

Butler Parachute Systems, Inc.
Tethered Tandem Bundle Delivery System
TT-1000 Gen 2
Packing Instructions

Document Number: 50-1029

Revision IR

April 29, 2015



Butler Parachutes Systems
P.O. Box 6098
1820 Loudon Avenue, N.W.
Roanoke, VA 24017-0098

Butler Parachute Systems, Inc.

www.butlerparachutes.com
Phone: 540-342-2501
FAX: 540-342-4037
info@butlerparachutes.com

INTRODUCTION

This manual contains all the required information for packing the Butler Parachute Systems TT-1000 Tethered Tandem Bundle Delivery System.

Most of the information and procedures contained in this manual are routine for the experienced parachute rigger. However, a few of the procedures are unique to the TT-1000 and **MUST** be followed as written for the TT-1000 system to operate correctly. Failure to do so could result in injury or death to the operator.

If at any time you are unsure of a procedure or have a question, stop what you are doing and give us a call...we will be glad to provide you with any assistance you may need.

NOTICE TO TT-600 USERS

Many of the components and procedures used with the TT-1000 are similar to those used with the TT-600 system; however, several are not.

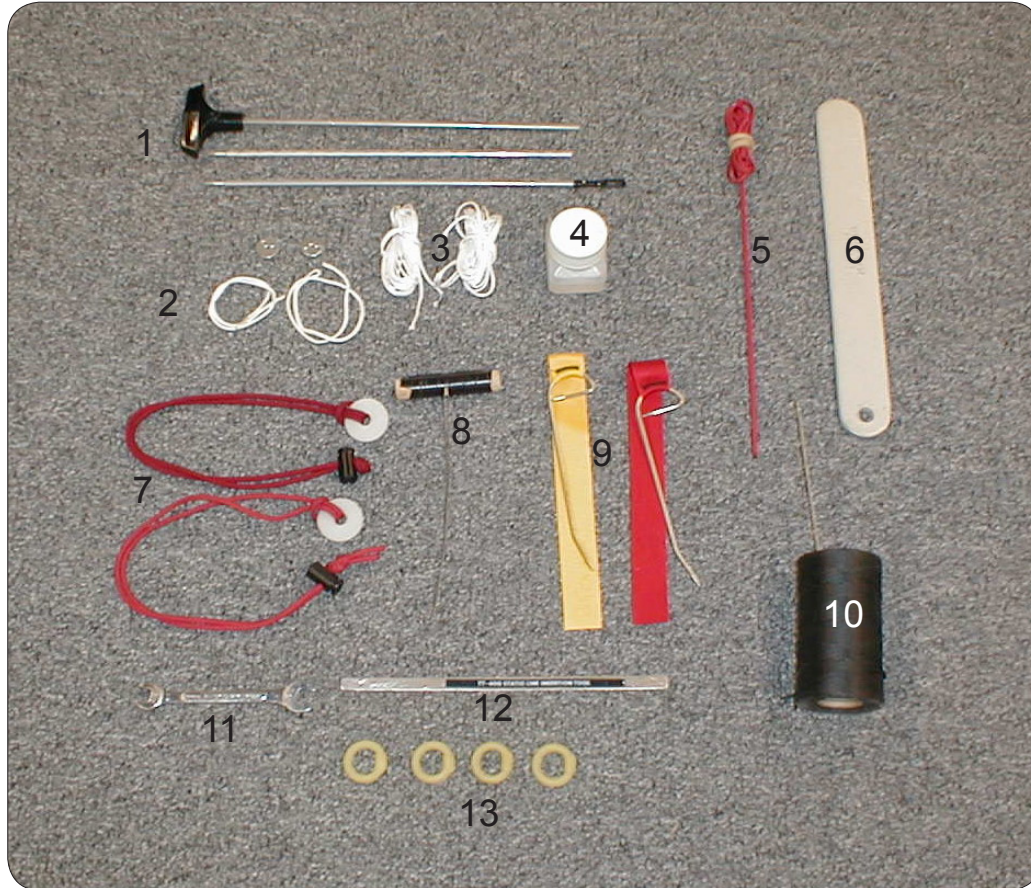
MAKE SURE YOU FOLLOW THE PROCEDURES IN THIS MANUAL WHEN WORKING ON THE TT-1000.

GENERAL PACKING PROCEDURES

1. **COUNT YOUR TOOLS!**
2. Airing and drying – as required.
3. Check layout and line rotation; straighten canopy from the top down.
4. INSPECTION – record serial number and other data from all components.
 - a. Pilot chute – snags, bent spring, solid ferrule, proper type.
 - b. Bridle – tackings and knots, proper routing of incremental bridle, T3 break tape.
 - c. Apex – vent and cap, lateral band, straighten vent hem.
 - d. Canopy – radial seams and gore seams, general condition, fabric pull test.
 - e. Lower lateral band – skirt hem, line attachments.
 - f. Suspension lines – snags, kinks, sheathing.
 - g. Connector links – plating, approved type (no speed links).
 - h. Risers – stitching, condition of webbing.
 - i. Harness/Container – canopy releases, webbing, hardware, release handle and cables, housings, and Cypres installation.
6. Repair and re-inspect as necessary.
7. Pleat, fold, stow, stack, close, dress pack...Neatness Counts!
8. Seal, sign, record data.
9. Count your tools!

