

Zip-in jacket inserts for pregnant women and parents carrying their baby in a front carrier

Description, instructions and patterns for home-sewing and use (version 2) by Stéphane Dupont, Ph.D.

From: <http://www.kiddiesgames.com/jacketinserts/>

1. Introduction and basic concept

Zip-in jacket inserts convert regular fleece and waterproof-breathable (WB) jackets into technical maternity garments, allowing women to continue wearing them throughout their pregnancy. They also allow these jackets to wrap around and protect a baby held in a front carrier. With these inserts, pregnant women and parents of young babies who wish to continue going outdoors and who want to show this great world of ours to their new baby can head out knowing that both they and their baby will enjoy a level of protection from the elements equivalent to what the jackets normally provide on their own.

The concept is quite simple: the two halves of a zipper (and when appropriate, storm flaps) matching those of the jacket are sewn on either side of a unit made of the same materials as the jacket and shaped to provide the extra volume needed. For regular fleece jackets (e.g. Malden Mills® Polartech 200, 300 or equivalent), inserts are easy and relatively cheap to make. Therefore, separate inserts of different shapes and volumes can be made for maternity or baby-carrying uses (see **Figures 1 and 2**).

For WB jackets (Gore-tex®, etc.) and soft shell jackets (Gore® WindStopper; Malden Mills® PowerShield, WindPro or WindBlock; Schoeller® Dryskin, etc.), things are somewhat different. The fabrics (and the zippers, in the case of water-resistant zippers) are fairly expensive. In addition, in the case of WB inserts, one needs to construct storm flaps matching those of the jacket and seal the insert's seams to maintain full waterproofness. As a result, it is better to make a single adjustable insert that can be collapsed for maternity use or expanded for baby-carrying. This adjustability is provided by a lace-up system on the middle panel of the unit (see **Figures 3, 4 and 5**).

Important Warning: Only in the worst weather, should a WB insert (or a membrane-based soft shell insert) be fully zipped up (as in **Figure 5**) and a number of precautions must be taken in these situations to keep fresh air coming to the baby's face (see Section 10.1. for details).

Español

Siento no poder traducir esas instrucciones en español. Si necesita asegurarse que entiende correctamente un aspecto u otro del texto inglés, puede mandarme un e-mail a la dirección indicada al fin de ese documento. Haré lo posible para ayudarle.

Français

Je regrette de ne pouvoir traduire ces instructions en français. Si vous avez besoin de clarifier certains points du texte anglais, n'hésitez pas à m'envoyer un courriel à l'adresse indiquée à la fin de ce document. Je ferai mon possible pour vous assister.

Note:

The masculine and feminine are used alternatively throughout this text when referring to the baby. Also, since inserts are mainly for pregnant women and parents of young babies, some congratulations may be in order. If you are expecting: congratulations and best wishes for the delivery! If you have recently delivered, congratulations on your new baby!

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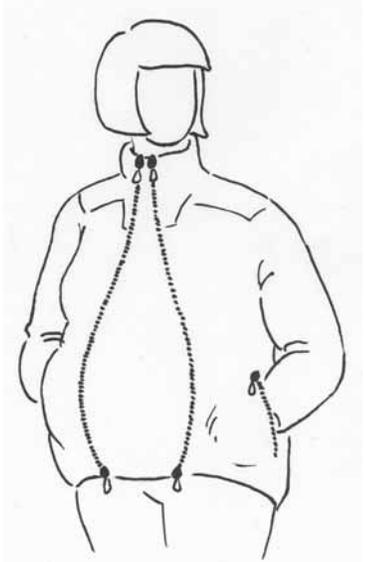


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(in separate PDF files:)

Appendix B: Scaled-down patterns for maternity fleece insert (Type I) and baby carrying fleece insert (Type II) 5 cm grid

Appendix C: Scaled-down pattern for WB insert (Type III) 5 cm grid

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Appendix E: Scaled-down pattern for WB insert (Type III) 2 in. grid

2. Advantages of using a jacket insert

2.1. During pregnancy

Since there are no technical maternity outdoor clothes on the market, whatever advantage you may find in being able to keep using your own technical jackets during your pregnancy amounts to an advantage of using a jacket insert. The only alternative is to buy or borrow jackets that are several sizes too large.

2.2. Carrying a baby in a front carrier

There are many advantages to using jacket inserts as opposed to dressing up the baby with his own layers in the carrier. Here are some of them:

- a. The main overall advantage is to provide your baby with the same level of protection from the elements that you get from your own clothes.
- b. The sharing of warmth between the active adult and the motionless baby greatly reduces the risk of the baby becoming hypothermic in cold weather. Without jacket inserts, dressing up a baby for an extended walk outdoors in cool or cold conditions can be a challenge since the baby needs more insulation to keep warm than the adult. In cool weather (0 to +5 C or +32 to +40 F), it is possible to dress her up sufficiently in her own layers. However, in colder temperatures, it gets increasingly difficult to keep her warm enough and still have her fit inside the carrier.
- c. Using a shared layering system for the adult and the baby also allows the adult to implement changes in the system rapidly and easily on the fly, without having to remove the baby from the carrier. You can start out on a calm and cool morning with just the fleece layer on and put on the WB shell if the weather turns bad. You can also be inside the house with the baby in the carrier and walk out, no matter how wet or cold the weather is simply by throwing on the appropriate jacket(s) and insert(s).
- d. You also have a better contact with the baby. You can touch and feel a lightly dressed baby under an insert more easily and with minimal exposure to the cold. For example you can make sure that her feet and hands are still warm, assess the state of her diaper or just comfort her.
- e. Of course, if you need to take the baby out of the carrier while outdoors, he will no longer have the protection of the jacket(s) and insert(s). However, the main reason why you would need to do that would be to change a diaper that is just too messy to wait until you reach shelter. In that situation, no matter how many layers your baby is wearing, you will have to remove them and/or peel them most of the way off. In fact, having the baby relatively lightly dressed makes the whole changing process much quicker, thus minimizing the baby's exposure. You can also use the open jacket(s) and insert(s) to shelter the baby while you are changing him. This may be useful in rainy conditions but it should go without saying that changing a baby outdoors in below freezing temperatures should be avoided at all cost.

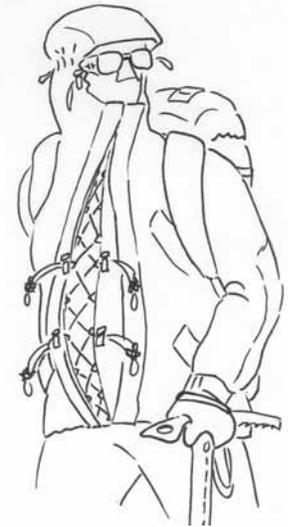


Figure 3



Figure 4

3. Rationale for placing the free instructions and patterns on the web

When I first came up with the idea of jacket inserts in the spring of 2000, I was surprised to find no hits from any of my web searches on the subject. Subsequent discussions with a few professionals also elicited only a surprised "what a neat idea" type of response. However, I have since found out that there are various reasons why manufacturing inserts commercially would be a tricky proposition. First, inserts are needed only for a relatively short period around a birth: the second half of the

pregnancy and the first 5-7 months of the new baby's life. After that, the baby is often too heavy to be carried at the front for an extended hike (although parents who have gotten used to "wearing" their babies for long stretches of each day may sometimes be able to continue with the front carry until the child is quite a bit older). Secondly, since an insert must match the specifications of the jacket's closure very closely, only a very small number of inserts would ever need to be produced for each batch of jackets. Manufacturers of technical garments prefer to focus on large volume production. At the other end of the commercial spectrum, a small workshop could conceivably make custom inserts but the customer would need to either send in their jackets or provide the detailed specifications and measurements of the zippers and flaps. Therefore, it is as a home-sewing project that the concept works best. However...



Figure 5

...I am not a professional designer or pattern maker!

Designing new outdoor gear that is not available commercially is a fascinating hobby for me but so far, it is just that. The concept of jacket inserts has always seemed too obvious to me not to have been thought of before. While I know now why it may not have resulted in commercial technical products, I never thought that no one else had come up with it and the next section discusses various examples of non-technical inserts that I have learned about in recent months. I never considered protecting the concept either. I just wanted to get the idea out there for people to use with as few restrictions as possible, hence the decision to post free instructions and patterns on the web.

In coming up with the designs given here, I have made a few finished inserts for my wife, myself and a few friends and family. We found that they worked well in Scottish and Canadian fall and winter conditions. Our babies also approved, judging by their peaceful sleeping while they were being carried around in all kinds of weather and over all kinds of terrain. As with everything else, improvements could probably be made to the designs but those who simply follow the instructions and patterns given here will end up with perfectly serviceable inserts essentially identical to the ones I made aside from minor improvements (such as a bit more room up top for the baby's head when partially or fully closed up). Although I do not have access to the kind of specialized software and printing equipment that guarantees 100% fit on the pattern pieces, I have usually found that my measurements are fairly accurate. Anyway, I suspect that the increment in accuracy provided by professional equipment would be somewhat wasted on a scaled-down pattern that people must scale back up for themselves.

As mentioned, the jacket inserts were designed for maximum weather protection. As a result, WB inserts needed to avoid as much as possible enlarging the jacket's hood when the system is fully closed up. This, meant that it cannot, when fully zipped up, accommodate an older baby whose head sticks up in front of the adult's face. Carrying a large baby at the front is definitely not for everyone but if you anticipate needing to do this, contact me at the address given at the end of the document.

Any comment or suggestion of improvement on either the design, the instructions or the use of the inserts is most welcome. Please use the contact information given at the end of this document. Pictures of finished inserts and tales about their use will also be much appreciated.

Note to people who do not sew:

As far as home-sewing projects go, making your own inserts is fairly straightforward. There could hardly be a simpler sewing project than making a pregnancy insert for a fleece jacket. This involves little more than cutting a single piece of fleece fabric and sewing half a zipper on either side of it. The only "difficulty" resides in scaling up the pattern from the small scale diagrams provided here. The actual cutting, pinning and sewing may literally take less than an hour and be done by anyone with only the most rudimentary knowledge of how to use a sewing machine.

In making these instructions, I have assumed that, since technical jacket inserts are just not available commercially, some people who do not usually sew may nevertheless wish to make their own inserts. Because of this, I have tried to explain everything step-by-step and in detail, providing diagrams and without using too much jargon. If you are new to sewing, I recommend that you start with the pregnancy fleece insert, then move to the baby-carrying fleece insert, which is a bit more complicated but still quite straightforward. WB inserts are somewhat more involved, but even there, the difficulties reside mainly in the preparatory work of "digesting" these instructions (Roloids anyone?), determining how you will need to construct the storm flaps, etc.. Once you have completed these tasks, the cutting, sewing and seam-sealing do not present significant technical difficulties either.

If you would like to have jacket inserts but cannot make them (or cannot bring yourself to, despite my encouragements), you could always suggest them as a baby gift to a friend or relative who's proficient with a sewing machine. Alternatively, you could take your jacket(s), the fabric(s), the scaled-up pattern pieces and these instructions to a local seamstress. Eventually, if making jacket inserts ever catches on, you may be able to find one second-hand (see Section 11.2. for pointers). Of course, you may also prefer to opt for one of the off-the-shelves systems described below.

4. Note about commercial systems

In the second half of 2004, as I was finishing these instructions and after I posted them on the web site, I started finding out about other insert-based commercial systems. Elizabeth Lee (www.elizabethlee.com) offers a pattern for a fleece jacket with a simple expansion panel. The company Japanese Week-end (www.japaneseweekend.com) makes a maternity/baby-carrying coat called "Mama coat" that also uses a zipper-based expansion panel similar to the ones described here although, of course, you have to buy the whole coat and it is not a technical garment by any means. Another similar system is called the Mom-and-me jacket. The Felix Pera baby-wearing coat is another intriguing system. It includes a baby-covering insert that can be zipped to the front or the back of the coat. The coat and insert are made of a waterproof (but non-breathable) shell lined with fleece, making it suitable for cold weather but not for warm and rainy conditions. The insert has its own hood for the baby. This means that it would not be as waterproof as one of my WB inserts fully zipped up but would fit better for an older baby whose head sticks up above the adult's chin. I am not sure either about the overall waterproofness of the Felix Pera coat since it appears that there are no storm flaps protecting the front and back zippers. The back carry option works with soft carriers (mei tais, wraps, etc.) but not with internal or external frame carrier packs. With the insert at the front, the coat would undoubtedly fit around the belly of a pregnant woman but it is not designed (nor is it advertised) for maternity use. Again, you must buy the whole system rather than use your own jacket.

Regarding potential commercial uses of my insert designs, if despite the practical difficulties mentioned, a commercial outfit decides to start making and selling inserts based on the concepts and patterns given here, there is nothing at all to stop them. All I would ask is that they extend me the courtesy of an acknowledgement stating simply "**concept by Stéphane Dupont**" on a small card tag attached to the insert, on any printed material dealing with their inserts (instruction booklets, promotional material, etc.) and on their web site. Similarly, if anyone develops another pattern kit for jacket inserts, whether as a full-size commercial pattern or as another web-based kit, I would also request that "**original concept by Stéphane Dupont**" be clearly written in it.

5. Compatibility of inserts with different kinds of jackets

The overall principle of making inserts is that they should be constructed in the same manner as the jacket. The same (or an equivalent) fabric is used for the insert and its attachment to the jacket is the same as the jacket's own closure. These instructions are written so that the jacket-plus-insert system achieves as much as possible the same level of performance as the jacket alone.

5.1. Zipper considerations

It is essential that an insert's zipper be a perfect match to the jacket's zipper.

The best way to ensure this is to buy the same zipper for the insert as you have on the jacket. For most fleece and soft shell jackets and many WB jackets, this will be quite straightforward. In other cases it will be more complicated and in a few cases, it may be impossible, as discussed below.

