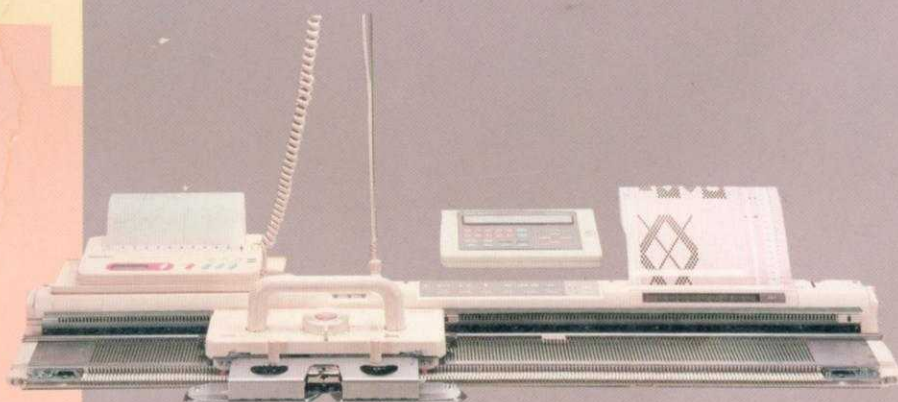


KNITTING MANUAL

MOD.580



CONTENTS

Part 1 Getting to know your new knitting machine

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Part 2 One Hour guide for beginners.

(All you need to knit simple garments.)

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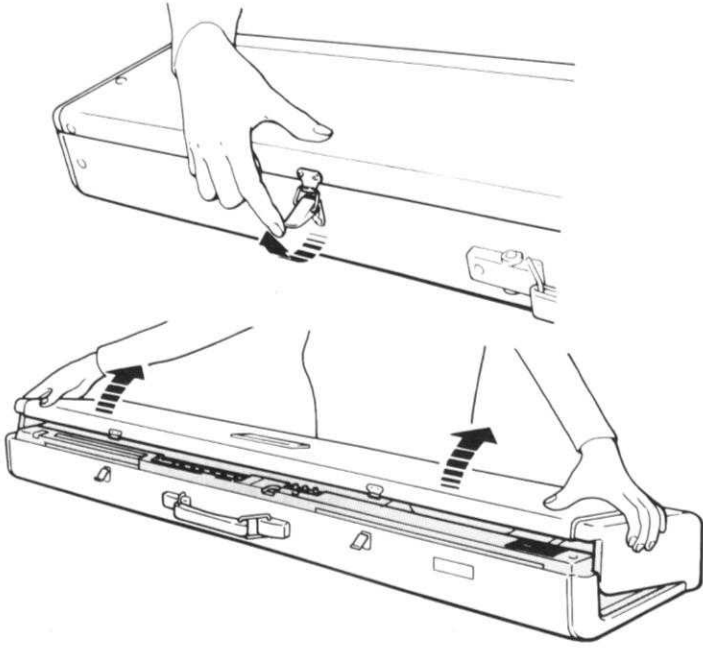
Part 3 Detailed Methods and Techniques.

(Each technique simply explained.)

See page 21 for the contents of Part 3.

For your Notes

How to set up the machine

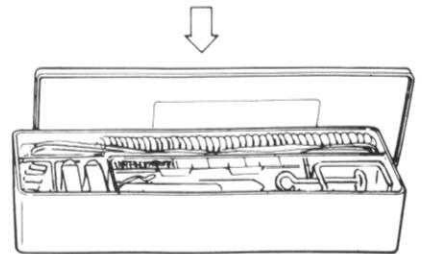
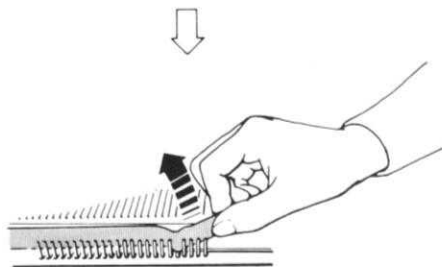
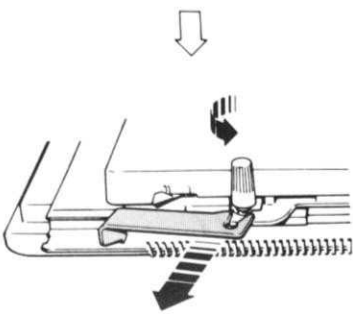
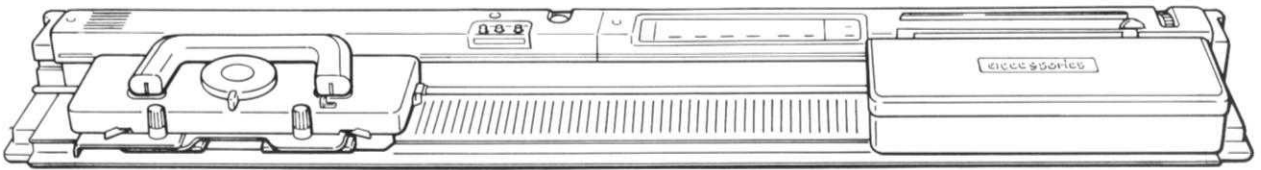


1. Put the machine on the front edge of the table with the handle and clips facing away from you. Unfasten both clips and lift off the lid. Put the lid down.

2. Remove the polystyrene and paper packing from the carriage and needle bed.

3. Take the Accessories box off the right hand end of the needle bed and put it on the table behind the machine. Take off the lid, turn it over and slide it onto the studs at the left end of the machine, as a tool tray.

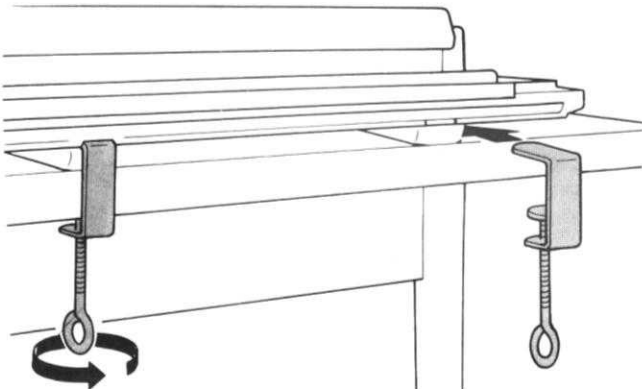
4. Unscrew the left hand white **arm nut** on the front of the carriage, then slide the **carriage fastener** forwards and lift it off.

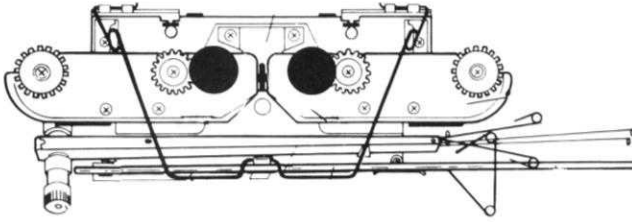


5. Find the two table clamps in the accessories box. Unscrew the Clamps.

6. Place the Needle Bed of the machine on the front edge of the table. Insert the Clamps into the slots above the rubber feet.

7. Fasten the Clamps by turning in the arrowed direction.



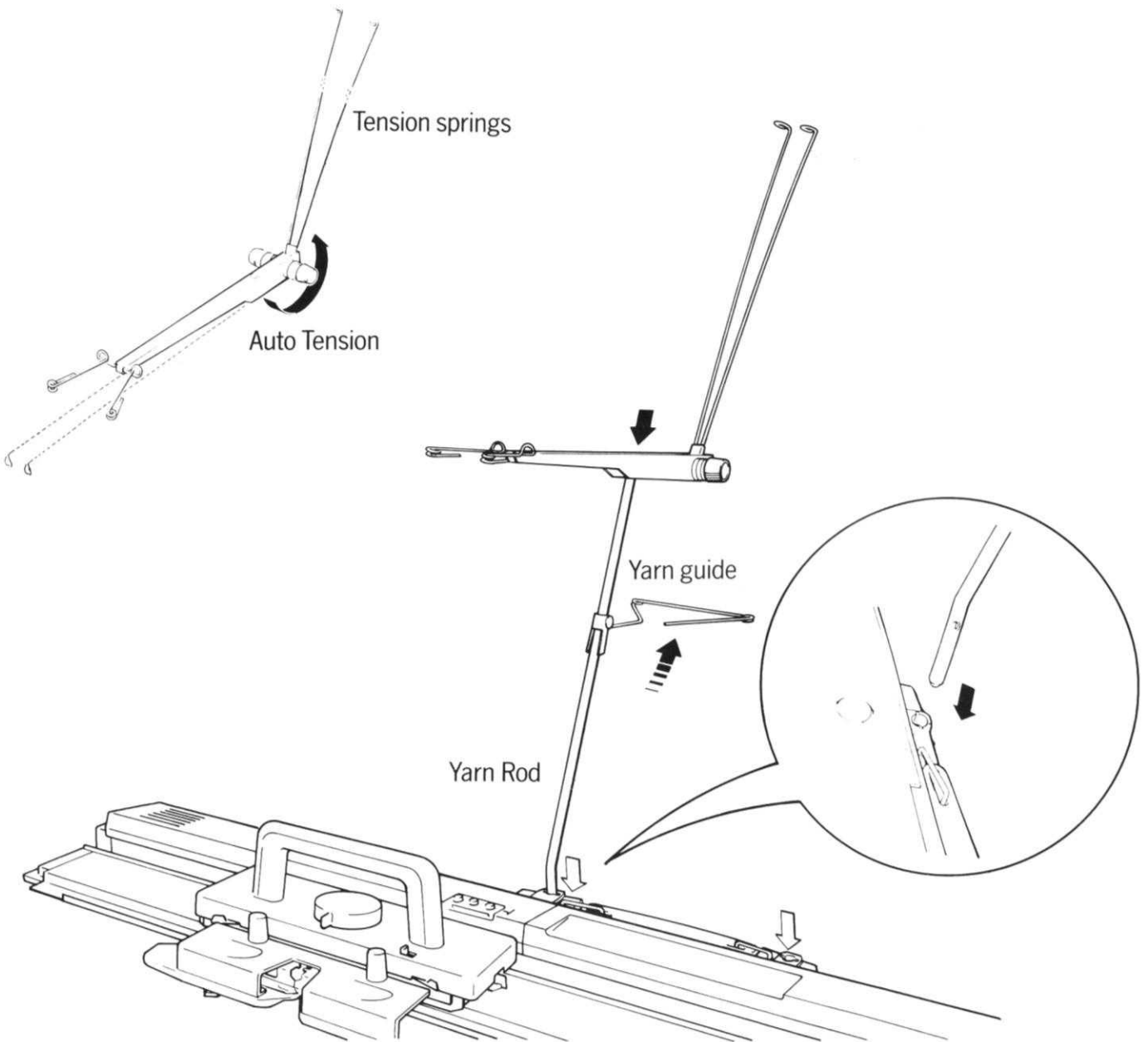


8. Now release the wire spring in the lid, by pressing it down and away from you near the centre. Take out the Arm, the Yarn Rod and the Auto Tension

9. Turn the Tension Springs of the Auto Tension until they click into position (see picture below).

10. Insert the short bent end of the Yarn Rod into one of the sockets on the handle bracket, and lift the Yarn Guide.

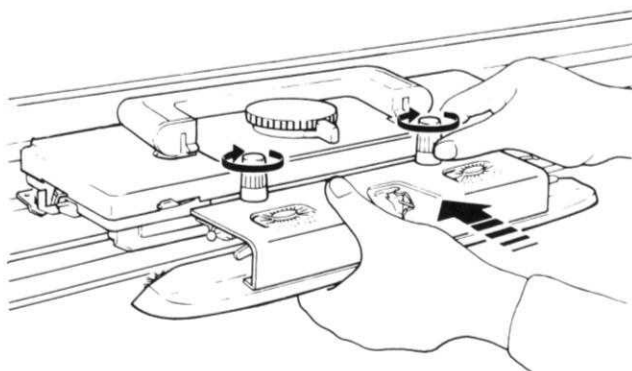
11. Put the Auto Tension onto the top of the Yarn Rod.



Attaching the Arm

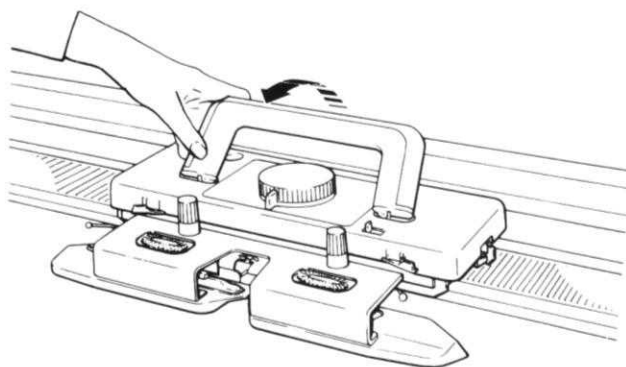
Unscrew the two Nuts by several turns.

Put the Arm onto the Carriage as shown, and tighten both nuts firmly, making sure that they fit into the cut-out parts of the Arm when you tighten them.



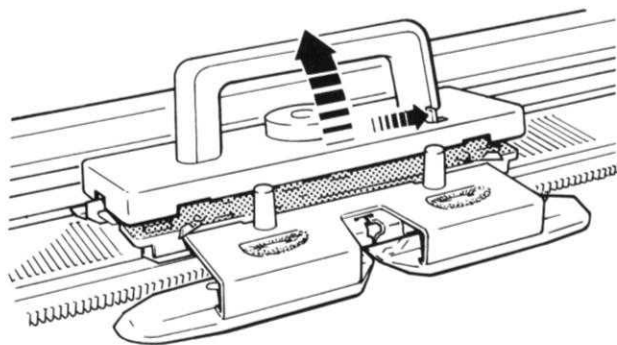
Carriage Handle

Pull the Carriage handle upright until it clicks into position.



Carriage Release Lever

The small lever in front of the Carriage handle is the Carriage Release Lever. If you slide it to the right, the top of the Carriage swings up, which releases the needles. Press down on the handle and the Carriage closes and is held shut. This lever is useful if the Carriage should jam while you are knitting. You can then return the Carriage to the start of the row.



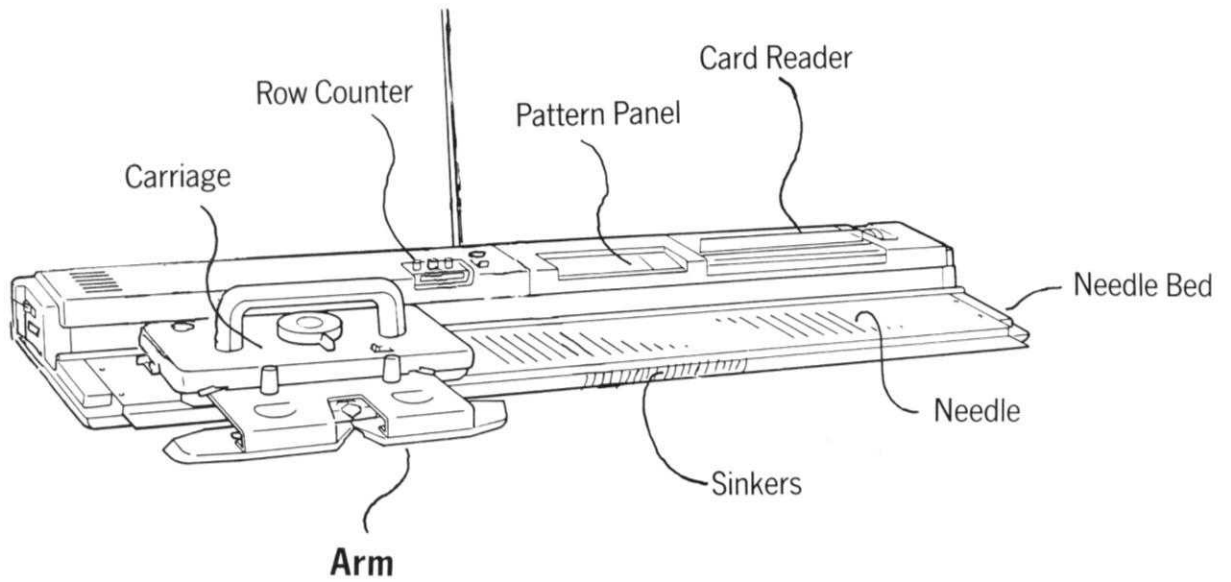
Row Counter

Turn the knobs A B C in either direction to reset the numbers in the window.



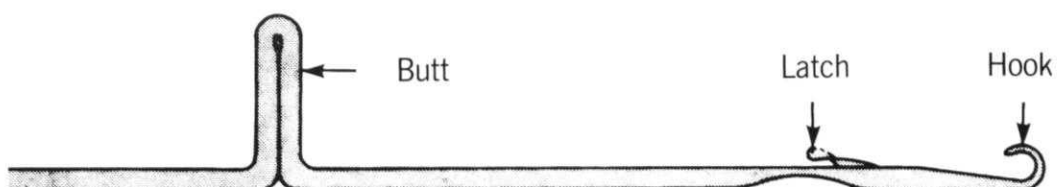
Names and functions of each part

Bed

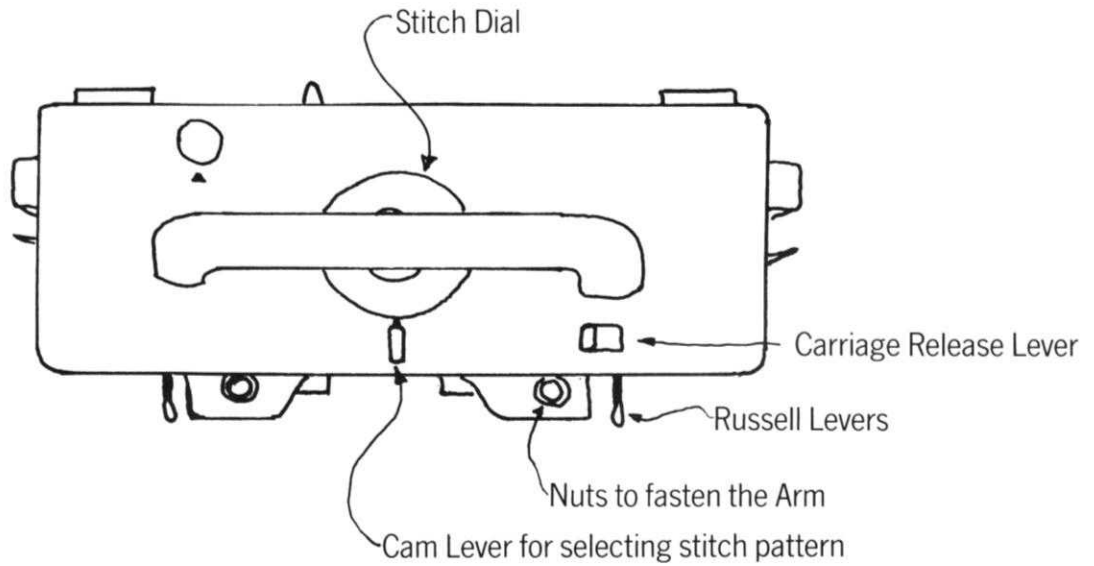


The Pattern Panel and Card Reader are described in the Patterning Handbook.

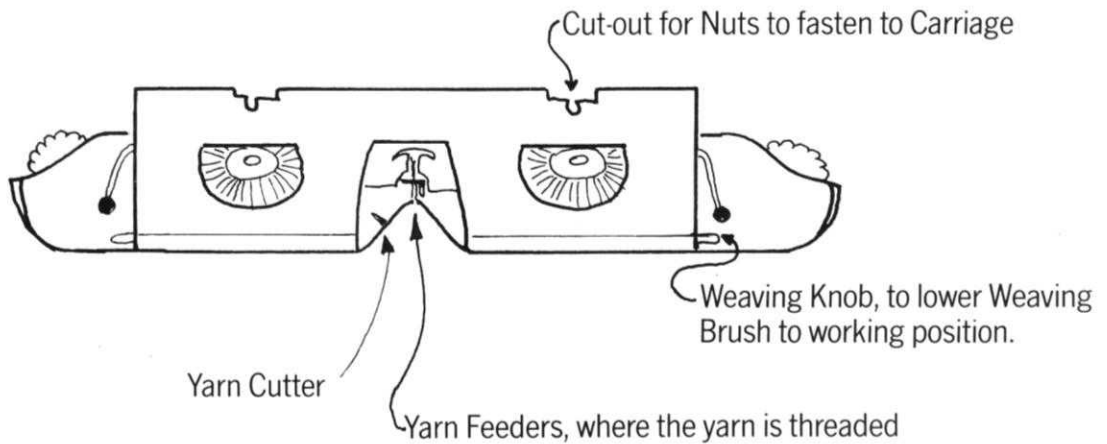
Needle



Carriage



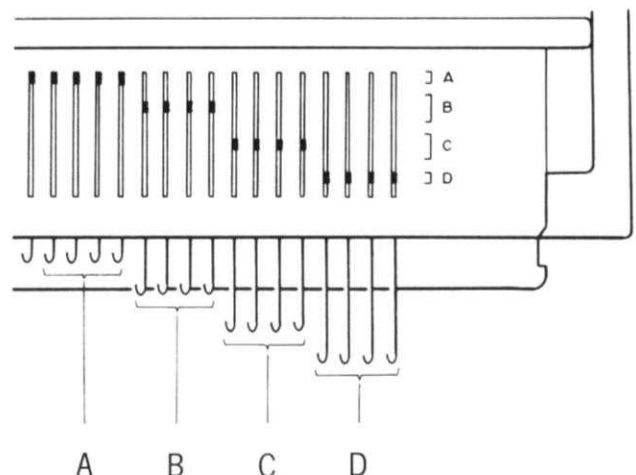
Arm



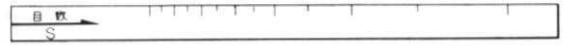
Needle Positions

The letters A, B, C and D at both ends of the Needle Bed show different positions. Each letter indicates a different function for the needle in that position.

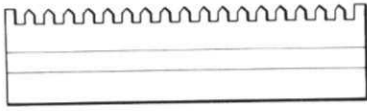
- A – needles do not knit.
- B – normal knitting position. Needles can knit both plain knitting (stocking stitch) and stitch patterns from this position.
- C – knitting position for needles pushed back from holding position. Needles will knit stocking stitch but not patterning stitches from this position.
- D – needles can either be held (and do not knit back at all) or they can knit stocking stitch (according to the setting of the russell levers on the Carriage).



