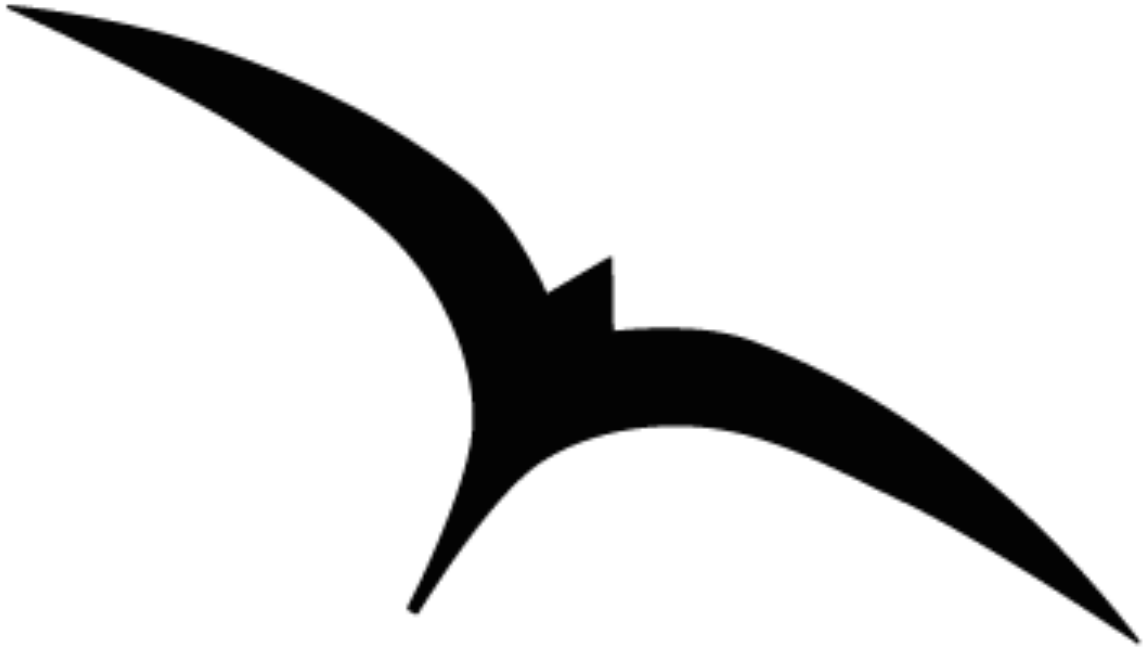
TrekkinG
PARAPENTES

Pilot's Manual



Bird

Table des matières :

A - Introduction

TREKKING Parapentes has designed and built more than 20,000 paragliding wings since 1986. We're the oldest paragliding manufacturer in existence. We inspire trust among pilots with equipment known for safety and dependability.

Our wings are designed and built to last. To build the Bird we've selected the best materials currently on the market.

Flying paragliders requires rigorous training from qualified teachers. This manual will not teach you to fly, and cannot replace a good instructor. The flying advice offered here should already have been learned on a training course.

When you fly, take care of the environment, the countryside that you pass through on foot or by car. Leave no trace of litter. Nature gives us the privilege of magnificent flights, let's respect her in return.

The TREKKING Parapentes team.

B - Intended users

The BIRD is designed for solo pilots with a wide range of ability levels. From recently qualified pilots, to experienced flyers aiming to complete long cross country flights without worrying about their wing.

The BIRD is certified EN-B, and complies also with the spirit of the class, to deliver a wing that is safe and pleasurable to fly for all levels of qualified pilot.