Most regular (non-water-resistant) zippers on WB jackets are two-way separating tooth zippers. These have two sliders and can be unzipped from the bottom up with the second slider. In recent years, manufacturers have adopted one-way separating water-resistant zippers for their high-end jackets. Most fleece jacket zippers are one-way separating tooth or coil zippers. As the names indicate, tooth and coil zippers have either little plastic teeth set on the edge of the backing tape or a continuous coil sewn on top of it. YKK zippers are the most commonly used on technical garments and are normally easy to find in the standard configurations mentioned above.

Two-way zippers are much better for inserts that are intended to wrap around a baby in a carrier. They allow you to reach inside the insert and touch your baby more easily and without exposing her, as mentioned in Section 2.2.d. Replacing the one-way zipper of a jacket with a two-way zipper may be very easy in some cases and near impossible in others (see Section 9.2. for details).

On separating jacket zippers, the slider(s) remain attached to either the right or the left side (from the point of view of the person wearing the jacket), depending on the country's norm: right for the U.S, left for Canada and Europe. This is a very important point to determine about a jacket's zipper. Zippers of one kind cannot mate with those of the other. Technical garments from different companies may be manufactured and sold just about anywhere. Therefore, regardless of what brand your jacket is and where you bought it, you must check to find out on which side the slider(s) are. If you cannot find a zipper of the correct "hand" in your local store to match your jacket's, you will need to go to a web-based supplier and may have to choose one from a different country (see Section 8 for a list of possible mail order suppliers).

5.1.1. Regular (non-water-resistant) zippers

A commonly used model is the YKK #5 separating tooth zipper with the inscription "Vislon 5VS" on the back of the slider. On fleece jackets, this zipper usually comes in the one-way configuration while WB jackets tend to use the two-way kind. Fleece jackets sometimes use YKK #5 coil zippers instead (with "5C" inscribed on the back of the slider).

If your jacket's zipper is one of these standard YKK ones, you should be able to buy an identical zipper for your insert easily. Simply make sure that you get one of the exact same type (slider(s) on same side, two-way or one-way, same size of teeth or coil (e.g. #5), and with identical writing on the back of the slider). In terms of length, if your jacket uses one of the standard lengths available at retail outlets, you're in luck. Otherwise get one slightly longer and shorten it as described in Sections 9.2.2. and 9.2.3.

If in doubt as to the brand and type of your zipper, you could go to a good fabric store with your jacket and try out zippers that seem to match, i.e. separate them and try mating them to both sides of your jacket's zipper. You need to get a perfect fit. Each half of the loose zipper must mate as easily to the corresponding half of your jacket's zipper as each zipper mates to itself. Any hint that this is not the case may indicate mismatched zippers.

If you cannot find a match among the commercially-available zippers, your old zipper may be of an unusual or outdated type. Consider replacing it as described in Section 9.2.1.

5.1.2. Water-resistant zippers

For the new water-resistant zippers found on expensive brand-name WB jackets, the #5 reversed coil YKK "Uretek" type is the standard. These have a shiny, waterproof coating on the backing tapes which effectively turns these tapes into water-resistant flaps. Of course, the zipper must be installed with this backing tape facing out and with the coil track on the inside. This is a reversed position compared to regular coil zippers, which are normally installed with the coil on the outside. Currently, all the Uretek zippers I have seen on WB jackets were of the one-way separating type. I can't figure out why manufacturers do not use two-way water-resistant zippers instead. YKK does manufacture them and regular two-way zippers have certainly proved their usefulness on technical garments over time.

From the point of view of home-sewing an insert, water-resistant zippers have a number of advantages. They are typically complemented by a single internal flap with no hook-and-loop (e.g. Velcro ®) attachments, which is way easier to make and install on an insert than the double external attaching flaps of regular zippers as discussed in Section 5.2. below. Furthermore, when they use this type of zipper on a jacket, manufacturers place the flap on the same side as the zipper's slider, i.e. right or left, depending on the manufacturer's national norm but on the same side for their women's and men's jackets (unlike the double external flap). This means that the insert can more easily be shared between "hers and his" jackets or passed from one owner to the next, provided they have water-resistant zippers of the same norm and similar lengths.

Water-resistant zippers also have various disadvantages. As mentioned earlier, they currently only come in the one-way configuration on WB jackets. They are also tape-sealed and cannot be removed. These two characteristics mean that you are stuck with the one-way separating kind for your insert and will not be able to enjoy the advantages of two-way zippers mentioned above. Another disadvantage is that few places sell them and they are more expensive than regular zippers (see Section 8. for details). Finally, on a cosmetic note: at the time of writing, retail Uretek zippers sold by the piece are available only in black, which may clash with the colour-coordinated ones used on many jackets.

Uretek zippers have the following markings on the bottom stop: "5N" when the stop and slider are on the right, e.g. on U.S. jackets, and "5L" when they are on the left, e.g. Canadian and European jackets. As for regular zippers, it is essential that you get an exact match. However, there is very little chance at this point that you will be able to walk into a store and find water-resistant zippers to try out on your jacket, unless you happen to live close to one of the web-based retailers listed in Section 8. I tried a YKK Uretek 5N (U.S.) zipper on a representative sampling of women's and men's U.S. WB jackets (several brands and at least a couple of models for each brand). It fit them all just fine and I assume that the same would be true of a YKK Uretek 5L zipper matching Canadian and European jackets.

At this point, I have found only one retailer that sells separating Uretek zippers with the slider on the left: Shelby Kaava of Finland. The other ones are all U.S. based. Before I found this company, I was looking for other zipper options for owners of Canadian or European WB jackets. Following the suggestion of a friendly Mountain Equipment Co-op product development specialist, I found that you can mate a regular separating YKK #5 coil zipper with a Uretek one. Since you need to reverse the regular zipper in order to mate it with the Uretek, you must get one of the opposite "hand". Having obtained a U.S. norm Uretek zipper, I had no problem finding a non-water-resistant match at my local store in Montreal. Of course, the slider of the regular zipper ends up backwards (with the zipper pull on the inside). This is not a major problem since you really only need one slider with the pull facing correctly out in order to open and close the jacket-plus-insert system on a regular basis. That slider will be the one that comes with the jacket's Uretek zipper. A bigger problem is that such a system would no longer be waterproof unless you install additional flaps on the insert with matching attachments for them on the jacket. Regular zipper tape is not even particularly wind resistant, never mind waterproof. Having found Shelby Kaava, I would recommend buying

the correct matching zipper from them but if you wish to have more details on how to go about installing a reversed non-waterproof zipper on your insert, you may contact me at the e-mail address given at the end.

5.2. Flap considerations

If the jacket's zipper is protected or backed-up by flaps, you will need to construct an equivalent flap system on the insert. This may be very easy to quite difficult depending on the type of flaps your jacket uses (see Table 1 below).

The term “hook and loop”, is the generic name for Velcro ® attachments. The hook tape is the “scratchy-catchy” half. It is actually made of a multitude of tiny hooks. The loop tape is the soft half and is made of lots of small loops. For hook-and-loop-secured flaps, conventionally, women’s flaps are the opposite of men’s (I’m sure there’s a deeper truth in here somewhere...). On women’s jackets, the hook tabs are located on the left side, facing out. On systems with two external flaps, these tabs are stitched to the innermost (left) flap. On systems with only one external flap, they are stitched to the body of the jacket, just beside the zipper. Conversely, the loop tabs are located on the right, outermost flap, facing in.

On men’s jackets, the hook tabs are located on the right side, facing out and the loop tabs on the left side facing in. Therefore, men’s flaps are the mirror-image of women’s. Flaps for water-resistant zippers, on the other hand, are typically installed the same way on women’s and men’s jackets as mentioned in Section 5.2.2.

Whether by design or by mistake, one may occasionally find jackets labelled “men’s” or “women’s” that have a flap configuration of the opposite kind. Therefore, before setting out to make an insert, you should check your jacket’s flaps rather than assume that it follows the convention.

5.3. Inserts that match two jackets

While pregnancy inserts need only match the pregnant woman's jacket, it may be useful for a baby-carrying insert to be able to mate with two jackets if two adults will be carrying the baby. Making a bi-compatible insert like this is not much more complicated than making a regular insert but there are too many possible combinations for me to discuss here. If you wish to make a bi-compatible insert, you may send me an e-mail at the address given at the end of this document. Include as many details as possible on the zippers and jackets: brand and model names (including if they are Men’s or Women’s jackets), type of fabrics and zippers, zipper and jacket lengths, flap configurations, including details on the flap attachment systems (e.g. hook tabs on the right flap, facing out and loop tabs on the left flap, facing in, etc.). I should then be able to send you specific instructions for selecting the appropriate pattern for the bi-compatible insert and for making it.

Table 1: Description of the various types of flaps found on WB jackets

Flap description	Frequency	Difficulty of copying and installing on insert (+: very easy; ++++: very hard)
<i>Flaps for regular zippers</i>		
1. Two external flaps w. hook and loop tabs	Common	+++ (detailed instructions are given here)
2. Two external flaps w. snap attachments	Common	+++ (see Section 7.3.3.)
3. One external flap attaching by hook and loop tabs or by snaps to the jacket’s body (in some cases with a second internal, unattached flap)	Common	++ (no instructions are given here but the procedure can be easily transposed from the instructions given)
4. Other configurations (e.g. one small external flap plus two interlocking, internal flaps, sometimes secured by hook-and-loop tabs)	Rare	++ to ++++ depending on the type. (no instructions are given here. Some aspects may be transposed. Complex configurations should be tackled by experts only)
<i>Flaps for water-resistant zippers</i>		
5. One unattached internal flap	Common	+ (detailed instructions are given here)
6. One external flap with minor attachments	Rare	++ (no instructions are given here but the procedure can be easily transposed from the instructions given)

6. Compatibility with different types of baby carriers

6.1. Most compatible with inserts: front carriers holding the baby high

The inserts described here work (and fit) best with the type of front baby carriers that hold the baby upright, facing the adult and positioned relatively high up (i.e. with the top of the baby’s head 5 cm (2 in.) or less from, but no higher than the adult’s chin, as shown in **Figure 4**). Most commercial front carriers fit in this category (mei-tais, wraps, Baby Bjorn, Snugglis, etc.).

Being able to carry the baby high up allows the insert to cover the entire baby for the first few months. After about 3-4 months and depending on the length of the jacket and the size of the baby, the baby's feet will probably begin to poke out from under the insert but his body will remain protected inside.

6.2. Front carriers holding the baby low

Some carrier models use a hip belt (not a waist belt) as a key part of the adult's harness, with a direct link between the baby's seat and the hip-belt. In some of these cases the baby is carried relatively low on the adult's body. The patterns given here are not designed for this. It is not impossible to use an insert with this type of carrier but unless the jacket is fairly long (more like a coat), the baby's bottom and legs will stick out from under it. There is also the issue of keeping the top of the insert open in order to keep fresh air coming to the baby's face (see Section 10.1. for details). In normal use, at least one of the insert-to-jacket zippers is left open enough at the top to partly expose the baby's head and face (**Figure 4**). With the kind of "high" carrier mentioned above, a minimum opening of a few inches is normally sufficient and will not significantly compromise the adult's protection from wind and cold. However, with "low" carriers, the zipper would have to be left open much wider.

Before deciding that your back needs a carrier with a good hip belt and too bad if that means that it will not work well with jacket inserts, you should be aware of the following. The low position often results in the baby's legs being in the way of the adult's legs when the baby is held facing in. This makes it awkward to walk with a good stride and even more awkward to hike up any sort of incline. These carriers tend to work best with the baby facing out but in order to be held in this position, the baby must be able to hold her own neck and head straight for extended periods (typically around 4 months old) and also should remain awake while being carried (not something that one has a lot of control over on an extended walk).

If you need to make an insert for use with this type of carrier, you may e-mail me at the address provided at the end of this document. There are various possible modifications to the standard insert pattern that I could suggest to help make a jacket insert that is more compatible with a low baby carrier.

6.3. Slings

For pouch- or sling-type carriers worn over one shoulder, you often have the option to carry the baby in front of you, facing you. This position is similar to that of a "high" front carrier and is compatible with the main insert design given here. In these slings, the baby can also be carried in a sideways reclined position sometimes called the "cradle" position, straddling the parent's hips or slung on the adult's back. The main insert patterns given here should work OK with the cradle positions, poorly with the baby over the hips and, of course, not at all with the baby at the back.

6.4. Hipseats

A baby hipseat is essentially a padded hipbelt incorporating a small platform for an older baby to sit on. The parent must hold the baby with at least one arm at all times as there are no straps to hold her. The platform tends to be more comfortable for the adult when it is positioned on the side, over a hip. This is similar to the hip position of the sling-type carriers and is poorly compatible with inserts. While the platform is quite uncomfortable if positioned dead centre on the adult (especially when carrying a heavier baby), an intermediate position between centre and side may be both tolerable and somewhat more compatible with an insert. However, I suspect that the main concern in using a hip seat and insert combination would be ensuring that the baby stays sitting on the platform while you are busy zipping up the insert. Another concern may be having to rely on feel alone to know if the baby is about to wriggle off the platform when the platform and most of the baby are hidden under the insert.

6.5. Carrying the baby facing out

Many baby carriers allow an older baby to be carried facing out. Jacket inserts work best with the baby facing in. If using an insert with the baby facing out, both insert-to-jacket zippers have to be kept open at the top and the insert folded down and away from the baby's face at all times. *This should be obvious but under no circumstance should a waterproof or membrane-based fleece insert ever be zipped up against a baby's face, no matter how "breathable" it may be (see Section 10.1).*

7. Selecting and making your patterns

In order to keep these instructions to a reasonable size, I have stuck to three basic designs:

- I. A dedicated maternity fleece insert (non-adjustable, non-waterproof, no-flaps design);
- II. A dedicated baby-carrying fleece insert (also non-adjustable, non-waterproof, no flaps); and
- III. A dual-use WB insert for maternity and baby-carrying (adjustable, seam-sealed, with flaps).

With a little know-how, inserts can be made for many other kinds of coats and jackets. The possibilities include:

1. an adjustable but non-waterproof design with no-flaps that would be suitable for soft shell jackets (the retail cost of the fabrics on this type of jacket is often quite high, making it advantageous to make one dual-use insert instead of two dedicated ones.
2. a non-adjustable, insulated baby-carrying insert to go with an insulated coat, etc.

