

# Ultra

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Harness/Container System

Owner's Manual

Paratex + Fallschirm Service GmbH



ULTRA Harness/Container System

Owner's Manual

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TABLE OF CONTENTS

|  |    |
|--|----|
| Introduction .....                         | 11 |
| Round Reserve Packing Instructions .....   | 1  |
| Ram-Air Reserve Packing Instructions ..... | 11 |
| FXC Installation .....                     | 21 |
| The 3-Ring Release .....                   | 24 |
| Main Packing Instructions .....            | 31 |
| "HOT TIPS" for Everyone .....              | 42 |
| ULTRA Parts Listing .....                  | 45 |

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TABLE OF CONTENTS

|  |    |
|--|----|
| Introduction .....                         | 11 |
| Round Reserve Packing Instructions .....   | 1  |
| Ram-Air Reserve Packing Instructions ..... | 11 |
| FXC Installation .....                     | 21 |
| The 3-Ring Release .....                   | 24 |
| Main Packing Instructions .....            | 31 |
| "HOT TIPS" for Everyone .....              | 42 |
| ULTRA Parts Listing .....                  | 45 |

## INTRODUCTION

Congratulations on choosing the ULTRA. The new harness/container system from Paratex-Fallschirm Service GmbH.

Originally designed in 1987, the ULTRA has been going through constant testing and refining ever since. Features include a one-pin reserve closure, the 3-ring release system, a hand-deploy pilot chute and a custom built step-in harness.

Our design philosophy has always been: Produce a system that is simple to operate and reliable in function. For this reason we chose a one-pin reserve container. Easy to pack, even for the least experienced rigger. Reliable because of it's staged deployment design and excellent safety record over the last 18 years.

The main container closely resembles the classic "Mirage" and "Rapid Transit" systems. This main enclosure has proven to be the most fool-proof of any harness/container ever designed. There has never been a total malfunction reported from either of these systems since their conception in 1979.

With the invaluable assistance of design consultant, T.K. Donle from Paralogistics Consulting, we have safely blended the best of all possible features into the ULTRA.

Using only Mil-Spec materials from the United States, and quality workmanship, we can produce a product that will yield years of safe, reliable service. Some of our special touches include: Stainless steel grommets on the closing flaps, and each flap is numbered to show the proper closing sequence.

Besides the standard SPORT ULTRA, for experienced skydivers, we also manufacture a student version. The STUDENT ULTRA features static line and free fall capabilities for conventional or AFF training regimens.

Before packing and jumping the ULTRA, please read and thoroughly understand this owner's manual. Safe parachuting begins here!

HAVE FUN !!

## ULTRA

### ROUND RESERVE PACKING INSTRUCTIONS

#### Introduction:

This section describes the procedures for packing round reserve canopies into the Ultra harness/container system. Assembly and packing must be performed by a competent and properly rated parachute rigger.

#### Tools Required:

One temporary pin  
One Pull-up cord (125 cm minimum length)  
One packing paddle

#### Optional Tool:

One knee board with slot

The knee board prevents the premature destruction of grommets on the closing flaps and aids in the symmetrical compression of the canopy within the container.

\*\*\*\*\*

#### Procedure:

Read this entire manual before you begin to assemble and pack the system. Have this manual handy and refer to it whenever you are performing any assembly or packing work.

1) Attach the canopy to the risers with the steering modifications and/or data panel facing to the jumper's rear. If using Rapide links, tighten them till snug, plus a quarter turn. Remember, over-tightening can cause serious damage to the link. When using L-bar links, insure the screws are properly tightened.

2) Follow the canopy manufacturer's instructions regarding the proper set-up of the steering system.

3) Attach the Ultra reserve pilot chute to the apex of the canopy using the bridle provided. DO NOT SUBSTITUTE ANY OTHER TYPE OF BRIDLE - THE BRIDLE LENGTH IS CRITICAL TO DEPLOYMENT PERFORMANCE. First loop the smaller bridle end through the apex lines. The larger loop end is routed through the base of the pilot chute and then over the top of the pilot chute.

4) Inspect the entire reserve assembly, beginning with the pilot chute and finishing with the harness.

5) RESERVE LOOP LENGTH - Check the length of the loop. Generally, for small reserves such as the Phantom 22, a length of 5-6cm measured from the stiffener plate to the loop end is acceptable. For other canopies, the loop must be adjusted accordingly.

NOTE: Two factors determine the proper loop length. First, it should not take excessive force to close the last flap (#6). Secondly, when the container is closed, you should not be able to compress the pack more than a half centimeter when you press down on the top of the #5 flap.

If excessive play has developed after the reserve has been packed for a while, the container should be opened and the loop shortened accordingly.

6) Flake the reserve canopy according to the manufacturer's instructions.

7) ONLY FULL-DIAPERED, round reserve canopies (all lines are stowed on the diaper) are allowed for use in the Ultra. There are no stowing loops for rubber bands built into the reserve pack tray for this reason. Close the diaper according to the manufacturer's instructions.

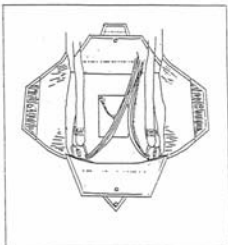
NOTE: A different packing procedure is used when the system is equipped with an FXC 12000 AAD. Please follow the appropriate instructions.

A) Without the FXC 1200 AAD

Lay the risers into the reserve container so that the connector links are in the lower corners. (FIG. 1) Spread the links slightly so they do not lay on top of one another.

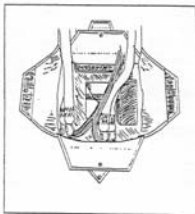
Be sure to place the risers far enough in the pack tray so they will flat over the shoulder.

