Butler Parachute Systems, Inc.

General Information for Parachute Riggers

Servicing Products Manufactured by Butler Parachute Systems

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Revision E

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List of Effective Changes

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Contents

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.

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.

1. Introduction

This guide contains general information for the parachute rigger when servicing products manufactured by Butler Parachute Systems, Inc. It is not intended to provide all the information necessary to pack a parachute. You must have all the manuals pertaining to the parachute you hare packing in order to proceed with the service. Contact Butler Parachute Systems if you need manuals or are not sure which manuals you need in order to service the parachute you have.

Do not attempt to pack a parachute without a complete set of instructions for the system you are servicing.

Butler Parachute Systems spares no effort in making the finest aircrew survival parachute products available. All of our products are an important piece of survival equipment. Proper 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 these instructions to properly install the components, fold the canopy, and pack the canopy in the container. Improper installation of the components and improper packing may result in failure of the parachute system during use.

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	416 lb	280 lb	500 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. Rigger Responsibilities and Rating Limitations

We spare no effort in making our equipment the finest emergency parachutes available. However, parachute riggers in the field must also do their part to educate the user so he or she may fully benefit from the level of safety protection our systems offer. Parachute riggers should help the user understand his or her parachute and how to use it. We recommend that you become familiar with the User Guide and answer any questions the user may have. We also recommend that you allow the user to don the parachute and pull the ripcord before each repack.

All routine maintenance and minor repairs that do not affect airworthiness may be performed by an FAA licensed Senior Parachute Rigger (or foreign equivalent) with the proper facilities and equipment.

Major repairs or alterations that may affect airworthiness must be returned to Butler Parachutes or a designated representative.

It is the rigger's responsibility to ensure that the ripcord pull force is at or below 22 pounds for each assembly and each repack every time you work on the parachute.

4. 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 completed.

- 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, but in no case longer than two years between inspection and repack.

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 service manuals before extending your repack cycle.

5. Inspection List

Inspect the entire parachute assembly before you begin to pack the canopy into the container. The following list is a general inspection guide for a basic parachute system with no options. It is not intended to be a complete inspection list for the system you are servicing.

- Pull test – If possible, have the customer pull the ripcord themselves.
- Check layout and line continuity.
- Inspect Pilot Chute – snags, bent spring, solid ferrule, proper type.
- Inspect Bridle – tacking and knots, proper routing of incremental bridle, T3 break tape.
- Inspect Apex – vent and cap, lateral band, straighten vent hem.
- Inspect Canopy – radial seams and gore seams, general condition, fabric pull test.
- Inspect Lower lateral band – skirt hem, line attachments.
- Inspect Suspension lines – snags, kinks, sheathing.
- Inspect Connector links – plating, tightness, approved type.
- Inspect Risers – Stitching, condition of webbing.
- Inspect Harness – canopy releases, webbing, hardware, ripcord and cables, housings.

6. Tools and Materials

We consider the following tools to be the minimum tools necessary to pack a complete emergency parachute system. While all the tools listed may not be necessary to perform the steps outlined in this manual, they are necessary to perform the packing service of a complete emergency parachute system from start to finish.

•	Temporary pins* with safety flag
•	Pull-up cords*, 50", made from CYPRES closing loop material
•	Packing weights, 4 minimum
•	Line separator (Optional)
•	Packing paddle
•	9mm or 3/8" wrench
•	Scissors & tacking needle
•	Lite Super Tack** cord (50 lb.) A-A-52080, Type 1, Size 3, Finish B
•	80-pound break tape (MIL-T-5661, Type 1, 1/4")
•	Closing loop material* (225 pound braided Dacron cord)
•	Stow Band, Rubber Band***, 1 1/4" X 3/8", Paragear PN: S7111
•	Lead seal and thread

* If the system you are packing has a CYPRES AAD installed, you must use closing loops made with CYPRES approved material (408 pound, 1.7 mm Spectra cord), CYPRES pull-up cords, and CYPRES closing pins.

