

The X-Kilt

A Contemporary Kilt You Can Sew Yourself

Developed for the Members of www.XMarksTheScot.com

By Alan Hebert

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With a special addendum by Sydnie Wauson

Who, What, Why and How

I developed the design of this kilt in July 2006 to answer a need that had become apparent among the members of www.XMarksTheScot.com. Namely, lots of guys wanted to sew a kilt themselves, but were put off by the expense, the perceived difficulty of the job and the time involved. After having sewn up two kilts myself; the first being a plain canvas kilt and the second a traditionally made-hand-sewn tartan kilt, I was aware of the differences in terms of cost, difficulty and time between the two. I wanted to design something that anyone with a little bit of patience could sew, as long as they could get a few yards of suitable plain material and had a sewing machine in the house. Yet at the same time, I didn't want to create something that borrowed too heavily from the existing contemporary kilts currently on the market. Two prototype kilts were made for two non-kilt-wearing friends, who told me of their preferences. Those preferences were heavily influenced by the fact that neither man was Scottish (one was Irish) and both had seen a number of Utilikilts (<http://www.utilikilts.com>). I took what I had learned from the first two kilts and sewed up two more, one for myself and one for another member of www.XmarksTheScot.com. From my experiences I developed this manual, which you can use to sew up your own contemporary **X-Kilt**.

OK, so what is this thing, the **X-Kilt**?

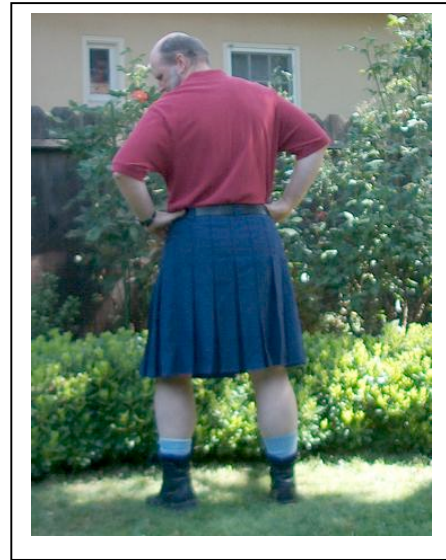
- It's made out of plain twill weave material, either solid color or camouflage
- It's not tartan (plaid)
- It's box-pleated (not knife-pleated)
- It closes with Velcro
- It's easy to sew
- The materials will cost you about \$35 or less
- It will take you about 10-14 hours to sew it up....meaning one week of evenings after work, or a weekend just going at it.
- You can wear it anywhere you'd wear a casual set of pants

Who is the **X-Kilt** designed for?

- Men

It is entirely feasible to stitch up an X-Kilt for a woman. However, I'm going to

show my personal prejudices here, and ask the ladies not to do that. Women, you have thousands of options when it comes to “unbifurcated” garments. Leave the kilt for the guys. I know this is not a traditional kilt, and we could go on and on with arguments and discussion on the topic over what is, and is not a kilt. Suffice it to say that if you really want to make an **X-Kilt** for yourself, well, I’m certainly not going to stop you, am I? Humour me and do this one thing; reverse the direction of the pleat layout so that it opens on the LEFT side, not the right side. Every other step is identical. Just have it open on the left side, and call it an **X-Skirt**. It’s all semantics, anyway.



*There's your author, looking grumpy (which I'm not, incidentally) wearing X-Kilt prototype #3.
I need to hike it up a bit in front, it's not sitting at my navel.*

OK, now that we have that out of the way, let's get more specific. Guys, you need to be fairly trim in order for an X-Kilt to fit properly. If you have a significant beer-gut, or as our mentor and member at X-MarksTheScot.com (and Master Kiltmaker) Barbara Tewksbury says, “a bit of a corporation”, the **X-Kilt** is probably not going to fit very well. Adjusting for a significant “beer-gut” requires taking more measurements and sewing in adjustments that are beyond the scope of this project. There are commercially available contemporary kilts that will fit you better. Note that I’m not saying that you can’t carry a few, or more than a few extra pounds. Lord knows I have more mass than I ought to. It’s not your weight I refer to, but where that weight is distributed. If your waist measurement (at the navel) is larger than your chest measurement (at the nipples), then this is YOU I’m talking about. This does not mean that you can’t make and wear an **X-Kilt**. Just be aware that it might not fit as well as a kilt adjusted for your body type.

Why a box-pleat?

- Box pleats are traditional. The very first tailored kilts back in the early 1800’s

were usually box-pleated.

- Box pleats take less sewing time than knife pleats, because there are fewer pleats
- A Box-pleated kilt requires less material than a knife-pleated kilt
- As of right now, no other contemporary kiltmaking company that I know of is making box-pleated kilts, so we're not stepping on anyone's toes, here.

OK, so how are you going to do this? I'm going to give you the thumbnail step-by-step right here, so you can visualize the whole process.

- Measure yourself (get a friend to help)
- Buy the fabric, Velcro, and thread
- Wash the fabric
- Quick-iron the fabric
- Cut out the fabric
- Cut out the front waistband strip
- Iron it all flat
- Sew half the Velcro to the front waistband strip
- Mark the pleats with chalk
- Add the front waistband strip to the rest of the kilt
- Sew down the right edge of the over-apron
- Sew down the hem
- Sew the pleats from hem to the bottom of the fell (the lower 2/3rds)
- Fold up the kilt, taper the pleats and pin the pleats
- Sew down the fell/upper 1/3rd of the pleats
- Attach the other half of the Velcro
- Finish raw edge of under-apron
- Make belt loops and attach
- (optional) Make cargo pockets and attach
- Strut your stuff

All right, maybe you didn't recognize all the terminology in that list of steps up there. You need to spend more time online at <http://www.xmarksthescot.com!>

Once you have gone through the whole process, you will have an appreciation for what professional Kiltmakers do, and you will know why a professionally made kilt costs as much as it does. Not only that, but you will have a garment you can wear with pride, because YOU MADE IT.

OK, Let's make a Kilt!

Measuring

The **X-Kilt** is designed to ride a bit higher than most contemporary kilts, but lower than a traditional kilt. This is just my personal prejudice. You can wear it

wherever you want, including over your head if you want to. However, be aware that if you take the measurements as outlined below, but then wear the kilt pushed down on your hipbones (*like I am in those pictures, up above*) the kilt won't look as good as if you wear it where it was designed to sit. Primarily, the apron will hang lower than the pleats, and that looks a little bit funny.

I would suggest that you get help with the following measurements. The Waist is easy enough to do yourself, but the other ones aren't. If you do them all yourself, you'll be likely to get numbers that are an inch off so find someone you're friendly with, and draft them to help. You will need four measurements: waist, rump, fell, and drop.

Waist: this is the measurement, to the nearest inch around your middle right at your navel. A traditional kilt is worn a couple inches above the navel. Most contemporary kilts nowadays are worn down on the hipbones where you wear a pair of trousers. I'm going to have you split the difference and set this kilt right at navel level.

Rump: this is the measurement, to the nearest inch around the biggest part of your rear end. Do not cheat on this. This is the most important measurement in terms of making a good-fitting **X-kilt**.

Fell: This is the measurement, down your side, from the waist circumference you just measured, to the rump circumference. You can also just use eight inches, which is going to be pretty close on nearly everyone.

Drop: This is the measurement from the waist circumference to the hem of the kilt. It's how long the kilt is going to be. Traditional kilts usually hit the wearer right about the top of the knee. Lots of guys like to wear contemporary kilts a bit longer than that, say to mid-knee. Some guys like them to the bottom of the knee. I made mine to hit at the bottom of the knee. You pick what you want. It's going to be somewhere between 21 inches for a really short guy, to 26 inches for a six-and-a-half foot tall dude with a long thighbone.

OK, write down those measurements, here.

Waist: _____ **Rump:** _____ **Fell:** _____ **Drop:** _____

Now, go shopping.

This is what you're going to need.

One piece of chalk with a sharp edge....like a NEW piece of chalk, eh? You can also use dressmakers pencil, though for God's sake don't use a dressmakers pencil on a traditional wool kilt. Just go buy some chalk, OK? It's

cheap. I got a box at the drugstore for 89 cents.

Ten inches of 2-3 inch wide Velcro. Black, white, whichever. It won't be visible when you have the kilt on. This is enough for one kilt and cargo pockets. If you don't want cargo pockets on your kilt, you can just get six inches.

One box of pins. These are for pinning hems and stuff to hold the fabric in place while you sew it. If you're using cotton twill or cotton/polyester twill you can get "regular" pins. If you're sewing in denim or canvas you'll want extra-long, extra-beefy pins. You don't need a lot; fifty pins is enough. I just bought a little box of pins at Joanne's and 200+ pins cost me four bucks.

A few sewing needles: You need two. The second one is for when you lose the first one. Medium-little needles are good, but don't get eenxy-weenxy ones and don't get honkin' sailmaker needles. Heck, you KNOW you're gonna make another X-Kilt, you might as well splurge on a pincushion, too.

Two spools of thread: Do you want your kilt to be sewn up with same-color thread as the material, or with contrasting color thread? It's your choice. Be aware that if you use contrasting-color thread, then your stitching had better be good! Get inexpensive cotton-colored polyester all-purpose thread, two decent sized spools of it. You won't need all of both spools, but if you sew down the inside of your pleats you'll probably run out if you only have one spool.



Here's "**smayiac's**" X-Kilt for his kid, "Scooby". Pretty slick, eh, with that denim and the gold-colored contrasting stitching.

Then again, **smayniac** is a careful sort of fellow and can maintain concentration enough to make this look good. I sure couldn't!

4 -5 yards of fabric: This is more complicated than it sounds, so keep reading.

Fabric generally comes in bolts, which are made either 45 inches wide or 60 inches wide (plus or minus an inch). You are going to need a length of material between 3 and 5 yards long and roughly 22-25 inches wide. You'll also be cutting out a long strip that's 4 inches wide. OK, so the budget-conscious readers out there will have already figured out that they could buy two yards of 60-inch wide fabric, cut it in half and sew the halves together, end to end. That's what you do with a traditional kilt. Well, I'm going to tell you to NOT do that.

Why? Because it's complicated. You can't predict ahead of time where that seam is going to fall, and it's complicated to design the kilt so that the seam is hidden inside a pleat. This is supposed to be an easy kilt to sew. If the material cost \$50 a yard, then it would be worth it, but you're buying stuff which probably costs between \$4 and \$8 a yard. It's not worth the headache. Just buy four yards of material. You can use the leftovers to make a second kilt for yourself or a buddy, or maybe an **X-Skirt** for your Lady.

If the material is 45 inches wide then you'll have to buy four yards of it, anyway.

If you are a big guy, and by that I mean with a rump size over 45 inches, then buy five yards of material. You'll have leftovers, but the stuff is cheap. If your rump size is over 60 inches then I don't know what to tell you to do. Buy another yard of stuff and forge ahead. I made myself one **X-Kilt** and had just barely enough left over out of my four yards to make a couple of cargo pockets, if I'd wanted them. If my rump had been three inches bigger I wouldn't have had enough, and at 48 inches, my bottom is big enough as it is. Use that as a guide and be generous, the stuff cheap and it's a pain to run out of fabric in the middle of the project.

OK, what kind of material should you buy? You can make an **X-Kilt** out of whatever the heck you want, but I strongly suggest the following:

- Plain color canvas
- 8 - 10 ounce, solid-color cotton or cotton-polyester twill
- 8 - 10 ounce, cotton or cotton-polyester camouflage material
- 8 - 10 ounce, solid-color cotton or cotton-polyester fabric with some random pattern
- Bull denim (a polyester/cotton denim material)

If you want to make an **X-Kilt** out of material with a regular pattern like a plaid it's going to be tough to make it look good. The art of aligning plaid/tartan is beyond the scope of this project. Stick with solid colors or randomized patterns like camouflage.

Pros and cons of the materials.... Canvas is indestructible and will wear like iron. Carhart work clothes are made out of canvas, and you know their reputation! If you sew it well, the kilt will last for a decade. It's stiff and heavy, and will tend to say down in a breeze. However, it will wrinkle quickly, and you'll have to iron it a lot. It will look like a nightmare when it comes out of the washing machine. The first two **X-Kilt** prototypes were canvas and I have to say that they're OK, but I sure like the cotton/poly twill better. In fact, I like it a LOT better.

Cotton twill is easy to work with and cheap. However, it lacks some stiffness and weight and will tend to fly more in a breeze. It will also continue to shrink a little bit through continuous washing which is a pain. However, it wrinkles and you'll have to iron your kilt now and then.

Cotton-polyester twill is hard to beat. The stuff that "Dockers" "khaki" work pants is made out of is cotton-polyester twill. Ditto for "Dickies" brand work pants. It's easy to sew and doesn't tend to wrinkle nearly as much as 100% cotton. Ironing will be minimized, though you will have to iron it now and then. If I were you, I'd buy this stuff. I made the third and fourth **X-Kilt** prototypes out of dark blue cotton/poly twill after making the first two out of cotton canvas and I'm convinced. This stuff is by far the easiest to work with and the easiest to care for.

Corduroy, well.... I haven't made a kilt out of corduroy, but Star, **the F-H.C.A.G** has (lots of the pictures in this manual are from that project) and it looked pretty cool and I got to wear it for a little while and I liked it so go for it.

Bull Denim: I've now made a kilt out of denim and it sure felt beefy but it had no swing and it wrinkled like nobody's business. On the other hand see **smayniacs** denim kilt with the contrast stitching, above. You decide, just be careful you don't get stretch denim.

Hemp and Hemp blends: Robert at www.Rkilts.com uses hemp and so does X-Marks member Wompet and they like it. I'm guessing that a Hemp/cotton ...or even better hemp/polytest blend will outshine 100% hemp in the wrinkle department. I see that there's a new blend out there, called Hempcel, which is hemp and Tencel. Try it and let us know.

I'd recommend putting a lid on buying expensive material to work with for your first kilt.... No imported Italian suiting wools here, OK? Keep it under \$10 a yard, maximum. If you just HAVE to spend a lot of money, get nice wool tweed and make an **X-Kilt** out of that. Make sure to visit the www.XMarkstheScot.com forum and show us pictures, if you do that.

