



HOBBIT SEVEN CELL RAM AIR RESERVE

185 square foot upper surface

Part No. 22003 Serial No. HR Date of Mfg.

Mfg. by B. Gargano & Company, Inc. Tustin, California

Patent Pending This parachute meets or exceeds the

requirements as set forth in NAS 804, FAA TSO-C23b

(low speed category) and as 8015 (draft), category B.



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There are NO WARRANTIES which extend beyond the description of the parachute in the flight manual, and neither the seller nor any agent of the seller has made any affirmation of fact or promise with respect to the parachute except those which appear therein.

The liability of the seller is limited to the duty to replace defective parts found upon examination by the manufacturer to be defective in material or workmanship within 7 days after purchase and found not to have been caused by any accident, improper use, alternation, tampering, abuse or lack of care on the part of purchaser.

This is a high-performance parachute, designed only for use by experienced parachutists who have previously performed at least 100 jumps using a ram air parachute and it must be packed and operated in accordance with the instructions in the flight manual.

HOBBIT SEVEN CELL RAM AIR

RESERVE MANUAL

by JOE MORGAN

ABOUT THE AUTHOR

Joe Morgan is currently the manager of Perris Valley Paracenter. He made his first jump in 1963 and has since accumulated 3,000 jumps. Joe holds SCS number 10 and was a member of the United States Free Fall Exhibition Team. Joe is a member of the "MAGIC" skydiving team, 1981 national 10-way champions. Joe holds D license 1544, is a jumpmaster and an FAA master parachute rigger (number 1969993).

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SYSTEM FUNCTION

The Hobbit 185 square foot (upper surface) Ram Air Reserve is a high performance parachute. Seven cells and a 2.1 to 1.0 aspect ratio contribute greatly to the performance. The full steering system (similar to our mains) allows us a complete range of control, including reverse flight. The forward speed is phenomenal, therefore turns are quick and may be accomplished easily with the toggles, lines or risers. Using a full flare, the landings are gentle. Rate of decent is approximately 13 feet a second in the locked brake position with approximately 165 pounds suspended weight.

Structual integrity is a must.

The structural integrity of the Hobbit Reserve is shown by tracing any suspension line up to and through the canopy. First you see the suspension line, which is stronger than is necessary. Next, the line attachment tab. Notice that the suspension line is looped into a knot, similar to a square knot with the line attachment loop. The line is also finger trapped and stitched. A reinforcement tape is located in the rolled seam and a structural tape runs from the line tab to the upper surface. This all adds up to a superb load transfer and dispersment network.

A fast, smooth and clean deployment is necessary. The tail located diaper offers that and more. During deployment, using the tail located diaper the bulk of the

FLIGHT CHARACTERISTICS

The bottom line on the Hobbit Reserve is speed. Level flight with a 150 pounder is in excess of 30 mph. If you are not an experienced ram air pilot, you should not jump this canopy. The question in your mind of course, is how to land the thing. Ten different test jumpers (with widely varying experience) stood up on 95% of the landings during our extensive test program, utilizing full flight flare. The canopy has an excellent flare, a function of its high forward speed.

On opening, the first thing you will notice is noise. The slider rattles at a furious rate. It also (we didn't plan this) works as an audible stall warning device. More on this later.

Steering of the Hobbit Reserve is accomplished by soft toggles secured by two turns of seal thread. (See packing instructions; be sure there is no tension transmitted to the grommetted tab and through to the toggle. This could cause a trailing toggle.) A sharp tug out and down releases the daisy chained brake lines. The noise will increase. The rattling subsides as braking increases, stopping completely a second before the canopy falls off. The stall is gentle and predictable. The canopy will fly backwards. Find the stall point immediately on opening.

Openings can be described as brisk. (It is a reserve, after all.) On 10 percent of our openings we had a line twist which cleared immediately after opening, with the slider pushing down and clearing the lines. We attribute these to the body position of the test jumper.

