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# MAGIC Owner's Manual

## PARAGLIDER EN / LTF A

### Welcome to Bruce Goldsmith Design

BGD is a world leader in the design and production of paragliders. For many years Bruce Goldsmith and his team have been developing products with world-beating performance for pilots who want the best. We apply our competitive knowledge to design top quality products that combine the highest performance with the safe handling our customers value and respect. BGD pilots appreciate our quality and reliability. BGD's world-class status is based on the skills and expertise we have developed in combining aerodynamic design with cloth and materials technology. All BGD products are developed and made with the same skill and attention to good design that are synonymous with the ultimate performance and precision required by paragliders.

### Congratulations on your purchase of the BGD MAGIC

The MAGIC is a safe, fun and performant paraglider, that is suitable for training on but capable of much, much more. It will lighten the workload of learning to fly without reducing the fun, and is a wing for pilots to keep progressing on well beyond their flight-school days.

Your new paraglider has been designed to a high standard of safety and stability, but it will only retain these characteristics if it is properly looked after. This manual has been prepared to give you information and advice about your paraglider. If you ever need any replacement parts or further information, please do not hesitate to contact your nearest BGD dealer or contact BGD directly.

Please read this manual carefully from the first to the last chapter to ensure you get the best out of your new wing.

## 2. Introduction

This glider is not intended to be used for aerobatic manoeuvres.

This paraglider must not:

1. Be flown outside the certified weight range
2. Have its trim speed adjusted by changing the length of risers or lines
3. Be flown in rain or snow
4. Be towed with a tow-line tension in excess of 200kg

It is your dealer's responsibility to test fly the paraglider before you receive it. The test flight record of this is in the service booklet at the end of this manual. Please be sure that this has been completed by your dealer.

**Failure to test fly a new paraglider may invalidate any warranty.**

In order to enjoy full benefits of the BGD warranty, you are required to complete the warranty form on the website. For further information, please refer to the corresponding page on our website.

Any modification, e.g. change of line lengths or changes to the speed system, can cause a loss of airworthiness and certification. We recommend that you contact your dealer or BGD directly before performing any kind of change.

## 3. Preparation

### Connecting the speedbar

Your paraglider is sold with accelerator risers and a speedbar but can be flown without the speedbar attached. The speedbar should be connected and adjusted following the instructions in your harness manual to ensure correct routing of the lines. Connect the Brummel hooks on the speedbar to those on the risers' speed system, ensuring the lines run freely and are not caught around anything (reserve handle, risers or lines).

To adjust the speedbar length, sit in your harness and ask an assistant to hold the risers up in their in-flight position. The speedbar length should be adjusted, by moving the knots, so that the bar sits just beneath your harness seat. You should be able to hook your heels into the bar, and to attain full bar extension (the two pulleys touching) when you push your legs out. Once you have set the bar up in this way on the ground, a test flight in calm air can be used to fine-tune the length, ensuring it is even on both sides.

### On launch

1. Select a suitable takeoff area determined by wind and terrain, clear of any obstacles that may catch in the lines or damage the canopy.
2. If your paraglider has been correctly packed, you should take it to the top of the takeoff area, and allow the rolled canopy to unroll itself down the hill (if on a slope). This should leave the paraglider with the bottom surface facing upwards, the openings at the downwind end of the takeoff area, and the harness at the trailing edge at the upwind side.
3. Unroll the canopy to each side so that the leading edge openings form a semicircular shape, with the trailing edge drawn together as the centre of the arch. The harness should be drawn away from the canopy until the suspension lines are just tight.



## Pre-flight inspection

Your paraglider is designed to be as simple as possible to inspect and maintain but a thorough pre-flight procedure is mandatory on all aircraft. The following pre-flight inspection procedure should be carried out before each flight.

1. Whilst opening out the paraglider check the outside of the canopy for any tears where your paraglider may have been caught on a sharp object or even have been damaged whilst in its bag.
2. Check that the lines are not twisted or knotted. Divide the suspension lines into groups, each group coming from one riser. By starting from the harness and running towards the canopy remove any tangles or twists in the lines. Partially inflating the canopy in the wind will help to sort out the lines.
3. It is particularly important that the brakes are clear and free to move. Check the knot which attaches the brake handles to the brake lines. Avoid having too many knots, as there is a risk the knots could become stuck in the brake pulleys. Both brakes should be the same length and this can be checked by asking an assistant to hold the upper end of the brake lines together whilst the pilot holds the brake handles. The brake lines should be just slack with the wing inflated when the brakes are not applied. After checking the brake lines lay them on the ground.
4. Always check the buckles and attachments on the harness. Ensure the two main attachment maillons/ karabiners from the harness to the main risers, and the individual shackles which attach the risers to the lines, are tightly done up.
5. Before the pilot attaches himself to the harness he should be wearing a good helmet. Put on the harness ensuring all the buckles are secure and properly adjusted for comfort.