(FIG. 1)



B) With the FXC 1200 AAD

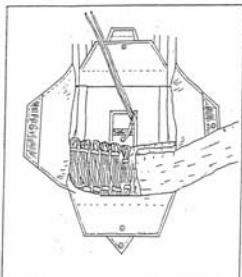
Lay the risers into the reserve container so the connector links are in the center, just left and right of the grommet stiffener plate. Spread the links slightly so they do not lay on top of one another. (FIG. 2)



(FIG. 2)

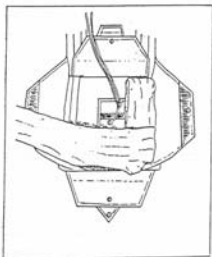
8) Place the diaper in the lower left corner of the reserve container. If the diaper is not as wide as the reserve container, make a short fold/or folds in the right corner to create symmetrical bulk. (FIG. 3) Insert the pull-up cord in the reserve loop.

(FIG. 3)



9) Fold the canopy up and down the right side of the container, then make a fold across the bottom of the container, on top of the diaper. (FIG. 4)

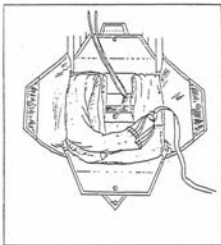
**NOTE:** Be sure to place enough canopy material in the corners of the container. If the corners are not full, it may be more difficult to close the container.



(FIG. 4)

10) Make two folds up and down the left side of the container. At the top of the container, stair-step the end-folds to create a wedge shape. The rigger may at this point make another fold across the bottom of the container in order to distribute the canopy bulk evenly. (FIG. 5) The object is to form a "U" shaped stack with the canopy so that the pilot chute will seat itself into the "hollow" of the top and bottom flaps after they have been closed.

NOTE: At the rigger's discretion, one fold of canopy material may be placed across the top of the pack tray.



(FIG. 5)

NOTE: The distribution of the bulk may vary for each canopy and container size. It is left to the rigger's discretion as to how many folds are made along the sides and bottom.

The majority of the canopy bulk should be placed in the bottom half of the container. Ultimately, a wedge shaped container is desired when the pack job is finished.

CAUTION: DO NOT place the apex of the canopy in the upper or lower corners of the container. Doing so may possibly delay or prevent extraction of the canopy by the pilot chute. The apex should be located close to the center, under where the pilot chute will be placed.

11) Route the pull-up cord through the grommet of the inside bottom Flap #1 and secure it with a temporary pin. (FIG. 6.)



(FIG. 6.)

Route the reserve bridle toward the bottom of the container and close Flap #2, securing it with the temporary pin. (FIG. 7.)

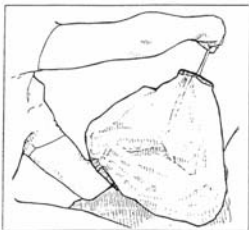
NOTE: At this time, check the symmetry and wedge shape of the folded canopy within the container. If the bulk seems poorly distributed, open the flaps and redistribute the canopy.



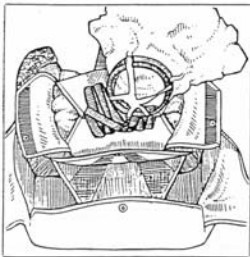
(FIG. 7.)

12) Thread the pull-up cord up through the bottom of the pilot chute and out the top. (FIG. 8)

(FIG. 8)



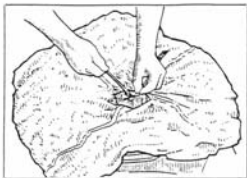
13) S-fold the bridle on top of the two flaps, so that it will be under the pilot chute without conflicting with the closing loop. (FIG. 9)



(FIG. 9)

14) Place the base of the pilot chute in the center of the container directly on top of the loop. Collapse the pilot chute and secure with the temporary pin. (FIG. 10)

NOTE: Pull the pilot chute fabric out rather than stuffing it inside the spring. This results in a flatter pack and smooths the lines created by the side flaps. Check the pilot chute base and make sure it is centered under the crown.



(FIG. 10)

Now is the time to check for proper loop length. Completely collapse the pilot chute. If you can pull more than 1-1/2 to 2 centimeter of loop through the grommet, you should shorten the loop. Now is the best time to open the container and do this.

15) Lay the pilot chute fabric flat and carefully fold it under towards the center. Fold the top and bottom under first and the sides last. (FIG. 11)

NOTE: Pilot chute fabric is NEVER placed or tucked into the sides or corners of the container. Doing so would severely impede pilot chute launch performance.



(FIG. 11)

16) Thread the pull-up cord through the side flaps #3 and #4 and close and secure with a temporary pin. Make sure the folds of the pilot chute stay neat, flat and near the center. (FIG. 12 )

(FIG. 12 )



17) Thread the pull-up cord through the bottom Flap #5 and secure with the temporary pin. (FIG. 13 )



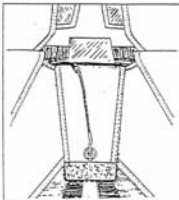
(FIG. 13 )

18) Thread the pull-up cord through the top reserve pin Flap #6 and secure with the temporary pin. (FIG. 14) If excessive force is necessary to close this flap, perhaps the closing loop is too short.

Remove the temporary pin and replace with the reserve pin. Insert the reserve ripcord handle in its pouch on the main lift web. Be sure to place the end of the reserve pin under the protective strip.

NOTE: Use a spring scale to check the force necessary to extract the reserve pin.

(FIG. 14 )



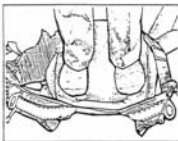
19) Carefully remove the pull-up cord and count all tools. Dress the container, seal the reserve pin, sign the packing data card and rigger's log.

HOT TIP !!

Place the rig on a clean surface with the backpad up. With stocking feet or clean shoes, walk on the container to remove excess air and to make the finished pack a bit flatter. See (FIG. 15).

Concentrate on the wedge shape by starting at the thin shoulder area and working your way to the thickest part of the container.

