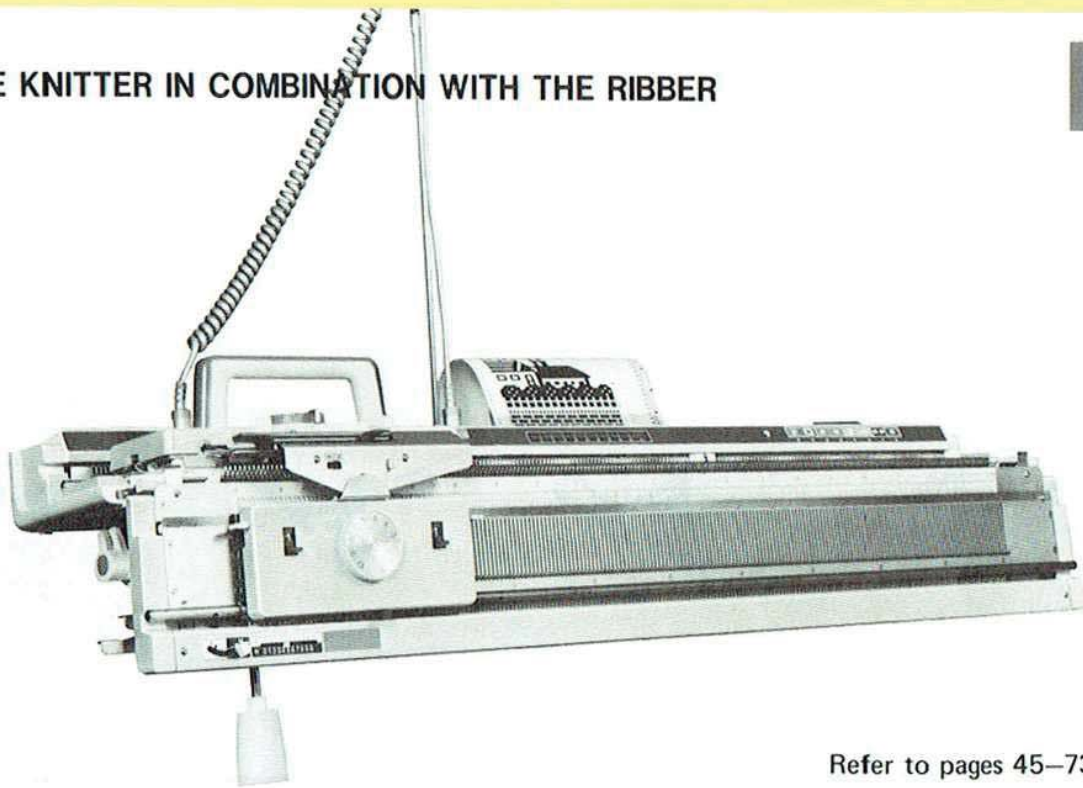
A



Refer to pages 5–44.

THE KNITTER IN COMBINATION WITH THE RIBBER

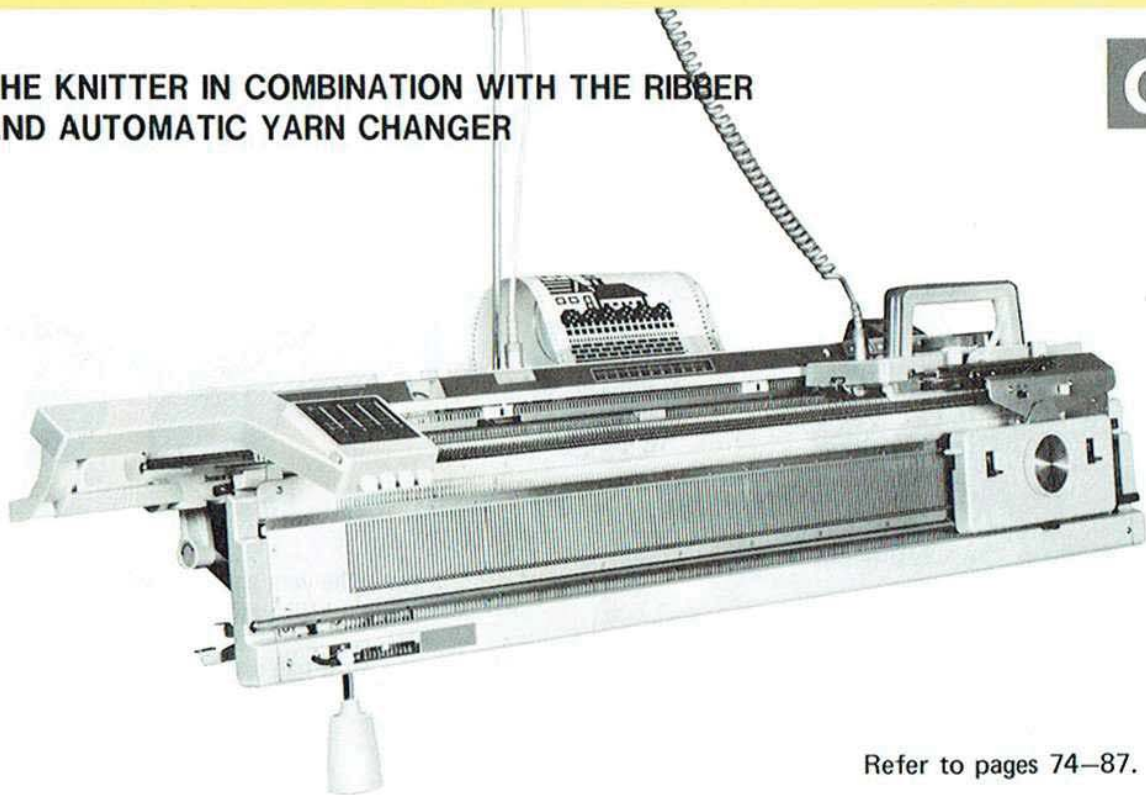
B



Refer to pages 45–73.

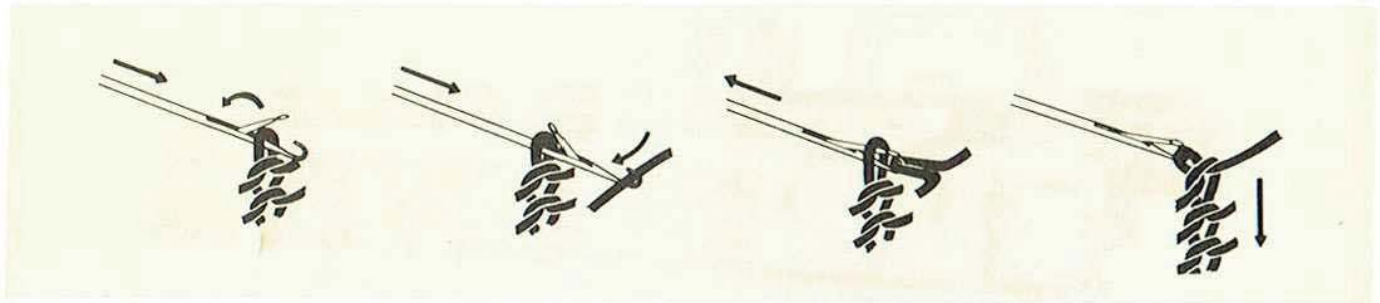
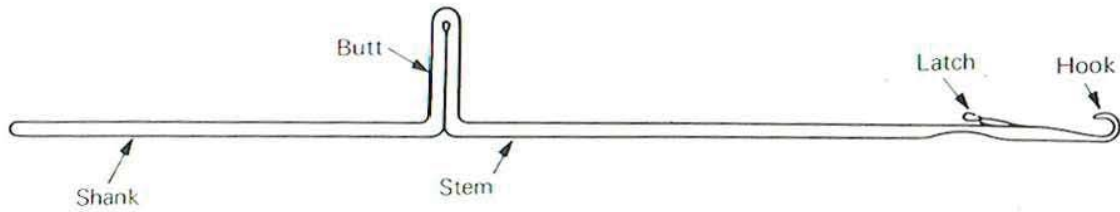
**THE KNITTER IN COMBINATION WITH THE RIBBER
AND AUTOMATIC YARN CHANGER**

C



Refer to pages 74–87.

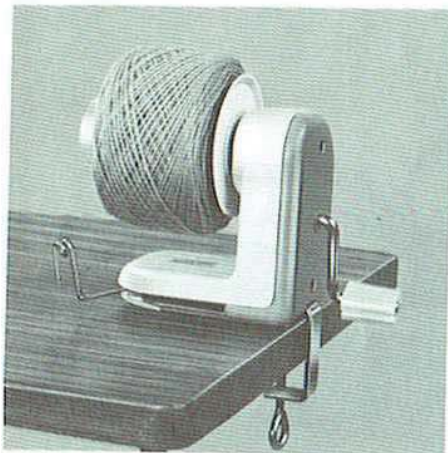
LATCH NEEDLE



KNITTING YARN

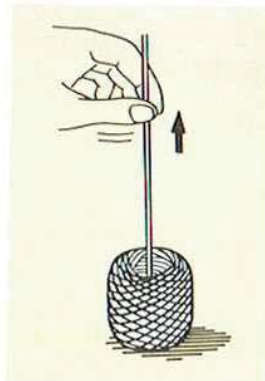
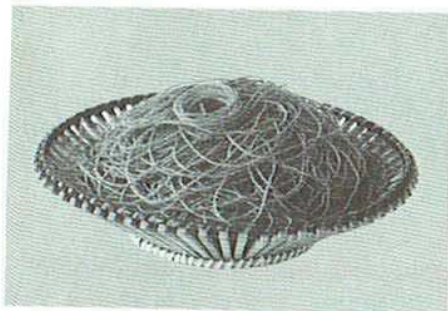
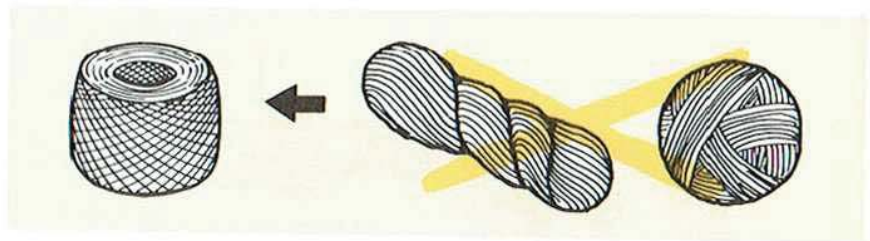


* A yarn of suitable thickness or kind has to be used according to the type of knitting. For knitting on the Knitter, the yarn having the thickness close to the yarns(2-3) in the left photo is recommended. When the Ribber is connected, the yarn having the thickness close to the yarns(1-2) in the left photo is recommended.



Do not knit from a hank of yarn or hand wound yarn ball.

Wind yarn into a ball using a Yarn Ball Winder. When the yarn has been wound, pull the end to see if it comes out freely from the inside and if not, wind again.

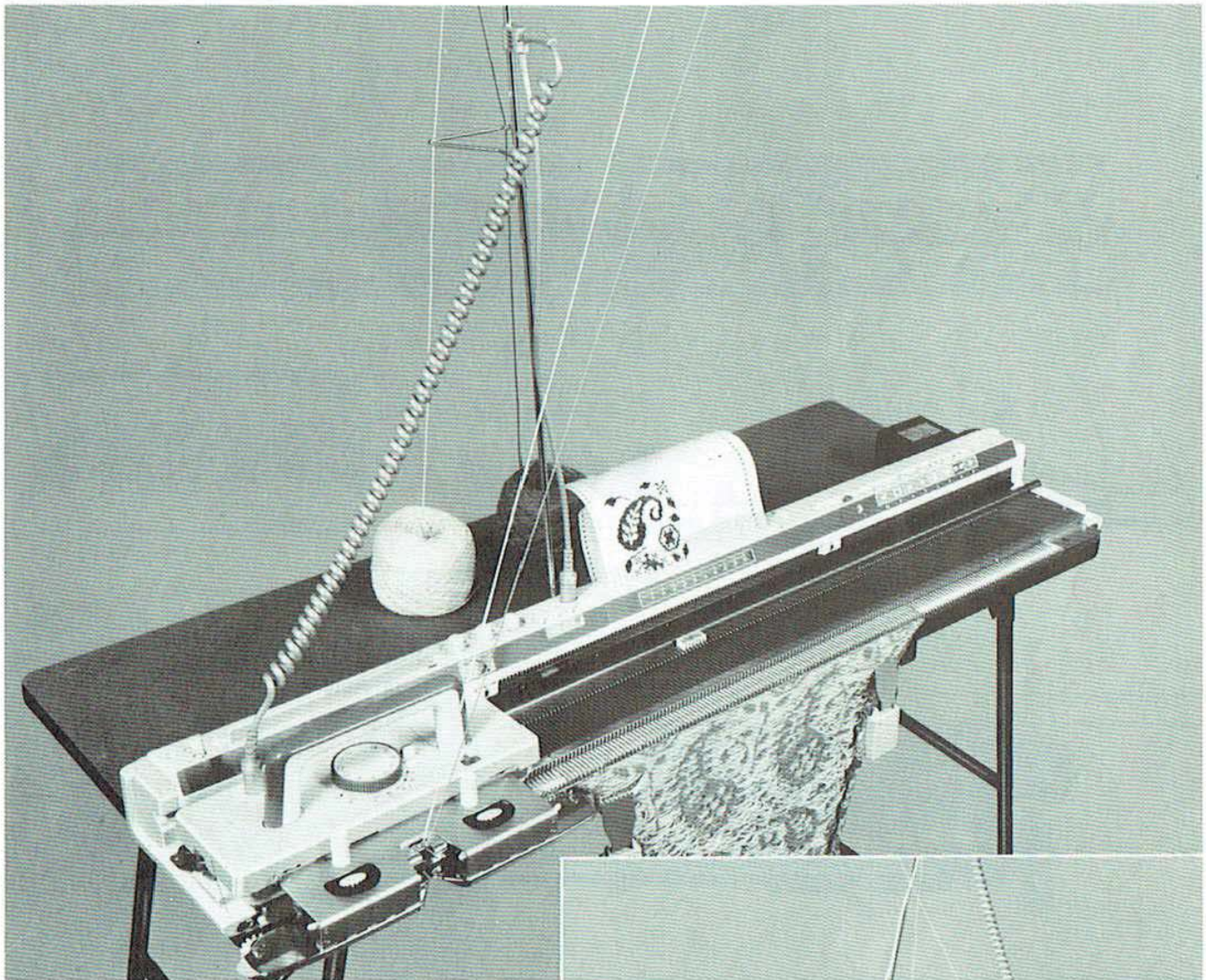


* When the yarn end is pulled, it must come freely without lifting the ball from the table.

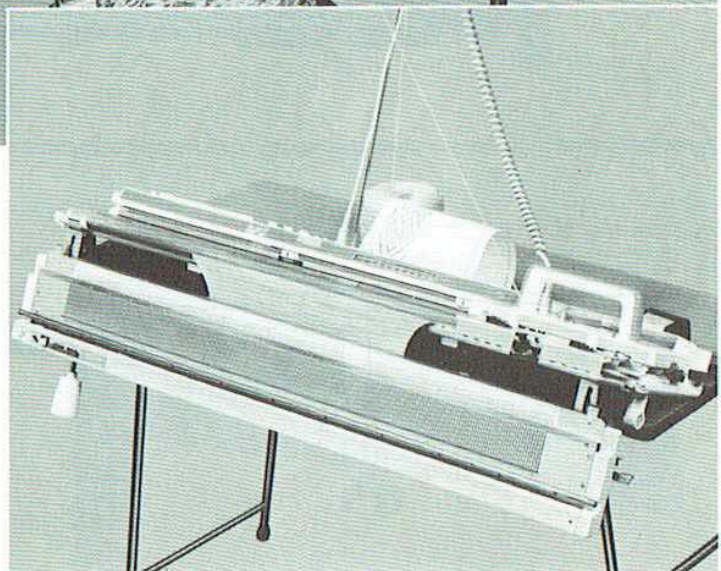
* The Yarn Ball Winder is a useful optional accessory.

A

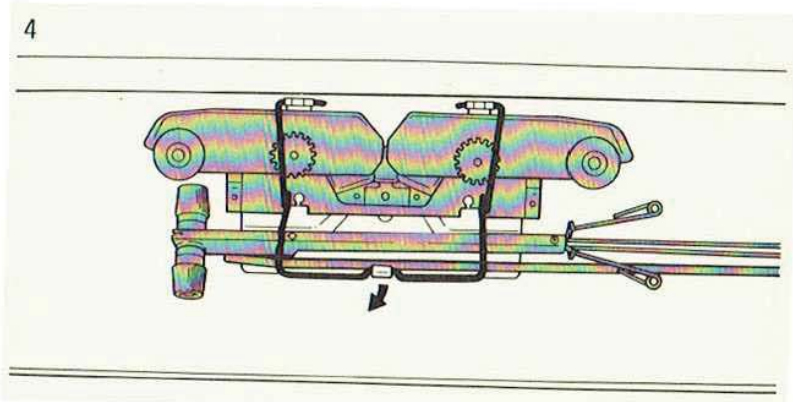
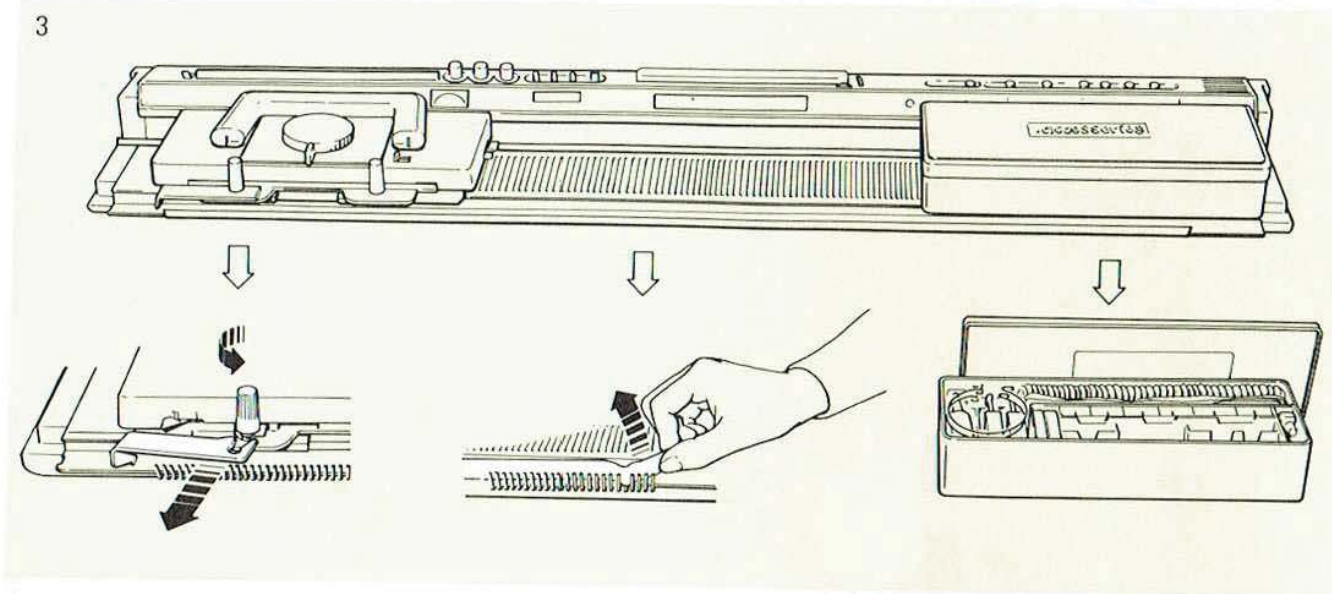
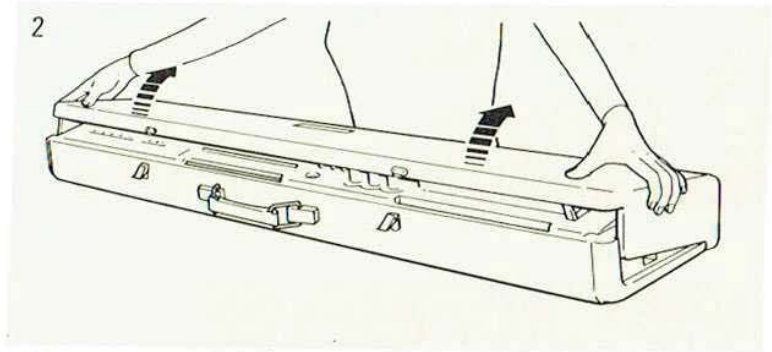
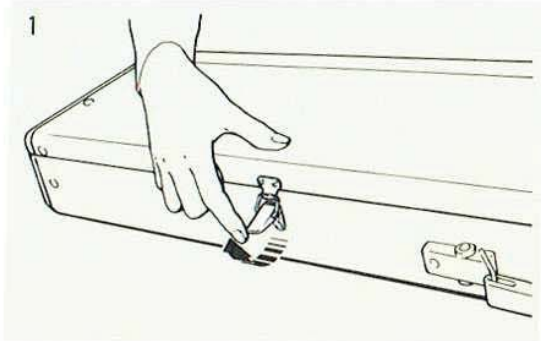
TO USE THE KNITTER



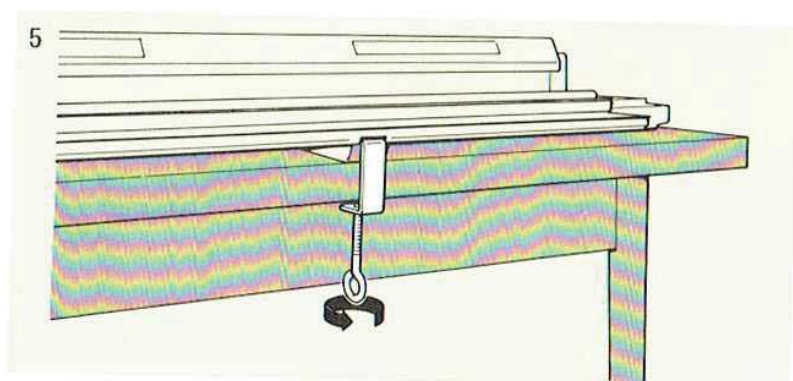
* When knitting on the Knitter only with the Ribber attached, lower the Ribber to its fullest extent. → Use the Knitter Arm.



A-1 TO ASSEMBLE THE KNITTER

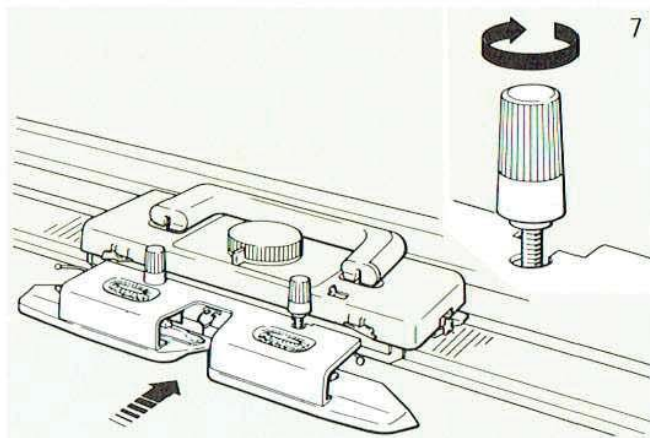
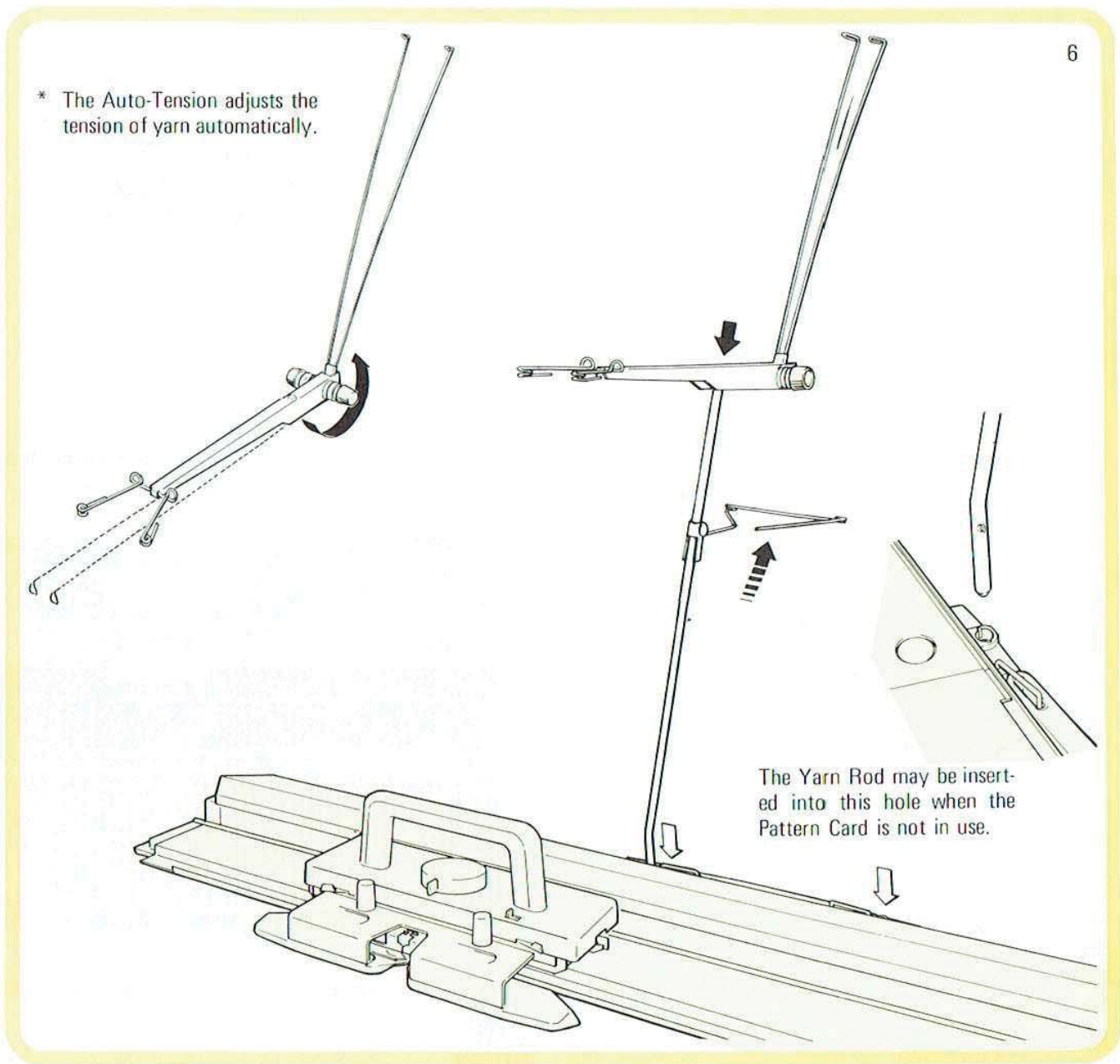


* Release the Wire Spring, and take out the Arm, Auto-Tension and Yarn Rod.

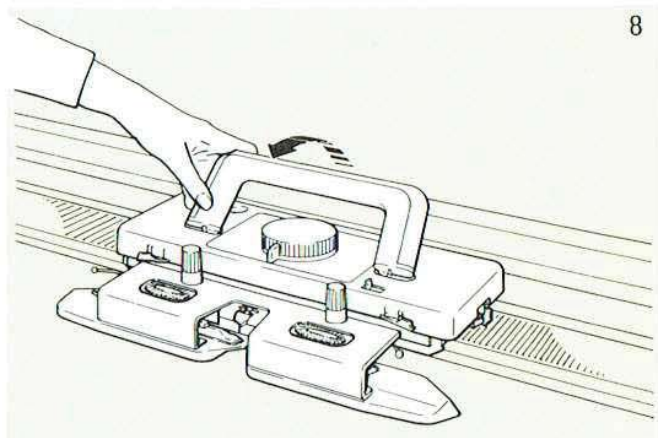


* Take out two Clamps from the Accessory Box and secure the Knitter on a table using the Clamps.

TO ASSEMBLE THE AUTO-TENSION

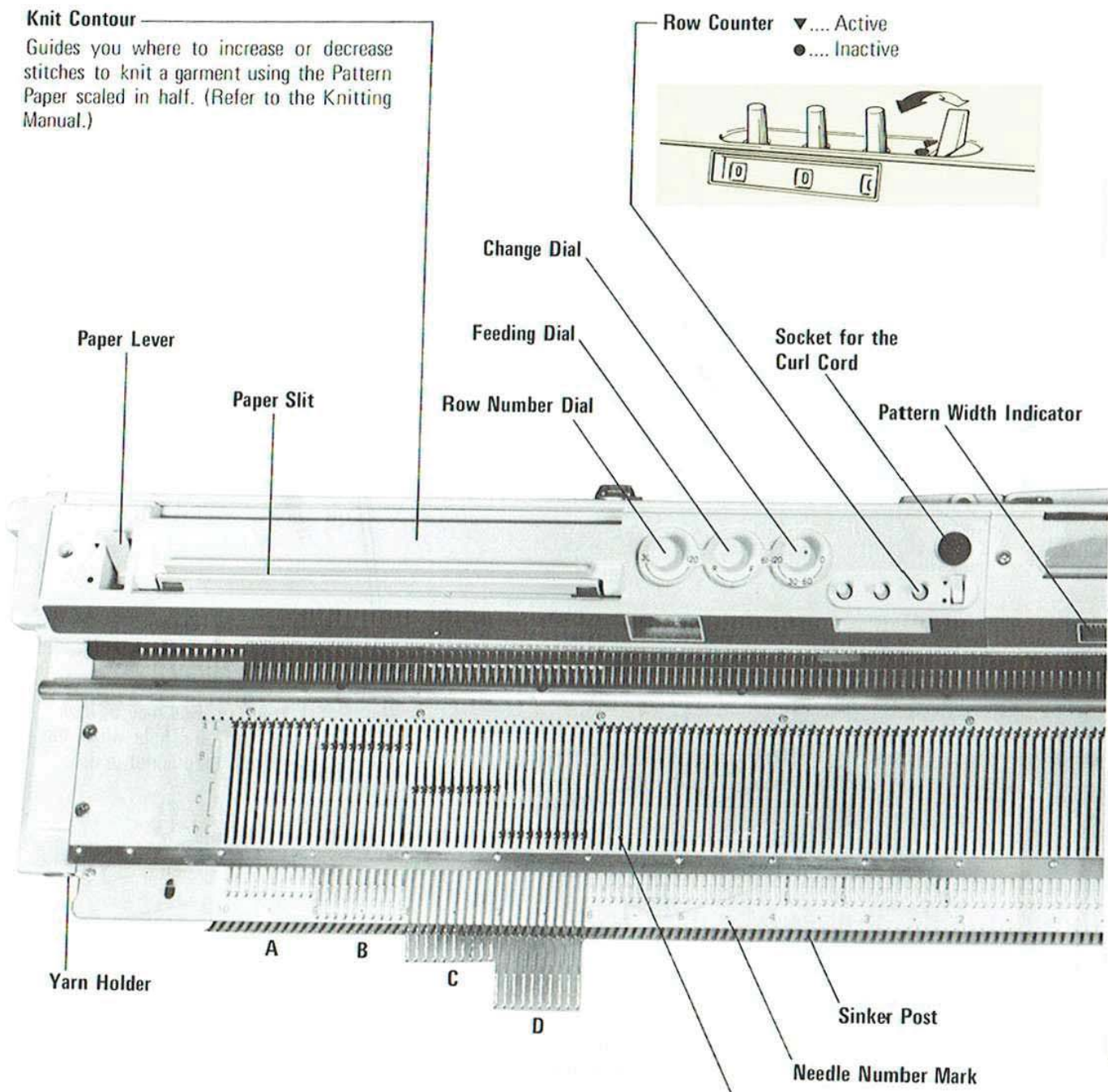


*Attach the Arm.

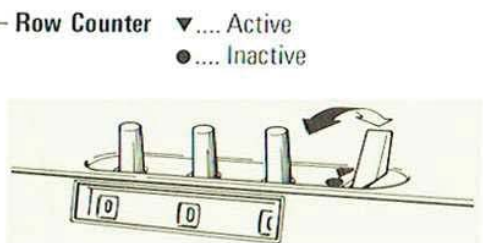


*Raise the Handle.

A-2 NAMES OF PRINCIPAL PARTS



Knit Contour
 Guides you where to increase or decrease stitches to knit a garment using the Pattern Paper scaled in half. (Refer to the Knitting Manual.)



Needle Positions
 The letters A, B, C and D associated with brackets "J" are engraved at the both ends of the needle bed. The needles covered by each bracket function as below.

A.....Non-working position.
 B.....Working position.
 C.....The needles in this position knit stockinet stitches only.
 D.....Holding position. The needles in this position are knitted back to B position when the Russel Lever is at II position.

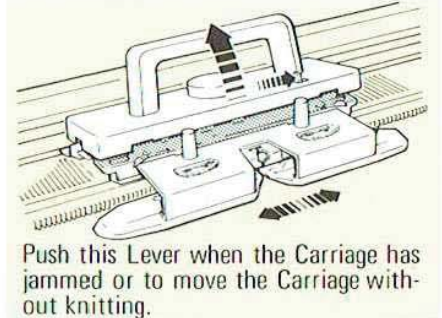
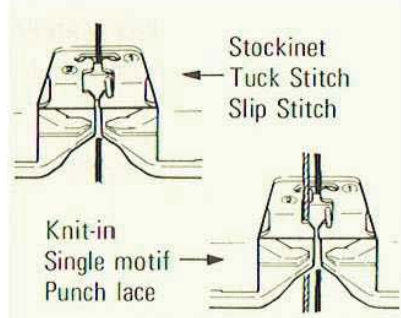
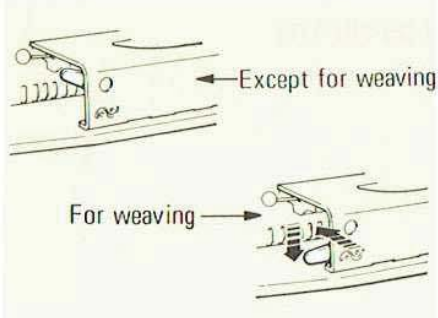
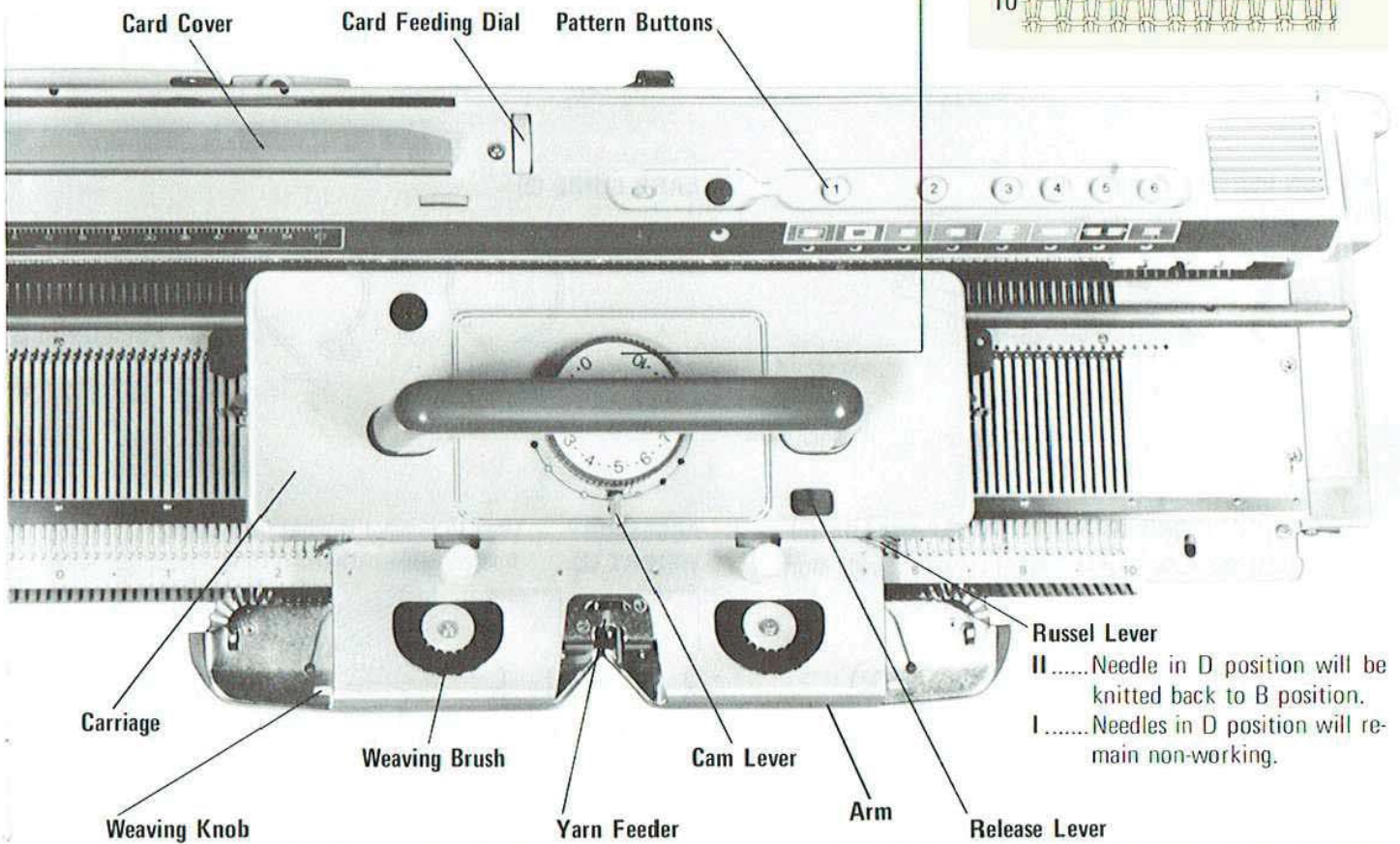
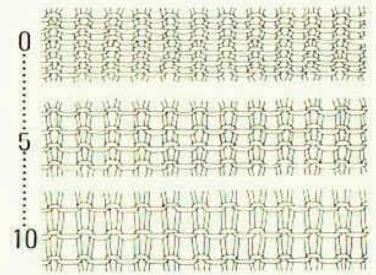
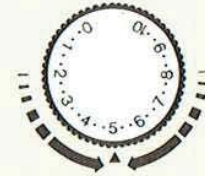
CAM LEVER SETTINGS

Setting positions for the Cam Lever are marked as shown below:-

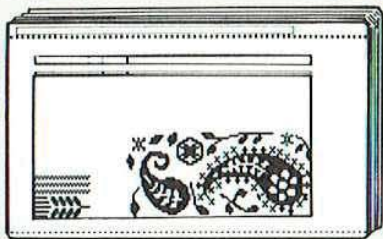
- TUCK (T)**.....Tuck stitch
- ENGLISH RIB (E)**.....English rib stitch when Ribber is in use.
- CIRCULAR/
TUBULAR (C)**.....Circular knitting and cast on when the Ribber is in use.
- STOCKINET (O)**.....Cast on and stockinet stitch.
- SLIP/JACQUARD (S-J)**.....Slip stitch and double jacquard when the YC is in use.
- WEAVING (W)**.....Weaving knitting.
- PUNCH LACE (L)**.....Punch Lace knitting.
- KNIT-IN (F)**.....Knit-in (Fair Isle) knitting.

Stitch Dial

Regulates the size of stitch. The higher the number, the bigger the stitch size. Set each selected number or dot at ▲ mark.

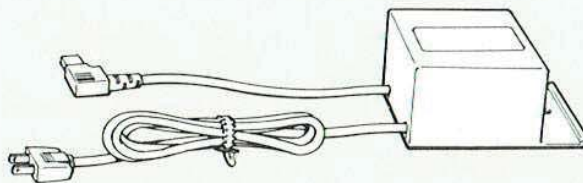


PATTERN CARD
(15 SHEETS)



DESIGN CARD
(5 SHEETS)

TRANSFORMER



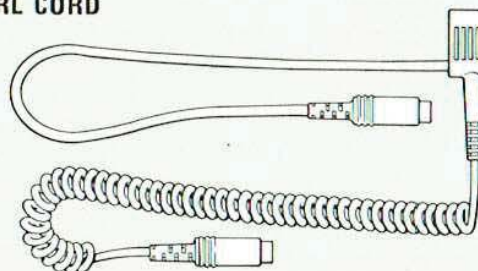
NEEDLE 1 CAM (2) Used to set the pattern position on the needle bed.
(1 for spare)



POINT CAM (2)
(spare)

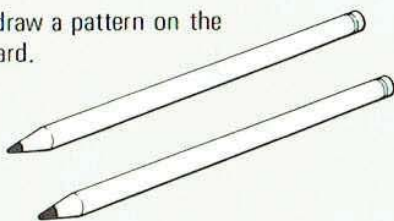


CURL CORD



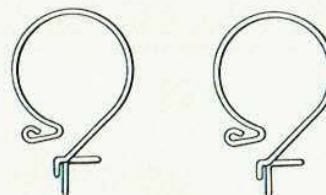
DESIGN PENCIL (2)

Used to draw a pattern on the Design Card.

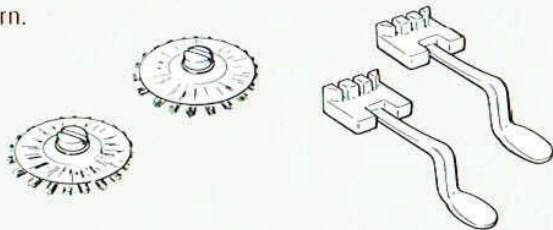


(Do not use any other pencil.)

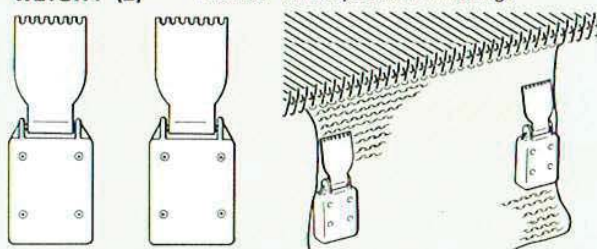
CARD GUIDE (2)



EXTRA ROUND BRUSH (2) Used to knit Tuck Stitch Pattern.
YARN SEPARATOR (2) Used to work Single Motif.



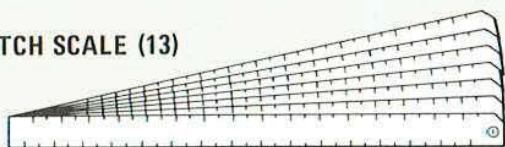
ACCESSORY WEIGHT (2) Used to prevent stitches from being floated while pattern knitting.



GAUGE SCALE

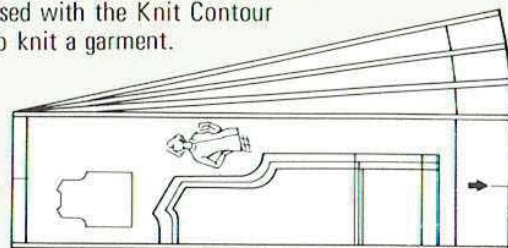


STITCH SCALE (13)



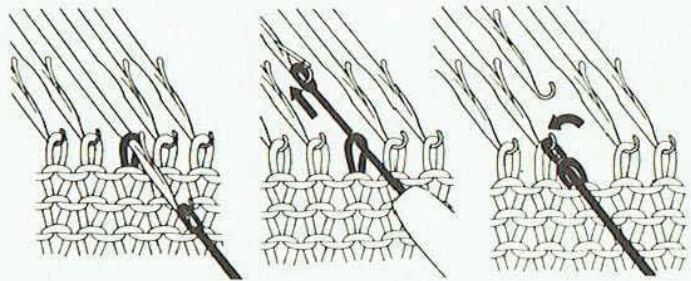
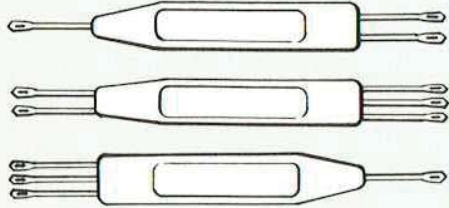
PATTERN PAPER (20 SHEETS)

Used with the Knit Contour to knit a garment.



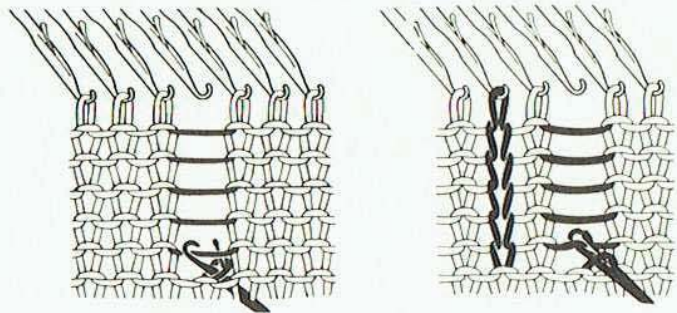
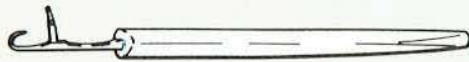
TRANSFER TOOLS (3)

Used to work stitches.



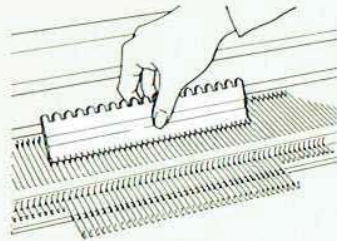
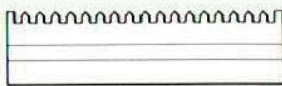
TAPPET

Used for picking up dropped stitches and reversing knit stitch to purl stitch or vice versa.



NEEDLE PUSHER

Used to move or arrange needles.

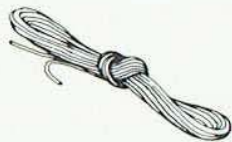


CROCHET HOOK

Used for seaming and trimming.

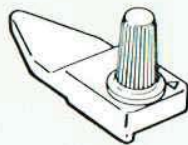


RAVEL CORD

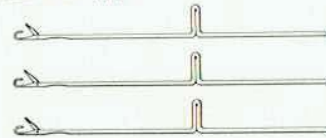


AUXILIARY FEEDING CAM

Used to knit with very thick yarn.