C - Overview of materials and construction

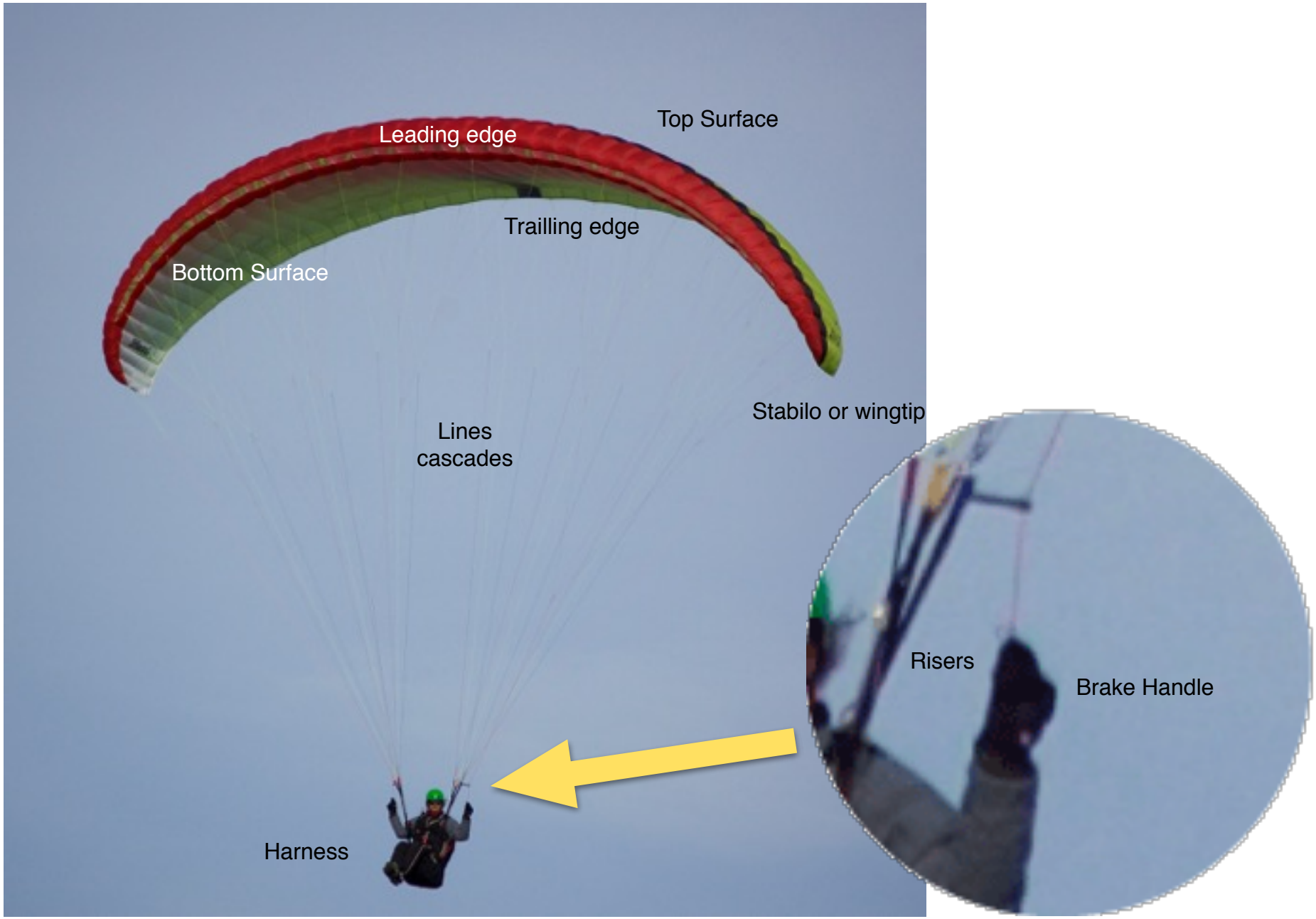
Our choice of materials has been informed by over 30 years of experience in building and servicing paragliders. We've chosen the best materials currently on the market to build the BIRD.

The line layout with 2 or 3 cascades together with the internal structure of diagonal ribs and tensioning bands are optimised to keep the wing shape consistent with a perfectly smooth surface. Because of this the wing responds to external forces in a consistent way. The brake lines operate tensioners towards the wing tips which gather together the trailing edge, helping initiate the turn.

We've developed a new generation of reinforcement rods made from poly-composite P14 © with shape memory. This ensures excellent stability of the leading edge shape.

Our wings have fully sheathed lines, for better durability and ease of use.