Preparing the Fabric for Cutting

OK, the first thing you do when you get home is take that material and put it in the washing machine. Do NOT, I repeat... do NOT wash it with anything else. If

the dye bleeds at all, it will ruin anything else you put in the machine. Just put it in the washing machine by itself and wash it on hot, with detergent. This goes double if you are working with a cotton blend. Dry it on the hot setting. Shrink the dickens out of that stuff now, BEFORE you put the hours into sewing up a proper-fitting kilt. If you bought canvas you might consider washing it twice, both times with a fabric softener like "Downy". Downy smells like perfume, though, so get a clothespin for your nose. Canvas is really stiff, and one guy at www.XmarksTheScot.com actually recommends putting canvas in a concrete mixer with river pebbles for a while, before washing it the second time. Having made three kilts out of canvas, now I think he might have a point.

Just don't put the fabric in there with any cement, OK?

If you bought wool, unless you bought a wool/poly or wool/nylon blend, do not wash it. You're going to have to get your kilt dry-cleaned.

Ok, your material is going to come out of the dryer with all the raw (cut) edges of the fabric frayed, big-time. However, the two finished edges will be fine. Those edges have been "selvedged", meaning that the weavers folded the edge threads back into the material so it stabilized the edge. Don't worry about the frayed edges right now. Just take your fabric and iron the wrinkles out. Oh, and remember that term; "selvedge". You're going to see it again.

You are not striving for perfection in ironing, this time. It doesn't matter if the stuff has some little wrinkles. You just want to get the material pretty flat so that you can measure it. Put the iron on a hot setting, just hot enough to generate steam. If you have a cotton/poly blend, don't go to the top end of the temperature setting. Just get it so that the iron generates steam and then wrestle the stuff around on the ironing board and give it a decent once-over.

Here's a hint....once you've done initial ironing, don't fold your fabric any more...roll it! If you roll it you'll put a lot fewer wrinkles in it. You can roll it around a cardboard mailing tube or a piece of clean 2-3 inch PVC tube from the hardware store, or just roll it up on itself if you don't have a tube.



Cut out Your Fabric

OK, you need a really big, CLEAN...read that again...**clean** surface. Personally, I have hardwood floors in my house, so I move a bunch of furniture in my living room, sweep the living room floor, and then sweep it again. Then I do a quick once-over with a sponge, to pick up any sticky stuff, and dry the floor. In my dreams I have a 14-foot long table with a hard Formica surface, but for now the floor will do even though I have a cat...who sheds. You might not have hardwood floors. OK, well, do your best. Lay all of your fabric out, flat, somewhere.

This is not my cat.
This is Panache and
the F.H.C.A.G.'s cat,
"Mudge"

Mudge likes to help.



By the way, if you do your sewing on the kitchen table, be sure to seriously clean the table before you start sewing. The last thing you want is the oil from last night's pasta to get into your fabric.

I'd suggest aligning the weave of the twill so that the side of the fabric that shows the diagonal thread alignment the strongest is facing up. In a traditional kilt, the twill lines always run from the lower right to the upper left. In a contemporary kilt, I don't think it really matters, but you do what seems best to you.

OK, now you have to think. Look at the selvedged edge of the fabric. You have to decide if you want that edge to show in your finished kilt, or if you want to hem it. Traditional kilts have a nearly invisible selvedged edge that shows when the kilt is finished. However, your material probably has a selvedge that looks a little bit different from the middle of the fabric. Do you like the look of having that edge show? You decide.

If you choose to hem your kilt, then decide exactly where the bottom of the kilt will be, and mark that point with the chalk, just at one location on the material close to one end.

OK, now look at the measurement you wrote down for your DROP. Write it in the box, below.

Are you going to hem your kilt? If The answer is "no" then put in Zero in that space. If the answer is "yes", then measure how much fabric you will be hemming up, and put that number in the "Hem" space.

DROP: _____

HEM: _____

TOTAL: _____

Now add up the numbers and write down the total. That is the distance from the selvedged edge to where you are going to cut.

OK, get out the tape measure or a yardstick, and starting at one end, work your way down the piece of fabric, measuring exactly that much from the edge. Put a pin in about every foot, or you can mark it with chalk, instead. Chalk is great, and this is a good place to start using it. Go all the way from one end of the fabric to the other. If you use chalk you can connect all the dots with a straightedge, and make a nice straight line to cut on.

Now get out your sharpest pair of scissors and cut the fabric in a dead-straight line along your markings. When you're done, pull the pins out and drop them back in the box you bought them in, or stick them back in your pincushion. Roll up the extra piece and store it away for ***X-Kilt*** number two or your Lady's ***X Skirt***.

Now's the time to trim off the frayed end, too. I'm talking about the end that will be the right hand edge of the over-apron. It got frayed when you washed the fabric and how there's a mess of threads hanging off of it. Trim it off at something pretty close to a right angle to the edges.

OK, now cut out a piece of material that's 5 inches wide and equal in length to the width of your over-apron. If you haven't jumped ahead and figured out your over-apron size already, then cut a piece that's 5 inches wide and about a foot long. The alignment doesn't matter but if you can cut it from the far left edge (*where you'll likely have excess material*) so that it's aligned the same as the rest of the kilt, that's groovy.

Prepare the Inner, Over-Apron Strip

The raw edges on the 5-inch strip you just cut out are going to fray over time, so you need to stabilize them. The first thing to do is pick which long, raw edge is going to be the bottom, eh? The other edge is going to be up at the waistband. It really doesn't matter, as it's not going to show.

If your sewing machine has a overlock stitch specifically for that purpose, then use it, and run a line of stitching right next to the bottom raw edge and the two ends all the way around the fabric. If your machine doesn't have a stitch like that, then just put it on the zig-zag setting, with a medium-wide stitch, and run that right along the edges. After you do one run of zig-zag, then go back over it again with another run, right on top of the first one, and offset a little bit. If you want, you can then run a single line of straight stitching smack-dab through the middle of those two zig-zags. You can use any color thread for this, 'cause it won't show on the outside of the kilt. The two zig-zag lines and the straight stitch are just as good as a specialized stitch at stabilizing those edges.

Now those edges will NEVER fray!

If your sewing machine doesn't have a zig-zag, you can still stabilize these three edges though I don't recommend doing this next step if you're working in canvas. It's OK in cotton or cotton/poly twill, though. Just fold over the raw edges about a quarter of an inch, pin them down along the whole length about every 2-3 inches and hem them. Make sure that the raw edge will be **INSIDE**, up against the over-apron, not up against your abdomen. I don't recommend doing this in canvas because the extra thickness will create a bit of a lump in the kilt. The lighter twills aren't so thick, and it looks fine. One of my X-Kilts is built this way.

This strip of fabric has two long "raw edges" doesn't it? You don't have to stabilize the other one, because that one will be buried inside the waistband. Just do one long edge and the two short raw ends, assuming the ends were raw and not selvedged.

Sewing : Velcro and the Over-Apron Strip

OK, so take your Velcro and trim it so that it's 4 inches shorter than the width of your over-apron. Don't know what that is, yet? OK, just make it 5-6 inches long. This will leave you a little bit of velcro that you can use for cargo pockets later if

you want, so save the bits. Now take either half of the velcro, hook or fuzz and pin it down on the strip of fabric you've been working on. Pin it about 1.25 inches down from the upper edge and about 2 inches from the right-hand edge.

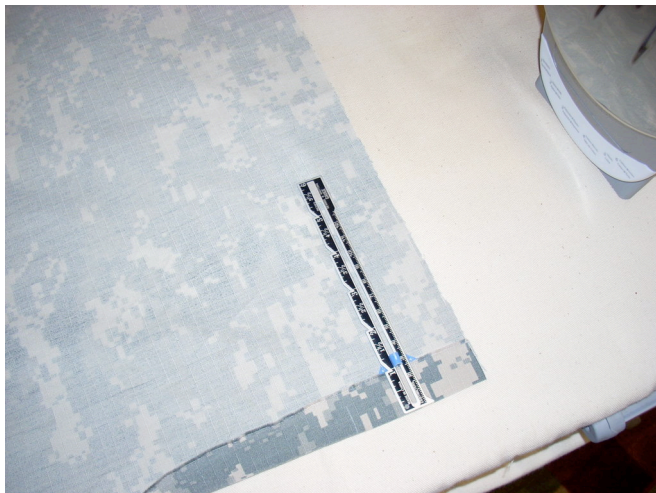
Look at the drawing! You're sewing the velcro more-or-less at what will be the far right edge of the over-apron strip. My drawing is messed up, you'll have more empty fabric at the bottom of the strip than my drawing shows, OK? You can use any color thread to sew down the velcro, since it won't show. Remember that it's going to get yanked on a lot, so make sure to really stitch down the ends of the velcro. Maybe you could go over the ends twice, with zig-zag stitch. That's what I do.



OK put the strip aside (for a long time) , and move on to the hem.

Sewing : The Hem

If you decided, back when you were cutting out your fabric, that you wanted to hem you kilt, now is the time to do it. If you're not hemming your kilt, and are letting the selvedged edge show, then skip this step.



Take your fabric to the ironing board. You're going to fold over the hem, there just above the selvedged edge and iron a crease in it. You're probably going to turn up about an inch of fabric, more or less. There's about twelve feet to turn up and iron, so settle in. Iron in a really straight crease, and iron it hard. If you're lucky , you might get away with not pinning it for the next step.

Oh, heck...it's twelve feet of hem. If you put in a pin, perpendicular to the edge, every six inches, then that means you're putting in only 24 pins, right? Go ahead

and do it...or if you like living dangerously, don't pin your hem. Slap it down on the sewing machine, set to straight stitch at the size of stitch that you like and go to it. Hem that puppy, the full length of the fabric. Try hard to keep the stitching at an even distance from the edge of the fabric. I find that a hem line about half an inch from the edge looks about right.

OK, let's talk about stitching. In a traditional (more-or-less) kilt where parts of it are machine-sewn, I think it looks best if the machine stitches are really small. OK, but this isn't a traditional kilt. If you go look at a pair of Levi's, you'll notice that the gold thread is stitched in with pretty large stitches. Personally, I think that a contemporary kilt looks good, especially a canvas one, with bigger stitches in most places. Why don't you take some fabric-*/ scraps, double them over, and practice running a few lines of stitching down 'em. Pick a stitch size that looks good to you, and then tackle your hem. I like about 6 stitches to the inch, personally.

Figuring out your Pleats

All right, time to set up the kilts pleating structure. Lay the whole length of fabric out on the floor, or your work table, with the outside of the kilt facing up and the hem/selvedge away from you. It's time to talk about the nitty gritty of this design, which makes it workable for many sizes of guys.

You are going to combine a number of standard-width box pleats with varying apron widths to create a kilt that works for you. All the box pleats will be 3 inches wide. The apron will vary between 6 - 11 inches, depending on the size of the wearer. As time goes on and more X-Markers make X-Kilts, I've learned something. I recommend that you do one of two things with your over-apron. Either make it very narrow, like 6-8 inches overall, or make it very wide, like 4 inches narrower than your half-waist measurement. Do one or the other, don't try to split the difference, it just doesn't look good. However, this is YOUR kilt, eh? So do what you want. If you're a BIG guy, with a 50-inch waist and you want the narrow-apron look, then you might bump your apron up to 10-11 inches.

MOST important point...as you start making your kilt focus on the RUMP measurement, not the waist measurement. Forget everything you ever thought about when buying pants. YOU are a KILTMAKER! Ha!.....so focus on your rump, not your waist.

You're going to build this kilt by combining a certain number of three inch box pleats and an apron width to go around your RUMP size, not your WAIST size. OK, got that? RUMP, not waist.

Here are some examples:

30 inch rump measurement; "wide" apron look (very small guy):

six, three-inch box pleats and a twelve-inch apron

6 pleats x 3 inches/pleat = 18 inches (in pleats)

18 inches + 12 inches = 30 inches (total)

35 inch rump measurement; "narrow" apron look (small guy)

nine, three inch box pleats and an eight-inch apron

9 pleats x 3 inches/pleat = 27 inches (in pleats)

27 inches + 8 inches = 35 inches (total)

If you build a narrow apron like an 8-inch then make the under-apron quite a bit wider so that it wraps around further than the over-apron and you have more overlap. Modesty, you know....

40 inch rump measurement, "wide" apron look (medium sized guy)

eight, three inch box pleats and a sixteen inch apron

8 pleats x 3 inches/pleat = 24 inches (in pleats)

24 inches + 16 = 40 inches (total)

48 inch rump measurement, "narrow" apron look (this is your author's camouflage X-Kilt, see picture at the end of the book)

thirteen, three-inch box pleats and a nine inch apron

13 pleats x 3 inches /pleat = 39 inches (in pleats)

39 inches + 9 inches = 48 inches (total)

I'd learned that narrower aprons looked better than "medium" ones, so I tried a really narrow apron on my kilt and yup.....it looks good.

52 inch rump measurement, "narrow" apron look (one BIG guy)

fourteen, three inch box pleats and a ten inch apron

14 pleats x 3 inches/pleat = 42 inches (in pleats)

42 inches + 10 inches = 52 inches (total)

Box pleated kilts with less than five pleats start looking kind of weird to me, so if your rump is smaller than 30 inches, you might think about making two-and-a-half-inch box pleats. That will change all the measurements from here on out, so I'll let you figure it out. Then again, maybe having only five pleats doesn't bother

you at all. It's your call.

Remember that the X-Kilt is a contemporary kilt and does NOT have a full-width apron like a traditional kilt. You want at least most of one whole pleat to "wrap-around" your hips/waist on each side. So if your waist is 40, then half of that is 20, right? OK, so then 14 -16 inches is the biggest apron size you should accept.

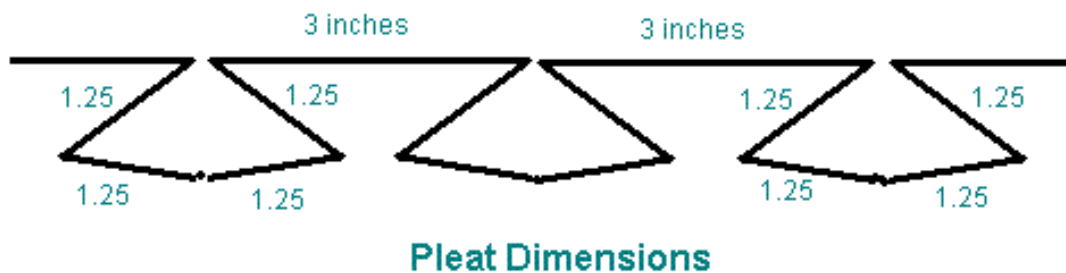
All right, refer to the pleating diagram in **Appendix I**. Go there now. Look at it. That's the (*modified*) pleating diagram for **X-Kilt** prototype #2. I built that kilt for **Captain Jak**, who had a rump measurement of 40 and a waist measurement of 33. You'll see that he got a kilt with ten, three inch pleats and a ten inch over-apron.

