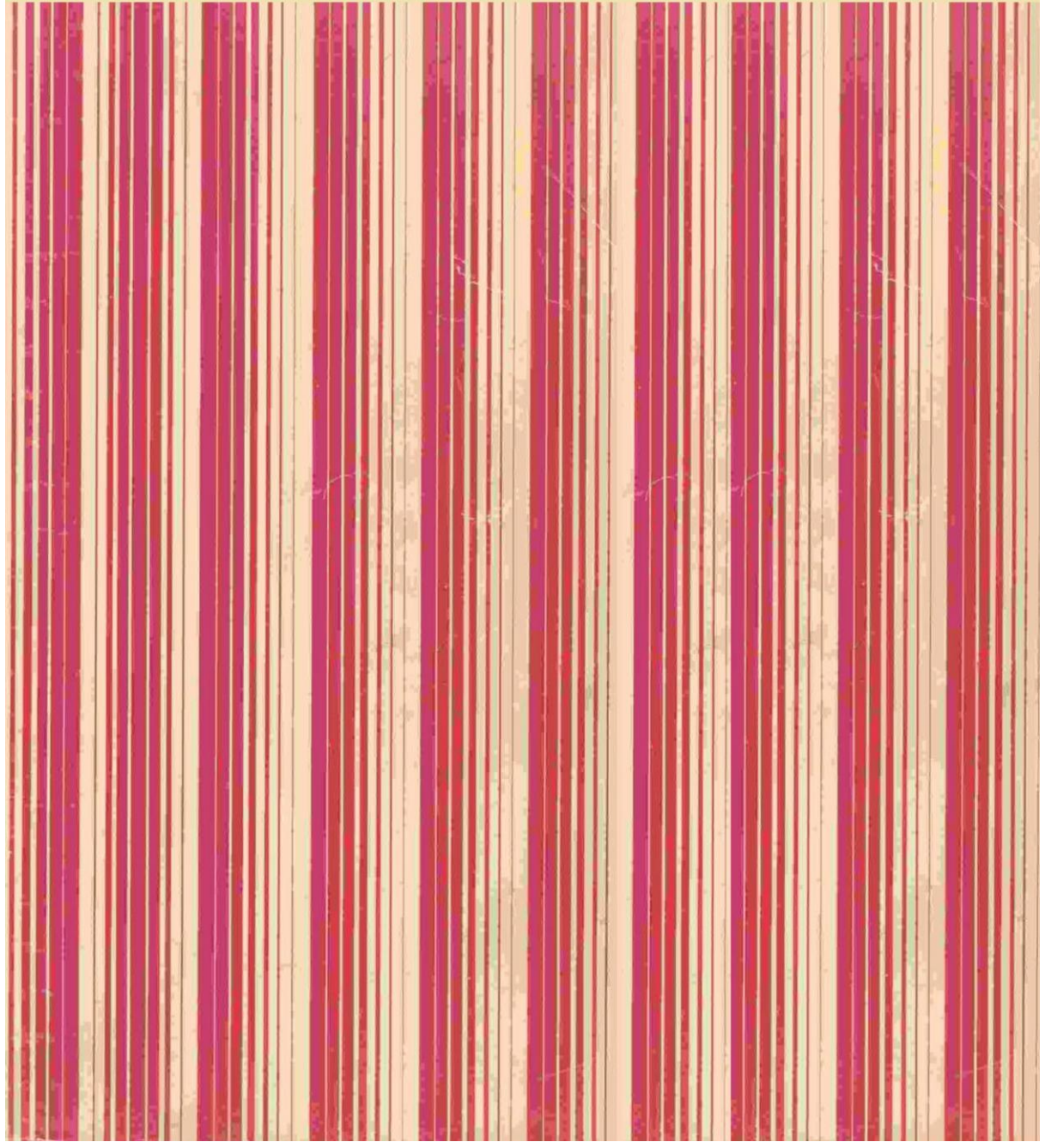
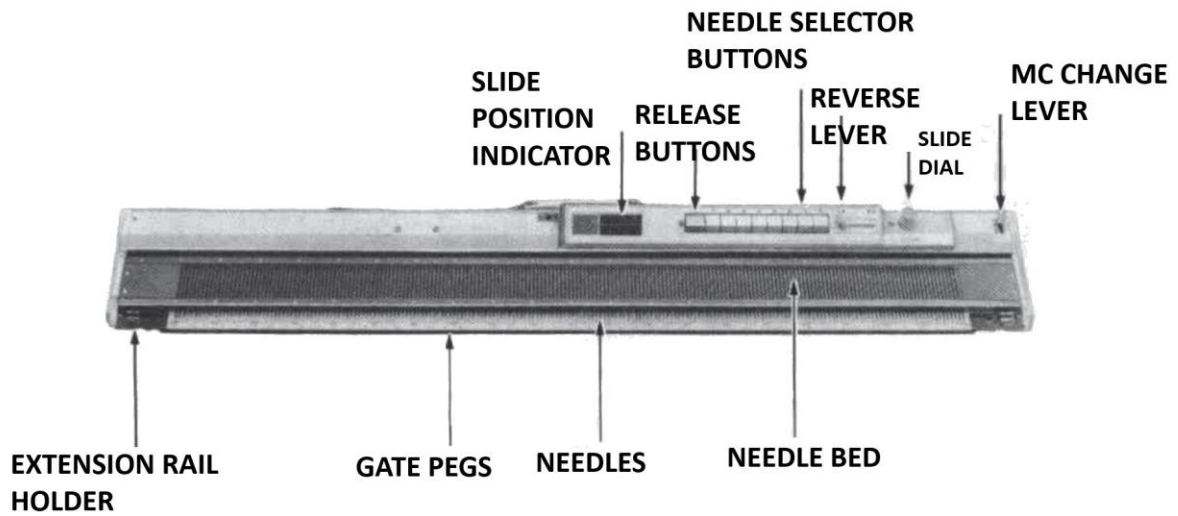
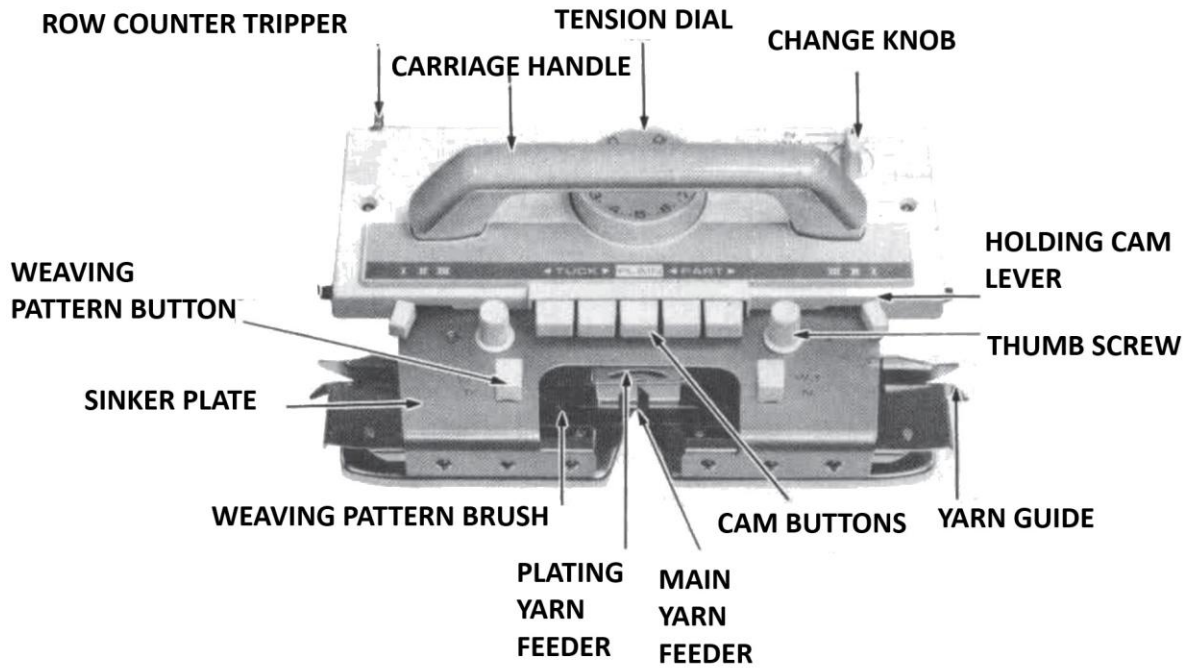


**USER INSTRUCTION MANUAL FOR
BROTHER MODEL KH-710**

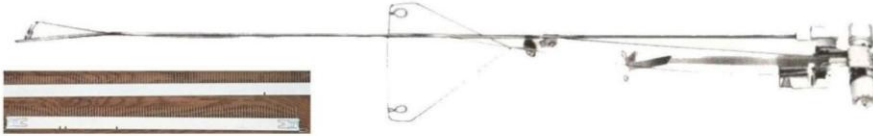


NAMES OF PARTS ... CARRIAGE AND MACHINE BODY



KH-710 ACCESSORIES

YARN TENSION UNIT



CAST ON COMBS



STITCH TRANSFER TOOLS



ROW COUNTER



1 X 1 NEEDLE PUSHER



CLAW WEIGHTS 2



LATCH BRUSH



LATCH TOOL



SET LEVER



CROCHET HOOK



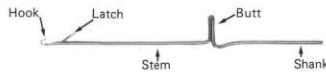
SPECIAL KNITTING OIL



CAST ON THREAD



TAPESTRY NEEDLE



SPARE NEEDLES



TABLE CLAMPS (2)

CAST ON THREAD



CARRIAGE LOCK



LACE CARRIAGE



YARN WAX



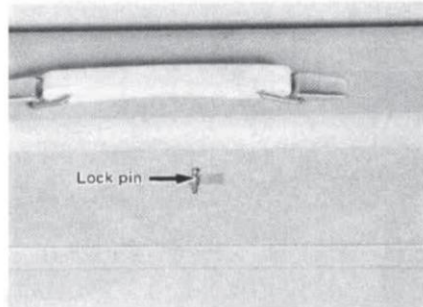
EXTENSION RAILS

INDEX

NAME OF PARTS	1
SETTING UP YOUR MACHINE	3
Setting up the carriage	5
ASSEMBLING THE YARN TENSION	6
IMPORTANT POINTS TO REMEMBER BEFORE YOU START KNITTING	7
Winding the Wool	7
Tension dial and needle positions	8
FUNCTION OF THE CARRIAGE	9
PLAIN KNITTING	11
IF THE CARRIAGE SHOULD JAM AND HOW TO UNRAVEL A ROW	15
HOW TO USE THE NEEDLE SELECTOR BUTTONS	16
PATTERN KNITTING	18
Pull-up stitch pattern	19
Tuck stitch pattern	20
Fair-isle pattern	22
Weaving pattern	24
HOW TO USE THE L CARRIAGE	26
Lace pattern and Fine-lace pattern	29
Pull-up lace pattern and Woven lace pattern	31
PLATING YARN KNITTING	32
INTARSIA KNITTING	33
KNITTING A PLAIN HEM	36
KNITTING AN ELASTIC HEM	38
FINISHED EDGE CAST-ON	40
KNITTING A PICOT HEM	41
HOW TO USE THE TRANSFER TOOL	42
INCREASING STITCH	43
DECREASING STITCH	45
CASTING OFF	46
BUTTON-HOLES	47
SHAPING A "VEE" NECK	50
HOW TO CORRECT THE LACE KNITTING	53
REPLACING A BENT OR BROKEN NEEDLE	54
MAINTENANCE	55
FOLDING UP THE KNITTER	56

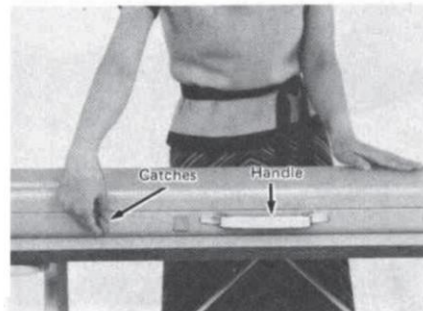
SETTING UP YOUR MACHINE

1. Turn over the machine and remove the lock pin which is fixed by the tape



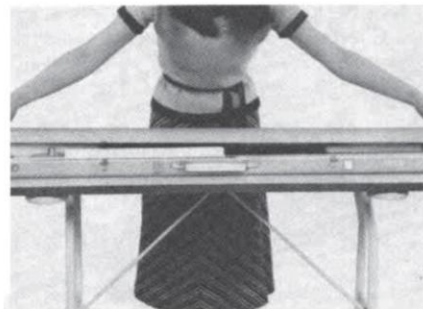
1

2. Place the machine on a firm table, with the carrying case handle away from you. Unlock the catches on either side of the handle.



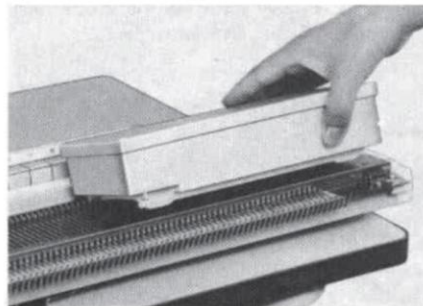
2

3. Lift the upper case slightly and pull towards you to release the lid.



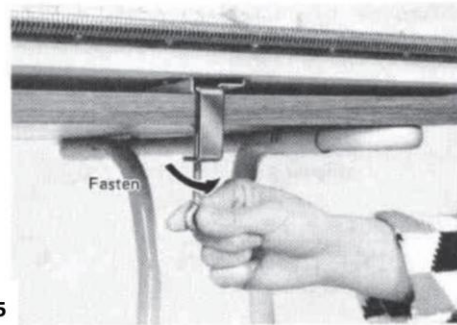
3

4. Remove the accessories box.

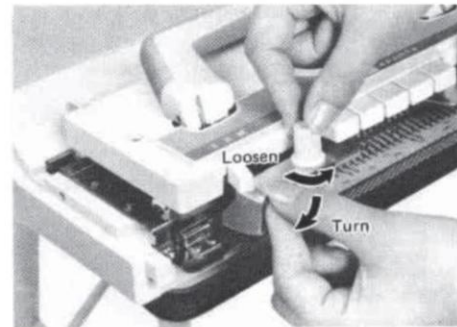


4

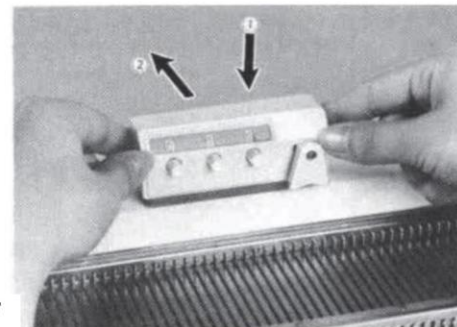
5. Take the two table clamps out of the accessories box and use them to fasten the knitter to the table as shown, and tighten the screw



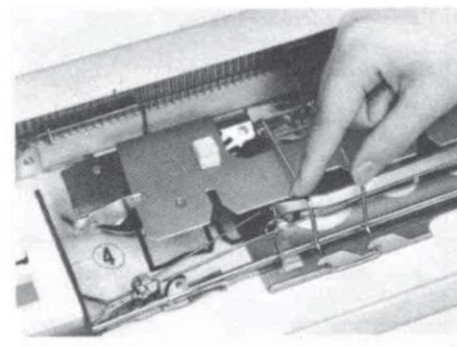
6. Loosen the left hand carriage thumb screw and remove the carriage lock as shown.



7. Take the row counter out of the accessories box and set it onto the two studs on the top of the machine and push it away from you



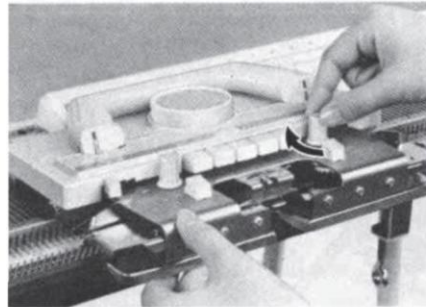
8. In the lid cover, press down and unhook the spring holding the sinker plate assembly and remove it.



SETTING UP THE CARRIAGE

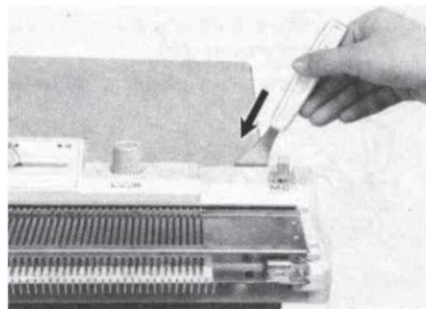
9. Push the needle butts as far back as they can go on the needle bed and slide the carriage to the middle of the machine.

Loosen the thumb screws on the carriage and lining up the sinker plate slots, push it under the thumb screws and ensure the raised metal studs on the carriage, line up with the small holes on the sinker plate.



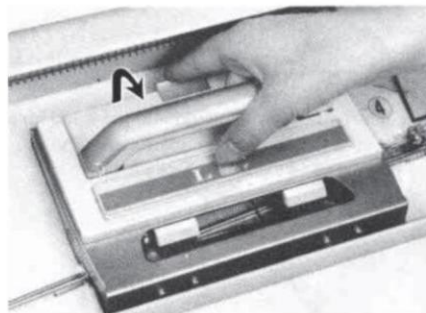
9

10. Fit the set lever (as shown) onto the small shaft at the back - on the right of the machine.



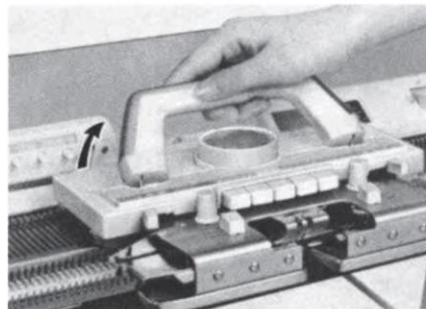
10

11. Lift up the lace carriage handle until it clicks into place. Pull the release button at the top of the lace carriage toward you and gently lift the carriage out.