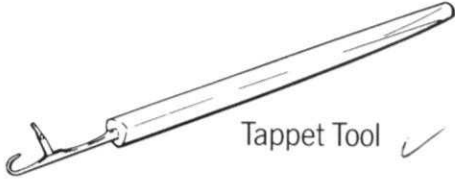
Accessories



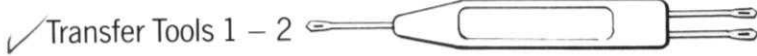
Gauge Scale ✓



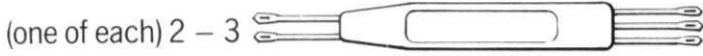
Needle Pusher ✓



Tappet Tool ✓



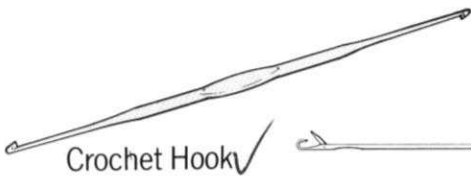
✓ Transfer Tools 1 – 2



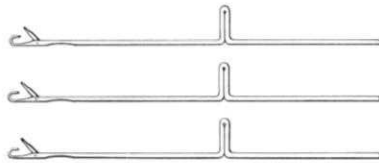
(one of each) 2 – 3



1 – 3



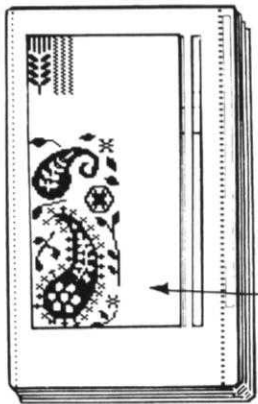
Crochet Hook ✓



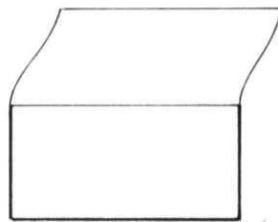
Spare Needles ✓



Tapestry Needle ✓



Pattern Cards (15) ✓

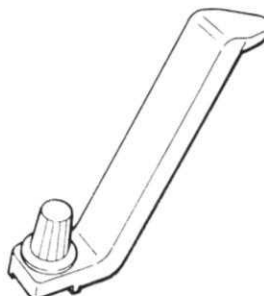
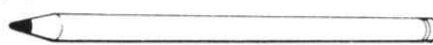


Cleaning Card ✓

Blank Design cards (5)



Design Pencils (2)



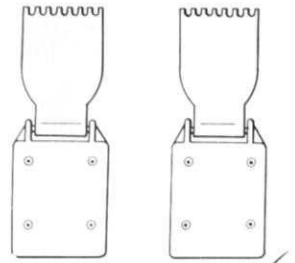
Radar (Contour) Feeding Lever ✓



Oil ✓



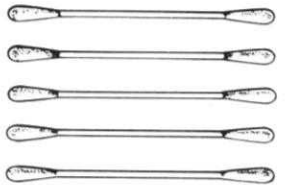
Ravel Cord ✓



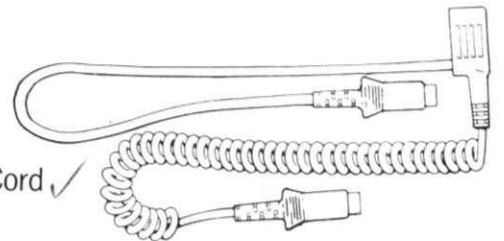
Claw Weight (2) ✓



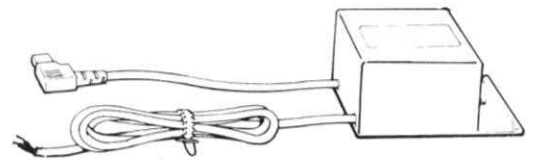
Cleaning Brush ✓



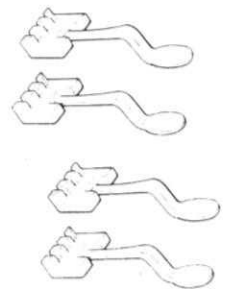
Sensor Cleaner



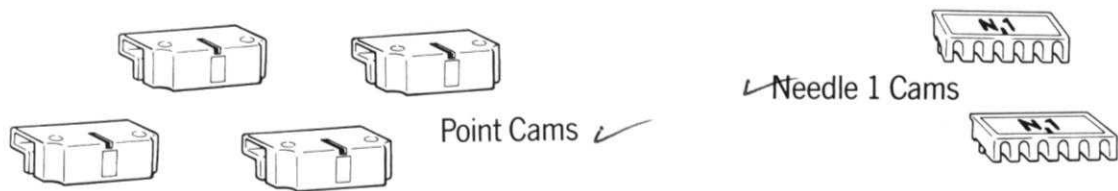
Curl Cord ✓



Transformer ✓



Yarn Separators ✓



Main Tension

The stitch size which seems right for any particular yarn (and which is also the stitch dial number at which you would knit your garment) is called the Main Tension (MT for short) for that yarn.

Putting in yarn marks.

Patterns often suggest putting in yarn marks to show where to join pieces or where the centre of a neck is.

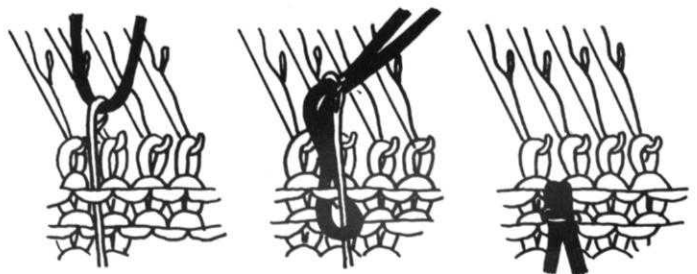
Method 1 – marking the edge

Place a short piece of contrast yarn into the hook of the end needle and hold it while you knit across.



Method 2 – marking between stitches

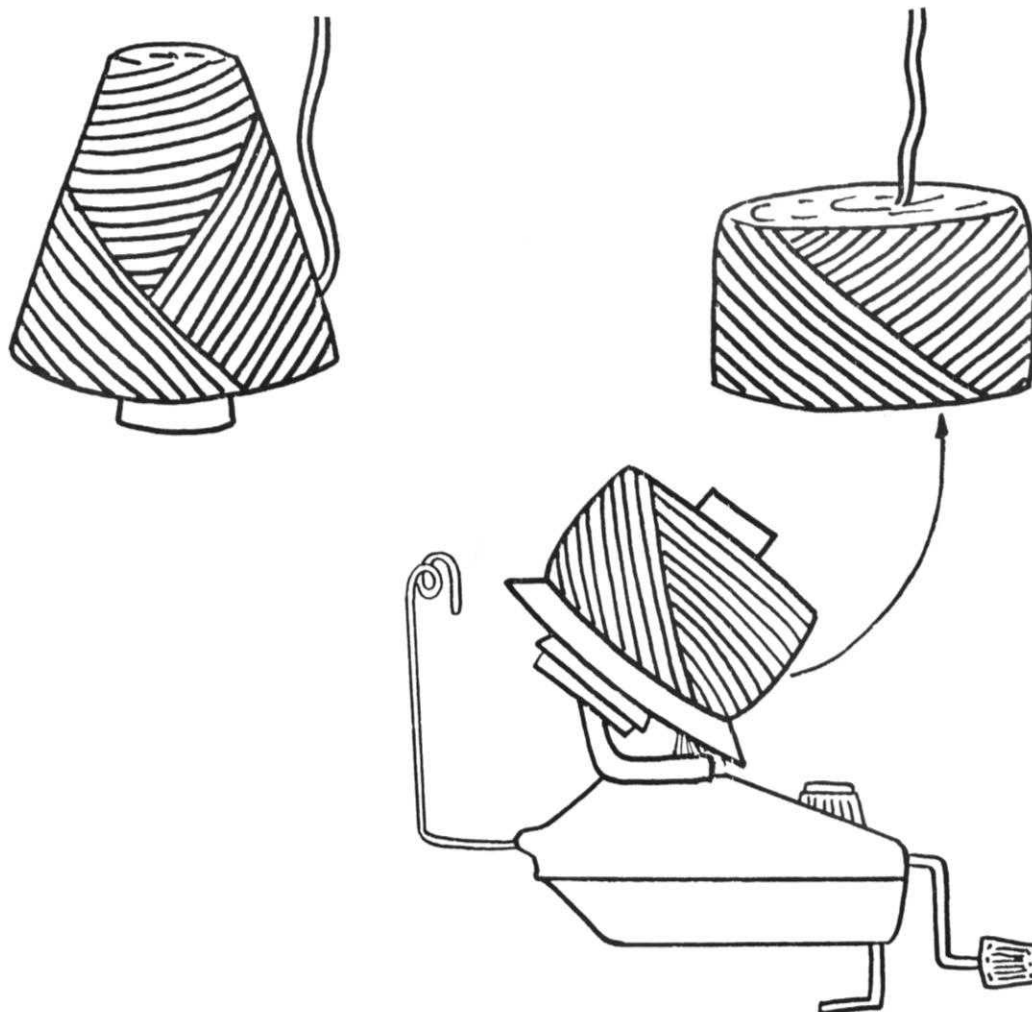
Put the lappet tool up under a loop of knitting, put a piece of contrast yarn in the hook and pull it through. Catch both ends of the contrast yarn in the hook, and pull them through the loop.



Preparing your yarn

To start with, use a nice smooth four-ply yarn. It is much easier to learn with a new, good quality, smooth yarn, then you can progress to all kinds of different yarns later on!

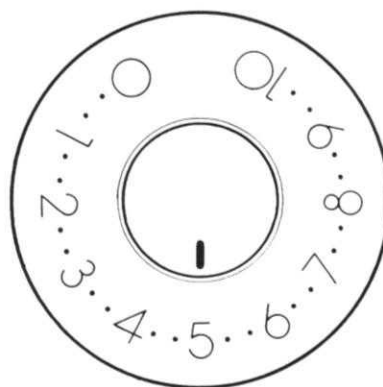
Knit from a cone, or from a ball which has been rewound on a woolwinder. Use the yarn from the centre of a ball made on a woolwinder.



Your knitting machine uses yarn so quickly that hand wound balls can't unwind fast enough, and will catch up, making your knitting difficult and uneven.

Yarn and Stitch Dial

Turn the Stitch Dial to change the stitch size.

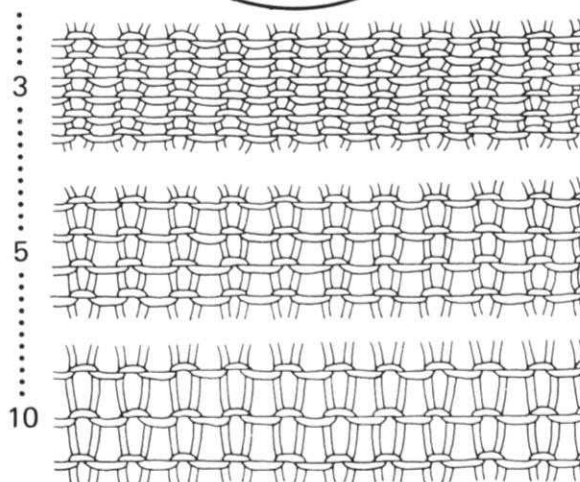


When the Stitch Dial is set to 0, the stitches knitted are very small and tight.

When the Stitch Dial is set to 10, the stitches are large and loose.

For thin yarns, you need small stitches (low numbers) and for thicker yarns you need larger stitches (high numbers).

To change the stitch size, turn the Stitch Dial until the number or dot you want is opposite the arrow (at the front of the Carriage). The sketch shows stitch size 5.



Experiment with your yarn at different stitch sizes to find one at which your machine knits easily and produces the fabric you like.

For example, a two-ply yarn will give a firm fabric at stitch size 1, and a softer fabric at stitch size 2 or 3. A four-ply yarn may be knitted at stitch sizes 5, 6 or 7, depending on the type of yarn and the feel of the fabric which you like. Slightly thicker or textured yarns will need stitch sizes 8 to 10, and some, for example mohair, may be better knitted on alternate needles only.

But until you are used to your machine, **practice** using a good quality 4-ply, at about stitch size 6.

Each dot between the numbers gives a slightly different stitch size, so you can experiment and get the exact feel of the fabric you want. These intermediate sizes are called, for example, “five and two dots” (5●●) or “six and a dot” (6●).

Those are the two stitch sizes on each side of 6 of course.

When you are using a new yarn or stitch pattern, try knitting at different stitch sizes, and then take the knitting off the machine and see which stitch size gives the fabric you like. You might want a firmer fabric for a skirt, and a softer one for a sweater.

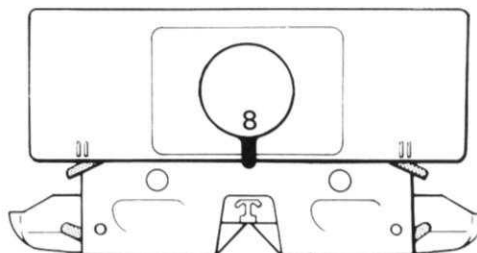
Beginners start here.

Have you followed the previous pages of the book carefully, and is your machine now firmly clamped to the table with its accessories beside it and you in front ready to start?

Put the Carriage with the Arm attached at the right hand end of the Needle Bed, and check that the levers are set as follows. When this has been done, we can forget all about most of them until we come to pattern knitting. Just make sure that you have them set correctly now, for plain knitting.

1. THIS IS IMPORTANT. Put the Cam Lever to the centre (0)
2. Put both russell levers to II
3. Put both the weaving knobs on the Brush Plate to ○

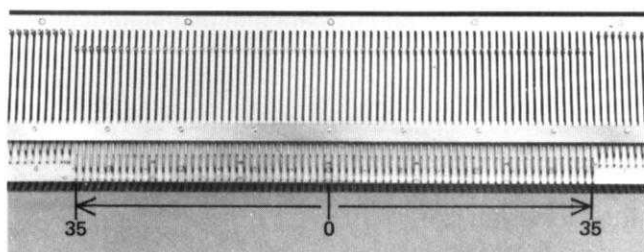
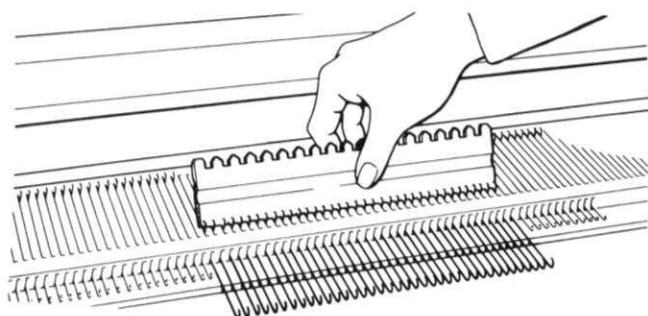
Done that?



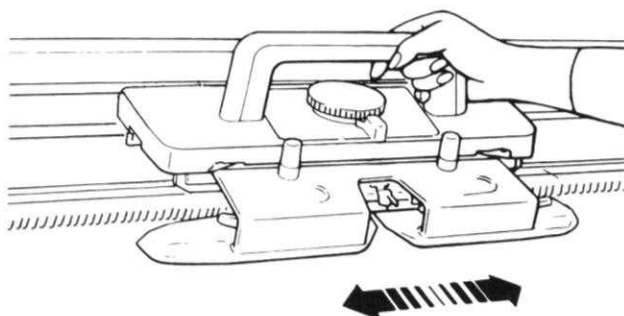
Look at the numbers on the front of the Needle Bed, under the needle hooks, and find the 0 in the centre. The needles are numbered in tens on both sides of this centre 0.

All needles should be in A position, that's right back in their slots, as far as they will go. Check that they are.

Now using the straight edge of the Needle Pusher, bring 35 needles on each side of 0 (70 needles altogether) forward to B position. (We saw a picture of the needle positions on page 5.)



Move the Carriage slowly to the left across all the needles, making sure that it does clear the end needle on the left – then return it to the right. This will make sure that the needles are in a nice straight line in B position as the machine likes them.



Threading Up

Put your cone or rewound ball of yarn on the table behind the yarn rod.

Take the end of the yarn up through the guide (1) and between the tension disks (2) (pull it firmly so it goes underneath the retaining pin).

Now bring the yarn forward and through the eyelet (3). Bend the tension spring towards you, so that you can thread the yarn through the eyelet at the end of it (4).

The yarn now goes down through the front eyelet (5), and you can fasten the end of it in the clip on the front of the yarn rod until you're ready to thread up the Carriage.

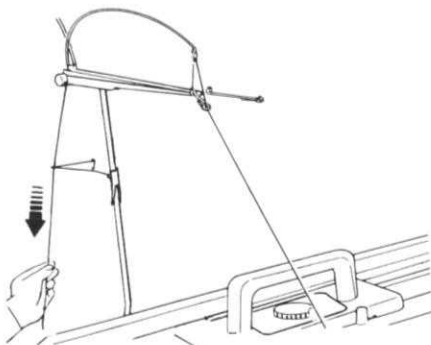
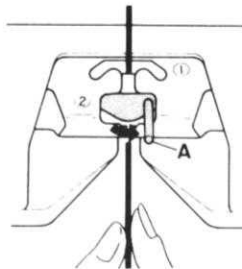
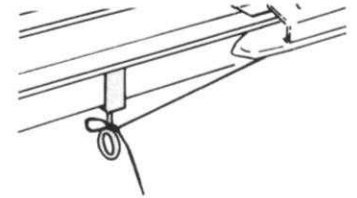
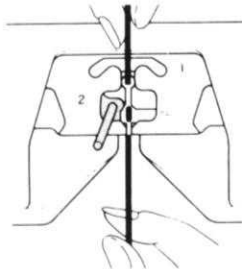
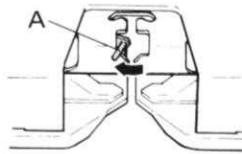
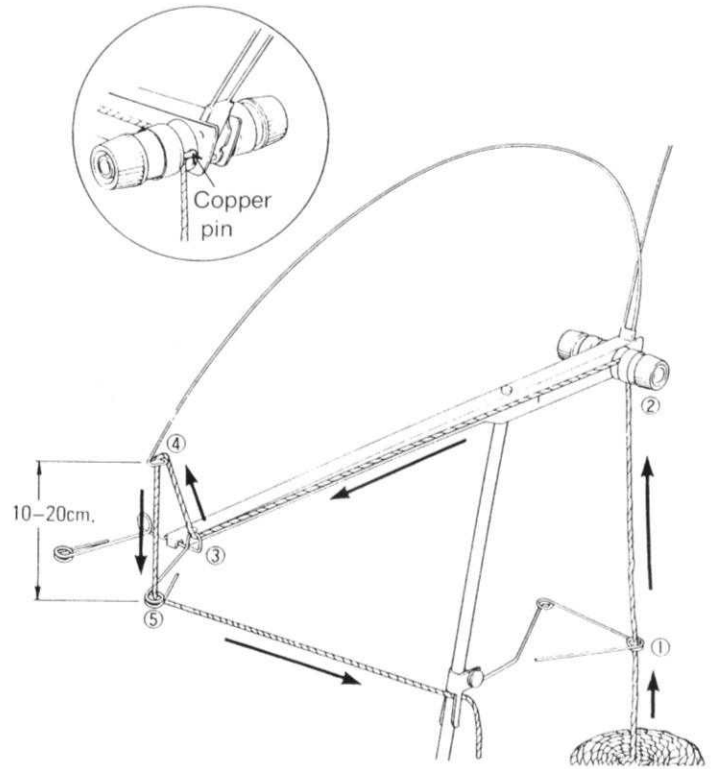
Now look at the Carriage. In the centre of the Arm is the Yarn Feeder

Move the gate pin of the Yarn Feeder gate (A) towards the left, and you will then be able to see into feeder 1. That is where the yarn must go.

Take the end of the yarn from the clip on the yarn rod, and tie a loop in it.

Hold the yarn in both hands, one above and one below the feeder, and slide it into feeder 1. Put the loop over the screw of the nearest table clamp.

Close the Yarn Feeder by moving the gate pin to the right. Now pull back any slack yarn by pulling down on the yarn behind the yarn rod (below the yarn guide) until the tension spring is almost horizontal.



Note: For 4-ply yarn, set the Dial on the Auto Tension to a low number.

Try 1 (lowest pressure) and only increase the pressure if the yarn slides through too freely, or for thinner yarns.

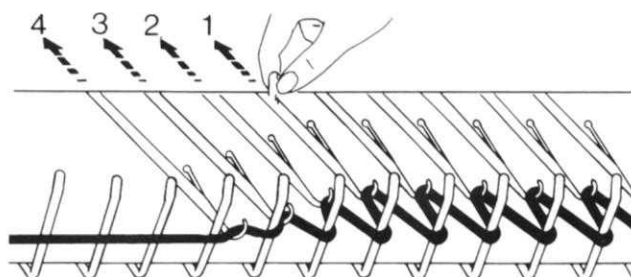


To cast on – Open Edge Cast-on

First of all, set the Stitch Dial to 8 (for knitting loose stitches), then take hold of the Carriage handle with your right hand, and move it slowly and carefully from right to left across all the needles in B position. Make sure that you take the Carriage well clear of the end needle by 2 or 3 cms. Open loops will have been formed between the needle hooks and the sinker posts.

Sometimes the last 2 or 3 needles of this first row (those on the left) are pulled forward a bit by the yarn. If this does happen, pull down a little extra yarn above the Carriage and push those needles back into line, one by one, by hand.

Pull back any spare yarn behind the yarn rod, and at the same time, check that the yarn can run freely from the ball or cone.

