

TIPS &

TECHNIQUES

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Machine Knitting Lace from Hand Knit Patterns

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Lace, a wonderful openwork fabric, may look complicated, but it's simple to knit with a Studio Lace Carriage. There are punch cards and electronic design cards available that offer a basic assortment of lace patterns, but if you want to duplicate a favorite hand knitting pattern, this Tips & Techniques will guide you through the process of converting hand directions to the machine. Once you understand the basic principles, you'll be amazed how easy it is!

While some hand knit patterns include a stitch chart, many are written only in lengthy text and you will need to draw the chart because instructions must be in chart form in order to convert them to punch/design cards. In hand knitting, stitch symbols represent stitches as they appear on the knit side of the fabric. For machine knitting, the reverse is true. The chart symbols depict the stitches from the purl side, as the fabric appears on the machine. Sometimes this difference adds a subtle variance to the look of the fabric. Below are the symbols normally used in a lace chart.

When using or drawing a hand knit chart, a few rules apply:

1. When converting text to chart form, interpret each and every row as a corresponding line on graph paper.



Hand (top) and machine knit (bottom) samples of the same lace pattern.



Basic symbols used in lace charts:

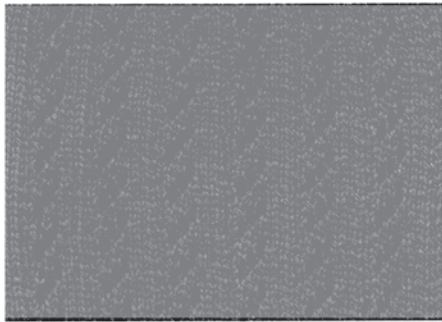
- Eyelet formed by its ST being tr and the empty NDL left in WP (called a yarn over in hand knitting, abbreviated YO).
- Doubled ST: top ST is tr from NDL on RT to NDL at L. In hand K this is abbreviated "S1, K1, pss0" or "ssk" for slip 1, knit 1, pass slipped ST over knitted ST; ST slants L.
- Doubled ST: top ST is tr from NDL at L to NDL at RT. In hand K, K 2 STS together, abbreviated K2tog; slants to the RT.
- Tripled ST: adjacent STS from each side tr onto center NDL.
- ST tr to adjacent empty NDL at RT. In hand K this doesn't require any movement and ST is K as usual.
- ST tr to adjacent empty NDL at L. Hand K, same as above.
- Plain STS that require no action. In hand K sometimes shown as .

(Charts given may show only the even numbered, knit rows where patterning takes place and eliminate the odd, alternate rows where every stitch is purled.)

- Charts are begun from the lower right corner since hand knit stitches are worked as presented from right to left. Example: K3, yo, k2 tog would be shown as



The Studio Lace Carriage produces two kinds of lace: Simple Lace and Fashion Lace. First lets take a look at **Simple Lace**, where the eyelet formed when a stitch is transferred is immediately adjacent to the doubled stitch. Simple lace transfers stitches immediately before knitting them, all in one pass of the carriage.



When drawing/punching a card, you only need to consider the actual stitch repeat; any stitches that are outside the repeat (plus 2 below) are selvage stitches and should not be included. While electronic owners need not worry about the number of stitches in a

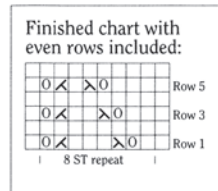
CHART 3

Hand knit lace pattern in text with accompanying chart for each row. Pattern is multiple of 8, plus 2. P all STS in even numbered Rs (wrong side).

Row 1: Hand K	k1, *k1, yo, ssk, k3, k2tog, yo*, k1.
Row 1: Lace chart	
Row 2: Hand K	k1, *k2, yo, ssk, k2, k2tog, yo*, k1.
Row 2: Lace chart	
Row 3: Hand K	k1, *k3, yo, ssk, k1, k2tog, yo*, k1.
Row 3: Lace chart	

repeat, punch card owners must make sure that it is a multiple of 24: 2, 3, 4, 6, 8, 12 or 24. If it is not, alter it slightly by adding a stitch or

CHART 4



two between the actual repeat to make it a correct multiple.

The lace carriage operates by transferring stitches in the direction it

is moving, so you can transfer in only one direction per carriage pass. Redraw the chart dividing each row of the hand knit chart into carriage passes. Because of this directional requirement, one row of the hand knitting chart may become several rows on the machine knitting chart, but the actual number of knitted rows remains the same for both hand and machine. Machine knit punch/design cards are designed to start with the carriage on the right, so the first row of the chart must be marked to show any stitch that moves from right to left onto its adjacent needle. To help you keep track of the carriage direction, draw a left arrow next to the first (and every odd) row of the chart; draw a right arrow next to the second (and every even) row, for 6 rows.

Row 1 of the hand knit chart shows two eyelets, one with its transferred stitch moving left, the other to the right. On your machine knit chart, mark any stitches that are transferred from right to left. Stitch #2 from the right of the repeat is the only stitch in the row to be transferred to the left, so place a mark on the bottom line in the second block from the right. This line represents the first pass of the carriage.

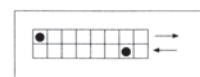
CHART 5



Also in row 1, stitch #8 is transferred to the right. Since this is the second pass of the carriage, going left to right, move up one row on the graph paper and mark the first square of the repeat on the left to represent the 8th stitch.

