5/86

PARA-FLITE®
RAM-AIR RESERVE
OWNER'S MANUAL

HIGH PERFORMANCE
EMERGENCY PARACHUTES

PARA-FLITE Incorporated

⚠ WARNING

1. TRAINING AND/OR EXPERIENCE ARE REQUIRED TO LOWER THE RISK OF SERIOUS INJURY OR DEATH.

   NEVER USE THIS EQUIPMENT UNLESS YOU HAVE:

   A. READ THIS WARNING LABEL AND COMPLETED A "CONTROLLED PROGRAM OF INSTRUCTION" IN THE USE OF THIS PARACHUTE ASSEMBLY.

   - OR -

   B. READ THIS WARNING LABEL AND ALL APPROPRIATE OWNERS/FLIGHT MANUALS, PACKING INSTRUCTIONS AND COMPLETED AT LEAST 100 RAM AIR PARACHUTE JUMPS.

2. LOWER THE RISK OF DEATH, SERIOUS INJURY, CANOPY DAMAGE AND HARD OPENINGS BY NEVER EXCEEDING THE LIMITS SHOWN BELOW:

MAXIMUM DEPLOYMENT SPEED	130 KNOTS
MAXIMUM GROSS WEIGHT (JUMPER + CLOTHING + EQUIPMENT)	POUNDS
MODEL:	
PART NUMBER :	
SERIAL NUMBER :	
DATE OF MANUFACTURE :	

APPROVED UNDER THE LOW SPEED CATEGORY OF TSO-C23b WHEN USED IN A SWIFT HARNESS/CONTAINER ASSEMBLY.

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS 3540684, 3724789, 4470567 AND CORRESPONDING FOREIGN PATENT RIGHTS BY:

PARA-FLITE Incorporated
5800 Magnolia Avenue
Pennsauken, New Jersey 08109-1399 U.S.A.

DISCLAIMER — NO WARRANTY

Because of the unavoidable dangers involved in the use of this gliding-type parachute, Manufacturer makes no warranty of any kind, express or implied. The parachute is sold *With All Faults and Without Any Warranty of Merchantability or of Fitness for Any Purpose.* Manufacturer also disclaims any liability in tort for damages, direct or consequential, including personal injuries, resulting from a malfunction or from a defect in design, material, workmanship or manufacture whether caused by negligence on the part of Manufacturer or otherwise.

Any deviation from Manufacturer's specifications concerning maintenance, repair, and alterations or modifications constitutes willful negligence and will be done at the operator's own risk.

By using the parachute or allowing it to be used by others, Buyer waives any liability of the manufacturer for personal injuries or other damages arising from such use.

If Buyer declines to waive liability on the part of manufacturer, Buyer may obtain a full refund of the purchase price by returning the parachute, before it is used, to Manufacturer within 30 days from the date of original purchase. In order to obtain the refund, the following form must be filled out and returned with the *unused* parachute. Manufacturer will bear the cost of postage.

NAME: _____

ADDRESS: _____

_____

DEALER'S NAME: _____

DEALER'S ADDRESS: _____

_____

DATE OF PURCHASE: _____

PARACHUTE SERIAL #: _____

Mail to: Para-Flite Incorporated
5800 Magnolia Avenue
Pennsauken, New Jersey 08109-1399
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DATE OF PURCHASE: _____

PARACHUTE SERIAL #: _____

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U.S.A.

RISKS OF SKYDIVING

1. Skydiving has caused deaths and serious injuries. Approximately one jump out of every 20,000 results in death.*

2. Parachutes do not always open properly. Ram-air parachutes have a malfunction rate of approximately 0.3%. On the average, it is expected to malfunction once in 333 activations.

3. Skydiving equipment can fail even if all possible precautions are taken by you, the equipment manufacturers, and everyone else involved with your jump.

4. Failure to activate the main or reserve parachute (or execute emergency procedures) at a safe altitude, and/or equipment failures can result in death or serious injury.

YOUR RESPONSIBILITIES

1. Be extremely careful and cautious. Be prepared.

2. Read and understand all owner's and flight manuals for your equipment.

3. Check equipment before each use.

4. Review emergency procedures before each use.

5. Check equipment warnings — do not exceed equipment limitations.

6. Do not violate the training and experience requirements for your equipment.

7. Do not be overconfident.

8. Completely understand that, despite all precautions, skydiving is dangerous and can result in death or serious injury.

**Data from USPA Fatality Reports*

INTRODUCTION TO SQUARE RESERVES

The first ram-air emergency parachute systems,the Safety-Flyer® and the Safety Star™ were a significant advance of the state-of-the -art in emergency parachutes. They offered drastic improvements in reliability, performance and safety over the conventional emergency parachute.

Para-Flite ram-air reserve parachutes now continue this tradition.

Unlike conventional round reserves which are expected to have a three to five percent inherant malfunction rate, the square reserve parachute has no known inherant malfunction mode. Malfunctions can be caused by material failure, improper rigging/packing, or improper use.

BACKGROUND: The decision to develop a ram-air emergency parachute was triggered by ram-air parachute users (skydivers) who generated a demand for reserve parachutes with similar performance to their main canopies. The reliability of ram-air parachutes was common knowledge, but there were few written reports and very little solid documentation because most of the over one million deployments were made by sport jumpers.

Military groups such as the United States Army Parachute Team, the HALO school in Fort Bragg, North Carolina, the United States Air Force Academy Parachute Branch, the West Point Military Academy Parachute Branch and their counterparts around the world had some statistically significant data, but this documentation was not readily available to civilians.

Initial research into the documented reliability of existing ram-air parachutes confirmed that they were substantially more reliable than conventional emergency parachutes. For example, a report prepared by an Australian Army Officer quoted a 99.993% reliability for ram-air parachutes. Other military groups were willing to provide numbers from their reports, but without actually supplying the documents. The HALO school at Fort Bragg reported two malfunctions in approximately 10,000 descents. Another military source had documented 3,766 descents with two malfunctions.

For comparsion, conventional emergency parachute reliability data was also researched. A malfunction analysis, prepared by the United States Army, based on statistics collected from 1972 through 1978, indicated a 14% malfunction rate for personnel reserve parachutes. A major round parachute manufacturer published the figures of three to five malfunctions per 100 activations for reserve and emergency parachutes as being normal. The United States Parachute Association published an analysis of data on malfunctions experienced by their members. The USPA Report indicated that 2.9% of all reserve activations resulted in an inversion-type malfunction. Even more significant was the rate of "horseshoe" type malfunctions: 0.3%. Two of every three horseshoe malfunctions were fatal. The USPA report also showed that 18% of all reserve landings were very hard, 2.3% resulted in major injuries, and 1% were fatal.

When the conventional emergency parachute statistics were compared to ram-air parachute statistics, in spite of the latter's sketchiness, it became obvious that a much safer and more reliable emergency parachute could be developed.

Para-Flite's square reserves offer advantages of controllability, glide and forward speed, as well as high reliability, over the conventional parachute. Because of the shorter suspension lines and fast inflation times of a ram-air parachute, altitude loss during deployment is generally less than that of an ordinary parachute. Para-Flite ram-air reserve deployment systems are nearly identical to those of the proven Safety-Flyer® and Safety-Star™ reserve deployment systems. Specifically, they employ a free bag system.

RESERVE DEPLOYMENT SYSTEM

As the owner of a Para-Flite ram-air reserve, certain things should be double-checked before use. Most importantly, your container must properly accept the reserve. Your container must be the correct size and design. (A qualified ram-air rigger is the only person who can make this decision on your harness/container system).

The most important criteria are the following:

1) The container must have a means of bag retention. The bag retention means must release with between 6 and 8 lbs. of force.

2) After the means of bag retention are released, the bag must not be trapped in the container. For example, the bag must not have corners which would restrict the bag.

3) The drag created by the two inch wide bridle line alone must be able to extract the bag. This point is critical if the system is to perform fully: **The canopy must still be able to deploy in a horseshoe situation.**

The most important responsibility that you, the user, have is to insure that your reserve is packed and maintained **only by qualified ram-air reserve riggers.** The repack cycle for the square reserve is the same as the round reserve. In addition to an FAA Senior or FAA Master Riggers License, to pack a ram-air reserve, a rigger must have attended a Rigger Certification Course held by a qualified Ram-Air Rigger/Examiner and received training to pack ram-air reserves.

MANDATORY PROCEDURES

PRIOR TO JUMPING A PARA-FLITE RAM-AIR RESERVE, THE JUMPER MUST HAVE NO LESS THAN 100 RAM-AIR PARACHUTE JUMPS AND MUST READ PARA-FLITE'S RAM-AIR FLIGHT MANUAL, PARA-FLITE'S RAM-AIR RESERVE OWNER'S MANUAL AND ALL APPLICABLE CANOPY AND HARNESS/CONTAINER WARNING LABELS.

Let us assume you have just activated your ram-air reserve. You must next release the brakes. To do this, put your hands through the red toggle loops and pull downward on both toggles simultaneously and vigorously. If necessary at this point, the slider may be pumped down by pulling on the steering lines. If any end cells are closed, this action should open them up. Para-Flite ram-air reserve toggle/brake systems are functionally similar to many of Para-Flite's main parachutes.

FLIGHT CONTROL OF YOUR PARA-FLITE RAM-AIR RESERVE

NOTE: READ THE PARA-FLITE RAM-AIR FLIGHT MANUAL CAREFULLY BEFORE JUMPING YOUR PARA-FLITE RAM-AIR RESERVE PARACHUTE.

The Swift Reserve is equipped with a unique deployment control system. Once the deployment brakes have been released, there are two slack lines connected to each toggle in addition to the taut line. The reason for the slack lines is primarily to "detune" the Swift Reserve. Because it is a reserve parachute, fast turns and high performance response is unwarranted under the pressures of an emergency situation in which it is used.

The Cirrus Reserve has been detuned via trim and aspect ratio, and is controlled similarly to a main parachute.

Para-Flite square reserves, by design, have a slow turn rate, a relatively gentle, predictable stall, and relatively easy flare.

Depending on the jumper's armlength, and the reserve riser length of the particular harness/container, the turn rate and stall point will vary.

NOTE: FAMILIARIZE YOURSELF WITH THE BRAKE RELEASE AND STEERING SYSTEM PRIOR TO HAVING A PARA-FLITE SQUARE RESERVE PARACHUTE INSTALLED IN YOUR RESERVE CONTAINER.

DESIGN AND CONSTRUCTION

The Swift Reserve and Cirrus Reserve parachutes have been tested under TSO C23b, low speed category. **THE SWIFT RESERVE MAY ONLY BE USED BY PERSONS UP TO 180 POUNDS FULLY EQUIPPED, AND UP TO 130 KNOT DEPLOYMENT VELOCITY. THE CIRRUS RESERVE MAY ONLY BE USED BY PERSONS UP TO 200 POUNDS FULLY EQUIPPED, AND UP TO 130 KNOT DEPLOYMENT VELOCITY.**

Para-Flite ram-air reserve parachutes are constructed in a cellular configuration, which, when ram-air inflated, creates a pressurized semi-rigid wing with upper and lower surfaces and an airfoil section. The cells are formed by ribs, which in the case of the reinforced load-carrying ribs, are attachment points for the suspension lines.

The load lines and ribs retain the correct airfoil trim and camber in flight. In the case of the load-carrying ribs, the direct attached suspension lines in conjunction with the V-tapes distribute the load evenly along the chord of the canopy without causing significant distortion to the airfoil.

Rib sections are sewn between upper and lower wing surfaces, forming cells. Alternate ribs are internally reinforced for direct suspension line attachment at the canopy lower surface. All internal ribs have two crossport vents. Para-Flite ram-air reserves use the Lissaman 7808 airfoil section.

Innovative spanwise panel construction techniques (United States Patent 4470567) have resulted in a compact system weighing 5.7 lbs. in the case of the Swift Reserve, and 7.0 lbs. in the case of the Cirrus Reserve.

SPECIFICATIONS

SWIFT RESERVE
PN: 827200

Number of Cells	5
Wing Span	18.5 feet
Wing Chord	9.6 feet
Planform Area*	179 square feet
Maximum Suspended Weight	180 pounds
Canopy Material	F-111®
Line Test Strength	400 pounds
Weight*	5.7 pounds
Pack Volume*	366 cubic inches

CIRRUS RESERVE
PN: 835000

Number of Cells	5
Wing Span	21.5 feet
Wing Chord	10.75 feet
Planform Area*	230 square feet
Maximum Suspended Weight	220 pounds
Canopy Material	F-111®
Line Test Strength	400 pounds
Weight*	7.0 pounds
Pack Volume*	443 cubic inches

PERFORMANCE SPECIFICATIONS VARY DEPENDING UPON SUSPENDED WEIGHT AND ATMOSPHERIC CONDITIONS.

Glide Ratio	approximately 3.0:1

Glide Ratio	approximately 3.0:1

**According to Parachute Industry Association study, February 1986*

827200 OK CBJ

PARA-FLITE, INC.

