Canopy User Manual Version 1.0 – 2023

Disclaimer:

The following information must be read and understood before any use of this equipment.

The user knows the risks of skydiving and BASE jumping and accepts that:

Skydiving and BASE jumping cause deaths and serious injuries. Many of these deaths and injuries can be attributed to equipment malfunctions. Skydiving and BASE jumping equipment can fail, even if the user takes all possible precautions.

Failure to open the main or reserve parachute (or to follow emergency procedures) at a safe altitude, and/or equipment failures can result in severe injury or death.

It is the user‘s responsibility to:

- Receive proper training before any use of all skydiving and BASE equipment.
- Be extremely careful and cautious.
- Read and understand all owner’s and operations manuals for all skydiving and BASE equipment.
- Check all skydiving and BASE equipment and replace any defective or worn component prior to use.
- Review emergency procedures before each use of this and all skydiving and BASE equipment.
- Check equipment warnings - do not exceed equipment limitations.
- Never violate the training and experience requirements for the specific equipment in use.

Because of the unavoidable dangers involved in the use of this and all parachute equipment, Atair (including, but not limited to, all owners, officers, staff and employees) makes no warranties of any kind, expressed or implied. It is sold with all faults and without any warranty of fitness for any purpose. By using this equipment or allowing it to be used by others, owner/buyer waives any liability of Atair for personal injuries, death or damages from such use. Any promises or representations inconsistent with, or in addition to this statement of warranty are not authorized by Atair and shall be not binding.

Skydiving and BASE jumping are high-risk activities which may cause or result in serious injury or death.

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Dear Valued Customer,

We'd like to thank you for purchasing a new Atair Canopy. We're confident you'll be pleased with it in every way and that you'll enjoy how it opens, flies and lands.

We ask you and your rigger to carefully inspect your new canopy to completely familiarise yourself with its features and the quality workmanship. Should you find anything that does not seem right or if you have any questions please don't hesitate to contact us:

andrej@ataircanopies.com

Thank you again for selecting an Atair canopy. With proper care it should last many years and hundreds of jumps.

Blue Skies!

Andrej Krajnc
The Atair Canopies Team

Section 1: How to use this manual

We know you are excited to receive your new canopy and will most likely be packing it now as you read this manual.

But please take time to read this manual completely, regardless of your experience level!

You will learn about:

How to assemble, pack and safely use your :
The great new features of your :
How to get the most out of your :
How to take care of your :

W A R N I N G

This manual is **not** a course of instruction on how to make a parachute jump, nor does it contain regulations that govern sport parachuting and related activities.

Section 2: Introducing Atair

www.AtairCanopies.com or www.BaseTroll.com

Atair was founded in 1992 by Stane Krajnc and his wife Magdalena in Slovenia. With a strong background in paragliding design, Atair was formed to supply the paragliding industry with reserve canopies. With a strong passion for both paragliding and skydiving, Atair naturally dedicated their resources to developing new technological advances in Skydiving and BASE canopies. To date Atair has manufactured over 12,000 rounds and over 10,000 skydiving and BASE canopies.

Stane Krajnc, the owner of Atair, has been involved in air sports for the past 50 years. In 1973 Stane designed, constructed and flew his own hang glider. He has now accumulated thousands of hours on hang gliders & paragliders and is an expert skydiver & BASE jumper.

In 2012 Andrej Krajnc, Stane's son, has taken over the reigns at Atair, allowing his father to enjoy his retirement. Andrej is a graduate in aeronautic engineering and like his father is an expert in all modern air sports.

Atair has also been involved in many special projects over the years, examples include:

- Specialised large canopies for cargo applications,
- Drag chute for speed ski world record,
- Special low glide ratio canopy for a cave BASE jump.

Section 3a: Features of your OSP2 Canopy

The best all-round canopy on the market.

- All Jumping Styles (Slider Up/Down)
- All Experience Levels

Features of the OSP2:

- Class-leading deep brake performance
- 3D shaped ZP leading edge
- MDV5 as standard (5 bottom skin vents)
- SLAT leading edge system
- New bridle attachment point
- Lighter tail pocket design
- Continuous brake lines
- Spectra insert brake settings
- Bottom skin mini ribs
- Additional canopy sizes
- Tailgate
- White Dacron lines
- Control and centre cell lines in red colour
- Large mesh slider
- F111 fabric construction

A Decade of feedback

The original **OSP** released in **2007** redefined the **BASE canopy market** with numerous revolutionary features to improve the opening and flight characteristics - known for its reliable fast openings, precise control, unparalleled deep brake handling and powerful flare. Now it is time for an update incorporating the latest design innovations, the **OSP2**.

The **OSP2** is an all-round BASE canopy that brings joy to slider up and excels for slider down. (slow slider recommended for terminal jumps).

In detail:

For BASE jumping it is desirable to minimize the forward speed upon deployment, allowing more time for object avoidance.