7.1. Selecting your patterns

For women, three measurements will dictate which pattern to use (see **Figure 6**):

- A. Overall length of the zipper;
- B. Length of the jacket's zipper from the top to your navel (if you are presently in the last few of months of your pregnancy, i.e. you are starting to get fairly big, subtract 1 cm (3/8 in.) from your current B measurement); and
- C. Extension of the bottom of the jacket beyond the end of the zipper (many jackets do not extend beyond the end of the zipper, in this case, the C measurement is zero).

For men, only measurements A and C are needed.

See Appendix A for the tables of correspondance between these measurements and the pattern(s) needed. Then refer to Appendices B and C for fleece (Type I and II) and WB (Type III) inserts, respectively, in metric scale (5 cm grid) and to Appendices D and E for fleece and WB inserts, respectively, in imperial scale (2 in. grid).

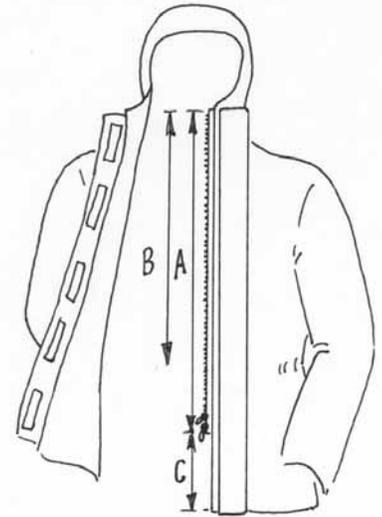


Figure 6

To minimize clutter on the patterns, I have limited them to 5 main sizes plus 3 bottom extensions. Since these sizes cover the full range of women's and men's jackets, they are quite spread out (5 cms or about 2 in. between sizes). For jackets without bottom extensions, the ranges given for each size should be interpreted strictly; i.e. if your A measurement is a bit longer than the range given, you will need to go to the next size up. Alternatively, you could trace a new pattern of intermediate shape and size and use that to scale up a full pattern with a better fit. For jackets with a bottom extension, the size ranges may be interpreted a bit more liberally.

Start by looking up your A measurement in the appropriate Appendix A table. The table's B number corresponding to your A measurement should be within about 3 cm (1 in.) of your B measurement. When this is the case, you would simply use the pattern recommended by the table. If the table's B number differs by more than about 3 cm or 1 in. from the one you measured on yourself, it probably indicates that the size of your jacket is off with respect to what you would normally take (likely the jacket is too large). In this case, you should select from the table a pattern size whose B number is the next longer one from your own B measurement. If your jacket is indeed too large, this may give you a pattern whose A number is too short for your jacket's zipper. Add the missing length to the C measurement of your jacket. This will extend the bottom of the insert to match the jacket's length while keeping the insert positioned to fit correctly over your belly during pregnancy. In the less likely event that your jacket is too small, going by the B number as directed will yield a pattern that is too long and that may need to be shortened.

When your C measurement is 3 cm (1-3/16 in.) or more, you will need to lengthen the bottom of the insert pattern to match the length of your jacket. This is done by "linking" the bottom part of one pattern with that of the next longer one or the one after, etc. until you obtain an insert of the appropriate length. The maximum zipper length considered is 71 cm for fleece jackets (28 in.) and 81 cm for WB jackets (31 1/2 in.). Patterns for "C number extensions" beyond these lengths are marked with an "X" and shown as dotted lines ("long-dot-long"). If your jacket's A number is longer than the maximum shown in the tables, you may also use the C number extensions to obtain a pattern of the correct length.

7.2. Scaling up your pattern pieces

When you have selected the pattern needed for your jacket from Appendices B-E, use it and the scale markings given in cm or in inches to scale up the pattern pieces to full size on pattern paper or large sheets of newsprint paper. If using the latter, trace your full-size grid on a separate, reuseable sheet and use it as background for your pattern sheets. For WB inserts, be sure to include the location of the lace-up loops on the pattern of the middle panel (shown as little crosses along the pattern line). The side panels of three-piece inserts are symmetrical and only the right one is given here. The middle panel of three piece inserts and the single panel of a maternity fleece insert are also symmetrical and only the left or right half is shown on the pattern. Scaling up a small pattern is fairly simple but it is a critical step. A systematic mistake in the scale would yield a pattern that looks right but that is too large or too small. Errors arising from a mistake in plotting individual reference points should be easier to spot since they would likely yield a pattern that does not look like the small-scale one.

To facilitate tracing the full-scale pattern, mark all the points where the line crosses the grid as shown on **Figure 7**. Once you have scaled-up the pattern, verify that you have the right one and that you did scale it up properly by:

1. measuring the length of the zipper edge of your pattern; it should be 7 cm (2-3/4 in.) longer than the higher number of your jacket's A number range on the Appendix A tables, and
2. checking the overall look of the pattern and making sure it matches the small-scale one.

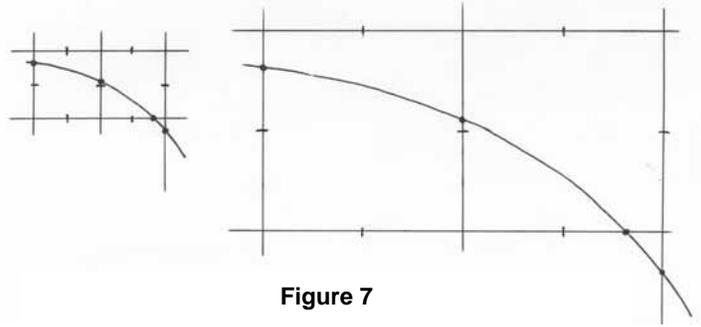


Figure 7

If you are tracing two similar patterns at the same time (e.g. a three-panel fleece insert and a three-panel WB breathable insert), be sure to identify which insert each piece belongs to. It is also possible to enlarge the small scale patterns given here by photocopy but you will need to make sure that the scale markings on the final enlargement measure exactly 5 cm or 2 in., depending on the pattern you started out with.

For three-piece inserts (Types II and III), find and mark the three-way point by tracing two lines 1 cm (3/8 in.) from the edge of the pattern in the appropriate area shown in Appendices B to E. The three-way point is at the intersection of these two lines.

Once your pattern pieces are fully traced, you can cut each pattern piece out of the sheet. Cut about 2-3 cm or 1 in. out from the outline of the piece except around the bottom of the piece where you would cut 5 cm (2 in.) from the line. The longer bottom is needed in case small errors in scaling up the pattern result in a piece that is a bit too short. Since the pieces are assembled from the top down, any difference in length will show up at the bottom and can be adjusted at that point (see Sections 9.2. and 9.6.6.).

Note for big-baby wearers

I use the term carefully since carrying large babies at the front does seem to be done mainly by enthusiastic baby-wearers. My experience lies more with the hiker crowd and hikers (wimps that we are) usually switch to backpack carriers when the baby gets older. Anyway, wearing your baby at the front for extended periods when he is older than 7-8 months is definitely not for everybody but if you anticipate doing it, there are various options to choose from and I would be happy to discuss them if you get in touch with me by e-mail (see address at the end of this document).

7.3. Flap patterns

The flap(s) of a WB insert will need to be functionally identical to the jacket's but this does not mean that they have to be identical in every way. Some cosmetic aspects can be dispensed with such as a widening of the outer flap at the top, encasing of the attached edge of the flap in a fold of the jacket's fabric, etc. There would also be little point in adding a chin guard on the insert even if the jacket has one because insert-to-jacket zippers are located on either side of the chin rather than in front of it.

Many jackets with external flaps use both hook-and-loop tabs as well as snaps to attach the flaps (often a snap at the top of the flap and one at the bottom and hook-and-loop tabs in between). As discussed below, it is all but impossible to find and install snaps on an insert to match those on a jacket. My recommendation for those end-of-flap snaps is to just ignore them. However, for WB jacket whose flaps extend below the bottom of the zipper with only a snap attachment, joining the insert and jacket flaps at the bottom would help keep the baby's feet tucked in by tightening the hem drawcord. See Section 7.3.3. for pointers on how to replace this bottom snap.

As mentioned in Table 1, two sets of instructions are given regarding flaps. One for a jacket using a water-resistant zipper with a single internal flap, the other for a jacket using a regular zipper with double external flaps. In both cases, the instructions are for no-frills, rectangular flaps that are simply top-stitched to the insert. Unfortunately, I could not make a pattern for standard double external flaps that would match all jackets. There is too much disparity between manufacturers in the width of their flaps and how far apart they sew them. As for the single internal flaps, it is simpler to calculate the measurements yourself, using the instructions below, than to scale-up a small pattern. In both cases, you must, therefore, lift the flap pattern off of your jacket following the instructions.

For the double external flap system, these instructions also recommend simply sewing a continuous band of hook or loop tape along the entire length of the insert flaps rather than discrete tabs matching exactly those of the jacket. This option uses more hook and loop tape than strictly necessary but it makes the flaps much simpler to construct and makes the insert potentially more compatible with other jackets.

The guiding principle in making matching insert flaps is that the insert's right flap should end up looking like the jacket's left flap (in order to mate with the jacket's right flap) and vice-versa.

Note 1: storm flaps are normally cut straight. They may appear curved because they are sewn to a jacket that is not flat (especially around the chest and neck area). In order to straighten and flatten a flap to take its measurements, do not hesitate to fold, gather or bend the remainder of the jacket.

Note 2: be sure to write down the measurements you take from your jacket flap(s). You will need them to cut a scaled-down paper mock-up of the flap patterns in order to figure out how much fabric you need to buy (see Section 8.2.1.).

Note 3: With the flap pattern simplified to a rectangle, there is no need to draw the pattern on pattern paper first. You can simply trace it directly on the fabric with tailor's chalk or pen.

7.3.1. Taking the pattern of a single, unsecured internal flap (WB jacket with water-resistant zipper)

- A. Start by spreading your open jacket on your work table inside up, so as to leave the flap resting against the zipper, straight and flat.
- B. Measure the full length of the flap, then peel it back to measure its width from its free edge to the first seam that attaches it to the jacket.
- C. The fabric piece that you will need for your insert's flap will be a rectangle measuring 2 cm (13/16 in.) more than the length of the flap and 4 cm (1-9/16 in.) more than the width you measured.

7.3.2. Taking the pattern of double, hook-and-loop-secured external flaps secured with hook and loop tape

- A. Start by spreading your open jacket outside up on your work table so as to leave the hook-side storm flap resting flat and straight against the zipper. This is the innermost flap, located on the right on a man's jacket and on the left on a woman's.
- B. The top half of **Figure 8** shows the three measurements that must be taken for this flap and how these measurements are then used to calculate the measurements of the insert's hook flap. This figure represents a woman's jacket. The same diagrams for a man's jacket would be mirror images of those shown.
- C. Re-arrange the jacket so as to leave the loop-side storm flap resting flat and straight. Fold back the flap to expose the loop tabs. The bottom half of **Figure 8** shows the three measurements that must be taken on this flap and how these measurements are then used to calculate the measurements of the insert's loop flap pattern. Again, the corresponding diagrams for a man's jacket would be mirror images of those shown.

7.3.3. Flap attachments by snaps

These pose a bit of a problem for inserts. There are many different snap designs both for home and industrial use. The snaps one can buy to install at home are different from the factory-installed ones. Furthermore, manufacturers install their snaps with special equipment. If your WB jacket uses snap-secured flaps, the simplest way to ensure that your jacket flaps can be secured to your insert flaps is probably to use a waterproof glue to glue 5 cm long (2 in.) tabs of hook-and-loop tape (25 or 19 mm wide, 1 or 3/4 in.) on the jacket flaps, centered on the mid-point between each snap. Top-stitching these tabs to your jacket would not be a good idea as it would render it non-waterproof (unless you top-sealed the seams with paint-on sealant, which would leave the flaps looking fairly ugly). Velcro sells a hook-and-loop-specific glue which is labelled "water-resistant". I have not had a chance to test it in rainy conditions, nor have I had any luck getting answers from Velcro. In my experience, a glue may be labelled "water-resistant" simply because it is insoluble in water once dry even though the bond between the glue and a porous surface (e.g. hook or loop tape) may fail at the contact of water. Barge cement (shoe resoling glue) should work but I have not tried it either. One glue I have tried is polyurethane-based shoe repair glue (e.g. Freesole). This makes a strong, flexible and waterproof bond but care must be taken not to let the glue soak through the loop tab (especially if pressing the tab and the fabric together) or all the loops will become stuck and unuseable. Similar problems may occur with other glues. Therefore you should really check for yourself with spare pieces of fabric and hook and loop tabs before committing to using any glue on your jacket. Be sure also to follow the industry's convention of placing the hook tabs on the innermost flap facing out (or on the jacket's body if it has only one flap) and the loop tabs on the outermost flap facing in. This way, your insert will be more readily transferable to other jackets. Once the jacket flaps have been modified in this manner, you can go on to make insert flaps as discussed above. Another option to deal with snap-secured flaps would be to remove the old snaps on the jacket's flaps with pliers and replace them by the kind you can install at home. However, one must be very careful in order to do this without messing up the jacket's flaps.

8. Materials

8.1. List of specialized suppliers

The specialized fabrics and notions discussed here may be ordered from the following web-based outdoor fabric retailers.

