

The PsychoPack

An Easy Way To Pack Zero-P

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This article appeared in December 1995 issue of Parachutist Magazine. I strongly encourage you to read the text of the article below, but if you prefer, you can skip straight to the step by step photos and descriptions of the procedure.

It was many years ago when we received the first Strato Star in our area, complete with rings and ropes, and you never would have guessed that our small group of riggers had a combined experience of several thousand skydives, not to mention as much rigging and packing experience as most anybody else in the world. We must have really looked strange, the way we inspected, fondled, fumbled and speculated how this thing was supposed to go into that little backpack kind of thing that the manufacturer shipped with it. Of course, we hadn't yet considered looking at the Owners Manual; we wanted to figure it out by ourselves.

We all knew of the Barish Sailwings, and the Volplanes with hydraulic reefing. Some of us had even jumped the Para Sleds and Baby Planes, but none of us really knew anybody who had a lot of experience packing these things. These newfangled things. Back in those days, there were no packing videos. Very few companies published packing instructions with photographs. The ones that did, left it up to your own interpretation as how you were to get the canopy from "photo_A" to "photo_B". Many of the canopies which we used for both mains and reserves were simply packed as instructed, "pleat the gores in the normal manner", a phrase commonly quoted by many manufacturers in their instructions to riggers.

I remember one company that published its packing instructions on a little fold-out leaflet, so you could kinda carry it in your helmet to make sure you had it handy when it came time to fold the thing back up (the parachute) and put it into the container. The instruction sheet was harder to fold up than the canopy.

There were deployment devices such as sleeves, pods (para-opening-devices), bags, and slags (half sleeve/half bag). There

were cones and grommets, and spring loaded everything, from pilotchutes to pack opening bands. There was no such thing as a pull-up cord, and I distinctly remember a kinda half hitch arrangement packed into the lines of one canopy to hold the bag closed which was referred to as the "dead-man knot". I know there are still a lot of people around who remember all of these things, but there are an awful lot of you who might not have a clue what all this mumbo-jumbo is about.

It's about packing canopies, of course, and mostly about packing square canopies in particular. Ram-air mains started catching on in the late 70s. Ram-air reserves started catching on in the early 80s. There have been as many different ways to pack a ram-air parachute as there have been models to choose from.

I personally know three different people who claim to be the inventor of the "propack", a method for packing ramairs which has become popular in recent years. I don't really have anything against the "propack", but what does that term really mean? If you ask ten different people to show you how to "propack", I will give you a dollar for each one who does it the same as the last. The "PRO" in propack is said to have been an acronym for "Proper Ram-air Organization". Maybe it should have stood for "Proper Ram-air Orientation" referring to the fact that for the first time a ram-air canopy was actually going into the container the way it was intended to come out. (You see, the early squares were packed by laying them on their sides before folding, a packjob which is still used quite successfully by many people. Some people erroneously think this "side-pack" method induces a 90 degree off heading opening. It's not true.) As I remember it, the original idea of the "propack" was to keep everything on heading, in theory, that is. That was a significant idea, and I agree that it worked to a degree, as long as aspect ratios were hovering around 2.0 and there were no coated fabrics or complex airfoils.

In the early days of propacking, there was no mention of awkward techniques like stuffing the leading edges into the center cell to "reduce opening shock", or rolling the nose past the "B" lines to ease the pain induced by the parachute opening sequence. These bastardizations to an otherwise pretty good packjob came along to help skydivers deal with more complex airfoils and fabrics. Talk about producing an off-heading opening! Some of the things we hear and see about how people are currently packing out there in the real world are a true test and testament to the reliability of the ram-air parachute.

Parachute packing procedures have continued to develop along with the development of new canopy designs. When we first started droptesting the [Batwing](#) , I wanted to have a pack job which produced consistent openings, of course, but it also had to be a packjob which wasn't such a hassle to get into the bag.

I started out by thinking I might have modify the parachute design to accommodate the problem of getting the trapped air out of the Zero-P canopy, but then, that didn't really make much sense. I had gone to a great deal of effort and calculation to design this airfoil, so why would I want to go and cut it full of vents just to get into the d-bag? What I needed to do was to develop a method of folding the canopy which exhausted all of the air out of the airfoil where it entered in the first place, at the leading edge.

A "regular" propack might have been OK, except that there was always this huge bulging bubble when I laid the canopy down on the ground. You all know what I'm talking about. There ought to be a name for this thing. I'll call it the "bubbulge". It is (was) a problem.

