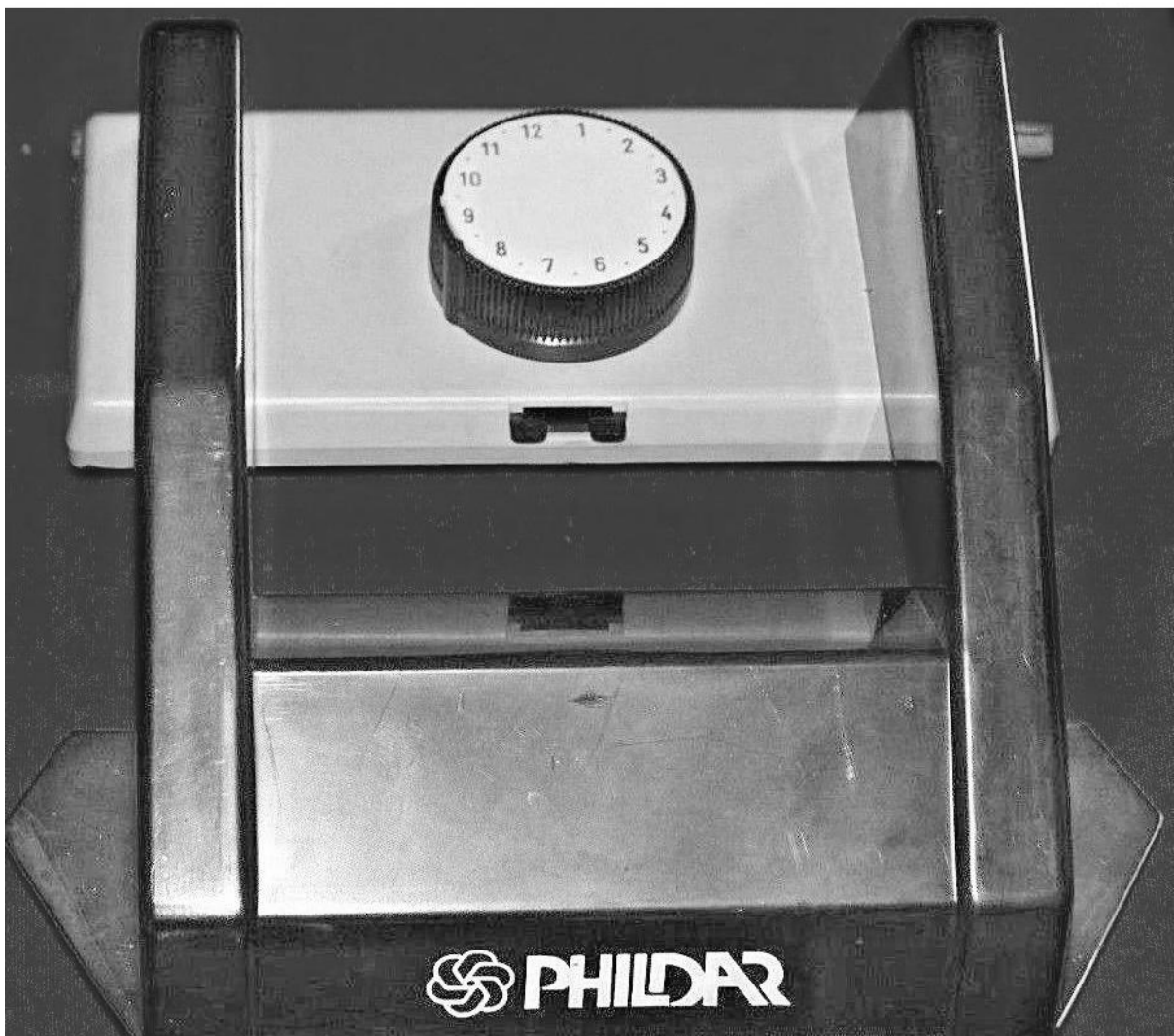




# INTARSIA CARRIAGE



## INTRODUCTION :

The Intarsia Carriage will allow you to knit several colours in any one row without leaving floats on the purl side of the knitting.

This is done by crossing the yarns to give a continuity of stitch avoiding gaps between each motif.

The special device on the carriage allows you to knit without weights. Only stocking stitch can be knit with this carriage, although several colours in a row can be produced.

## CASTING ON :

Cast on to your choice using the carriage of the machine. On the last row transfer all stitches onto the back bed and set for stocking stitch.

## PREPARATION :

Bring all needles to working position 2. The needle latches must be open with the stitches laying behind the open latches.

