

UNDERSTANDING THE SINGER SK-580

KNITTING MACHINE

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BY

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UNDERSTANDING THE SK580

Use a surge protector to prevent circuit damage in the event of a power failure. Use the cleaning card regularly to remove lint from the card reader; the cotton swabs to clean the carriage sensors. Note that these are anti-static swabs, not the ones you might use for cosmetics. They can be purchased at electronics and computer stores. NOTE: Unplug the PE1 from the 580 when it is not being used as it over-rides the card reader and prevents it from functioning.

THE DESIGN CARDS

The squares on the mylar sheets are already proportioned to imitate a knitted gauge (11 stitches/14 rows = 1") so you can be fairly certain that most designs will knit as you have drawn them. If you draw a design on regular, squared graph paper, remember that a square grid shows equal stitches and rows per inch. This is not the way that most fabrics knit, and although the design looks fine on the paper, it will elongate when knitted. To save yourself the trouble of re-proportioning designs for the machine, you can photocopy a blank mylar to make your own proportional graph paper; then you can simply place a mylar on top of the design and trace it off.

With a photocopy machine you can easily work from original art, photos, magazine or fabric prints. First, enlarge or reduce the design as necessary to accommodate such considerations as the gauge, size of the resulting knitted motif, length of floats, garment shape and size, etc. Then simply lay a blank mylar sheet on top of the image and photocopy the two together. The copy will show a grid superimposed on your design. All you need to do is to square off the lines in the print, deciding what will or won't be read as a whole square by the machine. Then clip or tape a blank mylar on top of the corrected print so you can trace the image with a design pencil. Be sure to fill in the squares evenly and dark enough for the machine to read. Machines vary and some are more sensitive than others to stray marks, so be neat! As a matter of fact, many machines will read a large dot that fills the center of a square so you don't have to bother filling in the corners of the squares.

If you want to "free hand" a design, you can! Even if the squares are not totally filled in, the machine will read the design. It will decide for itself how much darkened area constitutes a filled square. Just be sure that all lines are at least one square wide; you can also rely on the #3 & #4 buttons to enlarge your design after it is drawn. This method is not suitable for small, precise designs, but works well for bold abstracts.

Large designs can be transferred to the mylars faster with opaque paint markers instead of the design pencils. They are available under both the "Pilot" and "Faber Castell" labels (try office supply/stationery/art stores). These are the markers that make a rattling noise when you shake them because there is a tiny mixing ball inside. The black and the silver seem to be the most reliable choices. While these markers do not smudge like pencil does, the paint takes a few minutes to dry and scratches fairly easily; once scratched, a design will be misread by most machines. Do not use these markers for mylars that will be used over and over; they are ideal for designs that will be stored on a PE1 memory card! Opaque paint markers are not easy to use for small, tight designs; just put a dot in the center of each square - and use a very light touch because the oil-base of the paint spreads. If it oozes onto the lines of the grid, the adjoining squares may be read as filled. Large designs can simply be filled in with broad strokes. You can use solvent to correct mistakes or you can scrape the paint off the surface with a razor blade. If you scrape too deeply, the surface of the mylar will become reflective and the design may be misread. For very precise designs or for design cards that will be used over and over, the design pencils are the best choice; for designs that will be read once and stored on the PE1 memory card the opaque paint markers are faster.

When you use a design pencil, make sure you work on a firm surface to avoid denting the mylar, as it may interfere with the machine's ability to read the design. If you need to erase, be thorough. The white Mars erasers by Staedtler erase the cleanest and don't leave a residue like orange pencil erasers do. They are available in block form or Faber Castell makes one in a pencil shape that is great for precise erasures. Try to keep a sheet of paper over the squares that have been filled in so they don't smudge if you lean on them. You can modify the pre-printed design cards by filling in squares with a design pencil.