OK, so now it's your turn. How many pleats is your kilt going to have, and how big will the over-apron be? Write it down, here.

Pleats _____ **Over-Apron** _____

Pleat Structure

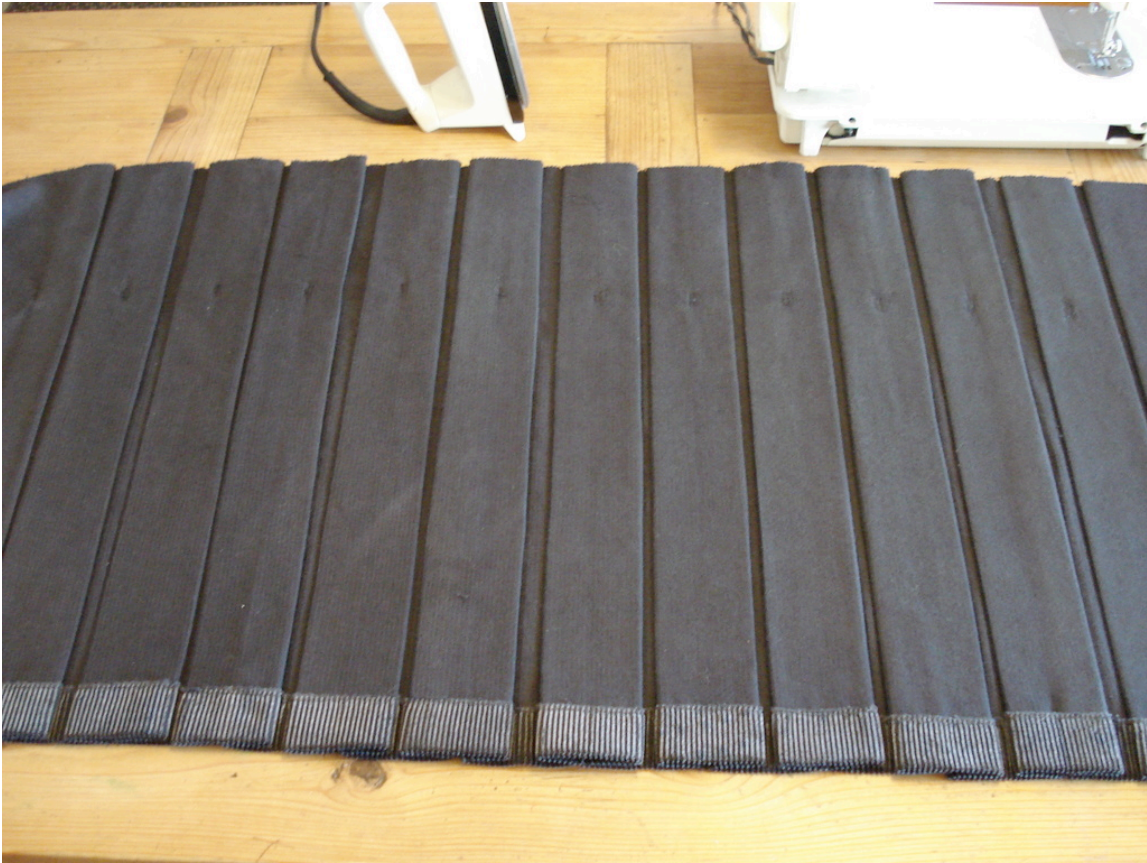
Look at this picture of the end-view of the three-inch box pleats that you'll be making for your kilt.



As you can see, the outer, flat part of the box pleat, the part that faces the outside is three inches wide. The inside folds are 1.25 inches, each. Of course if you lay a 1.25 inch pleat fold next to another 1.25 inch pleat fold, it won't add up to 3 inches. **There's a half-inch gap.** That gap is there because you're going to use that gap, in the fell, to taper your pleats from rump to waist without generating too much overlap. This one thing has generated the second-largest number of questions regarding the X-Kilt. The gap is there on purpose, there's a half-inch gap between the pleat edges on the inside of the kilt. I KNOW that $1.25 + 1.25$ does not equal 3. CHILL, and look at the picture, below!

Look at that diagram, and then refer to the pleating diagram in Appendix I, and it should all start to make more sense to you. OK, OK, still not making sense? Here's a view of the INSIDE of an X-Kilt, showing how the INSIDE of the pleats don't quite meet up with one another. The gray part at the bottom is the turned-

up hem of *the F-H.C.A.G.*'s corduroy kilt that she made for *Cloves*.



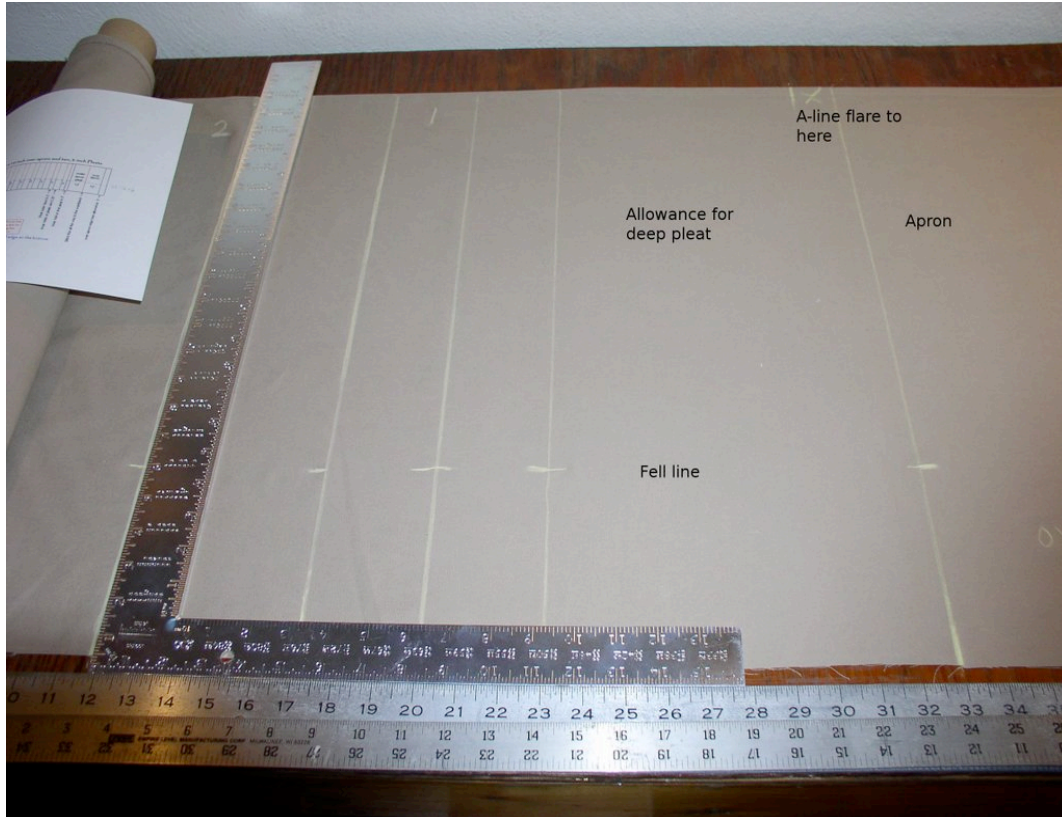
Marking the Pleats

Ok, get out your chalk and your tape measure. You're going to use the chalk to draw where to fold each pleat, directly on the cloth. Don't worry, chalk comes out in the wash. Basically, you are going to replicate the drawing in Appendix I on the OUTER side of your kilt.

Put the kilt down on your work table or the floor (after you've swept and cleaned it.) Have it facing up at you. In other words the outside of the kilt is facing UP. The top of the kilt (the waistband) should be "towards" you and the hem should be "away". The right hand edge will be the over-aprons right edge.

Refer to the illustration in **Appendix I**. The very first thing you're going to do is set the right hand edge. For this you need a straight edge and something that is an accurate right angle. A framing square is really good for this, but you can get good results with a really big book, like an Atlas or something. You just want something big that will give you an accurate 90 degree angle. This is IMPORTANT...read that again....this angle is IMPORTANT so do it right. If you botch it, all your pleats will hang at an angle instead of straight up and down, and the kilt will only look right after you've drunk a lot of beer. An eighth of an inch

doesn't matter but half an inch does matter.



OK, so move in about 5 inches from the right hand, raw edge of the fabric and mark a chalk line that's an accurate right-hand angle from the selvedged edge, up to the folded-over waistband edge. All your measuring is going to be based from this line. Now go and look at the pleating illustration again. Does it make sense?

The next thing you do is chalk in your fell line. This has to be perfectly straight and exactly the distance from the waistband that you wrote down for your fell, back on page 4. That's the dotted blue line in the pleating layout illustration, and it should be about 8 inches from the waistband edge. Chalk in the line all the way down your material.

Once the fell line is in, start measuring out the over-apron. It'll be somewhere between 8 and 12 inches wide, so go back to where you figured out how wide your apron will be and make note of the measurement. Measure that far from the right hand edge line that you marked and put a chalk mark at the waistband. Go to the hem and repeat the process. Now take a straightedge, and join the two marks with a chalk line. Eyeball it closely and make drop-dead sure that everything is at right angles to each other. It should be a perfect rectangle. You're going to work your way down the kilt, measuring as you go, using the diagram in **Appendix I** as your guide. Then you're going to repeat the process at

the hem, keeping a sharp eye out for mistakes. If you ever join one mark at the hem to its corresponding mark at the waistband to and your eye tells you "that's not a right angle!"...believe your eye and check your marks.

The first "forward-facing inner pleat fold" and the last "forward-facing inner pleat fold" are deeper than half the depth of the pleat, right? In fact, they're three inches deep; the depth of the whole pleat! That's a lot, but this will help with keeping the pleats flat. All the rest of the markings should make sense to you. If they don't, go back to the "end-view of the pleats" diagram at the top of the page and think about it until the geometry makes sense. When you're finished, you will have reproduced the diagram in Appendix I on your fabric, adjusted for your number of pleats and apron width, and drawn in chalk.



When you're all done marking with chalk you can trim off the excess cloth if you're brave. Me, I always leave it there, just in case I've messed up and left out a pleat or something.

Here's a look at
that really deep



A-Shaping the Over-Apron

Go to the hem (or *selvedge...the bottom of the kilt, whatever*) and find the marks you made that outline the over-apron. It's a perfect rectangle, right? Measure one-and-a-half inches out from each of these marks, and make a little "X", right at the hem, with chalk. If you're a Big Guy, make it an inch and three-quarters. Now draw a chalk line from the top of the over-apron at the waistband, down to these new marks at the hem. You've now outlined new dimensions for the over apron, so that it's three inches wider at the bottom than it is at the top. It's now a trapezoid, right? That's A-Shaping. You'll be folding/stitching over the apron along these new lines, instead of along the right-angle ones.



That wasn't hard, was it? ... Well, except for the fact that you had to look up the word "trapezoid" in the dictionary.

Sewing Down the Outer Pleat Folds

Now you're going to do some power sewing! This part usually takes me an hour and a half to two hours, just sewing/going at it, so brace yourself! OK, look at **Appendix I**. You are going to fold over the kilt and sew all the OUTSIDE edges of the box pleats. That's all the red lines that go from the hem to the fell. You're only going to sew from hem to fell because you'll be tapering the kilt from the fell to the waist, so you don't want to sew in that part of the pleats, yet.

OK, so THINK, here. You've divided up a lot of the kilt fabric into 3 inch and 5.25 inch sections. You know that the box pleats will be three inches wide. That means that those 5.25 inch sections will be the INSIDE folds of the box pleats, right? Which way do you have to fold the fabric along those lines you chalked in so that you get nice, sharp 3-inch wide box pleats? Think about it, and you'll figure it out.

Here's what I do. I find a mark at the hem and then I find the corresponding mark at the waistband. I pinch the fabric between thumb and forefinger right at those marks. My left hand pinches the hem, my right hand pinches the waistband. The excess fabric lies on the table off to my left. That pinching action puts a bit of a crease right down the chalk line that joins the marks.

Now I take the fabric, and holding on tightly to those "pinches" I shake it a bit to even it out, and then lay it on the table. Then I pat it down with my hand to create a definite fold right along the chalk line. Then I pin it about an inch from the chalk line to hold the fabric in place. Four pins does it...one an inch above the hem, one an inch below the fell line and two more spread out along the pleat. Now I'm ready to sew it down.

Here's a word to the wise. A line of stitching done by a sewing machine doesn't look the same from the top as it does from underneath. You want the TOP stitching to show....it's neater looking. What that means is that you're going to want to stitch from hem to fell along one side of a 3-inch box pleat, and then reverse direction on the next edge of that same pleat....stitching from fell to hem. It's a little bit more hassle than just motoring down the whole length of cloth and doing them all going the same direction, but it's worth it.

Sounds complicated, doesn't it? It's miserable to explain, but trust me, if you just GO SLOW and really look and think about what you are doing, you will figure it out. Besides, look at it this way.... the top stitching and the under-stitching don't look THAT different, so if you don't figure this out, nobody is going to notice but you.

What you are doing with this stitching is making crisply folded-over edges to the outside of your box pleats. Without these edges, you'll never get the pleats straight again after washing the kilt. The purpose of the stitching is to create a crisp edge and define it to the observer, so try hard to keep your stitching within

an eighth of an inch of the edge of pleat, and as straight as you can. You might practice on a few spare lengths of material until you're a whiz at it.



Ok, start at one end and just work your way down the kilt, pinching, patting, pinning and sewing until all your pleats are done. When you get to the left-hand edge of the over-apron, check the next section. Hurrah! You've set up your box pleats!

