

# *Butler Parachute Systems*

## **User Guide**

### **for**

## **Butler Emergency Parachute Systems**

Document Number: 50-1048

Revision B

January 1, 2018



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



# **BUTLER**

[www.butlerparachutes.com](http://www.butlerparachutes.com)  
Phone: 540-342-2501  
FAX: 540-342-4037  
[info@butlerparachutes.com](mailto:info@butlerparachutes.com)

Title	User Guide for Butler Emergency Parachute Systems
-------	---

Issue	Description	Date	Approving Authority
0.1	Baseline Document	7/15/98	XX
1.0	Initial Release	1/1/00	Manley Butler
2.0	Revision A	10/5/17	Roberto Montañez
3.0	Revision B	1/1/18	Roberto Montañez

## List of Effective Changes

The portion of the text affected by the changes to the preceding released document are indicated by a black vertical bar in the left outer margins of the page.

Page Number                      Section Number

5.....	1.0
7.....	3.0
8.....	4.0
9.....	5.1
9.....	5.2
9.....	6.0
10.....	6.1
10.....	6.2
10.....	6.3
11.....	6.4
11.....	6.5
12.....	6.6
13.....	7.0
14.....	8.0

## CONTENTS

List of Effective Changes.....	2
Warranty for Emergency Parachute Systems .....	4
Terms & Conditions of Warranty.....	4
1. Introduction.....	5
2. Operating Limitations.....	6
3. Service Life and Repack Interval.....	7
4. General Care of Your Butler Emergency Parachute.....	8
5. General Pre-flight Inspection.....	8
6. General Fitting & Wearing Your Butler Emergency Parachute.....	9
7. General Procedures in the Aircraft .....	13
8. General Operation of the Butler Emergency Parachute.....	14
8.1 Normal Landings .....	14
8.2 Water Landings. ....	15
8.3 Tree Landings.....	15
8.4 Power Line Landings.....	15
8.5 Dragging.....	16
9. Conclusion.....	15



### **WARNING**

SINCE WE HAVE NO CONTROL OVER THE ACTUAL CONDITIONS OF USAGE WE MAKE NO GUARANTEE, EXPRESSED OR IMPLIED, THAT A PARACHUTE SYSTEM WILL SUCCESSFULLY SAVE A PARTICULAR INDIVIDUAL REGARDLESS OF CORRECT MANUFACTURE, ASSEMBLY, PACKING AND USAGE IN ANY AND ALL CONDITIONS UNDER WHICH IT MIGHT BE USED.

Copyright© Butler Parachute Systems, Inc. 2010

All rights reserved. No part of this manual may be reproduced except for personal use. The copyright and all other rights regarding the content of this publication, as well as images and logos, are held by Butler Parachute Systems, Inc.

## **Warranty for Emergency Parachute Systems**

Butler Personnel Parachute Systems, Inc. (hereafter referred to as BPS) manufactures the finest emergency parachute systems in the world. Accordingly, subject to the Terms & Conditions set forth below, we warrant that our emergency parachute systems are free from defects in materials, workmanship and design for a period of five years from the date of manufacture.

### **Terms & Conditions of Warranty**

This warranty excludes any condition that (in the sole opinion of BPS) has resulted from misuse, abuse, modification, improper maintenance, neglect, exposure to ultraviolet light, damage from aircraft parts and/or any other condition that is outside the realm of normal usage. Usage of this product in a manner that violates state or federal law is a misuse of the product and voids all warranties, express or implied. BPS shall not be liable in any manner whatsoever for damages related to the use of this product in an illegal manner.

This warranty excludes any condition related to color fastness, fading and/or the matching of any particular lot of materials with any color.

All BPS products have been thoroughly tested and found to be in conformance with all applicable FAA requirements for TSO C-23 certification in effect on the date of authorization. However, since we have no control over the actual conditions of usage, this warranty specifically excludes any guarantee, express or implied, that a parachute system will successfully save a particular individual in all conditions under which it might be used.

This warranty covers the product only when it is used in accordance with the manufacturer's instructions and within the stated and/or placarded operating limits regarding maximum pack opening airspeed and maximum gross weight for the lowest rated component of each assembly. Failure to follow these guidelines for the use of the product voids any and all warranties.

This warranty does include any changes that may be required under BPS Service Bulletins or FAA Airworthiness Directives, if issued. It does not include changes or updates that are recommended but not required.