CUSTOMER INSPECTION SHEET

PURCHASE ORDER NUMBER: 7271-9

PARACHUTE SERIAL NUMBER: R3 4558

RESERVE TYPE: SWIFT

TRIM SETTING: 3 7 11¼

BRAKE SETTING' 8 INCHES ABOVE THE A LINES

FULL FLIGHT SETTING: 0 INCHES ABOVE THE D LINES

Q.C. 151

FINAL INSPECTION BY: _____ DATE: 11-24-87

THIS PARACHUTE IS MANUFACTURED UNDER FAA
TSO C23b

P/N 827216

PARA-FLITE, INCORPORATED

SWIFT® RESERVE/CIRRUS™ RESERVE
ORION™ RESERVE
PACKING INSTRUCTIONS

WARNING:

Because square reserves are radically different from conventional (round) reserves it is absolutely essential that riggers be specifically trained before packing, assembling, repairing and/or inspecting them.

FAR Part 65.129 "Performance Standards" states that:

"No certificated parachute rigger may:

(e) Pack, maintain, or alter a parachute in any manner that deviates from procedures approved by the Administrator or the manufacturer of the parachute; or

(f) Exercise the privileges of his certificates and type rating unless he understands the current manufacturer's instructions for the operation involved."

Further, PARA-FLITE, INC. states that:

Prior to packing a

SWIFT RESERVE, CIRRUS RESERVE OR ORION RESERVE

emergency parachute, an FAA Senior or Master Rigger attend a course conducted by a qualified Square Rigger/Examiner.

Anyone who circumvents PARA-FLITE, INC. instructions regarding attendance of a Square Rigger Course is in violation of Part 65.129 and is therefore performing an illegal procedure.

Revised June 1987

PARA-FLITE Incorporated

5800 Magnolia Avenue, Pennsauken, New Jersey 08109-1399 USA
(609) 663-1275 TELEX 831355 FAX (609) 663-3028

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REMOVAL OF THIS LABEL VOIDS ALL WARRANTIES AND THE TSO.

CONTAINER DESIGN

To ensure safe operation of Para-Flite, Inc. reserve parachutes, it is mandatory that they be installed in harness/container systems which meet the following requirements:

(1) Both the left and right reserve risers **must** have a front and rear attachment point and be at least 15" long.

(2) The containers **must** have a means of holding the bag in place until the pilot chute has reached the end of the bridle line, or if in a horseshoe situation, until the bridle line extracts the bag. If a locking loop arrangement is used, the needlefold **must** release with a maximum of 6-8 lbs. of pull. At 20 mph, the bridle line alone **must** create enough drag to release the needlefold and extract the bag. We are recommending a nylon covered bungee be used as the locking loop for these flaps as this will facilitate the release.

(3) Because the canopy should be able to deploy despite a hung pilot chute, the bag **must** not be trapped in the container after the locking loop has been released. This means the container must NOT have restrictive corners which hold the bag into place. The drag created by the 2" wide bridle ALONE **must** be able to extract the bag.

(4) The harness/container **must** be of the tandem type. Square reserves cannot be considered for use in front mount reserve containers unless a positive locking device is used to attach the risers to the harness. Even with the use of a cross-connector strap, should the jumper experience a riser release, the results could be catastrophic.

ALL THE REQUIREMENTS OF FAA TSO-C23 MUST BE MET AND THE ABOVE CONSIDERATIONS MUST BE INCORPORATED INTO AN ASSEMBLY FOR USE WITH PARA-FLITE EMERGENCY PARACHUTES.

PARA-FLITE, INC. HAS TESTED AND TSO'D THE SWIFT® RESERVE **ONLY** WITH THE SWIFT HARNESS/CONTAINER SYSTEM **AND** THE SWIFT RESERVE DEPLOYMENT BAG AND PILOT CHUTE ASSEMBLY (PFI P/N 827212).

PARA-FLITE, INC. HAS TESTED AND TSO'D THE CIRRUS™ RESERVE **ONLY** WITH THE SWIFT HARNESS/CONTAINER SYSTEM **AND** THE CIRRUS RESERVE DEPLOYMENT BAG AND PILOT CHUTE ASSEMBLY (PFI P/N 835012). THE CIRRUS™ RESERVE IS ALSO COMPATIBLE WITH THE CIRRUS/ORION RESERVE DEPLOYMENT BAG AND PILOT CHUTE ASSEMBLY (PFI P/N 807019).

PARA-FLITE, INC. HAS TESTED AND TSO'D THE ORION™ RESERVE **ONLY** WITH THE SWIFT HARNESS/CONTAINER SYSTEM **AND** THE CIRRUS/ORION RESERVE DEPLOYMENT BAG AND PILOT CHUTE ASSEMBLY (PFI P/N 807019).

IF YOU ARE ASSEMBLING THE SWIFT RESERVE, THE CIRRUS RESERVE, OR THE ORION RESERVE WITH EITHER DEPLOYMENT SYSTEM COMPONENTS OR HARNESS/CONTAINERS NOT MANUFACTURED BY PARA-FLITE, YOU MUST FIRST ASCERTAIN THAT THE ITEMS YOU ARE SUBSTITUTING ARE COMPATIBLE WITH THE SWIFT RESERVE, CIRRUS RESERVE, OR ORION RESERVE. IF YOU ARE NOT SURE ABOUT THE COMPATIBILITY OF ANY COMPONENT WITH THE SWIFT RESERVE, CIRRUS RESERVE, OR ORION RESERVE YOU ARE PACKING OR INSTALLING, CONTACT THE MANUFACTURER OF THAT COMPONENT.

ASSEMBLY PROCEDURES

As a rigger, you must be able to determine whether or not a container system is compatible with the Swift Reserve, Cirrus Reserve, or the Orion Reserve. You must also be familiar with the **Assembly and Rigger's Packing Checklist** *(available from PARA-FLITE, INC.)* in order to assure maximum performance of the system.

MAINTENANCE AND REPAIRS

As a Senior or Master Rigger, you will find that some maintenance procedures for these square reserves are similar **(but not identical)** to those of round reserves. A Senior Rigger is allowed to repair only minor damage. Minor damage is considered to be a hole or tear not involving a seam or tape. NO RIPSTOP TAPE PATCHES ARE ALLOWED. A Senior Rigger may also repair and maintain, but not modify, the bag, bridle and pilot chute assembly. A Senior Rigger may, however, install a Safety Stow Kit *(available from PARA-FLITE, INC.)* in accordance with manufacturer's instructions.

A Master Rigger's license is required to correct major damage. This is damage which does involve seams or tapes, or the repair or removal of any seams or tapes. Also, a canopy is considered to have major damage if one or more strands are broken in any suspension line. If a suspension line which runs through a deployment brake loop requires replacement, the entire group must be replaced with a factory replacement set of lines. This will ensure that the brake loop and lines are not weakened by being removed and resewn.

Any damage which requires the replacement of an entire panel or cell must be repaired by the manufacturer.

NOTE: You may repair this parachute BUT YOU MAY NOT ALTER IT IN ANY FASHION. All repairs must be done with PARA-FLITE, INC. specified materials.

RIGGER PACKING CHECKLIST

1. Check the connector links for proper tightness.
   a. With a 3/8" open wrench, loosen the locking barrel.
   b. Tighten the locking barrel to finger tightness.
   c. With a 3/8" open wrench, tighten the locking barrel 1/4 turn.

2. Check the condition of the finger trapped loops, and locking loops for imperfections and wear.

3. While checking for proper line continuity, also check the lines for broken strands or damage of any kind.

4. Check all bartacks and suspension line attachment points.

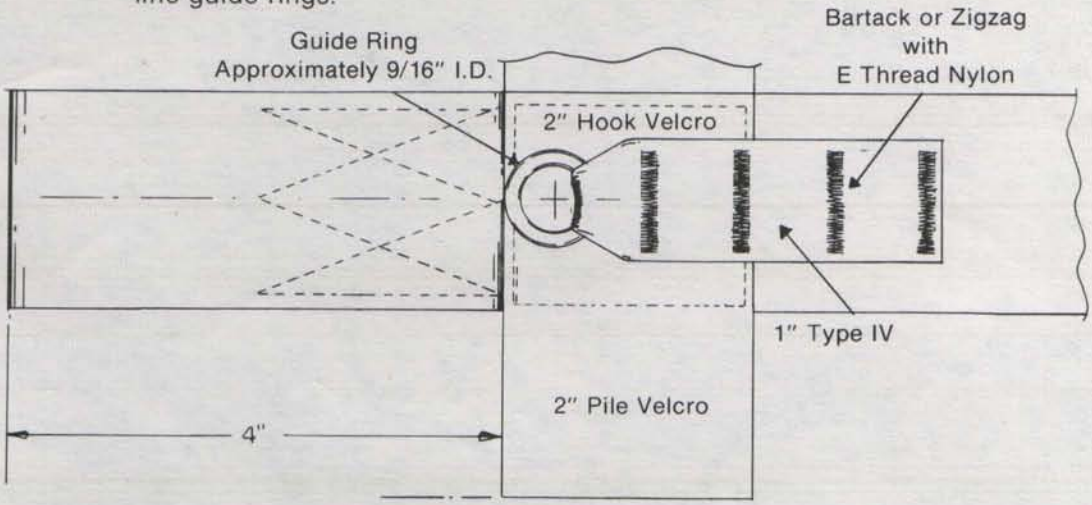
5. Inspect the canopy for damage and wear. *(See the maintenance and repair section for repair guidelines.)*

6. Inspect the slider.
   a. Check the slider grommets for damage.
   b. Check the fabric and tapes.

7. Inspect the deployment system.
   a. Check the bag for wear and/or damage.
   b. Check the bridle for wear and/or damage.
   c. Check the pilot chute for wear and/or damage.

8. Should repairs to the canopy be required, use a straight stitch INSTEAD of zigzag.

9. The illustration below shows the proper location for the small steering line guide ring for installation in systems which do not provide steering line guide rings.



NOTE: Due to the variety of steering line guide ring/toggle combinations now supplied on reserve risers, and the subsequent differences in deployment brake setting method, Para-Flite, Inc. will no longer supply guide rings with each Ram-Air reserve. These rings, however, will be available on request at no charge.

PACKING CHECKLIST (continued)

NOTE: While there are marks on the steering line for the proper position to tie the steering toggle, these marks should be double checked in the following way:

On the SWIFT RESERVE, the center steering line should be even with the D-line (±1").

On the CIRRUS RESERVE, the short steering line should be 10" above the D-line (±1").

On the ORION RESERVE, the inboard steering line should be 10" above the D-line (±1").

With every PARA-FLITE, INC. reserve parachute, you will receive the following:

1) Para-Flite, Inc. Reserve Packing Instructions
2) Para-Flite, Inc. Ram-Air Flight Manual
3) a postage-paid return post card
4) a "Square Pilots Only" tag

RISER ASSEMBLY INSTRUCTIONS

1. Lay the canopy out with its left side on the ground. Use illustration #1 as a guide to transfer the links **directly** to the risers in the following order; Left Rear, Left Front, Right Rear, Right Front. See page 10 of the Packing Instructions for the correct procedure to tighten the locking barrels on the Rapide Links.

   NOTE: After approximately 10 - 20 jumps, retighten the links using the proper procedure as it is possible for the barrels to loosen.

2. TIE OFF the steering lines to the toggles as shown in illustration #2. Be certain you have threaded the steering lines through the guide rings on the risers.

   CAUTION: Welded guide rings are not strong enough to withstand the opening shock load, only machined steel or forged steel rings can be used. Be certain that the guide rings are the proper size for the toggles you intend to use. If the rings are too large and/or the toggles are too small, the toggles could slip through the rings. We have supplied a set of toggles which should fit all but the largest rings.

   NOTE: Align the mark on the steering line with the loop of the toggle grommet or ring for proper toggle location. DO NOT CUT OFF excess steering line until you have jumped the canopy and determined the stall point; the canopy should stall at full arm extension. See Flight Manual for toggle adjustment.

3. After the links and toggles are assembled, make a full line continuity check to be certain the canopy is assembled correctly BEFORE JUMPING IT!

4. Illustration #3 shows the finished end of the riser with the correct distance between the end of the riser and the guide ring (deployment brake ring). This dimension should be 4" ± ½ inch. If this dimension is greater or lesser than 4", the deployment brake setting and full flight setting will be off by the same amount. However, this difference can be as much as ± 1 inch without affecting proper opening or full flight.

   NOTE: The enclosed riser patch should be sewn to the **front** of the right front riser; this patch will identify the type of parachute in a packed container and display the maximum weight limit for that parachute. **UNDER NO CIRCUMSTANCES SHOULD THE MAX WEIGHT (JUMPER + CLOTHING + EQUIPMENT) BE EXCEEDED.** This patch will also help in identifying the right and left risers when changing rigs.