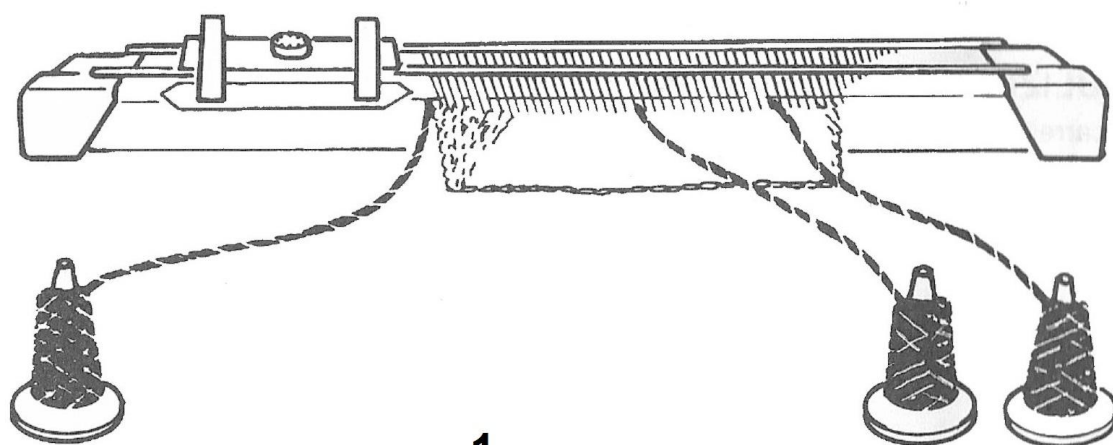
Place the yarns to be knitted on the floor in front of the machine. Do not thread the tension unit.

If working on a double bed machine, pass the yarn up between the needle beds.

Due to the styling of the Intarsia Carriage, no weights are required.

With a double bed machine the front bed should be set in lower position.

Remove the carriage from the machine and place the Intarsia Carriage onto the machine.

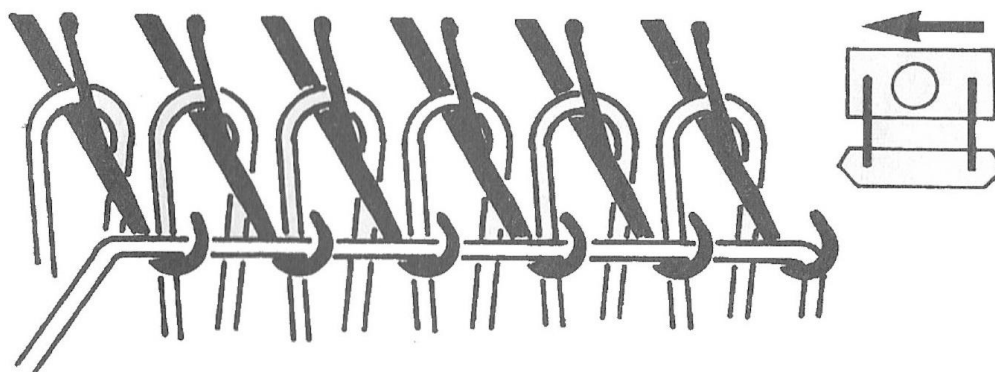


## KNITTING STOCKING STITCH :

Lay the yarn over the needles and hold it gently - not too tightly.

Move the Intarsia Carriage across and allow the yarn to run freely.

To continue in stocking stitch, repeat the same operation in the opposite direction.

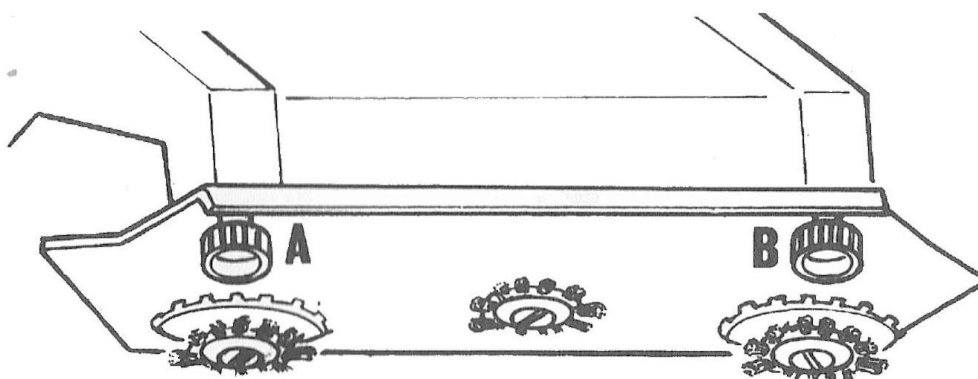


### NOTE :

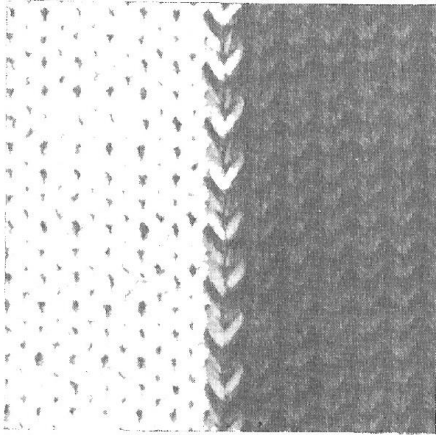
If the Intarsia Carriage jams, loosen the two knobs marked A and B.

The knitting retainer and carriage will now be free

Fasten the retainer back onto the carriage by tightening the two knobs.



