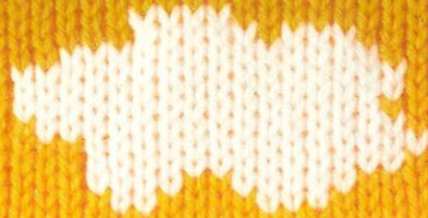
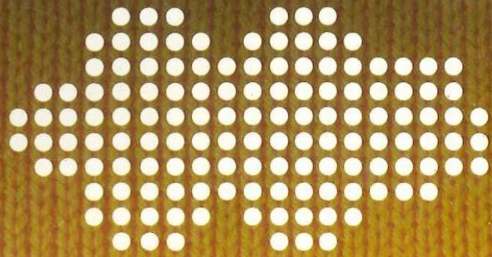
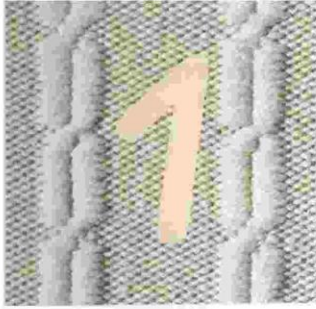


TOYOTA

KS901





In order to get the very best from your KS 901, you are requested to follow the instructions in this manual as required. In this way you will find this very easy to use.
Read carefully, take your time and follow the instructions step by step.

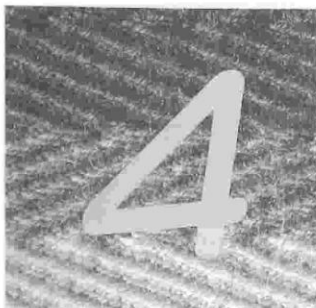
PART 1 Here you learn how to set up the machine, prepare your yarns, cast on and cast off. By the end of PART 1, you will be able to knit any one of the garments on page 3. And you learn how to sew up your garments, make pompons and a number of other finishings.



PART 2 This section shows you the fine range of stitch patterns you are able to knit on your machine: Fairisle patterns, weaving, tuck stitch, slip stitch, plaiting and Motif Magic knitting.



PART 3 Here you find all you need to know for your practical knitting techniques: shaping, increasing and decreasing in several different ways, knitting hems and welts, 'V' necks and round necks, darts, pockets with flaps, zip fastener openings, small and large buttonholes as well as a buttonhole band. All the things you need to know in order to make the lovely garments you plan to knit for your family and friends.



PART 4 HINTS-PROBLEMS-MISTAKES-CORRECTIONS
If you have any problems during knitting, refer to PART 4, here you will find many hints about your problem and how to remedy it. Tension problems unravelling, changing needle, cleaning your machine, dropped stitches and how to repair. All this and many other things that you need to know. And last but not least how to re-pack your machine.

STEP 1

| | | | |
|---|-------|--------------------------------------|-------|
| STARTER GARMENTS | 3 | AUTOMATIC CAST ON | 16-17 |
| MACHINE, CARRIAGES AND ACCESSORIES | 4-6 | OPEN CAST ON WITH NYLON CORD | 18 |
| SETTING UP | 7-9 | CLOSED CAST ON BY WINDING | 19 |
| PREPARATION OF YARN | 10 | CLOSED CAST ON BY CROCHETING | 20 |
| YARN TYPES AND TENSIONS | 11 | SIMPLE REMOVAL OF THE KNITTING | 21 |
| NEEDLE POSITION LATCH NEEDLE ROW COUNTER, CARRIAGE SETTING | 12 | CASTING OFF WITH BIG LOOPS | 21 |
| MOVING THE CARRIAGE | 13 | TAKING OFF ON WASTE YARN | 22 |
| THREADING | 14-15 | BINDING OFF | 22 |
| | | TENSION SWATCH | 23 |
| | | FINISHINGS | 24-26 |

STEP 2

| | | | |
|-------------------------------------|-------|----------------------------|-------|
| GARMENTS WITH STITCH PATTERNS | 27 | TUCK STITCH PATTERNS | 39-40 |
| PUNCH CARD | 28-29 | SLIP STITCH PATTERNS | 41-42 |
| INSERTING PUNCH CARD | 30 | PLAITING | 42-45 |
| FAIRISLE PATTERNS | 31-34 | LACE PATTERNS | 46-49 |
| EXTENDED PATTERNS | 34 | MOTIF MAGIC | 50-53 |
| WEAVING PATTERNS | 35-38 | CABLES | 54 |

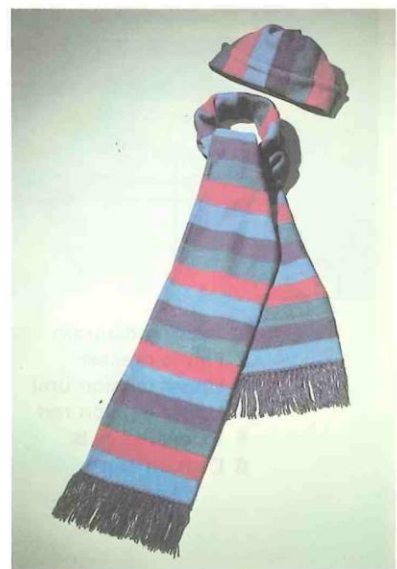
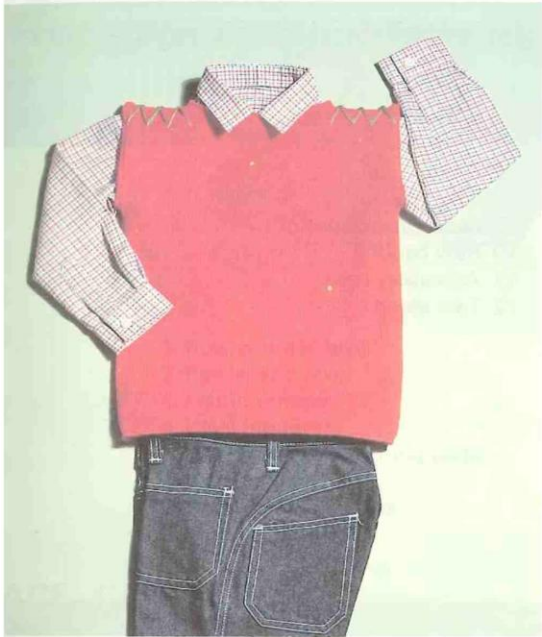
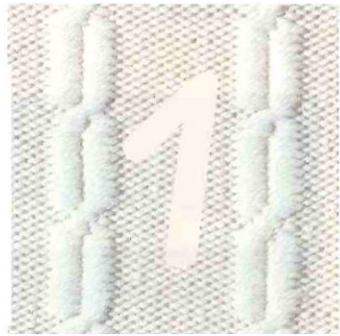
STEP 3

| | | | |
|--|-------|--|-------|
| GARMENTS WITH SHAPING | 55 | BUST DARTS IN PLAIN STITCH | 69 |
| SIMPLE INCREASE OF ONE STITCH | 56 | BUST DARTS IN PATTERN STITCH | 70 |
| INCREASING SEVERAL STITCHES | 56 | BUST DARTS IN LACE PATTERN | 71 |
| FASHION INCREASE OF ONE STITCH | 57 | REVERSED DARTS IN PLAIN STITCH | 72 |
| "HOW TO TRANSFER STITCHES" | 57 | REVERSED DARTS IN PATTERN STITCH | 72-73 |
| FASHION INCREASE OF ONE STITCH ... Using Double or Triple Transfer Tool | 58 | REVERSED DARTS IN LACE PATTERN | 73 |
| SIMPLE DECREASE OF ONE STITCH | 59 | SHAPING 'V' NECK – METHOD 1 | 74-75 |
| DECREASING SEVERAL STITCHES | 59 | SHAPING 'V' NECK – METHOD 2 | 76-77 |
| FASHION DECREASE OF ONE STITCH | 60 | OPENING FOR ZIP FASTENER | 77 |
| PLAIN HEM | 61-62 | SHAPING ROUND NECK – METHOD 1 | 78-79 |
| PICOT HEM | 63 | SHAPING ROUND NECK – METHOD 2 | 80-82 |
| DOUBLE 1-1 WELT | 64-65 | SHOULDER SHAPING | 83 |
| DOUBLE 2-1 WELT | 66 | POCKET WITH FLAP | 84-86 |
| DOUBLE 3-1 WELT | 67 | EYELET BUTTONHOLE | 87 |
| RIBBED BAND | 68 | LARGE BUTTONHOLE | 88 |
| | | BUTTONHOLE BAND | 89-90 |
| | | SHOULDER SEAMING AND NECKBAND | 91 |
| | | ROUND NECKBAND | 92 |
| | | 'V' NECKBAND | 93-94 |

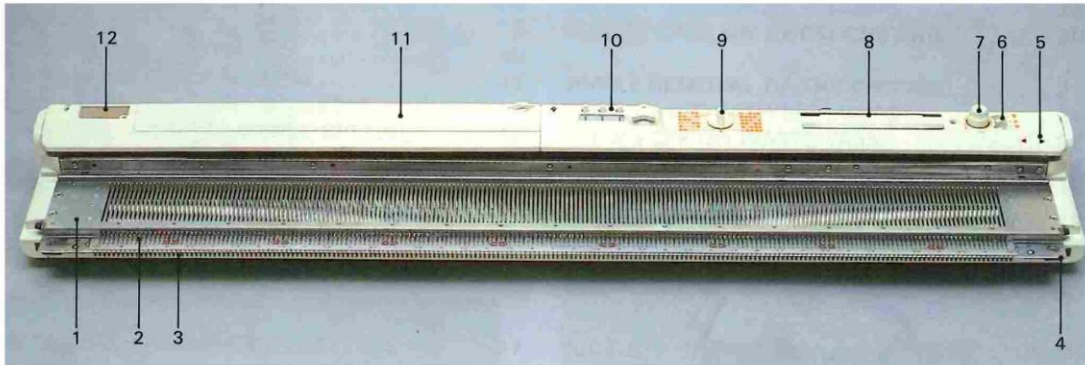
STEP 4

| | | | |
|--|--------|--|-----|
| HINTS | 95 | CARRIAGE JAMMED IN LACE PATTERN | 101 |
| REPAIRING A DROPPED STITCH | 96 | AFTER REPAIRING THE JAMMING | 102 |
| UNRAVELLING | 97 | PLACING MAIN CARRIAGE ON NEEDLE BED | 102 |
| CARRIAGE JAMMED IN PLAIN KNITTING | 98 | CHANGING A NEEDLE | 103 |
| CARRIAGE JAMMED IN STITCH PATTERN | 99-100 | PROPER CARE OF THE MACHINE | 104 |

STEP



MACHINE



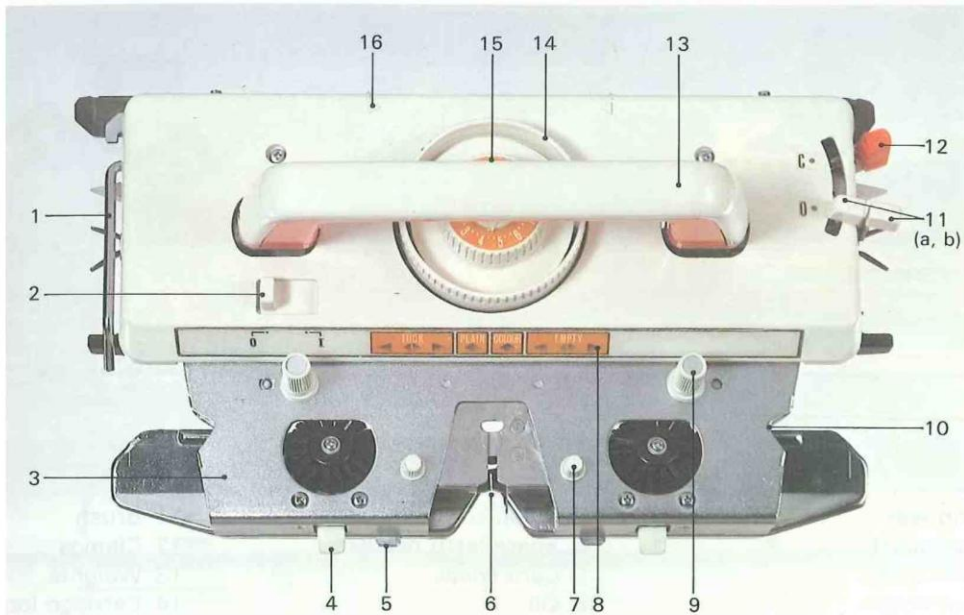
- | | |
|-----------------------|-----------------------|
| 1 Needle bed | 7 Feeder dial |
| 2 Latch needles | 8 Card slot |
| 3 Sinker hooks | 9 Motif magic control |
| 4 Yarn holder | 10 Row counter |
| 5 Direction indicator | 11 Accessory case |
| 6 Card stop lever | 12 Tool stand |

CASE COVER



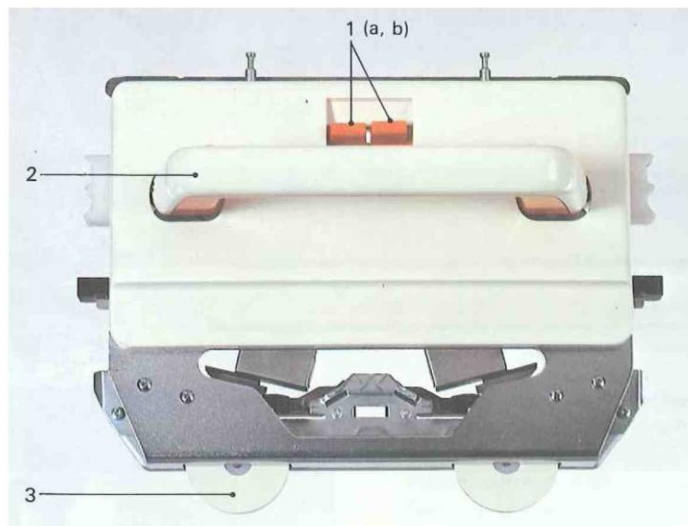
- | |
|----------------------|
| 1 Packing diagram |
| 2 Fabric presser |
| 3 Upper tension unit |
| 4 Upper tension rod |
| 5 Extension rails |
| 6 Cast on comb |

MAIN CARRIAGE



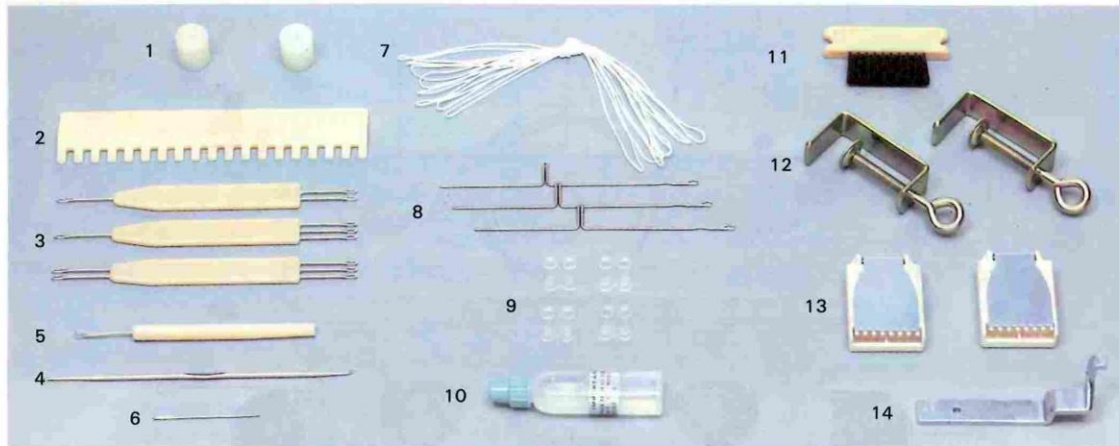
- | | |
|---------------------------------|----------------------------------|
| 1 Row counter lever | 9 Thumb screws |
| 2 Partial knit lever | 10 Weaving yarn guides |
| 3 Fabric presser | 11 Card levers (a,b) |
| 4 Weaving lever | 12 Carriage release lever |
| 5 T/L (Tuck/Lace) spring plates | 13 Carriage handle |
| 6 Yarn feeder | 14 Pattern dial |
| 7 Small thumb screws | 15 Tension dial |
| 8 Pattern indicators | 16 Adjustment marks for plaiting |

LACE CARRIAGE



- | |
|---------------------------------|
| 1 Carriage release levers (a,b) |
| 2 Carriage handle |
| 3 Wheels |

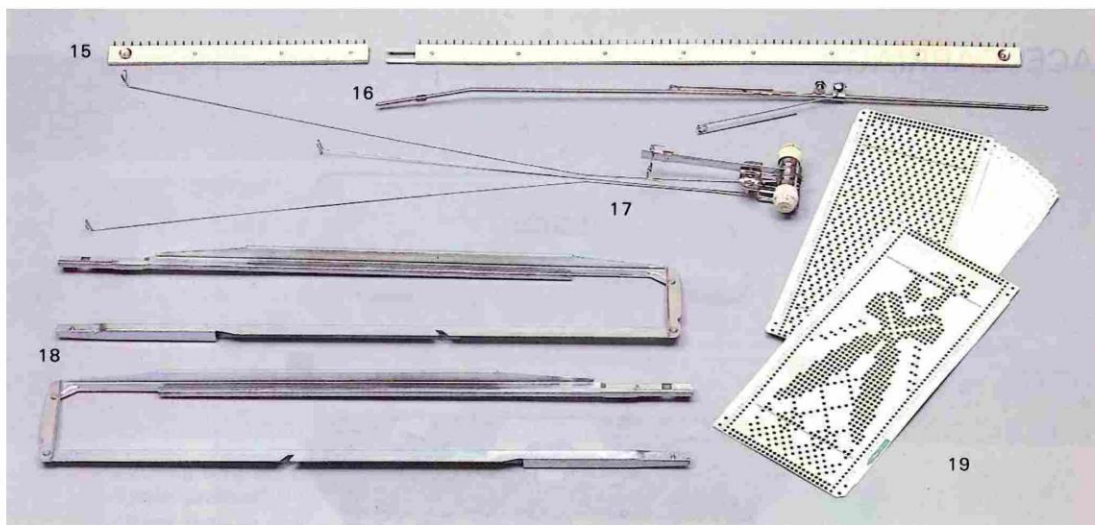
ACCESSORIES



- 1 Paraffin wax
- 2 Selector comb
- 3 Transfer tools
- 4 Crochet hook
- 5 Latch tool
- 6 Tapestry needle

- 7 Nylon cord
- 8 Spare latch needles
- 9 Card snaps
- 10 Oil

- 11 Brush
- 12 Clamps
- 13 Weights
- 14 Carriage lock

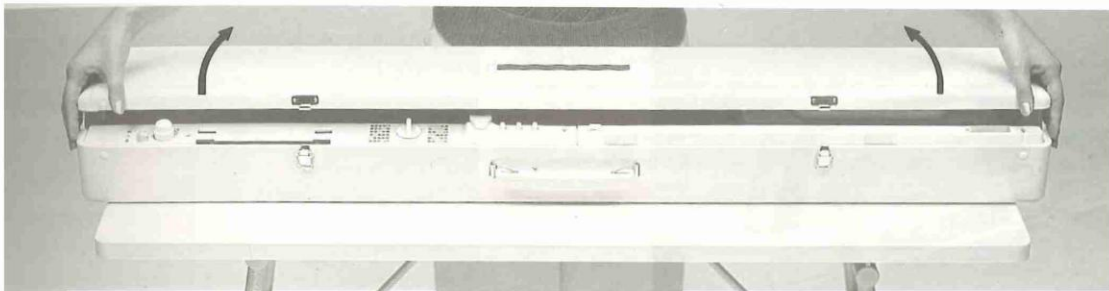


- 15 Cast on comb
- 16 Upper tension rod
- 17 Tension wire unit
- 18 Extension rails
- 19 Basic punch cards

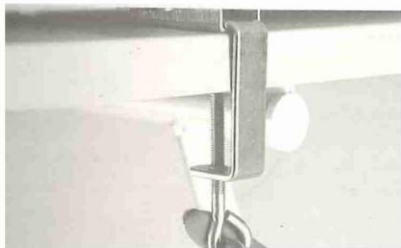
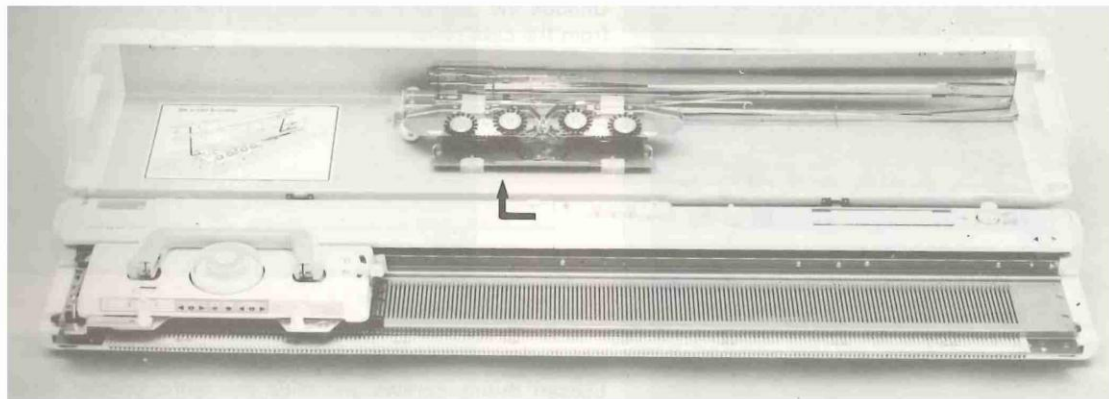
SETTING UP THE MACHINE



Place the knitting machine on the table, case handle away from you.
Unlock both latches at rear of machine case.



Lift up cover and move it towards you.



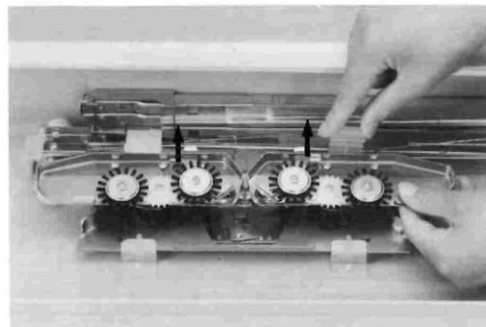
Push the lock lever towards left and remove the lid of accessory case. (arrow)
Take both table clamps from accessory case.
Insert clamps into the slots underside of machine.
Secure to the table.
The machine should now be securely attached to the table top.



While not being used, the carriage is locked to the needle bed. Turn thumb screw at left of carriage in direction of arrow. Pull carriage lock towards you and remove it from carriage and needle bed. Place carriage lock in accessory case.



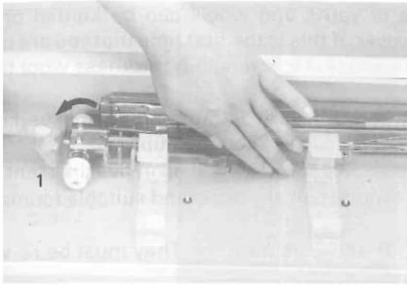
Raise the handle.
(To fold down the handle, push the projection, small arrow, and fold it backwards.)



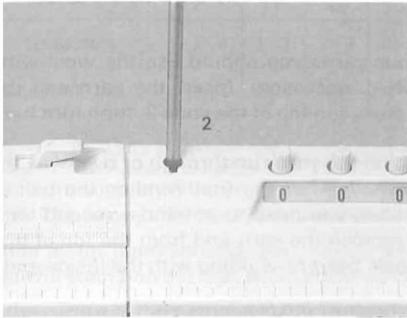
Unhook the two lock levers and remove the fabric presser from the case cover.



Loosen thumb screws and slide the fabric presser on to carriage, pull the presser slightly forward so that both cutouts fit round the screws and two pegs of carriage (arrows) into the holes of fabric presser. Tighten screws.

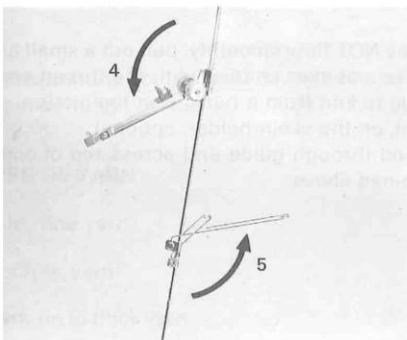
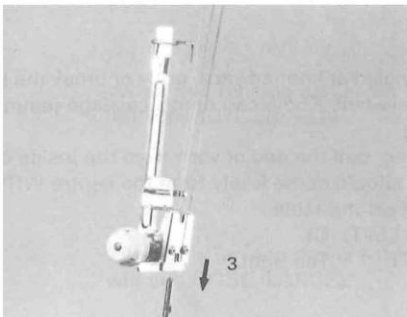


Unhook the lock lever to left 1, and remove the tension rod and upper tension unit from the case cover.

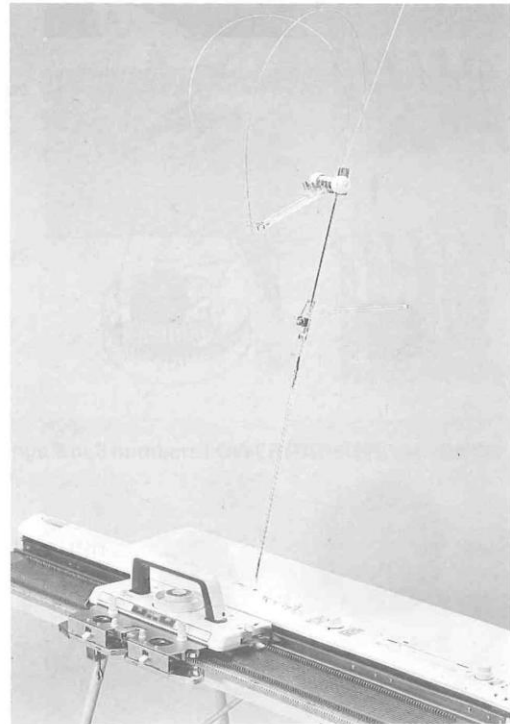


Insert the angled end of tension rod well into the groove 2. Slide upper tension unit on to rod, the end of the rod must fit firmly into the notch of the tension unit 3. Pull the front yarn guide 4 towards you and down, and pull the rear yarn guide at the back of the rod 5 up towards the back.

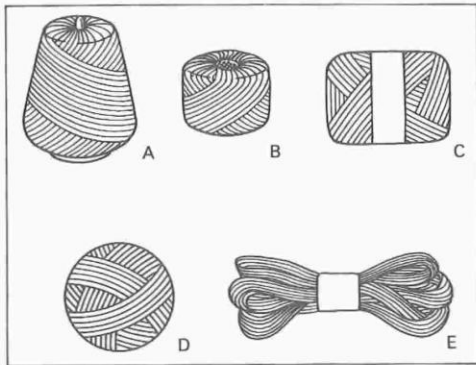
*When packing the machine, push all needles back to A position and take the same procedures above in reverse.



Your machine is set up.



PREPARATION OF YARN

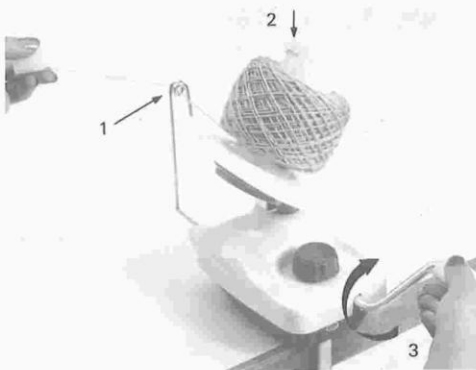


A wide range of yarns and wools can be knitted on your machine. However, if this is the first time that you are using a knitting machine, use a soft medium thickness wool to start with.

Careful preparation of yarn is important, it makes knitting more enjoyable and saves a lot of trouble.

The top picture shows yarns wound up in five different ways. A-cone and B-wound ball are ready and suitable for machine knitting.

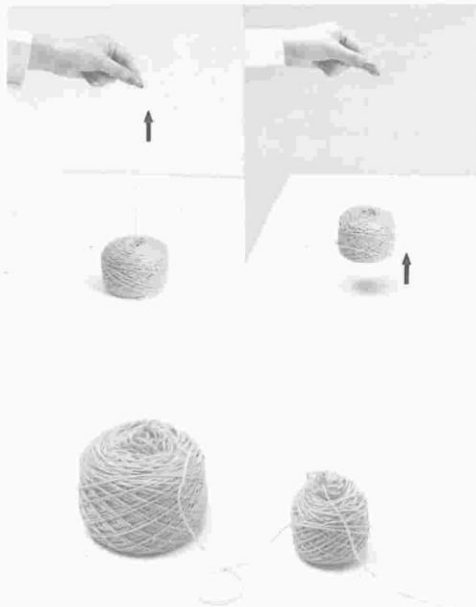
Do NOT use C, D and E as they are. They must be re-wound first.



To prepare your yarns you should use the wool winder, a useful OPTIONAL accessory. Insert the yarn end through guide 1 and across the top of the cone 2, then turn handle 3.

While winding let the yarn run through or over wax, this will smooth the thread. After the first winding the ball will be somewhat tight so you need to re-wind a second time.

For this, first remove the yarn end from the top of the cone and then the ball. Start re-winding with the inside end of the ball.



Do not use tangled or knotted yarn, untie or break the thread and wind a new ball. Knots can cause carriage jamming or faulty knitting.

To start knitting, pull the end of yarn from the inside of ball. The yarn end should come freely from the centre WITHOUT lifting the ball off the table.

Diagram Far LEFT: OK

LEFT : Too tight.

If the yarn does NOT flow smoothly, pull out a small amount from the centre and start knitting with the thread end 1.

It is impossible to knit from a hank, E in top picture.

Place the hank on the skein holder, optional.

Thread one end through guide and across top of cone and wind as explained above.

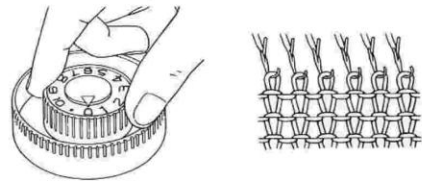
YARN TYPES AND TENSIONS

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|-----------------------------|--------|------|-----------|-------------------|-------------|------------|------------|------------|-----------|------------|-------------|--------|-------------|-------|
| TYPE OF YARN ACTUAL SIZE | | | | | | | | | | | | | | |
| NAMES | COTTON | FINE | SOFT 2ply | FINE MEDIUM 3 ply | MEDIUM 4ply | THICK 2ply | THICK 3ply | CREPE 4ply | WOOL 6ply | CREPE 8ply | *WOOL 12ply | BOUCLE | THIN MOHAIR | TWEED |
| TENSION | 2~4 | 1~3 | 1~3 | 2~4 | 3~5 | 5~6 | 4~6 | 5~7 | 6~8 | 8~9 | 8~10 | 4~6 | 4~6 | 4~6 |
| LACE KNITTING | 4~5 | 3~4 | 3~4 | 4~5 | 5~6 | 5~6 | 5~6 | 6~7 | (7~8) | — | — | 4~6 | 4~6 | — |

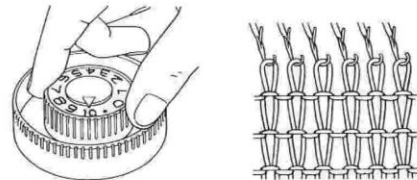
*Use every other needle.

- There are so many different types of yarn that it is impossible to tell you which Tension to use for which type of yarn. The above chart can only be a general guide since names and types vary in each country.
- Same as for hand knitting, you need to find the correct Tension (stitch size) for the yarn you wish to use. You will soon find out that stitch patterns look much better when knitted with the correct stitch size (Tension).
- In the centre of the carriage is the Tension dial. The dial gives you the choice between more than 30 settings. Two little dots between the numbers are Tensions as well.

When the Tension dial is set to 0, the stitches will be TIGHT (SMALL).

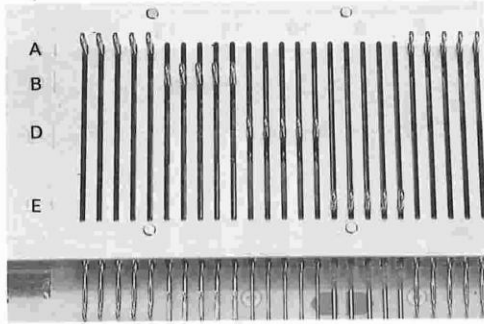


When the Tension dial is set to 10, the stitches will be LOOSE (LARGE).



- When knitting double welts (hung hems) use Tension settings 2 or 3 numbers LOWER (TIGHTER) than for the main knitting.

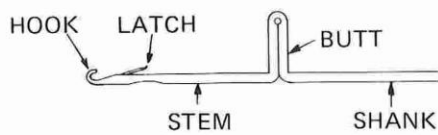
| TYPE OF YARN | UPPER TENSION UNIT | TENSION DIAL |
|----------------------|--------------------|--------------|
| Thin, fine yarn | + to ▲ | 1 to 4 |
| Medium yarn | ▲ | 4 to 7 |
| Medium to thick yarn | ▲ to - | 8 to 10 |



NEEDLE POSITION

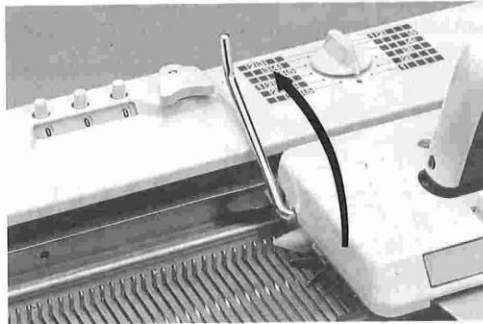
On BOTH sides of the needle bed are markings A—B—D—E. These are needle positions.

- A - Non-knitting position.
- B - Working position for PLAIN.
- D - Selected pattern needle position.
- E - Holding position for partial knitting.



LATCH NEEDLE

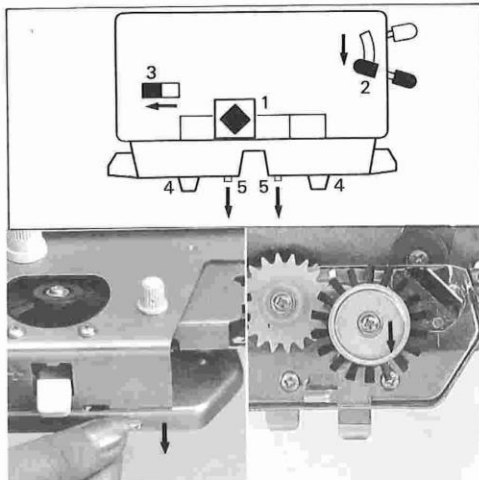
The knitting machine has 200 needles, 100 on each side of centre and numbered in groups of 10 on the needle bed.



ROW COUNTER AND ROW COUNTER LEVER

At the LEFT side of carriage is the row counter lever. Lift it up and towards the back as shown by the arrow. It will automatically register a row when the carriage passes the row counter.

Push it forward and down when not needed.
To set row counter to a certain number turn the small screws at the top.

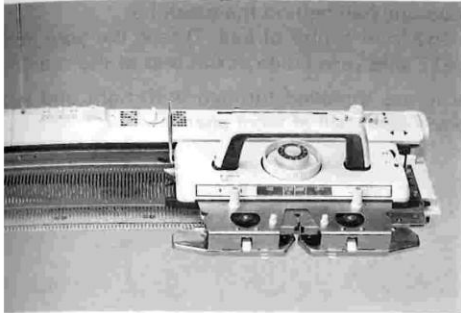


CARRIAGE SETTING

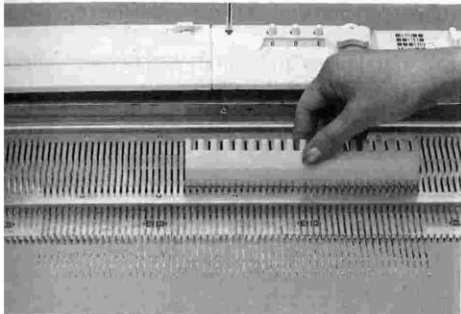
Carriage is set in neutral as below.