**THE WARRANTIES AND AGREEMENTS HEREIN SET FORTH ARE EXCLUSIVE AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND AGREEMENTS, EXPRESS, IMPLIED, OR STATUTORY. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY, WORKMANSHIP OR FITNESS FOR A PARTICULAR PURPOSE.**

The customer's sole and exclusive remedy for any breach of this warranty is limited to repair or replacement of any BPS product deemed to be defective. BPS shall have no other liability for any incidental, consequential or punitive damages.

## 1. Introduction

The following symbols are used throughout this manual:



**WARNINGS** indicate a procedure or situation that may result in serious injury or death if instructions are not followed correctly.



**CAUTIONS** indicate any situation or technique that will result in potential damage to the product, or render the product unsafe if instructions are not followed correctly.



**NOTES** are used to emphasize important points, tips, and reminders.



BUTLER PARACHUTE SYSTEMS, INC. RESERVES THE RIGHT TO REVISE THIS PUBLICATION WITHOUT OBLIGATION TO PROVIDE NOTIFICATION OF SUCH CHANGES. BUTLER PARACHUTE SYSTEMS, INC. DOES ITS BEST TO PROVIDE CURRENT AND ACCURATE INFORMATION IN THIS MANUAL. HOWEVER, BUTLER PARACHUTE SYSTEMS, INC. RESERVES THE RIGHT TO CHANGE ANY SPECIFICATIONS AND PRODUCT CONFIGURATIONS AT ITS DISCRETION WITHOUT PRIOR NOTICE AND WITHOUT OBLIGATION TO INCLUDE SUCH CHANGES IN THIS MANUAL.

This User Guide is for the routine use and care of all personnel emergency parachutes manufactured by Butler Parachute Systems, Inc. Butler Parachute Systems manufactures a wide variety of emergency parachute products with different weight and speed ratings. Please refer to the TSO Label and the packing data card on your parachute to familiarize yourself with the limitations of the parachute you are using. A harness and container rating and canopy rating chart is also provided on the next page of this guide. Please contact Butler Parachute Systems if you have questions or concerns regarding the proper use of your parachute.

Your Butler Emergency Parachute is an important piece of survival equipment. Proper use, installation, maintenance and packing are necessary for the parachute to deliver the safety performance it is designed to provide. It is important that you become familiar with this guide to properly use the parachute. Improper use may result in failure of the parachute system when you need it most.



**IMPROPER USE OR NEGLIGENT CARE OF THIS EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH.**

## 2. Operating Limitations

### Harness & Container Operating Limitations

Maximum Gross Weight: 350 pounds

Maximum Pack Opening Speed: 170 KEAS

Maximum Demonstrated Load: 6,500 Pounds

Refer to the manual titled Butler Personnel Canopies Assembly and Packing Instructions for instructions for additional limitations.

P/N	Model	Diameter	Weight	Maximum Permitted Gross Weight @ 150 KEAS*	Maximum Recommended Gross Weight @ 150 KEAS*	Demonstrated Overload KIAS†	TSO Authorization
2101-1	Lopo 350	23'	6.0	220 lb	175 lb	264 lb @ 180 KIAS	C23d
2101-2	Lopo 450	26'	7.0	285 lb	235 lb	345 lb @ 180 KIAS	C23d
2101-3	Lopo 550	29'	8.0	330 lb.	300 lb	420 lb @ 180 KIAS	C23d
3101	HX-300	20'	5.8	250 lb	160 lb	300 lb @ 180 KIAS	C23d
				Maximum Permitted Gross Weight @ 170 KEAS*	Maximum Recommended Gross Weight @ 170 KEAS*		
3102	HX-400	23'	6.4	333 lb	225 lb	400 lb @ 180 KIAS	C23d
3103	HX-500	26'	7.9	350 lb	280 lb	450 lb @ 205 KIAS	C23f
3106	HX-500/24	26'	8.5	416lb	280 lb	500 lb @ 180 KIAS	C23d
3104	HX-600	28'	9.1	500 lb	340 lb	600 lb @ 180 KIAS	C23d

\* KNOTS EQUIVALENT AIRSPEED: THE CALIBRATED AIRSPEED CORRECTED FOR ADIABATIC COMPRESSIBLE FLOW FOR THE PARTICULAR ALTITUDE.

† KNOTS INDICATED AIRSPEED: THE SPEED SHOWN ON AN AIRCRAFT'S PITOT-STATIC AIRSPEED INDICATOR.