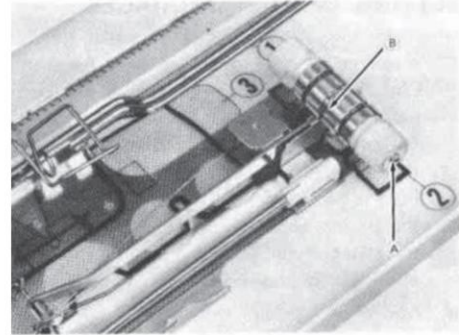
11

12. Pull the knitting carriage handle toward you - until it clicks into upright position.



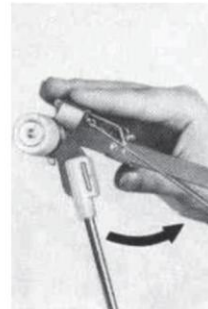
12

13. Remove the yarn tension unit from the machine's lid.



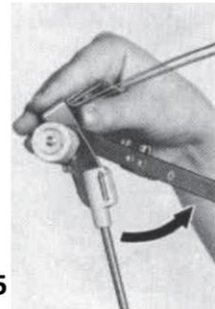
13

14. Turn the front guide arm forward, in the direction of the arrow, as shown.



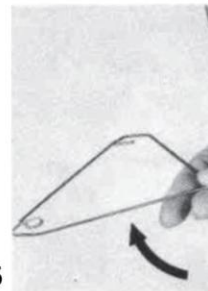
14

15. Push back the 'Take Up Springs' as far as they will go.



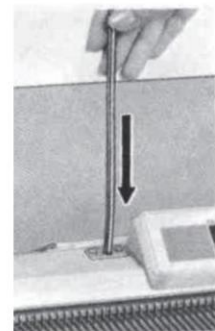
15

16. Raise the triangular rear guide until it is at a right angle to the rod.



16

17. Insert the slightly curved end of the rod into the notched hole at the centre top of the machine. The triangular rear yarn guide should be at the back of the rod, pointing away from you.



17

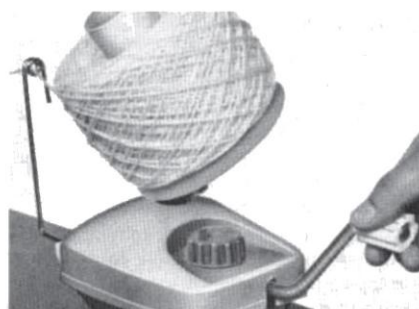
POINTS TO REMEMBER BEFORE YOU START KNITTING

WOOL

Many different types of yarn can be used on your machine but for beginners, start with 3 or 4 ply yarn.

WINDING THE YARN

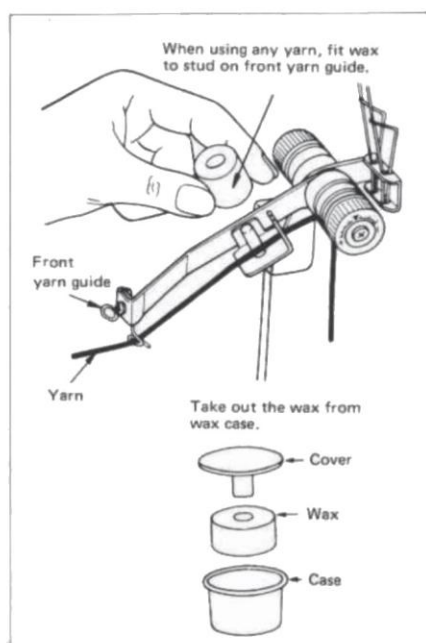
Coned yarn is best for machine knitting but you can use hanks or balls of yarn as long as you rewind them first. Machines knit quickly so the yarn has to be more loosely wound than is found in balls or hanks. Rewinding also allows you to spot any knots or problems with the yarn and you can wax the yarn by hand, as you wind too. Use a yarn winder, as shown in the picture.



18

WAXING THE YARN

For thicker yarns or yarns of uneven texture it is best to wax the yarn. To make this easier, the yarn tension unit has a stud built in which supports a wax ring. Threading your yarn under this ring, this will wax it as you knit. The wax will wash out.

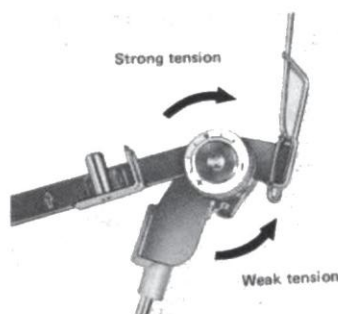


19

YARN TENSION

The tightness or tension of the yarn as it knits, is governed by the unit at the top of the yarn tension unit.

The spring discs in this unit allow the yarn to pass through easily or tightly according to the yarn thickness and the setting you choose. A tight tension (towards the + symbol) is used for thin yarns and a loose tension (towards the - symbol) for thicker yarn. Tension recommended for 3 ply wool is where the two V arrows meet. (See fig 20).



20

TENSION DIAL

The stitch size is determined by the tension setting on the carriage tension dial which is graduated from 0 to 10 with 3 subdivisions in between each number. 0 gives a tight tension and smaller stitch - 10 gives a looser tension and larger stitch. Most knitting patterns offer tension suggestions but knitting a tension swatch before starting your garment is recommended. (See fig 21).

21

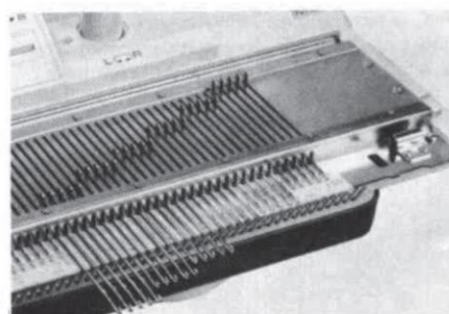


NEEDLE POSITIONS

At each end of the needlebed are the marks A, B, C, DI, DII & E. These are the needle positions. (See Fig 22).

- A. NON WORKING POSITION
NEEDLES DON'T KNIT
- B. WORKING POSITION
USED FOR GENERAL WORK
- C. PARTIAL KNITTING POSITION FOR PULL UP & TUCK STITCH PATTERNING
- DI. PATTERN KNITTING POSITION.
SELECTED NEEDLES ARE BROUGHT TO THIS POSITION.
- DII. PATTERN KNITTING POSITION.
SELECTED NEEDLES FOR FAIR ISLE PATTERN ARE BROUGHT TO THIS POSITION.
- E. HOLDING POSITION. THE STITCH WILL HOLD ON THE NEEDLE UNTIL RELEASED.
USED WHEN SHAPING YOUR GARMENT.

22



SUGGESTED YARN TENSIONS

YARN	TENSION NUMBER
FINE YARN E.G. 2 PLY	0 ~ 3
MEDIUM FINE E.G. 3 PLY	3 ~ 4
MEDIUM E.G. 4 PLY	4 ~ 6
BULKY E.G. 5 PLY	6 ~ 10

FUNCTIONS OF THE CARRIAGE

The movement of the carriage across selected needles (B) automatically knits each needle - thereby knitting one row. The carriage completes that row when it has passed all the needles. When the carriage finishes a row - you will hear a 'click' from the carriage, telling you that row is completed. Only then, can you push the carriage in the opposite direction to start the next row. (Once you hear the carriage 'click' don't push too far beyond the working needles after that - as you may cause tension slack in the yarn)

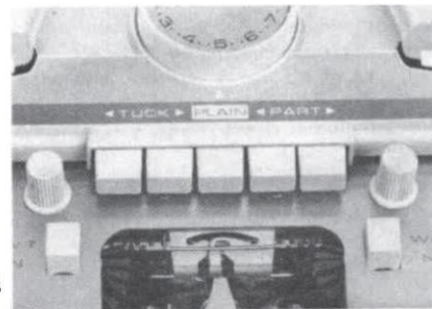
CARRIAGE BUTTONS

There are five buttons at the front of the carriage. They are used for various stitch patterns to set the carriage to knit those various stitches. The arrow above the buttons shows the carriage direction. If both buttons are depressed at the same time, the carriage will be set for both directions.

PART: These buttons are used mainly for fairisle and slip stitch patterns. If both buttons are in and the needles not selected - the carriage will move across without knitting the stitches.

PLAIN : This button is used to cancel all buttons and does not stay in.

TUCK: These buttons are used for tuck stitch.

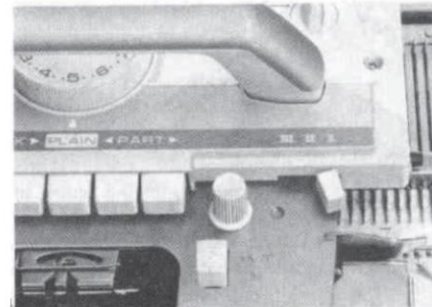


23

HOLDING CAM LEVERS (H.C.L.)

The HCL's on either side of the carriage have three position marks - I, II & III.

- I: All needles in C, DI, DII or E position will return to working B position.
- II: This intermediate position is used when both I and III positions are to be used (e.g. when knitting a patterned V-neck).
- III: Holding position. Any needles in positions C, D or E will not knit if the HCL closest to the knitting is on III



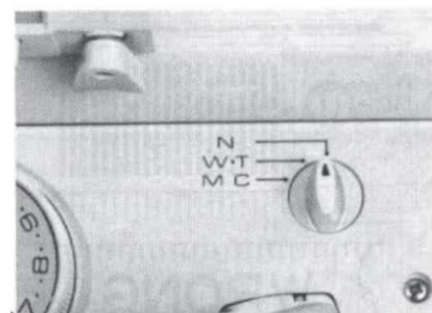
24

CHANGE KNOB: 3 settings

N: For normal, lace, part and tuck knitting.

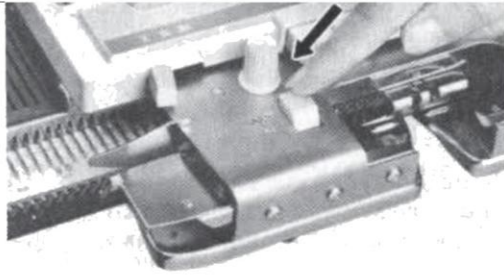
WT: For weaving thread knitting.

MC: For fairisle knitting



25

WEAVING PATTERN BUTTONS



26 27

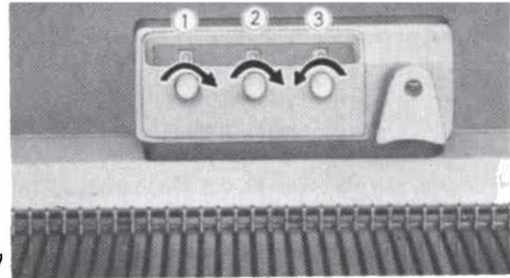
These buttons are used for weaving patterns

N :Upper position is normal position

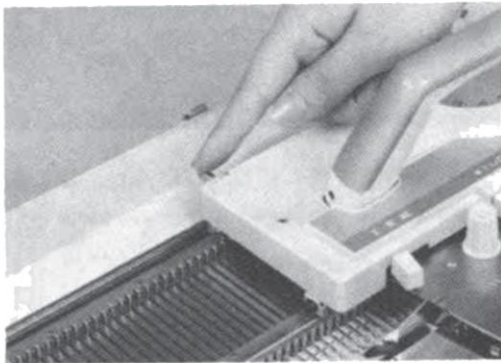
WT :Lower position is for weaving patterns.

Press buttons to set - pull to cancel

ROW COUNTER



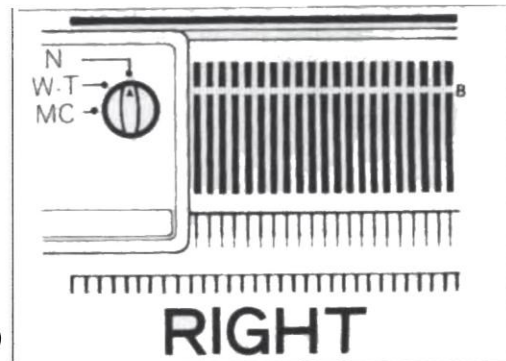
The figures on your row counter can be moved to zero by turning the dials as per the directional arrows, turning in order - from the left.



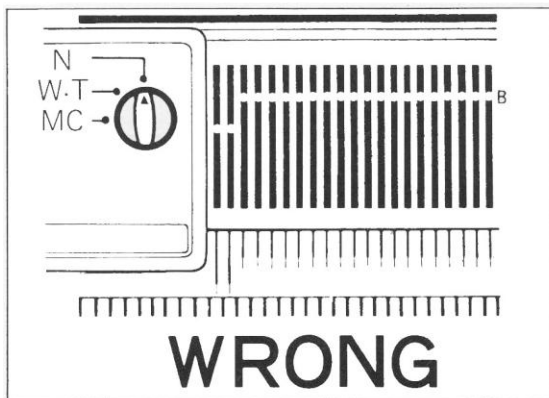
28

When using the row counter, set the tripper to working position.
If you do not need to use the row counter, set the tripper back to resting

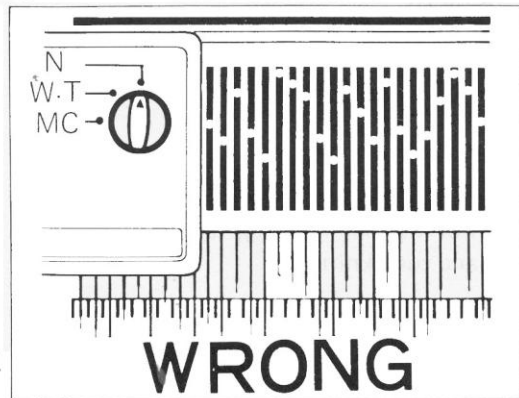
IT IS IMPORTANT NOT TO MOVE THE CARRIAGE ACROSS THE NEEDLEBED UNLESS ALL OF THE NEEDLES ARE ALIGNED IN ONE OF THE SIX POSITIONS A, B, D, DI, DII OR E.



29



30 31

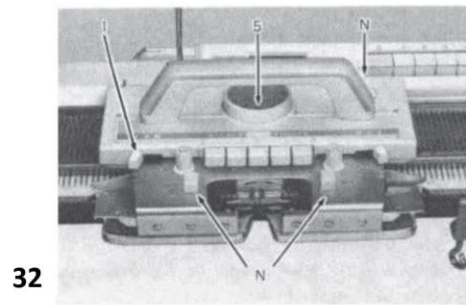


PREPARING TO KNIT

STEP ONE: The Carriage

The photo shows the various controls of the carriage that you should remember.

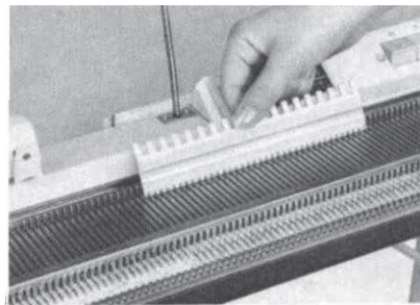
- (1) Set the tension dial to 5 for medium thickness yarn (e.g. 3-4 ply).
- (2) Set both weaving buttons to N.
- (3) Set the change knob to N.
- (4) The holding cam levers to I.
- (5) Push the PLAIN button to set the carriage for plain knitting,



32

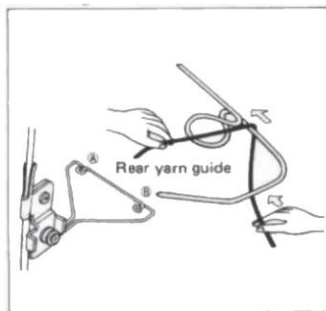
STEP TWO: The Needle Bed

- (1) Bring forward by using the needle pusher 60 needles to position B i.e 30 needles each side of "0" mark on the needlebed.



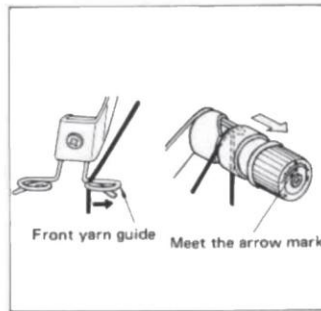
33

STEP THREE: Threading the yarn tension unit



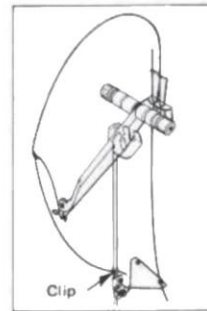
34

- (1) Pass the yarn from the ball through the rear yarn guide as shown in fig. 34



35

- (2) Pass the yarn under the pin and through between the two tension discs from behind.
- (3) Thread the front yarn guide. Meet the arrow mark for medium thickness yarn (Fig 35)



36

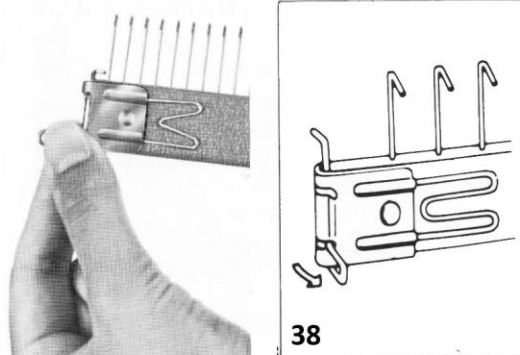
- (4) Thread the yarn into the eyelet of the take-up spring and clip the yarn under the yarn clip.

STEP FOUR - CASTING ON

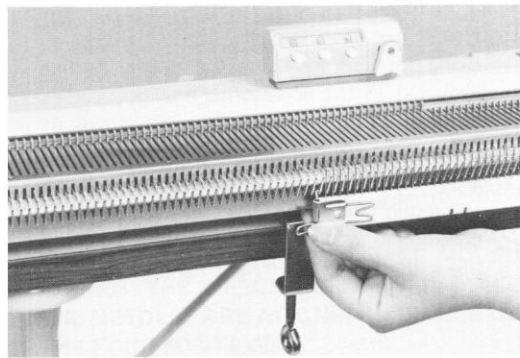
(1) Holding the cast on comb with the wire hooks facing you - turn the comb's securing levers toward you. Place the hooks between the needlebed gate pegs, as far up as possible - then turn the comb's two securing levers outward and the comb will hang correctly on the knitter.