- 1 Turn pattern dial so that green colour appears in the indicator PLAIN \blacklozenge .
- 2 Card levers to 0.
- 3 Partial knit lever to 0.
- 4 Both weaving levers, DOWN.
- 5 T/L spring plates, OUT: Pressing down T/L spring plates, push forwards the brush underneath fabric presser on its round cover.

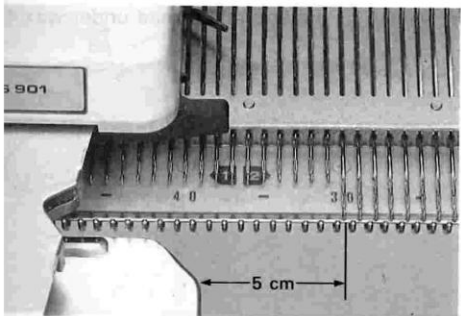
MOVING THE CARRIAGE



This is your knitting machine, ready for threading the yarn.

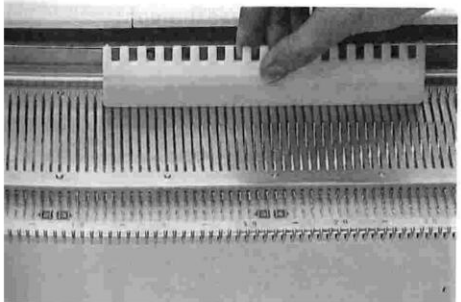


Before you start knitting you should get used to moving the carriage smoothly across the needle bed. Take the selector comb and with the straight edge bring the 60 centre needles from A to E position, 30 at each side of the machine centre.



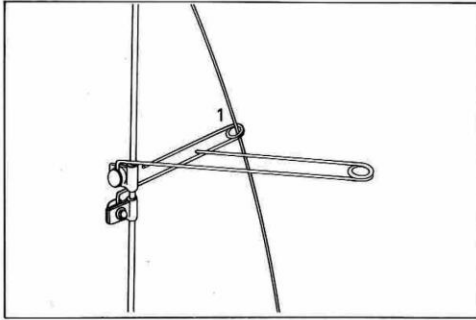
Slide carriage to LEFT, PASS the needles in E position and leave it approx. 5 cm away from the last needle in working position.

The needles have been moved to B position. Move carriage across the needles, in B position until you achieve a smooth, even movement of carriage, each time leave about 5 cm space between carriage and the needles.



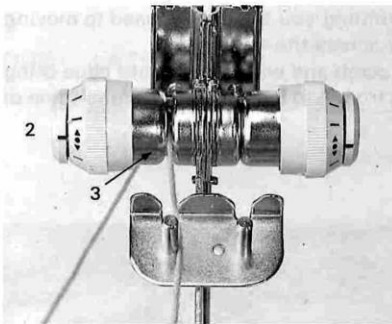
Leave carriage at RIGHT side of needle bed. With the straight edge of selector comb bring the needles BACK to A position.

THREADING THE YARN



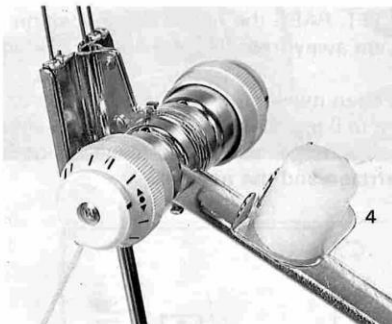
Place a ready wound ball behind the machine.
Pull out yarn end from centre of ball. Thread the yarn end through the LEFT side yarn guide at the rear of the rod 1.

★ In case yarns are threaded through both right and left tensions, place each ball of wool apart.

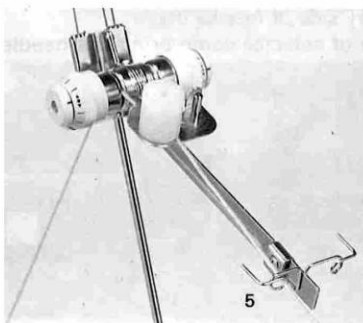


Take thread to upper tension unit and in front of the rear pin 2.

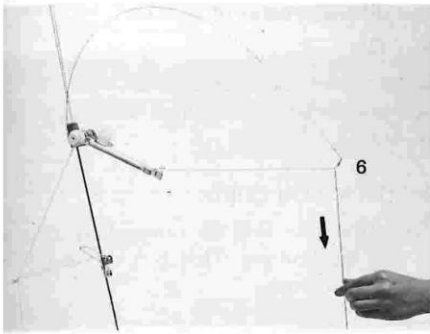
Separate the two metal discs and pull thread between discs and UNDER the pin BETWEEN the discs 3.
The yarn MUST be UNDER the small pin.



Place paraffin wax on its pin and pull thread under wax 4.

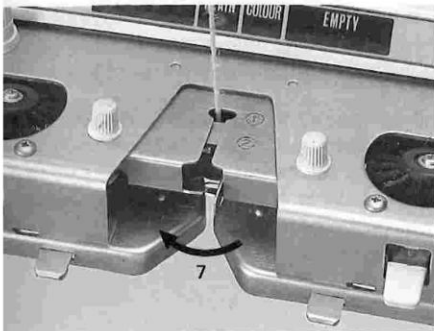


Take yarn towards the front and thread through the LEFT side front yarn guide 5.

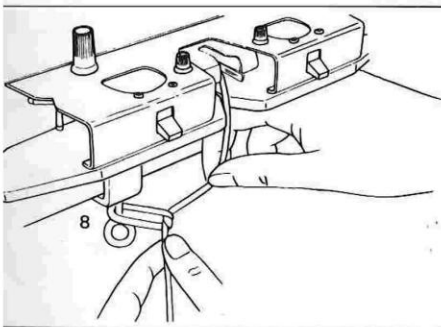


Thread the yarn through the eyelet of the LEFT side tension wire 6 and pull it down towards the carriage.

Hang the yarn end at the front of the tension rod when not in use.



Slide open yarn feeder ①, 7.
Thread the yarn and close the feeder.



Carriage is at RIGHT.
Pull yarn DOWN below carriage and fasten the end to the RIGHT side table clamp 8.

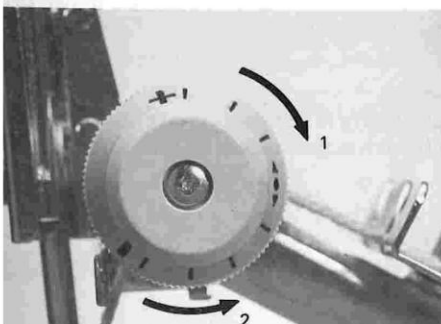
Release yarn from table clamp after knitted one row.
Make sure there is no slack anywhere between the ball and yarn end at table clamp.

Please note: If there is slack yarn you will have large loops or dropped stitches at the edges of the knitting.

ADJUSTING THE UPPER TENSION UNIT

For FINE yarns that need MORE PRESSURE, turn dial towards **+**. arrow 1.

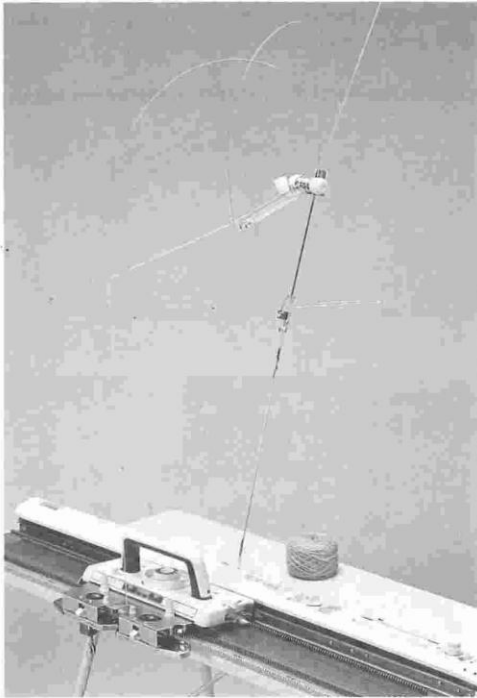
For THICK yarns that need LESS PRESSURE, turn dial towards **-**. arrow 2.



Turn dial forwards or backwards until the pressure on the yarn is correct and the eyelet of the LEFT side tension wire is on level with the front yarn guide as in top picture.

AT THE SAME TIME PULL DOWN YARN AT THE BACK OF THE TENSION UNIT, this way you avoid having slack yarn between carriage and yarn ball.

CAST ON



Here we have four different types of cast on:

AUTOMATIC CAST ON:

This can also be called "cast on comb method" and is used for starting practically every type of knitting including tension squares and samples.

OPEN CAST ON WITH NYLON CORD:

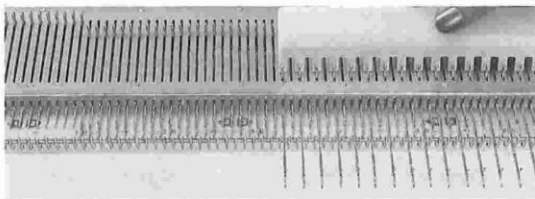
The stitches of the first row will be unravelled from the bottom when pulling the knitting. This can be used when knitting samples and swatches.

CLOSED CAST ON BY WINDING and CLOSED CAST ON BY CROCHETING:

The stitches of the first row will not be unravelled when pulling the knitting. This will be a final edge for your garment and can be done with or without waste knitting.

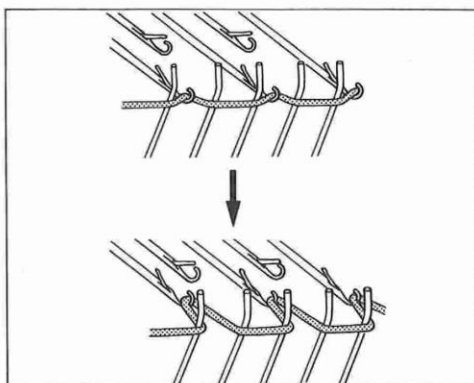
By waste knitting we mean that you start a piece by knitting several rows with a yarn that is not the one used for the garment. As waste yarn you can use any leftovers up to 4 ply or medium thickness. Waste knitting is very useful and makes pinning out of the panel very easy.

AUTOMATIC CAST ON



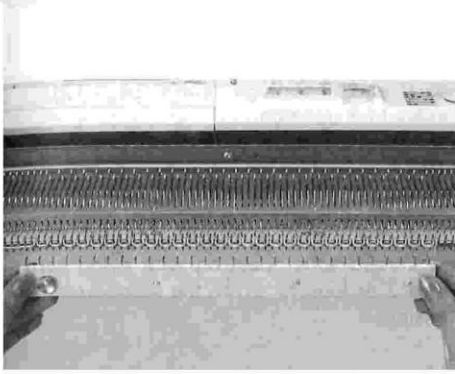
The yarn is threaded through all LEFT side feeding points of the upper tension unit and in the yarn feeder
①. Row counter shows 000.

Carriage is at RIGHT and set neutral as on page 12. Take the selector comb, and with its 1/1 edge bring the every other needle to E position. Slowly move the carriage towards left, past the needles in E position.

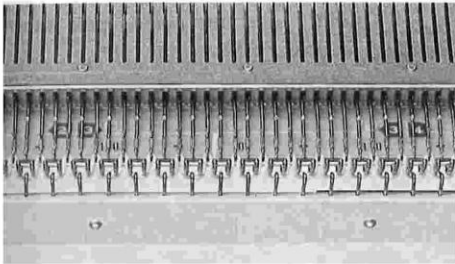


You will find that at left edge 2 or 3 needles are pulled to the front and the yarn is straight.

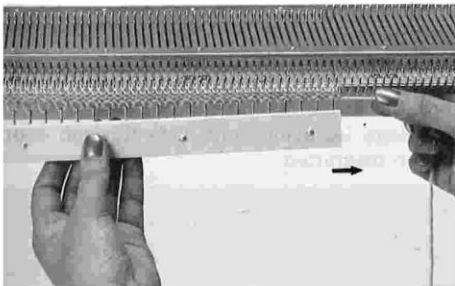
↓
With left hand pull yarn a little towards right from feeder, and with right thumb push edge needles to B position.



Remove cast on comb from case cover.
Hang the short cast on comb on to the loops, be sure it is balanced.

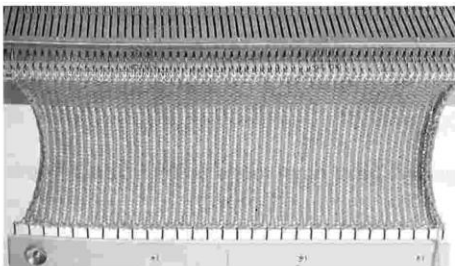


Using straight edge of selector comb bring the in-between needles from A to B position.
By in-between needles we mean the needles in A position between the needles in B position.



Slowly knit to right, past the working needles. All needles in B position have loops.
Knit 4 more rows.

At beginning of knitting pull thread to right, this will tighten the loops of the first row and prevent cast on comb from dropping off the knitting.



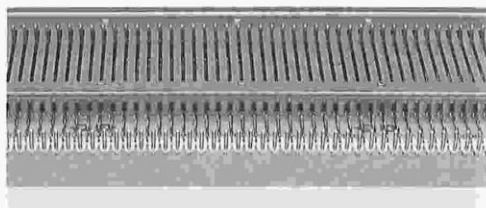
Continue knitting, after a while break the thread above carriage and attach the upper end on to the rod and pull the lower end down below the carriage.

Hold cast on comb and slide carriage across the knitting and back, the stitches will come off the needles.

Re-wind the yarn from the end, it can be used again.

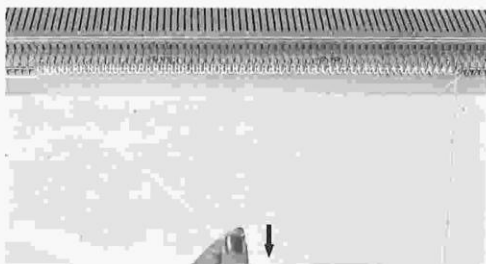
- ★ Reverse carriage after passing 5 cm out of the knitting.
Do not move it back on the way of a row.
- ★ If carriage jams while knitting, see page 98.

OPEN CAST ON WITH NYLON CORD

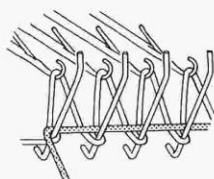


Carriage is at RIGHT and all settings neutral (page 12).
Set required needles to B position.
Thread waste yarn through RIGHT side upper tension unit and into feeder ①.
Move carriage across and pass the needles.
Adjust loops at LEFT edge.

*On the first row knitted with "Cast on with nylon cord", set Tension dial to 7 or looser. From the second row, re-set to normal tension.



Take nylon cord from accessory case.
Lay the centre of nylon cord across the loops, BETWEEN sinker hooks and needle hooks.



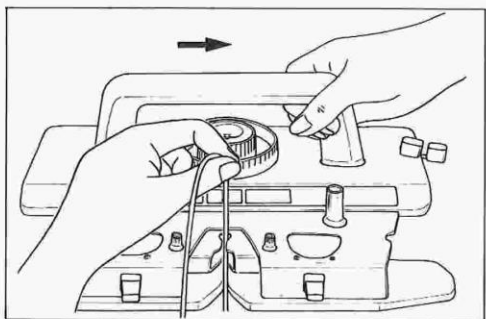
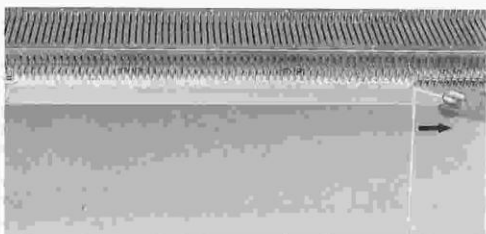
Holding BOTH ENDS TOGETHER with your left hand, pull them DOWN FIRMLY.

Nylon cord comes slightly lower than needle hooks.

Push centre needle and edge needles to E position.

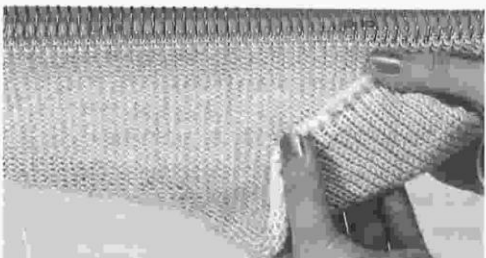
Hold nylon cord FIRMLY DOWN, knit 6 rows. Pull and remove nylon cord from the knitting.

Break waste yarn, attach upper end to rod, pull lower end out of feeder ①.



Thread nylon cord into feeder ① and knit one row to right. While moving carriage let nylon cord slide through your fingers so that it can be knitted.

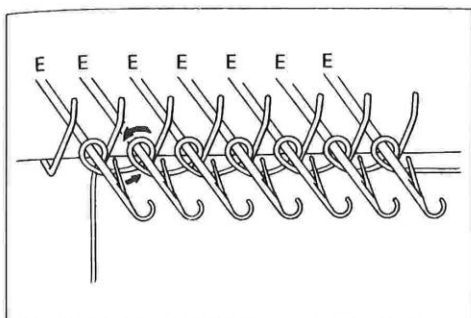
Attach cast on comb through waste knitting.



Thread main yarn (col. 1) through left side upper tension unit and into feeder ①.
Continue knitting.

The bottom edge will have open loops and no closed edge.

CLOSED CAST ON BY WINDING



Carriage at right, set neutral.

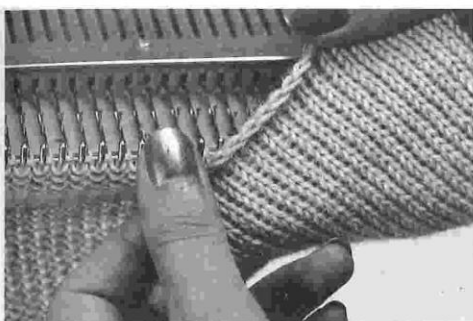
Thread col. 1 (main yarn) through LEFT side upper tension unit and attach the end on to the rod.

With straight edge of selector comb bring required needles from A to E position.

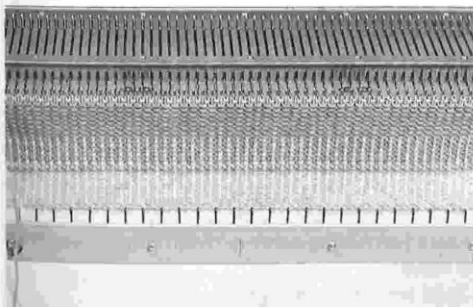
Loop the yarn end round the LEFT end needle in E position, and continue winding as in diagram.

Take care not to wind too TIGHT or too LOOSE.

NOTE: ALWAYS start winding the yarn on the OPPOSITE side of carriage. When carriage at RIGHT, start at LEFT as shown, and when carriage at LEFT start at RIGHT in clockwise direction.



Thread yarn into feeder ①. Push back all loops against the sinker hooks. Check the yarn tension. Knit the first few rows bringing needles to E position each time. Continue knitting.



If you wish, you can start this cast on with waste yarn as follows:

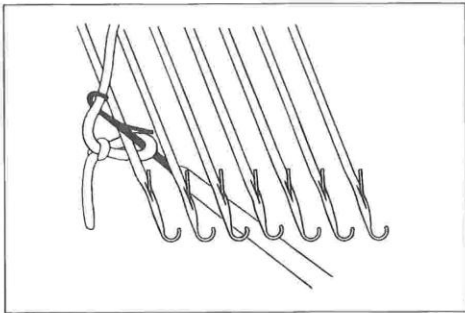
Using waste yarn cast on with comb or nylon cord (page 16 or 18), and knit 9 rows.

Remove waste yarn from feeder ①. Thread nylon cord and knit one row. Bring all the needles to E position.

Thread col. 1 (main yarn), start winding loops.

Waste knitting makes pinning and ironing easier. Later pull out nylon cord and waste yarn will be removed from the main knitting.

CLOSED CAST ON BY CROCHETING



Carriage at right, set neutral.

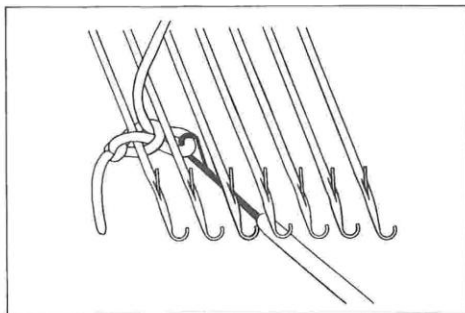
Thread col. 1 (main yarn) through LEFT side upper tension unit and attach the end on to the rod.

With straight edge of selector comb bring required needles from A to E position.

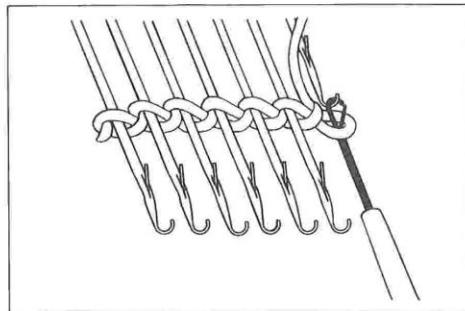
Make a loop in the yarn.

Take latch tool and move it up between the 1st and 2nd needles from LEFT, and insert it into the loop.

Catch the yarn and make a chain round the 1st needle and pull down the tool.



Move latch tool for one needle towards RIGHT and come up between the 2nd and 3rd needles. Make a chain round the 2nd needle and pull down the tool.



Continue in this way until you reach the last needle in E position at right. Bring this needle back to B position, and place the loop on latch tool on to the last needle.

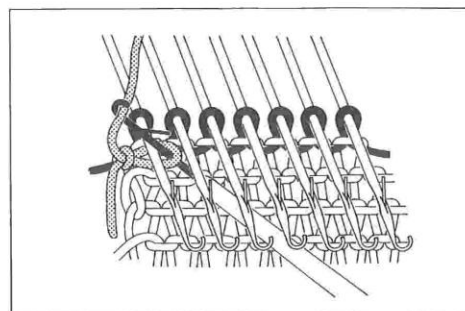
Bring the needle back to E position.

Thread col. 1 into feeder ①.

Push back all the loops against sinker hooks.

Your crochet cast on is finished.

Knit the first few rows bringing needles to E position each time, and continue knitting.



You can start this cast on with WASTE YARN as follows:

Cast on with waste yarn using comb or nylon cord (page 16 or 18), and knit 8 rows.

Thread nylon cord and knit one row.

Thread col. 1, start crocheting.

SIMPLE REMOVAL OF THE KNITTING

As explained before there is one easy and simple way to remove the knitting from the machine.

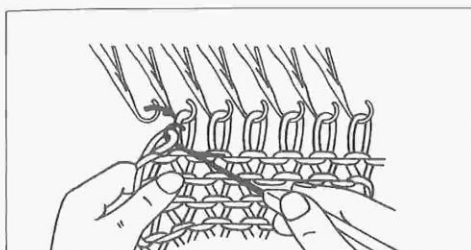
First break the yarn, attach upper end to rod and remove lower end from feeder ①.

Hold the knitting and move carriage across the needle bed. Since there is no yarn in feeder ① the knitting will fall off the needles automatically.

Use this method of removing the knitting when you knit tension swatches, samples or when you have made a mistake and need to unravel to start knitting again.

CASTING OFF WITH BIG LOOPS

This method of casting off is used when knitting with thin to medium thick yarns since the last row will be knitted using a larger Tension setting. So we suggest you to do this cast off when using a yarn that needs Tension 7 or LESS.

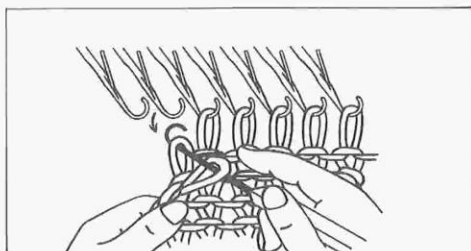


Finish knitting with carriage at LEFT.

Let's assume your tension setting is 6. Set Tension to 9, knit one row. Break yarn BELOW carriage, attach the upper yarn end to rod.

Insert latch tool into the FIRST stitch at LEFT.

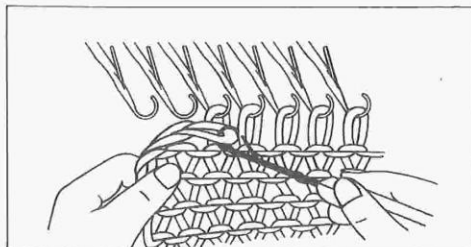
Remove the stitch from needle.



Push the latch tool forward until the stitch is BEHIND the latch.

Put your forefinger on the latch and hold down on stitch.

Insert latch tool into the 2nd stitch and remove it from needle.

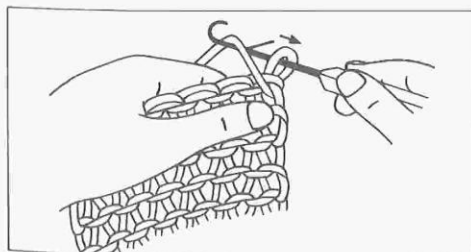


Pull the 2nd stitch through the first one.

Let the 2nd stitch slide behind the latch and hold it down.

Remove the 3rd stitch from its needle and pull it through the 2nd stitch.

Continue this way until the last stitch is on latch tool and behind the latch.



Pull yarn end through the last stitch, this way you cast off the last stitch.

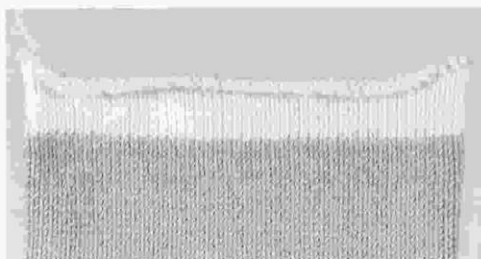
NOTE: When you have knitted the last row with the loose Tension towards LEFT, you must start casting off at the RIGHT edge. ALWAYS start casting off on the opposite side of carriage.

It will be easier to cast off if you bring the needles to E position.

TAKING OFF ON WASTE YARN

Many pieces of garments knitted on machine are removed on waste yarn to leave the stitches open for later work.

As the waste yarn use that of a contrasting colour. This makes it much easier to pick up stitches when doing finishing work. Also waste yarn should be of similar thickness as of the garment yarn (col. 1). Otherwise the edges of the last rows will be distorted.



When the knitted piece is finished, break col. 1 and remove from feeder.

Thread waste yarn through upper tension unit and into feeder ①.

Knit approx. 10 rows of waste yarn, and remove waste yarn from feeder.

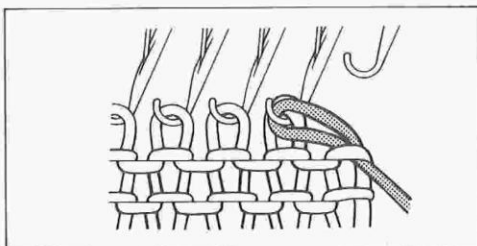
Move carriage across the needle bed and the knitting will come off the needles.

After pressing, fold the waste knitting towards the inside of the garment or unravel it when you start sewing up.

CASTING OFF — BIND OFF METHOD

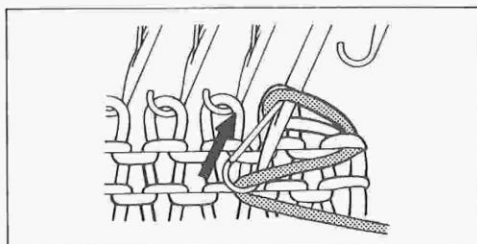
This way you can either decrease or cast off stitches.

Start casting off at RIGHT if carriage is at RIGHT, and start at LEFT if carriage is at LEFT.



Assume carriage at right.

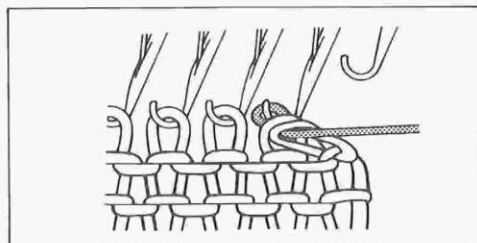
Using single transfer tool transfer RIGHT edge stitch to its adjacent needle at LEFT. Push the needle with two stitches from B to E position.



Push the needle with two stitches back to D position, the two stitches must remain behind latch.

The needle latch must be open.

Pull the yarn from carriage and place it from RIGHT to LEFT across the open needle hook.



Pull the needle back to B position. The yarn has been pulled through both stitches and has now formed a loop in the needle hook.

Repeat this until required number of stitches are cast off or the last stitch at left.

Remove the piece from the machine.

DO NOT PULL THE YARN TOO TIGHT otherwise the width of your cast off will not correspond to the width of your garment.

TENSION SWATCH

To knit perfect fitting garments, it is necessary to knit a tension square or swatch to determine the correct stitch size for the yarn and the pattern you are going to use.

SMALL TEST SAMPLE

You must find the suitable Tension setting before you knit a tension swatch by making test samples as below: Set Tension dial as you think suitable for the yarn. With the same yarn as for knitting your garment cast on 20 or 30 stitches and knit approx. 20 to 30 rows.

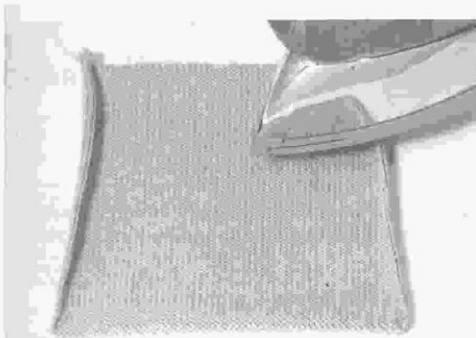
Feel if the fabric has the right touch. If it is too loose or too tight change the tension setting accordingly and continue this way until you have found the correct tension setting for the yarn and stitch pattern you wish to knit.

Note tension setting, remove sample from machine and unravel it.

- WRONG TENSION SETTING CAUSES:
- 1 Jamming of carriage
 - 2 Hard knitting
 - 3 Faulty stitch patterns
 - 4 Dropped stitches

KNITTING TENSION SWATCH

Cast on 60 stitches using col. 1 and knit 80 rows.
Remove the swatch from machine.



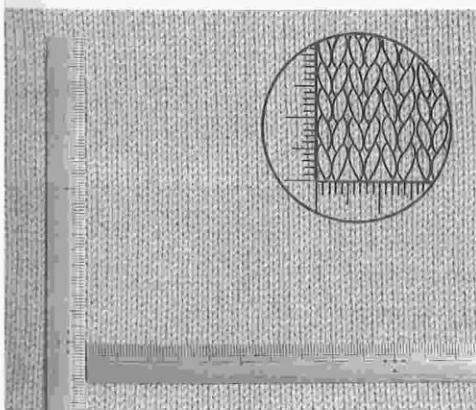
RESTORING STITCHES

Pull the tension swatch slightly lengthwise, this will close up the stitches.

Check ironing instructions of yarn before pressing your tension swatch. Man-made yarns will be distorted under steam and heat and must NOT be ironed.

When using materials which need pressing such as wool and wool-blend yarn, place the swatch on the ironing board with its **WRONG** side up. If you like you can pin it on to the board. Do **NOT** press the iron, **JUST LET THE STEAM PENETRATE THE FABRIC.**

It is always a good thing to let the swatch rest for 24 hours before measuring.



MEASURING TENSION SWATCH

Place the swatch on a table with the **RIGHT** side up.

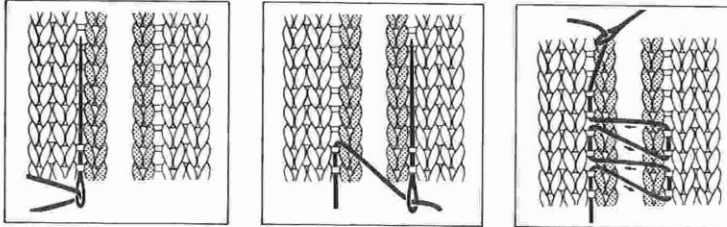
Use a ruler or a tape measure across the centre of the swatch, count the number of stitches within 10 cm.

Place the ruler in the other direction and count the number of rows within 10 cm.

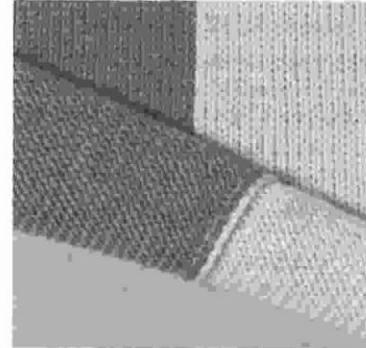
Make a note of yarn quality used, tension setting, and stitches and rows to 10 cm.

FINISHINGS

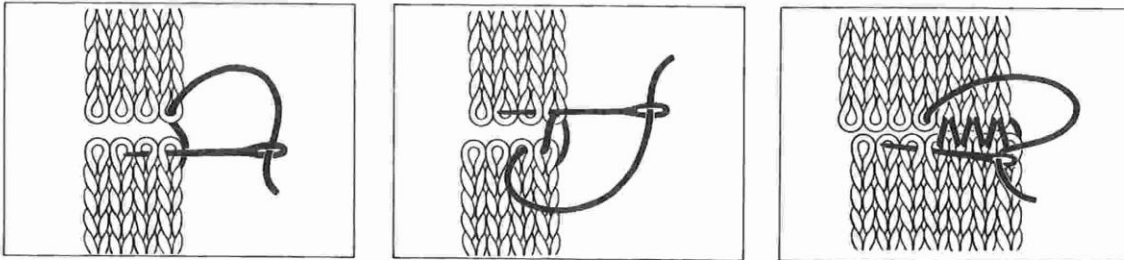
MATTRESS STITCH OR INVISIBLE SEAMS



Always take one edge stitch of each piece of knitting. Pick up two crossbars alternately several times. Hold the seam and pull the sewing thread so that the edges are pulled together and leave an invisible seam.



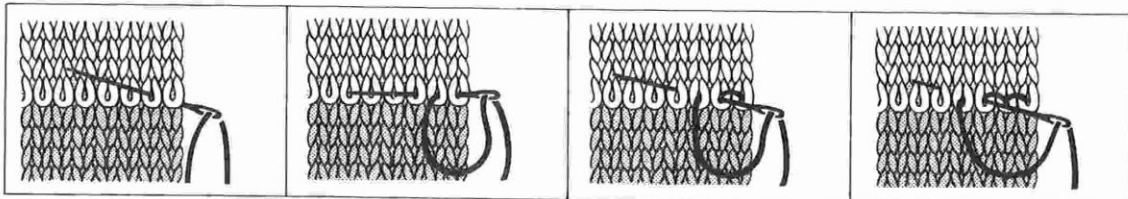
GRAFTING



Finish the pieces with waste knitting. Turn in the waste yarn and graft stitches. This is ideal for joining shoulder seams, attaching hems and cuffs, and other applications where you do not want noticeable seams between two pieces.

After a little practice you will be able to graft stitches so that the seams will become practically invisible.

BACKSTITCH



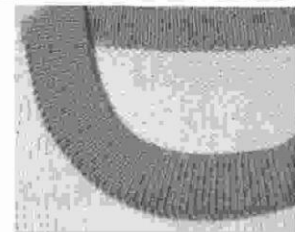
Place edge row of a piece over the edge of the other.

Insert needle through both layers of knitting and come out through 2nd stitch.