A steeper descent on the order of one to one is desirable as for slider down jumps the landing area is generally underneath or close to the object. Thus not only is a low forward speed beneficial, but a low descent rate also.

The canopy profile of the OSP2 has been specially selected to enable steep landing approaches, generating high lift even when the flow is partially separated.

Section 3a: Features of your OSP2 Canopy – continued

Improved glide:

We have refreshed the design retaining all the great features of the original OSP whilst improving the performance envelope.

The OSP2 has a similar horizontal speed as the original OSP and improved glide. As standard the OSP2 retains the MDV5 , ZP leading edge with SLATS and mini stabilizers from the OSP1.

Better performance:

The **ZP leading edge design** has been improved using the same **split panel** technique as seen on the **Vision**, reducing the sink rate and increasing performance.

The **bridle attachment point** is moved further back, so that the tension from the PC is applied to all the lines during opening, instead of just the AB lines, this improves the behavior of the deploying canopy and helps reduce the chance of tension knots.

Fine tuning:

The **tail pocket design** has been improved to reduce weight. The **brake lines are now continuous** without loops at the cascades and this also helps reduce the risk of tension knots. The brake settings are now made from Spectra insert loops to improve durability, helping the lower brake lines to last longer.

MDV technology:

Atair has always been at the cutting edge of parachute design and technology, as demonstrated with the introduction of numerous innovations such as the Mono Directional Valve (MDV) technology. MDV is a unique design that allows the air to flow into the canopy via bottom skin vents during the deployment stage and also during deep brake descent. In normal flight, the vents stay closed and do not disturb the internal airflow inside the canopy.

A canopy with MDV offers additional performance by increasing the canopy flight envelope in deep brakes, before reaching the stall. The canopy still has a great flare when equipped with MDV. When making a jump with the slider up, the canopy will inflate a bit faster than normal, but the true benefits of MDV technology are fully exploited on slider down jumps. The Atair MDV system also has a very low packing volume. During deployment, MDV technology provides superior canopy pressurization, reducing the amount of altitude required for canopy inflation and allowing the jumper almost immediate control of the canopy.

Section 3a: Features of your OSP2 Canopy – continued

Slat:

The SLAT system is used to increase the maximum lift coefficient and reduce stall speed. Slats are small leading edge airfoil extensions that are forming a slot at the first 10% of the leading edge. Part of the air that is entering the cell is directed through the slot back to the upper side of the canopy, speeding up the airflow and resulting in delayed separation of the airflow, allowing the canopy to maintain lift at lower speeds and a higher angle of attack before reaching the stall, and also reducing vertical speed. The SLATs are applied to the leading edge of cells #3, #4 and #5, because on rectangular platform wings, the stall occurs first at the middle of the span, i.e. on the center cells.

The SLAT system provides:

- Reduction of canopy forward speed during the opening stage, allowing more time to correct your heading with the risers during low altitude jumps in close proximity to the objects.

- Improved deep brakes flight, with crisp toggle response and reduced canopy inertia during steep approaches, enabling easy and accurate, on the spot landings in constricted areas.

Atair was the first manufacturer to introduce this technology on BASE canopies in 2007.

Section 3b: Features of your Vision Canopy

Advanced all-round canopy for experienced jumpers

- All Jumping Styles (Slider Up/Down)
- Advanced and Experienced Jumpers

Features of the Vision:

- 3D shaped ZP leading edge
- MDV5 as standard (5 bottom skin vents)
- SLAT leading edge system
- New bridle attachment point
- Lighter tail pocket design
- Continuous brake lines
- Spectra insert brake settings
- Bottom skin mini ribs
- Additional canopy sizes
- Tailgate
- White Dacron lines
- Control and centre cell lines in red colour
- Large mesh slider
- F111 fabric construction

Built on the OSP:

The **Vision** is the ultimate all-round canopy for experienced BASE jumpers, whether it be urban slider down or alpine slider up, tracking or wingsuit flying.

The **Vision** is built on the foundations laid by its older brother, the famous OSP, which became the standard upon which all other BASE canopies are measured.

A level up:

The **Vision** retains many characteristics of the OSP, like excellent openings and superb flight characteristics in deep brakes, but in the area of forward speed, glide and flare the VISION is taking things to a new level.

The **Vision** canopy is equipped with the MDV5 system standard, providing reliable, efficient and comfortable on heading openings, slider up or slider down. For slider up, tracking and wingsuit jumps we recommend the use of a slow slider

Section 3b: Features of your Vision Canopy – continued

A new airfoil:

The **Vision** has expanded the performance envelope at both ends of the curve. It is unbelievably stable in calm or turbulent wind conditions in all flight regimes, thanks to a new airfoil, improved split ZP leading edge, optimized line trim and mini stabilizers in the center of the canopy.

The bridle attachment point is moved further back, so that the tension from the PC is applied to all the lines during opening, instead of just the AB lines, this improves the behavior of the deploying canopy and helps reduce the chance of tension knots.

