SOFTIE
EMERGENCY PARACHUTES

OWNER'S MANUAL AND PACKING INSTRUCTIONS
FOR RAM AIR PARACHUTE CANOPIES
IN SOFTIE BACK-TYPE PARACHUTE SYSTEMS

Para-Phernalia, Inc.

19018 59th Drive N.E.
Arlington, WA 98223
Voice: 360-435-7220 * Fax: 360-435-7272
www.softieparachutes.com

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WARNING !

1. *Training and/or experience are required to lower the risk of serious bodily injury or death.*

NEVER use this equipment unless you have:

A. Read the warning label and completed a "controlled program of instruction" in the use of this parachute assembly.

- OR -

B. Read the warning label and all appropriate owners / flight manuals, packing instructions.

2. *Lower the risk of death, serious injury, canopy damage and hard openings by never exceeding the limits shown on the TSO label.*

Warning labels, serial numbers, and placard information may be found in the following locations:

Ram-air parachute- center cell top skin at trailing edge.

Circular reserve canopies- rear panel.

Harness/container system- TSO label.

DISCLAIMER - NO WARRANTY

Because of the unavoidable danger associated with the use of the parachute system, the manufacturer makes **NO WARRANTY**, either expressed or implied. The system is sold with all faults and without any warranty of fitness for any purpose. Manufacturer also disclaims any liability in tort of damages, direct or consequential, including personal injuries resulting from a defect in design, material, workmanship or manufacturing whether caused by negligence on the part of the manufacturer or otherwise. By using this system, or allowing it to be used by others, the buyer WAIVES any liability of or by the manufacturer for personal injuries or other damages arising from such use.

If the buyer declines to waive liability on the part of the manufacturer, buyer may obtain a full refund of the purchase price by returning the system, before it is used, to the manufacturer within 15 days of the date of the original receipt of said system with a letter stating the reason for its return.

WARNING !

You can substantially reduce risk by assuring that each component of the system has been assembled and packed in strict compliance with the manufacturer's instructions, by obtaining proper instruction in the use of this system, and by operating each component of the system in strict compliance with owner's manual. However, parachute systems sometimes fail to operate properly even when properly designed, assembled, packed and operated so that you risk serious injury or death each time you use the system.

Do Not Purchase or use any parachute equipment designed, manufactured or sold by Para-Phernalia, Inc. unless you fully understand and voluntarily accept these risks.

Do Not Purchase or use any parachute equipment designed, manufactured or sold by Para-Phernalia, Inc. unless you agree to read completely, understand and follow all manufacturers instructions, recommendations, requirements and limitations.

Do Not Purchase or use any parachute equipment designed, manufactured or sold by Para-Phernalia, Inc. unless you have fully read , understand and accept this "Disclaimer - No Warranty - Waiver"

* * * * * * * *

Owner's Record

Name:_____

Street:_____

City, State, Zip:_____

Country:_____

Softie Model:_____

Serial Number:_____

Date of Manufacture:_____

Date of Purchase:_____

Canopy Manufacturer:_____

Canopy Model:_____

Serial Number:_____

Date of Manufacture:_____

Date of Purchase:_____

Note:

1. Serial numbers for both Softie and Canopy can be found as described in the Warning Placard found on page 1 of this manual.

2. If you receive your Softie assembled and packed by either the manufacturer or a properly licensed Parachute Rigger, you will find the appropriate information listed on the Packing Data Card located in the pocket on the TSO label in the open area between the backpad and the top of the Softie container just behind the wearer's neck.

3. The Packing Data Card is your key to properly planning your repack schedule and requirements. Refer to **Section 2.1.3 - 180 Day Maintenance** in this manual, for further information regarding these requirements.

4. A separate copy of this page should be kept on file by the owner. Do not complete the form above until you have fully read and understand the instructions, policies and limitations contained in this manual.

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Para-Phernalia, Inc.

Customer Service Policy and Limits

Harness and Containers

Para-Phernalia, Inc. (PPI) will provide at no charge, repair service for repairs determined to be the resultant from defects in material or workmanship for a period of SIX MONTHS from the DATE OF RECEIPT OF PRODUCT. Date of receipt and proof of purchase must be supplied to PPI by the customer with the item in order to be repaired free of charge.

Service Bulletins

PPI will perform all MANDATED Service Bulletins repairs or modifications due to SAFETY concerns free of charge. A fair market charge will be made for recommended Service Bulletin repairs or modifications.

Unauthorized Modifications/Alterations

PPI will charge for repair service when the damage is determined to be caused by unauthorized assembly, packing, modification, alteration or shipping of PPI products. PPI also reserves the right to refuse to repair any product so handled.

Improper Use or Abuse

PPI will charge for repairs that result from improper use, or from abuse such as exposure to chemicals, saltwater, improper washing, improper packing, excessive exposure to sunlight, or negligence on the part of the user.

Product Limitations

PPI reserves the right to refuse to service equipment for which material and / or manufacturing patterns and specifications no longer exist.

Shipping of Returns for Repairs

Articles sent in for repair should be sent in with all original components as purchased from PPI. PPI may request and require additional information pertaining to the components sent. PPI will not be responsible for compatibility of components not sent with system for repair and or evaluation.

Replacement Parts - Recommendations

PPI will recommend replacement of harness and container component parts based on inspection when safety is a factor due to normal wear and tear or maintenance of the product.

Product Improvement

Product improvements are available as a cost option to customers.

1.0 GENERAL INFORMATION

1.1 Ally in the Sky:

Your Pilot Emergency Parachute

by: Dan Tarasievich

President, Para-Phernalia, Inc.

There is no question that a parachute can save your life during an emergency bailout situation. But, before you strap on that life-saving device, you need to familiarize yourself with your system. It is important to insure the proper fit of a system, know how to store the system, familiarize yourself with riggers who will maintain your system on the ground, and understand how to use the system in an emergency situation.

The size of a parachute is very important. Your parachute system should be a size that can handle your weight, and not specifically the stated size of the parachute canopy. Some of today's 24' and 26' canopies will descend at a slower rate than the older and larger military parachutes. The correct size is absolutely mandatory when insuring safety.