We did not have any trouble with broken lines. The lines are untreated kevlar, so they will not take a lot of abuse (hook velcro being very hard on it.) If, for example, there is a broken A line causing a spin or high stall point, cut the corresponding C line on the same cell. See the section on Continuity and Nomenclature in the packing instructions. This will allow the canopy to fly straight and put the stall point back where it belongs. (You do have a hook knife, don't you?)

We did two inflight transfers, and they were successful. However, until we can test more, we cannot recommend it, as it opens several cans of worms. Two ram airs chasing each other around, (suppose you can't cut the main away) are not an ideal situation.

We cannot stress enough the reliance we place on the rigger. If he does not understand any part of this (flight characteristics and packing instructions) have someone else do it.

Have fun and have confidence; it is the finest reserve on the market.

ASSEMBLY INSTRUCTIONS

RIGGER QUALIFICATIONS

We strongly recommend that the rigger packing the Hobbit Reserve be completely familiar with ram air gliding type parachutes. Although we are requiring no special rating, the owner/jumper should be sure that the rigger does understand, (and by this we mean jump) a ram air parachute. In other words, a non-jumping military rigger with hundreds of round reserve repacks and who has seen two Golden Knights demos does not qualify and should not learn on your reserve.

Assembly must be done by a master rigger. Again, we mean a master rigger who thoroughly understands the ram air parachute. Having a 30 mph reserve in backwards would be no laughing matter.

PACKING INSTRUCTIONS

INTRODUCTION

Everyone familiar with ram air parachutes will recognize these packing instructions. They are basically the "Factory pack" shown in earlier manuals. Personally, I have close to 2,000 ram air jumps using this method with minimal damage (4 or 5 burns total) on; Strato Star, Strato Flyer, Viking Superlite, Merlin, Unit, Firefly, Comet, Wizard and Hobbit. This type of packing does have a reputation for brisk openings. We think you'll appreciate the positiveness of the Hobbit deployment.

REPACK CYCLE - 120 days

TECHNIQUE-STACKING

The only real deviation from the old "factory pack" method is stacking the canopy by half folds instead of full folds. This facilitates a narrower folded canopy for ease of packing either with the diaper or free bag. Again working from above the canopy facing down toward the rig, fold the nose toward the tail once, about 7 inches so the fold is even with the front line group.

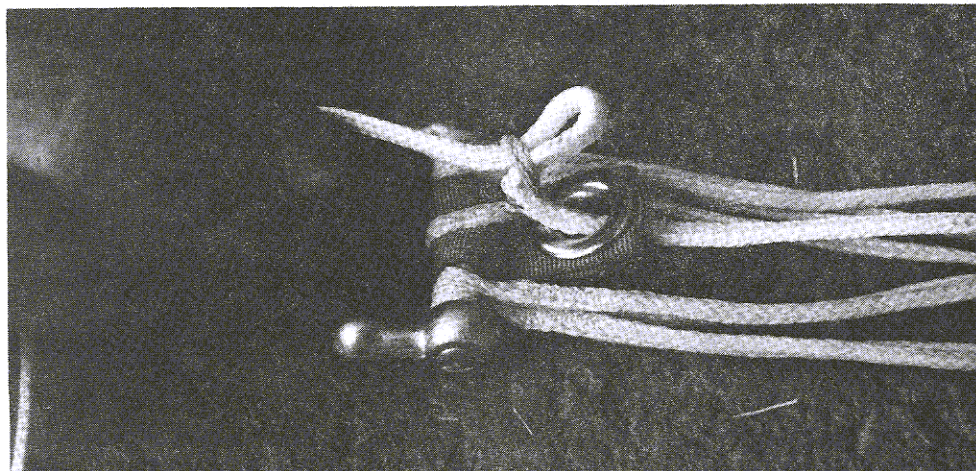
Now, place a knee on the nose and face the tail. Then, while maintaining tension against the container, grasp the canopy at the top of the pleated cells with the left hand and the top and bottom stabilizers with the right hand and pull toward your knee. The next fold is the B line group; then between B and C; then the D group. This should result in a stack of six narrow folds. The stabilizers are now cleared by combing them out from the bottom. The canopy is now accordian folded from the nose to the last line group. Take the four right steering lines in the right hand and bring the right half of the tail to the right side.