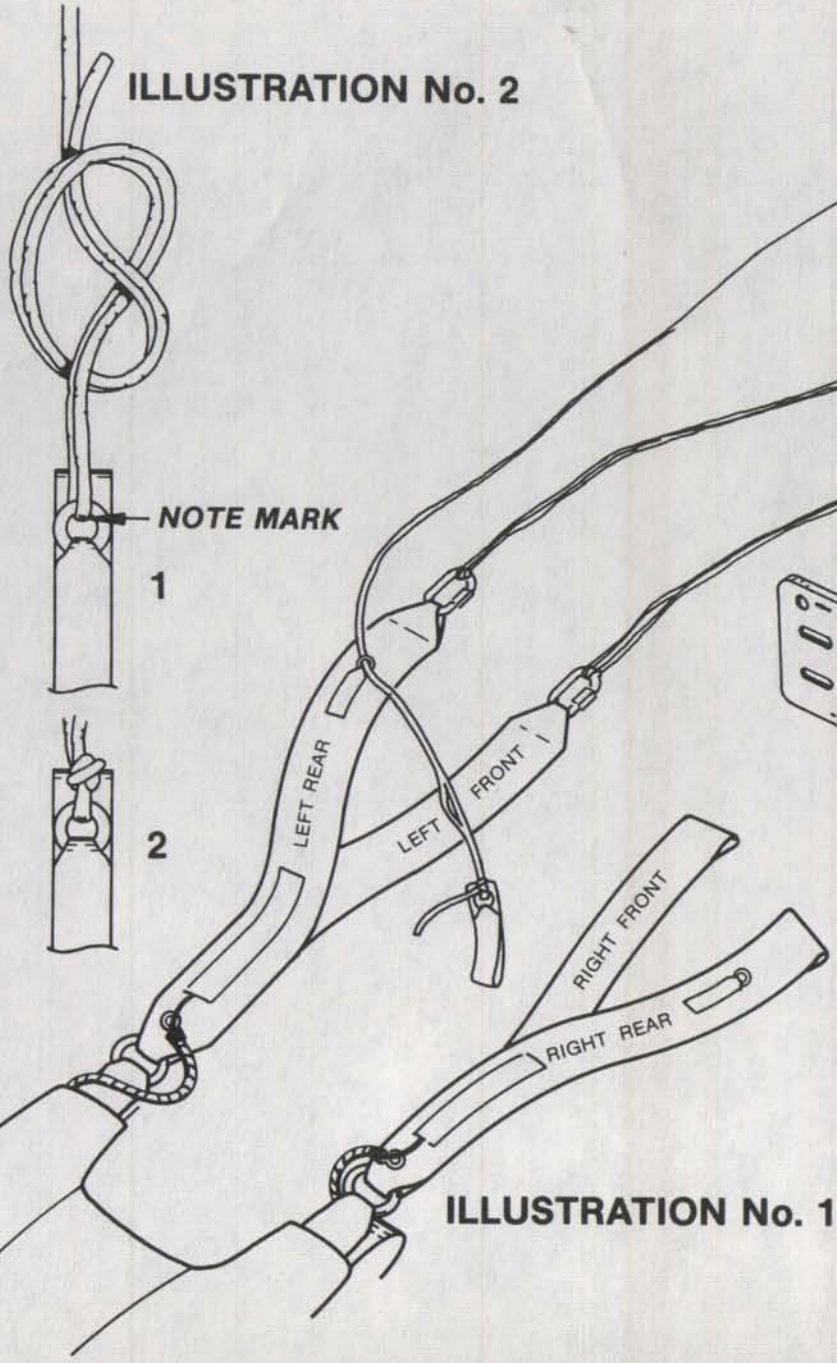


ILLUSTRATION No. 1

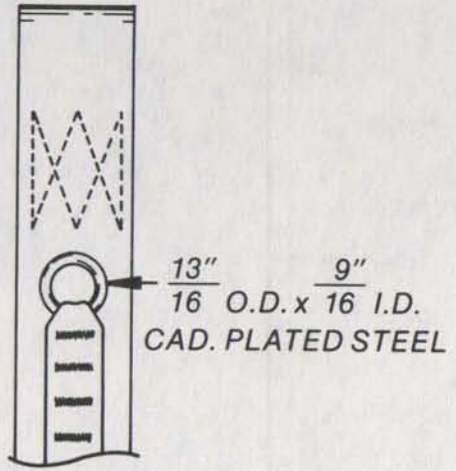
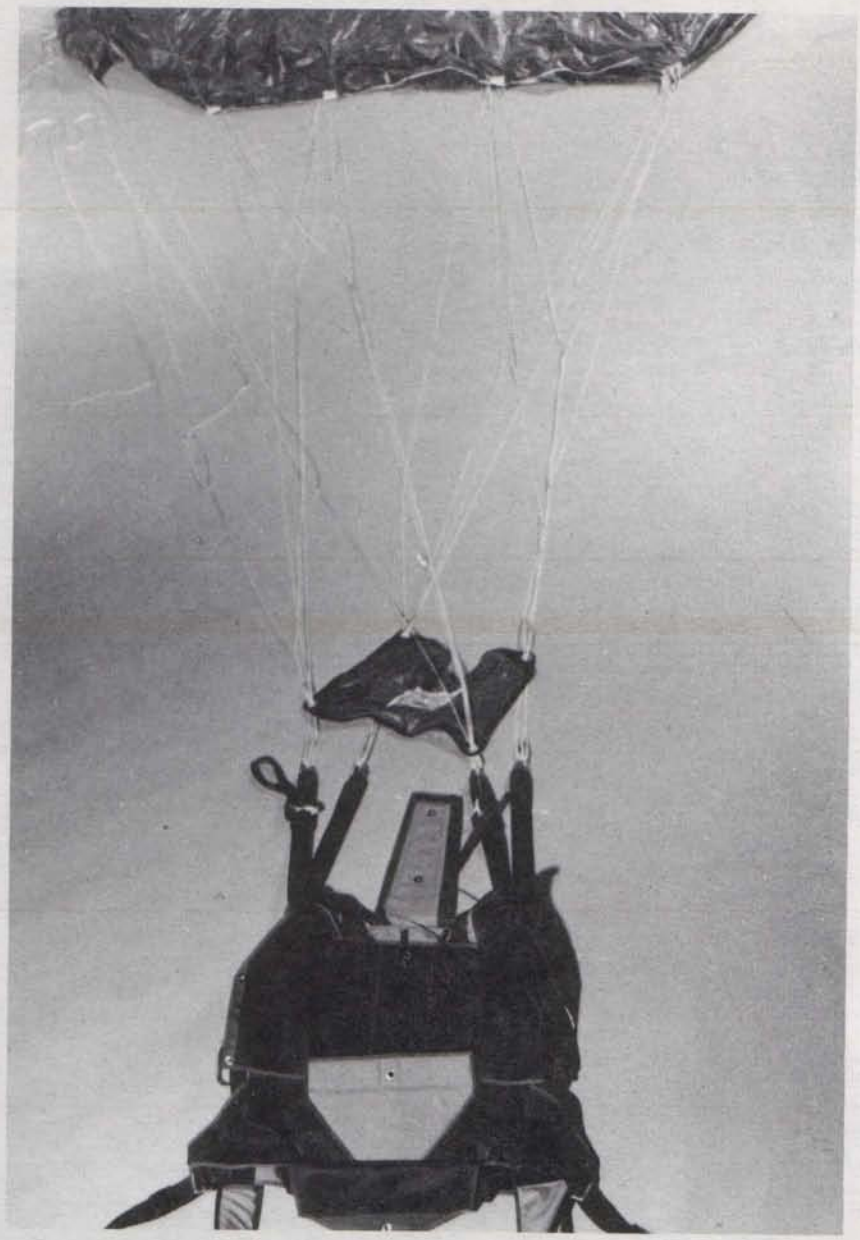


ILLUSTRATION No. 3

PACKING INSTRUCTIONS
SWIFT® RESERVE/CIRRUS™ RESERVE
ORION™ RESERVE

STEP 1 **OVERALL LAYOUT** **Figure A**



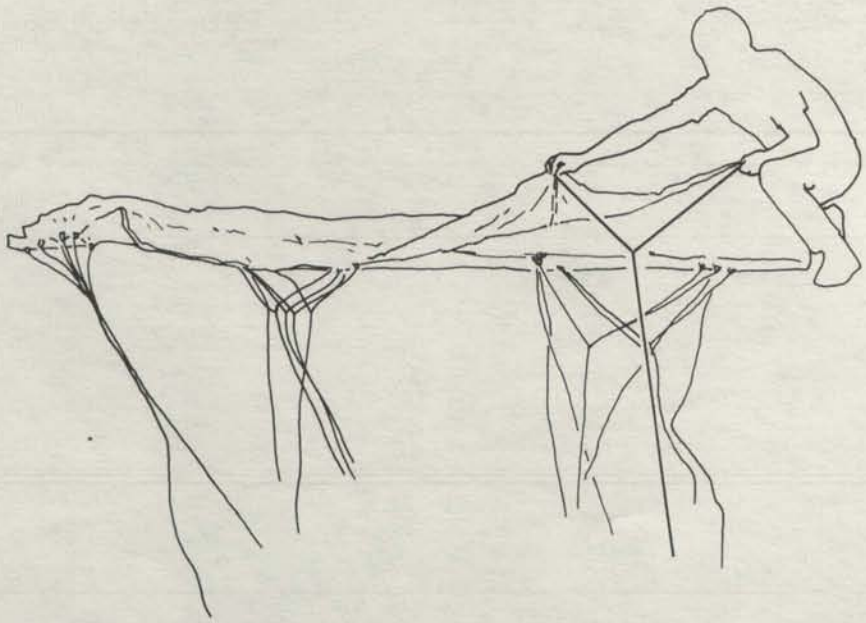
STEP 2 LAYOUT Figure A

Start by grasping the canopy by the top surface high points at the leading edge. With the high points in your hand, flip the canopy and lay it down with either the left or right side on the packing surface. *(The photos were taken with the left side down.)*

STEP 2 **Figure B**

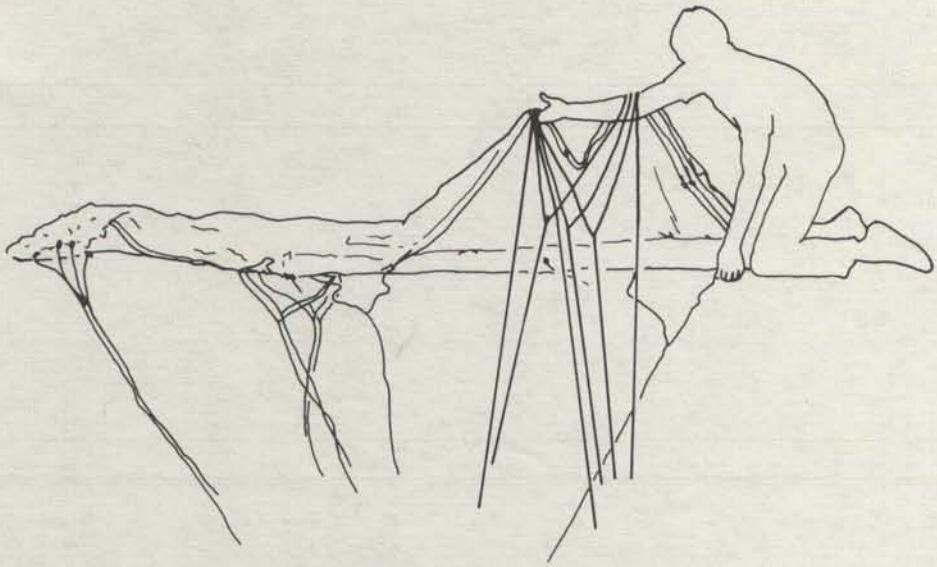
Lift the slider and ensure that all four line groups run freely from canopy to risers.

STEP 3 **LINE CHECK** **Figure A**



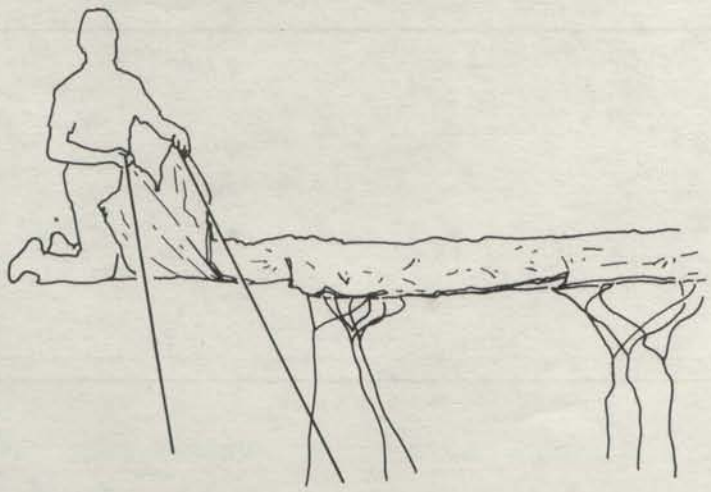
With the slider at the connector links raise the first two and second two outboard lines at the canopy. They should run to the outside of the right front and rear risers respectively.

STEP 3 **Figure B**



Raise all the lines except the left outboard lines which are on the ground. The first two lines should run to the outside of the left front riser and the second two to the outside of the left rear riser.

STEP 3 **Figure C**



Grasp and raise the trailing edge lines. The steering line on the top should run to the right rear riser; the steering line on the bottom should run to the left rear riser.

CAUTION: ENSURE THAT THE STEERING LINES RUN THROUGH THEIR RESPECTIVE SLIDER GROMMETS.