### 3. Service Life and Repack Interval

All personnel parachutes manufactured by Butler Parachute Systems, Inc. are manufactured and certified under the Technical Standard Order (C23) process of the Department of Transportation, Federal Aviation Administration (FAA). Our products have been sold all over the world, and thus may fall under many other sets of operating regulations. The following guidance is provided to determine the allowable service life and repack interval under the specific circumstances listed:

THE FOLLOWING INFORMATION IS PROVIDED AS GUIDANCE ONLY.

- When used in civil aircraft **in the United States of America**, our products have a recommended service life of 20 years from the date it is placed in service or 25 years from the date of manufacture. However, this parachute must be inspected and repacked in accordance with the applicable Federal Aviation Regulations, every 180 days. If more than 180 days has passed since the last inspection and repack, then the parachute is considered unairworthy until such inspection is accomplished.
- When used in civil aircraft **outside the United States of America**, our products have a recommended service life of 20 years from the date it is placed in service or 25 years from the date of manufacture. The local regulations pertaining to parachute inspection and repacking (if any) may be applied.

If the parachute equipment is subjected to any unusual or severe conditions such as dust, moisture, impact damage, etc., it should be serviced on a more frequent basis. Please review all information in the User Guide and service manuals before extending your repack cycle.

## **4. General Care of Your Butler Emergency Parachute**

Your Butler Emergency Parachute System is made from the finest, most durable materials available. The container is made from double-layer 1000 denier nylon and will last for the entire service life with reasonable care and protection from the Sun. Over 80% of the parachute canopy itself is protected from the sun by four layers of container due to the internal flap arrangement.

However, all of the above does not mean that your BPS Emergency Parachute System is indestructible. We recommend the following basic steps as the minimum care that you should give your parachute - remember that your parachute is an important piece of survival equipment that may be called upon to save your life:

1. Avoid exposing your parachute to the sun unnecessarily. If you have a stowage bag, keep your parachute in the bag when not in the aircraft. Should you decide to leave your parachute in your aircraft, cover it to avoid sun exposure.
2. Check your aircraft cockpit for sharp objects, exposed nuts and bolts and any other items that could tear or puncture your parachute. Remove or cover these items with tape to protect your parachute.
3. Avoid letting your parachute come in contact with acid; car trunks with traces of battery acid are particularly hazardous areas for a parachute. One drop of acid can destroy the entire parachute if left unchecked.
4. If possible, store your parachute in a cool, dry place when not in use.
5. Have your parachute thoroughly aired, inspected and repacked more often in extremely dusty areas as fine dust can seep into the pack and damage the fabric much like sand paper.
6. Keep your parachute away from grease, oil and fuels which can attract and hold dirt and grit.
7. Avoid excessive moisture; if your parachute becomes wet it should be aired and re-packed.
8. If in doubt about the condition of your parachute and its care, contact the nearest parachute loft or the manufacturer.

## **5. General Pre-flight Inspection**

Before each flight, check for any obvious damage, tampering or disturbance to the pack or harness.



## 5.1

Peel open the Velcro closure on the pin protector flap and check the packing data card for the repack date and ensure it has been packed within the last 180 days.

Check that the pins are securely inserted through the closing loops with at least 3/4" passed the loops.

Check that the red seal thread is intact on the lower pin.



5.1 Checking the data card.

## 5.2

Check that the ripcord handle is properly inserted and seated in the pocket.



INSERT THE LONG SQUARED SIDE OF THE RIPCORD INTO THE POCKET SO THE SHORT ROUNDED SIDE OF THE RIPCORD IS EXPOSED.



5.2 Properly installed ripcord.

## 5.3

Check the snaps on the corners of the container for security.

Check the hardware for corrosion, damage and bent or missing parts.

Check that the harness is not twisted or misrouted.

## 6. General Fitting & Wearing Your Butler Emergency Parachute

For optimal fit, the harness should feel snug and slightly restrictive while you are standing. The harness will feel a little loose when you sit down in the cockpit. It is safe to fly with the harness adjusted as-is. However, if you feel more comfortable with a snug fit while seated, adjusting the harness for a snug fit while seated will not effect your movements should you have to make an emergency exit. The following section illustrates donning a back pack. The steps and procedures are the same for a seat pack.

## 6.1

Put the harness on like you would a jacket.

Attach the chest strap buckle and adjust it for a snug fit.