Another important factor in familiarizing yourself with your system is knowing how to store the parachute. The longevity of your parachute is your responsibility and is almost entirely dependent on the proper maintenance and storage. When not in use store the parachute in a bag in a well ventilated area away from direct exposure to sunlight, oils, and or acids. If you find that your parachute has come in contact with any unsafe conditions including wetness, have it inspected by a qualified rigger **immediately.**

While on the ground, besides good storage habits, get to know your parachute rigger. If you don't have a local rigger get referrals from a fellow pilot or the manufacturer of your system. Make sure that the rigger is familiar with your parachute system and has the proper packing and instructions manual before having it repacked. At the time of the repack ask your rigger to go over your parachute with you. Put it on and pull the ripcord. This will insure your awareness of the force it requires. (A 22 pound pull is all that the TSO allows.)

Establish a preflight routine of inspecting your parachute. The condition of the parachute can be directly related to your safety. A small oversight could create a safety hazard. Check the fabric for stains or wear and mildew. Inspect the hardware to be sure snaps function properly and check for corrosion. Look for fraying or nicks in the webbing and inspect for broken or missing stitches. Do a pin check on the ripcord by lifting the pin protector flap and making sure the pins are straight, and extend through the closing loop at least 1/2" inch. Make sure that the handle extracts from the pocket easily. There should be no kinks or dents in the housing. Finally inspect the packing data card. Check the last date of the inspection and repack. FAA regulations require a parachute in use to have been packed within the last 180 days. This preflight routine is mandatory to maintain the safety of your parachute.

During an emergency is not a good time to start thinking about emergency procedures. Plan in advance and know the three most important variables in the decision to leave your aircraft: attitude, altitude, and airspeed.

Attitude is not only the attitude of your aircraft but also your personal attitude can effect your egress. A tumbling aircraft can be difficult to exit. Altitude is important because a higher altitude means a better chance of having a fully deployed parachute before impact. A general rule of thumb is if you have pack opening above 1000 ft. AGL, you will have a fully deployed parachute before hitting the ground. Airspeed will also determine your exit. 100 MPH is ideal for a fast parachute opening, however if you can trade off airspeed for altitude do so.

(continued next page)

(continue Ally in the Sky)

The primary cause of most unsuccessful bailouts are waiting too long to make the decision to bailout and not being prepared. Using your parachute is most obviously your last option. Be familiar with your particular aircraft escape procedures and practice them often until they are second nature. You must be able to react instantly to save valuable time, altitude, and your life. If you don't have an emergency egress procedure for your aircraft the best time to develop one is before your next flight.

Once you have exited the aircraft, you will most likely be tumbling. The most important thing to do is pull the ripcord immediately and throw it away. It takes approximately 2-3 seconds for the parachute to fully deploy. Altitude used for complete deployment at terminal velocity is approximately 300-500 feet. That is not the altitude to initiate emergency procedures, but the distance required for deployment and opening.

Once the parachute is open, it is time to think about steering. Guiding an open parachute safely to the ground is a two fold operation. The newer parachutes on the market today are steerable and they have control toggles installed on each riser. To turn left, pull down on the left toggle and to turn right pull down on the right toggle. The forward speed of a round parachute is approximately 3-5 MPH and the 360 degree turn rate is about 6-10 seconds. First, use this forward speed and control of heading to maneuver away from any life threatening obstacles such as power lines or water hazards. Second, use the forward speed of the canopy to reduce ground speed at landing; by facing the canopy into the wind. Your rate of decent will increase during a turn, be careful not to make radical turns below 100 ft. AGL. Make only small corrections below that altitude to maintain heading. Ram air parachutes have a much higher turn rate, faster forward speed and are more maneuverable. They require that you face into the wind and flare (similar to an aircraft) for landing. Handled properly they land much softer than a round parachute.

Landing is the final act in the bailout and it is important to follow these instructions in order to avoid injury. Steer into the wind and don't attempt any radical turns below 100ft. Look out towards the horizon and hold your knees and feet together tightly. Keep your knees slightly bent with your toes pointed down. Put your arms above your head holding on to the risers and as you contact the ground, roll in the direction you are moving when you land.

Try to avoid obstacles if possible. If you are going to land in a tree or power lines keep your knees and feet together and present the smallest possible profile to the obstacle. Also, turn your face to the side. In the event of a water landing, prepare for a regular landing except land downwind so your parachute will land out in front of you and not on top of you. Unfasten the leg and chest straps and swim upwind away from the parachute so as not to get entangled in the lines. If you land during high winds, after landing roll onto your back and deflate the parachute by pulling in one; or two adjacent lines hand over hand to spill the air from and collapse the canopy. Also jettison the parachute harness and cover the parachute as to not re-inflate it. There is a lot to remember in a bailout so it is important that you plan ahead and review your plan of action in case of an emergency.

Parachute systems may seem like expensive cushions that we carry needlessly on our back or sit on without regard. That cushion, however is a highly specialized life saving device and is vitally important to your air safety. Get to know your parachute system and soon you will realize what an ally that cushion can be and why you should never leave the ground without it.

* * * * *

1.2 SOFTIE Letter of TSO Authorization

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

NORTHWEST REGION
FAA BUILDING KING COUNTY INT'L AIRPORT
SEATTLE, WASHINGTON 98108

MAR 31 1980

In Reply
Refer To: ANW-213:8150
Z2239NW-S

Para-Phernalia, Inc.
Attention: Mr. Earl Bartell
4233 - 189th Avenue S.E.
Issaquah, Washington 98027

Subject: TSO-C23b Authorization for Para-Phernalia, Inc. parachute harness /container system, Model Softie

Reference: Para-Phernalia, Inc. letter dated March 10, 1980

Gentlemen:

Your certification stating that the Para-Phernalia, Inc. parachute harness/container system, Model Softie, is in conformance with the requirements of Subpart A and -23b of Part 37 of the Federal Aviation Regulations, is acceptable to the FAA. Your currently approved quality control manual, issue No. 00001, is considered adequate, and a copy of this document is on file in the Engineering and Manufacturing District Office No. 41, Seattle, Washington.

The following data, transmitted by your referenced letter in support of your TSO application, are enclosed for retention in your files:

a. Para-Phernalia, Inc. drawings SC-1 through SC-5.

b. Para-Phernalia, Inc., test reports No. 1 through 23.