** Super Tack size 2 (80 lb.) is approved for use as an alternative.

*** Tube Stows for micro line, PN: Microbulk-nat, are approved for use as an alternative.

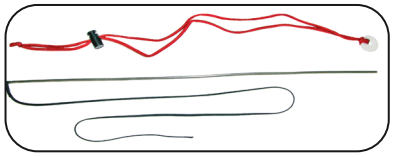
Required for initial assembly of an HX-series high speed canopy.

- Cable bodkin, PN: 801157 (or gun cleaning rod)
- Mil-T-5038, T3, 1/2" x 10"
- 3-cord cotton (15 lb.), ticket 8/4, A-A-52094B, Type V, Tex 270

Cable Bodkin

Additional tools required for packing a system with a deployment bag.

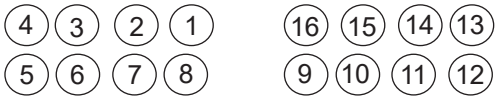
- 8" bodkin with 23" pull-up cord attached
- Locking pull-up cords with washer



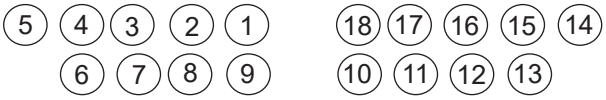
7. Methods

Line Continuity

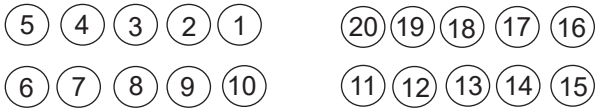
Lopo 350 & HX-300



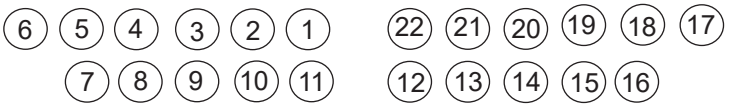
Lopo 450 & HX-400



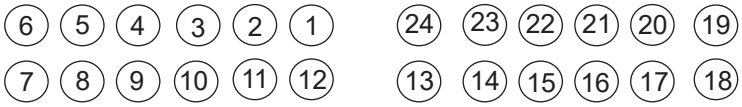
Lopo 550 & HX-500



HX-600



HX-500/24



Mil-T-5660, ticket 8/4, 3-cord cotton, one turn doubled * or Mil-T-5660, ticket 8/7, 5-cord cotton may be used if Mil-T-5660, ticket 8/9, 6-cord cotton is not available.

*

Unless stated otherwise, secure all hand tacks and ties with a surgeons knot and locking knot.

All directional references noted in Butler manuals are as the equipment is worn by the user.

A canopy cloth pull test is recommended once every two years. A canopy cloth pull test is required at the ten and fifteen year anniversary of the date of manufacture. Follow the procedures outlined in PIA Technical Standard 108-1.

Butler Parachute Systems recommends that the four locking rubber bands on the diaper or deployment bag be replaced at every repack cycle.

Genuine french Maillon Rapide links are the only connector links approved for installation on butler products.

- **Slider Installation**

Install the slider so the grommet (smooth side) is facing down (toward the links) and the grommet washer is facing up toward the canopy.

Install the slider in the same sequential order as the suspension lines. Install the suspension lines on the canopy links as you install the slider. When you are finished with the installation, the slider should be centered between the two line groups.

Inspect the suspension lines and slider for continuity. Ensure that the suspension lines run free and clear through their respective slider grommets in the same order that the suspension line is installed on the connector link.

Washer (rimmed) faces up toward the canopy.

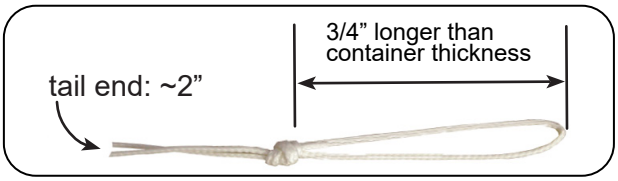
Grommet (smooth) faces down toward the links.