(FIG. 15 )



## ULTRA

### RAM-AIR RESERVE PACKING INSTRUCTIONS

#### Introduction:

This section describes the procedures for packing Ram-air reserve canopies into the Ultra harness/container system. Assembly and packing must be performed by a competent and properly rated parachute rigger.

#### Tools Required:

One temporary pin  
Two pull-up cords (125cm minimum length)  
One packing paddle

#### Optional Tools:

One knee board with slot  
Two 15cm strips of 25mm velcro(Loop/Pile)  
"T" Bar

\* The knee board prevents the premature destruction of grommets on the closing flaps and aids in the symmetrical compression of the canopy within the container.

\* The velcro strips will be used on the free bag to prevent damage to the suspension lines as they are stowed in the bag.

#### Procedure:

Read this entire manual before you begin to assemble and pack the system. Have this manual handy and refer to it whenever you are performing any assembly or packing work.

1) Carefully inspect all of the components of the reserve parachute. New or used, inspect everything.

- A) Reserve pilot chute
- B) Free-bag & bridle
- C) Reserve canopy, suspension lines and attachment points, slider & grommets, and connector links.
- D) Harness/container system - To include; reserve riser 4 point seams, control line ring attachment points, all harness seams and hardware, reserve flap grommets reserve closing loop.

2) Follow the canopy manufacturer's instructions regarding the proper inspection, attachment to risers, routing of control lines, attachment of steering toggles, setting deployment brakes, and packing of the canopy.

When using Rapide links, tighten them till snug, plus a quarter turn. Over-tightening can cause serious damage to the link.

3) Prepare the Free-bag by inserting the "T" Bar through the center grommets (use an extra stow band around the bar to prevent the bar from falling out of position). Or, insert one of the pull-up cords through the grommets and tie it off to itself.

The "T" Bar or pull-up cord will be used later to pull the closing loop up through the bag.

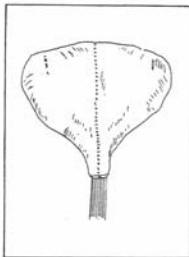
Attach the velcro strips to the hook velcro on the line stow pouch opening of the bag.

#### PACKING THE CANOPY

4) If the manufacturer of the canopy recommends a "conventional packing method", the canopy should look like (FIG. 1) after it has been flaked and folded. When the "Pro Pack" or similar method is used, the canopy will resemble (FIG. 2).

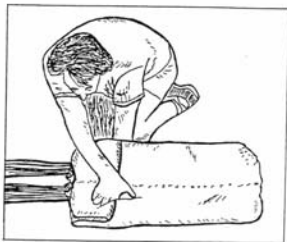


(FIG. 1)



(FIG. 2)

5) Stack the canopy on top of itself, making each fold no longer than the distance from the mouth of the bag to the center grommet of the bag. Begin with the slider area, folding it up on top. (FIG. 3)



(FIG. 3)

Next, make another fold from the other direction. Use your knees to hold these two folds in place. (FIG. 4)



(FIG. 4)

NOTE: Each canopy has a different bulk and volume. It is left to the rigger's discretion as to how many folds are made here. Generally speaking, 60-70% of the pack volume should be placed below the center grommet.

6) The top of the canopy must then be split down the middle to form two "Ears" or the "Molar" shape. (FIG. 5-6)

To keep the canopy symmetrically divided, use the seam on the top center cell as a reference.



(FIG. 5)



(FIG. 6)

7) Carefully slide the bag over the canopy and insert the "Ears" into their respective sides. Remain holding the canopy with your knees until both ears are in the bag. Using your hands, separate the ears, left and right, to keep the center of the bag "bulk free."

Place the remainder of the canopy in the bag. Maintain even bulk from left to right at all times. (FIG. 7)

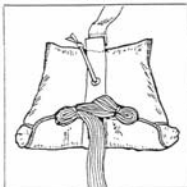


(FIG. 7)

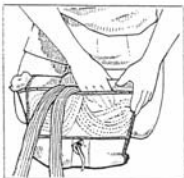
8) Close the bag with a bight of suspension line in each of the "Safety Stow" bungee locking loops. DO NOT USE RUBBER BANDS OR "O" RINGS. (FIG. 8)

9) Neatly stow the remainder of the suspension lines in the pouch on the backside of the free-bag. (FIG. 9) Stow all but 20-30cm of the lines in the pouch.

Remove the velcro strips and mate the bag's velcro making sure none of the suspension lines are caught in the velcro.



(FIG. 8)



(FIG. 9)

#### PLACING THE BAG INTO THE PACK TRAY

10) Before placing the bag into the container, use the "kneeboard", or your knees to flatten the bag and remove excess air. This will make the container easier to close.

Place the free-bag on top of the main container and neatly place the reserve risers into the reserve pack tray. Spread the links rather than stacking them on top of one another.

Be sure to place the risers far enough in the pack tray so they will lie flat over the shoulder.

11) Thread the second pull-up cord through the reserve closing loop in the pack tray. If a T-bar was passed through the bag in place of the pull-up cord, thread the ends of the pull-up cord through the eyelet of the T-bar. Remove the T-bar from the bag, bringing the pull-up cord and closing loop with it.

If the pull-up cord was passed through the bag, untie it and tie the end protruding from the underside of the bag around both ends of the second pull-up cord that has been passed through the closing loop. Carefully pull on the other end to bring the closing loop and pull-up cord through the center grommet of the bag. Untie the original pull-up cord and set it aside.

Position the bag in the pack tray symmetrically. Insure that it is pushed completely into the bottom corners of the container. Pull the closing loop up through the bag and secure it with a temporary pin.

# CLOSING THE RESERVE CONTAINER

12) Close the inside bottom flap (Flap #1) and secure it with the temporary pin. Make long S-folds with the bridle along the top of the bag no wider than the width of Flap #2. Stair-step the ends so the bridle bulk is spread out. All but the last 2 meters of the bridle should be placed under Flap #2. (FIG. 10)

(FIG. 10)



13) Close the inside top flap (Flap #2) and secure with the temporary pin. The bridle should exit between the flaps, left or right of center, without contacting the closing loop or the grommet.

