RESERVE CANOPY OWNER'S GUIDE

BasiK Air Concept
559 chemin des Salles - 83300 Draguignan - France
tel: +33 (0)494 99 12 36 - basik.fr@free.fr

Edition n°1 - April 2005- revision 1

BasiK Air Concept Sarl - France

Dear Customer,

Thank you for purchasing a new BasiK Air Concept's X-Fast reserve canopy. We are confident you'll be pleased with it in every way. This canopy range has been developped and manufactured with extreme care by using the best available materials. E-TSO-C23d and TSO-C23d flight testings have proved to us that these canopies are on the leading edge of the market.

We urge you and your rigger to carefully inspect your new reserve canopy to completely familiarize yourselves with its features and quality workmanship. Should you find anything that does not seem right to you or your rigger, please contact us immediately.

Again, thank you for choosing a BasiK Air Concept canopy. With proper care, it should provide years of service.

BasiK Air Concept staff wish you safe jumps.

X-Fast	Size	Serial #	Date of manufacture
.....	.....	.....	.....

Table of Contents

Revision List

Date:	Subject:
.....	.....
	.....
	.....
.....	.....
	.....
	.....
.....	.....
	.....
	.....
.....	.....
	.....
	.....

Statement of compliance

The policies contained herein comply with the Federal Aviation Regulations, Part 21.

Disclaimer

Because of the unavoidable danger associated with the use of this parachute, the manufacturer makes no warranty, either expressed or implied.

It is sold with all faults and without any warranty of fitness for any purpose. The manufacturer also disclaims any liability in tort for 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 parachute assembly, or allowing it to be used by others, the user waives any liability of the manufacturer for for personal injuries or other damages arising from such use.

If the buyer declined to waive liability on the part of the manufacturer, buyer may obtain a full refund of the purchase price by returning the parachute before it is used to the manufacturer within fifteen (15) days from the date of the original purchase with a letter stating why it was returned.

About this guide

It is beyond the scope of this guide to teach you how to deploy, fly, land or maintain this parachute. This is only a general guide about this canopy. It does not replace or substitute for proper training and instruction. If there is anything that you do not fully understand, you must seek assistance from a properly rated instructor.
Your local Parachute association or Federation publishes recommended procedures on learning to jump and using skydiving equipment. We urge you to learn and follow these procedures. To reduce the risk of serious injury or death, you must obtain instruction in the use of this parachute from a competent instructor from your country before using this parachute for the first time.
Jumping this parachute without first receiving thorough and personal instruction increases the risk of serious injury or death.
Sport parachuting technology and procedures continue to advance rapidly. Although a great deal of care has been taken in the preparation of this guide, Basik Air Concept cautions that it my contain information that may be incorrect or behind the current state of the art of parachute use.

For these reasons, you must use qualified experts -riggers and instructors- to help you inspect, assemble, pack, use and maintain this parachute. We also welcome your comments -good or bad- about our products.

Read before assembly or use

Since parachutes are manufactured and inspected by people, there is always a possibility this parachute contains defects as a result of human error. Therefore, the entire parachute system - main and reserve canopies, harness, container and other components - must be thoroughly inspected before their first use and before each subsequent use.
Parachutes get weaker through time for a number of reasons. They are subject to wear during packing, deployment and landing. Exposure to many agents, including sunlight, heat and household chemicals, significantly weaken parachutes. The damage may or may not be obvious. To help minimize the risk of parachute failure and possible serious injury or death, the entire parachute system should be thoroughly inspected at least every 120 days or up to your regulations. In the United States it is required by law. Other countries may have similar laws. Inspections must be performed by an FAA - certified rigger who has previous experience with this type of parachute.
Your parachute should be immediately inspected if at any time it is exposed to a degrading element. Remember that some chemicals will continue to degrade the parachute long after initial exposure. Regular and thorough inspections are necessary to maintain the structural integrity, reliability, and flight characteristics of the parachute.
Always know the entire life history of every part of your parachute system. That way you will know no part has been exposed to an agent that may seriously weaken or damage it.

Do you have the right canopy?

It is important for your safety and enjoyment that you match your canopy with your ability and weight. BasiK Air Concept's X-Fast reserve canopies are built in several sizes that span a wide range of canopy surface areas. There is a specific reserve to match almost any combination of weights, skill levels, and landing elevations. You should read this section very carefully, and insure that this canopy fits your weight, skill level, and landing elevation.

