Chapter 20-C (MIK)

BOTTOM-UP SHAPING (BLANK AREAS) MIK SUPPLEMENT

When you adjust a traditional knitter chart, you must use fairly different techniques depending on whether or not you use actual shaping symbols for bind-offs and decreases in addition to the blank areas that naturally occur. This version of the supplement is for those who chart shaping by using **only blank areas**.

❧ ☙ ❧

As a mirror-image knitter, you must always remember the unwritten assumption that public-side rows will be worked right to left. Your first step, therefore, must be to chart written-out instructions as though you were a traditional knitter, using all the techniques described in "Bottom-Up Shaping: In the Computer."

Overview of MIK Changes

Once you complete the traditional knitter chart, you use the techniques in this supplement to make those few changes necessary to account for the fact that you work all rows in the opposite direction compared to traditional knitters.

Swap Row Numbers and Reverse Stitch Labels

One optional change is to move both sets of row numbers. Since you work public-side rows from left to right, your public-side row numbers ought to be at the left edge of the chart. The private-side row numbers ought likewise to be at the right edge of the chart. This pair of changes actually abides by one of our earliest charting rules, that the row number is always next to the first stitch worked on each row.

Should you need to refer to the written-out instructions, remember that you charted the rows as traditional knitters would work them. If you need to double-check your chart row thirteen with its instructions, you need to look at the chart row from right to left.

The second optional change is reversing the stitch labels. If the chart labels its stitches, you can run them in the opposite direction, so that stitch one or stitch A is at the left edge of the chart.

Even though both of these changes are optional, it will be easier to make the mandatory changes if you do them. The charts in this supplement show these changes to make all the explanations as clear as possible.

Re-Define Decreases in the Symbol Key

When traditional knitters work a K2tog, their resulting stitch leans to the right. Their resulting stitch from an SSK (or SKP or similar) will lean to the left.

Because you approach from the other direction the pair of stitches that will be involved in a decrease, you must work the opposite decrease to get the resulting stitch to lean the correct way. So for you, a K2tog is a left-leaning decrease and an SSK (or SKP or similar) is right-leaning. The **chart** doesn't change; the symbols, and the resulting stitches, still need to lean in the same direction. What changes instead is the **definitions** in the symbol key, where the knitting operations you'll do for left- and right-leaning decreases are reversed.

You will chart a "K2tog" in written-out instructions as right-leaning, but when you get to the chart symbol in needles and yarn, you'll work an SSK (or SKP or other right-leaning decrease). SSKs (or SKPs or similar) in the instructions are charted left-leaning, but with needles and yarn, you'll work K2togs for those chart symbols.

If there are directional purl decreases made on the private side of stockinette, they also must be charted as for traditional knitters, so P2togs must be charted as right-leaning and SSPs (or SPPs or similar) as left-leaning. You will reverse these symbols' private-side definitions as well.

Purl decreases made on the public side of reverse stockinette can all be done as P2togs, since we won't be able to see which way the resulting stitch leans.

Charting Rules for Mirror-Image Knitters

> When MIKs chart written-out instructions, every "K2tog" must be charted as right-leaning and every "SSK" (or "SKP" or similar) as left-leaning. Once the chart is complete, MIKs change the symbol key to define a left-leaning decrease as a K2tog and a right-leaning decrease as an SSK (or SKP or similar).

> If the written-out instructions have purl decreases worked on the private side of stockinette, MIKs chart each "P2tog" as right-leaning and each "SSP" (or "SPP" or similar) as left-leaning. In the symbol key, the left-leaning decrease would be defined as a P2tog and the right-leaning as an SSP (or SPP or similar).

Cable Needle Placement for Cables and Twists

As with directional decreases, the cable and twist symbols in the chart slant in the proper direction, so nothing changes until you get to the cable symbol in needles and yarn. Since you approach the cable's stitches from the left instead of the right, you must put the cable needle to the opposite side of the work compared to traditional knitters.

Traditional knitters get a left cable by holding the cable needle to the front. You, however, must hold it to the back. To get a right cable, traditional knitters hold the cable needle to the back, so you must hold it to the front.

If you have to cross cables on the private side, you still hold the cable needle to the back for a left-slanting cable and to the front for a right-slanting cable.

Charting Rule for Mirror-Image Knitters

> To get the correct slant in a cable or twist, MIKs must put the cable needle to the opposite side compared to traditional knitters. Therefore, MIKs put the cable needle to the front for a right-slanting cable and to the back for a left-slanting cable, whether the cable is crossed on the public or private side.

See part one's "Cables and Twists" and the appendix "Crossing Cables on the Private Side" for more details. "Cables and Twists" includes mnemonics to help you remember these changes.

Shift the Shaping

Because you work the rows in the opposite direction from the way they need to be charted initially, the chart as drawn indicates that all bind-offs are done at what are now the **ends** of your rows, public side and private side.

To move the bind-offs to the beginning of your rows, you need to shift left-edge bind-offs down one table cell and right-edge bind-offs up one table cell.

Decreases on each edge would also shift the same direction. The left edge's shaping all moves down one cell, and the right edge's shaping all moves up one cell.

There's a Big Difference

It's important to note that the directions of these shaping shifts refer to the **edges of the chart itself**, not to the edges of the garment as it's worn. The rules do **not** say that the edge shaping of the chart at the **wearer's** left is shifted down one table cell and that the edge

shaping of the chart at the wearer's right is shifted up one table cell. When you're shifting the shaping, the only "left" and "right" that matter are the **chart's left and right edges** as you're looking at it.

Charting Rule for Mirror-Image Knitters

> MIKs must move shapings in the left portion of a traditional knitter chart down one table cell, to put them at the beginning of MIK public-side rows. The shapings in the right portion of the chart must move up one table cell, to the beginning of MIK private-side rows.

In "Bottom-Up Shaping: In the Computer," since the left edge was charted as the beginning of private-side rows according to the unwritten assumption, the bind-offs charted on what is the second row of the underarm shaping for traditional knitters need to move down so that they appear on your row one. In the same way, the beginning of public-side chart rows for traditional knitters have now become the beginning of private-side chart rows for you. So the underarm bind-offs charted at the beginning of the traditional knitter's row one of the underarm shaping need to be moved up one row, since that underarm's first shaping row is now your first private-side row.

The Interesting Outcome

When you've made all of these changes, you'll be able to talk in detail with traditional knitters working from their version of the same chart, in the exact same way we saw in part one's "The No-Stitch Symbol." You'll bind off the exact same stitches on the exact same rows, you'll work the exact same decreases on the exact same stitches, and you'll get the exact same slant in cables and twists.

Shifting the Shaping, Step by Step

Once you've completed the chart as though you were a traditional knitter, you have to alter which rows the shaping occurs on. You still bind off at the beginning of the row, just like traditional knitters, but the rows now begin on the other edge of the chart. The blank areas indicating bind-offs are initially located on the end of your rows. Decreases at the beginning of the traditional knitter underarm curve rows are now at the end of your rows.

Adjusting shapings is quite easy if we put each portion of the shaping in its own column in a multi-column, multi-row table. If we've typed up the chart on ordinary lines or put an entire row's symbols in a single table column, it will be much more difficult to move the symbols down and up to the proper table cells.

Underarm Shaping

Here's the traditional knitter chart of the underarm shaping for "The Basic Vest" in the size small. Traditional knitters would use this chart as is, including, of course, stitches sixteen through seventy-six on their needles. You must as your first step create this chart.

Traditional Knitter Underarm Shaping Chart

Row labels (left edge, top to bottom): 16, 14, 12, 10, 8, 6, 4, 2, a

Row labels (right edge, top to bottom): 15, 13, 11, 9, 7, 5, 3, 1

Stitch labels (bottom, left group): 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77

Stitch labels (bottom, right group): 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

In this supplement, we'll always make the optional changes that swap the row numbers and reverse the boxed stitch labels. Note that all the row numbers stay on the same **table** row as before; all that changes is which **edge** of the chart they're on.

Row Numbers Swapped and Boxed Stitch Labels Reversed

Row labels (left edge, top to bottom): 15, 13, 11, 9, 7, 5, 3, 1

Row labels (right edge, top to bottom): 16, 14, 12, 10, 8, 6, 4, 2, a

Stitch labels (bottom, left group): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Stitch labels (bottom, right group): 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

If it wasn't clear before, we now see explicitly that the shaping is not in the proper places.

