



## In-the-Field Repair Manual (Ultralite)

[www.adventuremedicalkits.com](http://www.adventuremedicalkits.com)

### About This Repair Manual

This manual was designed to help you deal with those gear related emergencies you may encounter while out in the field using our most minimalist repair kit, the Ultralite. Below you'll find a list of items that come in this kit and some of their possible uses, however, how you put the tools and materials in this kit to use is limited only by your own creativity, ingenuity, and inventiveness.

Plastic Hardware – In your kit you'll find a large assortment of replacement plastic hardware pieces including the new Quik Attach\* pieces. These allow you to replace broken hardware without having to do any sewing.

Adhesive Ripstop Repair Tape – Pressure sensitive adhesive-backed ripstop repair tape. Just cut a piece to the desired size and shape, and stick it on. Great for repairing anything made out of lightweight fabric – tents, outerwear, sleeping bags, etc.

Fabric Swatches – Packcloth and no-see-um netting fabric swatches for making patches. Cut to the right size for the job, and then either sew on or use to make an adhesive patch.

Hot-melt Glue Stick – An excellent alternative for quick, temporary, in-the-field repairs. Just hold the end over any flame source for a few seconds, then dab the soft glue onto the object to be repaired. The best thing about glue sticks is that they can be peeled off of most materials so that you can make a more permanent repair later.

Alcohol Swabs – If you expect your adhesive to adhere properly, you need to properly prep the surface. Pre-cleaning with an alcohol swab is a necessity. Body oils, sunscreen, insect repellent, etc can interfere with an adhesive's performance.

Duct Tape – This is an item that needs no introduction. Can be used in an unlimited number of repair situations. Make sure not to leave it on too long or you'll wind up with a sticky mess.

Cable Ties – These are true multi-purpose repair items. They can be used for everything from a clevis pin alternative on external frame packs to replacement of broken hardware on sport sandals.

Webbing – Extra webbing is always useful. Great for improvising lash straps, replacing shredded webbing on your pack, etc.

Para-cord – How many trips have you been on when you didn't need a piece of cord for one reason or another. Useful for replacing frayed guy lines, improvising shelters, lashing things onto your pack – unlimited uses.

Blanket Pin – Made out of an extremely heavy gauge wire, these blanket pins can withstand a lot of tension without popping open. They work great for pinning shut blown zippers, reattaching pulled out pack straps, or for many other quick repair uses.

Sewing Needles – We include two different size needles for different types of sewing jobs. The

heavier needles are good for courser fabrics while the finer needles are more suited for use on lightweight fabrics.

Straight Pins – Think of these as an extra pair of hands. Straight pins give you the ability to pin and hold pieces together while sewing.

#69 Nylon Thread – This is the same strong, UV resistant thread used in all high quality outdoor equipment.

### Inflatable Sleeping Pad Repair

For a good night's sleep on a cold or hard ground, nothing beats an inflatable sleeping pad. The only drawback is the possibility of getting a flat. Lose your air and the pad won't be very effective. But this doesn't have to be a problem. Leaks in sleeping pads are fairly easy to fix.

Hot-melt Glue Stick Quick Fix – This is a quick and easy in-the-field repair using a hot-melt glue stick. It can also be peeled off later so that you can make a more permanent repair when you get home.

1. The first step is to find the hole. Big holes will be obvious. Pinholes might be a little harder to locate. Blow up the pad with your mouth as much as possible and close the valve. Fold the pad in half a couple of times to increase the pressure inside the pad. Then start looking for the hole one section at a time. The best way is to submerge the pad under water so that you can see bubbles emerge from the hole. If you're not near water, go over the pad with your face about an inch away. You might be able to hear a faint hiss or feel a slight jet of air on your face. You could also pour a little water onto the pad and work it around with your fingers looking and listening for a faint spurt. Soapy water or saliva actually work better for this purpose because it will start to bubble when over the hole. Once you've found a hole, mark it and keep looking for more.

2. Once you've found the hole, clean with an alcohol swab and open the valve.

3. Hold the end of the glue stick over any flame source (lighter, camp stove, etc) until it gets soft on the end. This should take only a few seconds. Be careful, the glue will be hot.

4. Now dab some of the soft glue onto the hole and allow it to cool for a few minutes. The patch should last through the night, and may even last the entire trip if you're careful when you roll up the pad.

### Broken Tent Poles

Improvised Field Splint – In the event that you don't have a tent pole splint, you can improvise a splint out of a piece of wood with a diameter just small enough to fit inside your broken tent pole. The best choice for this would be a section of a small sapling or a small branch that is still green. Green wood works best because it's flexible and will bend with your tent pole as opposed to breaking. Cut a section of wood about 6" long. Slide it halfway into one end of the broken pole section, and then slide the other piece of the broken pole onto the splint from the other end. Now tape up the break with duct tape to hold it together.