Effective this date you are authorized to use Technical Standard Order procedures as prescribed by Part 37 of the Federal Aviation Regulations and to identify the Para-Phernalia, Inc. parachute harness/container system, Model Softie, with the applicable TSO markings as required by TSO-C23b.

This authorization pertains only to manufacturing operation at the above address, and this office must be notified in advance of any proposed relocation.

Sincerely,

Charles C Schroeder

CHARLES C. SCHROEDER
Chief, Engr. & Mfg. Branch, ANW-210

Enclosures

1.3 SOFTIE TSO Certification

The SOFTIE harness and container systems are approved under FAA TSO-C23b, Standard Category and certified for use in a variety of weight and speed combinations. Use limitations will depend on the canopy weight and speed limitations and the TSO category under which canopy certification was achieved. See **Section 3.8 - Parachute Industry Weight / Deployment Speed Limitations** for information concerning limitations of the canopy which has been assembled with the user's SOFTIE. For questions regarding limitations and certifications consult a qualified FAA Rigger or call Para-Phernalia, Inc. at 360-435-7220 or FAX at 360-435-7272. Monday - Thursday 07:00 - 17:00 Pacific Time (GMT -8).

1.4 Service Life

Independent testing of aged nylon materials has proven that its strength degrades over time, therefore, Para-Phernalia, Inc. and Free Flight Enterprises have established a 20-year service life from the date of component manufacture for the Softie Pilot Emergency System and the Preserve line of emergency parachutes.

1.5 Rigger Qualifications

In order to pack and maintain this parachute system, the *FAA Senior or Master Rigger - or foreign equivalent -* must possess an appropriate rating endorsement to their certificate. All SOFTIE models require a **Back** rating except the **Seat** model which requires a **Seat** rating endorsement. Because the **Back** models are also certified compatible with ram air parachutes when assembled with the Para-Phernalia ram air parachute deployment bag, the Rigger should be appropriately trained in the assembly and packing of these canopies prior to certifying the Softie for emergency use.

> FAR 65.129 - ***No certificated parachute rigger may*** -
> (e) Pack, maintain, or alter a parachute in any manner that deviates from the procedures approved by an FAA administrator OR the manufacturer of the parachute; or
>
> (f) Exercise the privileges of his certificate and type rating unless he understands the current manufacturer's instructions for the operation involved.

Note:

ANYONE who circumvents Para-Phernalia, Inc., assembly and packing instructions, or the packing instructions of the manufacturer of any of the component parts assembled with the Softie harness and container system, is in violation of FAR Part 65.129 and is therefore performing an illegal procedure.

1.6 SOFTIE Parts List

QUANTITY	DESCRIPTION
1	HARNESS/CONTAINER ASSEMBLY
1	SOFTIE RIPCORD - BACK (OR)
1	SOFTIE RIPCORD - SEAT
1	FREEBAG AND BRIDLE (RAM AIR CANOPY ONLY)
1	PILOT CHUTE BRIDLE
2	STEERING LOOPS - (OR)
2	RAM AIR CANOPY STEERING LOOPS (RAM AIR CANOPY ONLY)
1	SAFETY STOW LOOP (RAM AIR CANOPY ONLY)
1	CLOSING LOOP
1	PILOT CHUTE GROMMET STRAP
1	OWNER'S MANUAL AND PACKING INSTRUCTIONS
1	PILOT CHUTE - SUPPLIED ONLY WITH SOFTIE PURCHASED COMPLETE WITH PARACHUTE DIRECT FROM MANUFACTURER. PARA-PHERNALIA SUPPLIES COMPLETE SOFTIES WITH THE NATIONAL PARACHUTE INDUSTRIES - 357 MAGNUM PILOT CHUTE (OR EQUIVELENT). ONLY PILOTCHUTES WITH SIX (6) INCH DIAMETER BASE AND CAP ARE COMPATIBLE WITH THE SOFTIE SYSTEM.

NO SUBSTITUTION OF COMPONENT PARTS IS AUTHORIZED

2.0 USER INFORMATION

2.1 Pre-flight Procedures

The Softie harness and container system is designed, tested, manufactured and delivered according to the highest possible industry standards. It is up to the owner to maintain it in top condition. Below are certain areas that you and/or your rigger should check on a regular basis to ensure proper operation and long life of your equipment.

2.1.1 Before Each Flight You Should Check:

1. Ripcord and housing for tackings, damage, proper seating and / or obstructions.
2. Ripcord pins, cable, handle and pocket for proper seating, wear and / or damage.
3. All harness webbing and hardware for wear or damage.

> **Note:**
>
> If any wear or unusual condition is found, consult Para-Phernalia, Inc. or a qualified parachute rigger immediately!

2.1.2 After Putting Your Rig On, Check:

1. Ripcord handle secure in its pocket.
2. Chest strap is properly threaded and running end secured.
3. Leg straps are properly threaded and running ends are stowed.

2.1.3 180 Day Maintenance

FAA Regulations require that: If you wear a parachute while operating an aircraft in US airspace or allow a passenger to wear a parachute while you are operating an aircraft in US airspace; which has not been certified as airworthy by an appropriately certificated FAA Senior or Master Rigger, you are in violation of the pertinent FAA Regulations.

> **Note:**
>
> In countries other than the United States the routine maintenance and repack interval shall be in accordance with the pertinent regulations or 1 year (whichever is shortest).

During original assembly and packing and / or recertification, your rigger should thoroughly inspect your Softie to ensure that all components are in airworthy condition. This inspection should include but is not limited to:

1. Pilot chute, grommet strap, bridle and tackings, (deployment bag and safety stow if ram air canopy is employed),
2. Canopy fabric and lines (including orientation and continuity check).
3. Connector links tight.
4. Ripcord pocket secure.
5. Harness and container (including ripcord housing and tackings, and ripcord assembly) in good airworthy condition.

2.1.4 Major Alterations / Repair

Para-Phernalia, Inc. does NOT authorize major alterations or repairs to the Softie harness and container system. Any major alterations or repairs must be made by the manufacturer or a designated representative. Contact Para-Phernalia, Inc. at 360-435-7220 for the name of a properly certificated FAA Master Rigger in your area.