REQUIRED TOOLS

Before you begin assembling the TT-1000, make sure you have all of the tools required to complete the assembly. The following illustration shows all of the tools you will need:



1. Incremental Bridle (Zip-Strip) Tool
2. Cypres Closing Loop, Safety Loop and Discs (2) *
3. Cypres Pull-up Cords (2) *
4. Cypres Silicone *
5. Line stow Fid
6. Packing Paddle
7. Locking Pull-up cords (2)
8. Fingertrapping Tool
9. Cypres Temporary Pins *
10. Supertack (or equivalent) with Tacking Needle
11. 3/8" or Adjustable Wrench
12. TT Static Line Insertion tool
13. Stow bands

NOTE: Items with an * are contained in the Cypres Packer's Kit

TT-1000 PACKING

NOTE: If this is a re-pack after system use, start with step 1 and re-rig the Incremental Bridle (zipstrip) as needed. If this is an initial-use pack job, the zipstrip is already rigged and you can begin on step 23.



WARNING Prior to installing a new Incremental Bridle (zipstrip), ensure the end of the bridle has been cut at a 45 degree angle. This allows a quick visual confirmation that the bridle is ready for use.



1. Lark's Head one loop of the Incremental Bridle onto the top of the Controller Drogue.



2. Lark's Head the remaining loop onto the small loop end of the Pilot Chute Channel Bridle.



3. Cut one 15-inch piece of 1/2" MIL-T-5038, T3 tape. Pass one end through the Type 17 loop at the top of the Controller Drogue, and the other end through the small loop on the pilot chute channel bridle.



4. Forming a loop approximately 1.5 inches in diameter, tie the ends of the Type 3 tape together with a Square Knot. Tie an overhand safety knot on each free end, then trim the ends to 1 inch.



5. Insert the Incremental Bridle Tool into the pilot chute end of the pilot chute channel bridle.



6. Push the tool through the canopy channel bridle until the end is exposed near the zipstrip break tie.



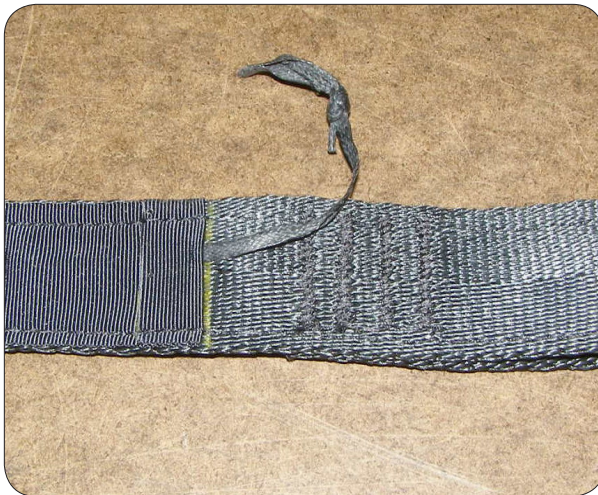
7. Using a tacking needle and a length of Supertack, place a loop through the end of the zipstrip as shown.



8. Attach the Supertack loop to the rod, then carefully pull the rod back through the bridle.



9. Taking care not to place any twists in the zipstrip, pull the zipstrip fully into the channel.



10. Snip one side of the Supertack loop, then pull the remainder of the Supertack out of the end of the zipstrip.



11. Tack the zipstrip to the channel bridles as shown using red seal thread.



12. Apply tension to the canopy, flake the canopy in the usual manner, then lay the canopy on the table with an equal amount of gores on each side. Gore number 28 should be facing up on the left side.



13. To ensure that the slider is not wrapped around any suspension lines, lift line number 28 and follow it to the skirt of the slider. Straighten the slider as needed, then, grabbing the apex, pull the slider towards the skirt of the canopy.



14. Still lifting line 28, pull the slider all the way up into the wind channel of the canopy until the grommets on the slider are against the slider stop rings on the suspension lines.