- The bind-offs and edge decreases in the **left** portion of the chart are one table cell too **high**, so we need to move them all **down** one table cell to the beginning of MIK **public**-side rows.

- The bind-offs and edge decreases in the **right** portion of the chart are one table cell too **low**, so we need to move them all **up** one table cell to the beginning of MIK **private**-side rows.

We will therefore move all the stitch symbols down one table cell in the left portion of the chart and up one table cell in the right portion.

Sloth Doesn't Pay

Since I was lazy when I typed up the chart originally, the symbols for each row are all in one table column, with spaces between the two groups of symbols to spread them apart and a handful of spaces elsewhere to force alignment between symbols on adjacent rows.

So first I need to put each underarm's symbols in its own table column, and I'll put a blank table column between them as well.[1] Since each portion is now in its own table column, I set the left portion's column to be right-justified and the right portion's to be left-justified. No space characters are therefore needed to move the stitch symbols toward the middle of the chart.

The adjustments we're about to do are just one more reason to type up computer charts in multi-column, multi-row tables from the very beginning.

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[1] See part four's "Converting Charts to Multi-Column Tables" for one way to quickly move each symbol group into its own table column.

	Multi-Column Chart with Row Numbers Swapped and Boxed Stitch Labels Reversed	

Each shaping area is now in its own column, so, working with each underarm's shaping individually, we move the entire set of symbols down or up one cell.

Move the Left Portion Down

We move down by one table cell the entire group of symbols in the left portion of the chart. Don't do what I did, which was move the row numbers also! We move only the stitch symbols, because we need their shaping to fall at the beginning of the public-side rows.

We select the entire set of stitch symbols, including the boxed stitch labels

make a copy of them (with the menu entry Edit | Copy or the keystroke Ctrl-c), and press Delete (or Backspace) to empty the cells. Then we click in the cell of the final public-side shaping row

	Left Portion in Progress, Right Portion Still Wrong		
		☐☐	**16**
15		☐☐	
		☐☐☐	**14**
13		☐☐☐	
		☐☐☐☐	**12**
11		☐☐☐☐	
		☐☐☐☐☐	**10**
9		☐☐☐☐☐	
		☐☐☐☐☐☐	**8**
7		☐☐☐☐☐☐	
		☐☐☐☐☐☐☐	**6**
5		☐☐☐☐☐☐☐	
		☐☐☐☐☐☐☐☐	**4**
3		☐☐☐☐☐☐☐☐	
		☐☐☐☐☐☐☐☐☐	**2**
1		☐☐☐☐☐☐☐☐☐	
		☐☐☐☐☐☐☐☐☐☐☐☐	**a**
		77 78 79 80 81 82 83 84 85 86 87 88 89 90 91	

and paste (with Edit | Paste or Ctrl-v).[2] My word processor automagically added an extra row at the bottom of the table for me since I was pasting one more cell than the column already had. Make sure your word processor doesn't lose that bottom cell when you paste.

If we had lost what are here the boxed stitch labels, it of course would not have been a big deal. But if that cell had included part of a stitch pattern, showing symbols for anything other than one-color stockinette, we need to make sure we don't lose those symbols when we move this part of the chart.

Your word processor may also allow you to simply click and drag the entire set of selected symbols down one table cell instead of having to do multiple steps with the Edit menu or keyboard shortcuts.

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[2] Instead of copying and deleting the symbols as two separate steps, we can "cut" them (with Edit | Cut or Ctrl-x). Cutting characters places them on the "clipboard" so they can be pasted back in elsewhere. Pressing Delete or Backspace simply throws them away, forcing us to (1) re-type them or (2) undo the deletion (with Edit | Undo or Ctrl-z), cut them, click in the correct cell, and paste.

Left Portion Shaping Shifted, Right Portion Still Wrong

			1 6
1 5			
			1 4
1 3			
			1 2
1 1			
			1 0
9			
			8
7			
			6
5			
			4
3			
			2
1			
			a

Bottom column numbers (left portion): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Bottom column numbers (right portion): 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

The bind-offs are now on our first public-side row in locations one through six, and the decreases we do at the beginning of the next seven public-side rows are also now in the correct places.

Move the Right Portion's Symbols Up

We fix the underarm shaping at the beginning of the private-side rows by moving their symbols up one table cell. Again, don't do what I did, which was move both the symbols and the row numbers. We move only the symbols so that the bind-offs and decreases are properly positioned at the beginning of the private-side rows.

We'll first remove the symbols already in the last private-side shaping row, because they may cause unexpected results when we try to move the rest of the shaping up.

	Left Portion Shaping Shifted, Right Portion in Progress		16
15			14
13			12
11			10
9			8
7			6
5			4
3			2
1			a
		77 78 79 80 81 82 83 84 85 86 87 88 89 90 91	
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		

We select the right portion's shaping symbols and boxed stitch labels

	Left Portion Shaping Shifted, Right Portion in Progress		16
15			14
13			12
11			10
9			8
7			6
5			4
3			2
1			a
		77 78 79 80 81 82 83 84 85 86 87 88 89 90 91	
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		

make a copy, press Delete or Backspace (or cut instead of copying and deleting)

	Left Portion Shaping Shifted, Right Portion in Progress			16
15				14
13				12
11				10
9				8
7				6
5				4
3				2
1				a
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			

click in the cell that should have the final private-side underarm shaping

	Left Portion Shaping Shifted, Right Portion in Progress			16
15				14
13				12
11				10
9				8
7				6
5				4
3				2
1				a
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			

and paste.

Your word processor may also allow you to click and drag the selected symbols to their new locations.

Both Portions Shifted

The chart now shows that the first six stitches of row two are bound off and that the decreases at the beginning of the private-side rows are in the correct places.

Final Tweaks

Now we have to do a bit of cleaning up so we have stitch symbols in all the proper places. The boxed stitch labels currently in foundation row A in the right portion of the chart

need to be moved down one table cell so the proper row A stitch symbols can be put there.

Since we're initially doing this vest in one-color stockinette, foundation row A before the underarm shaping starts will have all public-side knits, so we click in the empty cell

	3																		
																			2
	1																		
																			a
											77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

and type k fifteen times.

	3																		
																			2
	1																		
																			a
											77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

If we're making the vest in something other than plain, one-color stockinette, then foundation row A might need different symbols. In the section "When There's a Stitch Pattern," we'll look in detail at such a situation.

We move the boxed stitch labels one through fifteen

	3																		
																			2
	1																		
																			a
											77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

up one cell, replacing the stitch symbols already there.

	3																		
																			2
	1																		
																			a
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91

Then we delete the bottom, now empty, table row.

We'll also fill in the end of row sixteen, so it ends at the beginning of row fifteen.

Underarm Shaping Shift Complete

The final underarm shaping chart shows how all the shaping has been adjusted by just one row on each edge. It now has the exact layout you need as an MIK when you pick up needles and yarn, and it applies to both the back and front of the vest.

Mirror-Image Knitter Final Underarm Shaping Chart

	Left columns	Right columns	
			16
15			
			14
13			
			12
11			
			10
9			
			8
7			
			6
5			
			4
3			
			2
1			
			a
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	77 78 79 80 81 82 83 84 85 86 87 88 89 90 91	

- Row A is the final private-side row before you start the underarm shaping.

- In rows one and two, the blank area above the last six stitches of the previous row indicates that you bind off those stitches, just as the written-out instructions in "The Basic Vest" indicate.

- In the fourteen remaining underarm shaping rows, rows three through sixteen inclusive, you decrease one stitch at the beginning of each row, which again matches the instructions in "The Basic Vest."

When you complete the sixteen rows of the underarm shaping, you'll have removed a total of thirteen stitches on each side, exactly as directed by the written-out instructions.

Adding Explicit Shaping Symbols

Some of us—*cough*—might need, or even just want, explicit bind-off and/or decrease symbols in addition to the blank areas, especially if we constructed the original traditional knitter chart according to the suggestion at the end of the main chapter to show shaping only with blank areas.

If so, we have **now** reached the point where we simply add our preferred bind-off symbols at the beginning of those rows. We likewise can **now** easily change the appropriate stitch symbols to show the exact decreases we want to do in the exact locations we want to do them.

If, for example, we prefer to work decreases two stitches from the edge, we change the third symbol on the decrease rows.