2.2 Wearing the SOFTIE

There are five points of adjustment on the SOFTIE harness:

1. Shoulder adapters (two): Factory preset at tightest adjustment. Should be adjusted prior to donning the harness.
2. Chest strap (one): With either adjustable v-ring and snap hardware or thread through adapters.
3. Leg straps (two): With either adjustable v-ring and snap hardware or thread through adapters.

Note:

Conventional Harness: The pad on the left side of the conventional harness is designed to prevent the chest strap from being threaded through the ripcord handle. When threading the chest strap with the buckle on the right side of the harness, be aware that improper threading could result in it being impossible to pull the ripcord. ***See Photo 2.2A***

Aerobatic Harness: The SOFTIE is also available with an Aerobatic harness option. In this configuration, no chest strap is present but the same cautions regarding ripcord handle involvement when making harness connections apply. ***See Photo 2.2B***

2.2A Conventional Harness

2.2B Aerobatic Harness

2.2.1 Fit

Your SOFTIE should be, above all else, comfortable. But, the real reason any pilot or passenger in an aircraft is wearing a parachute is in case an emergency bailout becomes necessary. If that should happen, the person using the parachute will reduce the risk of problems during egress and opening if the harness is worn snugly around the body. Take the time to properly adjust the fit of your Softie whether for yourself or for a less experienced passenger. The following steps should be taken to insure proper fit.

Putting on the Conventional Harness

1. Place the harness over the shoulders and hold each of the two (2) leg strap snaps snugly at each hip. If the main lift webbing is correctly adjusted, the shoulder adapters will sit just in front of the shoulder below the collarbone. The wearer should be able to stand erect and the container should not sit low on the back.

2. If necessary, remove the SOFTIE to make any adjustments to the shoulder adapters and be sure to stow any additional riser exposed during adjustment.

3. With the SOFTIE back on your shoulders bend forward and grasp the bottom of the container; raising the container so that it rests high on the back.

4. Reach between your legs and take hold of one of the leg straps.

5. Identify that it is either left or right. Remove any twists and fasten the leg strap v-ring adapter to the appropriate snap. The snap should “Snap” shut. Be sure that no clothing or other obstructions are caught in the snap.

6. Repeat steps 4 and 5 with the opposite leg strap.

7. Now stand erect and fasten the chest strap; either with the thread through buckle or with snap and adjustable v-ring. Tighten the chest strap but not so much as to distort the main lift webbing. Stow any free-end excess in the elastic band.

8. Reach down and grasp both leg strap free ends and tighten the leg straps. Stow any excess leg strap free-end in the elastic keeper. Snug while standing erect is sufficient. When you sit down in the aircraft the harness will now feel loose and comfortable.

Putting on the “A” Harness

1. Place the harness over your shoulders and hold each of the leg strap loops at each hip. If the main lift webbing is adjusted correctly, the shoulder adapters will sit in front of your shoulder just under the collarbone.

2. If necessary, remove the SOFTIE to make any adjustment to the shoulder adapters. To make the main lift web longer - pull about 1” of the riser webbing out of the riser protector (Velcro) flap and extend it thru the shoulder adapters. To make the main lift web shorter - run the main lift webbing up thru the shoulder adapters and stow the excess in the riser protector (Velcro) flaps.

3. With the SOFTIE back on your shoulders bend forward and grasp the bottom of the container, raising the container so that it rests high on the back.

4. Reach between your legs and take hold of the left leg strap, remove any twists.

5. Bring the left leg strap between your legs and thread it thru the loop on your left hip (inside to out), then continue across your chest to the snap on the right side of your chest.

6. Repeat steps 4 & 5 with the right leg strap. The harness configuration should look as it does in Photo 2.2B (cont.)

Putting on the "A" Harness (cont.)

7. Stand erect and tighten the harness by pulling on the ends of the harness webbing. Stow any excess webbing in the elastic keepers.

8. When you sit down the harness will feel much looser due to the geometry of the "A" harness. When seated in the aircraft snug up the harness and restow the excess webbing.

If you have any questions regarding proper fit consult a qualified rigger or parachute dealer or call Para-Phernalia, Inc. at 360-435-7220. Or FAX at 360-435-7272.

2.3 Rig Cleaning - Cordura®

Note:

These cleaning tips are for container only and are to be used for spot cleaning only. Para-Phernalia, Inc. does not recommend attempting to clean major stains without the assistance of a qualified rigger. Furthermore Para-Phernalia, Inc. does not in any way recommend the end user attempt to clean the harness or the parachute components of the Softie system.

*Table IV - CORDURA Recommended Stain Removal Methods**

STAIN	REMOVAL METHOD
Coffee, Fruit Juice, Milk, Soft Drinks, Tea, Tabasco Sauce, Wine, Urine	Detergent1 /blot/water/blot
Ketchup, Chocolate, Blood	Detergent/blot/ammonia[2]/blot/water/blot
Mustard	Detergent/blot/vinegar[3]/blot/water/blot
Spicy mustard (turmeric), Kool-Aid®	Solvent[4]/blot/detergent/blot/vinegar/blot/water/ blot
Cooking oil, Crayon, Lipstick, Mayonnaise, Motor oil, Shoe polish	Solvent[4]/blot/detergent/blot/vinegar/blot/water/ blot
Chewing gum	Freeze with ice cube/ scrape/solvent/blot/ detergent/blot/ water/blot
Furniture polish, Permanent Ink	Paint remover[5]/blot/solvent/blot/detergent/blot/ ammonia/blot/vinegar/blot/water/blot
Furniture polish, Shoe polish	Seek the help of a professional upholstery cleaner

Notes on Cleaning Agents

The following procedures should be used with all cleaning agents. A clean, white cloth dampened with the recommended cleaning agent should be used in an inconspicuous place to test for colorfastness. Optimum cleaning will be achieved by not over wetting the cloth and by turning it frequently to keep it clean. Rings can be avoided by working from the outer edge of the spot toward the center. This process should be repeated until the spot is removed or there is no further transfer to the cloth.

Detergent - One teaspoon neutral powder detergent (e.g. Tide or All) in 1 pint warm water.

[2]Ammonia - A 3% solution.

[3]Vinegar - White vinegar or a 10% acetic acid solution

[4]Solvent - Dry cleaning fluid - preferably

1,1,1-trichloroethane

[5]Paint remover - Paint remover with no oil in it.