Another problem was that contortionist procedure thing I always had to do in order to get the canopy all stacked up so I could smash it down into this little bag. After the canopy is finally crammed in, the bag always looks like it is about half as big as it needs to be. That's because all that fabric is in there, slipping around on itself, trying to fill back up with air, and you don't have a new rubber band in your pocket! Damn!

What I ended up doing to remove all of this frustration is really simple. I will attempt to put it down into words, although I might run the risk of just confusing you more.

I have to say at the outset, that while this packjob has worked successfully for us in over a thousand documented deployments in the past year, neither I nor USPA can be responsible for you or your equipment if you try to pack this way. At Precision Aerodynamics, we pack all of our demo equipment this way, and we base the reputation of our product on its consistent results. You have to realize that your interpretation or misinterpretation of these words may lead to canopy damage, bodily injury or death. You must pack your parachute any way you want to. It's your canopy and you are the one who is jumping out of the airplane. Accept the risk and be responsible for yourself. Having said that, I will cautiously continue to try to describe the procedure.

It is always important to inspect the entire assembly and determine that the system is airworthy. Make sure that the canopy's direction of flight is correctly oriented to the harness. For the purpose of this article, I am going to simply focus on the "canopy folding procedure" which has been so very successful for us.

Lay the container on the floor, harness down, and stow the brakes in accordance with the container manufacturer's instructions. Split the line groups and run the slider up toward the canopy, observing that the leading edge of the canopy is hanging at your knees with the trailing edge of the canopy away from you. Work the fabric which is between the line groups to the outside of the lines, and continue for

all sections of the canopy. This "accordion folding" A-B section, the B-C section, and the C-D section is intended to minimize fabric/line friction during extraction from the bag, as well as minimize the pack volume as a result. The idea here is to keep all of the line attachment points toward the center of the packjob, with the fabric folded to the outside.

It is important that you pay particular attention to the location of the "D" lines and the "control lines" in particular. It is imperative that you maintain the relative position of these and all lines throughout this process, or you might end up with a malfunction caused by these lines migrating up to and in front of the leading edge of the canopy during the rest of the process. The leading edge is neither rolled nor stuffed. Just leave it there exposed, even with convicted "hard-opening" canopies. We have seen this packjob tame even the baddest of the bad.

The slider is neatly "cloverleafed" into position so that it is quartered into the hanging canopy and against the slider stops. Bring the center of the trailing edge up and hold it under your thumb while you roll up the hanging sections of the trailing edge. So far, this resembles what is commonly referred to as a "propack".

Here is where everything changes. Flip the canopy around now, so that you are actually inducing a 180 degree line twist into the packjob. Continue to roll the canopy up at the trailing edge, which now overlays the leading edge. You are really creating a pretty tight cocoon. Now you should be standing there with the canopy hanging from your right hand, with your right hand still controlling the slider's position and the trailing edge, and your left hand controlling the cocoon. The bag and pilot chute are hanging from the bridle attachment point, and as you swing them out of the way, you flop the cocoon to the floor, retaining control over the position of the "D" lines and control lines with the placement of your left hand as the bundle hits the floor. You have maintained line tension with your right hand through this process, and the only difference in this and an otherwise "normal" propack is that now the container is looking down and the canopy is looking up. Don't worry about that for now.

Replace your right hand with your right knee and your left hand with your left knee to continue control of the bundle. You now have a triangular shaped bundle with the rolled trailing edge facing up, covering the leading edge of the canopy. Fold the "ears" in so that the entire canopy portion is slightly less than bag-width. Pull the bridle attachment point out to one side or the other, and start to roll the canopy up like a sleeping bag from the top to the bottom. Keep the roll tight, and maintain the roll to be the width of the bag. The bridle ring needs to be pulled far enough out from the center of the roll (the axle) that it can be wrapped around the outside of the roll and maintain contact the grommet in the bag. This is important.

When you roll the bundle all the way down to the point where the lines come out of the canopy fabric, it is quite easy to see that you can control this small bundle/roll with one hand, holding it like a football. While holding the canopy roll in your right hand, it is easy to slip the deployment bag over the roll, but make sure that you place the bag on "upside down" because, remember, the canopy is still 180 degrees out relating to the container. Now with the canopy in the deployment bag, you will notice that there is absolutely no tendency for the bagged canopy to fill with air. It is not trying to escape from the bag. It is not sliding all over itself making your life miserable.

This is the point at which people say, "What if you forget which way you turned it?", referring to the 180 degree half-twist you put into the lines a few minutes ago. Well, simply stated, just don't forget, because now is the time to take that half twist out by rotating the bag back to normal. (Note: if you accidentally do turn the bag the opposite direction, it should be very obvious that you have a severe line twist in your packjob.) Simply rotate it back the other way. If you have maintained sufficient line tension during the rollup process, this will not be a problem. If you are completely confused, start over.