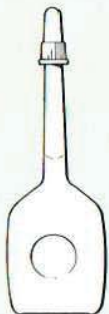
SPARE NEEDLES (3)



TAPESTRY NEEDLE



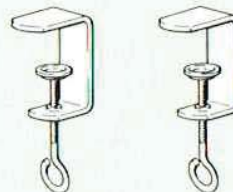
OIL



BRUSH

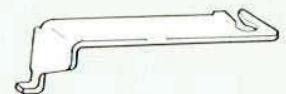


CLAMP (2)

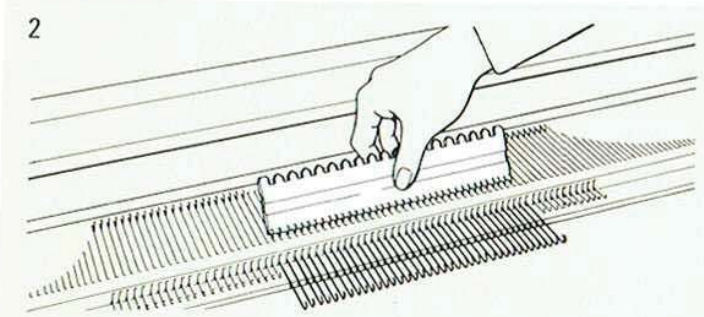
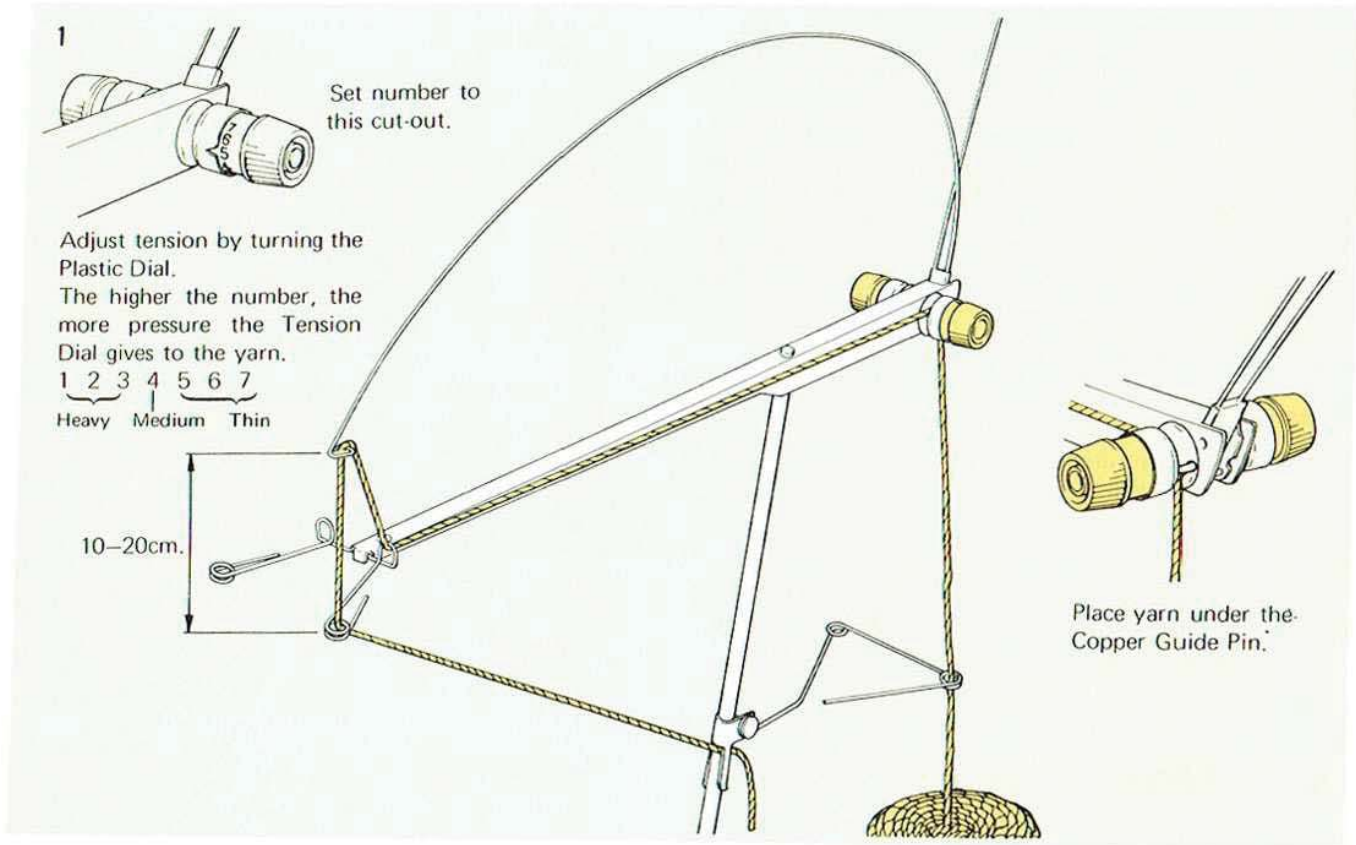


CARRIAGE FASTENER

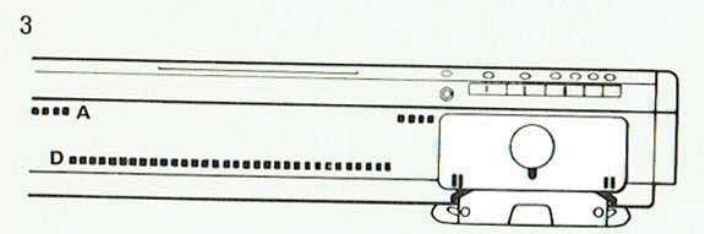
Used to secure the Carriage while not in use.



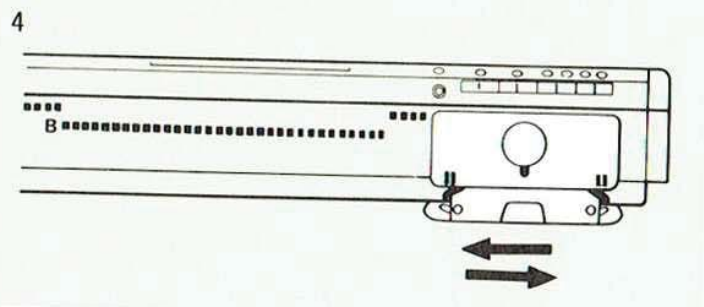
A-4 CAST ON AND STOCKINET KNITTING



1. Thread a yarn through the Auto-Tension and hold the yarn end in the Clip on the Yarn Rod.
For practice, use medium weight yarn. (P.16)
2. Push the required number of needles to D position using the Needle Pusher.



3. Set the Carriage as follows:-
 Cam Lever..... STOCKINET (O)
 Russel Lever..... II (both)
 Weaving Knob..... O (both)
 Stitch Dial..... to the thickness of the yarn.



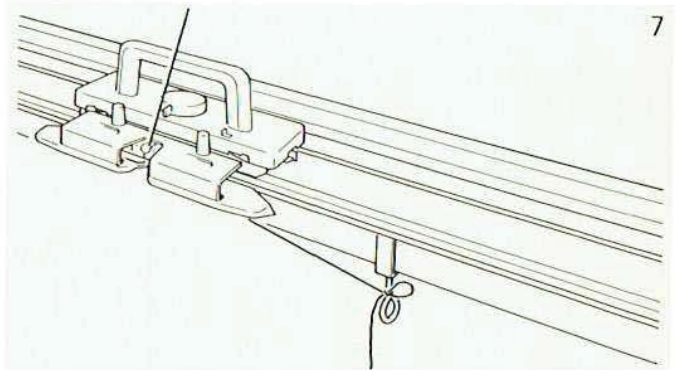
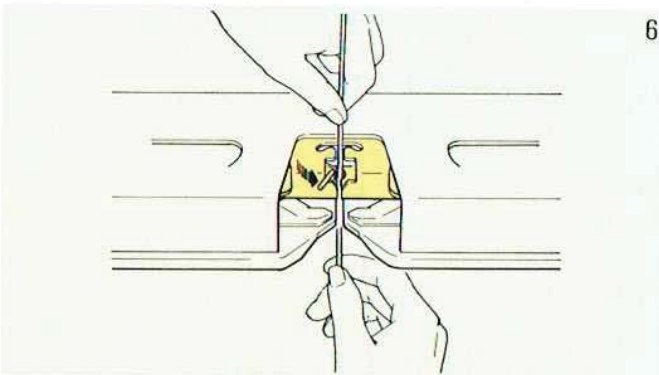
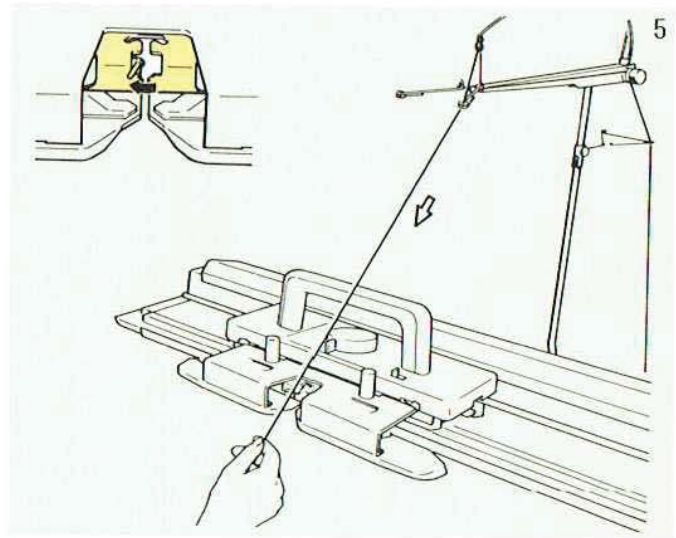
4. Move the Carriage across the needle bed 1-2 times.
The needles in D position align in B position.

5. Open the Yarn Feeder Gate.
Take the yarn off the Clip and pull down to the Yarn Feeder.

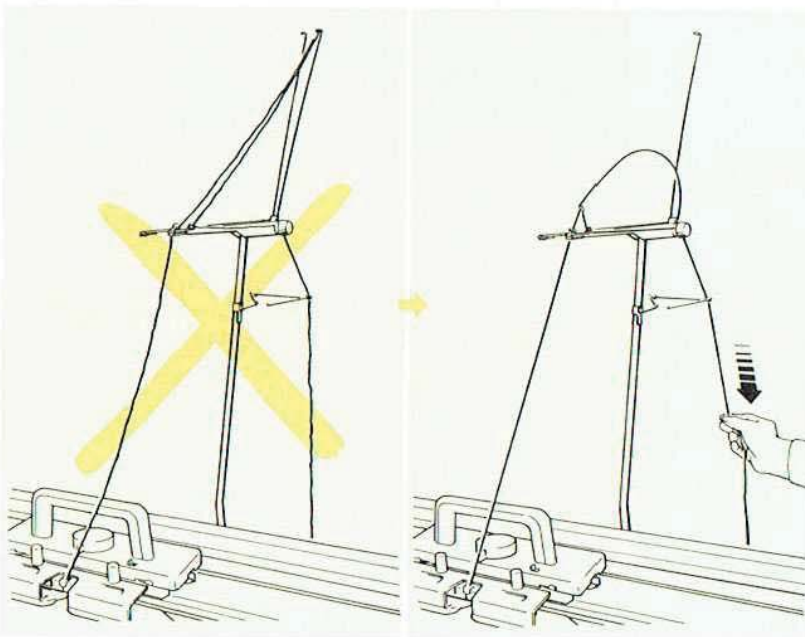
6. Set the yarn in the Yarn Feeder ① and close the Gate.

7. Pull the yarn to the Clamp and tie around the Clamp screw.

(Take up the slack on the yarn.)



TO THREAD YARN CORRECTLY ON THE MACHINE

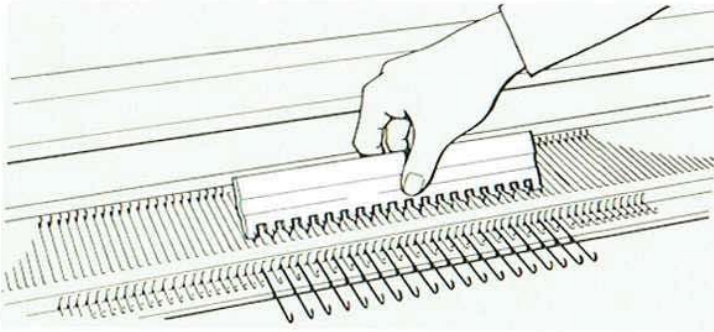


Incorrect threading of the yarn through the Auto-Tension will never assure success in knitting. Before starting to knit, make sure of the following:—

- * Tension on the threaded yarn.
- * Check to see if the yarn comes out from the ball freely.

It is advisable to pull out a certain length of yarn from the ball before starting to knit.

CAST ON—METHOD 1 (CLOSED EDGE CAST ON)

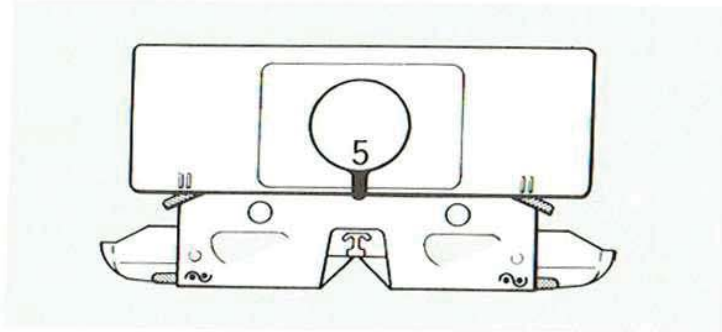
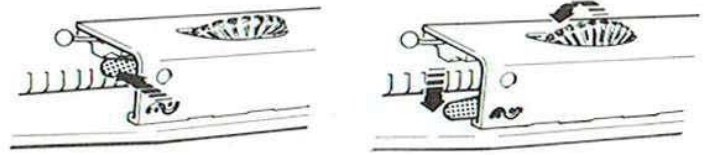


Using the Needle Pusher, align the needles in B position and D position alternately as shown.

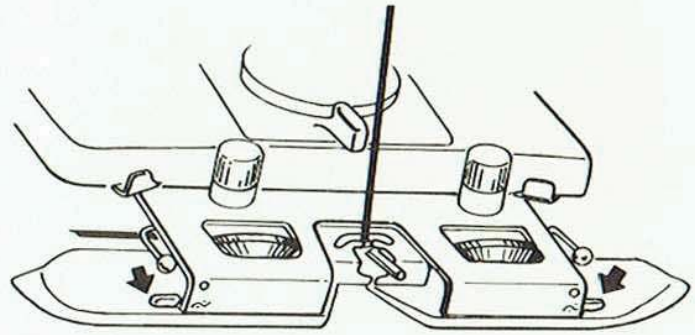
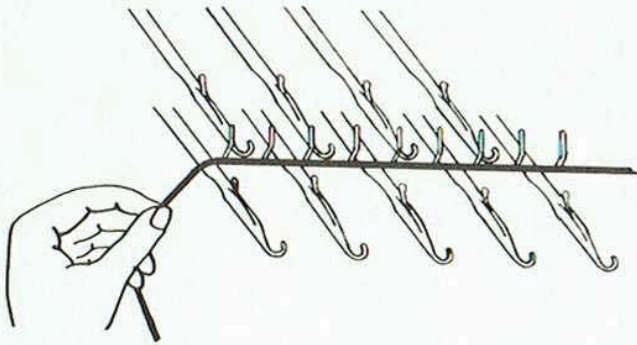
Set the Carriage controls.

- Cam Lever..... STOCKINET (O)
- Stitch Dial..... 5
- Russel Levers..... II
- Weaving Knobs..... ~

Thread yarn in the Yarn Feeder ①.

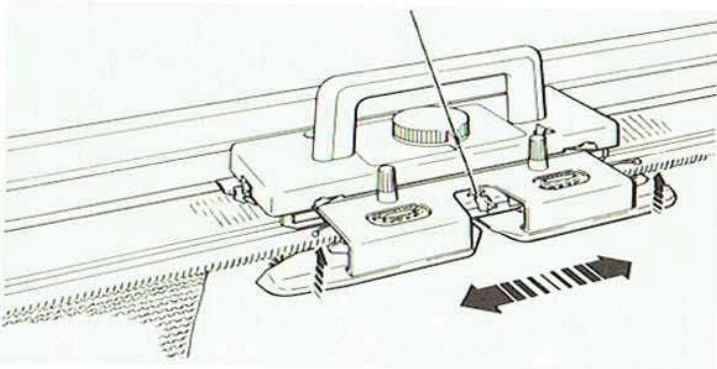


Lay the yarn end over the needles in D position.

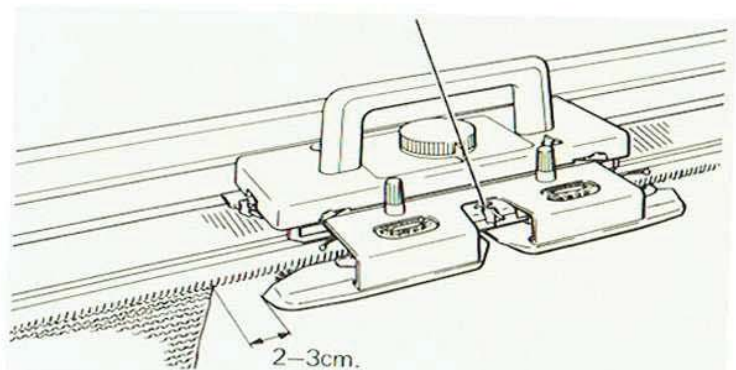


Slowly move the Carriage across four times. Now you have completed the cast on.

TO CONTINUE TO KNIT STOCKINET



- * Set the Weaving Knobs back to O.
- Move the Carriage back and forth to knit stockinet.
- * Move the Carriage at an even speed.



- * When moving the Carriage back and forth, ensure at all times that the Carriage Arm has passed the last knitted needle by approximately 2–3cms. before changing direction. The Carriage can not be moved back unless a knitted row has been completed.

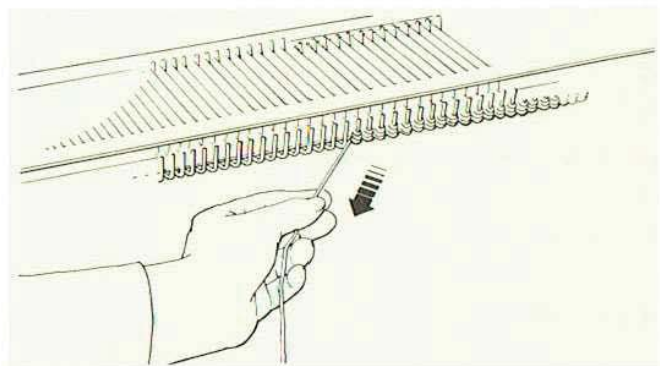
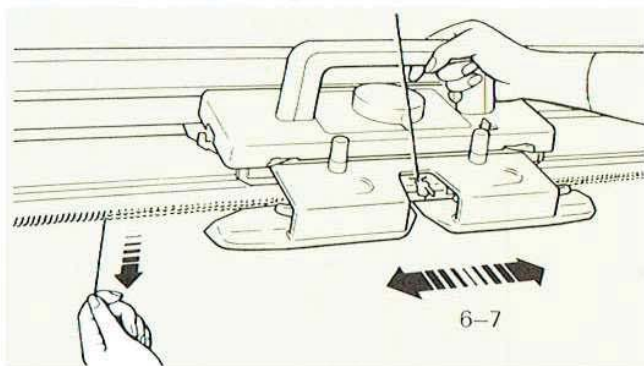
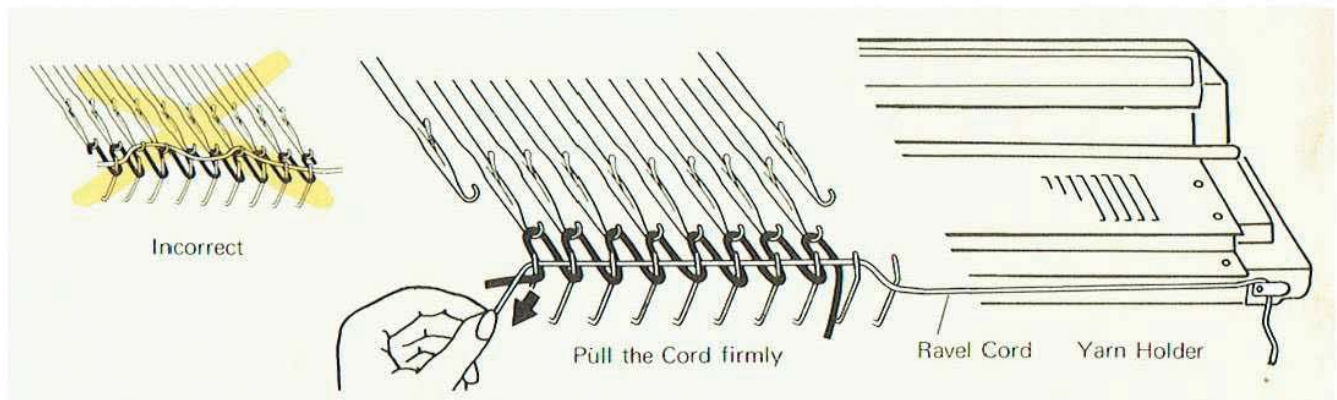
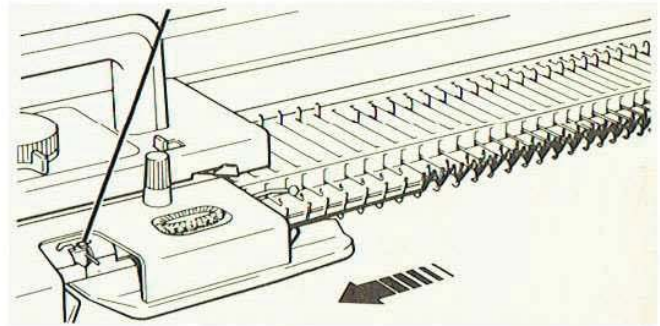
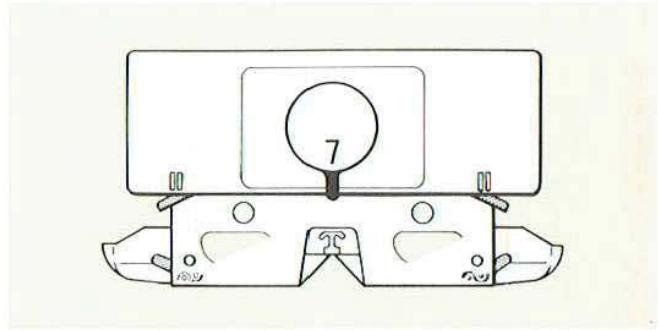
CAST ON—METHOD 2 (OPEN EDGE CAST ON)

1. Thread yarn into the Yarn Feeder ①.

Set the Carriage controls.

Cam Lever..... STOCKINET (O)
 Stitch Dial..... 7
 Russel Levers..... II
 Weaving Knobs O

2. Move the Carriage to the opposite side. The yarn will be hooked alternately by needles and sinker posts. When knitting the first row, loops of the end 4–5 needles of the Carriage side may form smaller. Correct the loops by pulling down slack yarn and pushing needles back one by one to align with needles in working position.
3. Take out the Ravel Cord from the Accessory Box and place its end into the Yarn Holder at the end of the needle bed. Lay the Cord across the knitted yarn between needles and sinker posts. Pull the Cord tight so that it lays straight.

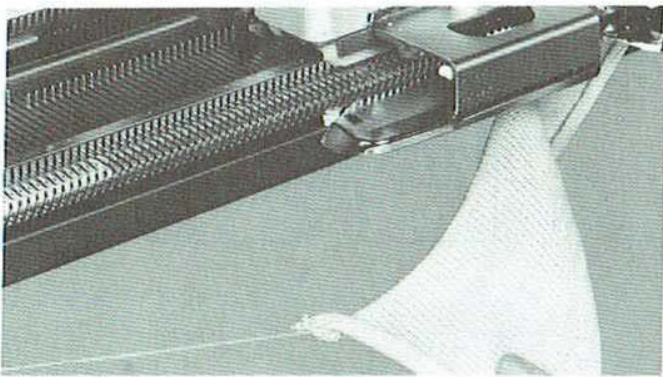


4. Pull the Ravel Cord tight and slowly move the Carriage back and forth across knitting 6–7 rows.

5. Remove the Cord from the Yarn Holder and pull it out of knitting from the left side. Now the cast on procedure has been completed.

* To continue to knit in stockinet, set the Stitch Dial to 5.

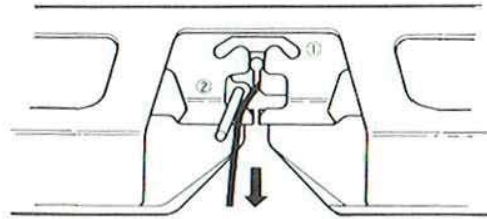
TO REMOVE THE KNITTING FROM THE KNITTER



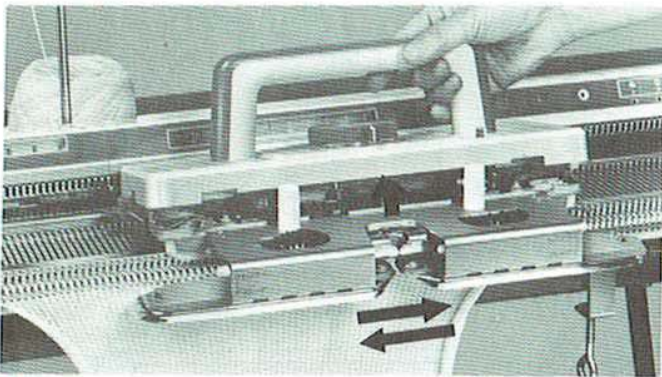
Open the Yarn Feeder Gate and pull yarn out from the Yarn Feeder.

Set the Cam Lever to STOCKINET (O) mark and move the Carriage across once.

The knitting will come off of the needles.

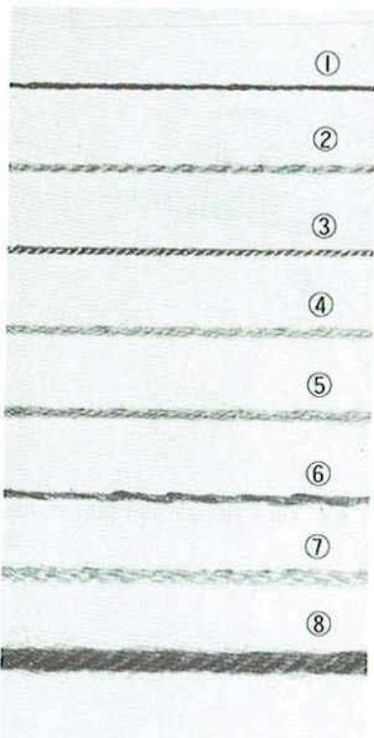


TO MOVE THE CARRIAGE WITHOUT KNITTING

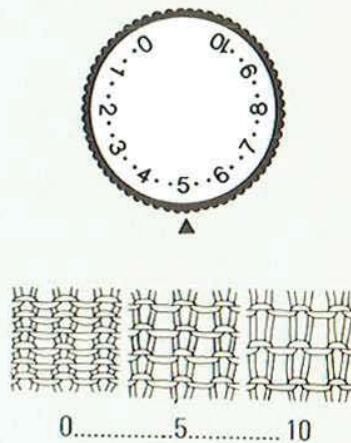


When stitches are hooked on the needles, push the Release Lever to the right (P.9) and with the top of the Carriage lifted, move the Carriage.

STITCH DIAL AND YARNS



* The Stitch Dial regulates the size of stitch. The Dial gives the numbers 1 through 10 and there are two dots in between each number. The higher the number, the bigger the stitch size, and each selected number or dot must be set at the ▲ mark. The table and the illustration give a guidance for selecting a suitable Stitch Dial number.



Kind of yarn	Stitch Dial number
① Cotton thread	2-3
② Thin yarn (2 ply)	2-3
③ Summer yarn	3-4
④ Light yarn (3 ply)	3-5
⑤ Medium yarn (4 ply)	4-6
⑥ Boucle	5-6
⑦ Thick yarn	6-9
⑧ Very thick yarn (Use every other needle)	6-7

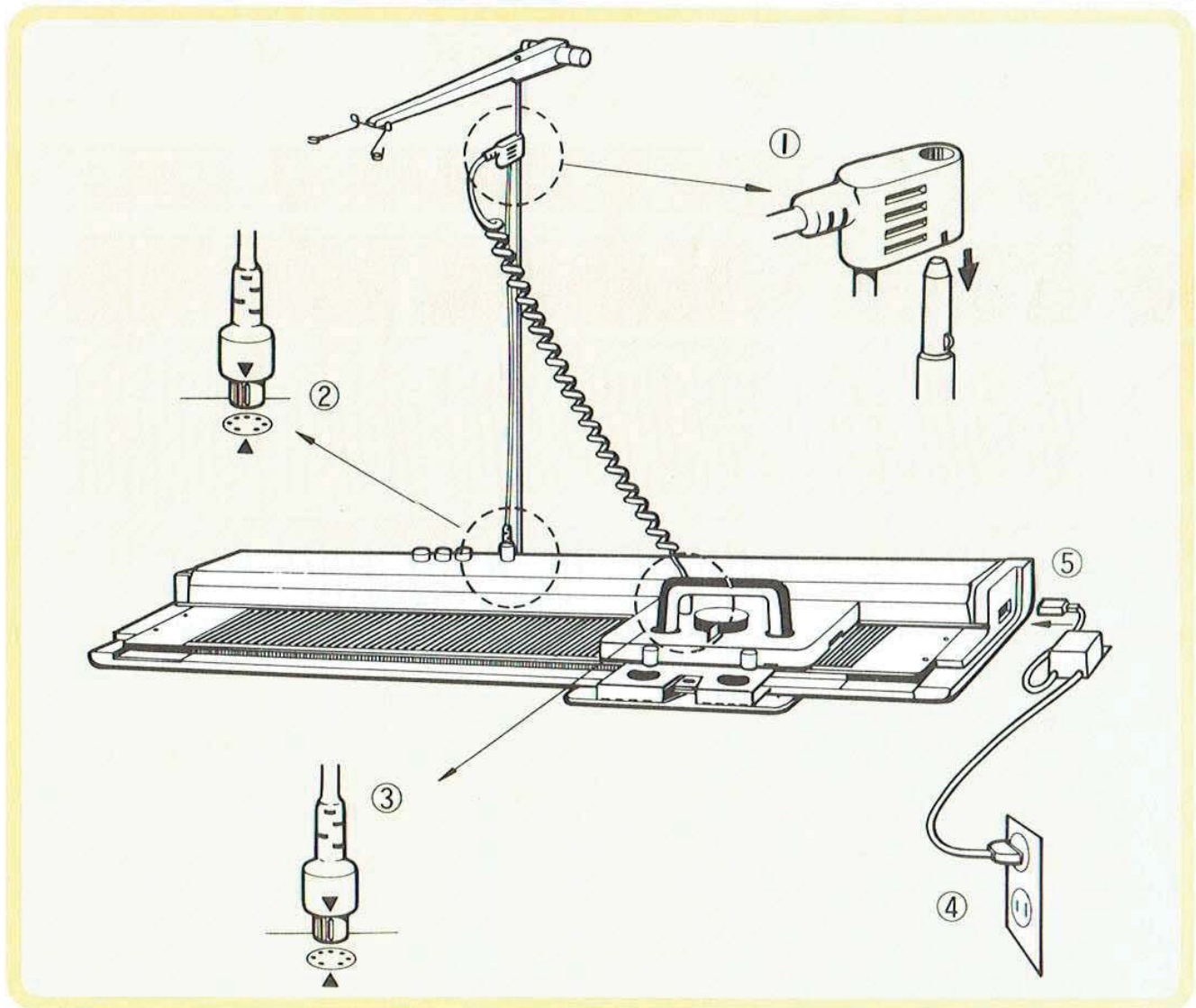
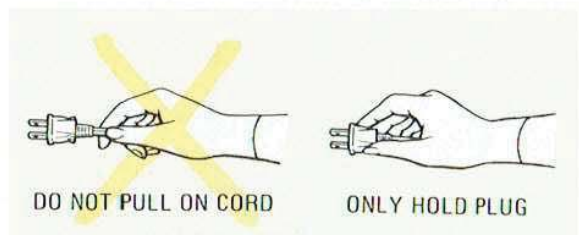
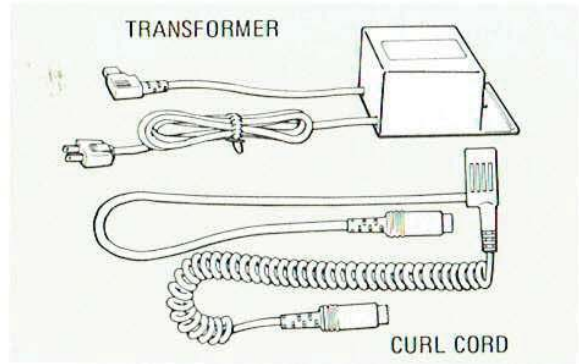
A-5 PATTERN KNITTING

A micro computer is incorporated in this Knitter and controls the pattern knitting.

TO CONNECT THE ELECTRIC CORDS

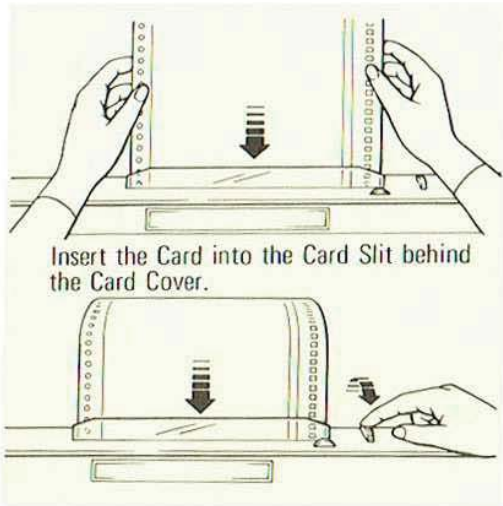
The Knitter must be connected to an A. C. mains supply.

1. Remove the Auto-Tension from the top of the Yarn Rod. Fit the Curl Cord support block to the Yarn Rod, push down the block until it is stopped by the lower extrusion on the Yarn Rod. (Fig. 1) Re-fit the Auto-Tension.
2. Fit the plug of straight portion of the Cord into the socket on the machine ensuring that triangle marks face each other. (Fig. 2)
3. Fit the plug of curled portion of the Cord into the socket on the Carriage ensuring that triangle marks face each other. (Fig. 3)
4. Fit the power cord plug on the Transformer into a wall socket. (Fig. 4)
5. Fit the inlet socket on the Transformer into the plug on right hand end of the machine. The machine is turned on with the sound of the buzzer. (Fig. 5)



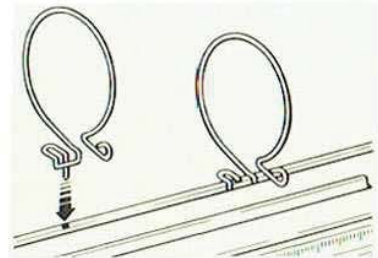
PATTERN CONTROLS

To insert the Pattern Card.



Set the Pattern Card so that the row to knit is above this line.

Card Guide

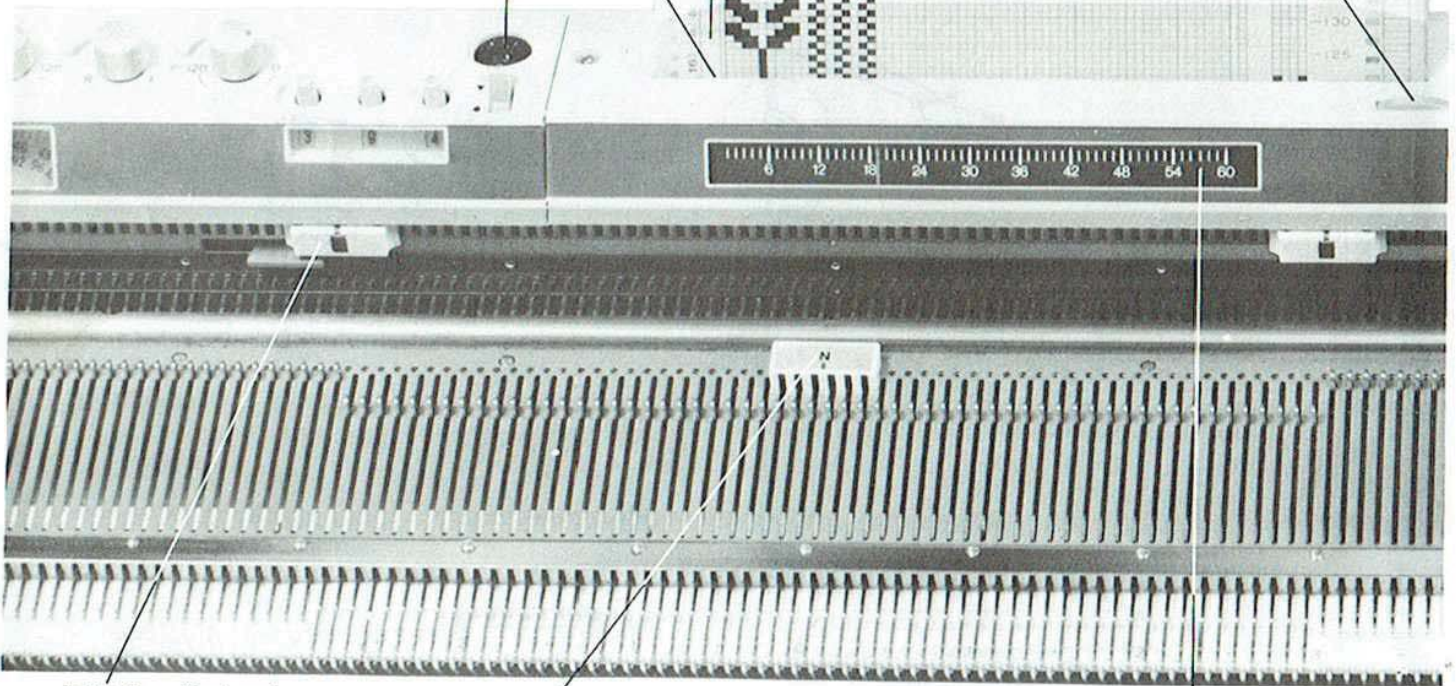


Card Cover

Pattern Card

Pattern Width Dial

Socket for Curl Cord

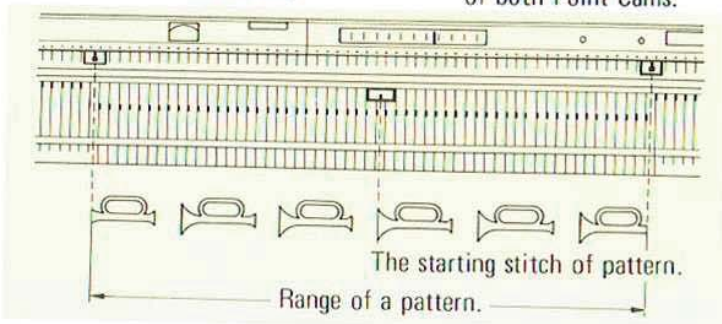


Point Cam (2 pieces)

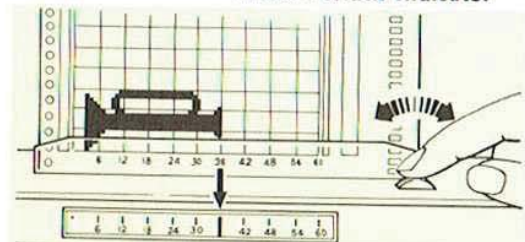
Limits the width of pattern knitting. The needles within the range of both Point Cams work pattern knitting.

Needle 1 Cam

Determines the starting stitch of pattern. The Cam must be placed within the range of both Point Cams.



Pattern Width Indicator



Set the Pointer at a number corresponding to the width of pattern on the Card.



Pattern of the Pattern Card

- * By using the Pattern Buttons, patterns variations can be made as illustrated on the right.
- * A Pattern Button can be used in combination with other Pattern Buttons. (P.36)



Switch of pattern effect, normal and invert.



Switch of pattern direction, left and right.



Vertical expansion.

Horizontal expansion.



Mirror image.

Double jacquard (P.80)

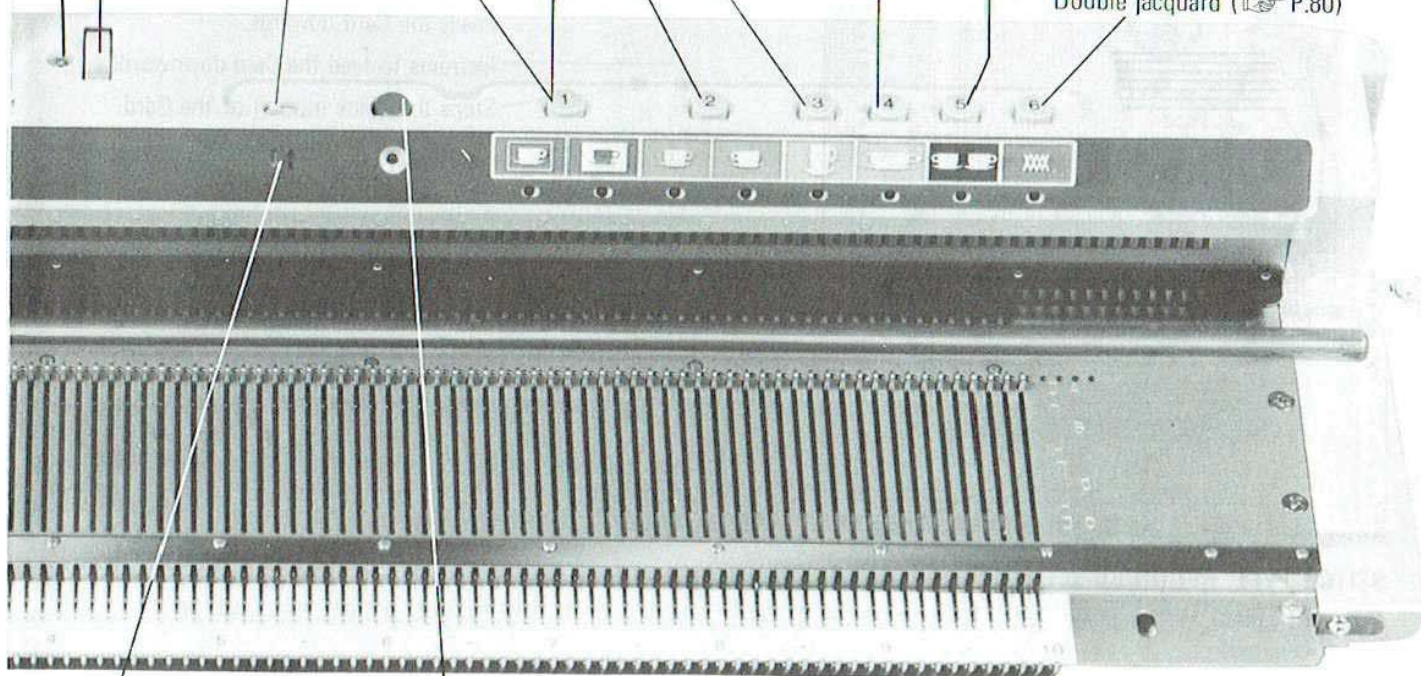
CR Panel Screw

For attaching Dust Cover (optional accessory)

Pattern Buttons (1-6)

Card Feeding Dial

Manual Knob

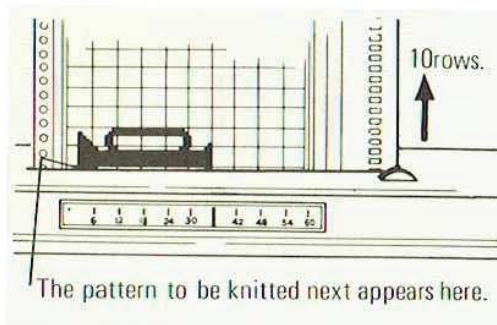


Feeding Direction Pointer

The Pointer indicates the feeding direction of the Card in response to the feeding direction mark. By the use of the Manual Knob, the feeding direction can be changed.

Inspection Button

When the Button is pushed on (its light is on.), the Pattern Card comes up by 10 rows and stops. Push on the Button when correcting knitted stitches or knitting the pattern on a certain row repeatedly. (A row of pattern above the Card Slit after coming up by 10 row is the row to be knitted next.)



PATTERN CARD

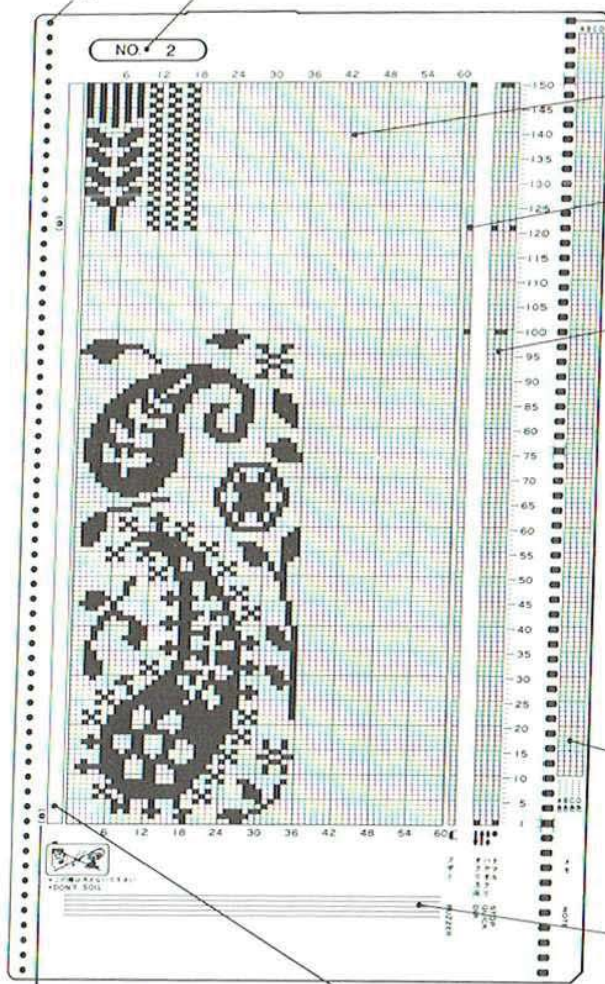
ACCESSORY PATTERN CARD (15 sheets)

The Card is sectioned vertically and horizontally and each section is proportional to the size of a stitch. The black area represent a pattern to be reproduced on a knitted fabric.

DESIGN CARD (5 sheets)

The Card is made of semi-transparent paper and has same sections as the Accessory Pattern Card. A pattern of your choice can be drawn on the Card using the Design Pencil.

Feeding Hole Card Number



Feeding hole (right)

Pattern area.
A pattern of 150 rows and 60 stitches can be drawn in this area.

Buzzer column.
The mark in this column actuates the buzzer when the marked row is read. The buzzer sounds at the preceding row.

Instruction column.

Feeds the Card in quick motion.
(With these two marks, the Card is fed upwards in quick motion and stops at the first row.)

Feeds the Card upwards.

Instructs to feed the Card downwards.

Stops the quick motion of the Card.

Stop instruction.

Quick motion instruction.

Feeding direction instruction.

Notation column.

Use this column to note the row to change yarn or other indication. (As there is a 10-row difference between the row to knit and the row visible above the Card Slit, be sure to mark the tenth row above the actual row.)

These lines are provided to see if the Card is inserted horizontally.

Pattern number Do not soil this column.

STITCH TYPE, REQUIRED SELECTION OF THE BUTTON 1 AND THE PATTERN CARD.