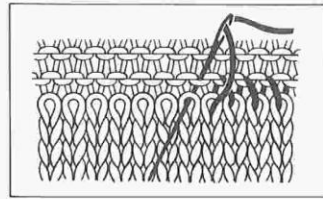
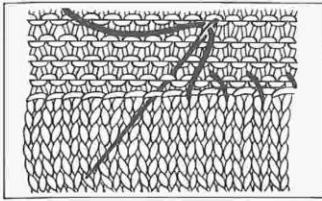
Insert needle in first stitch, through knitting and come out through 3rd stitch.

Into the 2nd stitch, through the knitting and come out through the 4th stitch.

Continue this way.

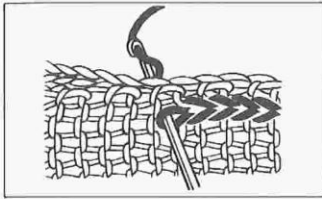


SEWING UP HEM

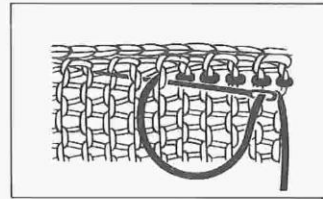


When sewing up hem, make sure you always sew through the stitches of the SAME row otherwise the hem will not be straight.

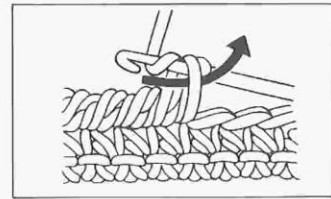
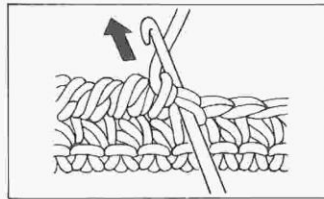
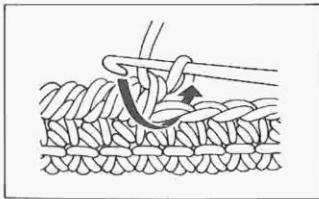
CROCHET SEAM



BACKSTITCH SEAM



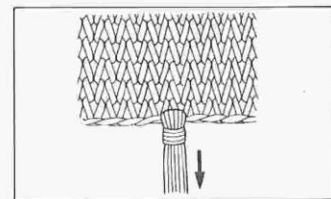
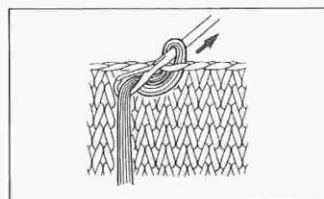
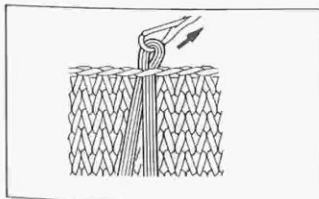
CRAB STITCH



Many times the make-up instructions for garments will tell you to work a row of crab stitch along the edge. Work a row of double crochet (American single crochet) along the edge. At the end of the row work BACKWARDS, making double crochet stitches from LEFT to RIGHT.

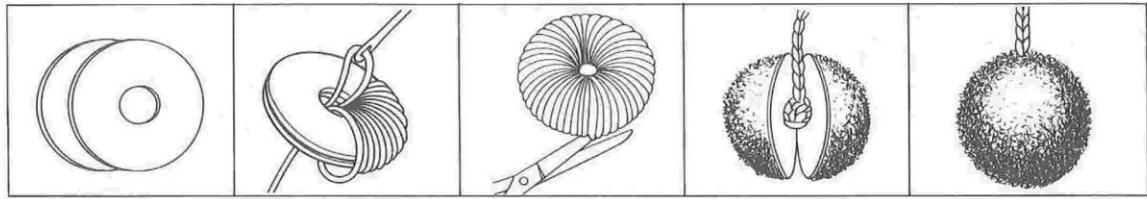
This finishing technique is used quite often to prevent curling and get the neat edge.

FRINGES



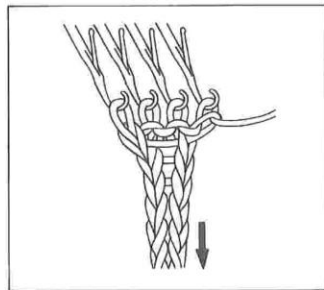
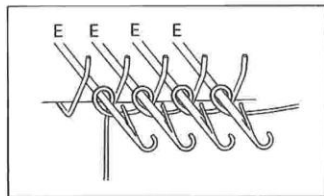
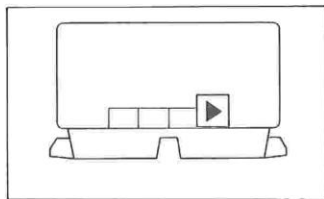
The number of strands to use depends upon the thickness of your fringe. Cut threads slightly longer than DOUBLE the length of the fringe. Make the fringes as shown by the above diagrams.

POMPONS



- 1 Cut two round pieces of cardboard to the size you want the pompons to be.
- 2 Thread the tapestry needle with yarn for pompon and sew round both circles until centre hole is filled up.
- 3 Cut thread round outside edge and separate the circles slightly.
- 4 Take thread or cord and tie round the centre of threads between the circles, secure end. Trim.

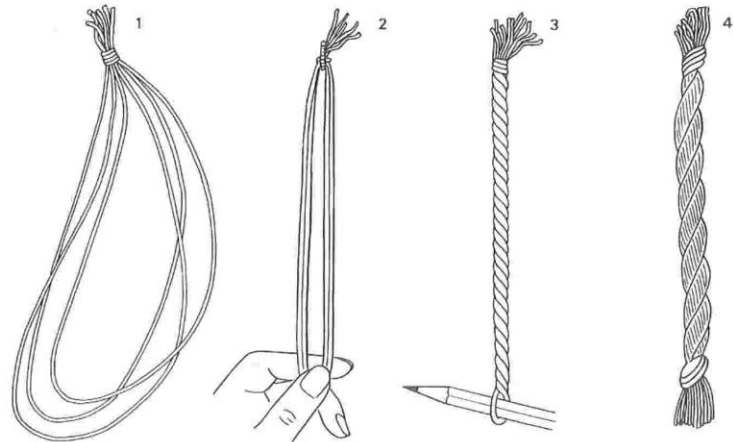
KNITTING A CORD



A knitting cord can be used in many different ways such as drawings for blouson tops or sleeves. We recommend that you use a rather tighter tension for knitting a cord.

- 1 Carriage is at RIGHT.
- 2 Pattern dial to RIGHT EMPTY▶
- 3 Thread up yarn.
- 4 In centre of machine bring 3 to 5 needles to E position.
- 5 Make a winding cast on round the needles.
- 6 Yarn is in feeder ①.
- 7 Knit 1 row, bring needles to E position.

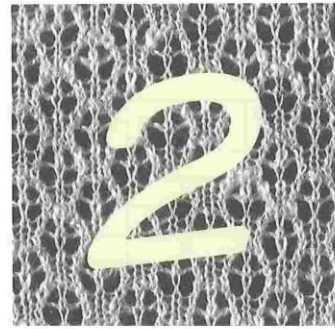
Repeat Step 7 three or four times, pulling down the yarn end. Continue knitting cord, and cast off stitches



TWISTING A CORD

- 1 Take several strands of yarn, five times the desired length of the finished cord. Fold strands in half and tie ends together.
- 2 Put end with knot over a hook and pull lengthwise.
- 3 Insert a pencil through the other end and twist tightly.
- 4 Fold twisted strands in half and pull lengthwise to achieve even twist. Remove knot from hook and pencil. Make a new knot at each end. Cut ends open and trim to make tassels.

STEP



PATTERN CHART

| CARD NO. | FAIRISLE | WEAVING | TUCK | SLIP | PLAITING | LACE |
|----------|----------|---------|------|------|----------|------|
| 1 | x | x | x | x | x | |
| 2 | x | x | x | x | | |
| 3 | x | x | x | | | |
| 4 | x | x | | x | | |
| 5 | x | | | | | |
| 6 | ⊗ | | | | | |
| 7 | ⊗ | | | | | |
| 8 | ⊗ | | | | | |
| 9 | ⊗ | | | | | |
| 10 | x | | | | | |
| 11 | x | x | x | x | | |
| 12 | x | x | x | x | | |
| 13 | x | x | | x | | |
| 14 | x | ⊗ | | x | | |
| 15 | x | | | | | |
| 16 | | | | | | x |
| 17 | | | | | | ⊗ |
| 18 | | | | | | ⊗ |
| 19 | | | | | | ⊗ |
| 20 | | | | | | ⊗ |

This chart shows which type of stitch pattern can be knitted with each punch card.

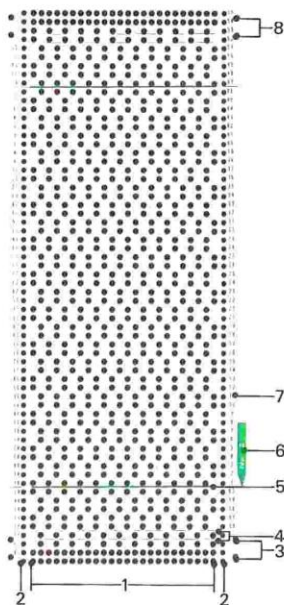
The mark X means that this card can be knitted in this type of stitch pattern.

The mark ⊗ means that the card can be used for MOTIF MAGIC.

For example:

Card No. 1— Fairisle, Weaving, Tuck, Slip and Plaiting patterns.

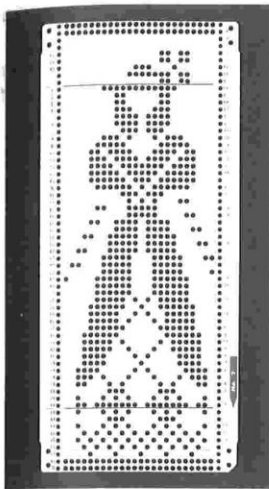
PUNCH CARD



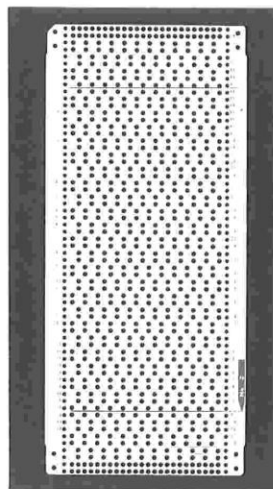
- 1 — 24 needle width of punch card pattern
- 2 — Feeding holes
- 3 — Snap holes — bottom
- 4 — Card match lines
- 5 — Starting line of stitch pattern
- 6 — Card number
- 7 — Number of rows
- 8 — Snap holes — top

MARKINGS ON CARD

- — Change colours in feeder ②, on cards Nos. 5, 6, 7, 8 and 12.
- — Slide lace carriage across the knitting in the direction the arrow shows to select and transfer the stitches.
- ↔ — Knit two rows with main carriage, to left and back to right (↺), then slide lace carriage to right (→). Card Nos. 16, 17, 18, 19 and 20.
- ★ □ mark on optional punch cards: change colours in feeder ①.
- ★ 6 ↔ mark on optional punch card: knit 6 rows with main carriage and slide lace carriage to right.



Cards which have a gap below row number 1 are ideal for Motif Magic knitting.



Cards which are numbered until row number 1 can be used as revolving cards.

- ★ There are 20 ready punched cards supplied with your knitting machine. They are numbered 1 to 20.
- ★ Take care not to break or fold your punch card, this could result in faulty stitch pattern knitting.

WHAT THE NEEDLES DO

FAIRISLE PATTERNS : Punched position will be selected and knit col. 2 (contrast colour yarn)

WEAVING PATTERNS : Punched position will be selected and weave in the thread.

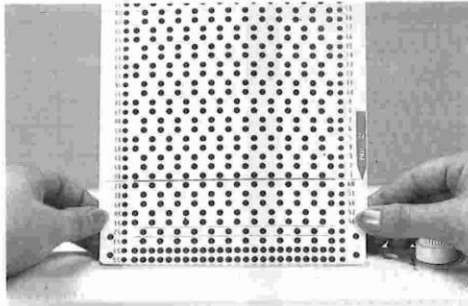
TUCK PATTERNS : Punched position will be selected and knit.
Non-selected needles will remain in B position with yarn in needle hook.

SLIP PATTERNS : Punched position will be selected and knit.
Non-selected needles will remain in B position, and the yarn passes under the needle hook.

LACE PATTERNS : Punched position will be selected for transferring stitches.

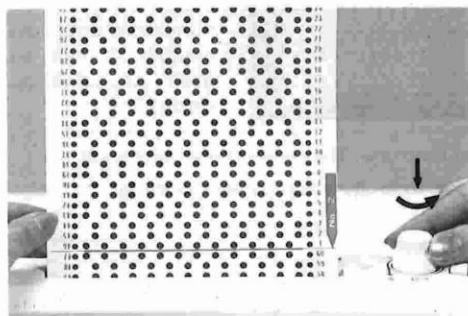
| | FAIRISLE | WEAVING | TUCK | SLIP | LACE |
|--|----------------------------|-------------------|------------------------------|----------------------------------|----------------------------------|
| Punched Needles selected | Knit col. 2 in feeder ② | Weaves the thread | Knit | Knit | For transferring stitches |
| Non-punched Needles not selected | Knit col. 1 in feeder ① | Knit | Yarn stays in needle hook | Yarn passes under needle hook | Not for transferring stitches |

INSERTING PUNCH CARD

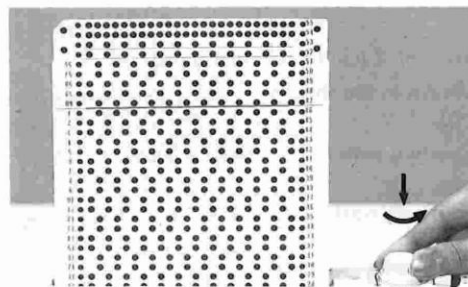


Take punch card No. 2 and hold it with the number at the RIGHT side.

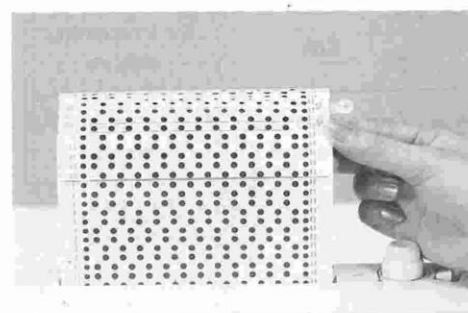
Hold the card above the card slot and insert it. The first horizontal green card-match line runs along the top edge of card slot.



Press feeder dial and at the same time turn it for 2 or 3 positions to lock card in anticlockwise direction as shown by the arrow. Check that card is fed in level.



Turn feeder dial until punch card is half way through card slot.



Overlap the card ends, front end on top of back end and adjust the snap holes.

Join the ends with two card snaps.

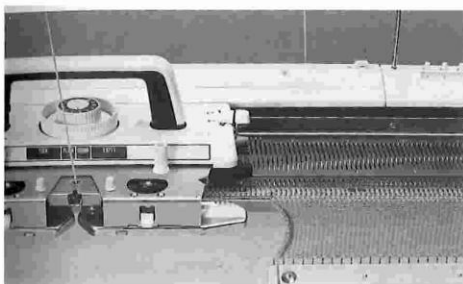
Turn punch card and set it row 1.

★ Do not reverse punch card when overlapped edges of punch card are in the machine.

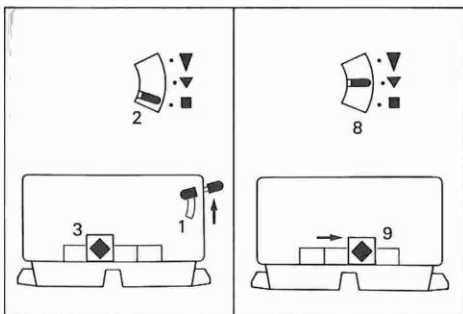
★ When card stop lever is set at ▼, it is not possible to reverse card.

FAIRISLE PATTERNS

- ★ For Fairisle patterns, you will knit TWO different colours in ONE row automatically. To make matters simple, we will call the main yarn — col. 1 and the contrasting yarn col. 2. Every additional colour will have the following number.
- ★ We recommend that all colours for Fairisle patterns should be of the same thickness.
- ★ When knitting Fairisle pattern with more than two colours you will need to feed the additional colours by hand. Just insert the col. 3 into the feeder after having removed the previous col. and while knitting, hold the thread above carriage as for knitting with nylon cord.
- ★ Always prepare all the yarns in advance.



Cast on and knit several rows of plain stitch.
Carriage at LEFT.
Insert and set punch card No. 2.



- 1 Set card levers (a, b) to C.
- 2 Card stop lever to ■.
- 3 Pattern dial at PLAIN ◆.
- 4 Partial knit lever at 0.
- 5 Weaving levers, DOWN.
- 6 T/L spring plate, OUT.
- 7 Motif magic control at ●. (see p. 50)

Knit 1 row to RIGHT.
The needles have been selected in B and D positions alternately.

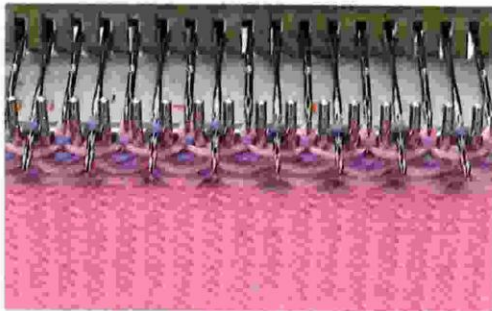


- 8 Card stop lever to ▼.
- 9 Pattern dial to COLOUR ◆.

Set row counter to 000 and row counter lever to working position.

Thread col. 2 through all RIGHT side threading points of upper tension unit, and into feeder ②, well BEHIND the spring clip. Fasten the end of col. 2 at table clamp.

Hook the short tension wire to the one used for the col. 2.

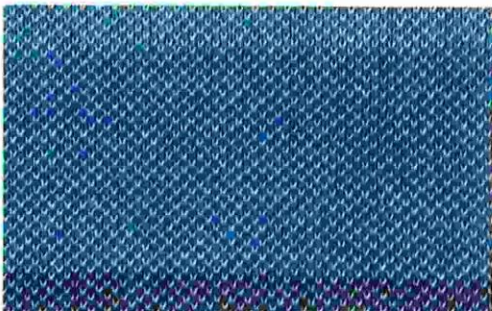


Knit 1 row to LEFT, the needles in B position have knitted col. 1 and the needles in D position have knitted col. 2.

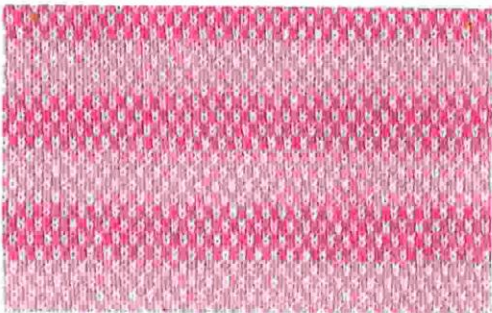
Release yarns from table clamp.
Hook weights at edges of the knitting 5 cm below the needle hooks.

Continue knitting this way.

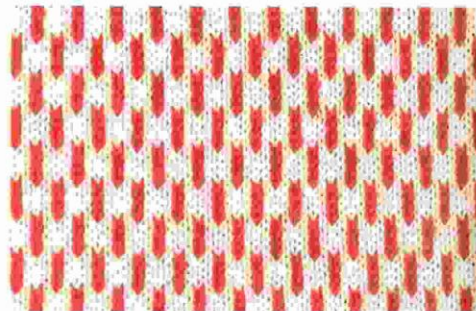
- ★ To stop Fairisle pattern,
 - 1 Card levers (a, b) to 0,
 - 2 Pattern dial to PLAIN ◀,
 and remove col. 2 from feeder ②.



Card No. 1
1 pattern = 2 stitches, 2 rows
Col. 1 - white, 2 - blue



Card No. 2
1 pattern = 2 stitches, 4 rows
Col. 1 - white, 2 - pink



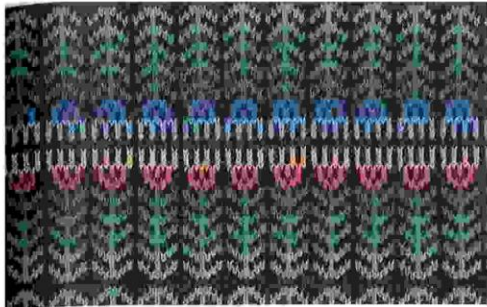
Card No. 3
1 pattern = 4 stitches, 8 rows
Col. 1 - red, 2 - pale pink



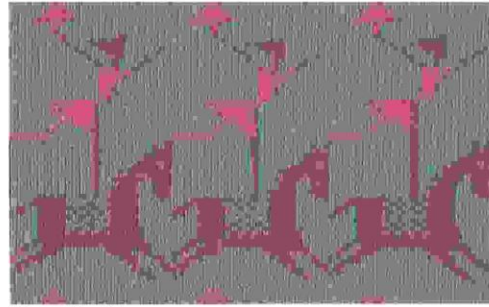
Card No. 4
1 pattern = 6 stitches, 48 rows
Col. 1 - white, 2 - red



Card No. 5
1 pattern = 8 stitches, 58 rows
Col. 1 - white, 2 - green, orange



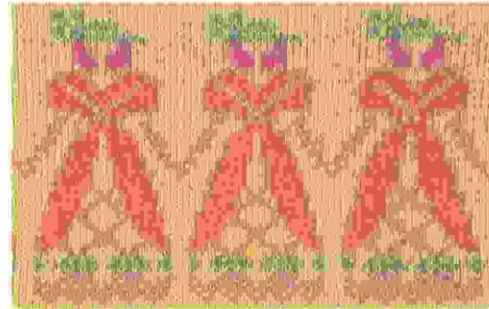
Card No. 5
1 pattern = 8 stitches, 58 rows
Col. 1 - black, 2 - green, blue, etc.



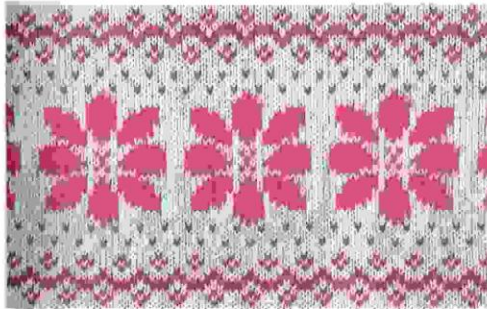
Card No. 6
1 pattern = 24 stitches, 58 rows
Col. 1 - green, 2 - wine, red



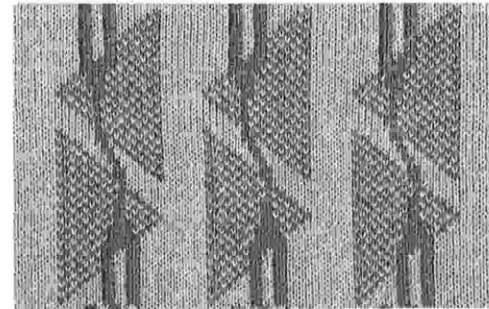
Card No. 6
Col. 1 - yellow, green, 2 - brown, pink and blue



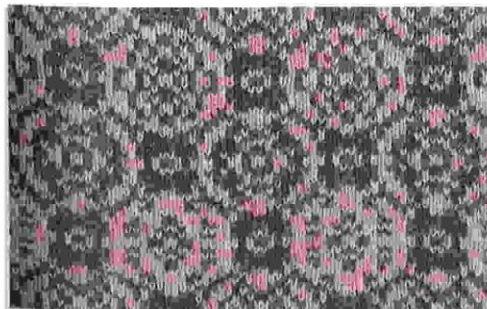
Card No. 7
1 pattern = 24 stitches, 58 rows
Col. 1 - yellow, 2 - orange, green, etc.



Card No. 8
1 pattern = 24 stitches, 58 rows
Col. 1 - white, 2 - red, etc.



Card No. 9
1 pattern = 24 stitches, 60 rows
Col. 1 - pale grey, 2 - dark grey



Card No. 10
1 pattern = 24 stitches, 60 rows
Col. 1 - pink, 2 - purple



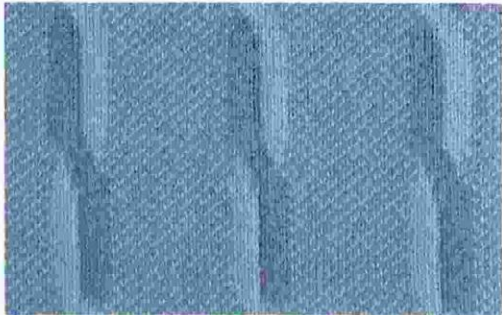
Card No. 11
1 pattern = 24 stitches, 48 rows
Col. 1 - white, 2 - random dyed yarn



Card No. 12
1 pattern = 12 stitches, 48 rows
Col. 1 - blue, 2 - red, navy



Card No. 13
1 pattern = 24 stitches, 48 rows
Col. 1 - green, 2 - red



Card No. 14
1 pattern = 24 stitches, 48 rows
Col. 1 - pale blue, 2 - blue grey



Card No. 15
1 pattern = 24 stitches, 48 rows
Col. 1 - pale green, 2 - dark green

EXTENDING PATTERNS

Place carriage at RIGHT.
Set punch card.
Set carriage as for fairisle, steps 1—7 on page 31.
Knit to left.
Thread col. 2 and set pattern dial to COLOUR ◆.
Knit to right.
Card stop lever to ▼.
Continue knitting extended patterns.

★ While working extended patterns, change Colours at LEFT.



Card No. 4

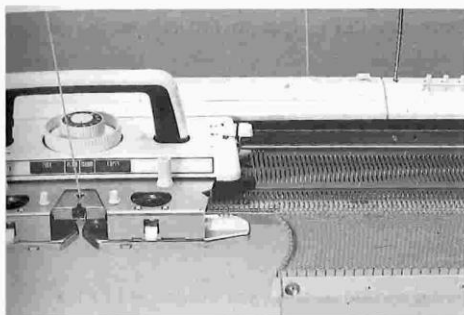


Card No. 5

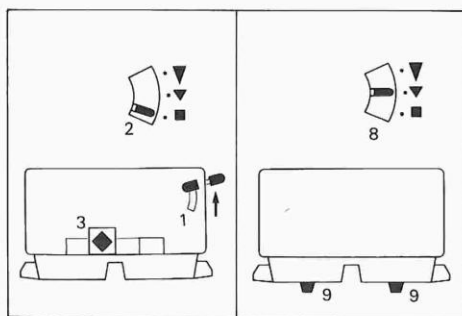
WEAVING PATTERNS

Weaving stitch patterns are very popular for all kinds of fabrics. They can be knitted with very fine to very heavy type of yarns. The usage for woven material is unlimited, you can make fashionable garments from it as well as use it for carpets, cushion covers or furnishing fabrics.

When knitting woven materials, we recommend that you use a fine to medium type yarn for knitting and a heavy type yarn for the contrast. The actual knitting yarn should NOT be too thick, as the fabric will become too heavy and stiff.



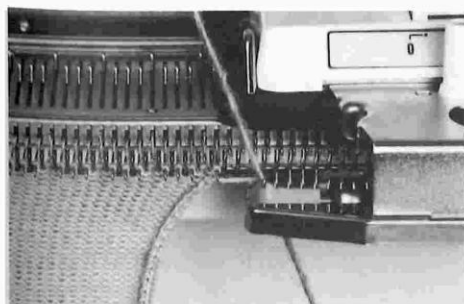
Cast on and knit several rows of plain stitch.
Carriage at LEFT.
Insert and set punch card No. 3.



- 1 Set card levers (a, b) to C.
- 2 Card stop lever to ■.
- 3 Pattern dial at PLAIN ◆.
- 4 Partial knit lever at 0.
- 5 Weaving levers, DOWN.
- 6 T/L spring plates, OUT.
- 7 Motif magic control at ●.

Knit 1 row to RIGHT.
The needles have been selected in groups of 1 in B and 3 in D position.

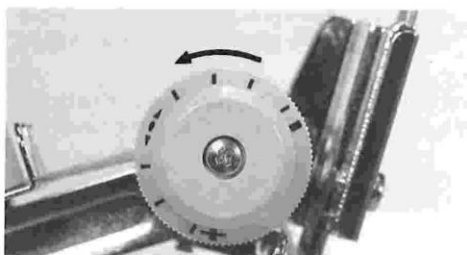
- 8 Card stop lever to ▼.
- 9 Weaving levers UP to †.



Set row counter to 000 and row counter lever to working position.

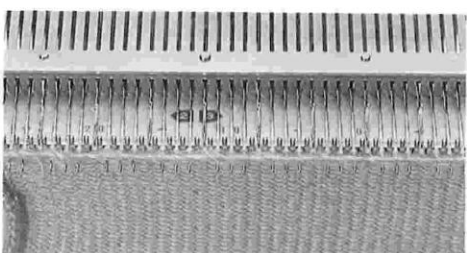
Thread weaving yarn through all RIGHT side threading points of upper tension unit.
Do not thread it into yarn feeder ②.

Pull thread down between knitting and carriage and secure end to table clamp.

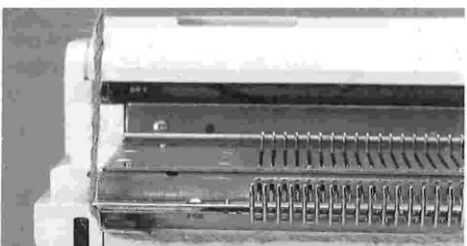


Adjust the tension discs, the RIGHT side one to the thickness of the weaving thread between $\frac{1}{2}$ and $\frac{1}{4}$.
At RIGHT edge bring the FIRST needle to D position.

According to weaving yarn you use, change the tension dial on the carriage. When using 6 ply (9 in the picture on p. 11), change tension dial 1 full number larger and when 8 ply (10 in the picture on p. 11), change it 2 full numbers larger.



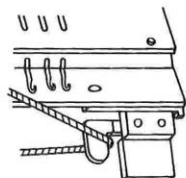
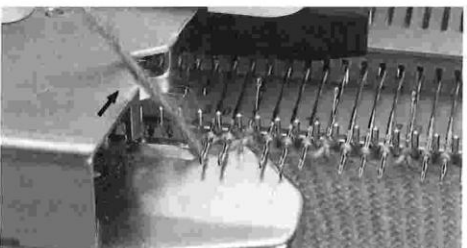
Take the weaving thread and lay it across the selected needles towards the LEFT, just in FRONT of the sinker hooks.



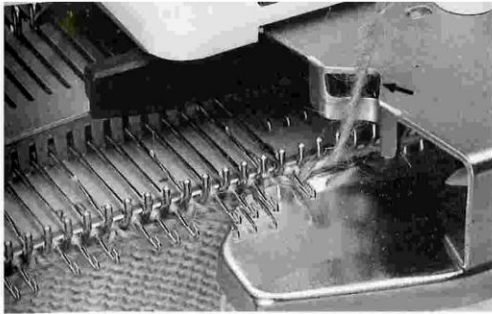
Hook the weaving thread at the yarn holder at LEFT.★
Knit 1 row to LEFT. Release weaving thread from table clamp. Remove the thread from the yarn holder and pass it under carriage towards RIGHT.
Move carriage a little further to LEFT to free weaving yarn. Let the thread go, the tension wire will pull it up at LEFT of the knitting.

At LEFT edge bring the FIRST needle to D position.
Knit 1 row to RIGHT.

Be sure the weaving yarn is caught in WEAVING YARN GUIDE (arrow).



★ When working weaving stitch with ribber attached to main knitter, hook weaving thread at the plate as in diagram and knit the 1st row.
Use this plate in partial knitting, too, because you cannot use weaving guide of carriage in this case, see page 70.



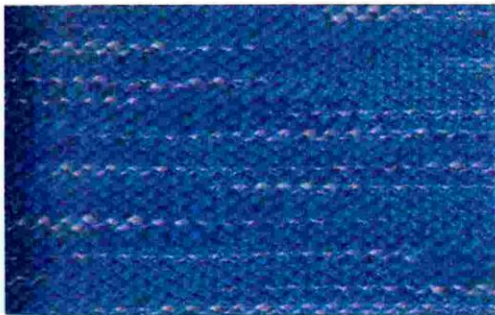
Again remove the weaving thread and bring it to the LEFT of carriage. Move carriage to right to free weaving yarn.

Let the thread go, the tension wire will pull it up. At RIGHT edge bring FIRST needle to D position.

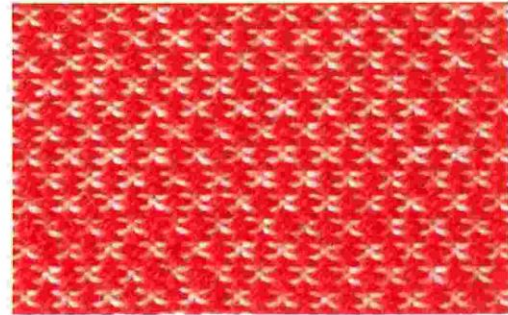
Move carriage towards LEFT and let the thread slide into the weaving yarn guide. Knit to left.

Continue knitting, always bringing the thread to the edge of the knitting and the first needle to D position.

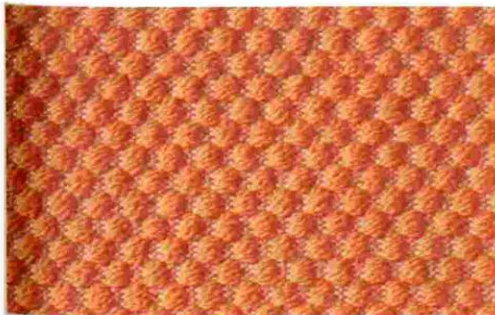
- ★ To stop Weaving pattern,
 - 1 Card levers (a, b) to 0.
 - 2 Weaving levers DOWN.
 and remove weaving yarn.



Card No. 1
1 pattern = 2 stitches, 2 rows



Card No. 2
1 pattern = 2 stitches, 4 rows



Card No. 3
1 pattern = 4 stitches, 8 rows



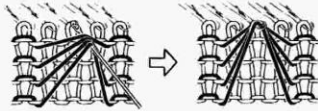
Card No. 3
Set card stop lever at ■



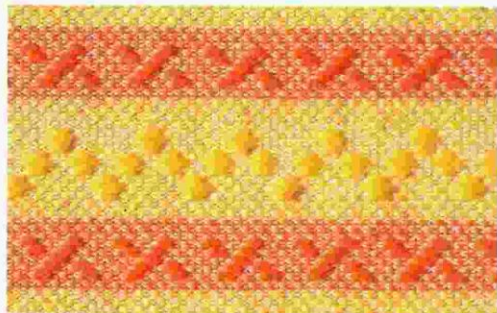
Card No. 3
Hook weaving yarns every 4 rows



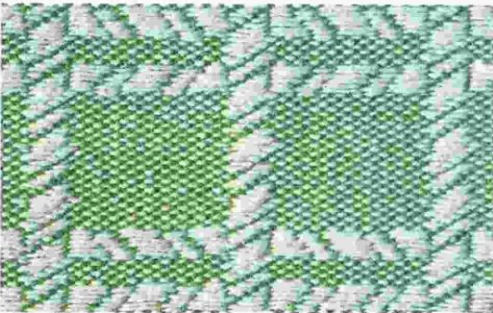
Card No. 4
1 pattern = 6 stitches, 48 rows



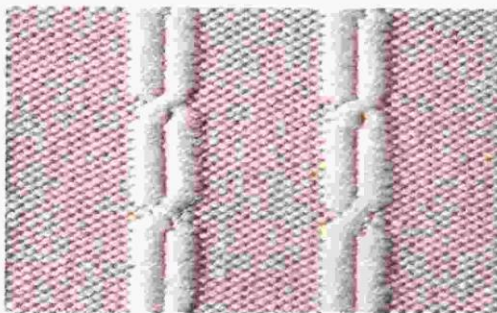
Card No. 11
1 pattern = 24 stitches, 48 rows



Card No. 12
1 pattern = 12 stitches, 48 rows



Card No. 13
1 pattern = 24 stitches, 48 rows

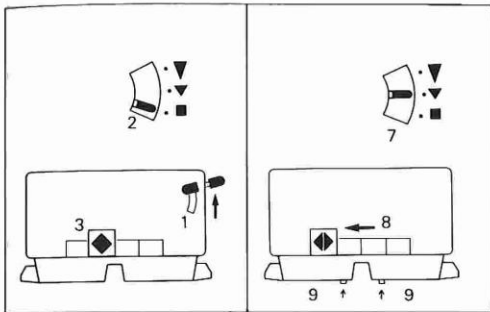


Card No. 14
1 pattern = 24 stitches, 48 rows

TUCK STITCH PATTERNS



Cast on and knit several rows of plain stitch.
Carriage at LEFT.
Insert and set punch card No. 2.