TECHNIQUE-BRAKE STOWAGE

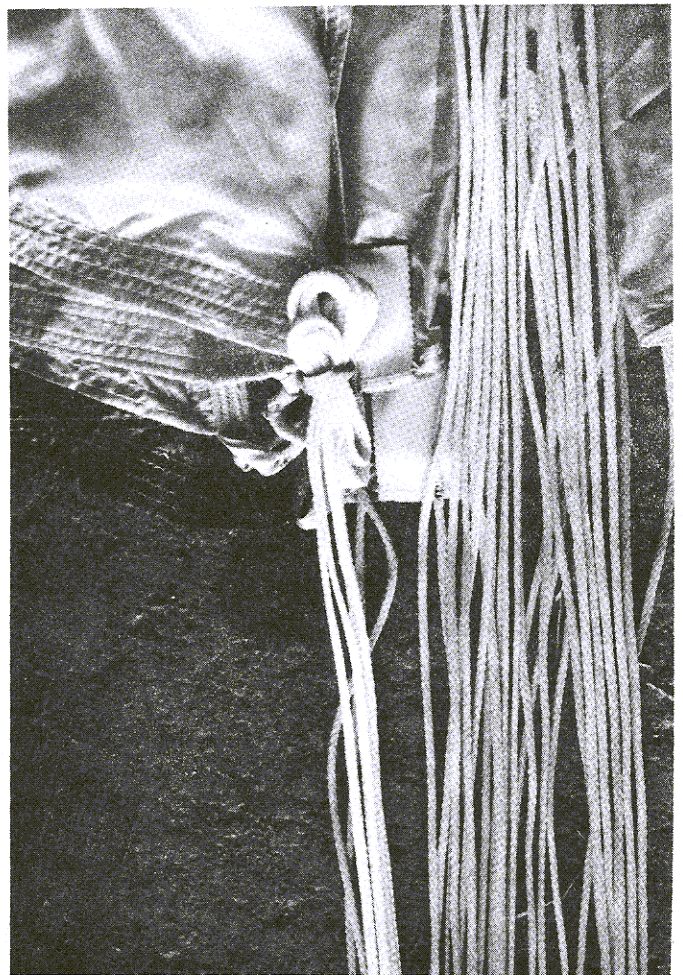
The steering lines are routed through the slider and the tabs on the connector links (see assembly instructions).