If after reading this section, you believe that you have the wrong canopy size, do not pack or use the canopy. Contact your dealer or BasiK Air Concept immediately.
Any canopy's descent rate and forward speed increases as the weight it is carrying -the suspended weight- increases. The canopy also becomes more responsive and reacts more radically when it is stalled or turned. Penetration into the wind increases, but glide ratio decreases. Because of these aerodynamic facts, it is unsafe to put too much weight under any particular canopy. Safe and confortable landings will be difficult to obtain, even for experienced jumpers under ideal conditions. Less experienced jumpers will have even a harder time and be at greater risk.
The explanations about canopy flight characteristics below are based on landing elevations at see level. If you are landing at elevations higher than 2000 ft (600 meters) above see level, you should consider getting a canopy at least one size larger than what you would normally jump at see level.

Determining the wing loading of the parachute you intend to jump or buy is a good guide to matching your weight to a particular canopy. Wing loading is easily calculated by dividing the total suspended weight in pounds by the surface area of the parachute in square feet. Total suspended weight is the weight of the jumper plus all his clothing and gear, including all components of the parachute system.

The surface area of BasiK Air Concept canopies is printed on the data panel on the center cell top surface near the tail (make sure to actually check the data panel; canopies of different sizes may look the similar).

A typical ready-to-jump sport piggyback (rig and both canopies) weights 20 to 30 pounds (9 to 14 kg). Add this, plus the weight of your jumpsuit, clothing and accessories to your body weight to get the total suspended weight.

For example, a jumper who weights 165 pounds (75 kg) with his jumpsuit on and who jumps a packed rig that weights 25 pounds (11 kg) would have a supended weight of 190 pounds (86 kg). Here's an example of how to calculate wing loading of a 210 square feet canopy and the jumper used in the example above:
190 lb./210 sq.ft = 0.9 lb./sq.ft.

Specifications

Model	**120**	**135**	**150**	**170**	**190**	**220**	**245**	**265**	
Chord cm	204	217	228	242	255	289	324	344	
Span cm	455	478	502	533	565	599	633	665	
Aspect ratio	2.23	2.2	2.2	2.2	2.22	2.07	1.95	1.93	
Weight kgs	1.92	2.24	2.4	2.7	3.11	3.41	3.7	4.11	
Volume (cu.in.)	225	252	270	315	330	355	415	440	
MSW	80	90	95	100	110	120	130	130	

Deployment Systems

This parachute has been tested for reserve use using a free bag deployment system only. No other deployment system has been tested or approved for reserve or emergency use. Even if a pilot chute attachment exists, you cannot attach a pilot chute if the canopy is being used as a reserve. Doing so voids the TSO.

Flight Characteristics

This section is not a substitute for proper training. Even if you are familiar with ram-air parachutes, a reserve canopy may behave differently. Most 7-cells canopies have generally a higher rate of descent and a lower glide ratio than most 9-cells main canopies at similar wing loading.
In the event of a deployment of your reserve canopy, first, check your altitude. If there is sufficient altitude, prepare your canopy for flight as follow:
- Release the brakes by putting your hands through the toggles and pull down both toggles simultaneously and vigorously.
- If necessary at this point, the slider may be pumped down by pulling both toggles to your waist and holding them there for a few seconds and then raising them back up. If some cells are closed, this action should open them. You may have to repeat this two or three times.

If there is no sufficient altitude, it is better to make a smooth flared landing with collapsed end cells than to land while pumping the toggles to clear them.

Next look for the best landing area you are sure you can reach. Keep in mind that your reserve may not glide as far as your main parachute. Your opening altitude is probably lower than normal under your reserve. The sooner you look for a landing area the more places you will have to choose from. Immediately turn toward your intended landing area.

If there is enough extra altitude after reaching the landing area try some practice flares in the air. Note the control range and how the canopy stalls. It is better to flare too little than too much.
Always fly a conservative approach for a first time landing on any canopy. Avoid turns close to the ground. Remember this canopy probably flies very differently in a turn than you expect.

If you do not have enough time under the canopy to get familiar with it, do not try to flare it. Instead, land at half brakes and do a good parachute landing fall. If you are jumping at a high wing loading and are not able to flare, you are more likely to get hurt. However, at any wing loading, a half-brake or brakes-stowed landing will probably be softer than a landing with a poorly executed flare.

Canopy Inspections

Your X-Fast reserve canopy must be inspected thoroughly before it is packed for the first time and at each repack. This inspection should be performed with even more care and attention on first assembly and after a deployment. An FAA certified rigger must inspect your new BasiK Air Concept reserve canopy and dertermine its compatibility with your rig.