D - Description



E - Specification data

Bird						
Size	XS	S	SM	M	ML	L
Weight range	50 - 75	60 - 85	70 - 95	80 - 105	90 - 115	100 - 125
Surface area (flat)	22	23,5	24,75	26	27,25	28,5
Surface area (projected)	18,91	20,20	21,27	22,35	23,42	24,50
Cells	45	45	45	45	45	45
Aspect ratio (flat)	5,33	5,33	5,33	5,33	5,33	5,33
Aspect ratio (projected)	3,96	3,96	3,96	3,96	3,96	3,96
Weight				4,9 kg		
Line layout	3/4/3	3/4/3	3/4/3	3/4/3	3/4/3	3/4/3
Number of lines	150	150	150	150	150	150
Longueur suspentes	244	254	260	266	274,5	283
Total height of cone	7,21	7,45	7,65	7,84	8,02	8,20
Flat span	10,83	11,20	11,48	11,75	12,05	12,32
Trim speed	39 km/h +/- 1	39 km/h +/- 1	39 km/h +/- 1	39 km/h +/- 1	39 km/h +/- 1	39 km/h +/- 1
Maximum speed	51 km/h +/- 1	51 km/h +/- 1	51 km/h +/- 1	51 km/h +/- 1	51 km/h +/- 1	51 km/h +/- 1
Speed bar travel	11 cm	11 cm	11 cm	11 cm	11 cm	11 cm
Trims	No trims	No trims	No trims	No trims	No trims	No trims
Brake travel				65 cm		
Minimum sink rate	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s
Best glide ratio	9,3	9,3	9,3	9,3	9,3	9,3
Certification	EN926-1	EN LTF B	EN926-1	EN LTF B	EN926-1	EN LTF B

F - Materials

Part	Manufacturer's reference	Manufacturer	Country of origin
Fabrics			
Top surface	9017-E25	PORCHER INDUSTRIE	FRANCE
Bottom surface	70032E3W	PORCHER INDUSTRIE	FRANCE
Load bearing ribs	9017-E29	PORCHER INDUSTRIE	FRANCE
Non-load bearing ribs	70032E4D	PORCHER INDUSTRIE	FRANCE
Diagonal and H-straps	70032E4D	PORCHER INDUSTRIE	FRANCE
A-line reinforcements	6382	PORCHER INDUSTRIE	FRANCE
B-line reinforcements	2420	PORCHER INDUSTRIE	FRANCE
C- line reinforcements	6391	PORCHER INDUSTRIE	FRANCE
Trailing edge hem	6392	PORCHER INDUSTRIE	FRANCE
Leading edge hem and straps	57501	GUTH AND WOLF	Germany
Sewing thread	TENAX 60	TENAXFIL	Italy
Reinforcement rods	P14	HIGLIDER SAS	FRANCE
Lines			
Upper A B C lines and brakes	7850-080	EDELRID	Germany
Upper D lines	6843-080	EDELRID	Germany
Mid lines A B and brakes	7850-080	EDELRID	Germany
Lower C lines + mid & lower brake lines	6843-080	EDELRID	Germany
Lower A B C lines	7343-230	EDELRID	Germany
Lower brake lines BR04	6843-120	EDELRID	Germany
Brake handles	A10/N-300	EDELRID	Germany
Sewing thread upper and mid lines	TENAX 60	TENAXFIL	Italy
Sewing thread lower lines	TENAX 40	TENAXFIL	Italy
Risers	ELEVATEURS	KRILO DOO - SWING	CROATIA
MAILLONS RAPIDES	DELTA INOX 3.5	PEGUET	FRANCE

G - How to use

G-1 - Choosing a harness

Use an ABS type harness with high hang points, with dimensions as close as possible to those used during certification (see annexe page 26). Ensure adequate connection to the risers.

WARNING : Adjust your speed bar so the speed system pulleys meet each other just when your legs are fully extended.

G-2 - Going flying

G-2-1 - Preparation

Launching the BIRD does not require any special preparation or technique other than what you will have learned in school.

Be sure to choose a suitable area to lay out your wing so as not to damage it.
Lay out the wing with the top surface touching the ground, with lines laid down pointing towards the wind.
Check your harness is correctly attached to the wing before putting it on, and after putting it on double check all straps are done up. The leading edge will "pre-inflate" thanks to the Poly-composite P14 © reinforcement rods.

G-2-2 - Inflation

In weak or nil wind use the two front risers (coloured red) for inflation. In a fresh breeze you need only use the central front risers. Inflate your wing gently and progressively, checking that the lines are not tangled. If you have any doubt, gently bring the wing back down, untangle any knots, and begin again.