Note:

Oily and greasy stains — In addition to the recommended method, some stains (e.g. perspiration/ body oils) respond well to dry cleaners such as "HOST" (Racine Industries), CAPTURE" (Milliken) and "K2R" (Texize). Carefully follow directions on the label.

* Recommendations based on fabrics finished with Du Pont Teflon® WBC Soil and Stain Repellent for CORDURA®. The methods were effective on stains that were allowed to sit untreated overnight. Removal is usually easier when stains are cleaned immediately.

3.0 COMPATIBILIATY OF COMPONENTS

3.1 Canopy Compatibility

In order to determine whether a particular canopy is compatible with a Softie harness/ container assembly, there are several requirements that have to be met. They are volume, deployment type, TSO certification, and placard limitations.

3.2 Volume

The volume of a canopy is determined by using the standard Parachute Industry Association (PIA) volume measurement as determined by PIA technical standard 104 in its most current edition. Canopy compatibility can be determined by cross referencing this measurement with the Para-Phernalia, Inc. chart below in Section 3.3 - SOFTIE Volume Chart.

3.3 SOFTIE Volume Chart

SOFTIE Model	Minimum Volume	Maximum Volume
180 Back (Micro)	275 / 4506	400 / 6555
240 Back (Mini)	375 / 6145	525 / 8603
275 Back (Mini)	475 / 7784	700 / 11471
180 Wedge (Micro Wedge)	275 / 4506	400 / 6555
240 Wedge (Mini Wedge)	375 / 6145	525 / 8603
275 Wedge (Mini Wedge)	475 / 7784	700 / 11471
180 Seat (Seat)	275 / 4506	400 / 6555
240 Seat (Seat)	375 / 6145	525 / 8603
275 Seat (Seat)	475 / 7784	700 / 11471
180 Chair (Long Micro)	275 / 4506	400 / 6555
240 Chair (Long)	375 / 6145	525 / 8603
275 Chair (Long)	475 / 7784	700 / 11471
Original	550 / 9013	825 / 13520

Note:

Volume references are in cubic inches / cubic centimeters (cm)

1 cubic inch = 16.387 cubic centimeters

3.4 Optimum Canopy Selection

A large percentage of Softies are delivered complete, packed, and ready to use in your aircraft. However because an FAA licensed Parachute Rigger is authorized to “mix and match” approved components, there are many different parachutes which may be assembled with and which will fit in each of the many styles and sizes of Softie containers offered by Para-Phernalia, Inc. The name of each Softie container is based on the maximum allowable suspended weight of the canopy which best fits in that style and size. Example: Back 240 assembled and packed with a Free Flight Enterprises - Preserve 1A provides optimum pack density and has a maximum suspended weight of 240 lbs with a maximum deployment speed of 150 knots.

3.5 Canopy Volume Chart

Note:

The volume references in this table are furnished by voluntary testing on the part of members of the Parachute Industry Association in accordance with PIA Technical Standard 104. Due to variations in materials and design, these volumes are subject to change without notice and can in no way guarantee any accuracy in regards to your specific canopy. Generally speaking these volumes will be accurate only to within about 20%.

Manufacturer	Model	Volume
Free Flight Enterprise	Amigo 134	365
	Amigo 152	380
	Amigo 172	408
	Amigo 206	481
	Preserve 1A	440
	Preserve III	384
	Preserve V	550
Flight Concepts International / Glide Path International	Firelite Reserve	426
	Fury Reserve	538
	Maverick Reserve	468
	Sharpchuter Reserve	503
National Parachute Industries	Phantom/Aerostar 24	386
	Phantom/Aerostar 26	435
	Phantom/Aerostar 28	472
Para-Flite	Swift Reserve	413
	Swift Plus 145 Main	330
	Swift Plus 175 Reserve	410
	Swift Plus 225 Reserve	524
Performance Designs	PD-126R Reserve	296
	PD-143R Reserve	363
	PD-160R Reserve	388
	PD-176R Reserve	447
	PD-193R Reserve	470
	PD-218R Reserve	496
	PD-235R Reserve	521
	PD-253R Reserve	551
Precision Aerodynamics	Microraven 120	268
	Microraven 135	308
	Microraven 150	375
	Super Raven 1	401
	Super Raven 2	429
	Super Raven 3	515
	Super Raven 4	570
Strong Enterprises	Lopo Lite	405
	Lopo Mid-lite	443
	Lopo (Military)	487

3.6 Deployment Type

There are currently 5 different canopy deployment methods in common use. The following is a list of these types with a description and examples. (See Note)

Type 1: Canopy first deployment. Lines are stowed vertically / horizontally in the container. Example: T-7A chest pack.

Type 2: 2 bite diaper, Strong diaper, half diaper: Split line group - one or two stows lock diaper, compensated by off-setting stows of other line group in container with remainder of lines stowed in the container. Example: Early Strong Lopo Diaper, Pioneer "K" series reserves.

Type 3: Ascuitto diaper, Piglet diaper: Full diaper with line stows horizontally across diaper left to right, perpendicular to radial seams. Example: Piglet Featherlite, Phantom Series Reserves.

Type 4: Handbury, Preserve or Strong Full Diaper: Wraps around skirt of canopy with two or three locking stows and remainder of line stowed vertically, parallel with radial seams. Example: Preserve 1 & 3, Strong Lopo Lite, and Hobbit Reserves.

Type 5: Freebag: Canopy stowed in bag and lines stowed on/in bag. Example: PD reserve Canopies, Super Raven M series, Tempo, Preserve V.

Note:

Para-Phernalia, Inc. does not support the use of Type 1 or Type 2 deployment devices in the SOFTIE container system. Type 4 diapers are recommended and supplied with round parachutes from Para-Phernalia, Inc. Type 5 freebags are recommended and supplied with ram air parachutes from Para-Phernalia, Inc. This 'OWNER'S MANUAL AND PACKING INSTRUCTIONS FOR RAM AIR PARACHUTE CANOPIES IN SOFTIE BACK-TYPE PARACHUTE SYSTEMS' manual assumes a ram air parachute with a Type 5 freebag to be installed in the SOFTIE.