Predictable, Safe, Reliable:

The **Vision** has the ability to maintain a very steep and stable trajectory in deep brakes into tight landing areas with plenty of lift available for a soft landing. This is achieved by the use of SLAT Technology on the canopy leading edge. Atair was the first parachute manufacturer to use slats with the introduction of the OSP canopy back in 2007.

Overall the handling is similar to a sports skydiving canopy, but still retaining the predictability, safety and reliability of a BASE canopy. Increased forward speed and improved glide allow you to reach distant landing areas. Toggle turns are fast, responsive and efficient. Recovery from stall to full drive is quick with minimal altitude loss. The canopy is responsive and powerful in front riser turns, a pleasure to swoop, with plenty of power for a great flare at the end.

MDV technology:

Atair has always been at the cutting edge of parachute design and technology, as demonstrated with the introduction of numerous innovations such as the Mono Directional Valve (MDV) technology. MDV is a unique design that allows the air to flow into the canopy via bottom skin vents during the deployment stage and also during deep brake descent. In normal flight, the vents stay closed and do not disturb the internal airflow inside the canopy.

A canopy with MDV offers additional performance by increasing the canopy flight envelope in deep brakes, before reaching the stall. The canopy still has a great flare when equipped with MDV. When making a jump with the slider up, the canopy will inflate a bit faster than normal, but the true benefits of MDV technology are fully exploited on slider down jumps. The Atair MDV system also has a very low packing volume. During deployment, MDV technology provides superior canopy pressurization, reducing the amount of altitude required for canopy inflation and allowing the jumper almost immediate control of the canopy.

Section 3b: Features of your Vision Canopy – continued

Slat:

The SLAT system is used to increase the maximum lift coefficient and reduce stall speed. Slats are small leading edge airfoil extensions that are forming a slot at the first 10% of the leading edge. Part of the air that is entering the cell is directed through the slot back to the upper side of the canopy, speeding up the airflow and resulting in delayed separation of the airflow, allowing the canopy to maintain lift at lower speeds and a higher angle of attack before reaching the stall, and also reducing vertical speed. The SLATs are applied to the leading edge of cells #3, #4 and #5, because on rectangular platform wings, the stall occurs first at the middle of the span, i.e. on the center cells.

The SLAT system provides:

- Reduction of canopy forward speed during the opening stage, allowing more time to correct your heading with the risers during low altitude jumps in close proximity to the objects.

- Improved deep brakes flight, with crisp toggle response and reduced canopy inertia during steep approaches, enabling easy and accurate, on the spot landings in constricted areas.

Atair was the first manufacturer to introduce this technology on BASE canopies in 2007.

Section 3c: Features of your VisionWS

The best lightweight slider up canopy on the market

- Slider Up Jumps only
- Built for Demanding Wingsuit Pilots and Trackers
- All Experience Levels

VisionWS Design features:

- PN9 lightweight fabric construction
- 3D shaped ZP leading edge
- MDV3 as standard (3 bottom skin vents)
- New bridle attachment point
- Lighter tail pocket design
- Continuous SPECTRA brake lines
- Additional canopy sizes

Legacy of the Trango:

- The VisionWS is a brand new ultra-lightweight BASE canopy specifically built for the most demanding wingsuit pilots and trackers.

- In 2007 Atair released the Trango, the first ultra-light BASE canopy on the market. The canopies reduced weight and volume combined with excellent performance made it an instant success.

- Although the ethos of the original Trango has remained, through further development, the design, technology and performance has evolved into an all-new canopy, the VisionWS.

Slider UP:

The VisionWS is a slider up canopy and is even lighter than the previous lightweight canopies we offered.

The ZP leading edge is shaped using the same 3D technique as on the Vision.

New Lines & Mini Vents:

The suspension lines are new, the thinner 750lbs black Edelrid Spectra lines. The brake lines are 1000lbs Spectra, made continuous (fishbone style) so that there are no loops at the cascades and so less chance of tension knots.

The new tail pocket design is smaller and also lighter. It has 3 mini vents positioned in the middle of the canopy, between the B and C line attachment point for better pressurization during opening.

Section 3c: Features of your VisionWS continued

Agile and Fun to Fly:

The bridle attachment point is moved further back, so that the tension from the PC is applied to all the lines during opening, instead of just the AB lines. This improves the behavior of the deploying canopy and helps reduce the chance of tension knots.

The VisionWS has a great glide, is agile and fun to fly, a real pleasure to use, not just a way of getting to the ground. The response to toggle input is sharp, flying like a much smaller wing. The canopy performs well in deep brakes and has an incredible swoop for those who like to use their fronts. VisionWS is to be used ONLY for slider up jumps and comes in PN9 lightweight fabric.

MDV technology:

Atair has always been at the cutting edge of parachute design and technology, as demonstrated with the introduction of numerous innovations such as the Mono Directional Valve (MDV) technology. MDV is a unique design that allows the air to flow into the canopy via bottom skin vents during the deployment stage and also during deep brake descent. In normal flight, the vents stay closed and do not disturb the internal airflow inside the canopy.