G-2-3 - Takeoff

The BIRD will progressively lift your weight. Keep running forward until you're completely flying.

G-2-4 - Level flight
With your hands up, your air speed will be around 39 km/h.

The range of travel of the brakes on your BIRD is particularly high, around 60cm. Stalling occurs with both brakes pulled well down – you can tell when you're near the stall point as the brake pressure will increase. The stall speed is around 25 km/h.

The best glide angle is obtained with a little speed bar applied, and an airspeed of 40 to 42 km/h. Maximum airspeed is 50 - 51km/h with full speedbar (15cm travel). Be careful, the wing is more vulnerable collapse in accelerated flight.

G-2-5 - Initiating and ending a turn
Turns should be initiated by a combination of weight shift and brake. The brake travel required may be more than you're used to at first, but it will soon become natural. For greater comfort whilst thermaling, we recommend "taking a wrap" on the inside brake- wrapping the brake handle around your hand. To stop turning simply reverse the brake inputs and weight shift to the outside.

In the unlikely event of a brake line failure, it is possible to steer the wing by pulling gently on the C-risers. Practice this in calm air to get the feel of how much movement is required.

G-2-6 - Landing
There are no special requirements to landing the BIRD. The final glide and flare are easy to manage for a gentle landing.

G-3 - Special maneouvers

G-3-1 - Descent techniques
G-3-1-a - Big ears
Big ears can be applied using the dedicated outside A risers. Grab the risers at the level of the mallions and pull down their full length, either one after the other or both at the same time. Reinflation is by simply releasing the risers, again either one at a time or both together. We recommend one at a time.

If you pull “big” big ears by pulling two armfuls of outside As, it is advisable to pull normal ears first, apply the speed bar, and then pull big big ears. This reduces the risk of stalling. Re-inflation of the ears happens automatically, within a few seconds of release.

G-3-1-b - Spiral dive

Full Spiral dives can achieve descent rates of 13 m/s, with high g-forces pressing you into your harness. The BIRD exits from spiral dives naturally when you release the inside brake. We recommend you continue turning for another 360 degrees in order to dissipate the energy built up in the dive. To descend quickly with reduced G-forces,
we recommend pulling an outside big ear once your turn has begun. This makes the wing turn slower, but descend faster. The result is a little more “comfortable”.

G-3-1-c - B-line stalls

B-line stalls are possible by pulling symmetrically on the B risers, at the level of the mallions. The wing will stop flying forwards, crease across the span, and the descent rate will increase to 6 to 8 m/s. Stability during this manoeuvre will depend greatly on the level of turbulence in the air. To exit the B-line stall, release both B risers at the same time. The wing will pitch forward before resuming normal flight.

G-3-2 - Acro

Acrobatics are not recommended – the BIRD is not designed for this sort of flying.

G-3-3 - Outside the flying envelope,
flight incidents

In most cases, the BIRD will recover from flight incidents automatically. Your first priority should be to maintain your heading and avoid over reacting. A basic rule is NEVER PUT YOUR HANDS UP SUDDENLY. An SIV course in a safe environment will allow you to get to know the way the BIRD reacts.

G-3-3-a - Full stall

Keep your hands in the same position until the wing has stabilised above you, then let
your hands up gradually to allow return to forward flight, and be ready for the wing to dive forward.

G-3-3-b - Parachutal stall
This is a situation between full stall and normal flight. You'll feel the lack of forward motion. Usually it's enough to raise your hands for the wing to return to normal flight. You might also push on the A risers and/or lean forward in your harness.

G-3-3-c - Frontal collapse
This incident can occur in strong turbulence, or when using the speed bar in stronger conditions. The wing will re-open by itself, and resume normal flight after pitching forward less than 30 degrees. Go with it and let the wing fly as it comes out of the pitching movement.

G-3-3-d - Asymmetric collapse
This type of collapse can happen unexpectedly in thermic conditions or wind shear. Maintain your heading by weight shifting away from the collapsed side. The BIRD will recover progressively without excessive turning.

G-3-3-e - Entering a spin
Generally this occurs as a result of turning whilst flying too slowly, which causes the inside half of the wing to stall. The wing should recover as a result of regaining forward speed when you raise your hands.