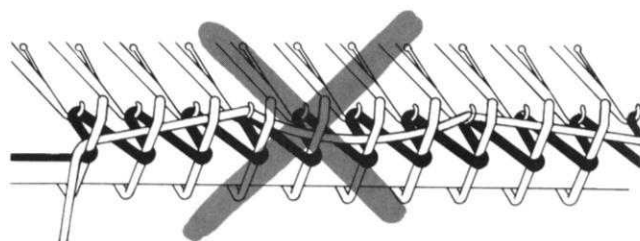
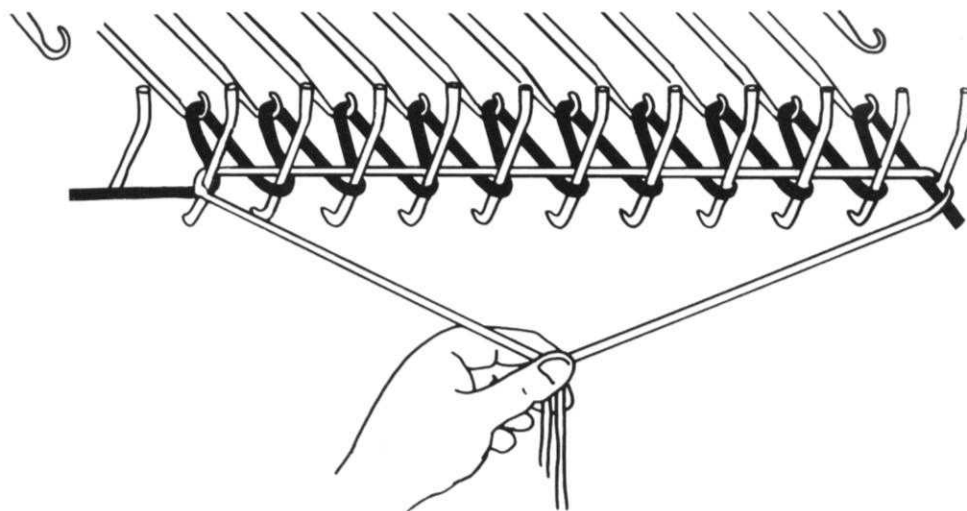


That's the first row knitted. Now **before** you can knit **back**, that row of loops formed between the needles and the sinkers has to be held down. To do this we use the ravel cord.

Find the cord, undo it, and make sure that there are no knots in it. With even the smallest knot, you will be unable to pull it out of the knitting after casting on.



Lay the ravel cord over the zig-zag of knitted loops **between** the needle hooks and the sinkers. Look closely at the sketch. The cord lies straight across all the stitches and comes out between the sinkers just beyond the last needle in work at both ends.



The cord must **not get caught** in any of the needle hooks.

Change the number on the stitch dial back to 6 (for a 4-ply yarn) or a tighter tension for hems and welts as shown later. Check that the cord is lying correctly over the knitting between the needles and the sinkers.

Then hold both ends of the cord together in your left hand, and pull down very firmly indeed beneath the Needle Bed whilst you now knit back. Move the carriage from left to right (row 2).

Still holding the cord beneath the Needle Bed, knit 4 more rows.

Knit at an even speed, making sure each time that the Carriage has passed the end needle in use, before knitting back.

Let go of the right hand end of the cord, and with your left hand, pull the cord to the left. Keep pulling until it comes completely out of the knitting.

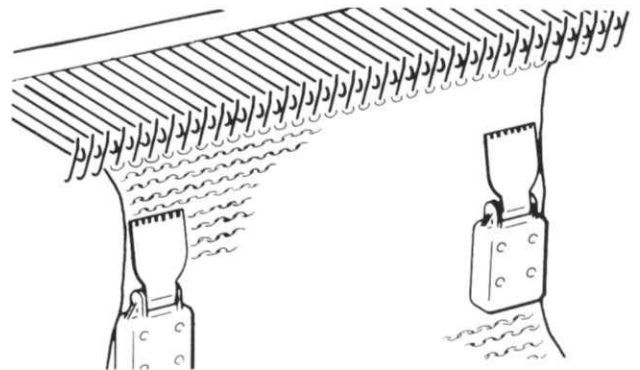
That is the end of the cast-on. Knit a few more rows slowly and carefully.

Right – continue knitting.

Experiment with different stitch sizes.

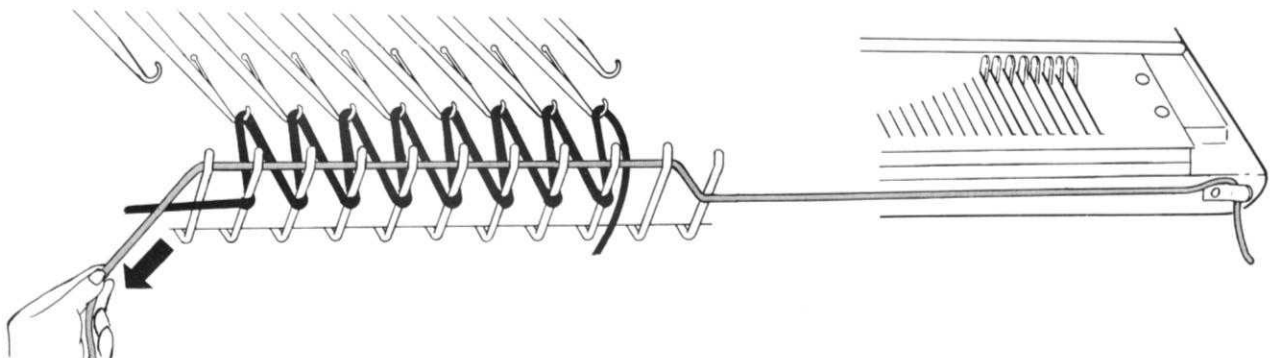
Try moving the stitch dial to different numbers, and knit a few rows at each.

High numbers give big stitches, low numbers smaller stitches. Before trying the highest numbers (9 or 10) hang a claw weight on each side of the knitting, a few rows below the sinkers, to keep these loose stitches well down into the needle hooks.



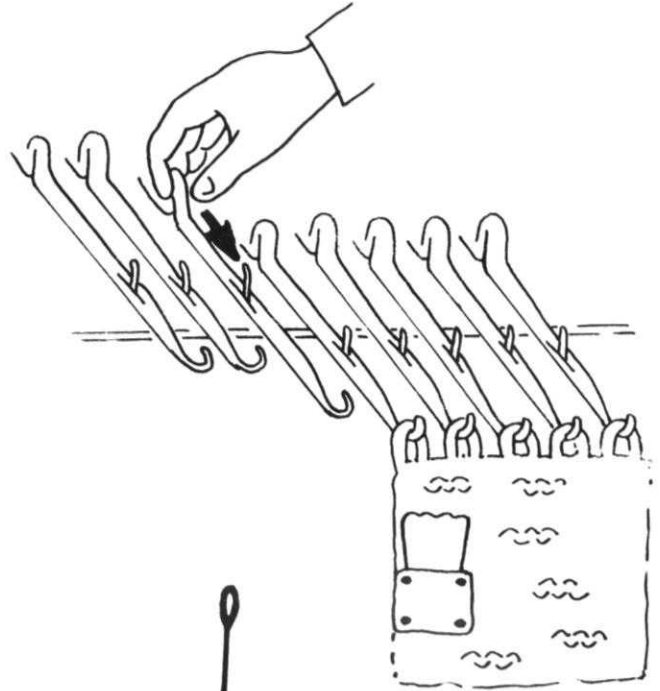
Finish by knitting several rows at the Main Tension (e.g. approximately 6 for 4-ply yarns).

If you prefer, catch one end of the ravel cord in the clip on the right hand end of the machine. Pull the loose end of the cord **down firmly** with your left hand before knitting row 2 and the 4 more rows.



Easy single stitch increase.

Bring forward to B position one empty needle at the edge of the knitting.
You can do this at both edges of the knitting at the same time. Knit 2 rows. Try doing this a few times.



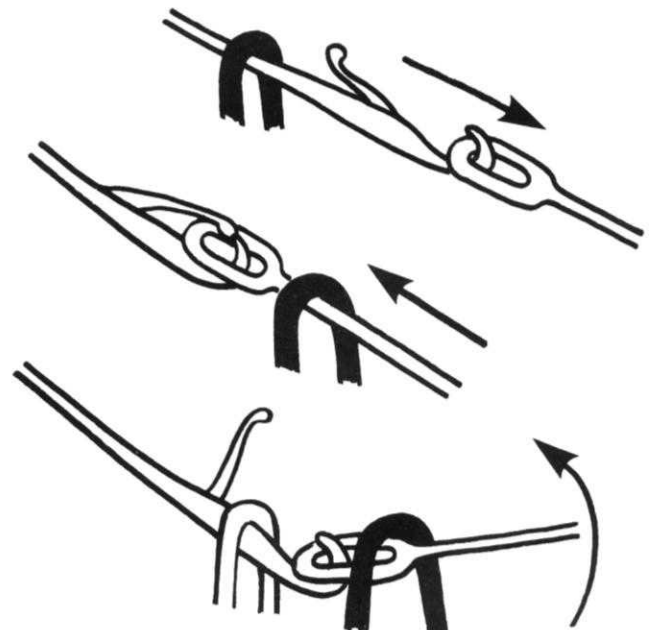
Single Stitch decrease.

Holding the tool.



Use the single end of the tool as shown to pull the end needle forward, so that the stitch goes behind the latch.
Then push the needle back, in a straight line, so the stitch comes onto the tool.
Now lift the tool across to the next needle and tip it so that the stitch slips off into the hook of that needle.
With your finger on the needle butt, push back the emptied needle to A position.

You can do this, also, at both edges of the knitting at the same time. Knit two rows. Practice holding the transfer tool correctly, it's by far the easiest way when you just get the hang of it, and do a few single stitch decreases.



Casting off

Have the Carriage on the right hand side of the knitting, and unthread the yarn.

Hang a claw weight right on the edge of the knitting, on the first stitch, about 2 cms below the needles.

START

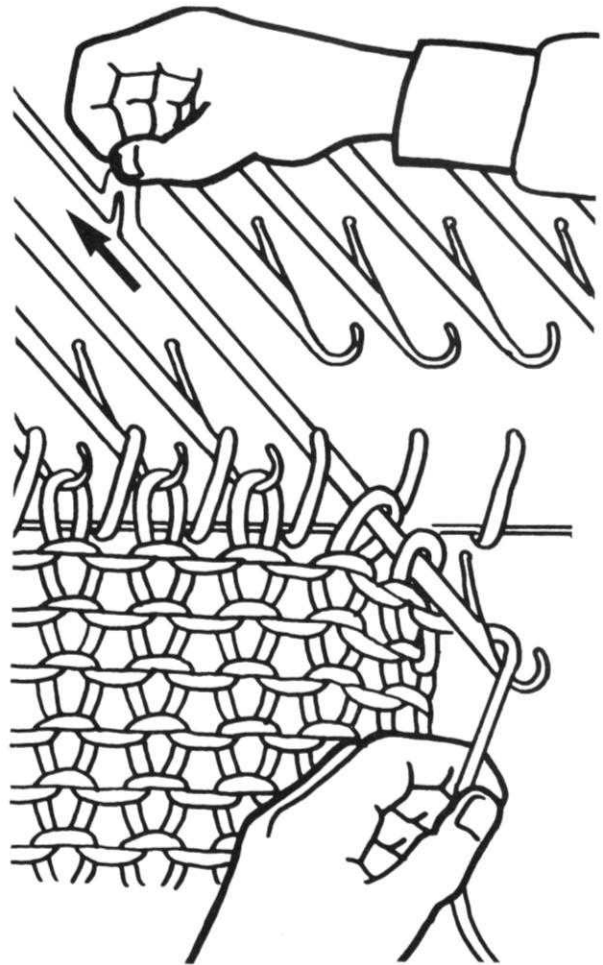
Just as for a single decrease, transfer the end stitch nearest the Carriage to its neighbouring needle. Push the empty needle back to A position.

Hold the yarn lightly across the fingers of your left hand, and use the back of your left forefinger to stop the knitting coming forward. With your right forefinger, bring forward the needle butt of the needle with two stitches on so that both stitches slip behind the latch.

With your left hand, lay the yarn across the open needle hook. Then with your right hand, push the needle butt back into B position again. This will knit off the two stitches, and leave a single stitch in the needle hook. Don't pull this stitch tight.

Now repeat from the **START** above, alternately transferring a stitch from the end needle using the transfer tool, and knitting off the two stitches by hand to make a new single stitch.

Keep going until there is a single stitch left in the hook of the last needle. Break off the yarn and pull it through this last stitch.



HINTS when casting off.

Don't forget to pull the yarn end through the last stitch – or one tug on the end of the yarn and your neatly cast off stitches will happily undo themselves at great speed!

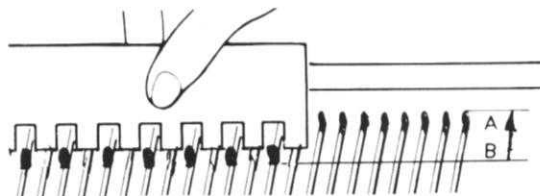
Remember to push the last needle back to A.

Put the weight on the end stitch to make the stitches large and and the cast off loose, to begin with.

An easy 1 x 1 double welt

You need a small amount of “waste yarn” – yarn of a different colour from the main colour to be knitted. You can use up oddments if you like, provided that the yarn is smooth, and each piece is long enough to knit several rows.

Now do the open-edge cast-on (page 12) on **alternate** needles only. Bring the required number of needles to B position as before. Turn over your Needle Pusher and use the 1 x 1 side to push every alternate needle from B position back to A position.



Take the Carriage across and back to line up the remaining needles in B.

Thread the Carriage with waste yarn.

Knit one loose row and lay the ravel cord across the open loops. Set the stitch dial to three numbers tighter (lower) than your Main Tension. (If you have been knitting at stitch dial 6, set it to 3 now.)

Holding the cord firmly, knit 5 rows. Pull out the cord and knit several more rows, finishing with the Carriage on the left.

Break off the waste yarn and unthread it from the Carriage.

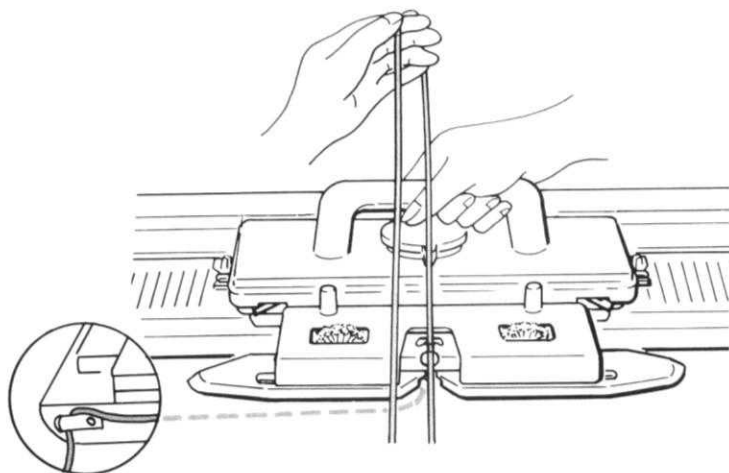
Now we are going to use the ravel cord again, but in a completely different way this time. It will be threaded up for knitting just like ordinary yarn, and we shall knit **one row** with it. This will give a nice clear dividing line between the waste yarn and the main knitting, and will also give us a quick and easy way of removing the waste knitting when the welt is complete.

First of all, check that the cord has no knots in it. Then thread it into the Yarn Feeder on the Carriage just as though it was a normal yarn.

Let the shorter end hang down beneath the Carriage. The longer end comes up out of the feeder, lies lightly over your left hand, and hangs down to the floor in front of the Carriage.

Hold your left hand about a foot above the Carriage, and a bit forward and to the left of it. The cord should hang down freely not touching the Carriage or anything else it could get caught on.

Set the stitch dial to 8 for loose knitting.

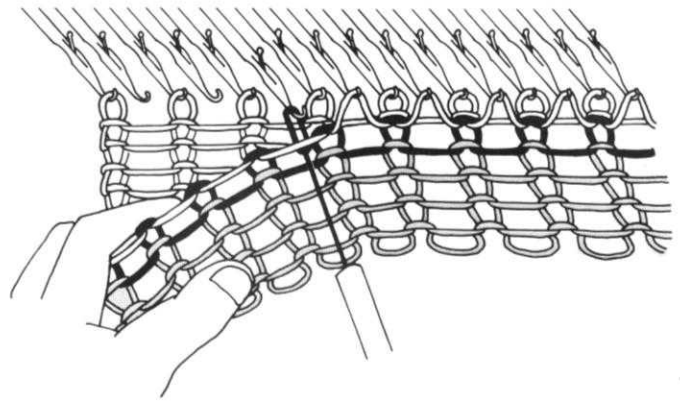


Knit across slowly and carefully allowing the cord to feed from your left hand as you knit. Knit **one row** only, and then unthread the cord from the Carriage, and allow both ends to hang down beside the knitting.

Now thread up with your main yarn and set the stitch dial to 3 whole numbers tighter than your Main Tension for that yarn.

Knit 30 rows. Because this is a double welt, this will give you a 15 row finished rib. (Always knit twice the number of rows required for the finished rib.)

Fold the knitting up and use the single transfer tool to pick up loops of the first row knitted in main yarn, the row next to the row of cord stitches, and place one loop onto each empty needle between the ones you've been knitting on. Bring each of those needles forward to B as you do it.



You may find it easiest to pick up the stitches like this :

Fold the knitting up towards you and then bring the waste knitting forward over your left forefinger. This makes it easy to follow the row of cord stitches which are lying along the top of your finger, and, next to the cord, the **main knitting loops** which are the ones you want. Try not to hold the knitting too high or you may get stitches caught on the sinkers.

All the needles should now be in B, each with one stitch on it.

Using the tool, loosen and pull out the first stitch of the nylon cast-on cord at the left hand side of the knitting. This may make a little knot sometimes.

Now hold the knitting back against the machine with your left hand, and pull out the cord to the right, with your right hand.

Suddenly the cord will be out and the waste knitting will have dropped off.

Change the stitch dial back to the Main Tension (eg 6) and continue knitting for about 20 more rows.

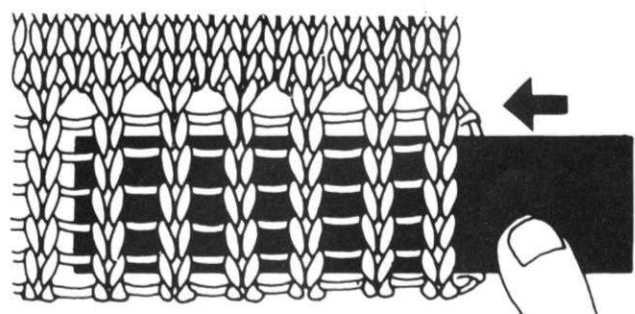
Because we are only practicing, now break the yarn and unthread it from the Carriage.

Remove the knitting from the machine by taking the empty Carriage once across the needles.

To finish your welt.

Thread something long and flat, like a ruler, through the rib, and pull it lengthways. Close the stitches together as you pull.

And there's your 1 x 1 double welt!



Knitting a Tension Piece

When garments don't fit because you haven't done a tension piece, your poor knitting machine is often blamed unfairly.

To make sure this doesn't happen, you must know **before** you start knitting any garment, exactly how many stitches and how many rows there are to 10 cms.

The "tension" of your knitting is affected by the type of yarn, the kind of stitch used (tuck stitch for instance would give very different figures to plain stocking stitch), and of course by the stitch dial number (stitch size) which you are using.

So the tension piece must be knitted with the same yarn, and at the same stitch size (and in the same stitch pattern if you are using one) as you are going to knit the garment.

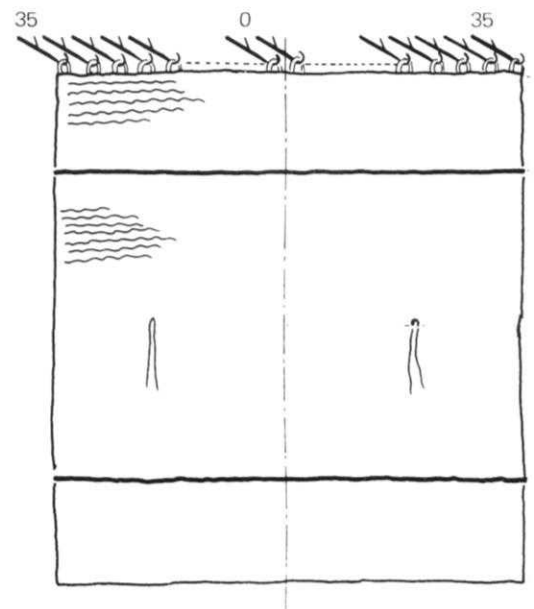
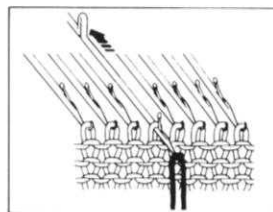
Knitting a stockinet (stocking stitch) Tension Piece.

Using the same yarn and stitch dial number as you intend to use for the garment, cast on 70 stitches (35 each side of 0) using the open edge cast on as before. Knit 20 rows at Main Tension.

Thread the Carriage with a contrast yarn, and knit two rows.

Rethread with main yarn. Set the row counter to 000. Knit 30 rows.

Push the **21st needle** on the left of 0 forward to D position. Hang a short piece of contrast yarn in the hook of that needle, and push it back to B position, so that the contrast loop knits in. Repeat with the **21st needle** on the right of 0. There should be exactly **40 stitches** in main yarn between the two contrast marker stitches which you have just put in by hand.



Knit **30 more rows** .

Change to contrast yarn and knit 2 rows.

Rethread main yarn and knit 20 rows.
Cut or break the yarn, unthread the Carriage, and take the empty Carriage across the needles to remove the knitting from the machine.

Be sure to **make a note** of the stitch dial number used for your tension piece.

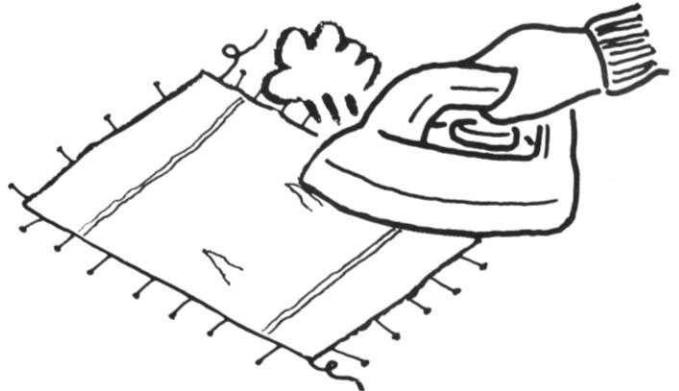
Measuring your tension piece

Now roll your tension piece into a tube, from side to side, and pull it lengthways. This allows the stitches to go back into shape after having been stretched across the machine needles.

The piece should now be pinned out flat, making sure not to stretch or distort the knitting.

Using a steam iron, or a dry iron over a damp cloth, steam your knitting. **No pressure required!** You are simply putting steam into the knitting to set the stitches and stop the edges from curling.