## INTARSIA WITH A PLAITED STITCH :



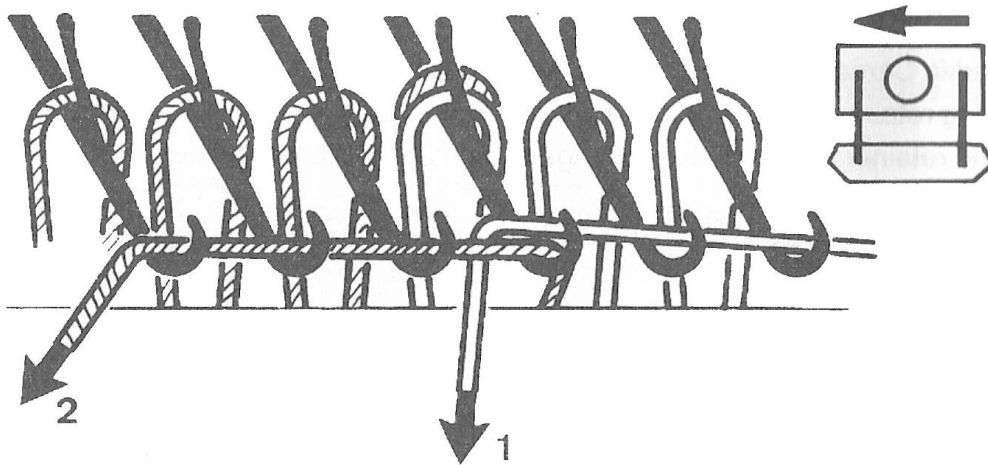
The join between each different coloured yarn is obtained by knitting both yarns on the same or common needle.

At the carriage side, lay the yarn over the needles which have to use the first colour, up to the common needle.

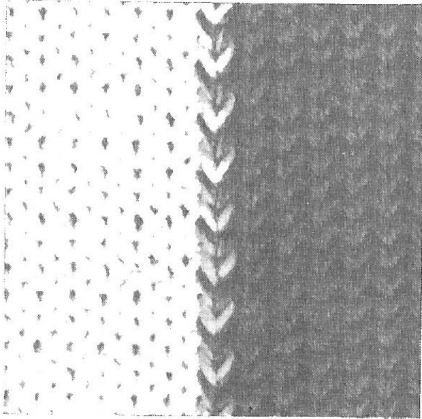
Lay the second yarn onto the following needles making sure to lay it over the common needle as well.

Move the Intarsia Carriage across.

Now repeat the same operation in the opposite direction (always lay the yarns across in the direction the carriage will be moved).



## INTARSIA WITH STITCHES SIDE BY SIDE :

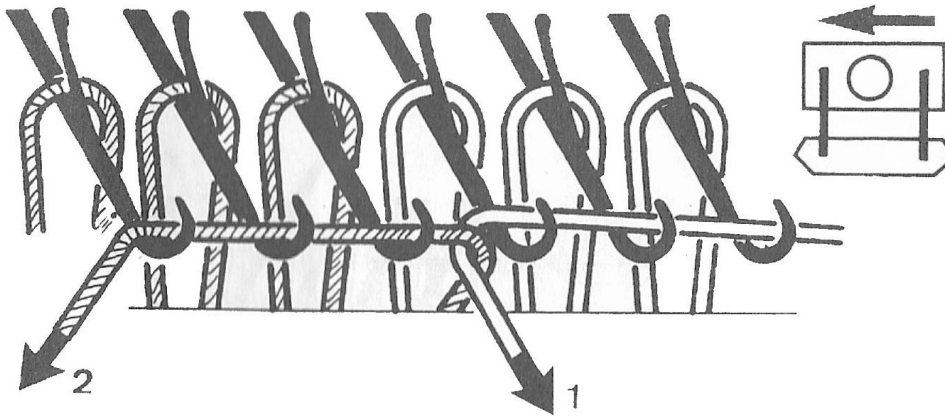


The link between each different colour is obtained by crossing both yarns between two needles.

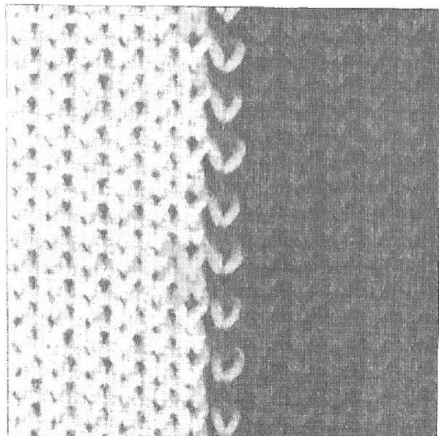
From the carriage side, lay the yarn over the needles making sure to cross both yarns between the two needles for separation.

Take the Intarsia Carriage across.

Now repeat the same operation in the opposite direction (the yarns are always laid over the needles in the direction the carriage will be moved).



## INTARSIA WITH A BIRDS EYE STITCH :



The Separation between each colour is obtained by alternately knitting over an extra needle.

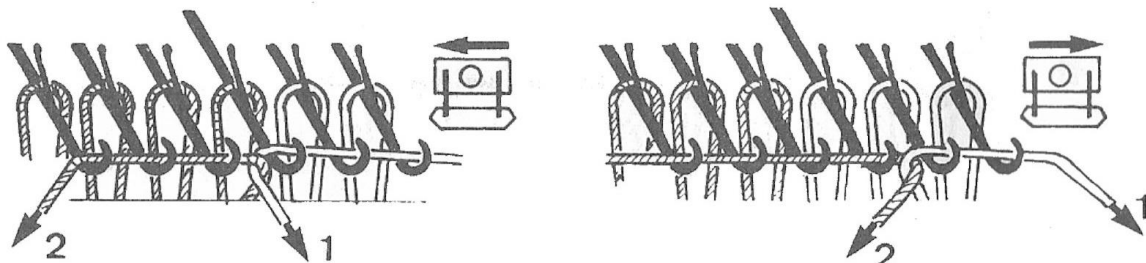
At the carriage side, lay the yarn over the needles which have to knit the first colour and then over an extra needle at the side of the separation.