Your paraglider is now ready for flight.

## 4. Flight Characteristics

This manual is not intended as an instruction book on how to fly your paraglider. You should be a qualified pilot or under suitable supervision, but the following comments describe how to get the best from your wing.

### Weight range

Each size is certified for a certain weight range. The weight refers to the 'overall take-off weight'. This means the weight of the pilot, the glider, the harness and all other equipment carried with you in flight.

We recommend your paraglider is flown in the middle of the weight range.

If you fly in the lower half of the weight range, the turning agility will be lower and the glider will be more damped. In strong turbulence the wing tends to deform and to collapse slightly with a lower wing loading. If you mainly fly in weak conditions you might wish to fly towards the lower end of the weight range.

If you fly in the upper half of the weight range, agility and speed will be higher, and you will have greater stability in turbulence, but there will be reduced self-damping in turns and after collapses. If you prefer a dynamic flight characteristic you should choose to fly higher in the weight range.

### Active Piloting

'Active piloting' is a tool that will help you fly with greater safety and enjoyment. It means flying in empathy with your paraglider. This means not only guiding the glider through the air but also being aware of feedback from the wing, especially in thermals and turbulence. If the air is smooth the feedback can be minimal but in turbulence feedback is continuous and needs to be constantly checked by the pilot. Such reactions become instinctive in good pilots. In order to get the best performance from the wing, the pilot should try to control it though small brake inputs and

weight-shift, rather than constantly being present on the brakes. A small movement early is more efficient than a big brake movement later to control the wing. The more you let the glider fly at trim speed, the better performance you will get out of it. The objective of active piloting is to get the glider to fly smoothly through the air with a stable position above the head, and controlled angle of incidence. Your paraglider is highly resistant to collapse without any pilot action at all, but learning how to fly actively will increase this safety margin even further.

## Harness

Your paraglider is tested with a 'GH' (without diagonal bracing) type harness. The GH category includes weight-shift harnesses as well as ABS style (semi-stable) harnesses.

### Approved harness dimensions

This glider has been tested with a harness that complies with the EN standard harness dimensions. These are:

Seat board width: 42cm.

The horizontal distance between the attachment points of the paraglider risers (measured from the centreline of the karabiners) must be:

- < 50kg = 38cm
- 50-80kg = 42cm
- > 80kg = 46cm

## Take-off

Your paraglider is easy to inflate in both light or stronger winds and will quickly rise overhead to the flying position. The best inflation technique is to hold one A-riser in each hand. It will launch easily using either the forward launch



technique (best for light winds) or reverse launch (best for stronger winds).

### **Forward Launch**

Stand facing into wind with your back to the canopy and all the A lines taut behind you, then take one or two steps back (do not walk all the way back to the canopy). Take an A-riser in each hand (the A-risers are marked with red cloth to make them easier to find) and begin your launch run pulling gently and smoothly on the A-risers. As soon as the canopy starts to rise off the ground stop pulling so hard on the A-risers but put pressure on all the risers evenly through the harness. Maintaining gentle pressure on the A-risers helps in very calm conditions. Have your hands ready to slow up the canopy with the brakes if it starts to accelerate past you.

### **Reverse Launch**

In winds over 10km/h it is recommended to do a reverse launch and inflate the canopy using the A-risers, whilst facing it.

Your paraglider has little tendency to overshoot but releasing pressure on the A-risers when it is at about 45° will help to avoid overshooting. The stronger the wind and the greater the pressure on the A-risers, the more quickly the canopy will rise.

## **Turning**

Your wing does not require a strong-handed approach to manoeuvring. For a fast turn smoothly apply the brake on the side to which the turn is intended. The speed with which the brake is applied is very important. If a brake is applied fairly quickly the canopy will do a faster banking turn, but care must be taken not to bank too severely. To attain a more efficient turn at minimum sink, apply some brake to the outside wing to slow the turn and prevent excessive banking. The glider flies very well like this, but care must be taken not to over-apply the brakes as, even though the glider has a low spin tendency, this could result in a spin. The wing will turn far more efficiently if you weight-shift into the turn in the harness. Remember that violent brake application is dangerous and should always be avoided.

## Straight Flight

Your paraglider will fly smoothly in a straight line without any input from the pilot. At the maximum in-flight weight, without the accelerator your glider will fly at approximately the trim speed noted in the Specifications table.