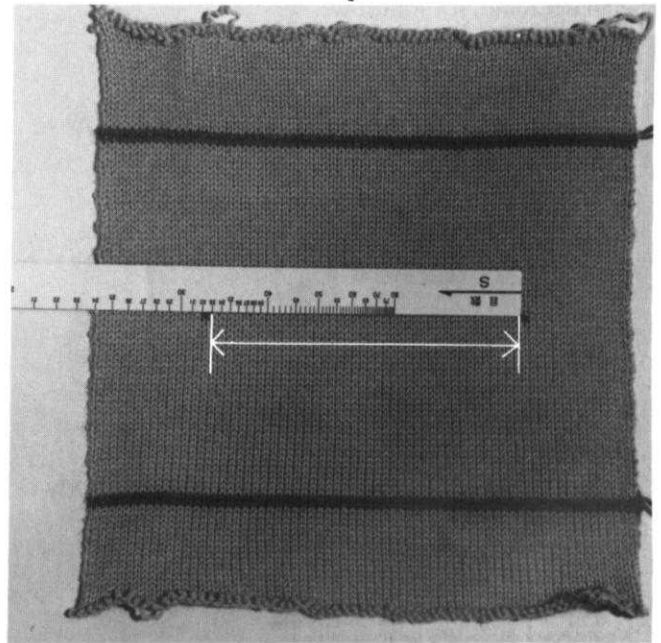
Allow the piece to dry before removing the pins. It should then be allowed to relax for several hours.



Place the tension piece ('knit' side up) on a smooth flat surface so that it lies flat without distortion.

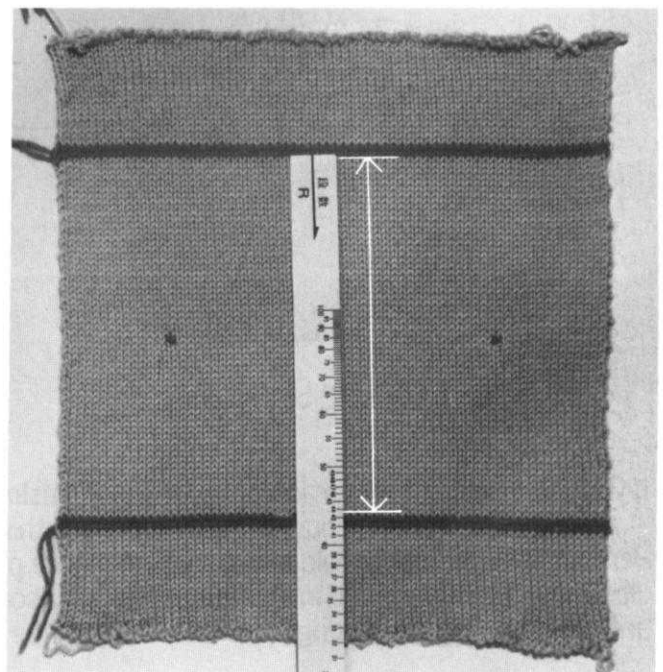
Put the green gauge scale with the **S** side up so that the left end of the scale (where the **S** is) is touching the inside of the contrast marker stitch on the left. Read the number nearest to the inside edge of the other contrast marker stitch.

The scale is used to gauge the 40 main yarn stitches **between** the contrast stitches.



Now turn the scale over to the **R** side, and place the left end (where the **R** is) just touching the inside of one pair of contrast rows. Read the number nearest to the inside of the other pair of contrast rows.

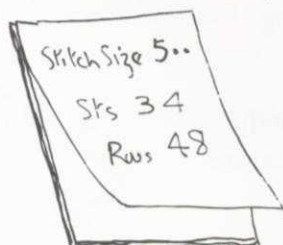
The scale is used to gauge the 60 rows in main yarn **between** the pairs of contrast rows.



Write down the Tension and Stitch Size

The figures that you get are the stitches to 10 cms. and the rows to 10 cms. for that piece of knitting, and are usually called the tension for that particular piece.

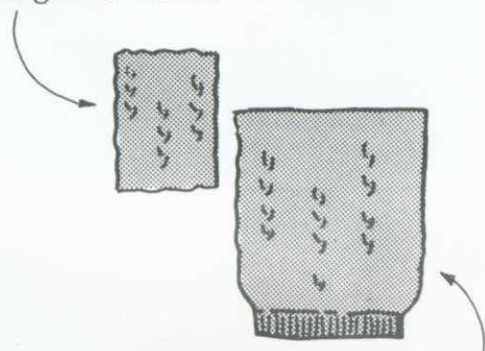
Do remember to make a note of these figures. And even more important, note the stitch size (the number on the stitch dial) at which it was knitted.



Simple garments

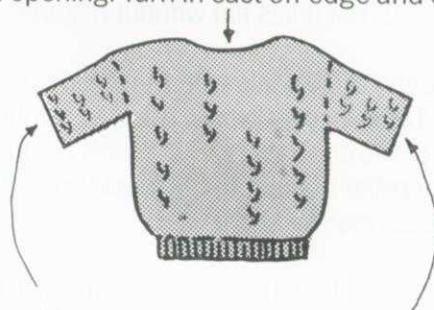
Now with just these basic techniques you could knit a simple garment – a sweater with dropped shoulders and slash neckline, for instance.

2 rectangles for sleeves



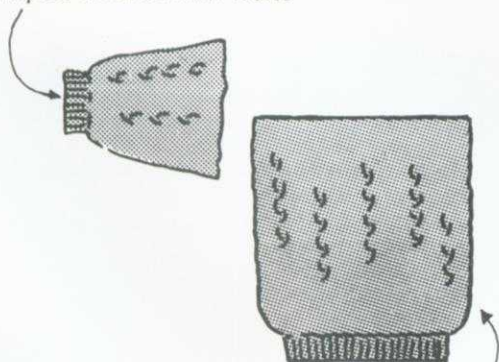
2 rectangles with welts for body

Leave slash opening. Turn in cast-off edge and catch down.

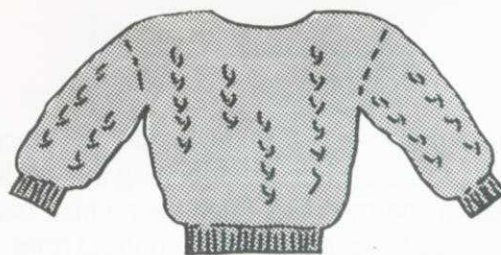


Turn in edge and catch down

2 shaped sleeves with welts



2 body pieces



If you like doing rather than learning – have fun using your new machine to knit some basic shapes for a while – before we go on to find out how to do lots more things on it.

Perhaps after that you would like to try some of the patterning stitches which are shown in the Pattern Illustrations and explained in the Patterning Handbook. When you are ready to learn more knitting techniques, and to find out about making-up and finishing, come back to section 3 of this book.

Part 4 Detailed Methods and techniques
(Each technique simply explained)

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How to knit a shaped neckline

When the centre front of the neckline has been reached, stop with the Carriage on the right hand side of the knitting.

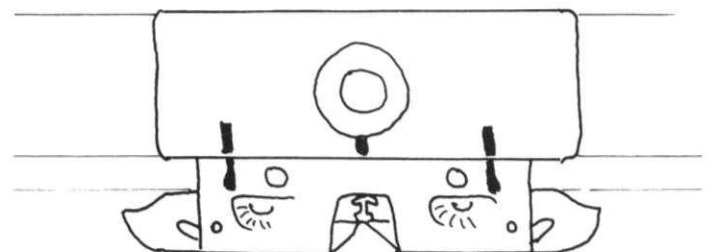
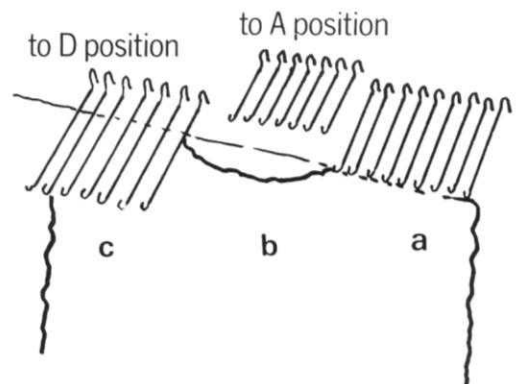
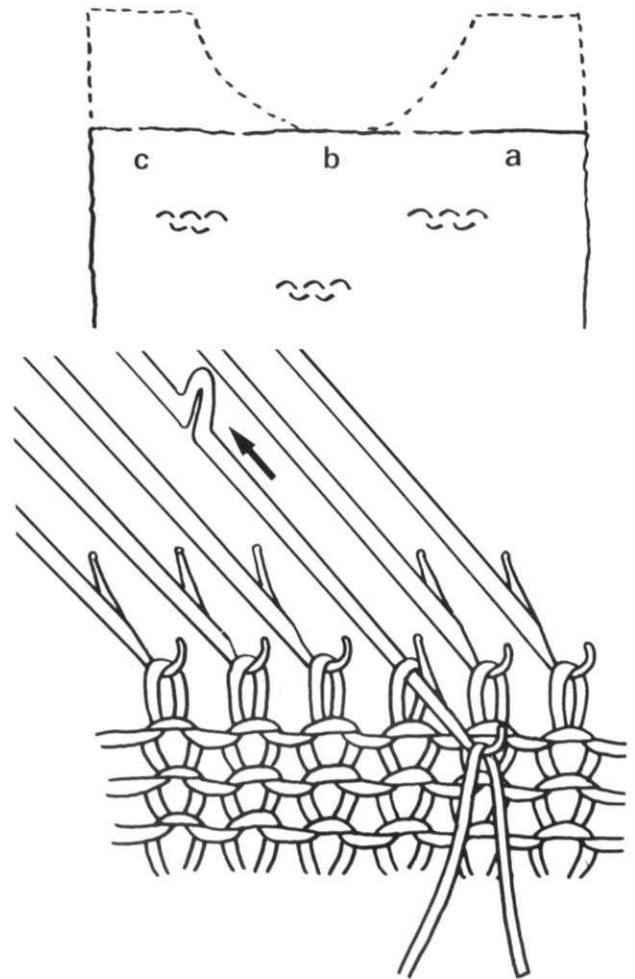
Divide the work into three sections like the sketch.

“a” and “c” are shoulders, and “b” is the centre straight section of the neckline.

Using a length of main yarn, cast off the stitches of the centre (b) section by hand. Join the yarn to the adjacent stitch in the shoulder section by knitting it by hand as you would put in a yarn marker in a tension piece. Push back the empty needles to A position.

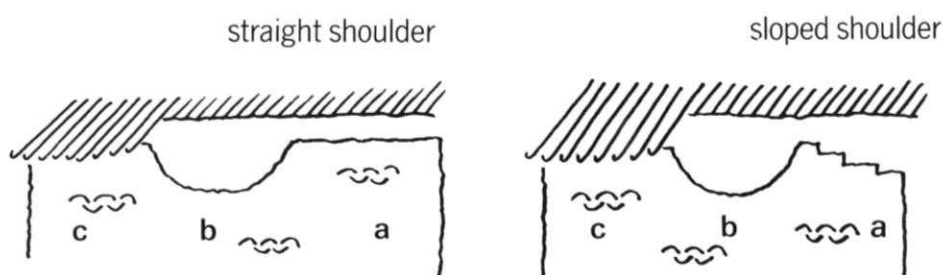
Use the Needle Pusher to bring the needles of “c” section right forward into D position. That’s as far forward as they will come.

Put both Russell Levers on the carriage to I so that these needles will now remain in D position. The Carriage will safely pass over these needles in D position and the stitches will not knit.



Section "b" stitches are now cast off and section "c" stitches are "held" in D position, so we can now knit the right shoulder, (section "a"). Hang a Claw Weight near each edge of section "a". Continue to knit, shaping the neck edge by decreasing (or casting off) one or more stitches as required.

Cast off the shoulder as required, either straight, or in sections on alternate rows as in hand knitting.



Push back the empty needles to A.

To knit the second shoulder, take the Carriage across to the left hand side of section "c".

Thread up with main yarn.

Put both **Russell Levers** on the Carriage to the **II** position (which means that the needles previously "held" in D position will now knit). ★

Knit this shoulder to match the first one, with the shapings reversed.

★ **Stocking stitch only**

When you are doing pattern knitting, use a transfer tool to put the needles back to B position, one at a time, tipping the stitch off the tool and **back into the needle hook** as you do so.

This is because patterning can only work when needles are in **B** position.

How to knit a crew neckband to match the double welt.

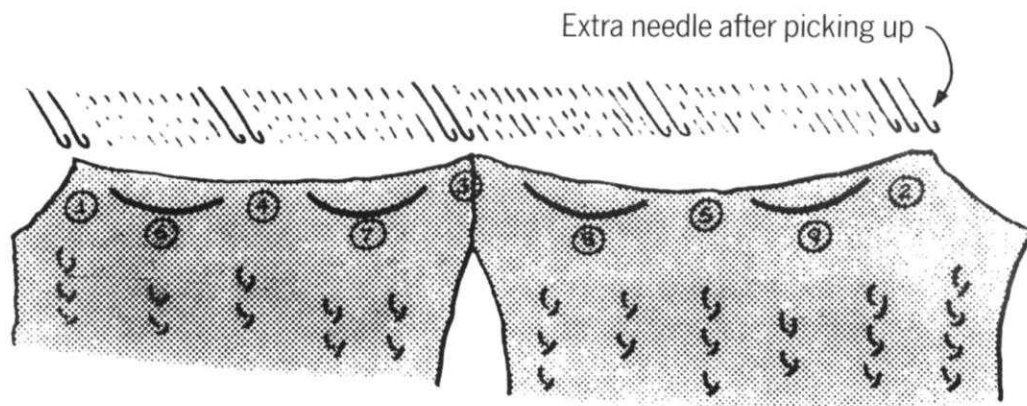
HINT: The number of needles you need for a neckband depends partly on the size of the pieces you have knitted, and partly on the need to get the head through! Stretch out the neck edge of your pieces and see how many needles they cover on the machine.

If that is less than 120 needles, and it is an adult sweater, you will have difficulty getting it over the head. 130 needles is a rough guess which would give you a start, but you will find that more or less are appropriate to the size of the head and the style of the sweater. Very young children usually need a neck opening to get their heads through.

1. Join the right shoulder seam.
2. Use the Needle Pusher to bring the required number of needles forward to D position. Open all the latches with the Transfer Tool. Push the needles back to B.
3. With the right side of your garment facing you, and starting with the open shoulder, pick up the stitches from around the neck and place one on each needle. It will be easiest to do this in the order shown.

Pick up onto a few needles at one end, then stretch out the knitting and place stitches from the other end onto the end few needles. Then follow the sequence of the numbered sections in the sketch below.

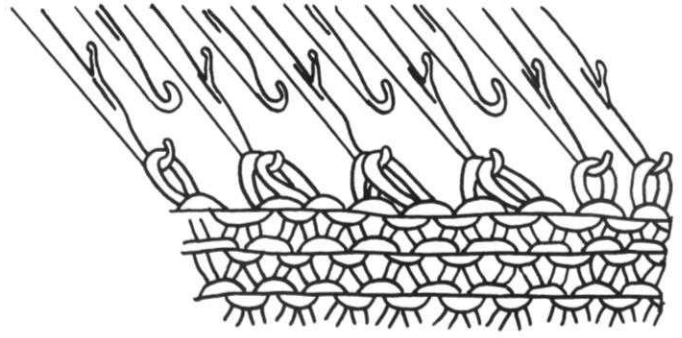
Bring forward one extra needle at the right hand end. This extra stitch is for making up.



4. With your left hand holding the knitting back against the machine – carefully bring the needles forward from B to D position and check that the Carriage **Russell Levers** are on **II**. This will help your machine to knit the first row which may be a bit tight.

5. Thread up with main yarn and with the Stitch Dial at main tension, knit 1 row.

6. Starting with the third stitch from the right, use your Transfer Tool to transfer alternate stitches to their neighbouring needles. If there are two stitches together at the left end, move the end stitch out one needle to the left. Push the empty needles to A.



7. Set Stitch Dial to Main Tension minus 3 and knit 20 rows.

8. Set Stitch Dial to Main Tension. Bring the empty needles (those returned to A in step 6) forward to B position.

9. Knit 3 rows. ☆

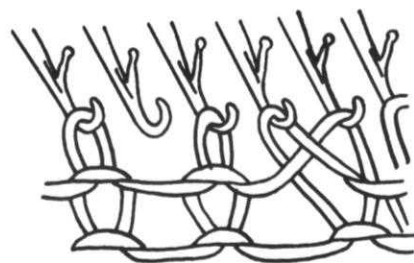
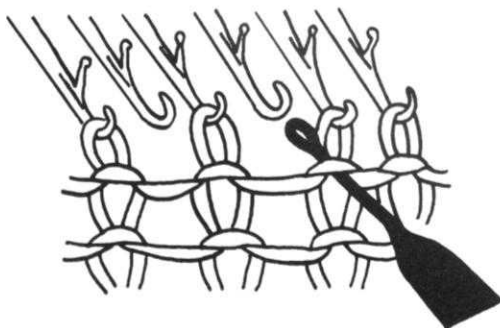
10. Cast off with waste yarn. That is, using waste yarn knit a further 6 rows, unthread and release the work from the machine.

(Continue with step 11 overleaf.)

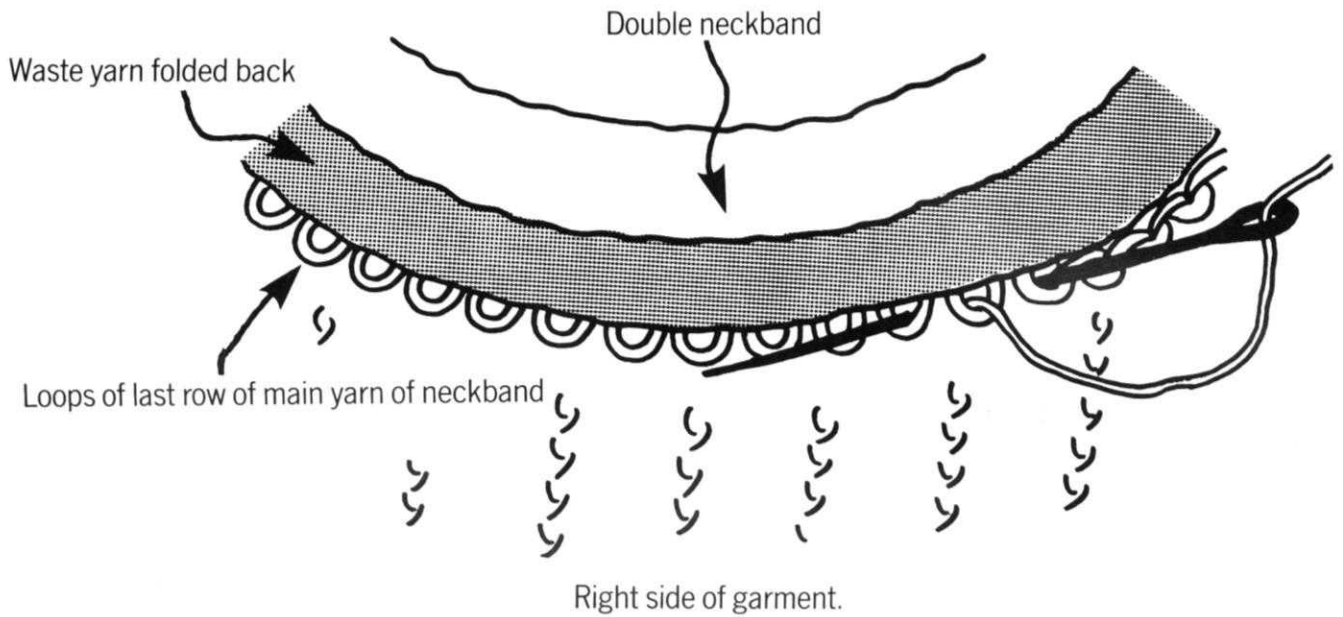
☆ **Alternative method to eliminate the row of decorative holes.**

In step 9, don't knit 3 rows as before, but work as below.

Pick up a loop from below the second needle on the right, and place it on the empty needle next to it. Continue along the row picking up a loop from below an existing stitch and putting it onto the empty needle to the left. Knit **one** row.



11. To finish the neckband, join the remaining shoulder seam.
Join the neckband seam. Fold the neckband in half onto the outside and pin into position, taking the last row knitted in main yarn far enough over to conceal any irregularities that there may have been with the pick up row. Fold the waste yarn back onto the band to expose the loops of the last row knitted in main yarn.



Using main yarn, back stitch loosely through these loops. Pull off the waste yarn.

Double Welts

sometimes called “mock ribs” or “Continental Ribs”.

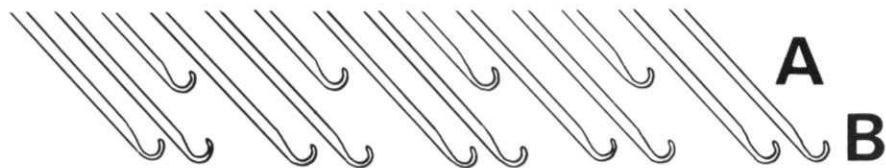
1 x 1 double welt.

This is a summary of the detailed explanation on page 16 where you will also find illustrations.

1. Open edge cast-on with waste yarn on **ALTERNATE** needles.
(Needles to B, alternates back to A, thread waste yarn, knit one loose row, lay in cord and hold down firmly, knit 5 rows at Main Tension minus 3, pull out cord, knit a few more rows finishing on left, unthread waste yarn.)
2. Thread the **cord** in the Yarn Feeder and knit 1 row at a loose tension. One row only (page 16).
3. Unthread cord from Carriage, thread up with main yarn.
4. Set Stitch Dial to 3 numbers tighter (lower) than main tension.
5. Knit twice the number of rows required for the finished welt (40 rows knitted for 20 row welt).
6. Use single Transfer Tool to pick up loops from first row knitted in main yarn. Place one loop onto each empty needle between those in B, bringing each forward to B as you do so.
7. Use a tool to undo first stitch of cord at left, hold the knitting against the machine and pull out the cord to right. All needles are now in B, each with one stitch on it.
8. Change Stitch Dial to Main Tension.

Continue knitting. (See page 17 for finishing your welt.)

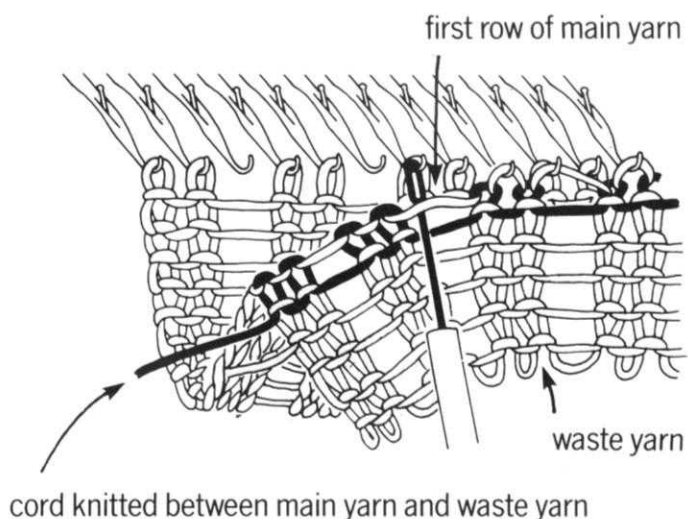
2 x 1 double welt.