Outdoor Wilderness Fabric (Nampa, Idaho, USA): www.owfinc.com ⁽¹⁾

Pennine Outdoors (Bentham, North Yorkshire, UK): www.pennineoutdoor.co.uk

Point North (Holyhead, Anglesey, UK): www.pointnorth.co.uk

Quest Outfitters (Sarasota, Florida, USA): www.questoutfitters.com

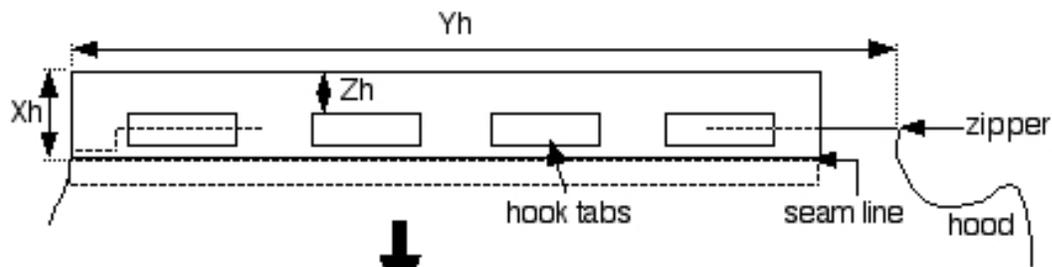
Rocky Woods Outdoor Fabrics (Loveland, Colorado, USA): www.rockywoods.com

Seattle Fabrics (Seattle, Washington, USA): www.seattlefabrics.com ⁽¹⁾

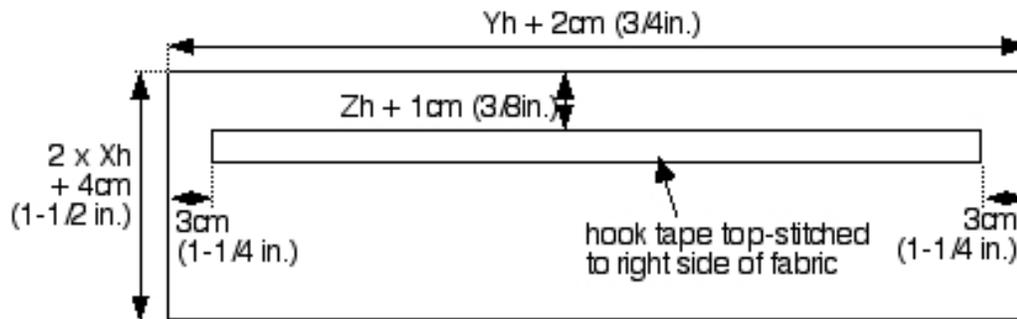
Shelby Kaava (Oulu, Finland): www.shelby.fi ⁽²⁾

Textile Outfitters (Calgary, Alberta, Canada): www.justmakeit.com

Jacket's hook side flap (left on a woman's jacket)

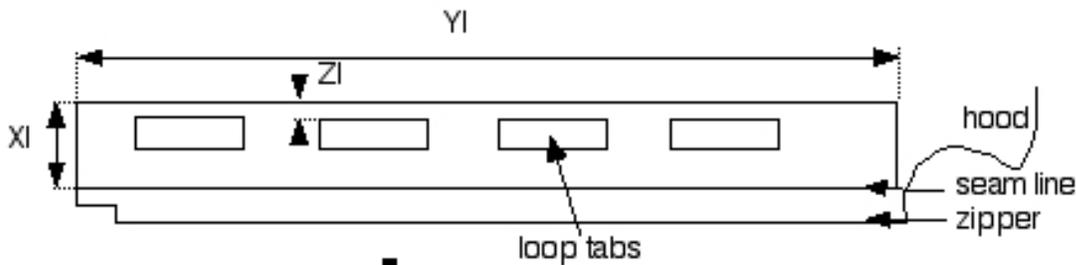


Pattern for insert's hook side flap
(to be sewn on right side of a woman's jacket insert)

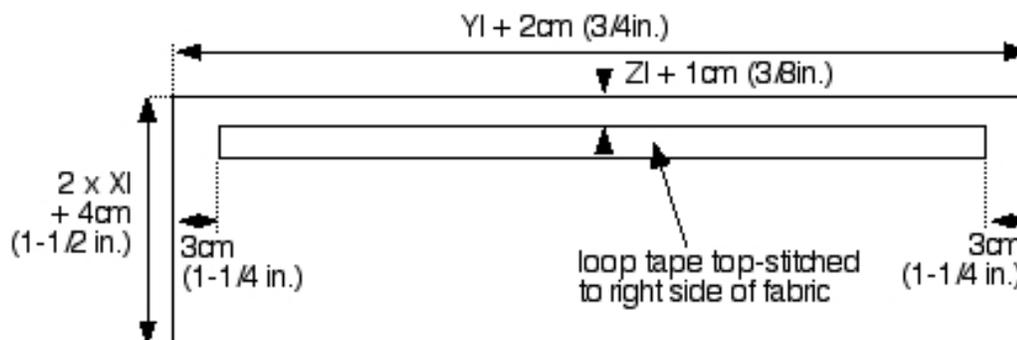


Measurements on jacket's hook side flap:
 X_h = width of the flap from seam line to free edge
 Y_h = length from bottom of flap to top of zipper
 Z_h = distance from the edge of the hook tabs to the edge of the flap

Jacket's loop side flap (right on a woman's jacket)
 Flap is folded back to expose loop tabs



Pattern for insert's loop side flap
(to be sewn on left side of a woman's jacket insert)



Measurements on jacket's loop side flap:
 X_{I} = width of the flap from seam line to free edge
 Y_{I} = length from bottom of flap to top of zipper
 Z_{I} = distance from the edge of the loop tabs to the edge of the flap

Figure 8: determining the measurements of the insert flaps based on the jacket flaps

(continued from page 11)

The Rain Shed (Corvallis, Oregon, USA): <http://therainshed.com>
Thru-hiker (San Francisco, California, USA) www.thru-hiker.com ⁽¹⁾
Wyeast Fabrics (Salem, Oregon, USA): www.wyeastfabrics.com

- (1) indicates suppliers selling separating Uretek water-resistant zippers with the slider on the right (U.S. norm)
- (2) indicates the only supplier that I could find that sells separating Uretek water-resistant zippers with the slider on the left (Canadian and European norm).

The criteria I used for including a supplier in the list was the availability of good quality stretch fleece fabric, three-layer Gore-tex ® (even though it may be cryptically described at the insistence of W.L. Gore and Associates) and/or separating Uretek zippers. Despite my best efforts, I am sure that I am missing a good deal of similar retailers. Those offering at least two of these three products may contact me at the e-mail address given at the end of this document and I will update the list in the next revision.

8.2. Equipment and notions

- Basic sewing equipment (sewing machine, pins, sharp scissors, tailor's measuring tape, tailor's chalk or pen, seam ripper or unpicker).
- Machine needles: ball-point for fleece, universal, 90 gauge for WB (sharp and new).
- 100% polyester thread of appropriate colour for the insert fabric plus black thread for top-stitching the hook and loop tabs.
- Graduated pattern paper or large sheets of newsprint paper (provided you also have a large set square and a long ruler).
- 2-3 mm thick nylon accessory cord (e.g. climbing accessory cord, available from some of the suppliers mentioned or from any climbing store). The length of this cord will depend on what you need it for. It may be needed only for "grab loops" for the sliders on the inserts' zippers (15 cm or about 6 in. per loop). It may also be used to make zipper stops if you need to shorten a tooth zipper (see Section 9.9.2.) (about 3 cm or 1-1/4 in. per stop).
- For shortening tooth zippers, it is also possible to use clamp-on stops instead of cord. These can be found at several of the suppliers listed.

For WB inserts:

BBQ lighter for searing cut fabric and cord

Searing is the best way to keep the cut edges of flat synthetic fabrics from raveling. Uncoated synthetic fabrics, cord and webbing tend to ravel very easily and must be seared quickly after cutting. For coated and WB fabrics, the risk is less, especially once the seams are sealed and/or the cut edges hemmed. Nevertheless, a light searing helps keep edges from fraying while you are working on them. Gas lighters are better than candles because they won't blacken the fabric with soot. Furthermore, a candle must be left in place while you move the edge of the fabric through its flame, which is awkward. Gas lighters can be run along the edge of the fabric at an even speed to produce the desired light melting of the fibers. However, any fabric may start to burn when exposed to a flame and you must be ready to put it out quickly if you don't want to mess up your fabric pieces or worse. Cigarette lighters are OK for small pieces but I have found that the kind of BBQ lighter that produces a small flame at the end of a long stem works best. Do not sear fleece fabrics.

Do not use the kind of lighters that project a very hot and narrow flame and that may be used for minor soldering jobs as well as lighting fires

- Hook and loop tapes (see **Figure 8** for length).
 - ◆ 25 mm (1 in.) wide if the hook and loop tabs on the jacket's flaps are between 25 and 16 mm (5/8 in.) wide, or
 - ◆ 19 mm (3/4 in.) if the jacket's tabs are less than 16 mm (5/8 in.) wide.
- Four spring-locks.
- 4 m (slightly more than 4 yards) of 2 mm-thick, nylon-sheathed bungee cord (1/16 in.).
- Seam sealant:
You may use specialized iron-on sealing tape available from outdoor fabric retailers or one of the organic solvent-based paint-on polyurethane sealants available from the same retailers or from good camping stores. I have never tried the water-based seam sealants for sealing seams on 3-layer WB fabric but I suspect that these formulations would have difficulty in penetrating the hydrophobic polyester backing tricot of the fabric. This would probably result in an incomplete seal.
- Zipper(s): see Section 5.2. for details of which kinds of zippers to get and where they can be bought.

8.3. Fabrics

8.3.1. Selecting the type of fabric needed

When choosing the colour of your insert, remember that finding an exact colour match for your jacket may be very difficult and that you may be better off picking something in a contrasting colour instead.

For fleece fabrics, it is recommended to use a two-way-stretch fleece for the inserts even if the jacket itself is non-stretching. This allows the insert to better accommodate a growing belly or a growing baby. My preference is Malden Mills' Powerstretch but other kinds of stretch fleeces can do the job. If you decide to use non-stretch fleece, you will need to widen the corresponding patterns.

For a WB insert, the fabric should be of the 3-layer variety, i.e. 3-layer Gore-tex (even if the garment is made of 2-layer fabric). This is because normally, 2-layer fabric must be lined. The adjustable middle panel of a WB insert would not work well with a lining.

Also for a WB insert, a small amount of waterproof fabric will be useful to make the loops for the lace-up system of the adjustable middle panel: about 2.5 cm wide by between 60 and 80 cm long, depending on the insert (1 in. wide by 24 to 31-1/2 in. long) or equivalent in smaller pieces. If you have remnants of medium weight polyurethane-coated nylon (waterproof, non-breathable rainwear material), they would be ideal. Otherwise, you can use the WB fabric pieces leftover after you have finished cutting all the other pattern pieces.

Making inserts for non-breathable rain jackets is not recommended (see Section 10.1.).

8.3.2. Determining how much fabric you will need

Commercial patterns usually indicate how much fabric you need to buy to make your garment. They also provide diagrams showing where each pattern piece will be cut from. These diagrams typically recommend the same arrangement regardless of the size of pattern needed. They aim to offer a compromise between avoiding fabric wastage and saving time. However, these insert instructions deal with fabrics that may have different widths (depending on the type of fabric and the supplier) and whose cost may vary widely. Many come in the standard 152 cm (60 in.) width but others come in other widths and some can be quite expensive, making fabric wastage unpalatable. I prefer to explain how to determine for yourself how to best arrange your own pattern pieces and, therefore, figuring out for yourself how much fabric you will need to buy.

You will first need to find out the width of the fabric from your supplier and, in the case of stretch fleece, whether it stretches more along the width or the length. While you are at it, you may also ask for clear directions on how to identify the right and wrong sides of your fabric. In some cases, this is quite obvious but not in others. Next, you should trace the width of your fabric on a sheet of paper, scaled down to the same scale as the pattern diagrams given in Appendices B to E (use the scale markings to determine the ratio). Then you should cut out the small-scale pieces that you need. In the case of three panel inserts, cut an additional 4 mm (3/16 in.) at the bottom approximately equivalent to the additional 1.5 cm (1/2 in.) full scale to be added to the bottom of each panel (see Section 9.2.). If you have already scaled these pieces up to full-scale on pattern paper as directed in Section 7, you may cut the small pieces out of the original print-outs; otherwise, re-print the pages you need to cut up. If you are making two inserts of the same fabric (for example a maternity one and a baby-carrying one), be sure to include the pattern pieces of both. For flaps, draw and cut scaled-down pieces based on the measurements you obtained from your own jacket (see Section 7.3. and **Figure 8**).

Finally, place the pieces on the scaled-down fabric template in the most efficient manner for your circumstances. For fleece inserts, the pattern pieces must be placed so that the width of the insert will correspond to the direction in which the fabric stretches the most. Use the scale to calculate how much fabric you need to buy. Keep in mind that to save time, symmetrical

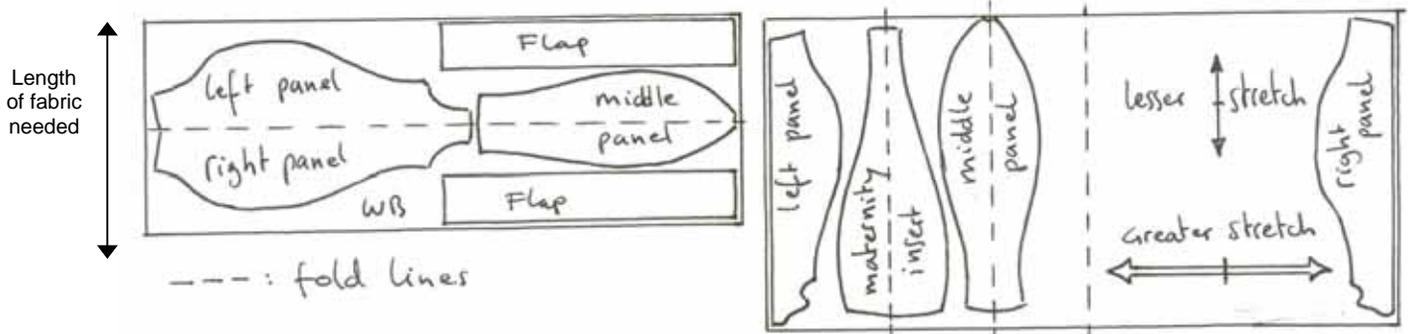


Figure 9

pieces (e.g. the two side panels) may be cut at the same time from the folded fabric. To be safe, you should order about 5 cm or 2 in. more than what your calculations tell you. You should also tape the pieces in place on the sheets and save them to remember where to cut each piece from later. **Figure 9** shows possible arrangements of pattern pieces for medium size inserts on 140 cm wide Gore-tex (56 in.) and 152 cm wide Powerstretch (60 in.). *However, this arrangement would not necessarily work for other sizes and/or other fabrics.*

9. Construction

9.1. Basic pinning and sewing techniques

In sewing terms, the “right” side of the fabric is that which will end up on the outside of the garment. The other side is called the “wrong” side. The convention is to show the right side shaded (cross-hatched in these instructions) and the wrong side clear.