## Thermalling

To attain the best climb rate your wing should be thermalled using a mild turn, as described above, keeping banking to a minimum. In strong thermals a tighter banking turn can be used to stay closer to the thermal's core. Remember that weight-shifting in the harness will make the turn more efficient and reduce the amount of brake required.

Care must be taken not to apply so much brake as to stall. This is easy to avoid as the brake pressure increases greatly as you approach the stall point. Only fly near the stall point if you have enough height to recover (at least 100m).

## Rapid descent procedures

### Big Ears

The wingtips of your paraglider can be folded in (big ears) to increase its sink rate. The Big Ear facility does not mean you should fly in stronger winds, but it allows you to descend quickly without substantially reducing the forward speed of the canopy. B-line stalls also allow for fast descent, but they result in greatly reduced forward speed.

To engage Big Ears, lean forward in the harness and grasp the outer A-lines, or the maillons of the 'Baby-A' risers, keeping hold of both brake handles if possible. Pull the outer A-lines or Baby-A risers out and down at least 30 cm so as to collapse the tips of the glider. It is very important that the other A-lines are not affected when you do this as pulling these could cause the leading edge to collapse. Steering by weight-shifting with Big Ears is possible. If the Big Ears do not come out quickly on their own, a pump on the brakes will speed things up.

Before using the Big Ears facility in earnest it is essential to practise beforehand with plenty of ground clearance in case a leading edge collapse occurs. Always keep hold of both brakes in order to retain control. Putting your hands through the brake handles so they remain on your wrists is a good method of doing this.

### **B-Line Stall**

This is a fast descent method and is a useful emergency procedure. With both hands through the brake handles, take hold of the top of the B-risers, one in each hand, and pull them down by around 50cm. This will stall the canopy and forward speed will drop to zero. Make sure you have plenty of ground clearance because the descent rate can be over 10m/sec. To increase the descent rate pull harder on the B-risers. When you release the B-risers the canopy will automatically start flying again, normally within two seconds. Sometimes the canopy will turn gently when it exits from the B-line stall. It is normally better to release the B-risers fairly quickly rather than slowly, as the latter may result in the canopy entering deep stall.

Always release the risers symmetrically, as an asymmetric release from a B-line stall may result in the glider entering a spin. B-line stalls are useful if you need to lose a lot of height quickly, perhaps to escape from a thunderstorm. They should not be performed with less than 100m of ground clearance (see also also Chapter 5).

### **Spiral Dive**

A normal turn can be converted into a strong spiral dive by continuing to apply one brake. The bank angle and speed of the turn will increase as the downward spiral is continued. Be careful to enter the spiral gradually as too quick a brake application can cause a spin or an over-the-nose spiral.

If the pilot increases the descent rate of the spiral to over 16m/s or initiates what is known as an over-the-nose spiral, the glider may require pilot input to recover. In this case all the pilot needs to do is to apply some outside brake and steer the glider out of the turn.

The over-the-nose spiral is a special type of spiral dive where the glider points almost directly at the ground. It will enter this if you make a sudden brake application during the spiral entry so that the glider yaws around. The nose of the glider ends up pointing at the ground, after which it picks up speed very quickly. This technique is very similar to SAT entry technique, and like the SAT it is an aerobatic manoeuvre, which is outside the normal safe flight envelope. Please do not practise these manoeuvres unless supervised by a qualified SIV instructor, as they can be dangerous.

Care should be taken when exiting from any spiral dive. To pull out of a steep spiral dive, release the applied brake gradually or apply opposite brake gradually. A sharp release of the brake can cause the glider to surge and dive as the wing converts speed to lift. Always be ready to damp out any potential dive with the brakes. Also be ready to encounter turbulence when you exit from a spiral because you may fly through your own wake, which can cause a collapse.

**CAUTION: SPIRAL DIVES CAN CAUSE LOSS OF ORIENTATION (black out) AND TAKE SOME TIME TO EXIT FROM. THIS MANOEUVRE MUST BE EXITED IN TIME AND WITH SUFFICIENT HEIGHT!**

## Speed System

Launching and general flying is normally done without using the accelerator. The accelerator bar should be used when higher speed is important. A pilot flying at the maximum in-flight weight should be able to reach the Top Speed quoted in the specifications table, when pushing the accelerator system fully. Glide angle is reduced with full speedbar applied, so it is not necessarily the best way to race in thermic conditions, and the canopy is slightly more susceptible to deflations. Using the speedbar can require some effort and the pilot's balance in the harness can be affected. It may be necessary to make some adjustments to the harness. We recommend you only fly in conditions where you can penetrate into-wind with the risers level, ie no speedbar applied, so that you have the extra airspeed in reserve should you need it.

To fly at maximum speed the speedbar should be applied smoothly and gradually until the two pulleys on each A-riser touch. Please do not go beyond this point by using excessive force to attempt to make the glider go faster as

this may result in the glider collapsing.