G-3-3-f - Cravats
A cravat is when one wingtip gets caught in the lines, normally after a collapse. To recover, pull on the stabilo line situated on the outside of the B riser, coloured orange. This will pull down the wingtip and free it. All the while, maintain your heading using weight shift to the opposite side. Pay attention to where you're going to avoid collisions with other pilots or the ground.

If you are unable to remove the cravat, fly to the nearest landing site whilst maintaining maximum airspeed.

G-3-3-g - Knot in the lines
A knot un the lines can only come about through insufficient pre-flight checks or poor observation during inflation. If you do notice a knot during inflation, abort take-off if at all possible. If you notice a knot whilst flying, try to undo it by pulling on the neighbouring lines. If this does not work, land as soon as possible.

G-3-3-h - Steering without the brakes

In the unlikely event of a brake line failure, it is possible to steer the wing by pulling gently on the C-risers. Practice this in calm air to get the feel of how much force and movement is required.

G-3-3-i - Over-piloting
A frequent cause of paragliding accidents is a cascade of flight incidents caused by over-reactions. To be specific, the pilot either pulls to much on the brakes, or too late. Your control inputs should always be as gentle and well managed as possible. Your wing has it's own inertia and response time to your inputs. Developing a feeling for this is a way to become a better pilot.
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H - Maintenance

The materials for your BIRD have been carefully selected in order to guarantee the longest durability. However, it is up to you to take good care of your wing and its maintenance in order to fly safely for as long as possible.

Each time unfurl or fold up your wing, examine the fabric and lines to see that nothing has deteriorated.

Brake line lengths should be regularly checked. Brake lines on all wings are susceptible to shrinkage due to the small loads that are placed on them and the materials used. You should always have at least 10cm of free play as you pull the brakes down before there is any pressure.

Have the wing serviced by a centre approved by us every 2 years or 200 flights. The service should cover at a minimum the fabric condition, line length and strength. Small punctures and rips can be repaired with a selfadhesive
fabric patch. Any more extensive repairs should be done by an approved repair centre.

H-1 - What contributes to wear
The most significant contribution to wear is contact with the ground: every time the wing is dragged, clipped, or impacted against the ground. Each takeoff counts as several hours of flight.

The second most significant factor is how the wing is folded and stored. A wing that is scrunched up, damp, compressed, and stored in high heat will have a short life.

H-2 - Folding your wing
Your wing should be stored absolutely dry. We recommend you fold your wing one half at a time, with fold lines parallel to the seams. This means that the leading edge should move backwards as you fold towards the tip, whilst the trailing edge should move forwards. Whilst folding check the wing for debris that may have entered the cells: velcro openings at the trailing edge of each wing-tip are useful for cleaning out. At the same time, you should check the condition of the fabric and the lines for any damage.
Use the sausage bag provided and pack the glider without scrunching up the fabric. For this reason, avoid compression straps across the glider - rather arrange any compression strap parallel to the seams. The best storage solution, if you have space, is lightly packed in a large "mushroom" bag.

H-3 - Soiling
If your wing gets dirty, clean it with a damp sponge without scrubbing, and let it dry in the shade
.
H-4 - Testing the brake line length
The brake lines on all gliders tend to get shorter with time as they don't carry much load. Check regularly that you have at least 10cm of slack before the brakes begin to deform the trailing edge.

H-5 - Scheduled servicing
Your first service is complimentary by our authorised after sales service provider - we will charge you only for delivery and any repairs necessary. This should be done after 1 year or 100 flights - whichever comes sooner.

Thereafter, you should have your wing serviced by a workshop approved by us each year or 100 flights. This should include as a minimum testing the fabric, line length, and line strength.

H-6 - Repairs
Minor tears can be repaired with a self-adhesive patch. More significant damage should be repaired by a professional workshop approved by us.

H-7 - P14 Reinforcement rods
It is possible to break the P14 reinforcement rods if you try hard enough. You have to bend them over a radius of less than 23mm the core will snap. This is difficult to do by accident. Because of the shape memory of the rods, when folding the wing they tend to spring back out of any vulnerable position that might break them. In the

unlikely event of a breakage, please note the rib number and order a replacement from our After Sales Service provider. Replacement rods are easy to fit.