THE BUZZER MARKINGS

The first column to the right of the design area is reserved for markings that will instruct the buzzer to sound. You must use a design pencil (or opaque marker) to fill in a square in this column, even with the appropriate row in the design grid to the left. The buzzer does not instruct the machine to perform any particular function: it speaks to YOU rather than to the machine and sounds before knitting the marked row. When a buzzer marking is placed even with the last row of a design, the buzzer sounds prior to knitting the last row. When you hear the buzzer, you will know that there is one more row to be knitted before the card reverses or returns to the beginning, according to the other markings on the card. When using button #3 (double length) or #6

BUZZER

(jacquard), the buzzer indicates that there are two more rows to be knitted. You do not need to pause before knitting the last row(s), but you do need to pause (long enough to hear the scanners click) after knitting the last row in order to let the card reverse or return properly. If you continue knitting right through the return motion, you will confuse the electronics and risk mis-selection. The SK580 buzzes through the entire return motion of the card - do not knit until the buzzer stops. If a card has been marked for fast return, the buzzer will sound even if there is no marking in the buzzer column.

In addition to signaling the last row of a pattern, the buzzer can be used to tell you when to change colors, cam settings, stitch sizes; to use design buttons or perform certain manipulations like crossing cables, decreasing, etc. Markings in this column have no effect on the way the pattern knits, but can provide you with an audible reminder that can replace notes taped to the auto tension. Make sure that buzzer markings are even with the appropriate row of the design so the buzzer sounds before the row is knitted.

CARD DIRECTION/MOVEMENT MARKINGS

There are two arrows on the machine console that indicate the direction a design card will travel through the machine. If the card's instruction columns have been marked, one of the arrows will be lit to indicate the direction. If the instruction columns are blank, then the arrow that you choose will determine the direction the card moves. The arrows can not be used to override the markings on a card.

The instruction columns must be marked with a design pencil or opaque marker in order to be read by the machine. Each of the columns controls one aspect of card movement:

When a mark appears in:

- ↓ Column #1: the card moves down into the machine as you knit, so it reads row 1, 2, 3, 4 (from bottom to top).
- ↑ Column #2: the card moves up in the machine so that it reads row 4, 3, 2, 1 (from top to bottom).

Either of these motions will be indicated by a lit arrow on the control panel. When a card changes direction, the arrow light will change as well so you will always know which direction the card is going to move. Remember, the scanners that read the cards are fixed ten rows down inside the machine; they move across the design cards, but not up and down. In order for them

to read a card from the bottom to the top, the card must be moving down into the field of their vision. For a card to be read from the top to the bottom, it must be moving up.

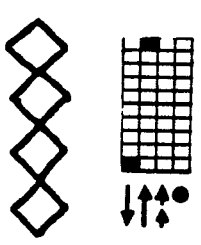
A mark in

Column #3: is always used in conjunction with a mark in column #1 or #2 and tells the machine to move the card up or down QUICKLY. The card is not being read during quick motion and you must stop knitting.

A mark in Column #3 is always accompanied by a mark in Column #4.

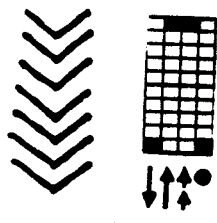
- Column #4: stops the quick motion.

A card can be marked in one of three distinct ways so that it (1) moves up and down, reversing continuously (2) moves down, with a quick return; (3) moves up, with a quick return.



(1) The card reads/knits in both directions. Begin with the "down" arrow lit on the control panel of the machine; the inspection light is on and row 1 is even with the slot. Release the card and begin knitting. The marking in the first column will instruct the card to move down into the machine to read row 1, 2, 3, 4, etc. At row 10, the mark in the second column tells the machine to reverse direction and read row 9, 8, 7, etc. Because there are no marks in any other columns, these two markings alternately control

the card. The card moves up (or down) one row per knitted row and allows you to continue knitting at a regular pace. There is no need to pause when a card is marked to read and knit in both directions. This marking is used for designs that repeat the same in both directions or to vertically invert alternate repeats. The row where the card reverses direction is only knitted once. The arrow lights on the panel will change automatically.



(2) The card is read/knits from bottom to top. Begin with the "down" arrow lit; the inspection light is on and row 1 is even with the slot. Release the card and begin knitting. The mark in column 1 will instruct the card to move down into the machine so it can read the card from bottom to top. At row 10, the mark in column 2 instructs the card to move up and the mark in column 3 says "QUICKLY!". The card returns quickly to the first row, where it is stopped by the mark in column 4. Pause for the fast return; do not continue to knit. The

580 will buzz throughout the fast return; you can resume knitting when the buzzer stops. For the 560, do not begin knitting again

until you hear the scanners click. The card is read/knits from bottom to top only: you must stop knitting while it returns to the first row. Make sure you mark the last row of the design in the buzzer column so you'll know there is only one more row to knit before pausing for the card reverse.