Sewing Down the Over-Apron Edges

Find the A-Shaping chalk line you drew for the right hand edge of the over-apron. "Right hand edge" this time refers to "right" as you're looking at the kilt on the table, the hem/selvedge towards you. Make SURE that you've got the A-Shaping line, and not the square, measuring line! Fold that over from the hem all the way up to the waistband in a straight line and pin it. Don't stop at the fell, go all the way to the waistband on this one. Now stitch that puppy down. Are you going to run two lines of stitching on the edges of your over-apron? I recommend it. If so, you should match that with two lines of stitching on the left side, too, BUT WAIT TO DO THIS UNTIL LATER, when you attach the over-apron strip. Go ahead and put two lines of stitching on the right side now, if you want. Make 'em about a quarter of an inch apart. I recommend two lines of stitching anyway; it tends to stiffen up the edges of the apron and that's a good thing, especially if you're working with cotton/poly twill.

Be sure you're pinning/stitching along the A-SHAPING chalk lines you put in and the kilt is facing up, outside of kilt facing you, hem/selvedge towards you. If it's not like this then all my right-left instructions in the above paragraph will be backwards!!

Move over to the left-hand edge of the over-apron and fold over the left hand edge, following the A-SHAPING LINE. Fold it under twice so that the raw edge is buried. This will leave a substantial flap of material folded in towards the center of the apron. That's good, it helps stiffen up the apron a bit. It'll be narrower at the bottom than at the top because of the A-Shaping. No worries.

OK, so pin down that folded-over edge and stitch it down about a quarter of an inch from the edge, matching the stitching pattern you used on the other edge of the apron but **ONLY DO ONE LINE OF STITCHING FOR NOW**. You should have at least an inch of extra material extending beyond the hem line, towards the middle of the over-apron, on the inside.

Now you've got your over-apron!

Marking and Ironing in the Box Pleats

What you have now is a long strip of fabric, about 20-26 inches wide. It has sewn-in ridges every 3 inches, alternating with 5.25 inches, and an A-shaped over-apron on one end. At the other end is a loose bunch of fabric that will be your under-apron. OK, lay the fabric out flat on the floor with the hem/selvedge towards you or your work table and get out your chalk.

Tune up your eyes. At the chalked-in fell-line put a mark in the center of each 5.25 inch section. Repeat the process at the hem/selvedge. Eyeballing it is OK but if you want to measure, be my guest. When you're done you'll have chalk marks in the middle of each 5.25 inch section of fabric, at the hem and the fell. You're going to use these as guides when folding and ironing your kilt.



Note the little chalk marks in the center of each between-pleat section on this kilt. You're going to fold the edges of the pleats together until they meet, right over those chalk marks.

Set up your ironing board and your iron. Put water in the iron and turn it up to where you'll get some good steam. OK, summon some patience here, I find this step to be "trying". Work on about 2-3 pleats at a time, no more than that. Lay them out on the widest part of the ironing board. Find a way to support the excess material so that the weight of it doesn't drag fabric out of alignment, or off onto the floor. You're going to make your box pleats.

Make a series of "accordion folds" underneath the 3-inch outside sections of the box pleats. Bring the outside edge of each pleat absolutely right next to the edge of the next pleat. Make sure that the pleat edges meet each other **DIRECTLY OVER A CHALK MARK** at the fell line and the hem. That's what those chalk marks in the middle of the 5.25-inch sections are for.

Look at your edges closely...lift them up and double-check...then move down the row doing two or three pleats. Are they evenly distributed? Are the edges *right next* to one another? No Gaps Allowed! Stick your finger inside the pleats and smooth down the inner folds until everything is smooth and even in those 2-3 box pleats that you're working on. Take some care, here. It will take you a while, so be patient.

When you have 2-3 pleats absolutely perfect, lying there on your ironing board, then steam 'em down hard with the iron. I mean, **SET** those pleats. Blast 'em a couple of times with steam and put some weight into it!

When you've done 2-3 pleats, move down the kilt and do 2-3 more until you've gotten them all set. Make them as close to perfect as you can stand. Remember that on the **INSIDE** of the kilt, the inside pleat edges will have about a half-inch gap. On the **OUTSIDE** of the kilt, the outside edges of the pleats should lie right next to one another.

Hey, look.....you've made an accordion bellows!

Bar-Tacking the Pleats

OK, back to the sewing machine with you!

Lay your length of accordion pleated fabric out on the table and fold everything up, just like it was on the ironing board. You can pin it together if you want, with pins a quarter-inch or so away from the pleat edges. Now slide it up onto your machine until the point where the edges of two pleats join one another, right at the fell line. Look for the chalk line at the fell.

Set your machine on zig-zag, and choose a relatively wide stitch. Go back and forth with the stitches, using the zig-zag to fasten those edges to one another, and tack them down to the material below. You want to do about 6-7 zig-zag stitches, then reverse the machine and stitch 6-7 more going backwards. Do 6-7

more, going forwards again. Do that reversing direction thing about four times, and it'll never let go. Mind you, you're only doing this at the fell line, don't attach the pleat edges above or below the line. 6-7-8 stitches is plenty. Just go over 'em a few times.

After you do one set of pleat edges, move to the next pair. After you do two, you'll notice that there's a lot of material squashed under the sewing machine arm. I find that if I neatly roll up the kilt in there, I can get more into that space and not drive myself batty trying to wrestle this mass of wadded-up cloth in there.

See, I'm batty enough as it is, I don't need any more help in that department.

BTW, when you get to the last/first pleat edge(s), the last one right next to the under-apron, and the first one just after the big pleat that goes under the over-apron, there won't be another pleat edge to attach it to. I mean, you're at the EDGE, right? For appearances sake, just bar-tack the one edge down, as written above. That way they all look the same.

When you're done bar-tacking the pleats together at the fell line, pull your kilt out of the machine, unroll it and look at it. You know what? It's actually starting to look like a KILT!

Checking Yourself



Part of the process of doing all this is making a mistake, ripping it out, and re-doing it. Don't feel bad if you have to do that a lot....everybody does it. Wine or whisky (your choice) seems to ease the pain.

You're now at a point to check and see if you've made a horrendous mistake. I strongly recommend that you do this, if you've goofed and left out a pleat you can still correct it by adding one more in, if you have to.

OK, lay the kilt out on the table. Lay it really flat, tidy up the box-pleats-to-be above the fell line, and give it a few little tugs along the fell line to encourage maximum flatness. Now get out your measuring tape. Measure from the right hand edge of the over-apron, right at the bar-tacks/fell-chalk-marks, to the last pleat edge you just tacked down. Don't measure any of the under-apron....just from the edge of the over-apron to the last pleat edge. Measure right along the fell line where you bar-tacked the pleat edges together.

Write down that number. **THAT NUMBER** _____

OK, that number should be within an inch of your rump measurement back from page 4. Hopefully it's a little bit bigger than your rump measurement, say about half an inch or an inch at the very most. Better too big than too small. However, if it's bigger than that, then:

- You added wrong when you calculated your combination of apron width and number of pleats. As long as you don't have way too many pleats, and you're only off by a maximum of three inches, you can correct this by making the over-apron smaller. You'll have to rip out the finished edge and re-sew it....OR
- As you bar-tacked your pleat edges together, you got gaps between the edges. This is bad. You have to go back, rip out all the bar tacks that don't hold pleat edges absolutely right next to each other, and re-sew them. OR
- You accidentally made one or more pleats bigger than 3 inches wide. Are they all the same width? Look 'em over. You didn't accidentally make all your pleats 5.25 inches wide, did you? If you boffed up one or two pleats, then just rip out the bar-tacking and the edge stitching and stitch it/them up again at the right width. You'll have extra material in the folds under the box-pleat(s), but you can fudge something together that'll look OK, I'm sure. If you made all your pleats 5.25 inches wide, then you've messed up bigtime, and mixed up the outside of the box pleats with the inside. I hate to tell you this, but honestly you should probably start over.

If it's smaller than your rump measurement, then one of the following things has likely gone wrong.

- You added wrong when you calculated your combination of apron width and number of pleats. If you're just about exactly three inches too small, then just add one more box pleat.
- You added right when you calculated your combination of apron width and number of pleats, but when you put in your chalk lines, you forgot one pleat. OK, so add one more box pleat. Aren't you glad that you didn't trim off the excess fabric, yet?
- If it's smaller by about 2 inches, then you have to get creative. Being an inch too small isn't the end of the world, so if you can get an extra inch

somewhere, you should be OK. You might try ripping out the finishing job you did on the over-aprons right-hand edge, and re-doing it in a different way that uses less fabric. You could also just add one more box pleat and drink a lot of beer and eat a few bags of potato chips.

Hopefully, your kilt is just about right, with "That Number" spot-on your rump measurment, plus or minus half an inch.

Sewing the Inside Folds of the Pleats

This is kind of optional. Actually, as I write the second edition of this manual, with the experience of about 8 X-Kilt constructions behind me, I'm considering this to be rather more important than "optional". But hey, I'm not gonna hunt you down if you don't do this, right? Right? RIGHT.

If you've hemmed your kilt, then I recommend at least sewing the inside folds down at the double-thick part of the hem. The double-thickness tends to resist keeping a pleat, and will tend to open up. As that happens, the kilt starts looking messy. This goes ten times over if you're building your kilt out of canvas or denim. Doubled-over canvas/denim hems laugh at your silly steam iron so those puppies down. On cotton twill and cotton/poly twill, I'd stitch down your hems, too.

If you've got the patience, there's no reason why you can't stitch down the inside folds of all your box pleats from the bottom of the kilt, to the fell. It's up to you, but I'll tell you this, sewn-up inner folds sure makes ironing that kilt easier after you wash it! C'mon, PONY UP and do it.

I'm also going to recommend that you stitch down the inside of the reverse pleat that lies under the over-apron. The one fault I find with this X-kilt thing is that it tends to "pooch" along that fold. If you followed these directions, then your fold is two inches deeper than the one on my first post-prototype kilt, but I still wager that you'll need to stitch it down. Stiffen it up with a line of stitching in there. Heck you might even put in two lines, close together.

A word to the wise... before stitching down your kilts inside folds, put the thing on the ironing table again. This time iron it with the INSIDE of the kilt facing up. Even everything out with incredible care, going 2-3 pleats at a time, and apply steam and heat directly to the pleat edges in question. Once that's done and those pleat edges are really definite, then take the kilt to the sewing machine for the stitch-down.

Tapering the Fell: Calculating the Taper

This step is time consuming, but it has a lot to do with how well your kilt will fit, so take your time. What you're going to do is fold over each box-pleat above the fell

so that it's smaller at the top than it is right at the fell. For example, right at the fell, all your box pleats are exactly 3-inches wide, right? You're probably going to make many of them about 2 inches wide at the waistband.

Here's the principle... Let's say you are 46 inches around at the rump, and 40 inches at the waist. Your kilt has twelve pleats. The difference between your rump measurement and your waist measurement is six inches. Therefore, you need to take up six inches of pleat width over those twelve pleats.....or a half-inch of taper per pleat. Got it? In fact, you're not quite going to do it that way, but it gives you an idea of how to think about it.

OK, some pleats are going to be tapered more than others. It works like this:

- Don't taper the first and last pleats at all, and no matter what happens, don't taper the front edge of both the first and last pleats. eg. The pleats right next to the aprons at the front of your body should have no taper.
- Maximize the taper where the kilt goes 'round your hips. This means that pleats two and three, and the next-to-the-last, and the "next-to-the-next-to-the-last" pleats are heavily tapered. You want the kilt to curve strongly at this point to wrap around your hips. You can taper from three inches at the fell to as small as two inches at the waistline on these four pleats.
- Pleats in the middle of your backside should be less taper than the ones at the hips, but should still have some taper unless your rump/waist measurement is very nearly the same.

To achieve this, lay the kilt out on a flat surface, outside-up, with the waistband-end of the pleats towards you. Fold up the box-pleats and tidy up everything. Get your fingers inside those pleats and make sure nothing is bunched up. Even up everything so you have a good starting point. Look at your rump/waist numbers again so you know how much tapering you have to do.

The way the pleats are designed, you have about half an inch space between the inner folds of the under-pleats. That means if you just pull the top of the inner pleat folds in until those edges touch, you're going to taper the fell roughly one-half inch for each pleat you work on. Will that be enough? Keep in mind that you're not going to be tapering the first and the last pleats. Here's a table to help you.

Number of pleats	Subtracting the first and last	Amount of taper
14	12	6 inches
13	11	5.5 inches
12	10	5 inches
11	9	4.5 inches
10	8	4 inches

Most average guys will need between 6 and 9 inches of taper. Many "standard"

kilts that you buy off the rack are made with 8 inches of taper. As you can see, you won't get that amount of taper by just using the "gap" built into this pleat design. You're going to have to build in more taper by overlapping the inside pleats at the waist. Overlapping the inner pleat folds make for a lot of material piled on top of itself there at the waistband. If we didn't have that gap between the inner folds already, it'd be even worse! This is a royal PAIN to pin in place, but pin it, you will have to do.

All right, so using the principles outlined above, work out your tapers. Here are mine. Remember that my waist is 40 inches and my rump is 48, and my kilt has 13 pleats.

Pleat	Taper
1	none
2	1 inch <i>(3 inches at fell to 2 inches wide at waistband)</i>
3	1 inch <i>(3 inches at fell to 2 inches wide at waistband)</i>
4	½ inch <i>(3 inches at fell to 2.5 inches wide at waistband)</i>
5	½ inch <i>(3 inches at fell to 2.5 inches wide at waistband)</i>
6	½ inch
7	1 inch
8	½ inch
9	½ inch
10	½ inch
11	1 inch
12	1 inch
13	none

Total taper = 8 inches

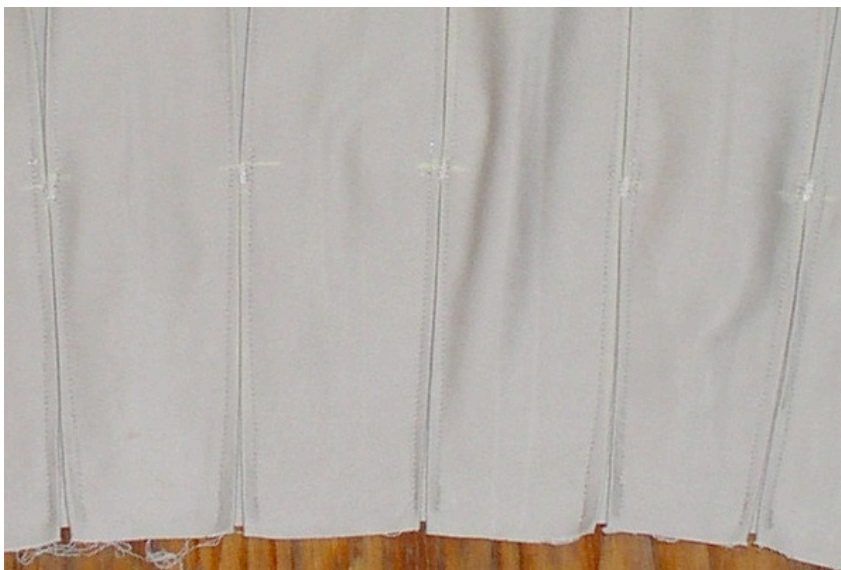
Note the symmetry of how my tapers are distributed. The one in the middle of my rump is deeper than the ones next to it. OK, so you work out something along the same lines for your measurements.