Now close the bag, stow the lines, and close the container "in the normal manner".

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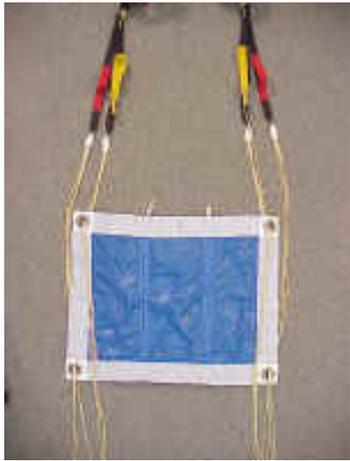
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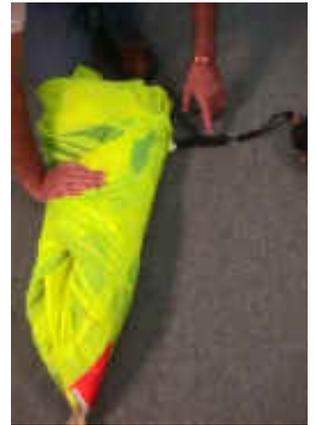
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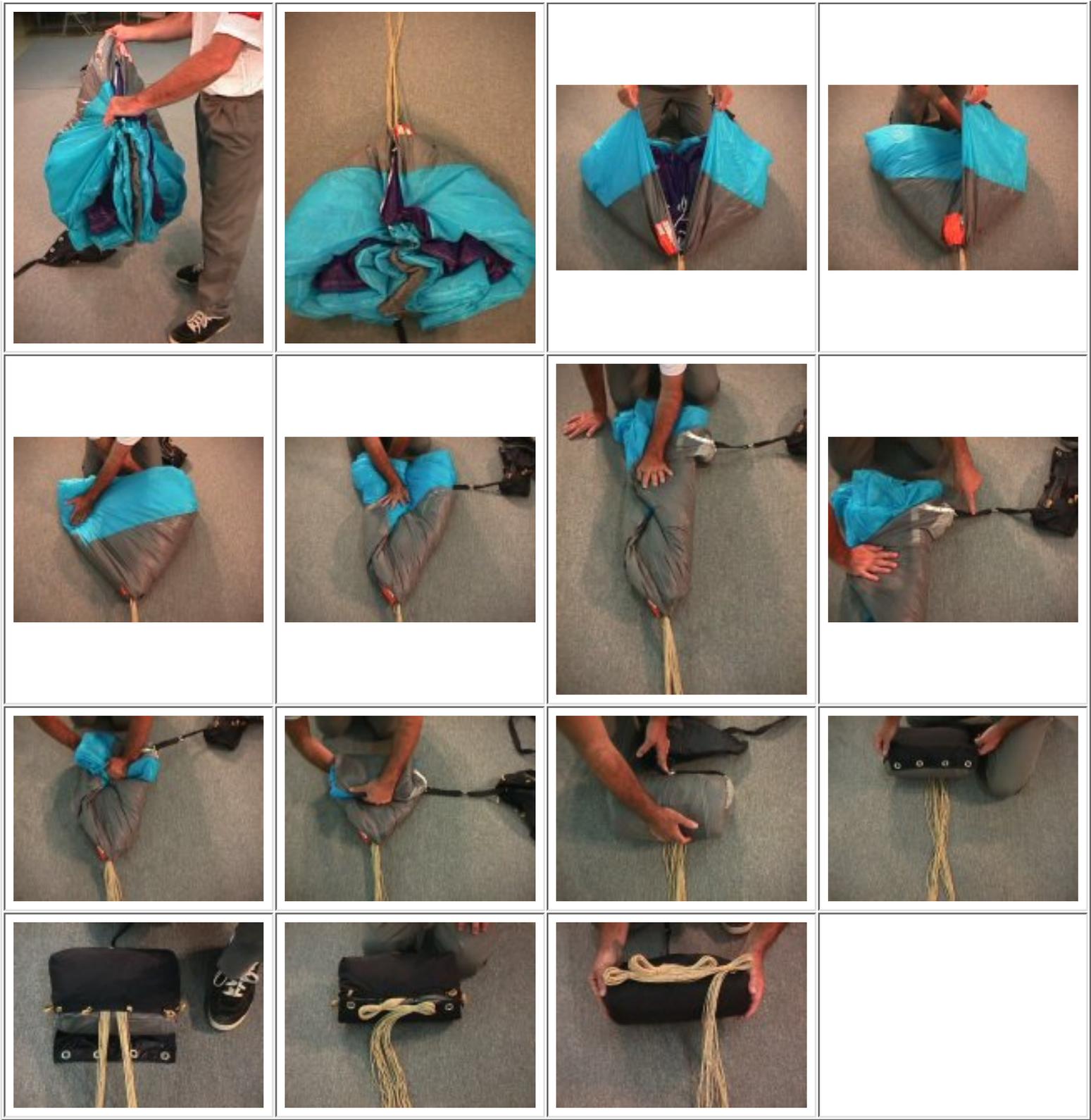
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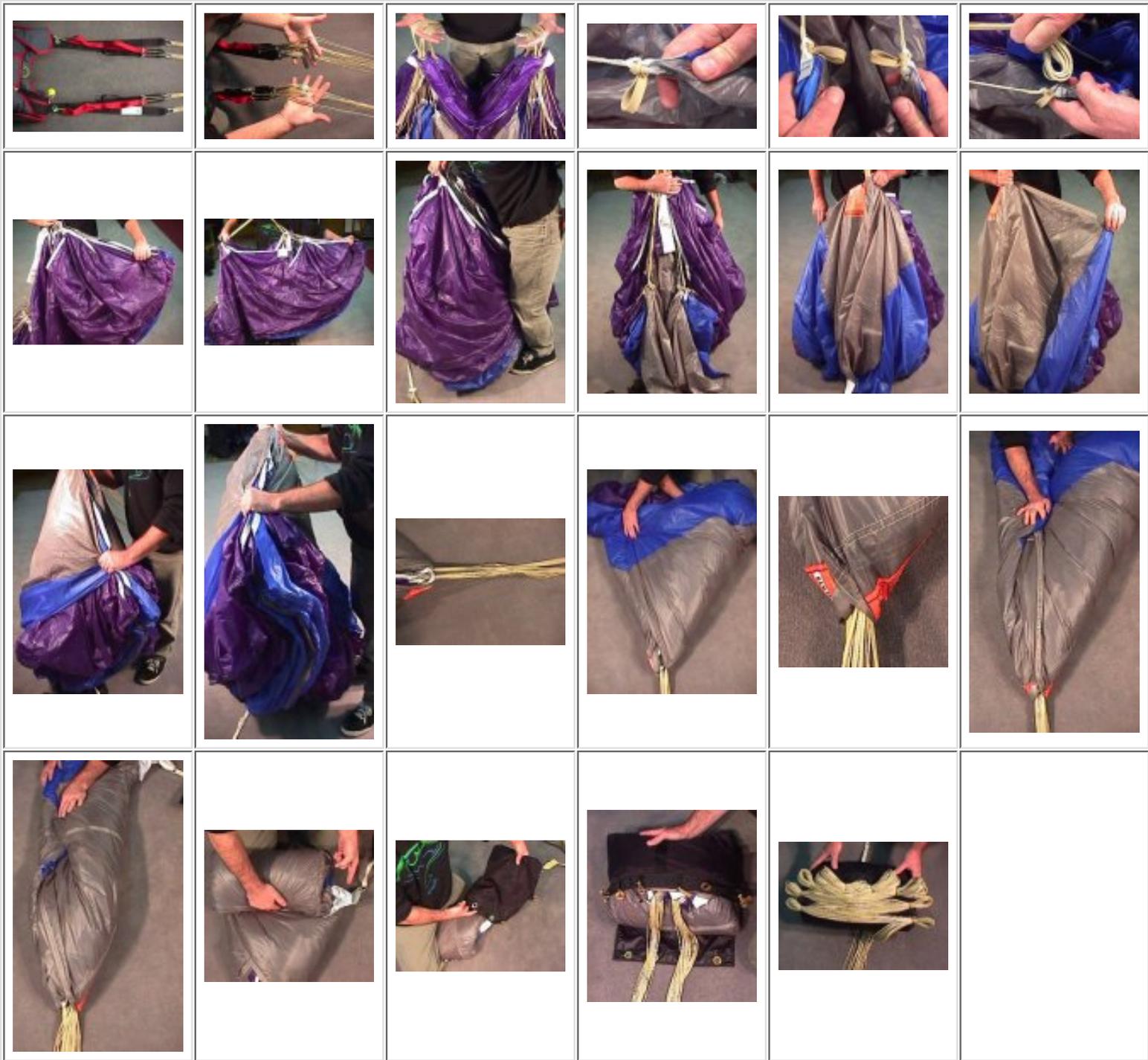
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