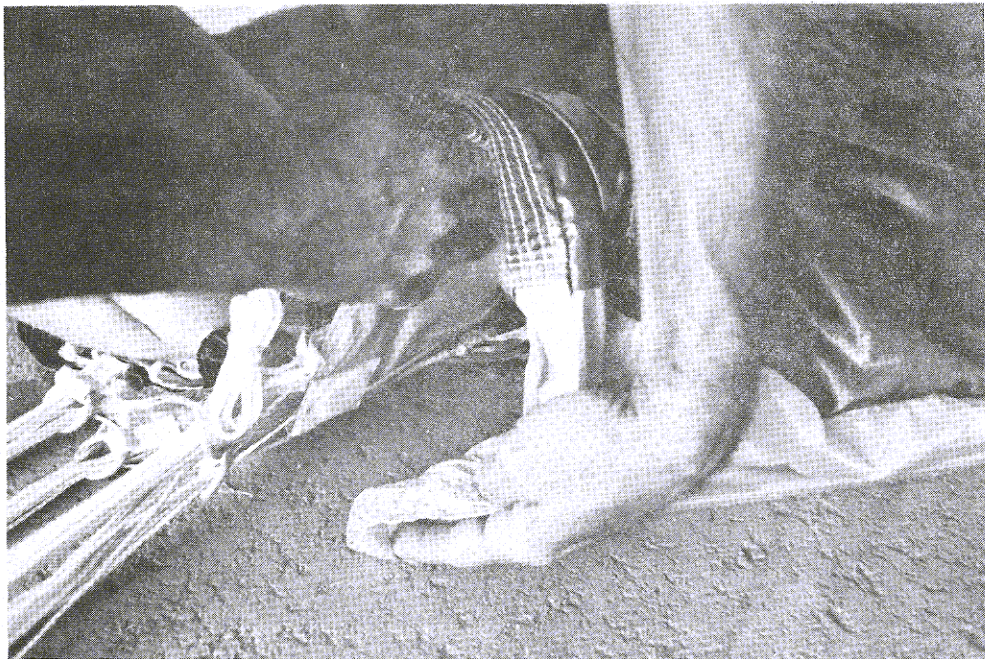
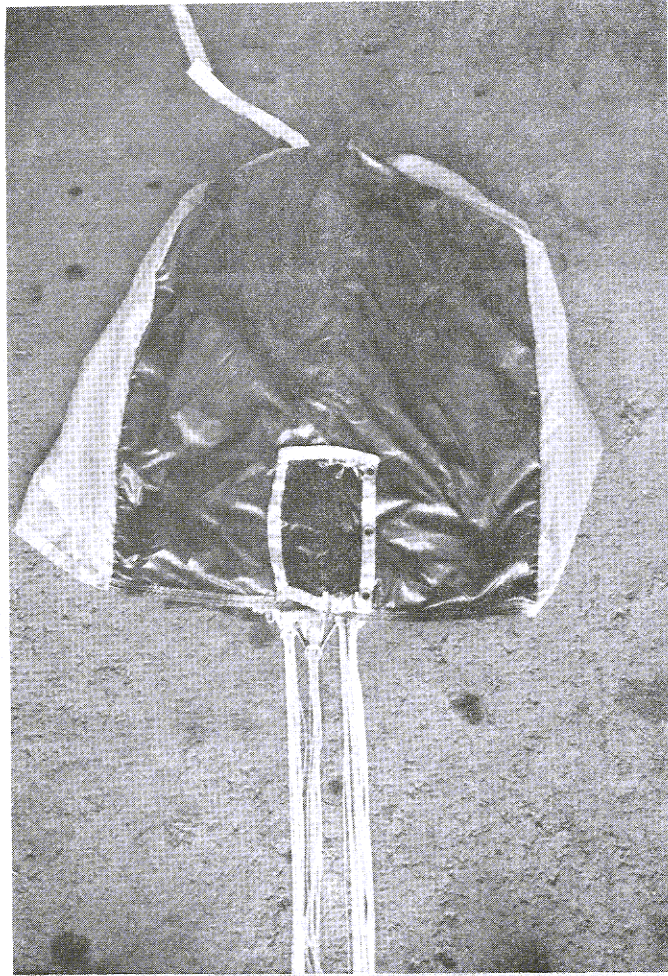
Run the loop on the tab up through the grommet and pull the steering line down until the finger trap is just through the grommet. The brake line is then looped just below the finger trap and inserted in the finger trap, beginning a daisy chain. (The loop inserted and the subsequent loops should be no more than 1/2 inch.) Daisy chain to within 2 inches of the toggle, leaving the last loop about 1 inch long. This should result in 5 to 6 inches of daisy chained brake line. Leave approximately 1 inch of slack in the daisy chain and tack the toggle and the last loop to the riser with two turns of seal thread, sandwiching the loop to the riser with the toggle. The seal thread should pass through the line itself of the last loop. Again, the rigger should be sure there is no tension transmitted from the daisy chain at the grommetted tab to the tacked soft toggle. To check, grasp the steering line above the grommetted tab and pull toward the canopy. The soft toggle should not move.