DO NOT OVER TIGHTEN THE CHEST STRAP SO THAT IT PULLS THE HARNESS WEBBING INTO AN HOURGLASS SHAPE. THE WEBBING THAT THE CHEST STRAP IS SEWN TO SHOULD RUN STRAIGHT DOWN YOUR TORSO.



6.1 Attaching the chest strap.

## 6.2

Attach both leg straps and adjust them for a snug fit.



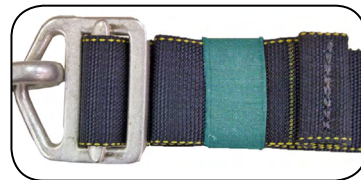
BE SURE THERE ARE NO TWISTS IN THE LEG STRAPS WHEN YOU WRAP THEM AROUND YOUR LEG.



6.2 Attaching the leg straps.

## 6.3

Fold the excess webbing on the chest and leg straps and secure the fold in the elastic keeper.



6.3 Stowing the excess webbing.

#### 6.4

Grab the loose ends of the Main Lift Web straps and pull them up for a snug fit.



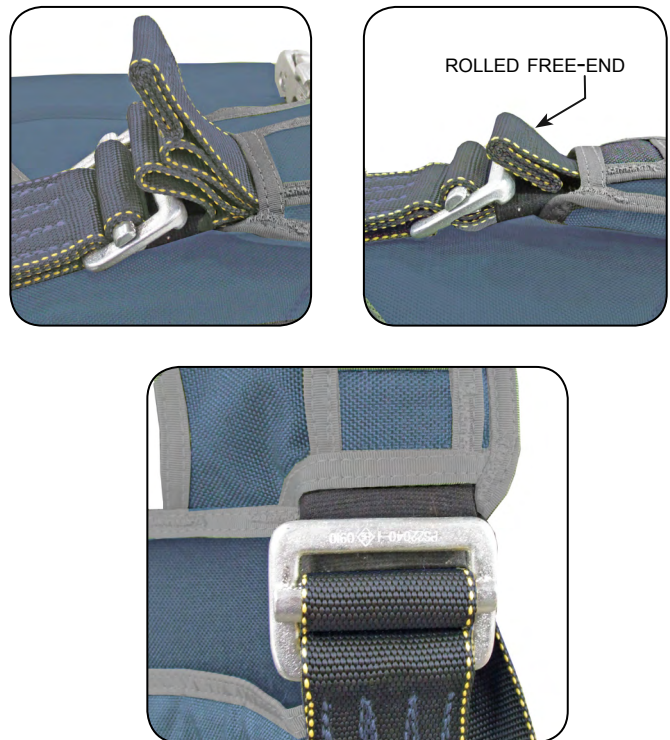
6.4 Adjusting the Main Lift Web.

#### 6.5

Fold the excess webbing on the Main Lift Webs and secure the fold as shown in 6.3

If you do not have enough room to stow the webbing as shown in 6.3, fold the webbing and stow it behind the harness channel.

Do not stow the rolled free-end of the webbing inside the channel. Stow the rolled free-end in the elastic keeper.



6.5 Stowing the excess webbing.



## 6.6

Grab the loose ends of the Horizontal Back Straps and pull them forward for a snug fit so the pack is snug against your back.

Slide the elastic keeper forward if there is not enough loose webbing to fold and stow the webbing in the elastic keeper.



6.6 Adjusting the Horizontal Back Strap.

**WARNING**

IF YOU ARE USING THE OPTIONAL “**QUICK EJECTOR**” TYPE SNAPS, MAKE SURE THAT THE RELEASE LEVER IS FIRMLY SEATED AGAINST THE BODY OF THE SNAP. YOU SHOULD FEEL A CLICK AS THE RELEASE LEVER PASSES OVER THE DETENT BALLS THAT HOLD IT IN PLACE. IF THEY ARE NOT FIRMLY SEATED, THE RELEASE LEVER CAN BE EASILY SNAGGED ON THE AIRCRAFT OR SEAT BELT AND INADVERTENTLY RELEASE THE SNAP. WE DO NOT RECOMMEND THIS TYPE OF SNAP; IT IS MADE AVAILABLE FOR THOSE WHO FEEL THAT THEY MUST HAVE IT.



Gate not properly seated.



Push the gate down until it is seated over the bearing.