A canopy with MDV offers additional performance by increasing the canopy flight envelope in deep brakes, before reaching the stall. The canopy still has a great flare when equipped with MDV. When making a jump with the slider up, the canopy will inflate a bit faster than normal, but the true benefits of MDV technology are fully exploited on slider down jumps. The Atair MDV system also has a very low packing volume. During deployment, MDV technology provides superior canopy pressurization, reducing the amount of altitude required for canopy inflation and allowing the jumper almost immediate control of the canopy.

Section 4: Recommended Sizing & Wing loading

Atair measures canopy surface area by measuring the span x chord of the bottom skin. Stane Krajnc, the original designer of the Troll, feels that this measurement best represents a flying canopy and is the method used in aerodynamics and other air sports.

OSP2	m^2/ft^2	PIA ft^2	Recommended weight* (kg)	A/R
165	15,4 / 165	177	46-53	1,9
185	17,2 / 185	198	53-60	1,9
205	19,1 / 205	219	59-66	1,9
215	20,0 / 215	229	62-70	1,9
225	20,9 / 225	240	65-74	1,9
235	21,8 / 235	250	68-77	1,9
245	22,8 / 245	261	71-81	1,9
255	23,7 / 255	271	74-84	1,9
265	24,6 / 265	282	78-88	1,9
275	25,6 / 275	292	81-91	1,9
285	26,5 / 285	304	85-95	1,9
305	28,4 / 305	324	90-102	1,9

Vision/ VisionWS	m^2/ft^2	PIA ft^2	Recommended weight* (kg)	A/R
185	17,1 / 184	197	52-59	1,9
205	18,8 / 202	216	58-66	1,9
225	20,8 / 223	241	65-74	1,9
235	21,7 / 233	249	68-77	1,9
245	22,9 / 247	263	72-81	1,9
255	23,5 / 253	269	74-83	1,9
265	24,4 / 263	279	77-87	1,9
275	25,4 / 273	289	80-90	1,9
285	26,4 / 285	302	84-94	1,9
305	28,2 / 303	322	89-102	1,9

*DISCLAIMER- The sizes in this chart are safe recommended sizes but some jumpers choose to deviate from these sizes for various reasons. If you are unsure on the perfect size for you then it's important to contact your mentor/instructor/an experienced jumper/one of our dealers or message us directly for more information.

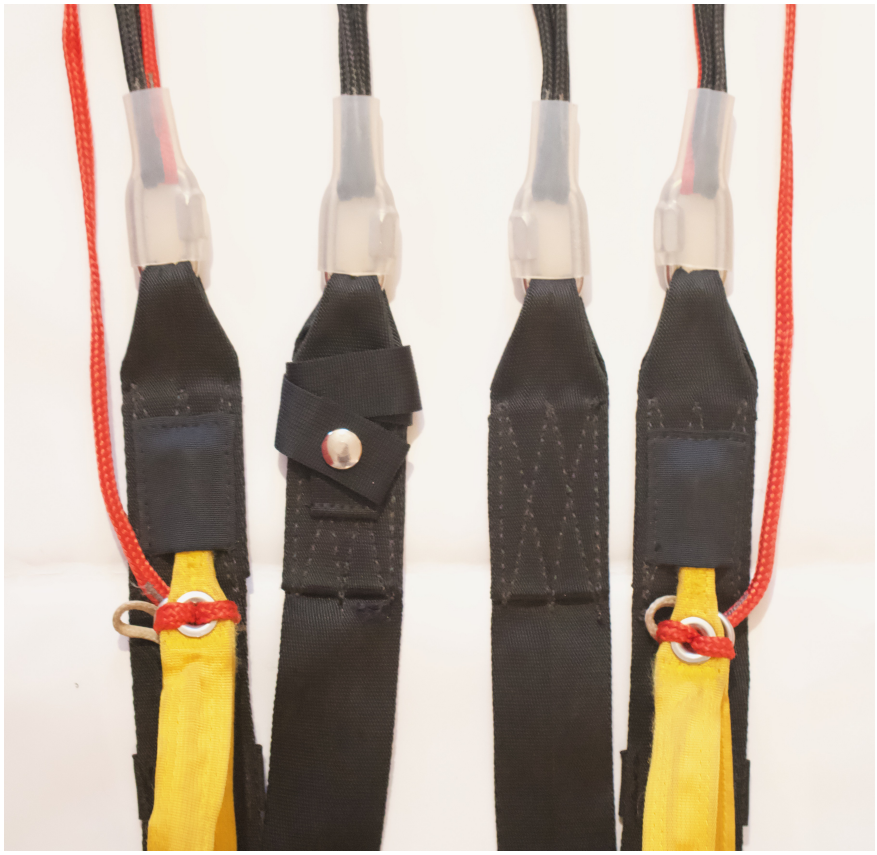
Section 5: Setting Up Your Canopy

List of Components

- Canopy and lines
- Tail Gate (BR) and rubber bands 1 1/4“ by 1 3/16“ (3.2 cm by 0.5cm)
- #5 Stainless Steel Links **OR** Soft links (Slinks)
- Rubber Slider Bumpers (not required with Soft links)
- Slider

Attaching to risers, checking continuity

Line & Riser Continuity



Left Rear Left Front Right Front Right Rear

Remember that each connector link has to show continuity from the lines to the canopy. Check each one for proper assembly.