STEP 4 FLAKING THE CANOPY Figure A

With the canopy on its side, throw all the tops, or high points, forward. Pull the top seams individually toward you until the lines are taut, smoothing the canopy from front to back. Continue this process from one cell to another until the entire canopy is neatly flaked with all the line groups, including the trailing edge lines, clearly separated.

STEP 5 FOLDING THE CANOPY Figure A

Fold the nose under, making the fold directly in line with the A line group.

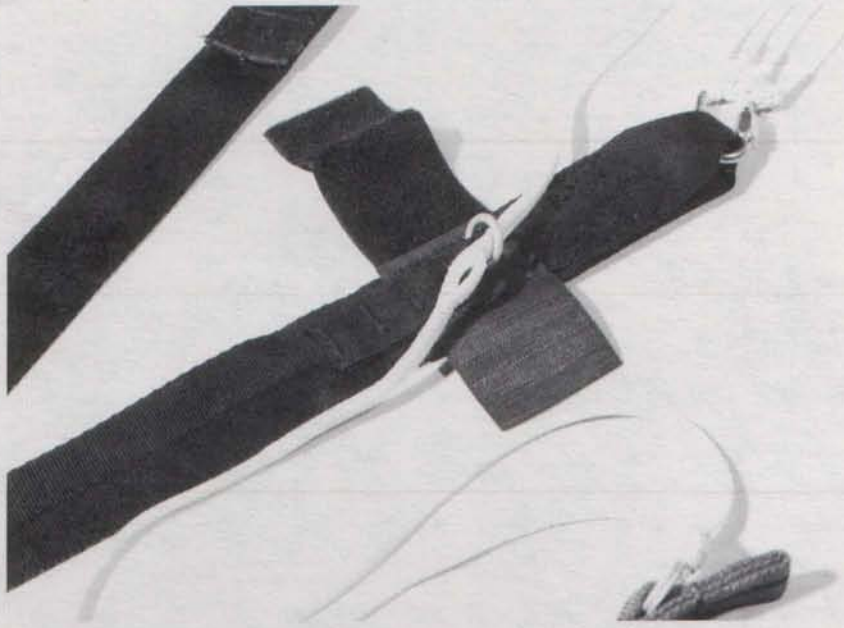
CLEARING THE TRAILING EDGE LINES

STEP 6 **Figure A**

While grasping the D line group, pull the trailing edge down approximately 15". Separate the left and right trailing edge lines and check for proper routing.

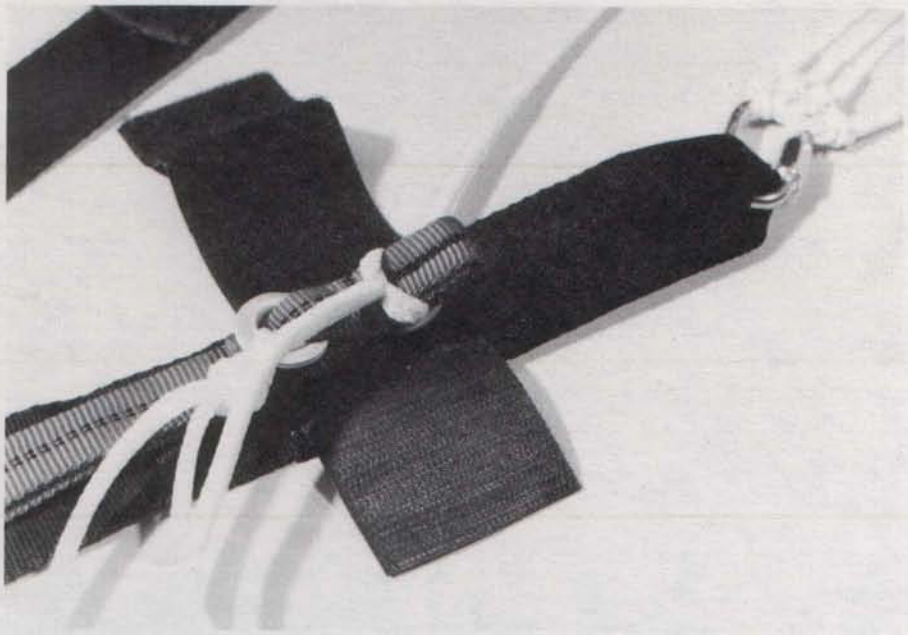
SETTING THE DEPOLYMENT BRAKES (CIRRUS™ RESERVE AND ORION™ RESERVE)

STEP 7 **Figure A**



Pull the deployment brake loop through the steering line guide ring.

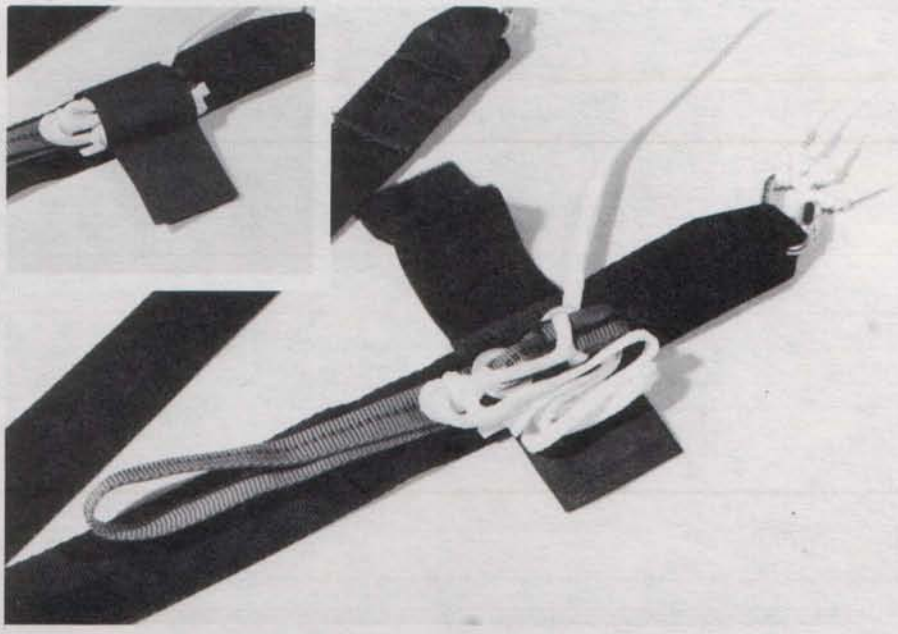
STEP 7 **Figure B**



After bringing the deployment brake loop through the steering line guide ring, lock the loop with the top bartacked end of the toggle.

CAUTION: Insert approximately 1" of the toggle into the deployment brake loop. Do not insert the toggle past the horizontal bartack. If the toggle is inserted too far, it will be difficult to release after deployment.

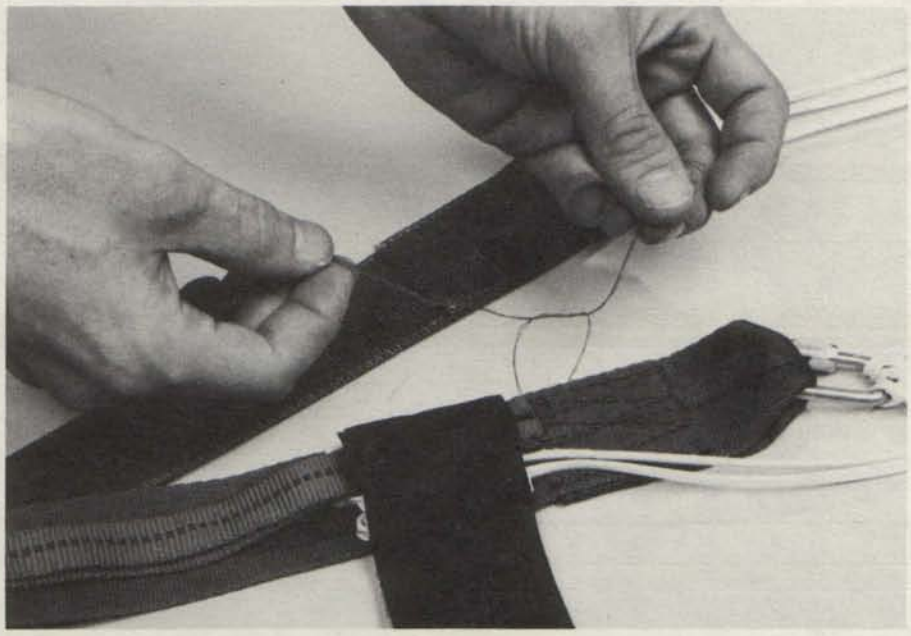
STEP 7 **Figure C**



Pull out the excess steering line, fold it and place it beside the toggle. Close the Velcro® cover securely.

STEP 7

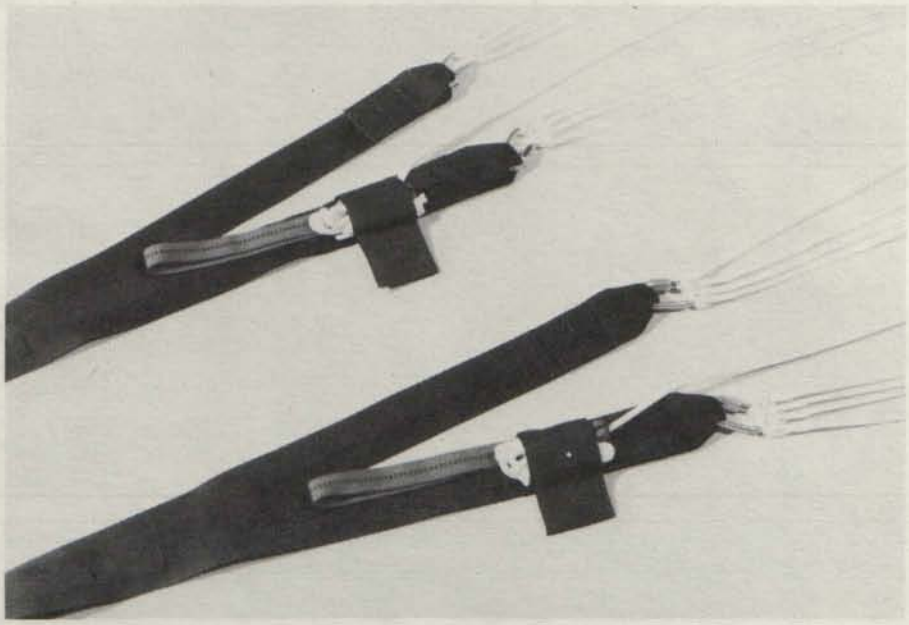
Figure D



Tack the top of the toggle to the rear riser with ONE turn of doubled red rigger sealing thread. Secure with a surgeons knot and locking knot. Do not use nylon thread or cord for this tacking.

STEP 7

Figure E



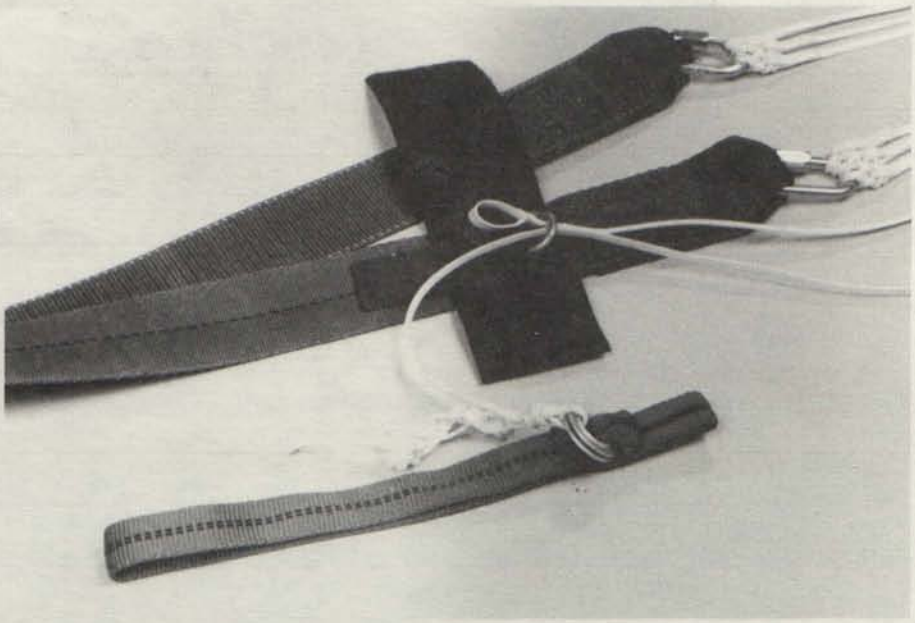
Repeat steps 7-A through 7-D on the other side.

SETTING THE DEPLOYMENT BRAKES (SWIFT RESERVE)

STEP 8 **Figure A**

Locate and pass the deployment brake loop through the appropriate grommet on the rear of the slider. Next, pass the deployment brake loop through the steering line guide ring.