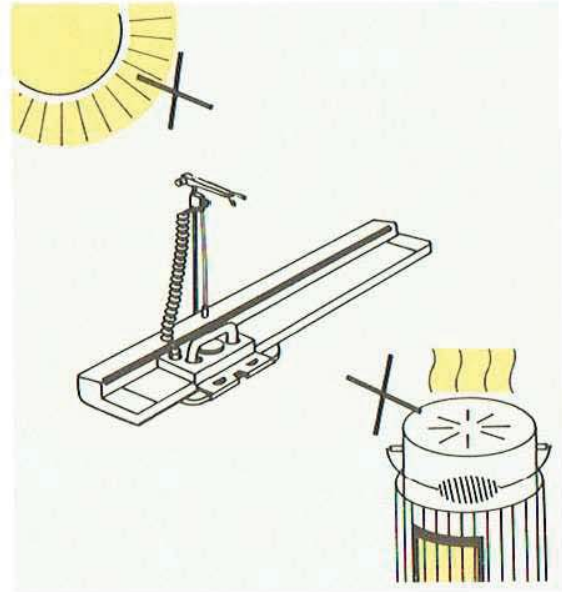
Note: In Knit-in, Weaving, and Punch Lace, when the Button 1 is used with its right light on, pattern effect will be inverted.

Type of knitting	Button 1	Black area of the Pattern Card. Drawn area of the Design Card.	White area of the Pattern Card. Blank area of the Design Card.
Tuck		Tucked (not knitted and yarn is over the hook).	Knit
Slip		Slipped (not knitted and yarn lays in front).	Knit
Knit-in (Fair Isle)		Knit with yarn in the Yarn Feeder (2).	Knit with yarn in the Yarn Feeder (1).
Single Motif		"	"
Weaving		Weaving yarn is threaded over.	Weaving yarn is threaded under.
Punch Lace		Knit with nylon thread.	Knit with ground yarn.

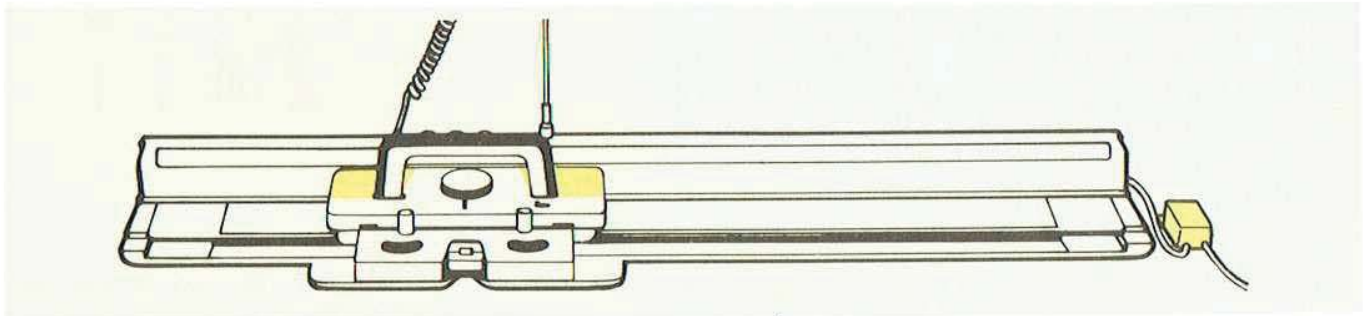
IMPORTANT

This machine must be kept away from the following places as a micro computer is vulnerable to the various conditions.

1. Direct sun light or strong sun light.
2. Near to a heater or place of excessively high temperature.
3. Excessively humid and dusty.



The machine may be heated at the coloured area as shown below, but no particular care is needed as long as it is operated normally.



Caution Buzzer

In the following cases, the caution buzzer sounds intermittently.

1. The Carriage failed to pass the Point Cam at the right and left while making the first and second movement after the machine was turned on. (Move the Carriage back and forth once more.)
2. The Carriage started to knit the subsequent row before the reading of pattern is completed. (Knit the row again.)

If the machine does not operate properly.

Check the machine following the Diagnostic Table given on page 89, and call your nearest service station. Do not touch the electronic components.

Knitting Speed

1. When the fabric is narrow.
If the carriage is moved back and forth too quickly, it may cause the reader to skip a pattern row. Knitting speed must not exceed the reading speed of patterns, follow the scanning noise.
2. Do not start knitting before the Card completes the quick motion and the next row is memorized.

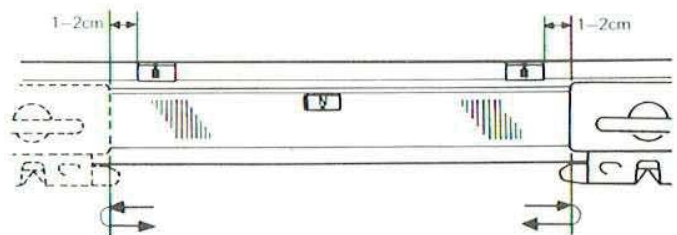
To turn off the machine before knitting is finished.

Proceed as follows before turning off the machine.

1. Mark the current row of the Pattern Card.
2. To knit again, turn on the machine and proceed the preparatory steps through.

Carriage operation

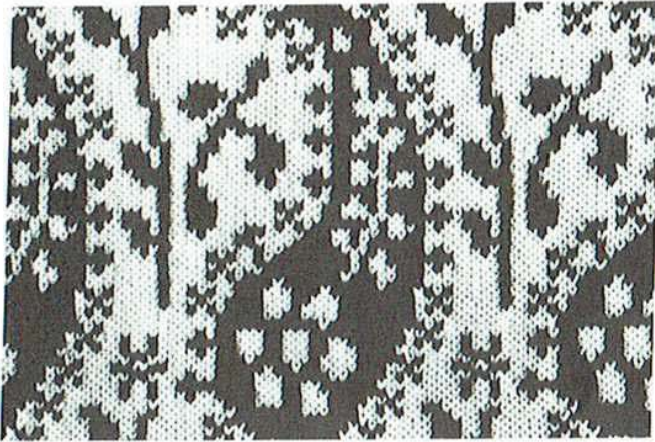
Move the Carriage until it clears both Point Cams and return it.



If you return the Carriage without clearing the Point Cam, the pattern will not be worked correctly. On this occasion, turn off the machine once and turn on again and start knitting. (Refer to the instruction titled "If the machine was turned off during knitting" on page 41)

1 KNIT-IN (FAIR ISLE)

CARD No.2 (8)

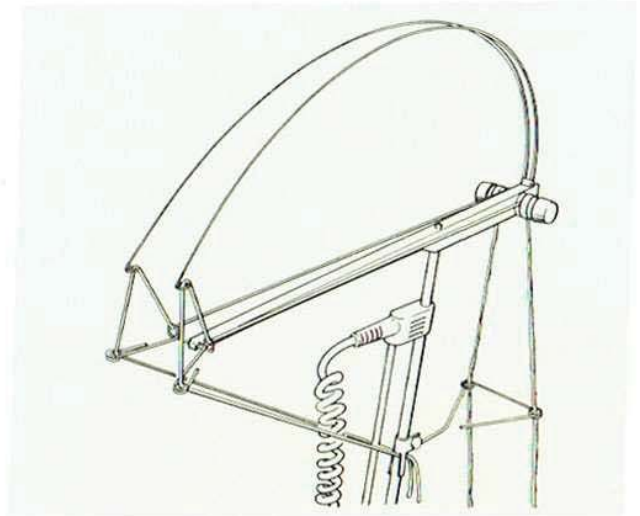


								XXX	
●	○	●	○	○	○	○	○	○	
YARN FEEDER ①		YARN FEEDER ②		CAM LEV.		RUSSEL LEV. L. R.		WEAVING KNOB L. R.	
MEDIUM		MEDIUM		KNIT-IN (F)		II II		○ ○	

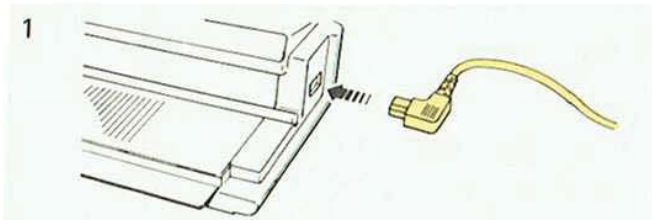
The Pattern and Carriage controls will be set as illustrated in the Operation Table above when you reach step 3 or 7.

Two yarns of different colours are knitted simultaneously.

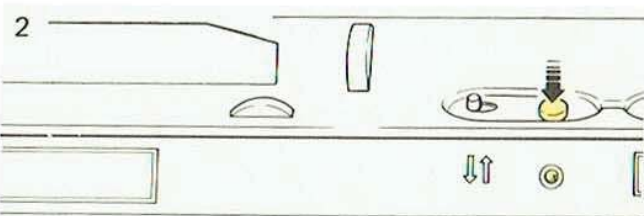
Thread two yarns through the Auto Tension and hold the yarn ends in the Yarn Clip.



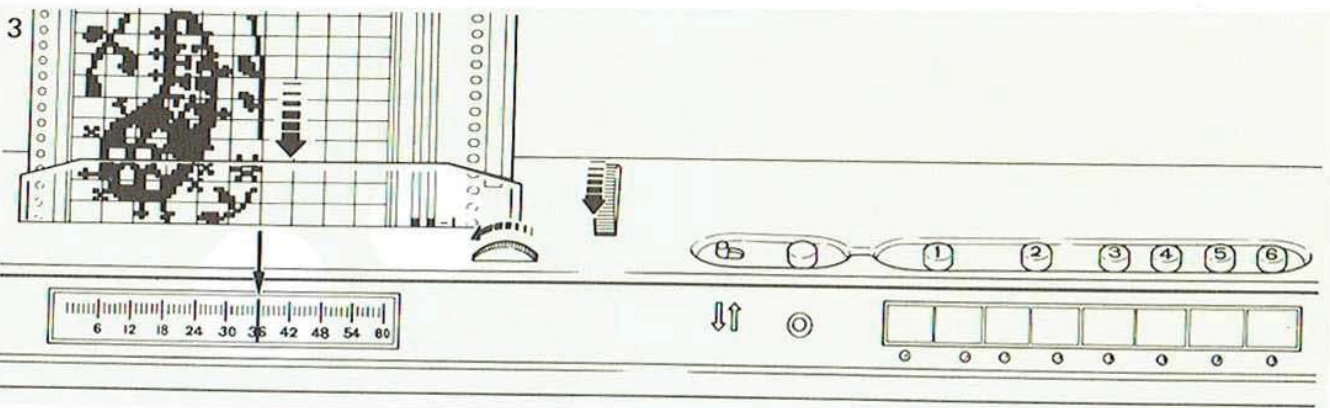
PREPARATORY STEPS



1 Turn on the machine. The buzzer makes a sound and either of the lights associated with the Buttons ① and ② is on.



2 Push the Inspection Button on. (Light is on.)



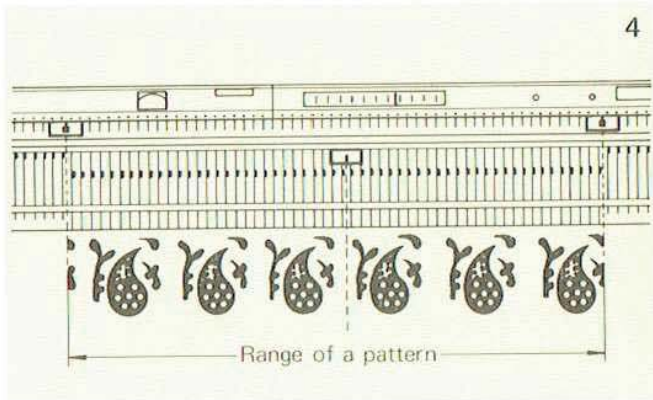
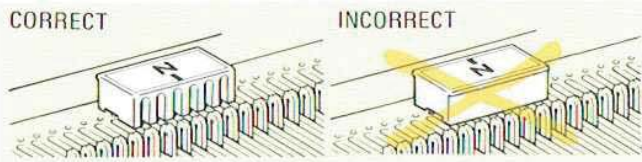
3-1. Insert the Pattern Card and set it at the starting position.

3-2. Turn the Pattern Width Dial to set its Indicator to the pattern width.

3-3. Set the Pattern Buttons as instructed in the table below the photo.

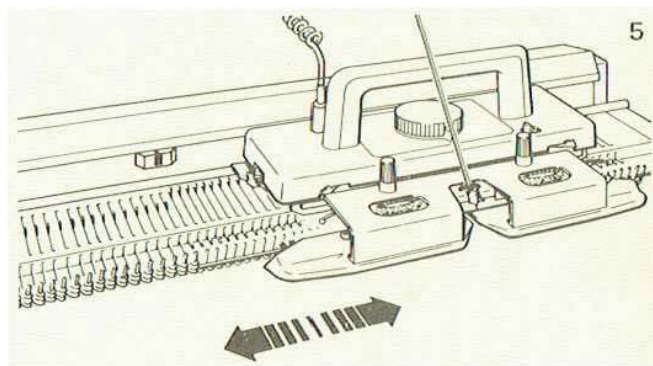
- 4 Push the required number of needles into working position. Set the red marks on the Point Cams to correspond with the end needles in working position on both sides. Set the Needle 1 Cam at the position where the pattern is to be knitted.

NOTE: Red line on Needle 1 Cam must face you.

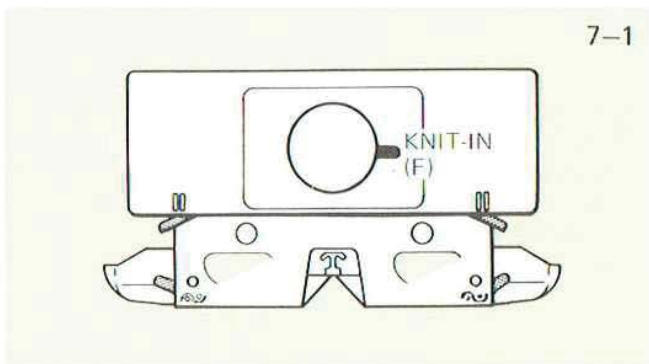
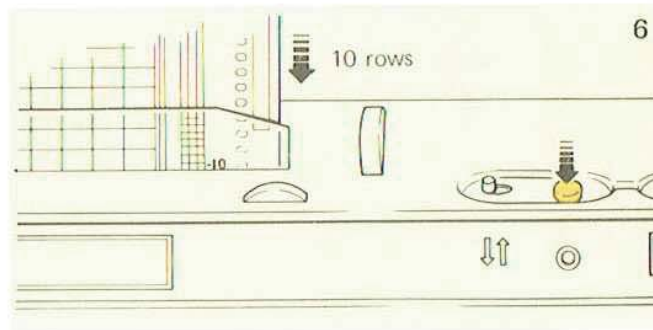


- 5 Thread the ground yarn into the Yarn Feeder ① and cast on and knit several rows in stockinet, and have the Carriage at the right side.

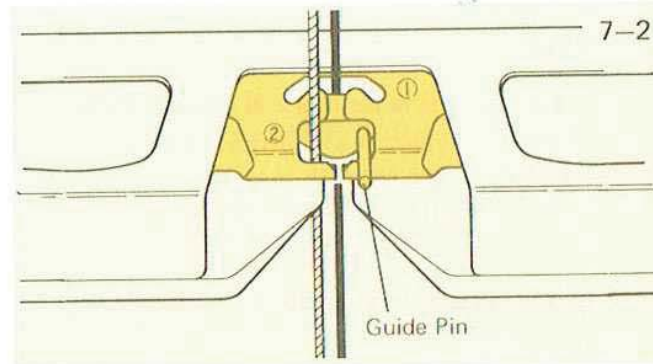
* In case knitting has already been started, set the Point Cam and Needle 1 Cam and knit two rows in stockinet or move the Carriage twice without knitting. (P.16)



- 6 Push the Inspection Button off. (Light is off and the Card is fed by 10 rows downwards and the pattern on the first row is memorized. While memorizing the pattern, you will hear a scanning noise.)



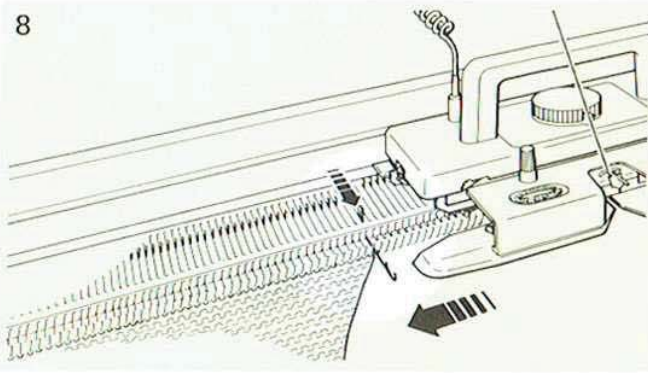
7-1. Set the Cam Lever to KNIT-IN(F).



7-2. Thread the Yarn Feeder ②.

Yarn Feeder ①..... ground yarn
Yarn Feeder ②..... contrast yarn (to the left of the Guide Pin)

8



- 8 Start knitting by moving the Carriage.
To ensure neat edges push the first needle at the beginning of each row into D position.

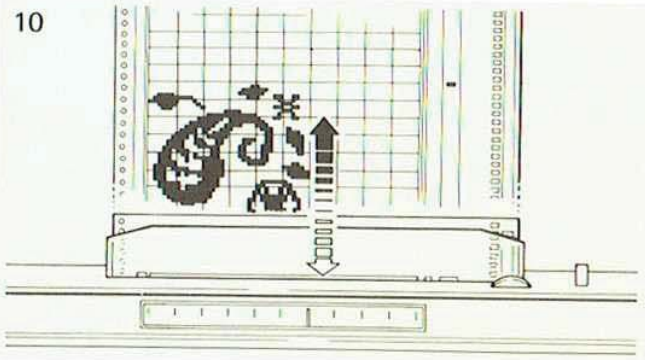
* When partial knitting, push the needle into C position.

9



- 9 Suspend the Accessory Weights at both sides of the knitting.

10



- * When the last row of the pattern is memorized, the marks in the buzzer and the instruction columns are also read and actuate the buzzer and the Card. The Card will return to the first row in quick motion. When the Pattern Card is in a quick motion, hold from knitting the next row till the quick motion is completed and pattern reading is finished.

HINTS:—

To knit stockinet in the course of pattern knitting.

Set the Cam Lever to STOCKINET (O), push on the Inspection Button, and knit.

If you fail to push the Inspection Button on, the Pattern Card will be fed or the reading of pattern is continued.

To knit pattern on a certain row repeatedly with the Pattern Card stopped.

1. Push on the Inspection Button. (Light is on.)
2. Set the Card so that the row to knit is above the Card Slit.

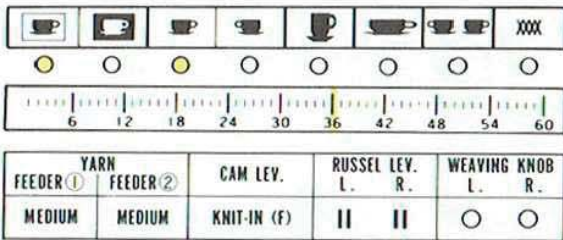
3. Push off the Inspection Button. (Light is off.) The Card is fed in and the row of pattern to knit is memorized.

4. Push on the Inspection Button. (Light is on.) The Card comes up and stops.

5. Start knitting.

2 SINGLE MOTIF

CARD No.5 (14)



* A single pattern in Knit-in (Fair Isle) can be knitted in any position on the knitting.

HINTS ON PREPARATORY STEPS

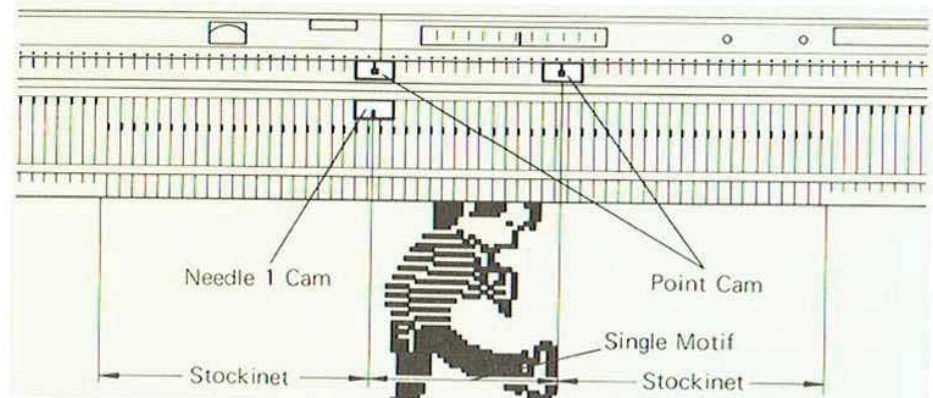
1, 2, 5, 6 Operate in the same manner as for Knit-in knitting. (☞ P.22-23)

3 ...Insert the Pattern Card.
Set the Pattern Buttons and Pattern Width Indicator as the operation table. When knitting single motif, work with the Button 1 not pushed. (Left light is on.)

4Point Cam and Needle 1 Cam are placed as follows:

Set the Point Cams at the right and left end of needles delimiting pattern knitting. As this pattern is of 36 stitches in width, place the Point Cams 36 needles apart in the desired position for the motif.

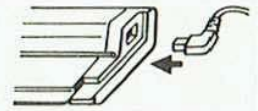
Place the Needle 1 Cam at the same position as the left Point Cam.



PREPARATORY STEPS

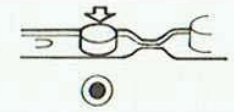
1

Turn on the machine.



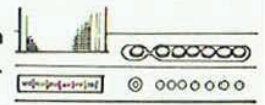
2

Push on the Inspection Button.
(Light is on.)



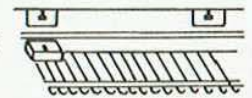
3

Set the Pattern Card, Pattern Width Indicator, Pattern Button.



4

Arrange needles. Set the Point Cam, Needle 1 Cam.



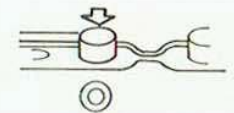
5

Cast on.
(If knitting already started, move the Carriage twice without knitting.)



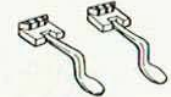
6

Push off the Inspection Button.
(Light is off.)



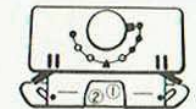
7

Attach the Separators.



8

Set the Carriage controls. Thread yarn in the Yarn Feeder ②.



9

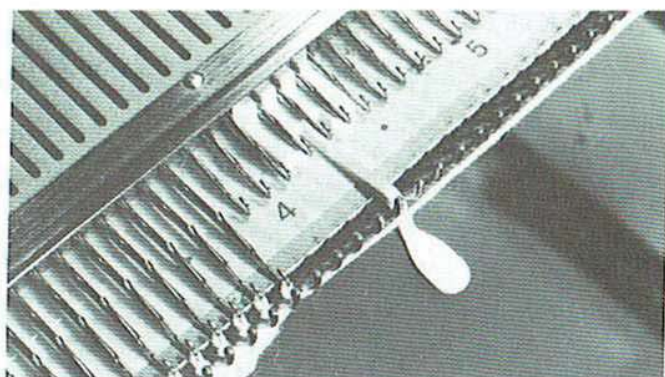
Start knitting pattern.



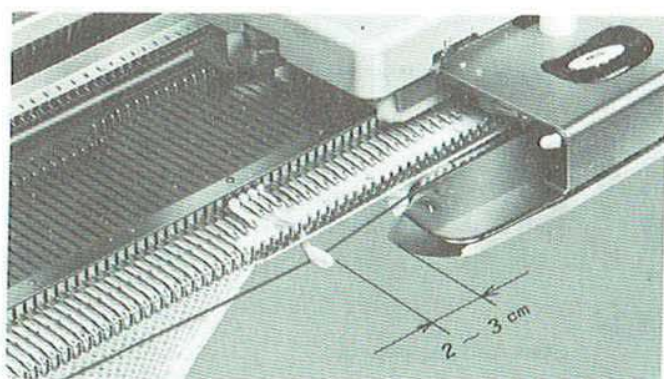
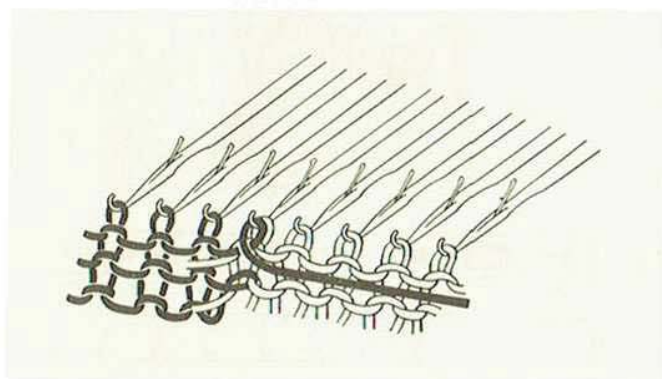
7.....Insert the Yarn Separator.
Open the latches of the 4th, 5th and 6th needle on the out-sides of the knitting needles.
Insert the Separator between three needles and the front edge as far as it goes on both sides.

8.....Set the Carriage as instructed in the operation table.
Thread 2 yarns as in the Knit-in.

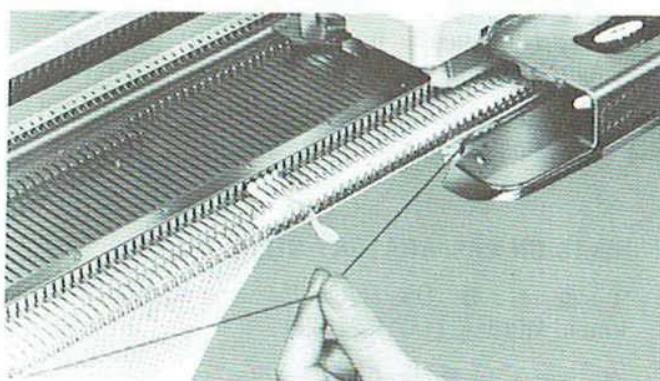
9.....While pattern knitting, hook the contrast yarn to its adjacent needle as illustrated.
To hook the yarn, push the needle to C position (ensuring that the stitch remains in front of the latch) and push back to B position and knit the next row.



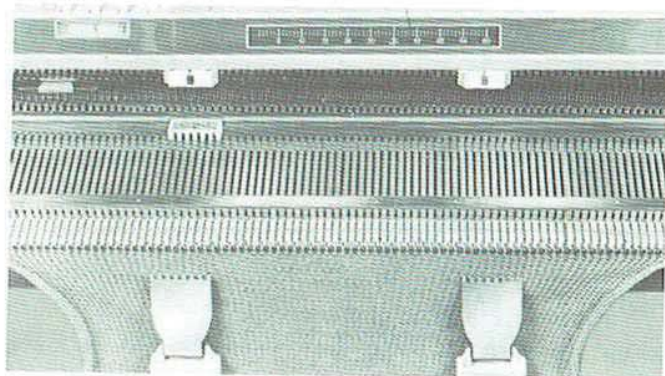
* Keep the yarn end so that it lays over the Separator after each operation.



* When moving the Carriage back and forth, move it until it passes at least 2-3cms. off the Separator.



Arrange yarns so that the ground yarn is above and the contrast yarn is below the Separator. If not, correct their positions.



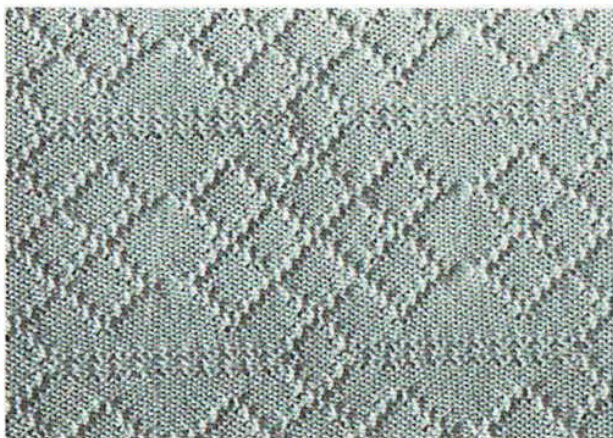
ACCESSORY WEIGHT

Suspend the Weights on the fabric under the Point Cams.

Note: If pattern position is extremely off the centre of the knitting or the width of the knitting is broad, the Auto-Tension can not take slack of yarn sufficiently. Therefore, work motif pattern within the range of 150 needles in the middle.

3 TUCK STITCH PATTERN

CARD No.6 (17)

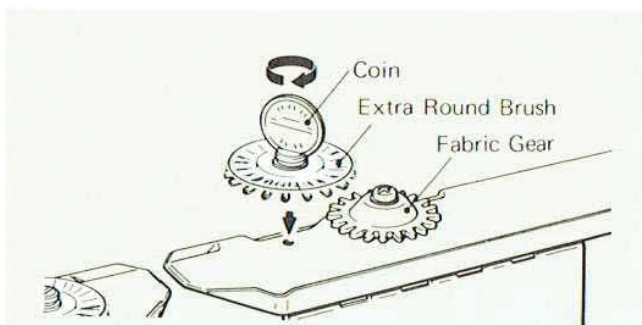


○	●	●	○	○	○	○	○	○	○
6 12 18 24 30 36 42 48 54 60									
YARN FEEDER ①		YARN FEEDER ②		CAM LEV.		RUSSEL LEV.		WEAVING KNOB	
MEDIUM				TUCK (T)		II II		○ ○	

Some of the selected needles hold yarn but do not knit. On the subsequent row, the needles knit together with the yarn held making tuck stitches.

HINTS ON PREPARATORY STPES

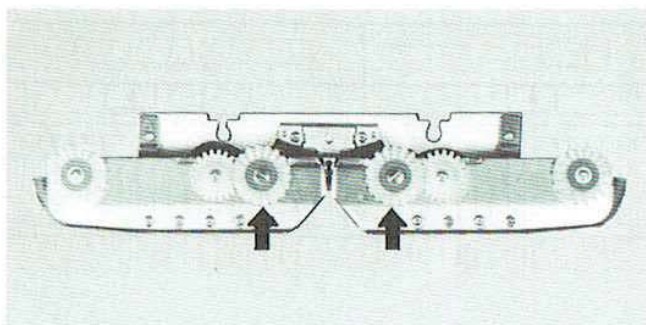
- 1 - 5, 6 Operate in the same manner as the Knit-in knitting. (P.22-23)
- 3.....When Tuck knitting, knit with the Button 1 pushed. (Right light is on.)
Do not use the Button 3 and 4 in this knitting.
- 7.....Attach the Round Brushes to the Arm.
(1) Turn over the Arm.
Fasten the Brush using a coin.



PREPARATORY STEPS

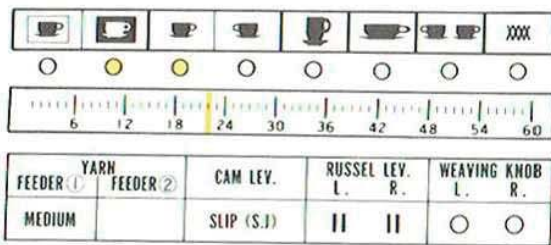
- 1 Turn on the machine.
- 2 Push on the Inspection Button. (Light is on.)
- 3 Set the Pattern Card, Pattern Width Indicator, Pattern Button.
- 4 Arrange needles. Set the Point Cam, Needle 1 Cam.
- 5 Cast on. (If knitting already started, move the Carriage twice without knitting.)
- 6 Push off the Inspection Button. (Light is off.)
- 7 Attach the Extra Round Brushes.
- 8 Set the Carriage controls.
- 9 Knit pattern.

8, 9 ...Set the Carriage as instructed in the operation table.
Move the Carriage back and forth to knit.



4 SLIP STITCH PATTERN

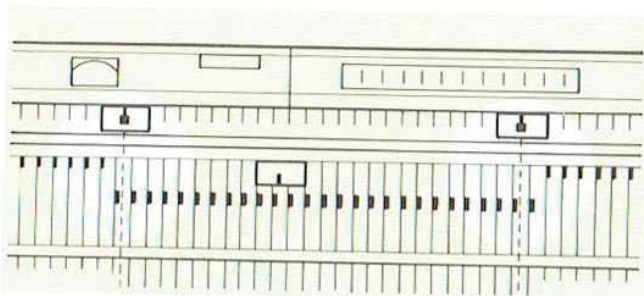
CARD No.8 (24)



Some of the selected needles do not knit and yarn is crossing in front of loops.

HINTS ON PREPARATORY STEPS

- 1, 2, 5, 6.....Operate in the same manner as the Knit-in knitting. (P.22-23)
- 3.....Insert the Pattern Card.
Set the Pattern Width Indicator and Pattern Button as the operation table. When in Slip stitch pattern, knit with the Button 1 pushed. (Right light is on.) Do not use the Button 3 and 4 in this knitting.
- 4.....To prevent the end stitches from being shaped wrong (slipped), place the Point Cam between the last needle and the second needle to the last as illustrated.



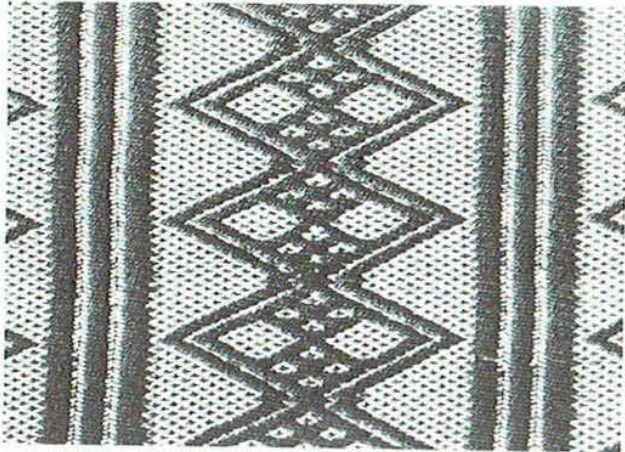
PREPARATORY STEPS

- 1 Turn on the machine.
- 2 Push on the Inspection Button. (Light is on.)
- 3 Set the Pattern Card, Pattern Width Indicator, Pattern Button.
- 4 Arrange needles. Set the Point Cam, Needle 1 Cam.
- 5 Cast on. (If knitting already started, move the Carriage twice without knitting.)
- 6 Push off the Inspection Button. (Light is off.)
- 7 Set the Carriage controls.
- 8 Start knitting pattern.

7, 8..... Set Carriage as in operation table and knit.
As slip stitches are knitted rather tight, loosen the Stitch Dial number by 1 number.

5 WEAVING

CARD No.10 (27)



								XXX
●	○	●	○	○	○	○	○	○
YARN		CAM LEV.	RUSSEL LEV.		WEAVING KNOB			
FEEDER ①	W.Y.H.		L.	R.	L.	R.		
MEDIUM	THICK	WEAVING (W)			∞	∞		

A fancy yarn or bulky yarn is knitted into the knitting giving a weaving effect. Use a thicker yarn for weaving.

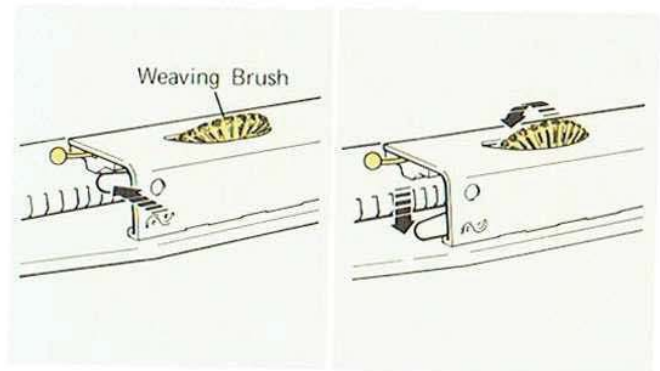
HINTS ON PREPARATORY STEPS

Thread ground yarn and weaving yarn into the Auto-Tension and hook them on the Clips of the Yarn Rod. Set the Tension Dial for the weaving yarn as follows:
 Medium/thicker yarn.....2-3

- 1 - 6...Operate in the same manner as the Knit-in knitting. (P.22-23)
- 7.....To set the Weaving Knob to ∞ mark at both sides, push the Knob in the arrowed direction to lower the Weaving Brush. Use the Stitch Dial number one number larger than one used for stockinet knitting.

PREPARATORY STEPS

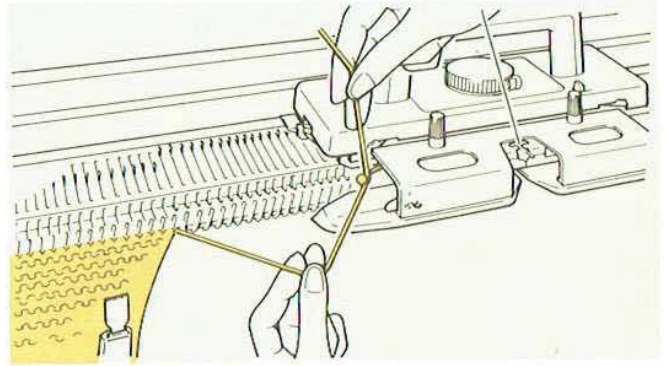
- 1 Turn on the machine.
- 2 Push on the Inspection Button. (Light is on.)
- 3 Set the Pattern Card, Pattern Width Indicator, Pattern Button.
- 4 Arrange needles. Set the Point Cam, Needle 1 Cam.
- 5 Cast on. (If knitting already started, move the Carriage twice without knitting.)
- 6 Push off the Inspection Button. (Light is off.)
- 7 Set the Carriage controls.
- 8 Start knitting pattern.



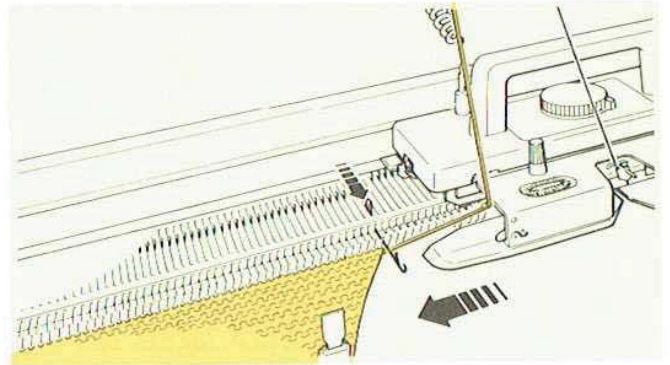
(When Weaving is completed, return the Knob to ○ mark.)

8...In weaving, the following procedure is required prior to moving the Carriage.

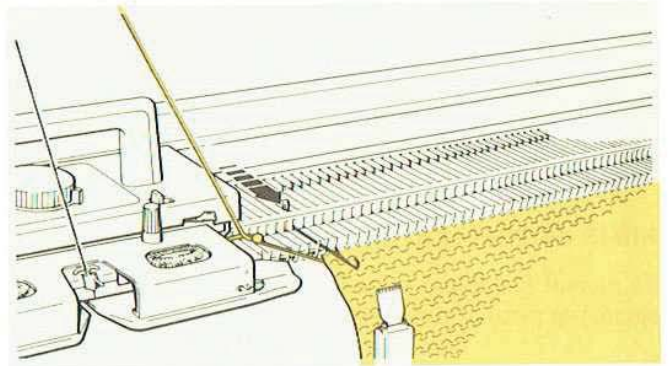
1. Hook weaving yarn on the Weaving Yarn Holder of the Arm on the side in which the Carriage is to proceed before moving the Carriage. (Ground yarn is threaded in the Yarn Feeder ①.)



2. The end stitch in Weaving knitting tends to shape wrong. To prevent the end stitches from being shaped wrong, push the first knitting needle on the Carriage side to D position before moving the Carriage. (When partial knitting, push the first needle to C position.)

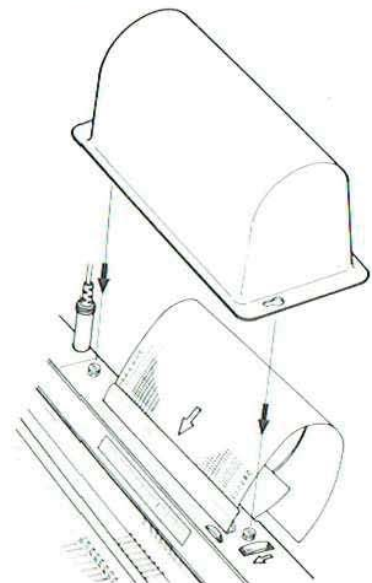
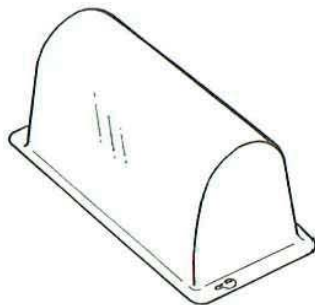


3. When returning the Carriage back, the same procedure is required. (To hook weaving yarn to the other Holder, remove the yarn from the Holder, take it off the Carriage and bring it all way to the other Holder.)



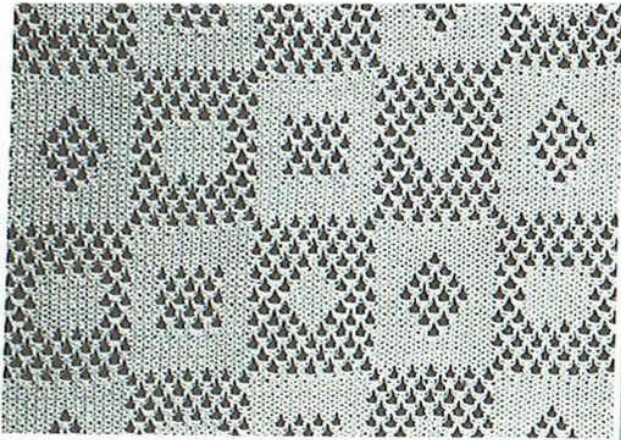
DUST COVER

To keep the Pattern Cards clean and to prevent dust and fluff from getting into the Card Reader, use the Dust Cover, which is an optional accessory.



6 PUNCH LACE

CARD No.9 (26)

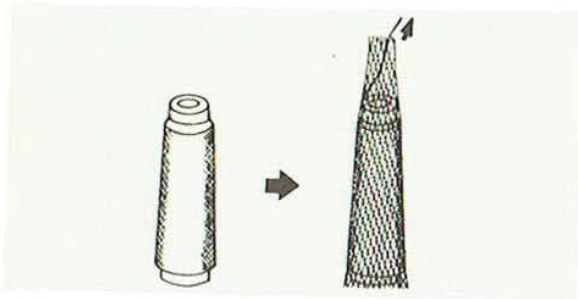


								XXX	
●	○	●	○	○	○	○	○	○	
6 12 18 24 30 36 42 48 54 60									
YARN FEEDER ①		YARN FEEDER ②		CAM LEV.		RUSSEL LEV.		WEAVING KNOB	
LIGHT		NYLON THREAD		PUNCH LACE (L)		I II		○ ○	

Punch Lace is a unique lace knitting. Use a fine thread or nylon thread together with wool or a synthetic yarn.

HINTS ON PREPARATORY STEPS

To prevent fine thread from slipping, cover spool with a stopnet or piece of nylon stocking.



Thread two yarns into the Auto-Tension respectively and hook them on the Clips of the Yarn Rod. (Tension Dial for nylon thread7)

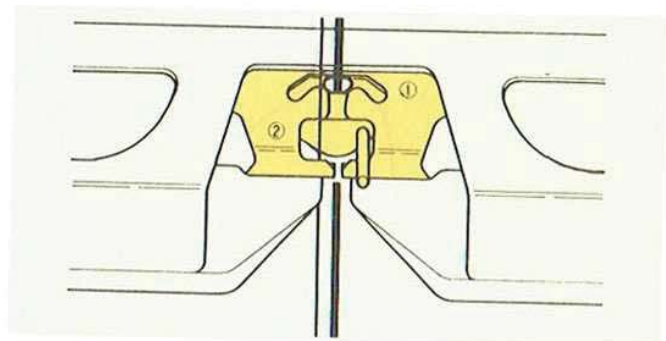
1 - 6..... Operate in the same manner as the Knit-in knitting.

5.....Work the cast on using the yarn in the Yarn Feeder ①.

PREPARATORY STEPS

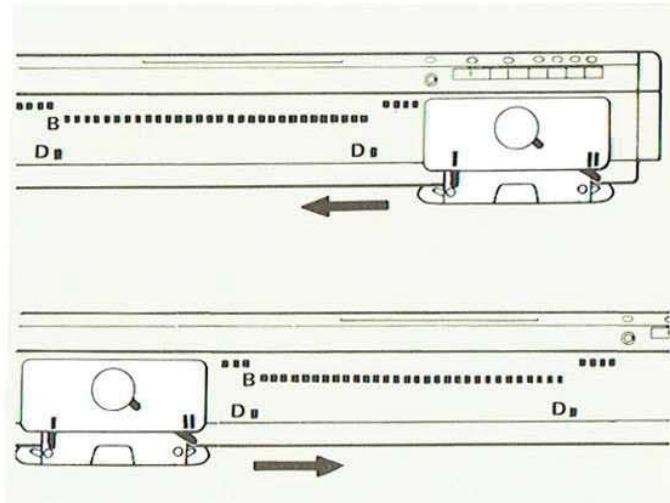
- 1 Turn on the machine.
- 2 Push on the Inspection Button. (Light is on.)
- 3 Set the Pattern Card, Pattern Width Indicator, Pattern Button.
- 4 Arrange needles. Set the Point Cam, Needle 1 Cam.
- 5 Cast on. (If knitting already started, move the Carriage twice without knitting.)
- 6 Push off the Inspection Button. (Light is off.)
- 7 Set the Carriage controls. Thread nylon thread into the Yarn Feeder ②.
- 8 Start knitting pattern.

7.....Set the Carriage as the operation table instructs. Thread nylon thread into the Yarn Feeder ② as illustrated.



8.....Read the following instruction before starting Punch Lace knitting.

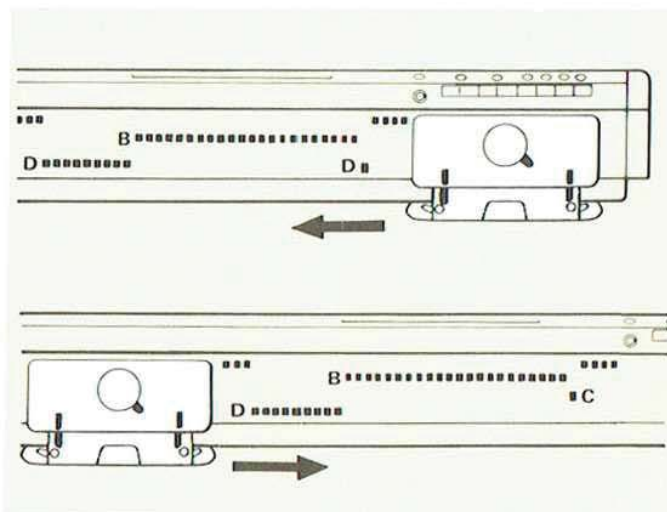
1. When moving the Carriage from right to left, push the end needle on both sides to D position every time.
2. When moving the Carriage from left to right, the needles will be knitted back to B position automatically.



When partial knitting, follow the instruction below.