Tapering the Fell: Sewing the Tapers

Work on 2-3 of the tapers at a time. If you do more than that it gets awkward. Start at either end of the pleats and just work your way 'round the kilt until you are done. NOTE: as you put in the tapers, the kilt will seem to fan out. The pleats will fan out at the bottom, and the whole kilt will seem to curve on the table. It used to lie flat, and now it won't! This is exactly what it's supposed to do, and actually as you lay out your tapers, you want to encourage this curvature. See the next picture for an idea of what it will look like.



OK, so referring to your table, fold in the tapers you need. Overlap the insides of the inner folds of the pleats where you have to. Make sure everything is flat and as even as you can make it, inside these tapers. Get a fingertip in there, or the smooth handle of a pair of scissors. When it's all groovy and your tapers are even, pin them in place. I use three pins per tapered edge, evenly distributed over the pleat. Three pins go on one pleat, on one side, and three pins go on the other side of the same pleat...six pins total for each pleat. Line up the edges of each tapered pleat right next to each other, NO GAPS! That gets tough to do up near the waistband, but do your best. Take your time and make each tapered pleat as symmetrical as you possibly can. Pinning these tapers is a PAIN, but grin and bear it and do your best.



Word to the wise: make sure your pleats/tapers are symmetrical. It's pretty easy to accidentally take in all the material for the taper from one side of the pleat. If you do that, the kilt will hang all funny and look weird.

When you've pinned down 2-3 pleats and their tapers, put the kilt on your sewing machine, and stitch down each pleat from fell to waistband, like in the above

illustration . Be sure to reverse the direction of stitch of the machine for 6-7 stitches at the waistband, so the very top of the pleats are double-stitched. That will help with strength.

When you're all done, pull the pins and move on to the next section of pleats and taper them to your numbers. Four rounds of this, and you're done.

You can actually put the thing on, now and belt it on yourself! Go check it in the mirror and start to gather in the admiring and respectful stares of your family members! They cannot believe that you have made this thing. Women shake their heads, stunned. Men are intimidated. Ha! That will teach them to doubt you! Of course the children think you are out of your mind, but you knew that a long time ago.

OK, quit patting yourself on the back, now, and make note of where you want to trim off the inner apron while it's strapped around your rump.

Tack Down the Top of the Outer Apron

Move 'round to the front of the kilt and lay out/fold over the left hand edge of the over apron next to the forward-facing edge of pleat #1. Align and pad-down the big reverse pleat you just made that lies under the over-apron. You might pin it in place, but I bet you can hand-hold this. Put the kilt on the sewing machine and tack down about 3-4 inches of the very top of the over-apron's left edge to the fabric beneath it. Put it right on top of one of the double-lines of stitching that are already there. Be sure to reverse the stitching direction on the machine at the beginning and end so that it's double-stitched for strength. I recommend aligning the top few inches of the left hand edge right next to the leading edge of pleat #1.

Take the kilt to the ironing board and open up that deep reverse pleat that lies under the over-apron. Fold back about 2.5 – 3 inches, down at the hem, and make a nice even fold on that deep pleat all the way up to the waistband. It will get deeper as you approach the waistband, OK?....only 2.5 inches deep at the hem, but maybe nearly 5 inches deep at the waistband.

Iron that inner, reverse pleat down, hard, and then hand-stitch a few stitches at the very top, up near the waistband to hold it in place. You don't have to go to town with the hand stitching just half a dozen stitches is fine, right up close to the waistband, but not AT the waistband. The A-shaping of the apron will actually require that the top of the pleat angle away from the raw edge of the top of the kilt a bit.

Attaching the Over-Apron Strip

OK, go find the over-apron strip that you sewed the velcro onto, hours ago. You're going to A.) machine-sew it to the right-hand edge of the inside of the over-apron, B.) machine-sew it to the top edge of the over-apron and C.) hand stitch it to the inside of the deep pleat that lies underneath the left-hand edge of the over-apron.

OK, here's step A.) line up the strip on the inside of the kilt with the top, raw edge, right in line with the top, raw edge of the over-apron. The velcro is facing out, towards you. Slide the right-hand edge of the strip UNDER the hem of the over apron, on the right (you're looking at the INSIDE of the kilt here, yes?). Push it over to the right until it won't go any more. The right-hand edge of the over-apron strip should be butted right up against the stitching that holds the hem of the edge of the over-apron. Pin it in place so that the top, raw edge of the strip is even with the top, raw edge of the over-apron.

Now take the kilt and slap it on the sewing machine, "right-side-up". All of a sudden what's "left" and "right" in my description is going to change, huh? Riiiiight. Hours and hours ago you made TWO lines of stitching up the one side of the over-apron, didn't you? That would be the right side of the over-apron, when you're looking at it from the outside. But you only made one line of stitching on the other side. Well, now you're going to put in that second line of stitching to match the right side, and it's going to catch the edge of the under-apron strip and lock it down. So stitch that puppy up from hem to waistband, with your second line of stitching about $\frac{1}{4}$ to $\frac{1}{2}$ an inch away from the first line, making drop-dead sure to catch the over-apron strip with the stitching.

If that paragraph confused the dickens out of you, just don't read it again, and just think of some way to attach the over-apron strip to the inside of the over-apron of the kilt and call it good! If I didn't baffle you completely and drive you to drink, continue on to step B..

Step B.) Pull the pins and use them to attach the top, raw edges of the strip and the over-apron together. With the kilt "inside facing up" use your sewing machine to attach the strip to the over-apron strip with a line of straight stitching about $\frac{3}{4}$ of an inch from the edges.. That's pretty straightforward. Note that this will probably also catch the top of the big under-apron pleat; all to the good.

All that's left to do is Step C., which is to take the kilt off the machine, turn the kilt inside-up on your table and pat it down flat. Pin everything flat and nice with 5-6 pins that attach the strip to the inside of the pleat. Now thread a needle with whatever thread you've got and attach the left-hand edge of the over-apron strip to the under-apron pleat. Use about 20 stitches to do this, they don't have to be pretty, just strong but MAKE SURE that you stitch through the strip and both layers of the pleat but NOT through the over-apron itself. You'll have a line of

messy-looking stitches showing on the outside of your kilt, if you do. If you're really clever you might be able to use your machine to do this stitching by shoving stuff around on the machine's sewing arm. The pins will probably hold it in place well enough. If not, just hand-sew it. Hand sewing builds character, you see?

If you stitched the strip on there with the velcro on the inside, up against the over-apron and not available to stick to anything, then I will now take the liberty of informing you that you are unclear on the concept of velcro.....

Anchor the Top of the Pleats

You don't have to do this step, but it's a lot easier to deal with putting the waistband on if you do this. Just lay all those tops of the inner pleat folds down neatly right at the top edge. Overlap them with care, in some symmetrical pattern that looks good to you. Pin the floppy folds in place. Now put the kilt on the sewing machine and run a continuous line of stitching right 'round the entire waistband-edge of the pleats, about half an inch down from the very top. That will anchor all those floppy pleat folds in place and the line of stitching will be hidden by the waistband, anyway.

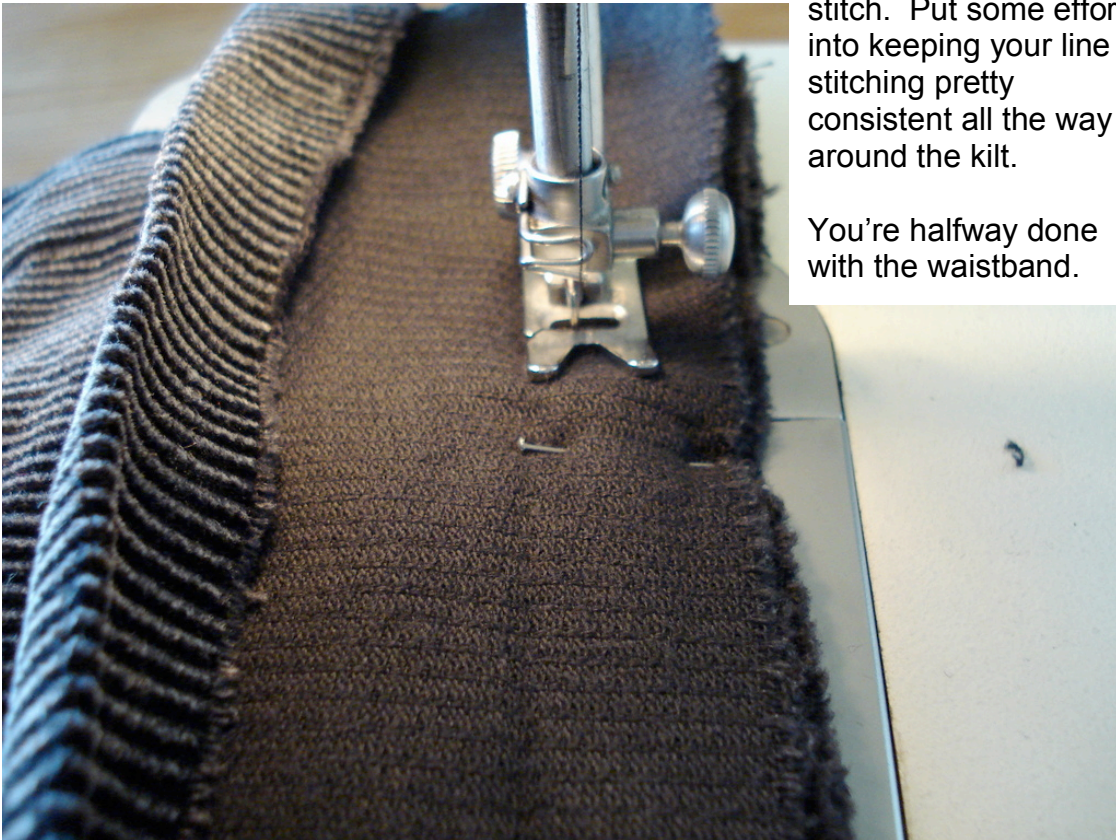
The Waistband; the Outside

Go to your leftover fabric (the other half of that 4 yards you bought) and cut a 4-5 inch wide strip of fabric off of it. That's going to be your waistband. The strip should be the length of the waistline (the top) of your kilt including both the aprons. Mmm-Hmmm; the whole thing; over-apron, pleats, under-apron... Add 3-4 extra inches onto that measurement, just to be safe.

Now leave yourself about a half-inch that sticks out past the right hand edge of the over-apron, and start pinning that strip to the outside of the kilt. Align one raw edge of the strip with the very top of the kilt and pin it about every 3 inches. You're going to need a lot of pins because the kilt curves and you have to induce the waistband strip to curve with it. So don't be shy with the pins. Pin that sucker down as accurately as you can, aligned with the very top of the kilt. Be SURE to pin it to the OUTSIDE of the kilt.



When you're all done pinning, put the kilt/waistband strip on your sewing machine, with the strip facing up. Stitch the waistband strip to the kilt about $\frac{3}{4}$ to 1 inch from the top edge with a straight stitch. Put some effort into keeping your line of stitching pretty consistent all the way around the kilt.

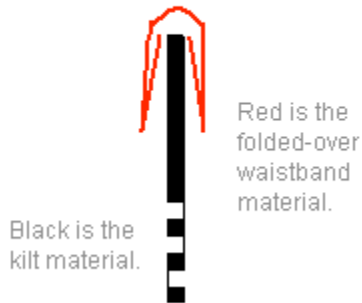


You're halfway done with the waistband.

The Waistband; Inside

Here's a picture of how you'll be folding over the waistband strip. It's an "edge view". Next to it is a photograph to illustrate the same idea.

waistband fold-over



Do you see how all the raw edges, both the kilts raw edge and the waistband raw edges are buried inside the fold-over? OK, so replicate that drawing, hiding all the raw edges inside the waistband, all the way around the kilt. Pin it down, and make it nice and neat.

Now you have to choose how to sew it...

You can machine-sew it, going right 'round the top of the kilt and sewing through all the thicknesses of material. The other option is to get out a needle and thread and hand-sew the inner, folded edge of the waistband just to the inner surface of the kilt, making sure that your stitches don't go all the way through. They don't show so they don't have to be blinkin' PERFECT.

Machine sewing is easier and faster. However, there's a lot of material here, especially at the pleats and your machine simply may not do it. Unless you have an industrial machine, it almost for sure won't do it, if you're working in canvas or denim. Then again, it might DO it, but very, very unhappy with all the material it has to ram its needle through and make really awful-looking stitches. If you machine sew it, you will also see a line of stitching in your waistband unless you are wickedly clever and smoosh the outside of the waistband up as you sew so that the stitches don't catch it. Whatever, it's no big deal to anyone but a mad perfectionist, but hey, maybe you have obsessive-compulsive issues.

If you hand-sew it, it takes a lot longer, but not THAT long, and like I said hand-sewing builds character. You may not have a choice, actually. Look, if it was a traditional kilt, you'd be hand-sewing almost the whole thing so quit whining. The

advantage is that the stitching won't show on the outside, and that's nice, especially for you compulsive types.

So take your pick....challenge your sewing machine, or get out a needle and thread and go to it. Hand-sewing the inside of a waistband is about an hours work. Try to do about 3 stitches to the inch; that's plenty. Keep them as small as you can stand.

When you're all done, pull the pins.

Fold the ends of the waistband inside the waistband itself at the right-hand edge of the over apron, and at the left-hand edge of the under-apron. Basically, you're folding the waistband "tube" into itself so the raw edges don't show. Stitch the waistband "tube" closed, either by hand or with a few passes of the machine.