(3) The card is read/knits from top to bottom. Begin with the "up" arrow lit. Because row 10 of the card will be considered the first row, make sure it is even with the slot; the inspection light is on. Release the card and begin knitting. The mark in column #2 instructs the card to move up until the knitting brings it to row 1 of the card. There, the mark in column #1 tells the card to move down and the mark in column #3 indicates quick motion. The card return to row 10, where it is stopped by a mark in the column #4.

This method will enable you to continuously read a design upside down and is useful when you do not want to re-draw the design. For example, if you wanted to make a scarf where the design knits in reverse for each half, you could knit the first half with the instruction columns coded for method (2); then erase the coding and use (3) for the second half.

REMEMBER: When the design card is moving down, the design is read from bottom to top (upwards). When the card moves up, the design is being read from top to bottom (downward).



The notation columns on the extreme right of the card are for your convenience to record color sequences, directional information or carriage settings for lace knitting. Because they are outside the sprocket holes, they are beyond the field of scanner vision and can be marked with a regular pencil or even colored pencils.

THE INSPECTION LIGHT

Think of the inspection light as a stop light: when it is red, the machine's patterning is stopped. You must turn off the light in order to knit pattern. Turning it off releases the card, which drops down by ten rows so that the first row can be read by the scanners. You'll hear the scanners zip over and back and you'll know that the machine is ready to knit the first row. As the first row is finished, the scanners read the second, etc. If, after the scanners read a row, you turn on the inspection light, the card will return by ten rows and the machine will continue to knit the same row over and over. Holding the card will always produce vertical stripes.

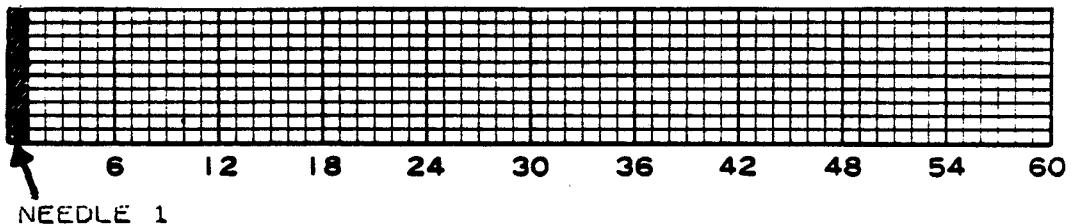
Usually, when you divide a neckline, the inspection light is off. After finishing the first shoulder, you should start the second by lining up the design card with the inspection light off; turn the light on, then off again to begin knitting. If you line up the card with the light on, you will be off by ten rows when you release it to start knitting.

Pay attention to the sound of the scanners and remember that you can only knit as fast as they can read. If you rush the scanners, you may find errors in your patterning.

THE WIDTH INDICATOR

The scanners always begin reading on the left of the design sheet: at the position of the #1 needle of the design. When you set the width indicator, you are telling the scanners how far to the right to read. (What you are actually doing is allowing a tiny mirror to reflect (or not to reflect) the information to the scanners.) Setting the width indicator to read more spaces than the actual width of your design will include empty spaces after each repeat. This can be used to advantage for making a design exactly fit a garment section to avoid half motifs, etc. You can also set the width indicator for less than the full width of your design to utilize portions of it.

If you are using button #4 to double the width of a design, do not double number on the width indicator.



THE POINT CAMS

Without point cams [PC], the 580 is incapable of knitting patterns! They are like little traffic lights that tell the carriage what to do: the first PC the carriage encounters tells it to start the pattern; the next PC tells it to stop the pattern. You can use the PCs to isolate single motifs and to eliminate portions of a design; but you must also use them for knitting pattern from one edge of the fabric to the other. They define the first and last stitch of any pattern. Make sure they click firmly into place; if they float between stops, they may disrupt the patterning. Also, make sure that the carriage

clears the PC at the end of each row - this is how the carriage know the row is complete and instructs the card to advance. Do not stop the carriage between PCs for more than about 30 seconds.