15. Hold the suspension lines together at the skirt of the slider with either a line separator or a soft shot bag.



16. Starting on one side, grab and flake the slider skirt into the corresponding gores of the canopy.



17. After flaking the slider skirt, ensure the canopy skirt is even on both sides.



18. Once the skirt is even, fold the gores as a group 90 degrees so that the skirt is parallel to the radial seam.



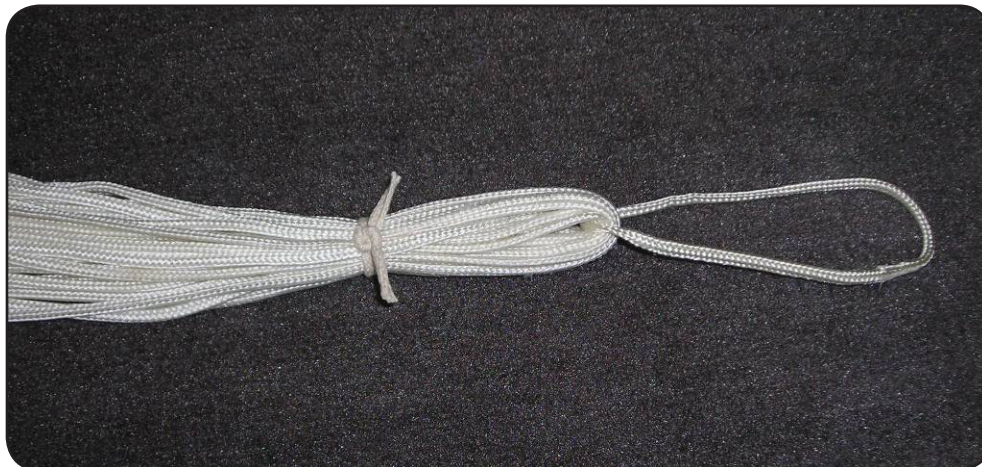
19. Long fold the canopy into fifths by first bringing the right-hand gores over to the center of the canopy.



20. Next, bring the left-hand gores to the center.



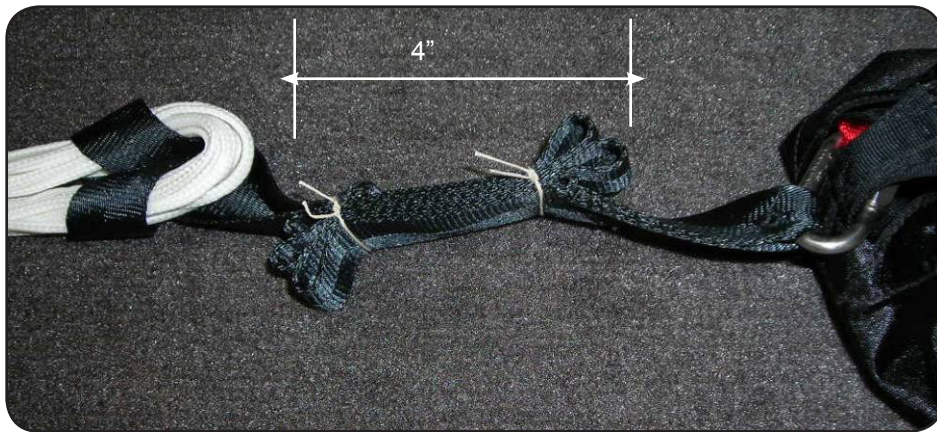
21. Finally, fold the canopy into fifths.



22. If necessary after use, tie the vent lines together approximately 4 inches (10 cm) from the end as shown using 80# cotton. Tie with a Surgeon's and Locking Knot, and trim the ends to 1 inch.



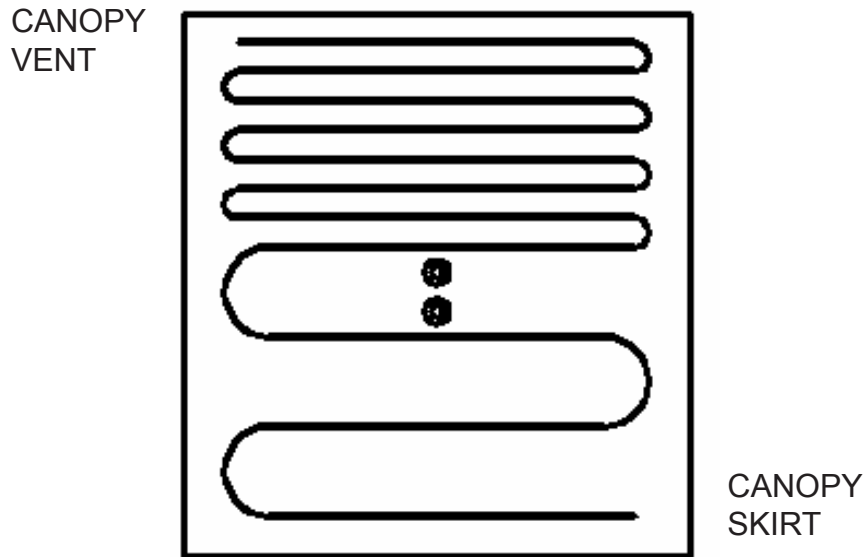
23. Using one turn single 3-cord cotton, tie the vent lines together in three places as shown. Tie with Surgeon's and Locking knots and trim ends to 1/2".



24. "S"- fold the deployment bag bridle into 4-inch folds and tie in two places with one turn single 3-cord cotton. Trim ends to 1/2".

Before placing the canopy into the deployment bag, refer to the following illustration showing the correct canopy orientation and suggested number of folds above and below the closing loop grommets.