- 1 Set card levers (a, b) to C.
- 2 Card stop lever to ■.
- 3 Pattern dial at PLAIN ◆.
- 4 Partial knit lever at O.
- 5 Weaving levers, DOWN.
- 6 Motif Magic control at ●.

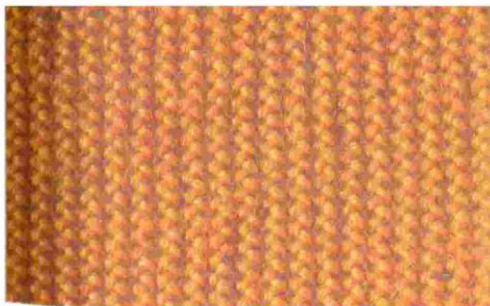
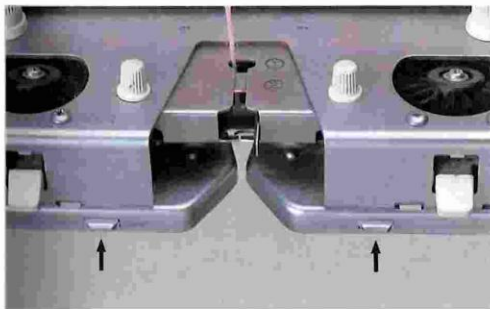
Knit 1 row to RIGHT.
The needles have been selected in B and D positions alternately.

- 7 Card stop lever to ▼.
- 8 Pattern dial to TUCK ◀▶.
- 9 Push IN T/L spring plates.

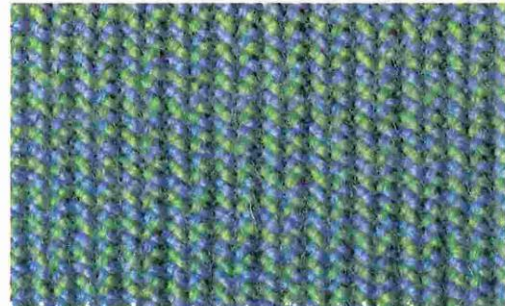
Set row counter to 000 and row counter lever to working position.

NOTE: When knitting TUCK patterns the 1st or 2nd stitch may not be knitted. In this case we recommend to bring needles at BOTH ends to D position.

★ To stop TUCK stitch patterns set Card levers (a, b) to 0 and pattern dial to PLAIN ◆.



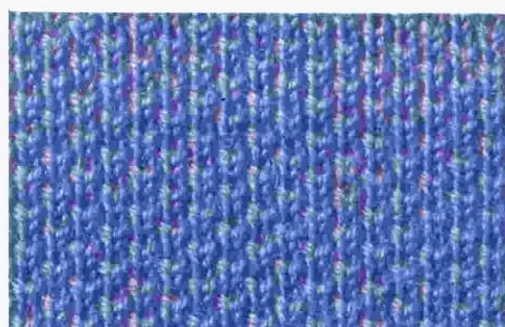
Card No. 1



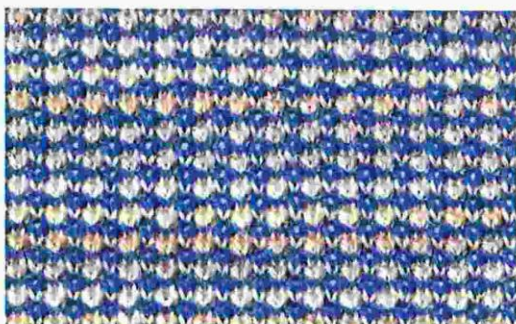
Card No. 1
Change col. 1 in every 2 rows.



Card No. 1
Set pattern dial to RIGHT TUCK ▶ or LEFT TUCK ◀



Card No. 2
Set pattern dial to LEFT TUCK ◀



Card No. 2
Change col. 1 in every 2 rows
Set pattern dial to LEFT TUCK ◀



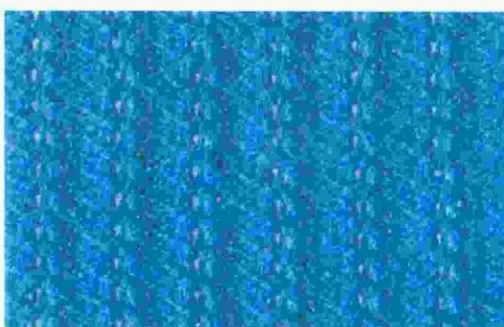
Card No. 3
1 pattern = 4 stitches, 8 rows



Card No. 3
Change col. 1 in every 2 rows



Card No. 3
Change col. 1 in every 4 rows

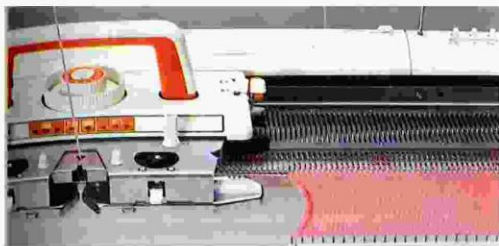


Card No. 3
Set card stop lever at ■
Change to PLAIN at every 4th row.

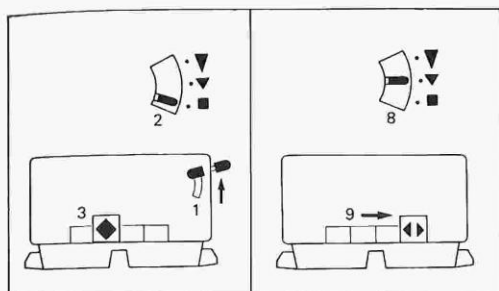


Card No. 11
1 pattern = 24 stitches, 48 rows

SLIP STITCH PATTERN



Cast on and knit several rows of plain stitch.
Carriage at LEFT.
Insert and set punch card No. 4



- 1 Set card levers (a, b) to C.
- 2 Card stop lever to ■.
- 3 Pattern dial at PLAIN ◆.
- 4 Partial knit lever at 0.
- 5 Weaving levers, DOWN.
- 6 T/L spring plates, out.
- 7 Motif magic control at ●.

Knit 1 row to RIGHT.

The needles have been selected in groups of 3 in B and 3 in D positions.

- 8 Card stop lever to ▼.

- 9 Pattern dial to EMPTY ◀▶.

Set row counter to 000 and row counter lever to working position.

Continue knitting.

NOTE: When knitting SLIP patterns the 1st or 2nd stitch may not be knitted.

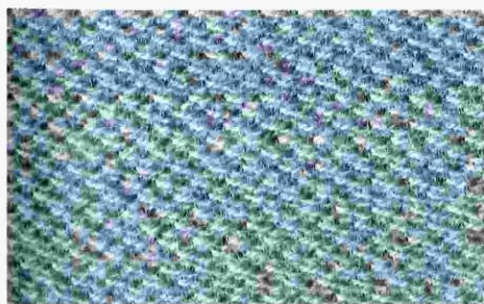
In this case we recommend to bring two needles at BOTH sides to D position.

★ To stop the pattern set Card levers (a, b) to 0, and Pattern dial to PLAIN ◆.



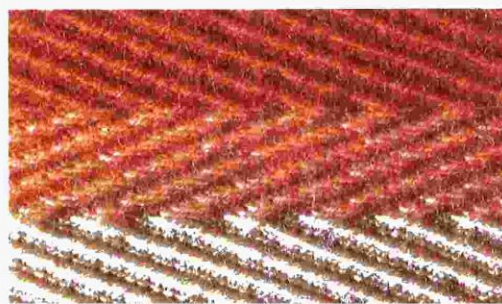
Card No. 1

1 pattern = 2 stitches, 2 rows



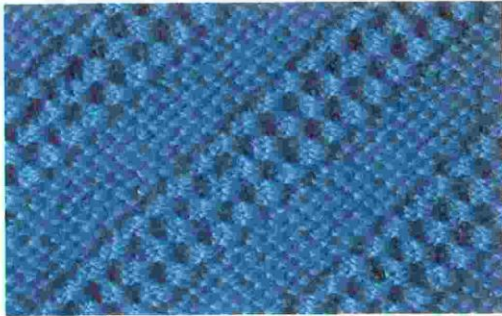
Card No. 2

1 pattern = 2 stitches, 4 rows



Card No. 4

1 pattern = 6 stitches, 48 rows



Card No. 11
1 pattern = 24 stitches, 48 rows



Card No. 15
1 pattern = 24 stitches, 48 rows


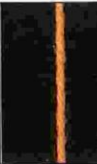

PLAITING — Using Optional plaiting feeder unit.

Plaiting is the simultaneous knitting of two colour yarns. The fabric is made in different colours on the right and wrong sides. You can also make the patterns in many colours by turning the feeder. Let's try.

For plaiting use the special plaiting feeder unit.

Thread col. 1 and 2 through right and left upper tension units. Attach end at tension rod.



| | | | |
|--------------------|--|--|--|
| TYPE OF YARN |  |  |  |
| ACTUAL SIZE | | | |
| NAMES | 2 ply | medium 3 ply | cotton |
| TENSION DIAL | 4-5 | 7-8 | 6-7 |
| UPPER TENSION UNIT | ⬇ | + | ⬆ |

★ Use yarns of the same thickness shown in the diagram above.

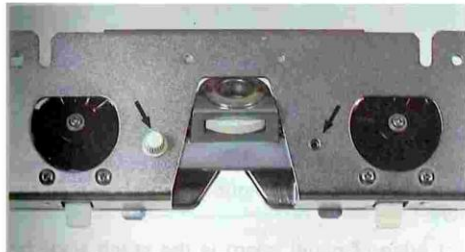
★ Place paraffin wax on the tension rods for both col. 1 and col. 2 yarns.



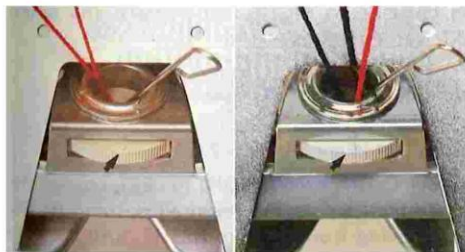
Loosen large thumb screws and remove fabric presser from carriage.
Loosen and remove small thumb screws, and remove feeder unit from fabric presser.



Take plaiting feeder unit.
Insert the unit into fabric presser as shown by arrows 1—2.
Set T/L spring plates, IN.



Adjust the holes for thumb screw of both the unit and fabric presser (arrows).
Tighten small thumb screws.
Plaiting feeder is set.
Attach fabric presser to carriage.
Set carriage neutral.

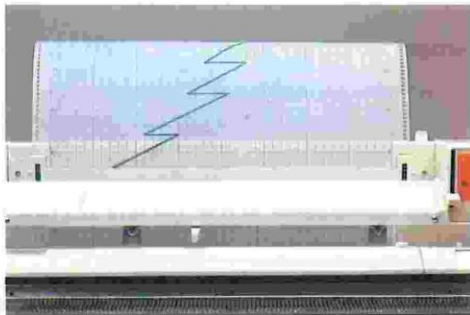
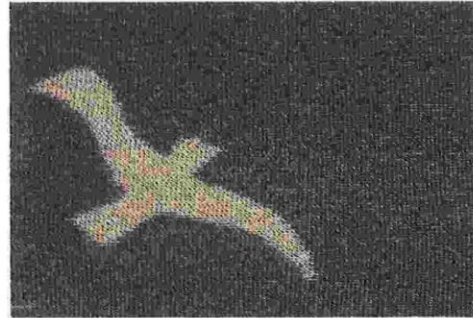


Turn the white part so that the \square mark is out and you hear click sound.
Thread col. 1 into feeder using threader. (far left)
Secure the end to table clamp.
Turn white part towards the same side as you are going to move carriage, so that \square mark is out and you hear click sound.
Thread col. 2. (left)
Secure the end to table clamp.
Cast on as for ordinary knitting but be sure to hold both ends of yarns under the fabric presser away from you.



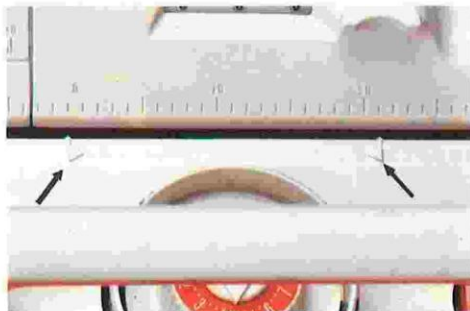
★ When you finish plaiting and reset the ordinary feeder unit, slide in the unit and adjust the holes of the unit to the little projections of the fabric presser.
Tighten small thumb screws.

YOUR ORIGINAL PLAITING PATTERN



To make your original patterns, Knit Tracer (optional) is very handy.

1. Draw the pattern on Knit Tracer sheet.
2. Set Knit Tracer to your tension swatch.

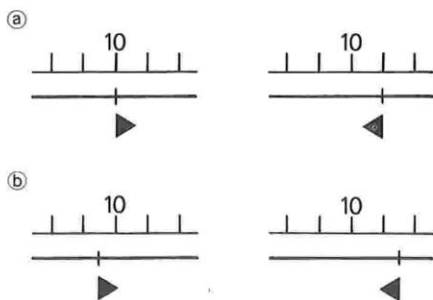


Knit the pattern changing the colour when shown on the sheet as follows:

Along the front edge of panel board is the stitch scale for plaiting. And there are two adjustment marks for plaiting on carriage, b and a .

When moving carriage to RIGHT, set b mark and when moving to LEFT, set a mark as a or b ;

e.g. When changing colour at 10.



- a When Tension dial is set below 5.2.

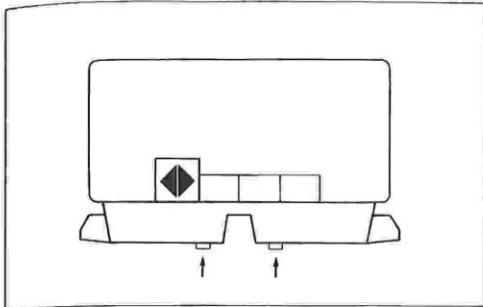
When you move Carriage from RIGHT to LEFT, change the colour at one stitch before the required position on the scale. When moving from LEFT to RIGHT, turn it at the required position on the scale.

- b When Tension dial is set at 6 or larger.

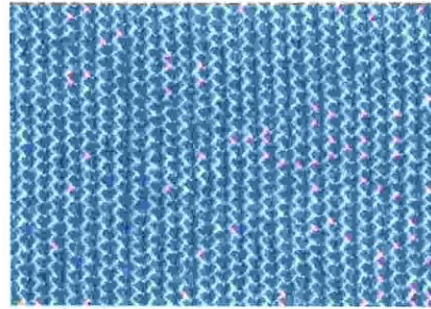
When you move Carriage from RIGHT to LEFT, change the colour at one and half stitches before the required position on the scale. When moving from LEFT to RIGHT, turn it at half a stitch before.

★ This is the basic idea, but when you wish to make an exact pattern design, knit a test piece with your own feeder unit beforehand because the positions to turn the feeder could be a little different according to the type of yarns and tensions.

PLAITING TUCK PATTERN



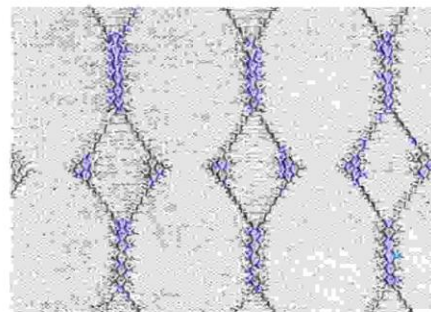
- 1 Set pattern dial to TUCK ◀.
- 2 T/L spring plates, IN.



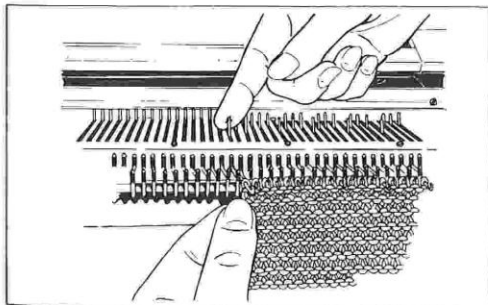
Card No. 1



Card No. 9009 (Optional card)

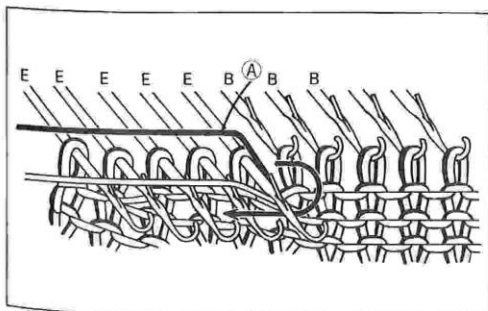


Card No. 9007 (Optional card)



When doing Tuck pattern with plaiting and the edge needles on each side is not selected, pulling the edge of the garment downwards bring the edge needle to D position.

—PARTIAL KNITTING



Do as for plain knitting (p. 69 and p. 72) except for the way the yarn is hooked.

Pick up the yarn on the plain side (A) and bring it under the first needle in E position and let it pass over the others.

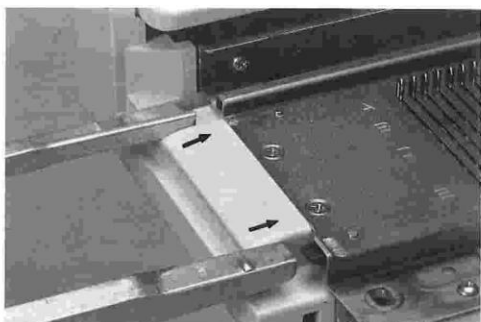
LACE STITCH PATTERN

Genuine lace patterns where stitches are transferred on to their adjacent needles. It's the real thing. There are thousands of designs for garments made in lace patterns. Just think of all the lovely, light summer garments you can knit for your family.

Knit sophisticated, fashionable party gowns, evening gowns and shawls, using lovely fine yarns.

Knit lace bed spreads, lamp shades, cushion covers and curtains.

There are so many things to be made for your home.

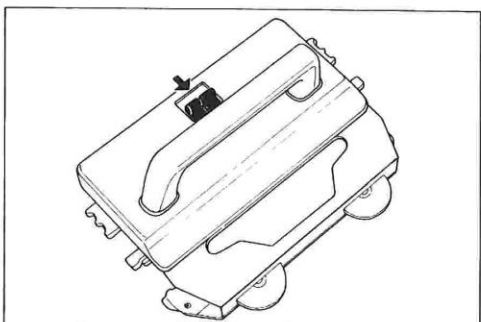
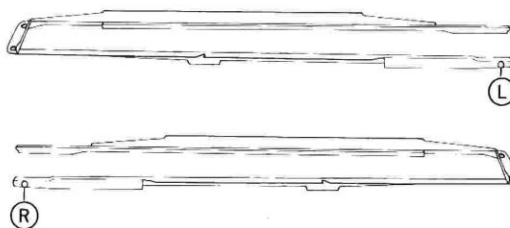


Remove BOTH extension rails from case cover. One is marked L and the other R.

Take rail L and hold it to the LEFT side corner of the machine. Place the flat rail into the needle bed front, on top of the needle press bar, and the back rail under the rear rail of needle bed.

Push IN front and rear rails at the same time.

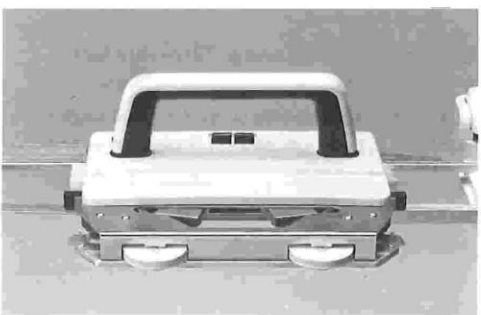
Insert R rail at RIGHT side of needle bed.



Raise the handle of lace carriage.

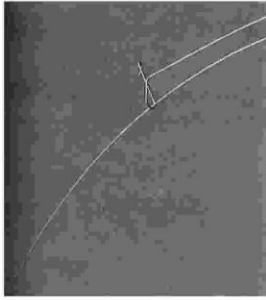
Place the carriage on LEFT side extension rail as follows:

Push release levers (a, b) towards you, lower the front of carriage on to the front rail, and lower the back of it on to the back rail, then let go release levers.

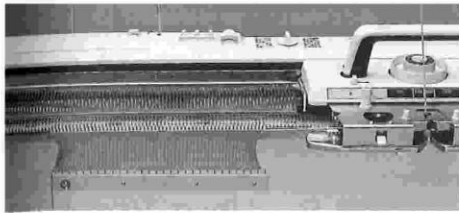


Set all needles in A position. Slide lace carriage across the needle bed several times. This is to ensure that lace carriage slides properly on needle bed. Card feeding system works while sliding lace carriage.

Move lace carriage to the LEFT side extension rail.



- Hook the short tension wire to the one used for the lace yarn.
- Turn tension disc towards +, the edge stitches will be knitted nicely.
- Check all tension points of lace yarn and stitch size.
- Attach weights to edges of the knitting 5 cm below the top row.
- Put wax ring on to pin as on page 14.

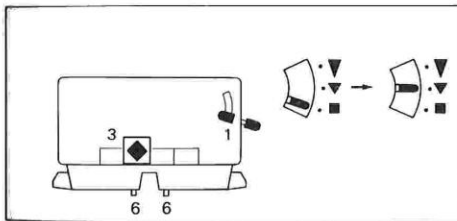


In lace knitting main carriage does not work to select needles but only lace carriage does.

Main carriage at RIGHT.

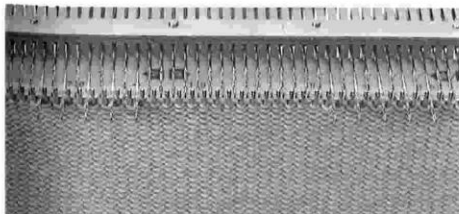
Insert and set punch card No.18.

Before starting lace knitting you must do certain rows of plain knitting, approx. 5 cm long.



- 1 Set card levers (a, b) at 0.
- 2 Card stop lever to ■.
- 3 Pattern dial at PLAIN ◆.
- 4 Partial knit lever at 0.
- 5 Weaving levers, DOWN.
- 6 T/L spring plates, IN.
- 7 Motif magic control at ●.

Set row counter to 000 and row counter lever to working position.



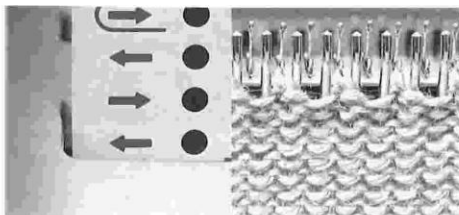
Knit 2 rows with main carriage, the carriage at RIGHT.

Slide lace carriage to RIGHT.

Set card stop lever to ▼.

The needles are selected.

Push two edge needles at EACH side BACK to B position if they have been selected to D position. This is to avoid dropping stitches.



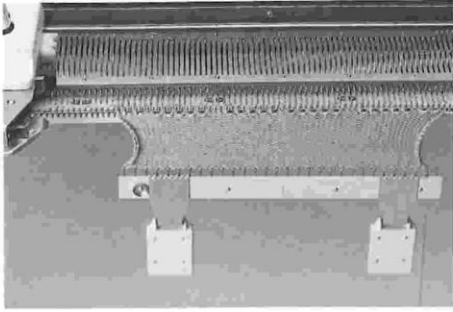
Now you can find a little arrow pointing to LEFT at the left side of the punch card.


This shows the direction in which you slide lace carriage.

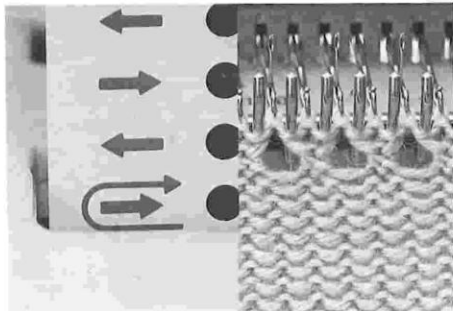
SLOWLY slide lace carriage across the knitting to LEFT, out of the knitting.




While sliding, press lace carriage on to needle bed as for ironing.

The stitches of the selected needles have been transferred to RIGHT adjacent needles.



Continue sliding lace carriage across the needle bed in the directions the arrows show until  mark is on punch card. Finish with lace carriage at LEFT. This means even if the lace carriage is at RIGHT and no needles are selected, you should slide it to LEFT.



 tells you to knit two rows with MAIN carriage to left and back to right () then to slide LACE carriage to right (). After the first row with main carriage, you will find that all empty needles will have new loops, and with the second row, stitches are formed.

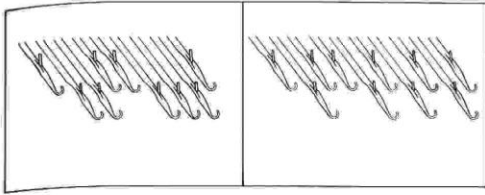
★ After knitting 1 row, if some new stitches have not yet formed and the stitches of the last row are over the closed needle latch complete the stitches as follows: pulling down the knitting, push the needles backwards, the new stitches will be formed in needle hooks.



Continue this way.

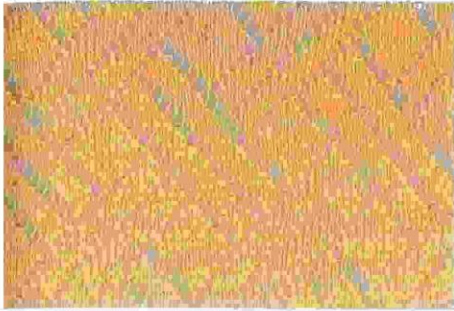
DO NOT TOUCH THE KNITTING, THE CAST ON COMB AND WEIGHTS while you slide the lace carriage across for transferring the stitches, this would result in dropped stitches.

- ★ Remember you always start moving MAIN carriage from RIGHT and finish at RIGHT, and start sliding LACE carriage, on the contrary, from LEFT and finish at LEFT.
- ★ After having knitted 10 cm of lace pattern move up the weights for 5 cm, and after 20 cm or so move up the cast on comb and insert through the knitting 5 cm below top edge.
- ★ To stop the lace pattern push carriage release lever (a, b) and remove lace carriage from extension rail.
If the lace carriage jams see page 101.



NOTE: When knitting lace patterns, NEVER should there be TWO or MORE ADJACENT needles in D position.

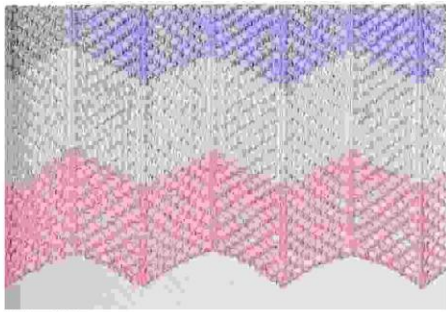
Diagram Far LEFT: WRONG
LEFT : RIGHT



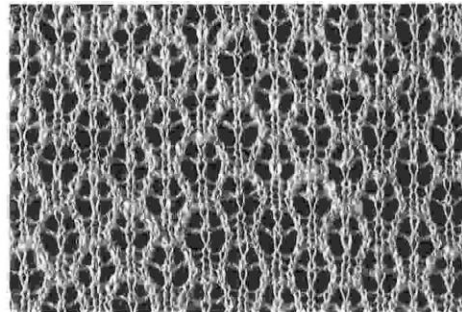
Card No. 16
1 pattern = 24 stitches, 48 rows



Card No. 17
1 pattern = 24 stitches, 56 rows



Card No. 18
1 pattern = 24 stitches, 8 rows



Card No. 19
1 pattern = 6 stitches, 16 rows



Card No. 20
1 pattern = 24 stitches, 44 rows

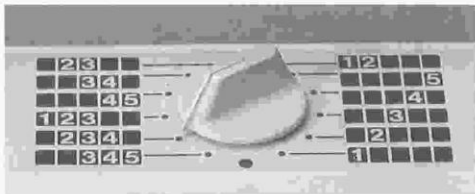
MOTIF MAGIC



One of the very beneficial features of your knitting machine is MOTIF MAGIC CONTROL. With just a turn of it you can knit Single Motif, or Double or Triple automatically, anywhere in your garment. The possibilities of application are innumerable.



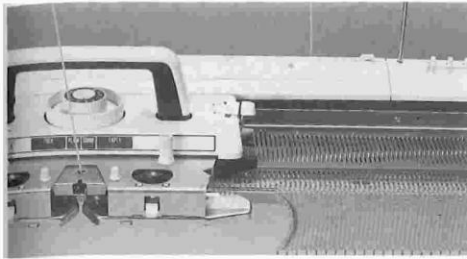
Motif Magic is divided into 5 sections on the needle bed, each section comprising 24 needles. The section numbers are printed on the film lying under the needle latches. When it is set at the front ● mark, no motif will be knitted but the pattern will be knitted over the full width of the garment.



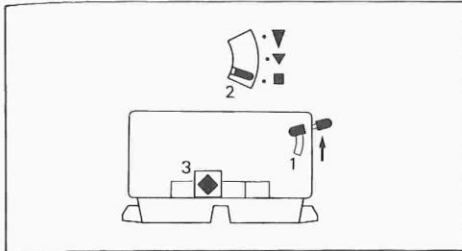
Motif dial will automatically transfer the stitch pattern to one of the twelve settings. You can choose one single section to knit a single motif or a repeating continuous section to knit two or three motifs.

E.g. When set at "2—3—4", motifs are made over the section 2, 3 and 4 on the needle bed, see the chart below.

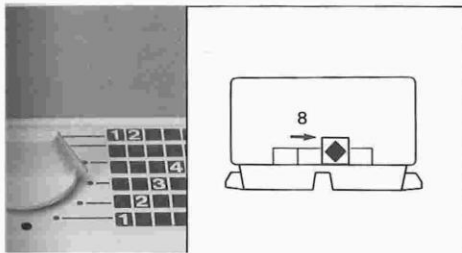
| | | FAR LEFT | LEFT | CENTRE | RIGHT | FAR RIGHT |
|---------------------------------|-----------|----------|-------|--------|-------|-----------|
| POSITION OF MOTIF MAGIC CONTROL | ● | 1 | 2 | 3 | 4 | 5 |
| MOTIF NEEDLE SECTION | 100—0—100 | 60—37 | 36—13 | 12—12 | 13—36 | 37—60 |
| ON THE FILM | | ① ① | ② ② | ③ ③ | ④ ④ | ⑤ ⑤ |



The instructions are given for Motif Magic in Fairisle pattern.
Carriage at LEFT.
Insert and set punch card No. 7.

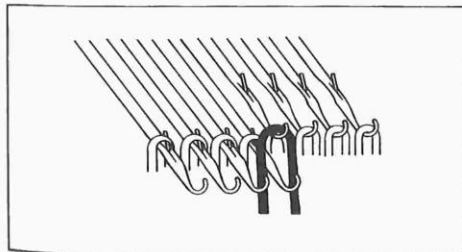


- 1 Set card levers (a, b) to C.
- 2 Card stop lever to ■.
- 3 Pattern dial at PLAIN ◆.
- 4 Partial knit lever at 0.
- 5 Weaving levers, down.
- 6 Hook short tension wire to the col. 2 wire, and turn disc of col. 2 towards +.

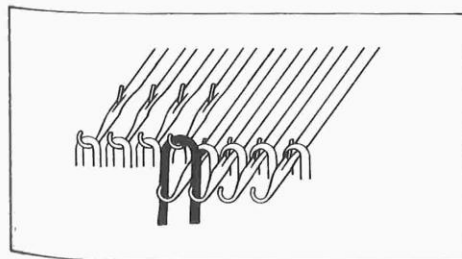


Turn Motif Magic Control to set at 3.
Knit 1 row to RIGHT. The motif needles have been selected in the centre of machine.

- 7 Card stop lever to ▼.
 - Thread col. 2 into feeder ②.
 - 8 Set pattern dial to COLOUR ◆.
- Move carriage to LEFT.
Prepare two pieces of thread of col. 1 approx. 80 cm long each.



Take one piece of col. 1 and place it over needle in B position at RIGHT of motif needles and over the FIRST of the selected motif needles. Let about 10 cm hang down from the needle in B position and the rest from the motif needle.



Knit 1 row to RIGHT. Repeat the same procedure as above at LEFT of motif needles.

★ When the carriage comes before the motif knitting for wide-knitting, move the carriage holding col. 2 yarn lightly above yarn feeder.



Using your left hand hold the threads from your side edges of the motif slightly down.

Knit 1 row to LEFT.

The motif needles have knitted col. 2 and the thread secured the edge stitches of the motif.

The new needle selection has been made.

From outside of motif towards the inside of pattern bring thread piece over the two needles before you knit each next row.

★ Do not turn Motif Magic Control with carriage on the knitting width.