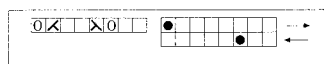
So far the chart represents two passes of the carriage as well as two rows of knitting. Even though Row

CHART 6



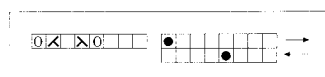
2 of the hand knit chart is blank for purl stitches, the second row above with its transfer takes its place. Row 3 also has two eyelets moving in opposite directions, stitches #3 & 9. Since stitch #3 is transferred to the left, mark it in the third line of the chart; #8 goes right, so mark the fourth line.

CHART 7



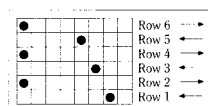
Row 5 of the hand chart transfers stitch 4 to the left and stitch 8 to the right; mark the 5th and 6th rows of the new chart accordingly.

CHART 8



The completed chart looks like this.

CHART 9



For electronics, transfer this repeat directly to a design card, placing directional arrows 10 rows up in the ABCD columns on the far right of the card, where they will remain visible while you knit. For punch cards, punch holes corresponding to the repeat as many times as necessary (three times for this 8-stitch design) to exactly fill the 24 stitch repeat format of the card. Make sure you punch at least 32 rows so card is long enough to connect and that the repeats connect properly at the end of one and beginning of the next. For a repeat that is not a multiple of 24, add a stitch or two on either side of the repeat to make it a multiple. Mark directional arrows on the side 5 rows above the actual row and mark the bottom of the card to be sure you begin with the correct side of the card facing you.

Fashion Lace is fancier and often more textured than plain lace, with one or more stitches between the eyelet and doubled stitch. Fashion lace requires a two-step process: first the stitches are transferred with

no yarn in the carriage and the cam lever set to (P). Then the yarn is replaced in the carriage and two (or more) rows are knitted with the cam lever set to (L). One or more stitches separate the eyelet from the doubled or tripled stitch, creating an effect quite similar to a multiple full-fashioned decrease. Because the carriage can only move one stitch over by one needle at a time, one completed row of knitting actually requires several rows on the punch/design card. This method can knit symmetrical lace patterns since transfers are made in both directions, one pass at a time. All the eyelets in a row are created before any of the stitches are knitted.

Things to remember about fashion lace:

1. A stitch can be moved by only one needle at a time.
2. The first stitch to be transferred creates the doubled stitch and is farthest of the group from the eyelet.
3. Subsequent transfers will fill the emptied needle and create a new empty one, until the eyelet is in the correct position.
4. There must never be two marks or holes side by side on the card.
5. Between transfer sequences, there are 2 or more knitted rows shown as blank lines on the punch/design card.

We'll use the following hand knit pattern as an example to chart a hand knit lace design as full fashion lace for the machine:

Hand knit lace pattern:

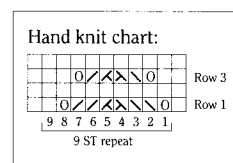
Multiple of 9 stitches plus 2.

Even numbered rows (wrong side): P all sts.

Row 1: K1, *yo, k2, ssk, k2tog, k2, yo, k1*, k1.

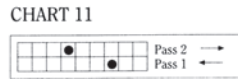
Row 3: K1, *yo, k2, ssk, k2tog, k2, yo, k1*, k1

CHART 10

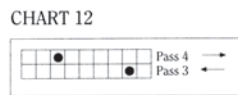


To convert to Fashion Lace:

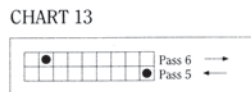
The first row of this pattern has 6 stitches that need to be moved. Stitches #1, 2, & 3 of the repeat are moved one needle to the left; stitches #6, 7, & 8 are moved one needle to the right. The first transfer moves stitch #3 to the left to needle #4, creating a doubled stitch. Mark the third square on the first line of the new chart. The next carriage pass transfers from left to right, moving stitch #6 to needle #5; mark the sixth square on the second row of the chart.



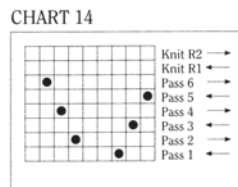
In the next pass, stitch #2 moves to the left, so mark the second square in the third line. (Stitch #2 will fill needle #3 which was emptied in the first row.) The fourth pass moves stitch #7 to the right.



The fifth pass transfers stitch #1 to the left and the sixth pass moves stitch #8 to the right. Mark the first square in the fifth line and the eighth in the sixth line. These are the last stitches to be moved before the row is actually knitted and determine where the eyelets will finally be.



The completed chart for any transfer sequence should have only one square marked in each vertical column. There are also the same number of lines (passes) as there are stitches (6) to be moved within the first row. These six lines represent the stitch transfers made without yarn in the carriage and the cam lever set to (P). These six passes are then followed by 2 rows of knitting, shown as blank rows on the card.

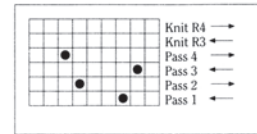


Row #2 (and all even numbered rows) of the hand knit chart is plain, without transfers. Row #3 shows 4 stitches to be moved, so the transfer sequence requires 4 rows to move

stitches #2 & 3 to the left and stitches #6 & 7 to the right.

The completed card and the machine knit lace it produced:

CHART 15



For ease of knitting, mark the punch/design card to know when to set the cam lever to transfer and when to add yarn and knit stockinette. For electronics, note transfer rows in the ABCD at the far right by darkening the squares 10 rows above. For punch cards, mark transfer rows with borders around row numbers, 5 rows above. Leave knitted rows un-marked; there may be more than two depending on the pattern.

CHART 16