You can use two sets of PCs (start - stop - start - stop) to knit two isolated motifs if you leave enough space between each set to stop the carriage; rethread with another strand of the same pattern yarn (for identical motifs) or a different color to knit the second motif to avoid floats from one motif to the next. Remember to wrap the edges of both repeats and to remove the extra set of PCs when you are done using them. If you simply push them over to the right of the bed, the carriage will still read them when it passes by and the pattern will be misread. Use a separate N1 cam for each set of PCs.

You can move the PC on the side opposite the carriage as often and as far as you desire. You cannot, however, move the PC on the carriage side or you will disturb the patterning. The carriage already knows where the pattern should start; you'll have to release the carriage and move it twice across the bed without knitting to re-memorize the position of the PCs.

Because of the way the electronic knits, you can isolate tuck and slip, as well as fair isle. This is not possible on punch card machines. This means that you can provide stockinette stitches for seaming or that you can knit a stripe of tuck up the center of a garment section or draw a zig-zag design on a knit contour pattern and move the PCs according to the way the edges of the design change on the needle scale.

THE NEEDLE 1 CAM

The Needle 1 cam [N1] simply tells the machine where to position the first stitch (needle #1) of a design. In conjunction with the #2 light, the first stitch will always be placed either to the right or left of the red line in the center of the N1 cam. If you do not use an N1 cam, the left point cam automatically becomes N1. This may not center your motif or provide correct matching at seams; it definitely doesn't allow you to move the point cams in as you decrease. You will have better control over the machine if you always use an N1 cam - you'll always know exactly where your first stitch will be.

If you move the N1 cam after you have started knitting, you must release the carriage and move it across the bed without knitting to re-memorize the position; make sure you stop your pattern by turning on the inspection light. The 580 can memorize the position of the N1 by moving the carriage moves in either direction; the 560 can only memorize from left to right. Move the carriage across the bed twice to make sure any old

memory is removed and that the new information/position is in the carriage.

If you use two sets of PCs, use a separate N1 cam for each. You can position them differently within each set.

BUTTON #1: Color/Selection Reverser

Either the left or right light will always be lit. They determine whether the machine reads the filled or empty squares of a design.

Left is for normal fairisle, with the first color knitting background and the second color knitting pattern. The right light reverses this. Left is also for lonely: you must use the left light for single motifs or the second color will catch on the end needles and create huge floats on each side of the single motif (where there should be none).

When knitting fairisle with the YC6 use the right light to change the roses (or other motif!). The #1 color is the one that the YC6 changes automatically; by using the right light, the #1 color knits as pattern, rather than background.

When the right light is lit, the machine knits the blank squares and tucks or slips those that were filled in. If the left light is lit for slip or tuck, the filled in squares will knit and the empties will tuck or slip; You would have to fill in more squares than you leave blank. RT = Right Tuck (and slip because it is selected the same way as tuck).

The standard method for knitting jacquard is to start on the right with the right #1 light lit (easy to remember because the Jacquard light is the last button on the right!).

BUTTON #2: Direction Reverser

The left or the right light will always be lit and indicate which direction a design will face. The way this button functions is one of the major differences between the 560 and the 580.

SK580: When the left light is lit, the design will knit on the purl side of the fabric like it looks on the design card. The entire reference pattern faces to the left. When the right light is lit, the design knits so that it looks right on the right side; the reference pattern faces to the right. Right is for writing.



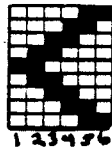
Left Light



Right Light

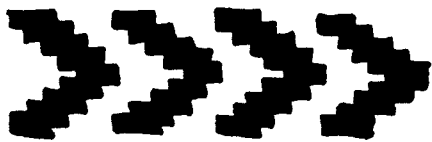


SK560: When the left light is lit, the first stitch of the design (needle #1) projects to the left of the N1 cam, as seen from the purl side. When the right light is on, the first stitch projects to the right of the N1 cam, as seen from the purl side. In this case, in order to have a name knit correctly, Left is for Letters. (Note: when letters are knitted upside down for a hem, etc. use the right light for SK560 and the left for the 580).