H-8 - Recycling

At the end of its life, your paragliding wing constitutes a significant quantity of material that should be disposed of responsibly. Please contact our After Sales Service provider for information on recycling.

H-9 - Official After Sales Service provider

HORIZON PARAPENTE SAS
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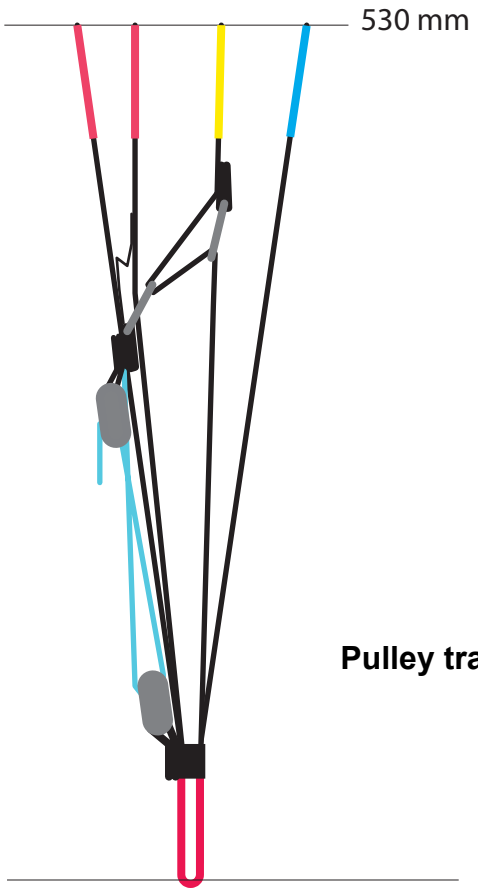
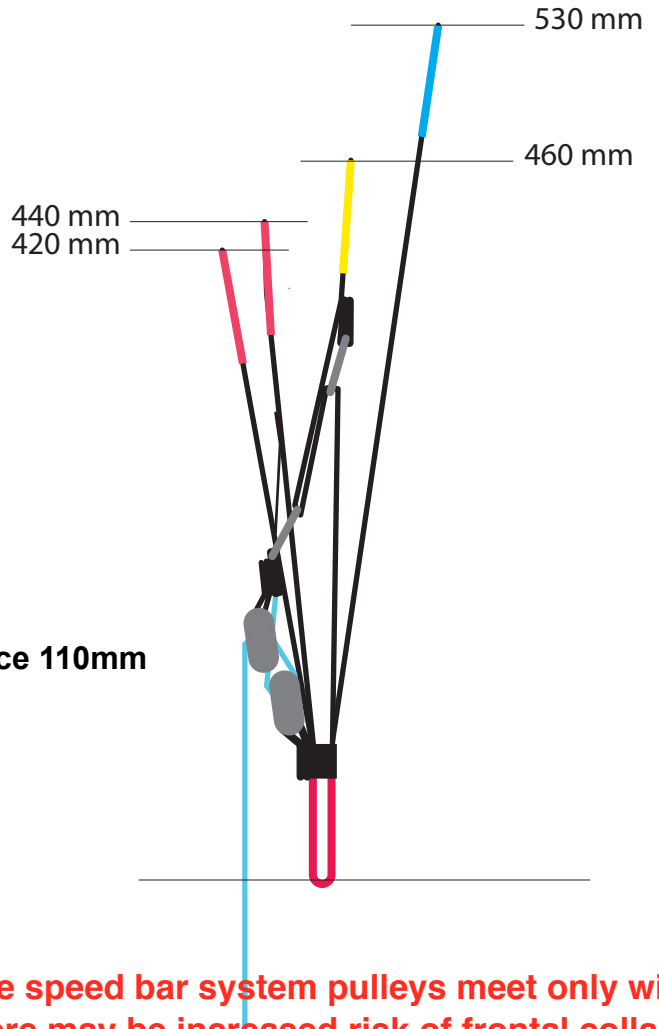
The following pages contain the data necessary for testing and repairing your wing.