IMPORTANT:

1. Practise using the speed system in normal flying.
2. Be careful flying fast in rough or turbulent conditions as deflations are more likely to occur at speed. The speed increase is achieved by reducing the angle of attack, so the canopy has slightly more collapse tendency.
3. Remember that your glide deteriorates at higher speeds. Best glides are achieved when the risers are level and the brakes are off.

Check the component parts of the speed system regularly for wear and tear, and ensure that it always works smoothly.

## Landing

Landing is very straightforward. When landing in light winds, flare in the normal way from an altitude of around 2m. It may sometimes help to take wraps on the brakes to make the flare more effective.

Strong-wind landings require a different technique. If you use the brakes to flare in a strong wind the wing tends to convert this energy to height, which can be a problem. The best method is to take hold of the rear-risers at the maillons just before landing, and collapse the canopy using these when you have landed. The glider will collapse very quickly using this method. The glider can also be steered using the rear-risers but be careful not to cause a premature stall.

After landing, the B-risers can also be used to collapse the canopy, although it is more difficult to control the collapsed canopy on the ground with the B-risers.

## 5. Recovery Techniques

### Stalls

Stalls are dangerous and should not be practised in the course of normal flying. Stalls are caused by flying too slowly. Airspeed is lost as brake pressure increases and as the canopy approaches the stall point it will start to descend vertically and finally begin to collapse. Should this occur it is important that the pilot releases the brakes at the correct moment. The brakes should never be released when the wing has fallen behind the pilot; the brakes should be released fairly slowly, to prevent the forward dive of the canopy from being too strong. A pre-release of the brakes and the reconstruction of the full span is recommended to avoid the tips getting cravatted during the recovery. Pilots are advised never to attempt this manoeuvre unless under SIV instruction. This manual is not intended to give instruction in this or any other area.

#### **Deep Stall (or Parachutal Stall)**

Your paraglider has been designed so that it will not easily remain in a deep stall. However, if it is incorrectly rigged or its flying characteristics have been adversely affected by some other cause, it is possible that it could enter this situation. In the interests of safety all pilots should be aware of this problem, and know how to recover from it. The most common way to enter deep stall is from a flying too slowly, from a B-line stall or even from big ears. When in deep stall the pilot will notice the following:

1. Very low airspeed.
2. Almost-vertical descent (like a round canopy), typically around 5m/s.
3. The paraglider appears quite well inflated but does not have full internal pressure. It looks and feels a bit limp.

Recovery from deep stall is quite simple: The normal method is to simply initiate a mild turn. As the canopy starts to turn it will automatically revert to normal flight, but it is very important not to turn too fast as this could induce a spin.



The second method is to pull gently on the A-risers. This helps the airflow to re-attach to the leading edge, but be careful not to pull down too hard as this will induce a front collapse.

If the deep stall is particularly stubborn and the previous methods do not work then a full stall will solve the problem. To do this apply both brakes fairly quickly, as if to do a strong stall, then immediately release both brakes and damp out the forward surge in the normal way. The canopy will swing behind you then automatically reinflate and surge forward in front of you before returning to normal flight. It is the surge forward that exits the canopy from deep stall.

## Spins

Spins are dangerous and should not be practised in the course of normal flying. Spins occur when the pilot tries to turn too fast. In a spin the pilot, lines and canopy basically stay vertical and rotate around a vertical axis. Your glider will resist spinning, but if a spin is inadvertently induced you should release the brake pressure but always be ready to damp out any dive as the glider exits the spin. Failure to damp the dive on exiting the spin may result in an asymmetric deflation.

## Symmetric Front Collapse

It is possible that turbulence can cause the front of the wing to symmetrically collapse, though active piloting can largely prevent this from occurring accidentally. A pilot can reproduce the effect by taking hold of both the A-risers and pulling down sharply on them. The glider will automatically recover on its own from this situation in around three seconds. During this recovery period it is advisable not to apply the brakes as this could stall the wing.

## Asymmetric Front Collapse

Your paraglider is very resistant to deflations; however if the canopy collapses on one side due to turbulence, you should first of all control the direction of flight by countering on the opposite brake. Most normal collapses will immediately reinflate on their own and you will hardly have time to react before the wing reinflates automatically. The act of controlling the direction

will tend to reinflate the wing. However, with more persistent collapses it may be necessary to pump the brake on the collapsed side using a long, strong, smooth and firm action. Normally one or two pumps of around 80cm will be sufficient. Each pump should be applied in about one second and smoothly released. In severe cases it can be more effective to pump both brakes together to get the canopy to reinflate. Be careful not to stall the wing completely if this technique is used.