Left Light

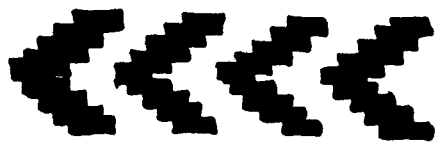
N1



654321

Right Light

N1



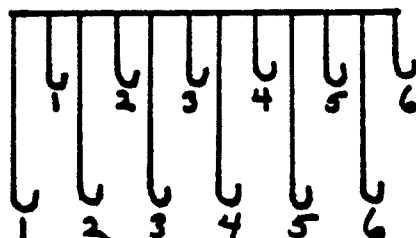
123456

BUTTON #3: Vertical Expansion

When this light is lit, the machine reads each row twice before advancing. If you start knitting/release the inspection light with the carriage on the left, the 580 will advance the card as the carriage moves from right to left. If you start knitting/release the inspection light with the carriage on the right, the card will advance as the carriage travels from left to right. Having this choice means that you can coordinate the card advance to the color changer so that you can begin knitting on the left to knit two identical rows of pattern in the same color - as you would for two color slip and tuck patterns. [Because the 560 only changes as the carriage travels left to right, you must draw each row of a design twice to knit two identical rows.]

BUTTON #4: Horizontal Expansion

When this light is lit, the machine reads each square on the design card as two stitches instead of one. It is an excellent way to expand free-hand designs that are too closely drawn and, used in combination with the #3 button will exactly, proportionately double the size of a motif. This button also allows you to knit on every other needle (EON) without having to re-draw your designs. The machine reads each stitch twice, but because EON is in non-working position, each stitch only knits once.



You can also use this control to knit jacquard on 1x1 rib - this would be very time consuming to do on a punch card machine because the card would have to be punched for every other needle and for jacquard.

If you are doubling the size of an isolated motif, make sure you allow enough needles between the point cams. For example, if a design is 20 stitches wide, set the width indicator to 20, but put the PCs 40 needles apart.

BUTTON #5: Mirror Image

The mirror image is affected by the #2 button (directional reverser). A repeating design will look the same whether the right or left light is lit, but its placement in relation to N1 will change. This function is controlled differently on the SK580 and the SK560.

SK580: You have a choice between a true mirror image, where the pivotal stitch repeats and a chevron, where it does not (i.e. 1234554321 vs. 123454321). The pattern that knits to the right of the N1 cam when the #2 light is lit alone acts as the reference pattern for mirroring. The N1 cam is the place where the design first mirrors/chevrons.

When the left light is lit, the left edge of the pattern (as drawn on the design card) will mirror at N1. When the right light is lit, the right edge of the pattern (as drawn on the design card) will mirror at N1.

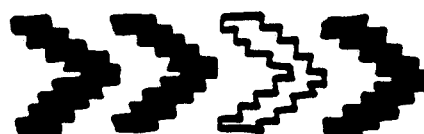


Left Light



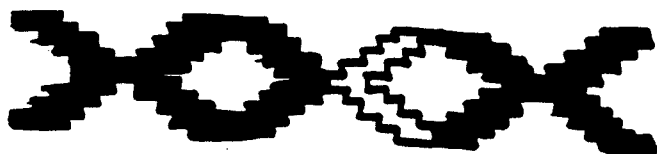
N1

Right Light

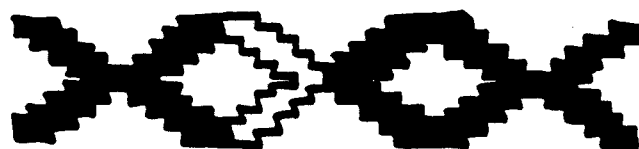


N1

Mirror Image/Chevron



N1



N1

SK560: When the #2 right light is on, the design projects the "right way". That is, the first needle of the design projects to the right of the N1 cam and then the design mirrors. However, when the left light is on, the last stitch of the design projects to the left of the N1 cam and then the design mirrors. This is the only time that the machine bases a design on the projection of the last stitch rather than the first. So, for the #5 button in combination with the #2 light: left is for last, but right still works the right way.