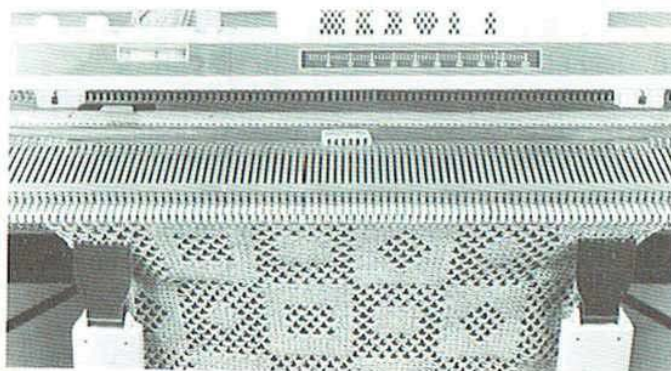
Set the Russel Lever to I position at both sides.

1. When the Carriage moves from right to left, push the first working needle to D position.
2. When the Carriage moves from left to right, push the same needle back to C position.



Note:

If you wish to knit stockinet in the course of Punch Lace, push on the Inspection Button, set the Cam Lever to STOCKINET (O), and remove the nylon thread from Yarn Feeder . Suspend the Accessory Weight at both sides of the knitting.



7 PLATTING

CARD No.1 (6)



6	12	18	24	30	36	42	48	54	60																																																		

YARN FEEDER ①		P.Y.F.	CAM LEV.	RUSSEL LEV.		WEAVING KNOB	
L.	R.			L.	R.	L.	R.
LIGHT	THIN	TUCK (T)	II	II	○	○	

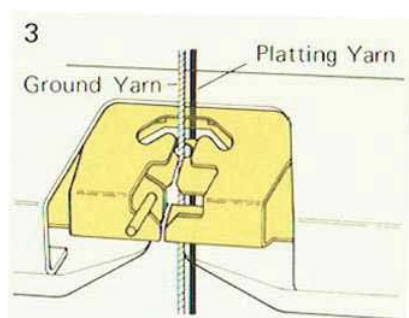
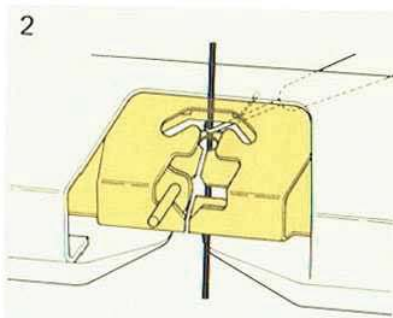
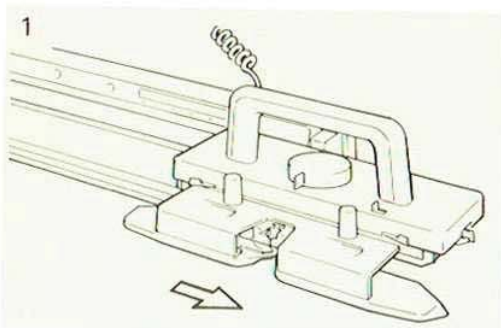
Two different colour yarns are knitted together. One yarn appears on one side whilst the second yarn appears on the other side of the fabric.
 Plating in stockinet is predominant, but if you wish to knit it in tuck stitch pattern, you will enjoy a different effect on the knitting.
 To knit plating in stockinet, thread one yarn into the Yarn Feeder ① and the other yarn behind the Yarn Feeder ① and knit in the same manner as stockinet.

HINTS ON PREPARATORY STEPS

Operate in the same manner as Tuck stitch pattern (P.27) except the procedure for threading plating yarn in the Plating Yarn Feeder.
 Use the Stitch Dial number 1-2 numbers larger than that used for stockinet.

TO THREAD THE PLATTING YARN FEEDER

1. Move the Carriage to either end of the needle bed so as the Plating Yarn Feeder is observed. Open the Yarn Feeder Gate.
2. Thread plating yarn into the Yarn Feeder ①. Insert the Tappet Tool from the back of the Feeder ① and catch the yarn. Pull the yarn so that the yarn is threaded into the Plating Yarn Feeder.
3. Thread the ground yarn into the Yarn Feeder ①. Close the Yarn Feeder Gate. Plating Yarn appears on purl side. Ground yarn appears on knit side.



PREPARATORY STEPS

- 1 Turn on the machine.
- 2 Push on the Inspection Button. (Light is on.)
- 3 Set the Pattern Card, Pattern Width Indicator, Pattern Button.
- 4 Arrange needles. Set the Point Cam, Needle 1 Cam.
- 5 Cast on. (If knitting already started, move the Carriage twice without knitting.)
- 6 Push off the Inspection Button. (Light is off.)
- 7 Set the Carriage controls. Thread yarn into the Plating Yarn Feeder.
- 8 Start knitting pattern.

NOTE AND HINTS

To change the pattern position in the course of knitting.

Push on the Inspection Button.



Replace the Point Cam and Needle 1 Cam at the new position.



Move the Carriage twice without knitting.

.....to memorize the new position of Point Cams and Needle 1 Cam.



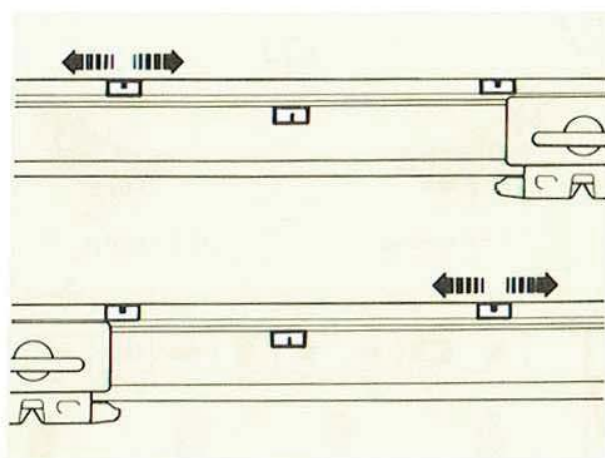
Push off the Inspection Button.



Start knitting.

To replace the Point Cams and Needle 1 Cam without effecting the position of patterns.

Follow the instruction below to replace the Point Cams as a result of increase or decrease.



* Move the Point Cam opposite the Carriage only. (If the Point Cam on the Carriage side is moved, the pattern will be broken.)

(If the Point Cam is positioned outside the end stitch, move the Carriage all the way until it passes the Point Cam.)

* Do not move the Needle 1 Cam. Although the Needle 1 Cam is positioned outside the Point Cam, as far as the preceding instruction is followed, the pattern will be knitted correctly.

To reset the Pattern Buttons in the course of pattern knitting.

Do not reset the Buttons while the Carriage is moving.
Have the Carriage clear the knitting before resetting the Buttons.
The new pattern starts from the subsequent row.

To change the settings of the Pattern Width Indicator and the Pattern Card.

Push on the Inspection Button. (Light is on.)



Reset the Pattern Width Indicator or the Pattern Card.

.....A new Card may be replaced.



Push off the Inspection Button. (Light is off.)

.....The new pattern is memorized.



Start knitting.

APPLIED USAGE OF THE PATTERN BUTTONS AND PATTERN WIDTH INDICATOR

0 36
Pattern of the Pattern Card

0 36
Pattern of the Pattern Card

54 needles 54 needles

54 needles 54 needles

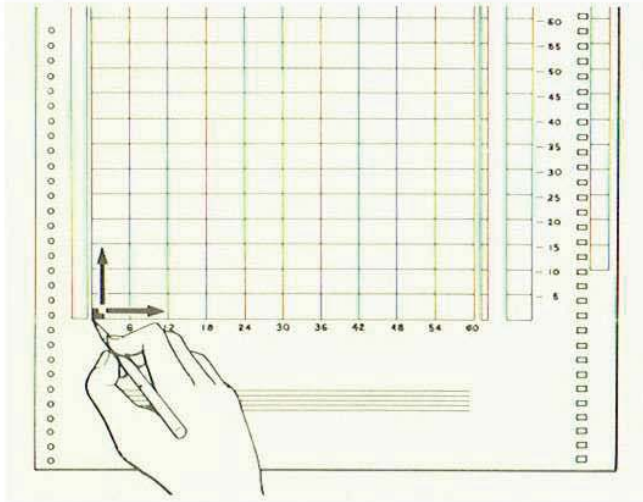
0 30
Pattern of the Pattern Card

0 30
Pattern of the Pattern Card

60 needles 60 needles

60 needles 60 needles

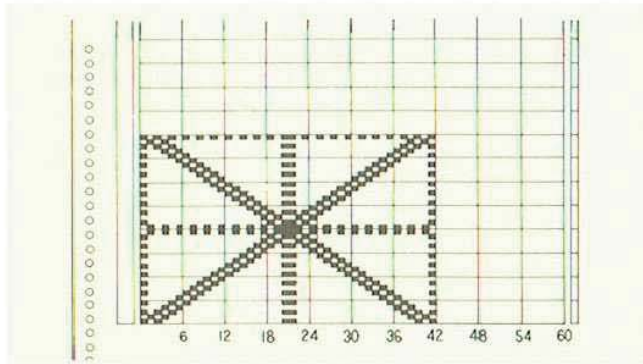
TO DRAW A PATTERN ON THE DESIGN CARD



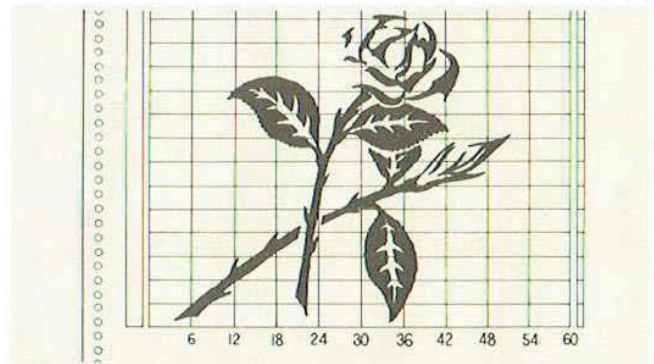
Use the Design Pencil to draw a pattern design.

1. Fill up the sections neatly for the pattern with the following care.

- * Start drawing from the left bottom corner.
- * Work on a smooth, firm surface. Shape in squares evenly and firmly.
- * To avoid failure, it is advisable to draw a rough sketch of the pattern, and trace it onto the Design Card.
- * Drawing can be erased.



- * For geometric pattern, fill up sections one by one with care. (One-star pencil is recommended.)



- * In a picture or a letter image, draw the entire area rather than section by section. (Three-star Pencil is recommended.)

Take care when drawing a pattern design for the following type of knitting. (Relation between types of knitting and the Pattern Card. P.20)

In Single Motif.

As the Button 1 is used with its left light on, draw the area to be knitted in single motif.

In Tuck or Slip stitch pattern.

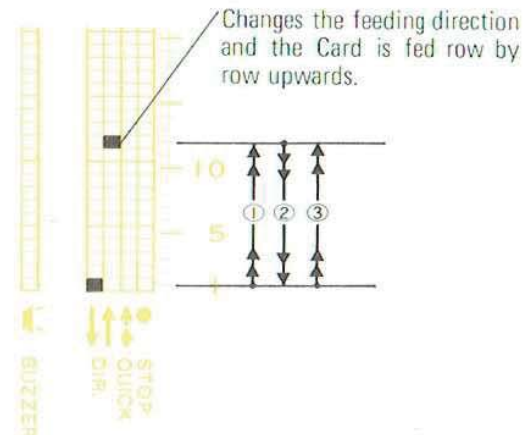
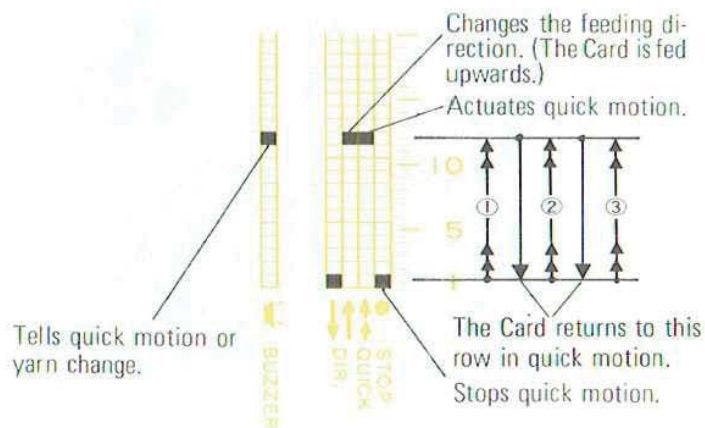
As the Button 1 is used with its right light on, draw the area to be tucked or slipped.

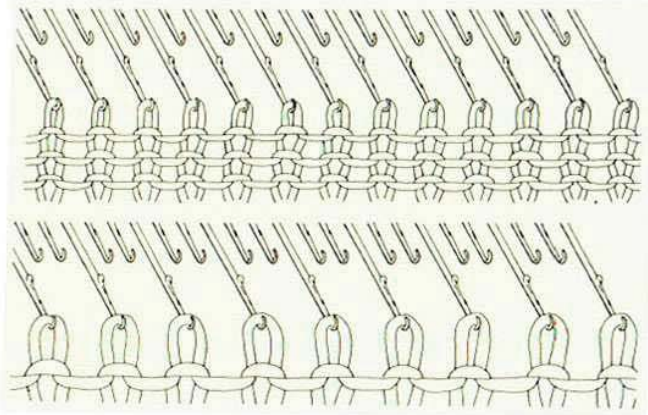
2. Mark the Buzzer Column and Instruction Column.

- * Put marks at the beginning and end rows of pattern as illustrated.

(This is in case of knitting in the same direction continuously.)

(This is in case of knitting in both directions row by row.)





Arrange needles using every other or every third needle as illustrated in the left.

CARD No.1 (7)



The sample is knitted using very thick yarn on every other needle. (☞ The 8th yarn on page 16.)

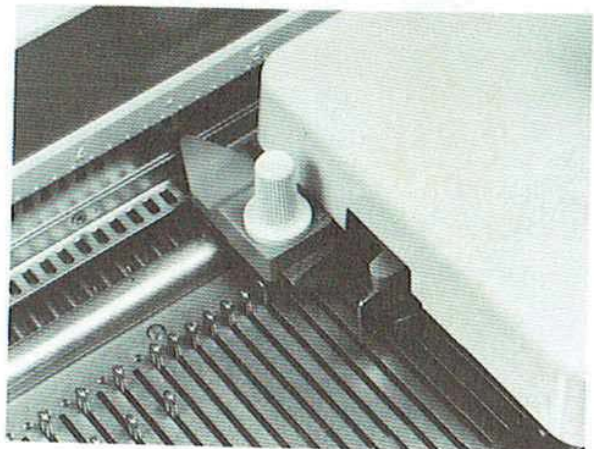
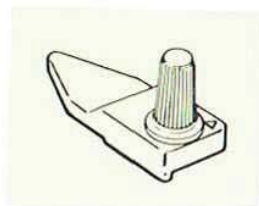
* When working Knit-in pattern using every other needle, be sure to push the Button 4 (Horizontal expansion).

AUXILIARY FEEDING CAM

The Auxiliary Feeding Cam is used when knitting a garment on the Knit Contour using thick yarn.

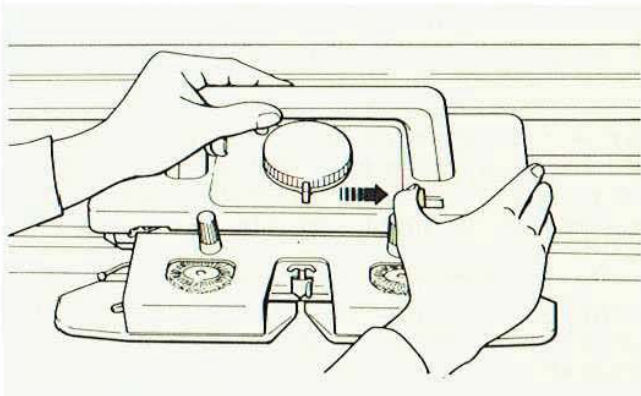
Refer to page 6 of the Knitting Manual.

Auxiliary Feeding Cam
(1 piece)

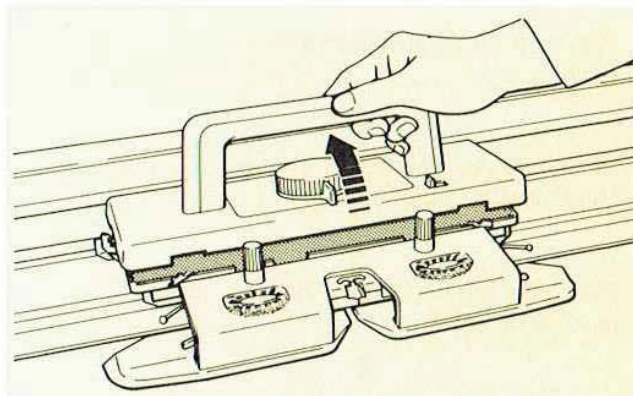
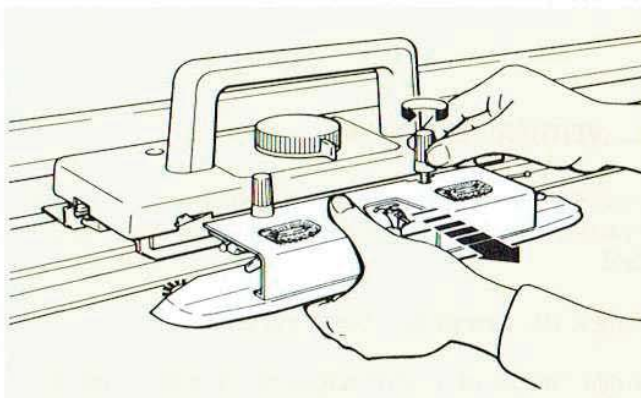


IF THE CARRIAGE HAS JAMMED WHILE KNITTING

Follow the instruction below.



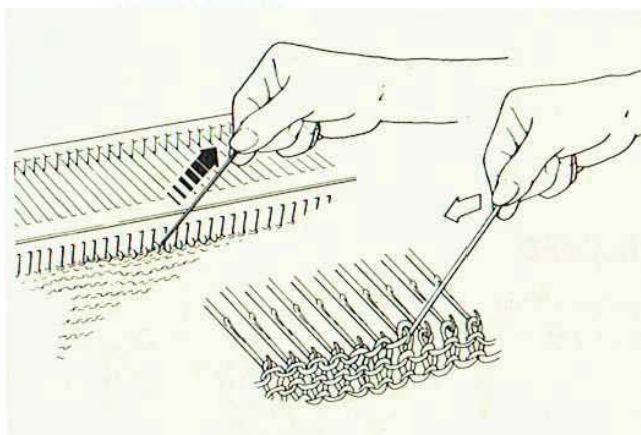
1. Remove yarn from the Yarn Feeder.
2. Push the Release Lever in the arrowed direction and lift the Carriage Handle.



3. With the Handle lifted, move the Carriage to the proceeding direction until it passes the knitting needles.
 4. Return the Handle to its original position.
 5. If stitches have slipped behind the latches of the needles, using a Transfer Tool, replace these stitches into the needle hooks and align the needles into working position.
- * If yarn is entangled with the Yarn Feeder or Arm, loosen the Arm Nuts and remove the Arm. Push the Release Lever and move the Carriage.
 - * To correct knitted section, read the following instructions.

TO REPAIR STITCHES INCORRECTLY KNITTED

IN STOCKINET

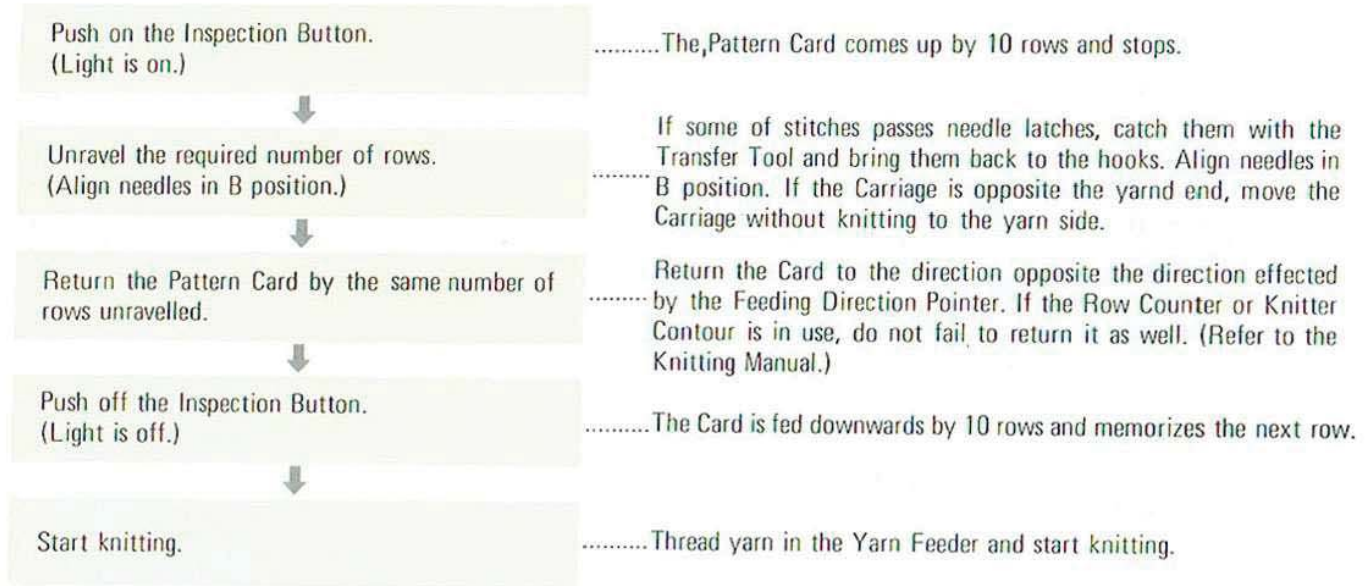


Operate as follows:

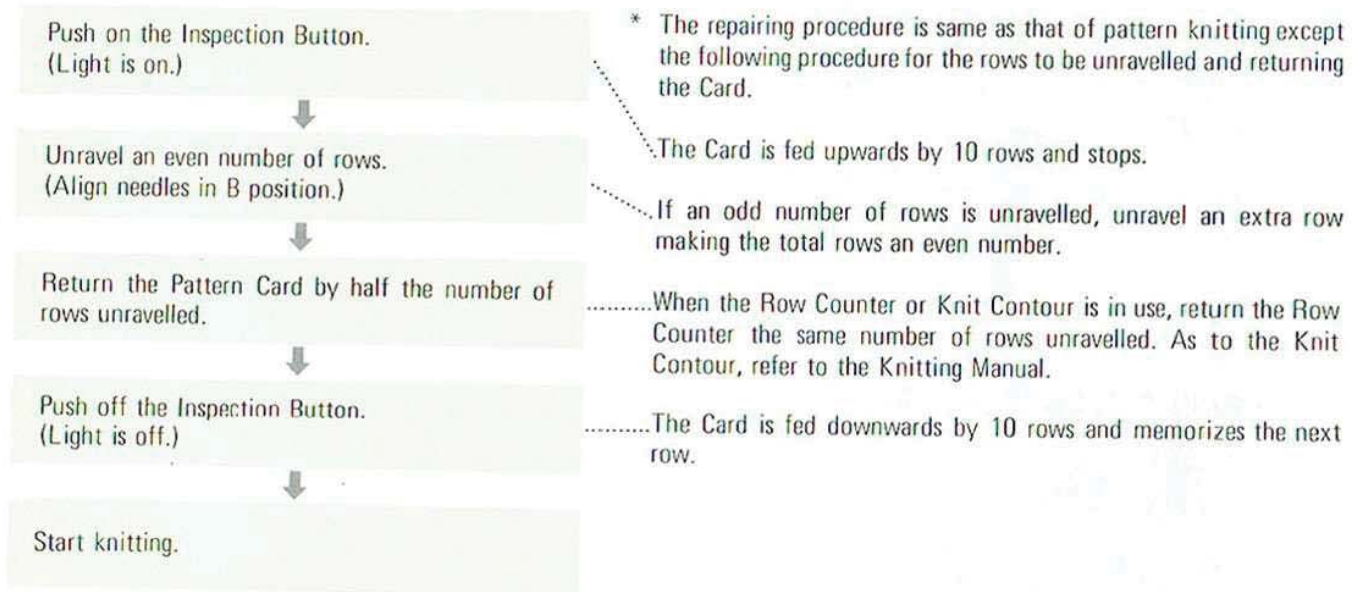
1. Suspend the Accessory Weights on the knitting. Holding the knitting downwards with your left hand, pull yarn sideways. Lift yarn upwards and very slightly backwards. The stitches of previous row slide back into needle hooks. Repeat this procedure until you clear the incorrect knitting. Push the needles back to B position so that stitches are caught firmly in needle hooks.
2. If the Carriage is opposite the yarn end after ripping out, push the Release Lever and move the Carriage to the yarn end side with the Handle lifted. Be sure to lift the Handle to its full extent, otherwise the Knit Contour or Row Counter will actuate.
3. Return the Knit Contour and Row Counter by the number of rows unravelled and continue to knit.

IN PATTERN KNITTING

* Operate as follows:—



IN CASE OF PATTERN KNITTING USING THE BUTTON 3.....VERTICAL EXPANSION



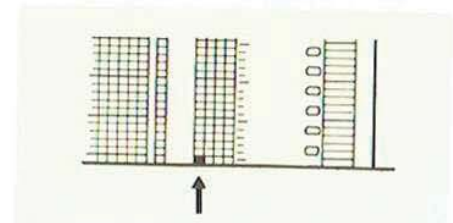
IMPORTANT-WHEN RETURNING THE PATTERN CARD

If, when returning the Pattern Card you reach the first row of the pattern, bring the Card to the last row of pattern and continue to count the remaining rows.

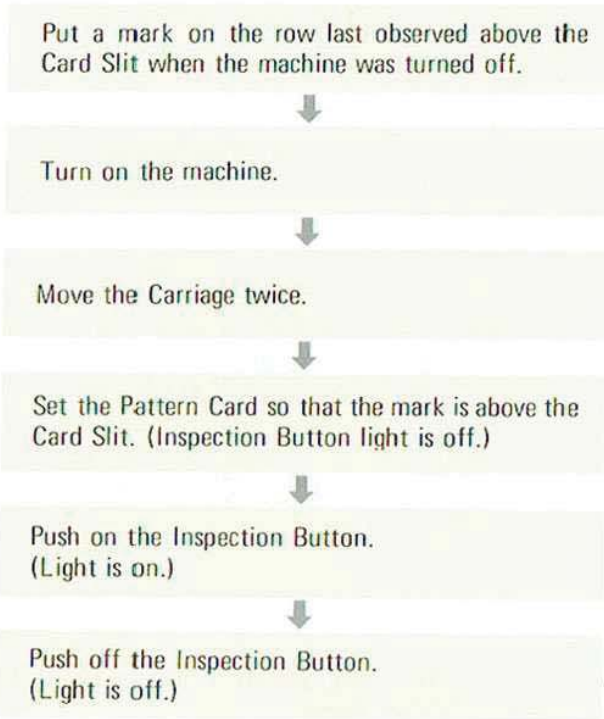
If the Card is instructed to knit continuously back to the first row, count back the unravelled rows continuously in reverse to the Card direction.

(Do not count the marked row twice.)

When counting back, change the Feeding Direction Pointer.



IF THE MACHINE WAS TURNED OFF DURING KNITTING



At the moment the machine was turned off, the pattern memorized was completely erased.
To memorize the pattern again, operate as follows:—

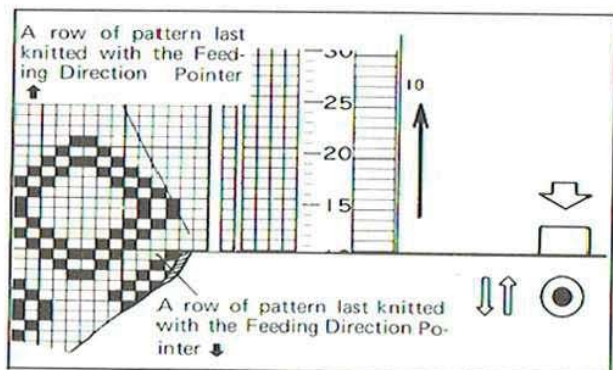
Be sure to put a mark once the machine was turned off.

.....The Point Cam and Needle 1 Cam positions are memorized.

.....The Inspection Button is not pushed. (Light is off.)

.....The row to be knitted next is memorized.

TO CHECK UP THE PATTERN KNITTED AND THE PATTERN ON THE PATTERN CARD

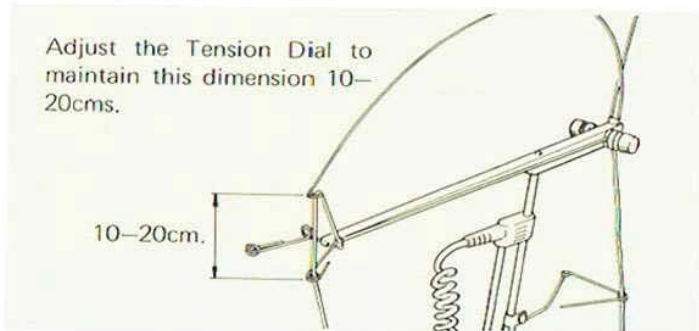


1. Push on the Inspection Button. (The Card comes up by 10 rows and stops.)
2. Turn the Card by an additional row in the opposite direction to that indicated by the Feeding Direction Pointer. This corresponds to the last actual knitted row.
3. To start knitting again, return the Card by one row reaching its original position. Push off the Inspection Button.

IF THE END STITCHES ARE NOT CORRECTLY KNITTED OR IF THE CARRIAGE IS HEAVY

Check the following points.

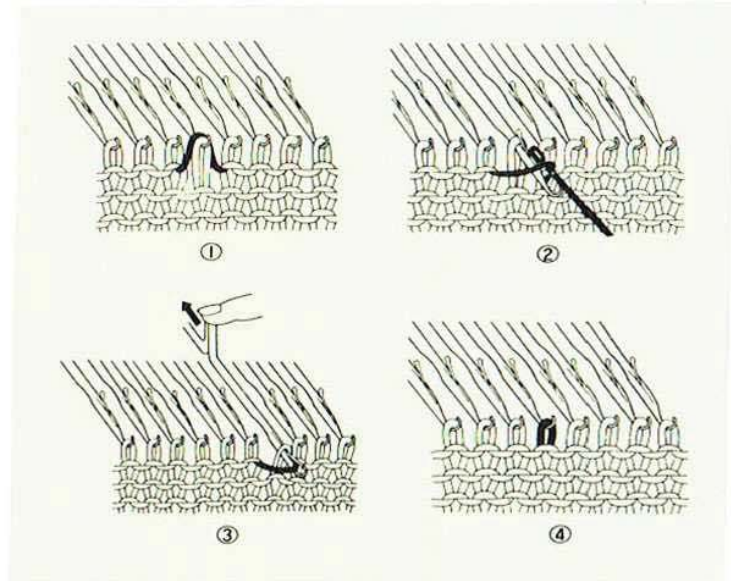
- * Is the yarn end coming out freely from the inside of yarn ball. (P.4)
- * Is the yarn threaded into the Auto-Tension correctly. (P.12)
- * Is the machine lubricated properly. (P.88)



TO REPAIR DROPPED STITCHES

IF A STITCH HAS DROPPED

1. Insert a One-Eye Transfer Tool into a stitch below the dropped stitch and replace it into needle hook together with 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 as illustrated.

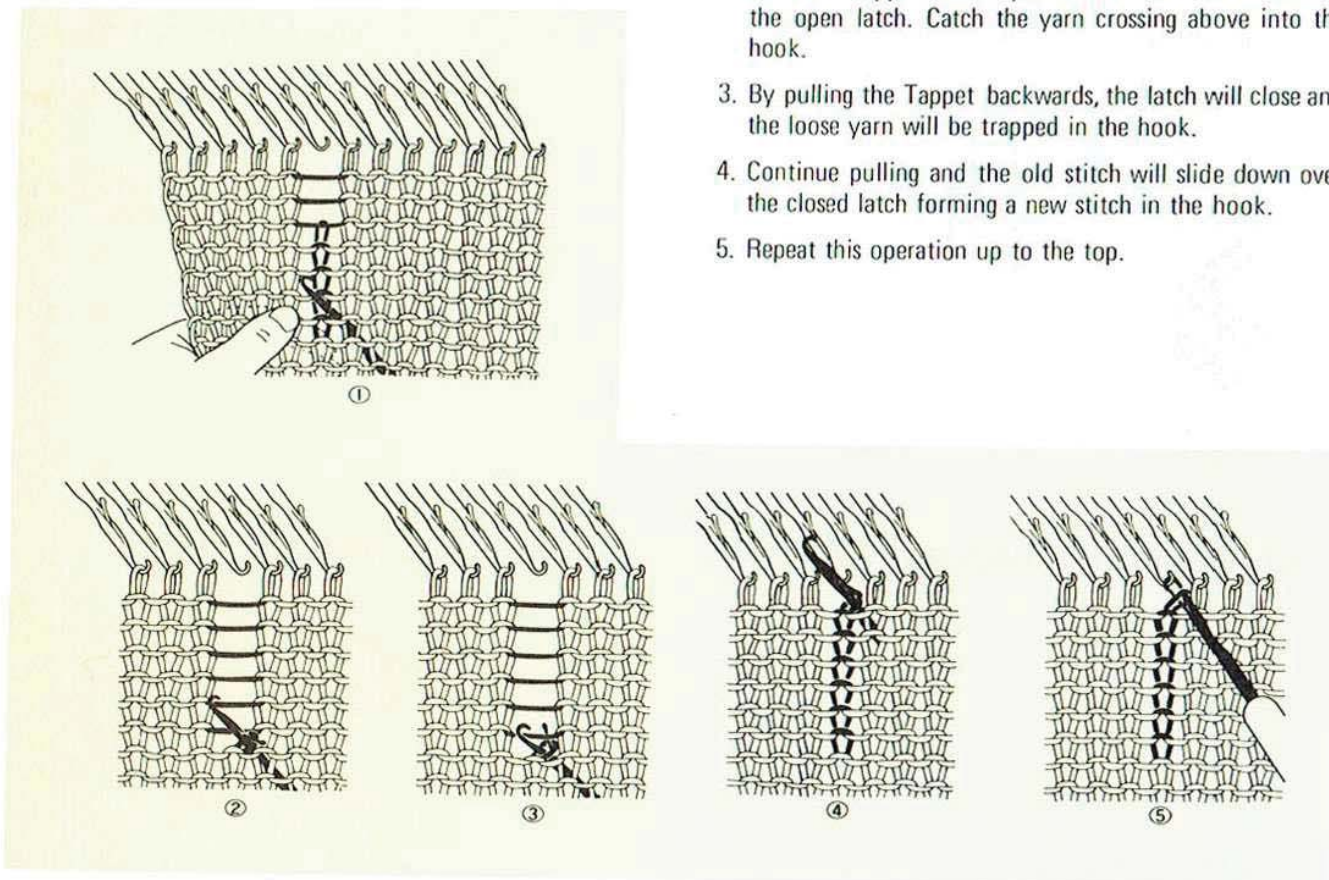


IF A STITCH HAS DROPPED FOR SEVERAL ROWS

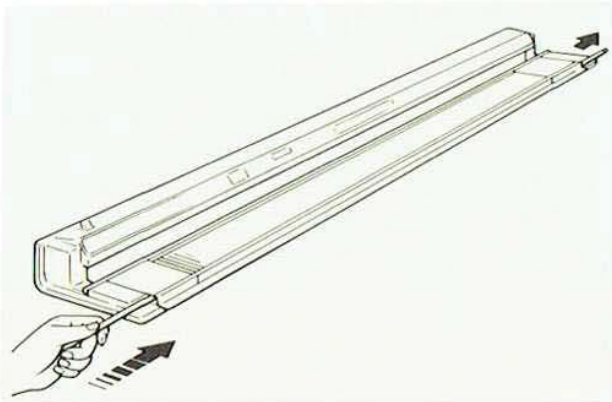
1. Insert a Tappet into a stitch a few rows below the dropped stitch from the side away from you. Unravel the stitches down to the Tappet.

Hint With the other hand, pull the knitting downwards. This makes unravelling easier.

2. Push the Tappet toward you so the stitch will be behind the open latch. Catch the yarn crossing above into the hook.
3. By pulling the Tappet backwards, the latch will close and the loose yarn will be trapped in the hook.
4. Continue pulling and the old stitch will slide down over the closed latch forming a new stitch in the hook.
5. Repeat this operation up to the top.



TO REPLACE A DAMAGED NEEDLE

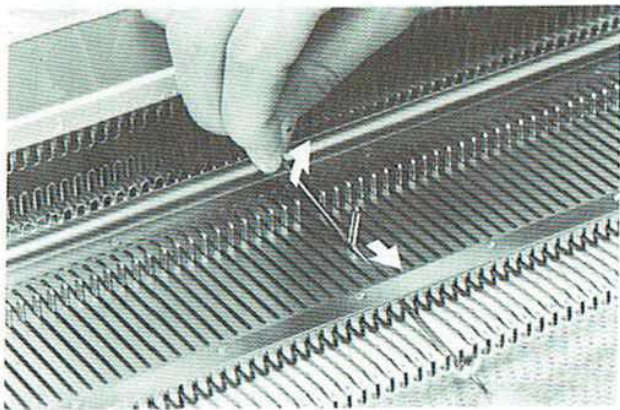


A needle can be replaced in the following manner, even if a stitch is hooked on the needle.

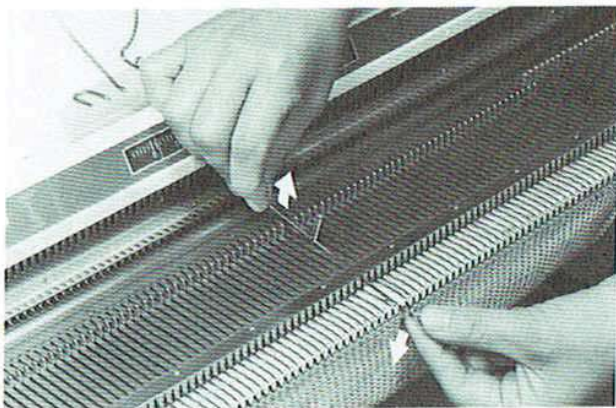
1. Using a pencil or a screw driver, push the Needle Retainer to either direction.

2. Pull the Needle Retainer at one end until it clears the needle to be replaced.

* If the Separator is in use, remove it before pulling out the Needle Retainer.



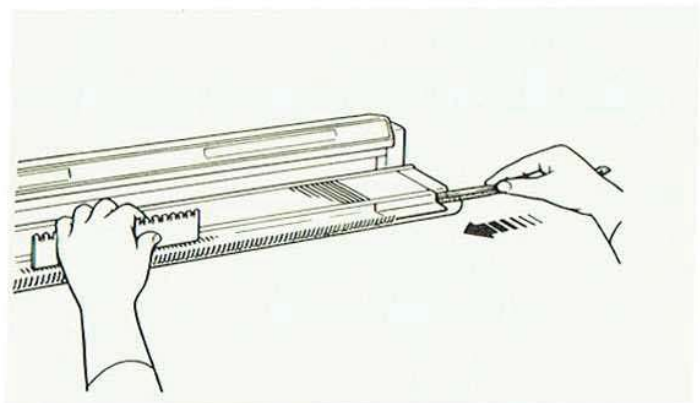
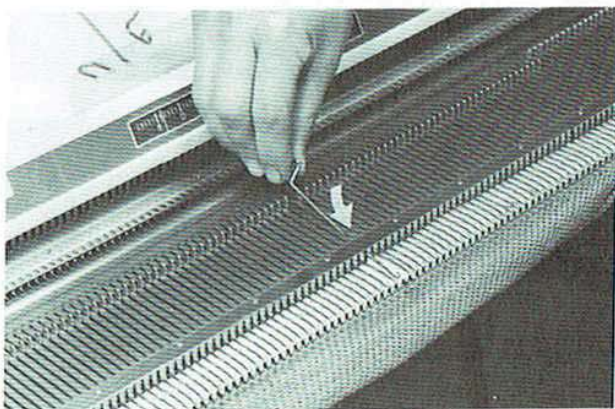
3. Push the damaged needles to D position. Close the latch and press the needle down. The shank will come out of the needle bed. Holding the shank, pull the needle upwards.



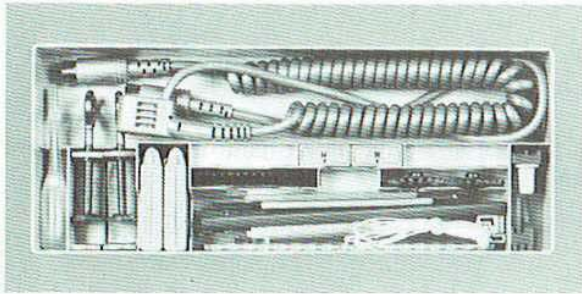
4. To replace a new needle in the needle bed, hold the butt with the latch open and slip the needle with its hook first reversing the manner in paragraph 3.

5. Replace the Needle Retainer. Without the Needle Retainer, needles are pushed up. Therefore, using the Needle Pusher, depress the needles so that the Needle Retainer is guided above the needles.

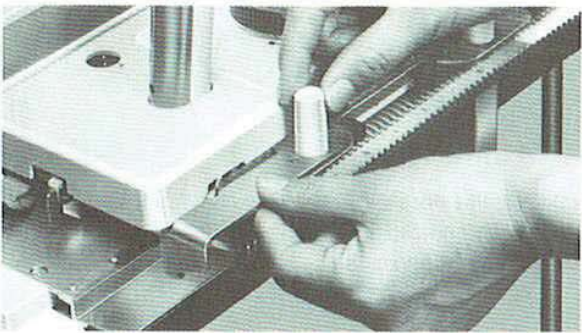
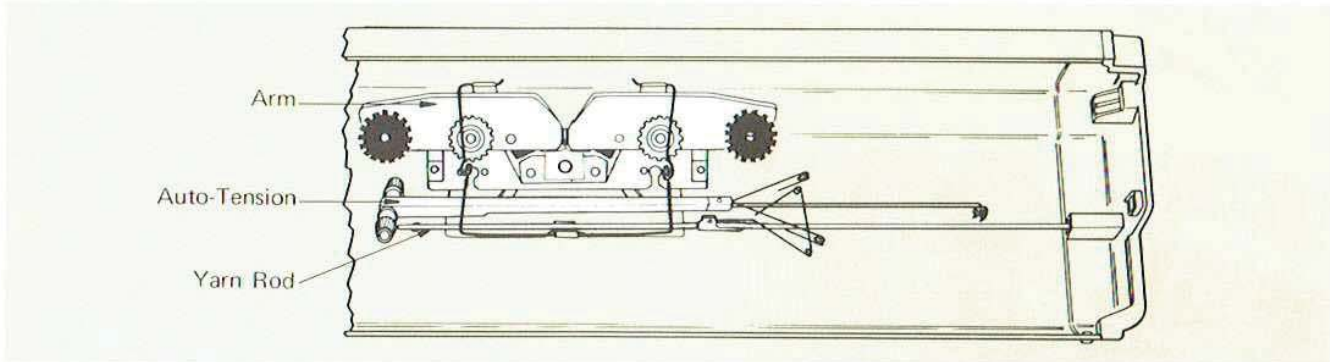
* If a stitch is hooked on the needle, using the Tappet pick up the stitch and transfer it to the new needle.



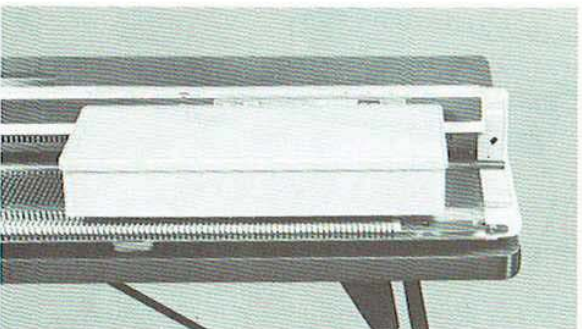
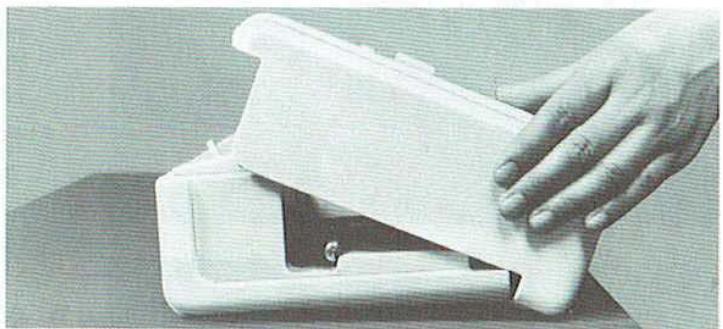
A-8 TO REPACK THE KNITTER



1. Remove all Accessories from the Knitter. Take care when handling the Pattern Cards or Design Cards not to crease them.
2. Replace the Accessories in an orderly manner.

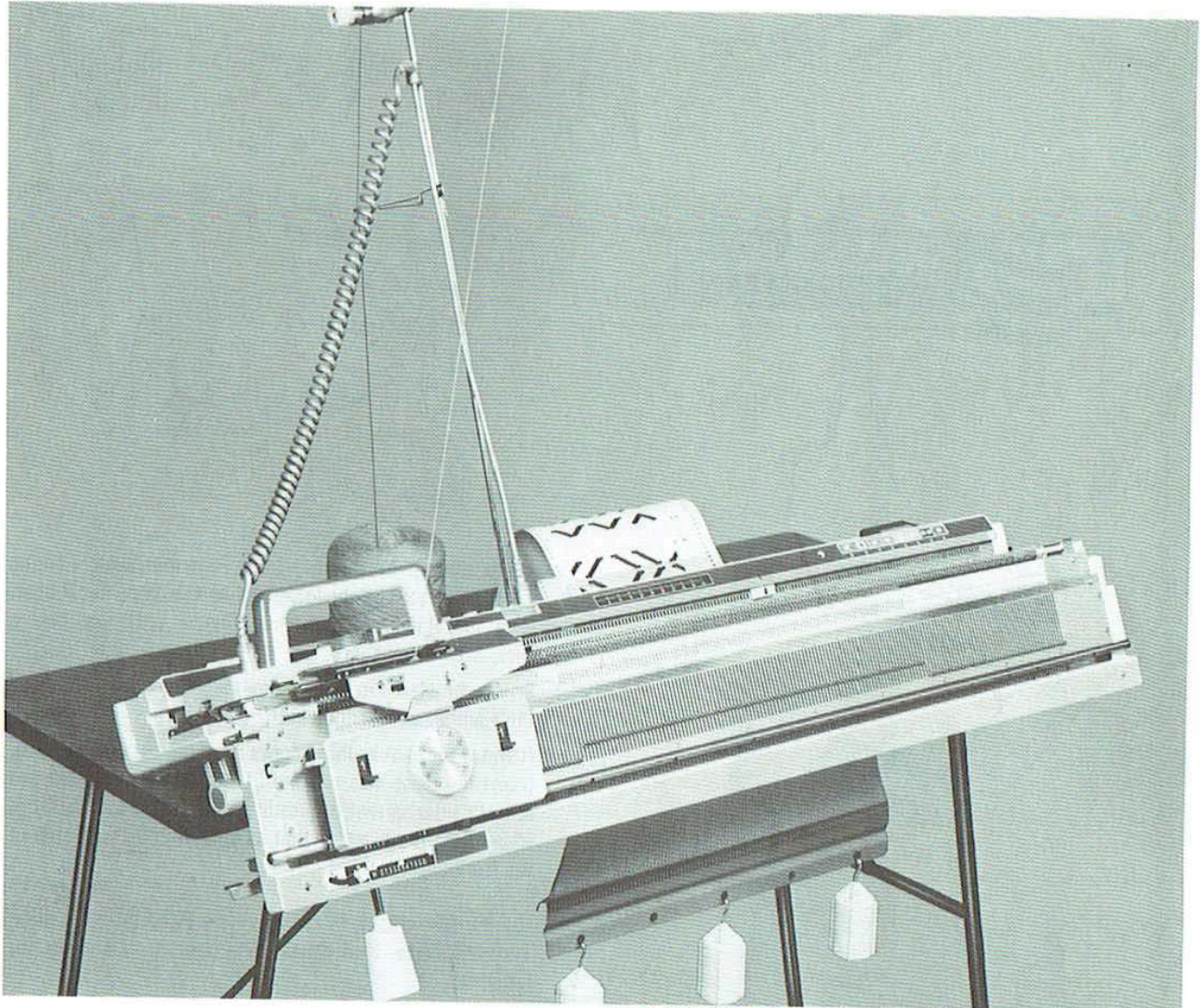


3. Replace the Arm, Auto-Tension, Yarn Rod inside the case cover.
4. Replace the Carriage Fastener to lock the Carriage securely.
5. Lay the Handle flat.
6. Replace the Accessory Box on the right end of the needle bed.
7. Replace the Case Cover.
8. Fasten the latches.