Each of the links will have four cascading lines. The two control lines each cascade into four upper brake lines.

Once you have orientated the lines properly on the #5 links, inspect them. Finger-tighten all 4 connector links. Then apply a 1/8 turn with a 9mm wrench. Do not over tighten as this can strip or crack the link and cause it to fail. Slide the slider bumpers (covers) over the links.

Section 6: Recommended Drills for first flight

Atair **strongly recommends** you perform some skydives with your new canopy before using it in the BASE environment.

To do this we recommend installing a slow slider or similar size 'sail' skydiving slider and packing the canopy into a large skydiving container (as used for student skydivers).

Perform a hop 'n pop from a suitable legal altitude (with clearance from the dropzone). **A short delay to clear the aircraft and stabilise is sufficient.**

During the flight, try the following drills:

- Gradual flare to locate stall point
- Full flare to simulate landing
- Full stall and recovery by slowing and equally releasing brakes
- Flare from half brakes
- Flare from deep brakes
- Full toggle turns
- Elevation turns (in braked flight release one toggle slightly to turn)
- Half brake turns
- Deep brake turns
- Rear riser turns
- Front riser turns
- Check length of brake line between cats eye and toggle, are you getting a full flare when you bring your hands to waist level?
- Sharp 180º turn using alternate rear risers (simulating 180º off heading drill)

Remember to pay attention to your altitude and position relative to the landing area.

Atair also advises you to tune your brake settings by making subsequent skydives on the canopy.

To make adjustments to the brake settings, mark the stall point on the brake lines at the level of the guide ring using a marker pen. Consult an experienced rigger when adjusting the position of the deep brake and normal brake setting position.

If the length of brake line between the brake setting and toggle is too long take a wrap of line around your hand and estimate how much the toggle attachment point should be shortened; again consult an experienced rigger when adjusting the position of the toggle attachment.

Section 7: Packing your Canopy

Before you begin this section, please read the **entire** manual. If there is any element that you don't understand, please contact us or a qualified rigger to help you with the assembly.

Ensure that you have correctly assembled the canopy onto the risers (see section 5) and that you have proper line continuity. Be certain to secure the container so that it does not move during the packing process. Make sure that the risers are even and remain even at all times.

The first packing method to be described is without slider or slider down. Make certain that the control lines go directly from the toggle to the outside of the canopy without passing through anything. Make sure the toggles are attached to the control lines correctly (see section 8).

If the container you are using does not have a slider retainer you must use a suitable material to fix the slider in place, consult your local rigger if you have any doubts. The other alternative is to completely remove the slider by releasing each connector link in turn using a spanner: this is time consuming and there is a risk of re-connecting the lines in the incorrect manner.

Figure 1a

Figure 1b

Figure1a: To start of the pack job you should perform a PRO (Proper Ram-Air Orientation) pack job. Flake the canopy in a traditional pro pack manner. Before you bring the tail around, count the three nose cells on one side and bring the tail around behind them. In other words do not cocoon the tail around the nose. Leave the nose cells exposed.

Do the same on the other side, leaving the center cell to hang down in the middle. Gently place the canopy on the ground, keeping tension on the lines. The neater you place the canopy, the easier it will be to redress it once it's on the ground. Find the three nose cells on each side and tease them out gently. They should be resting neatly on top of one another, resembling figure 1b above.

Section 7: Packing your Canopy – continued

Figure 2

Figure 2: Pick a side to start redressing. From the bottom stabiliser, reach in between the A and B lines and flake all of the fabric to the outside, keeping the lines orderly in the center. From the next stabilizer, reach between the B and C lines, flaking all of the fabric to the outside, keeping the lines orderly in the center. Now reach in between the C and D lines, flaking all of the fabric to the outside, keeping the lines orderly in the center.

Be certain to maintain tension on the lines by gently pulling the appropriate fabric from the top of the canopy during this process. Next, be sure to clear the fabric between the D lines and the control lines. This is done by placing your hand between the D lines and the control lines and pulling away from the container. This will remove the slack in the fabric between these two points. Repeat all of this on the other side and redress by lifting the tail up so that the lines are exposed. From either side, you can ensure that the fabric is all pulled away from the container and that the stabilizers are clear of the lines as well. During this process, be sure to keep tension on the lines. Ensure that the pack job is symmetrical by looking at the line attachment points on each side and making certain they are even.