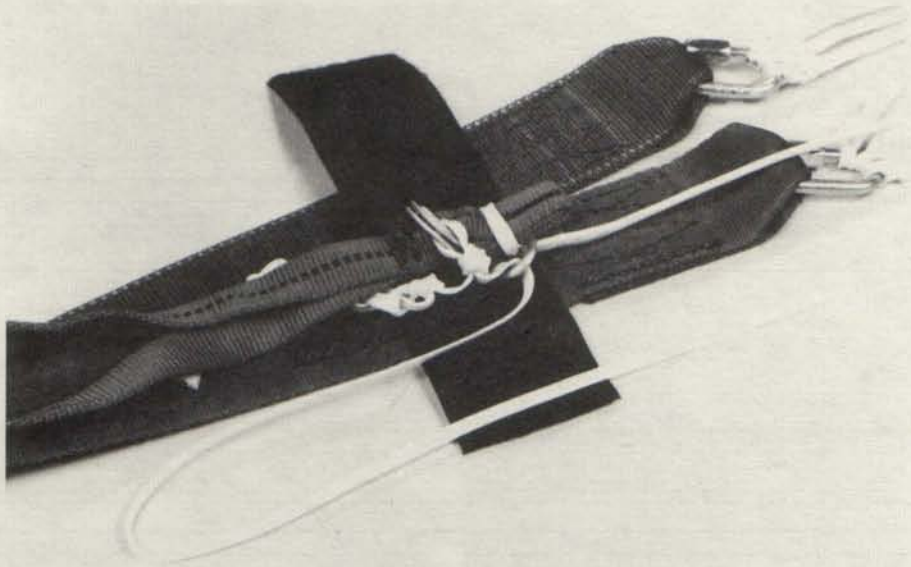
STEP 8 **Figure B**

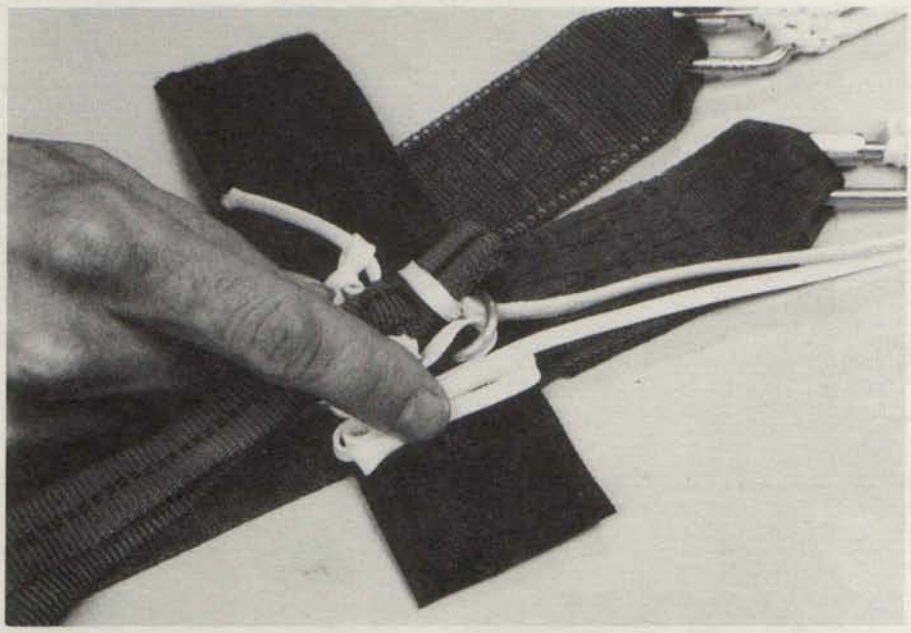


Lock the loop with the top bartacked end of the toggle.

CAUTION: Insert the toggle approximately 1" into the deployment brake loop. Do not insert the toggle past the horizontal bartack. If the toggle is inserted too far, it will be difficult to release after deployment.

STEP 8 **Figure C**



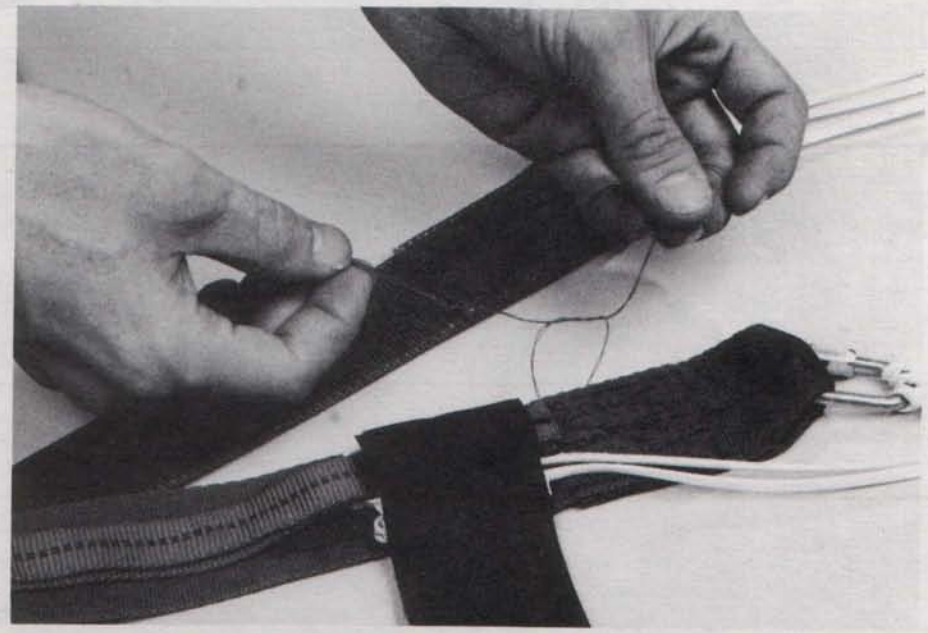


Pull out the excess steering line ABOVE the steering line guide ring; fold it, and place it beside the toggle.

STEP 8 **Figure D**

Close the Velcro® cover securely.

STEP 8 **Figure E**



Next tack the top of the toggle to the rear riser with only ONE turn of doubled red riggers sealing thread. Secure with a surgeons knot and locking knot. Repeat the procedure for the other side *(Steps 8-A through 8-E)*. Do not use nylon thread or cord to tack the toggle.

TRAILING EDGE FOLDING

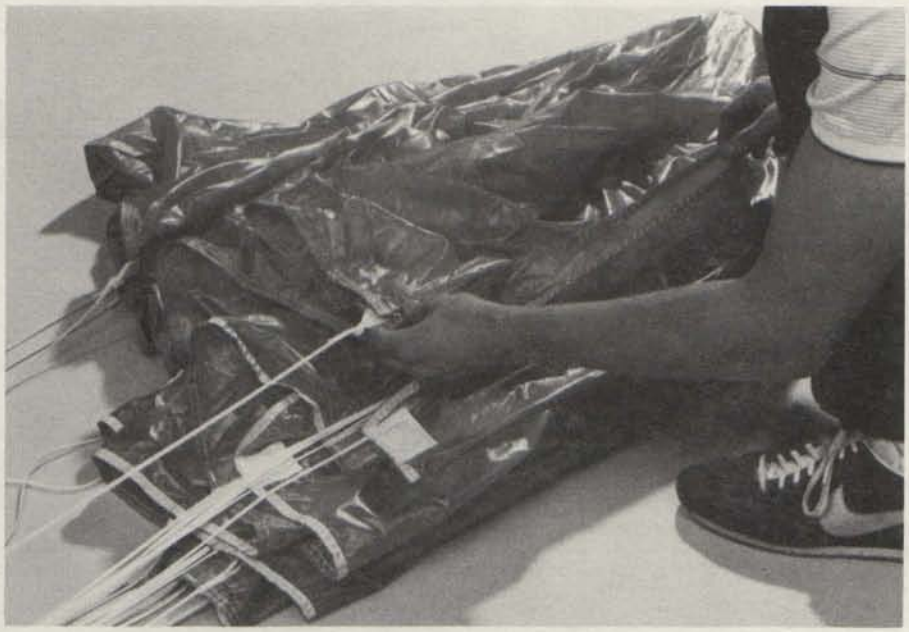
STEP 9 **Figure A**

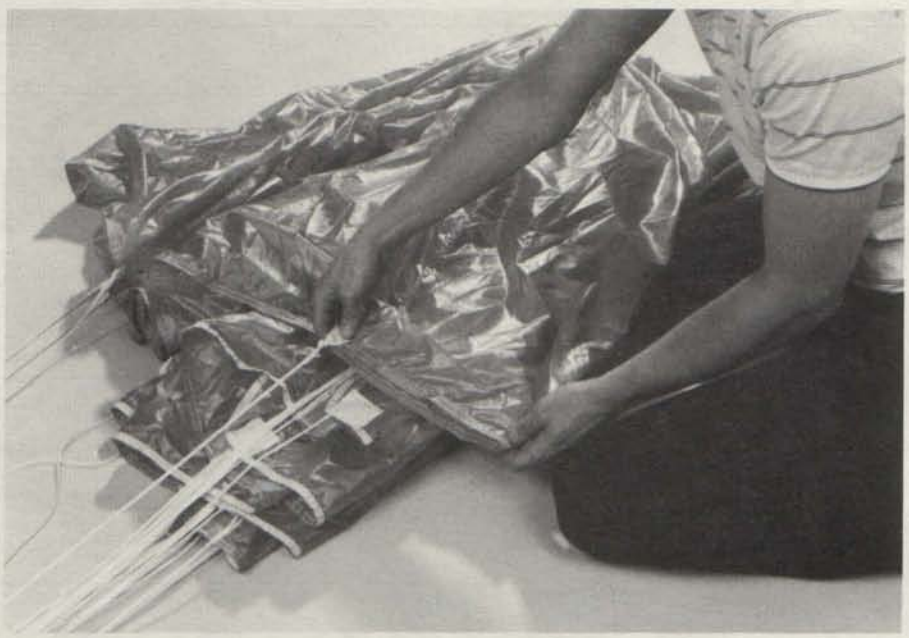
Locate the tops of the 'S' folds *(top photo)* and pull gently on each one to remove any slack from the suspension lines. Place the steering lines and rib seams in the center on top of the suspension lines. Flake the tail panels.

NOTE: Swift Reserves do not have a tip steering line *(bottom photo)*.

TRAILING EDGE FOLDING (continued)

STEP 9 **Figure B**





TRAILING EDGE FOLDING (continued)

STEP 9 **Figure C**

TRAILING EDGE FOLDING (continued)

STEP 9 **Figure D**

After flaking the tail, split at the center, and place an equal number of folds to each side. The center of the tail is identified with a stamped data block, or an orange sewn on warning label. Be careful not to disrupt the folded canopy when splitting the tail. The entire tail seam should be even with the steering line attach points.

CLEARING THE STABILIZERS

STEP 10 **Figure A**

Clear the stabilizers *(three sections on each side)* by pulling out the slack and making sure that there are no lines wrapped around them. Stabilizer **edge** tapes should be visible. If they are not visible, the stabilizers may be inside out.

STEP 11 STOWING THE SLIDER Figure A

Pull the slider up to the slider stops by its center. Be sure that the slider is not inverted, and that it runs freely up the suspension lines.

Figure A

Fold the stabilizers over the slider.

STEP 12 WRAPPING THE TAIL Figure B

While kneeling on the tail, squeeze the air out of the canopy. Fold the sides under the canopy and dress it to the approximate width of the deployment bag.
NOTE: DO NOT wrap the center panel around the nose of the canopy.

FOLDING THE CANOPY INTO THE DEPLOYMENT BAG

STEP 13 **Figure A**

Fold the bottom eight inches of the canopy towards the top.
NOTE: The grommets are separated slightly to spread the bulk.

STEP 13

Figure B

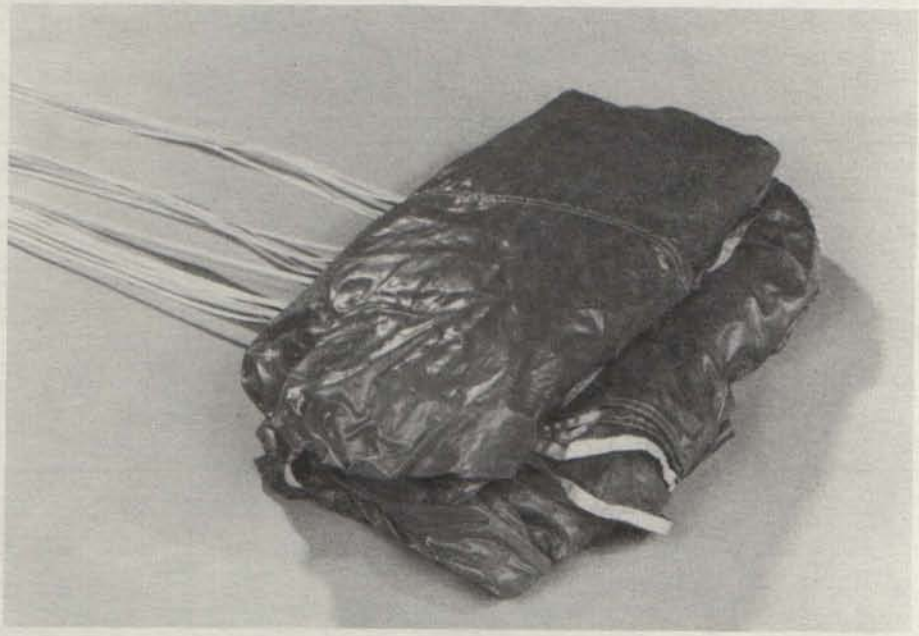
Now fold the top of the canopy towards the container. Locate the high points of the leading edge, and ensure that they are COMPLETELY exposed. Redress the sides of the canopy to the approximate bag width.
NOTE: There are five high points on the Swift® and Cirrus™, and seven high points on the Orion™.