B

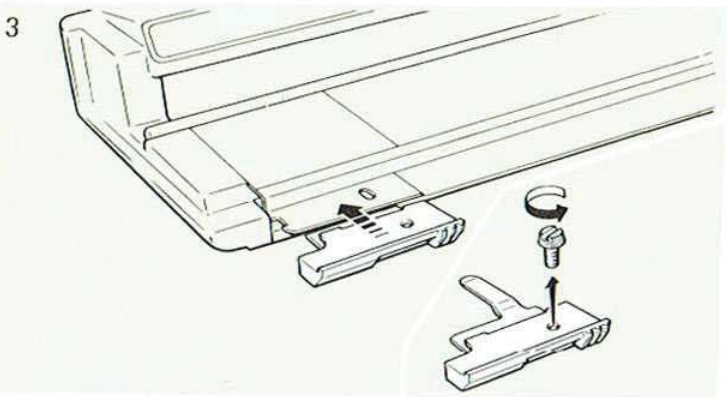
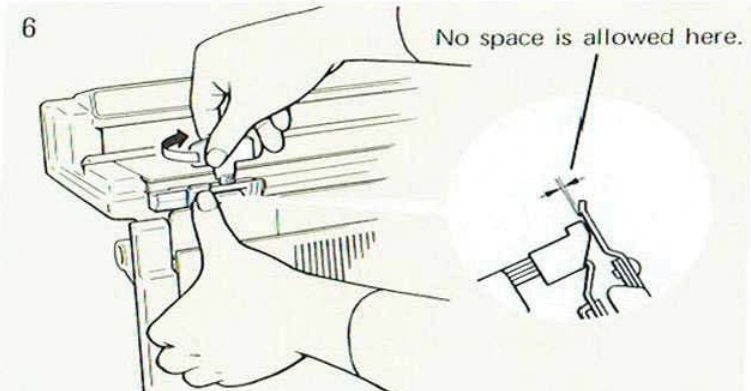
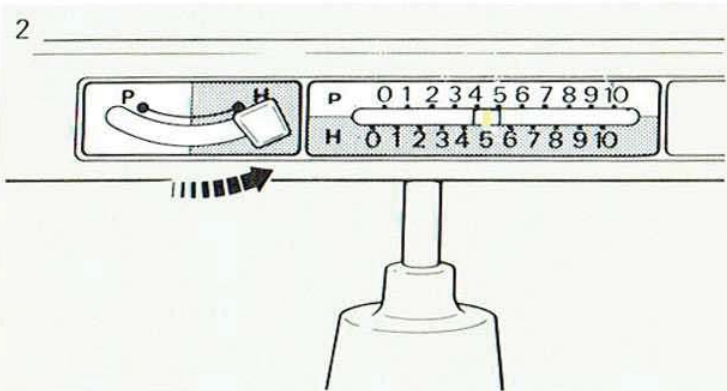
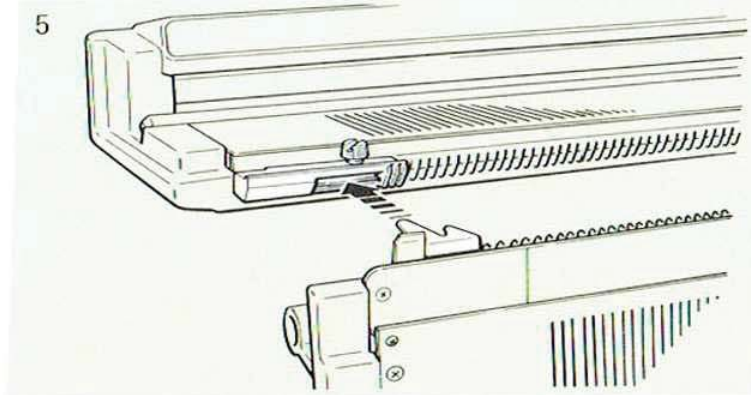
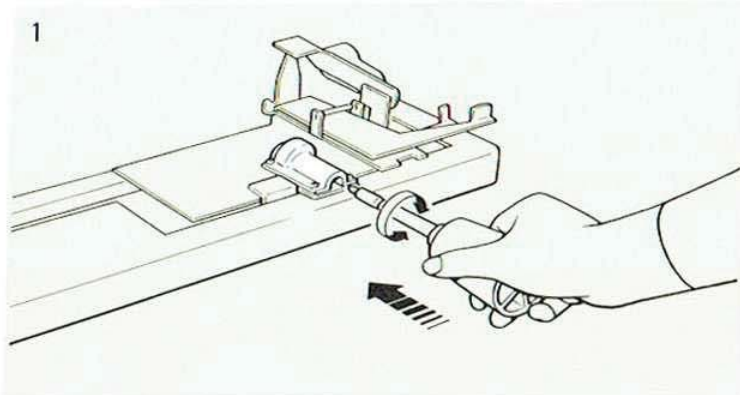
TO USE THE RIBBER



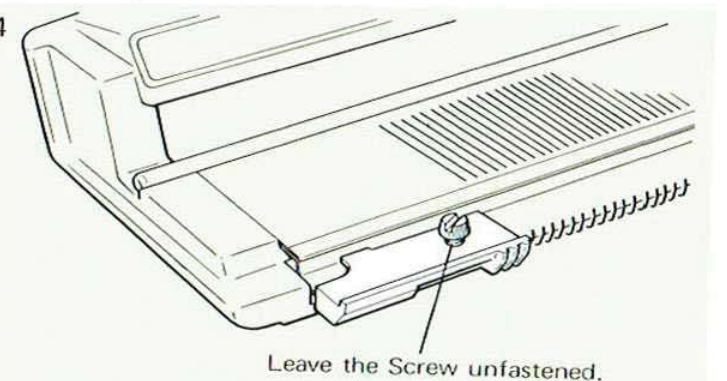
- * To assemble the Knitter, refer to the procedures in Section A.
- * Before setting up the Ribber, secure the Knitter on a table using the Ribber Clamps.
- * Use the Ribber Arm.

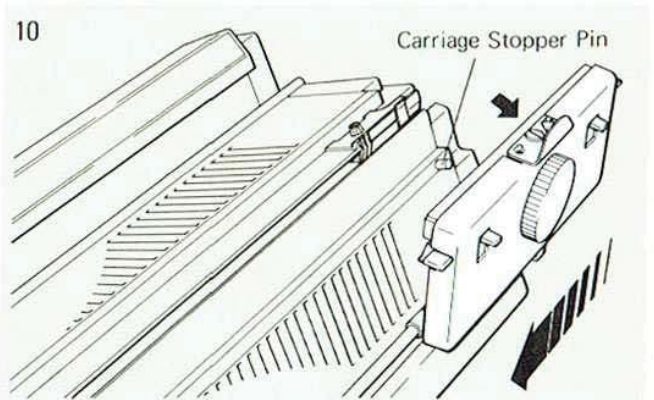
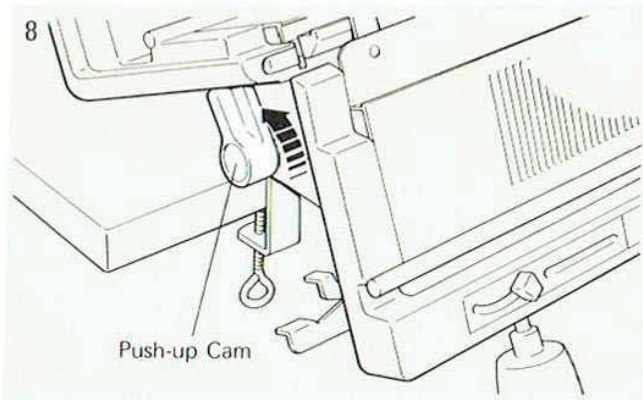
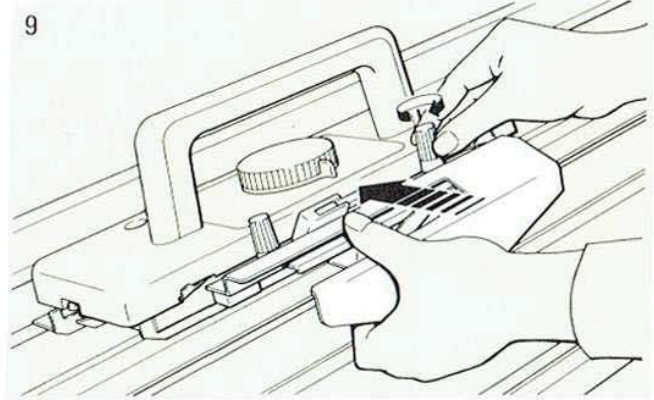
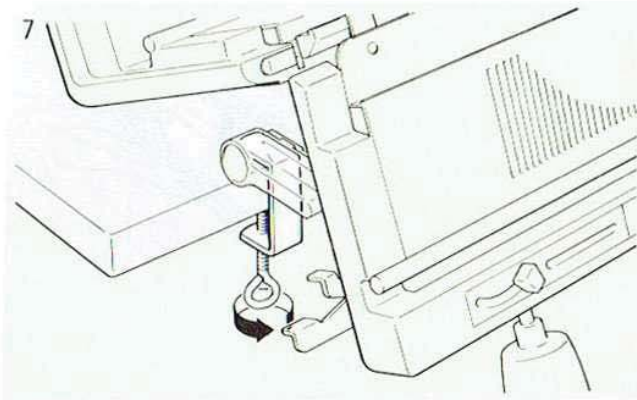


B-1 TO SET UP THE RIBBER

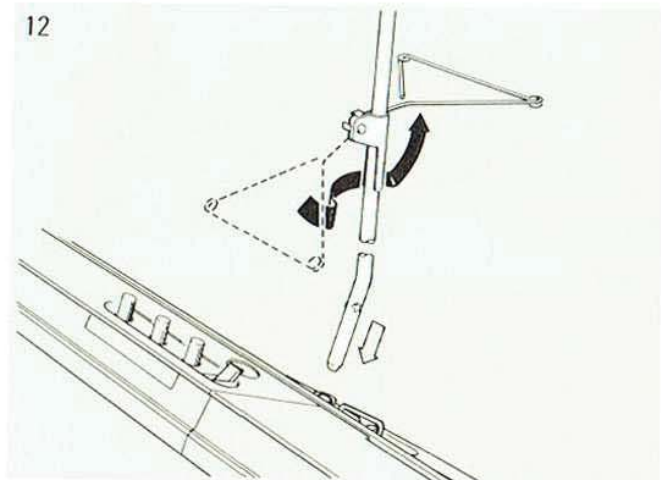
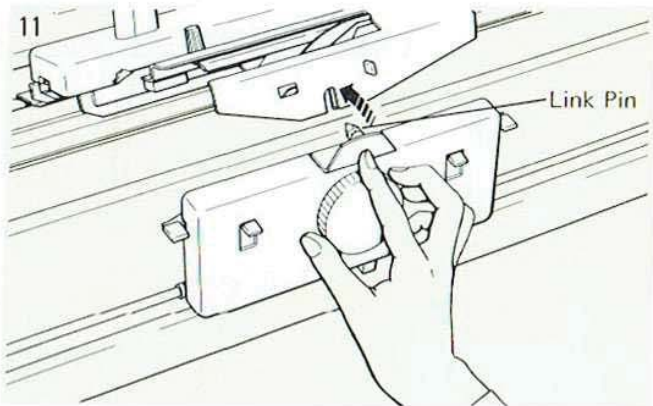


1. Insert the tip of Swing Handle into the Swing Bearing which is located at the lower left-hand side of the Ribber. Push the Handle in a twisting manner until you hear a click with a slight jerk.
2. Swing the Half Pitch Lever to the right (H). By turning the Handle, set the Indicator Pointer at 5.
3. Remove the Ribber Join Screws from the Auxiliary Pieces. Insert the Piece into the end of front edge of needle bed at both sides so that its plastic part comes above the front edge. Place the Piece so that its hole overlaps with that of the front edge.
4. Put the Screw back to the Auxiliary Piece on both sides. Turn the Screw 3–4 times using your hand and do not fasten it.
5. Hold the Ribber with both hands and insert the Ribber Joiners so as they are on the metal parts of the Auxiliary Pieces until the Ribber Stoppers reach the Pieces. For easy doing, insert the right side first, then the left side.
6. Push the Ribber Stopper to the Auxiliary Piece, fasten the Screw with the Screw Driver. If there is a space between the Piece and Stopper, loosen the Screw and fasten it again.

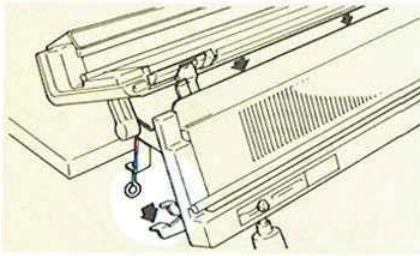




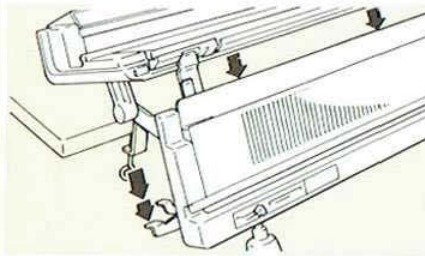
7. Secure the Ribber Support on both sides of the table using the Clamp for the Knitter.
8. Turn the Push-up Cam to the arrowed direction.
9. Mount the Ribber Arm to the Knitter Carriage. (Set the Cam Lever to STOCKINET(O) before mounting the Arm.)
10. Fit in the Ribber Carriage pipe with the rail from the right end and slide it. Tilt the Carriage towards you to steer clear of the Carriage stopper pin.
11. Push in the Link Pin into the slot of the Arm until you hear a click.
12. Insert the Yarn Rod into the hole and mount the Auto-Tension on it. The Yarn Rod should be inserted in the direction opposite the direction when it is used without the Ribber. In this position, as the Tension Guide faces you, push it sideways and forward before lifting it as illustrated.



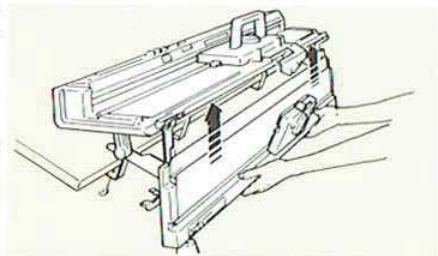
B-2 FUNCTION OF PRINCIPAL PARTS



* Middle position. For checking the fabric or to pick up dropped stitches.



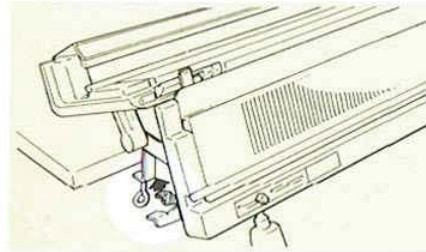
* Lower position. When knitting on the Knitter only.



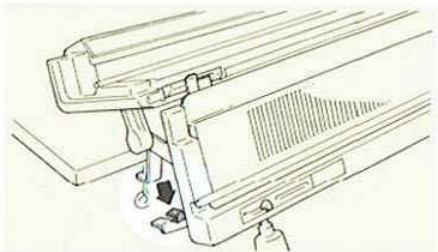
* Upper position.

Drop Lever

Pile Lever
Used in pile knitting.



* In ordinary rib knitting.



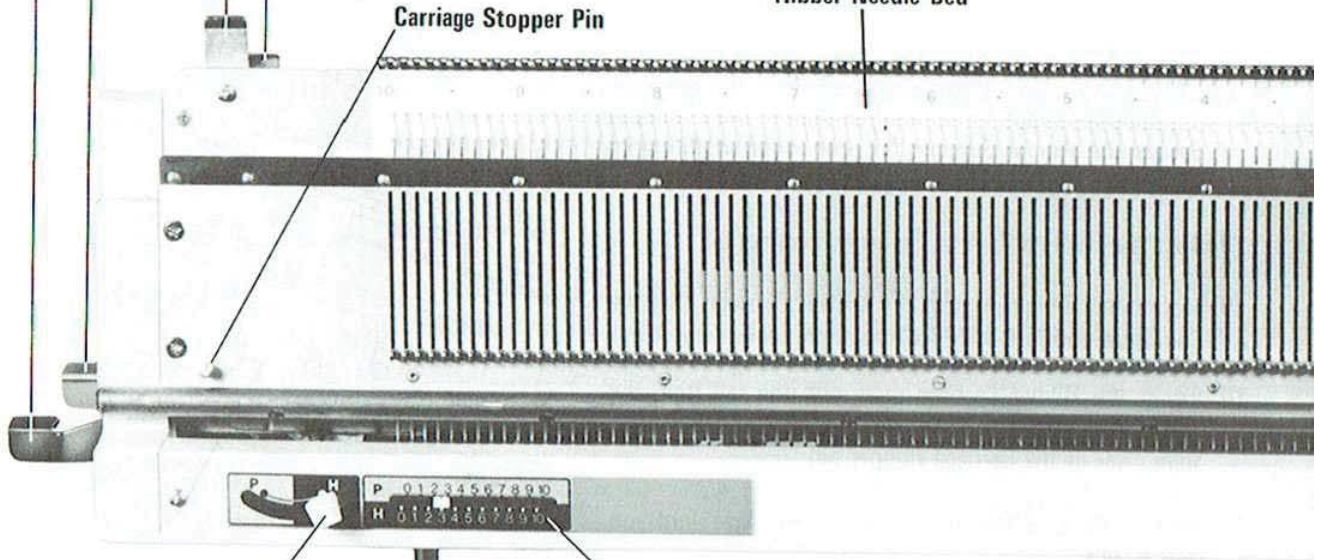
* When pile knitting.

Ribber Stopper

Ribber Joiner

Carriage Stopper Pin

Ribber Needle Bed



Swing Indicator

When the Ribber is swung using the Swing Handle, the number of swing and the needle position are indicated.

(Half-Pitch Lever at H → H scale).

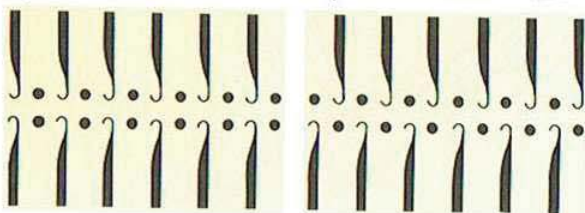
(Half-Pitch Lever at P → P scale).

"5" is the standard position.

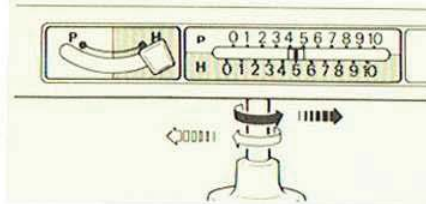
Half-Pitch Lever

P-position

H-position



Swing Handle

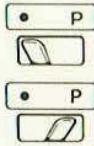




Set Lever

Controls needles in B position.
.....Needles in B position will knit.
.....Needle in B position will not knit.

* The right Lever works when the Carriage moves to the right and the left works vice versa.



Auxiliary Yarn Feeder Lever

Used in pile knitting.

.....In ordinary knitting.

.....In pile knitting.

Driving Lever

Keep the Lever down when the YC is not in use.

Yarn Feeders

Main Yarn Feeder and Auxiliary Yarn Feeder. The latter is used in pile knitting only.

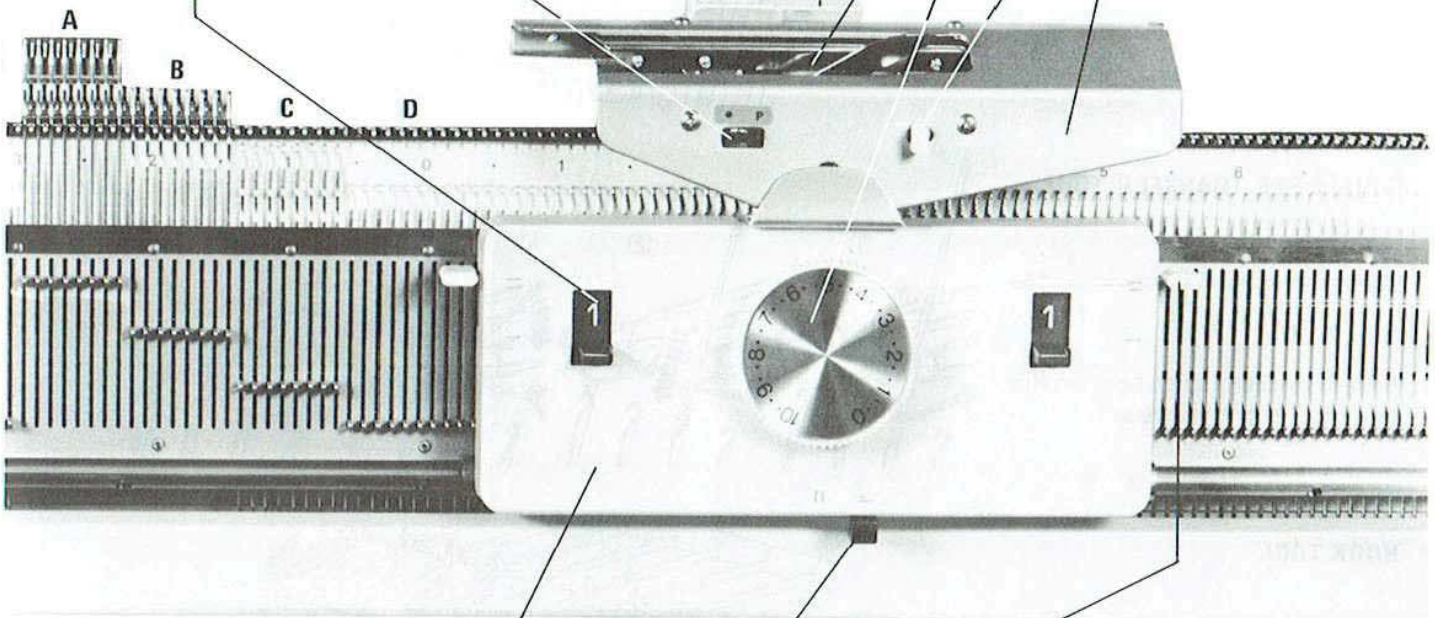
Stitch Dial

Adjust the Dial according to the size of yarn and type of knitting.

Link Knob

Push the Knob to the right to disconnect the Ribber Carriage.

Ribber Arm

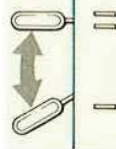


Ribber Carriage

Needle positions

The letters A, B, C and D associated with brackets "]" are engraved at both ends of the needle bed. The needles covered by each bracket function as below.

- A..... Non-working position.
- B..... Working position.
- C..... The needles in this position knit stockinet stitches.
- D..... Holding position. The needles in this position are knitted back to B position when the Russel Levers are at II position.



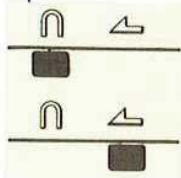
Russel Lever

.....Needles in D position will be knitted back to B position.

.....Needles in D position will remain non-working.

Pick Knob

The Knob is effective when the Set Lever is at 0 position.



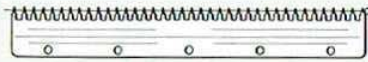
..... Yarn is hooked on needles in B position. (not knitted but tucked.)

..... Yarn is not hooked on needles in B position. (not knitted but slipped.)

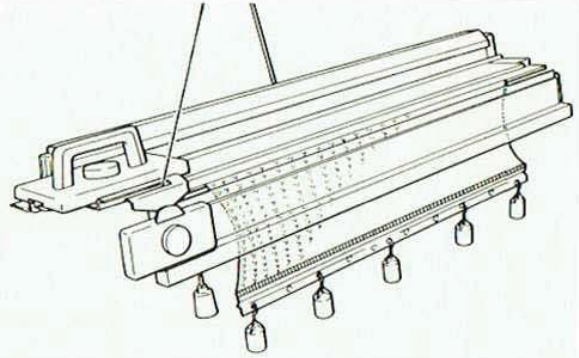
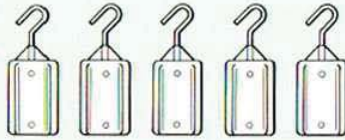
CAST ON COMB, WEIGHT



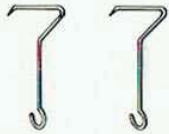
Large (for 200-needle width)



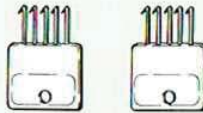
Small (for 100-needle width)



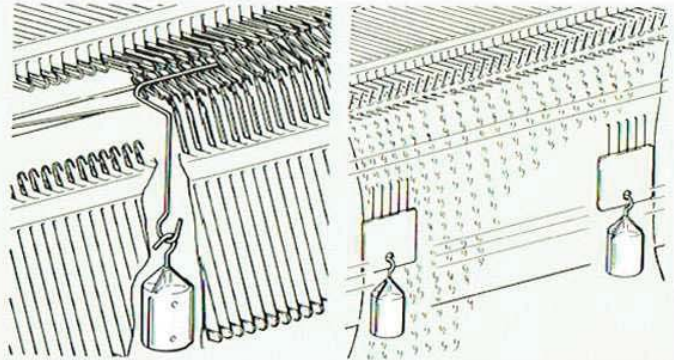
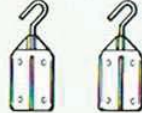
SIDE HANGER



HANGER COMB



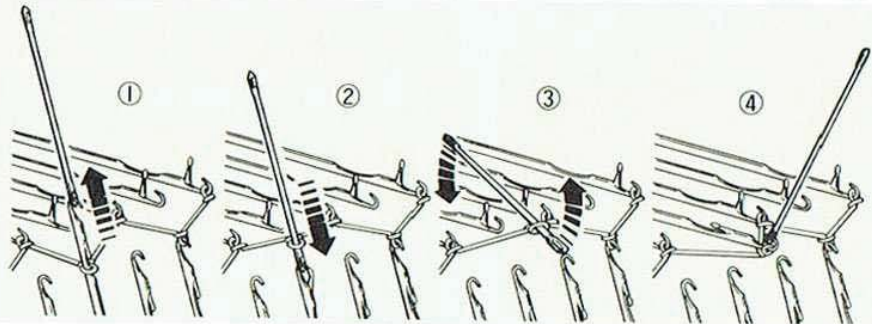
EDGE WEIGHT



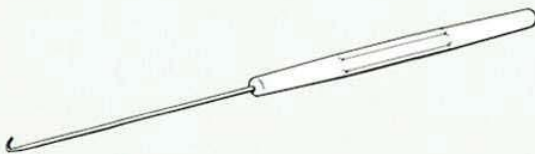
DOUBLE-EYE TRANSFER TOOL



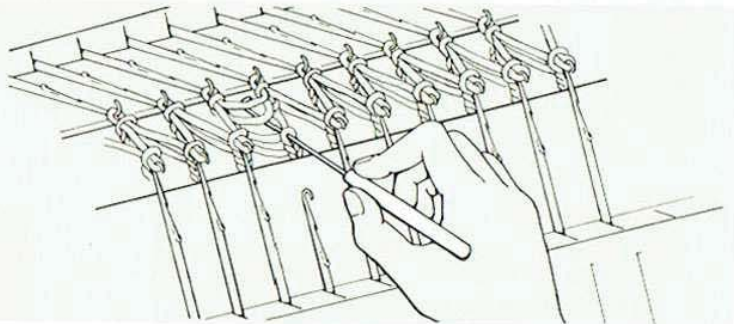
Used to transfer a stitch from the Ribber to Knitter and vice versa.



HOOK TOOL



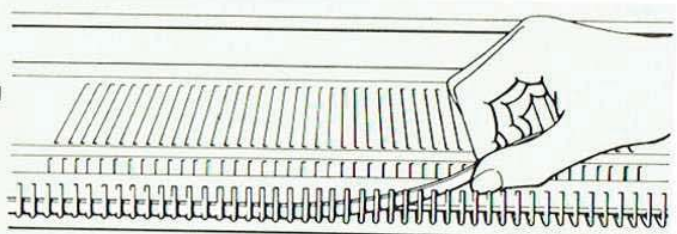
Used to pick up a dropped stitch.



CLOSE KNIT BAR

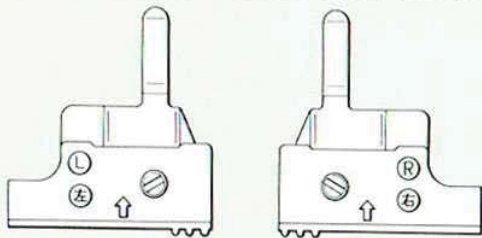


Used when knitting with very thin yarn. Attach the Bar to the front edge of needle bed.

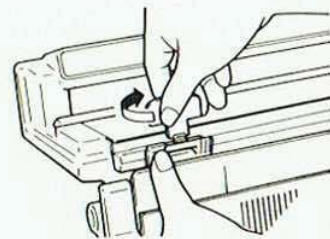


AUXILIARY PIECE

Used to attach the Ribber to the Knitter. (P.46)

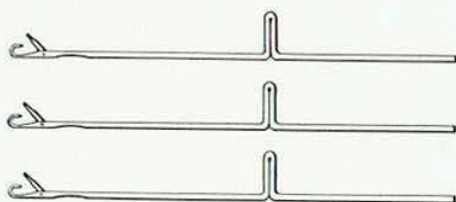


SCREW DRIVER



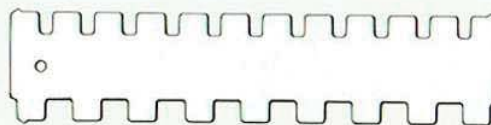
Used to fasten the Ribber Join Screw. (P.46)

SPARE NEEDLE (3)

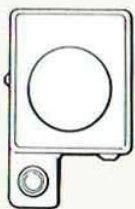


NEEDLE PUSHER

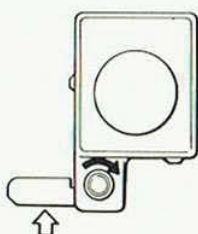
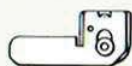
Used to select needles in K2.P2 rib, etc.



P CARRIAGE

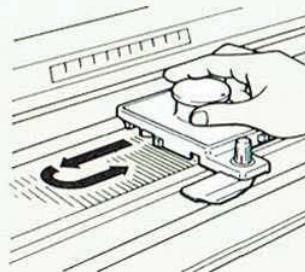


P PRESSER



Used when drive lace and pile knitting. Also used when stitches are tight. (P.71)

Attach the P Presser when pile knitting.

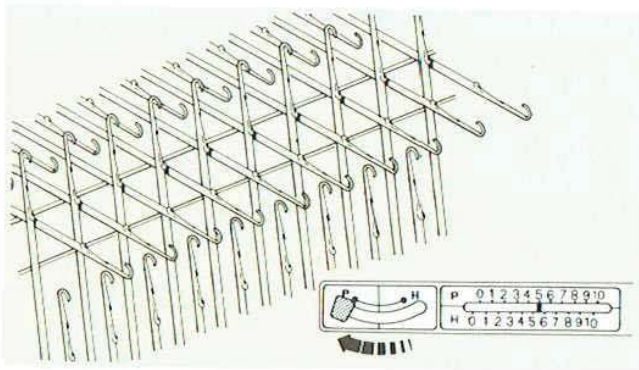


To use on the Knitter.



To use on the Ribber.

- (1) Move the P Carriage.....needles align in C position leaving stitches behind latches.
- (2) Move the P Carriage.....stitches are slipped off of the twice.



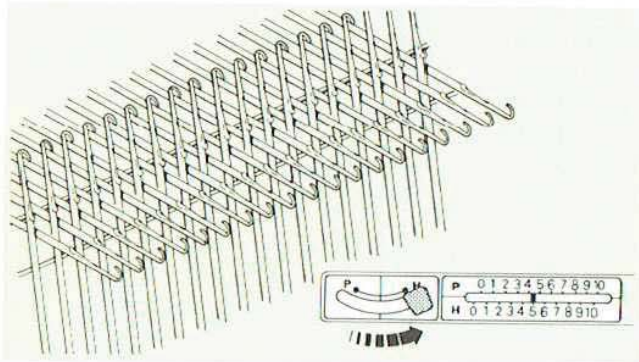
1. Needle arrangement

There are two kinds of needle arrangement for cast on when the Ribber is in use.

Knitting procedures for the needle arrangements are the same, but only the setting of the Half Pitch Lever is different.

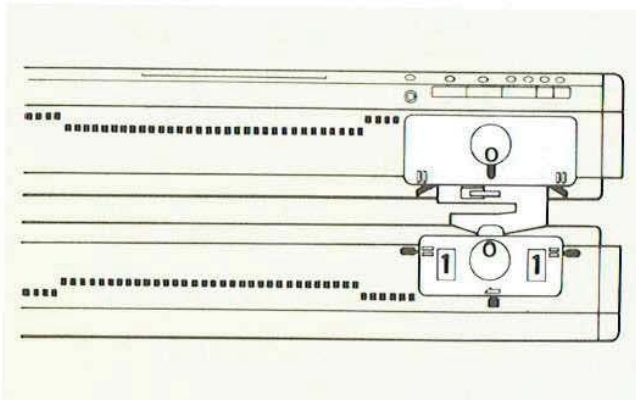
1-1 Using every other needle

- (1) Set the Half Pitch Lever to P.
- (2) Using a Needle Pusher (1/1 side), push needles to D position.



1-2 Using every needle

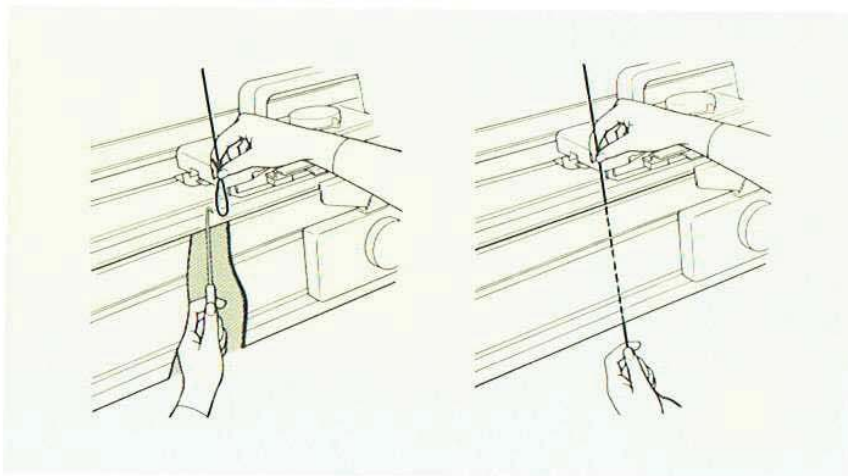
- (1) Set the Half Pitch Lever to H.
- (2) Using a Needle Pusher (straight edge side), push needles to D position.



2. Set the Carriage as follows:—

- | | | |
|---------|-------------------|---------------|
| Knitter | Cam Lever..... | STOCKINET (O) |
| | Russel Lever..... | II (both) |
| | Stitch Dial..... | 0 |
| Ribber | Set Lever..... | I (both) |
| | Pick Knob..... | ▲ |
| | Russel Lever..... | ≡ (both) |
| | Stitch Dial..... | 0 |

Move the Carriage 2-3 times and leave it at the right side. (Needles of the Knitter and Ribber align in B position.)

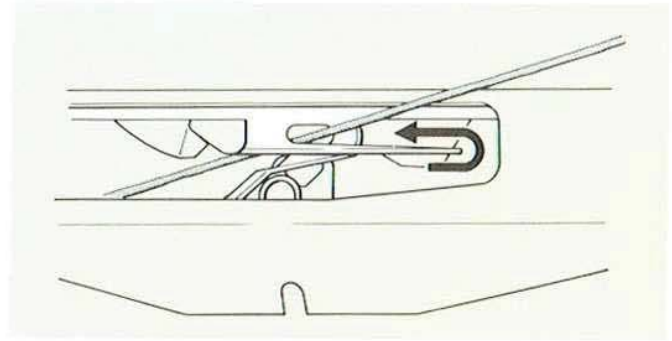


3. Thread yarn into the Yarn Feeder.

- (1) Thread yarn into the Auto-Tension. Make a loop at the yarn end and hold it at the left side of both beds.
- (2) Insert the Hook Tool from underneath, catch the yarn end, and pull it down. Hold the yarn end.

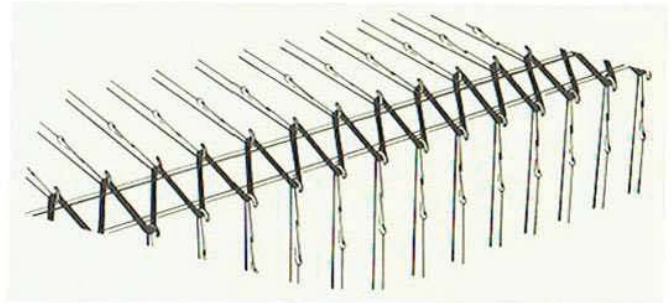
- (3) Move the Carriage from right to left leaving it at the yarn.
- (4) Hold the yarn with both hands above the machine and below the machine, then guide it along the Yarn Guide.

* In case you start knitting from the right side. Insert the yarn between both needle beds by the Carriage at the left side and thread the Yarn Feeder in the same manner as explained above.



4. Knit the initial row.

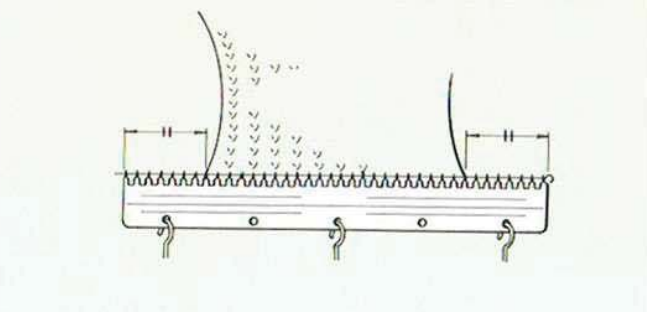
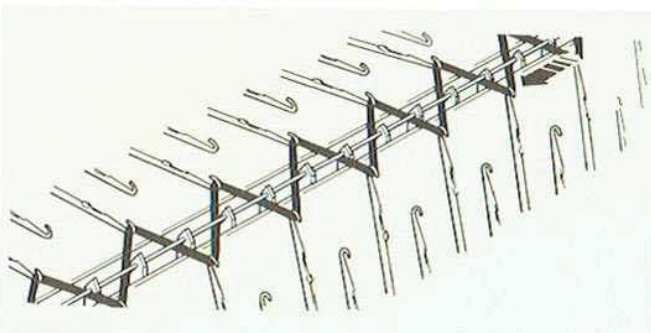
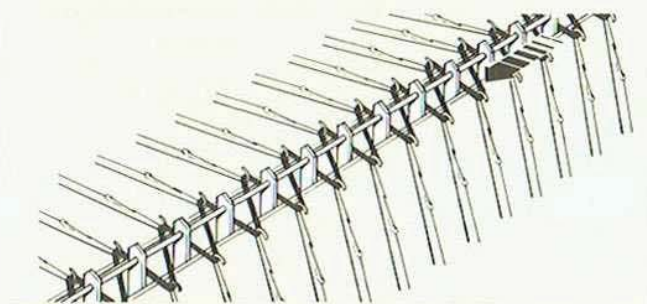
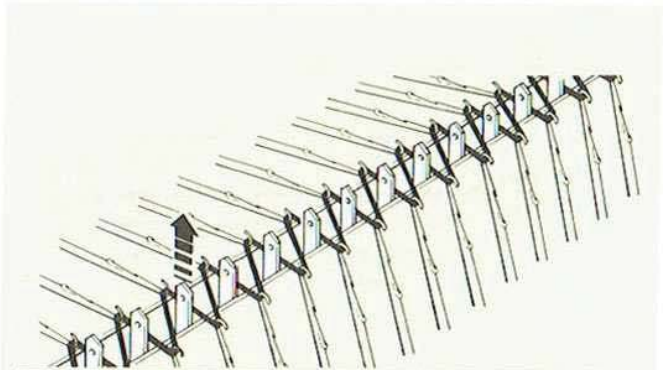
Hold the yarn end from underneath, and move the Carriage from left to right. The yarn will be hooked alternately on the Knitter and Ribber needles in zigzag.

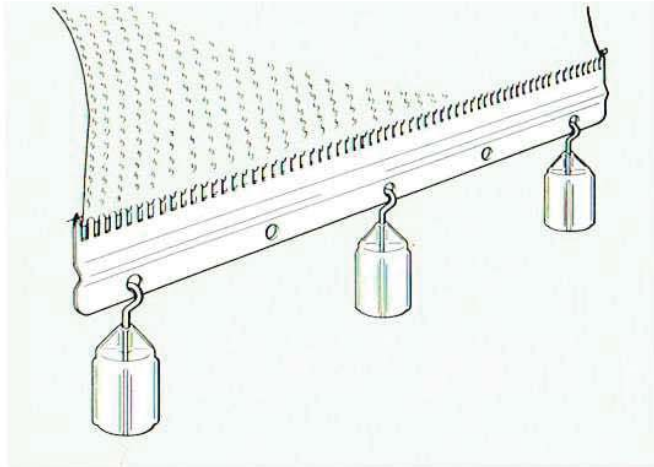


5. Suspend the Cast on Comb

Two Combs are provided with the Ribber. The long one covers 200-needle width and the short one covers 100-needle width. Use one that suits the number of needles to be used.

- (1) Remove the wire from the Comb. Insert the Comb teeth from underneath into the yarn hooked in zigzag until the teeth clear the zigzagged yarn.
 - (2) Insert the wire through the teeth and let the Comb hang.
- * Hang the Comb so that it is balanced horizontally between the working needles.
- * In case of every other needle arrangement, yarn is hooked as illustrated below.

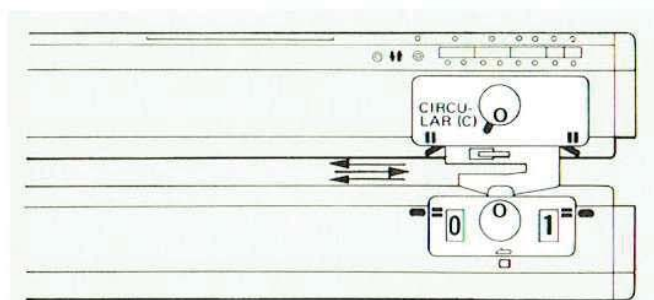




6. Suspend the Accessory Weights.

Suspend the suggested number of Weights as described below at even intervals.

Number of stitches	Number of the Weights
Up to 40	1
40– 80	2
80–120	3
120–160	4
160–200	5



7. Knit the subsequent rows.

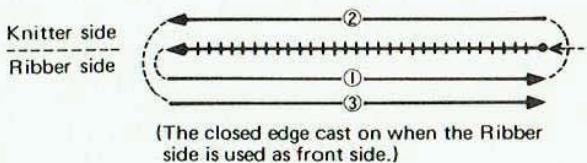
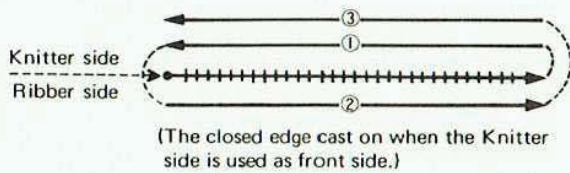
- (1) Change the Carriage settings as follows:—
 Knitter Cam Lever.....CIRCULAR (C)
 Ribber Set Lever.....① (left)
- (2) Knit three rows. The Knitter needles will knit the first row, the Ribber needles will knit when the Carriage returns. The Knitter needles will knit the third row. (This is called the circular knitting.)

* When using the Knitter side as front side.

Knit the initial row of the cast on rows from left to right. (The knitter has one row more than the Ribber for cast on.)

* When using Ribber side as front side.

Knit the initial row of the cast on rows from right to left. (The Ribber has one more row than the Knitter for cast on.)



8. Change the Carriage settings as follows:—

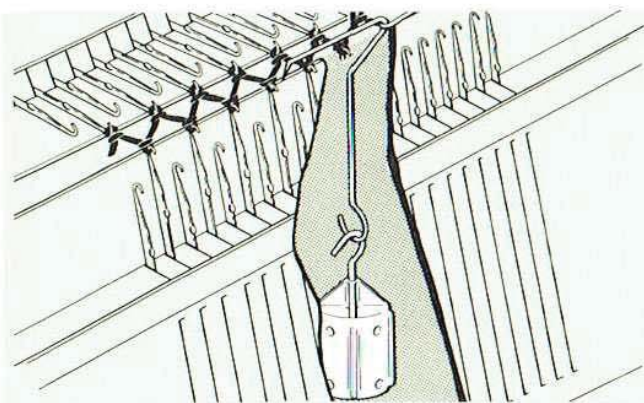
- Knitter Cam Lever.....STOCKINET (O)
 Stitch Dial..... P.55
 Ribber Set Lever.....① (both)
 Stitch Dial..... P.55

The above setting is applicable for K1.P1 rib or double rib.

9. Start the main knitting.

10. Suspend the Edge Weight.

Two Edge Weights are provided with the Ribber. The Weight is used with the Side Hanger. Bring the Side Hanger from underneath through the clearance between the Knitter and Ribber and place the Hanger on the zigzagging yarn as illustrated. Advance the Weight every ten rows as knitting continues.