Use the small cast on comb and centre it between the 50th needle on the right and the left. (See figs 37 - 40)

37

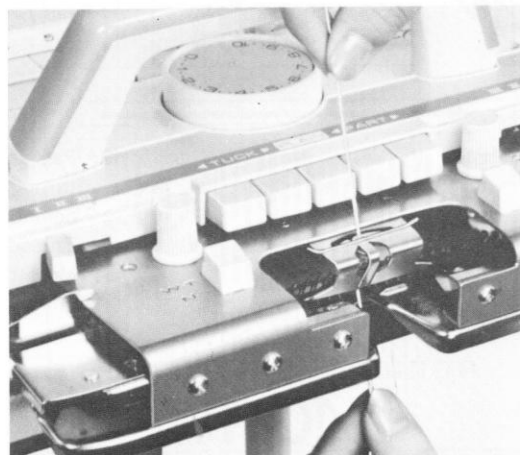
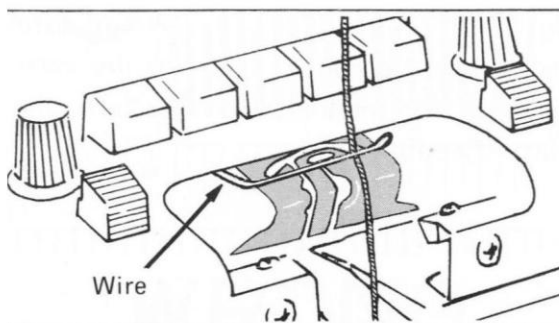
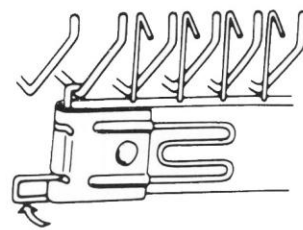


39



(2) Take hold of the yarn end which has been clipped onto the yarn tension rod. Holding the yarn from below with your left hand and from above with your right hand, pass the yarn under the wire (see illustration) and place the yarn into the right slit of the yarn feeder on the sinker plate.

40

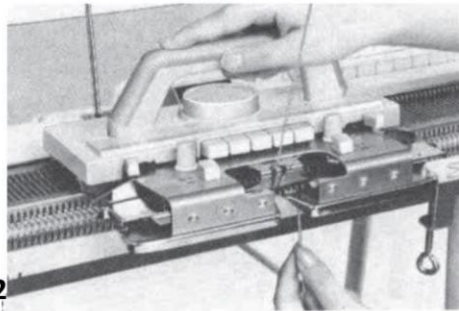


(3) Continue to hold the yarn below, with your left hand and take any slack yarn back - through the tension unit until the take up spring is bent forward.

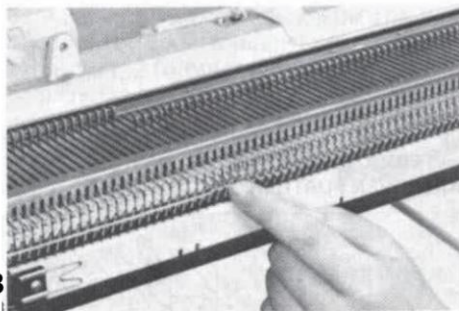
(4) Still holding the yarn below the carriage with your left hand, slide the carriage across the needles with your right hand, until you hear a 'click'. Always keep moving the carriage across until you hear that click, signifying the end of the row. You will now have a loop around each needle and under each peg of the comb. If a few needles have come forward out of position B, simply push them back into position before continuing.

(5) You can now turn the cast on comb by turning the end levers (at the same time) toward you. This will release the comb from the gate pegs and you can allow it to drop slowly. (Be careful to keep the comb straight so the loops don't fall off).

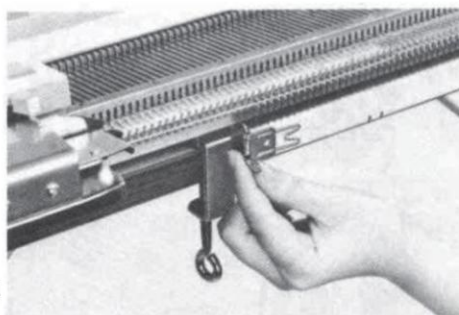
(6) Raise the yarn from the comb to the carriage so that it goes under the last comb peg adjacent to the end needle and above the rest. (See pic 45)



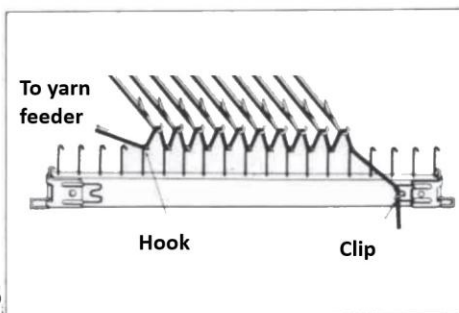
42



43



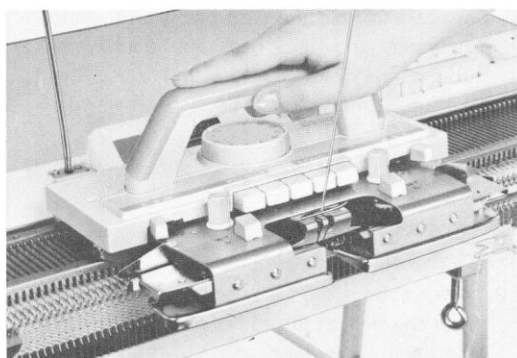
44



45

(7) Knit the next row slowly and continue knitting. The cast on comb can be removed after the first 6-8 rows by tilting it backwards and unhooking it. After a few rows, remove the knitting from the machine by taking the yarn out of the yarn feeder and move the carriage across the needles. The knitting will drop off.

46

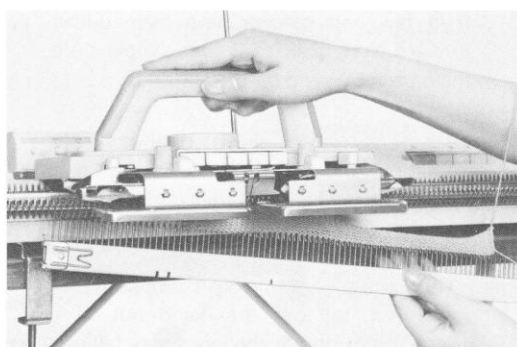


Practice this cast on two or three times.

YOU ARE NOW ABLE TO PRODUCE A QUICK OPEN END CAST ON. THIS METHOD IS NOT USED WHEN PRODUCING GARMENTS BUT IS USEFUL FOR SWATCHES AND EXPERIMENTING.

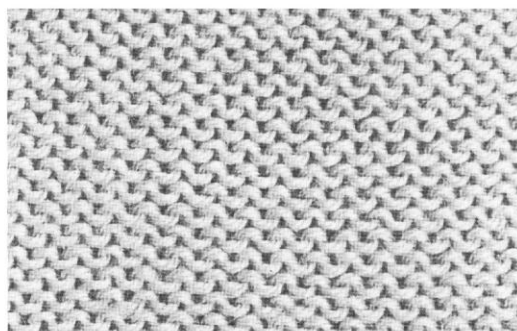
ALTERNATIVE METHODS OF CASTING ON ARE GIVEN FURTHER ON IN THE MANUAL.

47



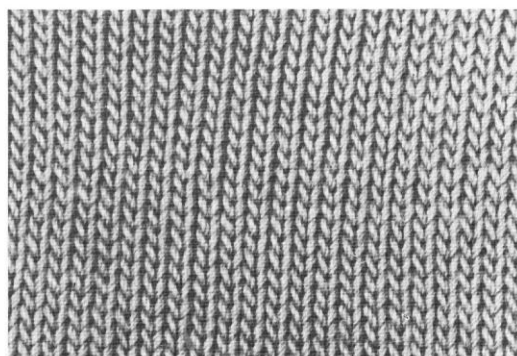
The purl side (or wrong side) of the knitted fabric (facing you) looks like this picture on the right (pic 48)

48



The plain side (right side or public side) of the knitted fabric (away from you) looks like this picture on the right (pic 49)

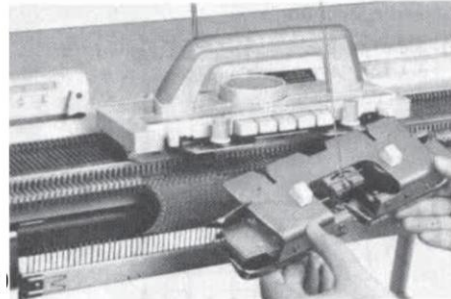
49



IF THE CARRIAGE SHOULD JAM - HOW TO UNRAVEL A ROW.

- (1) Remove the sinker plate
- (2) Holding the handle, lift the carriage up at the front and slide it back to the side you started from.
- (3) With the yarn still threaded in the sinker plate, return it to the carriage and tighten the thumb screws securely.
- (4) Unravel the last row of knitting.

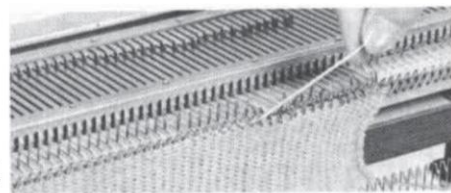
50



UNRAVELLING A ROW OF KNITTING

- (1) At the point where the jam occurred, pull the yarn sideways and slightly up (Pic 51). The stitches will come off the needles and the stitches below will slip onto the needles.

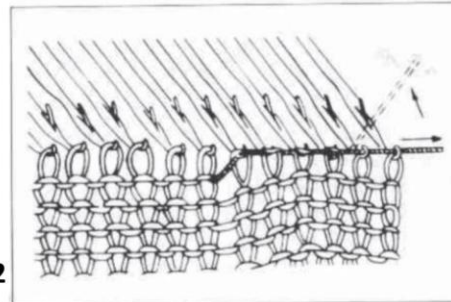
51



- (2) Continue to pull the yarn sideways and up removing 4 or 5 stitches at a time until you get back to the beginning of your row.

- (3) Pull the yarn at the back of your machine, down towards your ball of yarn to take up the slack and bring the take up spring back into action.

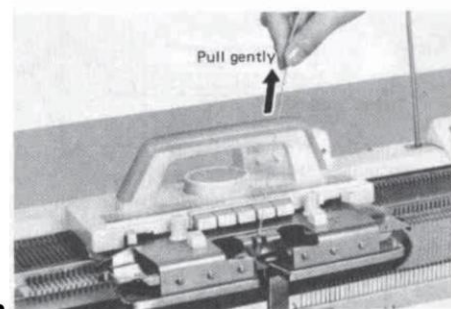
52



- (4) Ensure there is no yarn slack between the carriage and your ball of yarn and knit the row again. (If the faulty row registered on the counter, turn it back one digit.)

- (5) IF YOU EVER FIND IT NECESSARY TO MOVE YOUR CARRIAGE ACROSS THE BED WITHOUT KNITTING A ROW - THEN PRESS BOTH PART BUTTONS IN AT THE SAME TIME AND SET THE HCL'S to III. If any needles have been selected, push them back to B before going across with the carriage.

53

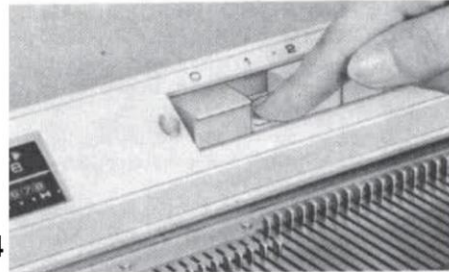


HOW TO USE THE NEEDLE SELECTOR BUTTONS

NEEDLE SELECTION

(1) Push the required number of needle from position 'A' to position 'B'.

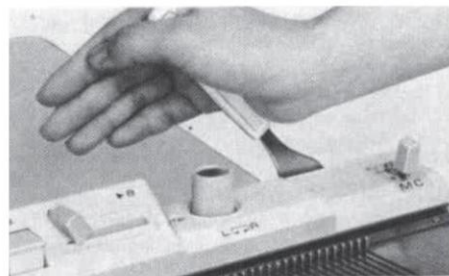
(2) Push down the number '1' button.



54

(3) Pull the set lever as far as it will go then the corresponding needles will come to 'D' position.

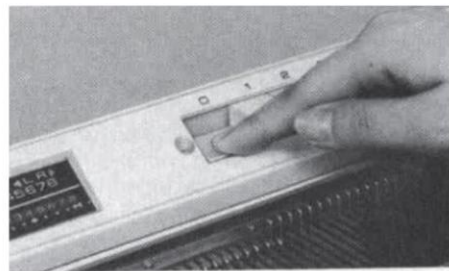
(4) Move the carriage after setting for plain knitting. All needles will return to 'B' position.



55

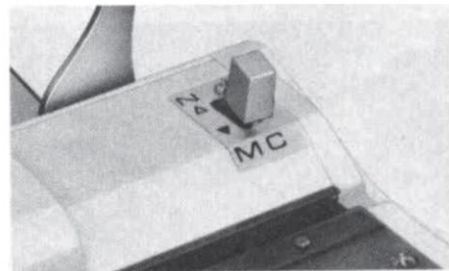
(5) Pull the set lever again and the same needles are brought forward.

(6) Push down the orange button and button '1' will be released.



56

(7) Put the MC change lever to 'V' so that when pulling the set lever, the needles will come to position DII. This operation is used for Fairisle knitting.



57

NEEDLE SELECTOR BUTTONS & REVERSE LEVER

* There are eight needle selector buttons. Each button controls each needle group. A combination of pushed down buttons will control the corresponding combination of needles selected.

* The reverse lever has two positions 'A' and 'B'.

POSITION A - The needles corresponding to pushed down buttons will be selected by pulling the set lever.

POSITION B - The needles corresponding to unpushed down buttons will be selected by pulling the set lever.

Therefore, by using the reverse lever, needle selections (via the push buttons) can be reversed, making fair isle a lot easier.

SLIDE DIAL & SLIDE INDICATOR

*The slide dial is used for sliding the pattern position and very useful for zigzag patterns and diagonal patterns.

(1) Push down the '1' button, turn the slide dial and set the arrow at '1' on the slide indicator.

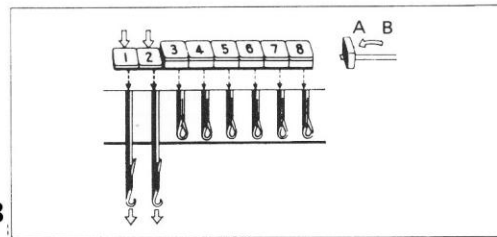
pull the set lever, then the needles on the mark \blacktriangleright will be selected

(2) Turn the slide dial and set the arrow at 2 on the slide indicator.

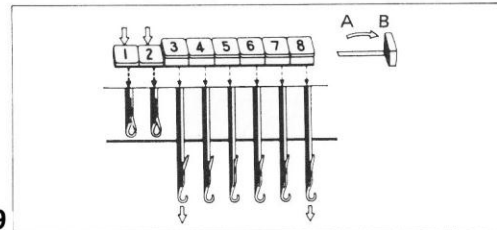
Turn the set lever, then the needles on right side of the mark \blacktriangleright will be selected. The slide direction indicator indicates the direction in which the slide dial is turned.

(3) Relation between the needle selector buttons and the needles are shown in pic 62

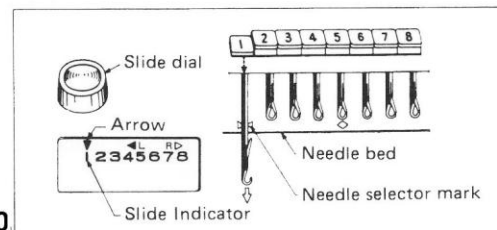
58



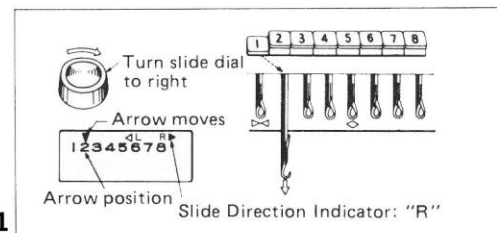
59



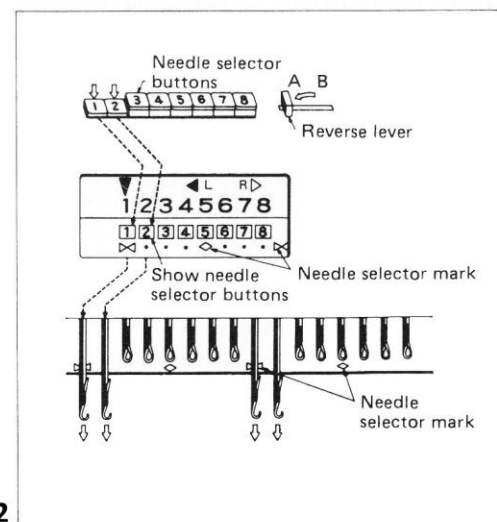
60



61



62

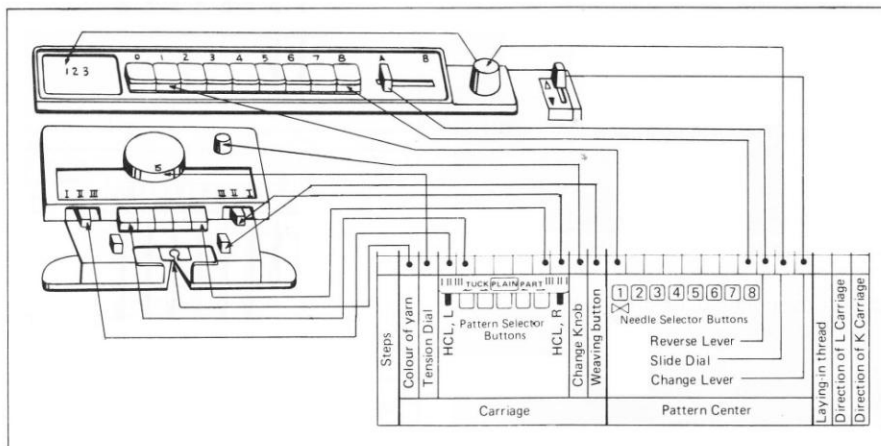


PATTERN KNITTING

HOW TO READ THE OPERATION TABLES

Various knitting patterns are shown in the following pattern knitting table

The lower section of the table shows the operating parts of the knitter.



STEPS:

Operate the knitter in numerical order.
The required operation in each step is shown in the lateral rows of the table.

COLOUR OF YARN:

Shows the colour of main yarn - a - in the right slit of the main feeder. Second colours are b, c.

TENSION DIAL

Shows the tension number the dial is set at.
Pattern instructions and yarn types differ so this number in the diagram, is only shown as a guide.

HOLDING CAM LEVER:

Shift the holding cam levers right & left sides to the marked positions I, II, or III as required.

PATTERN SELECTOR BUTTON:

Press the cam button corresponding to the designated mark.