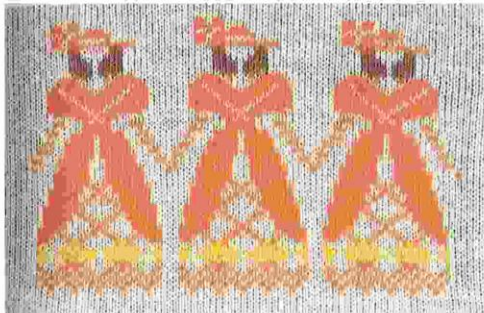




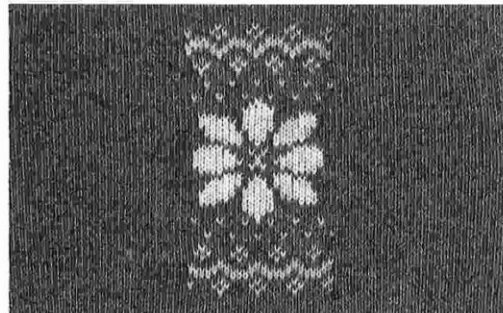
Card No. 5
Set Motif Magic Control for single motif



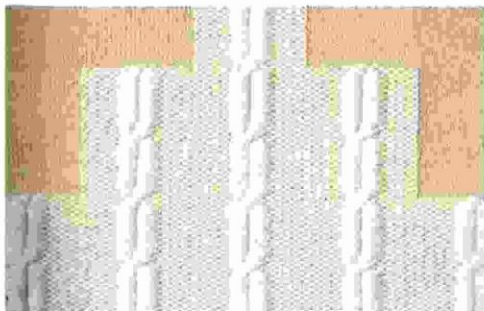
Card No. 6
Set for double



Card No. 7
Set for triple



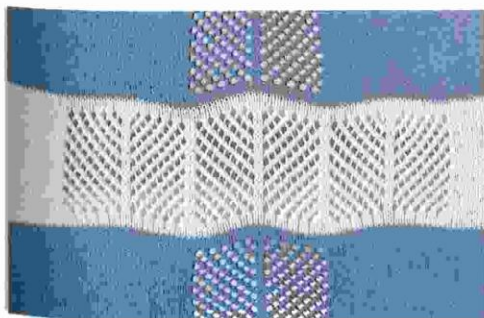
Card No. 8
Set for single



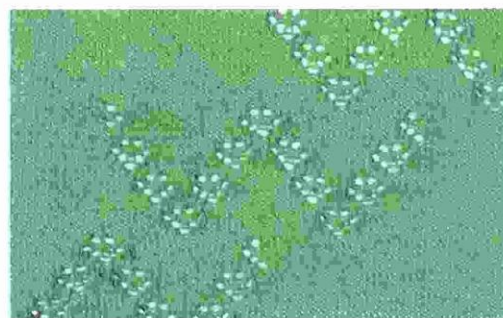
Card No. 14
Set at ● — 234 — 3



Card No. 1002 (Optional)



Card No. 18

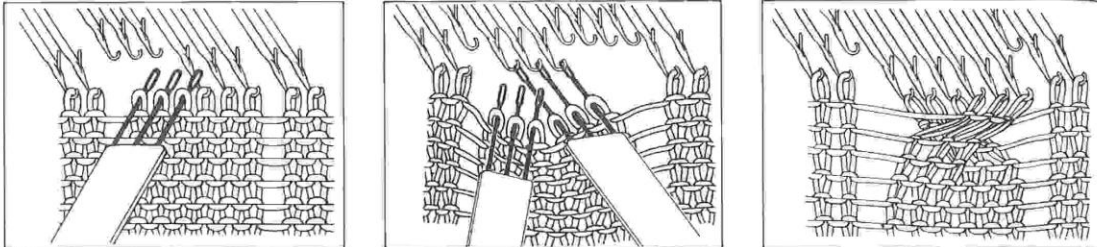


Card No. 17

TWO BASIC CABLE STITCH PATTERNS

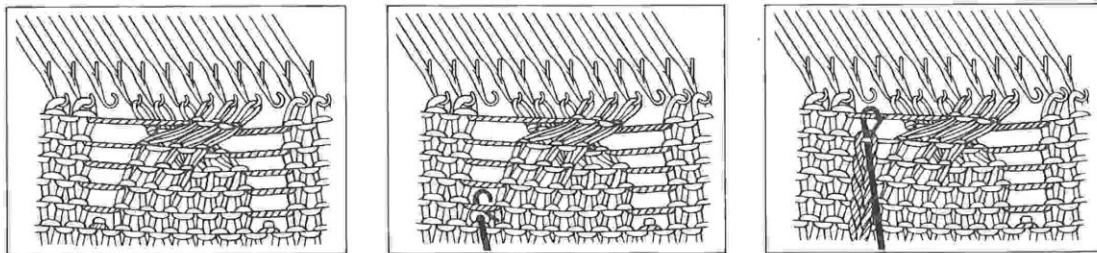
There are two basic ways for knitting cable stitch patterns. Of course there are more but here you will learn the two easiest methods.

METHOD 1

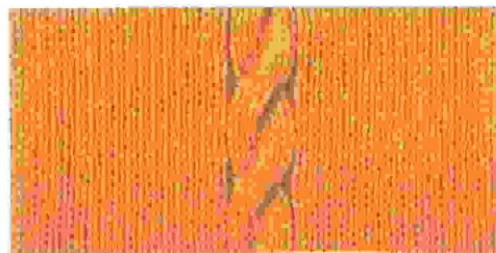
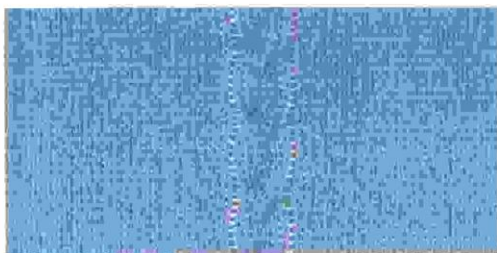


- 1 At each RIGHT and LEFT of centre transfer the 4th stitch to the adjacent 5th needle. Bring the empty needles to A position. Knit approx. 10 rows. Hook a triple transfer tool in 3 needles at LEFT of centre, pull them to E, then push them back to A position. The stitches are on the transfer tool. Lift the stitches out of the needles.
- 2 Hold this transfer tool in your left hand and take the 3 stitches at RIGHT of centre on to the second triple transfer tool. Move the 2nd transfer tool to LEFT and let 3 stitches slide into the empty needle hooks. Transfer 3 stitches of the LEFT on to 3 RIGHT side needles.
- 3 The diagram shows the stitches crossed for the cable. Bring 6 cable needles to E position, knit approx. 10 rows and repeat crossing for cable.

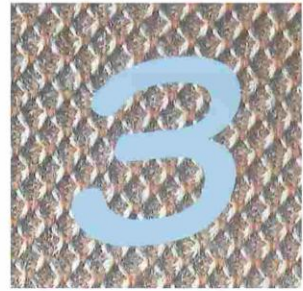
METHOD 2



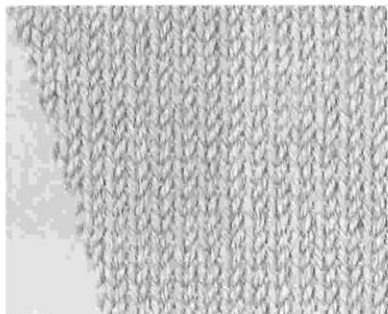
- 1 Instead of transferring the 4th stitch let it run down each time when you cross the stitches for the cable.
- 2 When the cable is finished, run stitch down to bottom of pattern. Rib up stitch at each side of cable as shown in diagram.



STEP

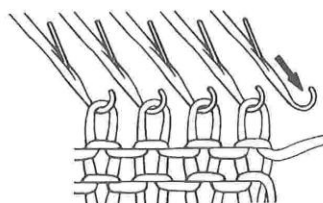


SIMPLE INCREASE OF ONE STITCH

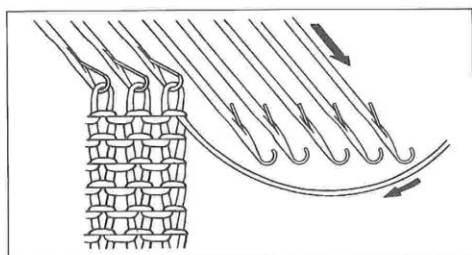


You can increase one stitch only on the carriage side in this method.

Push the adjacent empty needle from A to B position on carriage side. Move carriage across the knitting.

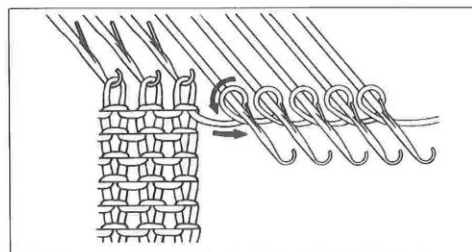


INCREASING SEVERAL STITCHES



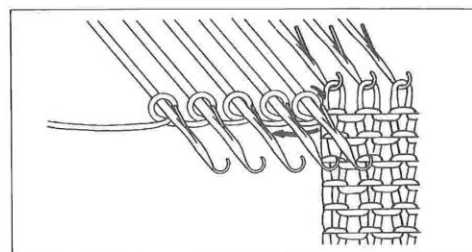
Increase stitches on the side where carriage is.

To increase 5 stitches at RIGHT, bring at RIGHT hand edge of the knitting, the next 5 empty needles from A to E position.



Pull some yarn from below carriage and wind round the needles evenly as shown by arrows.

Check yarn tension and if necessary adjust it. Knit 1 row. The needles have been knitted back to B position. For the next 3-4 rows, knit bringing those needles to E position each time.

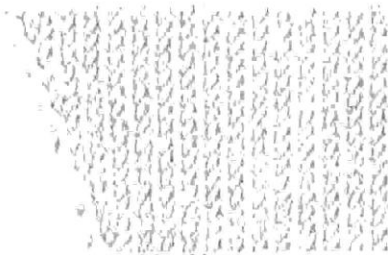


For increasing 5 stitches at LEFT, bring 5 additional needles at the LEFT edge of the knitting from A to E position.

Wind yarn round needles as shown by arrows. Check yarn tension and adjust. Knit 1 row. Knit bringing those needles to E position each time for the next 3 or 4 rows.

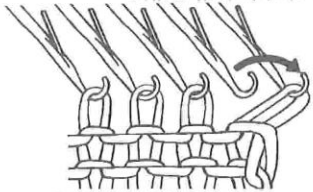
Continue knitting.

FASHION INCREASE OF ONE STITCH



Fashion increase gives a clean, straight edge and makes seaming easier, too.

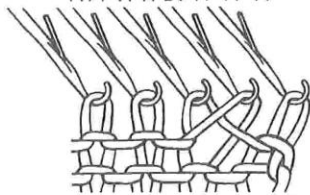
You can increase a stitch at each edge in the same row.



With transfer tool, transfer the end stitch to the adjacent empty needle.



Pick up the loop below the 2nd stitch and lift it on the empty needle.



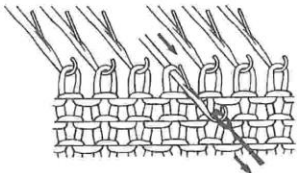
You have now increased a stitch "fully fashioned."

The photograph shows the stitches increased every 4 rows.

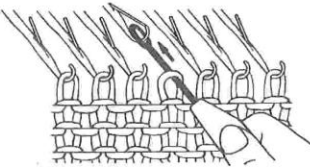
HOW TO TRANSFER STITCHES

The transfer tools are very useful and practical accessories. They are mainly used for transferring stitches.

Take transfer tool and place the eyelet into the needle hook. Pull the needle forward to E position.

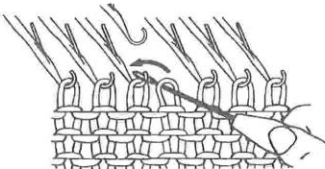


Push the tool backwards until the needle is in A position. The stitch will slide over the needle latch and on to the stem of transfer tool.

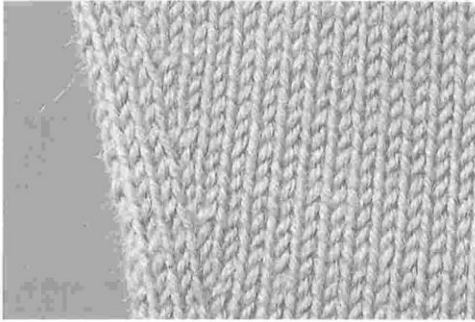


Lift transfer tool out of the needle hook. Move it to LEFT and place the eyelet into the needle hook of the adjacent needle. Tilt up the tool, the stitch will slide it off and into the needle hook.

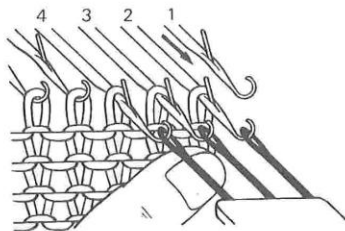
You have now transferred a stitch with transfer tool.



FASHION INCREASE OF ONE STITCH — Using Double or Triple Transfer Tool

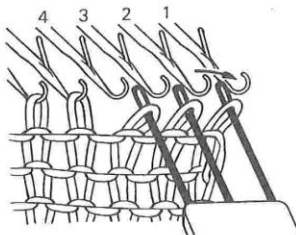


This type of increasing stitches is mainly used for raglan shaping. You can only increase 1 stitch at a time but at each edge of the same row.



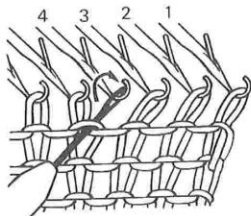
(For Triple Transfer Tool)

Bring one additional needle from A to B position. Take a triple transfer tool and place the eyelets in the hooks of the last 3 needles with stitches. Pull the needles to E position. Push them back to A position and pull them up to B position.

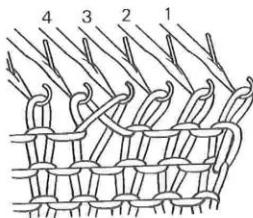


The 3 stitches are now on the stems of the tool. Slowly lift the tool out of the needle hooks, at the same time you will open the needle latches.

Move the tool towards the empty needle, place the eyelets into the hooks of 3 edge needles in B position and let the stitches slide into the needle hooks.

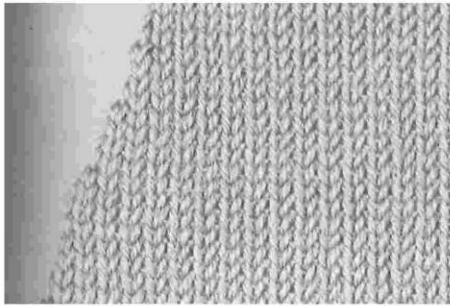


The 4th needle is now empty. With single transfer tool pick up the 4th stitch of the previous row. Lift this loop into the empty 4th needle.

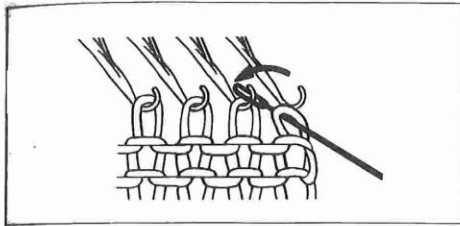


You have increased 1 stitch "fully fashioned." The photograph shows the stitches increased every 4 rows.

SIMPLE DECREASE ON ONE STITCH

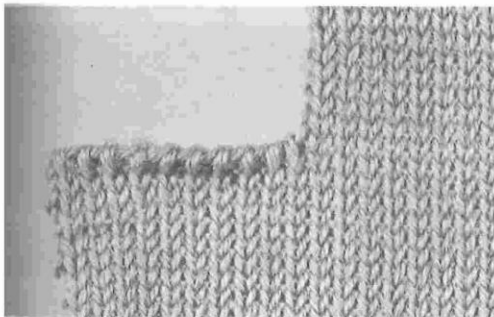


You can decrease a stitch at each edge of the same row.

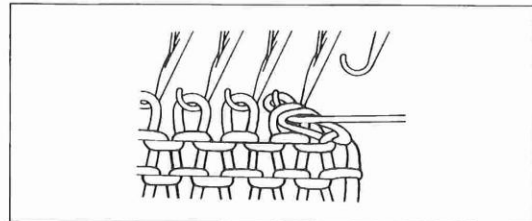
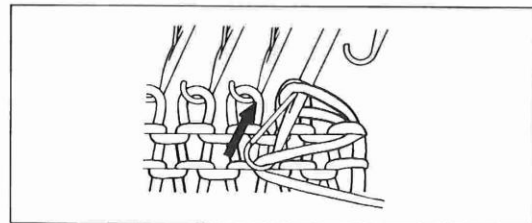
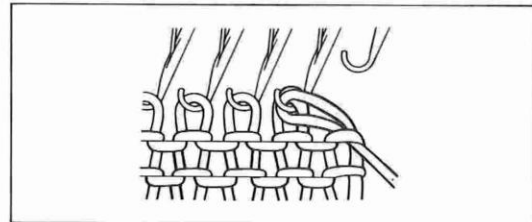


With single transfer tool remove the edge stitch off its needle and transfer it to the adjacent needle inside the knitting. Push the empty needle back to A position.

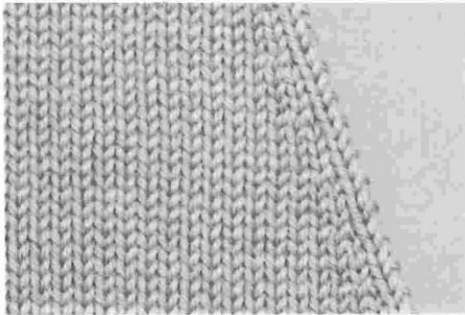
DECREASING SEVERAL STITCHES



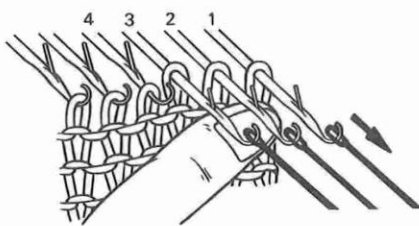
Use the same method as CASTING OFF explained on page 22.



FASHION DECREASE OF ONE STITCH — Using Double or Triple Transfer Tool

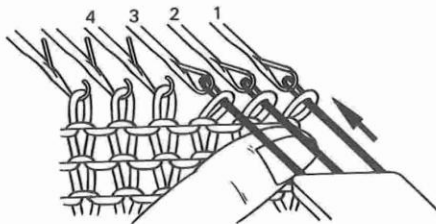


This type of decreasing stitches is mainly used for raglan shaping. This can also be used for shaping V necks. You can decrease 1 stitch at each edge of the same row.

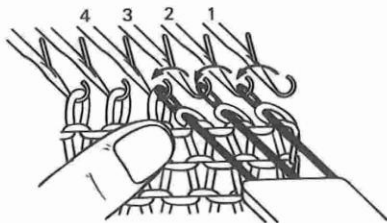


(For Triple Transfer Tool)

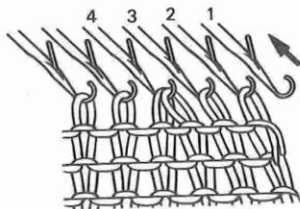
Open the latches of the last 4 needles. Place the eyelets of triple transfer tool in the hooks of the LAST 3 needles. Pull needles to E position.



Push needles back to A position and pull to B position. The 3 stitches are on transfer tool. Slowly lift the tool out of needles, the latches should remain open.



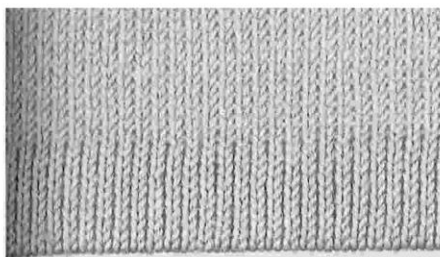
Move transfer tool 1-needle space inside the knitting and into the hooks of needles 4, 3 and 2. Let the stitches slide into needles.



Needle 4 has now TWO stitches. Bring the empty needle 1 back to A position.

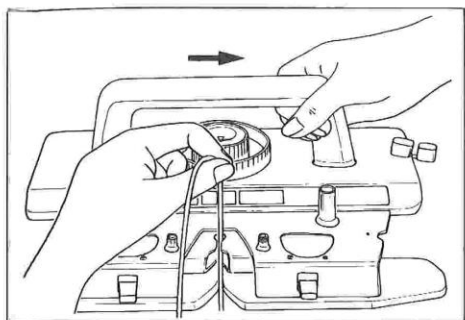
The photograph shows the stitches decreased every 4 rows

PLAIN HEM

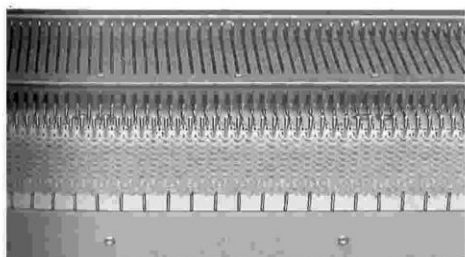


Making hem is started with some waste knitting. Waste yarn will be removed after turning up the hem.

Carriage is at right.
Thread the waste yarn through right side upper tension unit.
Cast on using cast on comb as explained on pages 16 and 17.
Knit 10 rows, carriage at left and all settings neutral.



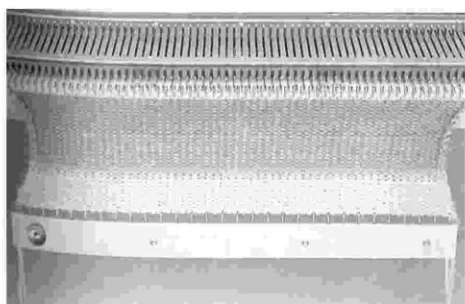
Thread nylon cord into feeder ① and knit one row to right. While moving carriage, let nylon cord slide through your fingers so that it can be knitted.



Remove nylon cord from feeder and let it hang down from the knitting.

The nylon cord will later be removed from the knitting thus separating the waste yarn from the hem.

Thread col. 1 through left side upper tension unit and into feeder ①.
Check and adjust yarn tension below and on top of carriage, there should not be any slack yarn anywhere.



Let's assume you will knit the garment with Tension 6.
Set row counter to 000.

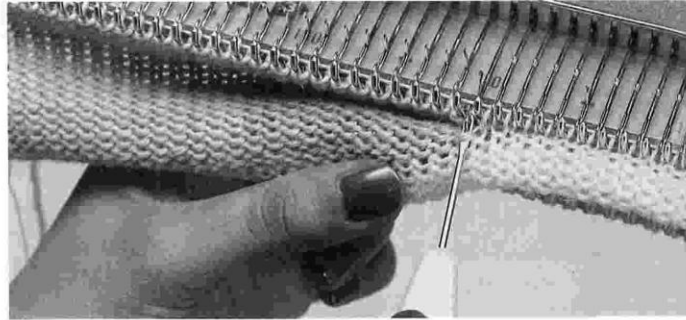
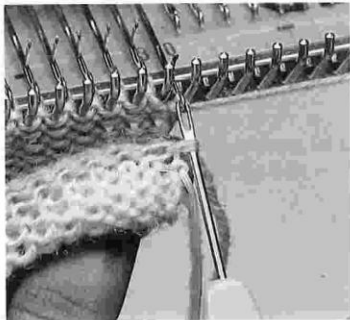
Knit 1 row Tension 6, row counter at 1.

Knit 9 rows Tension 5, row counter at 10.

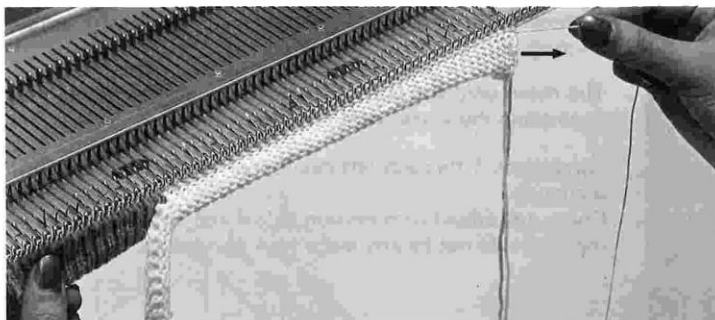
Knit 1 row Tension 7, row counter at 11.

Knit 11 rows Tension 6, row counter at 22.

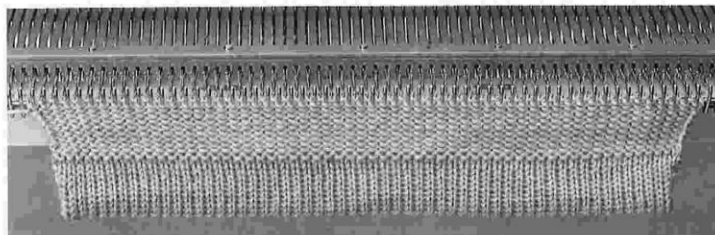
The first half, the back side of hem, is knitted with tighter tension to keep the shape. The normal stitches of row 1 make it easy to pick up the loops when turning up the hem. Row 11 with loose tension is "the turning row".



Remove cast on comb from the knitting. Open the needle latches. Fold the hem half way up. Take single transfer tool and insert it into the FIRST loop of the FIRST row knitted in col. 1, above nylon cord (small picture). Place the tool into the FIRST needle in B position at the RIGHT, let the loop slide into the needle hook. This needle will now have two stitches. Lift the following stitches of the row knitted after nylon cord into their needles. All needles will have 2 stitches. After a little practice you can use double or triple transfer tool and lift 2 or 3 stitches into the needles at a time.



Pull out nylon cord from the hem. The rows knitted with waste yarn will fall away from the hem.



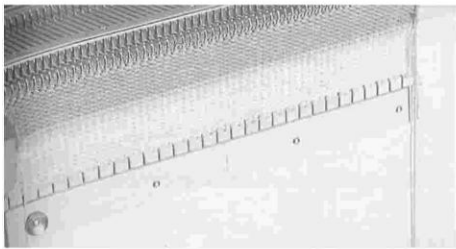
Knit 10 more rows. Attach cast on comb to the knitting above hem. When knitting hems using thick yarns, bring the needles to E position after having pulled out nylon cord from the knitting.

PICOT HEM

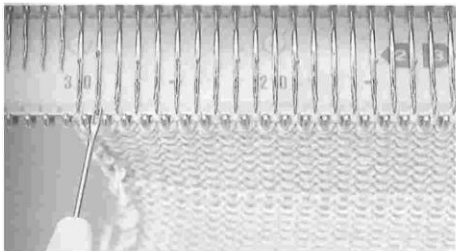


Picot hem gives a delicate finishing touch, and is often used for feminine garments and baby knitwear.

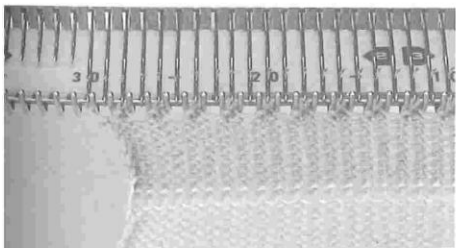
To make picot edge you will transfer alternate stitches using transfer tool or lace carriage.



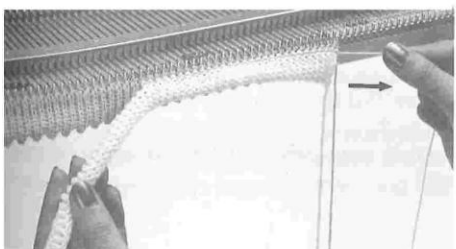
Carriage at RIGHT and all settings neutral.
Cast on with waste yarn, knit several rows.
Carriage at left.
Remove waste yarn from feeder.
Knit nylon cord to right.
Thread col. 1 in feeder ①.
Set row counter to 000.
Assume your garment tension is 6.
Tension 6, knit 1 row.
Tension 5, knit 9 rows, row counter at 10.



Take single transfer tool and starting with the SECOND needle from LEFT, transfer every 2nd needle on to its adjacent needle to right.
Leave 2 end needles at right without transferring.
★ You can use lace carriage to transfer the stitches.

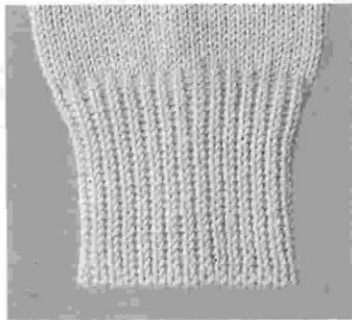


Make sure all the needles are in B position.

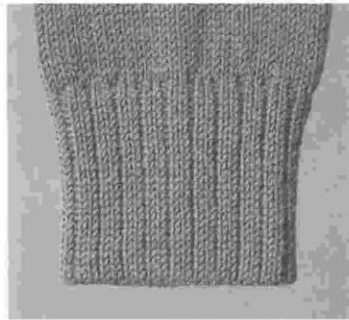


Tension 6, knit 11 rows.
Remove cast on comb from the knitting.
Place all the loops of the FIRST row knitted in col. 1 above nylon cord on to needles.
Pull nylon cord from the knitting.
Knit another 10 rows. Attach cast on comb to the knitting above hem.
Continue knitting.

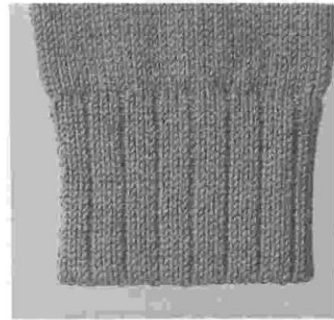
DOUBLE WELTS (HUNG HEMS OF MOCK RIB)



1—1 Double welts are usually knitted when using medium (4 ply) to thick yarns.



2—1 Double welts can be knitted with every type of yarns.



3—1 double welts can also be knitted with every type of yarns but mainly with thin to 4 ply yarns.

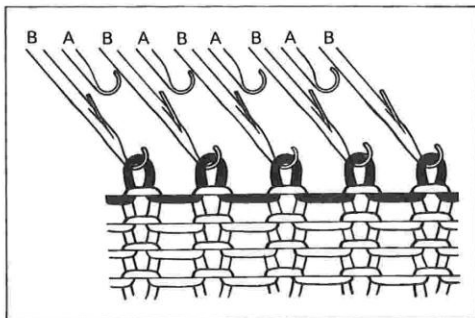
A variety of double welts can be knitted on a single bed machine. These three types are basic and most commonly used.

To make perfect double welts the correct TENSION setting is important.

Since there are various types and thicknesses of yarns, we shall work according to the following principle: Set 2 to 3 full numbers TIGHTER (LOWER) than your garment tension.

After a little practice you will easily choose the correct tension for welts.

DOUBLE 1-1 WELT

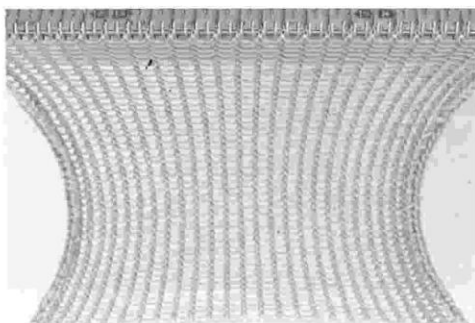


Carriage at RIGHT, all settings neutral.

With the 1/1 edge of selector comb, push every 2nd needle from A to B position.

Make cast on using waste yarn and hang cast on comb into the loops. Knit 10 rows with every 2nd needle. Carriage at LEFT.

Thread nylon cord into feeder ①, knit one row to right.

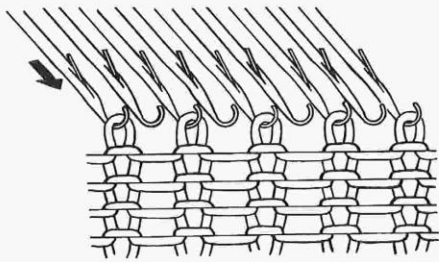


Thread col. 1 through upper tension unit and into feeder ①. Check that there is no slack yarn above and below carriage. Set row counter to 000.

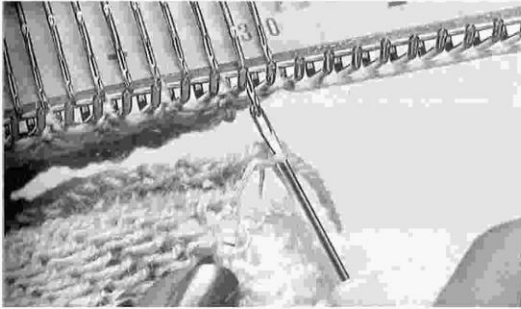
Assume you are using a medium type of yarn suitable for Tension 6.

Set Tension dial to 3.

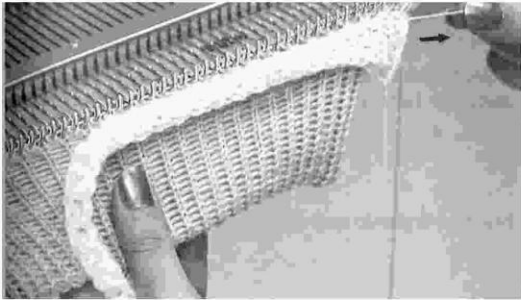
Knit the number of rows required for the depth of welt, approx. 50 rows.



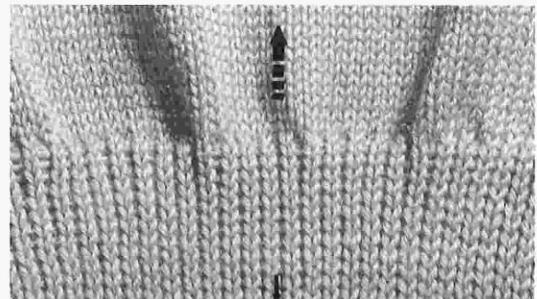
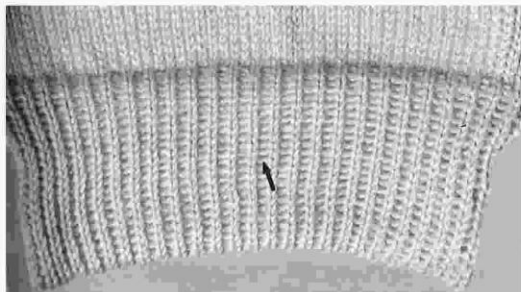
With the straight edge of selector comb bring the in-between needles from A to B position.
Remove cast on comb from the knitting.



Fold the hem half way up.
Take single transfer tool and slide it into the FIRST loop of the FIRST row knitted in col. 1 above nylon cord.
Lift the loop into the FIRST EMPTY needle in B position.
Continue lifting the loops into the empty needle until the welt has been completely turned up.
Hang the last loop in the left end needle.

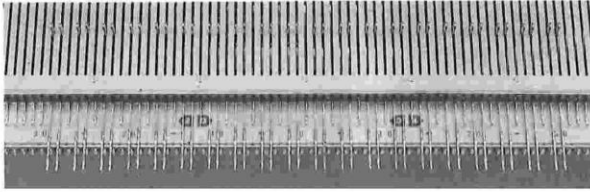


Pull and remove nylon cord from welt.
Knit the garment part with proper tension approx. 5 cm up.
Attach cast on comb through the knitting above the hem.
Continue knitting.

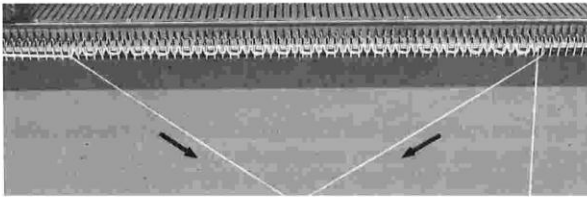


The picture at left shows a welt as it is removed from the machine, the bars show clearly between the stitches.
Before pressing the welt, press the main part of the knitted piece, then remove pins and insert a ruler through the welt and pull it lengthwise. The bars will be absorbed by the stitches.
Press welt carefully, page 23 for ironing instructions.

DOUBLE 2-1 WELT



Carriage at RIGHT, all settings neutral.
Push every 2nd and 3rd needles to D position.
To set needles you can use 2 × 1 Selector Comb, available as an accessory of ribber or as an Optional accessory.



Thread waste yarn and knit to left.
The needles in B position have loops but it is not possible to hang cast on comb into the loops. You will have to make OPEN CAST ON as on page 18.

Take nylon cord and place it over the loops, BEHIND sinker hooks. Pull ends firmly DOWN.

Knit 5 rows, carriage at RIGHT. Pull out nylon cord from the knitting.

Knit another 7 rows. Carriage at left.

Thread nylon cord in feeder ① and knit to RIGHT. Push cast on comb through waste yarn half way up.
Thread col. 1. Check that there is no slack yarn anywhere above or below carriage.

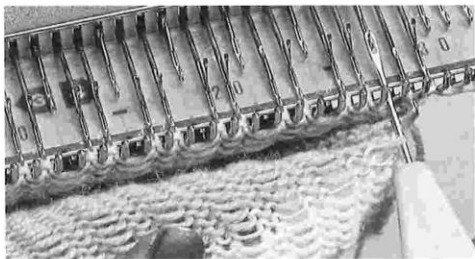
Assume your yarn is suitable for Tension 6.

Set Tension to 4 and row counter to 000.

Knit approx. 40 rows.

With the straight edge of selector comb, bring in-between needles from A to B position.

Remove cast on comb.



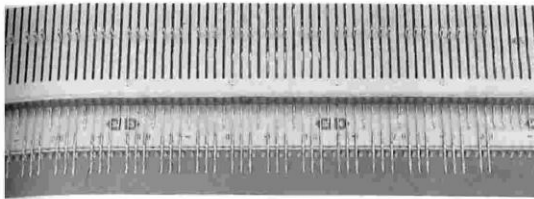
Fold the hem half way up.

Pick up loops of FIRST row knitted in col. 1 on to every 2nd and 3rd needles.

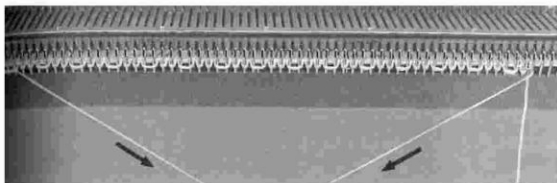
Pull nylon cord from the knitting.