WEIGHT OF YARN AND THE STITCH DIAL SETTING ACCORDING TO TYPE OF KNITTING

Type of Knitting			Weights of yarn			
			Thin ②	Light ④	Medium ⑤	Thick ⑦
K1.P1. rib	Closed edge cast on	The initial row	—	0	0	0
		The subsequent rows	—	0(2)	0(2)	2
	Main knitting		—	0-1	2-3	6-7
Double rib	Closed edge cast on	The initial row	0	0	0	—
		The subsequent rows	0(2)	1(3)	2(4)	—
	Main knitting		0-1	1-2	3-4	—
K2.P2. rib	Knitter		—	2-3	3-4	6-7
	Ribber		—	2-3	3-4	6-7
Wide rib	Knitter		—	1-2	3-4	5-6
	Ribber		—	3-4	5-6	7-8
Circular knitting	Knitter		2-3	4-5	5-6	—
	Ribber		4-5	6-7	7-8	—

The number in the brackets in the column of closed edge cast on shows the Stitch Dial number on the Ribber Carriage in case the Ribber side is used as front side.

TO REMOVE THE FABRIC FROM THE MACHINE

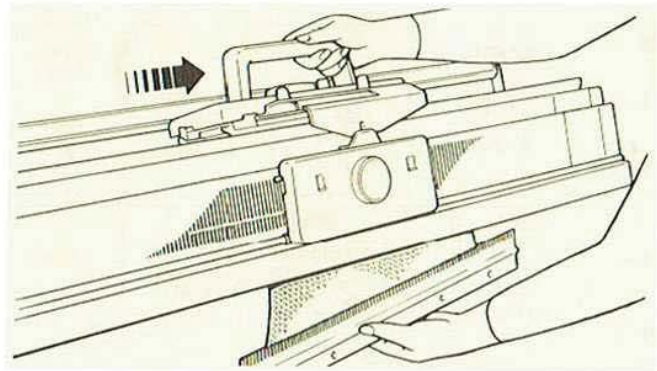
Method 1

Remove yarn from the Yarn Feeder. Remove the Weights from the Cast on Comb and set the Carriage controls as follows:—

Cam Lever.....STOCKINET (O)

Set Lever.....① (both)

Holding the Cast on Comb, move the Carriage once.



Method 2.

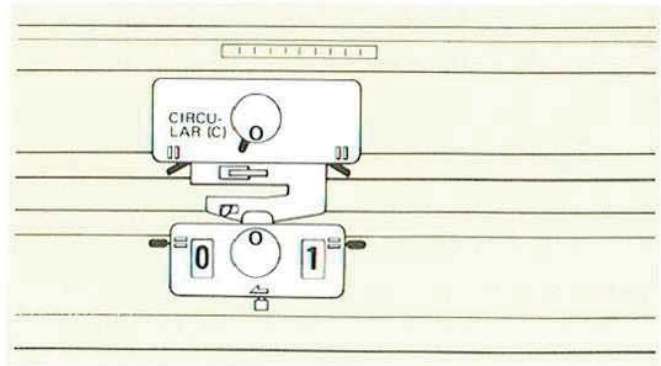
Replace knitting yarn with another yarn. Set the Carriage controls as illustrated on the right and work circular knitting for 9-10 rows.

Remove the Weights from the Cast on Comb. Change the Carriage controls as follows:—

Cam Lever.....STOCKINET (O)

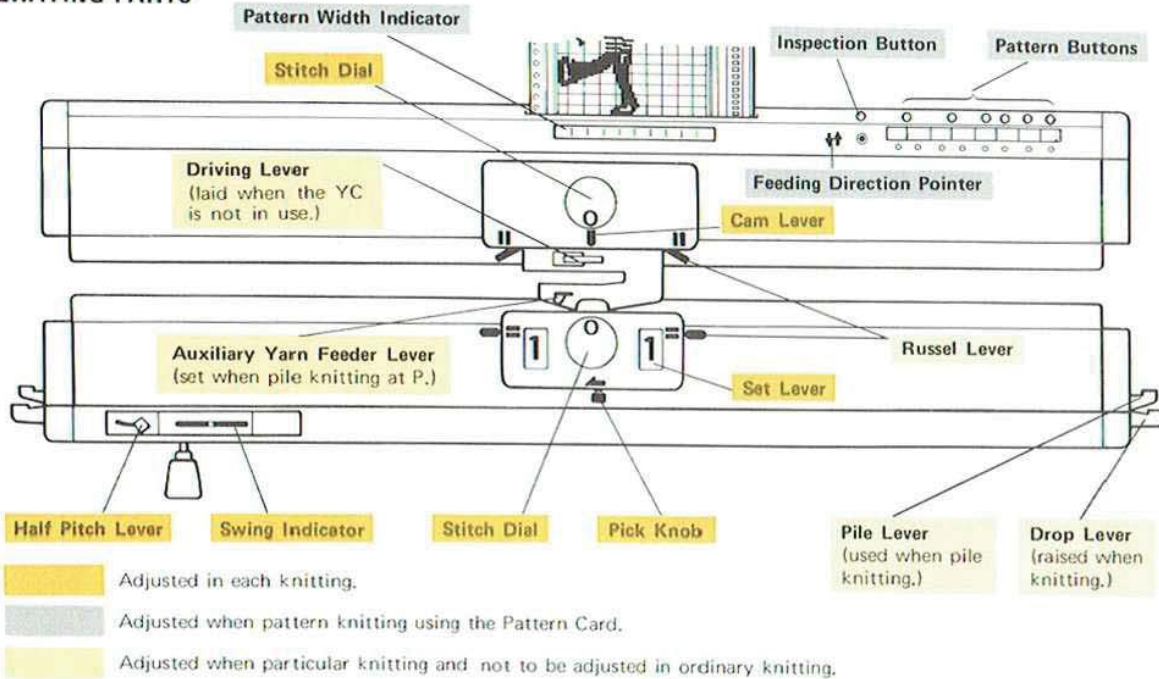
Set Lever.....① (both)

Holding the Cast on Comb, move the Carriage once.



* A knitting procedure is tabulated in the operation table as shown below. Do not ignore any of the instructions in the table.

OPERATING PARTS



OPERATION TABLE

Operation Table for basic rib.

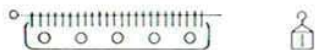
NEEDLE ARRANGEMENT		RUSSEL LEVERS		YARN	Medium (Main Yarn Feeder)
CAST ON			TENSION DIAL	3	DRIVING LEVER
MAIN KNITTING			PILE LEVERS		

ORDER	KNITTER		RIBBER			DIRECTION	REMARKS
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL		
CAST ON	1	STOCK (NET 10)	0		0	P 5	Cast on from the left side. (To use the Knitter side.)
	2						
	3	CIRCU. LAR (C)	"		"	"	
MAIN KNITTING	1	STOCK (NET 10)	2		2	"	To be repeated.
	2	"	"	"	"	"	

Operation Table for pattern knitting.

NEEDLE ARRANGEMENT		RUSSEL LEVERS		YARN	Light (Main Yarn Feeder)
CAST ON / MAIN KNITTING			TENSION DIAL	4	CLOSE KNIT BAR
			DRIVING LEVER	Used	PILE LEVERS

ORDER	KNITTER			RIBBER			DIRECTION	REMARKS
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL		
CAST ON	1	STOCK (NET 10)	0			0	H 5	Cast on from the right side. (To use the Ribber side.)
	2							
	3	CIRCU. LAR (C)	1	"		3	"	
	4	"	3	"		"	"	
	5							
MAIN KNITTING	1	TUCK (T)	"		"	"	"	
	2	"	"	"	"	"	"	



Suspend the Cast on Comb and Weights.

Section ①.....Preliminaries:

Set the machine as required. The settings remain unchanged until further instruction is given. (Thickness of yarn shown is an example, and if a yarn of other thickness is to be used, adjust the Stitch Dials and Tension Dial accordingly.)

Section ②.....Cast on:

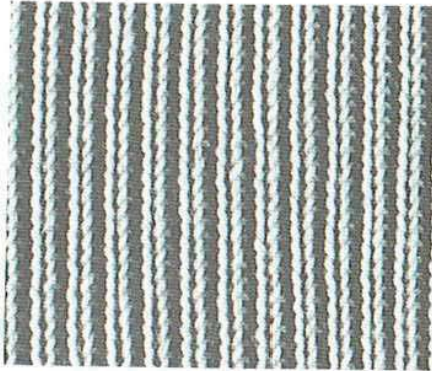
Instructing the procedure for closed edge cast on rows.

Section ③.....Main knitting:

Proceed as instructed, and repeat the same procedure through the knitting.

* The Pattern Card and Power Cord are not required.

1 KNIT 1 PURL 1 RIB



This is the most fundamental rib knitting. Use every other needle of the Knitter and Ribber. On both sides of the knitting, knit stitches and purl stitches align alternately. The knitting is soft and elastic in a horizontal direction.

* The sample is knitted using a medium weight yarn.

1 NEEDLE ARRANGEMENT

RUSSEL LEVERS

YARN Medium (Main Yarn Feeder)

TENSION DIAL ... 3

DRIVING LEVER

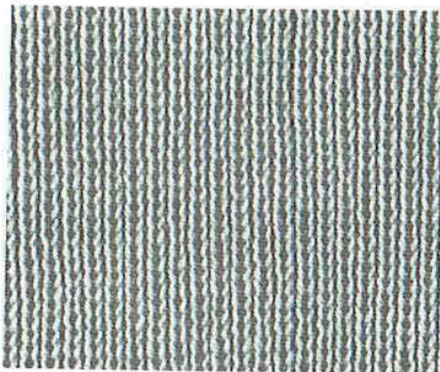
PILE LEVERS

CAST ON

MAIN KNITTING

ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKI-NET (O)	0	① ①	←	0	P 5	→	Cast on from the left side. (To use the Knitter side.)	
	2									
	3	CIRCULAR (C)	"	① ①	"	"	"	"		→ 3
MAIN KNITTING	1	STOCKI-NET (O)	2	① ①	"	2	"	"	→	To be repeated.
	2	"	"	"	"	"	"	"	←	

2 DOUBLE RIB



Use every needle of the Knitter and Ribber. The stitch structure is practically identical to that of K1.P1 RIB.

* The sample is knitted using thin weight yarn.

* When light or medium weight yarn is used, refer to page 55 for the Stitch Dial setting.

1 NEEDLE ARRANGEMENT

RUSSEL LEVERS

YARN Thin (Main Yarn Feeder)

TENSION DIAL ... 5

DRIVING LEVER

PILE LEVERS

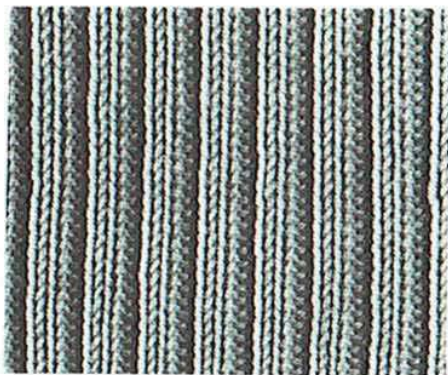
CAST ON

MAIN KNITTING

CLOSE KNIT BAR ... used

ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKI-NET (O)	0	① ①	←	0	H 5	→	Cast on from the left side. (To use the Knitter side.)	
	2									
	3	CIRCULAR (C)	"	① ①	"	"	"	"		→ 3
MAIN KNITTING	1	STOCKI-NET (O)	"	① ①	"	"	"	"	→	To be repeated.
	2	"	"	"	"	"	"	"	←	

3 KNIT 2 PURL 2 RIB



This is the rib with K2.P2 stitches aligned alternately. Use the Needle Pusher (2/1 side) to arrange needles.

* The sample is knitted using medium weight yarn.

Method 1

NEEDLE ARRANGEMENT

CAST ON

MAIN KNITTING

RUSSEL LEVERS

YARN Medium(Main Yarn Feeder)

TENSION DIAL ... 3

DRIVING LEVER

PILE LEVERS

ORDER	KNITTER		RIBBER				DIRECTION	REMARKS	
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.			
CAST ON	1	STOCKINET (O)	0	① ①	←	0	H 5	→	Cast on from the left side. (To use the Knitter side.)
	2								
	3	CIRCULAR (C)	"	① ①	"	"	"	"	
MAIN KNITTING	1	STOCKINET (O)	4	① ①	"	4	" 6	→	Change needle arrangement to the main knitting.
	2	"	"	"	"	"	"	←	

Method 2

This method is used when knitting with thick yarn. Arrange needles and the controls as illustrated and knit in the same manner as for Method 1.

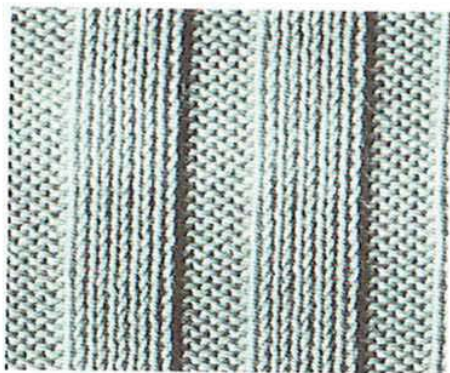
CAST ON

MAIN KNITTING

Swing Indicator }H-5
Half-Pitch Lever }

Swing Indicator }P-6
Half-Pitch Lever }

4 WIDE RIB



This is the rib with more than K3.P3 stitches aligned alternately. The sample is knitted in K5.P5 using medium weight yarn.

NEEDLE ARRANGEMENT

CAST ON

MAIN KNITTING

RUSSEL LEVERS

YARN Medium(Main Yarn Feeder)

TENSION DIAL ... 3

DRIVING LEVER

PILE LEVERS

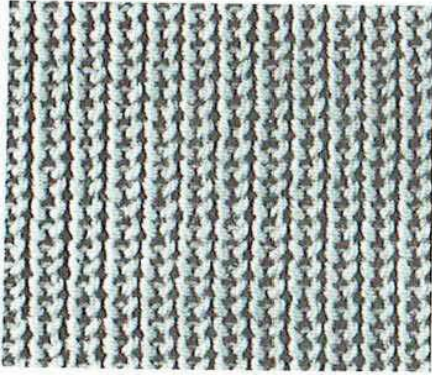
ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKINET (O)	0	① ①	←	0	H 5	→	Cast on from the left side. (To use the Knitter side.)	
	2									
	3	CIRCULAR (C)	5	① ①	"	7	"	"		↔)3
	4	*								
MAIN KNITTING	1	STOCKINET (O)	"	① ①	"	"	"	→		
	2	"	"	"	"	"	"	←		

Note: If more than two stitches are aligned at the end on either the Knitter or Ribber, transfer the end one stitch to a needle on the opposite bed as illustrated.



* Change needles arrangement to the main knitting. Leaving 5 needles alternately in B position on both bed, push the rest of needles to A position. To push the needles to A position, transfer their stitches to the needles in B position on the opposite bed.

5 ENGLISH RIB

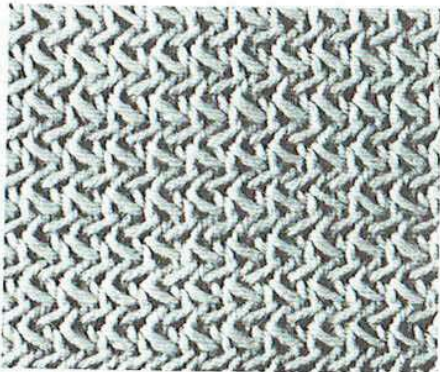


This is the rib with a tucking effect on one side of the knitting knitted in K1.P1 rib or in double rib.

* The sample is knitted in K1.P1 rib using medium weight yarn.

		NEEDLE ARRANGEMENT		RUSSEL LEVERS		YARN Medium (Main Yarn Feeder)				
		CAST ON				TENSION DIAL 3				
		MAIN KNITTING				DRIVING LEVER		PILE LEVERS		
ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKI-NET (O)	0	① ①	←	0	P 5	←	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCU-LAR (C)	0	① ①	"	2	"	"		→
MAIN KNITTING	1	ENG. RIB (E)	4	① ①	"	4	"	"	←	
	2	"	"	"	"	"	"	"	→	

6 SWUNG ENGLISH RIB

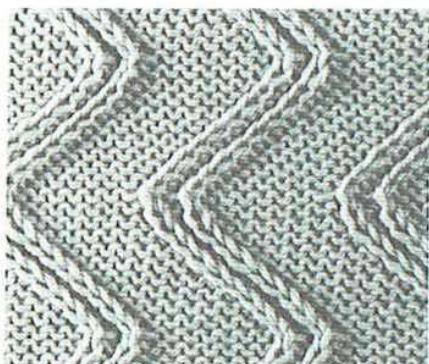


This is the rib with a tucking effect on one side of the knitting applying 2-pitch swing in K1.P1 rib and 1-pitch swing in double rib.

* The sample is knitted in K1.P1 rib using medium weight yarn.

		NEEDLE ARRANGEMENT		RUSSEL LEVERS		YARN Medium (Main Yarn Feeder)				
		CAST ON				TENSION DIAL 3				
		MAIN KNITTING				DRIVING LEVER		PILE LEVERS		
ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKI-NET (O)	0	① ①	←	0	P 5	←	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCU-LAR (C)	0	① ①	"	2	"	"		→
MAIN KNITTING	1	ENG. RIB (E)	4	① ①	"	4	"	5	←	
	2	"	"	"	"	"	"	"	→	
	3	"	"	"	"	"	"	7	←	
	4	"	"	"	"	"	"	"	→	

7 VARIATION SWING



While the Knitter Carriage knits stockinet, the Ribber Carriage knits with the selected needles making ridges. By swinging the Ribber, these ridges make various swung pattern.

* The sample is knitted using medium yarn. Have the double rib needle arrangement for cast on.

Note: If stitches tend to float, use the P Carriage and knit pushing the Knitter needles to C position every row. (P.71)

① NEEDLE ARRANGEMENT

CAST ON:

MAIN KNITTING:

RUSSEL LEVERS:

YARN Medium (Main Yarn Feeder)

TENSION DIAL 3

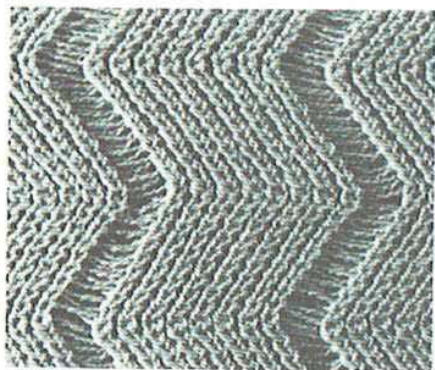
DRIVING LEVER

PILE LEVERS

ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKINET (O)	0	① ①	←	0	H 5	←	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCULAR (C)	2	① ①	"	4	" "			→ 3
	4	*								
MAIN KNITTING	1	STOCKINET (O)	5	① ①	"	3	" 5	←	Knit swinging the Ribber one by one pitch every row to make a zigzag pattern. Push 1-5 end needles to D position while knitting.	
	6	"	"	"	"	"	0	→		
	11	"	"	"	"	"	5	←		
	16	"	"	"	"	"	10	→		
	20	"	"	"	"	"	6	←		

* Change needle arrangement to the main knitting. Leaving the 8th, 10th, 18th and 20th needles, etc. from the left in B position on the Ribber, transfer stitches of the rest of needles onto the Knitter needles. Then push the empty needles to A position.

8 HERRING-BONE SWING



Rest the selected needles in A position. Swing 2-pitch in K1.P1 rib and 1-pitch in double rib and work tucked rib on one side and swing back to the original number. Knit swinging the required number of times in same direction, and then change the swing direction and knit in the same manner.

* The sample is knitted in herring-bone pattern using thin yarn, a variation of double rib.

① NEEDLE ARRANGEMENT

CAST ON:

MAIN KNITTING:

RUSSEL LEVERS:

YARN Medium (Main Yarn Feeder)

TENSION DIAL 3

CLOSE KNIT BAR ... Used

DRIVING LEVER

PILE LEVERS

ORDER	KNITTER		RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
CAST ON	1	STOCKINET (O)	0	① ①	←	0	H 5	←	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCULAR (C)	0	① ①	"	2	" "			→ 3
	4	*								
MAIN KNITTING	1	ENG. RIB (E)	2	① ①	"	"	" "	←	Repeat 10 times. (Knit 20 rows.)	
	2	"	"	"	"	"	6	→		
	3	"	"	"	"	"	" "	←	Repeat 10 times. (Knit 20 rows.)	
	4	"	"	"	"	"	5	→		

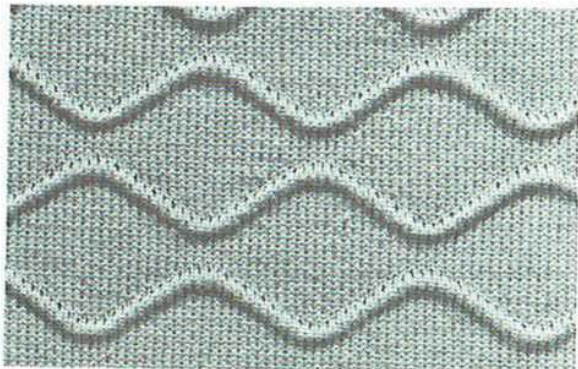
* Change needle arrangement to the main knitting. Rest two needles at intervals of 8 needles on the Knitter and Ribber. Transfer stitches on the needles to be rested to adjacent needles. Push the empty needles to A position.

B-7

TO KNIT A PATTERN IN RIB USING THE PATTERN CARD

- * Use the pattern controls.
- * Refer to P.17–19 for preparation of pattern knitting.
- * The basic operation procedure is the same as that of the Knitter as described in the right.
- * Read steps 1 through 8 carefully.
- * A complete operation procedure according to the type of pattern knitting is tabulated in the operation table as shown below.

CARD No.11 (34)



PREPARATORY STEPS

- 1 Turn on the machine.
- 2 Push on the Inspection Button.
(Light is on.)
- 3 Set the Pattern Card and Pattern Width Indicator.
Set the Point Cam and needle 1 Cam.
- 4 Set as in section ①.
- 5 Set the Carriage as in 1 of section ② and move it across the needle bed 1–2 times.
- 6 Thread yarn and cast on as in section ②.
- 7 Push off the Inspection Button.
(Light is off.)
- 8 Knit as in section ③ and repeat.

OPERATION TABLE

① NEEDLE ARRANGEMENT

CAM LEV. STITCH DIAL INSP. BUTTON

RUSSEL LEVERS

YARN Thin (Main Yarn Feeder)

TENSION DIAL 5

CLOSE KNIT BAR Used

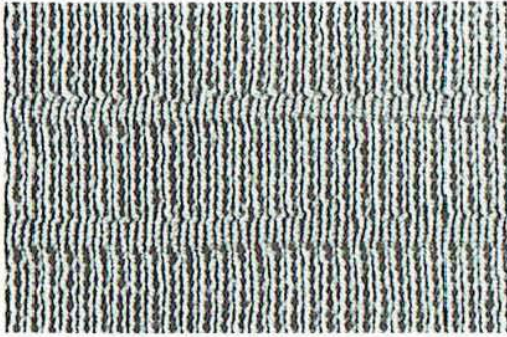
DRIVING LEVER

PILE LEVERS

ORDER	KNITTER			RIBBER				DIRECTION	REMARKS	
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.			
CAST ON	1	STOCK (NET TO)	0	① ①	←	0	H 5	—	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCULAR (C)	"	"	① ①	"	2	" "		→
	4	Push off the Inspection Button.								
MAIN KNITTING	1	SLIP (S)	"	① ①	"	3	" "	←		
	2	"	"	"	"	"	" "	→		
	3	Advance the Edge Weight.								

1 PIN TUCK

CARD No.11 (31)



1 NEEDLE ARRANGEMENT

CAST ON / MAIN KNITTING

RUSSEL LEVERS

YARN Thin (Main Yarn Feeder)

TENSION DIAL 5

CLOSE KNIT BAR ... Used

DRIVING LEVER

PILE LEVERS

While knitting rib, knit 3 or 4 rows with the Ribber only at regular intervals.

* The sample is knitted using thin yarn.

Note:

- * If stitches tend to float and knitting can not be worked, use the P Carriage. (P.71)
- * Do not use the Button 1 with its left light on and Button 3 and 6.

ORDER	KNITTER			RIBBER				DIRECTION	REMARKS	
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.			
② CAST ON	1	STOCKI-NET (O)	0			0	H 5	←	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCU-LAR (C)	"	"		"	2	" "		→→→)3
	4	Push off the Inspection Button.								
③ MAIN KNITTING	1	SLIP (S)	"			3	" "	←		
	2	"	"	"	"	"	" "	→		
	3	Advance the Edge Weight.								

2 PUNCH TUCK RIB

CARD No.6 (16)



1 NEEDLE ARRANGEMENT

CAST ON / MAIN KNITTING

RUSSEL LEVERS

YARN Light (Main Yarn Feeder)

TENSION DIAL 4

CLOSE KNIT BAR ... Used

DRIVING LEVER

PILE LEVERS

Knit in tuck stitch on the Knitter using the Pattern Card and knit in double rib on the Ribber. Use the Pattern Card for tuck stitch knitting.

* The sample is knitted using light yarn.

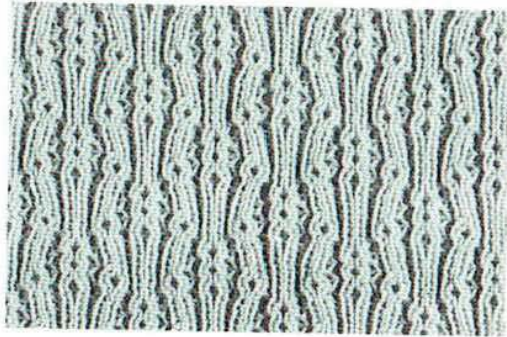
Note:

- * Do not use the Button 1 with its left light on and Button 3, 4 and 6.

ORDER	KNITTER			RIBBER				DIRECTION	REMARKS	
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.			
② CAST ON	1	STOCKI-NET (O)	0			0	H 5	←	Cast on from the right side. (To use the Ribber side.)	
	2									
	3	CIRCU-LAR (C)	1	"		"	3	" "		→→→)3
	4	"	3	"		"	"	" "		←
	5	Push off the Inspection Button.								
③ MAIN KNITTING	1	TUCK (T)	"		"	"	" "	→		
	2	"	"	"	"	"	" "	←		

3 TUCK RIB STITCH

CARD No.1 (6)



1 NEEDLE ARRANGEMENT

CAST ON

MAIN KNITTING

RUSSEL LEVERS

YARN Light (Main Yarn Feeder)

TENSION DIAL 4

CLOSE KNIT BAR ... Used

DRIVING LEVER

PILE LEVERS

Knit in tuck stitch on the Knitter, and on the Ribber, push needles at regular intervals and knit. Use the Pattern Card for tuck stitch pattern.

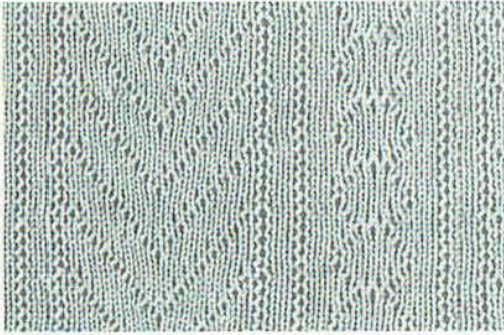
* The sample is knitted using light yarn.

ORDER	KNITTER			RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
2 CAST ON	1	STOCKINET (O)	0	⊙	① ①	←	0	H 5	←	Cast on from the right side. (To use the Ribber side.)	
	2										
	3	CIRCULAR (C)	1	"	① ①	"	3	" "	→ ₃		
	4	Change needle arrangement to the main knitting.									
	5	"	3	"	① ①	"	2	" "	←		
	6	Push off the Inspection Button.									
3 MAIN KNITTING	1	TUCK (T)	"	⊙	"	"	"	" "	→		
	2	"	"	"	"	"	"	" "	←		

Note: Do not use the Button 1 with its left light on and Button 3, 4 and 6.

4 DRIVE LACE KNITTING

CARD No.12 (35)



1 NEEDLE ARRANGEMENT

CAST ON

MAIN KNITTING

RUSSEL LEVERS

YARN Light (Main Yarn Feeder)

TENSION DIAL ... 4

DRIVING LEVER

PILE LEVERS

Knit stockinet on the Ribber, and the Knitter knits partially using the Pattern Card removing loops every other row. Thin yarn is suitable for this type of lace knitting.

* The sample is knitted using thin yarn.

ORDER	KNITTER			RIBBER				DIRECTION	REMARKS			
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK. KNOB	STITCH DIAL	SWING IND. H.P. LEV.					
② CAST ON	1	STOCKINET (O)	5		① ①		3	H 5	←	Knit with waste yarn.		
	2											
	3	Remove stitches on the Knitter needles with the P Carriage. Suspend the Weights.										
	4	SLIP (S)	"	"	"	"	"	"	"		→3	} Waste Knitting
	5	"	"	"	"	"	"	"	"		→3	
	6	Push both end needles on the Knitter to A position.										
	7	Push off the Inspection Button.										
③ MAIN KNITTING	1	→ Push up the Ribber needles to C position.										
	2	"	"		"	"	"	"	"	→	To be repeated.	
	3	→ Push up the Ribber needles to C position.										
	4	"	"	"	"	"	"	"	"	←		
	5	↔ Remove stitches on the Knitter.										

Note:

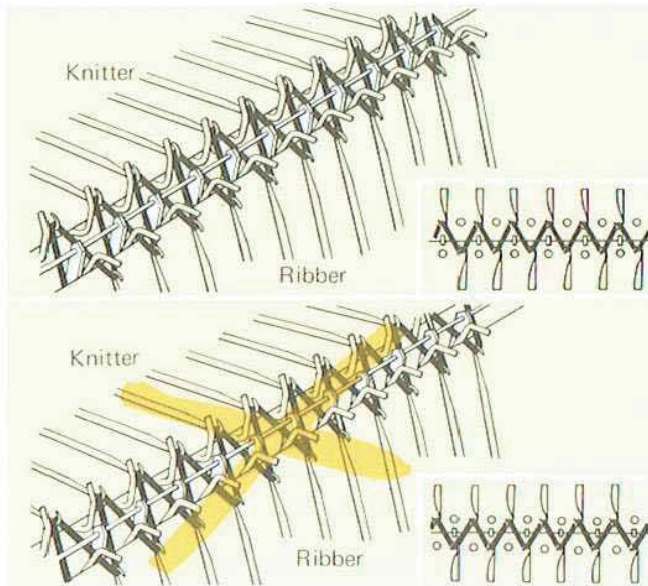
* Do not use the Button 1 with its right light on and Button 3, 4 and 6.



Be sure to suspend the Cast on Comb correctly.



Move the P Carriage to the arrowed directions.

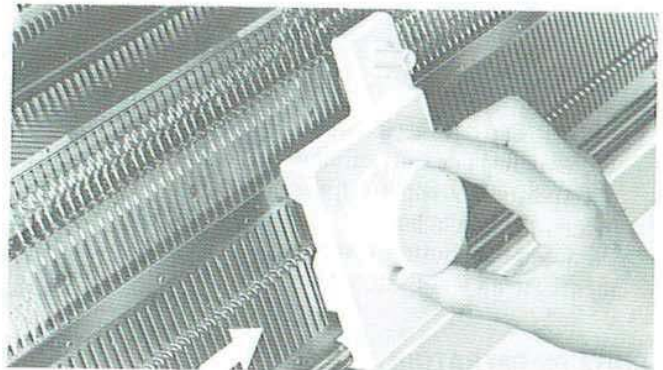
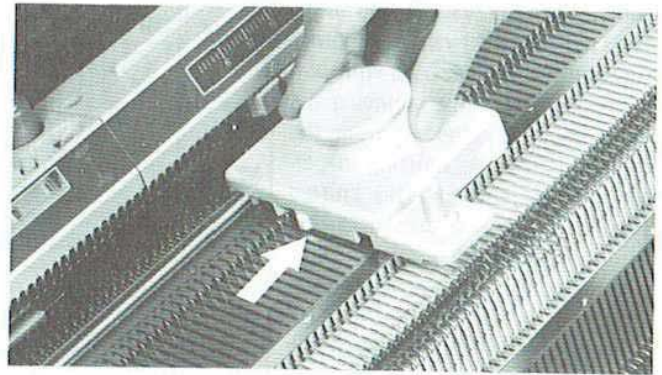
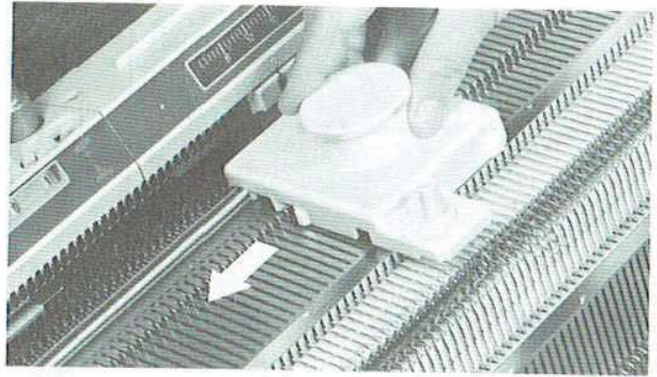


(HINTS ON OPERATION.)

② CAST ON

1. Operate in the same manner as for double rib until knitting the initial row.
2. Be sure to suspend the Cast on Comb as shown in the top illustration. If you suspend the Comb with its teeth facing the Knitter Sinker Posts, the Comb will drop off the machine when the P Carriage moves.

3. Remove the loops on the Knitter using the P Carriage.
 - (1) Place the P Carriage at the right side of the working needles on the Knitter and slide it to the left until it passes the working needles.
 - (2) Slide the P Carriage back to the right in the same manner. (The loops of Knitter will be removed.) Take the P Carriage out and suspend the Weight on the Comb.
- 4.5. Change the Carriage control, as in the operation table, knit 3 rows with waste yarn, then 3 rows with main yarn. (Only the Ribber side is knitted.)
6. Push both end needles on the Knitter to A position. (Refer to the main knitting needle arrangement in section ①)
7. Push the Inspection Button off.

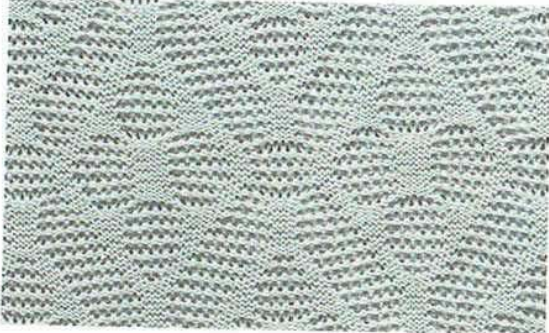


③ MAIN KNITTING

While main knitting, operate the P Carriage every time prior to knitting a row. To push the Ribber needles to C position, operate the P Carriage from left to right on the working needles. Remove the loops of the Knitter every other row in the same manner as for section ②

5 MESH KNITTING

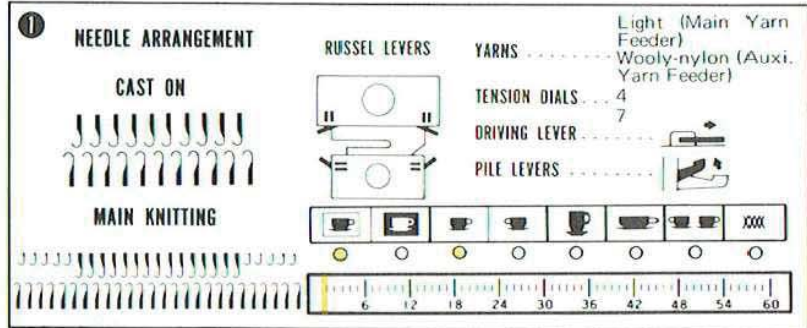
CARD No.13 (41)



This knitting is worked in the same manner as for drive lace knitting. Thin summer yarn is suitable for this type of knitting. When ironing, press the knitting in vertical direction.

6 PILE KNITTING

CARD No.13 (39)



Stitches are formed using light yarn and wooly-nylon yarn. The Knitter, knits with the light yarn every other row and the Ribber knits with two yarns together. Knit removing the loops on the Knitter. By using the Pattern Card, pile knitting in pattern can be knitted. This knitted fabric is suitable for suits, coat, and carpets. Besides, this is very effective for collars, cuffs of coat, etc.

The sample is knitted using wooly-nylon yarn (ground yarn) and light yarn (pile yarn).

Note:

- * As the Carriage feels heavier when working pile knitting, move it very carefully without lifting it from the needle bed.
- * Do not use the Button 1 with its right light on and Button 3 and 6.

ORDER	KNITTER			RIBBER				DIRECTION	REMARKS		
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.				
② CAST ON	1	STOCKI-NET (O)	6	⊙	① ①	←	4	H 5	←	Knit with waste yarn. Waste Knitting Knit with pile yarn. (light yarn)	
	2										
	3	Remove stitches on the Knitter needles with the P Carriage. Suspend the Weights.									
	4	SLIP (S)	"	"	"	"	"	"	"		→3
	5	"	"	"	"	"	"	"	"		→2
	6	Set the Auxiliary Yarn Feeder Lever to P and thread ground yarn (wooly-nylon thread). Depress the Pile Lever.(P. 48)									
	7	"	"	"	"	"	"	"	"		←
	8	Push five end needles on the Knitter to A position on both sides.									
	9	Push off the Inspection Button.									
③ MAIN KNITTING	1	→ Push up the Ribber needles to C position.									
	2	"	"	⊙	"	"	"	"	"	→	
	3	→ Push up the Ribber needles to C position.									
	4	"	"	"	"	"	"	"	"	←	
	5	Remove stitches on the Knitter.									

HINTS ON OPERATION

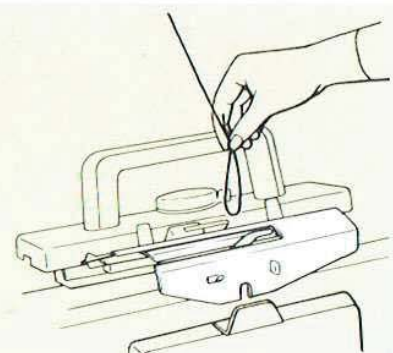
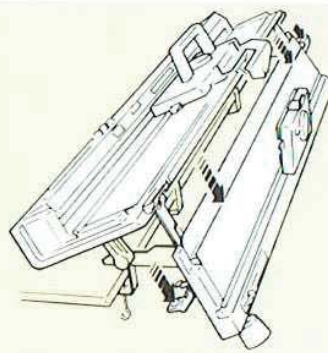
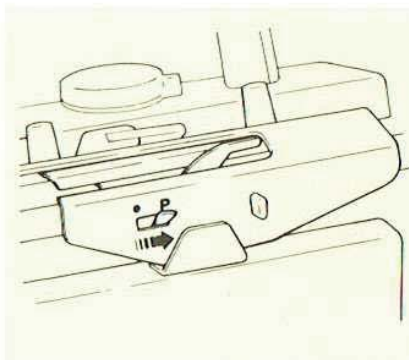
② CAST ON

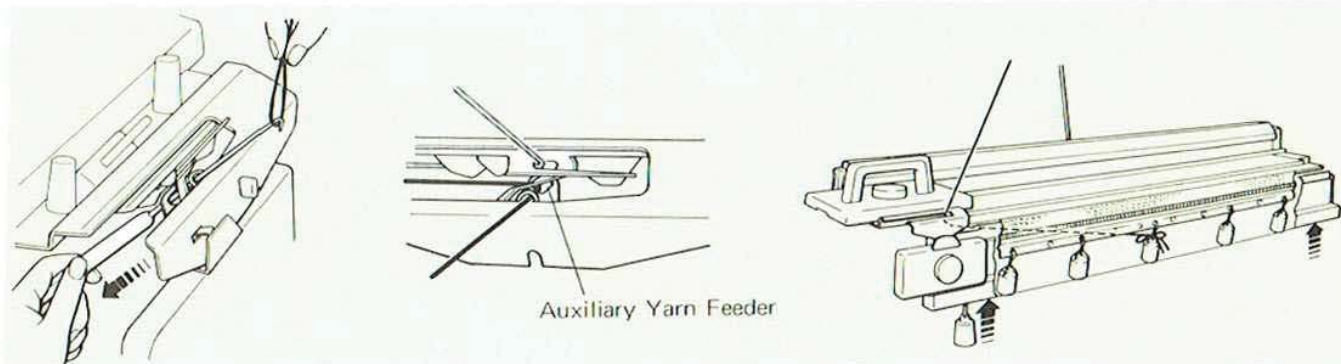
For lines 1-4, knit in the same manner as for drive lace knitting.

For line 5, knit two rows in pile knitting and leave the Carriage at the right side.

For line 6, thread the Auxiliary Yarn Feeder in the following manner.

- (1) Set the Auxiliary Yarn Feeder Lever to P.
- (2) Depress the Drop Lever to set the Ribber to the middle position.
- (3) Thread ground yarn (wooly-nylon) into the Auto-Tension and hold its end above the Yarn Feeder.



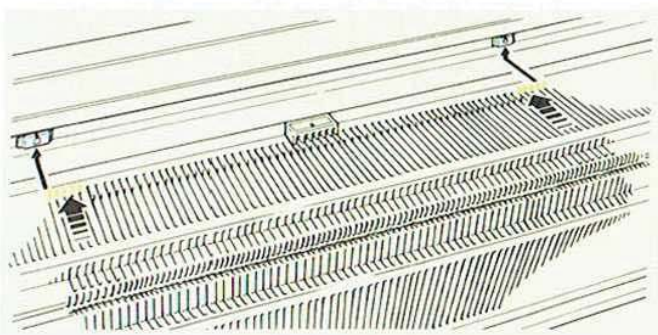
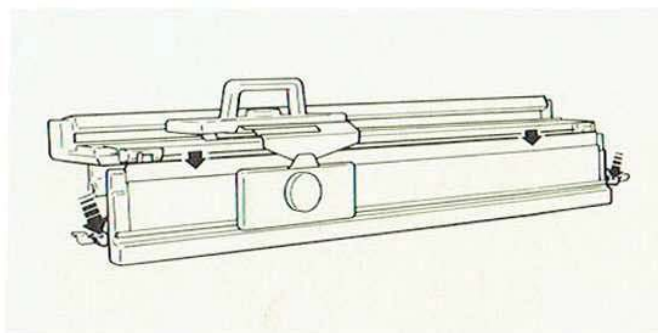


- (4) Insert the Hook Tool from underneath into the Auxiliary Yarn Feeder and catch the yarn end. Bring the yarn down through the Feeder.
- (5) Tie the yarn end to the hook of Weight.
- (6) Restore the Ribber to the upper position and connect the Ribber Carriage.
- (7) Depress both Pile Levers (blue) to broaden the space between the Knitter and Ribber needle beds.

For line 7, knit one row and leave the Carriage at the left side.

For line 8, to have no pile knitting effect at both sides of the knitting, push 5–6 needles on the Knitter to A position. (By doing this, seaming is very easy.)

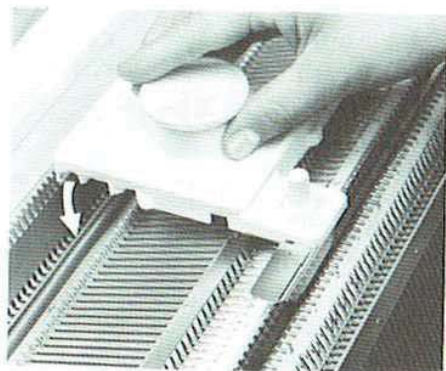
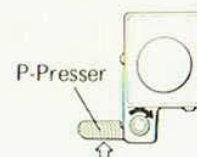
For line 9. Push off the Inspection Button. (Light is off.) If the yarns (for pile and ground) get entangled with each other or loosened, pull them slightly above the Yarn Feeder before moving the Carriage.



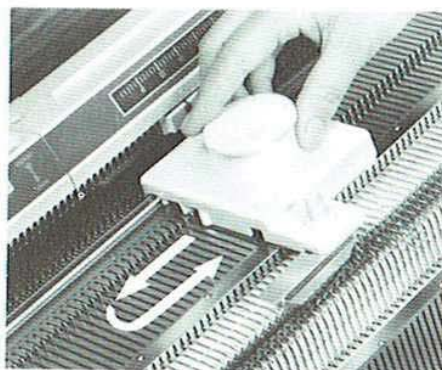
③ MAIN KNITTING

Slide the P Carriage on the Ribber to push the needles to C position every time prior to knitting a row. On the Knitter, slide the P Carriage to remove the loops every other row.

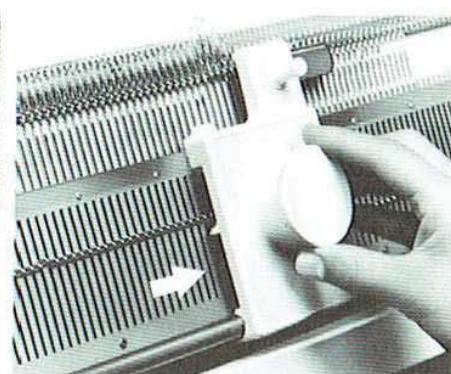
Attach the P Presser to the P Carriage to work pile knitting.



Fit the Presser against the Knitter sinker posts first and place it over the needle bed.



Slide the P Carriage twice from the right removing loops of the Knitter.



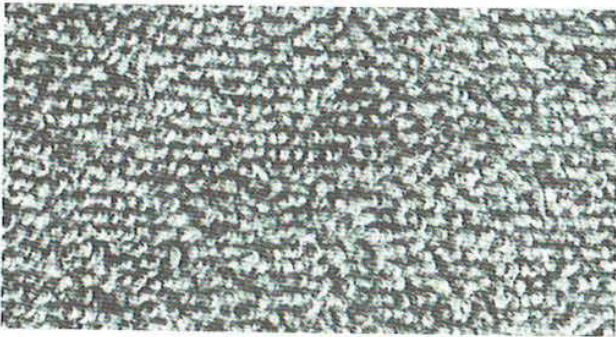
Push the Ribber needles to C position.

STITCH DIAL NUMBERS FOR PILE KNITTING

Yarns	Pile yarn	Medium	Medium	Light	Light	Light
	Ground yarn	Nylon thread	Wooly-nylon	Nylon thread	Wooly-nylon	Thin
Knitter		4 – 6	4 – 6	4 – 6	4 – 6	4 – 6
Ribber		4 – 5	4 – 5	4 – 5	3 – 4	4 – 5

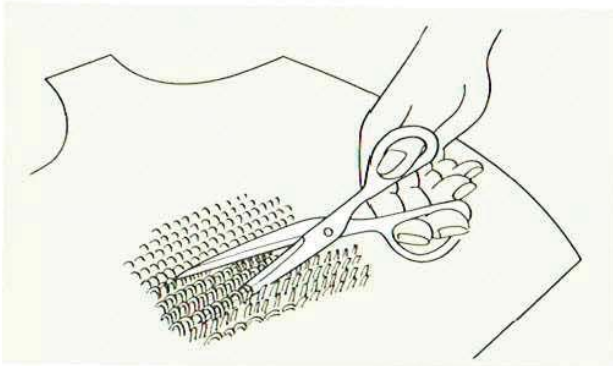
Use the same Stitch Dial number for both cast on and main knitting.