NOTE: It is very important to keep the top of the bag soft as to allow room for the CPRES unit when closing the container. The following diagram showing the number of folds above and below the grommets is only a suggestion...the actual number of folds is up to the rigger.



25. Orienting the deployment bag so the line stow elastic panels are on top, neatly place the tied vent lines and folded deployment bag bridle into the top of the bag, then insert the vent into the upper left-hand corner.



26. Making your folds slightly wider than the bag, “S” fold the canopy back and forth into the bag. After placing about 7 folds into the bag, STOP.



27. Carefully raise the deployment bag and insert one locking pull-up cord through the bottom of the bag into the grommet closest to the top of the bag.



28. Route the locking pull-up cord through the corresponding grommet on the opposite side of the deployment bag as shown. Secure the cord by girth hitching the large washer or by tying a knot that will not slip through the grommet.



29. Pull the locking pull-up cord tight and secure with either a cord lock or slip knot.



30. Insert the other locking pull-up cord in the same manner as the first.



31. Continue "S"-folding the canopy into the deployment bag. The last fold can finish with the canopy skirt and slider in either bottom corner of the deployment bag.



32. Holding the folded canopy in place, bring the suspension lines to the center of the bag.



33. Carefully stand the deployment bag on its end, bring the right-hand side flap over, pass the tube stow through the bottom flap (flap without label), then through the top flap.



34. Place the first bight of suspension lines into the stow band to form the first deployment bag locking stow.



35. Bring the left-hand side flap up and create the second locking stow in the same manner as the first.



36. Continue closing the bag by creating the third locking stow as shown.



37. Finish closing the deployment bag with the fourth locking stow.



38. Begin stowing the suspension lines by bringing the lines up and across to the opposite corner of the deployment bag. Form a bight in the suspension lines while ensuring there is enough length for the lines to reach the first stow loop.



39. Holding the first suspension line bight in one hand, insert a pull-up cord or packing hook through the first stow flute, through the suspension line bight, and back through the flute.



40. Bring the lines across the deployment bag and insert the next bight as shown.



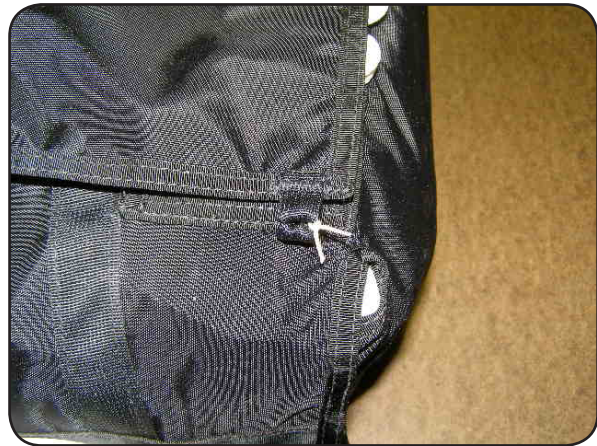
41. Continue stowing the lines back and forth across the deployment bag until approximately 12 inches of lines remain between the last stow and the connector links.



42. Carefully spread the lines and expose the locking stows as shown. NOTE: You may need to slightly loosen the temporary pull-up cords in order to do this.



Make sure the pull-up cords are routed between line groups and not through the lines themselves.



43. Bring the line stow cover over the suspension lines and tie the corners to the loops on the deployment bag with one turn single cotton 6-cord or one turn double cotton 3 cord. Trim the ends to 1/2”.

CLOSING THE CONTAINER

GROMMET ORIENTATION

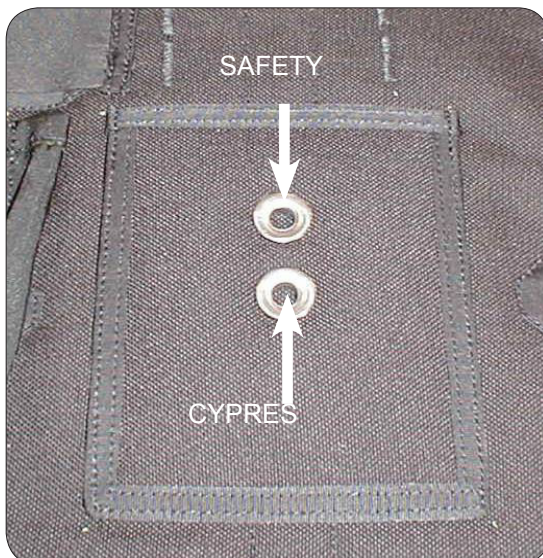
With the container laying flat on the table and all flaps folded back, the top grommet on the top flap is the grommet the CYPRES closing loop will pass through, yet the top grommet on the bottom flap is the grommet the SAFETY closing loop goes through. Confusing? It can be if you're not careful.

So, prior to inserting the deployment bag into the container and beginning the closing process, take a moment and fold the flaps in place to see how the grommets are aligned.