CHANGE KNOB:



Turn this knob to corresponding position of marks: N, W.T or MC.

WEAVING PATTERN BUTTONS:

Place both buttons to the corresponding position of the marks.

NEEDLE SELECTOR BUTTONS: 1 ~ 8

Shows the number of the button to be pressed down and the operation of the set lever.

- (a)  means pushing down button '5' and operating the set lever.
- (b)  means operation of the set lever *without* pushing down or re-pushing down, a button.

REVERSE LEVER:

Shift the reverse lever to the corresponding mark

SLIDE DIAL:

Turn the slide dial to set the scale, as shown in the figure.

CHANGE LEVER:

Shift this lever to the marked position

LAYING IN THREAD (YARN):

Shows the colour of the laying in yarn or thread.

DIRECTION OF L (LACE) CARRIAGE:

Slide the L carriage in the marked direction.

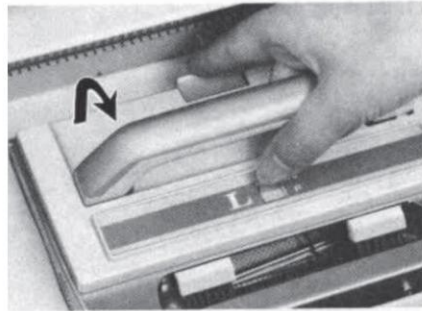
DIRECTION OF K (KNIT) CARRIAGE:

Slide the K carriage in the marked direction. The mark showing a straight arrow means one way travel. The circular arrow means two rows of travel.

Before knitting - always position the K carriage at the right side of the needlebed.

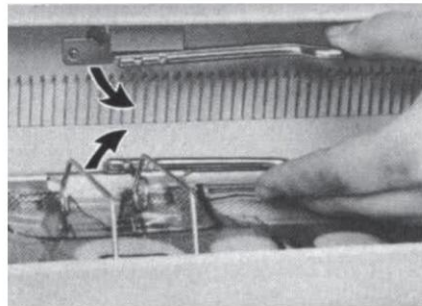
HOW TO USE THE L (LACE) CARRIAGE

1. Remove the lace carriage from the carrying case



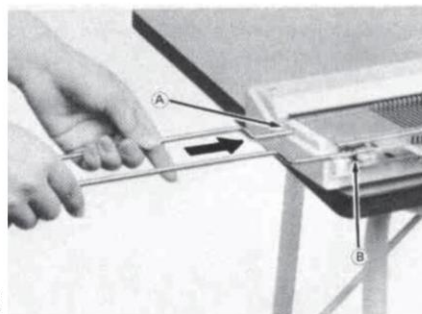
90

2. remove extension rails from the carrying case



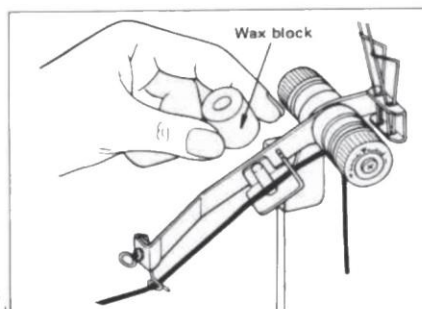
91

3. Insert the extension rail in the holes (A) and (B) at the edge of the needlebed as shown in the picture



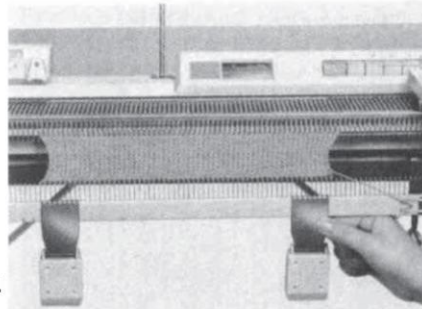
92

4. It is recommended that the wax ring is used when knitting any synthetic yarn with the Lace Carriage.



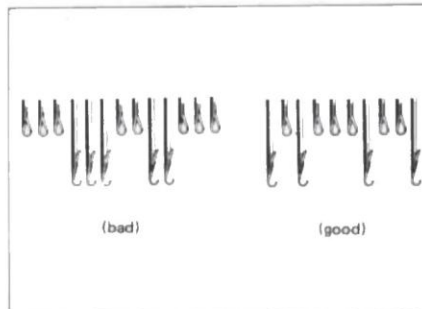
93

5. Knit several rows in plain stitch and hang the claw weights onto the cast on comb.



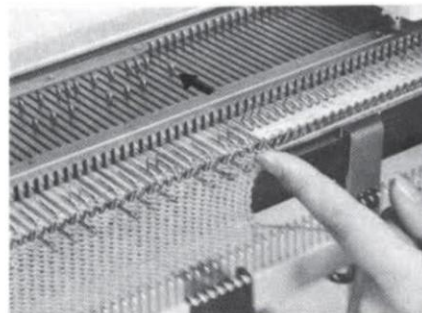
94

6. It is important that no two or more adjacent needles are brought forward together



95

7. In the event that an end needle is brought forward it should be pushed back by hand, to position B. You can do this without fear of the stitch dropping.

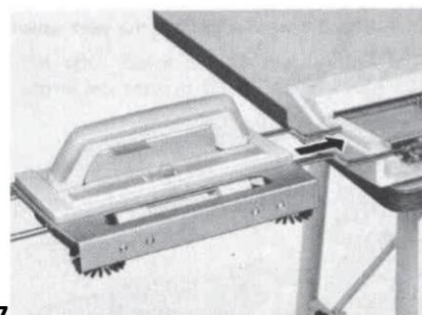


96

FITTING THE LACE CARRIAGE

Make sure that all needles not being used are in position 'A' before fitting the L Carriage to the machine.

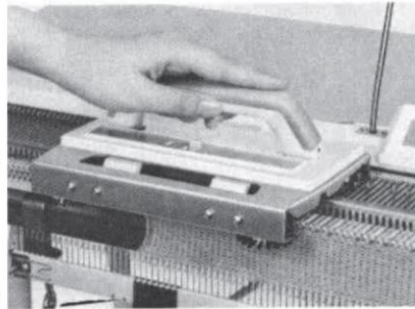
Put the L Carriage on the extension rail correctly, and slide onto the needle bed.



97

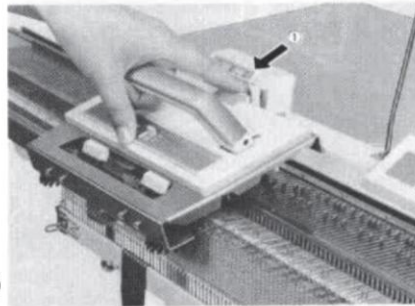
9. Please move the L Carriage slowly.

IF THE L CARRIAGE SHOULD JAM DURING KNITTING - REFER TO PAGE 53 FOR DETAILS OF HOW TO RELEASE IT.



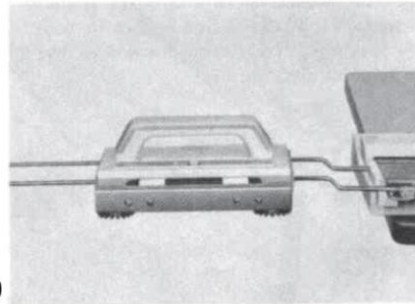
98

10. To unlock the L Carriage, press the release button at the back and release it from under the rail.



99

11. To reset the L carriage on the extension rail, place it firmly in position as shown.



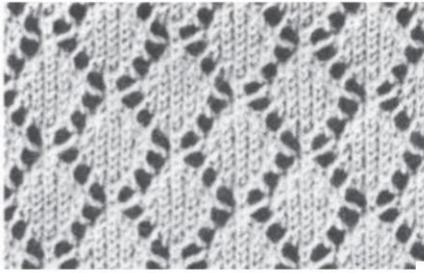
100

SUGGESTED TENSIONS FOR LACE KNITTING

Yarn	Tension No.
Fine (ex. 2 ply)	3 ~ 4
Medium fine (ex. 3 ply)	4 ~ 5
Medium (ex. 4 ply)	5 ~ 6
Lace yarn	4 ~ 5

12. Adjust the tension dial for the thickness of yarn you will be using.

13. LACE PATTERN (2)

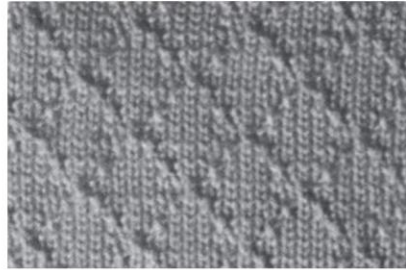


104

You do not knit with the knit carriage at steps 1, 3, 5, 7, 9 and 11.

Operate the Lace Carriage only

FINE LACE PATTERN (2)



105

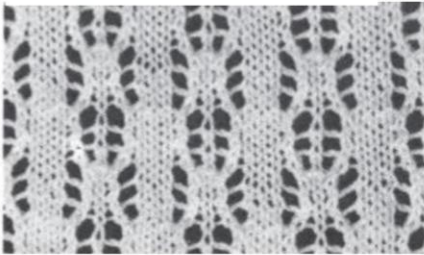
12	**	**	**	**	**	**	**	5	**	**	**	↑	
11	**	**	**	**	**	**	**	3	**	**	**	↑	
10	**	**	**	**	**	**	**	6	**	**	**	↑	
9	**	**	**	**	**	**	**	2	**	**	**	↑	
8	**	**	**	**	**	**	**	7	**	**	**	↑	
7	**	**	**	**	**	**	**	1	**	**	**	↑	
6	**	**	**	**	**	**	**	7	**	**	**	↑	
5	**	**	**	**	**	**	**	2	**	**	**	↑	
4	**	**	**	**	**	**	**	6	**	**	**	↑	
3	**	**	**	**	**	**	**	3	**	**	**	↑	
2	**	**	**	**	**	**	**	5	**	**	**	↑	
1	□	5	I			I	N	Z			A	1	△

Carriage: Colour of yarn, Tension Dial, HCL, L, Pattern Selector Buttons, HCL, R, Change Knob, Weaving button

Pattern Center: Needle Selector Buttons (1-8), Reverse Lever, Slide Dial, Change Lever

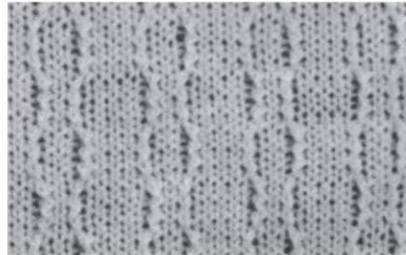
Carriage controls: Laying-in thread, Direction of L Carriage, Direction of K Carriage

14. LACE PATTERN (3)



106

15. LACE PATTERN (3)



107

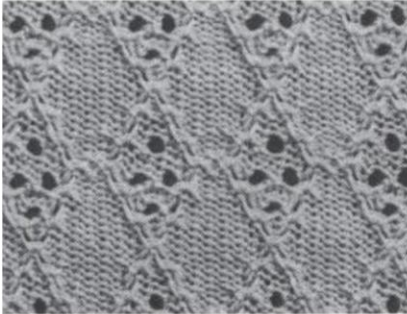
12	**	**	**	**	**	**	**	5	**	**	**	↑	
11	**	**	**	**	**	**	**	1	**	**	**	↑	
10	**	**	**	**	**	**	**	5	**	**	**	↑	
9	**	**	**	**	**	**	**	1	**	**	**	↑	
8	**	**	**	**	**	**	**	5	**	**	**	↑	
7	**	**	**	**	**	**	**	1	**	**	**	↑	
6	**	**	**	**	**	**	**	2	**	**	**	↑	
5	**	**	**	**	**	**	**	4	**	**	**	↑	
4	**	**	**	**	**	**	**	2	**	**	**	↑	
3	**	**	**	**	**	**	**	4	**	**	**	↑	
2	**	**	**	**	**	**	**	2	**	**	**	↑	
1	□	5	I			I	N	Z			A	1	△

Carriage: Colour of yarn, Tension Dial, HCL, L, Pattern Selector Buttons, HCL, R, Change Knob, Weaving button

Pattern Center: Needle Selector Buttons (1-8), Reverse Lever, Slide Dial, Change Lever

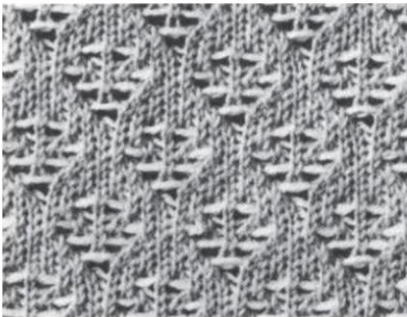
Carriage controls: Laying-in thread, Direction of L Carriage, Direction of K Carriage

15. PULL UP LACE PATTERN

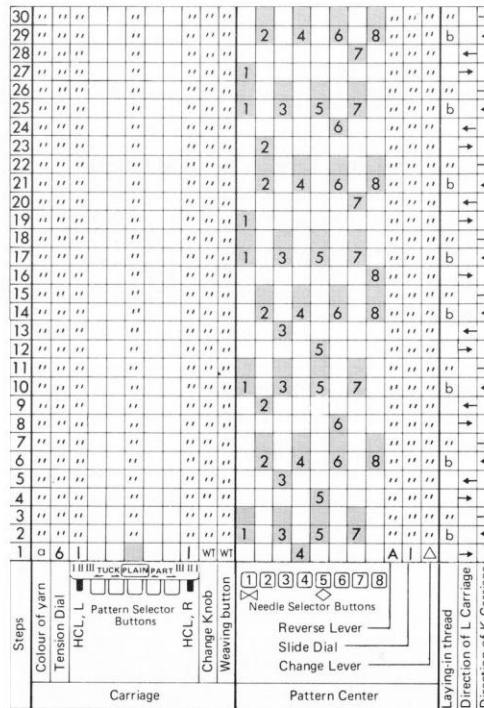
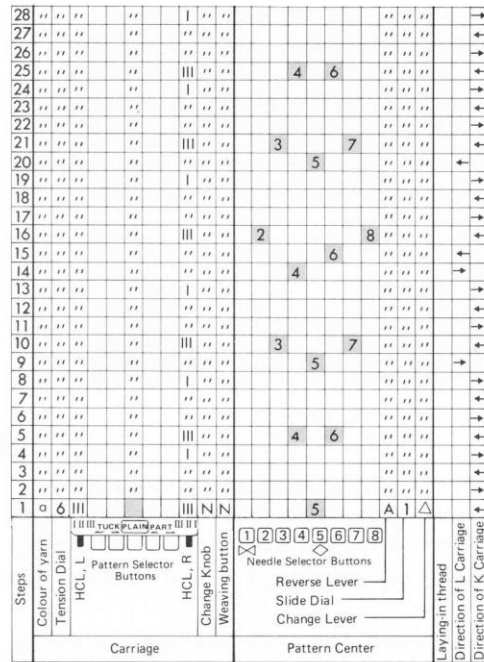


The pull up lace patterns are worked by combining the specialities of both lace patterning and the pull up stitch pattern.

16. WOVEN LACE PATTERN



These unique patterns are worked by combining the operations of the L Carriage and weaving apparatus together.

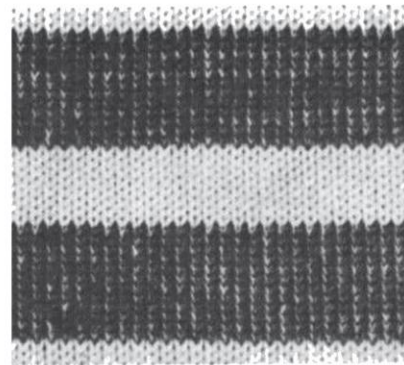


PLATING YARN KNITTING

With the plating yarn feeder it is possible to use two yarns to knit a reversible fabric with a different colour on the back and front.

(1) Thread two yarns (different colour) into the yarn tension unit and attach the ends to the yarn rod clip.

112



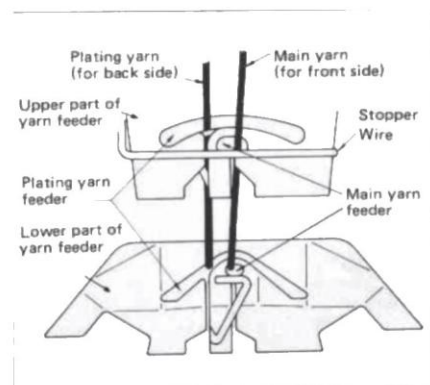
(2) Thread the main colour yarn into the yarn feeder (right slit) and knit several plain rows.

(3) Thread the second colour yarn into the plating yarn feeder (left slit) and continue plain knitting with both yarns.

The main yarn will appear on the front side of the fabric (away from you) and the plating yarn appears on the back of the fabric (facing you).

Hang claw weights on both ends of the fabric.

113

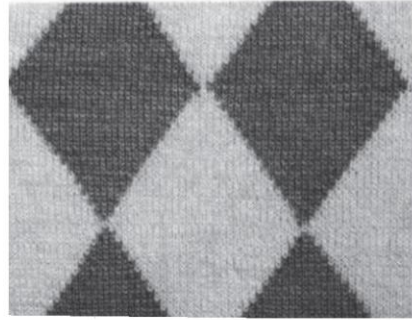


Suggested tensions

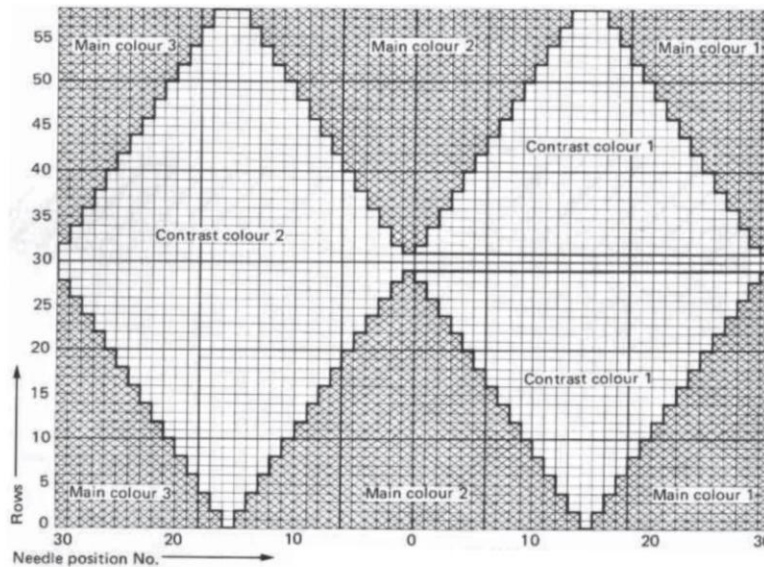
Main yarn	Plating yarn	Tension No.
Medium fine (ex 3 ply)	Medium fine (ex. 3 ply)	9 – 10
Medium fine (ex. 3 ply)	Fine (ex. 2ply)	9 – 10
Fine (ex. 2 ply)	Medium fine (ex. 3 ply)	9 – 10
Fine (ex. 2 ply)	Fine (ex. 2 ply)	7 – 9

INTARSIA KNITTING

Intarsia knitting allows you to knit multi colour rows with no traversing yarns (floats) on the back.