This inspection must be performed in a clean, well lit area with enough room to spread out the reserve canopy. Here is the BasiK Air Concept recommended procedure for inspecting your reserve canopy. Consult the owner's guide for your rig and other components for instructions on inspecting them.

Permeability Check

The permeability of the fabric is very important. As the permeability increases, the canopy will open more slowly and flight performance will deteriorate. To insure the canopy remains in compliance with TSO requirements and to insure the canopy is safe to use, Parafun has established an average permeability limit of 6.0 cfm for the top and the bottom fabric surfaces. Fabric permeability does not change while the canopy is packed; it changes as a result of use and handling. Therefore it is important to maintain a complete history of the parachute. Fabric permeability must be tested if any of the following events occur:

- Complete immersion in water
- 25 jumps have been made since new or last certified
- More than 40 repacks
- No historic datas
- Flight performance appears to be substandard
- Any reason to believe the fabric permeability may exceed specifications

The Basik Air Concept factory is equipped to perform permeability testing. It is recommanded that any canopy needing such testing be returned to the factory.

Visual Inspections

It is best to inspect your reserve in a careful, systematic way. We recommend starting at the top of the canopy and working down to the risers as described below:

- Top surface
Spread out the canopy on its bottom surface and inspect the top surface starting at the front of the left-end cell. Check half of the cells from nose to tail. Then check the following cells going from tail to nose. Repeat this pattern until inspection of all cells' top surface is completed.. Look for rips, stains, or failed seams.

- Bottom surface
Turn the canopy over and spread it out to inspect the bottom surface. Again use the same pattern procedure as used for the top surface. Look very closely all the line attachments. Even slight damage is cause of rejection in these areas. Line attachments must be completely free of any damage or defect.

- Ribs
Check the inside section of each cell from leading edge to trailing edge.. Pay extra attention to the line attachment points.

- Lines and stabilizers
Lay the canopy side, piling the cells on top of each other. Check that all lines in each line group are the same length and that the trim differential between each line group is correct for this reserve. Check the full length of each line for damage and wear. Look for fraying at all cascades and where each line attaches to the soft connector link. Check that all lines are sawn and that the stitching is good. Check the continuity and routing of each line.
Check the condition of the stabilizers and slider stops on the stabilizers.

- Slider
Make sure the fabric is not torn, that the grommets are undamaged and have no sharp edges, and that they are securely attached to the slider. Make sure every suspension line and both steering lines pass through the proper grommet on the slider.

- Risers area
Recheck the soft links mounting on the risers. The toggles must be installed correctly and must match the guide ring and velcro on the risers. The steering line loop end is preset in our factory, do not change this setting.

- Rest of assembly
Follow the instructions in the rig manufacturer’s owner’s guide to inspect the rest of your parachute system.

Assembly Instructions

Your new BasiK Air Concept X-Fast reserve canopy must be assembled, inspected and packed into your parachute system by an FAA-certified rigger. Even if you live in a country where it is legal to assemble and maintain your reserve, you should let a very experienced, appropriately rated rigger, that is familiar with this reserve, your harness-container, and all other components of the parachute system do the work. An improperly assembled or packed reserve canopy may result in serious injuries or death.