## Releasing a trapped tip (cravat)

Following a severe deflation it is possible for a wingtip to become trapped in the glider's lines (cravat). If this occurs then first of all use the standard method of recovery from a tip deflation as described in Asymmetric Front Collapse above. If the canopy still does not recover then pull the rear risers to help the canopy to reinflate. Pulling the stabilo line is also a good way to remove cravats, but remember to control your flight direction as your number-one priority. If you are very low then it is much more important to steer the canopy into a safe landing place or even throw your reserve.

NOTE: Test pilots have tested your new paraglider well beyond the normal flight envelope, but such tests are carried out in a very precise manner by trained test pilots with a back-up parachute, and over water. Stalls and spins on any paragliders are dangerous manoeuvres and are not recommended.

## Loss of brakes

In the unlikely event of a brake line snapping in flight, or a handle becoming detached, the glider can be flown by gently pulling the rear risers for directional control.

## 6. Storage and Servicing

### Storage

If you have to pack your canopy away wet, do not leave it for more than a few hours in that condition. As soon as possible dry it out, but do not use direct heat sources as it is inflammable!

Always store the canopy in a dry, warm place. Ideally this should be in the temperature range of 5°C to 13°C. Never let your canopy freeze, particularly if it is damp.

Your paraglider is made from high quality nylon which is treated against weakening from ultraviolet radiation. However, UV exposure will still weaken the fabric and prolonged exposure to harsh sunlight can severely compromise the safety of your canopy. Therefore once you have finished flying, put your wing away. Do not leave it laying in strong sunshine unnecessarily. If you are concerned about any aspect of the integrity of your paraglider please contact your nearest BGD dealer or talk to BGD directly.

Do not treat your canopy with chemical cleaners or solvents. If you must wash the fabric, use warm water and a little soap. If your canopy gets wet in sea water, wash it with warm water and carefully dry it.

### Small Repairs

Small tears in the top or bottom surface (not normally the ribs) of a canopy can be repaired with a patch of self-adhesive ripstop nylon. Tears no longer than 100mm can be repaired in this way providing they are not in high-stress areas. If you have any doubt about the airworthiness of your canopy please contact your dealer or BGD directly.

## Servicing / Inspection

It is important to have your glider regularly serviced. Your wing should have a thorough check / inspection every 24 months or every 150 flight hours, whichever occurs first. This check must be made by the manufacturer, importer, distributor or other authorised persons.

Please print out the service pages from this manual, fill in the number of flights and hours flown in the Service Record, and send together with your glider when it goes for inspection or servicing. The manufacturer will only accept responsibility for paraglider lines and repairs which we have produced and fitted or repaired ourselves.

## Environmental protection and recycling

Our sport takes place in the natural environment, and we should do everything to preserve our environment. A glider is basically made of nylon, synthetic fibres and metal. At the end of your paraglider's life, please remove all metal parts and put the different materials in an appropriate waste/recycling plant.

# 7. Technical data

## Materials

The MAGIC is made from the following quality materials:

Top surface:	Porcher Skytex 38g/m <sup>2</sup>
Bottom surface:	Porcher Eazyfly white
Ribs:	Porcher Skytex 38g/m <sup>2</sup> Hard White
Internal structure:	Porcher Skytex 38g/m <sup>2</sup> Hard
Nose reinforcing:	Plastic wire PA orange 2.4mm
Risers:	20mm black nylon webbing
Pulleys:	Spenger and Riley stainless steel roller pulleys
Top lines:	Edelrid 8000U-70,90 (Unsheathed)
Middle lines:	Edelrid 8000U-120,90 (Unsheathed)
Lower lines:	Liros TSL280,190,140 (Sheathed)
Brakes:	Liros DSL70,110,350 (Sheathed)

Spare parts can be obtained directly from BGD or through our network of registered BGD repair shops.

For a full list check [www.flybgd.com](http://www.flybgd.com)

## Specifications

	XS	S	M	ML	L	
Linear scaling factor	0.92	0.96	1	1.04	1.08	
Projected area	17.83	19.53	21.23	22.93	24.63	m <sup>2</sup>
Flat area	21.00	23.00	25.00	27.00	29.00	m <sup>2</sup>
Glider weight	4.4	4.6	4.9	5.2	5.5	kg
Total line length	202	222	241	260	280	m
Height	6.2	6.5	6.76	7.0	7.3	m
Number of main lines	3/4/3	3/4/3	3/4/3	3/4/3	3/4/3	
Cells	40	40	40	40	40	
Flat aspect ratio	4.67	4.67	4.67	4.67	4.67	
Projected aspect ratio	3.51	3.51	3.51	3.51	3.51	
Root chord	2.59	2.71	2.83	2.94	3.05	m
Flat span	10.05	10.51	10.96	11.39	11.80	m
Projected span	7.90	8.27	8.62	8.96	9.28	m
Weight range	50 - 70	60 - 80	75 - 95	88 - 108	100 - 125	kg
Trim speed	38	38	38	38	38	
Top speed	50	50	50	50	50	km/h
Min sink	1	1	1	1	1	km/h
Best glide	9	9	9	9	9	m/s
Certification	EN+LTF: A	EN+LTF: A	EN+LTF: A	EN+LTF: A	EN+LTF: A	