	Mirror-Image Knitter Final Underarm Shaping Chart	

(chart)

Note that we had to add one more stitch at the inner ends of the chart rows so we could put the decrease symbols in the proper places in the last two underarm shaping rows.

In this example, the decreases will be quite noticeable because they're running parallel to the fabric edge. See part one's "Decreases" for details on making them prominent or mini-mizing them.

Lesson Learned for Mirror-Image Knitters

> If we want to show explicit bind-off and decrease symbols in a chart, it's better to construct the traditional knitter chart **without** those special symbols, then make all the MIK shap-ing changes in the usual way. At that point, we can finally add our preferred bind-off symbols in the blank areas at the beginning of the necessary rows, and we can replace stitch symbols with the exact type of decreases we want to use in the exact places we want to work them.

Front Neck Shaping

We'll look at a partial chart for traditional knitters, showing just the first eight rows of the front neck to keep the charts reasonably short.

Traditional Knitter Partial Front Neck Shaping Chart

```
8                                                                    7
6                                                                    5
4                                                                    3
2                                                                    1
a
68|67|66|65|64|63|62|61|60|59|58|57|56|55|54|53|52|51|50|49|48|47|46|45|44|43|42|41|40|39|38|37|36|35|34|33|32|31|30|29|28|27|26|25|24
```

Here's the chart with all the MIK labeling changes, swapping the row numbers and reversing the direction the boxed stitch labels run.

Row Numbers Swapped and Boxed Stitch Labels Reversed

```
7                                                                    8
5                                                                    6
3                                                                    4
1                                                                    2
                                                                     a
24|25|26|27|28|29|30|31|32|33|34|35|36|37|38|39|40|41|42|43|44|45|46|47|48|49|50|51|52|53|54|55|56|57|58|59|60|61|62|63|64|65|66|67|68
```

Do we need to shift the shaping?

In this particular project, there are no adjustments needed for the V-neck itself, since both traditional and mirror-image knitters decrease one stitch at the neck edges on public-side rows. Since the neckline ends of the public-side rows are in the exact same places in both the traditional and the mirror-image knitter charts, their shaping doesn't shift.

Shoulder Shaping

The shoulders, however, do need to be adjusted. Let's start with the traditional knitter shoulder shaping chart, including the project row numbers we determined based on the example underarm depth and row gauge used in the main chapter.

As we saw there, if we're using only blank areas for bind-offs, then in a succinct chart, the last two rows of the chart can look a bit odd. We'll use boxed X symbols here to remind us to bind off the first three stitches of the last two rows of the shoulder shaping. To make it perfectly clear that we bind off the first three stitches of row sixty-five, we'll include our "foundation" row sixty-four in the chart.

Traditional Knitter Shoulder Shaping Chart		

(chart: Traditional Knitter Shoulder Shaping Chart)

Left portion bottom stitch labels: 78 77 76 75 74 73 72 71 70 69 68 67
Right portion bottom stitch labels: 25 24 23 22 21 20 19 18 17 16 15 14

Row numbers left edge: 72, 70, 68, 66, 64
Row numbers right edge: 71, 69, 67, 65

Our first step is to swap the row numbers and run the boxed stitch labels in the other direction. Again, this pair of changes is optional, but there are benefits in making them.

Row Numbers Swapped and Boxed Stitch Labels Reversed		

(chart: Row Numbers Swapped and Boxed Stitch Labels Reversed)

Left portion bottom stitch labels: 14 15 16 17 18 19 20 21 22 23 24 25
Right portion bottom stitch labels: 67 68 69 70 71 72 73 74 75 76 77 78

Row numbers left edge: 71, 69, 67, 65
Row numbers right edge: 72, 70, 68, 66, 64

As before, row sixty-five is still row sixty-five, so the row numbers stay in the same table row. They simply move to the other edge of the chart.

We do the same thing we did at the underarms: move the left portion's stitch symbols down one table cell and the right portion's up one table cell. Again, don't do what I did, which was move the row numbers along with the symbols.

Both Portions Shifted

				72
71	☒☒☒		☒☒☒	
				70
69				
				68
67				
				66
65			67 68 69 70 71 72 73 74 75 76 77 78	64
	14 15 16 17 18 19 20 21 22 23 24 25			

Now we need to do the same bit of clean-up that we did for the underarm shaping. We move the boxed stitch labels out of the right portion of row sixty-four and fill in that table cell with stitch symbols. Since the vest is plain old stockinette, we need twelve knit symbols there. We move the boxed stitch labels down one cell and type k twelve times in the newly empty cell above them.

				72
71	☒☒☒		☒☒☒	
				70
69				
				68
67				
				66
65				64
			67 68 69 70 71 72 73 74 75 76 77 78	
	14 15 16 17 18 19 20 21 22 23 24 25			

In the left portion, we need to remove the symbols below row sixty-four and put the stitch labels in their place. That empties the bottom table row, so we delete it.

Mirror-Image Knitter Final Shoulder Shaping Chart

14	15	16	17	18	19	20	21	22	23	24	25		67	68	69	70	71	72	73	74	75	76	77	78		

Row numbers (left): 71, 69, 67, 65. Row numbers (right): 72, 70, 68, 66, 64.

Sometimes Shapings Don't Have to Move

For the underarm curve shaping, "The Basic Vest" told us to decrease at the beginning of fourteen consecutive rows, which of course alternate between the public and private sides. Since the beginning of those fourteen traditional knitter rows all became the end of our mirror-image knitter rows when we swapped the row numbers and reversed the boxed stitch labels, the decreases had to be moved down or up to occur in the correct places.

But what if "The Basic Vest" instructions had said "Decrease one stitch at each end of the next seven public-side rows"? Let's look at that shaping variation in detail, starting with the traditional knitter chart with the as-written shaping.

Traditional Knitter Underarm Shaping Chart with Decreases at the Beginning of Fourteen Consecutive Rows

91	90	89	88	87	86	85	84	83	82	81	80	79	78	77		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Row numbers (left): 16, 14, 12, 10, 8, 6, 4, 2, a. Row numbers (right): 15, 13, 11, 9, 7, 5, 3, 1.

We first alter this chart to show the new version of the instructions. The decreases in the

left portion must all be done at the end of the public-side rows instead of at the beginning of the private-side rows. We simply delete a symbol at the end of each public-side row.

Traditional Knitter Underarm Shaping Chart with Decreases at Both Ends of the Public-Side Rows

Row labels (left side, top to bottom): 16, 14, 12, 10, 8, 6, 4, 2, a
Row labels (right side, top to bottom): 15, 13, 11, 9, 7, 5, 3, 1

Bottom column labels (left block): 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77
Bottom column labels (right block): 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

When we compare the two charts, they don't substantially change. In seven places, one stitch moved one row at the edge of the fabric. Unless we're working with very thick yarn, these shaping changes almost certainly won't be noticeable in the final garment.

We now adjust the row numbers and boxed stitch labels to transform that version of the chart to the way we work.

Mirror-Image Knitter Row Numbers and Boxed Stitch Labels with Decreases at Both Ends of the Public-Side Rows

Row labels (left side, top to bottom): 15, 13, 11, 9, 7, 5, 3, 1
Row labels (right side, top to bottom): 16, 14, 12, 10, 8, 6, 4, 2, a

Bottom column labels (left block): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Bottom column labels (right block): 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

Note that changing the instructions for the curve decreases did **not** affect the bind-offs at the beginning of the first two underarm rows.

If we're unwilling to break the yarn to do the bind-offs that are still positioned at the end of those rows, we'll need to move the bind-offs the way we did before.

🧶 We remove the first six symbols from row one to show the bind-offs there.

🧶 There are no stitches at the beginning of row two for us to bind off, because there aren't any symbols at the end of row one. So we add six symbols at the end of row one.

Mirror-Image Knitter Final Underarm Shaping Chart with Decreases at Both Ends of the Public-Side Rows

Since the locations of the beginning and end of rows three through sixteen didn't move, then the only chart changes we must make are moving the bind-offs to the beginning of rows one and two.

Row one wasn't long enough when we moved the bind-offs up in the right portion of the chart, so we had to add symbols to fill in the gap. Since the vest is plain, one-color stock‐inette, we just needed public-side knit symbols.

When we compare this chart to the one that shows all the as-written instructions moved to their MIK locations, we again see that there are no real differences to speak of.