1. Set up needles as shown above, that is 2 needles in B, 1 in A, 2 in B, 1 in A all across the width required, finishing with 2 in B. Use the Carriage to line up the needles left in B position.
2. Open edge cast-on with waste yarn over those needles.
(Thread waste yarn, knit one loose row, lay in cord and hold down firmly, knit 5 rows at Main Tension minus two, pull out cord, knit a few more rows finishing at the left, unthread waste yarn.)
3. Thread **cord** in Yarn Feeder and knit 1 row at a loose tension. One row only (page 16).
4. Unthread cord from Carriage and thread up with main yarn.
5. Set Stitch Dial to 2 numbers lower than Main Tension.
6. Knit twice the number of rows required for the finished welt. (40 rows knitted for a 20 row welt.)

7. Using the single Transfer Tool, pick up the loops from the first row knitted in main yarn, placing them on corresponding needles. With this needle arrangement, there will be two loops for every 3 needles. So place one loop onto an empty needle, and another loop onto only one of the next pair of needles which already have stitches on.

8. When all the loops have been picked up, every needle should have at least one stitch (every third needle should have 2.)



9. Check that you have picked up the very end stitches which can sometimes pull tight, and may easily be missed.

10. Use a tool to undo the first stitch of the cord at left, hold the knitting against the machine and pull out the cord to the right.

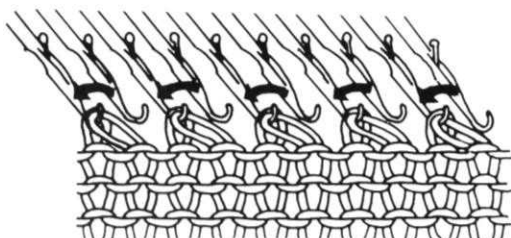
11. Set Stitch Dial to Main Tension plus 1. Knit 1 row

12. Change Stitch Dial to Main Tension.

Continue knitting. (See page 17 for finishing your welt.)

Picot Hem.

1. Open edge cast-on with waste yarn on **ALL** needles.
(Knit one loose row, lay in cord and hold down firmly, knit 5 rows at Main Tension minus 1, pull out cord, knit a few more rows finishing at the left, unthread waste yarn.)
2. Thread **cord** in Yarn Feeder and knit one row at a loose tension. One row only (page 16).
3. Unthread the cord from the Carriage, thread up with main yarn.
4. Set Stitch Dial to 1 number tighter (lower) than main tension.
5. Knit number of rows required for finished hem (eg 8 rows).
6. Use the single eye Transfer Tool to transfer every alternate stitch onto it's next door needle, leaving all the emptied needles in B position, as shown below.



7. Set the Stitch Dial to Main Tension (that is one number looser (higher) than for the first part of the hem).
8. Knit the same number of rows as for the first part of the hem (eg 8 rows).
9. Use the single Transfer Tool to pick up the loops from the first row knitted in main yarn. There will be one loop for every needle except the last. So all needles except the last will now have two loops on.
10. Use a tool to undo the first stitch of the cord at the left, hold the knitting against the machine and pull out cord to right.
11. Set Stitch Dial to Main Tension plus 2 (two numbers looser than the Main Tension).
12. Knit one row.
13. Change Stitch Dial to Main Tension.

Continue knitting.

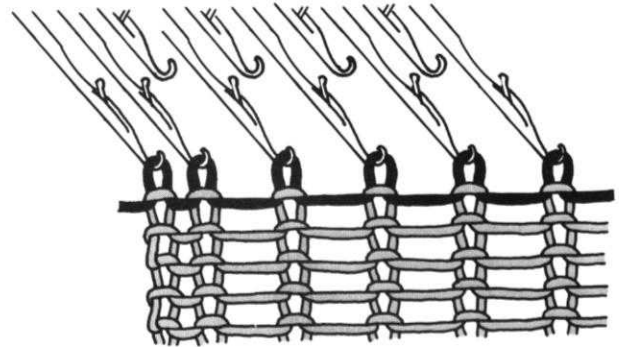
Knit 1 Purl 1 Rib.

Open edge cast-on with waste yarn on **ALTERNATE** needles. (Needles to B, alternates back to A, thread waste yarn, knit one loose row, lay in cord and hold down firmly, knit 5 rows at main tension minus 3, pull out cord.)

On the left hand side of the knitting, bring forward to B one extra needle on the left of the end working needle in B position.

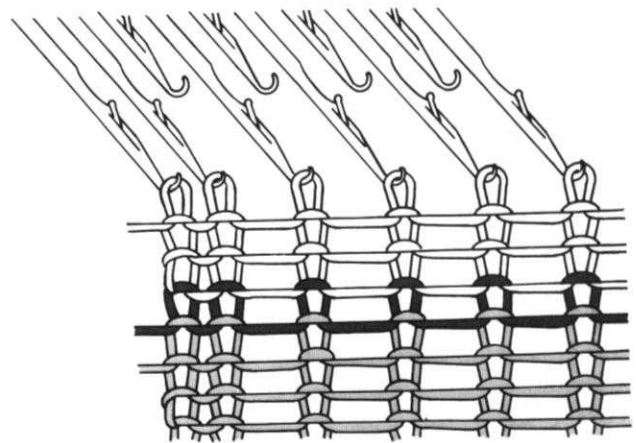
Knit a few more rows, finishing on the left. Unthread waste yarn.

Knit in the cord, one row only.

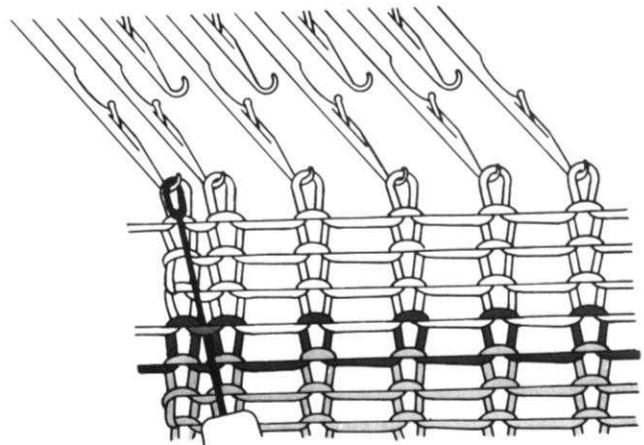


Hang a Claw Weight near each edge of the knitting.

Unthread the cord from the Carriage and thread up with main yarn. Set stitch dial to 0 (tightest tension). Knit 4 rows.

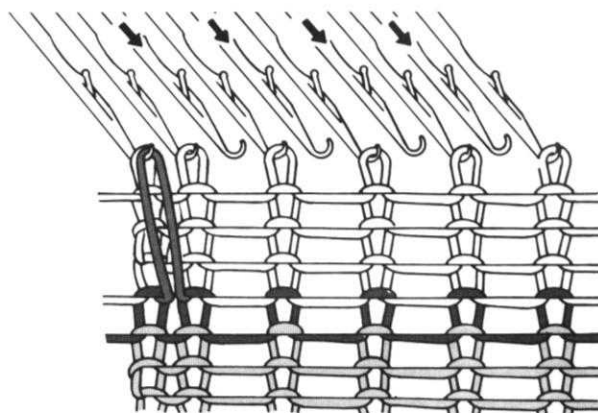


Insert Transfer Tool into the left end loop of the first row of main knitting.
Lift that loop and put it onto the end needle.



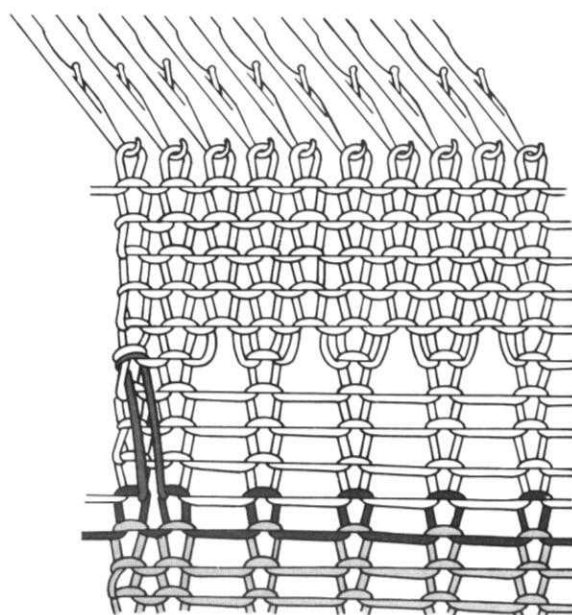
... more on p32

Bring the alternate needles forward to B position.



Set the Stitch Dial to 2 numbers lower than Main Tension.

Knit the number of rows required for the finished rib.



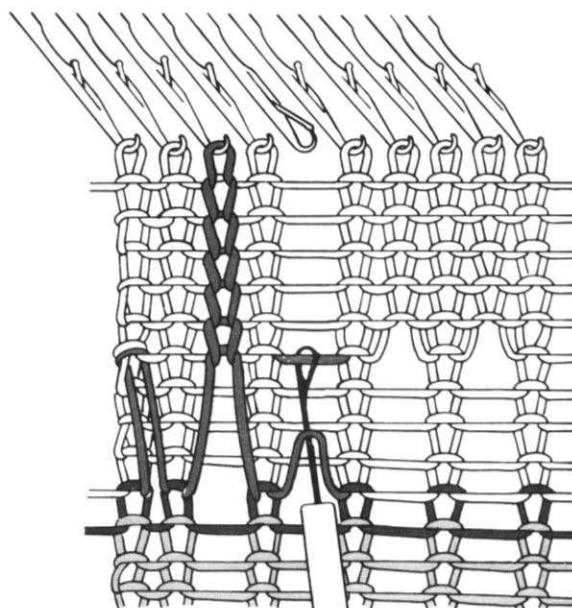
With your fingers, take hold of the needle butt of the third needle from the left, and bring the needle forward to D position, and then back to B.

The stitch will have dropped off.

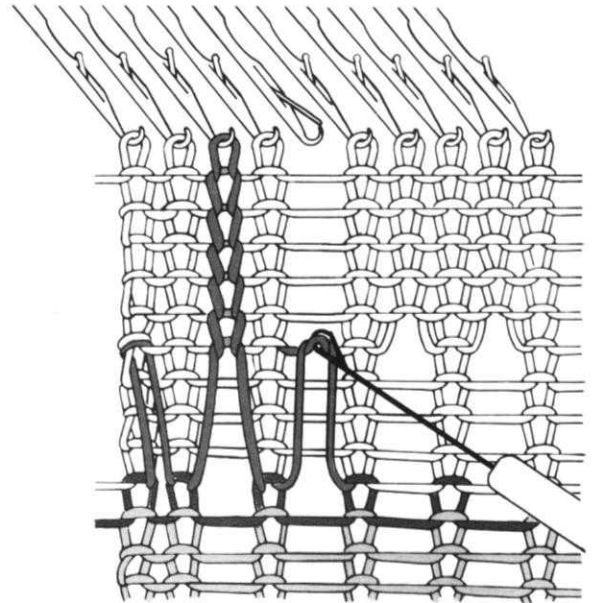
Use the end of the single prong transfer tool to undo the stitches right down to the nylon cord.

Then use the tappet tool to remake those stitches into "knit" stitches like this.

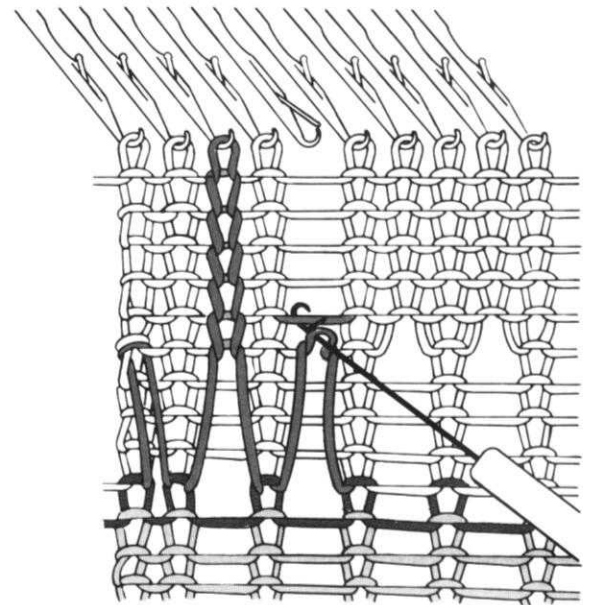
Insert the latch tool under the loop of the first row of main knitting. Ignore the next three bars, then catch the yarn of the fifth row in the hook of the latch tool.



Pull the tool towards you, and the first loop will slip over the hook of the tool forming a new stitch.



Slide the stitch on the tool behind the latch, catch the next bar of yarn in the hook, and pull that through.



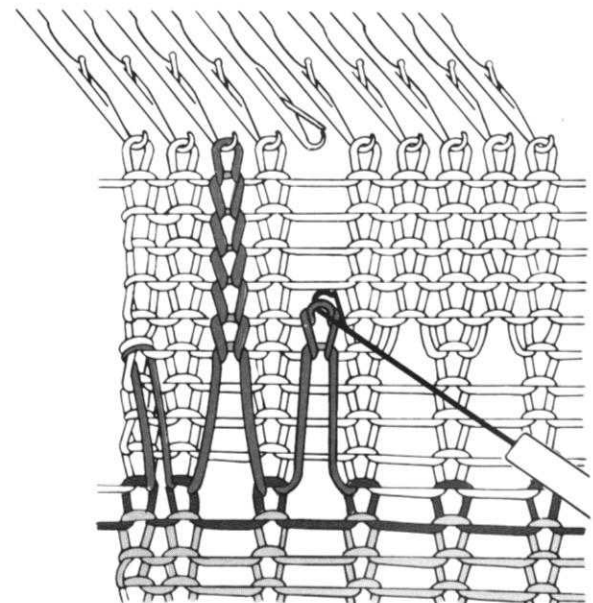
Work your way up until the stitch of the last row knitted has been formed, and replace this on the needle.

Drop down and reform each alternate stitch in the same way.

The reason for missing the three bars at the bottom is that this makes a nice firm edge to the rib.

Leave the waste knitting and cord attached until you have completed the piece, and taken it off the machine.

Then use a tool to undo the left end stitch of the cord and pull it out to the right carefully.



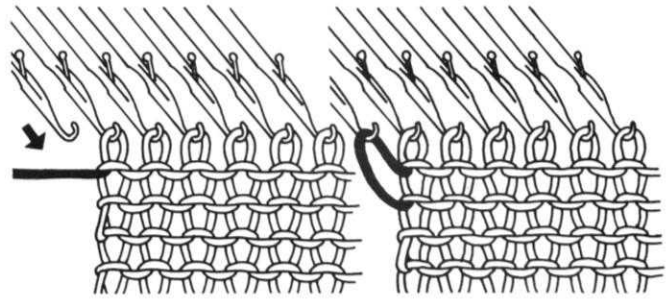
Shaping

Single stitch plain increasing.

Bring forward to B position one empty needle at the edge of the knitting.

You can do this at both edges at the same time.

Knit two rows.



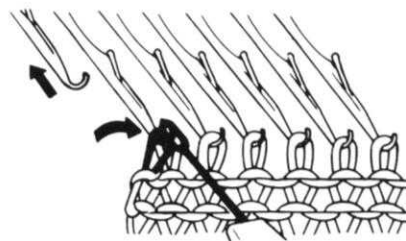
Single stitch plain decreasing.

Use the single Transfer Tool to transfer the end stitch to the next to the end needle. (see page 14)

Push the empty needle back to A position.

You can do this at both ends of the same row.

Knit two rows.



Single stitch fully fashioned increasing.

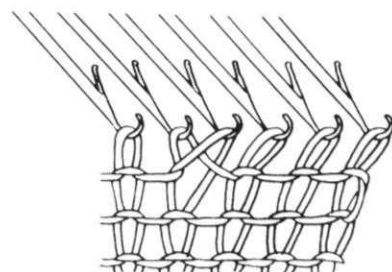
Bring forward to B position one empty needle at the edge of the knitting.

Using the three prong Transfer Tool, transfer the three end stitches one needle outwards, leaving the fourth needle in from the edge of the knitting empty.

Use the single end of your tool to find the stitch from the previous row knitted below the fifth needle along. Pick up this loop – often called the “heel” of the stitch – and put it onto the empty needle next to it.

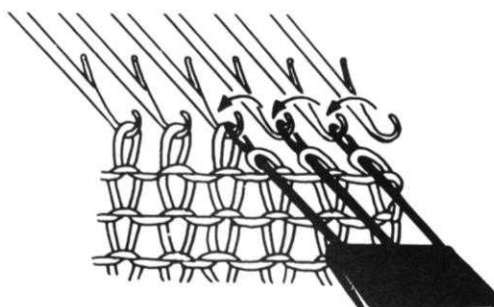
You can increase at both ends of the same row like this.

Knit 2 rows.



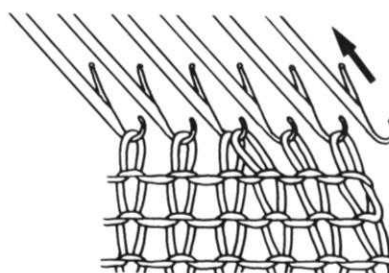
Single stitch fully fashioned decreasing.

Use the three prong Transfer Tool to transfer three stitches one needle in, leaving one empty needle at the edge.



Push this needle back to A position.

This time the needle with two stitches on it will be the third one in from the edge.



For a less pronounced fully fashioned shaping, use the two prong tool.

This method can be used to decrease at both ends of the same row.

Knit two rows.

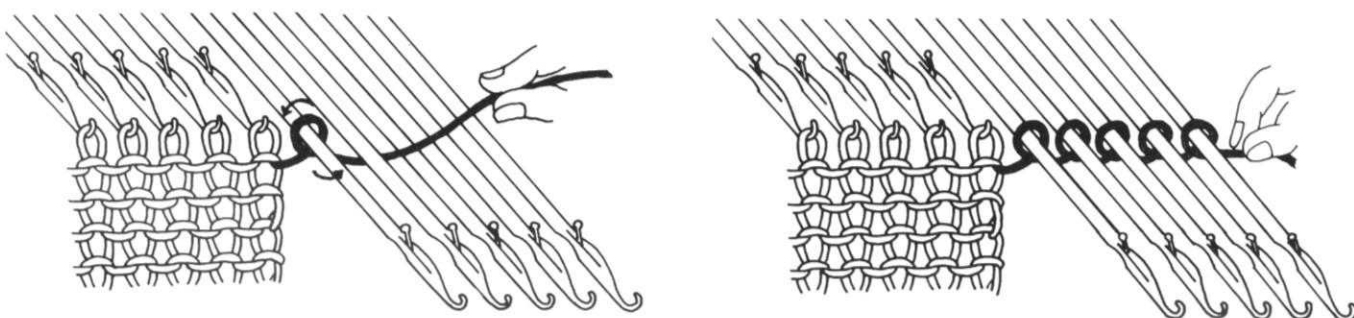
Increasing several stitches.

You can only increase several stitches on the side of the knitting where the carriage is. To increase on the right side, the Carriage must be on the right. To increase on the left side the Carriage must be on the left.

To increase on the right, have the Carriage on the right, bring forward the required number of needles from A to D position.

Pull down some free yarn from the Yarn Feeder.

Wind the yarn in an anti-clockwise direction around each needle in turn, starting with the empty needle which is next to the knitting and finishing with the one next to the Carriage.



Take the yarn **under** the needle from left to right, then up and back **over** the needle from right to left and down. Take it along under the next needle, back over the top of it and so on.

Use your thumb to hold each loop back against the machine as it is completed.

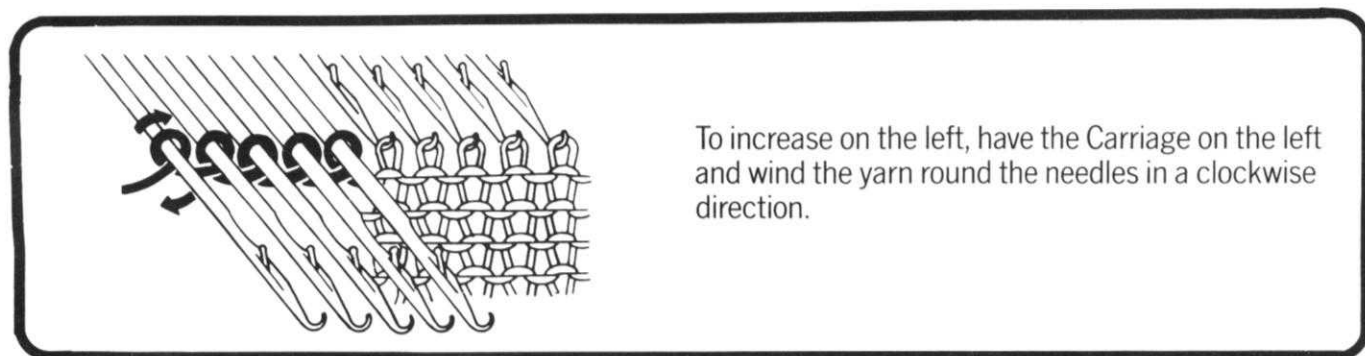
Pull excess yarn back through the Carriage and behind the yarn rod so that the tension spring is pulled well down.

Either use your Needle Pusher to gently push the needles back to C, or have the Russell Levers set to position II, and the needles will knit back directly from D.

Knit two rows carefully.

Hang a Claw Weight on the new stitches at the edge.

Continue knitting.



To increase on the left, have the Carriage on the left and wind the yarn round the needles in a clockwise direction.

Decreasing several stitches.

Unthread the yarn from the Carriage.

Hang a Claw Weight right on the edge of the knitting, on the first stitch, about 2 cms below the needles.

Transfer the end stitch nearest the Carriage to its next door needle, which will then have 2 stitches on it.

Push the empty needle back to A.

Hold the yarn lightly across the fingers of your left hand and use the back of your left forefinger to stop the knitting coming forward.

With your right forefinger bring forward the butt of the needle with two stitches on it, so that both stitches slip behind the latch.