TO MAKE A CUT-PILE FABRIC

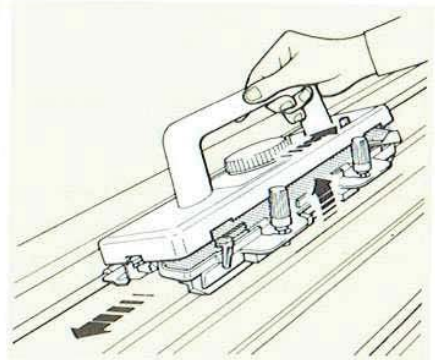
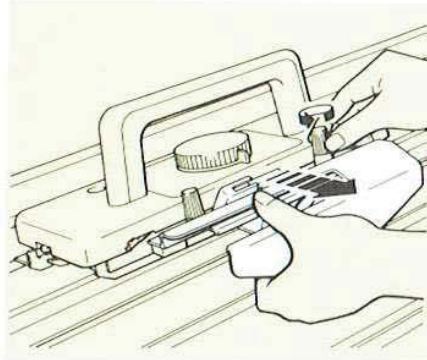
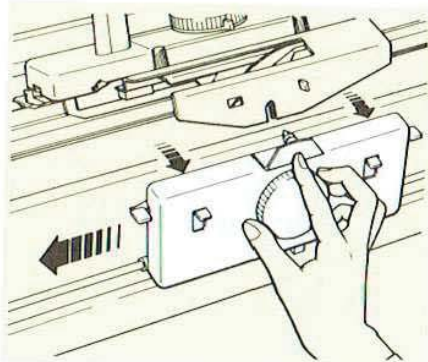


Cut loops of the knitted fabric to make it a velvet or carpet effect.

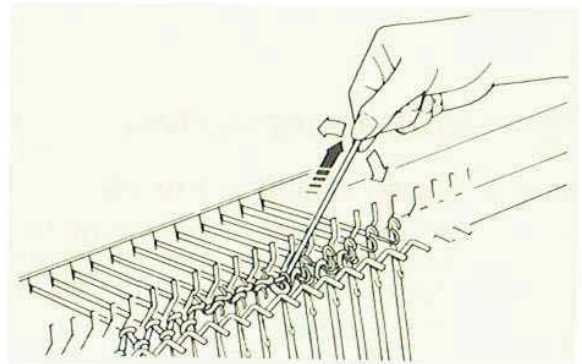
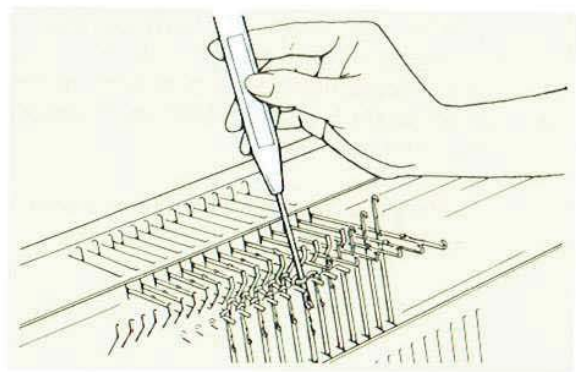
- (1) Spread the fabric out on a flat surface.
- (2) Insert the tip of the scissors into the centre of the loops and cut them.
- (3) Steam the surface of the fabric with a steam iron. Do not press the fabric.



TO FREE THE CARRIAGE FROM A JAM OR TO REPAIR INCORRECT KNITTING



1. Disconnect the Ribber Carriage from the Arm. Tilt the Carriage towards you and move it across.
2. Remove the Ribber Arm from the Knitter Carriage.
3. Push the Release Lever of the Carriage and raise the Handle. Move the Carriage to the proceeding direction until it passes the knitting needles. (If the Point Cam is in use, move the Carriage until it passes the Cam.)
4. Align the Knitter and Ribber needles in their original positions. If a stitch has slipped behind the latch of a needle to be aligned, catch the stitch with a Transfer Tool and put it back to the needle hook first, then align the needle.
5. Hold the yarn and unhook it from the Knitter and Ribber needle hooks by pulling it in the arrowed directions in a zigzag manner. Continue unravelling until reaching the Carriage side.

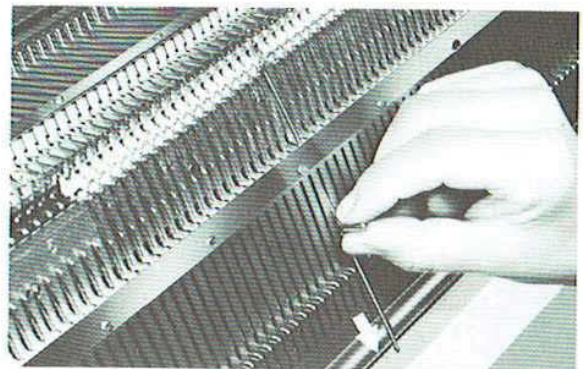


IMPORTANT

To move the Carriage by the use of the Release Lever, be sure to remove the Ribber Arm before moving it, otherwise the Yarn Feeder collides with needles.

TO REPLACE A DAMAGED NEEDLE

A Ribber needle can be replaced in the same manner as applied for replacing a needle on the Knitter. (☞ P.43)



TO REPAIR DROPPED STITCHES

1. Remove the Weights from the Cast on Comb as they may cause the dropped stitches to run.
2. Depress the Drop Lever and bring down the Ribber to the middle position.

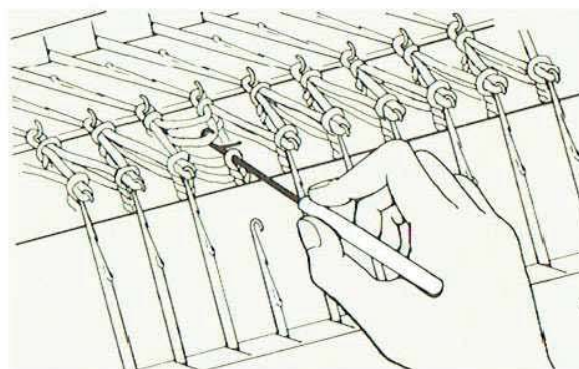
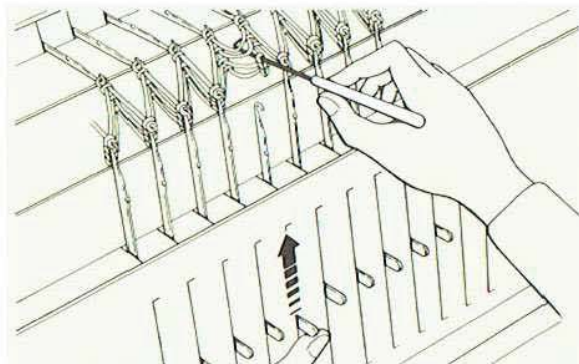
* **If a stitch has dropped 1–3 rows.**

Using the Hook Tool, pick up the dropped stitch and place it back onto the needle hook together with the loose yarns. Reform stitches by moving the needle back and forth.

* **If a stitch has dropped for several rows.**

Pick up the dropped stitch using the Tappet and reform stitches and hook the last stitch on the needle. If the stitch on the Knitter needle has dropped, insert the Tappet from the rear side of the knitting. If the stitch on the Ribber needle has dropped, insert the Tappet from your side.

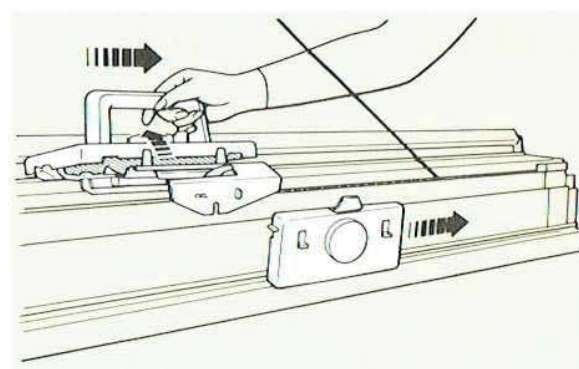
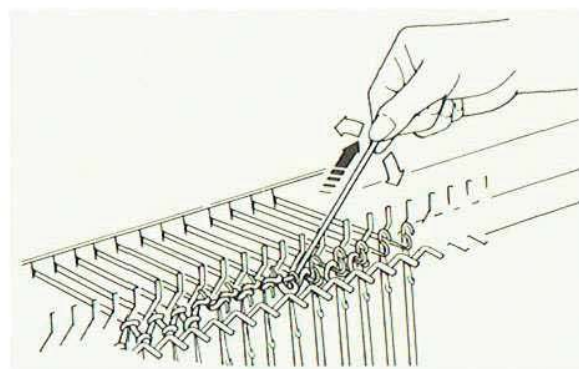
- * Raise the Ribber to the original position and align needles.



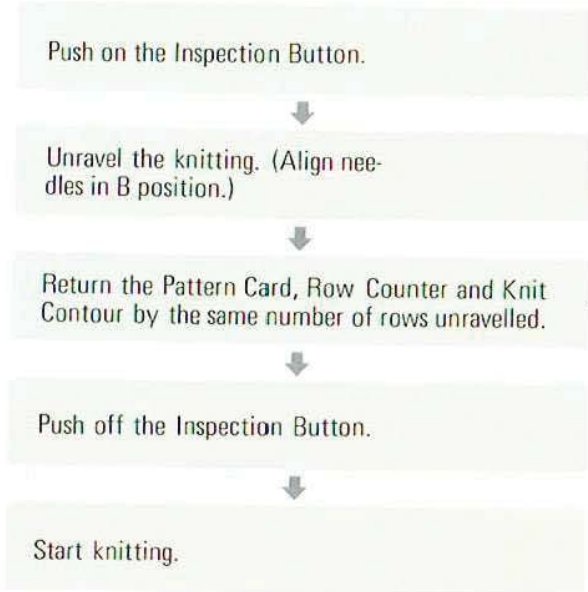
TO REPAIR INCORRECT KNITTING

WHEN A PATTERN CARD IS NOT IN USE.

1. Unravel the rows incorrectly knitted, and align the needles in B position. To unravel the stitches, hold the yarn end between your fingers and pull slightly. Work the yarn back and forth across the knitted row.
2. If the yarn end comes to the side opposite the Carriage, disconnect the Ribber Carriage and move it to the yarn side in a tilting manner towards you. Remove the Ribber Arm from the Knitter Carriage. Push the Release Lever to the right and move the Carriage to the yarn side with the Handle lifted.
3. If the Row Counter and the Knit Contour are in use, return the same number of rows as unravelled.



WHEN A PATTERN CARD IS IN USE

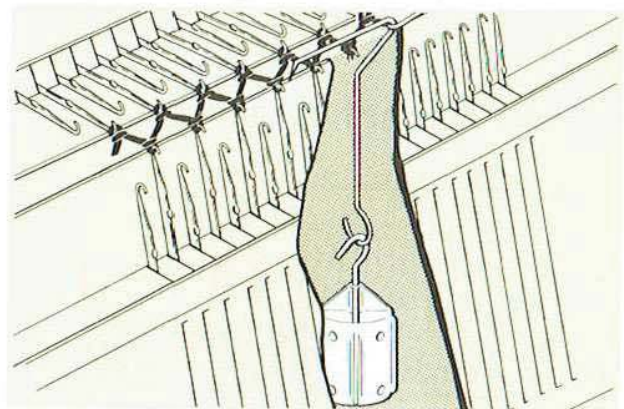


When the yarn end is opposite the Carriage, move the Carriage to the yarn side following the instruction titled "When the Pattern Card is not in use." on the preceding page.

Refer to page 40 to return the Pattern Card when the Button 3 is on, and page 38 on the Knitting Manual to return the Knit Contour.

TO CORRECT FLOATING STITCHES

Suspend the Edge Weight with the Side Hanger and advance it at an interval of 10–15 rows. If stitches of half length of the knitting float, check to see if the Cast on Comb is suspended horizontally with the Weights. Use of the Hanger Comb with the Weight is also effective.



IF STITCHES OF THE FULL LENGTH FLOAT AND KNITTING CAN NOT BE PERFORMED

Using the P Carriage, push needles to C position and knit.

In case of circular knitting.

Push the needles to be knitted next to C position using the P Carriage (without the P Presser.)

In case of pin tuck knitting.

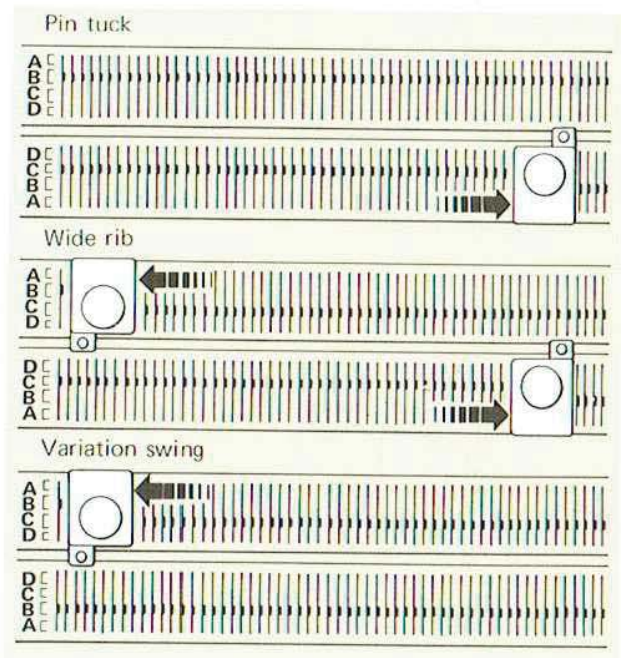
Push the Ribber needles to C position for knitting pin tuck rows using the P Carriage.

In case of wide rib.

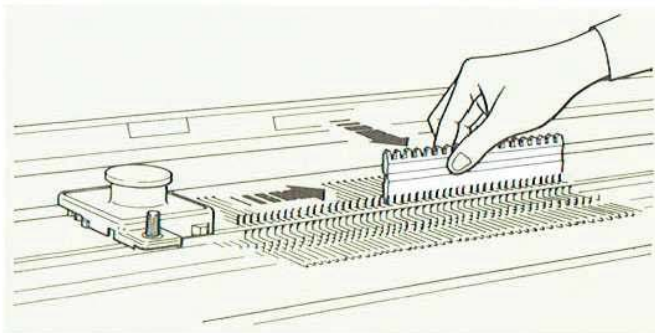
Push the Knitter and Ribber needles to C position every row using the P Carriage. Firstly, slide the P Carriage from left to right on the Ribber, and secondly slide the P Carriage from right to left on the Knitter.

In case of variation swing.

Push needles on the bed having more number of needles (Knitter) to C position using the P Carriage and knit.



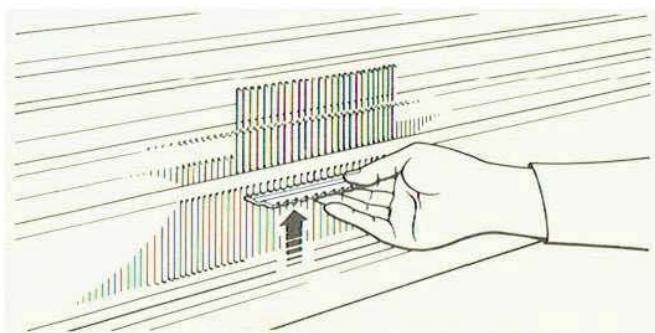
IF THE P CARRIAGE JAMS.



If the P Carriage jams or slips off while knitting the pile and drive lace knitting, follow the steps mentioned below.

KNITTER SIDE

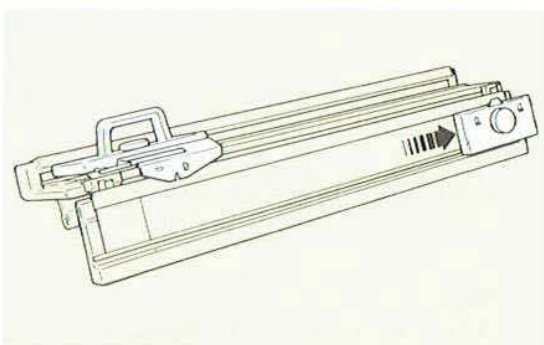
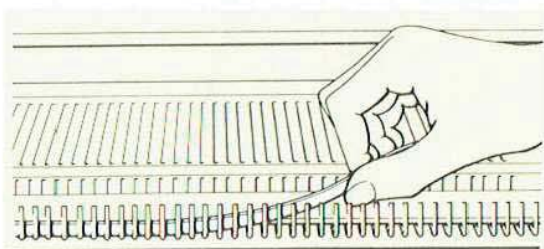
From whichever side you move the Carriage, remove it and push all needles on the Knitter to D position using the Needle Pusher. Then, move the P Carriage from left to right.



RIBBER SIDE

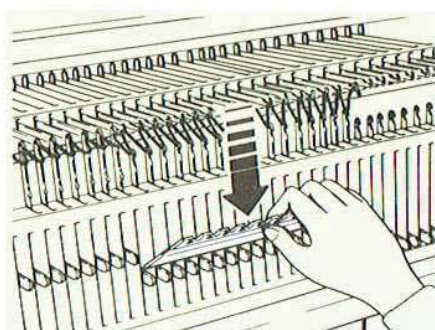
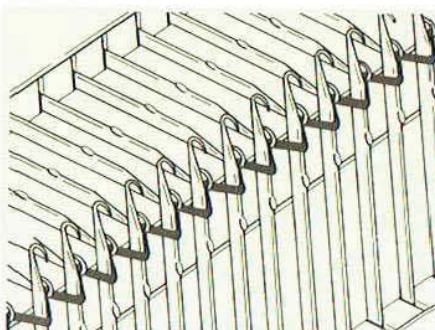
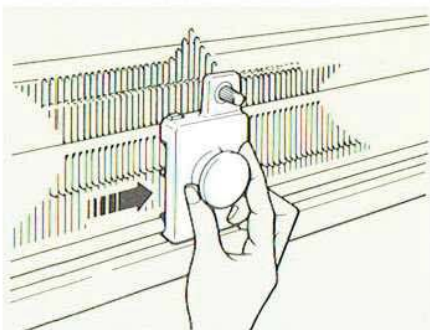
Remove the P Carriage and push the needles on the Ribber to D position using the Needle Pusher and knit the next row in the same manner. (In case of paragraph 3 in the following instruction, push the needles to D position and move the P Carriage twice from the right side. The needles will align in C position.)

TO MAKE THE CAST ON EDGE NEAT



In order to prevent stitches of the first cast on row from being loosened when knitting with very thin yarn or smaller Stitch Dial number, the following cast on method is recommended.

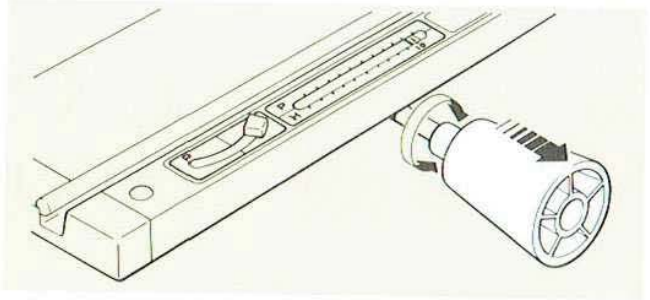
1. Insert the Close Knit Bar between the Knitter Sinker Posts and the front edge of the needle bed as shown.
2. Disconnect the Ribber Carriage and move it to the right end.
3. Place the P Carriage (without the P Presser) on the left side of the Ribber and move to the right. Remove the P Carriage. The working needles have now been aligned in C position from B position. Latches of the working needles are open.
4. Set the Knitter Carriage for normal casting on with the Stitch Dial at 0. Thread the Yarn Feeder and move the Knitter Carriage only from left to right. The yarn is now passed through the hooks of the Knitter needles and over the open latches of the Ribber needles.
5. With the Needle Pusher, push the Ribber needles in C position down to B position. Suspend the Cast on Comb and Weights. Connect the Ribber Carriage with the Knitter Carriage, and complete the closed edge cast on. As to the closed edge cast on, refer to page 52.



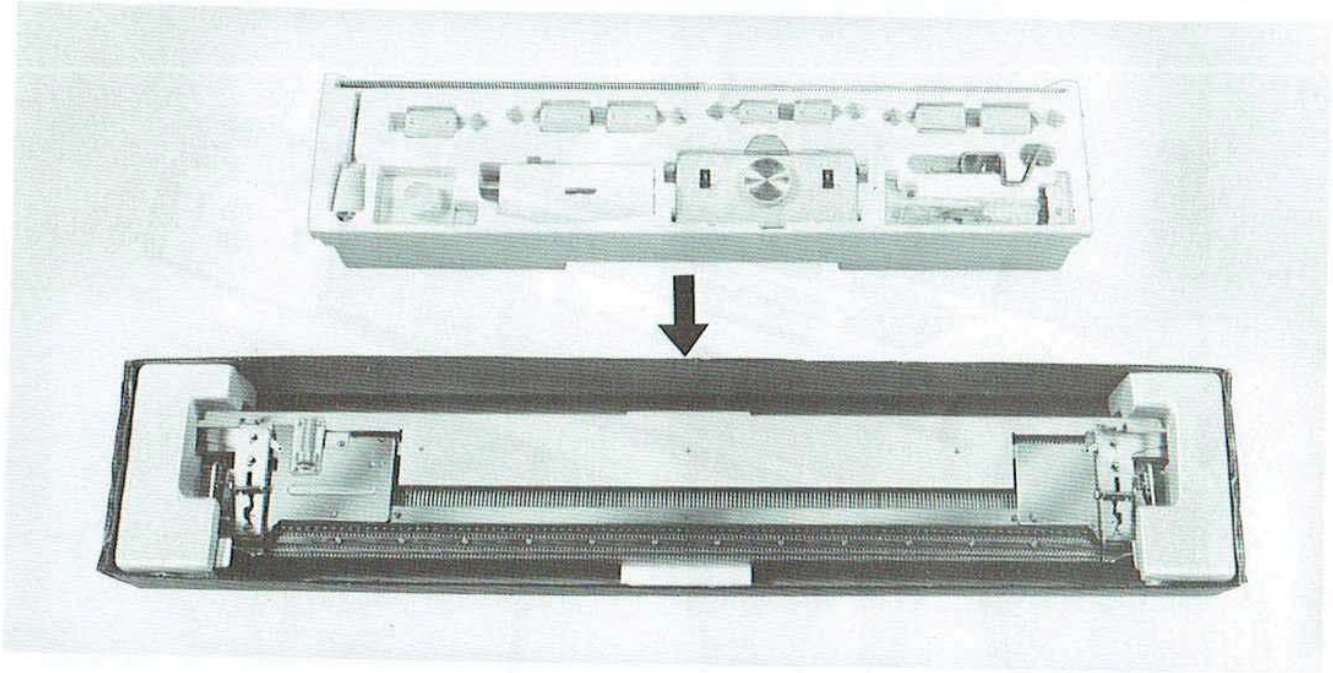
B-9

TO REPACK THE RIBBER

1. Disassemble the Ribber by reversing the procedure for assembling. Set the Swing Handle at H-10 and pull it out in a rotating manner.

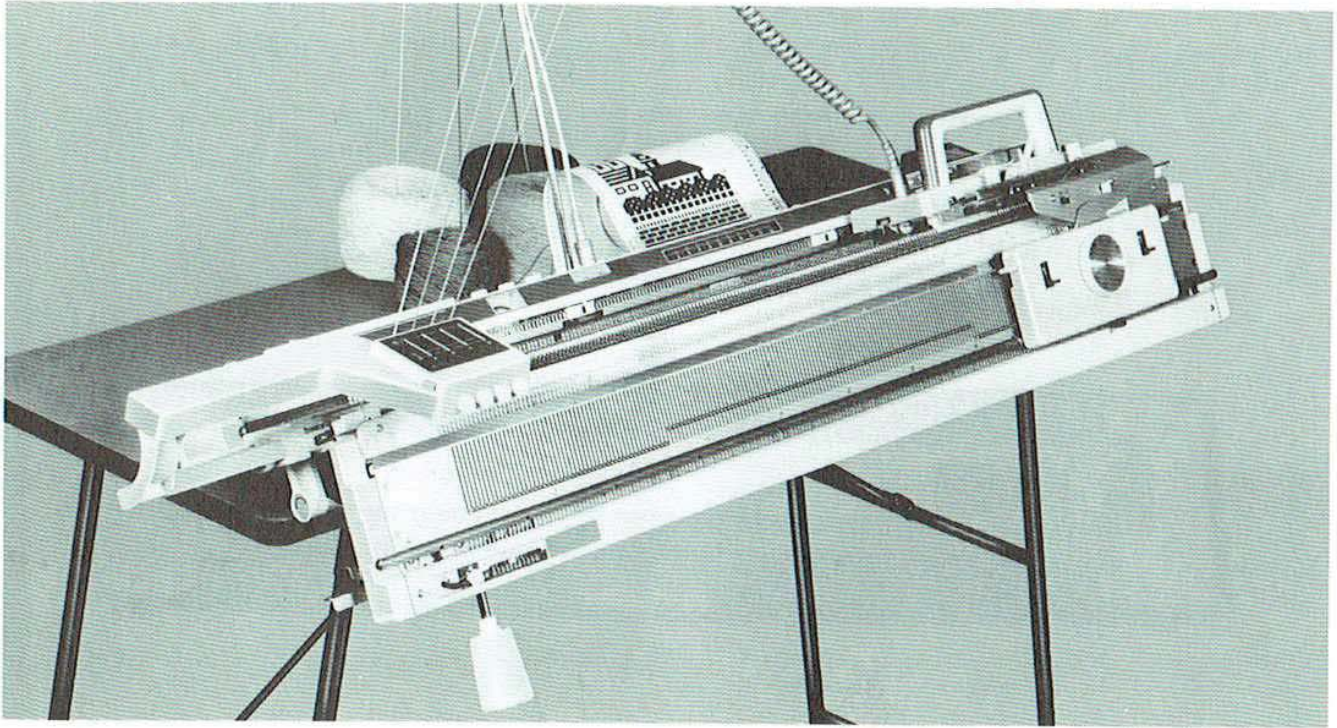


2. Replace the Ribber and Accessories in the following order.

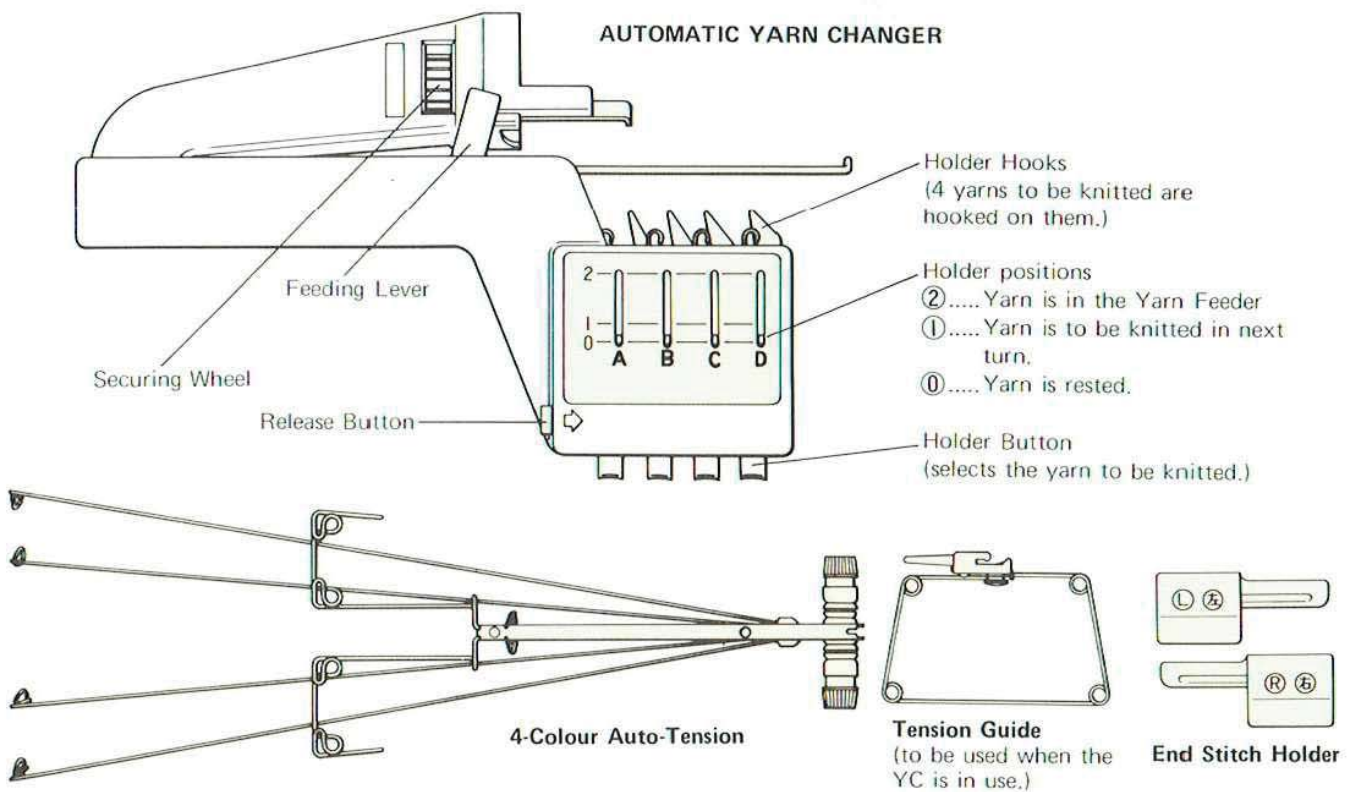


C

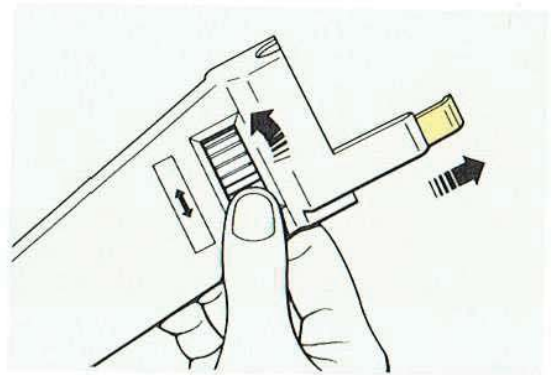
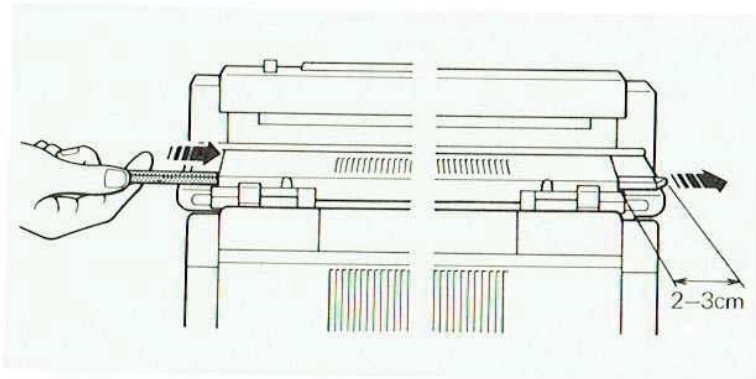
TO USE AUTOMATIC YARN CHANGER



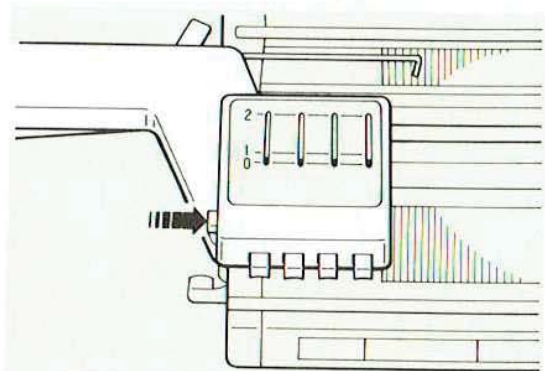
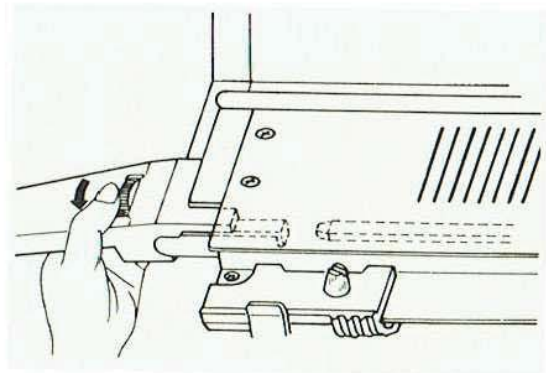
AUTOMATIC YARN CHANGER



TO ATTACH THE AUTOMATIC YARN CHANGER (YC)



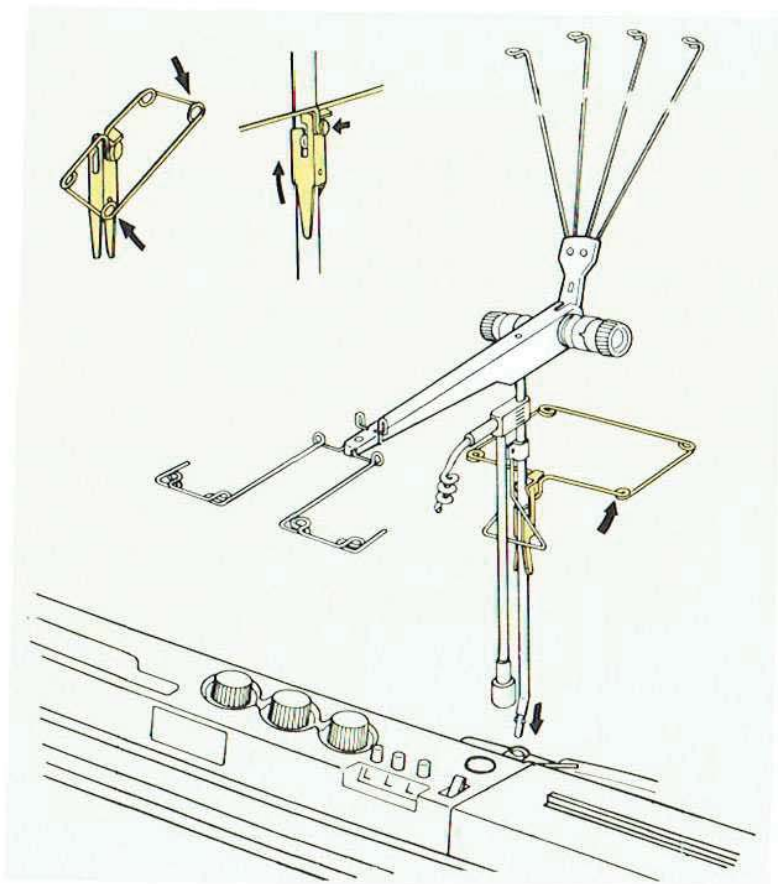
1. Using a pencil or a screw driver, push the Needle Retainer from the left side of the Knitter needle bed until you can see the right end of the Retainer protruding 2–3cms.
2. Turn the Securing Wheel to the arrowed direction until it stops. (As you loosen the Securing Wheel, the Securing Plate is pushed forward.)
3. Insert the Securing Plate into the guide hole of the Needle Retainer to fit its end to the side cover of casement. Fasten the YC by turning the Securing Wheel to the arrowed direction. (While the YC is attached, the right end of the Needle Retainer protrudes 2–3cms.)



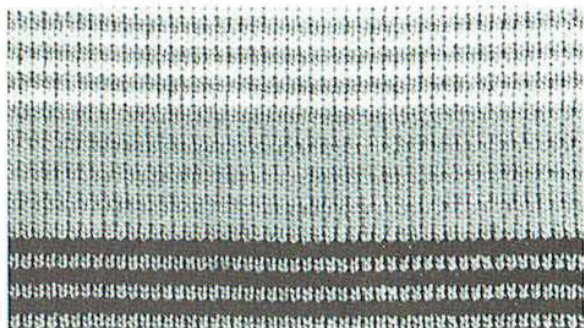
4. Push the Release Button to align four Holder Buttons in the 0 position.
5. Attach the Curl Cord to the Knitter Yarn Rod with its Tension Guide facing you and insert the Rod to the hole at the left of the Carrying Handle. Attach the Auto-Tension.

YC TENSION GUIDE

Attach the Tension Guide by pressing the button and pushing upwards so that the extrusion on the Yarn Rod slips into the cut of the Tension Guide.



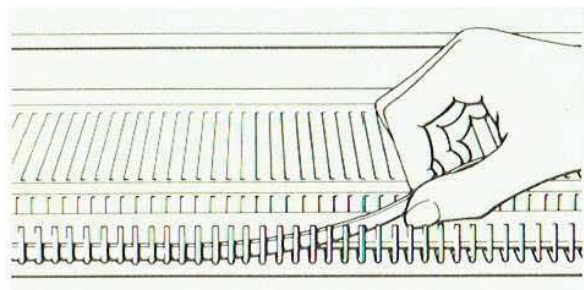
C-2 BASIC KNITTING



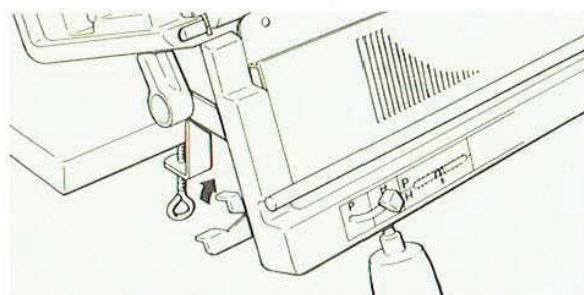
To knit striped pattern in double rib using four yarns.

The sample is knitted using four different coloured yarns of light weight in double rib.

- Holder A – Purple
- Holder B – Yellow
- Holder C – Red
- Holder D – Black

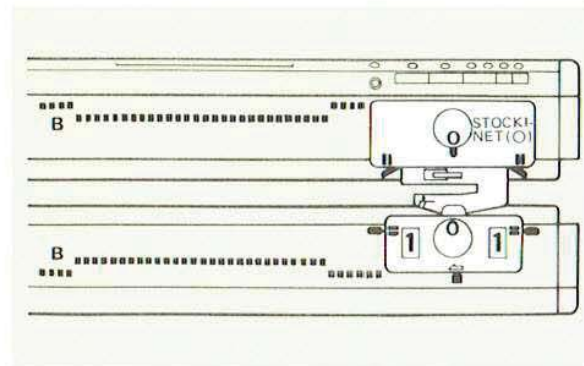
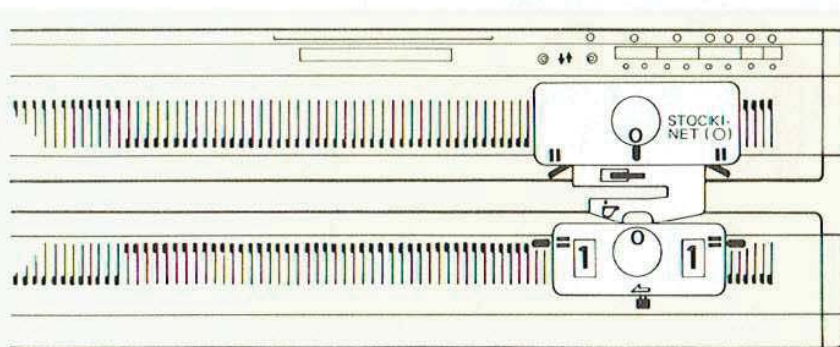
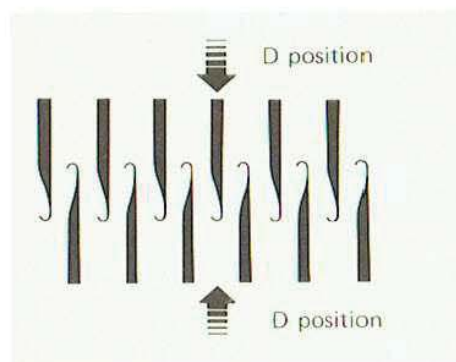


1. Insert the Close Knit Bar between the Knitter sinker posts and the front edge of the needle bed.



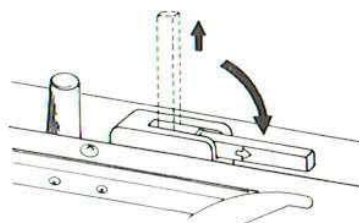
2. Push up the Pile Lever.
(The distance between the Knitter and Ribber is narrowed.)
Set the Half-Pitch Lever H
Swing Indicator 5

3. Using the straight edge of the Needle Pusher push the same number of needles of the Knitter and Ribber to D position.
Set the Carriage controls as illustrated below.



4. Lay the Driving Lever of the Ribber Arm and move the Carriage 2–3 times to align the needles in B position and leave the Carriage at the right side.

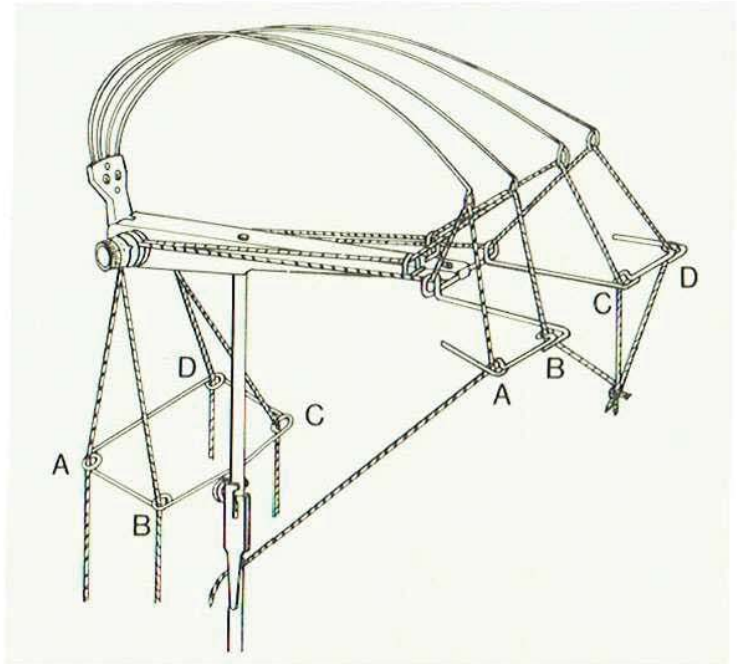
(To lay the Lever, lightly pull the Lever up then lay it down.)
(To set the Lever to the upright position, raise the Lever.)



In the operation table, ↑ mark indicates the upright position of the Driving Lever.

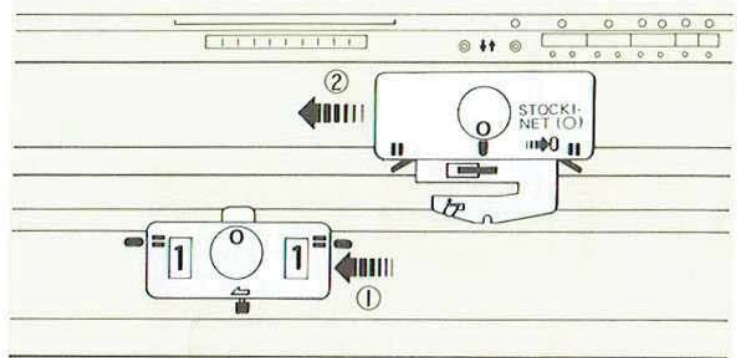
5. Thread four different-coloured yarns into the Auto-Tension.

- * Set the Tension Dials at 4 and guide the yarns as illustrated.
- * Designate the yarns A, B, C and D from the left.
- * Hook the yarn A to be threaded in the Yarn Feeder in the Yarn Clip. Tie the yarns B, C and D together as illustrated.



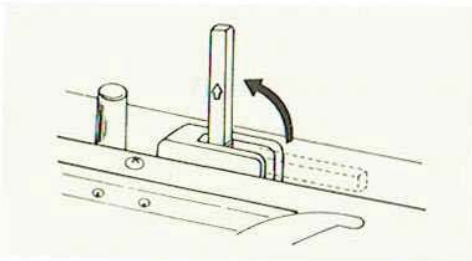
6. Disconnect the Ribber Carriage from the Arm and move to the YC tilting it towards you. For the Knitter Carriage, push the Release Lever and raise the Handle. Remove yarn A from the Yarn Clip and thread it into the Yarn Feeder.

Holding the yarn end from underneath of the machine, move the Knitter Carriage without knitting from right to left and connect the Ribber Carriage there.

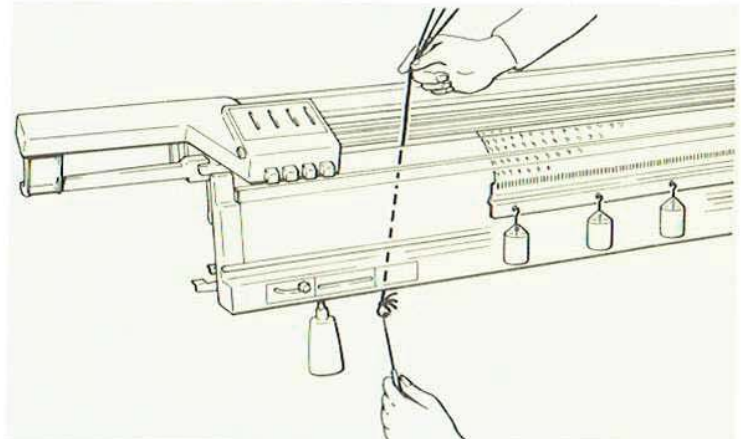


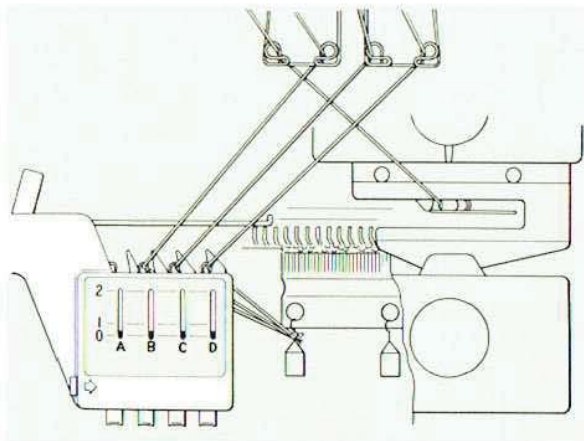
7. Set the Carriage controls as shown in the operation table. Work the closed edge cast on as in the case of when the Knitter side is used and knit one row in double rib leaving the Carriage at the right side. Set the Driving Lever to the upright position.