RISERS tolerance +/- 5mm

Trim position



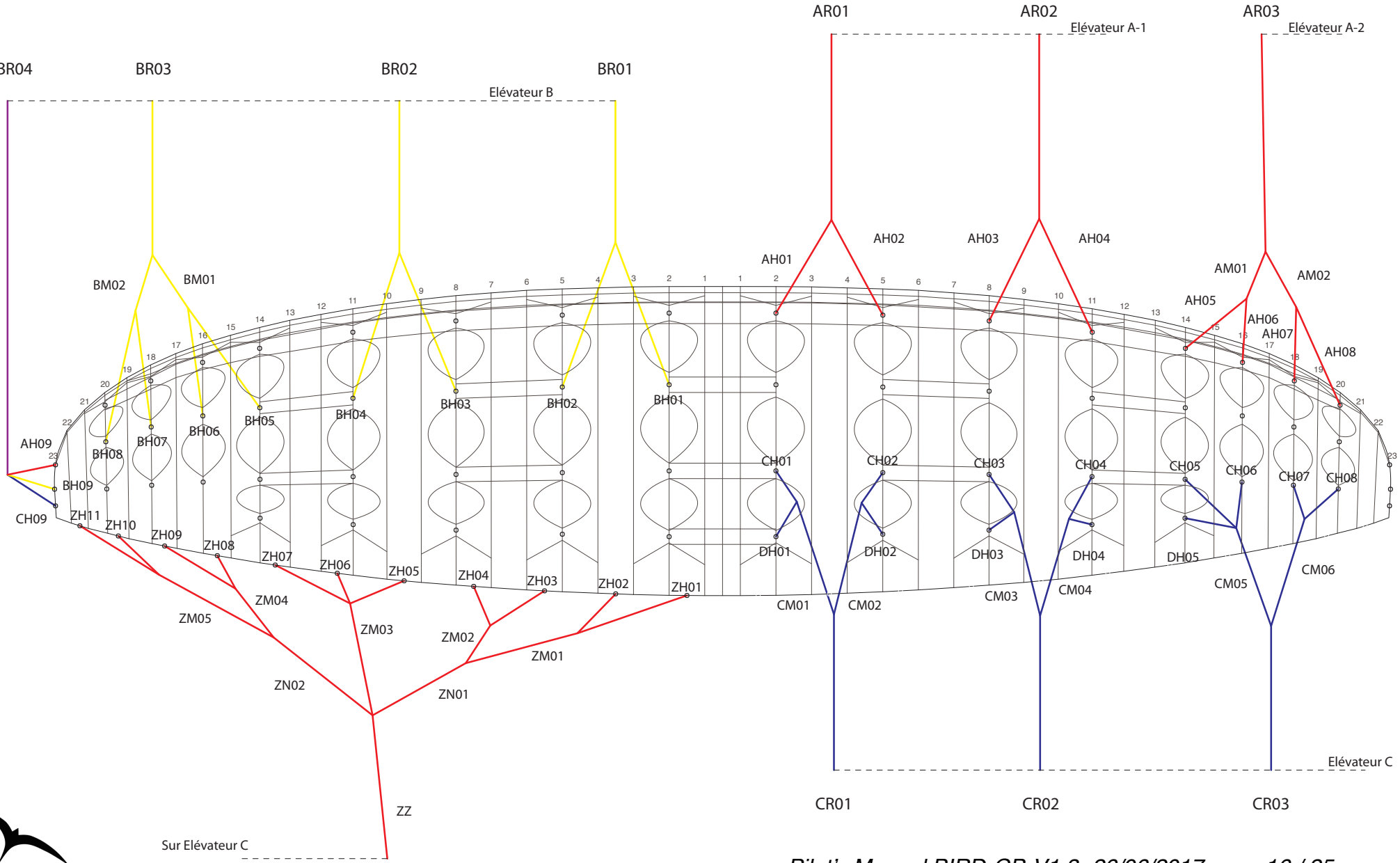
Accelerated position



Pulley travel distance 110mm

Warning: The speed bar must be adjusted so that the speed bar system pulleys meet only with your legs fully outstretched. If the pulleys meet before this then there may be increased risk of frontal collapse.

Annexe I -
Line plan all sizes



Annexe II -
Overall line length table BIRD S

Overall line length table BIRD M

Measurements taken from maillons to fabric, under 5 daN of tension.