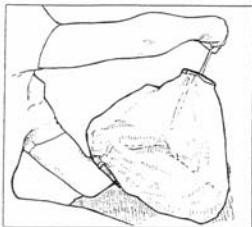
At this time, double check the amount of remaining bridle. Insure that 180-200cm extend from the closed flaps to the pilot chute base.

14) Fold the remaining bridle in a "V" as shown in (FIG. 11) on top of Flaps #1+2. Stair-step the ends to reduce bulk.



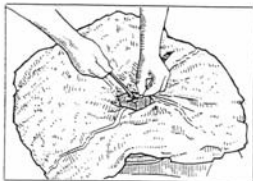
(FIG. 11)

15) Thread the pull-up cord up through the bottom of the pilot chute and out the top. (FIG. 12 ) Center the base of the pilot chute over the grommet on Flap #2. Collapse the pilot chute and secure it with the temporary pin.



(FIG. 12 )

NOTE: Pull the pilot chute fabric out rather than stuffing it inside the spring. This results in a flatter pack and smooths the lines created by the side flaps. Check the pilot chute base and make sure it is centered under the crown. (FIG. 13 )



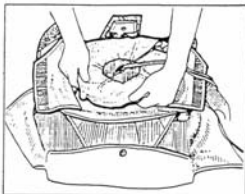
(FIG. 13 )

Now is the time to check for proper loop length. Completely collapse the pilot chute. If you can pull more than 1-1/2 to 2 centimeters of loop through the grommet, you should shorten the loop. Now is the best time to open the container and do this.

16) Lay the pilot chute fabric flat and carefully fold it under towards the center. Fold the top and bottom under first and the sides last. (FIG. 14 )

**NOTE:** Pilot chute fabric is never placed or tucked into the sides or corners of the container. Doing so would severely impede pilot chute launch performance.

(FIG. 14 )



17) Thread the pull-up cord through the side flaps #3 and #4 and close and secure with a temporary pin. Make sure the folds of the pilot chute stay neat, flat and near the center. (FIG. 15 )



(FIG. 15 )

18) Thread the pull-up cord through the bottom Flap #5 and secure with the temporary pin. (FIG. 16 )

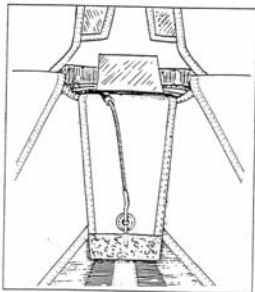


(FIG. 16 )

19) Thread the pull-up cord through the top reserve pin Flap #6 and secure with the temporary pin. (FIG. 17 ) If excessive force is necessary to close this flap, perhaps the closing loop is too short.

Remove the temporary pin and replace with the reserve pin. Insert the reserve ripcord handle in its pouch on the main lift web. Be sure to place the end of the reserve pin under the protective strip.

NOTE: Use a spring scale to check the force necessary to extract the reserve pin.



(FIG. 17 )

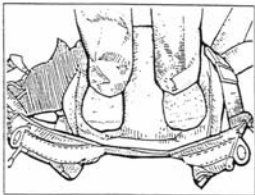
28) Carefully remove the pull-up cord and count all tools.

Dress the container, seal the reserve pin, sign the packing data card and rigger's log.

HOT TIP !!

Place the rig on a clean surface with the backpad up. With stocking feet or clean shoes, walk on the container to remove excess air and to make the finished pack a bit flatter. Concentrate on the wedge shape by starting at the thin shoulder area and working your way to the thickest part of the container.

(FIG. 18 )



(FIG. 18 )

## FXC 12000 AAD INSTALLATION

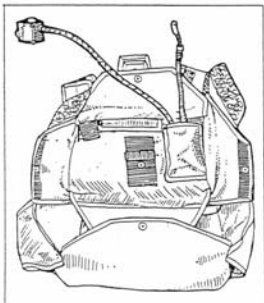
Installation of the FXC 12000 Automatic Activation Device requires longer screws and matching nuts. These parts can be supplied by Paratex or by FXC Corporation.

The work must be performed by an appropriately rated parachute rigger. However, it is highly recommended that the initial installation be done by the manufacturer of the harness/container system.

NOTE: The standard stiffener plate is not used because the top pin flap is constructed with thicker polypropylene, thus creating a built-in stiffener.

- 1) Inspect the FXC unit and parts. Check the data label on the activation unit for recent testing. Cock the unit so it will be ready to fire.
- 2) Insert the activation unit into the custom pouch located in the pack tray on the right side. When properly positioned, the activation cable should be on the right, and the sensing unit on the left. (FIG. 1)

(FIG. 1)

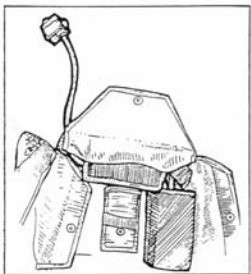


3) The sensing unit is routed to the left and covered by the special, velcro'd flap at the top-center of the pack tray. (FIG. 2 )

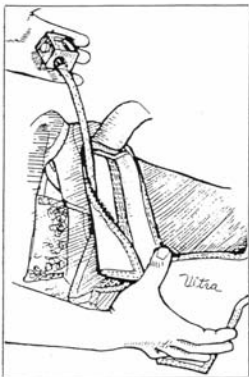
The sensing unit then exits the pack tray at top left and is further protected by another channel on the left shoulder. (FIG. 3+4 )



(FIG. 2 )



(FIG. 3 )

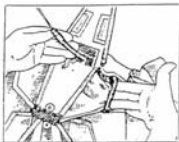


(FIG. 4 )

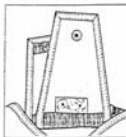
4) Route the activation cable up the right side and out of the pack tray area. The cable must curve left and pass through the top reserve flap hinge. See (FIG. 5).