Take a look at the two grommets on the closing loop base and you will see that one is in the center of the base and one is closer to the top flap. The grommet in the center is for the CYPRES closing loop, and the one near the top flap is for the SAFETY closing loop. As you fold the container flaps in place, you will see that the top grommet on the top flap actually becomes the CYPRES loop grommet, and the top grommet on the bottom flap becomes the SAFETY loop grommet.

Now take a look at the pilot chute crown and see that one grommet is centered while the other is closer to the edge of the crown. The center grommet is for the CYPRES loop, and the other is for the SAFETY loop.

Once you start closing the container and have the pilot chute compressed, ALWAYS REMOVE THE CYPRES TEMPORARY PIN FIRST WHEN CLOSING SUBSEQUENT FLAPS! Since the Cypres loop is in the center of the pilot chute, doing this will keep the pilot chute flat.





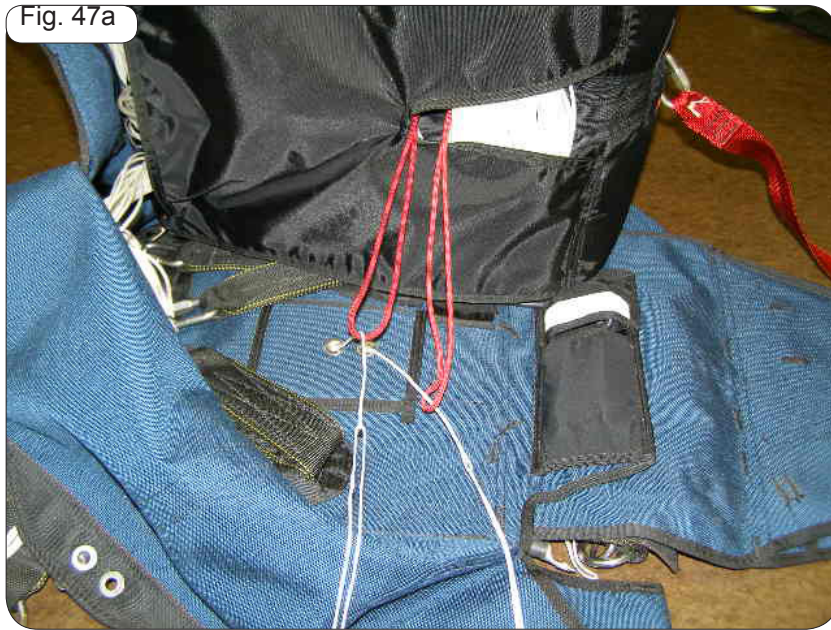
44. At times, it may be difficult to see which temporary pin is holding which closing loop in place. To alleviate any confusion, mark one of the pin flags “SAFETY” and the other “CYPRES”.



45. Insert your pull-up cords through the closing loops. Use only a Cypres pull cord with the Cypres Loop. It is recommended to use gutted 550 cord or Nylon Type 2A for the Safety Loop pull cord so you don't confuse the two during the closing process. Remember to lubricate the Cypres Loop with Cypres Silicone as per the instructions in the Cypres manual.



46. Holding the line groups with one hand, carefully flip the deployment bag into the container as shown.



47. Lifting the deployment bag away from the packtray, pass the CYPRES loop pull-up cord through the first locking pull-up cord, then gently pull the CYPRES pull-up cord through the deployment bag.

Pull the SAFETY closing loop pull-up cord through the deployment bag in the same manner. Pin both closing loops as shown in Figure 47b.



48. Ensure that the deployment bag is fully seated into the bottom corners of the container.



49. Place the controller drogue flat on the table with the mesh facing up.



50. Fold the drogue in half, top to bottom.



51. Fold the drogue in half, right to left.



52. Fold in half again, top to bottom.



53. Fold top to bottom once more.



54. "S"-fold the drogue into thirds as shown.



55. Fold the controller drogue bridle on top of the deployment bag.



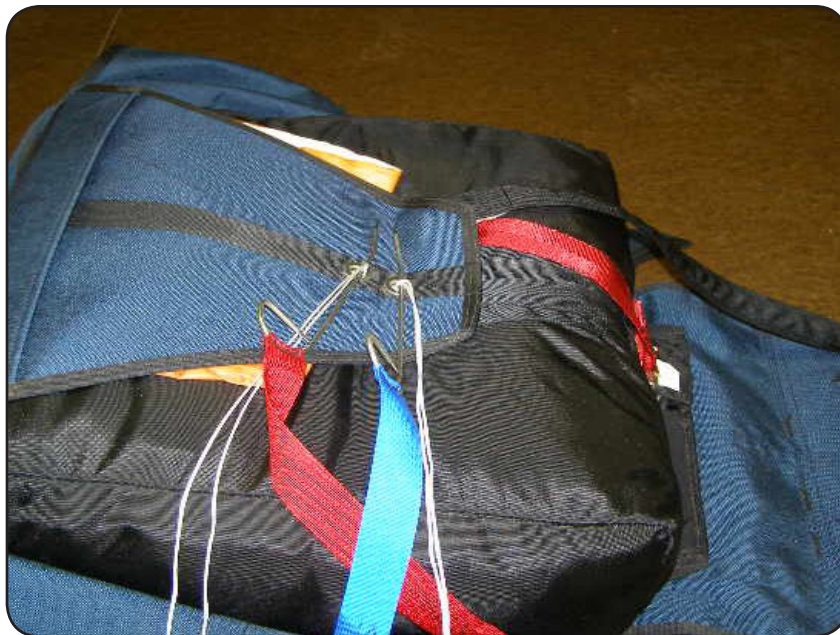
56. With the edge of the folded drogue even with the bottom of the deployment bag, place the drogue on top of the folded bridle.