Change Shaping to Eliminate Some MIK Tweaks

If we so choose, we could do some minor alterations to the written-out instructions to mini‐mize the number of MIK chart changes. As noted before, there would be few situations

where adding or losing a stitch, or binding off several stitches, one row earlier or later would cause problems.

There are at least two things we might be able to do.

Do Decreases at Both Ends of Every Other Row

We can probably alter decreases at the beginning of several consecutive rows to decreasing at both ends of every other row, exactly as we did just now with the underarm shaping. And in many projects, it really wouldn't matter whether we did the paired decreases on the public- or private-side rows.

One reason to make this change is so that we don't have to do anything on the private side except work back evenly, giving us an "Ahhh" moment every other row, at least as far as the shaping is concerned.

Leave the Shaping Where It Is

We could also just leave the underarm curve decreases where they are in the traditional knitter chart. For this and many other projects, there's no cast-iron imperative to decrease at the **beginning** of those fourteen rows, as the instructions say. We could just as easily work those decreases at the **end** of our fourteen MIK rows without any negative consequences.

If there are bind-offs in the shaping, we have to weigh our willingness to break the yarn to secure the final stitch if we leave the bind-offs at the end of our rows. If we don't want to break the yarn, we move only the bind-offs down or up in the usual way.

If We're Unsure

Sometimes our knitting imagination won't be able tell us whether or not we'd have an issue in a particular project if we left the shaping where it is for traditional knitters. In those projects, we chart the instructions as a traditional knitter would, then make our full set of changes as already described.

When There's a Stitch Pattern

When we altered "The Basic Vest" traditional knitter chart to the MIK version, it was easy to move the left portion's symbols down one table cell and the right portion's symbols up one table cell without any real trouble, because the vest is one-color stockinette.

But what if a project uses some kind of stitch pattern, whether texture or color?

In those cases, we have to make sure that when we shift the shaping, we either don't disrupt the stitch pattern or that we restore it correctly.

Two Options

Since moving the entire set of shaping rows also moves the stitch pattern to what is almost certainly going to be the wrong place, we have two options.

- 🧶 We move the shaping rows with the technique we've already learned, then fix the stitch pattern.

- 🧶 We move just the shaping, which leaves the bulk of the stitch pattern intact, by adjusting the amount of blank space at the ends of each row.

Which option we choose depends largely on how complicated the stitch pattern is and how many stitches and rows are involved in the shaping.

If the stitch pattern is just lightly sprinkled over the fabric, it might be quicker to move the shaping rows as we've already done, then fix the stitch pattern. If the stitch pattern is fairly complicated, it might be easier to just fix the ends of the rows. If the garment is 3XL, which means we have to deal with lots of stitches and rows with either option, well… We may not be able to tell which option will require less work, so we'll just have to flip a coin.

Move Both Shaping Areas Using Both Options

We already know from moving the shapings in the plain old stockinette vest that we don't shift the front neck's shaping, which means we won't need to look at it here, either. So we only need to work through the underarm and shoulder shapings using both options.

Just because the symbol used for the stitch pattern is what's usually been defined elsewhere in the book as a public-side purl, it can also represent a different color knit against a background color of stockinette, as we saw in part one's "Colorwork."[3]

Option 1: Shift the Entire Shaping Area

For each area, we start with the traditional knitter chart and add some randomly placed purl diamonds.

Underarm Shaping

The traditional knitter chart now has a stitch pattern.

---

[3] Or it could mean "yo–K2tog" or…

Traditional Knitter Underarm Shaping Chart with Stitch Pattern

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	a

(Left portion columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 · Right portion columns: 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91)

We make the initial MIK changes: swapping the row numbers, reversing the boxed stitch labels, then shifting the left portion's symbols down one cell and the right portion's symbols up one cell. We won't show any of the intermediate charts, since we already know how to make these initial changes.

Remember, "left portion" means the left portion of the **chart** as we're looking at it, not the left portion of either the back or the front of the garment.

Shaping Shifted, Stitch Pattern Wrong

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	a

(Left portion columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 · Right portion columns: 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91)

all the purl diamonds in the left portion are one cell lower than they should be, and those in the right portion are one cell too high.

We'll correct the stitch pattern row by row, selecting each incorrect symbol one at a time and changing it.

Fix the Left Portion's Stitch Pattern

Since we shifted the entire left portion down one table cell, we have to move just the stitch pattern symbols up one cell. We have to correct each cell's pattern symbols using the symbols in the cell below it, so we need to correct the left portion from top to bottom. If we tried to work from bottom to top, we'd wind up replacing symbols before we used them to fix the cell above.

We've already adjusted the ends of the rows to put the shaping exactly where it needs to be, so we will not change the blank areas as we correct the stitch pattern.

Row Fifteen

We use row fourteen to correct row fifteen. We've already moved all the shaping, so we don't alter the blank area at the left end of the row. Both stitches are knits above knits

so we make no changes at all on the final public-side shaping row.

Row Fourteen

We add row thirteen to the chart to correct row fourteen. Stitch fifteen is a knit above a knit, so we leave it alone.

Stitches thirteen and fourteen are a purl and a knit above a knit and a purl, so we change both.

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Row Thirteen

We need to look at row twelve to see what changes row thirteen needs. We leave the blank area at the beginning of the row alone, because the shaping is already correct.

Stitch thirteen is a knit above a knit, so it doesn't change. The other two symbols on row thirteen are the opposite of the symbols directly below them. That means we change stitches fourteen and fifteen.
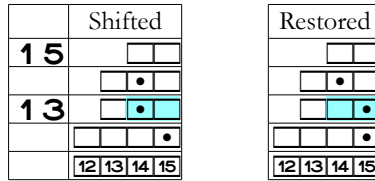
Row Twelve

We use row eleven to see what changes to make on row twelve.

Stitches fourteen and fifteen are different from what's below them, so we change them.
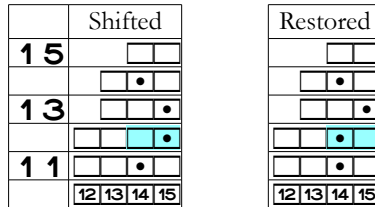
Stitches twelve and thirteen are knits above knits, so there's nothing else to change.

Row Eleven

When we add row ten to the chart, we see immediately that we need to change stitches thirteen and fourteen.
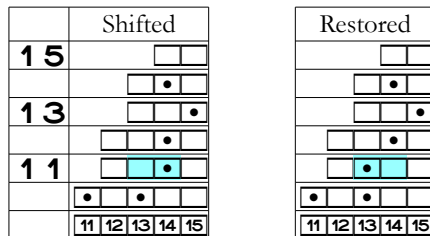
We don't change the other two symbols, which are knits above knits, nor do we add a symbol at location eleven, because the blank area represents the decrease at the beginning of the row.

Row Ten

To correct row ten, we have to use the symbols on row nine.

Stitches eleven, fourteen, and fifteen are knits above knits, so they don't change. But we do have to change stitches twelve and thirteen, because they're a knit and a purl above a purl and a knit.

Finish Restoring the Left Portion's Stitch Pattern

We would continue in this way, either using a theoretical chart or just imagining how the stitch pattern would expand, then changing any symbols that are different from those directly below them.

For this particular combination of stitch pattern and project size, we wound up not needing to use the theoretical chart we made before we started. In other projects, a theoretical would be very useful.

Copy and Paste Instead

The purl diamond pattern is simple, so it was easy to just select and type over the incorrect symbols. If the pattern is more complex, or if more of the project's width is charted, it may be quicker and more accurate to select and copy the correct symbols, select the incorrect symbols, then paste.

Compare the Charts to Look for Errors

When we finish correcting the entire stitch pattern in the left portion of the chart, we can compare it with the traditional knitter and shifted shaping charts to check our work. The restored pattern symbols are all in the same places as in the traditional knitter chart, and the blank areas are all in the same places as in the shifted shaping chart. The traditional knitter chart has its boxed stitch labels reversed to make the task easier.

Since the end of row sixteen would continue to row fifteen's first stitch, we can add those extra symbols to continue the stitch pattern. In this case, they happen to both be public-side knits.

Charting Rule for Mirror-Image Knitters

> When we move an entire shaping area in the **left** portion of a chart **down** one cell, we need to correct stitch pattern symbols in each cell by changing them to the symbols directly beneath them in the cell **below**. We therefore make stitch pattern corrections in the left portion of the chart **starting from the top** and working downwards.