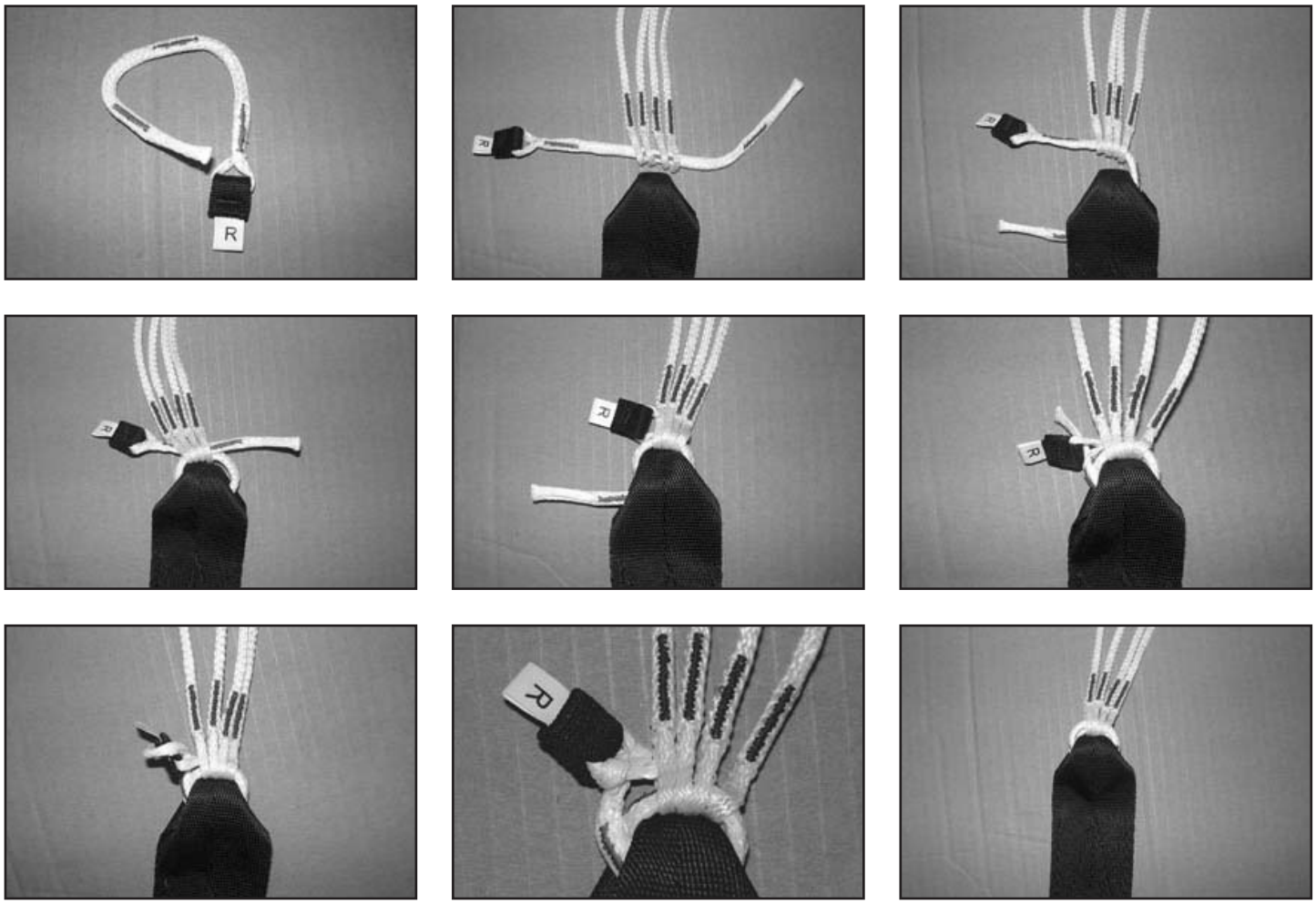
Attaching to Risers

When assembling a BasiK Air Concept X-Fast canopy onto risers, it is important to rigorously follow the directions illustrated below. Start checking that the routing of the canopy lines is right. Hook the soft connector links on the risers and attach them as showed.

About Soft Connector Links

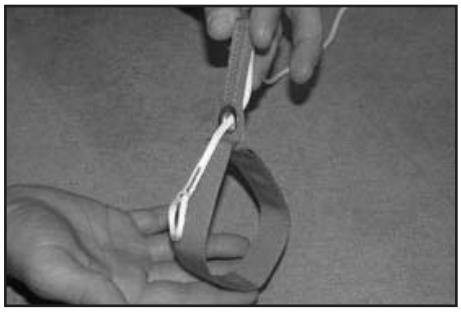
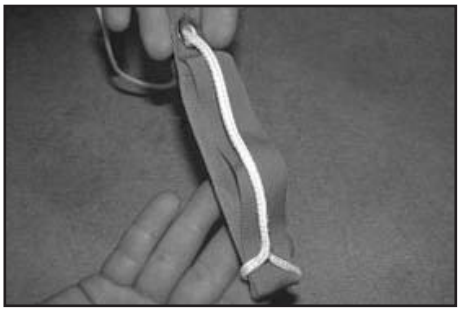
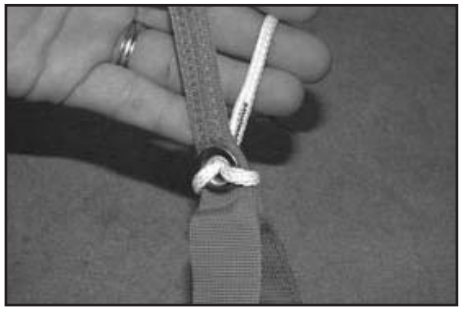
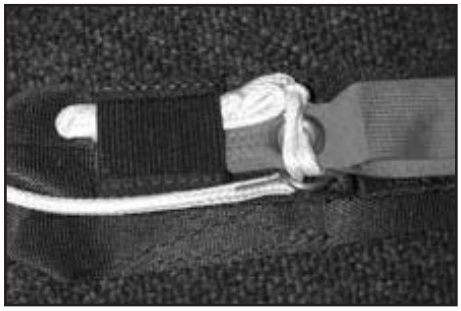
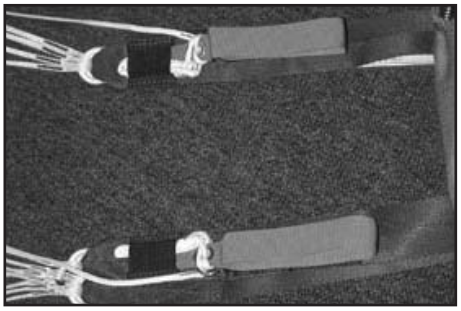
The soft connector links supplied by BasiK Air Concept for use with its reserve canopies are of the highest quality, and are carefully manufactured, inspected and tested. Other links may look similar, or even identical, to those supplied by BasiK Air Concept but any substitute could be considerably weaker than genuine Parafun soft links. To insure that the links you use are not substandard, make sure that any replacement links come directly from BasiK Air Concept. No substitute or alternative source is authorized.