### Missing Grommets

Rock Method – This is a trick that every Boy Scout is familiar with for dealing with missing Grommets on tarps, rainflies, lean-tos, and improvised shelters. Find a small rock (preferably one that is smooth and round). Near the hole left by the missing grommet, place the rock onto the fabric and wrap the fabric around it

creating a small ball with the rock inside it. Take a piece of cord and tie it around the fabric below the rock. The rock will prevent the cord from slipping off.

### **Sewing Tips**

**To Sew or Not to Sew** – The first thing you need to determine is whether or not sewing is the only option available for the repair task at hand. A skilled hand sewer can make the job look easy, but producing a good-looking and functional sewing repair is sometimes harder than it looks. On some jobs it may be more desirable to use a temporary sticky patch and then send it to a repair shop or do a more permanent sewing job when you get home.

The hardest materials to produce a quality hand sewn repair job on are the extremely lightweight fabrics used on tents, outerwear, and sleeping bags. And since these fabrics are so light and tightly woven, needle holes do more damage than on coarser materials. Luckily, these lightweight materials will easily work with a stick-on patch.

Producing satisfactory results on heavyweight materials like Cordura, packcloth, and webbing is much easier. These materials are usually much easier to work with than lightweight ripstops and taffetas (aside from the fact that you're sometimes trying to push a needle through several layers at once).

**The Right Tools For The Job** – Before you begin any sewing job, you need to determine which needle is the appropriate size. Always try to use the smallest needle that you can get away with. This will do the least amount of damage to the fabric. A large, heavy-duty needle is not the best choice for a lightweight Gore-Tex\* jacket. The holes left behind will be quite large. On the other hand, an extremely small, thin needle would never go through multiple layers of packcloth and webbing without breaking.

**Proper Technique** – The two biggest mistakes made by hand sewers in the field are making the length of their stitches too long and not tying off the thread at the ends. Try to make the length of your stitches about 1/8" long. It's better to have several very small stitches than a few larger ones. Shorter length stitches will keep everything pulled tightly together. You also want to have a knot at the beginning and the end. This is important when hand sewing because it's hard to get your stitches as tight as stitches from a sewing machine, and they'll come apart without them.

Start by cutting off a length of thread. Pull the thread through the eye of the needle. Tie a knot at the bottom of the thread. When you begin sewing, pull the thread through until you come to the knot at the end. Make several small stitches instead of fewer larger ones. At the end of each stitch, give the thread a slight tug to pull it tight. After the final stitch, tie everything off with another knot. This will keep everything together.

### **Plastic Hardware Replacement**

**Quik Attach Plastic Hardware** – Luckily, your kit comes equipped with Quik Attach and Slik Clip plastic hardware pieces. With these pieces you won't have to rip apart seams or do any sewing. If you're replacing a broken Side Squeeze Tensionlock buckle, the first step is to remove the broken piece (if it's still attached). Since you're not going to have to sew the new one on, you don't want to take apart the seam to remove the old one. The only option is to break apart the old piece. Once the old piece is removed, simply

work the webbing loop on your gear through the slit in the mounting bar of the new piece. That's all there is to it.

**Conventional Plastic Hardware** – If you're replacing a broken plastic hardware piece with a conventional buckle, you're going to have to do some sewing and seam ripping. The first step is to get to the inside seam where the broken piece is located. The piece is probably attached via a small loop of webbing. The objective is to free one end of the webbing loop in order to remove the broken piece. This means that you're going to have to open up the seam. Once you've gotten the broken piece off, put the new piece on and sew the seam back together (see Sewing Tips).

**Stick-On Patches** – PSA (pressure sensitive adhesive) nylon repair patches work great for patching rips and tears in lightweight fabrics like those found on tents, outerwear, sleeping bags, and bivvy sacks. The first step is to clean the fabric of body oils, sunscreen, etc with an alcohol pad. This will ensure that the patch sticks properly. Next, cut the patch to the desired size and shape. Make sure and round the corners or they'll eventually start to peel up. Spread the section of fabric to be repaired out flat. Peel off the paper backing and carefully stick the patch onto the rip.

### **Additional Repair Info**

For additional, more in-depth repair info check out:

*The Essential Outdoor Gear Manual*  
by Annie Getchell

*Sew & Repair Your Own Outdoor Gear*  
by Louise L. Sumner

And also check out the **GEAR** on-line repair manual at [www.gearaid.com](http://www.gearaid.com)

### **Permanent Repairs**

For more permanent repairs or for jobs that are more than you can handle, contact:

Rainy Pass Repair  
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1-888-RIPSTOP  
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