Fix the Right Portion's Stitch Pattern

In the right portion of the chart, we moved all the symbols up one cell to put the blank areas in the proper locations. We have to move the stitch pattern back down one cell, so the stitch pattern symbols all need to be adjusted based on the symbols in the cell above them.

The right portion must therefore restored in the opposite direction compared to the left portion, so we work from bottom to top.

Theoretically…

We've already adjusted the ends of the rows to exactly where they need to be, so we will not change the blank areas as we correct the stitch pattern. We do, however, need to know what the stitch pattern symbols **would have been** had there been no shaping in the chart. We have at least three ways to figure that out, though there's a bit of overlap between them.

🧶 We imagine what symbols would be there if we had more stitches and rows.

🧶 We add the theoretical symbols to the shifted shaping chart.

🧶 We type up a completely separate theoretical chart.

We'll add the theoretical stitch pattern symbols to the shifted shaping chart, so that we kill two birds with one stone: showing the theoretical symbols and repeating the shifted shaping chart so we don't have to flip back through so many pages.

Orange highlighting shows the extra symbols we added to complete one diamond.

Shaping Shifted, Pattern Wrong

Boxed Stitch Labels

We moved even the boxed stitch labels up when we shifted the entire underarm shaping, so now we'll add a table row below chart row A.

We select the entire group, cut it (with Ctrl-x), click in row A, and paste it (with Ctrl-v), or we can simply drag it down one cell.

We could also copy and paste, but that leaves the group in its old cell. To minimize con-fusion, the restored column in the charts will "show" that we cut because that old cell will be empty.

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Foundation Row A

Since this cell has no blank shaping area we must protect, we can move the entire group down to row A. We select it, then cut and paste it, or we simply drag it down one cell.

Shifted	Restored
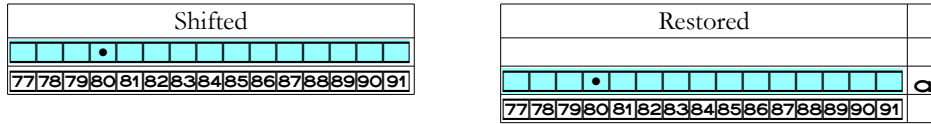
Row One

We cut the symbols on row two and paste them in the empty cell below them, keeping them in the exact same locations. We can also just drag the entire selected group down one cell.

Shifted	Partially Restored
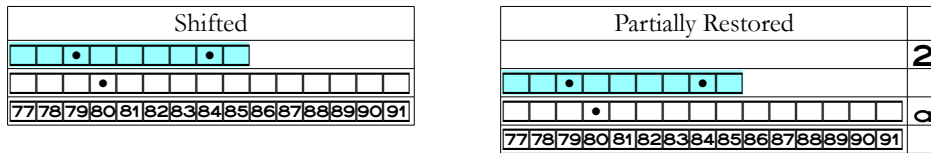
We need six more symbols at the end of row one so that we have stitches to bind off at the beginning of row two.

Shifted	Partially Restored

We have to look all the way back at the right portion of the traditional knitter chart. There we see all knit symbols in locations eighty-six through ninety-one on row A, so we fill in the rest of row one with knit symbols to restore the stitch pattern.

Shifted	Restored

Row Two

We need to put in locations seventy-seven through eighty-five the stitch pattern symbols we see in row three. We select and cut them, click in row two, and paste to restore the pattern stitches all at once. We can also drag the entire group of selected symbols to the proper cell.

The blank area at the beginning of row two is six stitches wide, showing us how many stitches we're supposed to bind off there. We leave it as is.

Row Three

Row four has the first decrease at the beginning of a private-side row. We cut all the symbols in row four and paste them in row three, or we just drag them down.

That takes care of stitches seventy-seven through eighty-four. What do we do about location eighty-five, which we have to fill in to make row three end with the first live stitch after the row two bind-offs?

Since we don't have a stitch pattern symbol there on row four, we have to do one of the options to expand the stitch pattern. When we look at the theoretical stitch symbols we added at the beginning of the section, we see that stitch eighty-five on row four is one of this diamond's interior knits.

We could also have figured out the proper symbol without the theoretical chart, because we know that stitch eighty-six, if we'd needed it, would have been another purl on this diamond's lower right edge. The stitch to its left would therefore have been an interior knit.

Row Four

To correct the stitch pattern after the decrease at the beginning of the row, we cut the symbols above them in row five and paste them in the same locations. We can also drag the entire selected group down one cell.

We do not change the blank area at the beginning of the row, because the shaping is already correct.

Row Five

We need to move the symbols from locations seventy-seven through eighty-three on row six straight down to the same locations on row five.
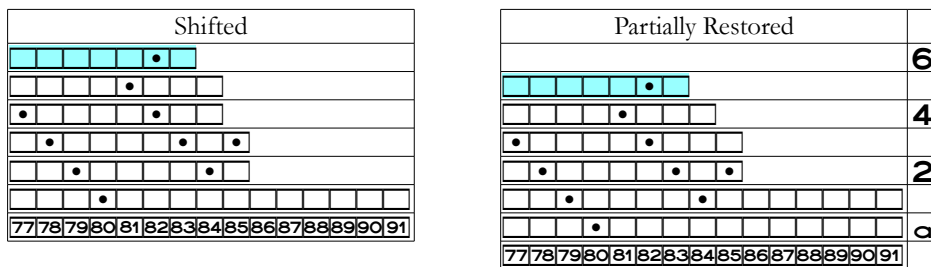
We also need to extend the end of row five by one stitch, to the first stitch on row four.

Our theoretical chart shows us that stitch eighty-four on row six would have been one of that diamond's interior knit stitches.

Shifted		Restored	

As before, we could have corrected row five without the theoretical chart because of the simplicity of the stitch pattern. Since the diamond's left point is in stitch eighty-one, the stitch above and to the right is a purl to continue that diamond's upper left edge. The two stitches to the right of that stitch must be two of the three knits between the top edges of the diamond, so we needed to add one knit symbol to the end of the row.

Row Six

We move the symbols in locations seventy-seven through eighty-three straight down from row seven.

Shifted		Restored	

Row six starts one stitch later than the end of row five, so its shaping is already correct.

Row Seven

Row eight's symbols are cut, then moved straight down to the corresponding locations in row seven. We can also select them, then drag them down.

Shifted | Partially Restored

77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

8
6
4
2
a

77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

When we look at the theoretical chart for row eight, we see that stitch eighty-three would have been a knit, so we need to add that symbol in row seven to both correct the location of the end of the row and to expand the stitch pattern there.

Theoretical | Restored

77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

8
6
4
2
a

77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

If we had needed a stitch at location eighty-four on row seven, it would have been the purl making that diamond's top point.

Finish Restoring the Right Portion's Stitch Pattern

We would continue making these changes all the way up through row sixteen.

Stitch Pattern Restored		

Chart: Stitch Pattern Restored — rows labeled 16, 14, 12, 10, 8, 6, 4, 2, a (right side), columns numbered 77 through 91 (bottom).

Compare the Charts to Look for Errors

To check our work, we can compare the right portion of our final chart side by side with the same portions of the traditional knitter and shifted shaping charts. The traditional knitter chart has the MIK boxed stitch labels to make the task easier.

Three side-by-side charts: "Traditional Knitter" (rows labeled 15, 13, 11, 9, 7, 5, 3, 1 on left; columns 77–91), "Shifted Shaping" (columns 77–91), and "Pattern Restored" (rows labeled 16, 14, 12, 10, 8, 6, 4, 2, a on right; columns 77–91).

The corrected chart has the stitch pattern in the same places as the traditional chart, and it has the shaping in the same places as the shifted shaping chart.

Charting Rule for Mirror-Image Knitters

> When we move an entire shaping area in the **right** portion of a chart **up** one cell, we need to correct stitch pattern symbols in each cell by changing them to the symbols directly atop them in the cell **above**. We therefore make stitch pattern corrections in the right portion of the chart **starting from the bottom** and working upwards.

The Complete Underarm Shaping Chart

Let's put both underarm shapings together.

Option 1 Mirror-Image Knitter Final Underarm Shaping Chart with Stitch Pattern	
	16
15	
	14
13	
	12
11	
	10
9	
	8
7	
	6
5	
	4
3	
	2
1	
	a

Left columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Right columns: 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

The shaping is all now at the beginning of our rows while the purl diamonds are still in the same places.