57. Place the bottom flap on the folded drogue, then run the CYPRES loop through the CYPRES Release Unit and the bottom flap grommet.



58. Pin the bottom flap in place.



59. Thread the SAFETY loop pull-up cord through the other bottom flap grommet and pin the SAFETY closing loop in place with the “SAFETY” temporary pin.

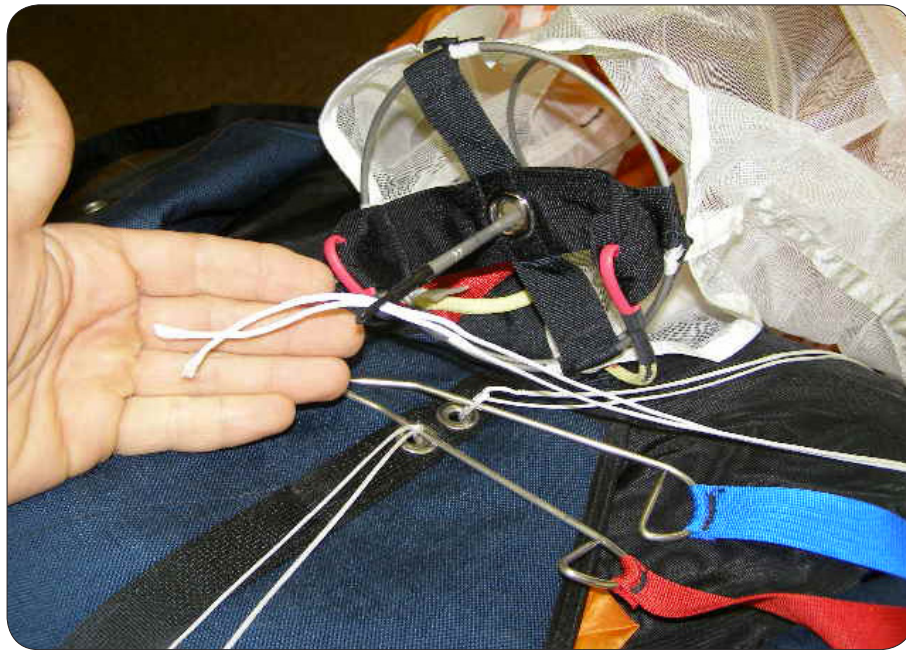
NOTE: AT THIS POINT, IF THE CLOSING LOOPS ARE TOO SHORT OR TOO LONG, STOP AND ADJUST THEM AS NECESSARY.



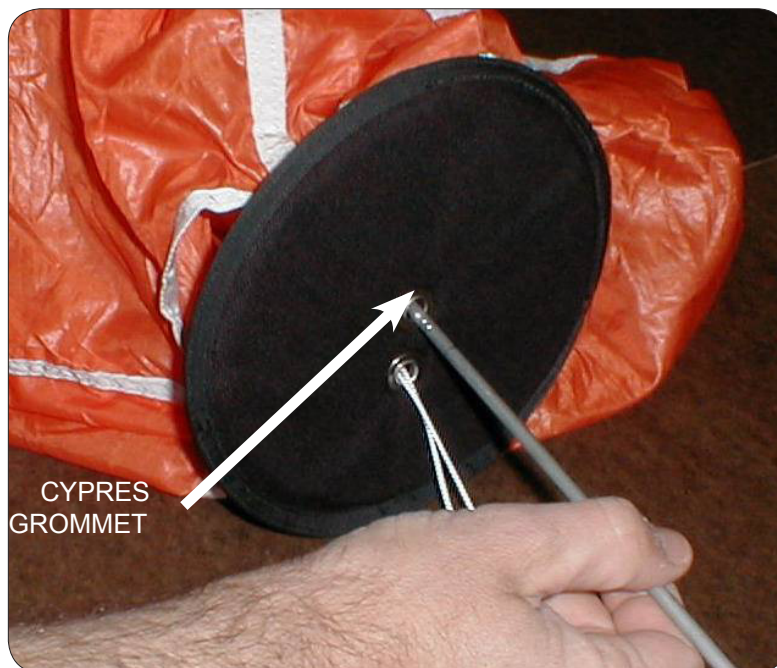
60. Remove any twists in the pilot chute bridle, then place the base of the pilot chute near the top of the deployment bag. Make sure to have the Kevlar loops facing down towards the top flap to keep them clear of the pull-up cords.