Set Tension to 6, row counter to 000. Continue knitting.

DOUBLE 3-1 WELT



Carriage at RIGHT, all settings neutral. At right push 2 needles to D position and every following 2nd, 3rd and 4th needles towards left. Be sure THREE needles at left are in D position. To set needles, you can use 3 × 1 Selector Comb, available as an Optional accessory.



Thread waste yarn and knit to left. The needles in B position have loops but it is not possible to hang cast on comb into the loops. You will have to make OPEN CAST ON as on page 18. Take nylon cord and place it over the loops, BEHIND sinker hooks. Pull ends firmly DOWN.

Knit 5 rows, carriage at RIGHT. Pull nylon cord from the knitting.
Knit another 7 rows, carriage at LEFT.

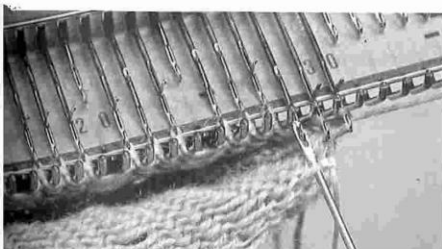
Thread nylon cord in feeder ① and knit to RIGHT.

Thread col. 1. Check that there is no slack anywhere above or below carriage. Push cast on comb through waste yarn half way up.

Assume your yarn is suitable for Tension 6.
Set tension to 4 and row counter to 000.

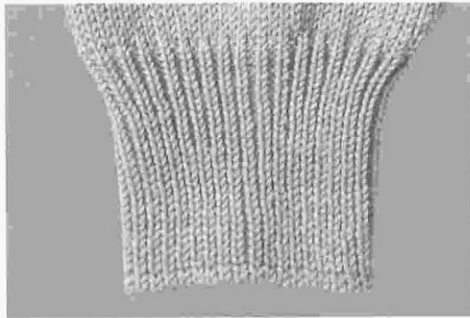
Knit approx. 40 rows.

With the straight edge of selector comb, bring in-between needles from A to B position.
Remove cast on comb.



Fold the hem half way up.
Pick up loops of FIRST row knitted in col. 1 on to every 1st, 2nd and 3rd needles, omitting 4th one.
Pull nylon cord from the knitting.
Set Tension to 6, row counter to 000. Continue knitting.

RIBBED BAND



Carriage at RIGHT, all settings neutral. Set every second needle from A to B position. Cast on with waste yarn, knit 10 rows.

Knit 1 row with nylon cord.

Thread col. 1.

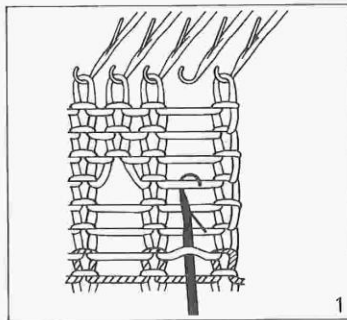
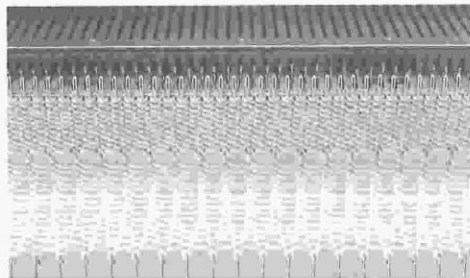
Assume your yarn is suitable for Tension 6.

Tension 3, knit 4 rows.

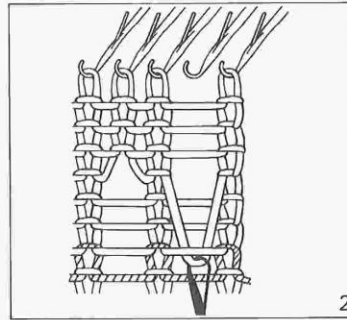
Tension 5.

Bring in-between needles to B position. At left push an adjacent empty needle to B position. Stitch number should now be even for seaming.

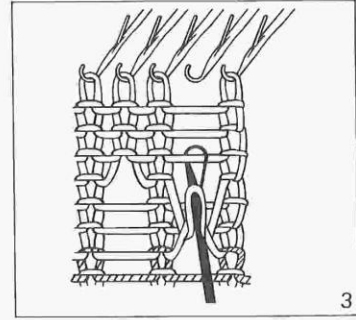
Knit approx. 10 rows.



Lift 2nd stitch off its needle and make it run down. Insert latch tool, and pick up FIRST and FOURTH bars above nylon cord.



Pull 4th bar behind 1st one. The latch will close on the upper bar. Move UP latch tool and let the loop slide behind the latch.



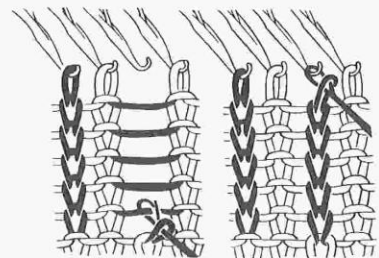
★ Catch the next bar. Pull down the tool, and let the bar pulled through the loop and slide it behind the latch. This will form a purl stitch.

Repeat ★ until the last bar forms a loop. Place this loop into the needle hook.

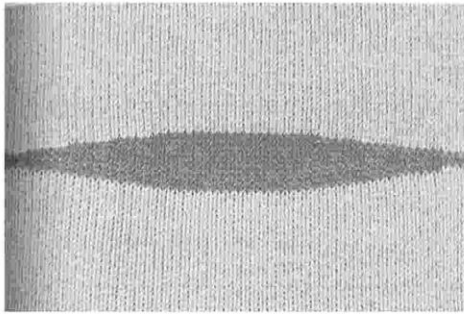
Repeat the above with every 2nd stitch. Leave two edge stitches at left without being purred.

Knit the rest of required number of rows for band. Purl up the stitches.

Pull nylon cord out of knitting. Insert cast on comb through welt, set Tension to 6 and continue knitting.

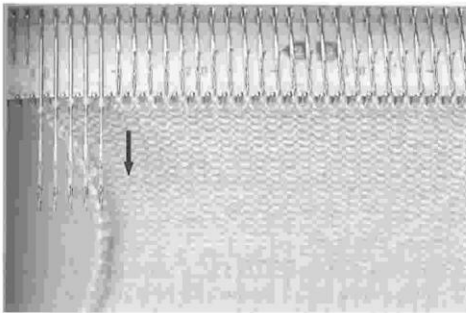


BUST DARTS—PARTIAL KNITTING IN PLAIN STITCH



Use this technique not only to make bust darts but to create shapes such as shoulder slopes, round neckline, heel and toe of sock.

Partial knitting is the technique of knitting only a part of row by holding a certain number of needles in E position.



Carriage at RIGHT.
Partial knit lever to I.

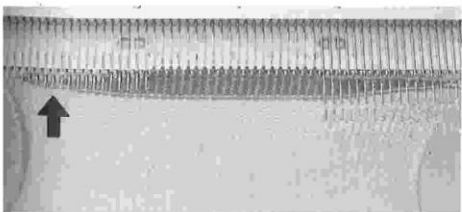
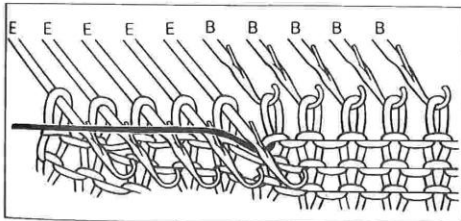
★ AT LEFT edge, push a group of needles from B to E position following your garment pattern. Knit one row.

Bring the yarn under the first needle in E position and let it pass over the others, see diagram.

At RIGHT edge, push a group of needles from B to E position. Knit one row.

Bring the yarn under the first needle in E position and let it pass over the others.

Repeat from ★ required times.



Now finish partial knitting.

Carriage at RIGHT.

Push back all the E position needles at LEFT to D position, the position just before the dots on needle bed.

Knit to LEFT.

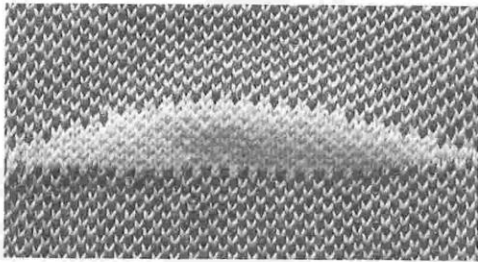
Partial knit lever to O.

Knit to RIGHT, all the needles will be knitted back to B position.

Continue knitting.

NOTE: Make sure the yarn is not round any pins of sinker hooks when placing yarn under and over the needles. When moving carriage towards the knitting, pull up the yarn above carriage lightly to adjust tension. When knitting, move carriage just out of the needles in B position, not past all needles, this would make your yarn tension too loose.

BUST DARTS—PARTIAL KNITTING IN PATTERN STITCH

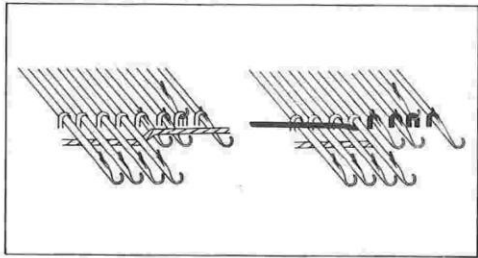


For LACE pattern see next page.

Carriage at RIGHT.

Partial knit lever to I.

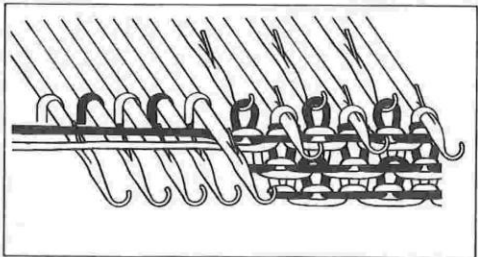
★ At LEFT edge, push a group of needles from B or D to E position following your garment pattern.



Knit 1 row.

Bring the yarn under the first needle in E position and let it pass over the others.

In WEAVING bring weaving yarn under all the E-position needles. Do not use weaving guide on carriage. Col. 1 is under the first needle and over the others as usually.

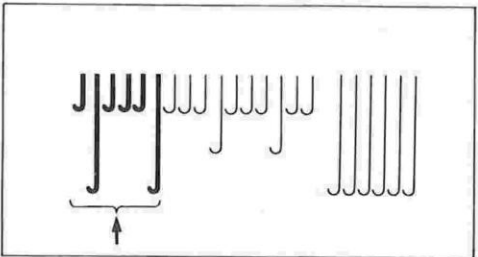


In FAIRISLE knitting, place BOTH col. 1 and col. 2 yarns. In PLAITING, place only col. 1 under the first needle. Col. 2 passes over all the E-position needles.

At RIGHT edge, push a group of needles from B or D to F position following your garment pattern.

Bring the yarns under the first needle.

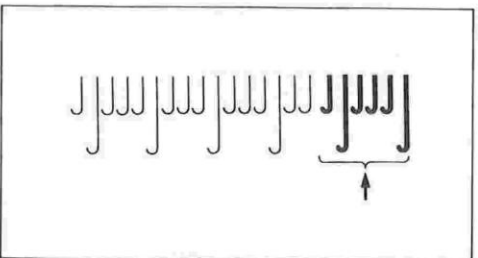
Repeat ★ required times.



Now finish partial knitting.

Carriage at RIGHT.

Using single transfer tool, set the needles at LEFT from E to B or D position following the pattern position of the centre needles.



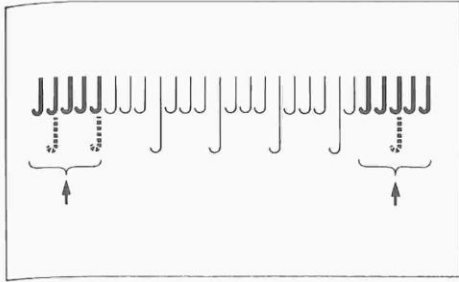
Knit to LEFT.

Partial knit lever to 0.

Set the needles on the RIGHT from E to D or B position following the pattern.

Continue knitting.

BUST DARTS—PARTIAL KNITTING IN LACE PATTERN



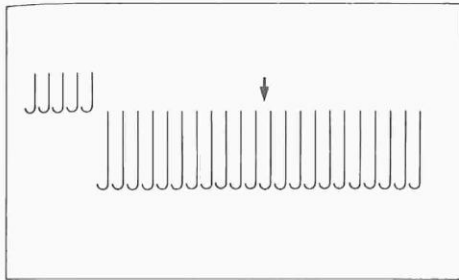
Lace carriage at LEFT and main carriage at RIGHT.
Set pattern dial to EMPTY ◀▶, and tension dial 1 full number larger.

★ Slide lace carriage to RIGHT, needles are selected.
At both edges, push back the selected needles from D to B position, which are in the group of needles not to be knitted following your garment pattern.
(5 in top diagram.)

When shaping only at one side of the knitting, be sure to work this at the opposite side of carriage.

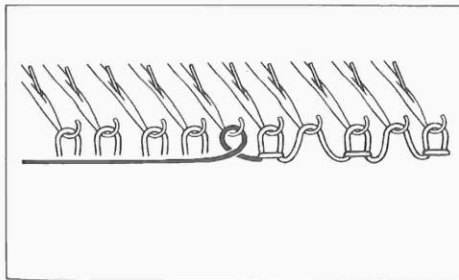
Slide lace carriage to LEFT, stitches are transferred.

Repeat from ★ until the mark ⇄ appears on punch card.



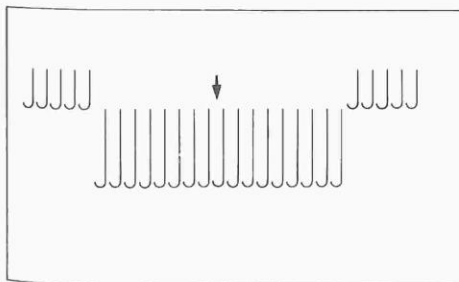
Leaving the group of needles in B position at LEFT, bring the other needles to E position.

Knit one row with main carriage to LEFT.



At carriage side hook the yarn in the hook of the first needle which was in B position.

Check yarn tension.



Leaving the groups of needles in B position not to be knitted at BOTH edges, bring the other needles to E position. (When shaping only at one side, leave the group of needles at one side and bring the other needles to E position.)

Knit one row with main carriage to RIGHT.

Repeat above steps required times.

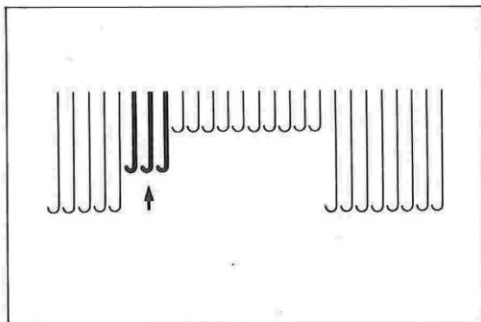
- When knitting make sure you move carriage out of the knitting, and pass the needles in B position too.
- As you continue knitting move up the comb and the weight and balance in order to eliminate dropping stitches and the knitting from slanting.

REVERSED DARTS—PARTIAL KNITTING IN PLAIN STITCH



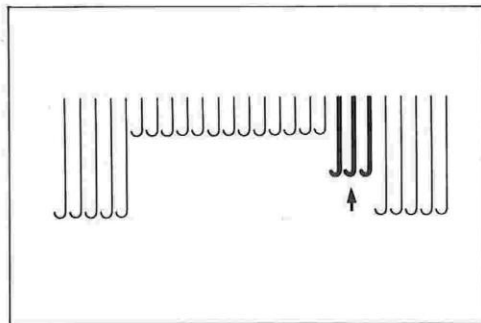
This technique is used for shaping such as side corners of skirt panel above hem, puffed sleeves and heel and toe of sock.

Some needles are already in E position in this case. Assume that the needles are in E position at both right and left edges.



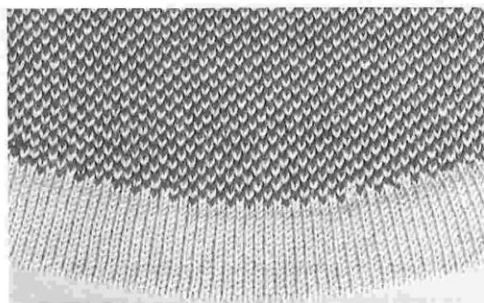
Carriage at RIGHT.
Partial knit lever to I.

★ At LEFT, push a group of needles from E to D position, following your garment pattern.
Knit one row.
Bring the yarn under the first needle in E position and let it pass over the others.



At RIGHT, push a group of needles from E to D position.
Knit one row.
Bring the yarn under the first needle in E position.
Repeat from ★ until all needles are knitted BACK to B position.
Partial knit lever to O.

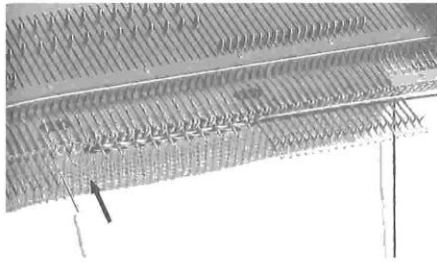
REVERSED DARTS IN PATTERN STITCH



Some needles are in E position in this case. Assume that the needles at both right and left edges are in E position.

Carriage at RIGHT.
Partial knit lever to I.

★ At LEFT, using single transfer tool, push a group of needles from E to D or B position following your garment and stitch pattern.



Bring the yarn under the first needle in E position and let it pass over the others.

At RIGHT, bring a group of needles from E to D or B position.

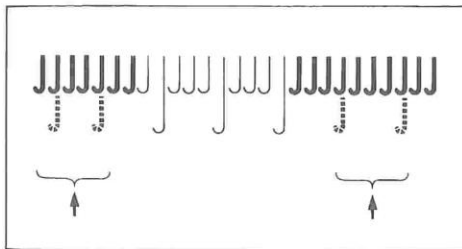
Knit one row.

Bring the yarn under the first needle.

Repeat from ★ until all needles are knitted BACK to B or D position.

Partial knit lever to O. Continue knitting.

REVERSED DARTS IN LACE PATTERN

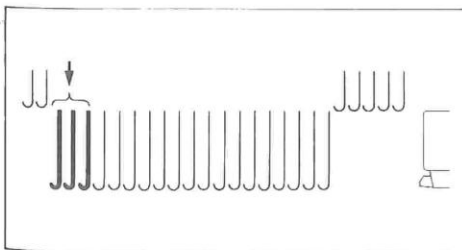


Lace carriage at LEFT and main carriage at RIGHT.
Set pattern dial to EMPTY ◀▶, and tension dial 1 full number larger.

★ Slide lace carriage to RIGHT, needles are selected.

Leaving the selected needles where you are knitting and other selected needles where you will knit wide at both sides, push back the other selected needles to B position.

Repeat ★ until the mark ⇄ appears on punch card.



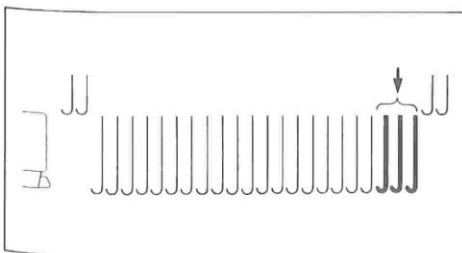
Bring the knitting needles and the group of needles you will knit wide at LEFT to E position.

Knit one row with main carriage to LEFT.

At carriage side hook the yarn in the hook of the first needle which was in B position.*

Check yarn tension.

If the needle * in above instruction doesn't have a stitch, hook the yarn into the hooks of the needle and the adjacent needle on the side of the main carriage.



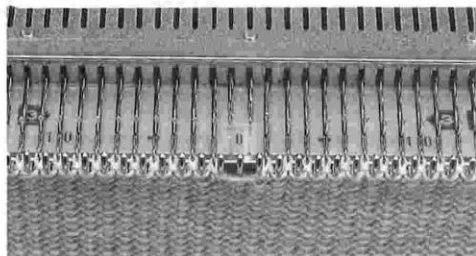
Bring the knitting needles and the group of needles you will knit wide at RIGHT to E position.

Knit one row with main carriage to RIGHT.

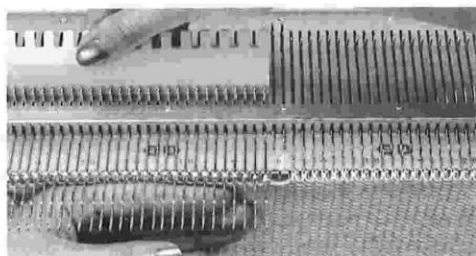
Gradually you will bring a group of needles at the opposite side of carriage to E position to be knitting.

SHAPING "V" NECK—METHOD 1

Use this method when PLAIN side of the knitting is to be the RIGHT side (OUTSIDE) of the garment.
Carriage at RIGHT and all settings neutral.



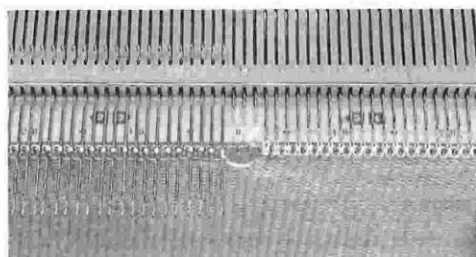
Transfer the stitch at RIGHT of centre on to needle 2 at RIGHT, and transfer the stitch at LEFT of centre on to needle 2 at LEFT.
This is the 'V' neck opening. Push two centre needles to A position



FIRST WE WILL KNIT THE RIGHT SIDE HALF OF THE 'V' NECK.

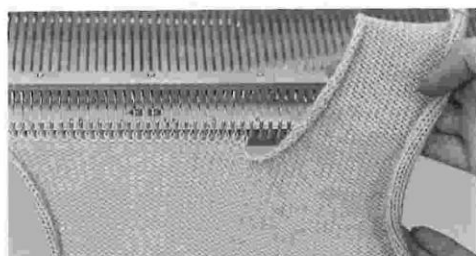
With the straight edge of selector comb, bring all the needles at LEFT of centre from B to E position, at the same time hold the knitting with your left hand against the machine. The stitches will slide well behind the needle latches.

Note the number on row counter so that you can start the second half with the same number.

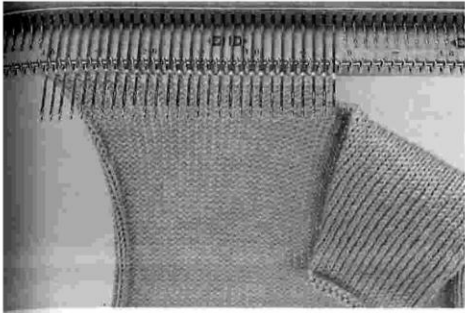


Set partial knit lever to I.
Slowly move carriage to LEFT, past the needles in B position and over the needles in E position.
Only the needles at RIGHT of centre will knit.

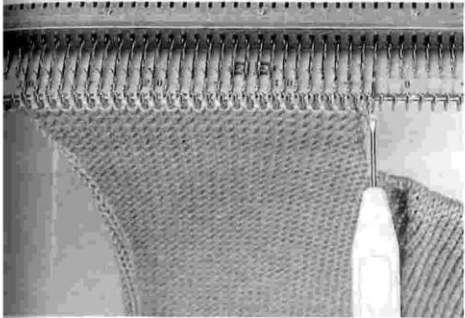
★ Knit a few more rows according to the garment pattern.
Carriage at RIGHT.
At LEFT of needles in B position transfer 1 more stitch on to its adjacent needle to RIGHT. Push the empty needle back to A position.



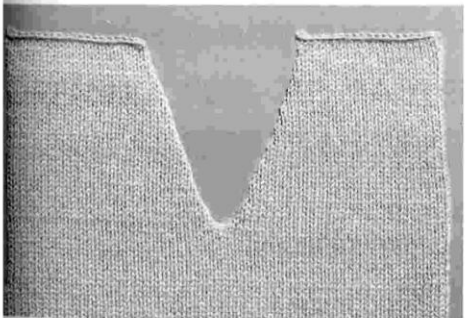
Repeat from ★ required times.
Cast off the stitches and remove the right half from the machine.



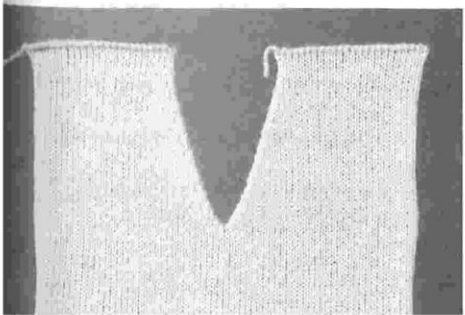
Now knit the LEFT half of 'V' neck. Move all EMPTY needles well BACK to A position.
 Partial knit lever remains at I.
 Move carriage to LEFT, OVER and PASS the needles in E position.
 Re-thread yarn and check yarn tension.
 Set Partial knit lever to 0.



★ Knit required number of rows as for right. At RIGHT edge transfer a stitch on to its adjacent needle to LEFT.
 Push back the empty needle to A position.
 Repeat from ★ required times.
 Cast off the remaining stitches.



This picture shows the simple 'V' neck shaping which you have just knitted.



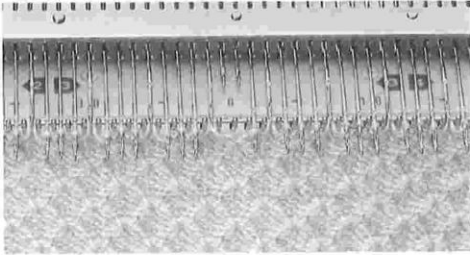
You can use double transfer tool when decreasing the stitches for the 'V' neck, this will give a more fashionable edge.

You may have some marks on the purl side of the knitting, this is all right when the purl side remains on the inside of the garment. The next page will show how to separate the knitting in case the PURL side is the RIGHT side of the garment.

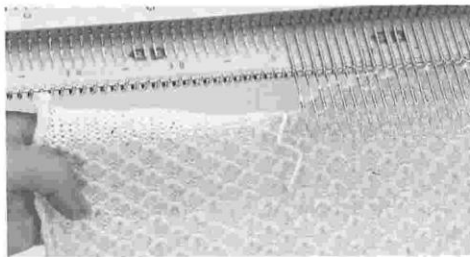
SHAPING THE "V" NECK—METHOD 2

This method is used when the PURL side of the knitting is to be the RIGHT side (OUTSIDE) of the garment, such as in purl knitting, tuck stitch, slip stitch and weaving patterns.

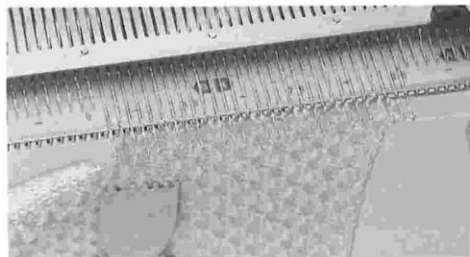
In this method remove the LEFT half on waste knitting, and knit the RIGHT half of 'V' neck first. After finishing the right side, pick up the left side stitches and complete.



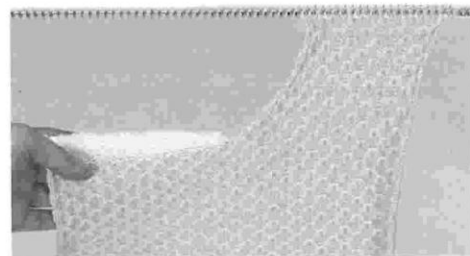
Carriage at right.
Transfer the right centre stitch to the right and the left centre stitch to the left.
Push back two centre needles to A position.
Note the number on row counter and punch card.



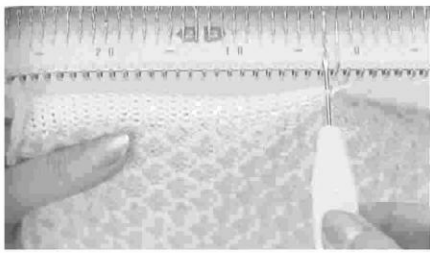
Bring all needles at RIGHT of centre to E position.
Pattern dial to PLAIN.
Card levers to O.
Partial knit lever to I.
Disengage row counter to non-working position.
Remove the yarn and thread waste yarn in feeder ①.
Knit 10 rows, remove waste yarn from feeder.
Slide carriage to left, and the knitting will be removed.



Push back all the left side empty needles to A position.
Pattern dial to RIGHT EMPTY ▶.
Card levers to C.
Partial knit lever to O.
Set right side needles to B position using transfer tool.
Card stop lever to ■.
Slide carriage to right, the needles are selected.
Card stop lever to ▼.

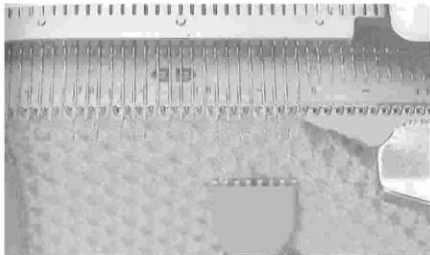


Set pattern dial to PLAIN or for required pattern knitting.
Attach weight.
Thread yarn. Knit the right side half decreasing stitches at the left edge.
Cast off and remove the right side from the machine.
Push back the empty needles to A position.
Right side is finished.



Carriage at left.
Pick up the loops of the last row knitted in col. 1 on to the 2nd needle at left of centre and towards left.
It will be easier if you bring the needles to B position in advance.

When all loops of the row have been placed on needles, unravel the waste yarn.

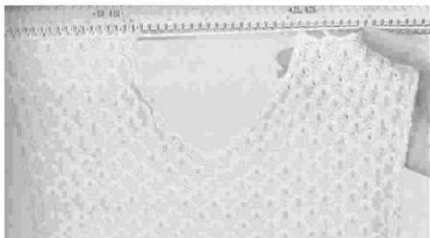


Turn back punch card to the number noted before.
Card stop lever to ■.
Card lever to C.
Pattern dial to RIGHT EMPTY ▶.

Slide carriage to RIGHT, needles are selected.
Card stop lever to ▼.

Set row counter to the number noted before, and row counter lever to working position.

Pattern dial to PLAIN ◆ or for required pattern.



Attach weight.

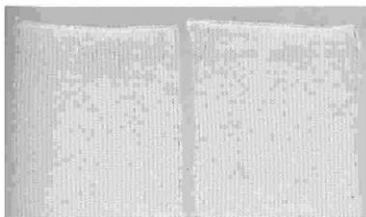
Thread yarn.

Knit the left side decreasing stitches at right.

Cast off and remove from machine.

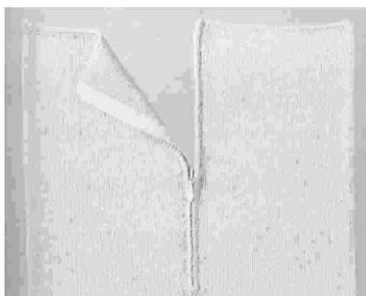
★ When separating the knitting, note the settings of machine, carriage, card and row counter so that you can start the other half with the same settings.

OPENING FOR ZIP FASTENER



Separate the knitting either by removing the stitches off the needles with waste knitting, or by bringing needles of LEFT half to E position if the PLAIN side of the knitting is supposed to remain the RIGHT side (OUTSIDE) of the garment.

Knit right and left sides separately for the length of fastener.



To make the edges, work one row of double crochet along the edge, or one row of double crochet and one row of crab stitch, see page 25.

Pin zip fastener into position and backstitch along the edges.
You can use sewing machine if you like.

SHAPING ROUND NECK—METHOD 1

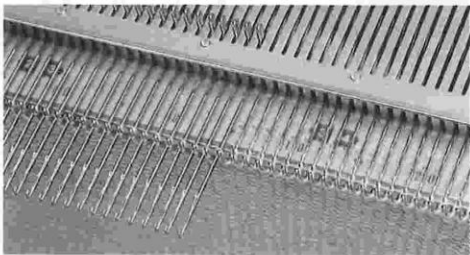
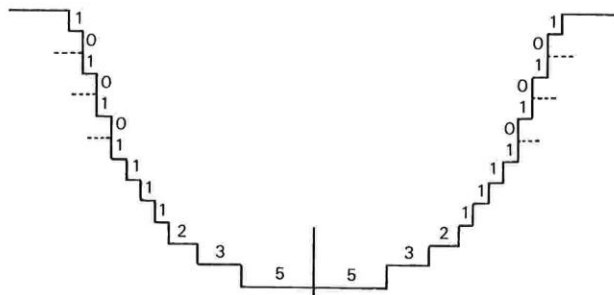
Use this method 1 when you are knitting PLAIN stitch, and also its KNIT side is to be the RIGHT side of the garment.

Shape the neckline by using partial knitting method and then decreasing. This gives an elastic neck edge.

Make a sample piece of round neck according to the instructions below:

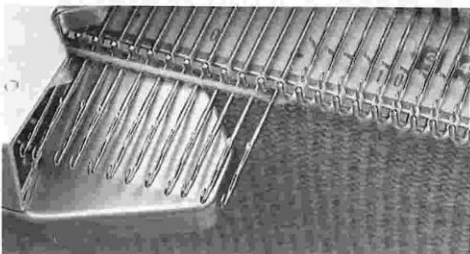
Cast on with 60 needles, knit 30 rows, carriage at RIGHT.

For the neck edge hold or decrease 34 stitches, 17 at each side of centre, in the following way, 5—3—2—1—1—1—1—0—1—0—1—0—1.

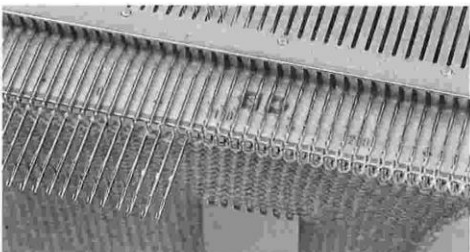


KNIT THE RIGHT HALF OF THE ROUND NECK FIRST.
Carriage at RIGHT, partial knit lever to I. Bring to E position all the needles at left of centre and 5 at right of centre.
Note the row number.

Knit one row to LEFT, and pass the needles in B position and stay on top of the needles in E position.

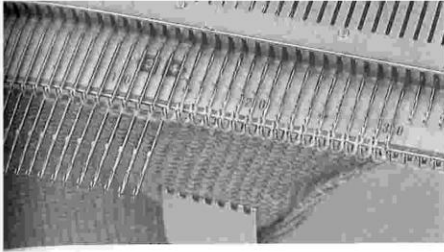


Bring yarn under the first needle in E position needle 5.
Let yarn pass over the other needles. Check yarn tension.



Knit to RIGHT.
The yarn is wound round needle 5 in E position.

- 3— Next to this needle bring 3 more needles to E position. Knit to LEFT.
Bring yarn under the first needle and knit back to RIGHT.
Attach a weight to the knitting at RIGHT of the needles in E position.

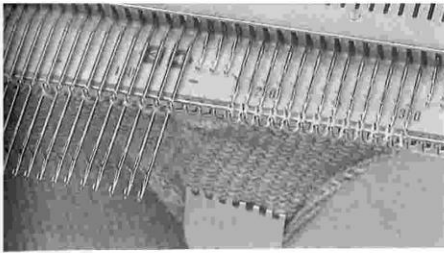


—2— At RIGHT of needles in E position bring 2 more needles forwards.

Knit to LEFT. Bring yarn under the first needle and knit to RIGHT.

—1— Bring 1 needle to E position, knit to LEFT, bring yarn under needle, knit to RIGHT.

Repeat —1— 3 times.
Carriage at RIGHT.



—0— This time bring no needles to E position, but knit 2 rows.

Attach weight to knitting under LEFT edge of the needles in B position.

—1— You are now doing decreasing stitches.
Instead of bringing the needle to E position, transfer one stitch to right adjacent needle. One stitch is decreased. Push empty needle to A position.
Knit 2 rows.