Two holes have been predrilled through the reserve pin flap for the attachment of the activation cable end. Secure the cable end with the "single housing clamp" supplied in the kit.

The bottom side of the #6 pin flap has a velcro patch sewn to it. (FIG. 6) When finished with the cable end attachment, cover screw ends with the separate velcro piece included.

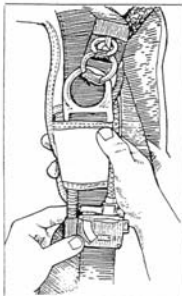


(FIG. 5)



(FIG. 6)

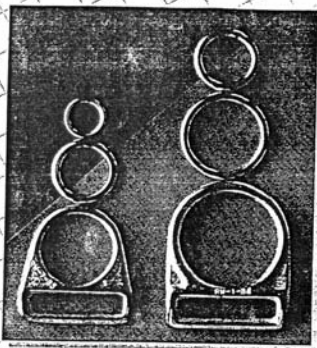
5) Attach the sensing unit to the special elastic loop below the large harness ring cover. (FIG. 7)



(FIG. 7)

6) Inspect the entire assembly. Log the installation on the packing data card and Rigger's logbook.

# The 3-Ring Release



Paratex is licensed to use the 3-Ring Release System  
with the ULTRA.

The following information is reprinted  
courtesy of the Relative Workshop Inc.

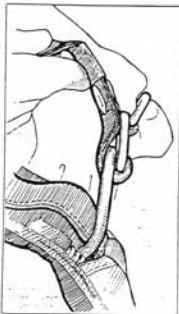
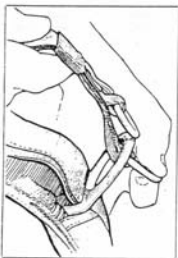
### ASSEMBLY

Before assembling the 3-Ring release, make sure the risers are not twisted or reversed. Lay the Ultra, back pad down, as you would pack it.

1) Thread each cable into it's housing and place the cutaway handle in it's normal location on the main lift web. The handle should be positioned as close as possible to the housing ends. Very little cable, if any, should be exposed.

2) With the rings of the riser facing toward the floor, pass the ring on the end of the riser through the large harness ring from above. Fold it back toward the canopy and risers. (FIG. 1)

(FIG. 1)



(FIG. 2)

3) Thread the smallest ring through the middle ring in the same way, but make sure it does not pass through the large ring. (FIG. 2)

4) Bring the white loop over the small ring only, and then through the riser grommet so it pokes out the back of the riser. (FIG. 3)

(FIG. 3)



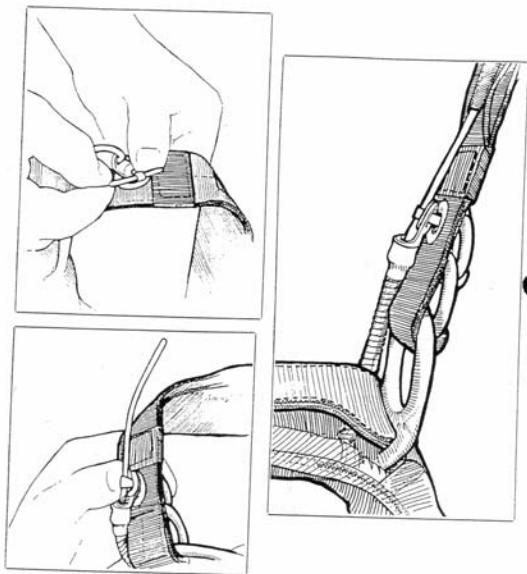
(FIG. 4)

(FIG. 5)



5) Continue threading the white loop through the grommet on the end of the cable housing. The flat side of the cable housing grommet should be against the riser. (FIG. 4 + 5)

6) Thread the yellow cable through the white loop, making sure the loop is not twisted. Be careful with the cable, do not bend it sharply or kink it. Insert the free end in the channel on the back of the riser. (FIG. 6 - B)



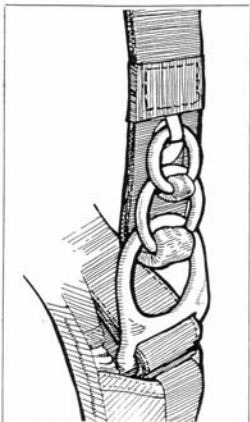
7) Repeat the same procedure for the other riser.

#### PRE-JUMP INSPECTION

Before jumping the Ultra, check the 3-Ring release system for the following:

- 1) Each ring passes through only one other ring.
- 2) The white loop passes only through the small ring.
- 3) The white loop passes through the grommet on the cable housing end without twisting.
- 4) Nothing passes through the white loop except yellow cable.
- 5) The 3-Ring release handle is securely attached to the velcro on the harness, and no cable is visible between the handle and the cable housings.

(FIG. 9) shows the front of a correctly assembled 3-Ring.



(FIG. 9)

### REQUIRED PERIODIC MAINTENANCE FOR THE 3-RING

The Booth 3-Ring Release System has been in use many years with excellent results. Although the system is as durable as the rest of the harness/container assembly, it requires periodic maintenance and inspection to insure proper operation.

Like all skydiving gear, the 3-Ring Release should be carefully inspected and operated on a regular basis. Whether new or used, this inspection routine should not be ignored.

The procedures below should be done at least every month. This is especially important if the rig has not been used for a month or more, such as during the winter months.

Immediate inspection is required if it has been subjected to some abuse such as a drag across the ground, a water landing or exposure to a lot of dust or sand.

1) Every month operate the 3-Ring release system on the ground. Extract the cable completely from the housings and disconnect the risers.

2) While the system is disassembled, closely inspect it for wear. Check the white locking loops (the ones that pass over the smallest ring and through the grommet) to be sure they are not frayed.