TECHNIQUE-THE TAIL AND DIAPER/BAG STOWAGE

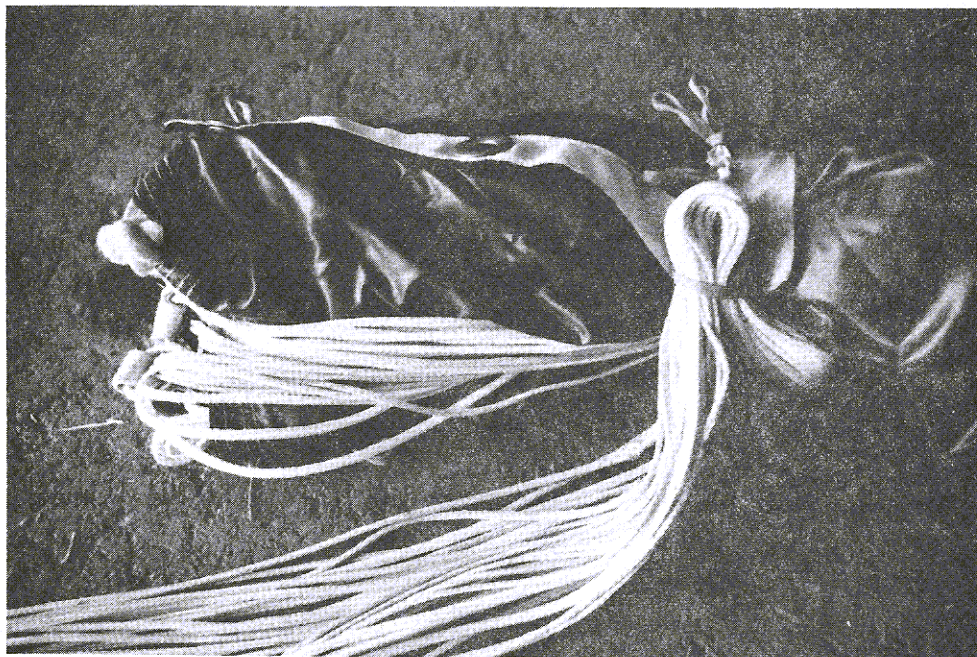
Kneel again at the stabilizers with your back to the rig. Flake the right side of the tail just as you would a round canopy with the steering lines, stacking the tabs evenly at the bottom of the stabilizers. Repeat for the left side. Stow the excess brake line with a rubber band on each steering line group. (Should be 5 to 6 inches) Canopy should now look like this.





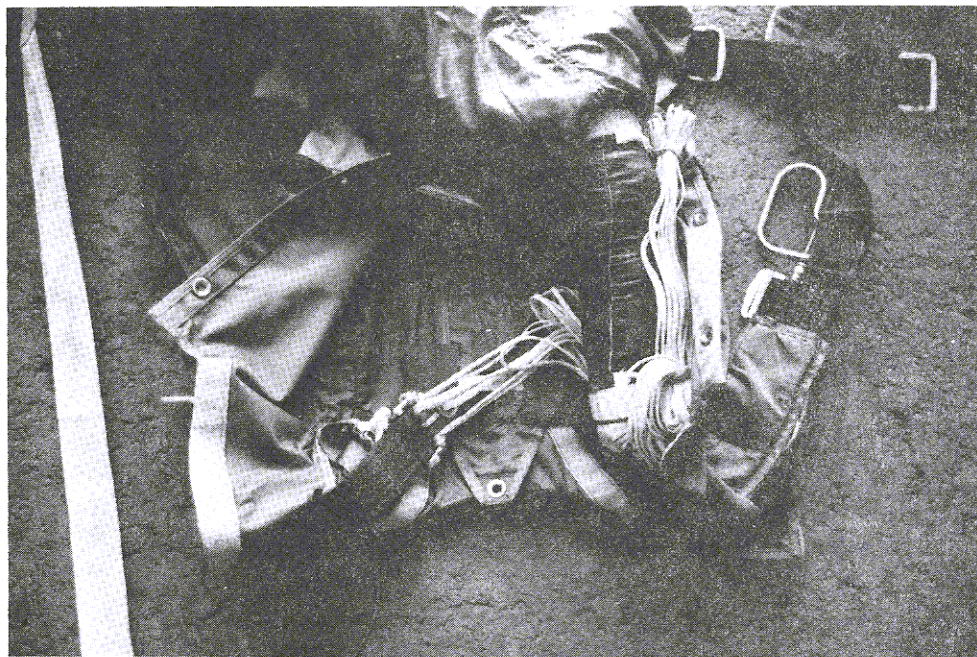
LINE STOWAGE

Bring the lines up, laying them on the canopy, and bring the diaper closed over them, stowing top to bottom through the three grommets. The remaining line is stowed in the rubber bands on the diaper. Once past the cascades, a double turn on the rubber bands are necessary due to the size of the kevlar line. Turn the canopy 1/2 turn back, so the center of the tail is straight up. If the canopy is bagged, proceed exactly the same until line stowage. At that point "S" fold the canopy into the bag, close it with the rubber bands and grommets, bringing the lines out between the grommets.