WHEN YOU HAVE YOUR PARACHUTE ASSEMBLED OR REPACKED, WE STRONGLY SUGGEST THAT YOU ASK YOUR RIGGER TO ALLOW YOU TO PULL THE RIPCORD AND HAVE HER EXPLAIN THE DETAILS OF THE PARACHUTE INCLUDING THE STEERING PROCEDURES.

## 7. General Procedures in the Aircraft

*"I was always afraid of dying. Always. It was my fear that made me learn everything I could about my airplane and my emergency equipment, and kept me flying respectful of my machine and always alert in the cockpit."*

Chuck Yeager



***YOUR SINGLE, MOST IMPORTANT SURVIVAL TOOL IS YOU. LEARN YOUR EMERGENCY PROCEDURES AND PRACTICE THEM UNTIL YOU CAN DO THEM AUTOMATICALLY.***



### WARNING

WHEN BUCKLING INTO THE SEAT, FASTEN YOUR SEAT BELTS AND SHOULDER HARNESS OVER THE PARACHUTE HARNESS. YOU MUST BE ABLE TO RELEASE FROM THE AIRCRAFT RESTRAINT SYSTEM WITHOUT UNFASTENING ANY PART OF YOUR PARACHUTE HARNESS.

Remember the following points:

1. If your aircraft has a manufacturers recommended emergency egress procedure, memorize it and be able to do it automatically without thinking about it. Remember that there may not be time to stop and think what you must do to get out of the aircraft in an emergency. If your aircraft has no published emergency egress procedure, devise one of your own and practice it until you can do it automatically.
2. Never loosen or remove your parachute in the aircraft while in flight.
3. If you must make an emergency exit, get completely clear of the aircraft before pulling the ripcord.

## 8. General Operation of the Butler Emergency Parachute

After jumping clear of the aircraft, put your legs together, look down at the ripcord handle, reach in with both hands and pull the handle sharply out away from your body. Your parachute should be fully open within 2 to 3 seconds after you pull the ripcord.

After your parachute opens, look around and get your bearings. For canopies equipped with steering lines, the canopy is steered with toggles. The steering toggles are red and will be just above your head and attached to the rear risers with Velcro. Place your hands through the toggle loops and peel the toggles off the Velcro. The basic principle to remember when steering your parachute is that turns are made by pulling down the steering line on the side to which you want to turn; i.e. pull down on the left toggle for a left turn and the right toggle for a right turn. Turns should be made by pulling the toggle down level to your ear; when you are facing the desired direction, raise the toggle to stop the turn. Canopies that have steering lines can also be turned by pulling down on the rear risers.

If your canopy does not have steering lines, turn the canopy by pulling down on one of the rear risers. Turns are made by pulling down on the rear riser on the side to which you want to turn; i.e. pull down on the left rear riser for a left turn and the right rear riser for a right turn. Turns should be made by pulling the riser down level to your ear; when you are facing the desired direction, release the riser to stop the turn.

The canopies installed in the BPS Emergency Parachute System generally have a forward speed of approximately 5 to 8 MPH. In use, this allows you to maneuver slightly to avoid obstacles on the ground and to face into the wind for landing. Turning the parachute causes it to oscillate slightly and should be avoided near the ground whenever feasible as they will increase your rate of descent somewhat and increase the risk of injury during landing.

### 8.1 Normal Landings

Landings should be made facing into the wind or quartering slightly. This will minimize your ground speed and reduce the chances of injury upon landing. To help determine wind direction, take a look around and look for indicators such as smoke from smokestacks, swaying trees, etc. To prepare for landing, you should have your feet and knees together, toes pointed slightly down, knees slightly bent with legs tensed (about the same tension as needed to bounce up and down on the balls of your feet just slightly off the ground). Before touchdown, you should be looking at the horizon (not at the ground) and steering the canopy with small corrections to maintain your heading into the wind until your feet touch the ground. At touchdown, tuck your chin down and bring your elbows in against your side, then roll in the direction of your ground travel to spread the force evenly across your legs, hips and shoulders. Remember that the most important part of preparing to land is to ***keep you feet and knees together and your knees slightly bent.***