Lay the second yarn onto the following needles making sure to cross both yarns between the two needles for separation.

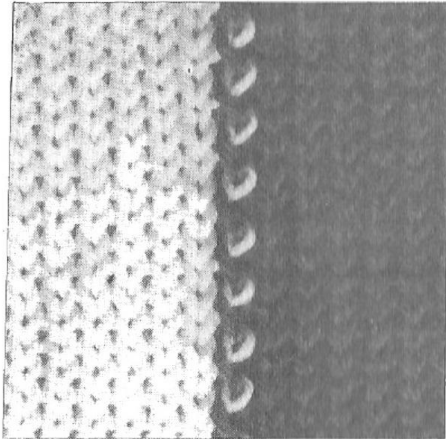
Move the Intarsia Carriage across.

Repeat the same operation in the opposite direction (the yarns are always laid over the needles in the direction the carriage will be moved).

Note : This time the extra needle which was previously knitting in the first colour, will now knit the second colour.



## INTARSIA WITH A LACE STITCH :



The Separation between each different coloured yarn is obtainable by alternately knitting an extra needle at the side of the separation but without crossing the yarns.

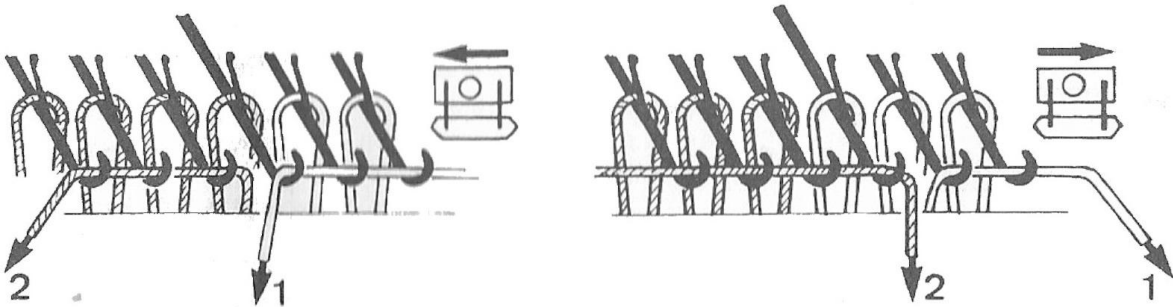
At the carriage side, lay the yarn over the needles which have to knit the first colour and then over an extra needle.

Lay the second yarn onto the following needles (without crossing the yarns).

Move the Intarsia Carriage across.

Repeat the same operation in the opposite direction (the yarns are always laid over the needles in the direction the carriage will be moved).

Note : This time the extra needle which was previously knitting the first colour, will now knit the second colour.

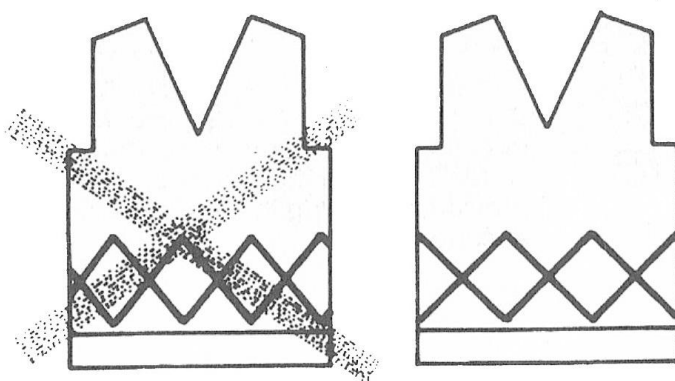


## PRODUCING INTARSIA MOTIFS

Whichever Intarsia Knitting Method is used, you can use several colours and produce the motifs or designs of your choice.

Before doing so, you must prepare a diagram corresponding to the motif or design and match it to the width of your garment.

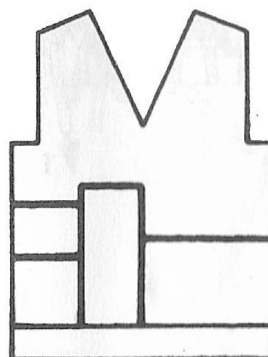
1. For geometric and repeated motifs, take into account the symmetry of the design. The total width of the motifs should not exceed the width of the garment.



2. On a squared paper sheet, draw one or several motifs or the whole motif if it is non-repeating.

(1 square = 1 needle)

1	1	0	-	-	-	-	-	X	1	1	1	7
1	1	0	0	0	-	-	-	X	X	X	1	6
1	0	0	0	0	0	-	-	X	X	X	X	5
0	0	0	0	0	0	0	-	X	X	X	X	4
1	0	0	0	0	0	-	-	X	X	X	X	3
1	1	0	0	0	-	-	-	X	X	X	1	2
1	1	1	0	-	-	-	-	X	1	1	1	1



Each symbol corresponds to a different colour.