Pinning (Figure 10)

For fleece fabrics, you may set pins at a right angle to the seam every 3-4 cm (1-1/4 to 1-1/2 in.) in areas where the fabric curves sharply and every 6-7 cm (2-1/2 to 2-3/4 in.) when matching straight edges. You may sew over them, slowing down as you go over each pin to allow the machine’s needle to slip on either side of them. The elasticity of the fabric allows the pins to wriggle out of the way of the needle too but be careful: breaking a needle is always a possibility. Your seam line should be 1 cm (3/8 in.) from the edges of the fabric. For waterproof fabrics, you must pin right along the seam line, 1 cm (3/8 in.) from the edges of the fabric, in the same direction as the seam and remove the pins as you sew. This way, pin holes will be sealed (or protected with flaps) along with the seam holes and will not compromise the waterproofness of the garment. Membrane-based soft shell fabrics should also be pinned lengthwise. However, some of these fabrics are so thick that the repeated bending of one fabric layer over the other when pinning may result in the two pieces not matching at the bottom of a seam. Care should be taken to compensate for this a little with each pin.

Sewing

If you are borrowing a sewing machine, make sure you know how to properly fill bobbins with thread and insert them in the machine, install the needle and thread it following the appropriate path and set the foot pressure and the thread tension correctly. If you are not used to sewing with the kind of fleece and/or WB fabric you will be using for the inserts, test the thread tension and foot pressure by sewing some scrap pieces together first.

When sewing two stretch fleece fabric pieces together, use a 2 mm long (1/16 in.) medium-width zig-zag seam. You will need to stretch the fabric as you sew it and this may cause the edges to bend and/or curl. Make sure that the “curls” are unfolded before they are fed under the machine’s foot. When the main seam is done, add another seam in the middle of the seam allowance to help keep the cut edges from raveling. For WB fabrics and when sewing a stretch fabric to a non-stretch one (e.g. sewing the zipper on a stretch fleece insert), use a medium-length (2-3 mm or 1/16 - 1/8 in.) straight stitch for the mainseam and any secondary seams.

Always start a seam about 1.5 cm (3/4 in.) down from where it needs to start and in reverse. Sew backwards until you reach the starting point of the seam line, then go forward from there. Finish a seam to keep it from unraveling by going backward and forward again over the last 1.5 cm (3/4 in.) of the seam. In some cases, there is no need to finish a seam because the end of the seam will be hemmed. These cases are clearly identified in these instructions. Otherwise, assume that all seams need to be finished.

Always be on the look-out for situations where the fabric ceases to feed under the machine’s foot regularly. This may happen when sewing across a previous seam (the bulge of the fabric around the cross-seam may create a blockage), when a pin is not inserted correctly and it catches on something, etc. Be prepared to slow down or stop sewing altogether as you deal with the blockage and/or gently help push the bulge through. With WB fabrics, if a seam wanders off-track or a stray fold of fabric gets caught in the seam, not only will the seam need to be ripped (unpicked) but the stray needle holes will need to be sealed with tape or seam sealant.

9.2. Cutting the fabric pieces

- A. Pin the full-scale pattern pieces to the right side of the fabric as determined in Section 8.2.2. The pins may be set about 15 cm (6 in.) apart and should be inserted all around each piece, within the seam allowance, aligned in the same direction as the seam, about 7mm or 1/4 in. from the edge of the cut, making sure that they do not cross the cutting line. When cutting two symmetrical pieces, the pattern may be pinned to the folded fabric and the two pieces cut at the same time.

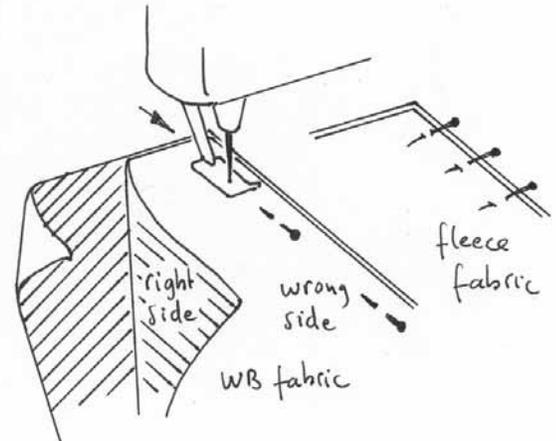


Figure 10

- B. Cut through the pattern paper and the fabric along the line except for the bottom of each piece which should be cut longer than the pattern calls for, by about 1.5 cm (1/2 in.), to allow for possible differences in the lengths of the pieces, as shown on **Figure 11**.
- C. Remove the pins and pattern paper. Trace a line in tailor's chalk or pen where the cut line would have been, as shown in **Figure 11**.

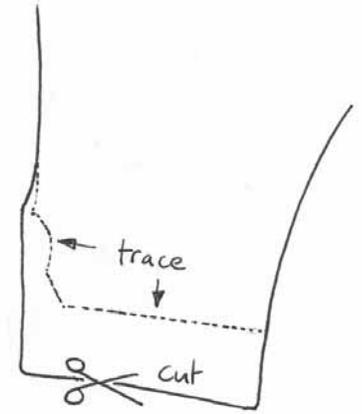


Figure 11

Note: For inserts with an adjustable middle panel, you should mark the spots where the lace-up loops will be inserted with permanent marker or by cutting small notches along the edge of the panel. The spots are marked on the pattern with crosses (see Appendices C and E) but it is not always easy to distinguish to which pattern each cross belongs to. The general rule is that loop spots should be about 10 cm (4 in.) apart along the edge of the insert's middle panel except at the top and bottom where they should be set closer together. You will need to make sure that the marks you make do not get obliterated by searing and handling.

- D. For WB fabrics, lightly sear the cut edges as described in Section 8.1. except for the extended part around the bottom which will be seared only after it gets its final cut (see Section 9.6.6.)

9.3. Replacing and shortening a zipper

If the jackets you wish to make inserts for use regular (non-water-resistant) one-way separating zippers or any kind of zipper for which you cannot find a match, you may want to consider removing them and installing new two-way zippers instead, as discussed in Section 5.2.. This will also make it easy to ensure that the jacket and insert zippers match since you can simply buy identical zippers. However, unless the zipper tape is fully visible along its entire length on the inside of the jacket, changing a zipper can be a complex task.

Few jackets have zippers with fully apparent tape anymore. Modern technical fleece jackets often have chin guards sewn in at the top of the zipper and/or double-layer collars with the zipper tape "sandwiched" between them. Ripping seams that are hidden in the fuzz of fleece fabric is very difficult. On 3-layer WB jackets, the zipper tape may also be encased in a fold of the fabric. On 2-layer WB jackets, the tape is usually sandwiched between the WB fabric and its liner. Yet another potential complicating factor is if your jacket is the kind that has an extra zipper inside for zipping in a separate fleece jacket as a liner (sometimes called "3-in-1" jackets). Finally, as mentioned earlier, seams of water-resistant zippers are tape-sealed and near impossible to rip.

I am providing below basic zipper replacement instructions for people who may have an older jacket with an obsolete zipper whose tape is fully exposed. Replacing a zipper whose tape is not fully apparent should only be attempted if you are confident that you will be able to i) rip the seam of the old zipper without messing up the fabric, ii) note exactly how the old zipper was put together as you rip if and iii) sew everything back with the new zipper exactly as it was before.

If you need to install a new zipper on your jacket in order to make it compatible with an insert but cannot remove and replace the old zipper, you should be able to simply add the new zipper to the jacket as long as it is not a water-resistant one. You will do this by sewing the tape of the new zipper to that of the old one, on the inside. This will result in a system that is not particularly pretty nor easy to use but it will help get around a tricky zipper replacement. If you wish to be able to remove the new zipper from the jacket once you are no longer using the insert, use a long stitch with a light-coloured thread for the seam. It will be much easier to rip.

9.3.1. Replacing a simple zipper

- A. Measure the distance between the tooth track of the old zipper and the folded and sewn edge of the fabric.
- B. Rip the old zipper's seams with the seam ripper taking care not to mess up the face fabric (i.e. rip as much as possible on the side of the old zipper tape) and remove the loose bits of thread.

If you can use a standard zipper length, you will need to fold the extra tape at the top of the zipper as described in Section 9.3.3. below. If you need a non-standard length, you will need to shorten the zipper as described in Sections 9.3.2. and 9.3.3. below.

- C. If the edge of the fabric retains its fold from the previous seam, simply pin the new zipper to the folded edge of the fabric, making sure that the new zipper is right side up, with its slider pull facing out and with the tooth track pinned at the same distance from the folded edge of the fabric as the old one was.
- D. Sew the zipper with a couple of new seams. One of these should be as close to the folded edge of the fabric as possible; the other one set back about 4 mm (1/8 in.) from the first one.

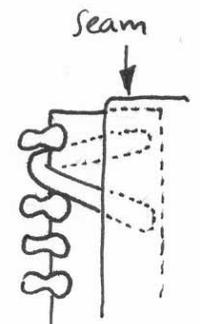


Figure 12

Note: when you sew zippers, make sure that you keep the slider(s) out of the way. This will usually

entail stopping the seam partway through and lifting the foot in order to move the slider(s) towards the back. If the edge of the fabric has not retained its fold, you will need to sew the zipper as described in Section 9.4 for insert zippers.

9.3.2. If you need to shorten a tooth zipper

- Remove the tooth corresponding to the stop position with pliers and/or wire cutters.
- Cut the zipper tape between the tooth just above the stop gap and the next one up. Lightly sear the cut edge of the tape on an open flame as described in Section 8.1.
- Clamp a zipper stop in the gap or
When you pin the zipper to the jacket, insert a short loop of 2 or 3 mm-thick nylon accessory cord (1/16 in. or slightly more) through the gap as a stop and sew this cord loop in with the zipper seam, as shown in **Figure 12**. When sewing over this loop, go over it slowly, holding it tight and go back and forth over it a couple of times to make sure that it is securely stitched.

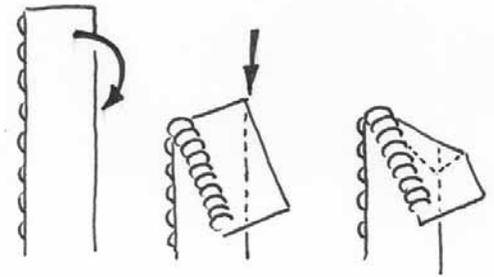


Figure 13

Note: you should only need one such stop per zipper; i.e. you do not necessarily need one on each half of a zipper but you must be sure not to mate two halves with no stop or a half without a stop with a longer one.

9.3.3. If you need to shorten a coil zipper

- Cut the zipper about 2.5 cm (1 in.) above the stop position (use shears or tough scissors to cut through the coil). Lightly sear the cut edge of the backing tape.
- When pinning and sewing the zipper, fold this extra length at the stop position as shown in **Figure 13**. Slow down as you sew over the coil to give the machine's needle a chance to slip in between the coils.



Figure 14

9.4. Sewing a pregnancy fleece insert

I have aimed to keep the design and instructions for this kind of insert as simple as possible to help beginners become comfortable with the idea of sewing inserts. This is why it consists of a single teardrop-shaped panel. Its pattern and sizing aim to fit best a woman around the 7th to 8th month of the pregnancy with a bit of room to spare to allow for layering under it. The stretch of the fabric should allow it to fit well until the delivery.

- Hem the bottom of the insert by folding it twice along the dotted lines shown on the pattern: first 1 cm (3/8 in.) from the cut edge, the next time 1.5 cm (5/8 in.) from the folded edge.
- Pin and top-stitch the hem with two zig-zag seams, each about 3 mm (1/8 in.) from the folded edges, as shown in **Figure 14**.

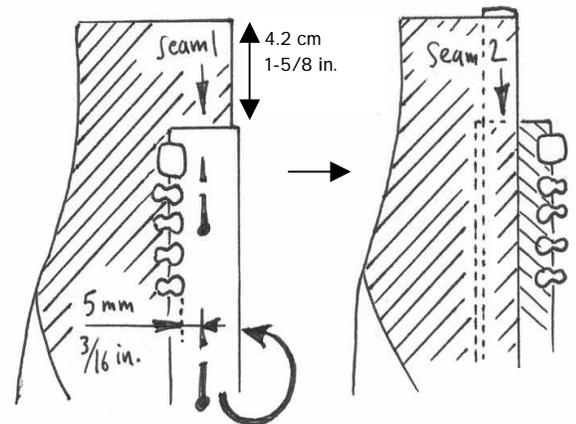


Figure 15

Note1: when sewing an insert zipper, the right half of the zipper is sewn to the left side of the insert and the left half to the right side (from the

point of view of the person wearing the insert). If you have the zipper properly oriented (right side up and with the slider pulls facing out), it is quite obvious that this is the only way that it can be sewn. Still, a bit of care is needed.

Note2: be sure to keep the sliders out of the way while you sew the zipper, as indicated in Section 9.3.1.

- Separate the zipper and pin the right half of the zipper to the left edge of the insert, making sure that the top stop of the zipper is 4.2 cm (1-5/8 in.) from the top edge of the fabric. Pin the right sides of the zipper tape and the fabric together, with the fabric's edge slightly recessed with respect to the edge of the zipper tape, as shown on **Figure 15**.