3.7 Deployment Bag and Bridle

Only Para-Phernalia, Inc. or Free Flight Enterprises deployment bags and bridle assemblies of the correct size and that are properly labeled for volume are compatible with the SOFTIE . No other deployment bags are approved for use with the SOFTIE system.

Note:

The following data, Section 3.8 Industry Weight/Deployment Speed Limitations, covers only current production parachutes and only those manufacturers who placard their products. For those canopies not listed, it is suggested that you contact the canopy manufacturer directly or Para-Phernalia, Inc. for an update to this list.

3.8 Parachute Industry Weight / Deployment Speed Limitations

Manufacturer	Model	Max. Deployment Speed (knots)	Max. Gross Weight (lbs.)
Free Flight Enterprise	Amigo 134	150	145
	Amigo 152	150	164
	Amigo 172	150	185
	Amigo 206	150	225
	Preserve 1A	150	240
	Preserve III	150	180
	Preserve V	150	275
Flight Concepts International / Glide Path International	Firelite Reserve	150	190
	Fury Reserve	150	200
	Maverick Reserve	150	195
	Sharpchuter Reserve	150	235
National Parachute Industries	Phantom/Aerostar 24	140	145
	Phantom/Aerostar 26	140	180
	Phantom/Aerostar 28	140	200
North American Aerodynamics	NAA 22	130	190
	NAA 26	130	250
	Swift Main	130	180
	Swift Reserve	130	180
	Swift Plus Reserve	150	200
	Safety Flyer	130	160
	Safety Star	130	180
Performance Designs	PD-126R Reserve	150	151
	PD-143R Reserve	150	171
	PD-160R Reserve	150	192
	PD-176R Reserve	150	211
	PD-193R Reserve	150	232
	PD-218R Reserve	150	254
	PD-235R Reserve	150	254
	PD-253R Reserve	150	254
Precision Aerodynamics	Microraven 120	130	131
	Microraven 135	130	137
	Microraven 150	130	153
	Super Raven 1	130	185
	Super Raven 2	130	222
	Super Raven 3	130	254
	Super Raven 4	130	254
Strong Enterprises	Lopo Lite	140	175
	Lopo Mid-lite	140	225
	Lopo (Military)	140	225

4.0 RIGGER INFORMATION

4.1 Parachute Assembly Inspection Forms

4.1.1 - Harness and Container Inspection Checklist		
! Note: Count all Tools Before Starting Assembly		**Qty:**
Manufacturer:		
Model:		
Date of manufacture:		
Serial Number:		
Initial After Each Item If No Discrepancies Are Found		**Initials**
1.	Main lift web and risers	
2.	Chest, diagonal and leg straps	
3.	Harness hardware and connectors	
4.	Ripcord, handle pocket, cable housing and tacking	
5.	Container flaps and grommets	
6.	Closing loop length	
7.	Grommet strap	
8.	Comments:	

4.1.2 - Ram Air Reserve Canopy, Bag and Pilot Chute Inspection Checklist		
! Note: Count all Tools Before Starting Assembly		**Qty:**
Manufacturer:		
Model:		
Date of manufacture:		
Serial Number:		
Initial After Each Item If No Discrepancies Are Found		**Initials**
1.	Risers	
2.	Connector links	
3.	Sliders and grommets	
4.	A-lines and attachment points	
5.	B-lines and attachment points	
6.	C-lines and attachment points	
7.	D-lines and attachment points	
8.	Steering lines and toggles	
9.	Canopy cells and cross ports	
10.	Slider stops (on canopy)	
11.	Deployment bag and safety stow	
12.	Bridle line	
13.	Pilot chute and grommet strap	
14.	Packing card and information	
15.	Comments:	

4.1.3 - Assembly of Ram Air Reserve Canopy		
Initial After Each Item If No Discrepancies Are Found		**Initials**
1.	Inspection of canopy and container completed (Sections 4.1.1 & 4.1.2)	
2.	Continuity of all lines	
3.	Slider on correctly	
4.	Rapide link barrels tightened properly	
5.	Steering lines tied to toggles on mark	
6.	Steering line length equal to each other	
7.	Safety stow on deployment bag installed	
8.	Pilot chute and grommet strap attached and tacked	
9.	Packing card filled out	
10.	Packed according to manufacturers instructions	
11.	Ripcord pin sealed	
12.	Comments:	
Note: Recount all tools used after assembly and packing is completed to ensure that none were left in the canopy or container.		**Qty:**
Signature:		Date:
Print Name:		Seal Symbol:
General Comments:		

4.2 Ram Air Canopy Packing Instructions

4.2.1 Preparation and Compatibility

Prior to installing and packing any canopy into the Softie, the rigger must thoroughly read and understand these instructions. It is the responsibility of the parachute rigger to thoroughly read and understand the warning label and all documents related to the system being packed. The parachute rigger must also make the determination of proper compatibility regarding volume, deployment type and placard information. Only those canopies that have been assigned a weight and speed limitation by the manufacturer are approved for use in the Softie. Refer to **Section 3.3 - SOFTIE Volume Chart** and **Section 3.8 - Parachute Industry Weight / Deployment Speed Limitations** for installation of proper canopy for customer needs.

The Softie back-type parachute systems (Softie Mini, Softie Micro, Softie Wedge and Softie Long) are compatible with TSO certified ram air parachutes. The use of the Softie freebag is required.

RAM AIR PARACHUTES ARE NOT PERMITTED IN SOFTIE SEAT-TYPE PARACHUTE SYSTEMS UNDER ANY CIRCUMSTANCES.

If you should have any questions as to compatibility or weight and speed limitations, call Para-Phernalia, Inc. at (360) 435-7220 or FAX (360) 435-7272.

> **Note:**
>
> Minimum qualification; FAA Senior or Master Parachute Rigger or foreign equivalent.

4.2.2 SOFTIE Harness and Container System Inspection and Repairs

Inspect according to checklist, **Section 4.1.1 - Harness and Container Inspection Checklist**. Check for any damage to the pilot chute, bridle, freebag, toggles, risers, closing loop, hardware, grommets, cable housing, ripcord or harness and container.

No major repairs or alterations are authorized. ANY SUCH MAINTENANCE MUST BE RETURNED TO PARA-PHERNALIA, INC.