To flake the tail, grasp the small portion of stabilizer between the D and tail on one side and pull the fabric outward keeping the seam in the center and going straight up and down. This should place the outer upper control line to the center. Continue by stacking all of the seam to the tail in the center, pulling the fabric out and away from the center. Use the seams as a guide. These will be half-cell folds. Continue all the way across and include the center cell tail pocket. Remember, not every fold will incorporate a control line. Do this on both sides until all seams are on top of one another and in the center. Make certain that the canopy is completely symmetrical at this time.

Section 7.1: Tail Gate Installation – Slider DOWN only
(for packing with a slider, see next section)

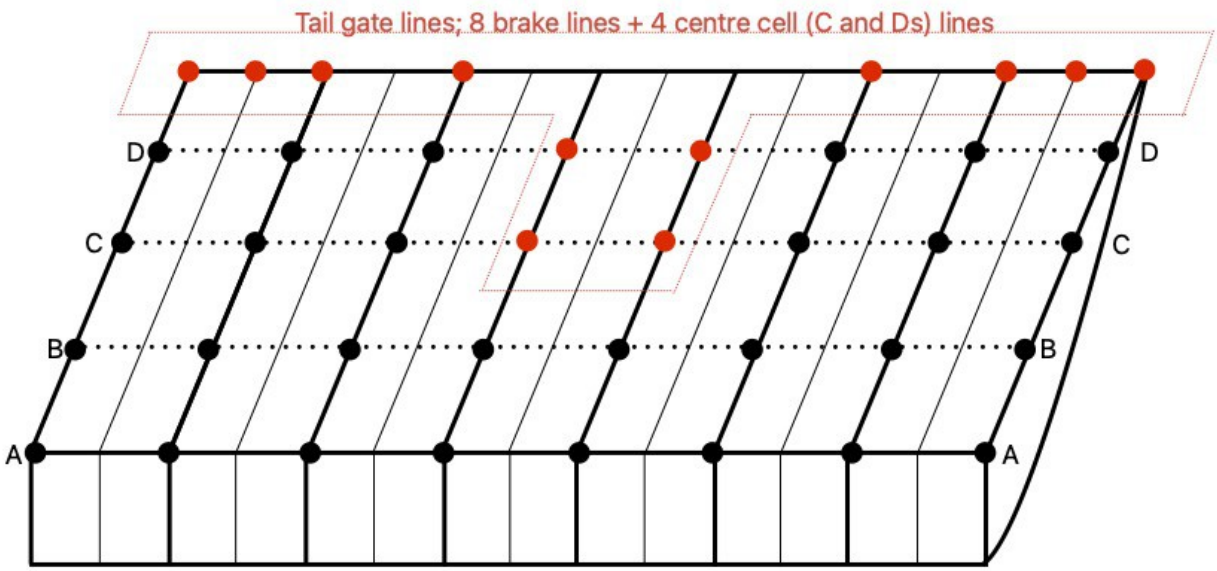


Figure 3: Diagram showing lines included in Tail Gate

The Tale Gate (BR) reefing device is used to help reduce brake line malfunctions during slider down (or off) jumps. The Tail Gate helps keep the lines in the center of the canopy during deployment, reducing the risk of a line over; the lines included in the Tail Gate are shown in the diagram above.

Refer to figures 3a and 3b. The slot for the Tail Gate is on one of the center C lines approximately 4" down from line attachment tab. Find this slot and place the Tail Gate into it. When utilizing the Tail Gate, you should use a rubber band 1 $^{1}/_{4}$ inches by 1 $^{3}/_{16}$ inch (3.2 cm by 0.5cm). Some people like to lark's head the rubber band to the Tail Gate. Using the lark's head is not recommended for extreme low-speed deployments as it could cause a hang up in release of the Tail Gate.

Section 7.1: Tail Gate Installation - continued
(for packing with a slider, see next section)

Figure 3a

Figure 3b

Ensure that there are no twists in the risers. Grasp the inner most line on both rear riser links and then grasp the two lower control lines. Walk these four lines toward the canopy. These four lines will cascade into twelve lines. These are the twelve lines that will be placed into the Tail Gate. Make certain that there are no other lines caught up in these twelve lines. The illustration represents the lines as viewed from the bottom surface of the canopy. Be certain that only the lines that are encompassed in the 'T' are inside the Tail Gate.

The C line that the Tail Gate is attached to MUST be inside the Tail Gate, so as not to load the insert piece. Place all twelve lines into the Tail Gate. Close the Tail Gate with two to three wraps of the rubber band, as shown in figure 3a and 3b. Check to be certain that there are twelve lines in the Tail Gate and that the Tail Gate C line is inside the Tail Gate. Go to section 7.3 to continue with the packing process.