3) Check the velcro on the cutaway handle and main lift web to be sure it is clean and adequately holds the handle.

4) Check the cable ends for a smooth finish. The ends are finished at the factory to have a smooth, tapered surface. This prevents the cable from hanging up in the loop. Check the cable ends and consult a rigger or the manufacturer if a burr or "hook" is present.

5) Check the stitching on the riser, including that which holds the large ring to the harness.

6) Check the hand-tacking which holds the cutaway housings to the container. The housings, when pulled, should move 1-2 centimeters up or down. The housings should never be hand-tacked directly to the harness webbing.

7) Take each riser and vigorously twist and flex the webbing near where it passes through each ring. The idea is to remove any set or deformation in the webbing. Do the same thing to the white loop.

8) Check the housings for any dents, damage or obstructions. Run the cable through the housing to check this.

9) Clean and lubricate the release cable with a light oil such as a "3-in-1" brand or silicone liquid (in a spray can). Put a small amount on a paper towel and firmly wipe the cable a few times. A thin invisible film should remain. Too much oil will attract grit and dirt, or the oil could become tacky in cold weather. Too much oil will require more force to extract the cable during a cutaway.

10) Inspect the fittings at the end of each housing. If one of these fittings were to come off the housing, a riser might release prematurely.

11) If any wear is found, consult the manufacturer or a competent rigger before jumping the system again.

12) Reassemble the release system. Double check it. Make sure the risers are not reversed.

#### HOT TIP !!

It's a good idea to maintain the 3-Ring system even more frequently in humid, muddy or freezing conditions. If the ULTRA becomes immersed in mud or muddy water, clean the 3-Ring release system with a mild solution of soap and water. Any rusted components must be replaced.

## MAIN PACKING INSTRUCTIONS

### Introduction:

The ULTRA is compatible with many modern sport parachutes that are produced today. Each system is custom built to the specific pack volume of the canopies which will go in it.

This manual does not provide specific instructions for all of the various main canopies on the market. That information must be obtained from the owner's manual for each canopy.

### Procedure:

- 1) Carefully inspect all the components of the main canopy, including suspension lines, control lines, slider, slider grommets, and connector links before attaching it to the risers. Also inspect the deployment bag, bridle and pilot chute.
- 2) Attach the main canopy to the risers, being sure the canopy is facing in the same direction as the harness/container system. Each suspension line should be clear from it's attachment point, through the slider, to it's position on the connector link with out passing around any other lines.
- 3) Each control line must be clear from the canopy's tail through the slider grommets and through the guide rings on the rear risers. At this time you may attach the steering toggles.

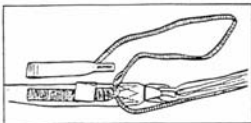
### STEERING TOGGLE ATTACHMENT

The ULTRA is supplied with it's own toggles which are compatible with the risers. These toggles must be used. Refer to the "HOT TIPS" section in the back of this manual for proper toggle location on the control line.

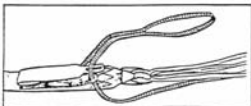
- 4) Pass the free end of the control line through the small loop of the toggle and tie the line off using a Bouline or similar non-slip type knot. Repeat this procedure for the other toggle.
- 5) Double check all of your assembly work before starting to pack.

6) Set the deployment brakes by pulling down on both toggles at the same time. Pull them until the brake-lock loop passes through the guide ring on the riser. (FIG. 1)

(FIG. 1)



7) Insert the hard toggle end (with heavy zig-zag stitch) into the brake-lock loop. Pull on the steering line in the direction of the canopy to seat the toggle against the guide ring. (FIG. 2)

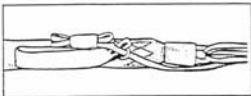


(FIG. 2)

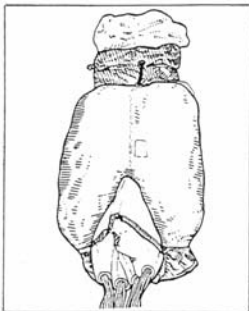
8) S-fold the excess control line and stow it in the velcro as shown in (FIG. 3). Make the folds about 10cm long.

NOTE: Be sure the toggle end is completely set in the brake-lock loop but do not put it below the zig-zag stitching. Doing so may make the toggle difficult to release.

(FIG. 3)

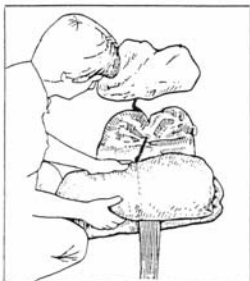


9) Flake and fold the canopy according to the canopy manufacturer's instructions. The Ultra is equipped with a deployment bag with split sides. Leave the canopy a bit wider than usual. (FIG. 4 )



(FIG. 4 )

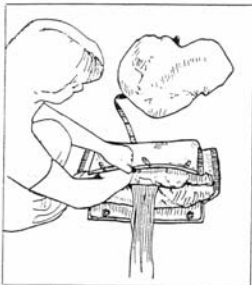
10) S-fold the canopy on top of itself keeping the width of the stack about 10cm wider than the bag on each side. (FIG. 5 )



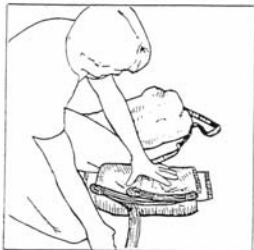
(FIG. 5 )

11) Slide the bag under the stacked canopy, grommet side first. Fold the bag edge over, holding on to the stowing band side, and surround the canopy. (FIG. 6) Allow the canopy to be 10cm wider on each side of the bag.

(FIG. 6)



12) Close the center grommet first with a bight of the suspension lines. Close the side grommets in an orderly fashion. Concentrate on good line tension between each line stow. Close the sides of the bag, rolling the excess canopy into the corners. (FIG. 7)



(FIG. 7)

13) Continue to stow the remaining suspension lines in the rubber bands across the bottom of the bag until only 38 - 48 cm of line remain. Keep each bight of line in the rubber band between 4 - 6cm long.