## 8.2 Water Landings.

If you regularly fly over water you should have proper flotation gear on board the aircraft. In general, personal flotation devices are worn under the parachute harness so that the parachute harness can be removed without removing the flotation device. In all cases, if you have any doubt about the operation of your flotation gear, obtain expert instruction relevant to the particular item you are using. Some flotation devices cannot be safely inflated underneath the parachute harness. For these types, do not inflate your flotation device until after you are in the water and have gotten clear of the parachute. Before entering the water, face into the wind and unfasten the chest strap but not the leg straps (BPS Emergency Parachute Systems have a "split saddle" harness and the leg straps should NEVER be released in the air). As your feet touch the water, take a deep breath but do not try to stay on the surface. After entering the water, you will sink several feet below the surface—before surfacing, remove the parachute harness and swim, underwater, straight ahead as far as you can before surfacing. This should place you clear of the canopy and suspension lines which will float on the surface for a few minutes. If dragged in the water, use the same technique described earlier to deflate the canopy. Remember - do not try to fight the water or your parachute; take a deep breath as your feet hit the water, remove the parachute underwater and swim away from the canopy before surfacing. If you become entangled with the parachute lines or fabric, disengage yourself very carefully and slowly as flailing about will only increase the extent of your problem. After you are clear of the parachute use normal water survival techniques.

***Panic and fatigue cause drowning - stay calm and conserve your energy.***

## 8.3 Tree Landings

Put your feet and knees together and prepare for a ground landing as you will probably go all the way through the tree to the ground. Cross your arms in front of your face with your hands placed in opposite armpits with the palms facing outward. Turn your face to one side and bury it in your arms to protect it. Put your feet and knees firmly together to avoid straddling a branch. **Do not try to grab a branch as you pass through the tree.** If suspended in a tree, wait for help if at all possible, otherwise use extreme caution in releasing from the harness to avoid falling or choking yourself on part of the parachute.

## 8.4 Power Line Landings

Power lines are an extremely hazardous place to land and should be avoided if at all possible. Tree landings and downwind landings are generally less hazardous than power line landings. If a power line landing is unavoidable, throw away the ripcord if you are still holding it, face into the wind and prepare for a ground landing. Put your arms above your head to make yourself as thin as possible and turn your head sideways to protect your face as much as possible. Avoid touching more than one wire at a time and do not grab at the wires as you pass by (it

takes two wires or one wire plus a ground to get electricuted so avoid all contact with any of the wires if possible). If you do get hung up, do not attempt to get down and do not allow anyone to help you until the power has been cut off in the lines. Nylon will conduct electricity at very high voltages so don't become part of a grounding path in your haste to get down.

## 8.5 Dragging

If you land in high wind conditions and are dragged, reel in one or two suspension lines hand-over-hand until the canopy collapses. This can be done in a matter of seconds. After the canopy collapses, disengage yourself from the harness. If you regularly fly in very high wind conditions, we recommend that you carry a hook knife or equip your parachute with a riser release mechanism.

## 9. Conclusion

The above information is provided as a brief, and very general, guide, for the use and care of your parachute. It can not and does not cover every possible situation you may find yourself in. It should not be considered a substitute for formal survival training and parachute jumping instruction.

Your BPS Emergency Parachute System must be inspected and repacked by an FAA licensed parachute rigger every 180 days. This is the maximum time limit allowed by law; if your parachute is subjected to unusual conditions of dust, dirt, moisture, or chemical contamination (such as crop chemicals) you should have it inspected and repacked more often. Consult your parachute rigger or a certificated loft for guidance concerning any unusual condition of your parachute. Above all, **do not leave your parachute in the sun** for any longer than absolutely necessary. The sun's ultraviolet rays can damage nylon without any visual indication of loss of strength. This is primarily a surface effect and causes the most damage to the thin fabrics used in the canopy itself. Left uncovered and exposed to the sun, a canopy will be ruined in a matter of weeks.

Select your parachute rigger with care - your life is in her hands. If in doubt concerning a parachute rigger's qualifications, ask to see his FAA Parachute Riggers Certificate. Parachute riggers are licensed by the FAA under FAR Part 65; Master and Senior Licenses are issued with Seat, Back and Chest type ratings. Your parachute rigger should be rated for the type of parachute you have.

After any use, your parachute must be thoroughly inspected for damage and re-paired as necessary. In addition, we as the manufacturer of your BPS Emergency Parachute System would appreciate notification of any emergency use of one our products.







BUTLER PARACHUTE SYSTEMS,  
INC.  
P.O. BOX 6098  
1820 LOUDON AVENUE, N.W.  
ROANOKE, VA 24017-0098  
TELEPHONE: (540) 342-2501  
FAX: (540) 342-4037  
E-MAIL: INFO@BUTLERPARACHUTES.  
COM  
WEB SITE: WWW.  
BUTLERPARACHUTES.COM