There are two different sizes of soft links available from BasiK Air Concept. One is for reserve and main tandem canopies assembly purpose and are identified by an "R" on the tag. Those with a "P" on the tag are for main sport canopies only. Make sure to have the right one with a "R" set on the tag before any assembly.



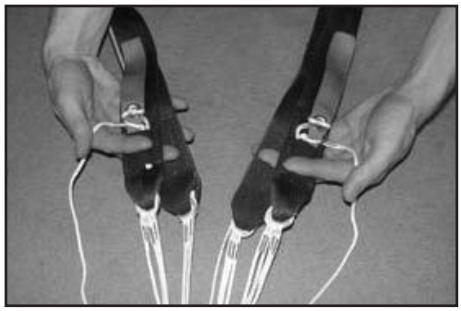
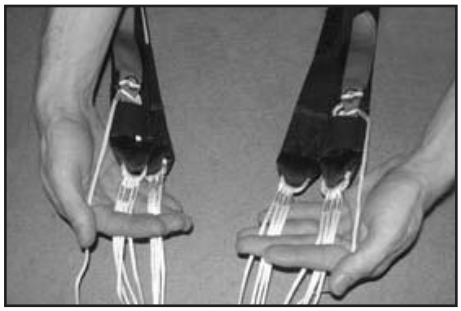
Attaching to Toggles

You must follow instructions from your harness-container owner' guide. If no indication is given, follow the next steps:
1 - Route the steering line through the guide ring on the riser.
2 - Then route it through the grommet in the toggle starting from the velcro side.
3 - Slide the loop over the toggle starting at the lower end of the toggle.
4 - The loop should be tight around the toggle when the loop is centered on the grommet.

Packing Instructions

Take the four risers and both steering lines as showed.


Move up toward the canopy by passing the right group of lines over your right shoulder and the left group of lines over your left shoulder. Leave the slider behind your head. Clear up line groups and S-fold the fabric on the outside of the lines.

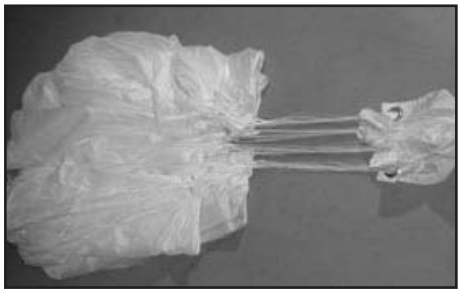

The four groups must be clearly separated.




Position the slider in the center of the canopy and set line groups on the sides.

Pull each cell completely out until having seven cells.

Three on the left side, one in the middle and three on the right side. Gently lay the canopy on the floor supporting it with your forearm.



Stow B and C lines by spliting the material and fold it over the cells. Use your hand and forearm to stow B and C lines; spread the fabric and lay it over the cells.
Take D line-group and the steering lines and bring them back by forming a S-fold.

Stow each pannel of the tail by lining up lines up to the center pannel (warning label).

This warning label must be set right in the middle, between riser groups.

Repeat all these steps for the other side of the canopy.
Pull up the slider by grabbing the tapes around its center. Stack grommets on each side and spread correctly the slider material on each side too.




Set the center panel (warning label).

Clear steering lines by moving them on the tail. Fold the material of B and C groups toward the center. This method will clear up both steering lines groups.



Set back tail folds over B and C groups folds. Repeat this operation for the other side.
Spread out the tail by kneeling to maintain it.