## Overview of glider parts



## Risers

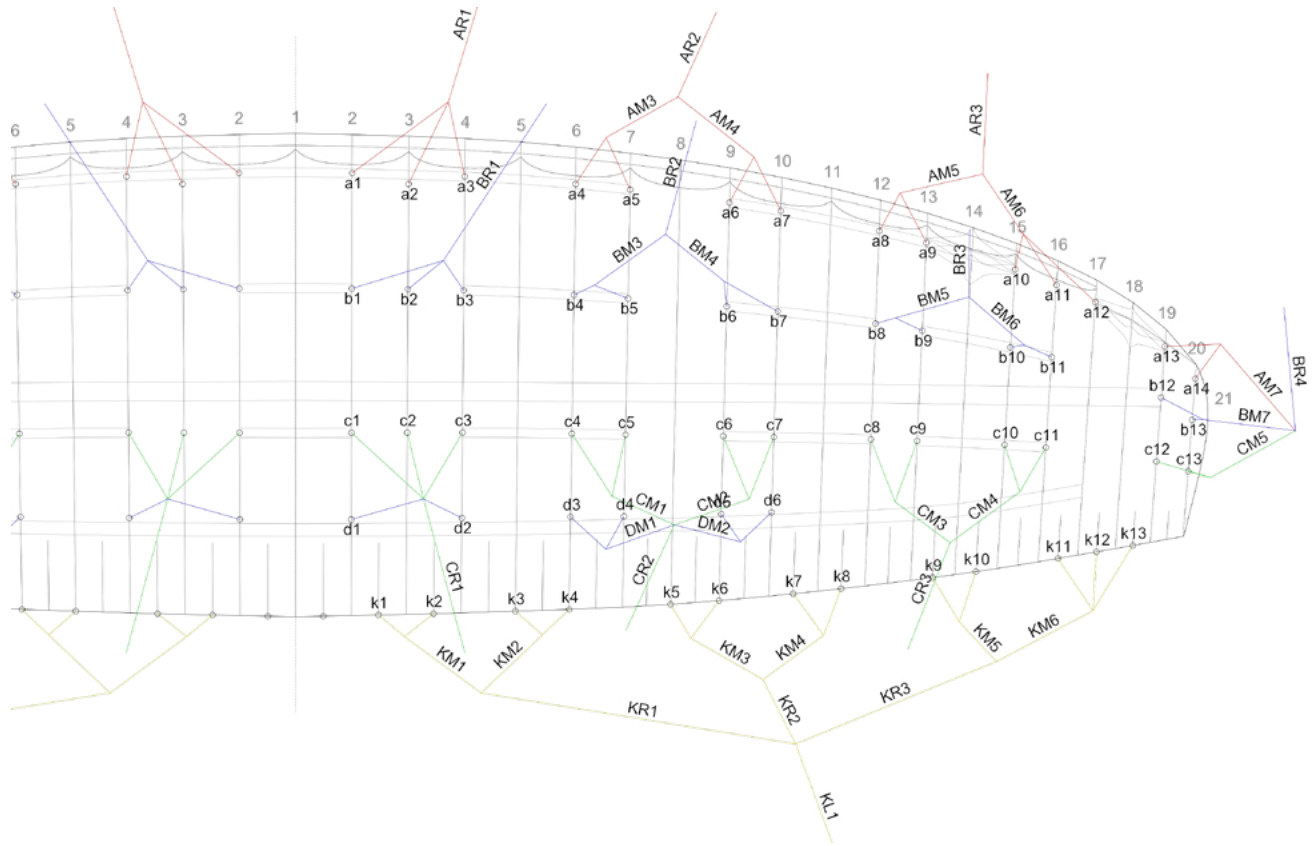


The riser set does not have trimmers, or any other adjustable or removable device.

## Brake and Speedbar Travel

<b>Size</b>	<b>Riser length (mm)</b>	<b>Accelerator length (mm)</b>	<b>Brake range (cm)</b> Maximum symmetric control travel at maximum weight in flight
XS	460	100	65
S	460	100	70
M	500	120	75
ML	500	120	80
L	500	120	85

# Line Plan



## Line length checks

All measures are in mm, with 50N line tension, this tension being slowly and gradually applied before taking the measurement.