Centre

A01 7315	B01 7245	C01 7340	D01 7505	Z01 7920
A02 7280	B02 7210	C02 7295	D02 7460	Z02 7705
A03 7240	B03 7165	C03 7270	D03 7395	Z03 7595
A04 7200	B04 7140	C04 7240	D04 7335	Z04 7595
A05 7120	B05 7080	C05 7130	D05 7205	Z05 7470
A06 6995	B06 6965	C06 7045		Z06 7385
A07 6895	B07 6865	C07 6930		Z07 7405
A08 6865	B08 6835	C08 6870		Z08 7390
A09 6435	B09 6410	C09 6455		Z09 7320
				Z10 7260
				Z11 7200

Overall line length table BIRD L

Annexe III -
Individual lines BIRD S in mm

Individual lines BIRD M in mm

AH01	2300	7850-080-RED	BH01	2230	7850-080-YELLOW	CH01	1130	7850-080-BLUE	DH01	1295	6843-080-BLUE	ZH01	1640	7850-080-RED
AH02	2265	7850-080-RED	BH02	2195	7850-080-YELLOW	CH02	1085	7850-080-BLUE	DH02	1250	6843-080-BLUE	ZH02	1425	7850-080-RED
AH03	2225	7850-080-RED	BH03	2150	7850-080-YELLOW	CH03	1060	7850-080-BLUE	DH03	1185	6843-080-BLUE	ZH03	1315	7850-080-RED
AH04	2185	7850-080-RED	BH04	2125	7850-080-YELLOW	CH04	1030	7850-080-BLUE	DH04	1125	6843-080-BLUE	ZH04	1315	7850-080-RED
AH05	905	7850-080-RED	BH05	865	7850-080-YELLOW	CH05	920	7850-080-BLUE	DH05	995	6843-080-BLUE	ZH05	1890	7850-080-RED
AH06	780	7850-080-RED	BH06	750	7850-080-YELLOW	CH06	835	7850-080-BLUE				ZH06	1805	7850-080-RED
AH07	680	7850-080-RED	BH07	650	7850-080-YELLOW	CH07	720	7850-080-BLUE				ZH07	1825	7850-080-RED
AH08	650	7850-080-RED	BH08	620	7850-080-YELLOW	CH08	660	7850-080-BLUE				ZH08	1010	7850-080-RED
AH09	925	7850-080-RED	BH09	900	7850-080-YELLOW	CH09	950	7850-080-BLUE				ZH09	940	7850-080-RED
												ZH10	880	7850-080-RED
AM01	1200	7850-080-RED	BM01	1200	7850-080-YELLOW	CM01	1200	6843-080-BLUE				ZH11	820	7850-080-RED
AM02	1200	7850-080-RED	BM02	1200	7850-080-YELLOW	CM02	1200	6843-080-BLUE				ZM01	1200	6843-080-RED
						CM03	1200	6843-080-BLUE				ZM02	1200	6843-080-RED
						CM04	1200	6843-080-BLUE				ZM03	3000	6843-080-RED
						CM05	1200	6843-080-BLUE				ZM04	1200	6843-080-RED
						CM06	1200	6843-080-BLUE				ZM05	1200	6843-080-RED
												ZN01	2500	6843-080-RED
AR01	5000	7343-230-RED	BR01	5000	7343-230-YELLOW	CR01	5000	7343-230-BLUE				ZN02	2500	6843-080-RED
AR02	5000	7343-230-RED	BR02	5000	7343-230-YELLOW	CR02	5000	7343-230-BLUE						
AR03	5000	7343-230-RED	BR03	5000	7343-230-YELLOW	CR03	5000	7343-230-BLUE				ZZ	2580	A10/N-300-RED
			BR04	5500	7343-140-ORANGE									

Individual lines BIRD L in mm

Annexe IV -
Sticker certification EN BIRD M

Annexe V -
Sticker certification LTF BIRD M

Annexe VI -
Harness dimensions used during certification :

BIRD M

Weight in fly	< 80 kg	80 kg -	100 kg > 100 kg
Width	(40 ± 2) cm	(44 ± 2) cm	(48 ± 2) cm
Height	(40 ± 1) cm	(42 ± 1) cm	(44 ± 1) cm

The TREKKING paragliders are presented for certification by:
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