Shoulder Shaping

Here's the traditional knitter chart with some randomly placed purl diamonds. Just as we showed "foundation row A" on the underarm chart, we'll show "foundation" row sixty-four here.

Traditional Knitter Shoulder Shaping Chart with Stitch Pattern

	78	77	76	75	74	73	72	71	70	69	68	67			25	24	23	22	21	20	19	18	17	16	15	14	
72							×	×	×																		
								•						**71**	×	×	×										
70									•							•											
										•				**69**		•											
68						•		•		•						•				•							
								•		•				**67**			•		•								
66			•					•		•								•				•					
				•		•			•					**65**						•							
64		•			•			•													•					•	

We'll skip straight to the chart with the MIK label adjustments and the shaping shifted to move the bind-offs to the beginning of all eight rows.

Shaping Shifted, Stitch Pattern Wrong

	14	15	16	17	18	19	20	21	22	23	24	25			67	68	69	70	71	72	73	74	75	76	77	78	
															×	×	×										**72**
71							×	×	×							•											
								•								•											**70**
69									•							•			•								
								•									•		•								**68**
67						•		•		•								•			•						
								•		•									•								**66**
65			•					•		•										•					•		
				•		•			•																		**64**
		•			•			•																			

Once again, my word processor automagically added an extra table row when I moved the left portion down, because I pasted in one more cell than the table had. If your word processor loses that final cell's symbols, you'll need to copy and paste it, or just retype it, from the full chart.

Fix the Left Portion's Stitch Pattern

The blank areas indicating the bind-offs are in the correct places, but the stitch pattern isn't. For the left side, the charting rule tells us that we correct the stitch pattern from top to bottom to move the pattern symbols back up one row, changing any stitch pattern symbol that's not the same as the one directly underneath it.

Row Seventy-One

Since we're binding off the three stitches we see, we don't have to bother with stitch pattern

corrections. When an edge will show, as on a blanket or scarf, we ordinarily bind off "in pattern" instead of simply knitting every stitch as we go. This edge will be hidden in a seam, so we don't have to fuss.

Row Seventy

We use row sixty-nine to restore row seventy. Stitch twenty-five is a knit above a knit, so it doesn't change. But stitches twenty-three and twenty-four are both the opposite of their counterparts below them, so they both change.

Row Sixty-Nine

When we add row sixty-eight to the table, we see a knit on a purl, a purl on a knit, and a knit on a knit. We change the first two and leave the third one alone.

Note that we don't fill in the blank area in locations twenty through twenty-two, because we're supposed to bind those stitches off when we start the row.

Row Sixty-Eight

After we put row sixty-seven in place, we can see immediately what we need to do. We need to change four of the six symbols, leaving alone those at locations twenty-one and twenty-four because they're knits on top of knits.

As we saw before, we can select and copy the entire group of correct symbols, select the entire group of incorrect symbols, then paste. Depending of the length of the chart row

and/or the complexity of the stitch pattern, copying and pasting the entire group may be easier than fixing the incorrect symbols individually.

Finish Restoring the Left Portion's Stitch Pattern

We do the same steps on the rest of the left portion rows.

	Pattern Restored										
71									☒	☒	☒
										•	
69									•		
						•		•			•
67						•				•	
			•						•		
65			•					•			
		•				•				•	
	14	15	16	17	18	19	20	21	22	23	24	25

Including row sixty-four makes it perfectly clear that the blank area at the beginning of row sixty-five does indeed mean we bind off three stitches. Succinct charts can look a bit deceiving on the last two rows, so the boxed X symbols make the final shaping in this portion of the chart completely unambiguous.

Compare the Charts to Look for Errors

When we compare the traditional knitter and shifted shaping charts to our final result

Traditional Knitter	Shifted Shaping	Pattern Restored

we can see that the stitch pattern is back in all the correct places while the shaping has been moved to where it needs to be. (As before, the traditional knitter chart uses the MIK boxed stitch labels to make double-checking easier.)

Fix the Right Portion's Stitch Pattern

Here's this portion of the shifted shaping chart again.

Shaping Shifted, Pattern Wrong												
⊠ ⊠ ⊠												**72**
•												
•												**70**
•		•										
•	•											**68**
•		•										
•												**66**
•						•						
67 68 69 70 71 72 73 74 75 76 77 78												

Since the entire area was moved up one row to make the bind-offs occur at the begin-ning of the private-side rows, the stitch pattern symbols need to be moved back down one row. In this portion, we work from bottom to top according to our charting rule, checking each pattern symbol against the one directly above it. If they're the same symbol, we make no change. If they're different, we change the bottom symbol.

Determine the Theoretical Pattern Symbols

Stitch seventy-two is the diamond's left point in row sixty-five, and the diamond's right point is stitch seventy-eight. The top point would therefore be in location seventy-five on row sixty-eight. The new theoretical pattern symbols have an orange highlight.

Theoretical Symbols Added to the Shifted Shaping Chart												
⊠ ⊠ ⊠												**72**
•												
•												**70**
•		•										
•	•											**68**
•		•										
•						•						**66**
•						•						
67 68 69 70 71 72 73 74 75 76 77 78												

Now we're ready to move all the pattern symbols down one cell.

Row Sixty-Five

We need to copy all the symbols in row sixty-six and paste them straight down in the same locations. We delete the last three symbols, because we know they're wrong.

Shifted	Partially Restored

We know we need to add stitch pattern symbols at the end of the row, because those are the stitches we'll bind off at the beginning of row sixty-six, the first private-side shoulder shaping row.

When we look at the theoretical symbols in the shifted shaping chart, we see that we need one more interior knit at location seventy-six, then the upper right edge purl to its right.

Theoretical	Partially Restored

The theoretical chart has no symbol at location seventy-eight on row sixty-six. But we do see this diamond's entire upper right edge. It seems reasonable to assume there wouldn't be another diamond slap up against this one, which means we need a background knit as the very last stitch on the row.

Shifted	Restored

Row Sixty-Six

We use row sixty-seven to correct row sixty-six's stitch pattern by copying and pasting its entire group of symbols straight down.

Shifted	Partially Restored

Since the bind-offs we're supposed to do on the first three stitches are already there,

shown by the blank area in locations seventy-six through seventy-eight, we're actually done with row sixty-six.

Row Sixty-Seven

After we add row sixty-eight to the shifted shaping chart, we copy all of its symbols straight down. We delete the three symbols at the end of the row, because they're not the correct symbols for the stitch pattern.

Shifted		Partially Restored	
			68
			66
67 68 69 70 71 72 73 74 75 76 77 78		67 68 69 70 71 72 73 74 75 76 77 78	
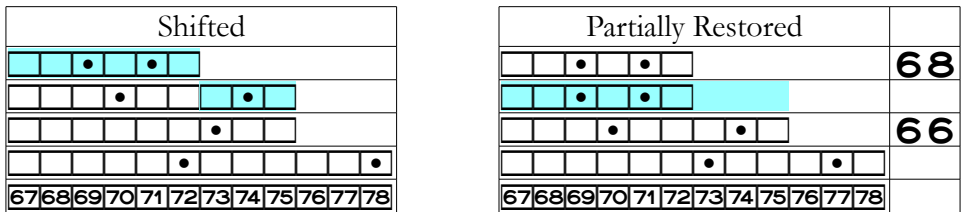
We need to add the correct three stitch pattern symbols, which will be the stitches we'll bind off at the beginning of row sixty-eight.

Theoretical		Partially Restored	
			68
			66
67 68 69 70 71 72 73 74 75 76 77 78		67 68 69 70 71 72 73 74 75 76 77 78	
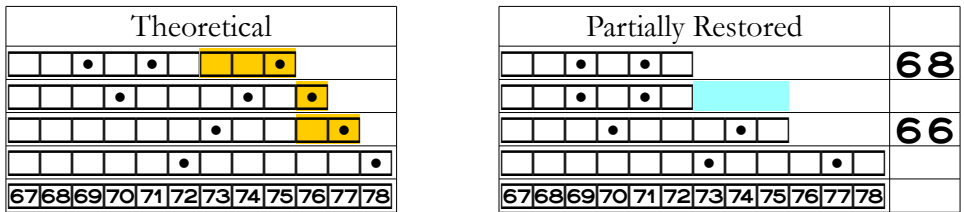
We see in the theoretical chart that we should have a purl in location seventy-five, because we need to extend this diamond's upper left edge. We also need the two knits that serve as background stitches between the two partial diamonds we see in these rows.