Finishing Touches

What's left? Velcro, the inner apron, and belt loops

By now you're a whiz at this, so I don't think I really need to tell you how to put on the inner layer of velcro. Line it up with where the outer layer should contact it, and don't put it too close to the leading edge of your last pleat. Stitch it down firmly to the under-apron.

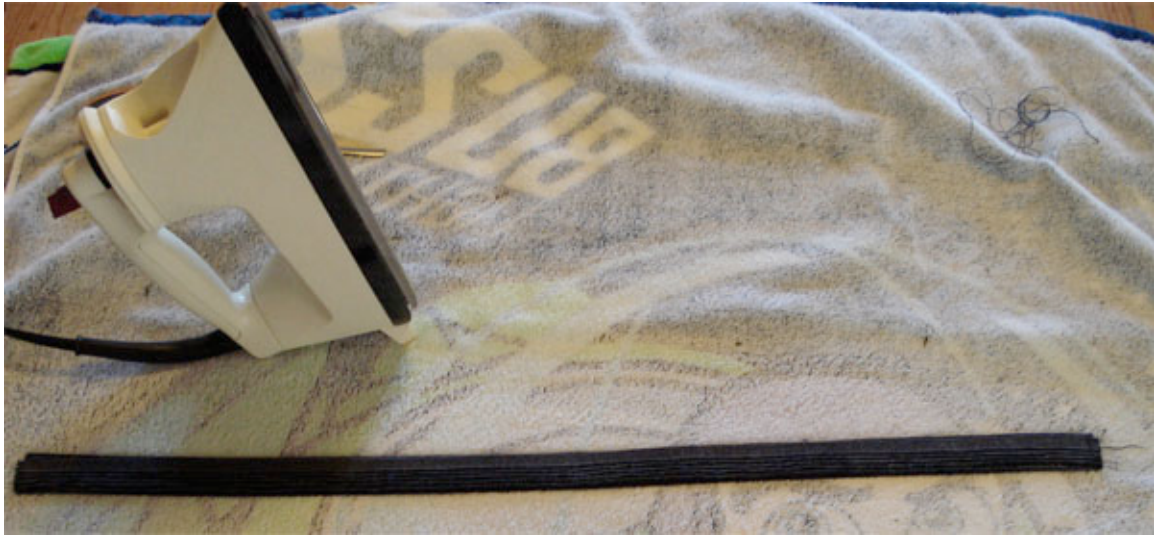
Trim off the far left edge of the under-apron, fold it over and hem it. You're an expert now, you don't need me to tell you how to do this! Besides, that hem is on the INSIDE of the kilt and nobody will ever see it. I recommend that you not make this a right-angle cut, but instead make the under-apron about 3-4 inches wider on the hem than it is at the waist. That extra fabric helps with modesty on windy days....trust me.

I find that my belt prpressure holds extra material from the left-had edge of the under-apron in place just fine. However, if you really want to attach it, you can machine-sew a bit of velcro onto the under-apron, and then hand-sew a corresponding bit onto the inside of the kilt, up near the waistband. If you machine-sew it, the stitches will show on the outside. If that bugs you, then hand-sew it. On the other hand, your belt will cover the stitches so they won't be seen. This back-and-forth could go on, all day....just decide for crying out loud, and do something.

I used the buttonhole attachment on my sewing machine to make a buttonhole near the top of the under-apron on all my recent **X-Kilts** and then hand-sewed in a button in the appropriate place on the inside of the kilt. That works, too.

Finally, **belt loops**. I put four or five belt loops on my **X-Kilts**. Here's how I do it.

First, I cut a strip about 18 inches long and about two inches wide, of the material I'm going to use for the loops. I take that strip to the ironing board, and fold it lengthwise, in thirds. I make sure that the bottom third doesn't quite reach the edge of the strip. Now I have an 18-inch long, narrow strip of three-thicknesses of cloth. Then I iron those folds flat-down, hard.



I take this strip to the sewing machine and run a continuous line of straight-stitching down each edge, about $\frac{1}{8}$ th of an inch in from the edge. Finally I go back and run a wide zig-zag down the length of the strip, right down the middle. That anchors the raw edge underneath it and helps keep it from fraying. I just made a fabric strap, about $\frac{3}{4}$ of an inch wide. This illustration shows the zig-zagging, and attaching the belt loop to the body of the kilt.



Now I look at my kilt belt. With an ***X-Kilt*** I don't wear a traditional kilt belt, so I don't need 3 inch belt loops. I make 2.5 inch belt loops. That means I cut 5, 2.75 inch sections out of this 18 inch long strap that I just made. If you want to wear a traditional kilt belt, then make 4-inch long sections, probably 4 of them.

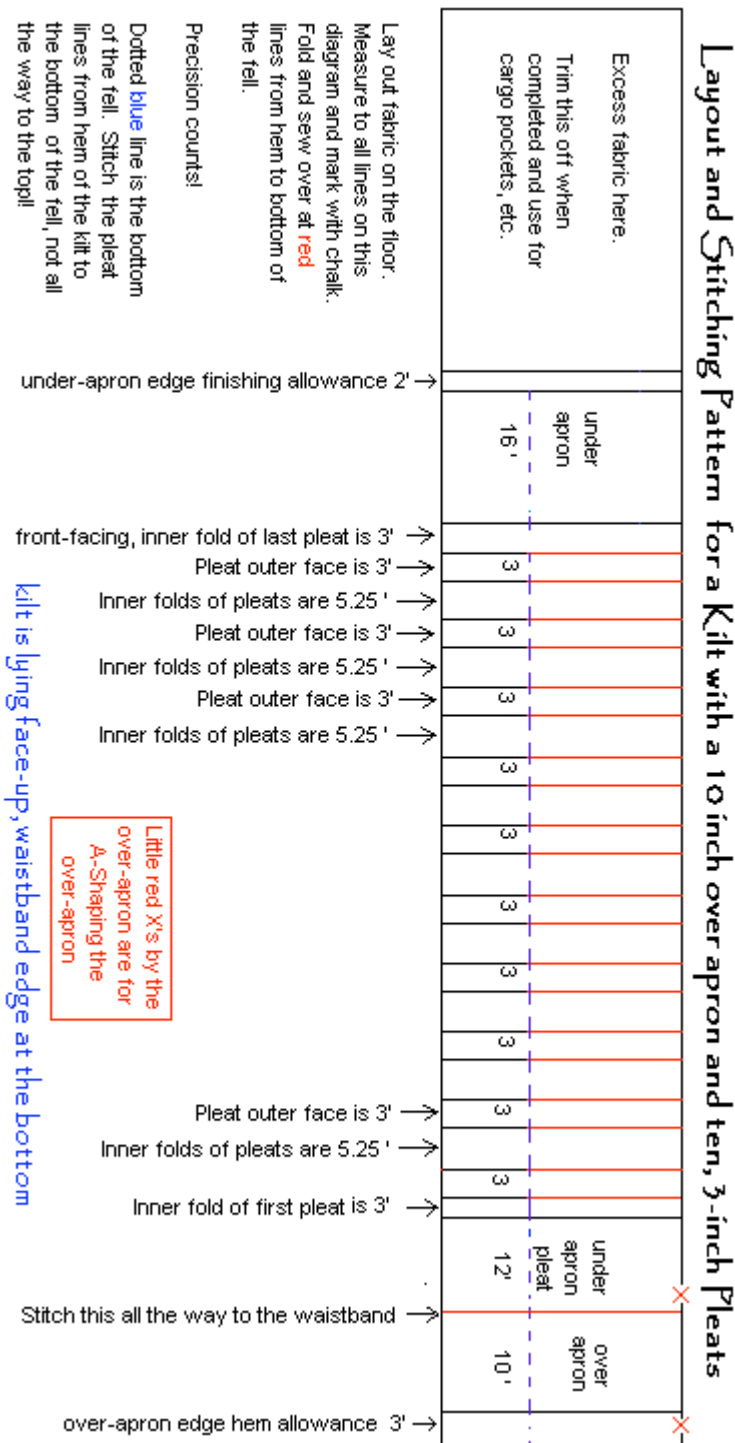
I bar-tack these on to the kilt, using the zig-zag stitch on my machine. Tack them down hard at the top and the bottom so that the ends don't fray and make sure you've covered the raw, cut ends of those loops with lots of thread. I put belt loops at each edge of the over-apron, right up at the waistband. Then I distribute the other belt loops 'round the pleated part of the kilt, so that they're symmetrical. Three belt loops 'round your backside is plenty. You could fold over the ends of those belt loops and tack them down, but that is a LOT of material for your home sewing machine to deal with, so I don't bother. If you're the meticulous sort, then cut your loops half an inch longer than you need them, fold them over, and hand-tack them down.

When that's done.....guess what? Congratulations! **You just made an *X-Kilt*!** Throw that baby in the washing machine to wash out the chalk marks, iron it up and wear it with pride!

.....Because mate, **YOU made it!**

*Alan Hebert
July/August 2006
Second Edition: January 2008*

Appendix 1: Sample Pleating Diagram

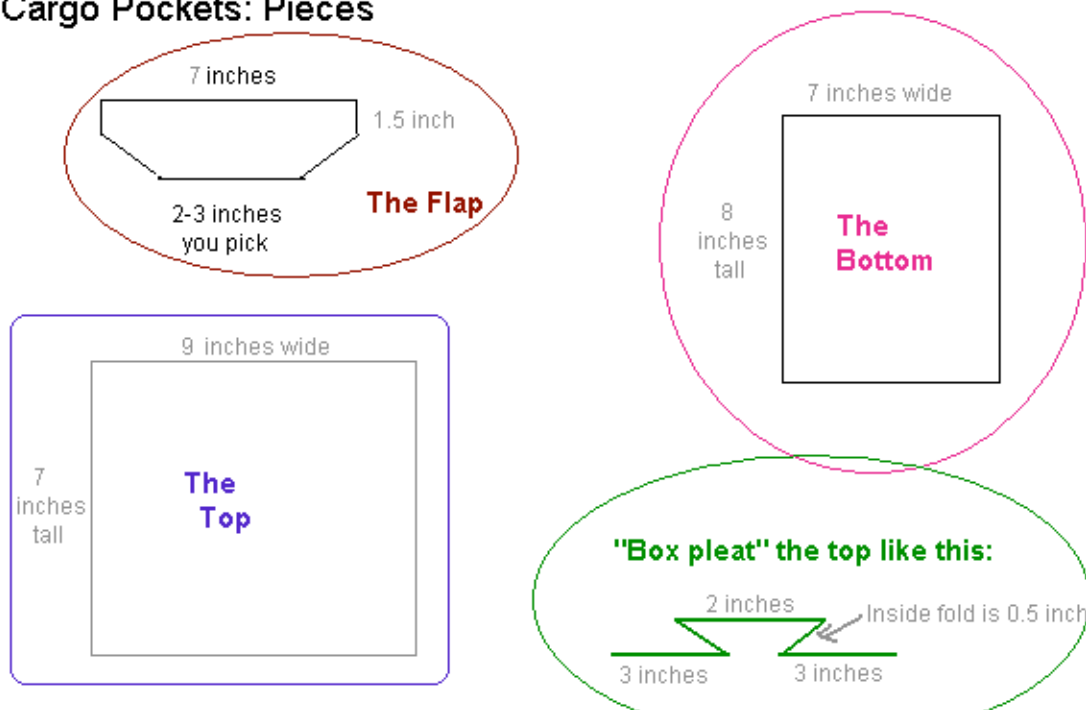


Appendix 2: Cargo Pockets

An **X-Kilt** “standard model”whatever that is....doesn’t have pockets. I designed this thing to be ultra-simple to build and so...no pockets. My own **X-Kilt** doesn’t have pockets. I wear a ten-dollar fanny pack ‘round the front like a sporran. That fits all my junk. Personally I’m not keen on cargo pockets, and real internal pockets are a significant challenge to make. However, you might want cargo pockets. OK, so this is how you can make ‘em. I put a box pleat in these pockets both to make them a little bit expandable and also to echo the “box pleat” construction of the kilt.

Cut out the pieces like I have in the drawing, here. You need a flap, a top and a bottom. Take the top piece and put it on the ironing board and iron in a single box-pleat into it, using the dimensions in the drawing.

Cargo Pockets: Pieces



OK, after you’ve ironed your pocket box pleat in place, take the “Top” piece and fold over the top edge of it about $\frac{1}{4}$ of an inch. Pin it and straight-stitch that edge over. That will lock your box-pleat into the pocket.

Go cut a piece of velcro about an inch tall and 2 inches wide. Sew one-half of that velcro piece onto the outside of the top-pocket-piece, right in the middle of the box pleat, just below the turned-over edge that you just made.

Now you’re going to make the “body” of the pocket. Because of the pleating, the

top piece is now almost exactly as wide as the bottom piece. Put the **WRONG SIDES TOGETHER**...that means what going to be the **OUTSIDE** of the pocket is **INSIDE**. Pin the pieces together so that the body of the pocket is inside-out. Match up the bottoms of the pocket pieces so that about an inch of the “bottom” sticks above the “top of the pocket top”.

Does that make sense? Oh, heck, just lineup the bottoms and sides of the two pieces and pin those puppies. Put ‘em together inside-out. You’ll notice that one piece sticks up a little more than an inch above the other one. Now straight stitch right ‘round the pocket, about $\frac{1}{4}$ inch from the edge. Don’t close off the top, of course.

After you’ve stitched it, turn it right-side-out. It almost looks like a pocket, doesn’t it?

OK, put that down, and move to the flap. This is tricky, so improvise. You want to fold over the edges of the flap so that it’s going to be exactly the same width as the body of the pocket. I had you cut it out big enough so that you have enough for a “hem allowance” so fold it over and eyeball it and iron the edges down and eyeball it again until you have a good match. Then straight-stitch right ‘round the flap so that all the edges are finished.

Stitch the other half of that bit of velcro to the inside of the pocket flap at the obvious place. Use a nifty X-pattern as you stitch it on so that it looks cool.

OK, I now tidy up the raw sides of the pocket bottom panel, up above the pocket body itself. I use a zig-zag to fold over the raw edge and tack it down. The zig-zag also helps stabilize that inch of raw edge. It’s a bit rough, but it’s all covered by the pocket flap, so it’s not noticeable. Besides, cargo pockets are rather “rough-and-ready” items anyway, so a bit of hurly-burly stitching doesn’t bother me, none.