Tuck around B and C groups with the center pannel and leave the cells out on each side.
Fold the three cells on each side of the bundle in order to set correctly the center cell.



Then set all cells under the bundle.



At this stage have your reserve bag prepared.
There are several different types of bags being used by various harness and container manufacturers. Refer to your harness container owner's guide and follow the instructions. You can also follow our method if it fits well with your equipment. If the rig manufacturer specifies a different method of organizing the canopy before placing it in the bag, follow its instructions.

Fold the bottom of the budle back on top of itself making approximately a 10 to 15 cm S-fold.
Kneeling on this fold, carefully part the top half of the canopy into two halves.



Starting from bottom to top and using a kneading motion, mold the halves into two equal ears.

Open the center cell.
Roll the center and stack it over the firs S-fold.
Set the two ears.



Seat the reserve bag under the bundle by lifting the later carefully.
Fold both ears and put them into the bag.



Put the remaining folds in the bag and secure it.
From this stage on, follow the instructions detailed in your harness container owner's guide.




Maintenance and Repairs

Repairs may be split into three categories:
1 - Minor repairs. These may be performed by a senior rigger
2 - Major repairs. These require a master rigger
3 - Factory repairs. These may be performed by Basik Air Concept factory only.

Small snags and holes smaller than 0.3 square centimeters located further than 26 cm from the closest line attachment may be left unrepaired as long as there are no more than one in any 26 cm circle. A maximum of three such snags per cell are allowed. Ripstop tape is not authorized for use on BasiK Air Concept reserves. If the damage is sufficient to warrant a repair, a sewn repair must be performed.

Any hole or tear up to 26 cm in length may be repaired by a senior rigger as long as the closest area of the completed repair is at least 2.5 cm away from the nearest seam and at least 12.5 cm from the nearest tape or line attachment. These are minor repairs.

Any line, tape, or webbing damage is a major repair. Lines may be replaced by a master rigger. However, it is recommanded that these repairs be done at the factory.

A master rigger may perform repairs that do not involve taking apart any bartack on the canopy. Special bartacks patterns are used that are not normally found in the field. In addition, removal and replacement of these stitch patterns usually weakens the fabric to the point that it is necessary to replace portions of panels. The original templates are needed to complete this correctly.

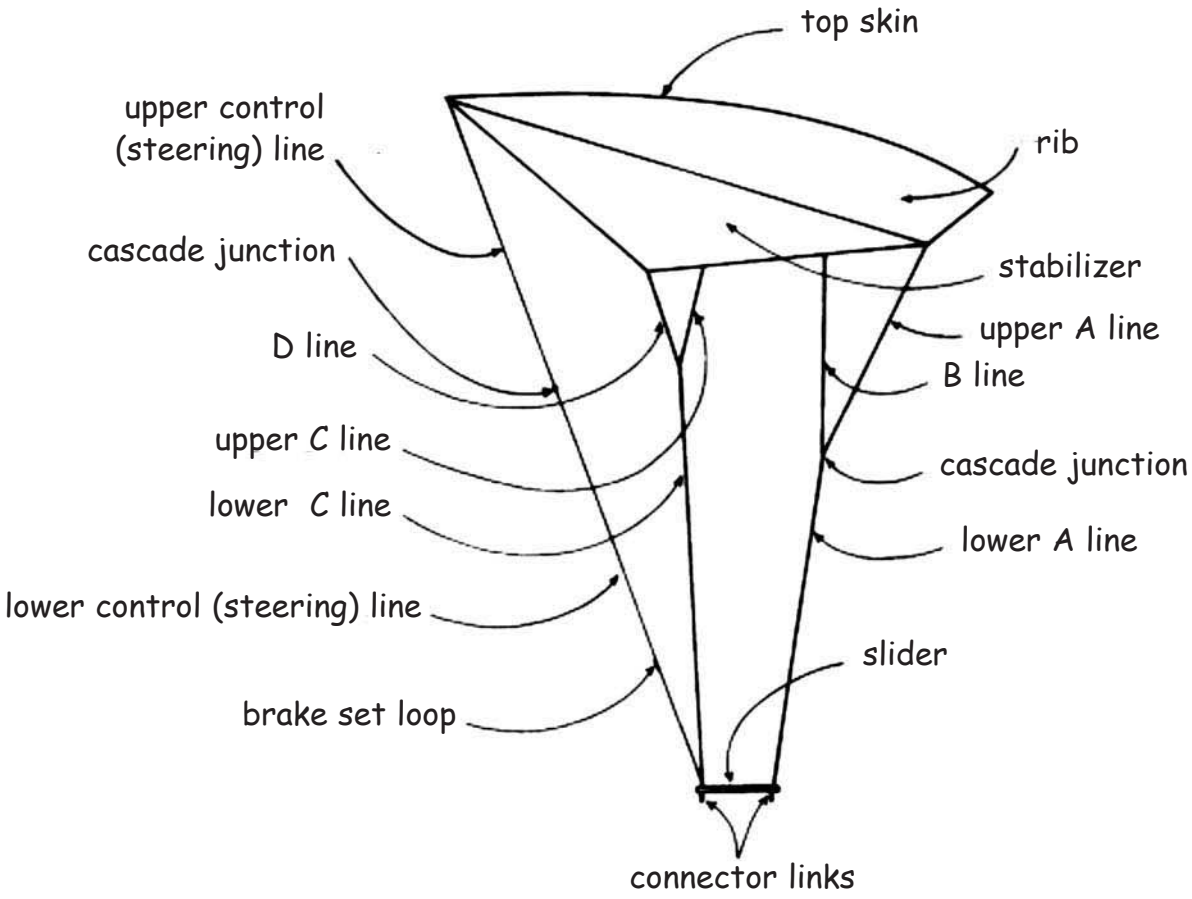
Reserves may only be repaired using certified materials. All replacement materials must come from BasiK Air Concept's factory. Under resistant thread and fabric arefrequently found in the field. The only way to be sure your materials are up to our standards is to purchase them directly from Basik Air Concept.