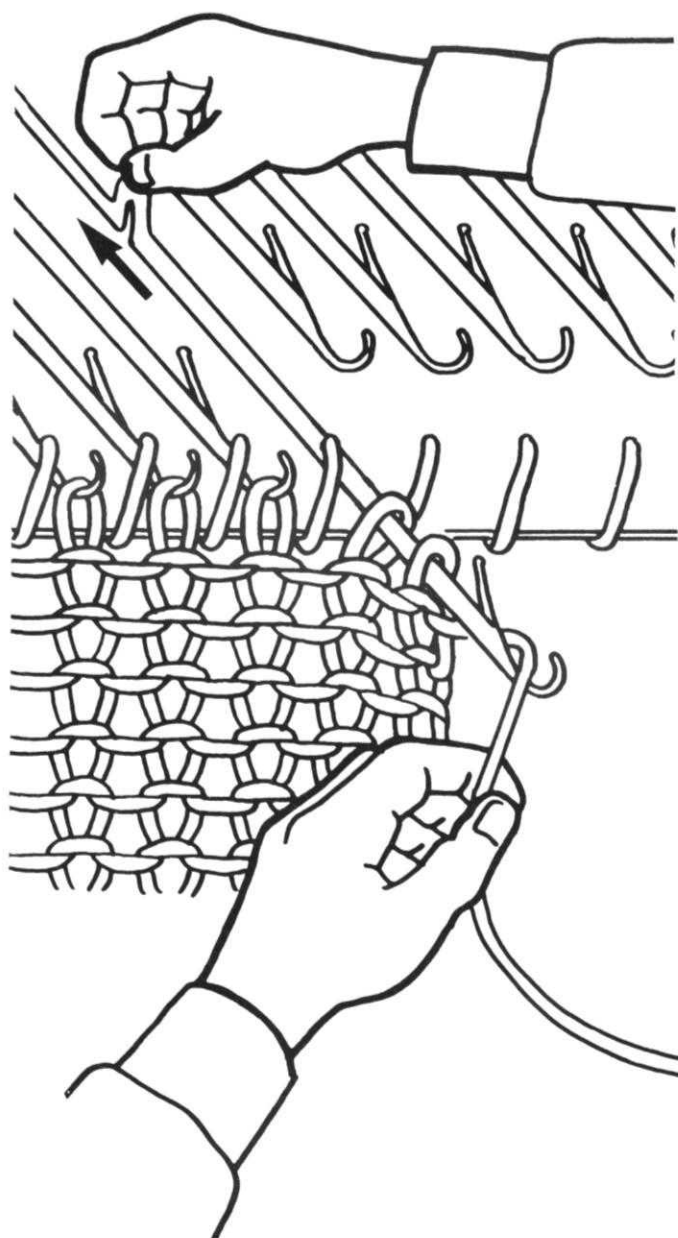
With your left hand, lay the yarn across the open needle hook.

Then with your right hand, push the needle butt back into B position again.

This will knit off the two stitches and leave a single stitch in the hook.

Don't pull this stitch tight.

Repeat for as many stitches as you want to decrease.



Hand cast-on

Open edge Cast-on Summary (see also page 12)

1. Bring required needles to B position.
2. Knit one row at a loose tension.
3. Lay in the cord between the needle hooks and sinkers.
4. Hold the cord down firmly.
5. Knit 5 rows at the correct tension. (Either main tension, for stocking stitch on all needles, or lower tensions for hems and welts.)
6. Pull out the cord and continue knitting.

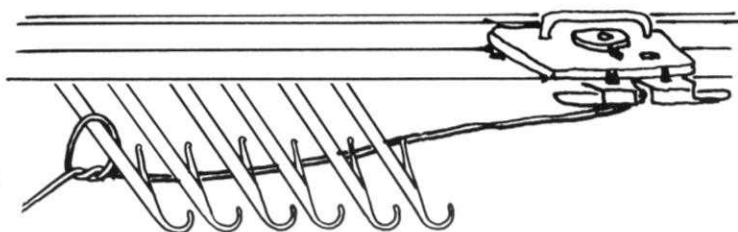
Closed Edge.

Open edge cast-on with waste yarn on **ALL** needles, as above.

Knit one loose row with the cord. Unthread the cord from the Carriage. (Carriage is at the right.)

Bring all needles to D, holding the knitting back against the sinkers.

Thread up with main yarn and pull plenty of yarn down through the Yarn Feeder.



Make a loose knot in the end of the yarn and loop it over the end needle at the left.

Working towards the Carriage, wind the yarn anticlockwise in a loose "e" around each needle in turn, exactly as we did for increasing several stitches. (see page 36)

Pull any extra yarn back up through the Yarn Feeder and down behind the Yarn Rod.

Either push the needles carefully back to C, or have the russell levers set to position II, and the needles will knit back directly from D.

Set Main Tension and knit about 6 rows.

Pull out the cord and continue knitting.

Note: If you wind the yarn **too tightly** round the needles, your machine will complain and may even refuse to knit. If your main yarn is rather thick, cast on and knit with alternate needles with waste yarn, bringing in the remaining needles for the main yarn cast-on row.

Casting off

Casting off by decreasing.

Follow the instructions on page 37, repeating until you have one stitch left on the last needle.

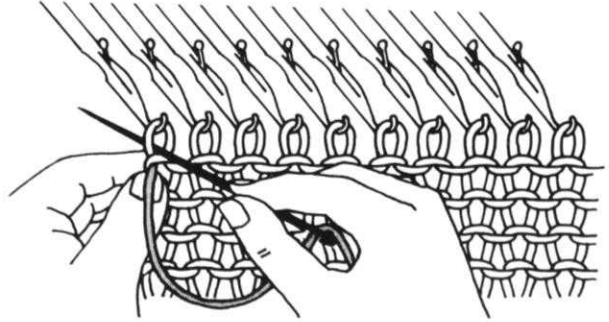
Break off the yarn, and pull the end through this last stitch, to stop the cast-off edge from undoing itself.



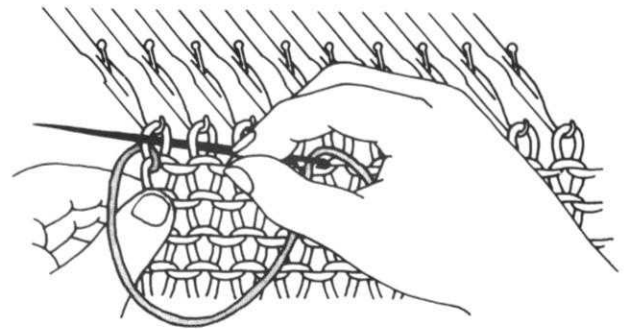
Casting off by the back stitch method.

Finish with the Carriage at the left.

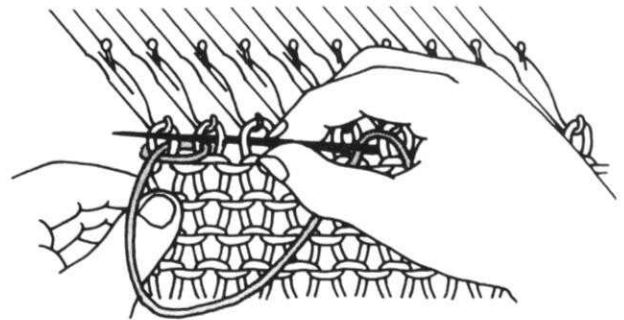
Unthread and leave a length of yarn about three times the width of the knitting. Thread a tapestry needle with the end of the yarn, insert it into the first stitch and pull through.



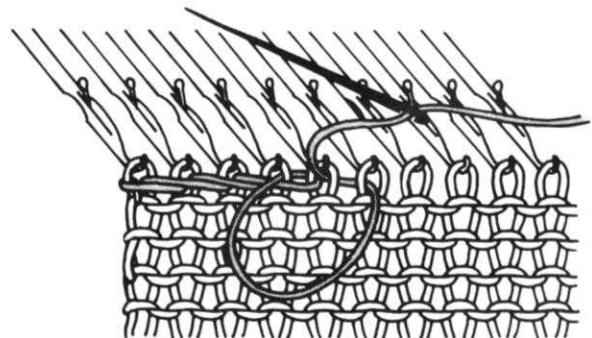
Put the needle into the second stitch, and back out of the first stitch. Pull through.



Put the needle into the third stitch and back out of the second stitch. Pull through.



Continue to close all stitches. Finish the last stitch by bringing the needle through it from back to front.




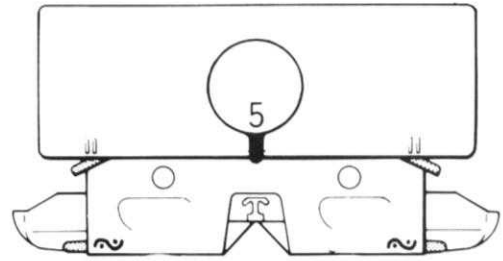
Release the knitting from the machine.

Automatic Closed-edge Cast-on

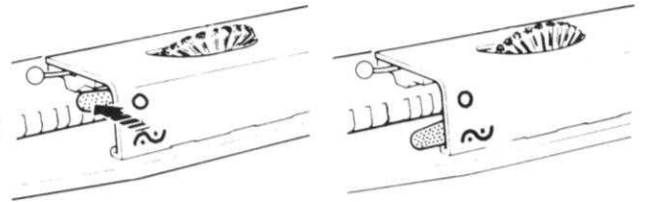
This is very quick and useful, but when you do use it, you must check that you have **everything** set up correctly. If you miss out only one thing, it will not work – so don't blame your machine, check carefully!

Automatic cast-on over all needles

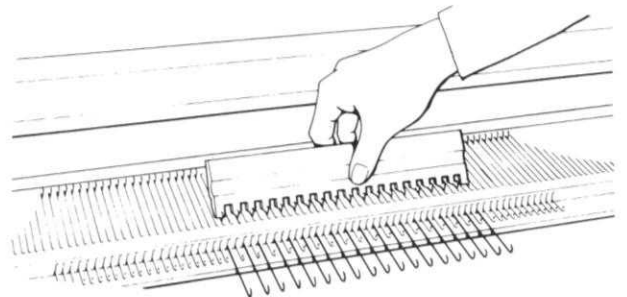
1. Have the carriage at the right of the needle bed, with the levers like this:
Cam lever to 0
Stitch dial 5
Russell Levers to II
Weaving knobs to 



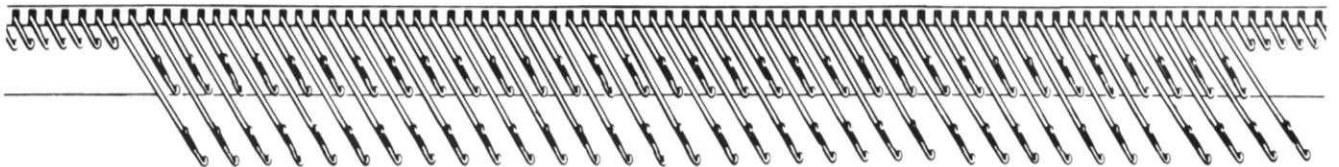
(Push the weaving knobs towards the carriage and allow them to drop down.)



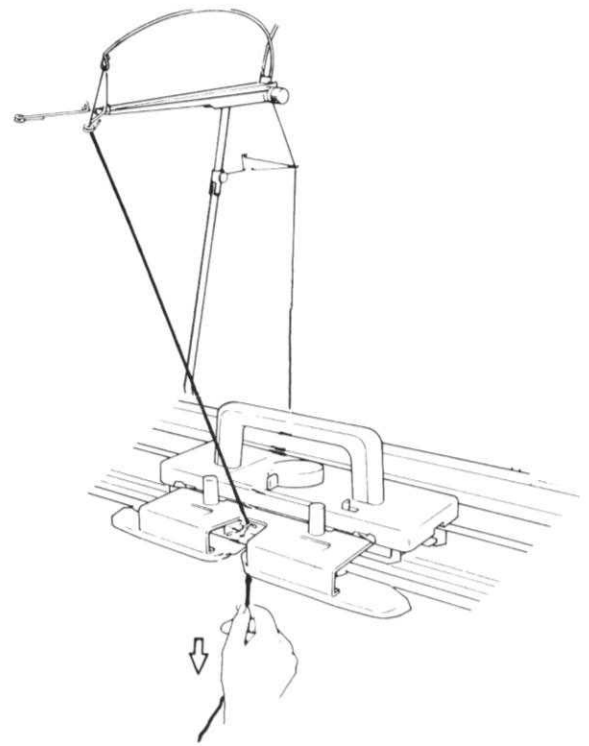
2. Bring the required needles to B position.



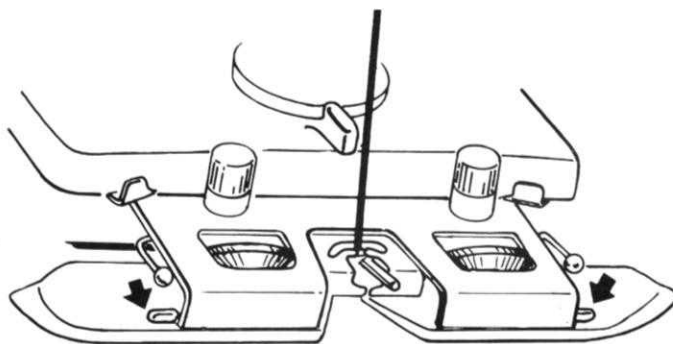
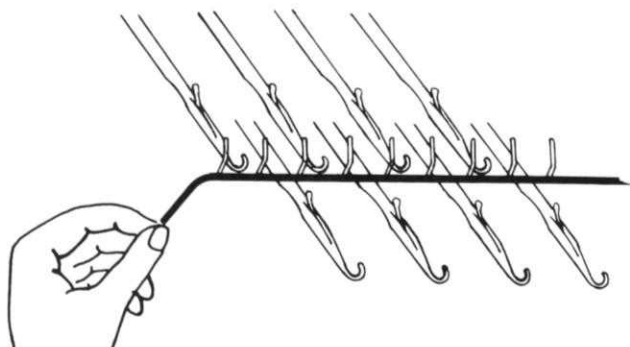
3. Using the needle pusher, bring alternate needles forward to D position, leaving the others in B.



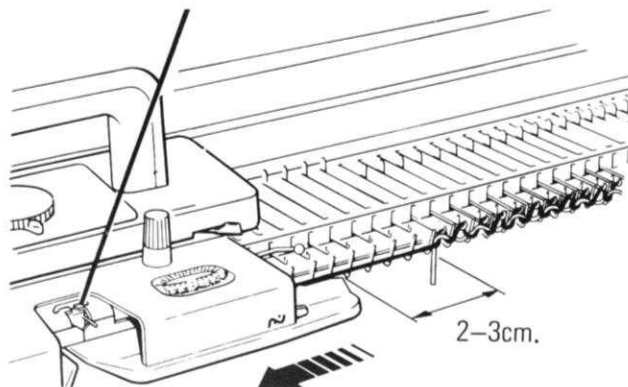
4. Thread up with main yarn in feeder 1 and pull plenty of yarn down through the feeder.



5. Take the end of the yarn to the left, under the arm, and lay it along over the top of the needles in D, just in front of the sinker posts. Keep hold of the end at the left with your left hand. You need to have about 40 cms of spare yarn at the left.

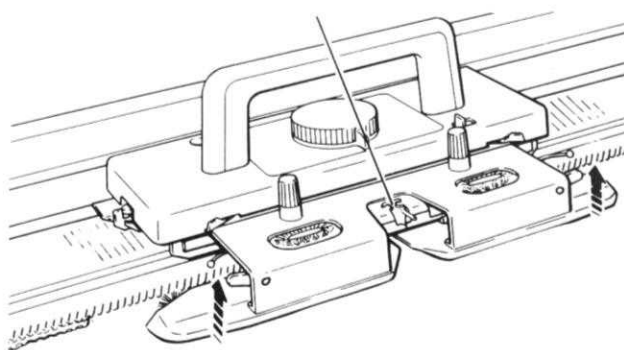


6. Knit across from right to left carefully, allowing the carriage to draw a little yarn from your left hand as it needs it.



7. Keep holding the end of the yarn in your left hand and knit 5 more rows, finishing on the right.

8. Set both weaving knobs up to the ○ mark. Hang the claw weights. Set main tension.



Automatic cast on on alternate needles

1. Set the carriage as step 1 on page 40.

2. Bring out the alternate needles and line them up in B position.

3. With your fingers, bring forward to D the alternate ones of those out in B. If you count **all** the needles, that is every fourth one to D.

4. Now continue exactly as before from step 4 to step 8.

When you have completed the cast on, set MT minus 3, or whatever your ribbing tension is to be.

HINT: You can do this cast-on with any needle arrangement, as long as you line up the required needles in B, and then bring the alternate ones **of those in B** forward to D. The essential element is that looking at the working needles and ignoring those in A, the needles must be alternately in B and D.

Holding position.

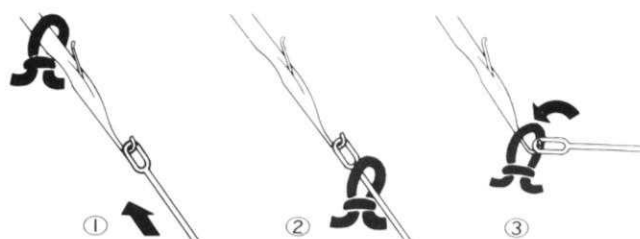
If the Russell Levers are in position I, needles put into D position will not knit. D position is often called the “holding” position.

You are able to have some needles with stitches on them in B position – and these will knit when you take the Carriage across - and at the same time have other needles in D position, and these will not knit, the stitches will just be held.

To make the needles which are in D able to knit again, you can either push them back to C, or move the Russell Lever on the side of the Carriage next to the knitting to position II.

If you push the needles back to C, do it carefully, because if you push them right back to B by mistake, the stitches will fall off.

These two methods are for plain knitting (stocking stitch) only. When you are doing **pattern knitting** use a transfer tool to put the needles back to B, one at a time, tipping the stitch off the tool and **back into the needle hook** as you do so.



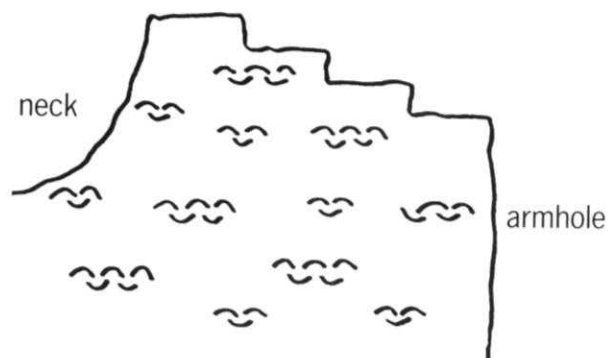
This is because patterning can only work when needles are in B position.

REMEMBER, needles knitting from C or D position will knit stocking stitch only.

How to slope a shoulder using Holding Position.

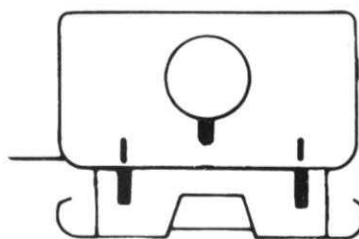
(Sometimes called “partial knitting”.)

You can, of course, shape a shoulder by casting off as you would in hand knitting, but this does give ‘steps’ at the shoulder edge.



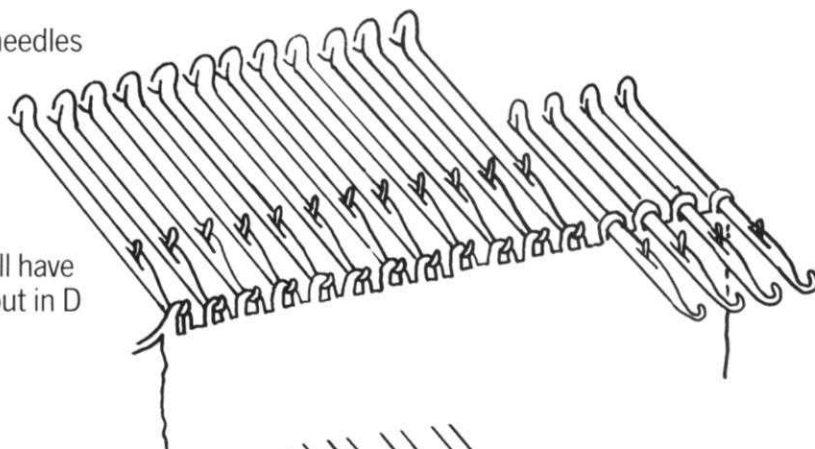
A much neater way is to shape using holding position. Let's try a small piece to show you the idea. Bring forward to B position 16 needles. Cast on and knit about 30 rows. Finish with the Carriage on the left.

Put both Russell Levers to position I, that is pointing straight forward.



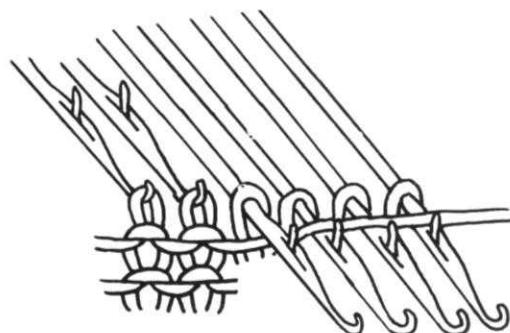
At the right hand edge of the knitting, bring 4 needles forward to D position.

Knit one row from left to right. The B needles will have knitted, the D needles will not, they will still be out in D with the yarn lying across them.



To prevent an untidy hole being formed at the point where the B needle is next to the one in D, take the yarn **under** the first inside needle in D position.

Make sure that it still lies **over** the remaining D position needles.

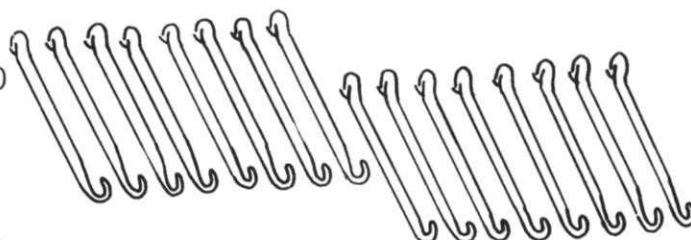


Knit 1 row.

With the Carriage again on the left, bring forward to D position 4 more needles, next to those already in D.

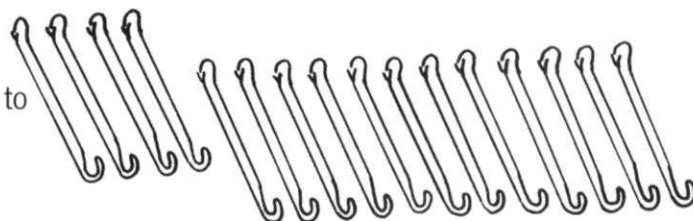
Knit from left to right.