3. On the machine, lay the different coloured yarns over the needles shown by the symbols on each row. You will need a ball of yarn for each coloured section.  
Important : If knitting in intarsia with a birds eye colour separation stitch, do not forget that the separation between each different coloured yarn is obtained by knitting alternately an extra needle.
- 

### **SOME HINTS :**

Should you wish to knit your garment partly with the carriage from the machine and partly with the Intarsia Carriage, make sure that the stitch size dials correspond with one another to obtain the same stitch size.

You will need to ensure that one row knitted with the Intarsia Carriage uses the same amount of yarn as it would if it had been knitted with the carriage from the machine.

To check this, mark the last stitch knitted with the machine carriage.

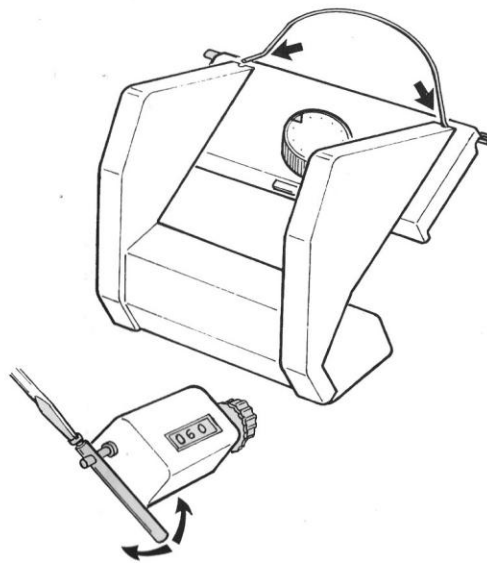
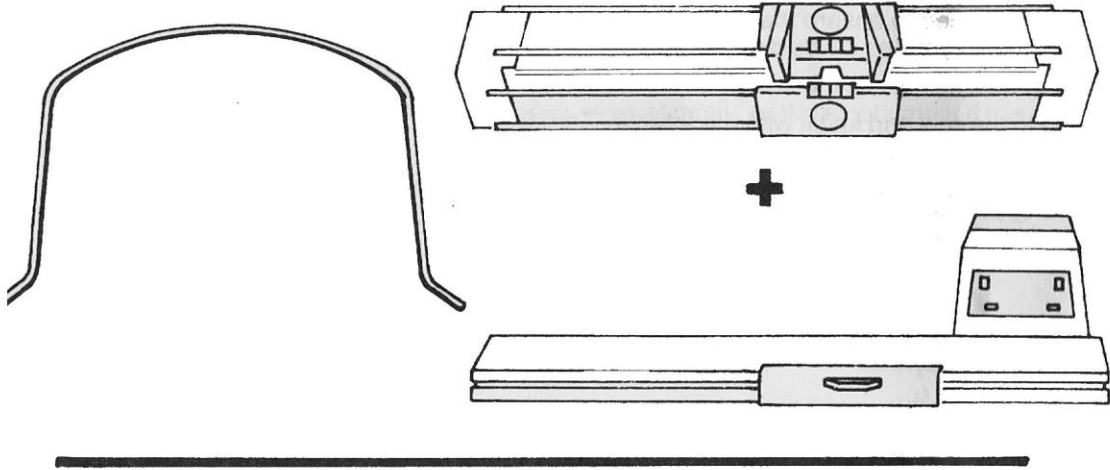
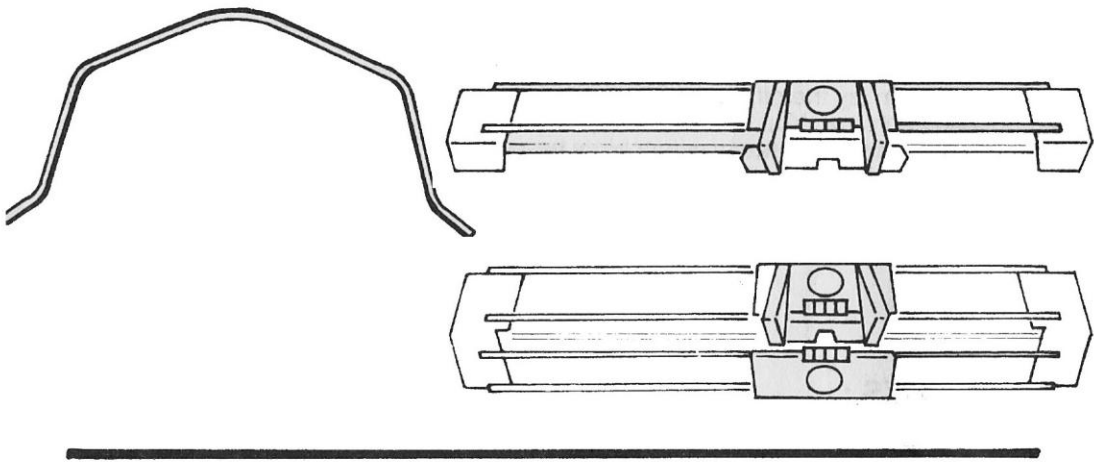
Undo the row and knit it with the Intarsia Carriage.