Section 7.2: Packing with a Slider

We recommend not to use a tail-gate when packing slider up. Ensure proper line continuity and be certain that the control lines go from the outside of the canopy through the slider grommet of the rear riser on its corresponding side. Then take the control line through the guide ring on the corresponding riser. Refer to section 8 to ensure proper control line routing and toggle assembly.

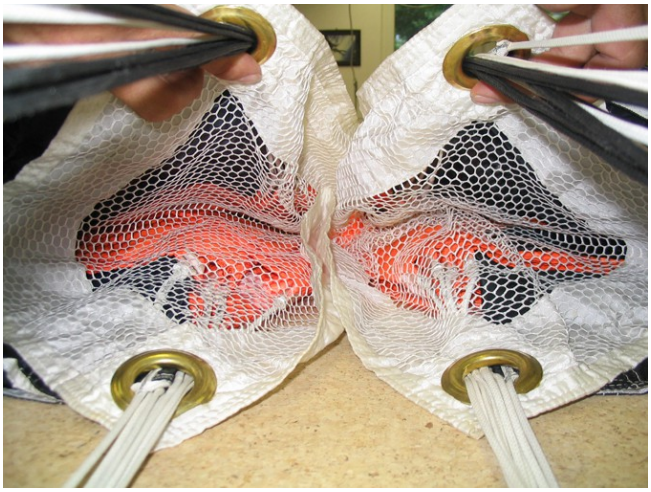


Figure 4a

Figure 4b

Follow the previous packing instructions up through figure 2. For slider placement, ensure proper line continuity, keeping the left and right separation with the front slider grommets closest to the canopy. The slider tape should be facing upward. Pull the slider so that the front grommets rest against the bottom of the stabilizers at the B line slider stops on both the left and right hand side. Gently lift the tape between the two rear grommets of the slider and pull up until the grommets are resting against the bottom of the stabilizers at the C line slider stops on both the left and right side.

The slider tape and fabric between the front and rear grommets should be placed between the B and C fold of the canopy. Be certain that this is done to the left and right side. This is basically quartering the slider. We don't stow our sliders. Go to section 7.3 to continue with your pack job.

Section 7.3: Packing Continued

For packing with a slider refer to section 7.2 and then return to this section.

Make certain that all the lines are to the center and that the canopy is symmetrical with the left side of the canopy to the left of the center and the right side of the canopy to the ride side of the center. There should be a nice channel down the center of the canopy.

Figure 5

Locate the center cell Tail pocket and bring it down to the edge of the stabilizers. Grasp the tail fabric on each side and above it. While kneeling on the Tail Pocket, bring the bottom outer portion of one side of the tail back and expose the stacks of canopy. Fold the outside edge of the first two stacks inward towards the canopy. This should be done in one long fold. We don't utilize clamps, but if you like to use them, this is when you would want to secure this fold. Repeat this on the other side. Next, fold the outside edge of the bottom stack inward towards the canopy using the same technique as on the first two stacks. This fold should be beneath the fold of the first two stacks. Do the same on the other side.

Whilst kneeling on the canopy at the Tail Pocket, run your forearm at a 90˚ angle up the canopy from the Tail Pocket. Let your arm rest about half way up the canopy while you use the other hand to tuck small portions of the tail around the entire canopy as shown in figure 6. Having your arm across the width of the canopy helps ensure that you don't pull any lines away from the center of the canopy whilst wrapping/tucking the tail. Make the finished width of the fold even with the edges of the Tail Pocket, as shown in figure 5. Do not cover the nose. Work the air out and count the nose cells on each side, making sure that you count three on the left and three on the right.

Section 7.3: Packing Continued

The center cell is underneath and will be accounted for when placing the canopy in the container. Lightly tuck these cells under the pack job, your canopy should now resemble Figure 5.

Figure 6a & 6b: Primary Stow

Figure 6: Once you have cocooned the canopy and made it the width of the Tail Pocket, release the tension from the container. Sit on the canopy facing the container. Open the Velcro closures on the Tail Pocket. Using the rubber band located between the Tail Pocket and the canopy, grasp approximately 4" / 10cm of line below the rubber band. Place the bite of line in the rubber band and make a **double wrap**, as shown in Figure 6a, be certain not to over wrap the lines with the rubber band. Next, tuck the primary stow, should be about 2" / 5cm long, into the slot between the canopy and the Tail Pocket, as shown in figure 6b.

Figure 7a & 7b: S-fold lines into Tail Pocket (Slider in "down" position)

Section 7.3: Packing Continued

Figure 7a and 7b: Bring 8” or so of line toward the Tail Pocket, creating an S-fold and lay this bite in either upper corner of the Tail Pocket. Continue S-folding the lines back and forth across the Tail Pocket. Each S-fold will slightly overlap the one before it. Stow the lines to within 5” of the top of the risers. The lines MUST enter and exit between the two Velcro tabs at the bottom center of the Tail Pocket. This helps ensure that the Velcro does not actually need to open to complete line deployment. Close the Tail Pocket by mating the Velcro to its coordinating piece. Start at the corners and work the Velcro up the sides and across the bottom making certain no lines get caught in the Velcro. Be sure to mate the Velcro exactly.