Always draw a diagram for the pattern you are going to follow. Below is a simple two colour example 114



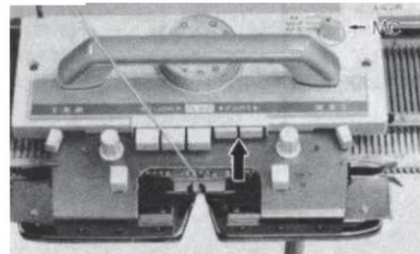
115

(1) Cast on for plain knitting - carriage at the left.

(2) Set the change knob on the carriage to MC and move carriage to the right. (Needles in DI. Check that all latches are open).

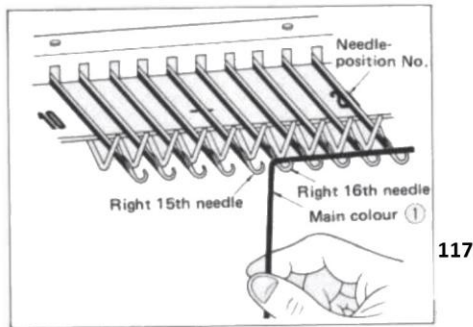
(3) Push both PART buttons.

(4) Remove main yarn from tension unit and place ball/cone at your feet.



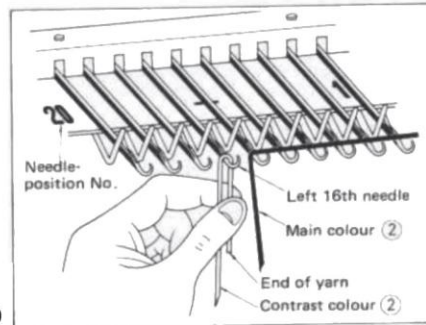
* Arrange yarn according to the pattern (not number of colours). For instance - 3 balls of main colour and 2 balls of contrast colour when knitting the above diamond pattern.

FOR THE FIRST ROW



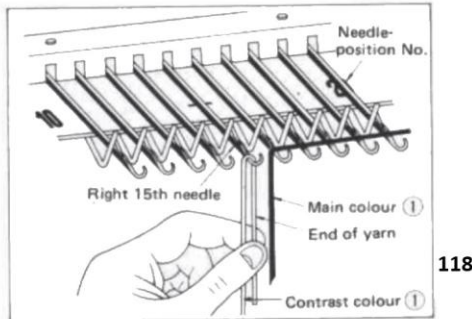
117

(5) Lay the main colour yarn (1) over the needles and let the yarn hang down between the 15th + 16th needle as above



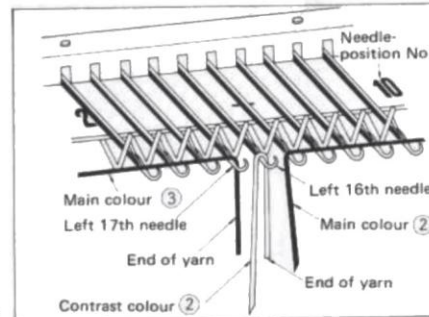
120

(8) Hang the contrast colour yarn (2) on the left 16th needle



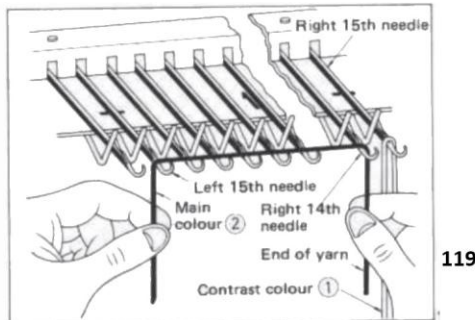
118

(6) Hang the contrast colour (1) on the right 15th needle



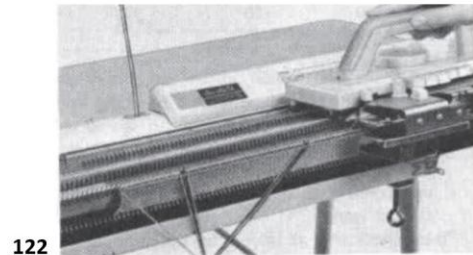
121

(9) Lay the main colour yarn (3) on the needles (from the left 17th needle to the end of the fabric.)



119

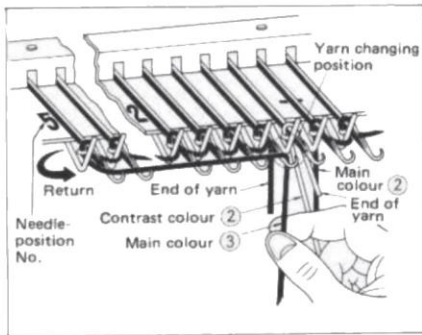
(7) Lay the main colour yarn (2) on the needles (from the right 14th needle to the left 15th needle as above).



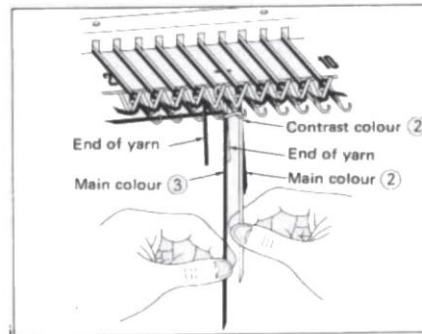
122

(10) Pull both ends of main and contrast yarn gently and move the carriage across the bed to the left.

FOR THE SECOND ROW

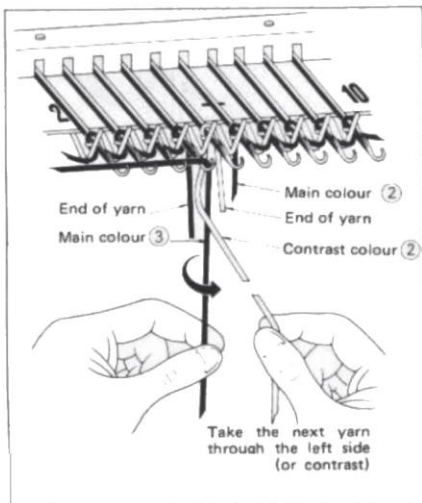


(11) Lay the main colour yarn (3) on the same needles as step (9)



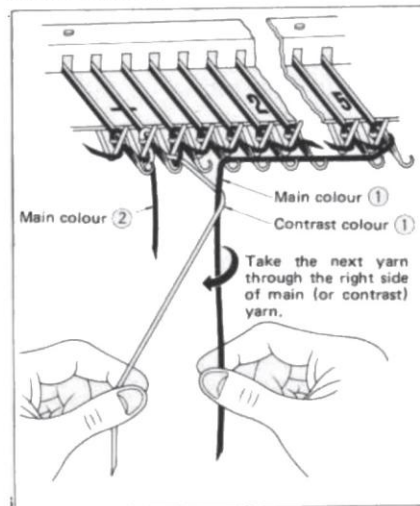
(13) Then hang the contrast colour yarn (2) on the left 16th needle.

(14) Cross the yarns at every yarn changing position and lay the yarn over the needles.



(12) Cross the main and contrast yarns at the yarn changing position as illustrated.

*When the carriage is to move from left to right, cross the yarns as illustrated above



Cross yarns at every yarn changing position is important to avoid making a hole in the fabric.

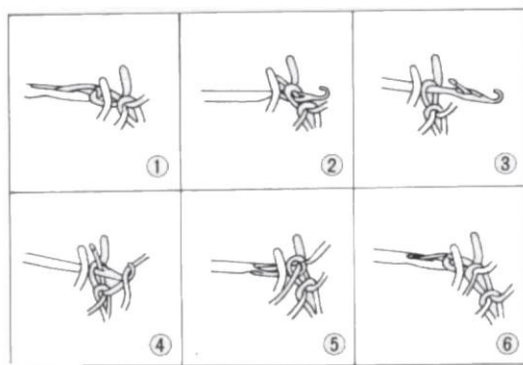
*When the carriage is to move from right to left, cross the yarns as illustrated above

*The above illustration is to explain the third row of the diagram

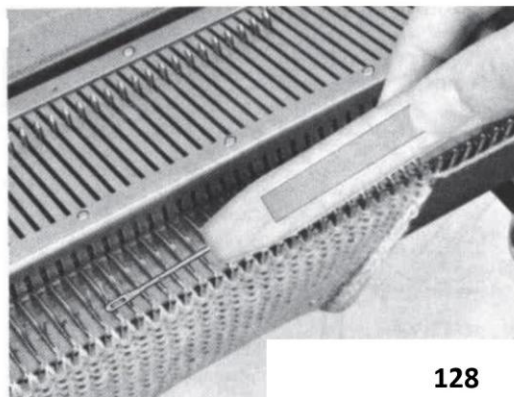
KNITTING A PLAIN HEM

HOW A STITCH IS FORMED:

- (1) The stitch is on the needle which is behind the gate pegs.
- (2) The carriage brings the needle forward by pushing the needle butt.
- (3) The stitch loop pushes the latch back and falls behind it.
- (4) The new thread (from the yarn feeder) is laid into the needle hook.
- (5) The carriage brings the needles back but the previous stitch gets pushed forward again - this time, right over the latch (by-passing the needle hook).
- (6) The newly laid thread gets pulled in, to form another stitch.



127



128

HOW TO KNIT A PLAIN HEM.

Bring forward the required number of needles to B position. Slide carriage across to straighten the needle butts.

CARRIAGE SETTING:

Cam Button PLAIN
 HCL's Both on I
 Change Knob ... N
 Tension Dial 7 (3 ply)
 Carriage at the right.

MACHINE SETTING:

Thread the yarn tension unit (using waste yarn or any contrast colour yarn. Cast on and knit 8-10 plain rows. Remove the cast on comb.

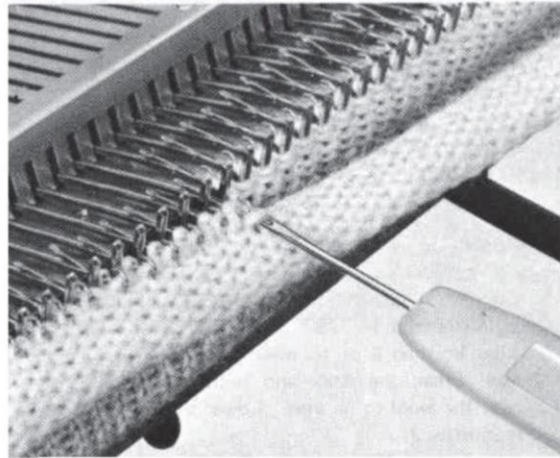
- (1) Tighten the tension by two numbers (i.e. 5).

- (2) Take waste yarn out of the yarn feeder and re-thread machine with main colour.
- (3) Set Row counter back to '0'.
- (4) When the yarn is threaded into the carriage, hold it below with one hand and knit across with the other.
- (5) Knit around 20-30 rows (or half the depth of the hem you require).
- (6) Open the latches of the needles using the single eyed transfer tool, as shown above .

TURNING THE HEM

(1) Pick up the first stitch (away from the carriage) of the first row where it meets the contrast colour row (N.B DO NOT PICK UP THE COLOUR CONTRAST STITCH). Insert the transfer tool into this stitch and lay the tool over the hook of the needle.

(2) Hold the work against the machine with your left hand and pull the transfer tool back and up with your right hand. This brings the needle forward to E position and slips the stitch from the tool, onto the needle. (N.B. If you intend to knit a pattern stitch in the next row that requires needles to be in B position - then do not pull the transfer tool back - instead - raise it upwards so that the stitch falls onto the needle.



129

(4) Reset tension dial to 7 and take up any yarn slack.

(5) Knit 1 row (closing hem) and reset to main tension. Continue knitting garment.

MAKE SURE THE NEEDLE DOES NOT COME FORWARD ENOUGH FOR THE TWO STITCHES TO FALL BEHIND THE LATCH.

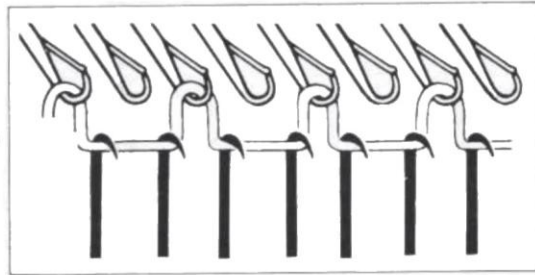
(3) Continue raising the first row of stitches in this manner until all the needles have two stitches on them.

REMOVING THE WASTE WOOL

Once the garment has progressed a few inches, you can remove the waste wool by breaking the end stitch of the row joining the knitting and pulling the loose thread at the other end of this row.

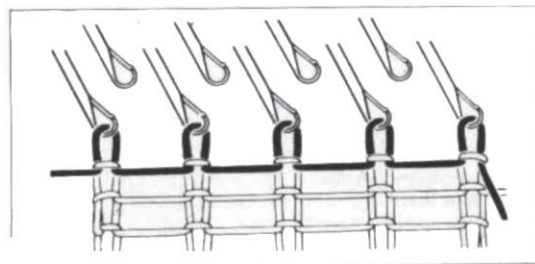
ELASTIC HEM USING CONTINENTAL OR DOUBLE 'RIB'.

Using the 1/1 needle pusher bring forward the required number of needles to B position. (You need every alternate needle to be forward. Other needles remain in A position.) Move the carriage across and back, to align all the alternate needles to B.



130

(1) Thread up and cast on with waste yarn as before. (When the comb is dropped, it should catch the first row (130).



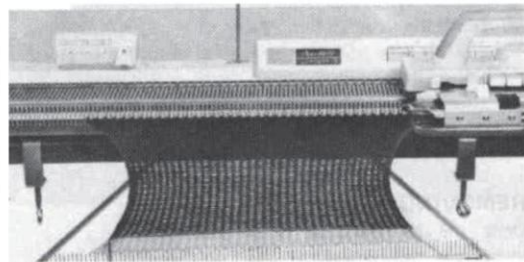
131

(2) After knitting 8-10 rows of waste yarn break the yarn and re-thread the main yarn. Lower the tension dial to 2.

(3) Knit around 40-50 rows (Pics 131 & 132).

(4) Bring forward all the empty needles from A to B and ensure latches are open.

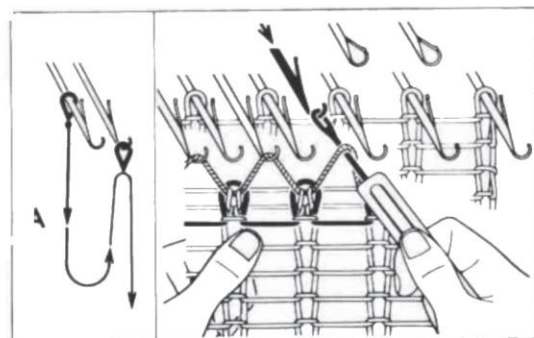
(5) Using one eyed transfer tool and starting at the end opposite the carriage, pick up each stitch from the first row of main colour and raise up to empty needles (133).



132

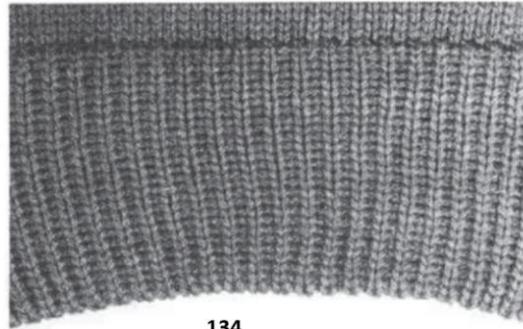
(NOTE: As explained under the 'plain hem' section - when raising these stitches, the needles can be brought forward to E position to ensure the stitches don't drop off. Or the needles can be left in B position.)

(6) Return the dial to main tension and after knitting a few inches, the waste yarn can be removed.



133

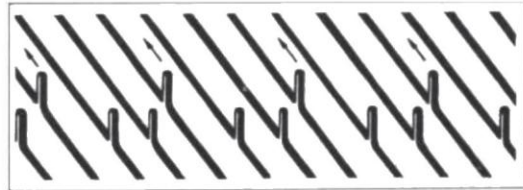
**THE FINISHED DOUBLE RIB
WELT SHOULD LOOK LIKE THIS**



134

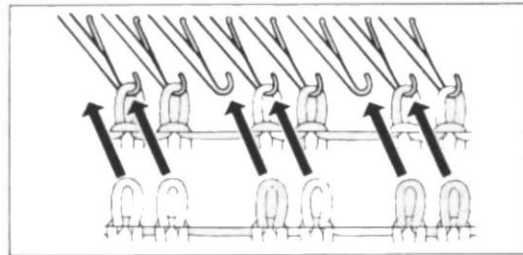
Many variations of this elastic rib can be made for cuffs and hems. One of the more popular is the 2 x 1 double hem. Instructions below:

(1) Bring forward the required number of needles to B position and push back every 3rd needle to position A. (Pic 135).



135

(2) Follow the previous page instructions for the continental rib but when raising the the first row of stitches (adjoining the waste yarn) put them onto the adjacent two needles to the left (Pic 136)



136

**THE FINISHED 2 X 1 RIB
SHOULD LOOK LIKE THIS**



137

FINISHED EDGE CAST ON

Hand Method

Place the carriage on the right and set the Tension Dial to 5.

Hang the cast on comb onto the pegs of the needle gate.

(1) Bring forward to position E all the needles required.

(2) Fasten the end of the yarn (threaded only through the yarn tension unit) onto the end needle on the left, using a slip knot.

(3) Loop the yarn around each needle from left to right, counter clockwise. The loops must be pushed back, on the stem of the needles. To control these loops as you wind, hold your thumb under the last one, before making another. Do not make the loops too tight (Pics 138-139).