ORDER	KNITTER			RIBBER				DIRECTION	
	CAM LEV.	STITCH DIAL	INSP. BUTTON	SET LEV.	PICK KNOB	STITCH DIAL	SWING IND. H.P. LEV.		
CAST ON	1	STOCKI-NET (O)	0	●	① ①	←	0	H 5	→
	2								
	3	CIRCULAR (IC)	0	"	① ①	"	"	"	↔)3
	4	STOCKI-NET (O)	2	"	① ①	"	2	"	→

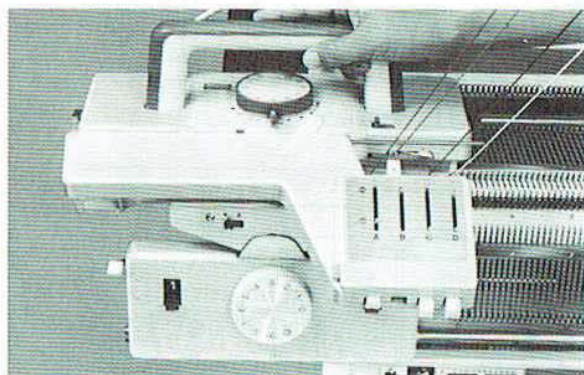
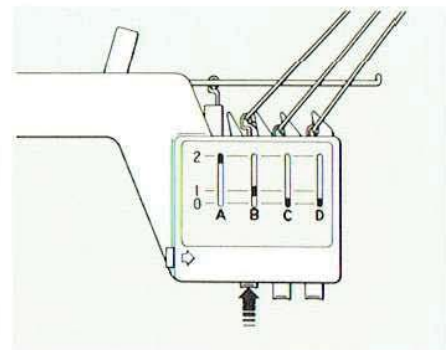
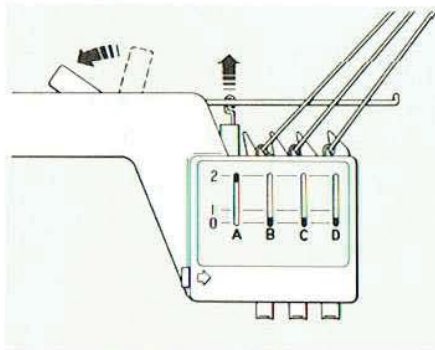
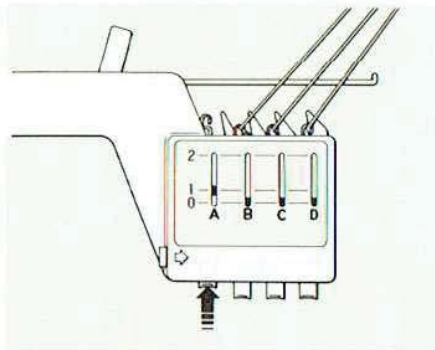


8. Hang the knot of the three yarns between both needle beds at the left side. Insert the Hook Tool from underneath and catch the knot, pulling it down. Hook the knot on the Weight Hook suspended on the Cast on Comb.





9. Hook yarn B on the Holder B, yarn C on the Holder C and yarn D on Holder D respectively.
(Arrange the yarns so that they are not entangled with the Sinker Posts.)
10. Push the Holder Button A. The Holder is positioned in the ① position.
11. Push the Feeding Lever to the left to bring the Holder A to the ② position.
12. Push the Holder Button B. The Holder is positioned in the ① position.



13. Move the Carriage from right to left until you hear a click sound made by the Feeding Lever which indicates the completion of changing yarns and move the Carriage back. Repeat this procedure until you knit required number of rows changing yarns automatically and leave the Carriage at the right side. Yarn A and yarn B are knitted alternately every two rows.

14. Follow the instructions below when knitting changing either the yarn A or B to yarn C.

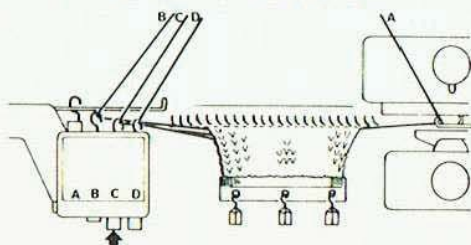
In case of changing yarn B to yarn C.

When yarn A is in the Yarn Feeder, leave the Carriage at the right side and push the Holder Button C.

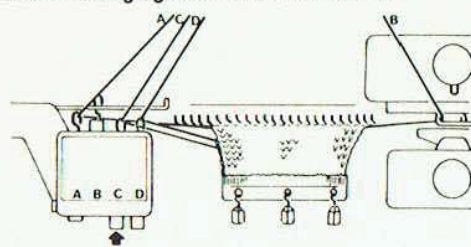
In case of changing yarn A to yarn C.

When yarn B is in the Yarn Feeder, leave the Carriage at the right side and push the Holder Button C.

(In case of changing colour B to colour C.)



(In case of changing colour A to colour C.)



15. In the same manner as done in 13. knit the required number of rows changing C yarn to either the yarn A or B. (☞ P.79 Manual adjustment of yarn tension.)

* You have completed the striped pattern in double rib.

TO USE THE YC CORRECTLY

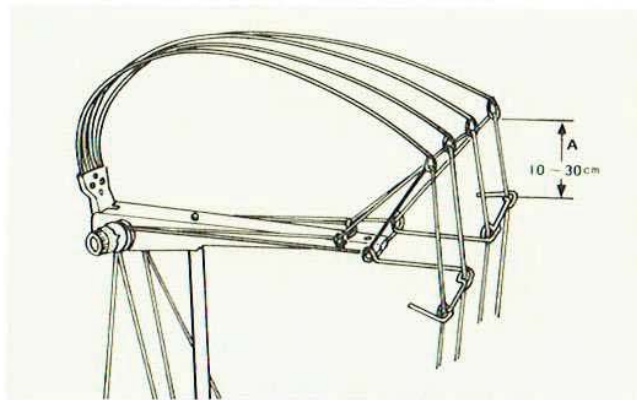
RANGE OF YARNS TO BE CHANGED

- To change 2 yarnsUse the Holder A and B. (Yarns are changed automatically.)
- To change 3 yarnsUse the Holder A, B and C. (Automatic yarn change is possible with 2 yarns.)
- To change 4 yarnsUse the Holder A, B, C and D.(Automatic yarn change is possible with 2 yarns.)

THICKNESS OF YARNS SUITABLE TO THE YC

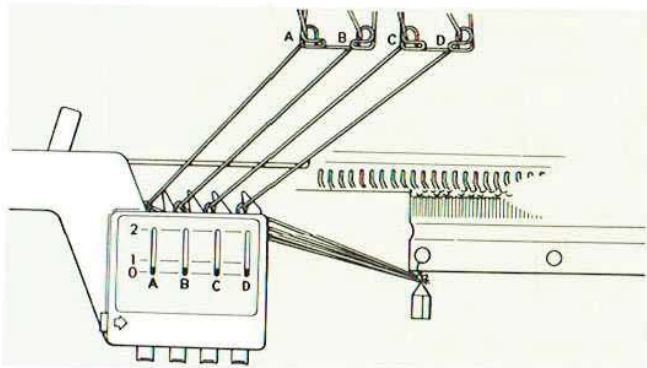
- * From medium to cotton yarn.
- * Adjust the Tension Dial according to the thickness of yarn as shown in the diagram.
- * Yarns of different thickness can be used together, but in this case be sure to maintain the A dimension to 10-30cms. for each yarn.

Kind of yarns	Medium yarn	Light yarn	Thin yarn
Tension Dial	2 - 3	4 - 5	5 - 6

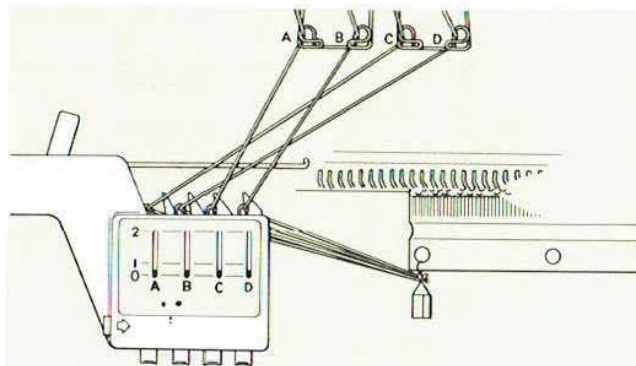


TO THREAD YARNS CORRECTLY INTO THE AUTO-TENSION AND HOLDERS HOOKS

Correct

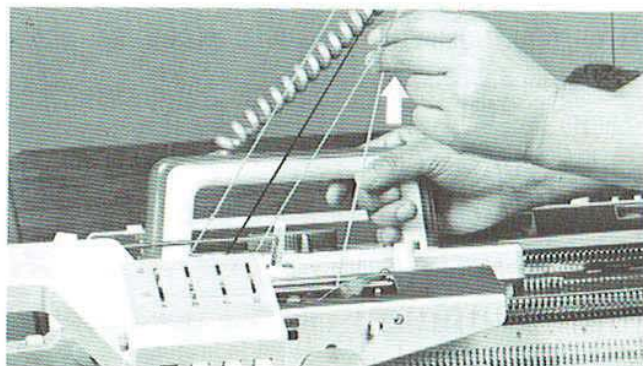


Incorrect



MANUAL ADJUSTMENT OF YARN TENSION


If you push the Holder to change yarn while knitting using more than three yarns, sometimes the Auto-Tension may not take the slack of yarn properly and yarns are not correctly guided into the Yarn Feeder. On this occasion, slightly pull up the yarn as illustrated to aid the Auto-Tension to take slack of the yarn properly as the Carriage knits a new row.






C-4 PATTERN KNITTING

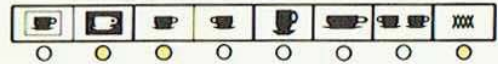
PREPARATORY STEPS

1. Turn on the machine.
2. Set the Swing Indicator at H-5. Arrange needles for double rib.
3. Set the Knitter and Ribber controls.
4. Push on the Inspection Button. (Light is on.)
5. Set the Pattern Card, Pattern Width Indicator and Pattern Button.

Needle Arrangement 

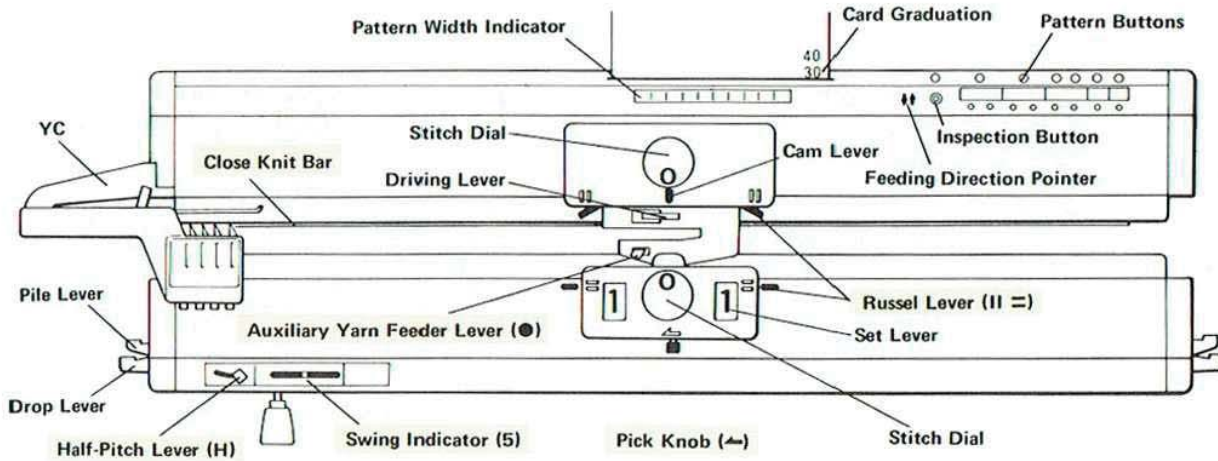
KNITTER
 Cam Lever..... STOCKINET (O)
 Russel Lever..... II (both)
 Close Knit Bar Used (For medium yarn, not used.)
 Tension Dial..... Set according to thickness of yarn.
 Pattern Button..... Set as the diagram below instructs.

RIBBER
 Set Lever..... ① (both)
 Russel Lever..... = (both)
 Pick Knob..... 
 Driving Lever..... 
 Auxiliary Yarn Feeder Lever..... ●
 Pile Lever..... 



SETTING OF THE MACHINE

(The controls marked in colour will not be changed once the setting is determined during the knitting.)



STITCH DIAL NUMBERS IN DOUBLE JACQUARD ACCORDING TO THICKNESS OF YARNS

Carriage \ Yarns	Thin	Light
Knitter	2 - 3	3 - 5
Ribber	2 - 3	3 - 5

* Use the same number of rows for cast on as for double rib.

Needle arrangement for medium yarn.



* To knit Double jacquard using medium yarn, set the Stitch Dials to 5-7 and arrange needles as illustrated in the left. (The closed edge cast on rows must be knitted on the needle arrangement for double rib.)

TO KNIT

1. Set the Carriage controls as in line 1 of Section ①. Move the Carriage 2-3 times, leaving it at the left side.

2. Thread the Yarn Feeder and knit the closed edge cast on as in Section ① (P.77)

3. Hook contrast yarn on the Holder and push the Holder Button. (P.78)

4. Push off the Inspection Button. (Light is off.)

5. Set the Driving Lever to the upright position. Knit as in Section ② (To be repeated.)

6. Knit changing yarns as the Carriage reaches the YC. Push the respective Holder Button when a buzzer sounds.

Knitting direction must not be mistaken.

OPERATION TABLE

ORDER	CARD GRAD.	Y.C. (HOLDER)				KNITTER			RIBBER		DIRECTION	
		A	B	C	D	CAM LEV.	INSP. BUT-TON	BUT-TON ①	SET LEV.	DRIV. LEV.		
CAST ON	1	①	①	①	①	STOCKI-NET (O)	☉	☐	① ①	→	→	
	2	① ① ① ①				①						
	3	"	"	"	"	CIRCUL-AR (C)	"		① ①	"	→	
	4	"	"	"	"	STOCKI-NET (O)	"		① ①	"	→	
	5	Hook contrast yarn on the Holder.										
	6	Push off the Inspection Button.										
MAIN KNITTING	1	1	②	①	"	"	DOUBLE JAC. (J)	☉	☐	"	↑	→
	2	"	①	②	"	"	"	"	☐	"	"	→
	3	2	"	"	"	"	"	"	"	"	"	→
	4	"	②	①	"	"	"	"	☐	"	"	→

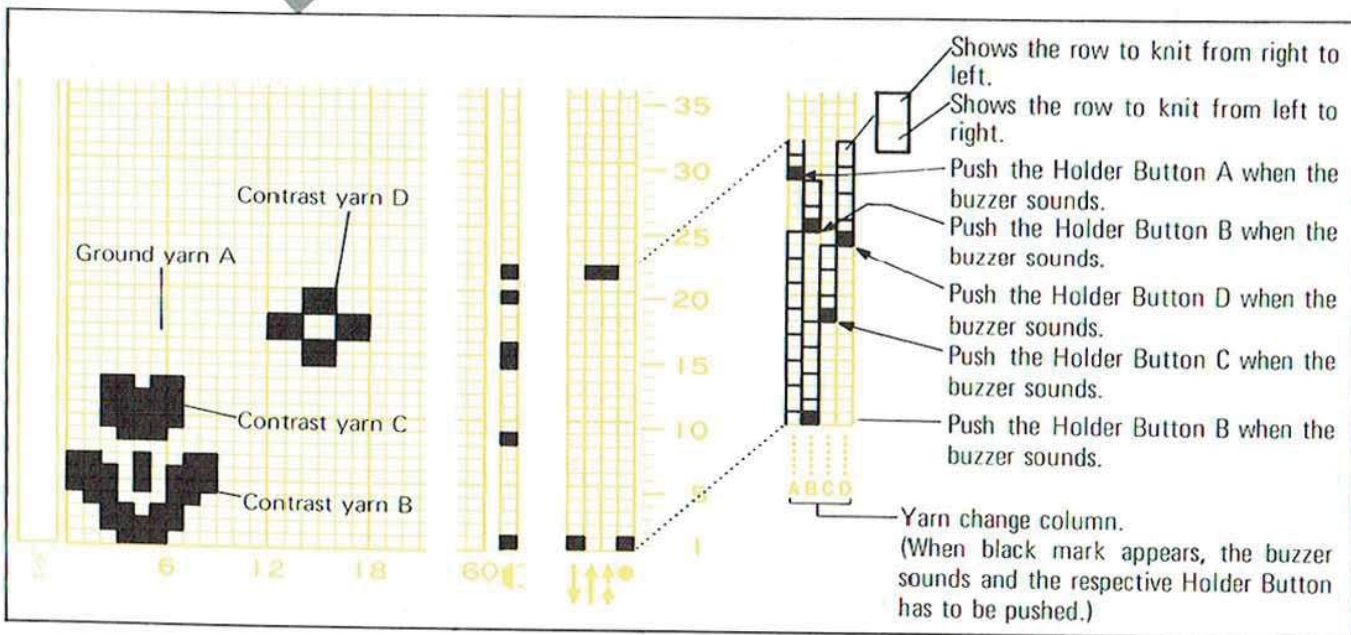
②..... Knit
①..... Knit
①..... Rest

→..... Laid
↑..... Raised

When the buzzer sounds, push the respective Holder Button to change yarn and knit.

The light changes every two rows.

☉..... Light is on.
☐..... Light is off.



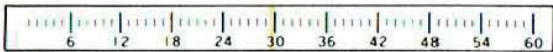
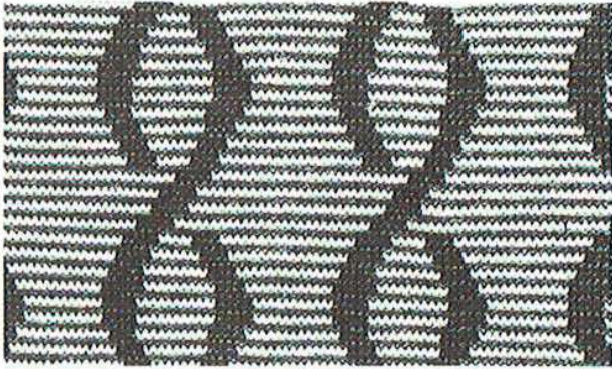
IMPORTANT

- * The first row of pattern has to be knitted from the right side. Use the Button 1 with its right light on.
- * Do not use the Button 3.

- * When knitting double jacquard, a row of Pattern Card is knitted twice, with ground yarn once and with contrast yarn once.
- * When taking a tension gauge, take it on the rear side only referring to page 5 of the Knitting Manual.

1 DOUBLE JACQUARD

CARD No.13 (39)



Holder A = Brown
Holder B = Yellow

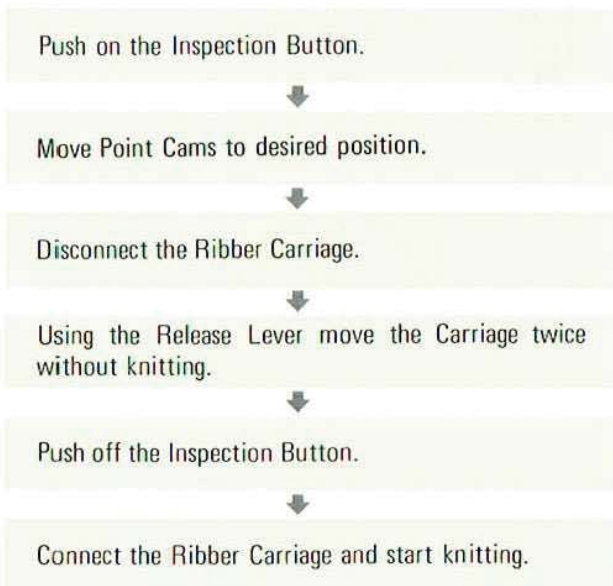
ORDER	CARD GRAD.	Y.C. (HOLDER)				KNITTER			RIBBER		DIRECTION	
		A	B	C	D	CAM LEV.	INSP. BUT-TON	BUT-TON ①	SET LEV.	DRIV. LEV.		
CAST ON	1	①	①	①	①	STOCKI-NET (O)	⊙	☐	① ①	→	→	
	2		①	①	①							
	3		"	"	"	"	CIRCU-LAR (C)	"	① ①	"	→ 3	
	4		"	"	"	"	STOCKI-NET (O)	"	① ①	"	→	
	5	Hook contrast yarn on the Holder.										
	6	Push off the Inspection Button.										
MAIN KNITTING	1	1	②	①	"	"	DOUBLE JAC. (J)	⊙	☐	"	↑	→
	2	"	①	②	"	"	"	"	☐	"	"	→
	3	2	"	"	"	"	"	"	"	"	"	←
	4	"	②	①	"	"	"	"	☐	"	"	→
	↓	↓	↓	"	"	"	"	"	"	"	"	→

- * The sample is knitted in double jacquard using two yarns of light weight.
- * Stitch Dial.....Knitter 4
Ribber 4
- * For preparation of knitting, refer to page 80.
- * Knit following the operation table below referring to page 81.

- Thread yarn A in the Yarn Feeder and knit from the left side.
- Closed edge cast on in double rib.
- Hook yarn B on the Holder B.
- Set the Holder A to ②, Holder B to ①. Knit from the right side. Move the Carriage to the YC to get yarn changed.
- From the second row, knitting is continued changing A and B yarn in the YC.

- * When knitting using more than three yarns, change the yarns as instructed in the yarn change column. (Push the Holder Button when the Carriage is at the right side only.)

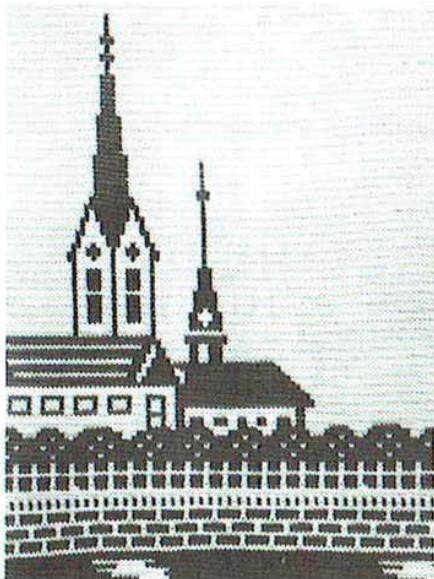
PARTIAL DOUBLE JACQUARD PATTERNING



- * Move the Point Cams to a new position.
- * In double jacquard, be sure to move the Point Cam only when the Carriage is at the right side.
- * The left Point Cam can be moved at any time.
- * To move the right Point Cam, follow the instruction in the left.
- * Only black area of the Pattern Card can be erased in double jacquard. (Pattern knitted in contrast yarn.)

2 SINGLE MOTIF IN DOUBLE JACQUARD

CARD No.15 (45)



Holder A = White
Holder B = Black
Holder C = Brown
Holder D = Green



* The sample is knitted using four yarns of different colours in 100-needle width. The additional patterns on both sides of the sample are knitted by the use of the Button 5. (Mirror image).

Stitch Dial Knitter 4
Ribber 4

* For preparation of knitting, refer to page 80.

* Knit as instructed in the operation table referring to page 81.

* As there is a 10-graduation difference between the row to knit and the Card graduation visible above the Card Slit, using a red pencil mark the 41st and 61st graduations in the notation column before inserting the Card into the Card Slit.

ORDER	CARD GRAD.	Y.C. (HOLDER)				KNITTER			RIBBER		DIRECTION	
		A	B	C	D	CAM LEV.	INSP. BUT-TON	BUT-TON (1)	SET LEV.	DRIV. LEV.		
CAST ON	1	Set the Point Cam and Needle 1 Cam as illustrated in diagram 1.										
	2	①	①	①	①	STOCKI-NET (O)	⊙		① ①	→	→	
	3											
	4	"	"	"	"	CIRCUL-AR (C)	"		① ①	"	≡ 3	
	5	"	"	"	"	STOCKI-NET (O)	"		① ①	"	→	
	6	Hook contrast yarn on the Holder.										
	7	Push off the Inspection Button.										
② 1	1	②	①	"	"	DOUBLE JAC. (J)	⊙	☑	"	↑	←	
MAIN KNITTING	1	Knit ordinary double jacquard.										
	2	41	Push on Button 5. Move the Point Cam as illustrated in diagram 2 and knit.									
	3	61	Move the Point Cam as illustrated in diagram 3 and knit. (Move the Carriage two times without knitting.)									
	4	150	Lay the Driving Lever. Knit with yarn A.									

Thread yarn A in the Yarn Feeder and work the closed edge cast on for double rib.

Hook yarns on the Holders B, C and D.

Work ordinary double jacquard (1–80 rows) (P.82).

When the Card graduation 41 is read (the red mark appears above the Card Slit and the Carriage is at the right side.), push on the Button 5 to have a mirror image pattern. Move the Point Cam as illustrated in diagram 2 and knit the pattern of 41–60 graduations (81–120 rows).

When the Card graduation 61 is read (the red mark appears above the Card Slit and the Carriage is at the right side.), move the Point Cam as illustrated in the diagram 3 and move the Carriage twice without knitting. Knit the pattern of 61–150 graduations (121–300 rows.) (Refer to the instruction titled – "Partial double jacquard patterning" on page 82.)

When the Card is returned to the first row, lay the Driving Lever and continue knitting using yarn A.

Diagram 1

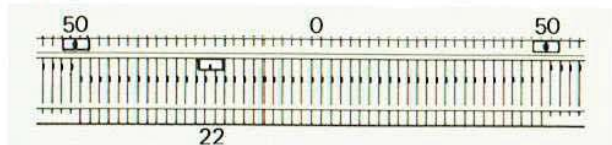


Diagram 2

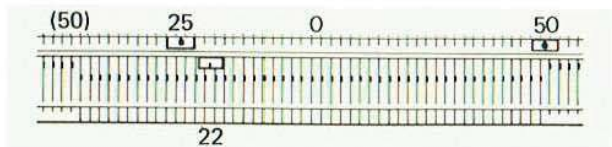
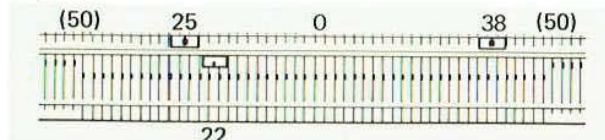


Diagram 3



Striped pattern in stockinet, Tuck stitch pattern/Slip stitch pattern in colours (☞ P.29) can be worked automatically by the use of the YC as follows:—

PREPARATORY STEPS

1. Turn on the machine.

2. Set the Swing Indicator at H-5. Arrange needles for Double Rib.

3. Set the Knitter and Ribber controls. (Move the Carriage 2-3 times and leaving it at the right side.)

4. Push on the Inspection Button.

5. Set the Pattern Card, Pattern Width Indicator and Pattern Button. Set the Point Cam and Needle 1 Cam.

To knit the striped pattern in stockinet the steps 1, 4 and 5 are not needed.

Needle Arrangement



KNITTER

Cam Lever..... STOCKINET (O)
 Russel Lever..... II (both)
 Auto-Tension Dial..... To be adjusted.

RIBBER

Set Lever..... ① (both)
 Pick Knob..... ☞
 Russel Lever..... = (both)
 Driving Lever..... ☞
 Auxiliary Yarn Feeder Lever..... ●
 Pile Lever..... ☞

TO KNIT

1. Thread yarn in the Yarn Feeder. Knit 1 row and suspend the Cast on Comb with the Weights.

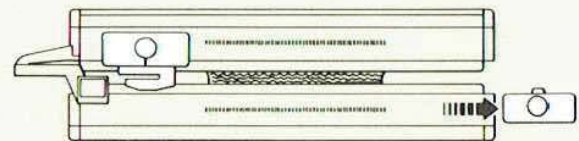
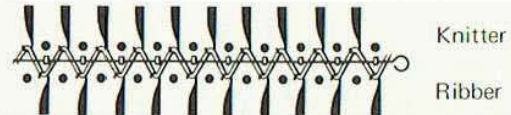
2. Move the Ribber Carriage to the right side, removing from the needle bed. (Stitches on the Ribber needles are unhooked.)

3. With the Knitter Carriage, knit 3-5 rows leaving at the right side.

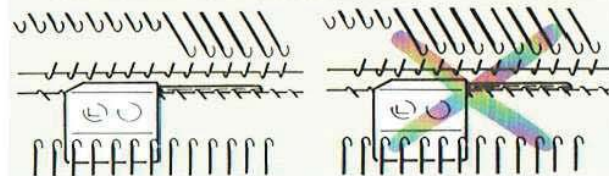
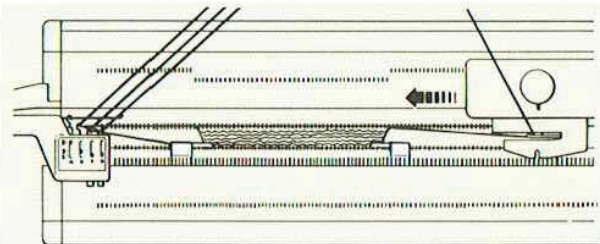
4. Hook contrast yarn on the YC. (☞ P.78) Arrange the Holder positions.

5. Insert the End Stitch Holder between the Ribber needles and the front edge.

6. Raise the Driving Lever and knit a row. Push off the Inspection Button and start knitting changing yarn.



Disconnect the Ribber Carriage and by moving it to the right, the Ribber stitches will be unhooked. Move the Ribber Carriage all way to the end to be removed.



IF INCORRECTLY KNITTED

1. Push on the Inspection Button. Leave the Carriage at the right side.

2. Unravel the fabric incorrectly knitted leaving the yarn end at the right side. (Align needles in B position.)

3. Return the Pattern Card, Knit Contour and Row Counter.

4. Reset the Button 1, if 1, 2, 5, 6, 9, 10.....rows were unravelled.

5. Push off the Inspection Button. (Light is off.) Push the Holder Buttons.

6. Hook the yarns on the Holders and knit.

If the Carriage is at the left side, disconnect the Ribber Carriage and move it to the right in a tilting manner. For the Knitter Carriage, using the Release Lever lift the Handle and move it to the right. Connect the Carriages.

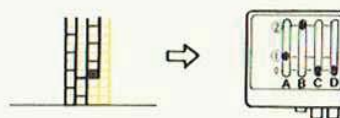
If the yarn end is at the left side unravel an additional row so that it is at the right side. Thread the yarn in the Yarn Feeder.

If an even number.....Return the Card half the no. of rows unravelled. rows unravelled.
If an odd number.....Return the card half the number of rows unravelled. of rows unravelled minus one.

(Row Counter).....Return the same number unravelled.

(Knit Contour)..... P.38 of the Knitting Manual.

Arrange the Holder Buttons as instructed in the yarn change column of the Pattern Card. The following is an example.



IF THE CARRIAGE HAS JAMMED WHILE KNITTING OR TO RETURN THE CARRIAGE TO CORRECT THE KNITTING

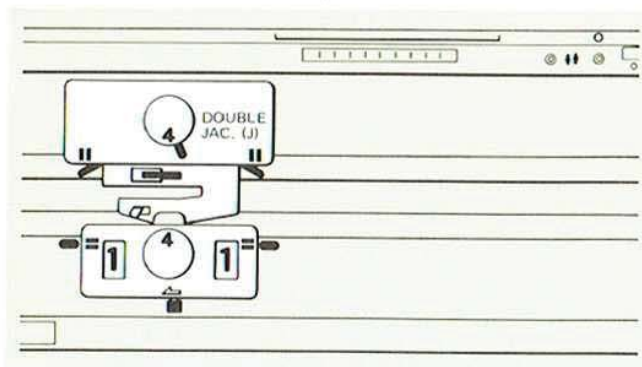
Be sure to disconnect the Ribber Arm from the machine before pressing the Release Lever on the Knitter.

If you move the Carriage without removing the Arm, the Yarn Feeder and needles may be damaged.

TO KNIT FABRIC IN DOUBLE JACQUARD WITHOUT PATTERN

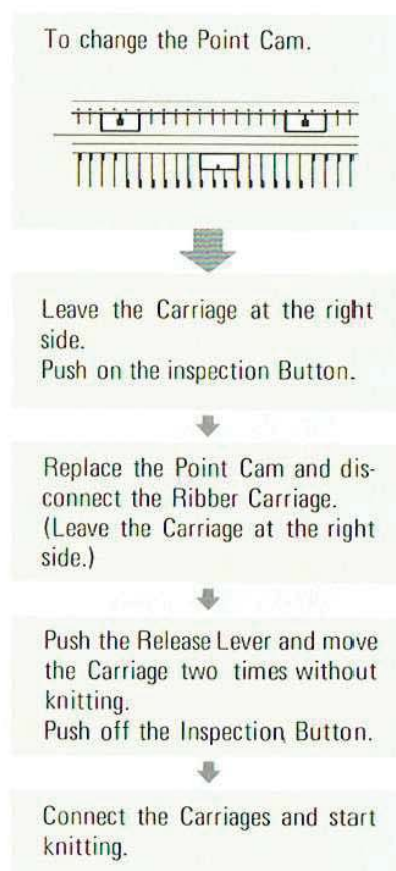
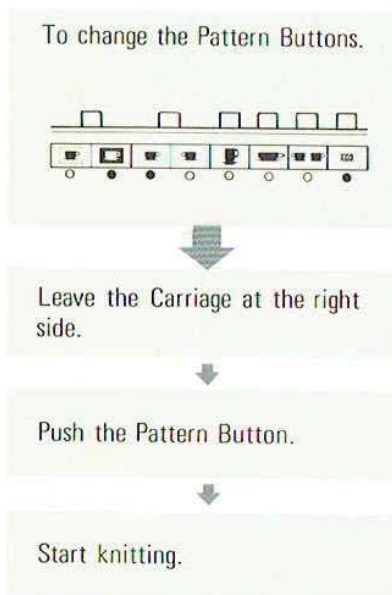
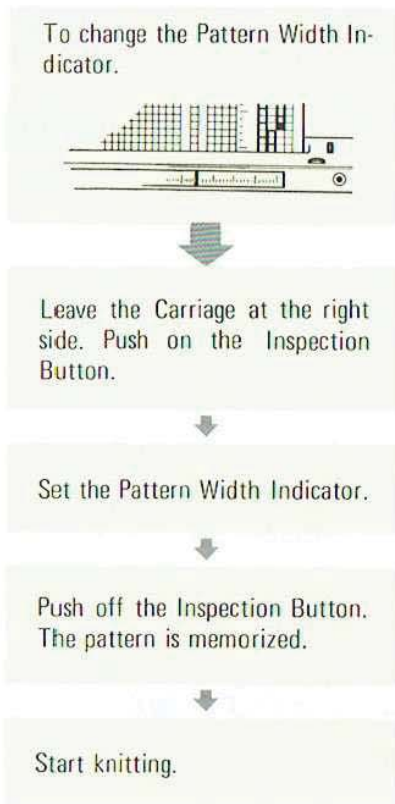
(1) After double jacquard has been completed, lay the Driving Lever and knit with the Pattern Card inserted.

(2) To knit in double jacquard again, set the Card and push off the Inspection Button to memorize pattern. Raise the Driving Lever and be sure to knit from right to left.

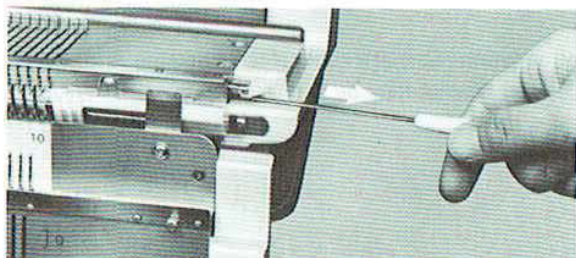


TO CHANGE PATTERN IN DOUBLE JACQUARD

Be sure to change the pattern controls when the Carriage is at the right side only and operate as follows:—



IF THE YC CAN NOT BE REMOVED FROM THE KNITTER









- (1) Pull out the Needle Retainer using the Hook Tool about 2–3 cms.
- (2) Loosen the Securing Wheel until it stops. Remove the YC from the Knitter.

TO USE THE 4-COLOUR AUTO-TENSION FOR KNITTING OTHER THAN DOUBLE JACQUARD

The tension springs on the 4-Colour Auto-Tension have more tension than those on the 2-Colour Auto-Tension, and can provide better condition for the yarns. The 4-Colour Auto-Tension requires slightly different settings of the Stitch Dial and Tension Dial as shown.

Tension Dial..... P.79.

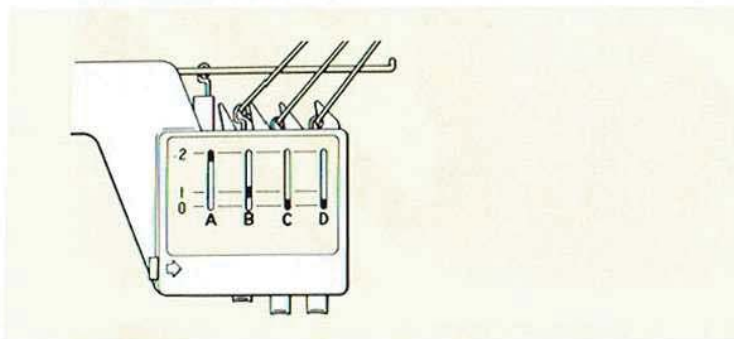
Stitch Dial.....Use 1–2 dots larger.

Type of knitting	2-Colour A.T.	4-Colour A.T.
Stockinet (medium yarn)		
K1.P1. rib (medium yarn)		
		

IF THE HOLDER BUTTONS WERE ERRONEOUSLY OPERATED

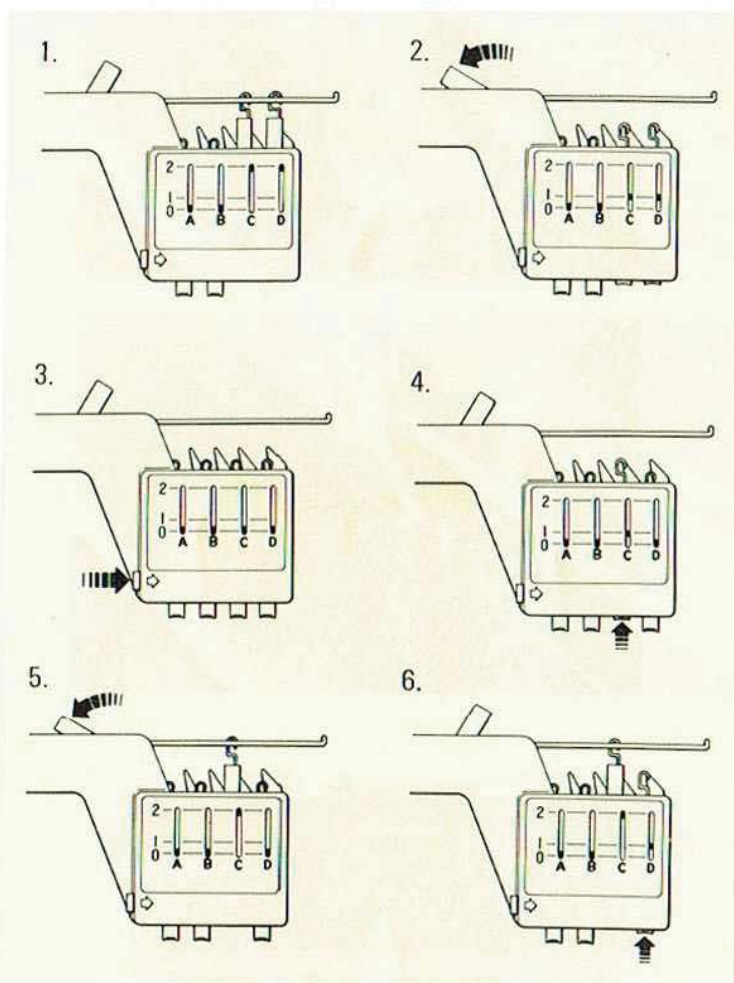
DURING KNITTING, THE HOLDERS ARE NORMALLY POSITIONED AS FOLLOWS:—

- ②.....1 Holder (Knitting yarn)
- ①.....1 Holder (Yarn to be changed next)
- ①.....2 Holders (Resting yarns)



IN THE CASE OF MORE THAN TWO HOLDERS ARE POSITIONED AT ②.

1. If the Holders C and D are positioned at ② as illustrated.
2. Push the Feeding Lever to the left to set the Holders to ① from ②.
3. Push the Release Button to set the Holders at ①.
4. Push the Holder Button to set the Holder at ① which is related to the yarn in the Yarn Feeder.
5. Push the Feeding Lever to the left to set the Holder at ② from ①.
6. Push the Holder Button that has yarn to be changed next to set at ① from ①.
Arrange yarns on the Holders.



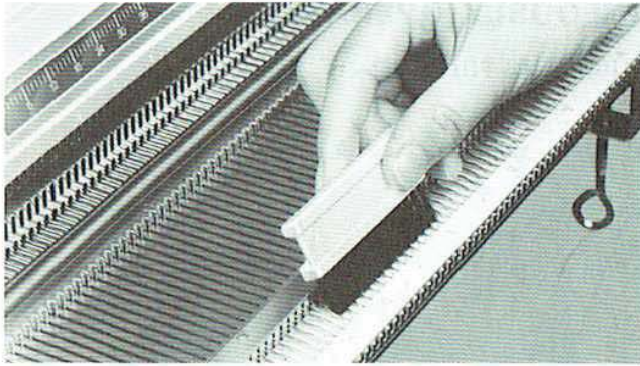
IN THE CASE OF MORE THAN TWO HOLDERS ARE POSITIONED AT ①.

Push the Release Button to align all the Holders at ①.
Operate as instructed in the above steps 4–6.

TO REPACK THE YC.

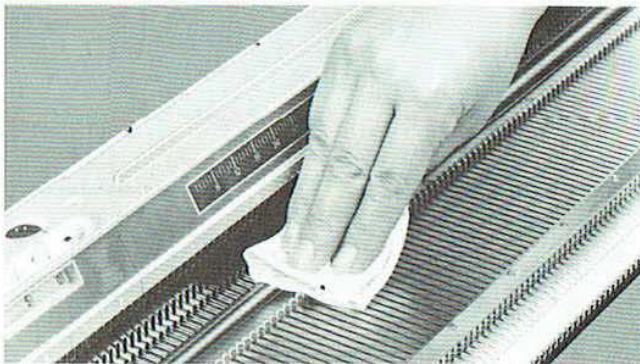
Set all the Holders at ①.

MAINTENANCE INSTRUCTION

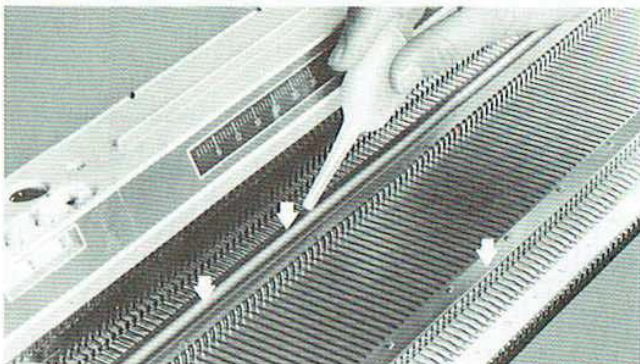


All types of machines need proper cleaning and lubrication for a long use. Keep this machine clean and lubricated at all times for a happier lifetime use of excellent performance.

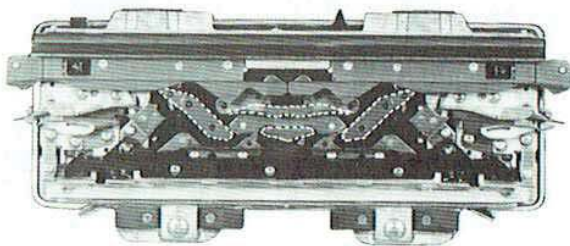
1. Remove lint or dust on the rails of the needle bed using the Accessory Cleaning Brush.



2. Wipe metal parts with an oiled cloth.



3. Apply lubricant to the sliding portion of the Carriage and the needle bed. Do not apply excessive lubricant, otherwise the knitting may be stained.



4. Apply lubricant to the cams of the Carriage with an oiled cloth.

* Take the same care to the Ribber Carriage and needle bed.

TO STORE THE MACHINE

Keep the machine away from.

1. Too much moisture.
2. Abnormal change of temperature.
3. Salt or chemicals.

DIAGNOSTIC TABLE

It is strictly advised not to make any access to the electronic components, since amateur repair may cause irreparable damage to the components. The following table shows a visual check of your machine when the machine does not operate properly. But it is advised to call up your nearest Service Centre.

PROBLEMS	POSSIBLE CAUSES
Lights (LED's) of the Pattern Button 1 and 2 are not lit when the machine is turned on.	<ul style="list-style-type: none"> * Improper connection of the Transformer Cords to the machine and power outlet. (P.17)
Selected Pattern Button is on but needle selection does not respond correctly.	<ul style="list-style-type: none"> * Improper connection of the Curl Cord. (P.17) * Misplacement of the Point Cams. (P.18) * Incorrect setting of the Cam Lever. (P.9)
The pattern on the Pattern Card is not reproduced correctly on the fabric.	<ul style="list-style-type: none"> * Misplacement of the Needle 1 Cam. (P.18) * Incorrect selection of the Pattern Button. (P.19) * Incorrect setting of the Pattern Card. (P.18) * Too fast movement of the Carriage (imperfect reading). (P.21)
The machine does not respond to the Inspection Button and Button 2.	<ul style="list-style-type: none"> * Preparatory steps are incorrectly followed. Repeat from the beginning. (P.22,23)
The Buzzer keeps on sounding or the Feeding Dial keeps on turning, when the machine is turned on.	<ul style="list-style-type: none"> * Preparatory steps are incorrectly followed. Repeat from the beginning. (P.22, 23)
The carriage is heavy in operation.	<ul style="list-style-type: none"> * The yarn has been wound too tightly. (P.4) * Incorrect threading of the yarn into the Auto-Tension. (P.12) * Misplacement of the Weaving Knobs. (P.9) * Improper setting of the Stitch Dial to the thickness of the yarn used, or rough surface yarn or excessively heavy yarn is used. (P.9, 16) * Entanglement of the yarn with the Fabric Gear or Round Brush on the Fabric Presser. (P.39)
The yarn is not fed properly.	<ul style="list-style-type: none"> * Incorrect threading of the yarn through the Auto-Tension and improper setting of the Tension-Dial to the thickness of the yarn. (P.12, 16) * The yarn used is very rough. (P.16)
The arm catches the yarn.	<ul style="list-style-type: none"> * The Extra Round Brushes are still on the arm. (P.27) * Incorrect threading of the yarn through the Auto-Tension and Yarn Feeder. (P.12, 13)
Dropped stitches.	<ul style="list-style-type: none"> * Incorrect threading of the yarn through the Yarn Feeder. (P.13) * Improper setting of the Cam Lever. (P.9)

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USAGE OF A PATTERN ON THE PATTERN CARD

PATTERN NUMBER	KNIT-IN (FAIR ISLE)	TUCK STITCH	SLIP STITCH	WEAVING	PUNCH LACE	PIN TUCK	TUCK RIB STITCH	DRIVE LACE KNITTING	MESH KNITTING	PILE KNITTING	DOUBLE JACQUARD
1	○	○	○	○	○						○
2	○		○	○	○						○
3	○	○	○	○	○						○
4	○	○	○	○	○		○				○
5	○	○	○	○	○		○				○
6	○	○	○		○		○				○
7	○										○
8	○				○						○
9	○				○						○
10	○				○						○
11	○				○						○
12	○										○
13	○										○
14	○										○
15	○										○
16	○	○	○		○		○				○
17	○	○	○		○		○				○
18	○	○	○	○	○						○
19	○	○	○		○		○				○
20	○		○		○						○
21	○	○	○	○	○						○
22	○		○		○						○
23	○	○	○	○	○		○				○
24	○	○	○		○						○
25	○	○	○		○		○				○
26	○		○		○		○				○
27	○			○	○						○
28	○		○		○						○
29	○		○	○	○						○
30	○			○	○						○
31	○					○					○
32	○					○					○
33	○					○					○
34	○				○	○					○
35		○			○			○			○
36		○			○			○			○
37		○			○			○			○
38		○			○			○			○
39									○	○	○
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41									○	○	○
42	○										○
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