4.2.3 Canopy Inspection and Repairs (Ram Air Canopies)

Inspect according to checklist, **Section 4.1.2 - Ram Air Reserve Canopy, Bag and Pilot Chute Inspection Checklist**. Verify the volume of the ram air parachute against the volume of the parachute freebag and container. Check for any damage to canopy material, slider, suspension lines or connector links. Check for any stains or possible soiling by chemicals. Check to make sure there are no foreign objects inside the canopy or entangled with the suspension lines. Assure that the canopy is assembled properly, in accordance with **Section 4.1.3 - Assembly of Ram Air Reserve Canopy**. Check the connector links for proper tightness. Make sure that the steering toggles are installed. Record the parachute canopy's manufacturer, model, serial number and date of manufacture on the packing data card.

No major repairs or alterations are authorized. Any repairs accomplished in the field must be of a nature that no dis-assembly of any portion of the canopy is required. ANY SUCH MAINTENANCE MUST BE RETURNED TO THE CANOPY MANUFACTURER.

4.2.4 Required Tools

The following tools are required to successfully assemble and pack a Ram Air canopy into a Back-Type Softie:

- 4" Adjustable Wrench (Not required for canopies with soft links)
- Two (2) Temporary Pins with Flags
- One (1) Packing Paddle
- Two (2) Pull-up Cords made from Type IIA Nylon Sleeving (aka ‘Gutted’ 550 Cord) - Approx. 40” long
- Two T-handle Bodkins (Also known as slotted bodkins or Pop-Top T-Bars)

4.3 Assembly

Assemble an approved type and size parachute to the Softie harness and container system ensuring the following:

4.3.1 Canopy and container are face down on an appropriately sized and surfaced packing table or area.
4.3.2 Line continuity is correct.
4.3.3 Connector links are assembled and tightened according to manufacturer's instructions. If Maillon links are used, tight is usually considered to be finger tight plus one quarter turn of the barrel. WARNING: If Maillon Rapide links are too tight, barrels will crack.
4.3.4 You may mark connector links with a "tell tale" dot of nail polish or equivalent.
4.3.5 Steering lines are routed correctly.
4.3.6 Insert steering lines through guide rings on backside of rear risers.
4.3.7 Attach steering toggles to end of steering line.
4.3.8 Check closing loop length. (See **Section 4.4 SOFTIE Closing Loop Length Chart**).
4.3.9 Insert the closing loop through the grommets in pack tray stiffener plate.
4.3.10 Install ripcord. Insert ripcord into ripcord housing at left main lift web. Secure ripcord handle in ripcord pocket located on the left main lift web above the rip cord housing.
4.3.11 Attach the pilot chute to the large loop at the end of the freebag bridle with a larks head knot. No tacking is required, but at the rigger's discretion, a tack may be placed in the pilot chute bridle midway between the larks head knot and the 5-point cross stitch with a single wrap of Super Tack.

4.4 SOFTIE Closing Loop Length Chart

Note:

All length references are in inches and refer to new closing loops. Tolerance is +/- 0.25 inches. Closing loops will stretch by about 0.75 inches to 1.25 inches during packing.

Do not tie a knot to shorten the closing loop.

SOFTIE Model	Loop Length
180 Back (Micro)	8.5” / 22 cm
240 Back (Mini)	8.5” / 22 cm
275 Back (Mini)	10.0” / 22 cm
180 Wedge (Micro Wedge)	8.5” / 22 cm
240 Wedge (Mini Wedge)	8.5” / 22 cm
275 Wedge (Mini Wedge)	10.0” / 22 cm
180 Seat (Seat)	9.5” / 27 cm
240 Seat (Seat)	9.5” / 27 cm
275 Seat (Seat)	11.0” / 27 cm
180 Chair (Long Micro)	8.5” / 22 cm
240 Chair (Long)	8.5” / 22 cm
275 Chair (Long)	10.0” / 22 cm
Original	10.0” / 25.4 cm

4.5 Folding the Canopy

4.5.1

4.5.1 Fold the canopy per the manufacturer's instructions. 'Pro' packing, flat packing and stack packing are acceptable methods for use with the Softie Parachute System. The following instructions pick up where the canopy manufacturer's instructions leave off. ***See Photo 4.5.1***

4.5.2 Set the brakes by pulling the finger-trapped loop down through the guide ring. Insert about 1" of the stiffened end of the steering toggle through the finger-trapped loop. Secure the toggle to the riser by mating the Velcro. "S" fold the excess steering line and stow in the rubber band on the riser.

See Photo 4.5.2

4.5.2

4.5.3

4.5.3 Neatly dress the canopy to a width about 4" wider than the freebag. ***See Photo 4.5.3***

4.5.4 Make a single 'S' fold at the slider and place it under the trailing edge of the canopy. Make the second 'S' fold on top of the first fold.

See Photo 4.5.4

4.5.4

4.5.5

4.5.5 To form the canopy into a long molar shape, start by kneeling on the trailing edge of the canopy and facing the top edge of the canopy. Split the top of the canopy into two long 'ears'.

See Photo 4.5.5

4.5.6 Fold the ears under to match the length of the freebag. ***See Photo 4.5.6A & 4.5.6B***

4.5.6A

4.5.6B

4.6 Filling the Freebag

4.6.1

4.6.1 Carefully slide the freebag over the canopy. The freebag may be oriented with the line stow pouch either facing up or down. ***See Photo 4.6.1***

4.6.2

4.6.2 Fill the uppermost portion of the freebag with the two split sections of the top of the canopy. One 'ear' is placed on each side of the freebag's center 'donut' or 'Safety collar'. (*Note: Older models of the freebag did not have the 'donut' wall in the center around the grommets.*) Be sure to fill the corners of the freebag firmly with canopy material. ***See Photo 4.6.2***

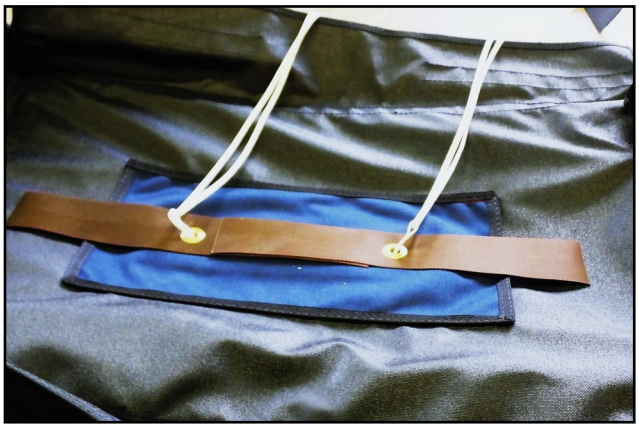
4.6.3

4.6.3 Close the freebag locking flap with two short bites (about 1" to 2" long) of the suspension lines in the elastic safety stow. Mate the Velcro along the sides of the freebag ***See Photo 4.6.3***