OK, now attach the pocket flap to the upper edge of the pocket bottom **WRONG SIDES FACING EACH OTHER**. Stitch them together with a line of straight-stitch across the top. If you want you can stabilize those two raw edges with a couple of lines of zig-zag.

Fold the pocket flap over, line up the velcro bits and stick ‘em together. Now take it to the ironing board and iron that flap down **HARD**. Voila, a cargo pocket! Now repeat, and you have two.

I stitch these babies directly to the kilt by running two strong lines of stitching across the top edge of the pocket and into the kilt about an inch below the fell. I don’t stitch the whole pocket down to the kilt, I just attach the upper edge and let it swing. You can do what you want. If you’re **REALLY** energetic, use grommets or snaps and attach them to your kilt with those



sydnie7 has a completely different way of making pockets and while I don't have text for her instructions, I can sure give you a gander at what they look like. Pretty nice, huh? Bob can fit all sorts of stuff into those pockets.

Appendix Three: Variations

Not every X-Kilt is made EXACTLY according to the directions. That's great, this is your kilt and you should make it the way you want it. I'd suggest sticking pretty close to the instructions for your first kilt, unless you've done a lot of sewing before. Just to give you ideas, though, here are a couple of pictures of kilts which guys have sewn up differently from the "basic" X-Kilt.

Here's "**NewYorkBens**" X-kilt laid out with denim for the top of the pleats and tartan for the underside. See pictures at the end for the final result!



Here's **Andres Papouseks** take on how to close the right side of an X-Kilt, as well as his sporran hangers on the belt loops:



How will you make YOUR X-Kilt, uniquely yours?

Appendix 4: Tartan Hikers Revised and Improved X-Kilt Production Method

Hey Alan,

As promised, here's a very brief version of my procedure. I only got one photo in progress. Hope this all makes sense.

1. Cut cloth....drop +3"
2. Chalk fold-over and fell
3. Secure edge of foldover with zig-zag/straight stitches
4. Press fold-over
5. Use framing square to lay out aprons and pleats.

Authors Note: YES! Framing Square is GREAT for this!

Note that I don't chalk full vertical lines. I make a single mark at the waist and at the hem, and a good "cross" mark at the fell so it's easier to get the bar tacks in just the right spot, then pinch-and-pull as you describe. Also note that I just

mark out one giant under-pleat ("BP") next to the over apron and then go right to pleat #1. I number all the pleats right on the fabric so I never get "lost".



Authors Note: I number the pleats right on the cloth with chalk, too, so I don't get lost.

I don't have a photo of the other end of the cloth at this stage, but when I reach the last pleat (mine has 11 to accommodate my 38" girth) I then go right out to the end of the fabric, mark out the 16" under apron as close to the fabric edge as possible, and whatever is in between the under apron and the last pleat becomes the big under-apron pleat. On mine it works out to about 10" total. I do not stitch up the over or under apron edges at this time. That way if I need to adjust the measurement after completing the pleats, I have lots of leeway.

6. Press the right edges of each pleat (the edges toward the over-apron). Press between the hem and the fell only, not up to the waist. Stitch these edges, starting with pleat #1. Advantages of this procedure: no pins necessary if you don't pull on the cloth too much after pressing, and the cloth doesn't have to be reversed since all stitches are running in the same direction (hem to fell). You don't have to roll the cloth under the machine arm...just fold it along the pressed edge and stitch. I can do this entire operation in about 10 minutes.

7. Press the left edges and then stitch them down. These will feed through the

machine from fell to hem, and you start stitching the last pleat and work toward the over apron. Another 10 minutes.

8. Chalk the under pleat center lines along the hem, fell line and the waist. I use a 3x5 card with a mark at 2.5" as a quick gauge since the full width of these spaces is exactly 5" ($1.25 \times 4 = 5$, right?)

9. Turn the kilt around so that it's lying right side up and the hem edge is closest. Slide the fabric under the machine foot and roll up from the under-apron edge until you reach the last pleat. The roll is under the machine's arm. Pull the edges of the last and next-to-last pleat together at the "cross" on the fell and bar tack with a zig-zag. Be careful not to bar-tack the outer edges of the first or last pleats!

10. Press the wrong-sides of the pleats and stitch down exactly as before (hem to fell of course). I press the kilt right side up so that I can match the pleat edges to the center lines in the under pleat space. I press and stitch all of the right edges first, then the left edges. 20 minutes total.

11. Calculate the tapers and mark each exactly as you prescribe. Pinch and pull, then press. No pins. I do three at a time, then take them to the sewing machine and stitch them down. Any more than three and I can't get them to the machine without losing the sharp press I just put in. You have to sew both edges of these in the waist-to-fell direction or the fold over will occasionally roll up on you. Do not stitch down the outer edges of the first and last pleats.

12. Press and stitch the left edge of the over apron (a-lined of course J), hem to fell only.

13. Divide the width of the big pleat in half and chalk that spot. Carefully fold the big pleat so that half is under the over-apron and the other half is under the first one or two pleats. Stitch the left side of the big pleat to the waist band. I stitch it down in two different spots in the spaces between the pleat edges so the stitching doesn't show, and stitch from the edge of the waist to the bottom of the fold-over.

14. Now I stitch the right edge of pleat number one waist-to-fell to the folded material underneath. Bring the left edge of the over apron to the right edge of pleat #1 and bar tack them together, then stitch waist-to-fell along the over-apron edge.

Acknowledgements:

The following members of www.xmarksthescot.com contributed pictures for illustrations in this 2nd edition. MY THANKS!!!

NewYorkBen
the F-H.C.A.G. (lots of them!)
smayniac
sydnie7
meinfs

fluter
Tartan Hiker
Wulfie
Farlander
Andres Papousek

My thanks also to Star, **the F-H.C.A.G** for reviewing the original work in 2006 and wearing the skirt I made her, to Richard **way2fractionous** for reviewing the text in 2006 and being a kiltmaking inspiration....to Bob the **Tartan Hiker** for making more X-kilts than anybody else and contributing his great hints, and **sydnie7** for taking the whole concept further with the Reverse Kinguisse X-Kilt, AND for reviewing the 2nd edition text, as well as contributing her own RK appendix!.

...to the whole of [X Marks the Scot](http://www.xmarksthescot.com) being being a truly great online Home, and the Nor Cal Rabble for basically rockin' the house.

Pictures of X-Kilts by **X Marks the Scot** members

Here are a few pictures that will acquaint you with what a finished kilt might look like. Several of the members pictured here had never sewn before attempting their first X-Kilt.



At left, “**Wulfie**” and his barbeque-award-winning X- Kilt.

Below, “**Bigdad**” Bob wears a digicamo X-Kilt from “**sydney7**”





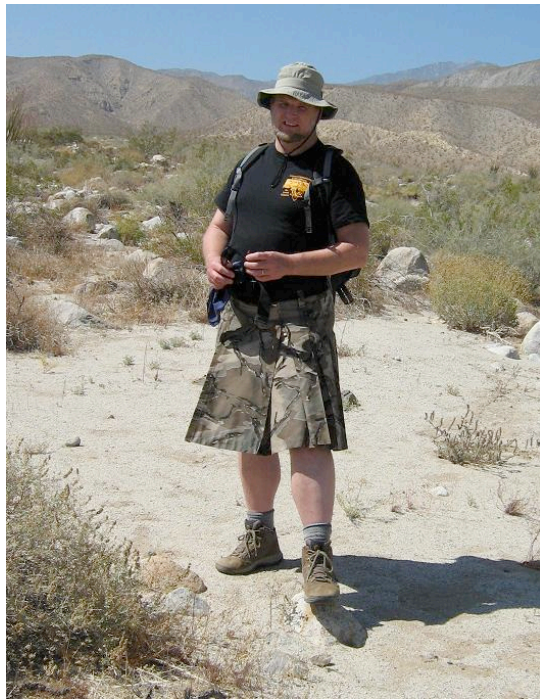
Above, “**meinfo**” shows how it’s done in his gray X-Kilt.



Below, left; **Andres Papousek** brings the X-Kilt to Central America!

Below, right; **smayniac**’s son “**Scooby**” proves that X-Kilts are for kids, too!





“**fluter**” is too shy to show his face, and “**Alan H**” takes an X-Kilt to the desert!



X-Kilt and matching sporran!



meinfs “wide-apron” X-Kilt with pockets



Farlander and his wide-apron bull denim X-Kilt. Check out the pocket detail, above, right!

Nice button closure!





NewYorkBen and his denim X-Kilt with tartan under-pleats.
....outrageous! ...



Reverse Kingussie (RevK) Addendum to X-Kilt Manual

By sydney7 from www.xmarksthescot.com and <http://www.flamingokilts.biz>

This Addendum modifies the Second Edition X-Kilt, box-pleat instructions to create a style known as Reverse Kingussie (king-OO-see, hereinafter known as the RevK). The RevK has rearward-facing knife pleats that meet at the center rear to form a reverse box pleat. This style is used by many big-name casual kiltmakers.



View looking up from the hem at center rear box pleat

HOW TO USE THIS ADDENDUM

If this is your first attempt at kilt-making – especially if this is your first time using a sewing machine – make a box-pleated X-Kilt for starters. If you really want to start with a RevK, go for it, but tackling a RevK as your first sewing project is not recommended.

This Addendum contains only the steps that make a RevK different from a box pleat, so you'll be jumping back and forth a bit. This will be easier if you have already made at least one box-pleated X-Kilt and, so, are familiar with the instructions.

Use the information in the Second Edition X-Kilt manual except as noted below.

PAGES 1-5: Measure yourself and shop for fabric as described for box pleats. However. . .

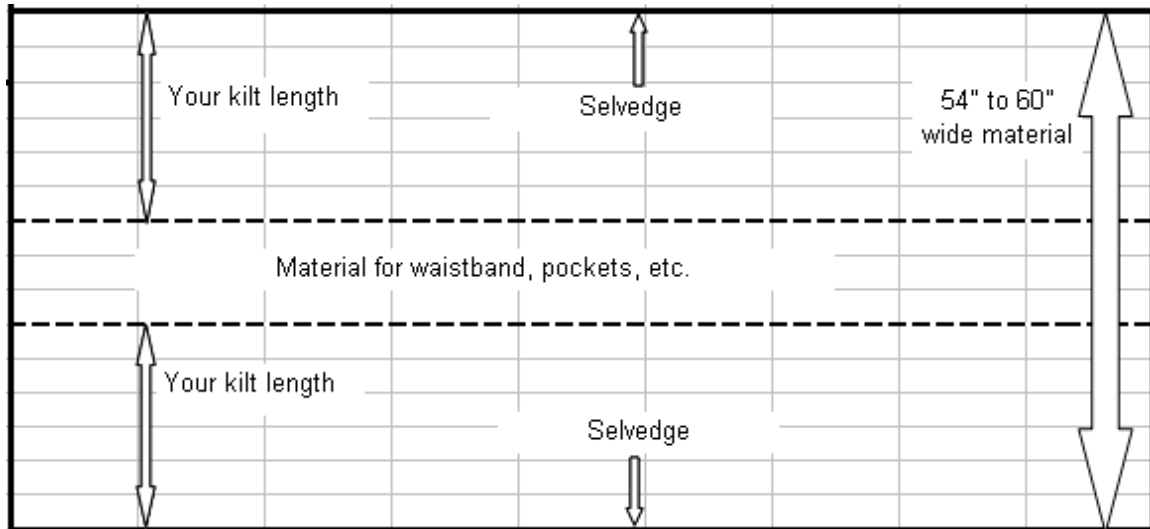
PAGE 6: RevK pleats can eat up more material than box pleats. How much more? Depends on your measurements and how many pleats you put in, but here's the good news: we encourage you to buy 54" or 60" fabric, cut it to length, and join it at the center rear of your kilt. The instructions will tell you how to do this in detail – just keep it in mind when buying material. For a guy with 45-inch hips, you'll want to end up with at least 6 yards total (which can be had from 3 yards of 54-60" fabric, cutting two kilt lengths from each yard).

PAGES 6-8: Select and prewash your fabric as described.

PAGES 9-10: If you are using 54-60" fabric and want to cut two kilt lengths from it, we recommend using the selvedge as your hemming edge on both pieces. That is, if your total length calculation in the chart on Page 10 is, say, 24 inches – cut a straight line 24 inches away from, and parallel to, one selvedge. Then cut another straight line 24 inches

away from, and parallel to, the other selvedge. Mark one piece of fabric “No. 1” and the other “No. 2.” It doesn’t matter which is which, as they SHOULD be identical in length and width (if they aren’t, you made a mistake while cutting).

If you bought 3 yards of 60-inch material and cut two 24-inch strips from it, you will be left with a 3-yard length of fabric that is 12 inches wide with a raw (cut) edge on all four sides. This fabric will be used for your waistband, belt loops, pockets (if desired), etc. Your measurements and fabric width may be slightly different, but you should still have more than enough material left for these bits ‘n bobs.



Fabric cutting diagram

PAGE 12: If you are joining two pieces of fabric to make your kilt, don’t put the hem in yet. Wait until you have chalked in the first half of the pleats, figured out where the center back is, and have sewed that seam. If you are NOT joining two pieces of fabric, go ahead and hem it now.

PAGE 13-15: “Figuring out your pleats” is the nitty-gritty of RevK vs. box-pleat kilts (duh). You are going to combine an EVEN number of knife pleats and an apron width to go around your rump. The number of knife pleats MUST BE EVEN so that you have the same number of pleats on either side of center rear. If you do not have an equal number of knife pleats on either side of center rear, your apron will be off-center in front.

The X-Kilt manual suggests 3-inch box pleats, but the knife pleats on a RevK look better in a narrower width. Try to make your RevK with pleats no more than 2 inches wide. For our 45-inch rumped fellow, 18 pleats x 2 inches plus a 9-inch apron would do the trick.

PAGE 15: Pleat structure for a RevK, as explained before, is a mirror-image series of knife pleats that meet at center rear (forming a reverse box pleat).

The inside fold of your knife pleats can be as deep as you wish. Deeper pleats take more material, of course, and create more overlap at the waist. If you are working with very heavy material, or don't have much material to spare, you can make your knife pleats not quite as deep as they are wide. Our 2-inch wide pleats, for example, could be made from a total of 5 inches each – two inches showing, 1.5 inches folded under, and 1.5 inches to the next pleat. For 18 of these pleats, you would use 2.5 yards of fabric (18 pleats x 5 inches each) for the pleated section alone.