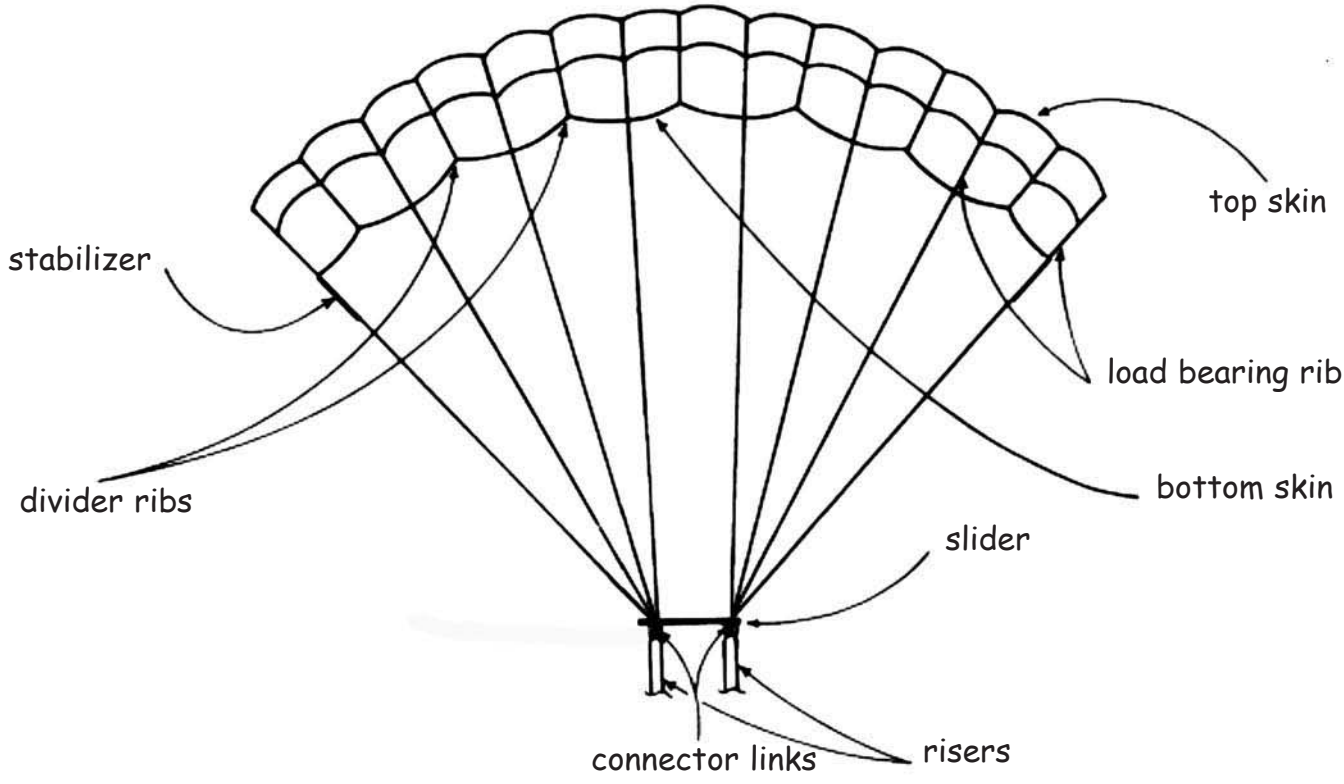
Degradation from Use

This canopy is designed for reserve or emergency use only. It is not intended to be jumped on a regular basis, or to experiment a large number of jumps. In an effort to build a reserve canopy as reliable as possible, materials were chosen mainly for reliability and strength, rather than maximum durability over a large number of jumps. The fabric permeability increases with use, causing the canopy to take more time and altitude to open. A canopy with a lot of jumps will not open as quickly or land as well as a new one. It is very important that your reserve be in close-to-new condition. A reserve with fabric over the permeability limits may take too long to open at low cutaway altitudes, resulting in your death. If you are unsure of the condition of your reserve, have is thoroughly inspected and have the fabric permeability tested. See the inspection section for details on testing.

Operating Limitations
Maximum Weights and Speeds

These parachutes have been tested and approved under TSO-C23d using the full weights and speeds required. All canopies have been structurally tested with at least 265 pounds up to 354 pounds and 180 kts. However, for landing safety, Basik Air Concept has decided to lower the maximum legal weight limits listed in the TSO. This has been done for your comfort.
The chart on appendix 1 shows the recommended and the maximum suspended weights and the maximum deployment airspeed. Exceeding the recommended maximum suspended weight and the maximum deployment airspeed may result in serious injury or death due to landing injuries. Exceeding the maximum suspended weight and the maximum deployment airspeed is illegal, a violation of the Federal Aviation Regulations, and may result in serious injury or death due to structural failure as well as landing injuries.


top skin
upper control (steering) line
rib
cascade junction
stabilizer
upper A line
D line
B line
upper C line
cascade junction
lower C line
lower A line
lower control (steering) line