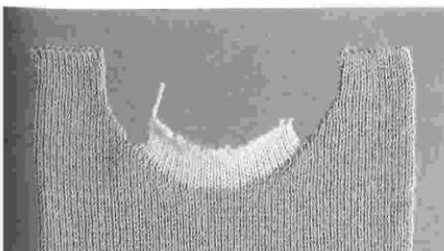
Repeat —0— and —1— twice.
Carriage at RIGHT.

The row counter at 56 and the needle position as follows: at LEFT of centre ALL, at RIGHT of centre 14 needles in E position, then 3 empty needles in A position and 13 needles in B position.

Knit 10 more rows straight up and cast off the 13 stitches. Remove yarn from feeder, slide carriage across the needles in E position to LEFT of the knitting.

Now knit the LEFT half of the round neck.
Set row counter to the number noted before.

Knit the LEFT half in the same way but the reversed shaping.



Set partial knit lever to 0. With waste yarn knit 10 rows over the needles in E position and remove the knitting from the machine.

This picture shows the round neck edge knitted according to the above instructions.

The rows knitted using waste yarn will be unravelled later when you have put the neck edge stitches on to the needles for knitting the neckband.

SHAPING ROUND NECK—METHOD 2

Follow this method of shaping round neck when using STITCH PATTERNS, and when the PURL side is to be the RIGHT side of the garment.

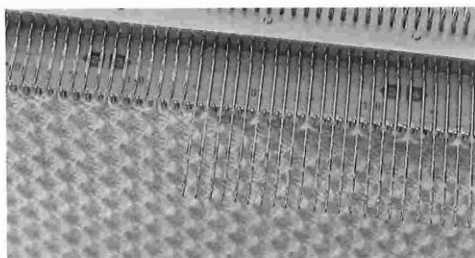
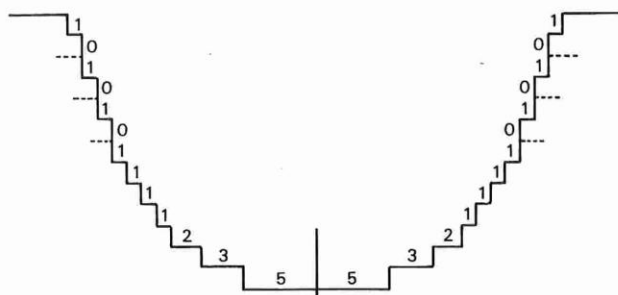
In this method the LEFT half of round neck is removed on waste knitting, and the RIGHT half is knitted first. After finishing the right side, pick up the left side stitches and complete.

Make a sample piece of round neck according to the instructions below:

Cast on with 60 stitches, knit certain number of rows with stitch pattern.

Carriage at RIGHT.

For the neck edge hold or decrease 34 stitches, 17 at each side of centre, in the following way, 5—3—2—1—1—1—1—0—1—0—1—0—1.

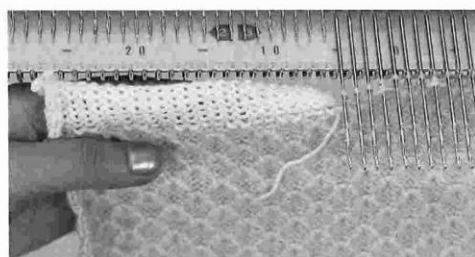


Carriage at RIGHT.

On the RIGHT side of centre bring all the needles to E position. On the LEFT of centre bring 5 additional needles to E position.

From needle 6 at LEFT of centre towards the LEFT bring all the needles to B position. Remove yarn from feeder.

Set pattern dial to PLAIN.



Card levers to 0.

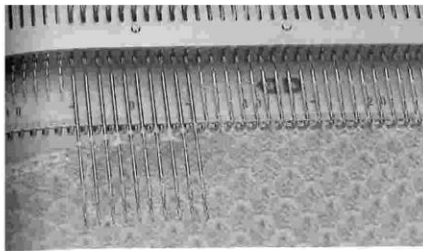
Partial knit lever to I.

Disengage row counter to non-working position.

Note the number on row counter and punch card.

Remove the yarn and thread waste yarn in feeder ①.

Knit 10 rows, remove waste yarn from feeder. Carriage at right. Slide carriage to left, and the knitting will be removed. Push back all the left side empty needles to A position.

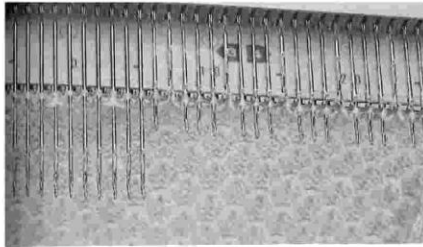


Pattern dial to RIGHT EMPTY ▶.

Card lever to C.

Partial knit lever to I.

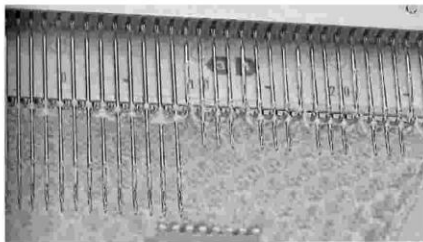
Leaving 5 needles on both sides of 0 in E position, set right side needles to B position using transfer tool.



Card stop lever to ■.

Slide carriage to right, the needles are selected. Card stop lever to ▼.

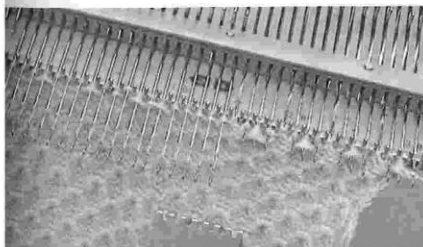
Set pattern dial to PLAIN or for required pattern knitting.



Attach weight to knitting at RIGHT of needles in E position.

Knit one row to the LEFT. Bring yarn under the first needle in E position and over the others. Knit one row to RIGHT.

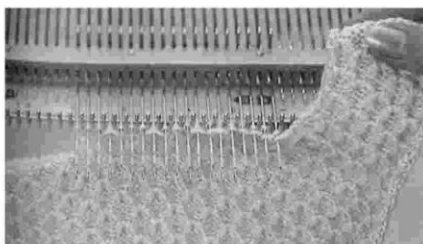
★—3— At neck edge bring 3 needles to E position. Knit to LEFT. Bring yarn under the first needle. Knit one row to RIGHT.



—2— At neck edge bring 2 more needles to E position. Knit to LEFT. Bring yarn under the first needle. Knit to RIGHT.

—1— At neck edge bring 1 needle to E position. Knit to LEFT. Bring yarn under the first needle. Knit to RIGHT.

Repeat —1— 3 times.



Re-attach weight at RIGHT of needles in E position.

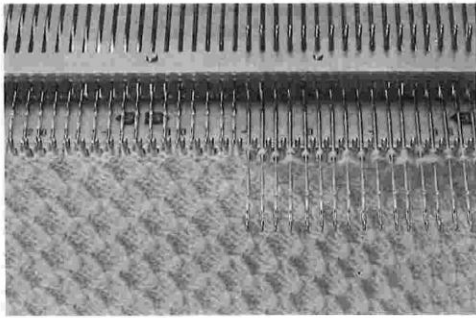
—0— Knit 2 rows.

—1— At neck edge decrease 1 stitch to RIGHT. Knit 2 rows.

Repeat —0—1— twice.

Knit approx. 10 more rows straight up and cast off stitches. Bring empty needles to A position.

The picture shows the finished RIGHT half of round neck.

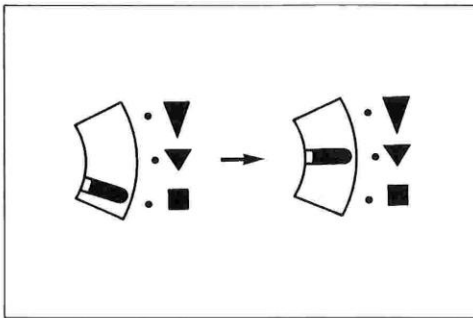


There are 19 needles in E position.

Carriage at LEFT.

To place the left side stitches on to machine, pick up the loops of the last row knitted in col. 1 starting with right edge.

When all loops of the row have been placed on needles, unravel waste yarn.



Turn back punch card to the number noted before.

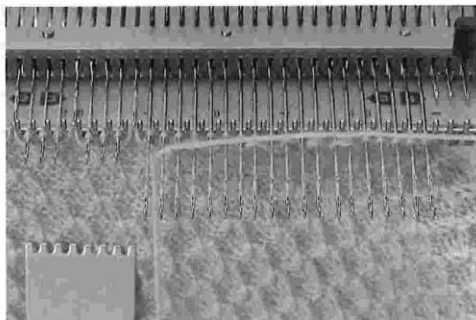
Card stop lever to ■. Card lever to C. Pattern dial to RIGHT EMPTY ▶.

Slide carriage to right, needles are selected.

Card stop lever to ▼.

Set row counter to the number noted before, and row counter lever to working position.

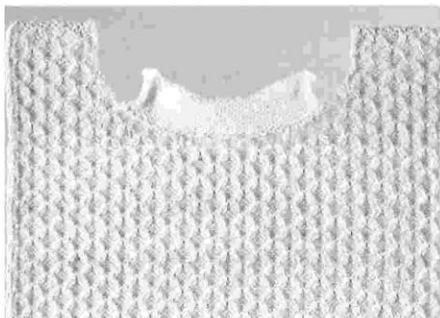
Pattern dial to PLAIN ◆ or for required pattern.



Re-thread col. 1. Bring up yarn between 4th and 5th needles at LEFT of centre and let it lie on top of these needles.

Knit to LEFT, while moving carriage toward the knitting, pull up the yarn slightly so that there is no slack yarn between the knitting and carriage.

Repeat from ★ on previous page reversing shapings.



Set carriage all neutral.

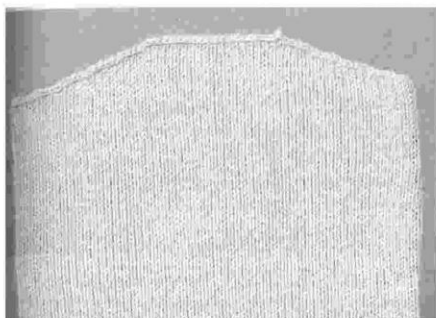
With waste yarn knit 10 rows over the needles in E position, and remove the knitting from the machine.

This picture shows the round neck knitted according to the above instructions.

SHOULDER SHAPING—3 METHODS

There are 3 different ways for shaping shoulders. When knitting stitch patterns, refer to BUST DARTS-PARTIAL KNITTING, page 69.

Carriage at RIGHT. All settings neutral.



METHOD 1, recommended for beginners.

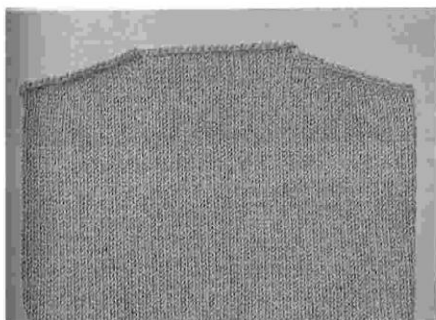
At RIGHT edge cast off the required number of needles by your garment pattern.

Knit to LEFT.

If shaping both sides simultaneously cast off the required needles at LEFT.

Continue casting off until enough stitches are decreased to shape shoulder.

Knit one row large Tension and cast off remaining stitches, page 21.



METHOD 2, using cast off of big loops.

Set partial knit lever to I.

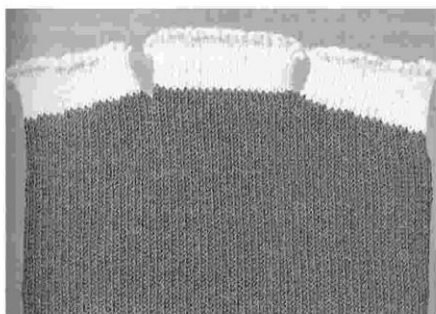
At LEFT edge bring the required number of needles to E position.

Knit to LEFT. Bring yarn under the first needle in E position.

If shaping both sides simultaneously bring the required needles to E position at RIGHT.

Continue casting off until enough stitches are held in E position. ★

Set large Tension. Knit one row to LEFT. Cast off stitches, page 21.



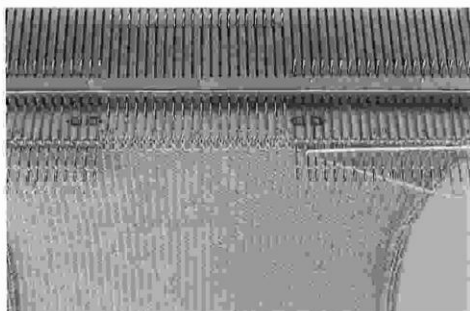
METHOD 3, finishing with waste yarn.

Follow Method 2 until ★.

Finish the stitches of each neck edge and shoulders separately with waste knitting.

The stitches will be grafted or backstitched together later on.

POCKET WITH FLAP



Work the garment piece until the placement line for the pocket.

Carriage at RIGHT, all settings neutral. Remove col. 1 and hook into holder.

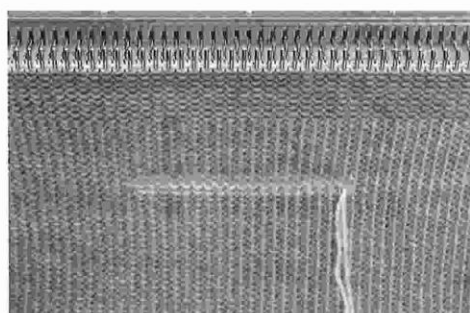
Disengage row counter lever. (When pattern knitting, card levers to 0 and card stop lever to ■.)

Thread waste yarn.

Bring all needles to E position except the needles of pocket position. (e.g. 20 needles)

Partial knit lever to I.

Bring up waste yarn between 1st and 2nd needles in E position at right. Let the yarn pass over the E-position needles.

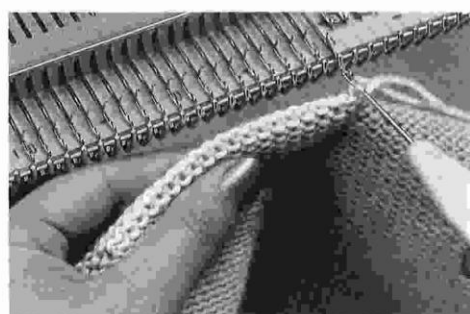


Knit 2 rows with waste yarn. (When pattern knitting set pattern dial to EMPTY ◀▶ and move carriage to LEFT. Bring back all the needles to B position. Set card lever and move carriage. Needle are selected. Re-set pattern dial to required pattern and card stop lever to ▼.) Break the yarn and remove it.

Partial knit lever to 0. Row counter lever to working position.

Re-thread col. 1 in feeder ①, finish the garment piece.

The opening for the pocket can clearly be seen by two rows of waste knitting. Press the piece.

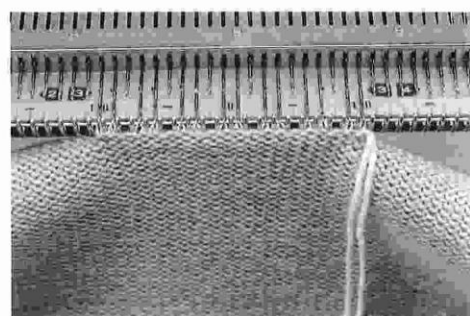


Carriage at RIGHT.

WRONG side (in this case purl side) facing, hold pocket opening in front of 20 needles.

Insert single transfer tool into the FIRST loop at RIGHT of the LAST row knitted in col. 1 BELOW the waste yarn.

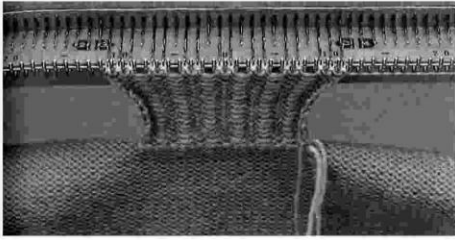
Place this loop into the needle.



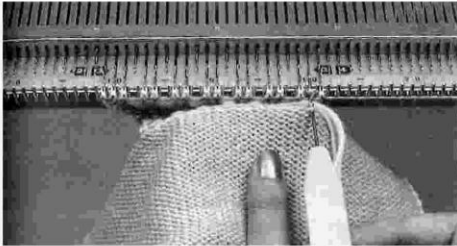
Place the following loops into needles.

Now make the needle setting for the pocket flap. Starting with the RIGHT, transfer every 3rd stitch to its adjacent needle to LEFT. (2 × 1 needle setting)

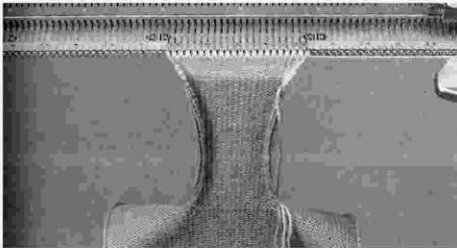
Push back empty needles to A position.



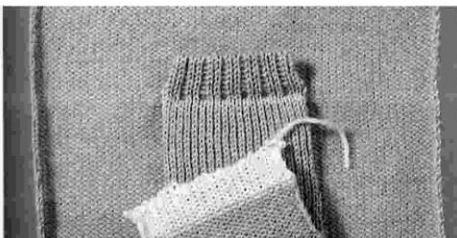
Set carriage neutral. Tension 1 number tighter than for main.
Knit one row. Bring outside empty needles to E position on both sides and wind yarn round them.
Knit 14 rows.



Turn up the pocket flap.
Fold up the knitting so that the rows knitted below the waste yarn are on top.
Insert single transfer tool into the FIRST loop of the SECOND row below the waste yarn.
Place this loop into the 2nd needle from RIGHT and all following loops into the needles.
The edge needles will have one loop only.



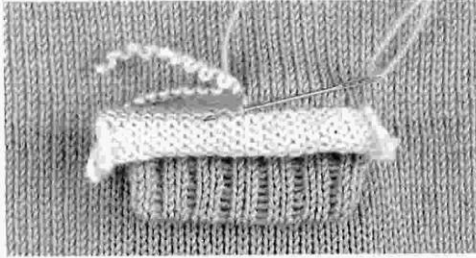
Set Tension as for main.
Knit double the depth of pocket.
Remove col. 1 and thread waste yarn.
Knit 10 rows, remove knitting.



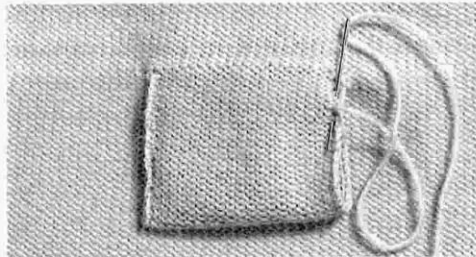
Press the flap and pocket part.
Now ready for sewing.



At LEFT cut and open the two rows knitted in waste yarn and pull out the thread nearest to pocket flap.
Turn pocket flap to outside of garment.
Fold pocket half way up so that the rows knitted in waste yarn lay close to the row of waste yarn at top edge of pocket.



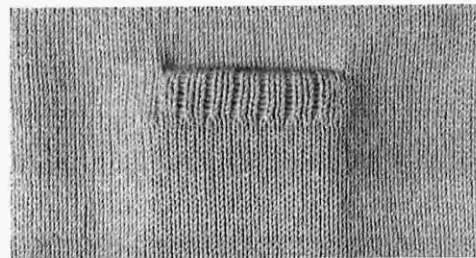
Thread tapestry needle with the yarn. Graft stitches of last rows of col. 1, at top unravel the stitches of waste yarn as you sew.
Unravel the other waste yarn.



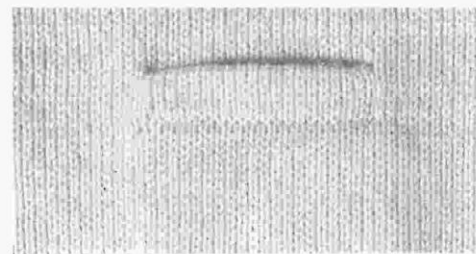
Backstitch both side edges of pocket, at the same time secure the two edge stitches.



Mattress stitch the outside edge of the pocket flap to the main knitting, at top edge turn out pocket and catch down the inside edge of the flap.



The pocket with the ribbed flap is completed.

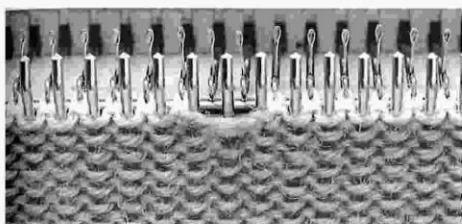


You can if you like knit the flap in plain, without ribs, so do not transfer the rib stitches after having picked up the loops.

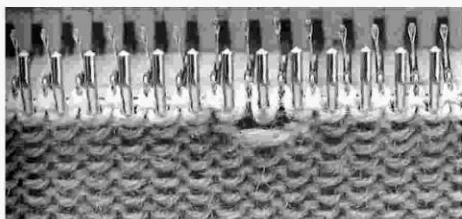
EYELET BUTTONHOLE



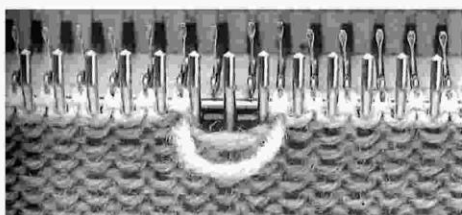
The smallest buttonhole is made by simply transferring 1 stitch to its adjacent needle.
The photo near left is the next larger one, explained below



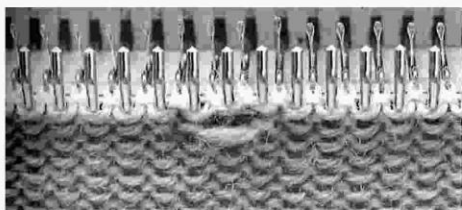
Transfer TWO stitches to their adjacent needles at each RIGHT and LEFT.
Leave the empty needles in B position.



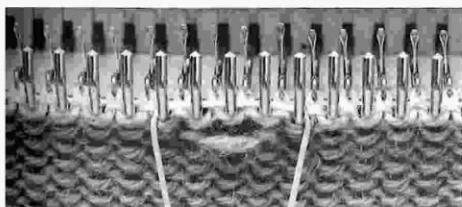
Knit one row.
The yarn will have formed loose loops in the needle hooks.



Remove the yarn from the needles by bringing them to E position and then back to B position.

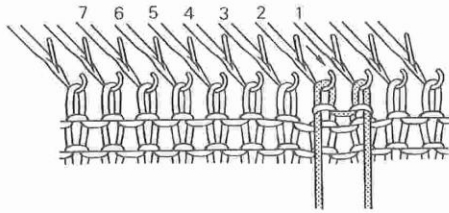


Take up the yarn and wind it round the needle hooks, for this you need to bring the needles slightly forward.
Pull the needles back to B position.

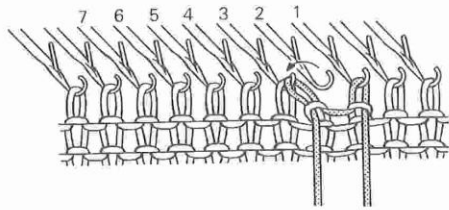


Place nylon cord across the two new loops and the adjacent stitches, nylon cord will be behind sinker hooks.
Pull the ends of nylon cord down and knit 2 rows, remove the cord from the knitting.
Buttonhole is completed.

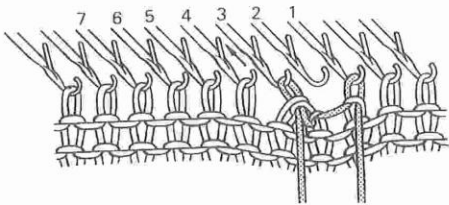
LARGE BUTTONHOLE



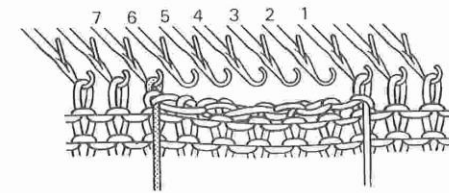
Knit the garment piece until the buttonhole position. Take a thread of col. 1 approx. 30 cm long. Try this buttonhole over 7 needles, the needles are numbered 1 to 7. Move needle 1 to E position, open latch. Place thread across hook and pull the needle back to B position. You have knitted in the thread by hand. Repeat same with needle 2.



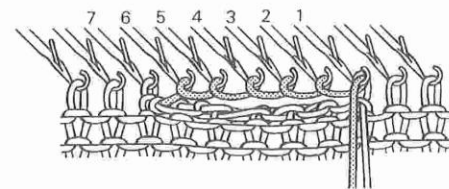
Transfer stitch of needle 2 to needle 3.



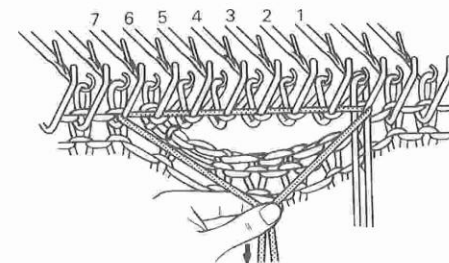
Move needle 3 to E position, place thread in hook and pull needle back to B position. A new stitch is made in needle 3.



Cast off this way until you have 5 empty needles and a new stitch in needle 7.



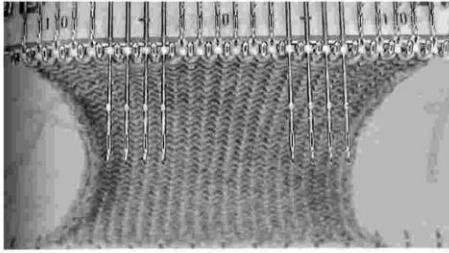
Move needle 6 forward, out of sinker hook. Wind yarn round needle in anti-clockwise direction. Pull needle back to B position. Repeat with the other needles until you have wound a loop round needle 1. All needles in B position have a loop.



Take nylon cord, place it across the loops of the 7 stitches behind sinker hooks. Pull down ends of nylon cord and knit 2 rows. Remove nylon cord from knitting.

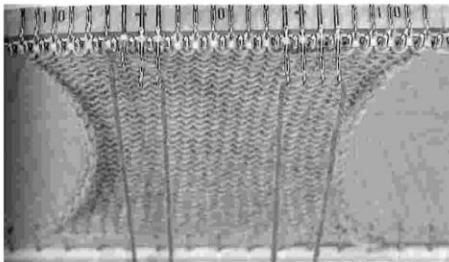
Continue knitting up to the next buttonhole position. When the garment is finished you can sew in the loose ends.

BUTTONHOLE BAND



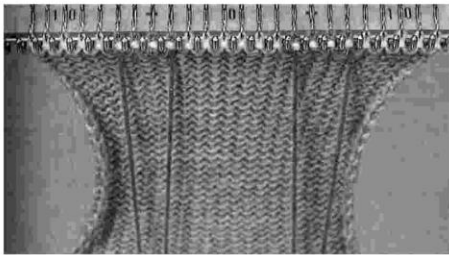
Cast on, e.g. 24 stitches, and knit the band until the buttonhole position.

Bring needle 4, 5, 6 and 7 at each RIGHT and LEFT of machine centre from B to E position.



Take 2 threads of waste yarn and place them across the open hooks of the needles in E position.

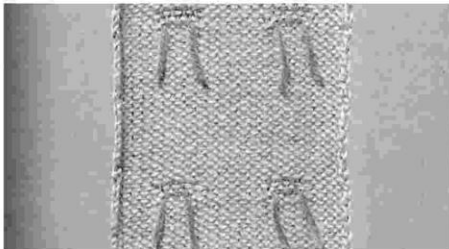
Hold the ends down whilst at the same time push the needles back until the latches close over the waste yarn.



Let loose the waste yarn.

Starting with the needle at RIGHT, bring the needles with waste yarn one by one back to B position.

The photograph shows both groups knitted back to B position by hand using waste yarn.

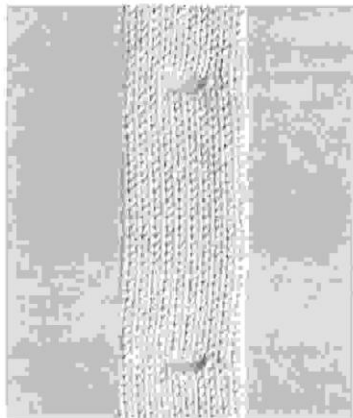
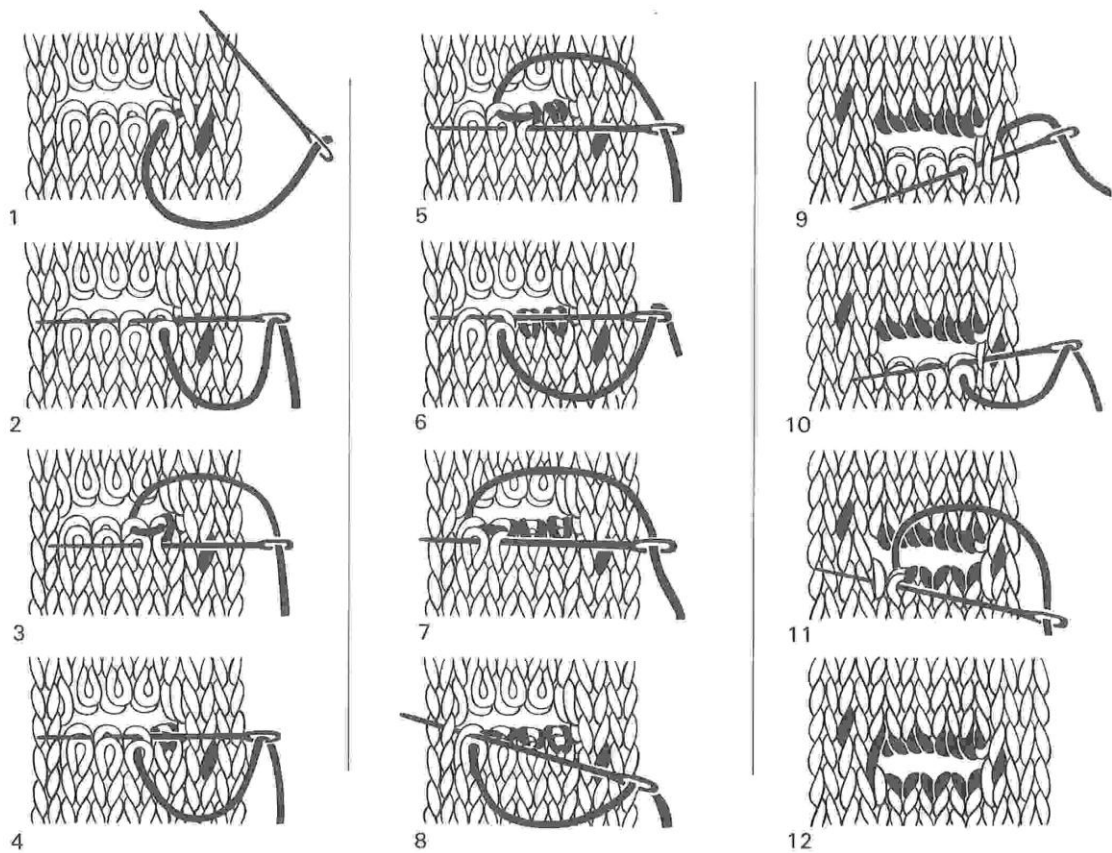


Knit and make required number of buttonholes. Remove the band from the machine. Press the band, the stitches will be set and not run. Pull out the waste yarn from the two buttonholes.

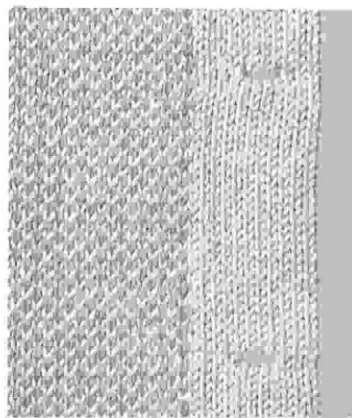


Thread a tapestry needle and secure end by sewing through some stitches on the purl side.

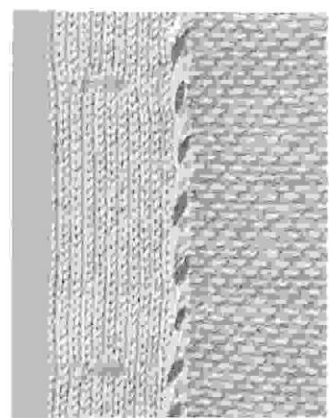
Fold band in half lengthwise, plain side out.



13



14



15

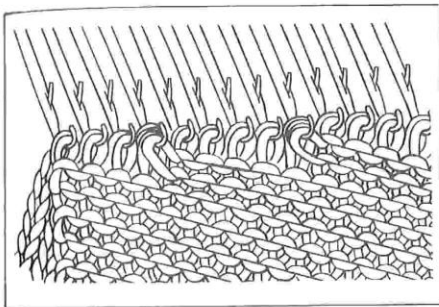
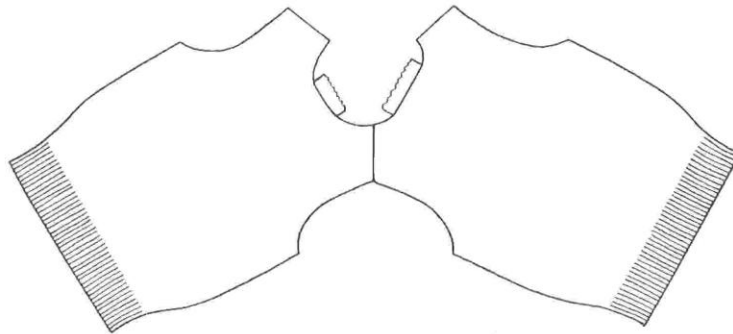
Sew up the buttonholes as indicated by diagrams 1 to 12.

13 — Finished buttonholes.

14 — Mattress stitch along the front edge.

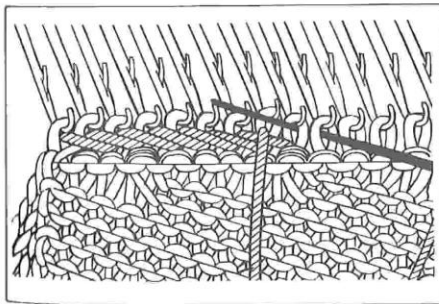
15 — Catch down the other edge of the buttonhole band on to the seam as shown by the navy stitches.

SHOULDER SEAMING AND NECKBAND

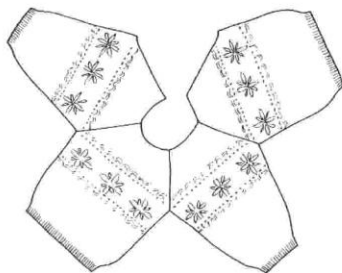


If you have cast off the shoulder stitches, seam one shoulder with backstitch before knitting neckband, page 25.
If you have worked shoulder with waste knitting seam as follows:

Hold the Front with right side facing you, pick up stitches of right shoulder on to needles.
Hold the Back with wrong side facing you, pick up stitches of right shoulder on to the same needles.

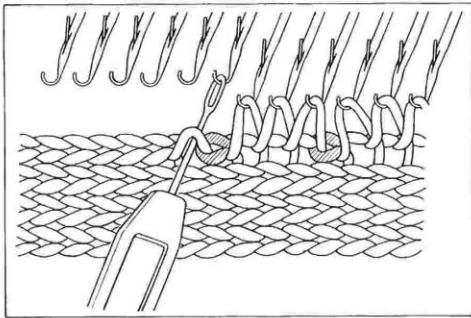


Knit 1 row.
Thread tapestry needle with yarn. Graft the stitches as in diagram.