If you used less yarn with the Intarsia Carriage you must increase the stitch size. If you used more yarn with the Intarsia Carriage you must decrease the stitch size.

### **MAINTENANCE AND CARE :**

No particular maintenance is required for you Intarsia Carriage.

A dropped stitch is only due to a needle latch being left closed before moving the carriage across.



# Intarsia

This is a method of knitting two, or more colours within the same row of knitting, without leaving any floats on the reverse of the fabric. You will need the INTARSIA CARRIAGE to do this on the S.I.T. electronic machines, unless you also own a single bed S.I.T. knitting machine, marketed as the Singer SB 100, (U.K.) in which case, you may take the carriage from that machine, and use it on the 600 or 2310 as an Intarsia carriage. The two carriages are, in fact, almost identical. (The SB 100 does have an additional setting).

True intarsia may only be knitted on one bed, and on the electronics this is always the back bed. It can be a lengthy process, but once you have become used to it, you can work up quite a speed.

Perhaps the best way to learn about it, is to actually produce a sample of this type of knitting. We will start with a fairly simple design. When you feel confident in the technique, designs may be as complex as you care to make them. Some knitters enjoy making the most complicated pattern they can, by this method. Complex design being worked on the machine, it is likely that the machine will be tied up for quite some time. This can be frustrating if you have a pile of orders to knit, and half an intarsia sweater still to be knitted, hanging on the machine !

Presuming you have an intarsia, or SB 100 carriage, let's make a practice piece.

In addition to the carriage, you will need small amounts of 4 ply type yarn, (4 colours, at least).

Cast on, in the normal way, for any rib set-up you like, over 60 needles, using the 4 ply type yarn. Knit 20 rows

of rib, and then transfer all the stitches to the back bed.

Remove both carriages, and lower the front bed to it's lowest position. Remove your yarn from the yarn mast, and break from the knitting.

Push all the working needles forward to position 3, and then pull them back to position 2, so that all the stitches are behind the latches, and ensure that all the latches are open. You will not need to do this again, as this is what the intarsia carriage does for you. After knitting a row, needles are always left in position 2, ready to receive yarn in the open needle hooks.

Place the intarsia carriage on the back bed. The round slider part at it's base, fits into the lower rail, just as the main carriages do. The tension dial is numbered in the same way as the main carriages. Set to your normal 4 ply type tension, which will be around 6 to 8, for this yarn. The tension may not match that of your main carriage exactly, to work out the adjustment necessary, follow the instructions given with the carriage, or see the Dictionary for French Electronic Knitting Machines.

The yarns are not threaded from the mast in this type of knitting, but up between the beds from the floor. Properly wound balls of yarn are essential for this, or use cones, or special intarsia bobbins.

Thread your main colour up between the beds, and attach the end to the clip, in the normal way. Using the yellow tool with an open hook at one end, take the yarn over the needles, laying it in the latches. The end coming from the ball MUST be at the opposite end of the bed to the carriage, or it will not knit. If the carriage is on the right, the end of

the yarn coming from the ball should now be hanging over the last needle on the left.

Pass the carriage to the left.

You have knitted 1 row of stocking stitch. Now remove the weights, and comb from the knitting. They are not required for intarsia, because this carriage has a series of wheels at the front, which push the knitting from the needles. I leave weights and comb on until after this first row, so as to ensure that the short amount of rib stays put on the needles until I am ready to knit. If you leave them on after this, they will be a positive encumbrance, and slow up knitting, as well as making the carriage much harder to push.

Notice the light action of the intarsia carriage, and it is also less noisy. This is some compensation for the slowness. You will also have noticed that the row counter is not tripped by this carriage. A positive draw-back, although you can of course trip it by hand.

Knit several rows in the way you knitted the first one, laying the yarn over the open needles and passing the carriage over. This will get you accustomed to the action and technique of laying in yarns.

When you are used to this, the time has come to add some colour and a pattern.

Carriage at the right. Bring a second colour up, and fasten the end to the clip. Take your first colour yarn over 30 needles only this time.

Now take the second colour, and lay it over the remaining needles, ending at the left. Pass the carriage over.

Repeat this several times. Look at your knitting. Where the yarns changed, you have left a hole, if you continue to knit in this way, you will end up with two separate strips of fabric. Not at all what we want!

We have to use a method which will

link the two sections of colour together.

On the next row, lay the first yarn to the centre, then the second yarn over the last needle of the first colour, then over it's own needles to the end of the row as before. Knit.

Repeat this several times more.

Look at the knitting. We have indeed linked the two colour sections together, but the effect is a little blurred, with one stitch in the main colour, and one in the contrast above it, and so on. This is fine for some patterns, but where you want clearly defined edges to blocks of colour, it would really not be suitable.

We need a method of crossing yarns which will leave us with clearly defined outlines in colour blocks, whilst still linking the sections together.

Carriage at the right. Lay colour 1 over needles 1 to 30 as before. Now hold the end of this yarn, below the needles, and take it slightly to the left. The yarn in colour 2 is seen hanging down from the bed now, to the right of the yarn you are holding. Pick colour 2 up in the hook, and take it over the length of colour 1 which you are holding. Lay colour 2 yarn in the open needle hooks, as you have done before. The yarns are crossed, but in front of the needles, so as not to affect the colour change. There will be a clearly defined edge, yet the yarns will still link to leave no holes.

