
Butler Parachute Systems, Inc.

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ADDENDUM TO THE OWNER'S MANUAL

Model BETA Emergency Parachute System

1 JAN 89

This addendum must be used in conjunction with the BETA Owner's Manual dated March 1, 1984.

**A l l p r i o r m a n u a l s a n d a d d e n d a
a r e s u p e r s e d e d b y t h e s e d o c u m e n t s !**

We strongly encourage all Owners to register their parachute with Butler Parachute Systems, Inc. so that you will receive the latest updates such as this. Likewise, we encourage rigger's to register with us for the same reasons.

1. **PART NUMBERING SYSTEM:** The BETA Emergency Parachute System currently consists of over 40 different configurations and the number is growing steadily. In 1988 we converted to the following part numbering system which consists of two or more sections as follows:

PPP - WWwwLLlITt(XXXX) - CCCC

PPP - is the basic part number: 101 for back/chair (the BETA Chairpacks are actually extended versions of the backpack and carry the same basic part number) and 102 for seatpack.

WWww - the design width of the pack in inches; the lower case segment is used only if different top/bottom - the top width is given first. For seat packs, the width of the pack at the rear (as used) is shown in the top position.

LLlI - the design length of the pack in inches; lower case segment is used only if different left/right - the left length is given first. For seatpacks, this number is the front-to-rear dimension as seen when installed.

Tt - the design thickness of the pack in inches; the lower case segment is used only if different top/bottom - the top is given first.

XXXX - an open format designator reserved for some types of optional equipment; multiple optional items will appear separated by slashes within the parentheses. See the the list at the end of the addendum for codes that are currently in use. This section is not used unless there has been a structural or functional modification to the parachute.

CCCC - a canopy designator for complete systems to indicate which canopy is installed in the system. See

FAA Approved Parachute Loft (#401-254)

the list at the end of the addendum for canopy codes.

Examples:

P/N 101-16360200(3RR)-26TC

is a chairpack parachute 16" wide, 40" long, 2" thick at the top tapering to 0" thick at the bottom edge. It has an optional 3-ring riser release installed and uses the North American Aerodynamics 26' TriConical canopy.

P/N 102-151303(WB/SL/PRS/RTM)-26N

is a seatpack parachute 15" wide, 13" front-to-rear, 3" thick with the "Warbird" special package of options; a static line (SL); and a pyrotechnic reefing system (PRS). The canopy is a 26' Navy Conical (26N) and the parachute must be returned to Butler Parachutes for service (RTM).

P/N 101-14190.502-R41

is a backpack parachute 14" wide, 19" long, 0.5" thick at the top tapering to 2" thick at the bottom with a ParaInnovators R4-1 26' Bias LoPo installed.

2. **COMPATIBLE CANOPIES:** See the the chart list at the end of the addendum for compatible container/canopy combinations.

Common sense and the TSO requirements for the BETA dictate that

ALL CANOPIES MUST BE STEERABLE!!

Assembly with a non-steerable canopy voids the TSO, is a violation of the FARS and *will* be reported to the FAA if discovered by Butler Parachute Systems. 4-line release kits (including an extended version for seatpacks) are available from Butler Parachute Systems for canopies not originally equipped with a steering modification.

Likewise, common sense and industry experience also dictate that canopies with deployment diapers be used whenever possible. Deployment diapers for a number of canopies (24/26/28 military, etc) are available from Butler Parachute Systems for canopies not originally equipped with them.

In addition, the TSO requirements for the BETA parachute systems prohibit the use of "speed links" because they are too wide for Type 7 webbing and not as strong as the "L-bar" link. Canopies originally equipped with "Rapide" links may be installed by cutting the extended box stitch out of the end of the risers and removing the buffer strip.

3. **CLOSING LOOP LENGTHS:** Due to the wide variety of container/canopy combinations, closing loop lengths are not set at the factory and may be varied, at the rigger's discretion, as required by the particular combination in use. In general, the loops should be short enough to fully compress the pilot chute and keep it firmly in place. This not only ensures that the spring will get a good solid launch, but it will also keep the spring from shifting off center. For an initial assembly of a parachute, the force to pull the loops up and insert the pins can be quite high and still result in a pull force within limits (22 lbf) after several days. This is because the pack tray area where the loops are attached changes shape under the tension

from the loops allowing the loop tension (and thus the pull force) to drop off. This effect only occurs after the initial assembly and packing or an extreme increase in the loop tension.