Refer to your container manual for instructions on how to pack the canopy into the container to complete the pack job.

Section 7.4: Nose folds and controlling deployment speed

For slider down jumps we leave the nose cells exposed to facilitate faster inflation, as shown in figure 8.

Figure 8: Exposed centre cell for slider down jumps

For terminal slider up jumps we tend to hide the nose to slow down the inflation and reduce the opening 'shock' felt by the jumper, as shown in figure 9.

Figure 9: Rolled “hidden' nose cells for slider up jumps

Section 7.4: Nose folds and controlling deployment speed – continued

'Fast' openings are obviously an inherent part of slider down deployments, especially when taking a delay. Where as slider up big wall jumps offer more options for moderating opening / deployment speed.

If your **slider up** deployments are uncomfortable the first thing to be aware of is your freefall speed at deployment. If you have a steep track for 12 seconds and don't flatten out or slow down before deployment the opening can be very aggressive. So first thing to try is slowing down for the last 1 – 2 seconds of your delay. A GPS tracker can help in this situation to measure your freefall speed. Asking advice from your mentor or an experienced jumper may also help.

If your **slider up** openings are still uncomfortable even after slowing down then you can try the following:

- hiding / rolling the nose
- folding the lower corners of the stacked canopy inwards at 45 degrees (see figure 10)
- installing a 'slow' slider
- consider a different pilot chute size

Figure 10

Fold the lower corners of each layer of the stacked canopy inwards at a 45 degree angle as show in figure 10.

Section 8: Toggle Assembly

Figure 11

Figure 11: Pass the control line through the toggle's grommet from the Velcro side of the toggle.

Figure 12

Figure 12: Then thread the bottom of the toggle through the attachment loop, pulling the slack control line back through the grommet.

Figure 13

Figure 13: The assembled toggle should look like this.

Section 9: Inspecting and Maintaining your Equipment

Your equipment will last longer, look better and function correctly if it is inspected on a regular basis and maintained accordingly. Generally, your gear should need very little maintenance unless it is subjected to unusual conditions. Let's face it though, in BASE jumping, we can be a little rough on our equipment, so it is a good idea to go over it thoroughly after every jump. This will detect the obvious but it is important to perform an intensive planned inspection from time to time. You can gauge this by how often you jump and the types of jumps that you do, the performance of the equipment, openings, landings, etc. You should perform this type of inspection at least every 10 jumps. Remember BASE jumping is a lot more demanding on our equipment than skydiving is.

There are several things that can damage a parachute system. You must avoid exposure to acids, chemicals, excessive heat, sharp objects, water, prolonged sunlight or anything that may damage the structural integrity of the system. Also remember that this is a single parachute system, so it should be inspected to the airworthiness of a reserve system, not a main.

Canopy Check List:

- Lines (4 riser groups)
- 2 Sets of Control Lines (Cat's eyes)
- Bartacks
- Line Attachment Tabs
- 1-7 Cells – Bottom
- 1-7 Cells – Inside and cross-ports
- 1-7 Cells – Top surface
- Bridle Attachment Point (top, bottom and internal)
- Stabilizers
- Slider Stitching
- Slider Fabric and Tapes
- Slider Grommets
- Tail Pocket Tabs and Velcro
- Primary stow rubber band condition (use small one for Spectra, big for Dacron)
- Check the line-set condition

Lower control lines do wear out due to slider wear. Brake settings wear out as well and wear out quicker with no slider deployments. Inspect them on a regular basis and replace them when they show signs of wear. Be sure to keep the slider grommets free from burs and sharp or rough edges as this can cause severe damage to the lines.

We recommend to replace the lower brake lines after 150-200, depending on wear and to change the entire line-set after 300-400 jumps.

If in doubt - get it checked by a rigger or the factory.

Section 9: Inspecting and Maintaining your Equipment Continued

The fabric that the canopy is made of is very durable, but it must be inspected thoroughly as it is not indestructible. It is very important to inspect the entire canopy. Inspect the external portion of the canopy but be sure to crawl inside of the cells to inspect the internal portion of the canopy for structural integrity.

Any hole that is larger than $^{1}/_{4}$ of an inch (6mm) or that is within 10 inches (25cm) of a line attachment or the bridle attachment point should be repaired before putting it back into service. It is advised to have a qualified rigger to make repairs. Patches should be made in accordance with parachute industry standards.

Major repairs should be returned to Atair or given to a master rigger for repair. A major repair is one that gets into any seam, reinforcement tape or line attachment, or any repair that, if done incorrectly could affect the flight characteristics of the canopy.

Do not wash any canopy. In the event that the canopy is subjected to salt water rinse it thoroughly with fresh water and dry it away from direct sunlight. Do not pack or jump a wet parachute.

Appendix A: Contact details

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