Theoretical		Restored	
			68
			66
67 68 69 70 71 72 73 74 75 76 77 78		67 68 69 70 71 72 73 74 75 76 77 78	
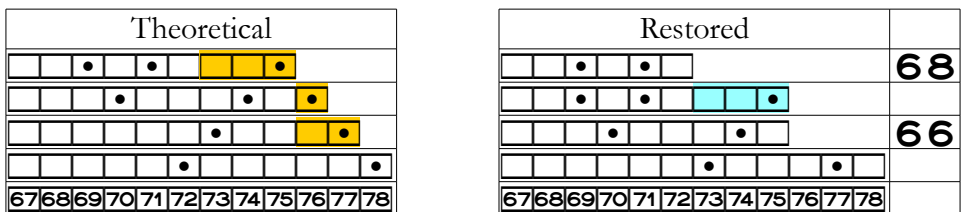
Row Sixty-Eight

We need to add row sixty-nine to our shifted shaping chart. Once again, we copy all the symbols in the shifted row sixty-nine straight down to partially restore the stitch pattern on row sixty-eight.

Shifted											
	•				•						
		•		•							
			•				•				
					•						
					•						•
67	68	69	70	71	72	73	74	75	76	77	78

Partially Restored												
	•				•							**68**
		•		•				•				
			•				•					**66**
					•				•			
67	68	69	70	71	72	73	74	75	76	77	78	

Because we do bind off the first three stitches of the row, row sixty-eight is actually fully, not partially, restored.

As on row sixty-six, we can again choose to not bind these stitches off in pattern, because they'll be hidden in the shoulder seam.

Finish Restoring the Right Portion's Stitch Pattern

We do the same steps on the last four rows of the partial chart, which gives us our chart with the shaping shifted and the stitch pattern restored.

Pattern Restored												
✕	✕	✕										**72**
		•										
	•											**70**
•												
	•				•							**68**
		•		•				•				
			•				•					**66**
					•				•			
67	68	69	70	71	72	73	74	75	76	77	78	

Compare the Charts to Look for Errors

Just as we did with the left portion of the shoulder shaping chart, we can compare the right portions of all three charts to make sure we moved the shaping to the correct places while restoring the stitch pattern throughout all the rows.

Traditional Knitter	Shifted Shaping	Pattern Restored	
	☒☒☒	☒☒☒	72
☒☒☒	•	•	
•	•	•	70
•	• •	•	
• •	• •	• •	68
• •	• •	• • •	
• •	•	• •	66
•	•	• •	
• •	• • •	• •	64
67 68 69 70 71 72 73 74 75 76 77 78	67 68 69 70 71 72 73 74 75 76 77 78	67 68 69 70 71 72 73 74 75 76 77 78	

Note that because we moved the shaping, we had to use the stitch pattern's purl symbols for some of what are now non-shaping stitches.

Since the succinct chart looks odd if we use blank areas for shaping on the last two shoulder rows, we've used the boxed X symbols to make it clear that we bind off three on the last row in this portion of the chart, exactly as we did in the left portion.

The Complete Shoulder Shaping Chart

When we put both portions of the shoulder chart together

	Option 1 Mirror-Image Knitter Final Shoulder Shaping Chart with Stitch Pattern		
		☒☒☒	72
71	☒☒☒	•	
	•	•	70
69	•	•	
	• • •	• •	68
67	• •	• • •	
	• •	• •	66
65	• •	• •	
	• • •	• •	64
	14 15 16 17 18 19 20 21 22 23 24 25	67 68 69 70 71 72 73 74 75 76 77 78	

we see that the shaping occurs in the correct places and that the stitch pattern has been expanded properly.

Option 2: Shift Only the Blank Areas

We had two choices when shifting shaping in a project with a stitch pattern. The first was to move the entire shaping area, then correct the stitch pattern. The other was to leave the rows

where they are, which keeps the stitch pattern intact, and instead move just the blank areas to the proper places.

We have two sub-options when we move only the blank areas.

🧶 We change the end of a row and immediately correct the stitch pattern where the blank area used to be.

🧶 We "move" all the blank areas by filling in with placeholder knit symbols the gaps at the ends of the rows. After we finish altering the location of all the blank areas, we change the placeholder knits to correct the stitch pattern.

We'll do the second option here so that we have to do only one change at a time. Once we get used to making these adjustments, we can switch to sub-option one, moving the shaping and correcting the stitch pattern simultaneously.

Underarm Shaping

We'll again start with the traditional knitter chart with the row numbers swapped and the boxed stitch labels reversed.

Row Numbers Swapped and Boxed Stitch Labels Reversed		

(Chart — left section columns 1–15, right section columns 77–91; rows labeled on the left 1, 3, 5, 7, 9, 11, 13, 15 and on the right a, 2, 4, 6, 8, 10, 12, 14, 16)

Bottom column labels (left): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Bottom column labels (right): 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

When we moved the shaping areas using option one, we worked with the entire area on either the left or the right of the chart. For option two, let's look at pairs of complete chart rows, each pair doing the same shaping on both the left and right.

Move the Bind-Offs

We need the bind-offs to occur at the beginning, not the end, of rows one and two.

At the beginning of row one, we simply select the group of unneeded symbols

then delete them.

At the end of row one, we fill in the blank area to "move" the bind-offs up one row. We put simple placeholder knits in the gap, because that's the sub-option we're using.

Move the First Pair of Decreases

Since we decrease at the beginning of row three, we need to make its first symbol be one stitch closer to the center of the row. At the end of the row, we need a symbol over the first live stitch we had after completing the second row of underarm bind-offs.

So we remove the symbol at location seven and add a placeholder knit at location eighty-five.

Row four, like row three, needs to show that it loses one stitch at its beginning.

Since there's no symbol at location eighty-five, the row starts correctly. It needs to end with the first stitch on row three, which it does. Row four needs no changes.

Move the Second Pair of Decreases

On row five, we need to remove one symbol at the beginning of the row to indicate the decrease. At the end of the row, we're a stitch short.

We remove the first symbol and add a placeholder knit as the last symbol on row five.

Row six needs to start one stitch closer to the center of the row than where row five ended, and it needs to end with the stitch at the beginning of row five. Row six is already correct at both ends.

Move the Rest of the Decreases

We would move the last ten decreases the exact same way we moved the first four.

- We remove a symbol at the beginning of each public-side row and add one at the end of the same row.

- Once the public-side rows are corrected, we see that the private-side rows above them are already correct, so they require no changes.

Shaping Shifted, Placeholder Knits Need Correcting

All the shaping is now positioned correctly. We bind off six stitches at the beginning of the first two rows, then we decrease one stitch at the beginning of the next fourteen rows.

Correct the Stitch Pattern

When we look at the chart, we see that for this particular stitch pattern in this particular project at this particular size, we did not have to make any changes to the placeholder knit symbols we added to the right ends of the public-side rows. That means our chart is already in its final form without any more changes.

Compare the Charts to Look for Errors

Let's compare the initial chart, which had only the row numbers swapped and the boxed stitch labels reversed, with the final chart that shows the entire set of MIK changes. That lets us do one final check to make sure the shaping and stitch pattern symbols are correct before we cast on. Note that since we didn't move the entire area, just the shaping at the ends of the rows, we only need to compare the chart we started with and the chart we finished with.

To minimize confusion, we'll look at one portion at a time.

The Left Portion

The traditional knitter shaping occurred at the beginning of its private-side rows. Because you switch where the rows begin, you need to move that traditional knitter shaping so that it occurs one row earlier, at the beginning of your public-side rows.

In a few places, we lost a pattern stitch to the shifted shaping. Other stitch patterns in other projects may or may not lose or gain any pattern symbols.

The Right Portion

The shaping at the beginning of the traditional knitter public-side rows needs to be delayed by one row for you. That puts the shaping at the beginning of your private-side rows.

Labels Changed

Shaping and Stitch Pattern Corrected

	16
15	
	14
13	
	12
11	
	10
9	
	8
7	
	6
5	
	4
3	
	2
1	
	a

77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

This combination of stitch pattern and project happened to need no changes to the stitch pattern.

The Complete Underarm Shaping Chart

When we look at the final chart for option two, we see the shaping and the stitch pattern in the proper places. It also exactly matches the option one chart.