Closing loops may be replaced with MIL-C-5040 Type IIa cord or the outer sheath of MIL-C-5040 Type III. No other type of closing loop material is authorized!

NOTE: It is the rigger's responsibility to ensure that ripcord pull force is less than 22 lb. When in doubt, check it!

4. Packing the **BETA** Backpack with canopies using a "Piglet" diaper, such as Phantoms and ParaInnovators canopies.
 - a. Pack the canopy according to the manufacturer's instructions.
 - b. Fold the risers back into the pack tray and spread the ends apart slightly so that the connector links don't stack.
 - c. Turn the diaper 90 degrees and place it in the lower right corner of the pack tray with the lines up.
 - d. Route the canopy to the lower left corner and make an S-fold on top of itself to equalize the thickness with the diaper so that the bulk is equal on both sides. The canopy should be folded so that there is a slight (<1") overhang on both sides. The locking stows of the diaper should be slightly off center and the next fold beside it should touch the locking stows to even the bulk and ensure a tight, neat appearance when the bottom flap is closed. The point where the fold touches the locking stows must not be in the center or a large crease will form when the flap is closed.
 - e. Continue S-folding the canopy back and forth across the canopy from bottom to top in order to distribute the bulk as evenly as possible while minimizing sharp transitions in thickness.
 - f. Route the bottom pull-up cord above the diaper; route the other two as required.
 - g. Close the container as shown in the basic packing instructions.

NOTES:

- 4a. These instructions will cause the pack to be thick at the bottom and thinner toward the top. In some cases it may be advantageous to pack the parachute thick at the top and thinner at the bottom. In the above instructions, references to top/bottom and left/right may be interchanged at the riggers discretion.
 - 4b. Some containers are made to be packed so that they are tapered. Examine the container itself and the part number to determine if it is a tapered container (see last example in part numbering explanation). If the container is designed to be tapered - don't fight it - pack the canopy to fit the container.
5. Packing the **BETA** Seat with canopies using a Piglet (Ascuito) diaper:
 - a. Pack the canopy according to the manufacturer's instructions:
 - b. Fold the risers back into the riser channels and the pack tray as shown in the basic packing instructions.

- c. Turn the diaper 90 degrees and place it in the right front corner of the pack tray.
 - d. Make an S-fold adjacent to the diaper to even the bulk at the front of the container, then continue S-folding the canopy toward the back edge of the pack tray.
 - e. Route the pull-up cords as required to achieve a neat pack that is slightly tapered from thick at the front toward thinner at the rear.
 - f. Proceed as shown in the basic instructions.
6. Packing the **BETA** Back with canopies using a full-stowage diaper (24/26/28 surplus canopies with BPS diaper, NAA 22/26' TriConicals, some Security Lopos, etc):
- a. Pack the canopy according to the canopy manufacturer's instructions.
 - b. Fold the risers and the lower 15-20" of lines back over into the pack tray and spread the risers slightly so that the links don't stack.
 - c. Turn the canopy 90 degrees and place it at the bottom edge of the pack tray so that the smoothest part of the canopy/line stows will be against the bottom edge of the container.
 - d. Continue S-folding the canopy back and forth across the canopy from bottom to top in order to distribute the bulk as evenly as possible while minimizing sharp transitions in thickness.
 - e. Route the bottom pull-up cord above the diaper; route the other two as required.
 - f. Close the container as shown in the basic packing instructions.

NOTES:

- 6a. These instructions will cause the pack to be thick at the bottom and thinner toward the top. In some cases it may be advantageous to pack the parachute thick at the top and thinner at the bottom. In the above instructions, references to top/bottom and left/right may be interchanged at the riggers discretion.
- 6b. Some containers are made to be packed so that they are tapered. Examine the container itself and the part number to determine if it is a tapered container (see last example in part numbering explanation). If the container is designed to be tapered - don't fight it - pack the canopy to fit the container.

7. Packing the **BETA** Seat with canopies using full-stowage diapers:
 - a. Pack canopy in accordance with canopy manufacturer's instructions.
 - b. Proceed in accordance with basic packing instructions from Step 7 onward.