61. Insert your Incremental Bridle Tool into the SAFETY grommet on the pilot chute crown and route it to the bottom of the pilot chute. **MAKE SURE THE INCREMENTAL BRIDLE TOOL GOES STRAIGHT DOWN THE CENTER OF THE PILOT CHUTE AND NOT AROUND THE SPRING!**



62. Pass the Incremental Bridle Tool through the grommet on the pilot chute base, then insert your SAFETY pull-up cord as shown. Bring the pull-up cord through the pilot chute by slowly withdrawing the Incremental Bridle Tool.



63. After bringing the SAFETY pull-up cord through the top of the pilot chute, remove the cord from the Incremental Bridle Tool. Insert the Incremental Bridle Tool into the CYPRES grommet and, taking care not to wrap around the SAFETY pull-up cord, pass the Incremental Bridle Tool back through the pilot chute and bring the CYPRES pull-up cord through in the same manner as the SAFETY pull-up cord.



64. Remove slack in the pull-up cords and place the base of the pilot chute on the temporary pins.



65. Making sure the grommets on the pilot chute crown are correctly oriented, carefully compress the pilot chute while pulling the pull-up cords through the crown as you compress.



DO NOT TWIST THE PILOT CHUTE AS IT COMPRESSES! DOING SO WILL CAUSE THE CLOSING LOOPS TO TWIST AROUND EACH OTHER!



66. With the pilot chute fully compressed, insert your CYPRES temporary pin into the CYPRES closing loop.



67. Insert the SAFETY temporary pin into the SAFETY closing loop.



68. Pull all of the pilot chute material clear of the pilot chute spring.



69. Starting at the bottom of the container, carefully fold the pilot chute material and place it against the compressed pilot chute.



70. Rotate the container as needed and fold the pilot chute at the top of the container.



71. Rotate the container again. Fold and tuck the pilot chute on the left side.



72. Finally, rotate the container again, then fold and tuck the pilot chute on the right side of the container.



73. Close and pin the left side flap in place.



74. Close and pin the right side flap in place.



75. Using a packing paddle, carefully tuck the side flap tuck tabs in place between the packtray and the deployment bag.



76. Soften the top of the deployment bag to make room for the Cypres by pounding on the top of the bag. Re-tuck the side flap tuck tabs again if they should become loose.



77. "S" fold the pilot chute bridle and place it on the top of the deployment bag as shown.



78. Bring the top flap up into position.



79. Route your pull-up cords through the inner top flap grommets and pin the flap in place.



80. Remove the CYPRES temporary pin from the CYPRES closing loop and insert the static line pin as shown.



81. Mate the Velcro on the static line to the Velcro on the inner top flap.

NOTE: The Static Line can be stowed prior to packing while the container is empty.



82. Measure the first stow of the static line the same way you measured the suspension line stows.



83. Using the static line insertion tool, place the first bight of the static line into the first of the static line stow flutes.



84. Place a second bight of static line ON TOP OF the bight in the first stow flute, then continue stowing the static line by placing two bights in the second stow flute.



85. Place one static line bight into the last stow flute.



86. Place a second bight of static line into the last stow flute until the static line Velcro is approximately 1 inch from the top of the flute.



87. Pass the static line through the static line guide ring and through the opening between the inner and outer top flap.



FAILURE TO PASS THE STATIC LINE THROUGH THE D-RING COULD RESULT IN DAMAGE TO THE CONTAINER AND POSSIBLE FAILURE.



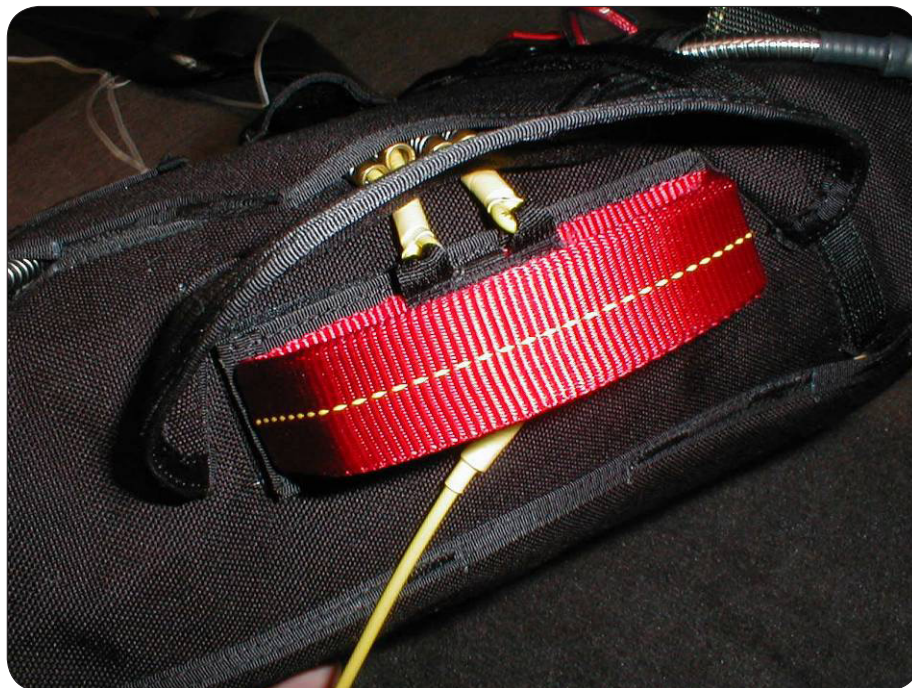
88. Pull the static line through the static line opening until the end of the static line Velcro is even with the Velcro on the top flap.