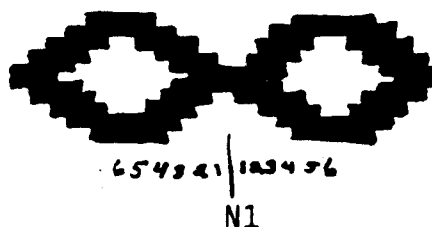


Mirror Image

Left Light



Right Light



BUTTON #6: Jacquard

When this light is lit it instructs the machine to read each row of the design twice: once for background and once for pattern. This is why the #1 light alternates as you knit. The #6 button is the last one on the right and to knit jacquard the right way, always start with the carriage on the right and the #1 right light. Right?!

Do NOT use the jacquard button to knit 3 or 4 color jacquards; it is only able to alternate two colors. Three/four color jacquards are just double bed slip knitting and should be knitted with the carriage set for slip. Design cards must be specially prepared for this kind of knitting so that every color in each row of the design has its own row on the design card. [Refer to "Knitting three color slip"].

OVER-RIDING THE MACHINE

TO READ A PRE-MARKED CARD FROM THE TOP DOWN: This is practical for a single repeat of a design. For multiple repeats, re-mark the card as previously described.

Add a buzzer mark to the bottom row of the design. With the inspection light lit, insert the card into the reader so that the last (top) row of the design is even with the slot. The direction arrow is pointing down. Release the card so that it drops down by ten rows for scanning. The buzzer will sound to indicate that the next row is the last row. Knit one row and let the card return - you don't have any choice. Turn on the inspection light and return the card to the second to last row of the design. Press the button to light the right directional arrow, pointing up. Release the card and knit the full design. The buzzer will sound when you have one more row (the bottom row) to knit. If you continue knitting after the last row, the card markings will reverse the direction and the card will read from bottom to top.

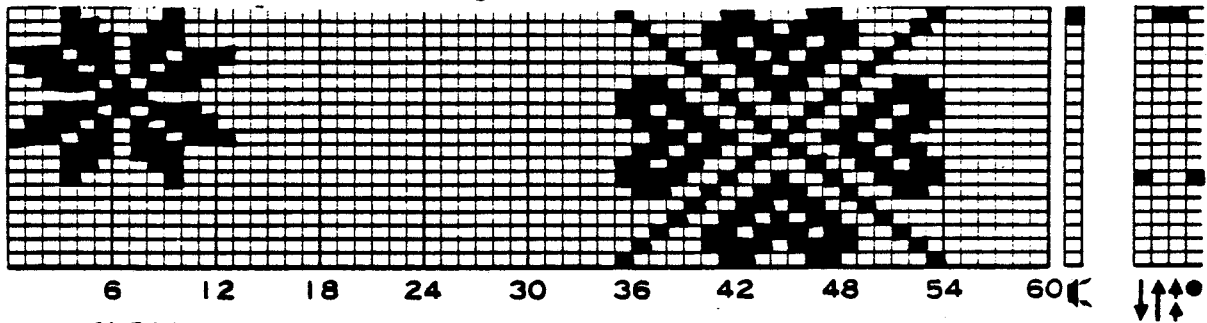
TO READ THE RIGHT SIDE OF A CARD FOR AN ISOLATED MOTIF: When you draw your designs, make sure that the last row of both designs on the card end on the same row of the card. (Row 19 in the example below) That way, when you knit continuous repeats using the left side of the card, the markings will function properly and when you knit a single motif using the right side, the markings will not interfere, returning the card to the first row before you are done. The right side of the card can only be utilized (alone) for single motif knitting.

1. Set the width indicator to the full width of the entire design as it shows on the mylar. [54 stitches]

2. Starting at the right edge of the single motif, count exactly how many stitches you want to use to the left. Place the PCs this far apart on the bed, wherever you want the design to knit. [19 needles apart]

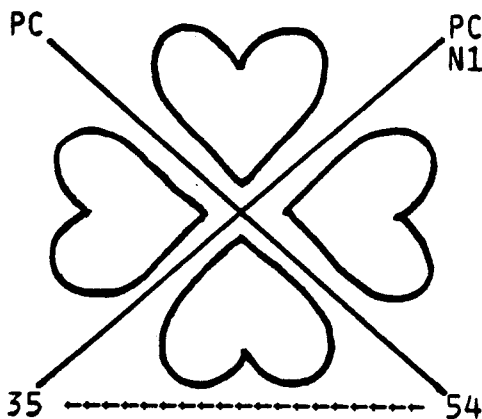
3. Where you place the N1 cam will depend on which #2 light is lit. You want to make sure that the machine will knit stitches 54, 53, 52 etc. as opposed to 1, 2, 3 etc. The rules

are different for the 580 and the 560 because the #2 buttons operate on a different logic.