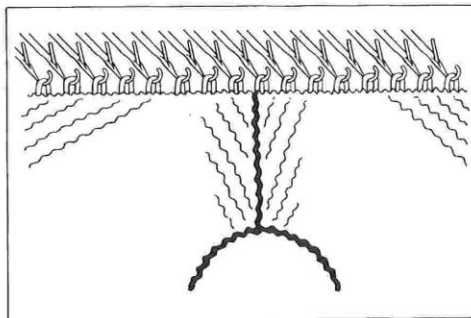


In case of Raglan sleeves, seam the sleeves on to the Front and Back leaving one back seam open.
You can work mattress stitch or backstitch.

ROUND NECKBAND



With the RIGHT side of garment facing you pick up stitches of neck edge on to needles, repeating to pick up three stitches and omit one.
Do not pick up the shoulder stitches.



Thread yarn into feeder ① and knit the neckband as follows:
*This is a general guide for medium yarn.

Bring all needles to E position.
With garment Tension, knit 1 row.
Wind yarn round each outside empty edge needle and bring them to E position.

Knit two rows.

T. 1 number tighter than garment Tension, knit 3 rows.

T. 2 number tighter, knit 3 rows.

T. 3 number tighter, knit 3 rows.

With garment Tension, knit 1 row.

T. 3 number tighter, knit 3 rows.

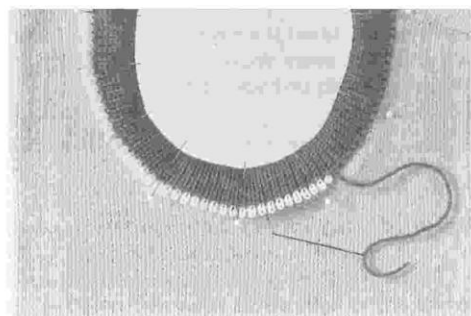
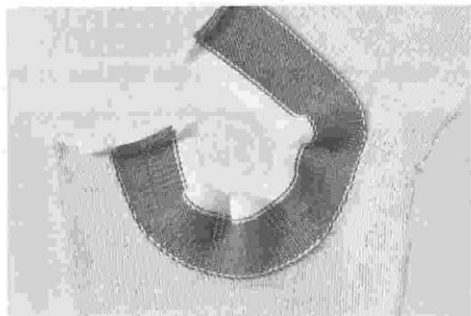
T. 2 number tighter, knit 3 rows.

T. 1 number tighter, knit 3 rows.

With garment Tension, knit 5 rows.

Thread waste yarn, knit 10 rows.

Remove the knitting.



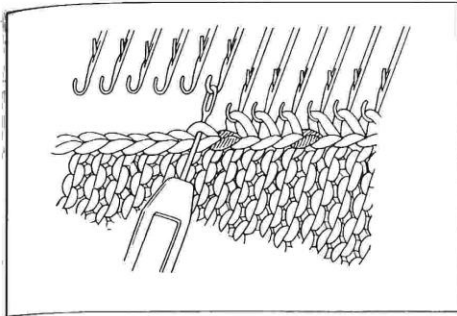
Join the other shoulder.

Mattress stitch neckband seam.

Fold neckband to outside of garment at loose centre row.
Pin the neckband along the edge over the rows of waste knitting.

Backstitch along the edge, page 24.

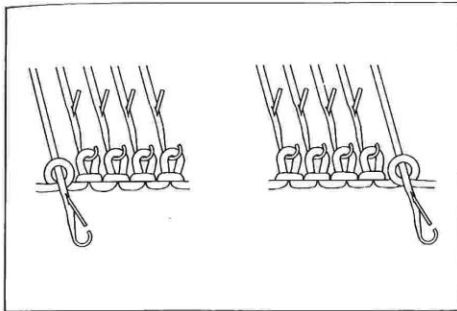
"V" NECKBAND



Seam shoulder as explained on page 91.

We will make 'V' neckband in two pieces.

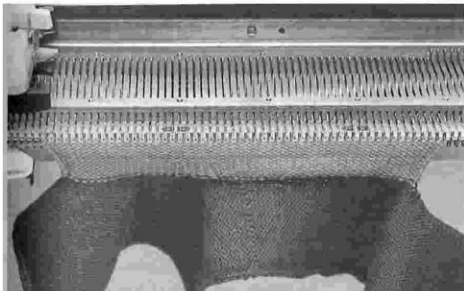
With the wrong side of garment facing you pick up stitches along Back NECK and Right Front, and place them on to needles.



★ Thread yarn into feeder ① and knit the neckband as follows:

Bring all needles to E position. Tension same as for garment, knit one row. Wind yarn round each outside empty edge needle and bring them to E position.

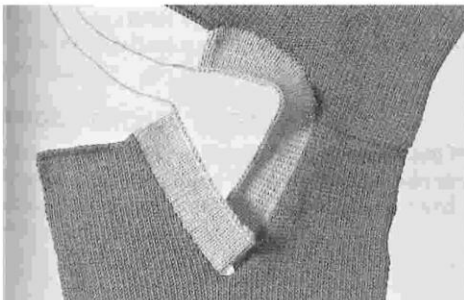
Knit required number of rows for the depth of neckband. Tension 1 full number larger than for garment, knit one row.



Tension 1 full number tighter than for garment, knit required number of rows.

Thread waste yarn, knit 10 rows.

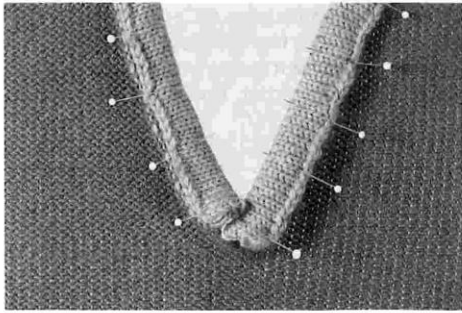
Remove the knitting.



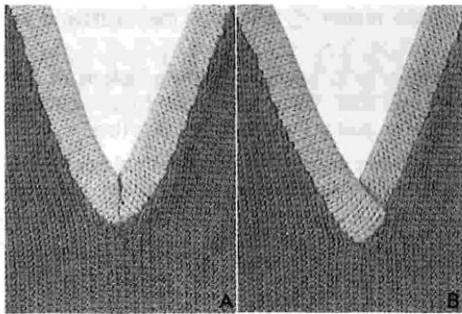
Make the other piece of neckband.

Pick up stitches along LEFT Front on to needles.

Knit following the instructions from ★.



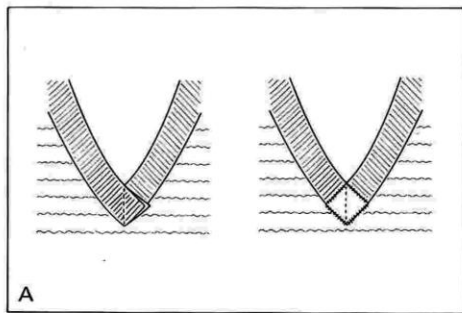
Join the other shoulder. Mattress stitch neckband seam at shoulder.
 Fold neckband to inside of garment at loose centre row.
 Pin the neckband along the edge over the rows of waste knitting.
 Seam along the edge.



The point of V neck;

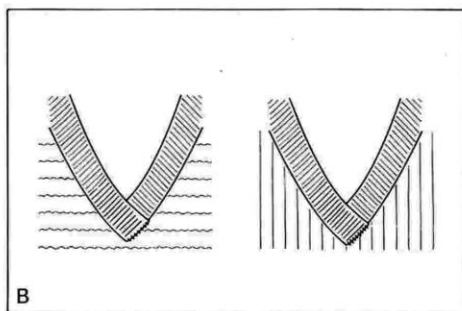
METHOD A

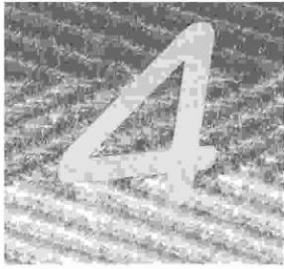
On the inside of garment, work backstitch together vertically the edges of both bands.
 Open the triangle seams and catch down along the edge.



METHOD B

On the inside of garment seam the side of inner band to the garment.
 On the outside seam the side of outer band to the garment.
 Place right front band over left and sew in place.
 For men's garment place the left band over the right band.





Sometimes, with or without reasons mistakes and problems just happen. Please do not worry, read this page carefully and remedy as explained, most troubles are easily solved.

Never use force, take your time and be patient. Take care of your machine, clean and oil properly after and before knitting and cover your machine while not in use.

PREPARATION OF YARN

Always prepare your yarns with great care. Do not leave knots in the yarn, they can cause carriage jamming, dropped stitches and faulty knitting.

Do not knit the yarn end if it is not **THREE** times longer than the width of the knitting, you could drop stitches at the end of the row.

Always knit a sample and a tension swatch **BEFORE** you start knitting a garment, if not your garments will not fit and this of course is wasting your time and money.

WASTE YARN

As waste yarn you can use any leftovers from previous garments. You should use waste yarn of the same thickness as the yarn you wish to knit for the garment.

Later, when making up the garment you will gradually remove the waste yarn, re-wind it and use it again.

NYLON CORD

Avoid having knots in your nylon cord otherwise you will not be able to pull it out of the knitting.

When you have turned up the hem or welt, remove the nylon cord from the knitting.

When placing the nylon cord across the loops **BEHIND** the sinker hooks you **MUST** pull **DOWN** **BOTH** ends **FIRMLY**, or the nylon cord will get caught in the needle hooks and you must start the cast on all over again.

EDGE STITCHES NOT KNITTED

Check the setting of upper tension. If it is too **TIGHT**, the yarn will be pulled up from carriage too strongly and make the edge stitches pulled forward and out of the needle hooks.

CARRIAGE MOVEMENT

ALWAYS slide the carriage past the knitting approx. 5 cm and **NEVER** try to reverse its movement while it still has contact with the needles in knitting position.

SLACK YARN

ALWAYS make sure there is no slack yarn anywhere **BELOW** or **ABOVE** the carriage. If you have slack yarn below carriage, it can get caught in the fabric presser brushes and thus causing the carriage to jam or break the yarn, and this again will cause dropped stitches.

Slack yarn above the carriage can cause loose loops at the edges of the knitting and dropped stitches. The yarn can be entangled in the upper tension unit and so cause the carriage to jam or knitting of small stitches.

DAMAGED NEEDLE

You may, for no obvious reasons, drop stitches. Check the needle latch, it may be bent. Don't try to bend the needle latch into its correct position, rather change the needle, which you should do as soon as you notice the faults in the knitting, see page 103.

EXTENSION RAILS

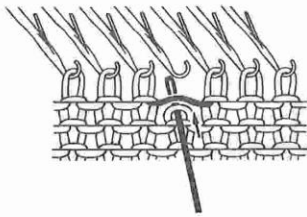
They are not only useful when knitting lace patterns but also when knitting over the width of 180 or more needles, in this case the carriage can rest nicely on the rails while you are busy with the knitting.

On each rail there are two yarn holders. When using extension rails, hook yarn at either holder instead of that at the side of machine.

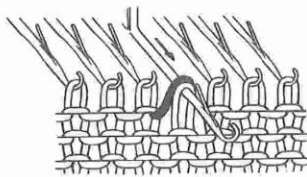


REPAIRING A DROPPED STITCH

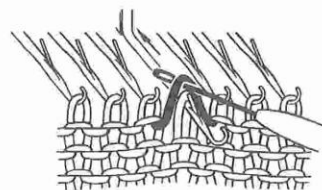
ONE ROW



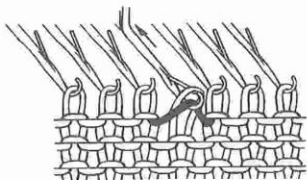
Insert transfer tool into the dropped stitch.



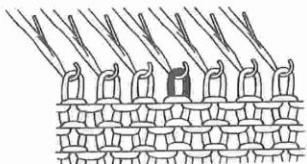
Lift the dropped stitch and the loose bar into the empty needle. Move the needle forward to E position.



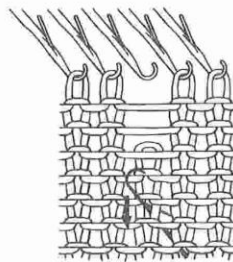
Lift up the loose bar while at the same time you slide the needle back to D position.



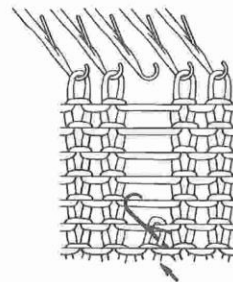
Let the loose bar drop into the needle hook and pull the needle back to B position.



SEVERAL ROWS

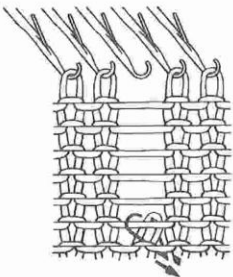


Take the latch tool and insert it from BEHIND into the knitting, 1 or 2 rows BELOW the dropped stitch.



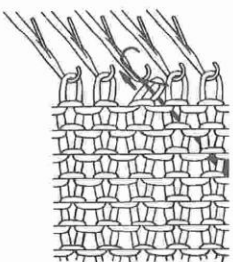
Push DOWN the latch tool so that the stitches unravelled down to the latch tool.

★ Move latch tool towards you and let the stitch slide BEHIND the latch.

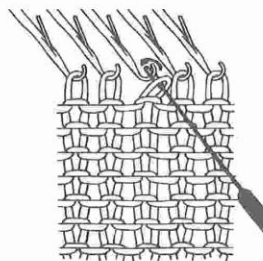


Catch the next loose bar in the latch tool hook. Pull back the latch tool, the latch will close over the bar.

Pull latch tool further back and the bar is pulled through the stitch, a new stitch is in the latch tool hook.

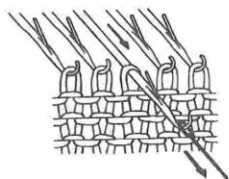


Repeat from ★ until you have the top stitch in the latch tool hook.



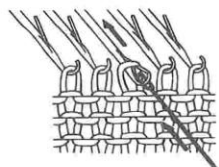
Insert transfer tool into the last stitch from the front. Remove the latch tool carefully from the knitting. Place the stitch into the empty needle hook.

UNRAVELLING



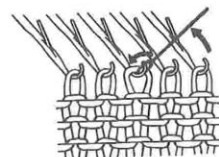
You need to unravel rows when you have knitted too many rows, made a mistake or jammed the carriage.

Before unravelling you must bring the needles to B position. If the stitches are over or behind the needle latch, put them back into the needle hook as follows:

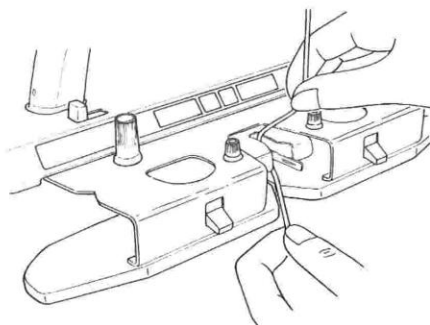


Take a single transfer tool, hook it into the needle and pull the needle forward to E position;

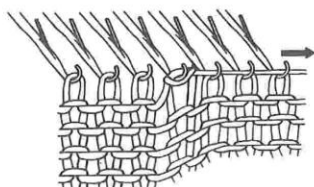
Push the needle back to A position, the stitch is on the transfer tool;



Pull the needle to B position, tilt the tool up and let the stitch slide into the needle hook.



Remove the yarn from the feeder and put it at yarn holder. Hold the knitting with one hand and with the other pull the yarn sideways towards the feeder, this will pull the needles forward, slightly out of the sinker hooks.



Pull the yarn upwards and backwards, this way the yarn will be pulled out of the needle hooks and the stitches on the previous row will slide into the needles.

Bring the unravelled needles to B position.

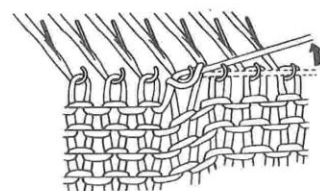
Unravel the complete row.

★ When unravelling from LEFT, pull the yarn sideways to LEFT.

Unravel the next row.

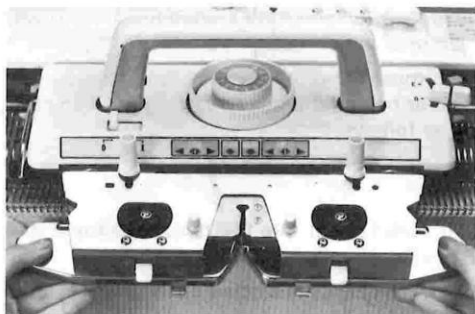
Re-thread the yarn, pull down any slack yarn at the back of the upper tension unit, set row counter back for the rows unravelled and continue knitting.

When unravelling Fairisle pattern you will unravel each colour separately row after row.



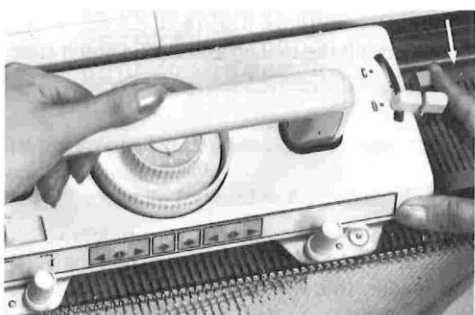
When unravelling lace patterns, make sure you put the stitches of the lace holes back into the needle before unravelling the next row.

CARRIAGE JAMMED IN PLAIN KNITTING

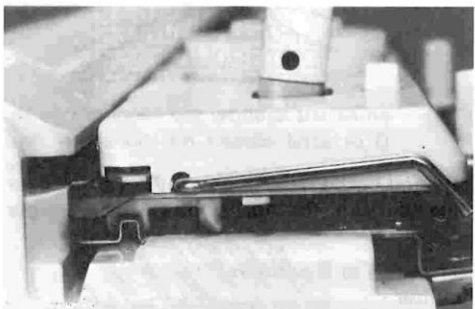


NEVER FORCE THE CARRIAGE OUT OF THE KNITTING, proceed as follows:

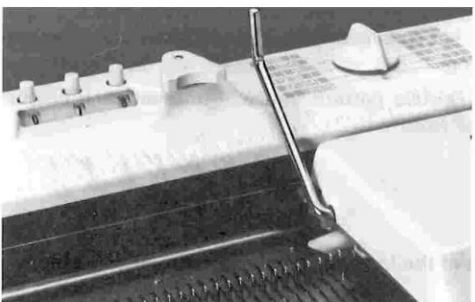
- 1 Remove yarn from feeder ①.
- 2 Loosen BOTH thumb screws and remove fabric presser. When lifting up the fabric presser make sure no needles are caught in the feeder.



- 3 Move row counter lever DOWN on the side of carriage.
- 4 Push carriage-release lever (orange) towards you, and lift carriage off needle bed.

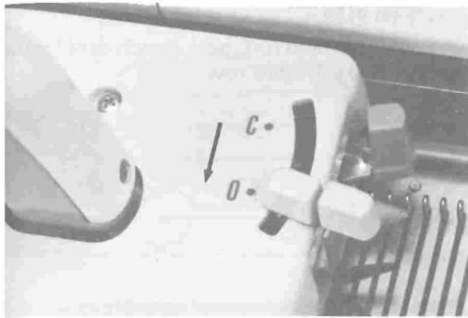


- 5 Place carriage on needle bed out of the knitting. Let go release lever. (Detailed diagrams, page 102.)
- 6 Put back the stitches into the needle hooks and set all the needles to B position, see page 96.
- 7 Unravel the stitches of the last row or rows to the edge of the knitting of the carriage side.

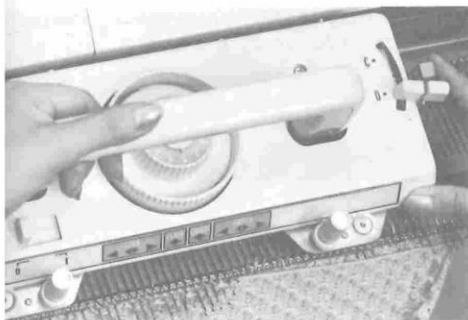


- 8 Attach fabric presser to carriage and rethread yarn. Check yarn tension.
- 9 Turn row counter BACK for the unravelled row and set row counter lever to working position.

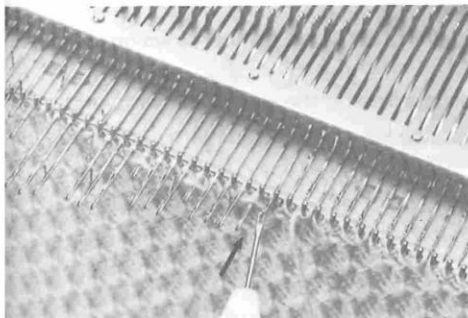
CARRIAGE JAMMED IN STITCH PATTERNS



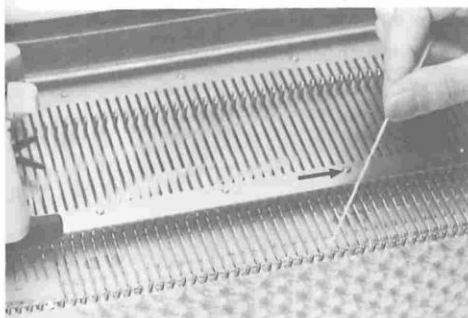
- 1 Set card levers (a, b) to 0.
- 2 Remove yarn from feeder.
- 3 Loosen both thumb screws and remove fabric presser. When removing fabric presser make sure there are no needles caught in the feeder.



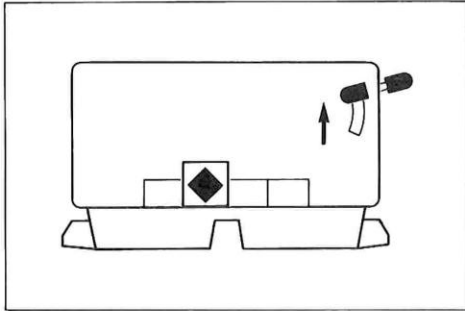
- 4 Move row counter lever DOWN on the side of carriage.
- 5 Push carriage-release lever (orange) towards you. Lift up the back of carriage and then pull carriage forward.
- 6 Place carriage on the needle bed out of the knitting, on the side you were knitting towards.



- 7 Put back the stitches into the needle hook and set needles to B position. If the butts of some needles stay lower than others, push the needles to E and then back to B position using transfer tool.



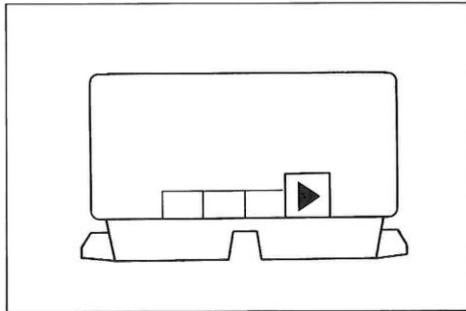
- 8 Unravel the stitches until the beginning of row, the yarn is now on the opposite side of carriage. This means you always unravel ODD number of rows. Set the needles in B position.



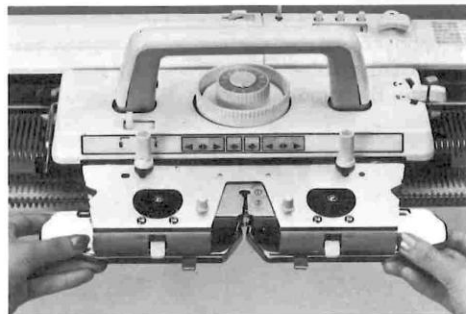
- 9 Set card levers (a, b) to C.
- 10 Press down feeder dial and turn back punch card for the unravelled rows PLUS 1 more row.

| Number of unravelled row | Number of rows to turn back | |
|--------------------------|-----------------------------|---------------------------|
| | When carriage is at LEFT | When carriage is at RIGHT |
| 1 | 0 | 1 |
| 3 | 1 | 2 |
| 5 | 2 | 3 |
| 7 | 3 | 4 |
| ⋮ | ⋮ | ⋮ |
| ⋮ | ⋮ | ⋮ |

When working EXTENDED PATTERNS turn back punch card for the number of rows as directed in chart.

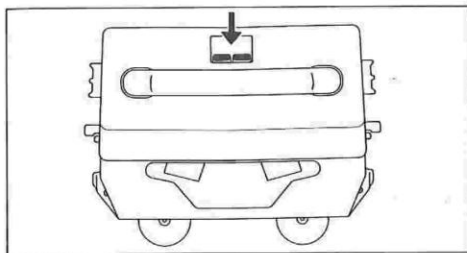


- 11 Set card stop lever at ■.
Set pattern dial to EMPTY of leading direction of the next row, ► or ◀.
- 12 Slide carriage across to the side of the yarn end.
- 13 Re-set card stop lever at ▼, and pattern dial for required stitch pattern.



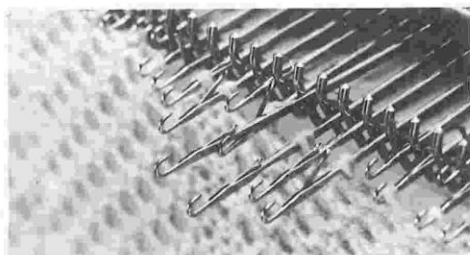
- 14 Attach fabric presser to carriage.
- 15 Re-thread yarn and check yarn tension.
- 16 Turn row counter BACK for the unravelled rows if it was counted, and set row counter lever to working position.

LACE CARRIAGE JAMMING

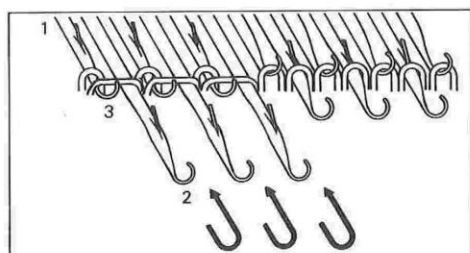


1 To remove lace carriage push the release levers towards you, lift the back of carriage off the needle bed, and pull it forward.

2 Replace lace carriage on the extension rail in the direction it came from.
Remove weights and cast on comb from the knitting.

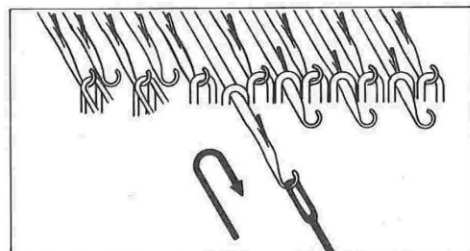


3 Separate the crossed needles by lifting them up.



4 Some needles will have both a stitch and a loop as in diagram.

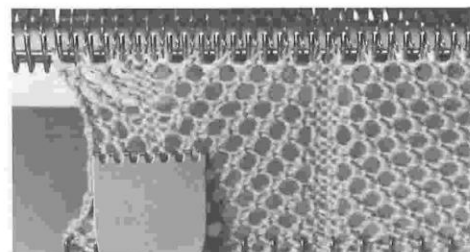
Bring the pattern needles to E position and back to B position. The loops will come off and transferred to the adjacent needles 2.



5 If the stitches are BEHIND the needle latches, put them into the needle hooks.

Set all the needles in B position.

If the butts of some needles stay lower than others push the needles to E and then back to B position.



6 Set card stop lever to ■.

Turn back punch card for 1 row.

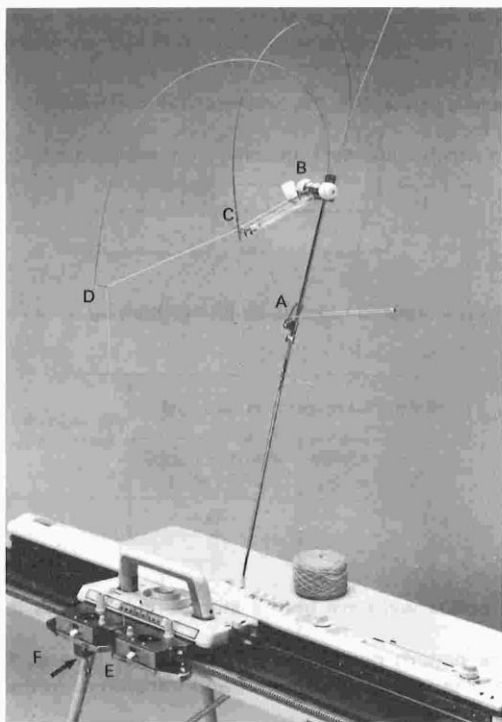
Re-hook weights and cast on comb to the knitting.

Slide lace carriage and select needles.

Remember, do NOT touch the knitting while transferring the stitches.

Also, if the two edge needles are selected, bring them back to B position before transferring the stitches.

AFTER REPAIRING THE JAMMING



Make sure there is no slack yarn anywhere below or above the carriage.

At the rear of the upper tension unit pull down the yarn below the point A, and see that there is no slack yarn anywhere at points A—F.

When pulling up the yarn from the carriage make sure the yarn is not caught round the fabric presser brushes, this would again cause the carriage to jam.

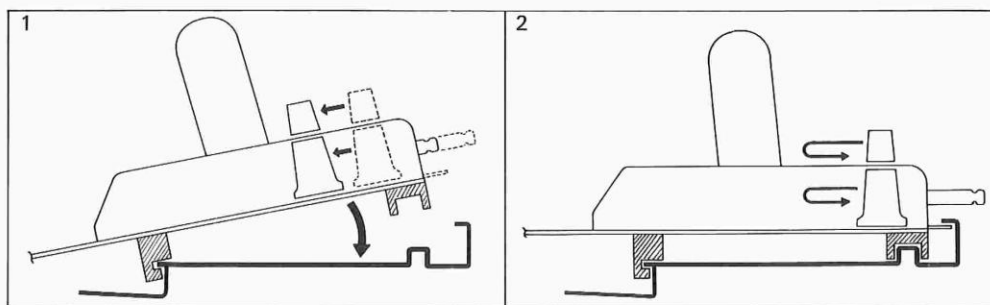
The carriage may jam if the yarn gets entangled at any points A—F.

After unravelling, turn BACK the card for the number of rows unravelled PLUS 1 more row. But in case of extended patterns, see the chart on p. 100.

Turn BACK row counter, if the last row was not counted omit this.

Re-hook the weights and cast on comb to the knitting, and continue knitting.

PLACING MAIN CARRIAGE ON NEEDLE BED

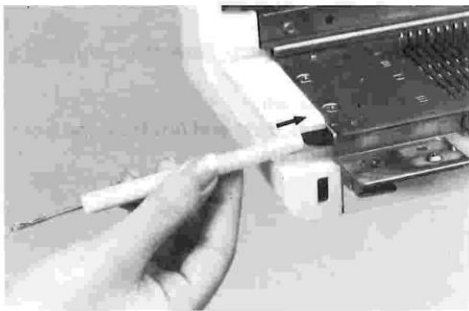


To move the main carriage on and off the needle bed you need to remove the fabric presser. This is NOT necessary when placing or removing the carriage on the extension rails.

Lower the front of carriage on the front rail, the guide rail of the carriage should fit into the front rail, 1.

Keep pushing carriage-release lever towards you, lower the back of carriage on to the back rail, 2. Let go release lever.

CHANGING A NEEDLE



You will have to change a needle when a butt or hook is bent or a needle latch does not move smoothly. It would cause faulty needle selection.

If the needle that needs changing is at the LEFT side of the needle bed insert latch tool or pencil into the needle bed at LEFT.

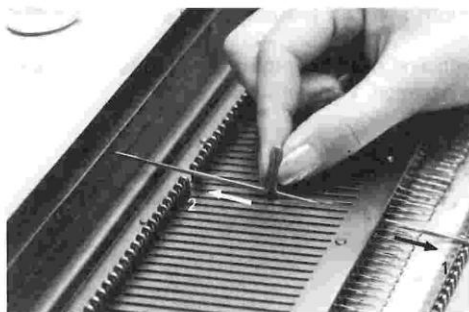
Push the tool until the bar comes out at the RIGHT of the needle bed.

Pull out the bar until the damaged needle lies free.



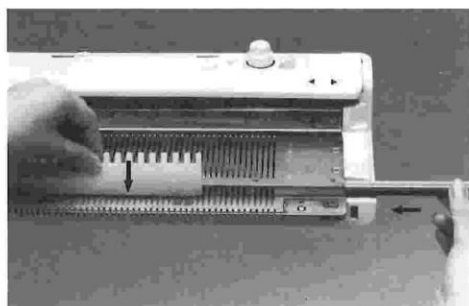
Holding the needle by the butt slide it to E position, 1, push down the hook 2 so that the needle shank comes out of the needle bed at the BACK and over the panel board of the machine.

Close the needle latch and pull out the needle at the rear, 3.



Take a spare needle and open the needle latch, slide the needle inside the groove towards the front into E position, 1.

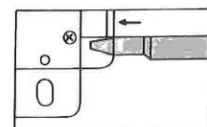
Lower the needle shank into the groove and move the needle back to A position, 2.



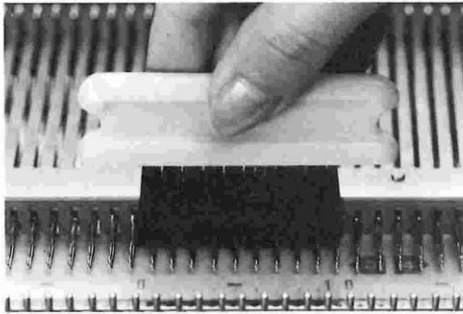
★ Push the needle-press bar back into the needle bed, while moving the bar hold the needles down with the straight edge of selector comb.

In case you had to remove the bar completely out of the needle bed, make sure you re-insert it with the foam rubber band on the under side of the bar (diagram).

★ Be careful when using the latch tool to push out the bar, you could hurt your hand with the hook.



PROPER CARE OF THE MACHINE

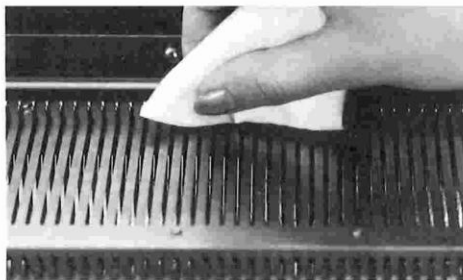


DUSTING

You should clean the machine each time after knitting a garment.

Bring all the needles to A position.

With the small brush remove all dust and lint from the front edge of needle bed, on plastic film.



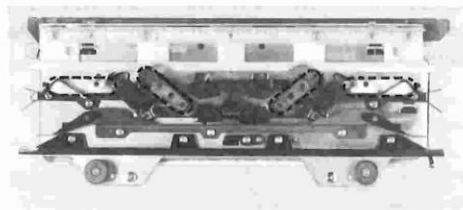
CLEANING AND OILING

Remove all small yarn threads that may be caught around the brushes under the fabric presser.

With a cloth of rag clean the rear and front rails, the needle butts and the needle bed.

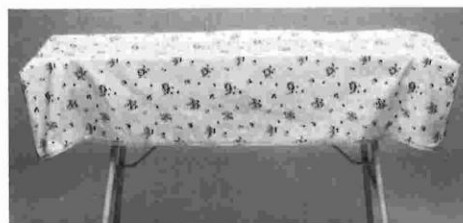
Drop some oil on a cloth, rub it along needle butts and the back and front rails of needle bed. Wipe off excess.

Never apply oil directly from the oil tube.



Take a clean cloth and rub the cams and parts under the carriage.

Put oil on a cloth and rub along four cams (dotted line) and rails under the carriage. Wipe off excess.



WHILE NOT IN USE

Cover the machine and store it in a cool and dry place, or pack it as on the next page.

★ Use detergent to clean the case cover, carriage cover and panel board.

★ When you use the machine after having stored for long time, wipe off the old oil and do oiling as above. Before commencing the garment, work 20 - 30 rows of plain stitch using the old yarn to remove dirt from the needles and needle bed.



AISIN SEIKI CO., LTD.

3111409-111-C

ENGLISH

PRINTED IN JAPAN