89. Mate the static line Velcro to the top flap and harness cover Velcro as shown.



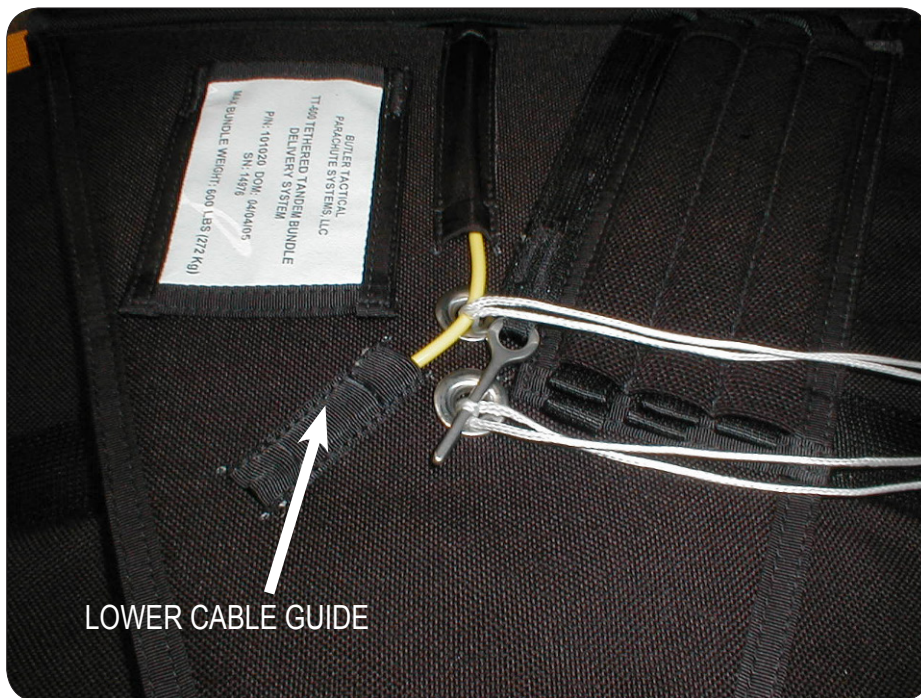
90. Straighten the four three-ring release cables on the release handle. Pass the cables through the opening at the base of the handle protector, and into the four cable housings as shown.



91. Feed the release cables into the housings and seat the release handle onto the top flap Velcro.



92. Insert the safety cable into the cable guide as shown.



93. Route the safety cable through the upper cable guide, through the SAFETY closing loop, and into the lower cable guide.



94. Carefully remove your pull-up cords.



95. Fold the outer top flap into position. Insert the tuck flaps UNDER the inner top flap and the bottom of the flap into the bottom flap tuck pocket as shown.



96. Attach the carabiner to the static line.



97. Using one turn single cotton 6 cord or equivalent tack the static line snug to the carabiner as shown. Tie with a Surgeon's and Locking Knot, then trim the ends to 1/2".



98. Place the bottom of the carabiner into the carabiner pocket, then clip it to the keeper.



99. Snap the carabiner pocket closed.



100. If used, insert the hook knife into the hook knife pocket and snap the handle flag to the pocket.



101. Attach the belly bands to the container



102. Stow the end of the release cable in the opening provided on the bottom flap of the container.



103. Note that the RW-10 / Butterfly snaps have one of the butterfly tabs removed. The remaining tab **MUST** face **OUTBOARD** when attached to the harness. Prior to installing the hardware to the harness, make sure you have the correct piece.



104. With the snap opening facing AWAY from the harness cover, install the RW-10 / Butterfly rings to the harness as shown.



105. Stow the excess release cable in the pockets located on the harness.



106. Sign the Packing Data Card and insert it into the pocket on the Inner Top Flap.

Packing the TT-1000 is now complete. Place the system in its carry bag until needed.

COUNT YOUR TOOLS!

Butler Parachute Systems, Inc.

P.O. Box 6098

1820 Loudon Ave., NW

Roanoke, VA 24017

540-342-2501

540-342-4037/FAX

E-mail: info@butlerparachutes.com

Web Site: www.butlerparachutes.com