(FIG. 8 )

NOTE: Pull the pilot chute bridle out of the top of the bag until the stop-ring from the canopy is positioned next to the grommet in the bag. Be certain not to pull any canopy fabric through the grommet along with the bridle. No canopy fabric should lay between the grommet and the stop-ring, otherwise canopy damage could result.



(FIG. 8 )

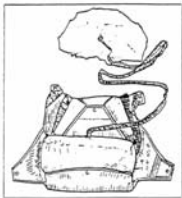
14) Compress the bag with your feet or knees to remove excess air. The "ideal bag" is packed soft in the center and firm on the sides. Pick up the bag and risers, placing the risers on top of the reserve container and the main bag just below the main container. (FIG. 9 )



(FIG. 9 )

15) Beginning at the main harness ring, neatly lay the main risers along the shoulder area and down the sides into the main container. Organize the connector links and excess suspension lines in an orderly fashion.

Place the bag into the main container with the line stows towards the bottom of the container. The bridle, coming out of the top of the bag, is routed to the right side. (FIG. 10 )



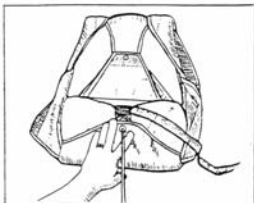
(FIG. 10 )

16) Push the top corners of the bag into the container with your knees while pulling up on the side flaps. Be sure the bag lays symmetrical in the container. (FIG. 11 )



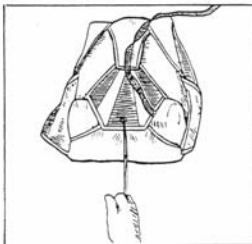
(FIG. 11 )

17) Route a pull-up cord through the main closing loop, keeping the bridle off to the right side. Thread the pull-up cord through the grommet on the bottom main flap. Slowly pull towards the top of the container until the closing loop comes through the grommet. Hold the loop end with your knee.  
(FIG. 12 )



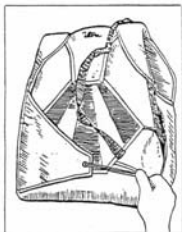
(FIG. 12 )

18) Thread the pull-up cord through the grommet on the top main flap and pull till the loop comes through the grommet. The bridle is then routed to the top right. (FIG. 13 )



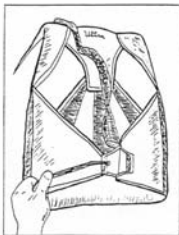
(FIG. 13 )

19) Thread the pull-up cord through the grommet on the left side flap and close it, pulling towards the right. Pat the side of the container while closing this flap to improve the form.  
(FIG. 14.)



(FIG. 14.)

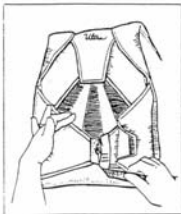
20) Keep the bridle to the high side and thread the pull-up cord through the grommet on the right side flap. Pull towards the left and pat the side of the container to create the final shape.  
(FIG. 15.)



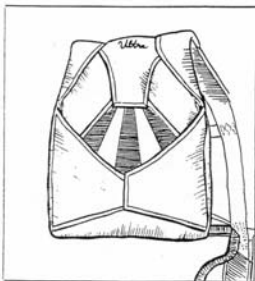
(FIG. 15.)

21) Insert the bridle's curved pin into the closing loop. Remove the pull-up cord. Mate the two small velcro pieces on the bridle. This will help prevent a pilot chute in tow malfunction. (FIG. 16)

(FIG. 16)



22) Close the pin flap and route the bridle, mating the bridle's velcro along the container side, across the diagonal and down the main lift web into the hand deploy pouch. (FIG. 17)

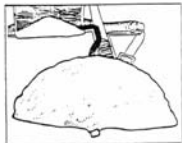


(FIG. 17)

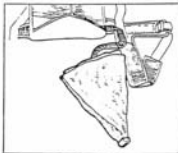
- 23) Lay the pilot chute out, mesh side up, over the mouth of the hand deploy pouch. S-fold the bridle on the half of the pilot chute closest to the pouch. (FIG. 18 )
- 24) Fold the pilot chute in half over the bridle. (FIG. 19 )
- 25) Fold the corners up into thirds to form a triangle. (FIG. 20 )
- 26) Fold the pilot chute in half, bringing the handle up to the top. (FIG. 21 )



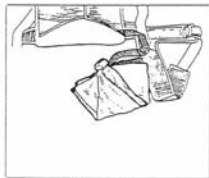
(FIG. 18 )



(FIG. 19 )



(FIG. 20 )



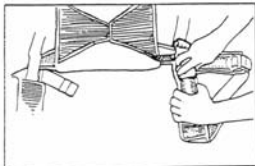
(FIG. 21 )

27) Fold the sides into the middle and roll the pilot chute. When finished, check that the overall length excluding the handle is equal to the length of the spandex pouch. (FIG. 22)

(FIG. 22)



28) Insert the rolled pilot chute into the spandex pouch. Be sure all of the bridle is placed into the pouch as well. Only the handle should be exposed when finished. (FIG. 23)



(FIG. 23)

NOTE: The force needed to extract the curved pin should not exceed 5 - 6 kilos. Adjust the closing loop accordingly. When the flaps are closed, the grommet on the left main flap should be covered by the right side flap.

**\*\* HOT TIPS FOR EVERYONE \*\***

\* It is highly recommended that you enlist the services of a qualified, and competent parachute rigger to pack and maintain your reserve. In some countries, it is permissible for the average skydiver to assemble and pack his/her own reserve.