(4) Now thread the yarn into the feeder and pull the strand (coming from the ball/cone) down - to take up any slack.

(5) Gently move the carriage to the left and knit the first row.

(6) Lower the comb onto the stitches and ensure the yarn goes above the comb pegs that are not opposite needles in action. Leave the comb suspended until about 10 rows have been completed.

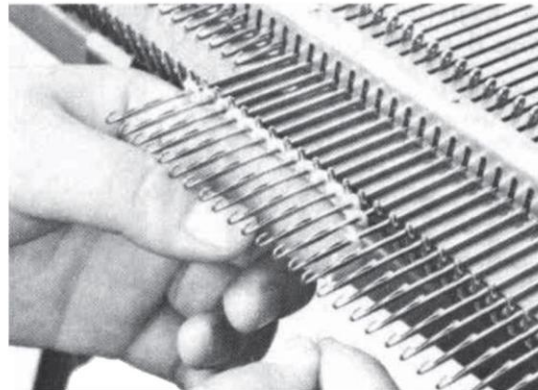
TUBE KNITTING

(1) Cast on 3-4 needles

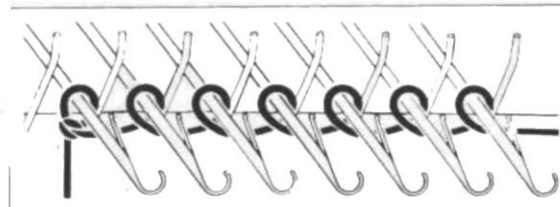
(2) Use a slightly tight tension.

(3) Depress the PART button.

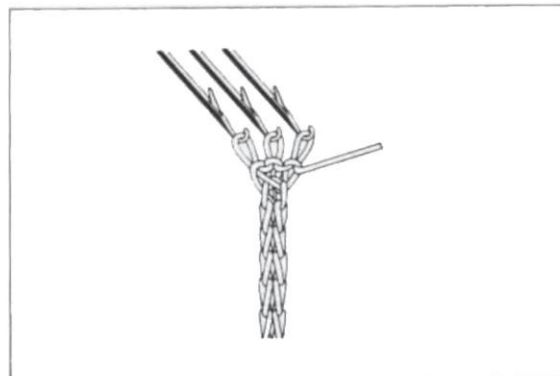
(4) Pull down fabric with the left hand and move the carriage across with the right hand.



138



139



140

KNITTING A PICOT HEM

Set the machine as for 'PLAIN HEM' and knit up to half the depth of the hem with Tension 2 numbers tighter than for main yarn.

Place the Lace Carriage onto the needle bed. Push needle selector buttons 1, 3, 5 and 7 and pull set lever to select needles. Push back to B by hand - any selected end needles.

Slide the lace carriage across the needles in one movement. (This will automatically transfer every 2nd stitch onto the adjacent needle.)

Reset tension to main yarn tension and take up any yarn slack.

Bring all the empty needles into a straight line together with the others in B position. Knit the other half of the hem and raise the first row of stitches as shown in the PLAIN HEM section.

DROPPED STITCHES (A)

If the stitch has dropped one row - pick up the stitch and the unknitted thread with the single transfer tool and put them both on the empty needle. Pull the needle forward until the stitch falls behind the latch - and the loose thread in front of the latch. Carefully pull the needle back until the needle latch closes over

the loose thread and pulls it through the old stitch, to re-knit a new stitch.

DROPPED STITCHES (B)

If the stitch has dropped a number of rows insert the latch hook (from the back) into the last stitch that has *not* dropped.

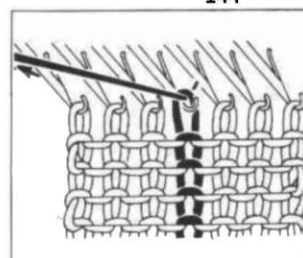
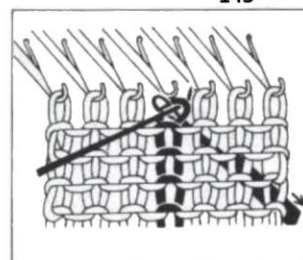
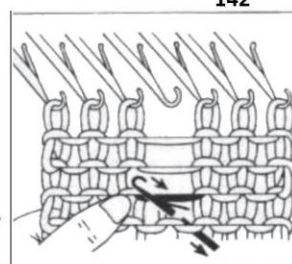
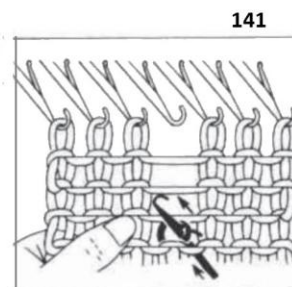
(1) Hold the tool at right angles to the knitting while pulling the knitting down slightly.

(2) Push tool towards you. Stitch will fall behind the latch. (141)

(3) Pull the tool back and catch the thread in the hook. Make sure to position the hook in the centre of the horizontal thread and pull the tool back until the new stitch is formed (142)

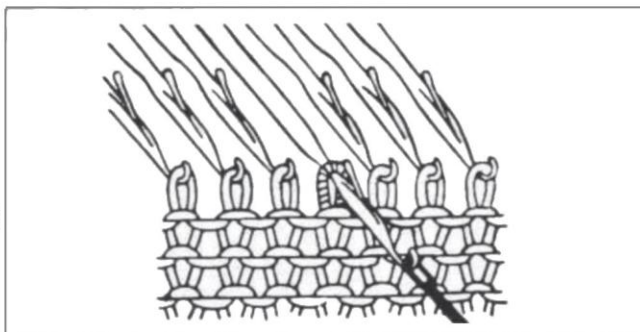
(4) In the same way knit the stitches all the way up to the top stitch (last row)

(5) Place the transfer tool into the hook of the latch tool and transfer the last stitch onto the transfer tool and place the stitch on the empty needle.



HOW TO USE THE TRANSFER TOOL

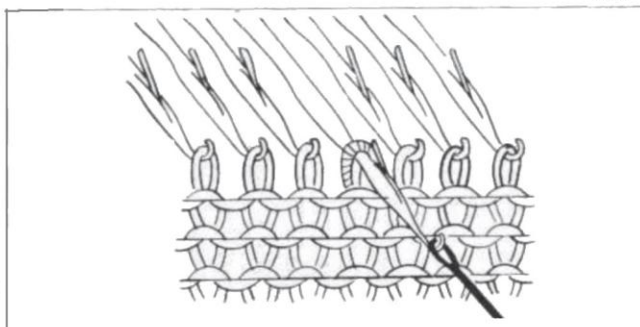
The transfer tools are used to move stitches onto different needles to effect the shaping of the garment and also to form lacy patterns. Before transferring the stitches you must open the latches of the receiving needles.



146

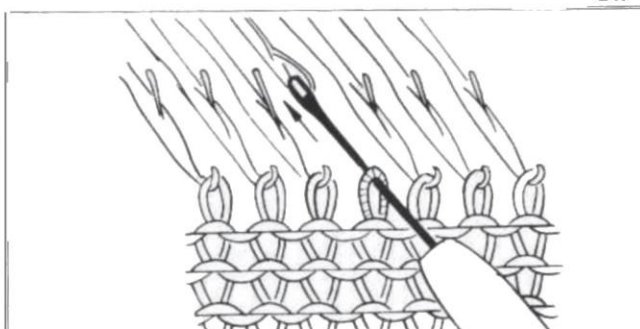
(1) Hold the one-eyed transfer tools parallel with the needles. Place the eye into the hook of the needle (145)

(2) With the transfer tool, bring the needle forward. The stitch in the hook of the needle will slide behind the latch and onto the stem of the needle (146)

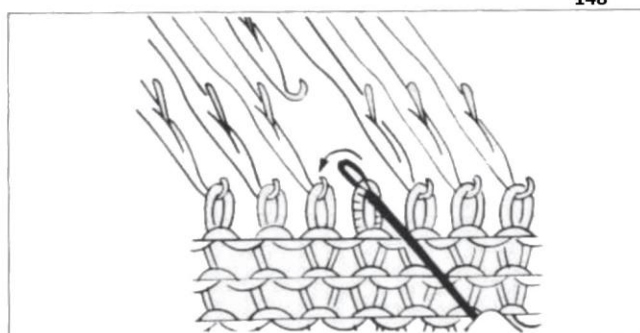


147

(3) Without releasing the transfer tool, push the needle all the way back until the stitch is transferred onto the transfer tool (147)



(4) Raise the transfer tool with the stitch on it and transfer it to the adjacent needle, right or left as desired. (148)



148

INCREASING STITCHES

One Stitch At Either Edge

A. Simple Method

Bring into position B, one needle to position A on the carriage side. The empty needles will be picked up on the next row.

B. Fully Fashioned

- (1) Using the two needle transfer tool, move the stitches out by one needle so that the 3rd needle from the end becomes empty (149)
- (2) To fill in the empty needle pick up the purl side of either adjacent stitch on the lower row (150)

Several Stitches At Either Edge

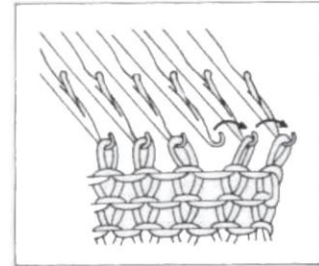
- (1) Push the needles to be increased to position E on the carriage side.
- (2) Loosely wind the yarn around the stems of each needle, going around the needles from below (151)
- (3) Set the HCL's to position I
- (4) Knit across one row.

To ensure perfect knitting on the increased stitches, raise these needles to position E before knitting across for the next 2-3 rows.

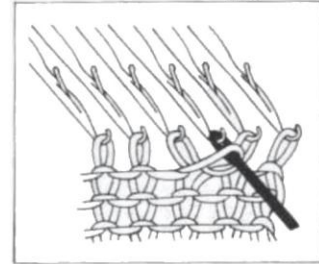
Increasing One Stitch In the Centre Of A Row

- (1) Determine the position to be increased.
- (2) Use the 3 needle transfer tool - starting from either end - transfer all the stitches outward in either direction until the required needle is stitch free (152).
- (3) Pick up the adjacent lower half stitch onto the needle (153)

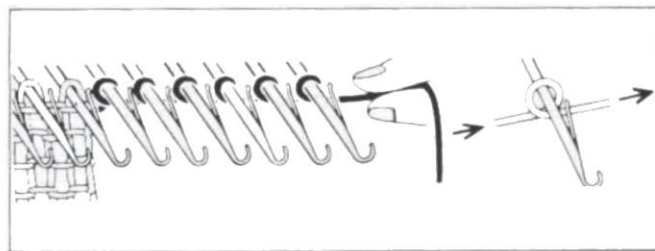
149



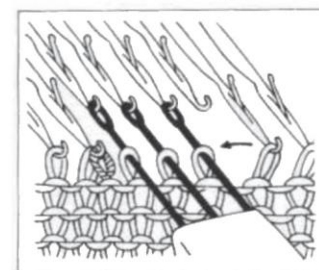
150



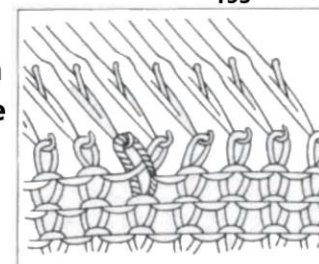
151



152



153

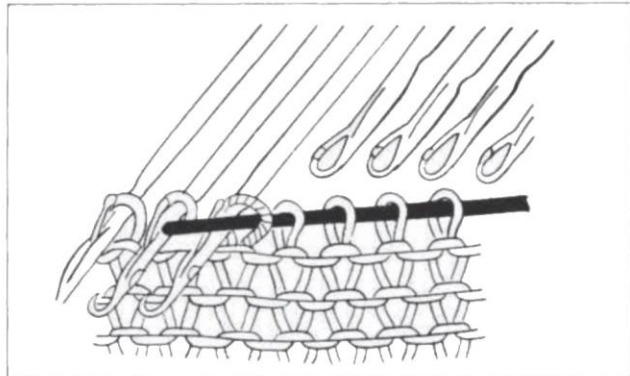


Increasing Several Stitches in a Row

Use the previous method working outwards, or transfer stitches to a stitch holder and return to the machine, ensuring there are an equal number of stitches transferred, between each extra, empty needle. Raise the lower adjacent half stitches to fill the empty needles (153)

Transferring to Hand Knitting Needle

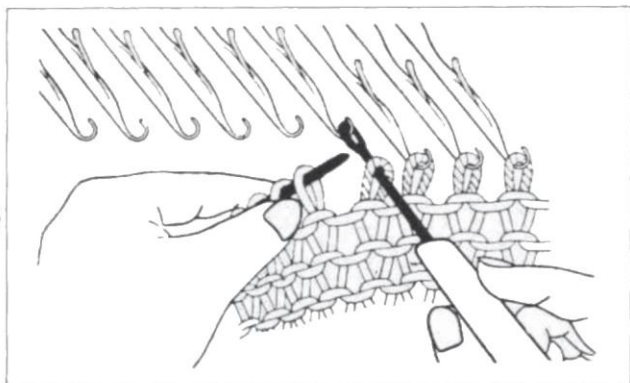
(1) Slide the hand knitting needle the first stitch from the back of the knitting. With your left hand, hold the knitting close to the knitter, With your finger, bring forward the needle so that the stitch in the hook of the needle, slides onto the stem of the needle, behind the latch.



154

(2) Push the needle all the way back so that the stitch slips over the closed latch of the needle and onto the hand knitting needle.

(3) Slid the knitting needle into the next stitch and repeat the process in (1) and (2) until all stitches are off the machine.



155

Transferring Back to Machine

A. (1) Using transfer tool open needle latches.

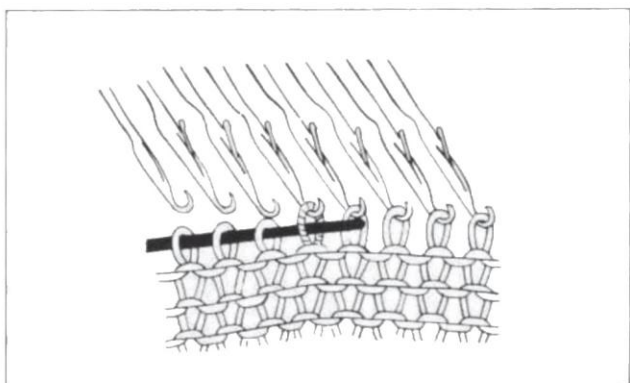
(2) Hold fabric with left hand and desired side facing you. Hold HK needle in line with machine needles.

(3) Pass transfer tool through stitch on HK needle, from the front (155).

(4) Slip stitch from transfer tool onto machine needle hook and push back.

B.(1) Bring needles forward to position DI and open the latches.

(2) Beginning from the left, transfer stitches from HK needle onto the open hooks of the knitting machine.



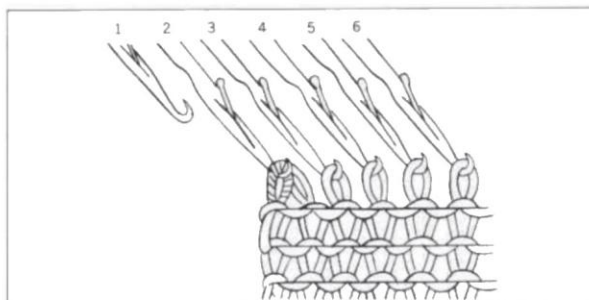
156

DECREASING STITCHES

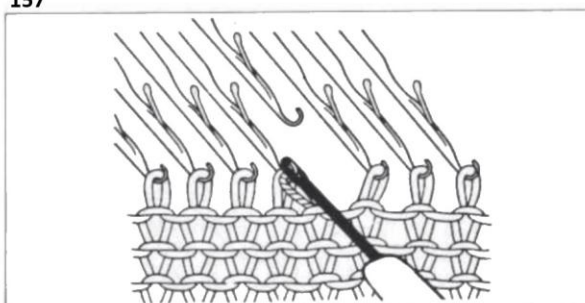
ONE STITCH AT EITHER EDGE

A. SIMPLE METHOD - Using the single transfer tool, transfer the end stitch onto the 2nd needle (157) and push empty needle back to position A.

B. FULLY FASHIONED - With single transfer tool, transfer the 2nd stitch onto the 1st stitch then bring both back to the 2nd needle and knit. For decreasing at neck, armholes and sleeves it is advisable to use 2 prong tool and move 2 stitches in (towards knitting) 1 stitch. (K1, K2 tog).



157

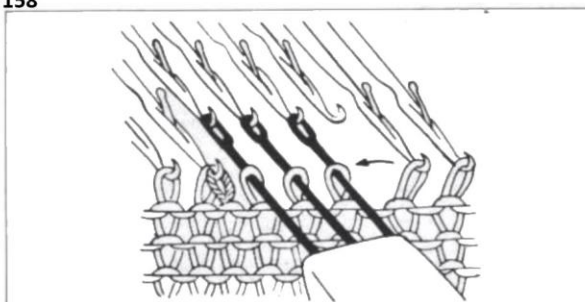


158

DECREASING 1 STITCH CENTRE OF ROW

(1) Using single transfer tool, transfer centre stitch to adjacent needle. (158)

(2) Using 3 prong transfer tool, move all stitches in until all active needles have stitches on them and put all empty outer needle back to non-working position A.



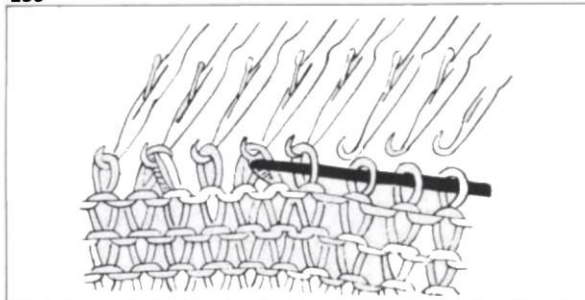
159

DECREASING MORE STITCHES IN A ROW.

(1) Transfer stitches to hand a knitting needle (154).

(2) Before returning stitches from Hand to machine needles, calculate the proportional reduction in the number of the stitches. For example - to decrease 1 in every 3 stitches hang both 2nd & 3rd stitches onto one needle (160).

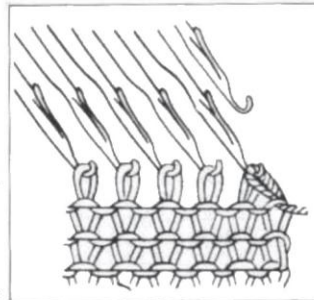
(3) The number of needles with double stitches represents the number of decreased stitches.