8. Packing the **BETA** Chairpack with Piglet (Ascutto) diapers (all chairpacks manufactured to date are designed to pack thick at the top edge - other variations will be covered as developed):
 - a. Pack the canopy according to the manufacturer's instructions.
 - b. Fold the risers back into the pack tray and spread the ends apart slightly so that the connector links don't stack.
 - c. Turn the diaper 90 degrees and place it in the upper right corner of the pack tray with the lines up.
 - d. Route the canopy to the upper left corner and make an S-fold on top of itself to equalize the thickness with the diaper so that the bulk is equal on both sides. The canopy should be folded so that there is a slight (<1") overhang on both sides. The locking stows of the diaper should be slightly right off center and the next fold beside it should touch the locking stows to even the bulk and ensure a tight, neat appearance when the top flap is closed. The point where the fold touches the locking stows must not be in the center or a large crease will form when the flap is closed.
 - e. S-fold the canopy one or two times across the pack tray from the top downward to minimize the transition in thickness from the diaper to the rest of the pack tray.
 - f. Next route the canopy straight down the side to the bottom edge of the pack tray, fold back over and come back up the opposite side. Spread the canopy loosely across the full width of the seat area of the pack tray remembering that someone has to use this area for a cushion.
 - g. Fold the remainder of the canopy bulk in to distribute the bulk as smoothly as possible
 - h. Route the top pull-up cord below the diaper taking care to place plenty of bulk under the ripcord housing; route the other two as required.
 - i. Close the top flap as shown in the basic packing instructions.
 - j. Close the bottom flap by rolling the edges with the hook velcro around and under to mate with the Velcro on the pack tray. Start matching the Velcro at the bottom edge of the pack tray and work toward the top. Note that there is quite a bit of "fullness" built into the bottom flap to allow the seat area of the Chairpack to fold around the body without buckling as is common on some other systems.
 - k. Place the pilot as required. Although it is recommended to place the pilot chute in the low position (between the bottom and middle loops) for better lumbar support, it may be placed in the high position if required - make sure the loop lengths are appropriate.
 - l. Continue closing as shown in the basic instructions for the backpack.

9. Packing the **BETA** Chairpack with full-stowage diapers (all chairpacks manufactured to date are designed to pack thick at the top edge - other variations will be covered as developed):
 - a. Pack the canopy according to the manufacturer's instructions.

- b. Fold the risers back into the pack tray and spread the ends apart slightly so that the connector links don't stack.
 - c. Turn the canopy 90 degrees and place it at the top edge of the pack tray so that the smoothest part of the canopy/line stows will be against the top edge of the container.
 - d. S-fold the canopy one or two times across the pack tray from the top downward to minimize the transition in thickness from the diaper to the rest of the pack tray.
 - e. Next route the canopy straight down the side to the bottom edge of the pack tray, fold back over and come back up the opposite side. Spread the canopy loosely across the full width of the seat area of the pack tray remembering that someone has to use this area for a cushion.
 - f. Fold the remainder of the canopy bulk in to distribute the bulk as smoothly as possible
 - g. Route the top pull-up cord below the diaper taking care to place plenty of bulk under the ripcord housing; route the other two as required.
 - h. Close the top flap as shown in the basic packing instructions.
 - i. Close the bottom flap by rolling the edges with the hook velcro around and under to mate with the Velcro on the pack tray. Start matching the Velcro at the bottom edge of the pack tray and work toward the top. Note that there is quite a bit of "fullness" built into the bottom flap to allow the seat area of the Chairpack to fold around the body without buckling as is common on some other systems.
 - j. Place the pilot chute as required. Although it is recommended to place the pilot chute in the low position (between the bottom and middle loops) for better lumbar support, it may be placed in the high position if required - make sure the loop lengths are appropriate.
 - k. Continue closing as shown in the basic instructions for the backpack.
10. There are numerous special configurations of the **BETA** parachute systems that are covered only in serialized packing instructions - or not covered by published packing instructions. If you do not have access to the packing instructions, you are prohibited by the FARs from packing the parachute. Please call Butler Parachute Systems for guidance as required.

PART NUMBERS FOR BPS PRODUCTS

Pack volumes shown are the cut dimensions of the pack. In general, canopy volumes of +/- 30% from this number will work satisfactorily - the larger the pack tray (length and width) the easier the variation is to accommodate. Call for information on specific installations.