4.6.4

4.6.4 Stow the remaining suspension lines in the line stow pouch. Mate the Velcro across the open end of the line stow pouch. Be sure to leave a sufficient length of the suspension lines out of the pouch to reach from the bottom of the freebag to the ends of the risers (approx. 6"-12"). ***See Photo 4.6.4***

4.7 Placing the Freebag in the Container

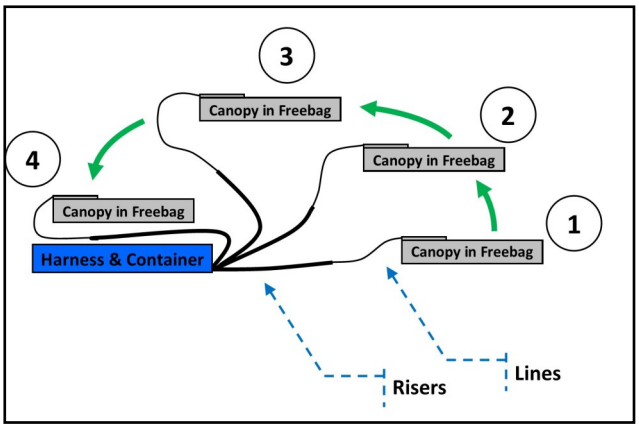


4.7.1

4.7.1 Install the 40” pull-up cords in the ends of the closing loop. ***See Photo 4.7.1***

4.7.2 Pick up the packed freebag and place it directly into the container. Do not flip it over or turn it around. (*Pictured in Photo 4.7.2 with line stow pouch facing up.*) Place the risers under/inside the riser covers. Mate the Velcro on the riser covers.

See Photo 4.7.2



4.7.2

4.7.3

4.7.3 Insert both ends of each pull-up cord up through their respective grommets on the freebag. If t-handle bodkins were used, remove the bodkins once the pull-up cords have been inserted through the grommets in the freebag.

See Photo 4.7.3

4.8 Closing the Container

4.8.1

4.8.1 Fold the pilot chute bridle in a large "V" on top of the freebag. Leave about 3' to 5' of bridle out of these "V" folds. ***See Photo 4.8.1***

4.8.2 Place the pilot chute bridle in a large "V" under the bottom flap. Close the bottom flap of the container. Insert a temporary pin in the end of the closing loop to hold the bottom flap closed. Mate the Velcro on the bottom flap.

See Photo 4.8.2

4.8.2

4.8.3

4.8.3 Close the top flap. Insert a temporary pin in each end of the closing loop to hold the container closed. Mate the Velcro on the top flap.

See Photo 4.8.3

4.8.4 "S" fold the remaining freebag bridle (approx. 3' to 5') on top of the top flap in the space between the grommets. ***See Photo 4.8.4***

4.8.4

4.8.5

4.8.5 Compress the pilot chute into the space between the temporary pins on top of the folded bridle. Completely trap the pilot chute canopy fabric and mesh between the coils of the spring or place in two wings on either side of the spring (as pictured) so that they will not interfere with the deployment of the pilot chute or with the passage of the closing loop through the grommets. Insert temporary pins in each end of the closing loop to secure the compressed pilot chute. ***See Photo 4.8.5***

4.8.6

4.8.6 Close the right side flap and temp pin.

See Photo 4.8.6

4.8.7

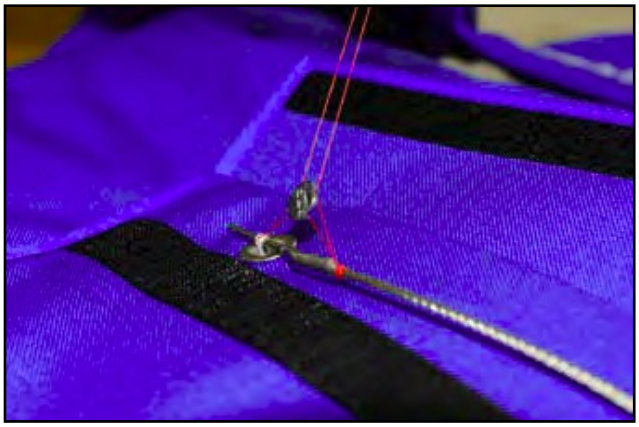
4.8.7 Close the left side flap. Insert bottom ripcord pin first.

See Photo 4.8.7

4.8.8

4.8.8 Set the top ripcord pin.

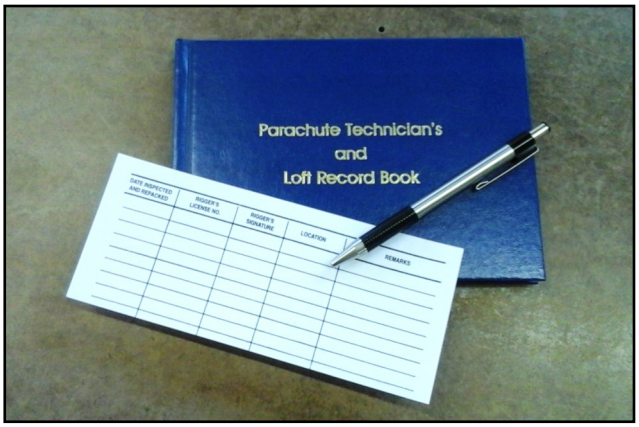
See Photo 4.8.8



4.8.9

4.8.9 Carefully remove pull-up cords and seal the top pin with red seal thread & riggers seal.

See Photo 4.8.9



4.8.10

4.8.10 Make appropriate entries into packing data card and rigger log book. ***See Photo 4.8.10***

4.8.11 *** * * * * COUNT YOUR TOOLS * * * * ***

End of Manual