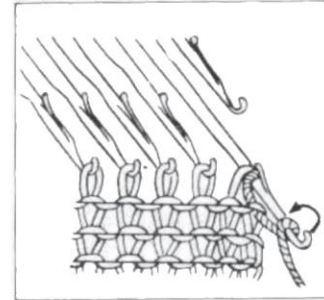
160

**CASTING OFF
METHOD A**

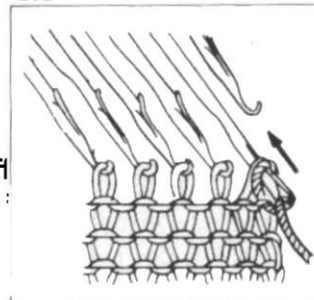
- (1) On the carriage side, transfer end stitch to the 2nd needle (161).
- (2) Bring forward the needle with the 2 stitches so they fall behind the needle latch (162)
- (3) Place yarn in needle hook and push back manually to make a stitch (163)
- (4) Repeat this process for each stitch. Make sure they're not too tight.



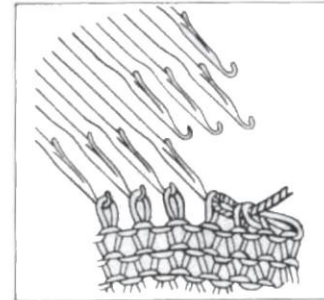
161



162



163

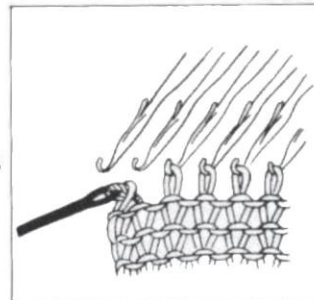


164

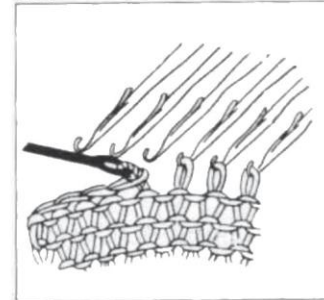
METHOD B

This method can be used for binding off any number of stitches at neck, armhole, shoulders or pocket edges.

- (1) Knit the last row on a much looser tension than normal.
- (2) Start on opposite side of the carriage and hold latch tool upright so latch remains open.
- (3) Insert latch hook into first 2 stitches and remove them from the needle. Let the first stitch slide past the latch.
- (4) Pull 2nd stitch through the 1st leaving one loop on your latch tool. Continue in this manner until last stitch which can be sealed with a slip knot. (165 - 166)



165



166

No mention is made on this page of decreasing at centre neck or shaping armholes.

Whilst following next steps (1 to 3) decreases/shaping must be carried out according to garment measurements or knitting pattern instruction. Remember to put all empty needles back to A position before continuing.

REMOVING KNITTING FROM THE KNITTER

Unbound (unfinished) Method

- (1) Remove main yarn and replace with waste yarn.
- (2) Knit 5 rows then remove waste yarn from the yarn feeder.
- (3) Press the work against the needlebed and move the empty carriage across twice and the knitting will be released from the needlebed.

BUTTON HOLES - SMALL AND MEDIUM.

Small

(1) Open the latches of two needles where the buttonhole is to be.

(2) With one eyed transfer tool, move the stitches on the right, over to the left.

(3) Bring back the empty needle to B and continue to knit

Medium

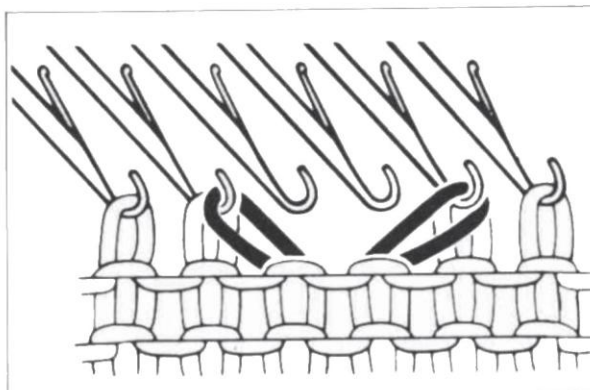
(1) Open the latches of a group of four needles.

Transfer the two inner needles to the outer adjacent needles (167)

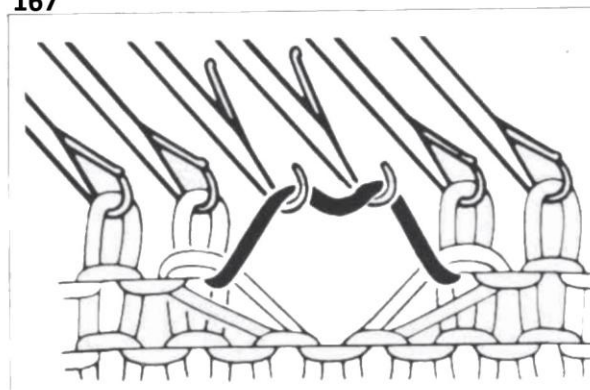
(3) Return the two empty needles to position B and knit one row. (168)

(4) The loops must be twisted by hand to form stitches (169).

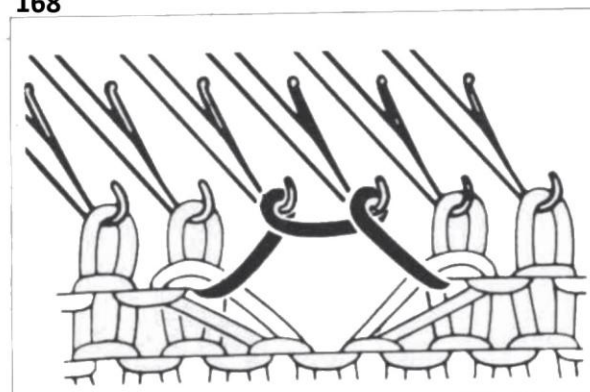
To ensure that these needles knit on the next few rows, bring them both forward to position E (for next two rows) making sure that the loops fall behind the latches.



167



168



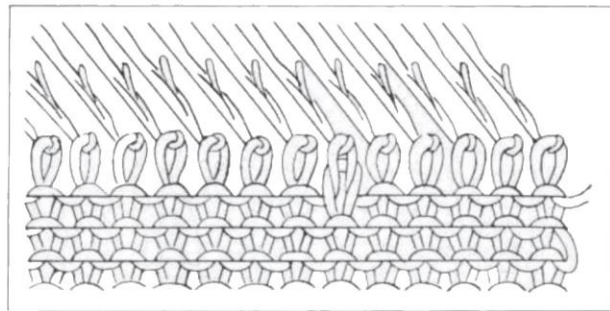
169

BUTTONHOLE - LARGE

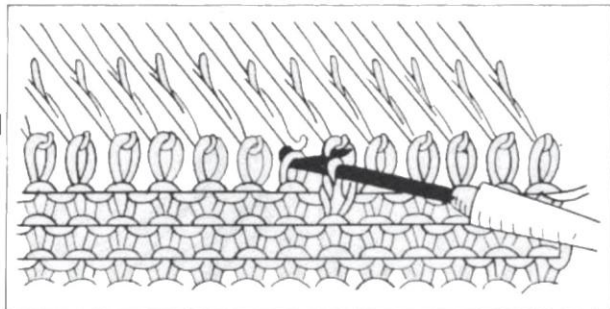
- (1) Determine the position of the buttonhole. With the latch tool, purl the stitch adjacent to where you want the buttonhole to start. (170)
- (2) Catch the purlled half stitch and bring it forward onto the latch hook (171) With this as your first stitch, crochet through the next adjacent stitches of the button hole, thus casting off. (172),
- (3) Transfer the stitch off the latch hook, onto the next adjacent needle (172).
- (4) Knit one row (HCL's on I). The yarn will loop over the empty needles (173).
- (5) Starting from the end where the bottom part was sealed off - wind the yarn around each individual needles. If there is any left over (this depends on your tension) then wind an extra loop around each adjacent needle (173). Do not wind too tightly.
- (6) Raise the needle with the wound loops and a few adjacent needles either side - to position E. Make sure the loops fall behind the latches. Continue to raise these needles (if it doesn't interfere with the pattern) for the next two or three rows of knitting.

ALTERNATIVE METHOD

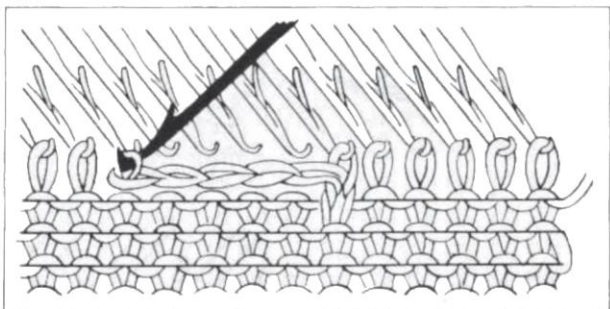
Bring forward the number of needles needed for the buttonhole to D1 position making sure the stitches pass behind the latch. Place a length of contrast yarn in the hooks of these needles and knit the stitches by pulling the needles back to B position. Continue to finish garment. Buttonhole can be stitched afterwards and the contrast yarn removed.



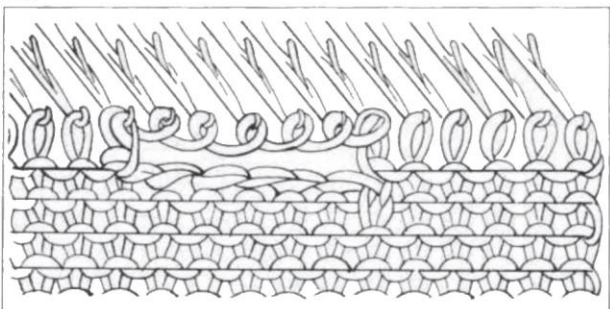
170



171



172



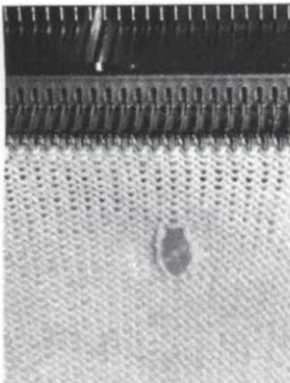
173

MAKING A VERTICAL BUTTON HOLE

Knit up to the row where the buttonhole starts. If the carriage is at right - knit the right side of buttonhole first.

- (1) Set the HCL's to position III
- (2) Determine where the buttonhole is to be and bring forward to position E - all the needles on the left of the buttonhole.
- (3) Knit 6 rows (or more if you require a taller buttonhole).
- (4) Break the yarn, take the carriage off the needlebed and replace it on other side of the needlebed.
- (5) Return the needles that were in position E to position B and bring forward the needles on the right, to position E.
- (6) Knit left side of buttonhole same number of rows knitted for the right side. Set HCL's to I. Continue to knit. Instructions are given for carriage being on the right side of bed.

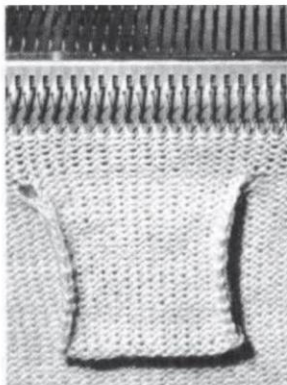
174



HOW TO KNIT A POCKET

- (1) Determine the position of the pocket and bring to position E all needles left of the pocket.
- (2) Set the HCL's to Position II
- (3) Knit one row and bring to position E all the needles on the right of the pocket.
- (4) Knit one row again.
- (5) The carriage is now on the right and you can knit the amount of rows required for the pocket. Move the carriage across slowly with one hand and put the other hand behind the fabric and pull the knitting down slightly. Finish the completed pocket with the carriage on the right.
- (6) Push the needles on the left back to Position B taking care not to let the stitches fall over the latches.
- (7) Knit one row and set the HCL's to position I.
- (8) Continue knitting the garment. The pocket can now be pulled through to the side of the fabric facing you. Sew or weave pocket sides, to finish.

175



SHAPING A 'V' NECK

Knit the fabric to the row where the V neck commences. The instructions are written to start with the carriage on the right side of the bed. If the carriage is on the left then read 'left' for 'right' and vice versa.

(1) Place the HCL's on II.

(2) Bring forward to position E - all the needles on the left side of the centre '0'. These needles will not knit until the right side is completed. (You can also put them onto a knitting needle and return them later.)

(3) Transfer the first stitch on the right of '0' to the adjacent needle on the right (in position B). Return empty needle to A.

N.B. FOR FULLY FASHIONED:

Transfer both 1st and 2nd stitches onto the 2nd and 3rd needles and continue transferring two stitches at a time.

(4) Knit two rows.

(5) Continue decreasing one stitch every two rows until you have the required number of stitches left for the shoulder. Bind off these stitches and break the yarn.

(6) Return all needles at left to position B by putting three stitches at a time onto a transfer tool and slipping the stitches inside the needle hooks (not behind the latches). Knit this side identical to the other side.

KNITTING THE V NECK BAND

Bring forward to position B the number of needles required for half the neck and back of the garment. Open all needle latches.

Set carriage & machine for plain knitting. Using one eyed transfer tool, wrong side facing you pick up 1st stitch nearest to the V and put onto the 1st needle nearest to the carriage. Continue to raise all the stitches from the half V onto the empty needles. ***

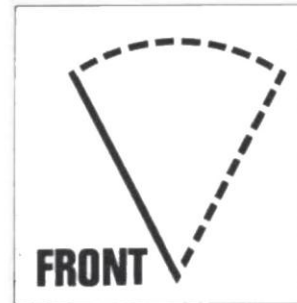
IF YOU WISH TO DO THE NECKBAND IN ONLY TWO PIECES THEN RAISE HALF OF THE STITCHES FROM THE BACK OF THE GARMENT ONTO THE NEEDLES AFTER RAISING HALF THE NECK STITCHES.

With the same yarn, knit one row across (all needles in B).

NOW KNIT THE BAND:

The bottom of the band should be mitred for the V shape by decreasing at the V end until the hem is halfway through.

Now, increase in reverse order so when completed, you have the same number of stitches on the needles as when you started.



*** If you prefer to have the band tighter, raise all the stitches onto 4/5ths of the needle total. To do this, miss out every 4th stitch and raise every 5th stitch onto every 4th needle.

REPEAT THE PROCESS FOR OTHER SIDE, STARTING AT THE 'V'.

FAIRISLE NECK SHAPING

Note RC number and pattern row on operation table. Carriage at right. Knit off manually with waste yarn and put into A position 1/2 or required number of needles furthest from the carriage. Knit & finish one side. Bring stitches on waste yarn back to B. Press in both PART buttons. Set RC to beginning of shaping row & continue - as before, reversing all shapings

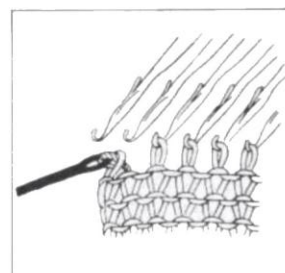
SQUARE & ROUND NECK SHAPING

Instructions are given for the carriage at the right side.

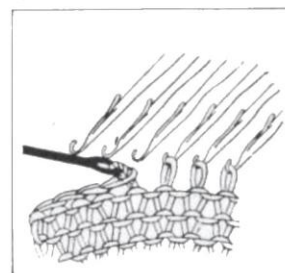
- (1) Place HCL's to II
- (2) Bring forward to position E, all the needles on the left side of the centre '0'.
- (3) The decreasing of the stitches is done by bringing forward to E, the needles you wish to decrease. Start with the needles in B at the right of '0' and knit two rows each time you bring the needles forward.
- (4) Decrease in this manner until you have the required number of stitches left in position B for the shoulder.
- (5) Bind off these stitches and break the yarn
- (6) Return the needles on the left back, to position B and repeat from above, from 3 to 5. Remember to leave the same amount of needles on the shoulder. Bind off these stitches.
- (7) Place the end stitches of the round neck onto the knitter.
- (8) Place the carriage on the left and thread the yarn feeder. HCL's in position I.

THE NECK BAND

- (9) Knit the first half of the hem (approx 5 rows) on normal tension.
- (10) knit 1 row at tension 3 numbers higher. This ensures band will lie flat.
- (11) Knit the remaining half of the band on the normal tension and knit another 5 rows.
- (12) Using transfer tool, lift stitches from the end of the round neck onto the needles. Make sure each raised stitch corresponds with the correct needle to obtain a perfect round effect.
- (13) When all the stitches have been raised, bind off the stitches in the normal way. (N.N. Seal the stitches by hand ver loosely to allow the neck to fall back into place, once removed from the machine.



177



178

SQUARE NECK

Cast off the needles in the centre for the width of the neck, using main yarn and return needles to A position.

On the opposite side to the carriage, bring forward all the needles to E and set HCL's to II.

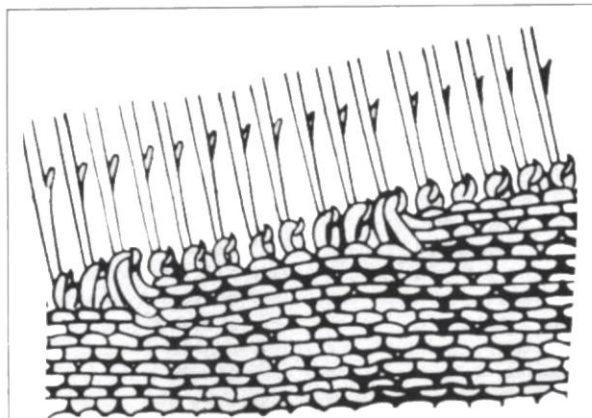
Knit the required number of rows to complete the side nearest the carriage. Cast off and return needles to A.

Set HCL's to I and knit other half identical to the first.

SHORT ROW DESIGNING

This method of shaping has endless possibilities and is used mainly for : Turning the heels of socks, pockets, horizontal darts, circular piece yokes, skirts and zig-zag designs.