Deeper pleats look better, especially if you are using lighter weight material (and your sewing machine can handle the overlap at the waist). This denim RevK has 2-inch pleats with a 2.5-inch depth – tacking on the belt loops through all that fabric was a challenge, but a non-commercial sewing machine managed it (with some protest).

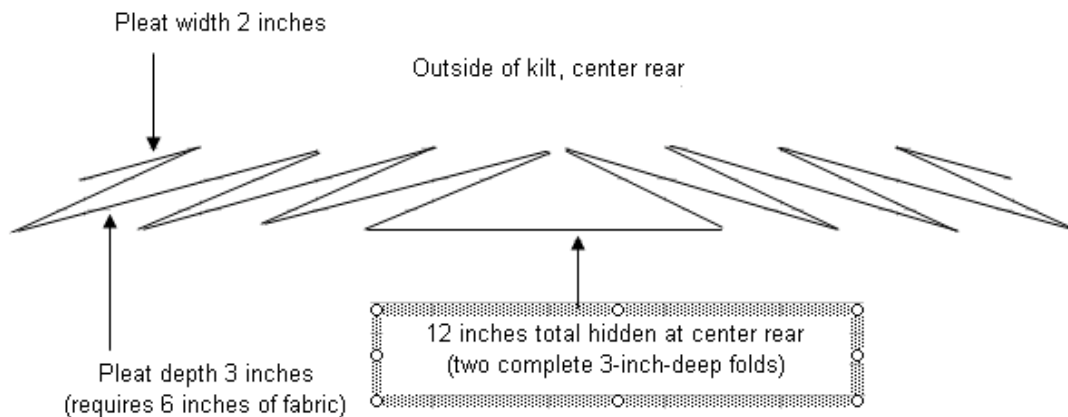


Denim RevK with 2-inch pleat width, 2.5-inch depth (selvedge used for hem)

If you have any doubts about the amount of fabric overlap at the waist, keep your pleat depth just narrower than your pleat width (i.e., 2-inch pleat width with 3 inches of fabric folded to create 1.5-inch pleat depth). Unless, that is, you know a lot about kilt-making

and are ready to venture into cutting away fabric at the fell and all the internal structure modifications that entails – but if you know that much, why are you reading this little story?

If you are working with, say, a medium-weight twill and have the fabric to spare – go deep. Deep pleats = swish and, as our Wizard reminds us, swish + swagger = swoon. Pleats with a 2-inch width and 3-inch depth will eat up 8 inches each, but they will be beautiful. Just be sure you have enough fabric (for example, 18 pleats would require 4 yards for the pleats alone, plus aprons) and be prepared to sew through many, many layers at the waist!

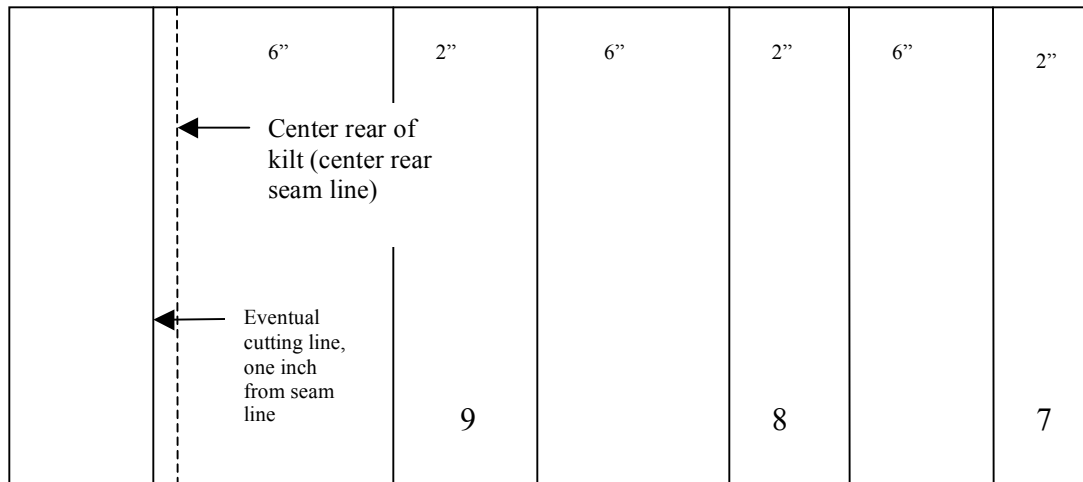


*RevK pleat structure and **sample** dimensions. The eight pleats shown here would require 16 inches for pleat width (8 pleats x 2 in.) plus 48 inches for pleat depth (8 pleats x 6 in.) for a total of 64 inches, or about 1.75 yards (and that's only covering 16 inches of rump). A full 12 inches of fabric is folded into the center rear box pleat.*

PAGE 16-18: If you are NOT joining two pieces of fabric for this kilt, mark the complete kilt per the RevK pleating diagram in this Addendum and continue on to sewing instructions.

If you ARE working with two pieces of fabric:

1. Establish a square right-hand edge on both pieces.
2. Starting with fabric piece No. 1, mark your fabric with chalk according to the RevK pleating diagram in this Addendum. Mark the front apron, first forward-facing inner pleat fold, and half of your total number of knife pleats. This brings you to the center rear of your kilt.
3. The fold of your last pleat ends at the center rear of your kilt. For example, if you are marking 18 total pleats, with 2-inch pleat width and 3-inch pleat depth:



This is where you will sew the fabric piece No. 2 to piece No 1. Eventually you will cut off the extra fabric on the end of piece No. 1, but don't trim it yet.

4. Double-check that you have marked your pleats correctly on piece No. 1. This is where experience helps. If this is your first kilt ever, triple-check your chalk marks against the pleating diagram – you are about to make some irrevocable moves!
5. Pick up fabric piece No. 2. You will sew this to No.1 RIGHT SIDES TOGETHER, matching the selvages and top (waistband) edge. Mark a line one inch from the square right-hand edge of piece No. 2. Align this with the center rear chalk line on piece No. 1, and pin the two lengths of fabric together from selvedge to waist. Double-check that you have RIGHT SIDES TOGETHER and selvages aligned.



Sewing center rear seam, camo fabric. Top layer of fabric is wrong side of piece No. 2 (with a really straight, albeit fringed, edge)

6. Looking at the WRONG side of the fabric, machine-sew a straight line that is one inch away from (and parallel to) the square right-hand edge of piece No. 2. It's

- easier to sew this seam from waist to selvedge, with all the length of both fabric pieces supported to the left-hand side of your sewing machine.
7. Now trim the excess fabric from piece No. 1. Working from the **WRONG** side of the fabric, and using the square right-hand edge of piece No. 2 as your guide, cut away any excess from piece No. 1. You are cutting away fabric that has no chalk lines – make sure you are cutting only one layer of fabric! You should end up with two long pieces of fabric (one chalked, one not), a line of stitching, and two flaps of fabric (each 1-inch wide) that run from selvedge to waist.
 8. To help keep these two raw edges from raveling, finish them both with a zigzag and/or straight stitch, as you did for the underapron scrap earlier. Sew each raw edge separately – don't sew them together!
 9. Working from the wrong side of the fabric, press open the seam. That is, separate the two 1-inch flaps of fabric, fold them back away from the line of stitching, and press them flat. Make sure they are folded along the line of stitching and pressed absolutely flat. If you are working with heavy fabric, turn it over and press it again from the right side.



Topstitching to either side of the center rear seam

10. Working from the **RIGHT** side of the fabric, carefully topstitch two lines, one on each side of the center rear seam. Topstitch about 1/8-inch away from the seam. You are stitching through two layers of fabric – the long outer fabric layer that forms your kilt, and the 1-inch wide, zigzagged flap underneath. This finishes your rear center seam.
11. You have joined the two lengths of kilt fabric and can continue chalking in the remaining one-half of your knife pleats, the last forward-facing inner pleat fold, and the underapron per the RevK pleating diagram in this Addendum. If you need to hem your kilt, do it now before starting to stitch your outer pleat folds!

PAGE 20-21: The nature of the RevK makes it very easy to stitch outer pleat folds. You can stitch all the outer pleat folds all the way from hem to waist right now.

[Digression – and don't worry if this paragraph doesn't make sense to you at this time. It's not really important, but I didn't want the information to get lost in forum archives.]

When you get to tapering your pleats, you will end up with what Alan H has dubbed "fell tilt," that is, "Every time you 'ooch' a pleat over a quarter of an inch in the fell, it makes that pleat not lie exactly straight up-and-down on the wearer's body. A quarter inch isn't bad, but those quarter inches seem to add up, and once I put together a totally slap-dash camo kilt and by the time I was done the offset over on the far right side of the kilt was a good 2 1/2 inches. In other words, the fell 'tilted' 2 1/2 inches on the far right side over by the reverse pleat." He goes on to explain why fell tilt is less of an issue with the RevK structure: "The fell tilt starts adding up as you work your way from the left side pleats to the middle of the pleats, but WAIT! then you start over again on the right side! The fell tilt on the right side is exactly opposite in direction, and you meet in the middle. Each side is tilted, but because you don't carry the pleats in the same direction all the way 'round, the effect is minimized. It's only carried over half the circumference of the kilt, and the kilt looks fine anyway, because it's 'tilted' the same on both sides." [End of digression, carry on kilting!]

Remember that all pleats face toward the center rear. If you want to keep the top thread of your stitching on the outside of each pleat, you'll sew half of them from hem to waist and the other half from waist to hem. The pleats from overapron to center rear will end up on your left rump – stitch them from waist to hem. The pleats from center rear to underapron will end up on your right rump – stitch them from hem to waist.

PAGE 22-23: No need for further chalking. Iron in your knife pleats from hem to fell, starting from the overapron end. Lay out the length of fabric with the overapron on the left, the hem at the bottom and the waist at the top. Starting at the edge of the overapron, line up each topstitched outer pleat edge with the next chalk line to its RIGHT until half of the pleats are ironed in and you have reached the center rear chalk mark. At the center rear, your knife pleats change direction – start aligning each topstitched outer pleat edge with the chalk line to its LEFT. At the center rear chalk mark, two topstitched edges butt up against each other to form a single box pleat. If you joined two pieces of fabric at center rear, your two center rear pleat edges should lie exactly on top of that seam.



Yet another view of that center rear seam and pleat arrangement!

PAGE 23-24: Bar-tacking the fell – if your kilt has narrow pleat folds, you probably have only three layers of fabric at each bar-tacking point: the topstitched outer pleat, and the single layer of fabric that carries the next chalk line. Bar-tack each pleat edge individually.

If your kilt has deep pleat folds, you may have more than three layers of fabric at the fell. We recommend you bar-tack through only three layers of material – the topstitched outer pleat fold, and the single layer of fabric that carries the next chalk line. If other pleat folds underlap at the fell, temporarily unfold them or move them out of the way while you bar-tack each pleat individually.

PAGES 24-25: Check your work as described. If you are so far off that you need to add or subtract pleats, remember to keep the pleat count equal on each side of center rear. Once you're satisfied with the kilt size, go ahead and stitch the inside fold of each pleat.

PAGE 26: Don't sew the inside fold of each pleat yet! We'll do that later.

PAGES 26-28: When calculating taper, don't figure any taper at the center rear. Those two pleats will butt up against each other in a straight line from hem to waist. Put a small amount of taper into the pleats on either side of center rear, then increase the taper as you move outward toward each hip. As the pleats come around to the front aprons, reduce the taper amounts again. You probably don't want any taper in the pleats just next to the aprons.

Here's an example of taking 5 inches out of an 18-pleat RevK:

Pleat 1	0 (next to top apron)
Pleat 2	.25 inch
Pleats 3 – 5	.50 inch
Pleats 6 – 8	.25 inch
Pleats 9 – 10	0 (this is center rear)
Pleats 11 – 13	.25 inch
Pleats 14 – 16	.50 inch
Pleat 17	.25 inch
Pleat 18	0 (next to underapron)

PAGES 28 – 30: As mentioned before, RevK design allows you to sew the entire outer pleat fold in a straight line, then create your taper by moving that stitched edge over on top of the next pleat. You'll get mirror-image "fell tilt" on each side of center rear, and it ends up canceling itself out.

For example, if you need to take 1/4 inch from a pleat, align the topstitched edge of the next pleat so that the chalk mark is hidden 1/4 inch inside the fold at the raw top (waistline) of the fabric. Pin the pleat in place at the waist, and smooth the pleat down

toward the bar-tacking at the fell. Put an extra pin or two between the waist and the fell to secure the pleat taper.

Depending on the depth of your pleats, when you pin your tapered pleats in place, you may end up with underlapping pleat folds (more than three layers of material at the waist). There are two ways to handle this:

1. If you want to sew through all the layers, be careful to keep them all in their assigned position. Many commercially made RevK casual kilts are sewn through all the layers.
2. Or, as with the bar-tacking at the fell, you can temporarily move other pleat folds out of the way and sew each pleat down individually, through only three layers of fabric – the topstitched outer pleat edge and the layer of fabric that carries the next chalk mark.

Whichever way you choose, go ahead and sew all your pleats down from waist to fell. There's already one line of stitching at the edge of each pleat – try to stay right on top of it, so you end up with just one line of stitching showing along the edge of the pleat from hem to waist.

Now's the time to sew the inside fold of each pleat (as described on page 26 of X-Kilt manual). If you sewed the pleat tapers through all the layers of fabric, you won't be able to sew all the way to the waistband on many of the inside folds. Just sew up past the fell as far as you can, and end your line of stitching with a few back stitches to lock it.

This is a good time to finish the underapron, which has a deep pleat not included on the X-Kilt. Fold, press, and stitch the inner underapron deep pleat fold and the underapron left and right edges. Then pin the deep pleat in place – it will get stitched into position when you anchor the top of the pleats and/or apply the waistband.

PAGES 30-on: Finish the top apron and Velcro strip, apply the waistband and any other finishing touches just as for a box-pleated X-Kilt. The center rear has many layers of fabric, so you may want to put belt loops on either side rather than one centered.

Congratulations, you've made a RevK!

Pleat Layout Diagram for a RevK:

Layout is for 18, 2-inch pleats with 3-inch depth plus 10-inch apron