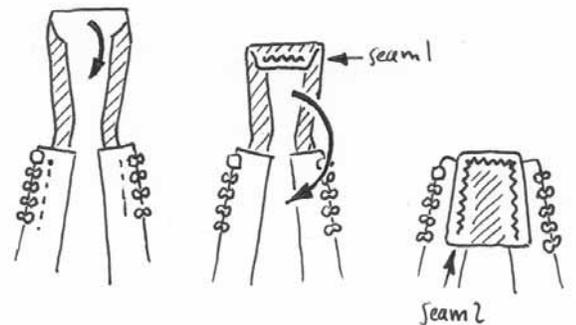


Figure 16

- D. Sew the first seam as shown, about 5 mm or 3/16 in. from the tooth or coil track using the straight stitch. In the case of tooth zippers, you may use the tooth track as a guide for the foot of the sewing machine to ensure that the seam remains at a constant distance from the tooth track. However, if you do, make sure that you push the machine's foot only lightly against the tooth track and that your pins are set close enough together to prevent slippage of the tape between pins under pressure from the foot.
- E. Fold the zipper tape under as shown on **Figure 15** making sure that it lies flat and smooth. Typically, the zipper edge of an insert will be longer than the zipper itself. Fold and pin in place the edge of the fabric beyond the end of the zipper. Top-stitch a second seam 4 mm (3/16 in.) from the first one starting at the top of the insert. Keep pulling the fabric and the zipper gently apart as you sew to avoid folds and wrinkles. Keep sewing below the zipper and finish the seam at the bottom.

Note: for this second seam, it is recommended to use the tooth or coil track of the zipper as a guide for the foot of the machine. A dedicated zipper foot may be used if available. These can be adjusted to press against the track at the correct distance from the needle. If you do not have a zipper foot, the regular foot can often be used just as effectively, setting the needle to the right or left of centre to achieve the same result.

- F. Finish sewing the insert by simply folding the last 1 cm (3/8 in.) along the top of the insert once and top-stitching the hem with the zig-zag stitch, then folding it again down to the top of the zipper and top-stitching it along both sides and top, as shown in **Figure 16**.

That's it, the insert is ready for use. If you anticipate needing to open and close the insert-to-jacket zipper with mitts or thick gloves, you may want to tie grab loops to the zipper pulls. For this, you may cut and sear lengths of nylon cord of about 15 cm (6 in.) per grab loop.

Note: If your fleece jacket has a close fit and you need to start using the insert early in the pregnancy, you will find that the pattern given here will make the jacket-plus-insert system fit quite loosely at first. If you wish to have a better fit around the middle months of your pregnancy, the simplest option is probably to sew two lengthwise tucks on the inside as shown on **Figure 17**. Use long stitches and, if possible, a thread colour that will be easy to spot against the fabric (without clashing too badly with it). This will make it easier to rip up these two seams later in the pregnancy. Alternatively you could make an additional, narrower insert.

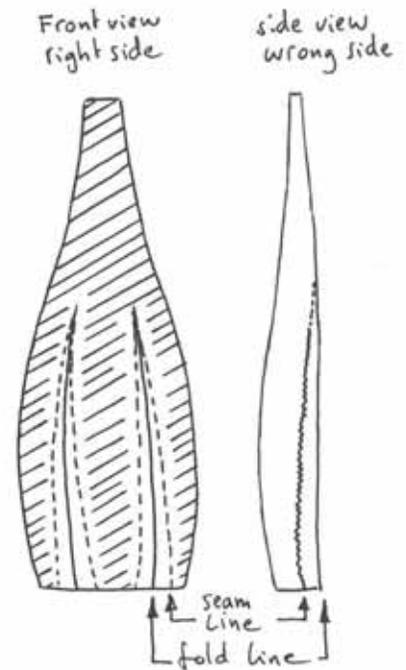


Figure 17

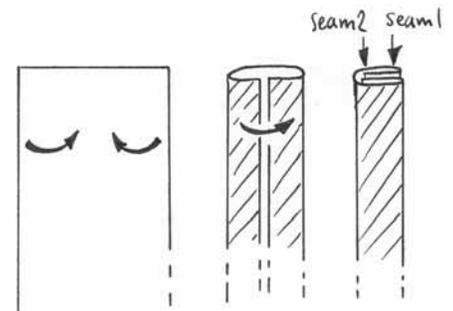


Figure 18

9.5. Making the loops for the lace-up system on the middle panel of a WB insert

For WB inserts, these loops may be constructed from 25 mm-wide (1 in.) bands of waterproof fabric. If you have remnants of polyurethane-coated nylon of an appropriate colour, you may use them. Otherwise, use the WB fabric pieces leftover after cutting the panels and the flaps. Do not use non-waterproof cord or webbing. Making an effective seal around these would be very difficult and all the poorly sealed tabs would become so many wicks allowing rain water to penetrate inside the insert.

The fabric pieces are folded along their length and sewn as shown in **Figure 18**. If your fabric piece(s) allow it, you may fold and sew a long band from which to cut and sear small sections to save time. Each loop should be about 4 cm long (1-1/2 in). The number of loops needed varies from 14 to 20, depending on the length of the jacket and the pattern used (see patterns in Appendices C or E).

9.6. Assembling the panels of a three-panel insert (WB insert, fleece baby-carrying insert)

Make sure that the three-way point is clearly marked with permanent marker on the wrong side of each panel, as shown on the patterns (see Section 7.2).

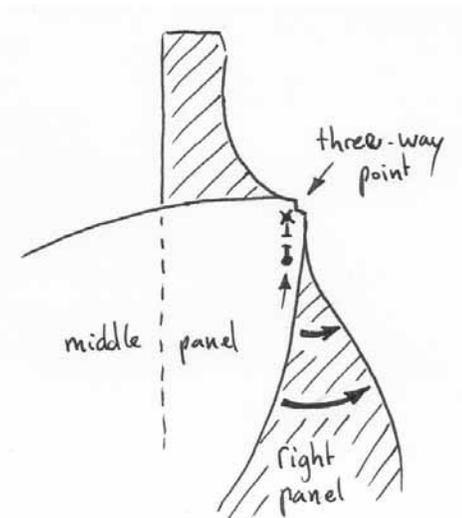


Figure 19

9.6.1. Pinning the first two panels and installing the loops

- A. Place the middle and right panel right sides together as shown in **Figure 19**, making sure that the two “three-way” points at the top match exactly.
- B. Pin the edges to be sewn starting at the top and working your way down, inserting pins every 3-5 cm (1-1/4 to 2 in.).

Note: for a WB insert, be sure to pull both edges of the fabric tightly while keeping them together before inserting each pin (i.e. avoid having one edge fold, bunch up or slip with respect to the other). For a stretch fleece insert, you want to straighten and smooth the edges as much as possible without pulling them.

To continue for a baby-carrying fleece insert, go directly to Section 9.6.2.

- C. For WB inserts requiring a lace-up system on the middle panel, go back along the pinned edge and insert the loops at the correct locations as shown on **Figure 20**, removing the pins that are in the way as necessary.
- D. Pin each loop securely “sandwiched” between each panel edge. This part is a bit tricky because you are going through six layers of fabric. Use sharp and solid pins.

Note: manipulating the loops during this operation is made easier if they are already pressed into “V” shapes. The loops (and the lace-up system) will also look neater if you take care to place them all in the same orientation, as shown.

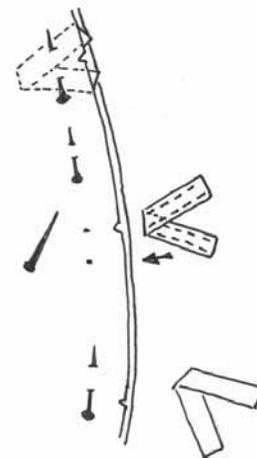


Figure 20

9.6.2. Sewing the main seam on the first two panels

- A. Sew the main seam as described in Section 9.1. *making sure that the seam does not go above the three-way point.*
- B. In the case of a WB insert, when sewing over loops, sew back and forth over each one to ensure a secure attachment.
- C. No need to finish the seam as the bottom may need to be cut back to the correct size and will also be hemmed.

9.6.3. Sewing the main seam on the second and third panels

- A. Repeat the operation with the middle and left panels (pinning the edges, inserting the tabs and sewing the first seam). However, in this case, set the pins pointing down, starting at the three-way point as shown on **Figure 21** and start sewing from the bottom of the insert. The insert will look neater if the left-hand loops are placed in the mirror image position with respect to the right-hand ones, as shown on **Figure 22**.

Important: be careful when you pin and sew near the three-way point. You need to sew right up to it but must avoid catching any fold of the right panel in the seam.

- B. This time finish the seam properly at the three-way point.

9.6.4. Sewing right and left panels together at the top

- A. Pin the top part of the right and left panels right sides together, keeping the middle panel out of the way.
- B. Sew the main seam, finishing it exactly at the three-way point without catching the middle panel.

Note: If you will be sealing the seams on a WB insert with iron-on tape, you may want to trim the notch in the seam allowance around the three-way point after sewing the primary seams. Ideally, the cut edge will be about 3 mm (1/8 in.) from the seam at its narrowest point. This will make it easier to sew the secondary seams as indicated below and to seal the insert seams around the three-way point afterwards.

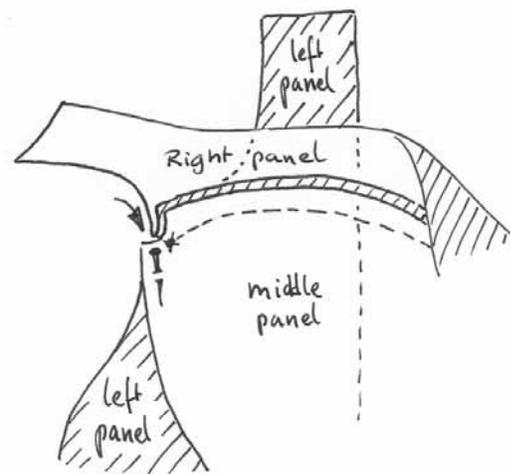


Figure 21

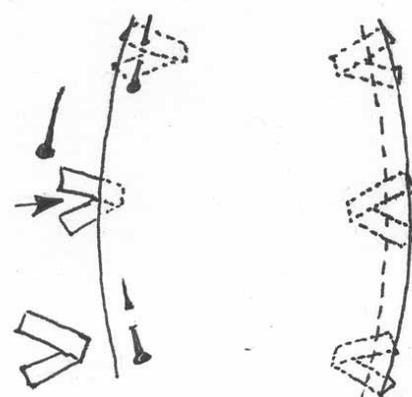


Figure 22

9.6.5. Sewing the secondary seams for WB jackets

(For three-panel fleece and soft shell jackets, sew the secondary seam in the middle of the seam allowance as described in Section 9.1.)

- A. Spread out the right and middle panels wrong side up and fold the seam allowance flat against the right panel.
- B. Starting about 4 mm (1/8 in.) below the three-way point, top-stitch the seam allowance to the right panel 4 mm or 1/8 in. from the main seam.

Notes: you should not need to pin the seam allowance for the secondary seam. You may use the left hand and the heel of the right hand to pull the two panels apart while the fingers of the right hand press the seam allowance flat as you sew. Pause your sewing frequently to make the necessary hand adjustments to ensure that i) the two panels remain correctly pulled apart, ii) the seam allowance remains as much as possible flat against the right panel and iii) the top-stitched seam remains at a constant distance from the main seam. Since the two panels are of different shapes, a few small folds in the seam allowance may be inevitable but should be kept to a minimum (see **Figure 23**).

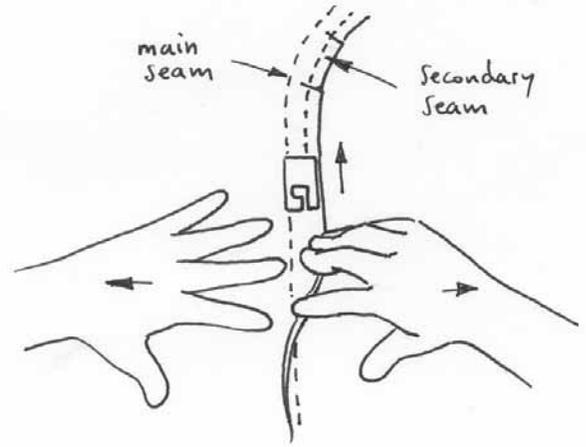


Figure 23

- C. Repeat the operation with the left panel, top-stitching the seam allowance to the left panel, this time.
- D. To sew the secondary seam between the right and left panels at the top of the insert, spread out the right and left panels wrong side up over a curved surface (e.g. tin can); pull and press the seam allowance flat against the right panel and pin it in place.
- E. Turn the insert over and pin the seam allowance to the right panel again, this time from the right side of the fabric. Remove the pins set from the wrong side.
- F. Top-stitch the seam allowance to the right panel following the pin line, allowing the piece to keep its normal curved shape and finishing this secondary seam about 4 mm (1/8 in.) above the three-way point.

Note: If you will be sealing the seams on a WB insert with iron-on tape, you may want to trim off about 3 mm (1/8 in.) from the seam allowance after sewing the secondary seams. This will give the tape better purchase on either side of the seam. If, on the contrary, you will be sealing the seams with seam sealer, you will need the wider seam allowance to facilitate working the sealant in between the fabric layers as described in Section 9.10.

9.6.6. Cutting and hemming of the bottom part of the insert

- A. Examine the lines you traced at the bottom of the three panels as per Section 9.2.(C.), marking the expected bottom of each piece. If they match, you may cut the bottom of the insert along these and lightly sear the cut edge.
- B. If they do not match, use the lower of the lines as a guide to trace a new line extending through the other panel(s) as shown in **Figure 24**. Cut along that new line and sear lightly.
- C. Fold, pin and top-stitch the bottom hem with two seams as directed in Section 9.4.(A & B).