<u>Part Number</u>	<u>Pack Volume</u>	<u>Comments</u>
101-12210004	504	Special Blanik L13
101-14190.502	333	AS-W20
101-14190002	266	AS-W20
101-14200.502	350	
101-142001	280	
101-142002	560	
101-14200200	280	
101-142201	308	
101-142202	616	
101-142401	336	
101-142402	672	Standard backpack model - 14" width
101-14340200	476	
101-14360200	504	Standard chairpack model - 14" width
101-14380200	532	
101-14400200	560	
101-162001	320	
101-162002	640	
101-162201	352	
101-162202	704	
101-16240.502	480	
101-162401	384	New part number of the original BETA Back
101-162402	768	New "standard" backpack - 16" width
101-16340200	544	
101-16360200	576	Standard chairpack model - 16" width
101-16380200	608	
101-164002-MT1X	1280	Special chairpack for MT-1X
101-16400200	640	
101-1817280203	1225	Special Taifun 17E; replaces back cushion
102-141202	336	Good fit in Citabria/Decathlon
102-141203	504	
102-141204	672	
102-141402	392	Good fit in Pitts S2B with cushions removed
102-141403	588	
102-141404	784	
102-141602	448	
102-141603	672	
102-151302	390	Same length/width as military seatpack

102-151303	585	Same length/width as military seatpack
102-151304	780	Same length/width as military seatpack
102-161202	384	Original BETA Seat (small size)
102-161203	576	
102-161203.5	672	Original BETA Seat (large size) - DISCONTINUED
102-161204	768	
102-161402	448	
102-161403	672	
102-181402	504	
102-181403	756	
103		Diaper - basic item
103-22TC		Diaper NAA 22' (extra length)
103-P28		Full-stow diaper Phantom-28
103-R4		Full stow diaper for R4 series

PART NUMBER MODIFIER CODES

22TC	North American 22' TriConical
24A	24' Army canopy
26N	26' Navy Conical
26TC	North American 26' TriConical Canopy
28AN	USAF/USN 28' canopy (C-9)
3RR-H	3-ring release installed on harness - normal setup
3RR-I	3-ring riser release installed on riser inside pack
4L	4-line release kit installed
4LX	Extended 4-line release kit installed (seatpacks)
AAD	Automatic Ripcord Actuator installed
AAD-SL	AAD installed - static line activated
AH	Adjustable harness (inc. adjustable HBS and main lift web)
AHBS	Adjustable horizontal back strap
B12CS	B12 Snap on chest strap
CWRR	Capewell riser release installed
DD	Deployment Diaper installed - only if not original equipment
DSS	Drogue Stabilization System installed
FF1	Free Flight Enterprises - Preserve 1
FF1A	Free Flight Enterprises - Preserve 1a
FF3	Free Flight Enterprises - Preserve 3
G103	Special Version for Grob 103
GQ-26BI	GQ Security 26' Bias Lopo
GQ-26BK	GQ Security 26' Block LoPo
GQ-SAC	GQ Security 22' AeroConical
HGP	Hi-glide parachute installed
L13	Special version for Blanik L13 sailplane
MT1X	ParaFlite MT1X
NP22	National Phantom 22
NP24	National Phantom 24
NP26	National Phantom 26
NP28	National Phantom 28
O2-IB	Oxygen bottle - internal back/chairpack installation
O2-IC	Oxygen bottle - internal chest

O2-IS	Oxygen Bottle - internal seat
O2-XB	Oxygen bottle - external back/chairpack installation
O2-XC	Oxygen bottle - external chest
O2-XS	Oxygen bottle - external seat
PF-C	ParaFlite Cirrus Reserve
PF-MT1	ParaFlite MT1
PF-MT1S	ParaFlite MT-1S
PF-MT1X	ParaFlite MT-1X
PF-O	ParaFlite Orion
PF-S	ParaFlite Swift
PF-SS	ParaFlite-SuperSwift
PI-26BI	Pioneer 26' LoPo - Bias
PI-26BK	Pioneer 26' LoPo - Block
PRS	Pyrotechnic reefing system
QECS	Quick Ejector snap installed on chest strap
QEL	Quick ejector snaps installed on leg straps
R41	ParaInnovators R4-1 or -5; 26' Bias LoPo, Standard Category
R43	ParaInnovators R4-3, 26' 0-po
RTM	Return to manufacturer's (BPS) loft for service
RV1	Precision Parachute Company - Raven 1 Canopy
RV2	Precision Parachute Company - Raven 2 Canopy
RV3	Precision Parachute Company - Raven 3 Canopy
RV4	Precision Parachute Company - Raven 4 Canopy
SE-26L	Strong Enterprises - 26' LoPo (original)
SE-26LT	Strong Enterprises - 26' LoPo Lite
SE-26M	Strong Enterprises - 26' LoPo Midlite
SK-IB	Survival kit - internal back
SK-IC	Survival Kit - internal chest
SK-IS	Survival Kit - internal seat
SK-XB	Survival kit - external back mount
SK-XC	Survival Kit - external chest
SK-XS	Survival Kit - external seat
SL	Static Line system