Knit one row. The yarns are now crossed, hanging down from the needles. Repeat the laying in method above, but IN REVERSE. This uncrosses the yarn in front of the bed, leaving no tangles, and still links the colour blocks. Practice this for several rows, ending with the carriage on the right.

When you are used to this, we can be a little more adventurous. Take the two remaining colours, and clip the ends to the yarn clip. Lay colour 1 over needles

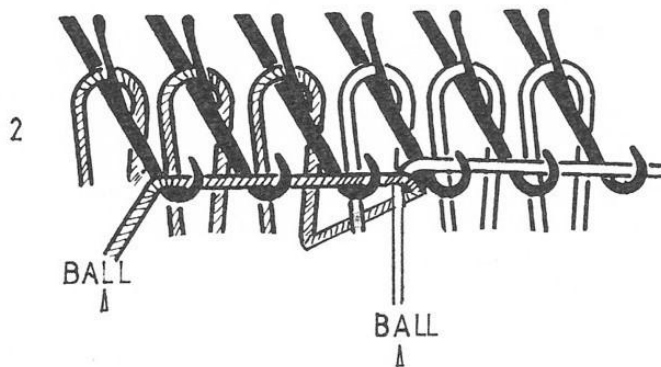
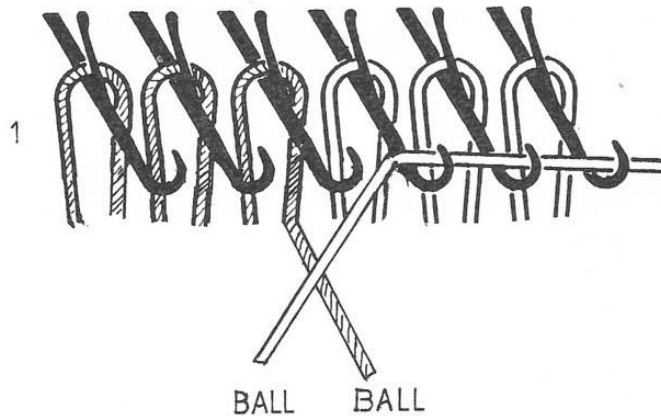
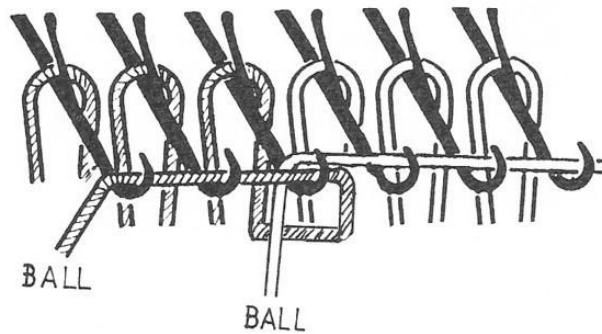
1 to 15. One of your new yarns over 16 to 30, what was colour 2 over 31 to 45, and the remaining colour over 46 to 60. Remember to cross the yarns as described. Knit.

Repeat this, keeping the yarns knitting on the same needles, for about 20 rows. Finish with carriage on the right.

Break all yarns off, and restart with colour 4 as 1, 3 as 2, 2 as 3, and 1 as 4.

Knit a further 20 rows, ending at the right. Now change the colours again. 1 is now 2. 2 is now 3, 3 is now 4, and 4 is now 1. Knit 20 rows. Keep knitting in this way until you are happy with the techniques. Cast off, and remove from the machine. Your intarsia will be in a checkerboard effect, in multi-colours.

For methods of yarn crossing, see diagrams below.



The above is fine for a random block pattern, but how do we go about knitting pictures?

We are literally back to the drawing board. You will have to prepare a chart of shapes and colours to follow during knitting. The first method works for both the 600 and the 2310 machines. The second, on 2310 machines only.

## METHOD 1

You will need some graph paper of a suitable size. A4 is fine for childrens garments, and some adult sizes. A3 will accommodate all sizes. Choose the sort that is ruled in 2mm squares, unless you have really good eyesight, in which case you could try 1mm ruling.

We are back to drawing a block again!

This time, instead of using 1mm as our standard, we will be using 1 square to represent 1 stitch and 1 row in the knitting.

From your tension square, work out the size of each part to knit. See the section on Charting if you are unsure of the method. Draw the shape on the graph paper using the squares as measurements. e.g. If you need to cast on 120 stitches, draw a line over 60 squares on each side of the centre. This is the base line. If you need to knit 180 rows, draw up from this line at each end, over 180 squares. Continue in this way, letting 1 square equal 1 stitch and

1 row, including drawing in the shaping.