Slider runs free and clear of the suspension lines and is centered between the two line groups.

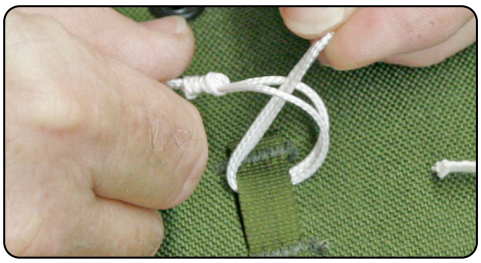
- **Closing Loop Length**

All Butler containers use closing loops made of 225 pound Dacron braided cord or, if a CYPRES Automatic Activation Device is installed, 408 pound, 1.7mm Spectra cord. no other closing loop material is approved for use. The closing loop must be short enough to fully compress the pilot chute and keep it firmly in place, but not so short as to cause excessive ripcord pull force. Butler Parachute Systems recommends that the closing loops be changed at every 180 day service repack.

WARNING It is the rigger's responsibility to ensure that the ripcord pull force is at or below 22 pounds for back and seat assemblies and 15 pounds for chest pack assemblies, every time you pack the parachute.

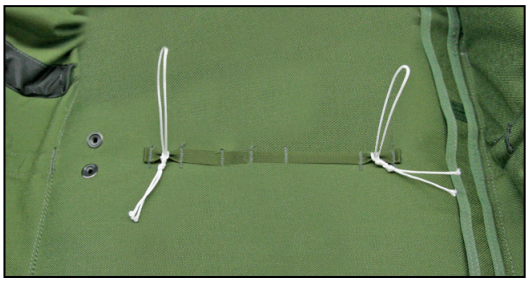


Make the closing loop 3/4" longer than the container thickness with a tail end that is approximately 2".



You may have to adjust the loop length after packing to achieve an acceptable pull force.

Pass the loop under the anchor tape on the base of the pack tray and form a lark's head knot.



- **Cable Housing Tack**

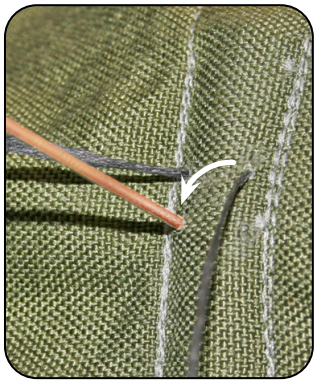
The cable housing is tacked to the top flap on all parachutes manufactured prior to 2016. v

The cable housing tack on the parachute container is against the seat when the parachute is used. Pressure and vibration may cause the tack to loosen or wear. The tack and the housing should be inspected at every repack to ensure the housing is not loose. If the housing is loose or the tack is worn, replace the tacking on the housing.

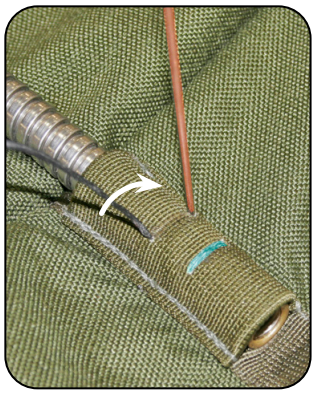
Ferrule even with edge.

Bring the needle through the guide from the back.

Back down the guide on the other side.

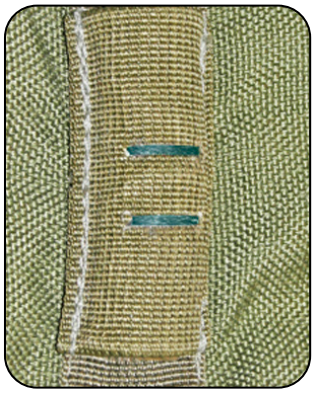


Up through guide on the other side.



Down through the guide on the other side.

Back view.



Front view.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RIGGER

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