Our feeling is: The average skydiver does not have the necessary training and experience to safely perform this work consistently. A current and competent rigger has spent years acquiring his/her knowledge to perform this work. You cannot expect to learn these very important things in a short packing course from your parachuting instructor.

Do yourself a favor and put safety first!!

\* MODIFICATIONS - It seems that all jumpers want to "improve" their systems by altering them. A high percentage of these modifications cause malfunctions.

Typical modifications include conversion to "pull-out" pilot chute, changing the length of the bridle, installing automatic activation devices and so forth.

Check with Paratex before you make any changes to your Ultra. Your system was designed and built with years of prior experience and knowledge. There are many reasons why the system was built that way, reasons that may not be apparent to you at first glance.

A harness/container system is only as safe as the design principles it was based upon. All the components of the Ultra are compatible, functional and structural. Sufficient knowledge, to combine these three important factors, cannot be gained after a weekend packing course.

Remember that 99% of all skydiving fatalities are a direct result of "skydiver error", not equipment failure. We recommend that you spend your precious time improving your skydiving ability, rather than trying to improve upon your equipment!

Please check with us before you allow any changes to be made; even insignificant alterations could have serious and deadly effects.

\* LOOPS - All closing loops should be properly sewn (the loop opening should be no larger than 3cm.) Do not tie a knot in your pull-up cord and use "it" for a closing loop. This has caused fatalities in the past when the bridle became entangled with the large loop opening.

After making a knot in the loop, back the knot up with a washer that will not deform and slip through the grommet. Do not be tempted into making several knots that appear large enough so as not to fit through the grommet. Avoiding the use of a proper sized washer has caused premature container openings during A/C climb out which has resulted in fatalities.

\* SLIDER STOPS - Usually made from clear, flexible tubing approximately 2cm in diameter. Some riggers make these from nylon webbing sewn to a custom dimension. Slider stops will protect the slider grommets from damage when they come in direct contact with the connector links. A rigger can install them properly or show you how to do it yourself.

Some jumpers install them without properly attaching them to the link. This can result in a malfunction if the slider stop moves up the suspension lines during deployment, jamming the slider too high to allow complete canopy inflation.

\* MAIN TOGGLE POSITIONING - The Ultra is supplied with toggles and risers. Switching them or mixing other components can cause malfunctions.

It is important the toggles are attached to the control lines so that both left and right sides are of even length. The canopy manufacturer normally has marked the control lines to show standard toggle placement. Check to see that these marks are even.

It is also important that the toggles are located on the control lines so the canopy is in a true no-brake mode when the toggles are all the way up against the guide ring on the riser. If not, the canopy may not glide or flare correctly for landing.

Likewise, when the toggles are attached too low on the control lines, the canopy will be slow in response to steering input and probably will not flare completely for landing.

For the first jump, attach the toggles at the mark which the manufacturer has deemed as the average location. During canopy flight, check the following flight characteristics.

1) With toggles all the way up, look at the tail to see if it's being braked at all, or if there is excess control line fluttering in the breeze.

2) Slowly pull 100% brakes (full arm's length), and see if the canopy stalls. Generally, an experienced jumper wants the canopy to stall, but at the same time be in full flight with no play in the control lines when the toggles are all the way up.

An inexperienced jumper may wish to have the toggles positioned so the stall is very mild or nonexistent. Your rigger or instructor might be able to recommend the best setting for you.

NOTE: 7 cell canopies usually stall when the toggles are pulled completely down to full arms length. Not always so with modern 9 cell canopies. They will stall with hands in the 50-70% braked position (waist height). This is caused by the short cord length (front to back distance) of the canopy.

When switching from one set of risers to another, as with a used canopy, measure the distance from the riser's guide ring to the connector link. If this distance is different, you will have to adjust the toggle placement accordingly.

Consult your rigger for the best type of knot to use when attaching your toggles to the steering lines. Loosing a toggle on a 7 cell canopy usually means you must flare with the rear risers. With 9 cells, flaring with the rear risers can cause the canopy to lose most of its aerodynamic shape. A cutaway is usually recommended in this situation.

#### WHAT CAUSES MOST MALFUNCTIONS

\* POOR LINE TENSION - That's right!! Not keeping the lines under tension while packing is probably one of the most common mistakes made by packers.

Remember, loose lines during canopy deployment tend to wander around, sometimes wrapping themselves around other lines. This is what causes line burns, broken lines, and entanglements. There are hours of video tape to back up this statement.

\* SYMMETRY IN PACKING - This relates to the evenness from left to right when packing. For example, when you side pack, after flaking the canopy, check the "A" lines at the nose. All line attachment points, from left to right, should be even.

When "Hang, Pro, Center, or Trash" packing; check before the canopy is laid on the ground, that the line attachment points are even from left to right as you hold them in your hand.

When canopies are packed asymmetrically, during deployment one side of the canopy is probably inflating before the other. This can cause the canopy to turn sharply during the first few seconds of the opening. Instead of suspension lines separating and gaining distance from one another, they end up slamming into one another, sometimes causing burns on lines and stabilizers, not to mention nasty entanglements.

\* TWISTED CONTROL LINES - Each jump you make may increase the amount of twists in the control lines. This is due to the toggle handling technique. If you tend to release your toggles frequently during flight by just letting them go, or immediately after landing you neglect to re-attach them to the riser velcro. Both techniques can add more twists.

Every so often the twists should be taken out. Allowing them to accumulate could result in their entanglement with the "C" or "D" lines.

ULTRA PARTS LIST

Ultra Harness/container  
Main risers with control toggles  
Main deployment bag  
Hand deploy pilot chute  
Hand deploy bridle  
Main container closing loop  
Cutaway handle  
  
Reserve ripcord  
Reserve pilot chute (spring type)  
Reserve bridle (for round canopies), or  
Reserve free bag and bridle (for square canopies)  
"Safety Stow" loop for free bag  
Reserve container closing loop  
  
Ultra Owner's Manual

Replacement parts can be ordered directly through Paratex.