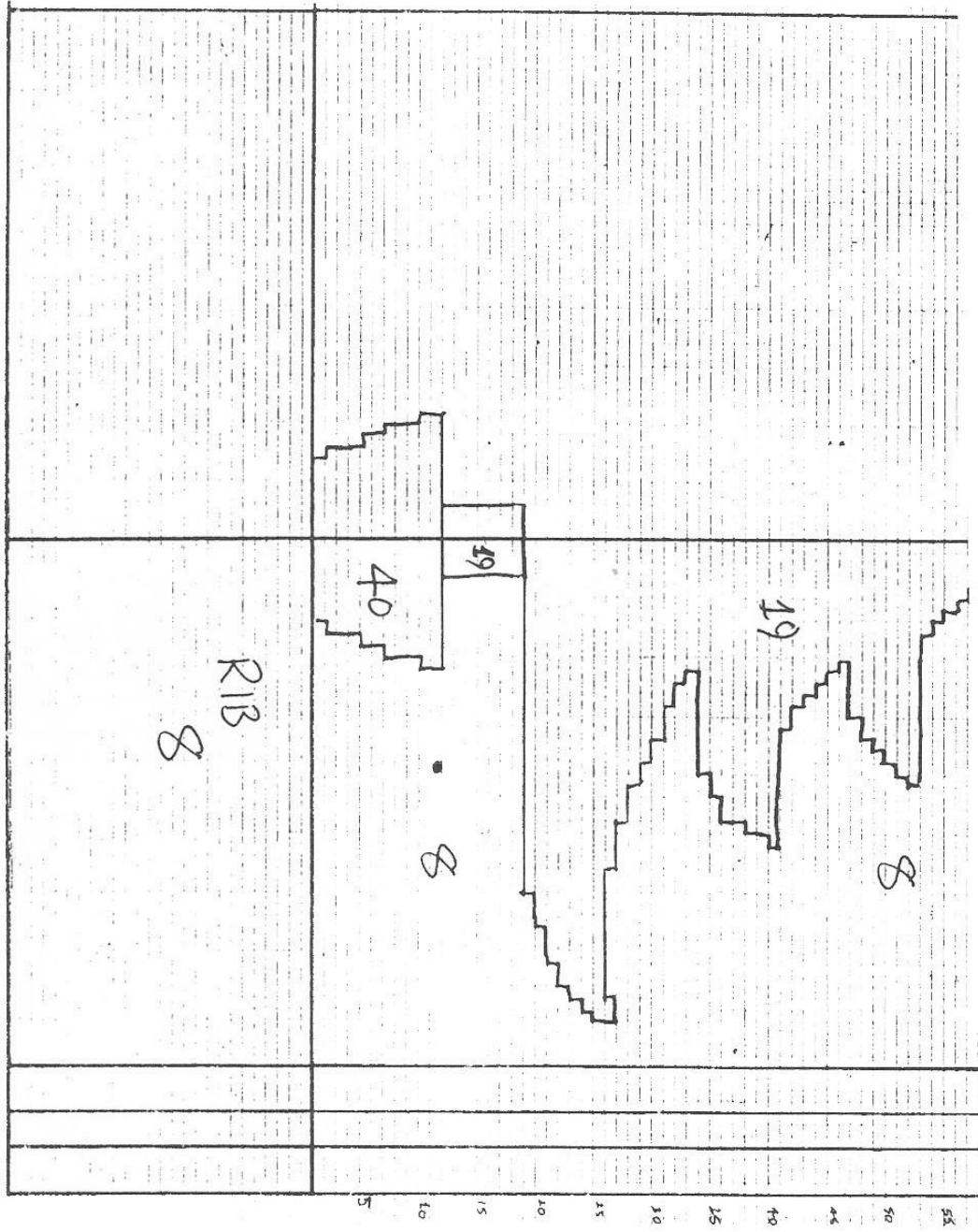
You may follow a diagram from a magazine if this is easier. As well as size, they usually state on the diagram the number of stitches and rows, so use these to draw over your squares. Remember though, that if you are doing the block in this way, you must have matched the tension exactly to that in the pattern you are using.

When you have finished the block, you can draw in pencil, any picture you like within the shape, freehand. When you are satisfied with it, draw the outline in with a pen, using the lines on the paper as a guide. Remember that 1 square is 1 stitch and 1 row, so you cannot use half squares. After completing the outline, draw in the areas of colour inside this. You may colour this in with crayons, felt tip pens, or watercolours etc., to match the colours of the yarns you want to use.

Alternatively, you may just number each colour section, and make a key at the side of the block. If you choose to do this, you will have to outline each colour block separately with a pen, as before for the outline, and then number them. If your design is very complex, it is often best to use the colouring method, as numbering can be confusing.

On the right side of the chart, number each row of squares. If you cannot fit the numbers in, just number in tens and fives. These numbers will act as your row counter when you are knitting.

A Prepared Chart



## A Prepared Chart

How to knit from this chart. Start at the bottom. There is no need to draw the rib section, unless you particularly want to. Cast on the number of stitches to correspond with the number of squares. Complete the rib, and transfer to stocking stitch on the back bed. Place your chart on a flat surface, next to the machine. Take a ruler which is long enough to cover the design from side to side. Place this on the graph paper, with the first line of squares just visible, **BELOW THE RULER**. Follow the chart, remembering one needle = 1 square.

Bring the yarns up between the beds, ready to knit. Change colours, crossing yarns, where the chart dictates. Knit this row. Move the ruler up to show the second row, and follow the colour blocks. Continue in this way all the way up the chart, placing a tick against all the rows as you knit them.

If you have to leave the knitting when you are only part way through, note the number on the chart of the row to knit **NEXT**. By doing this, if someone inadvertently moves the ruler, you will not be lost. Continue until the chart is completed.