Option 2 Mirror-Image Knitter Final Underarm Shaping Chart with Stitch Pattern

	16
15	
	14
13	
	12
11	
	10
9	
	8
7	
	6
5	
	4
3	
	2
1	
	a

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15   77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

Shoulder Shaping

We have the same sub-options as before. As we move the blank areas, we can

- 🧶 fix the stitch pattern immediately
- 🧶 use placeholder knits to correct all the row lengths first, then correct those temporary symbols to restore or extend the stitch pattern

Since we did the second sub-option on the underarms, let's do the first sub-option here. We'll start with the same chart as we did in option one, with private-side row sixty-four as our "foundation row B," the final row before we start the shoulder shaping. We'll also use boxed X symbols in the last two rows of this succinct chart to remind us that we bind off their first three stitches.

	Row Numbers Swapped and Boxed Stitch Labels Reversed		72
71	☒☒☒ / •		
	•	☒☒☒	70
69	•	•	
	• • •	• •	68
67	• •	• •	
	• •	• •	66
65	• • •	•	
	• • •	• •	64
	14 15 16 17 18 19 20 21 22 23 24 25	67 68 69 70 71 72 73 74 75 76 77 78	

Remember that the direction we shift the shaping does not depend on whether we're looking at the chart as the back or front of the garment. The only thing that matters when we're shifting the shaping is that the shaping in the left portion of the **chart** (not necessarily the left side of the wearer) must move down one cell and the shaping in the right portion of the **chart** (not necessarily the right side of the wearer) needs to move up one cell.

Move the Left Portion's Blank Areas Down One Cell

We simply remove the first three symbols of each public-side row, which tells us to bind them off. We'll skip to the final chart instead of showing the intermediate ones that delete each group one at a time.

	Traditional Knitter											
71									•	░	░	
									•			
69				░	░	░	•					
				•		•			•			
67			░	░	░		•			•		
		•					•					
65	░	░	░	•		•			•			
		•			•			•				
	14	15	16	17	18	19	20	21	22	23	24	25

	Mirror-Image Knitter											
71									✕	✕	✕	
									•			
69						░	░	░	•			
				•		•			•			
67				░	░	░	•			•		
		•					•					
65	░	░	░	•		•			•			
		•			•			•				
	14	15	16	17	18	19	20	21	22	23	24	25

Because we only removed (or, in row seventy-one, replaced) symbols, we didn't change any of the stitch pattern symbols not involved in the shaping, so there are no pattern corrections we need to make.

Compare the Charts to Look for Errors

If we compare the traditional and mirror-image knitter charts, we can see that the stitch pattern is not altered even though the blank shaping areas have been moved to the beginning of each public-side row.

	Traditional Knitter											
71									•			
									•			
69							•					
				•		•			•			
67							•			•		
		•					•					
65				•		•			•			
		•			•			•				
	14	15	16	17	18	19	20	21	22	23	24	25

	Mirror-Image Knitter											
71									✕	✕	✕	
									•			
69									•			
				•		•			•			
67							•			•		
		•					•					
65				•		•			•			
		•			•			•				
	14	15	16	17	18	19	20	21	22	23	24	25

Showing "foundation" row sixty-four reminds us that row sixty-five starts by binding off three stitches. And yes, you're absolutely correct. There really was no need to repeat the previous pair of charts again under this heading, since the only difference between that pair and this pair is the cyan highlighting.

Move the Right Portion's Blank Areas Up One Cell

The heading here is a bit misleading, but it does remind us that the shaping changes must move in the opposite direction in this portion. The way we "move blank areas up" is to fill in the blank areas we already have, so we have highlighted the areas we now need to fill in.

Because we're using explicit bind-off symbols on the final shoulder row of a succinct chart, those are the only ones that we had to **physically** move. Otherwise, we would have removed the symbols in row seventy-one, and row seventy-two would have remained empty.

Traditional Knitter		Mirror-Image Knitter	
		×××	**72**
×××			
•		•	**70**
•		•	
• •		• •	**68**
• •		• •	
• •		• •	**66**
•		•	
• •		• •	**64**
67 68 69 70 71 72 73 74 75 76 77 78		67 68 69 70 71 72 73 74 75 76 77 78	

Since we're doing the first sub-option, we will determine immediately the symbols we must add to maintain and/or enlarge the stitch pattern, instead of starting with placeholder knits that we later go back and correct.

Row Sixty-Five

In stitches seventy-two and seventy-eight on row sixty-four, we see the left and right points of a diamond. Its upper right edge will go through the area where we need to add stitch symbols to fill in the blank area at the end of the public-side row.

		•			•							**66**
				•								
			•						•		**64**
67	68	69	70	71	72	73	74	75	76	77	78	

Let's fill out this diamond by adding theoretical symbols to the shifted shaping chart, using orange highlighting on the extra symbols.

Theoretical Chart		
• • █•█		
• • █•█		**66**
• █•█		
• •		**64**
67 68 69 70 71 72 73 74 75 76 77 78		

The three symbols we need to add to the end of row sixty-five are an interior knit, an upper right edge purl, and a background knit.

The blank area at the beginning of row sixty-six tells us we bind off its first three stitches.

Row Sixty-Seven

When we add three symbols to make row sixty-seven end in the proper place, we need to continue the purl diamond.

Based on the theoretical chart, stitches seventy-three and seventy-four are background stitches between two diamonds, so we need the first two new symbols to be knits. It also shows that stitch seventy-five must be the purl symbol forming this diamond's top point.

Again, the theoretical chart is not really necessary for us to correct this easy stitch pattern, but in more-complicated stitch patterns, creating such a chart will probably save some time and minimize errors.

The blank area at the beginning of row sixty-eight reminds us to bind off three stitches.

Row Sixty-Nine

We need to fill in three stitches at the end of the row and continue the diamond whose bottom point is in stitch seventy.

•											

(chart showing rows 64–68, stitches 67–78)

Since this diamond's right point would be in stitch seventy-three, we add three interior knit symbols to complete the row.

(chart showing rows 64–68, stitches 67–78)

Existing stitches sixty-eight and sixty-nine combine with the new ones to be the five stitches between this diamond's left and right points.

Row Seventy-One

We need to continue the upper left edge of this purl diamond, whose left point is in stitch sixty-seven. To fill out the end of the row, we must add two background knits, then a purl to continue this diamond's upper left edge.

(chart showing rows 64–70, stitches 67–78)

Compare the Charts to Look for Errors

This portion of the chart also has its purl diamonds in the same places in both versions. Since we had to add stitches to the end of each public-side row when we moved the bind-offs up to the beginning of the private-side row above it, we had to extend the purl dia-monds in some places to continue the stitch pattern properly.

Traditional Knitter											
☒	☒	☒									
	•										
•											
	•				•						
		•		•							
			•			•					
					•						
				•							•
67	68	69	70	71	72	73	74	75	76	77	78

Mirror-Image Knitter												
☒	☒	☒										**72**
		•										
	•											**70**
•												
	•			•								**68**
		•			•							
			•				•					**66**
					•				•			
				•							•	**64**
67	68	69	70	71	72	73	74	75	76	77	78

As we compare the traditional knitter chart with the MIK chart, we see that we had to use purl symbols at locations seventy-five and sixty-nine, since we gained non-shaping stitches in both places.

The Complete Shoulder Shaping Chart

When we look at the final chart, we see the bind-offs at the beginning of the eight shoulder rows, which matches the instructions for "The Basic Vest" in the size small. The stitch pattern has been extended correctly where we added non-shaping stitches, and this chart exactly matches the one we got using option one.

Option 2 Mirror-Image Knitter Final Shoulder Shaping Chart with Stitch Pattern

Left half (columns 14–25), with row numbers 71, 69, 67, 65:

	14	15	16	17	18	19	20	21	22	23	24	25
71							☒	☒	☒			
								•				
69							•					
					•		•				•	
67					•			•			•	
		•							•			
65			•				•					
	•					•			•			

Right half (columns 67–78), with row numbers 72, 70, 68, 66, 64:

67	68	69	70	71	72	73	74	75	76	77	78	
☒	☒	☒										**72**
		•										
	•											**70**
•												
	•			•								**68**
		•			•							
			•				•					**66**
					•				•			
				•							•	**64**

The boxed X symbols remind us to bind off on the last two of the eight shoulder rows. We can, of course, use whatever symbol we like, including no symbol at all.