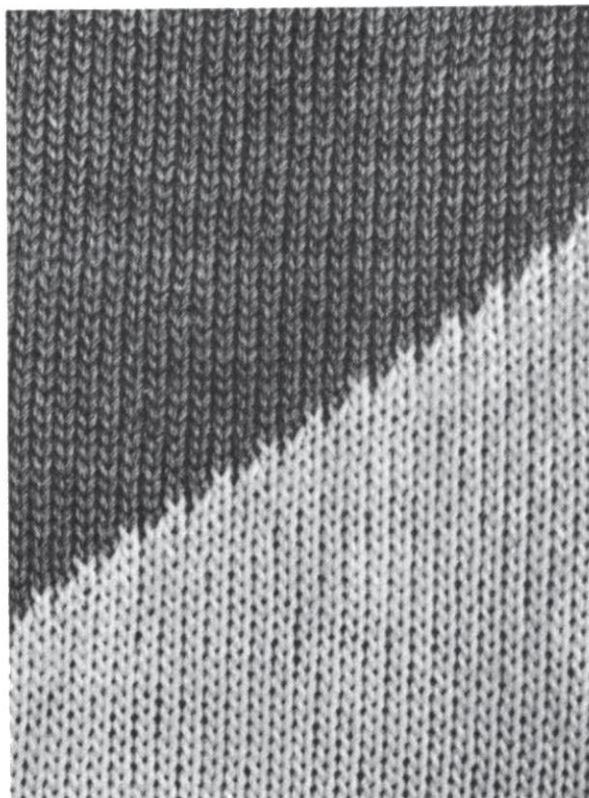
Set the HCL's to III and put one or more needles to E position. These will hold the stitches for later use.



179

TWO COLOUR DIAGONAL USING SHORT ROW METHOD

- (1) Start with carriage at right and HCL's at position III.
- (2) Raise 2 left needles to position E.
- (3) Knit 1 row to left and pass yarn under stem of needle in E on the right. Knit 1 row to the right.
- (4) Continue the above steps until all needles are in position E.
- (5) Change the yarn and remove carriage from the right and move to the left side. Starting at the left, push into position C, two needles at a time and knit one row to the left and one to the right - reversing the steps above - until all needles are back in knitting position.



180

HOW TO CORRECT LACE KNITTING.

IF THE CARRIAGE SHOULD JAM

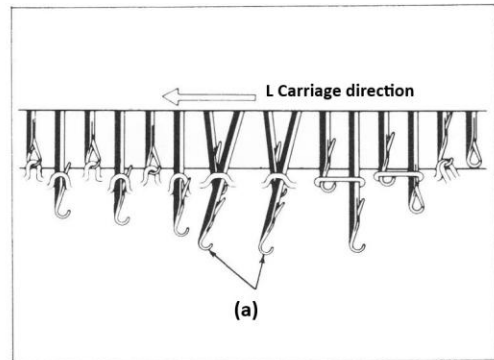
Push the release button of the L Carriage and remove the carriage. If the carriage is caught up with the needles, take care when removing it.

Once removed - you can continue to knit according to the steps below.

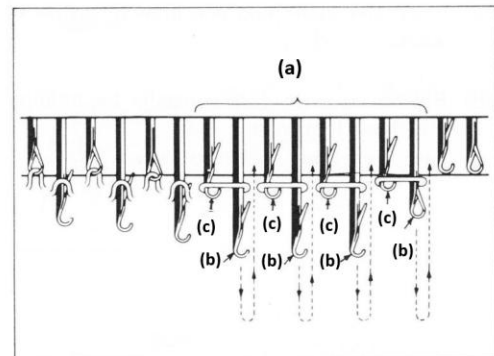
(1) If needles are caught with each other, separate them gently, by lifting their tips.

(2) If stitches are caught on two needles, shown by (a) above - pull selected needles (b) toward you and push them back together with needles (c) to position B - in order to transfer the stitches.

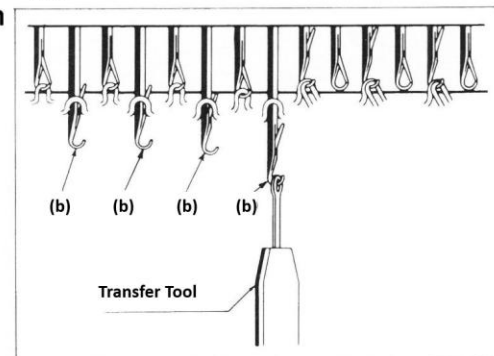
(3) For other part, transfer the stitches of selected needles (b) with transfer tool to the adjacent needles. (For use of transfer tool - see page 44).



181



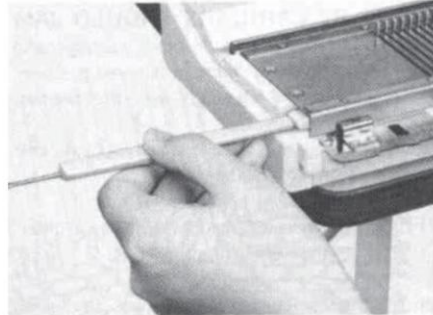
182



183

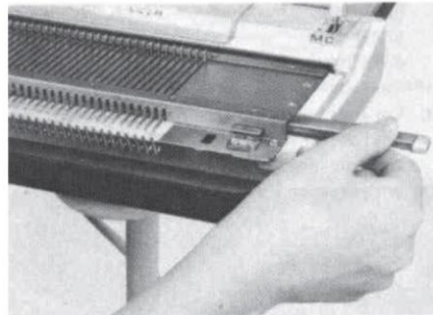
REPLACING A BENT OR BROKEN NEEDLE

(1) Push either side of the sponge bar with the handle end of the latch tool until it comes out at the other end of the needlebed.



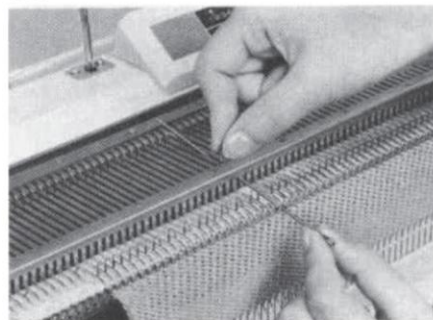
184

(2) Withdraw the bar by hand and continue pulling until the end of the sponge bar has passed the needle to be replaced.



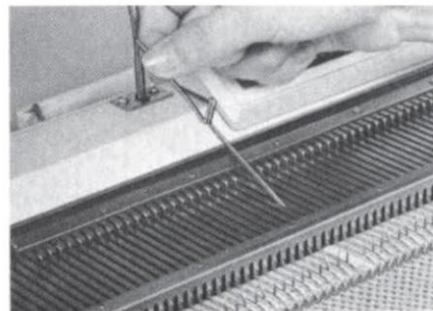
185

(3) Pull the broken needle as far as it will go. *Close its latch* and grasp the butt, lifting its back end until butt and shank are clear of the needlebed.



186

(4) Grasping the shank, draw the needle out - completely - backwards.



187

(5) Replace it with a new needle (latch must be *open* this time) and feed it back into the needle bed. Push the sponge bar back in to its original position, sponge/felt side down.

MAINTENANCE CARE OF MACHINE

CLEANING & OILING

Before and During Use

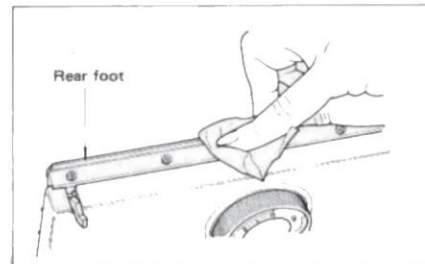
For best results, keep your machine and carriage clean and regularly oiled.

- (1) Remove carriage from the needlebed.
- (2) Brush off all fluff that is evident on the moving parts.
- (3) Oil the runners on the carriage and the sides of all cams. Main cams under the carriage should be oiled if ever a drag is felt when using.
- (4) Clean your knitter of fluff and excess oil, every time you have finished knitting, and oil before using.
- (5) When not in use, keep machine covered to avoid dust and UV rays.
- (6) If carriage jams, never force it to go on as it may break needles or damage needle grooves.
- (7) Replace needles with bent stems or faulty latches.

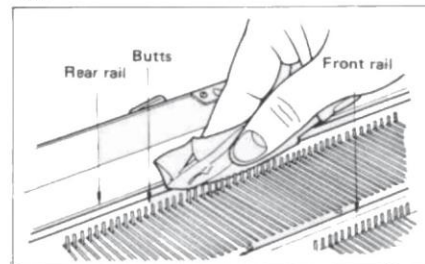
Bottle of Oil



188



189

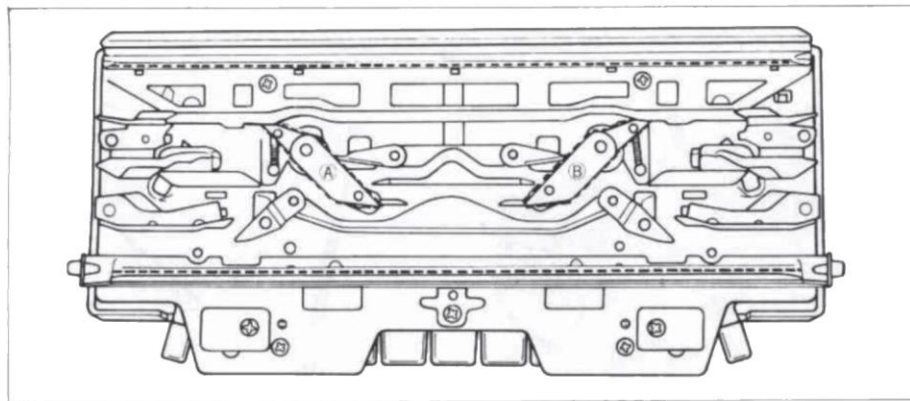


190

CLEAN & OIL YOUR MACHINE BEFORE USING IT
EVERY TIME

Always leave a light film of oil on all parts between the rails and carriage

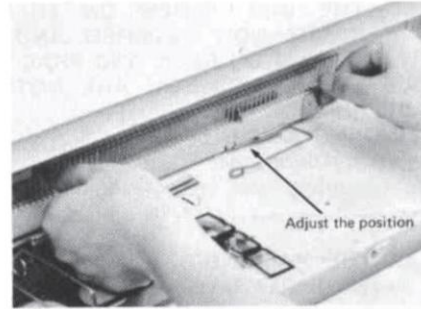
191



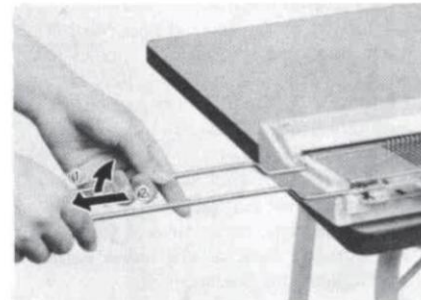
55

FOLDING UP THE KNITTER

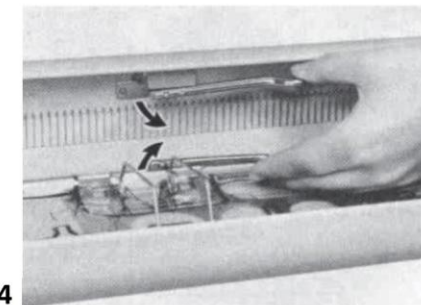
(1) Replace the cast on comb in the case lid



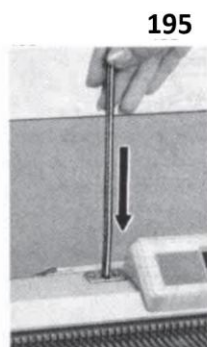
(2) Remove the extension rails (lift & pull)



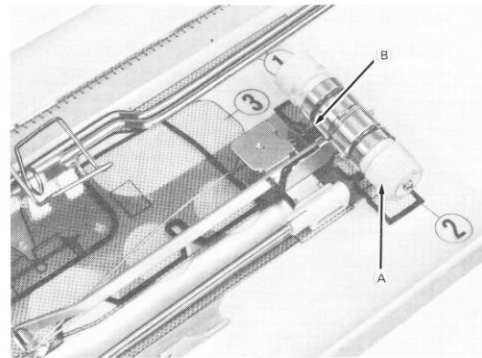
(3) Replace the extension rails in the case lid as shown (194)



(4) Remove and fold up the tension unit as shown below 195 - 199

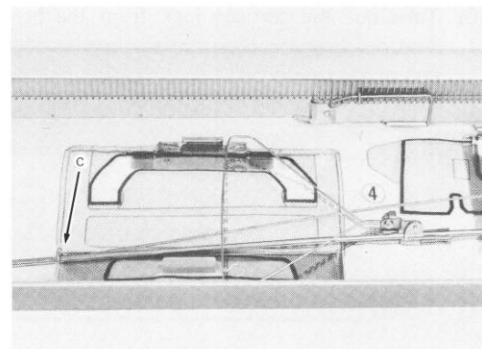


(5) Replace the yarn tension unit in the case lid as shown in 19. (Fit the head A of the unit under clasp B of the case.)



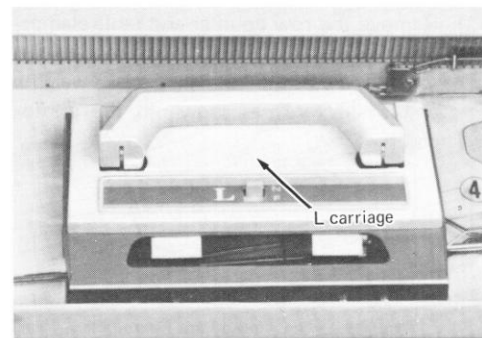
199

(6) Place the yarn tension rod and take up springs inside the hook C - as shown (200).



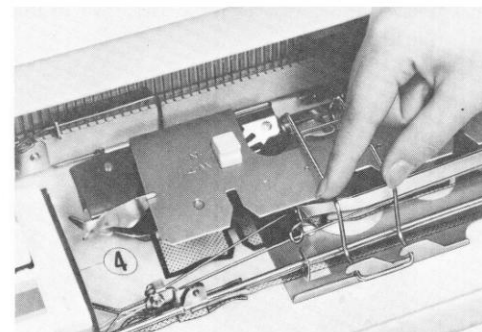
200

(7) Fold down the L Carriage handle and place in the case lid as shown (201). Make sure that the carriage is locked well into the holder plate in the case.



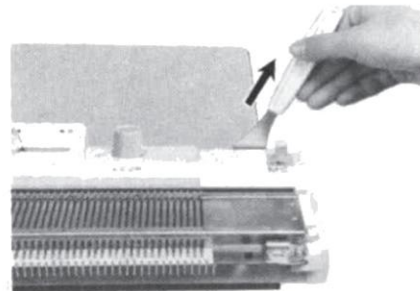
201

(8) Place the sinker plate as shown in 202 and close the spring to secure



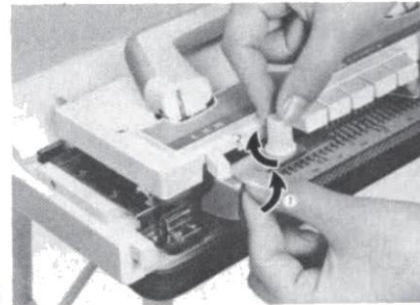
202

(9) Remove the set lever, push down the release button, set the reverse lever button to A and push back all the needles to position A.



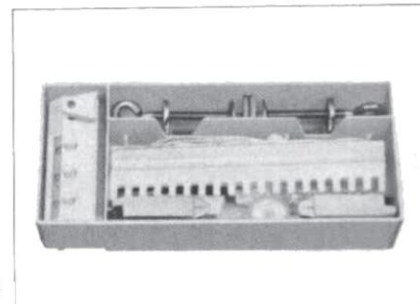
203

(10) Take out the carriage lock from the accessories box. Fold down the carriage handle and lock the carriage to the left of the needlebed.



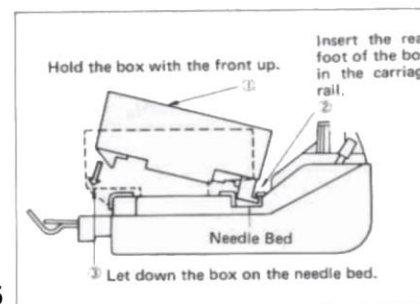
204

(11) Remove the row counter and table clamps and replace them in the accessory box together with set lever, claw weights & small hand tools as in pics.



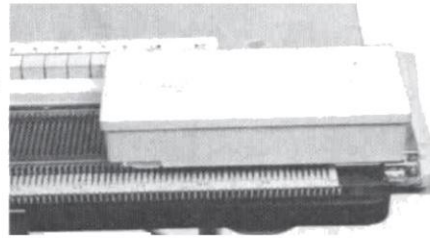
205

(12) Place accessory box on the needlebed as shown in pics.



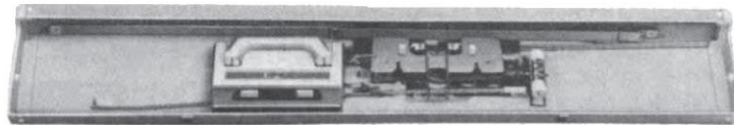
206

(13) Place the box on the right side of the needle bed. The left end of the box must be in line with the right 65th needle.

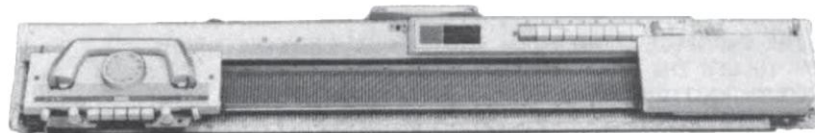


207

208

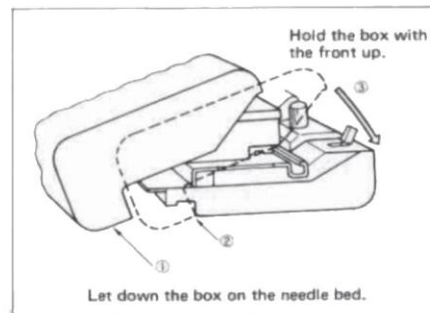


209

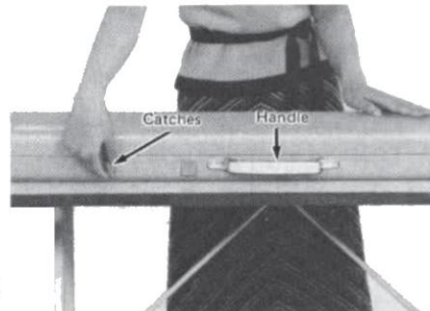


(14) Close the carrying case.

(15) Lock the two catches



210



211