slider
brake set loop
connector links


top skin
stabilizer
load bearing rib
divider ribs
bottom skin
slider
connector links
risers

	120	135	150	170	190	220	245	265
Top skin surface								
Shape	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular
Number of cells	7	7	7	7	7	7	7	7
Number of loading ribs	8	8	8	8	8	8	8	8
Number of divider ribs	7	7	7	7	7	7	7	7
Material	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)	PN 1 (0-3 cfm)
Construction	I- Beam	I- Beam	I- Beam	I- Beam	I- Beam	I- Beam	I- Beam	I- Beam
Suspension lines (725UN)	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000
Steering lines (1000 UN)	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000
Lower steering lines (1000 UN)	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000	Spectra 1000
Chord cm	204	217	228	242	255	289	324	344
Span cm	455	478	502	533	565	599	633	665
Aspect ratio	2,23	2,20	2,20	2,20	2,22	2,07	1,95	1,93
Certification suspended weight	120	120	120	120	132	144	160	160
Maximum recommanded suspended weight kg	80	90	95	100	110	120	130	130
Recommanded suspended weight kg	70	80	85	90	100	110	120	120
Minimum suspended weight kg	45	45	47	50	55	60	65	65
Maximum certified air speed deployment kts	150	150	150	150	150	150	150	150
Maximum altitude opening meters	7000	7000	7000	7000	7000	7000	7500	7500
Volume cu inch	225	252	270	315	330	355	415	440
Weight lbs/kg	1,92	2,24	2,4	2,7	3,11	3,41	3,7	4,11
Descent rate brakes set on m/s	4,05	3,98	3,87	3,78	3,93	4,01	4,25	3,45
Average descent rate full flight m/s	6,56	6,05	5,83	5,78	5,81	5,02	5,15	4,15
Airspeed rate brakes set on m/s	6,42	5,25	4,95	5,01	5,15	6,05	6,92	6,45
Average airspeed rate full flight m/s	10,2	9,85	9,1	8,95	9,02	9,35	10,35	10,01
A lines lenght cm	255,5	267,5	281	300,5	320	322	338,5	354,5
B lines lenght cm	260	271	286	307,5	329	335,5	349	362
C lines lenght cm	276	290	304	325,5	347	345,5	364	382
D lines lenght cm	297	311,5	327	351,5	376	373,5	393,5	413
A-B trim cm	4,5	3,5	5	7	9	13,5	10,5	7,5
A-C trim cm	20,5	22,5	23	25	27	23,5	25,5	27,5
A-D trim cm	41,5	44	46	51	56	51,5	55	58,5