Take the yarn under the new first needle in D, and knit back to the left.



Carriage on the left, bring four more needles at the right to D.

Knit across, yarn under, and knit back as before.



... more on p44

With the Carriage on the left, put the **right** Russell Lever to II

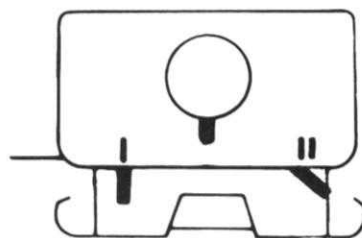
Knit one row.

All the needles will have knitted this time.

Thread up with waste yarn and knit 6 rows.

Take the knitting off the machine.

There you have a smoothly shaped right shoulder.



Repeat in reverse for a left shoulder. Start with the Carriage on the right, and bring out needles to D on the left side of the knitting.

If you practice the left shoulder now, starting with 16 stitches, and bringing needles out in fours, you'll have a left and right shoulder ready for when we learn how to join them together to make a neat shoulder seam. That will be on page 50

(Hint: If, when you are knitting a garment, you have other needles in holding position which you **don't** want to knit back, when you get to the step at the top of this page, then instead of moving the Russell Lever, leave it on I and push all the D needles which you **do** want to knit, back carefully to C position. Then knit across, and they will all have knitted.)

Necklines and necks.

Round necks.

Double neckband (as for double welts)

(This is a summary of the details and illustrations on pages 24 to 26).

1. Join one shoulder seam (or three raglan seams out of four).
2. With the right side of the work facing you, pick up stitches around the neck as shown on page 24.
3. Bring the needles forward to D. Have the Russell Levers set to position II.
4. Knit one row on all needles at Main Tension.
5. Transfer stitches as required – alternates for a 1 x 1 band, every third for a 2 x 1.
6. Set Stitch Dial to Main Tension minus 3 (for 1 x 1) or main tension minus 2 (for 2 x 1)
7. Knit twice the number of rows required for the finished height of the neckband.

either

- 8a. Bring the A needles forward again to B. Knit 3 rows.

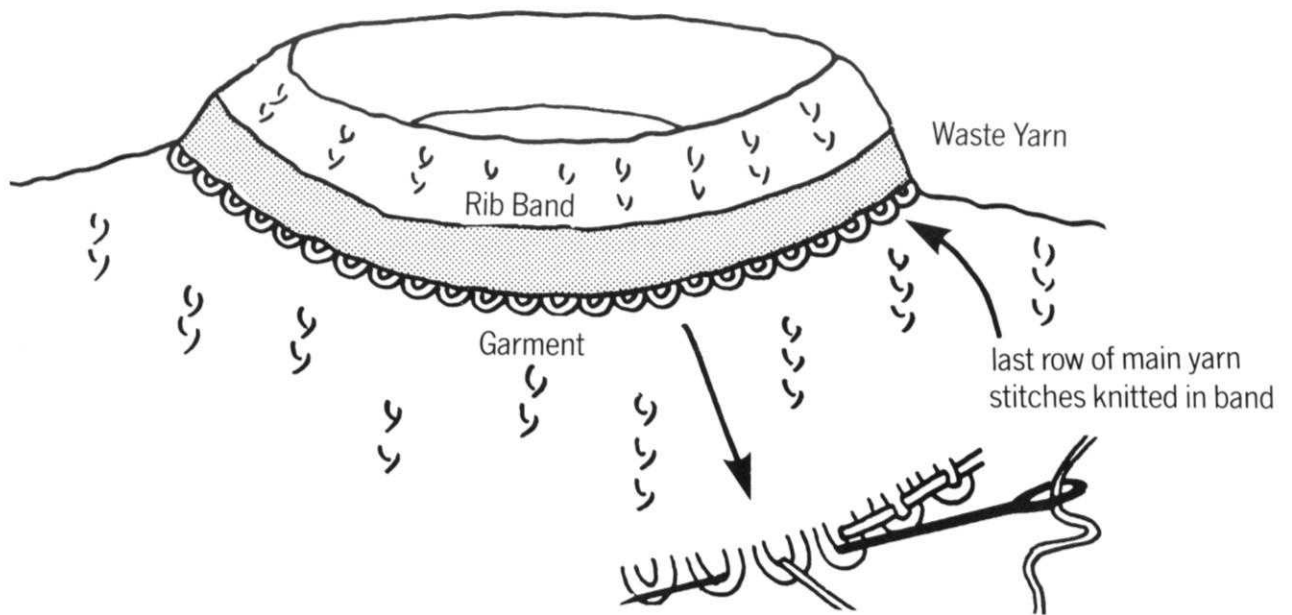
or

8b. (Optional step to omit row of decorative holes. Pick up the loops from below adjacent needles and place them on the empty needles. Knit 1 row)

9. Change to waste yarn.
10. Knit 6 rows and release from the machine.
11. Finish by folding the band over to the right side, and back stitch through the loops of the last row knitted in main yarn.

Knit 1 purl 1 neckband (knitted separately).

1. Push the required number of needles forward to B. (See page 24 for hints on how many needles to use.)
2. Cast on and knit the number of rows needed for your finished neckband following the method given for knitting a knit 1 purl 1 rib on pages 31 to 33.
3. After dropping down and picking up the plain stitches, set Main Tension and knit one more row.
4. Change to waste yarn.
5. Knit 6 more rows and release the knitting from the machine.
6. To finish, join the shoulder seams of the garment and join the neckband seam. Attach the neckband to the right side of the garment by backstitching through the open loops of the last row knitted in main yarn. Remove the waste yarn.



V necks.

Double neckband.

1. Join one shoulder seam (or three of the four raglan seams).

2. The stitches are picked up and knitted in two sections. One section starts at the point of the V and includes one side of the V and the back of the neck. The other section is the second side of the V.

3. With the right side facing, pick up the stitches for the first section.

4. Since some of the loops picked up will be rather small and tight, bring the needles to D then either push them carefully back to C or have the russell lever(s) on II.

This helps the machine to knit the first row.

5. Knit one row at Main Tension.

6. Transfer as required, or for a narrow stocking stitch band, leave stitches on all needles.

7. Knit twice the number of rows required for the finished band, either shaping at the V edge according to your pattern, or knitting the band straight and finishing the V in one of the ways shown below.

8. Bring A needles forward to B and pick up loops from below adjacent needles and place them on the empty needles (as in fully fashioned increasing, page 34).

9. Knit one row at Main Tension.

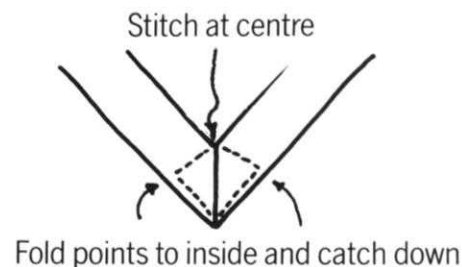
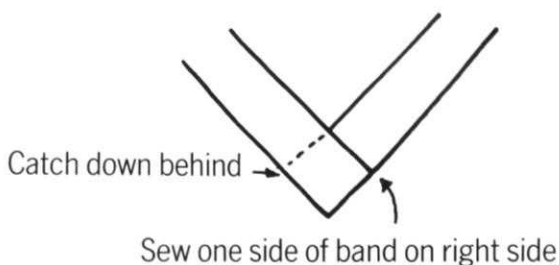
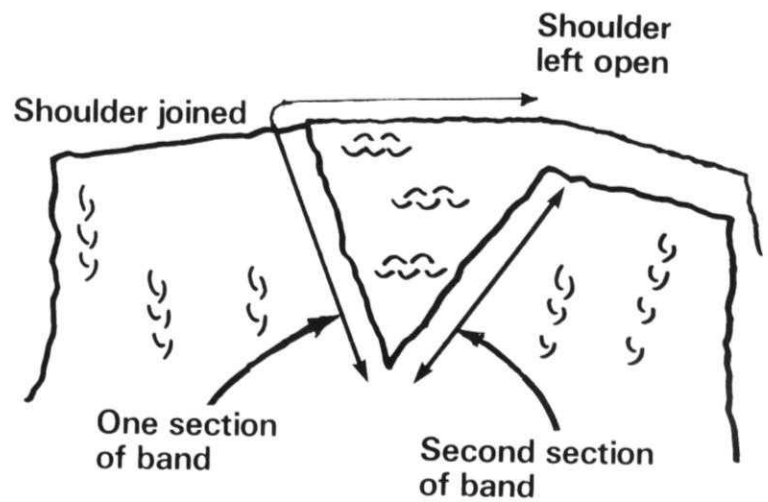
10. Change to waste yarn.

11. Knit 6 rows and release from the machine.

12. Pick up the stitches from the second part of the edge.

13. Knit exactly as before.

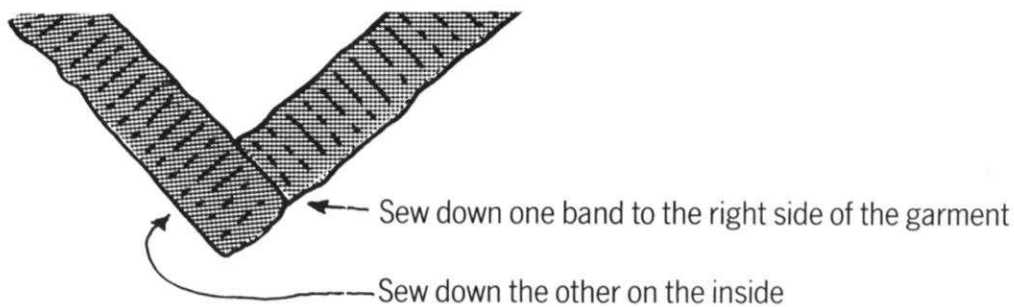
14. To finish the band join the remaining shoulder seam and the back seam of the band. Fold the band in half onto the right side of the garment, and back stitch through the loops of the last row knitted in main yarn. Remove the waste yarn.



Knit 1 purl 1 rib neckband for V-neck (knitted separately).

1. Following the method for knitting a knit 1 purl 1 rib on pages 31 to 33, cast on the number of stitches and knit the number of rows required for the finished neckband.
2. After reforming the alternate stitches, set Main Tension and knit one row.
3. Change to waste yarn, knit 6 rows and release the knitting.
4. To finish, join the shoulder seam of the garment, but do not join the ends of the band.

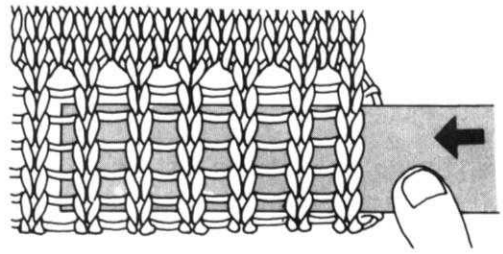
Overlap the centre front of the band and sew down, or fold points to inside, as shown on the previous page.



Note: for a deep V which needs a long band, in a fine yarn, you may have to knit the band in two sections, and join them before attaching to the garment.

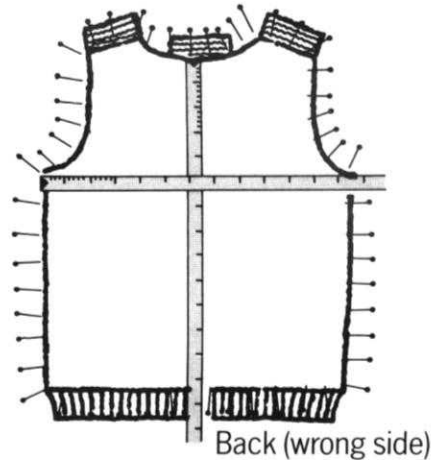
Finishing your knitted pieces

If you have used double hems or welts, thread a ruler or similar through the welt, and pull the garment firmly, closing the stitches up on the ruler as you do so.



Now use a damp cloth or a steam iron to thoroughly steam the welt, then still pulling, allow to dry. No pressure required! You are simply putting steam into the knitting to set the stitches.

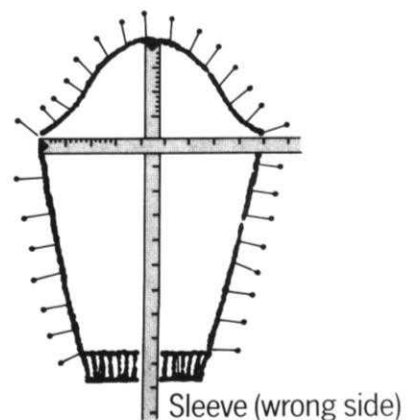
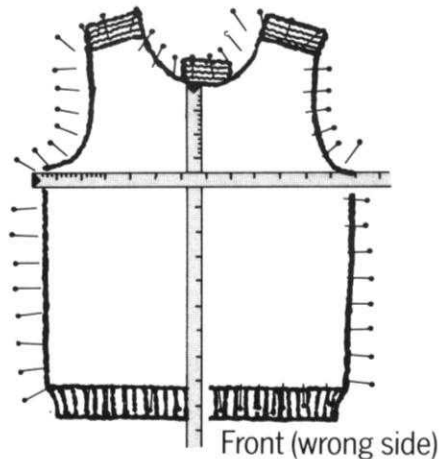
When you pin out the pieces, do not pull out the welts. Pin out each piece of the garment to the correct size. (A folded blanket, or a large piece of thick foam, covered by a sheet, is useful for this.)



Put each piece wrong side up, then pin the widest part out to the correct width.

Next, pull the piece to the correct length, and pin round the edges to shape.

Put some steam into each piece and allow to dry before unpinning. This will "set" the piece to the right size and shape, ready for completing the garment.



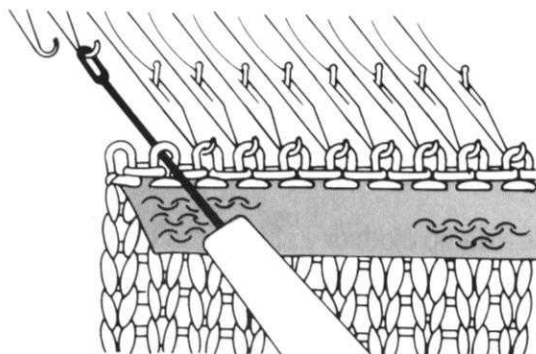
Making up.

Joining Open Stitches on the machine.

If you shaped the shoulders using holding position, you can use this method. Use it also for joining any other open stitches.

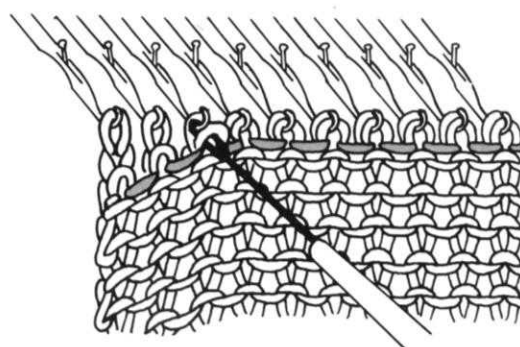
With the right side of the first piece facing you, hold the waste yarn down towards you and pick up the loops of the last row knitted in main yarn.

Remove the waste yarn.

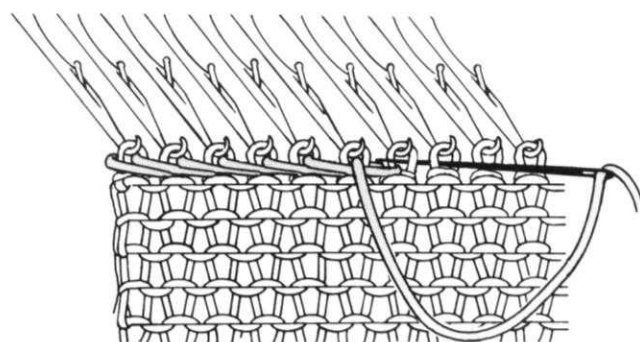


With the wrong side of the second piece facing you, and the waste yarn folded down away from you, pick up and place into the needle hooks the loops of the last row knitted in main yarn.

Remove the waste yarn.



Knit 1 row and cast off using the back stitch method (page 39).



If the purl side of the knitting is the “right” side, pick up the pieces so that the purl sides are together.

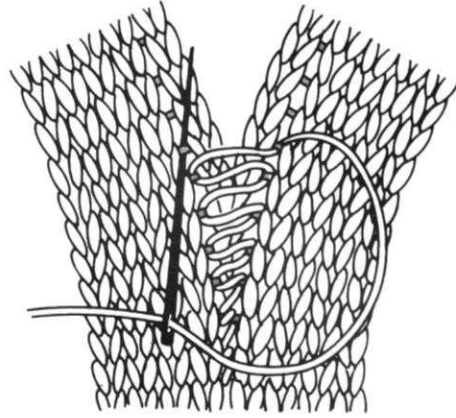
The Automatic Linker attachment casts off stitches automatically, and would be very useful for joining stitches on the machine instead of back stitching.

Blind stitch.

This is ideal for joining side seams, sleeve seams, ribs and bands.

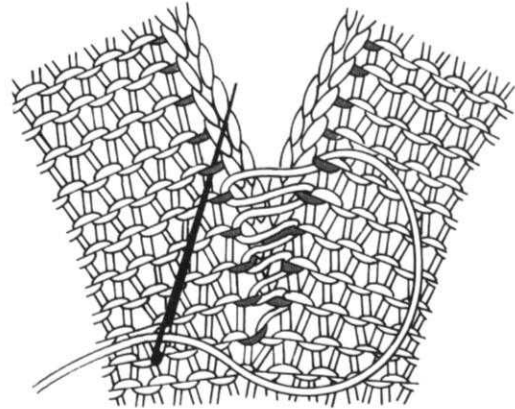
Knit side as the right side.

Use the same yarn as the main yarn.
Work on the right side of the garment.
Pick up the loop between the first 2 stitches at the edge of one piece and pull the yarn through. Then pick up the loop between the first 2 stitches at the edge of the other piece. Return to the first piece and pick up the next loop, and so on. As you pull up the yarn, the seam will close and the yarn will not show.



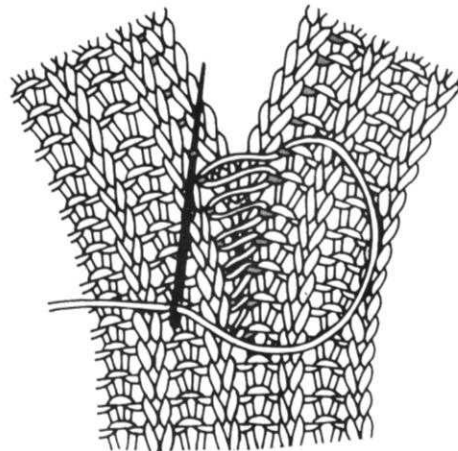
Purl side as the right side.

Work exactly as above, but with the purl side of the pieces facing you.



Knit 1 Purl 1 Rib

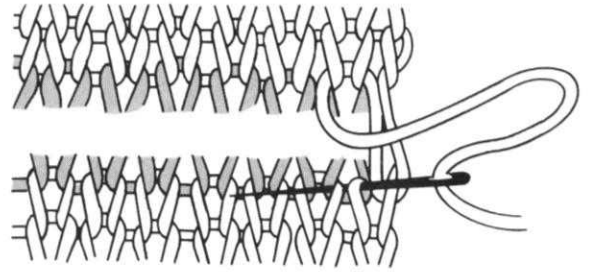
With the right sides facing you, work in exactly the same way as above, picking up loops beside a plain stitch on one piece and beside a purl stitch on the other.



Grafting

If you want a soft invisible seam where you have open loops, you can graft the loops together so that it looks like continuous knitting.

Attach the yarn and bring it out through the first loop of main yarn. Cross to the other piece, and bring the needle out through the first stitch on that piece.



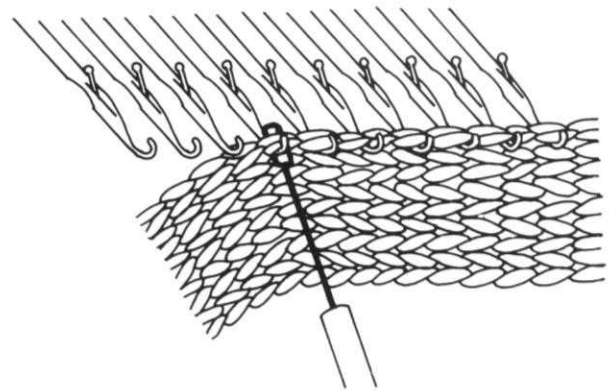
Go back to the first piece, put the needle in through the loop where your yarn comes out, then back up through the next loop.

Cross to the second piece. Put the needle in through the first loop where the yarn comes out, and bring it out of the second loop. Continue crossing from piece to piece, always putting the needle in through a loop with yarn coming out of it, and bringing it back up through the adjacent empty loop.

Joining a side edge to open stitches.

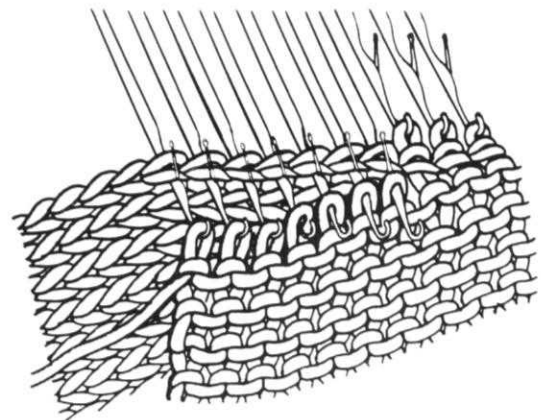
With the right side of the fabric facing you, pick up the stitches along the side edge and put those on the machine first.

You may need to count the open stitches on the other piece, so that you pick the side edge up onto the correct number of needles.



Bring the needles forward so that the stitches all go behind the latches.

With the wrong side of the second piece facing you, and the waste yarn folded down away from you, pick up and place into the needle hooks the loops of the last row knitted in main yarn.



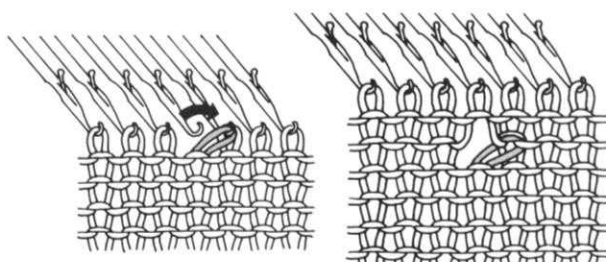
Remove the waste yarn.

Push the needles carefully back to B. The side edge knits over the open stitches when you push the needles back to B, leaving one set of stitches in the needle hooks, ready to back stitch as shown on page 39.