STEP 13

Figure C

Fold the top of the canopy back as shown.

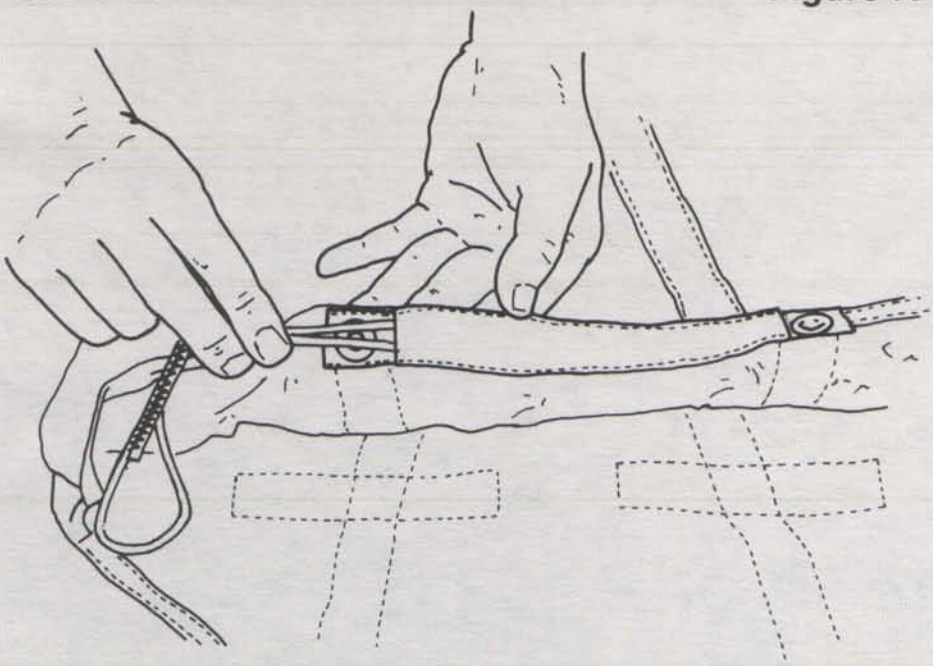
STEP 13 **Figure D**



Fold the previous fold in half; this places the greater bulk of the canopy near the mouth of the bag after it is inserted. The top of the bag will have only one fold in it. This is important as it allows the bag to be wedge shaped. The folded canopy should be approximately as wide as the bag.

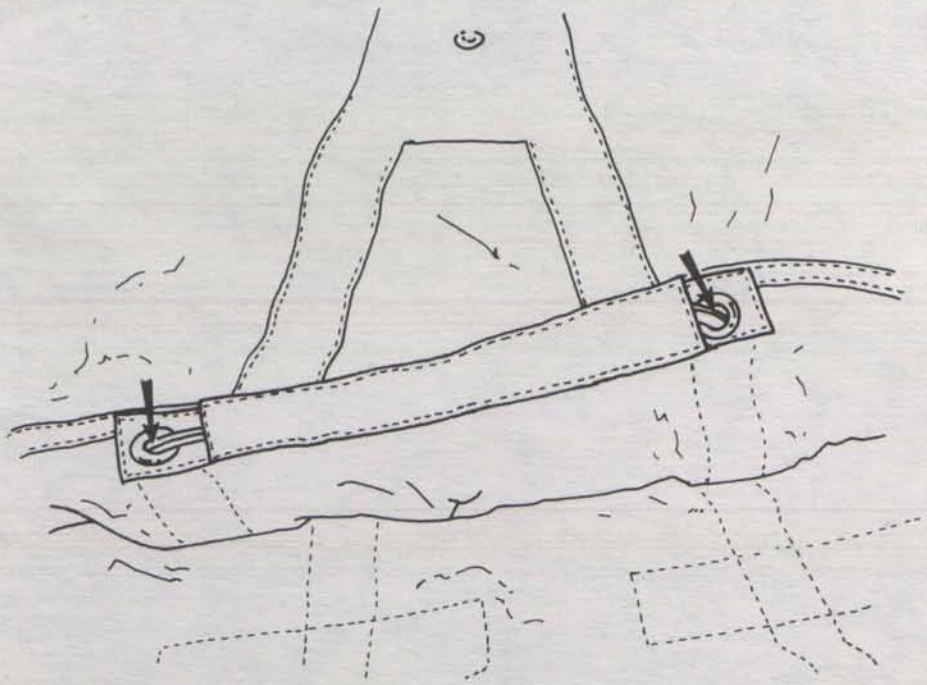
SAFETY STOW ASSEMBLY

STEP 14 **Figure A**



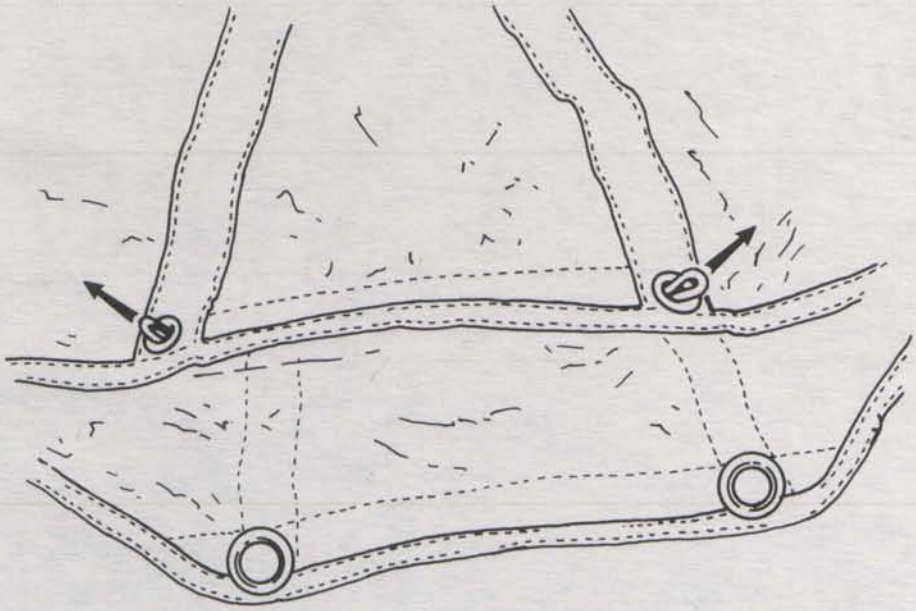
Insert "Safety Stow" elastic loop in the channel. Center the loop splice between the grommets.

STEP 14 **Figure B**



After the loop is inserted, pass each end of the loop through the appropriate grommet. *(Inside View)*

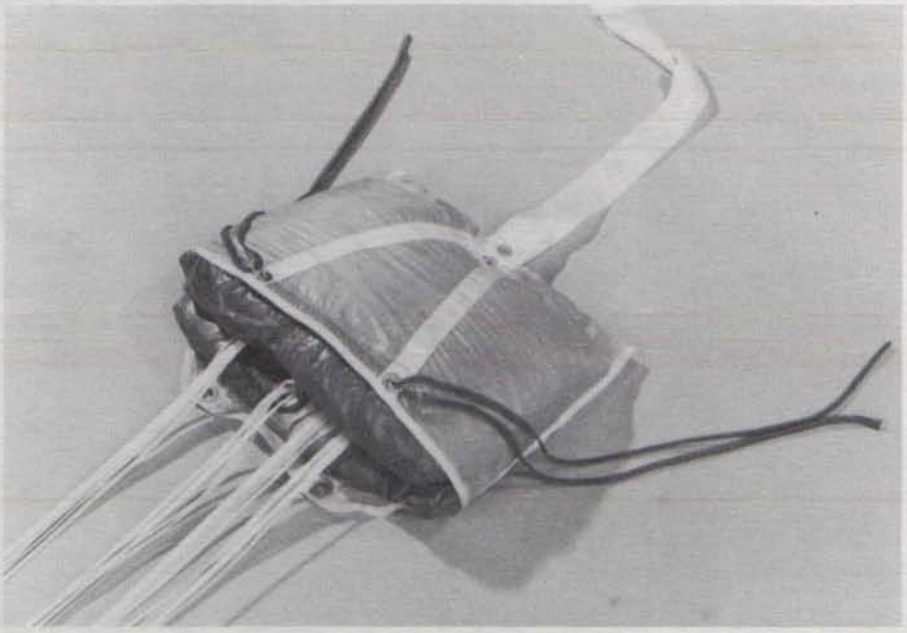
STEP 14 **Figure C**



Outside view:

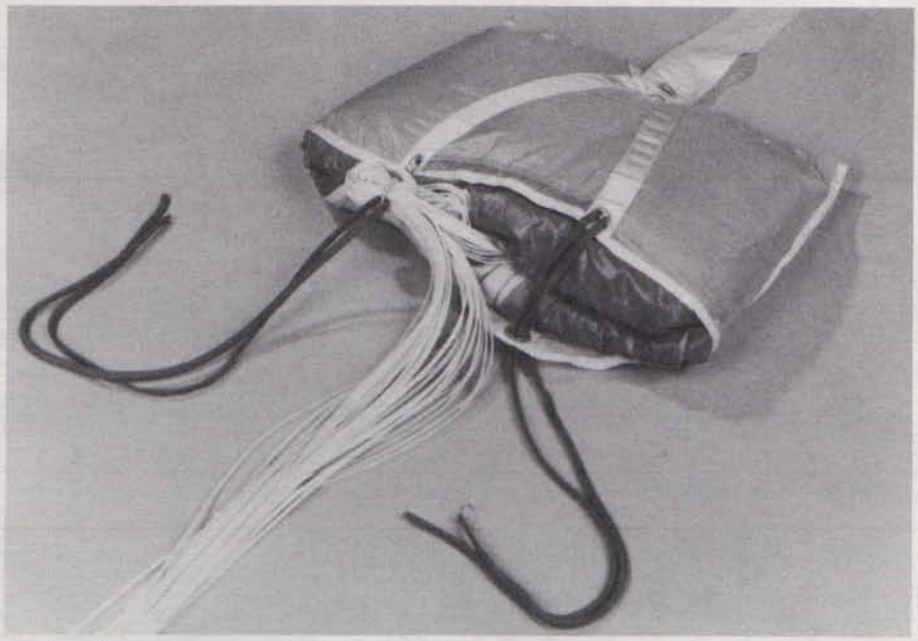
CAUTION: NEVER TACK THE ELASTIC LOOP TO THE DEPLOYMENT BAG OR CHANNEL. NEVER MODIFY THE LENGTH OF THE ELASTIC LOOP. **USE LOOPS SUPPLIED BY PARA-FLITE ONLY.**

STEP 14 **Figure D**



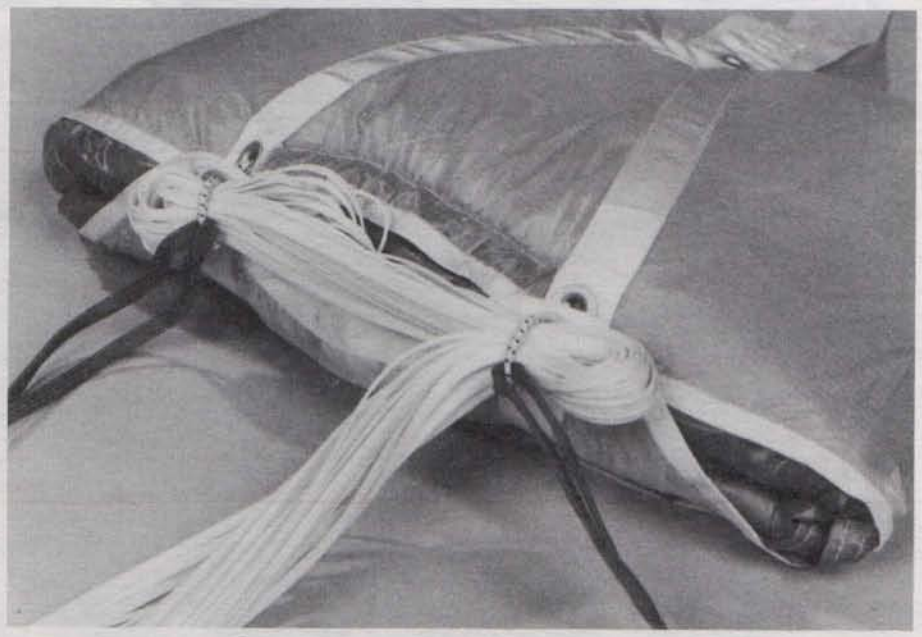
Insert the pull-up cords through each loop.