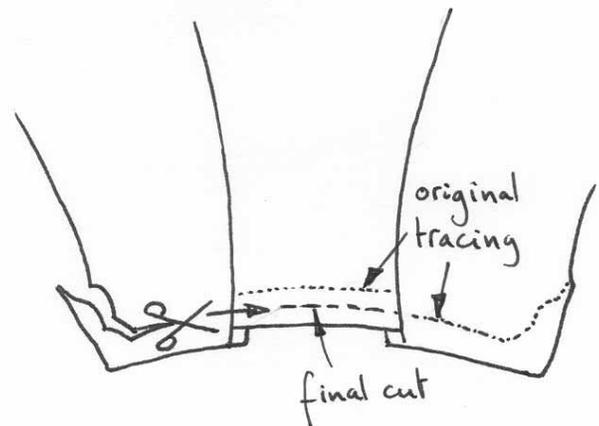


Figure 24

9.6.7. Seam-sealing the top part of a WB insert

- A. Following the instructions given in Section 9.10., seal the seam joining the tops of the right and left panels.
- B. If using liquid sealant, pay particular attention to the three-way point. If the three seams coming together at this point do not quite join, a thorough seal will be needed to prevent leaks. There is no need to seal the top 2.5 cm (1 in.) of the seam since that part will be folded and hemmed on the inside of the insert.
- C. Allow to dry as required.

9.7. Sewing the zipper and the top hem on a three-panel insert

As mentioned in Section 9.4., the right half of the zipper is sewn to the left side of the insert and the left half to the right side.

- A. Separate the zipper and pin the right half of the zipper to the left edge of the insert's fabric, making sure that the top stop of the zipper is 4.2 cm (1-5/8 in.) from the top edge of the fabric. Pin the zipper tape to the edge of the fabric, right sides together, with the fabric's edge slightly recessed with respect to the zipper tape, as shown on **Figure 16**.
- B. Keep following the instructions given in Section 9.4. except that you will use a straight stitch in step E.

For fleece inserts that do not need storm flaps, a lace-up middle panel or seam sealing, this is it. The insert is finished. You may add grab loops to the zipper pulls as described in Section 9.4.

For WB inserts, keep following the instructions below.

9.8. Single internal flap (for jackets with an exposed Uretek water-resistant zipper).

9.8.1. Making the flap

- A. At this point, you should have calculated the measurements of your insert flap as directed in Section 7.3.1. and shown on **Figure 8**. As mentioned, you may find it easier to trace your cutting lines directly on the fabric rather than make a separate pattern.
- B. Cut the flap piece along the traced lines and sear the edges.
- C. Fold the flap right sides together and pin along the long edge and one of the short edges.
- D. Sew along the pin line as shown in **Figure 25**. Be sure to sew only along the two pinned edges.
- E. Cut and sear the four corners as shown in **Figure 25**.
- F. Invert the flap to bring the right sides out. A long ruler or something equally long, flat and narrow is useful here: start to invert at one end, use the ruler to push out the corners and pull down the rest of the flap. Use the ruler to push out the sewn edge.
- G. Fold in the open edge and pin along the two short edges and the long sewn one. Pins should be set 5 mm (1/4 in.) from the first seam, making sure that it is pushed out all the way.
- H. Top-stitch the edges of the three pinned sides.

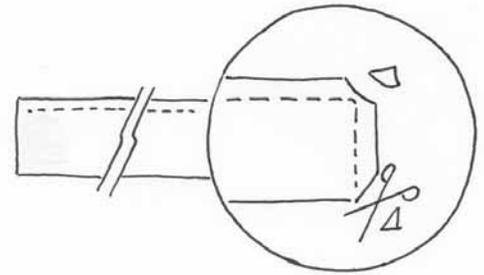


Figure 25

9.8.2. Installing the flap

- A. Measure the distance from the tooth track of the jacket's zipper to the seam of the jacket's flap that is closest to the zipper.

For jackets with the zipper slider and the internal flap on the right (US norm), the insert's flap will need to be sewn on the left of the insert. For jackets with the zipper slider and the flap on the left (Canadian and European norm), the insert's flap will be sewn on the right of the insert. The edge of the flap that will be sewn to the insert is the folded one (i.e. the one edge that does not yet have a seam).

- B. Pin the single insert flap to the wrong side of the insert, on the right or left as required. The pins should be set 7 mm (1/4 in.) from the folded edge of the flap and at the same distance from the zipper's tooth track as was measured on the jacket (step A, above), as shown on **Figure 26**.
- C. Top-stitch the flap to the insert following the pin line.
- D. Top-stitch another seam as close to the folded edge of the flap as possible.
- E. Go on to Section 9.10.

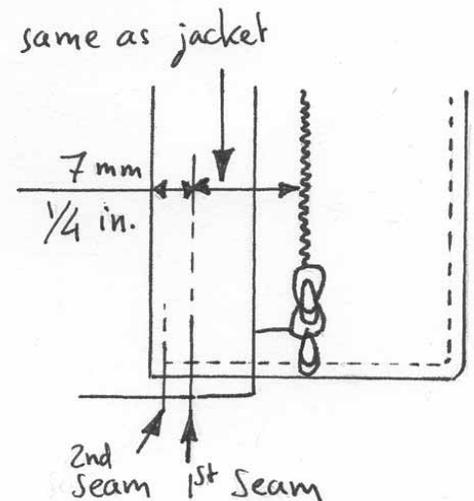


Figure 26

9.9. Making and installing double external flaps on a WB insert

9.9.1. Making the insert's flaps

Start as for Section 9.8.1. above, steps A and B, then:

- C. Pin the hook or loop tape to the appropriate flap piece where determined by your calculations (see Section 7.3.1. and the directions of **Figure 8**). Use only a few pins set down the centre of the tape.
- D. Top-stitch the first long seam of the tape along one edge.
- E. Repeat with a second seam along the other edge of the tape, starting again from the top, as shown in **Figure 27**.
- F. Top-stitch cross-seams along the two short edges and at about 10 cm (4 in.) intervals in between.

Pick up again at step C of Section 9.8.1. above and continue on till step H.

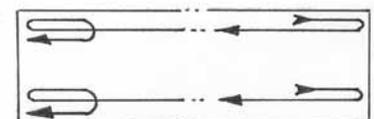


Figure 27

9.9.2. Installing the hook flap

Normally, for an insert made to match a woman's jacket, the flap with the hook tabs will be sewn to the right of the insert, with the tabs facing out. For a man's insert, the flap with the hook tabs will be sewn to the left side of the insert, with the tabs facing out.

The edge of the flap that will be sewn to the insert is the folded edge. The sewn edge will remain free.

- A. Measure the distance from the tooth track of the jacket's zipper to the seam of the jacket's hook side flap that is closest to the zipper.
- B. Pin the insert's hook flap to the right side of the insert (as opposed to the wrong side), on the right or left, as required. The pins should be set 7 mm (1/4 in.) from the folded edge of the flap and at the same distance from the zipper's tooth track as was measured on the jacket in step A, as shown on **Figure 26**. If this would lead you to pin the flap across the seam line joining the right and left panels at the top, stop at the seam line.
- C. **IMPORTANT:** verify that the insert's hook flap is positioned correctly by zipping the insert to the jacket and checking that it will mate well with the jacket's loop flap.
- D. If the two flaps mate well, top-stitch the insert flap to the insert following the pin line. Make sure that this seam stops short of crossing from one panel to the other at the top.
- E. Top-stitch another seam as close to the folded edge of the flap as possible.

9.9.3. Installing the loop flap

Normally, for an insert made to match a woman's jacket, the flap with the loops will be sewn to the left of the insert, with the tabs facing in. For a man's insert, the flap with the loops will be sewn to the right side, with the tabs facing in.

- A. Measure the distance from the tooth track of the zipper to the seam of the jacket's loop side flap that is closest to the zipper.
- B. Pin the insert's loop flap, VERIFY FIT AND MATCH and sew as described in Section 9.9.2. above (B to E).

9.9.4. Overlapping flaps at the top

If you have had to stop sewing the hook and loop flaps short of the top of the insert because the seams would have crossed over to the opposite panel, the two flaps will overlap each other at the top. In this case, simply top-stitch them to one another with a diamond-shaped seam as shown on **Figure 28**.

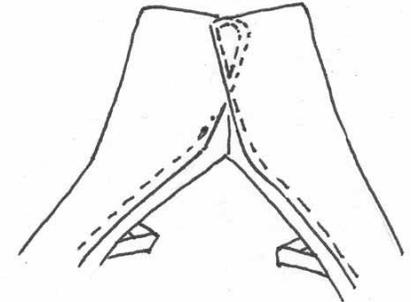


Figure 28

9.10. Sealing the seams on a WB insert

If you use the specialized seam sealing tape, follow the instructions provided by the supplier.

If using an organic solvent-based polyurethane sealant, you will need to work in a warm and well-ventilated place. Use the small brush applicator usually provided to apply the sealant as follows.

- A. For the top-stitched seams attaching external storm flaps to the insert, simply brush the sealant over the top of the seams, working it into the backing tricot of the 3-layer fabric with the brush.
- B. For the top-stitched seams attaching an internal storm flap to the insert, brush the sealant directly on the flap fabric, along the seams and around the sewn edge of the flap to the crease between the flap and the inside of the panel.
- C. For the panel-to-panel seams, start by separating the free fabric edges of the seam allowances and apply the sealant on all reachable surfaces, around the loop ends and inside the loops as much as possible.
- D. Then brush the sealant over the top of the seams and over the free edges, working it into the backing tricot of the 3-layer fabric and pressing the free fabric edges together in the process. Pay close attention to the three-way point, as mentioned in Section 9.6.7.
- E. Allow to air-dry for about 4 hours. The sealant should feel tacky but not sticky to the touch.
- F. Identify all areas where the seam allowance is not already pressed flat and stuck against the side panels. Press these flat now. They should stick together well at this point.
- G. Brush a little additional sealant over the areas you've just pressed and allow the sealant to finish air-drying for the time recommended by the manufacturer.

Note1: If your insert has a water-resistant zipper, do not forget to tape or seal the zipper seams as well.

Note2: polyurethane seam sealant may remain tacky and “grab” certain fabrics even when fully dried. If you find that this is a nuisance, use a small brush to apply small amounts of talcum powder to the polyurethane seals, taking care not to drop the powder elsewhere inside the insert. Wipe off excess powder from the seals with a cloth.

9.11. Finishing a WB insert

Since it is likely that a WB insert will be used with gloves or mitts, it is recommended to install grab loops on the insert’s sliders as directed at the end of Section 9.4.

- A. Starting at the top of the insert and in the middle of the shock cord, thread the shock cord through the loops on either side as shown on **Figure 29**.
- B. Install the spring-locks as indicated and tie a knot on the shock-cord behind each spring-lock to prevent it from slipping off.
- C. Tie the two ends of the shock cord together at the bottom, cut off excess cord and lightly sear the nylon sheath.

When the middle panel is fully gathered for use during pregnancy, the lengths of shock cord hanging from the spring-locks will be quite long and should be gathered in small bundles or knots. If you find that this is a nuisance, you may use two different shock cords on the insert: a shorter one for use during pregnancy which may be removed and replaced by a longer one once the baby arrives.

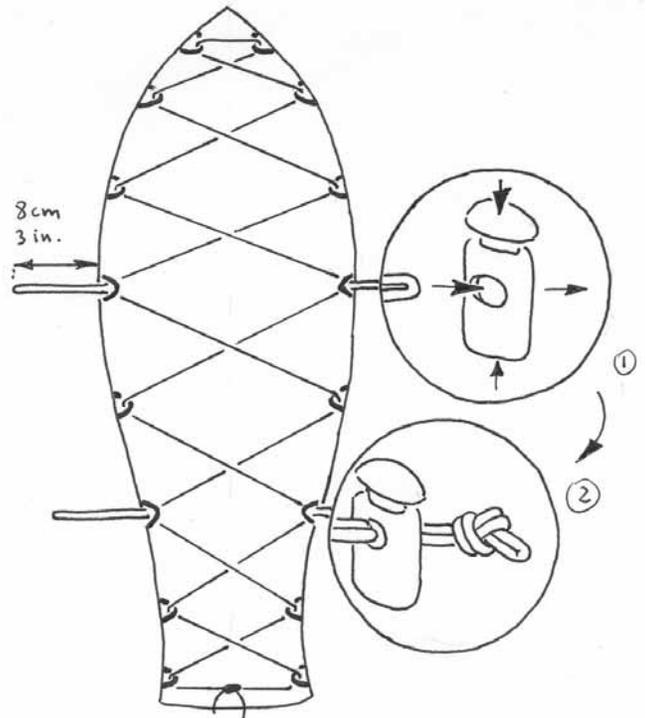


Figure 29

10. Use of the jacket inserts:

10.1. ESSENTIAL SAFETY PRECAUTIONS

In maternity mode, the inserts will simply provide the necessary weather protection for whatever outdoor activity the pregnant woman feels comfortable doing. They are not a license to undertake unsafe activities. In baby carrying mode, the inserts offer the same weather protection to the baby but the range of activities that may be undertaken will be limited mainly to walking/hiking and, if the temperatures are below freezing, only for relatively short periods at a time (e.g. a couple of hours). The short duration is mainly due to the need to be (back) in a warm place when the baby needs to be taken out of the carrier (e.g. for changing a diaper).

As mentioned in Section 6.2., in regular use, at least one of the insert-to-jacket zippers should be left open enough at the top to partly expose the baby’s head and face (**Figure 4**). An opening of a few inches is normally sufficient and will not significantly compromise the adult’s and the baby’s protection from wind and cold.

Do not use a waterproof-breathable or membrane-based soft shell insert fully zipped-up on both sides with a baby inside unless you need maximum weather protection (downpour, strong and cold winds, etc.). If you do need to zip up the insert all the way for any length of time (Figure 5), you will need to take the following steps to ensure that your baby continues to enjoy an adequate supply of fresh air inside the insert. The breathability of the fabric is not sufficient!

Technical jackets often have features such as underarm zips, mesh-lined pockets, etc. that are designed to improve ventilation without compromising performance. Open up these features as much as possible. In addition, you must regularly “pump” the garment by inserting your hands in the top pockets and pulling them outward as far as they’ll go and back in about 10 to 15 times every couple of minutes. Open the top of the insert again as soon as possible.

As mentioned earlier, do not ever zip a waterproof or membrane-based soft shell insert against the baby’s face if you are carrying a baby facing out. The fabric could seal itself around the baby’s mouth and nose and suffocate him regardless of all the ventilation precautions you might take!