The lengths are measured from the lower surface of the canopy to the inside edge of the maillon connecting them to the risers.

During the EN certification process, the test team has checked the lengths of the suspension lines, control lines and risers given in the manual against the sample glider, after the test flights have been carried out. The difference in length between the manual and the sample may be no more than 10mm.

The actual measurements for the wings tested during EN certification can be found in the Appendix of this manual.

## Size XS

## Bridle check table

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>
1	6192	6084	6115	6259	6501
2	6134	6046	6081	6240	6351
3	6175	6066	6098	6216	6210
4	6188	6090	6109	6190	6154
5	6153	6055	6083	6190	6055
6	6148	6050	6084	6194	5987
7	6179	6082	6108		5944
8	6115	6026	6087		5960
9	6060	5975	6014		5901
10	5970	5907	5958		5863
11	5905	5885	5978		5852
12	5884	5635	5726		5837
13	5689	5549	5654		5862
14	5554				

## Single lines

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>					
a1	1225	b1	1210	c1	1343	d1	1490	k1	497
a2	1168	b2	1173	c2	1310	d2	1468	k2	348
a3	1210	b3	1194	c3	1328	d3	742	k3	483
a4	619	b4	486	c4	738	d4	717	k4	429
a5	585	b5	452	c5	714	d5	601	k5	432
a6	465	b6	481	c6	585	d6	606	k6	365
a7	497	b7	515	c7	610			k7	399
a8	663	b8	610	c8	602			k8	417
a9	609	b9	561	c9	530			k9	380
a10	829	b10	618	c10	387			k10	343
a11	766	b11	597	c11	408			k11	477
a12	748	b12	350	c12	306			k12	464
a13	376	b13	265	c13	235			k13	490
a14	242								
				CM1	1639	DM1	1743	KM1	1349
				CM2	1769	DM2	1859	KM2	1073
				CM3	573			KM3	1095
				CM4	660			KM4	1018
				CM5	613			KM5	1320
								KM6	1175
AM3	1420	BM3	1510						
AM4	1535	BM4	1476						
AM5	1620	BM5	1195						
AM6	1310	BM6	1070						
AM7	506	BM7	477						
AR1	4474	BR1	4381	CR1	4288			KR1	2200
AR2	3662	BR2	3607	CR2	3254			KR2	2073
AR3	3347	BR3	3734	CR3	4433			KR3	1746
		BR4	4331					KL1	2428





## Size M

## Bridle check table

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>
1	6791	6665	6710	6862	7123
2	6735	6626	6673	6843	6960
3	6777	6649	6695	6822	6806
4	6793	6675	6707	6794	6746
5	6754	6638	6680	6796	6641
6	6751	6634	6682	6802	6567
7	6786	6672	6709		6520
8	6714	6622	6705		6539
9	6655	6567	6626		6475
10	6553	6493	6564		6435
11	6484	6470	6587		6423
12	6463	6200	6308		6409
13	6258	6106	6227		6436
14	6110				

## Single lines

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>					
a1	1336	b1	1319	c1	1441	d1	1596	k1	544
a2	1281	b2	1281	c2	1405	d2	1574	k2	382
a3	1324	b3	1305	c3	1428	d3	810	k3	528
a4	677	b4	531	c4	806	d4	783	k4	470
a5	639	b5	495	c5	781	d5	657	k5	473
a6	508	b6	525	c6	638	d6	664	k6	400
a7	544	b7	564	c7	666			k7	436
a8	724	b8	666	c8	658			k8	457
a9	666	b9	613	c9	580			k9	415
a10	905	b10	674	c10	424			k10	376
a11	837	b11	652	c11	448			k11	521
a12	817	b12	381	c12	334			k12	509
a13	411	b13	288	c13	254			k13	537
a14	264								
				CM1	1759	DM1	1871	KM1	1471
				CM2	1904	DM2	1999	KM2	1171
				CM3	625			KM3	1194
				CM4	719			KM4	1111
				CM5	689			KM5	1439
								KM6	1282
AM3	1766	BM3	1645						
AM4	1429	BM4	1611						
AM5	570	BM5	1302						
AM6	1332	BM6	1167						
AM7	595	BM7	541						
AR1	4919	BR1	4816	CR1	4745			KR1	2396
AR2	4039	BR2	3975	CR2	3624			KR2	2262
AR3	3694	BR3	4127	CR3	4903			KR3	1909
		BR4	4761					KL1	2685