Buttonholes.

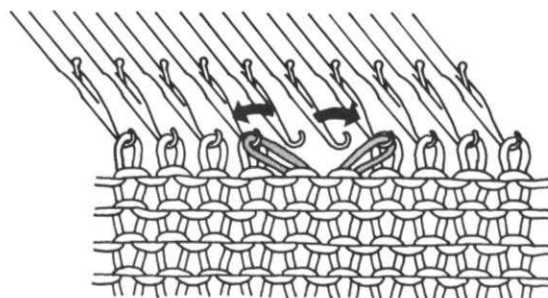
1. Simple single stitch buttonhole or eyelet.

Place one stitch onto its adjacent needle, and leave the emptied needle in B position.

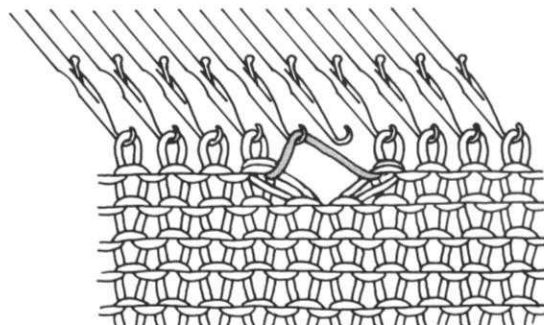


2. Larger two stitch buttonholes.

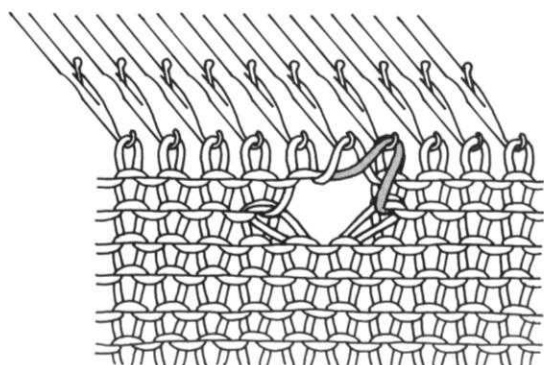
Transfer 2 stitches to their adjacent needles, one to the left and the other to the right, as shown. Leave the empty needles in B position. Knit 1 row.



Lift the yarn off the right hand needle, so that the loop is only hooked up on the left one. Knit 1 row.



Pick up the loop which is now crossing the buttonhole, (which is the loop you lifted off the right hand needle), and place it onto the needle to the right of the buttonhole, as shown.



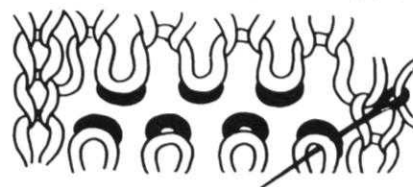
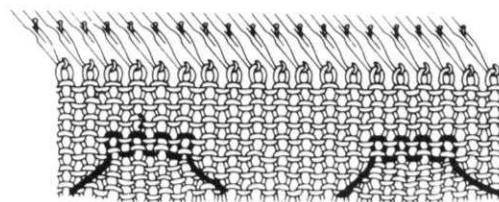
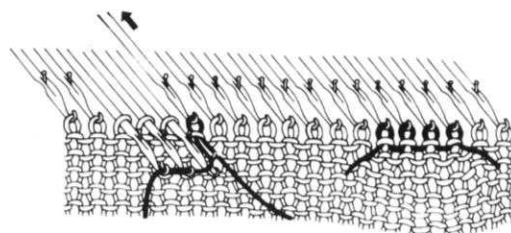
3. Buttonholes in a stocking stitch vertical double band.

Usually 3 stitch or 4 stitch buttonholes are made this way.

As you reach the point where you want the buttonhole, bring forward the 4 needles in each of the two positions where the buttonhole is to be. Bring them forward so that the stitches go behind the latches. Now lay a short length of contrast yarn in the hooks, and knit each needle back to B, one by one by hand.

Do this for as many buttonholes as you need.

When you have finished knitting the band, fold it so that the buttonholes match exactly, remove the contrast yarns, and back stitch through the pairs of open loops, from the right side, as shown in the sketches. Turn the band the other way up to back stitch the top of the buttonhole in the same way.



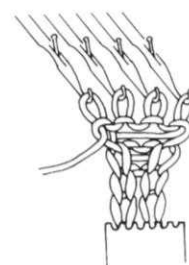
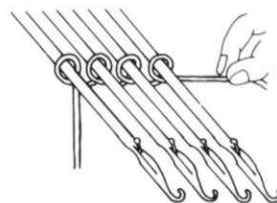
Knitting a cord.

1. Push 3, 4 or 5 needles to D position and cast-on by hand. You may be able to cast-on directly, without using waste yarn if you check the first knitted rows carefully, to make sure the stitches knit off properly.

2. Push the needles to C and knit 4 rows. Check that the stitches have knitted correctly, and hang a claw weight.

3. Put the Cam Lever to C. With the Cam Lever in that position, the Carriage will knit in one direction, and will not knit in the other.

Set Stitch Dial to MT minus 2, and knit as many rows as you require.



Note: This is best done on a low tension – lower than you would knit stocking stitch with that yarn.

Cable Pattern.

Cable patterns can be made by crossing 1, 2 or 3 stitches – but for 3 stitch cables (which can be very tight), use a yarn which has plenty of give in it.

Practice first with a 2 stitch cable.

2 Stitch Cable

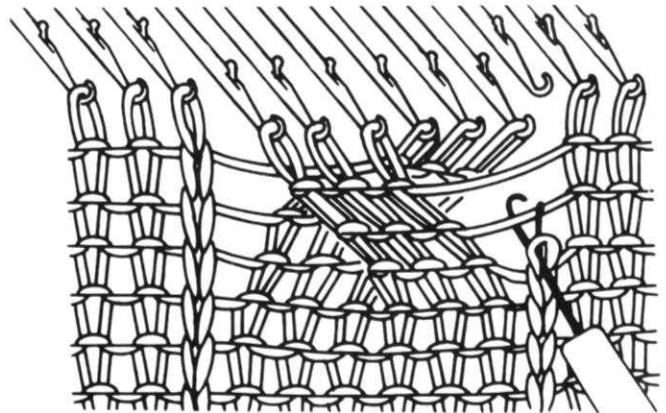
Choose 6 needles. Release the stitches from the two outside needles and let them drop down.

Use a 2-prong tool to take the left hand 2 stitches of the group of 4 (numbered 1 and 2 in the sketch) off the needles.

Move the tool to the left and hold it in your left hand. With your right hand, use the other 2-prong tool to transfer the right hand two stitches (3 and 4) to the left hand needles. Now put the remaining stitches (1 and 2) onto the right hand needles.

Latch up the dropped stitches and replace on their needles.

Bring the 4 needles to D and back to C. Knit 6 or 8 rows and repeat. Knit fewer rows between cables for a 1 stitch cable, and more rows for a 3 stitch cable.



Latching up the stitches on each side of a 3 stitch cable.

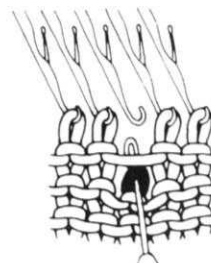
Helpful Hints

To pick up a dropped stitch

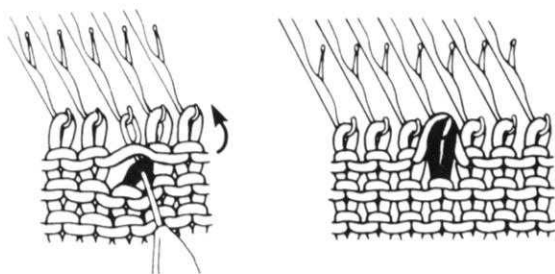
1. Insert a prong of the Transfer Tool into the stitch one row below the dropped one.



2. Unravel the dropped stitch, holding the stitch below on the tool.



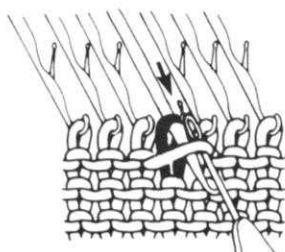
3. Replace the stitch onto the empty needle together with the bar above the stitch.



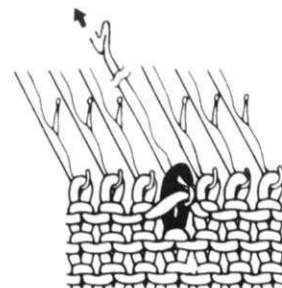
4. Push forward the needle until the stitch and the bar are behind the latch.



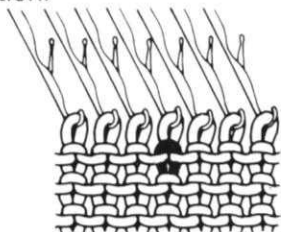
5. Lift up the bar using the tool and bring it in front of the latch.



6. Push back the needle until the stitch behind the latch slips off the needle.



Push the needle back firmly to correct the size of the stitch, then line the needle up in B position.



If a dropped stitch has run down for several rows . . .

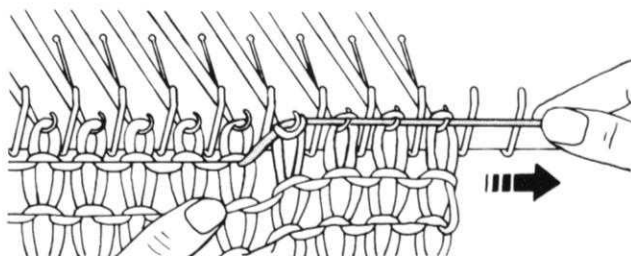
Latch up the stitch from the back of the knitting using the Tappet Tool, and replace the last stitch on the needle. You may find it useful to practice this, to get used to latching up from the back.

Unravelling a row of knitting

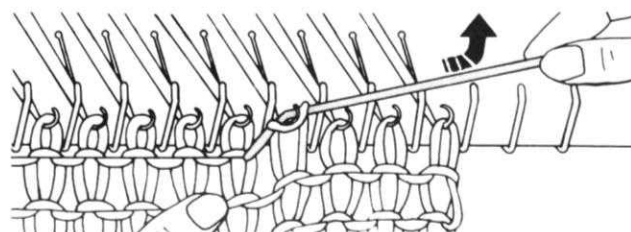
Hang Claw Weights at both edges of the knitting.

If you have decreased at either end of the row, replace the stitches on their original needles.

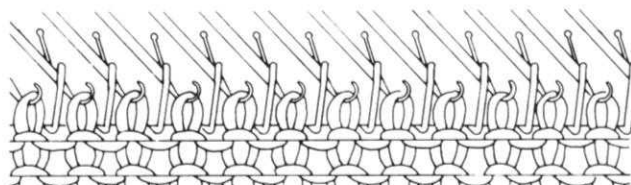
1. Hold the fabric down, and pull the yarn to the side, to tighten the stitches.



2. Lift the yarn upwards and very slightly backwards. The stitches of the previous row will slip back into the needle hooks.



3. When you have unravelled as many rows as you need, check that the stitches are all in needle hooks, and line the needles up in B position.

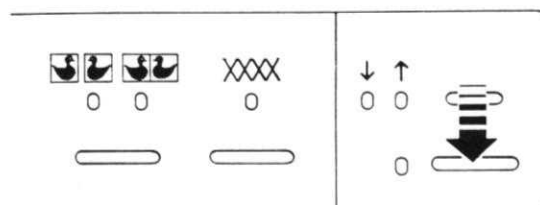


4. Turn the Row Counter back the same number of rows as you have unravelled.

5. If you are doing pattern knitting, press the Inspection Button to bring up the pattern card, use the feeding dial to turn it back the same number of rows as you have unravelled, and then press the Inspection Button again to feed in the card and read the pattern.

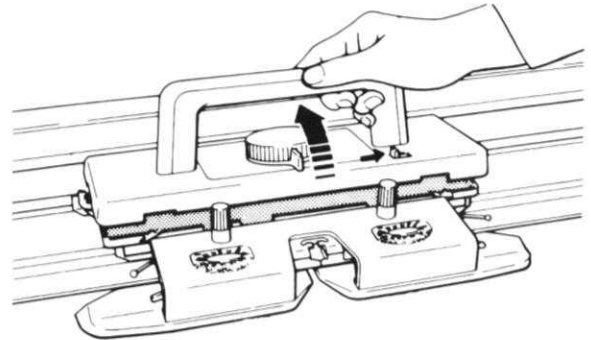
If you want to check visually, the pattern row that you can see above the card slit, before you press the Inspection Button to feed the card back in, is the one which will be knitted next.

6. Pull the yarn down towards the ball or cone to remove any slack, and continue knitting, checking that the first row has knitted off properly.



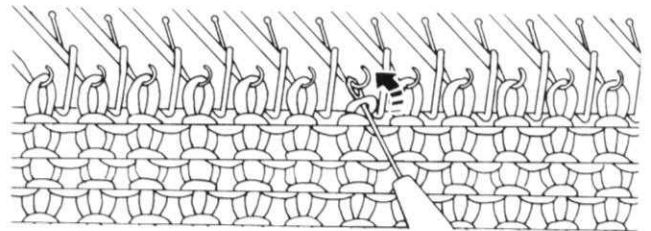
If the Carriage has jammed . . .

Unthread the yarn from the Carriage, use the Carriage Release Lever to lift up the Carriage and return it to the beginning of the row on which it jammed. (If you were knitting from left to right, put it back on the left.)



Pick up any dropped stitches (page 56)

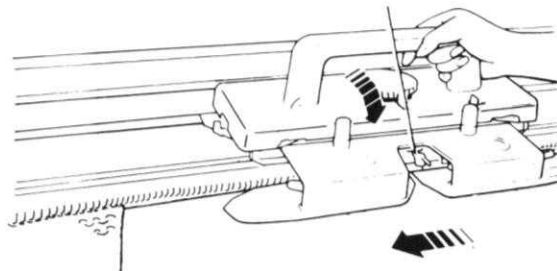
If any stitches are behind the latches, use your Transfer Tool to push the needle back, then tip it up to put the stitch into the needle hook. Push all the needles to B after you have made sure that no stitches are behind the latches.



Turn the Row Counter back if it had moved on for the faulty row.

If you are pattern knitting, unless your carriage has passed the **second** point cam, there will be no need to touch the pattern mechanism or to turn the Pattern Card back.

Thread up the Carriage and continue knitting.



Replacing a damaged needle

A needle with a damaged latch or bent hook will cause incorrect knitting or dropped stitches.

The needle latch "a" must move freely, and must lie flat over the hook "b".

1. Push the damaged needle to D position and close its latch.

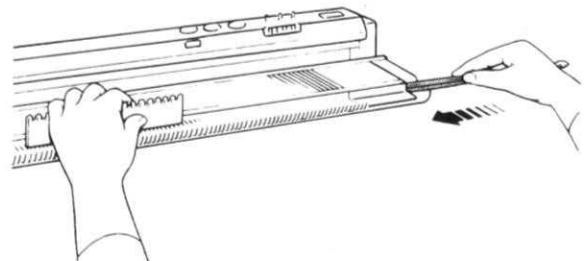
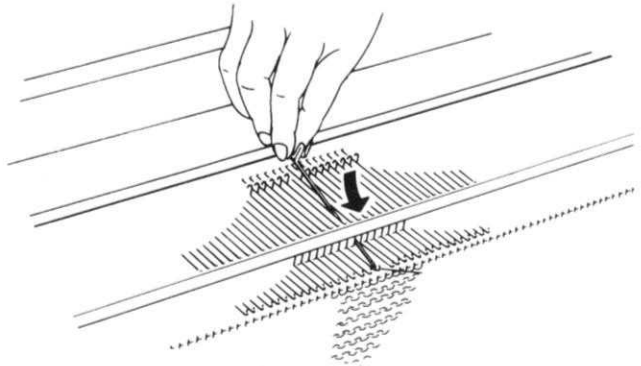
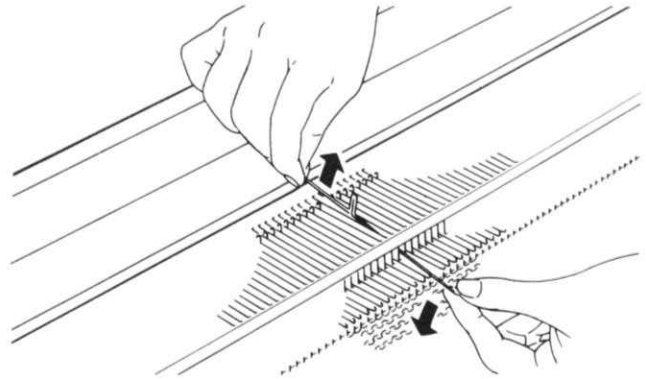
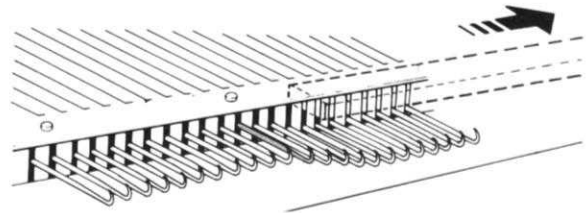
2. Use the flat end of a pencil to push the needle retaining bar at the end of the bed nearest to the damaged needle.

When it comes out at the opposite end, pull carefully until you see that the needle is released. Don't pull too far.

3. Now lift the needle butt, so that the back of the needle comes out of the needlebed, and slide the needle back, lifting the back to clear the rear of the machine. Pull the needle right out.

4. Open the latch of a new needle and insert it into the empty slot. Bring it right forward so that the back of the needle drops into the slot. Push it down, gently, and slide it back to A position.

5. Now carefully push the retaining bar back into the bed. You may need to push the needle hooks down a little so that it slides freely.



Note: If a latch has broken off completely, you will need to be very careful when removing the damaged needle, or it may catch.

Maintenance.

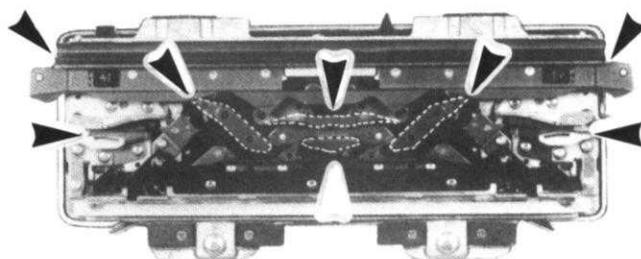
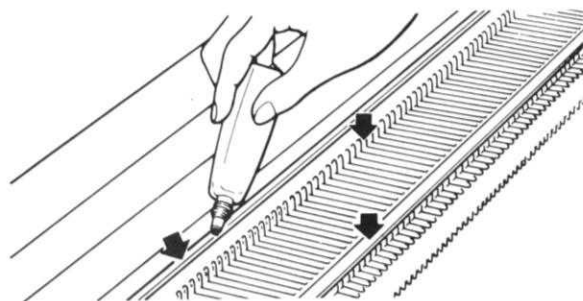
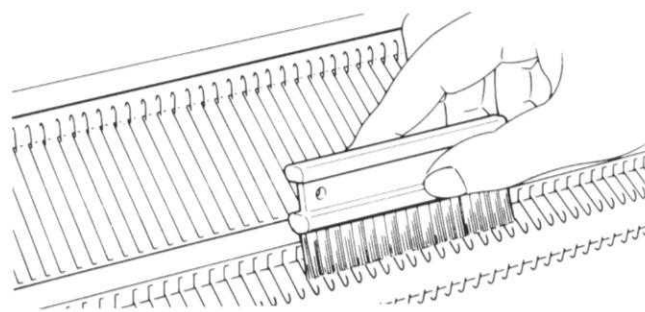
To clean your machine, remove the Carriage from the needle bed.

Remove dust and fluff from the needles and all of the needle bed – a vacuum cleaner is useful for this.

Apply two or three drops of oil along the front edge of the bed where the Carriage runs, and on the rear rail. Use a thin transparent (not 'yellow') knitting or sewing machine oil, from your supplier.

Put a very little oil on a soft cloth and wipe the needle bed and needle butts with the cloth. Oiling the needle butts regularly is most important with an electronic knitting machine. Bring 20 or so needles to B before oiling the butts, then move the Carriage across and back a few times. This transfers the oil to the right places under the Carriage.

Turn over the Carriage and clean out the 'pipe' at the back, brush off all fluff and then oil the carriage pipe and the other marked parts on the diagram.



Use a sensor cleaner (or 'cotton swab') to clean gently inside the sensors at the back of the Carriage where indicated. Only use a cleaner once.

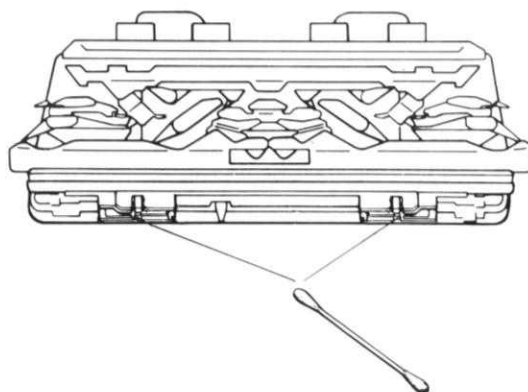
Use the cleaning brush and a vacuum nozzle to clean the black slotted rail behind the back rail.

Shake the Cleaning card, then pass it through the card slot from front to back. Shake and repeat several times.

Replace the Carriage on the Needle Bed and move it once or twice across the Needle Bed.

DO NOT USE THINNERS, PETROL, ALCOHOL OR WHITE SPIRIT.

If your Carriage is heavy to use, it may have a build-up of old oil and fluff, particularly on the back rail. Before taking the Carriage off, put a few drops of oil on the back rail, and move the Carriage across and back a few times. Then remove the Carriage, clean the Carriage and rail, put it back and re-oil with 2 or 3 drops only on the front edge and rear rail.



Hints for successful knitting.

- Keep your machine really clean and oiled.
- Use cones or rewound balls of yarn, and make sure the yarn can feed freely and smoothly.
- Use an appropriate stitch size for the thickness and type of yarn you are using.
- Check that the needles are correctly in A, B, C or D position, not half-way between.
- At the end of a row, make sure the Carriage is completely clear of the last needle in work.
- Do not take the Carriage too far past the end needle in work, or you will get slack yarn and dropped stitches at the edge of your knitting.
- Knit a tension piece for each yarn that you use. The same brand of yarn, but in a different colour, may need a different size of stitch – so do check.
- Pull each knitted piece lengthwise, then pin out to the right size and steam gently (page 49). Because the knitting is stretched across the needles, it will need pulling to shape after you take it off the needles.

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For your Notes