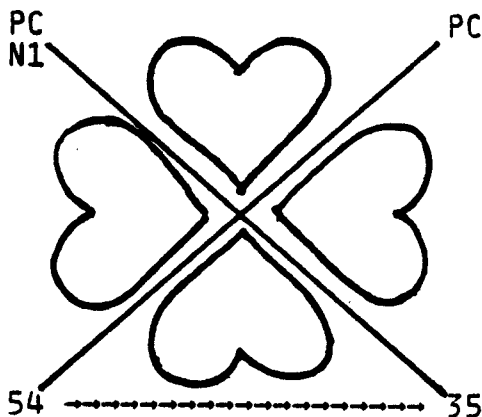


SK580: Place the N1 cam under the right PC if the left light is lit; under the left PC if the right light is lit. You can move this trio (PCs & N1) anywhere on the bed.

When the left light is lit, the reference pattern faces to the left of the N1 cam. Place the N1 cam under the right PC so that the last stitch of the design is under the right PC.

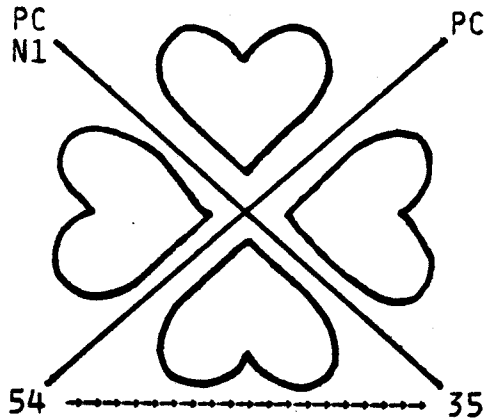


When the right light is lit, the reference pattern faces to the right of the N1 cam. Place the N1 under the left PC so that the last stitch of the design is under the left PC.

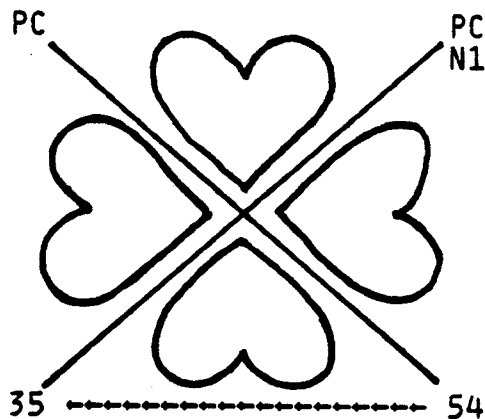


SK560: Place the N1 cam under the left PC if the left light is lit; under the right PC if the right light is lit.

When the N1 cam is on the left, with the left light lit, needle 1 projects to the left of the N1 cam, which places it outside the area defined by the PCs; the last stitch of the design is to the right which is within the area.



When the N1 cam is on the right, with the right light lit, needle 1 projects to the right of the N1 cam, which places it outside the area defined by the PCs.



3 COLOR SLIP KNITTING

Fairisle patterns can only have two colors/row because the carriage knits both colors simultaneously. With three color slip (or 3-color jacquard), the carriage only knits one color at a time. When one color knits, the other two slip past as floats on the reverse side. For this reason, it takes three passes of the carriage to complete one row of knitting. These extra floats make 3-color slip fabrics half again as heavy as 2-color Fairisle. In fact, the more colors you use in a single row (and you can use more than 3!), the lighter the yarns should be in order to minimize bulk & maximize drape & usability.

Although the knit side of the fabric looks like a Fairisle, it is not and the cam lever must be set to Slip for both single and double bed versions of this fabric. [Double bed note: do not use button #6 for multi color slip patterns] If parts of your pattern do, in fact, have only two colors/row, they would be easiest to knit as Fairisle - you can switch back and forth between 3-color slip and Fairisle as you desire and the buzzer column can be programmed to tell you when to switch.