## Size ML

## Bridle check table

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>
1	7061	6944	6971	7138	7401
2	6998	6903	6935	7120	7232
3	7047	6927	6957	7099	7073
4	7066	6952	6972	7071	7010
5	7026	6914	6944	7075	6901
6	7023	6911	6948	7080	6825
7	7060	6950	6976		6776
8	6988	6899	6968		6796
9	6926	6841	6886		6732
10	6825	6764	6823		6691
11	6753	6739	6845		6679
12	6731	6447	6547		6664
13	6505	6346	6465		6692
14	6353				

## Single lines

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>					
a1	1389	b1	1372	c1	1524	d1	1694	k1	566
a2	1327	b2	1332	c2	1489	d2	1673	k2	398
a3	1377	b3	1357	c3	1512	d3	842	k3	550
a4	704	b4	552	c4	838	d4	815	k4	489
a5	665	b5	515	c5	812	d5	684	k5	492
a6	528	b6	546	c6	664	d6	690	k6	417
a7	566	b7	586	c7	693			k7	453
a8	753	b8	694	c8	684			k8	475
a9	692	b9	638	c9	603			k9	432
a10	941	b10	702	c10	442			k10	392
a11	870	b11	678	c11	465			k11	542
a12	849	b12	399	c12	349			k12	529
a13	427	b13	302	c13	268			k13	558
a14	276								
				CM1	1759	DM1	1978	KM1	1528
				CM2	1854	DM2	2113	KM2	1217
				CM3	2006			KM3	1240
AM3	1607	BM3	1709	CM4	649			KM4	1155
AM4	1741	BM4	1675	CM5	747			KM5	1495
AM5	1835	BM5	1354					KM6	1333
AM6	1485	BM6	1213						
AM7	575	BM7	541						
				CR1	4923			KR1	2488
AR1	5138	BR1	5036	CR2	3762			KR2	2350
AR2	4227	BR2	4164	CR3	5116			KR3	1986
AR3	3872	BR3	4321					KL1	2792
		BR4	4987						

# 8. Service Booklet

## Test Flight Record

Model

Size

Serial Number

Colour

Date of test flight

Company signature and stamp

## Service Record

**Service No 1:**

Date :

Stamp - Signature :

No flights :

Type of service :

**Service No 2:**

Date :

Stamp - Signature :

No flights :

Type of service :

**Service No 3:**

Date :

Stamp - Signature :

No flights

Type of service :

## Owner Record

### Pilot No 1

First name

Family name

Street

City

Post code

Country

Telephone

Email:



## Owner Record

Pilot No 2

First name

Family name

Street

City

Post code

Country

Telephone

Email:

## 9. Closing Words

Your paraglider is an advanced, stable glider that promises many hours of safe and enjoyable flying, provided you treat it with care and always respect the potential dangers of aviation.

Please always remember that flying can be dangerous and your safety depends on you. With careful treatment your wing should last for many years. It has been tested to current international airworthiness standards, and these represent the current knowledge concerning the safety of a paraglider. However, there are still many unknowns, for example the effective lifespan of the current generation of gliders and how much material material ageing is acceptable without affecting the airworthiness. There are natural forces that can seriously threaten your safety, regardless of the quality of construction or the condition of your glider. Your security is ultimately your responsibility. We strongly recommend that you fly carefully, adapt to the weather conditions and keep your safety in mind.

Flying in a club or a school with experienced pilots is highly recommended.

We recommend that you fly with a standard harness with back protection and a reserve parachute. Always use good equipment and an approved helmet.

See you in the sky!

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# 10. Appendix

## EN line measurements

The tables below show the line measurements for the test wings, as measured by the test house during the certification procedure. These figures relate to the Bridle Check Tables in Chapter 7.

### Size M

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>
1	6789	6667	6709	6865	7121
2	6741	6631	6674	6845	6957
3	6779	6653	6696	6819	6807
4	6793	6675	6705	6799	6750
5	6760	6641	6680	6789	6642
6	6751	6636	6683	6795	6568
7	6790	6677	6713		6522
8	6721	6626	6709		6540
9	6660	6573	6626		6476
10	6556	6501	6572		6444
11	6492	6478	6593		6428
12	6474	6204	6310		6409
13	6262	6113	6232		6435
14	6119				

### Size ML

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>K</b>
1	7064	6947	6969	7147	7396
2	7001	6905	6934	7127	7230
3	7050	6930	6958	7104	7071
4	7068	6950	6969	7078	7008
5	7028	6914	6943	7082	6896
6	7026	6907	6943	7087	6822
7	7063	6947	6971		6771
8	6985	6895	6969		6792
9	6924	6841	6891		6730
10	6823	6762	6824		6691
11	6752	6738	6846		6681
12	6730	6446	6549		6666
13	6508	6350	6470		6694
14	6357				