In addition to being completely non-breathable, regular polyurethane-coated rain jackets usually do not have the ventilation features found on their more expensive breathable counterparts and would be much more difficult to keep ventilated inside. Using an insert with this kind of jacket should be avoided but if you decide to make one anyway, make sure that it doesn’t stay fully zipped up for any length of time. If you do need to zip it up, you will need to be even more assiduous and vigorous with the “pumping regime” and be sure to open up the zipper(s) again as soon as possible.

10.2. Dressing the baby

It is impossible to make blanket recommendations on how the baby should be dressed inside an insert-protected carrier. Of course, a baby could get too hot inside an insert on a warm and rainy day and care should be taken to avoid this. However, these instructions deal mainly with keeping the baby warm in cold weather. Obviously, the ambient temperature is the main factor but it is not the only one. Each person and (each baby) will feel and react to the cold differently. Younger babies may become hypothermic more easily than older ones. Some baby carriers may provide more insulation than others. The level of activity of the adult will also play a major role. The general rule is that you should not take any chance that the baby might get cold. Babies can quickly become hypothermic without the adult noticing. To be safe, you should start by assuming that the baby will need quite a bit more insulation than you and dress her accordingly, then check her regularly. If her neck feels warm, her core temperature should be fine. However, it is also important to check the baby's extremities. Some baby carriers may restrict the flow of blood to the legs, especially in a sleeping baby. You should therefore, check the baby's feet regularly. As you gain experience being outdoors with your baby, you can adjust your respective clothing systems to whatever suits you both for the conditions and the activity. While the baby is small, be sure to gather the bottom part of the insert's middle panel by tightening the lower cord lock to seal out cold drafts and keep the baby's feet tucked in.

Our carrier had foam padding that provided some insulation to our baby, particularly around the back and head which otherwise would have been the most exposed areas since they would have pressed directly against the inserts. I made my first inserts in the summer of 2000, while living in Saskatoon, on the Northern edge of the Canadian prairies. My wife and I used our jackets-and-inserts system through the following fall and winter (a Polartec 300 fleece jacket with a Powerstretch insert and a 3-layer Gore-tex jacket with its matching insert). We tended to dress the baby just a bit warmer than we dressed ourselves. For example, for a typical brisk two-hour walk by -15 C ($+5\text{ F}$) on a beautiful, sunny Saskatchewan winter day, I would wear a light fleece shirt or heavy-weight thermal underwear top plus a balaklava or a scarf and a warm hat. On my baby, I would put some snug cotton pyjamas (the typical "one-piece-with-feet" type) plus a medium-weight, full-coverage fleece outfit. Over the two of us, we'd have both jackets and inserts. Our baby's hands and feet always stayed warm.

Note: if you are exercising vigorously (e.g. hiking up a steep hill) and are feeling quite hot; you may vent off some heat by opening underarm zippers, pushing up sleeves, opening one of the front zippers wider etc., but in cool and cold weather, you should avoid peeling off layers completely. Your baby could easily get cold while you are still feeling hot.

10.3. Protecting the baby's legs and feet when they stick out under the insert

As mentioned earlier, it is likely that at some point, the baby's feet will start poking out of the bottom of the insert. This will tend to happen later on longer jackets and sooner on the shorter modern jackets that are designed to be worn under a backpack's hip belt or a climbing harness. If the jacket has a hem drawcord, you may be able to tighten it to keep the baby's feet tucked up inside the insert at least for a time. There are also various options for keeping the baby's feet warm when they are no longer protected inside the insert (fleece booties, fleece socks plus warm padders, etc.). To keep them dry in rainy conditions or to add a windproof layer, my recommendation is to use waterproof rain pants that are long enough to cover the baby's feet (see **Figure 5**) and wide enough to fit over the carrier. This way, they can be slipped on when needed without taking the baby out of the carrier. These pants will also come in handy when the baby becomes a toddler and enjoys going "puddle hunting" on rainy days. This option may not work with certain carrier designs. In these cases, the rain pants would have to be put on the baby before placing him in the carrier.

11. Selling and buying second-hand inserts

11.1. Selling

If you have jacket inserts that you no longer need and that you cannot pass on to a friend or relative, please consider selling them over the internet. Inserts are probably going to remain pretty rare items for some time. In order to facilitate swapping inserts on the web, I suggest that "for sale" advertisements be concentrated on a single site. Inserts pack up small and flat and can be mailed cheaply pretty much anywhere. Therefore, there is little advantage to advertising on sites catering to clientele that are close to your home. A site that works quite well and that has tons of other things available for sale (including outdoor gear for kids and babies) is the Mountain Equipment Co-op's Gear Swap at www.mec.ca. I suggest that people looking to sell inserts use this site preferentially.

In a "for sale" announcement, be sure to clearly describe the insert: fleece or WB, colour, adjustable middle panel or not, zipper type and length, flaps or no flaps, etc. If your insert has flaps, it is important to describe them in detail (one or two, internal or external, where is the hook (or loop) tape and which way is it facing, etc. This way prospective buyers can find out if your insert will fit their jacket.

11.2. Buying a second-hand insert

If you are looking to buy an insert, first check below how long ago these instructions were first written. It will be at least a couple of years and probably more before "inserts for sale" ads start showing up. As discussed above, you should start by

checking the Mountain Equipment Co-op's Gear Swap at www.mec.ca. Even if you do find a likely-sounding insert, there is a good chance that you will need to make some modifications to mate it properly to your jacket. Send me an e-mail with your jacket details and a description of the insert you would like to buy. I should be able to tell you whether it will be possible to modify that insert to fit your jacket and how to go about doing it.

12. Maternity waterproof pants

My searches have turned up no ready-made waterproof maternity rain pants that you could buy. There are various solutions that can be used instead. If you are looking for one, e-mail me and I will be happy to discuss them with you.

13. E-mail contact information

Comments, suggestions, photographs (not too large, please), anecdotes, requests for additional instructions or clarifications, etc. may be sent to:

jacket_inserts@hotmail.com

The first version of this document was completed on October 12, 2004.

This document is a first revision, completed on June 12, 2005.

Appendix A: Measurements-to-Pattern correspondance Tables

- A. The overall length of the zipper,
- B. The length of the jacket’s zipper from the top to the navel (if you are presently in the last few of months of your pregnancy, i.e. you are starting to get fairly big, subtract 1 cm (3/8 in.) from your current B measurement);
- C. Extension of the bottom of the jacket beyond the end of the zipper (many jackets do not extend beyond the end of the zipper, in this case, the C measurement is “zero”)

Important: for a particular pattern, your measurements (especially A and C) should be equal to or lower than the corresponding numbers on the table. If your measurements are higher (even if only slightly), you will need to use the next pattern up or an intermediate one as outlined in Section 7.1.

Pattern Table for maternity fleece insert (I)

A (cm)	B (cm)	C (cm)		A (in.)	B (in.)	C (in.)	Pattern
51 & less	37	0-2		20 & less	14-1/2	0 to 13/16	M-1
51 & less	37	3-7		20 & less	14-1/2	1-3/16 to 2-3/4	M-1 w. link to M-2
51 & less	37	8-12		20 & less	14-1/2	3-1/8 to 4-3/4	M-1 w. link to M-3
51 & less	37	13+		20 & less	14-1/2	5-1/8 and over	M-1 w. link to M-4
52-56	41	0-2		20-1/4 to 22	16-1/8	0 to 13/16	M-2
52-56	41	3-7		20-1/4 to 22	16-1/8	1-3/16 to 2-3/4	M-2 w. link to M-3
52-56	41	8-12		20-1/4 to 22	16-1/8	3-1/8 to 4-3/4	M-2 w. link to M-4
52-56	41	13+		20-1/4 to 22	16-1/8	5-1/8 and over	M-2 w. link to M-5
57-61	45	0-2		22-1/4 to 24	17-3/4	0 to 13/16	M-3
57-61	45	3-7		22-1/4 to 24	17-3/4	1-3/16 to 2-3/4	M-3 w. link to M-4
57-61	45	8-12		22-1/4 to 24	17-3/4	3-1/8 to 4-3/4	M-3 w. link to M-5
57-61	45	13+		22-1/4 to 24	17-3/4	5-1/8 and over	M-3 w. link to MX-6
62-66	49	0-2		24-1/4 to 26	19-1/4	0 to 13/16	M-4
62-66	49	3-7		24-1/4 to 26	19-1/4	1-3/16 to 2-3/4	M-4 w. link to M-5
62-66	49	8-12		24-1/4 to 26	19-1/4	3-1/8 to 4-3/4	M-4 w. link to MX-6
62-66	49	13+		24-1/4 to 26	19-1/4	5-1/8 and over	M-4 w. link to MX-7
67-71	53	0-2		26-1/4 to 28	20-7/8	0 to 13/16	M-5
67-71	53	3-7		26-1/4 to 28	20-7/8	1-3/16 to 2-3/4	M-5 w. link to MX-6
67-71	53	8-12		26-1/4 to 28	20-7/8	3-1/8 to 4-3/4	M-5 w. link to MX-7
67-71	53	13+		26-1/4 to 28	20-7/8	5-1/8 and over	M-5 w. link to MX-8

Appendix A (cont.): Measurements-to-Pattern correspondance Tables

Pattern Table for fleece baby-carrying insert (II)

A (cm)	B (cm)	C (cm)		A (in.)	B (in.)	C (in.)	Pattern
51 & less	37	0-2		20 & less	14-1/2	0 to 13/16	B-1
51 & less	37	3-7		20 & less	14-1/2	1-3/16 to 2-3/4	B-1 w. link to B-2
51 & less	37	8-12		20 & less	14-1/2	3-1/8 to 4-3/4	B-1 w. link to B-3
51 & less	37	13+		20 & less	14-1/2	5-1/8 and over	B-1 w. link to B-4
52-56	41	0-2		20-1/4 to 22	16-1/8	0 to 13/16	B-2
52-56	41	3-7		20-1/4 to 22	16-1/8	1-3/16 to 2-3/4	B-2 w. link to B-3
52-56	41	8-12		20-1/4 to 22	16-1/8	3-1/8 to 4-3/4	B-2 w. link to B-4
52-56	41	13+		20-1/4 to 22	16-1/8	5-1/8 and over	B-2 w. link to B-5
57-61	45	0-2		22-1/4 to 24	17-3/4	0 to 13/16	B-3
57-61	45	3-7		22-1/4 to 24	17-3/4	1-3/16 to 2-3/4	B-3 w. link to B-4
57-61	45	8-12		22-1/4 to 24	17-3/4	3-1/8 to 4-3/4	B-3 w. link to B-5
57-61	45	13+		22-1/4 to 24	17-3/4	5-1/8 and over	B-3 w. link to BX-6
62-66	49	0-2		24-1/4 to 26	19-1/4	0 to 13/16	B-4
62-66	49	3-7		24-1/4 to 26	19-1/4	1-3/16 to 2-3/4	B-4 w. link to B-5
62-66	49	8-12		24-1/4 to 26	19-1/4	3-1/8 to 4-3/4	B-4 w. link to BX-6
62-66	49	13+		24-1/4 to 26	19-1/4	5-1/8 and over	B-4 w. link to BX-7
67-71	53	0-2		26-1/4 to 28	20-7/8	0 to 13/16	B-5
67-71	53	3-7		26-1/4 to 28	20-7/8	1-3/16 to 2-3/4	B-5 w. link to BX-6
67-71	53	8-12		26-1/4 to 28	20-7/8	3-1/8 to 4-3/4	B-5 w. link to BX-7
67-71	53	13+		26-1/4 to 28	20-7/8	5-1/8 and over	B-5 w. link to BX-8

Appendix A (cont.): Measurements-to-Pattern correspondance Tables

Pattern Table for dual maternity/baby-carrying WB insert (III)

A (cm)	B (cm)	C (cm)		A (in.)	B (in.)	C (in.)	Pattern
61 & less	41	0-2		24 or less	16-1/8	0 to 13/16	W-1
61 & less	41	3-7		24 or less	16-1/8	1-3/16 to 2-3/4	W-1 w. link to W-2
61 & less	41	8-12		24 or less	16-1/8	3-1/8 to 4-3/4	W-1 w. link to W-3
61 & less	41	13+		24 or less	16-1/8	5-1/8 and over	W-1 w. link to W-4
62-66	45	0-2		24-1/4 to 26	17-3/4	0 to 13/16	W-2
62-66	45	3-7		24-1/4 to 26	17-3/4	1-3/16 to 2-3/4	W-2 w. link to W-3
62-66	45	8-12		24-1/4 to 26	17-3/4	3-1/8 to 4-3/4	W-2 w. link to W-4
62-66	45	13+		24-1/4 to 26	17-3/4	5-1/8 and over	W-2 w. link to W-5
67-71	49	0-2		26-1/4 to 28	19-5/16	0 to 13/16	W-3
67-71	49	3-7		26-1/4 to 28	19-5/16	1-3/16 to 2-3/4	W-3 w. link to W-4
67-71	49	8-12		26-1/4 to 28	19-5/16	3-1/8 to 4-3/4	W-3 w. link to W-5
67-71	49	13+		26-1/4 to 28	19-5/16	5-1/8 and over	W-3 w. link to WX-6
72-76	53	0-2		28-1/4 to 30	20-7/8	0 to 13/16	W-4
72-76	53	3-7		28-1/4 to 30	20-7/8	1-3/16 to 2-3/4	W-4 w. link to W-5
72-76	53	8-12		28-1/4 to 30	20-7/8	3-1/8 to 4-3/4	W-4 w. link to WX-6
72-76	53	13+		28-1/4 to 30	20-7/8	5-1/8 and over	W-4 w. link to WX-7
77-81	57	0-2		30-1/4 to 32	22-7/16	0 to 13/16	W-5
77-81	57	3-7		30-1/4 to 32	22-7/16	1-3/16 to 2-3/4	W-5 w. link to WX-6
77-81	57	8-12		30-1/4 to 32	22-7/16	3-1/8 to 4-3/4	W-5 w. link to WX-7
77-81	57	13+		30-1/4 to 32	22-7/16	5-1/8 and over	W-5 w. link to WX-8