A 3-color design will require three separate mylars to feed into the machine. The PE1 reads each color separately and then shuffle them into a new design that rotationally selects needles each of the colors: 1 - 2 - 3. You don't need to fill in the mylar for the background selections (whatever isn't color #1 or #2 must be #3!), but you do need to indicate that the empty sheet represents color #3. Follow the directions in the PE1 manual for preparing the mylars, paying special attention to coding the right hand column for colors. If you use separate mylars, you can lay one over the other to check that the design is correct or, for small designs like this, you can draw each separation on the same card. [See attached design.]

Feed the design into the PE1 as instructed and when you are ready to begin knitting, press "=" so that the pattern disappears from the screen and is replaced by the row and color numbers. This is the information you are most likely to refer to while knitting.

Use the LEFT #1 light on the 580 control panel so that the

background stitches are slipped and the selected needles are knitted. This is contrary to normal slip knitting.

In order to use the YC6, use the #3 light to read each row twice; use the #4 light to keep the design in proportion. With the carriage on the LEFT, release the inspection light to start knitting so that the double row selection will coordinate to the left hand color changer.

If each row of a 16 row design requires 3 passes of the carriage, it will require (3 passes x 16 rows of design =) 48 passes of the carriage to knit one repeat. Using the double expansion, it will actually take 96 passes of the carriage to knit 32 rows of fabric, one double repeat. The PE1 counter will only show 48 rows because, although the #3 light is on, the PE only counts each row once. Use the 580 row counter for figuring gauges with the knit contour; use the actual number of rows for figuring design placements. And, take a minute to play with the design before you begin knitting so you are sure you understand this!

You will change colors every time the carriage is on the left side. Because the YC can only be programmed to alternate two colors at a time, you will have to manually select the next color by pressing the buttons on the YC. It is a good time to make sure that the yarn is properly threaded into the arm; that the other two yarns are free of the arm; to bring the edge needle on the carriage side (or both sides) into D position (Russells at II) to produce an even edge and prevent long edge floats that could catch in the brushes. You must knit slowly. 3-color slip is not difficult, but it can be tricky if you miss these or any of the other small details that make things run smoothly:

Use at least 1 stitch size larger than stockinette.

Use edge weights and move them often - the fabric will pull in even more than Fairisle does.

You might want to consider weighting the whole fabric either with regular comb & weights or with the triangular combs to prevent any floating stitches.

The fewer adjacent needles there are knitting the same color, the more likely those needles are to slide slightly forward of B position where they can jam, knock the carriage or dump stitches or mis-select. Keep an eye out for floating butts and nudge them back in line.

Make sure the auto tension isn't pulling too tightly. It can cause needles to float forward.

If any floats are excessively long, latch them up as you would for Fairisle.

When designing patterns for 3-color slip, remember that every color must be accounted for in every row in order to use the PE - it shuffles the three separate mylars into a new one that repeats colors 1 - 2 - 3 for each row. Also, every needle must knit once and only once, every three passes of the carriage. That is, a needle cannot knit both a black and a white stitch in the same row.

If you're short on ideas, Dover Books publishes a wonderful series of graphed design books - The Dover Needlework Series - and the volume on "Charted Folk Designs" is loaded with 3 color designs - the above example is one of them. You'll also find that many cross stitch designs that didn't work for Fairisle are perfect for 3-color slip because you can use two colors for the motif and still have a third for the background.

Using the #3 and #4 buttons doubles the size of the design, but if you double the rows, you must double the stitches in order to keep the design in proportion. And, if you use the YC6 you MUST double the rows because you need to change colors every two rows. In order to knit 3-color slip without doubling rows or stitches, you have to change colors manually at the end of each row. This will work with three colors - the yarn will always be exactly where you need it, but it will not work with 4 colors.

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UNDERSTANDING THE SINGER SK580 KNITTING MACHINE

A must for every Singer SK580 owner! Written for the Singer SK580 owner, this book is designed to supplement the Operations and Knitting Manual. It provides the answer to many of the knitter's questions and clarifies the button functions.