TECHNIQUE-CLOSING THE CONTAINER

Our tests were conducted with a Pigmee, basically a wonderhog type two-loops-through-the-bottom-of-container reserve. (If the free bag is used, modifications may be necessary. Consult the container manufacturer for that information.) Lay the risers in the container and place the bottom of the diaper at the top right of the reserve container.



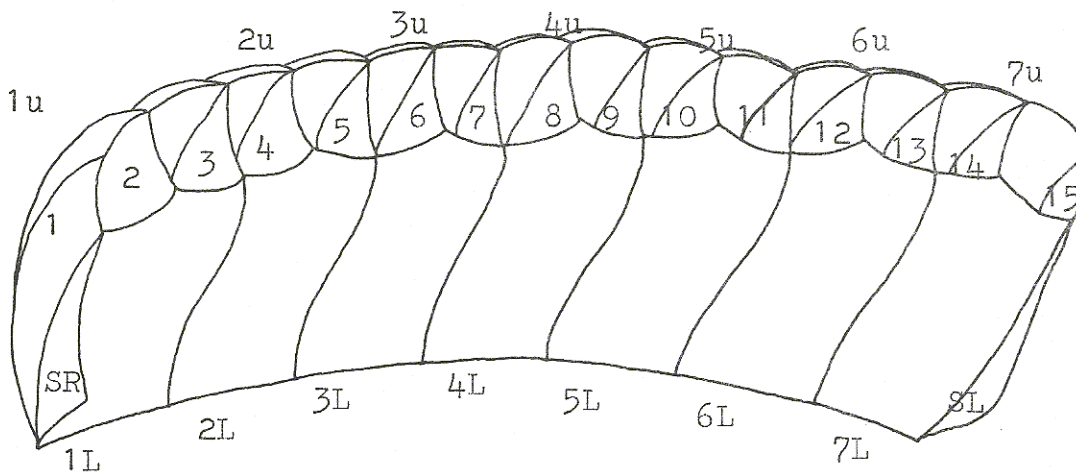
The canopy is then placed in the container in a "U" shape as shown. The pull up cords are routed up through the "U" and the container is closed normally, as per the manufacturers instructions. We recommend the use of the staging loop if provided.

Parts List

Part Number	Revision	Title-Discription
50203	N/C	Hobbit 185 Reserve Parachute System Top assembly drawing includes all parts from the connector links to the pilot chute bridle as listed below.
22003	N/C	Hobbit 185 Reserve Canopy includes: 550lb T.S. kevlar reinforcement tapes, (optional 250lb T.S. nylon tape); 1.1 oz., 0-3 CFM nylon cloth; integral kevlar canopy bridle; 700lb T.S. braided, soft, kevlar lines; braided dacron steering lines, (optional kevlar line); 4 each # 6 mallion rapide links, (optional: 4 each # 5 mallion rapide links, or 2 each MS 22002 'L' links); installation of part numbers 42101, 42204 and 45002.
42101	N/C	Diaper-Tail mounted sized for kevlar reinforced canopy (optional: size for nylon reinforced canopy).
45002	N/C	Toggle and keeper set

Inspection-Damage Chart

Canopy



Upper Surface

Lower Surface

1u _____	1L _____
2u _____	2L _____
3u _____	3L _____
4u _____	4L _____
5u _____	5L _____
6u _____	6L _____
7u _____	7L _____

Canopy Bridle _____ Diaper _____

Ribs:

1 _____	6 _____	11 _____	Stabilizers
2 _____	7 _____	12 _____	SR _____
3 _____	8 _____	13 _____	_____
4 _____	9 _____	14 _____	SL _____
5 _____	10 _____	15 _____	_____