STEP 14 **Figure E**



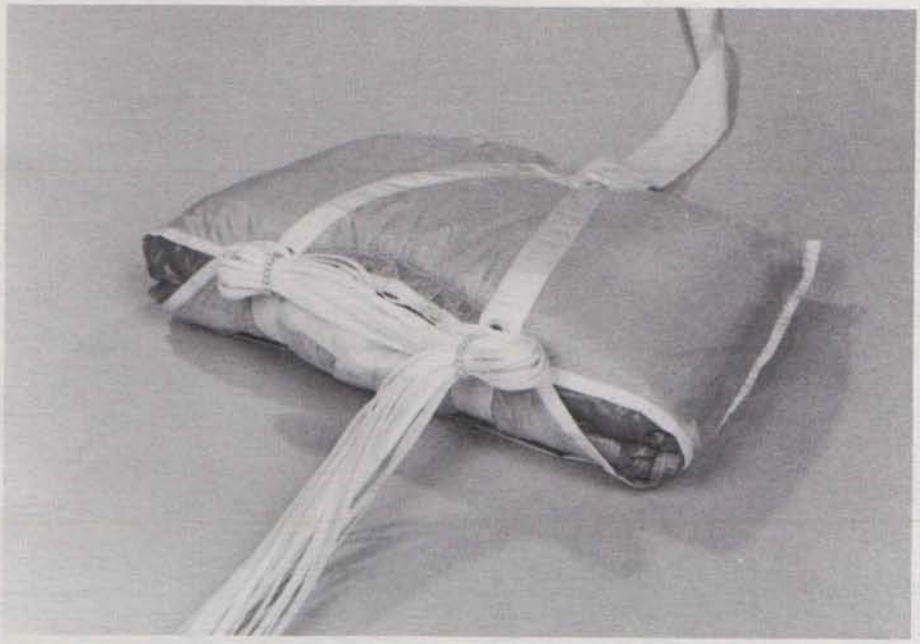
Make the first locking stow using the elastic loop. AS ALWAYS, THE LOCKING STOWS SHOULD **NOT** BE MORE THAN ONE INCH IN LENGTH.

STEP 14 **Figure F**



Using the remaining pull-up cord to pull the elastic loop through the grommet, make the second locking stow.

STEP 14 **Figure G**



Remove the pull-up cords. DOUBLE CHECK TO SEE THAT BOTH PULL-UP CORDS HAVE BEEN REMOVED. COUNT THEM!!

SUSPENSION LINE STOWING

STEP 15 **Figure A**

Position yourself at the top of the bag facing the container. Rotate the bag up on its pointed end exposing the suspension line retaining pocket.

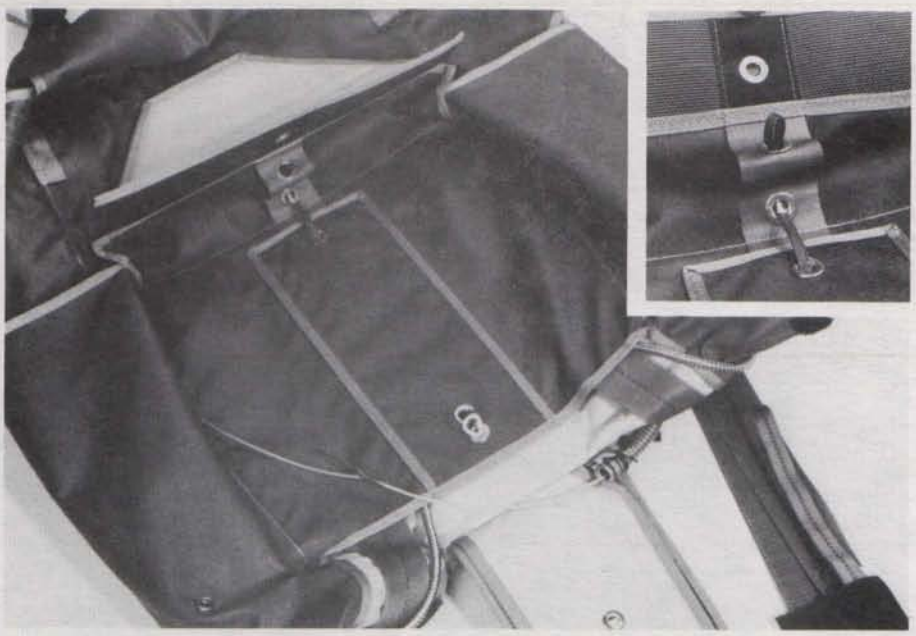
STEP 15

Figure B

Neatly S-fold the lines into the pocket leaving approximately 8 to 10 inches of suspension line exposed as shown.

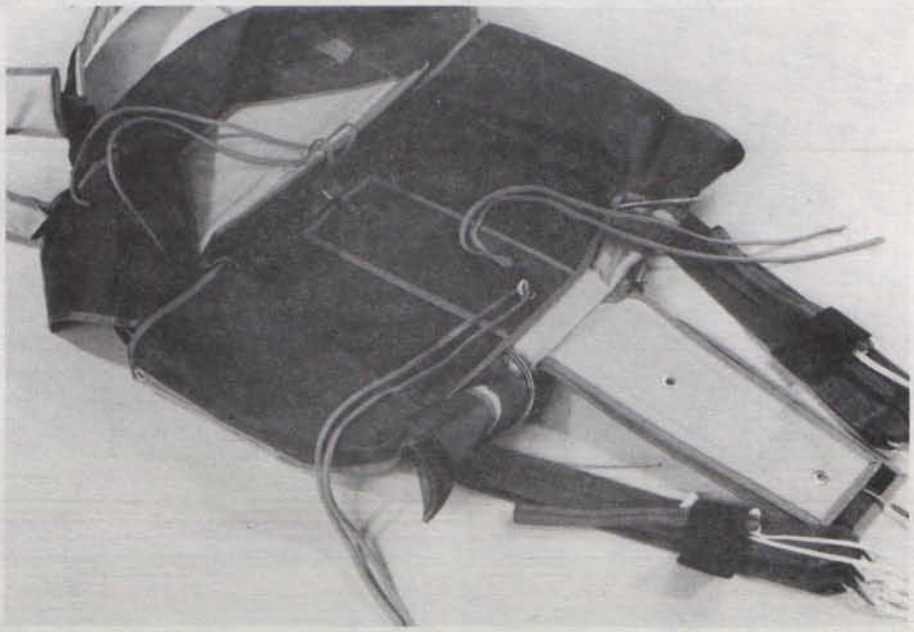
THE FOLLOWING INSTRUCTIONS COVER THE CIRRUS RESERVE AND SWIFT RESERVE CLOSING SEQUENCE IN A SWIFT CONTAINER SYSTEM ONLY. FOR THE CLOSING SEQUENCE IN CONTAINERS OTHER THAN THE SWIFT, FOLLOW THE APPROPRIATE MANUFACTURER'S INSTRUCTIONS.

STEP 16 — Figure A



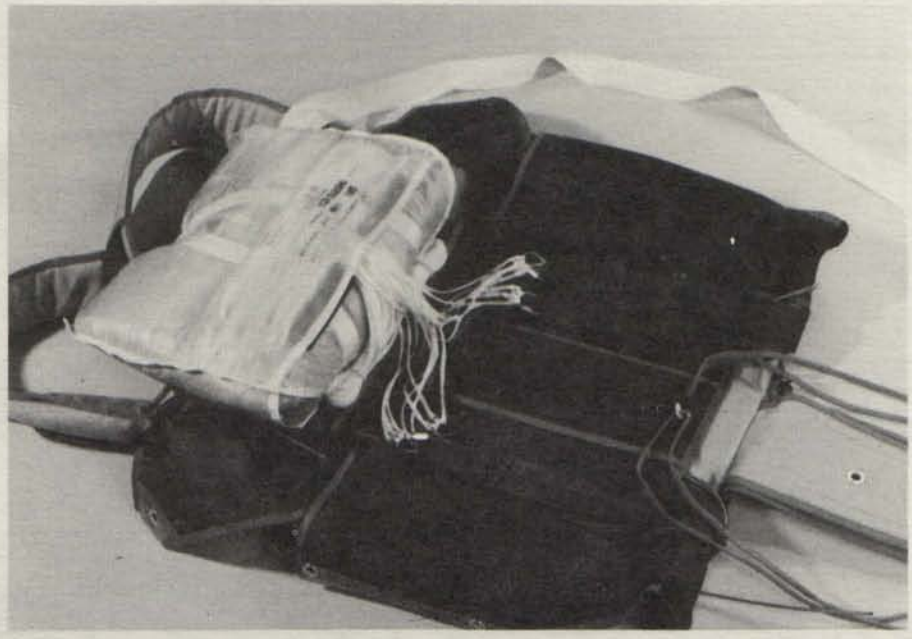
Pass the closing loop through grommets in the bottom of the reserve container and through grommets in Main/Reserve divider flap as shown.

STEP 16 — Figure B



Pass pull-up cords through closing loops and elastic locking loop.

STEP 16 **Figure C**



Place the risers to the sides in the bottom of the reserve container. Spread the risers and connector links slightly to reduce bulk.

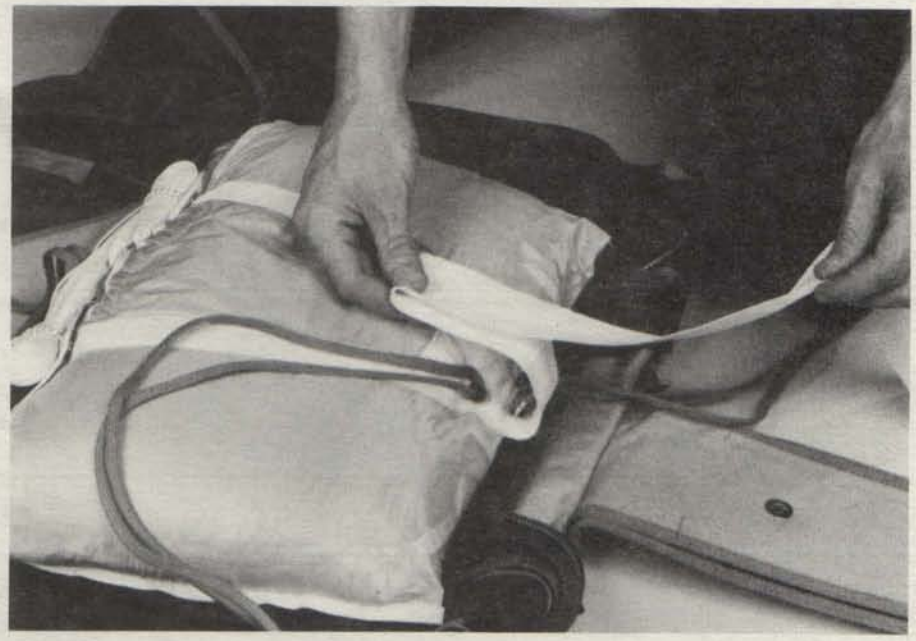
STEP 16 **Figure D**

Place the deployment bag into the Swift container with the locking stows UP and the suspension line pocket DOWN. The bridle will point towards the top of the container.

Pass the pull-up cord holding the elastic locking loop through the top bridle grommet. Pass the pull-up cord holding the top closing loop through the 2nd grommet at the top of the bag.

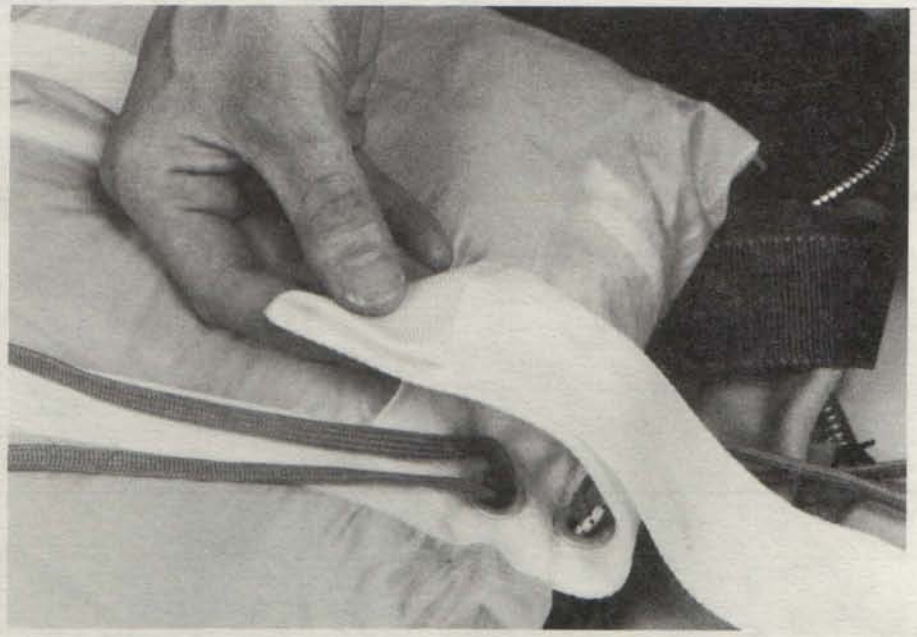
SWIFT CONTAINER CLOSING

STEP 17 **Figure A**



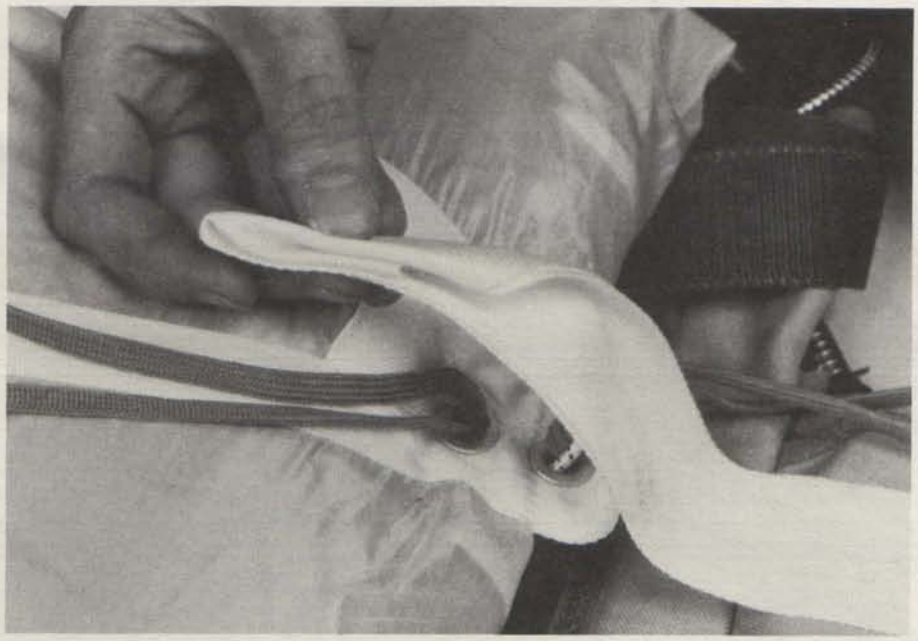
The bag must be secured with a needle fold in the bridle line. To form the needle fold, first fold the bridle back over itself *(approximately 4" above the bag).*

STEP 17 **Figure B**



Fold the left side up and across to the right side. This will form a triangle.

STEP 17 **Figure C**



Fold the triangle in half to form the needle fold.

STEP 17 **Figure D**

Insert no more than 1" of the needle fold under the elastic locking loop. Be sure that the force required to extract the needle fold from the elastic locking loop is between 5 and 8 pounds.

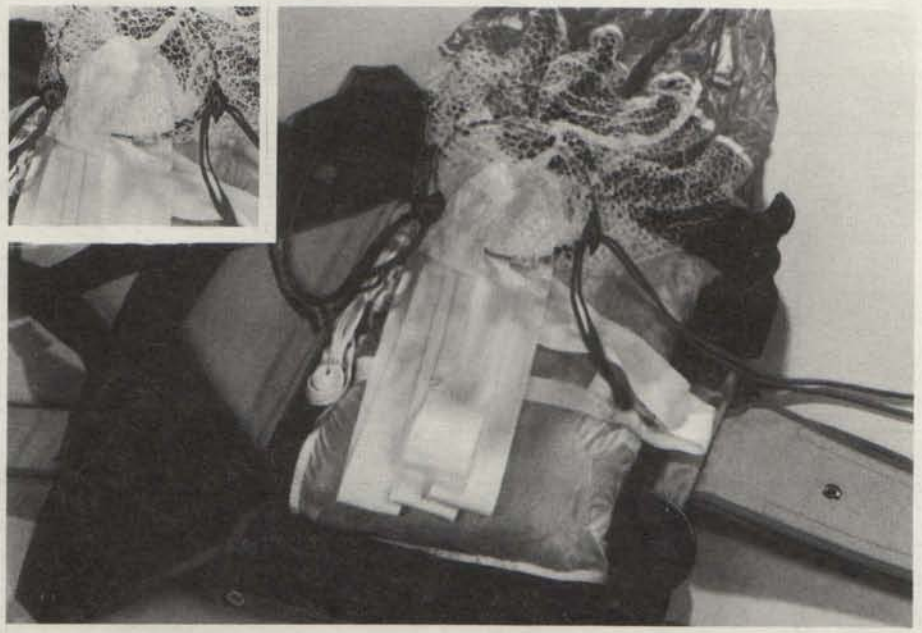
STEP 18

Figure A

The remainder of the bridle should be S-folded neatly under the pilot chute.

STEP 19

Figure A



Locate both lower pilot chute centering tabs, and pass the pull-up cords through the grommets.

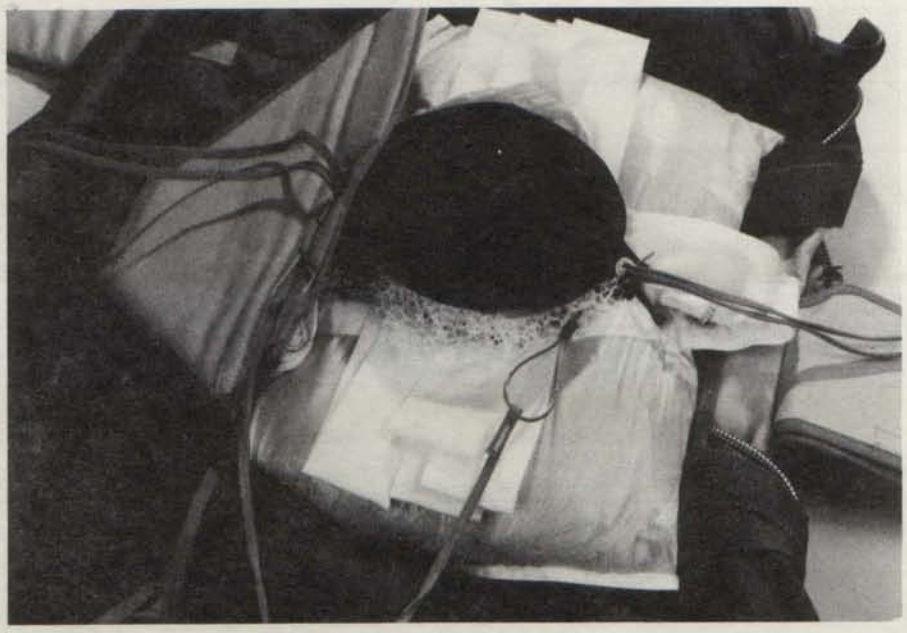
STEP 20

Figure A

Compress the pilot chute and pass the pull-up cords through the top pilot chute centering grommets; secure with temporary locking pins.
NOTE: The closing loop goes around the suspension lines.

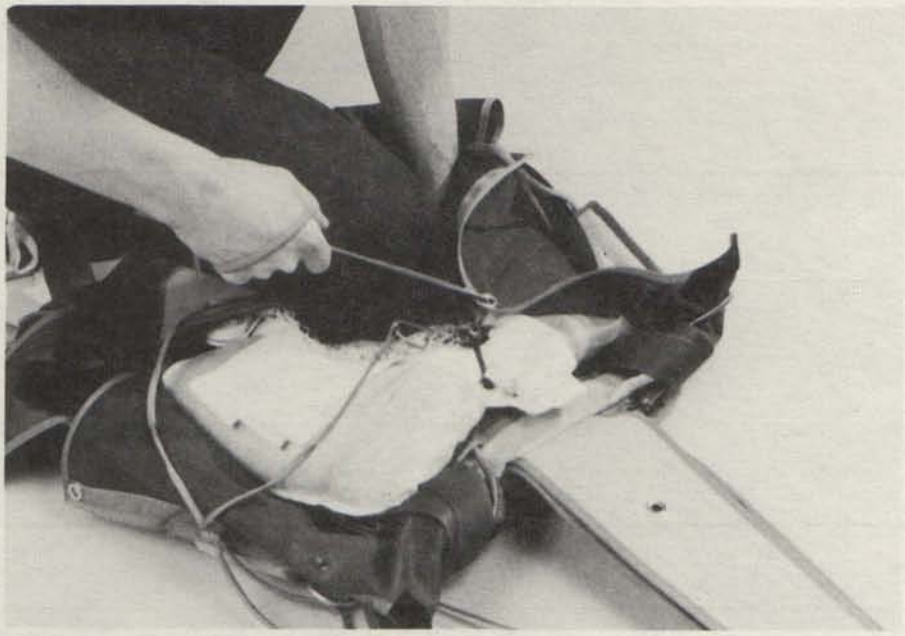
STEP 21

Figure A



Pass the bottom pull-up cord through the grommet on the reserve container bottom flap and secure with the temporary locking pin used on the bottom of the pilot chute.

STEP 22 **Figure A**



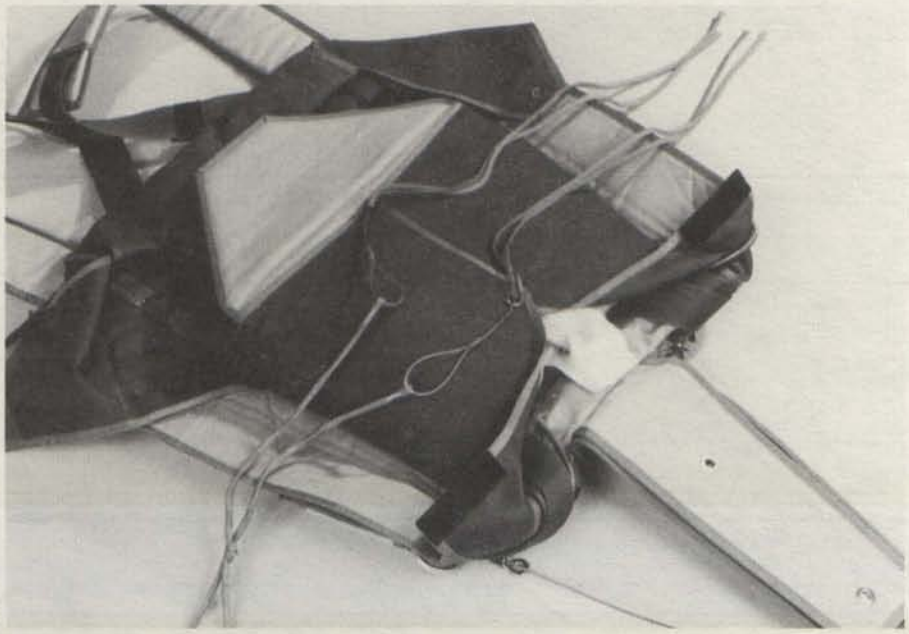
Close the top of the left side flap and secure it with a temporary locking pin.

STEP 22 **Figure B**

Close the bottom of the left side flap and secure it with a temporary locking pin.

STEP 22

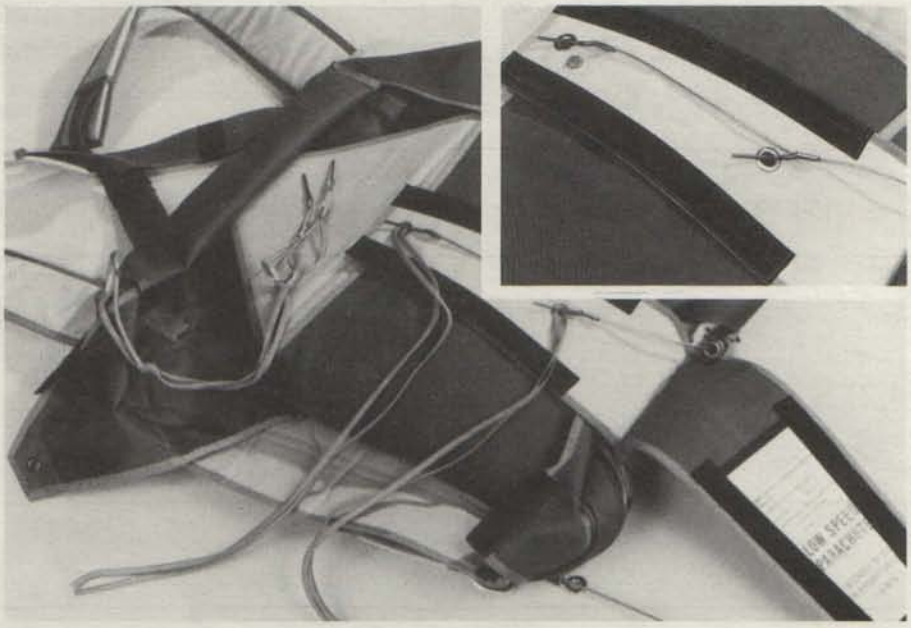
Figure C



Repeat this procedure on the other side.

STEP 23

Figure A



Pass the top pull-up cord through the top grommet on the reserve flap.
REMOVE THE TEMPORARY LOCKING PIN AND SECURE WITH THE RESERVE RIPCORD TOP PIN.
Repeat the procedure on the bottom loop.
Dress container and seal lower pin as usual.

NOTE: ENSURE THAT BOTH TEMPORARY LOCKING PINS AND PULL-UP CORDS HAVE BEEN REMOVED. COUNT THEM!

STEP 24 **Figure A**

NOTE: Secure the reserve riser covers.