MANUAL

DUAL 2

Version 9 August 2020

BRUCE GOLDSMITH DESIGN

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Contents

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DUAL 2 Owner's Manual

TANDEM PARAGLIDER EN / LTF B

Quick Summary

- The best take-off and landing characteristics are with the trimmers in the neutral position, which is marked with white stitching (trimmers released 30mm).
- The fully-trimmed (slow) position should only be used if the glider is very heavily loaded.
- The 9cm carbon or plastic brake handle inserts can be added to make the brake handles more rigid.
- Trimmer webbing is subject to wear, so the Dual 2 is delivered with a spare set of trimmers. These can be easily changed by the pilot.

2. Welcome

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 DUAL 2

The DUAL 2 is suitable for both commercial and recreational tandem flying. Exceptional handling combined with good speed and performance make this a wing a real pleasure to fly. It is very easy to launch, requiring only a very short take-off run, helping you get airborne safely with first-time passengers who are not used to running. Handling is light, direct and intuitive, and the DUAL 2 has an excellent climb rate and an outstanding sink rate.

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.

3. 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 at the back 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.

The harness dimensions used during the certification tests was: hangpoint height 55cm, chest-strap width 44cm.

4. Preparation

Setting up

1. Select a suitable take-off area determined by wind and terrain, clear of any obstacles that may catch in the lines or damage the canopy.

2. Open out your paraglider so that the bottom surface is facing upwards, with the openings at the downwind end of the take-off area.

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 arc. The risers should be drawn away from the canopy until the suspension lines are just tight.

Trimmers

The Dual 2 comes with long-travel trimmers. For take off and landing it is best to release the trimmers 30mm from their fully-trimmed position. This intermediate position is marked with white stitching. The wing will come up more easily with this setting.

In flight, pulling the trimmers in fully to their slowest position lightens the brake pressure. If you are flying near the top of the weight range, you can fly with the trimmers in this position all the time except for take-off and landing. If you are flying near the bottom of the weight range, it is better not to fly at fully-slow.

Regularly check the wear of the webbing and make sure that the system works freely without sticking points. Worn trimmers can be easily replaced by the pilot. The Dual 2 is delivered with a spare set of trimmers.

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. CANOPY: 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. LINES: 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. BRAKES: 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. BUCKLES, MAILLONS, KARABINERS CLOSED: Always check the buckles and attachments on the harnesses. Ensure the main attachment maillons/ karabiners from the harnesses to the spreaders, the spreaders to the main risers, and the individual shackles which attach the risers to the lines, are tightly done up.

5. HELMETS: Pilot and passenger should be wearing certified helmets before strapping in to their harnesses. Ensure all the buckles are secure and properly adjusted for comfort.

6. TRIMMERS: Ensure the trimmers are set equally on each side. The recommended trimmer position for take-off is with the trimmers released 30mm.

7. BIG-EARS BLOCKER: Ensure the neoprene covers are pulled down over the Big Ears Blocker System on each riser to prevent lines from being caught in the cleats.

Your paraglider is now ready for flight.

5. 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.

Sizes and Weight ranges

The DUAL 2 is available in three sizes: 38m^2, 40m^2 and 42m^2.

All sizes retain good flying characteristics throughout the whole of their certified weight ranges. The weight refers to the 'overall take-off weight', which means the combined weight of the pilot and passenger, the glider, the harnesses and all other equipment carried in flight.

Turning agility is lower and the glider more damped In the lower half of the weight range, but in strong turbulence a lightly loaded wing tends to deform or collapse slightly more than a higher-loaded wing.

Agility, speed and stability in turbulence are increased at higher wing loadings, but the glider will be more dynamic in turns and after collapses.

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.

Brake Travel

The maximum brake travel at maximum all-up weight is greater than 65cm.

Tandem Risers

The DUAL 2 is equipped with tandem risers with 10cm-travel **trimmers** to adjust the trim speed of the wing, and a **big-ears blocker system** to automatically hold big ears in. There is no speedbar. A diagram of the risers can be found in section 8 of this manual.

The big-ears blocker system is a camcleat with a neoprene cover that prevents lines from catching. In the air, the pilot can use the outer-As to pull the required size of big-ears, and then slide the line into the cleat to block big ears on. On releasing the line from the cleat, big ears reinflate automatically.

Take-off

It is recommended to launch with the trimmers released 30mm to the white stitching. The paraglider inflates easily in 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 the you weight-shift into the turn in the harness. Remember that violent brake application is dangerous and should always be avoided.

Straight Flight

The 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 in section 7.

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 (100m).

Rapid descent procedures

Big Ears
The wing tips 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 if your paraglider is equipped with these (check the Risers diagram in the Technical Data pages of this manual), 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 in 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 50 cm. 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 10 m/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 100 m 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 16 m/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 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 though your own wake turbulence, which can cause a collapse.

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

Landing

It is recommended to land with the trimmers released 25mm. Landing is very straightforward. Flare in the normal way from an altitude of around 2m when landing in light winds. 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 to height. This can be a real 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.

6. 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 brake 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 change 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 again 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 gliderwill 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

wing using a long, strong, smooth and firm action. Normally one or two pumps of around 80 cm 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.

7. 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 25°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 a high-stress area. 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 BGD wing should have a thorough check / inspection every 150 hours or 300 flights or 2 years whichever comes 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.

Equipment Life Expectancy

TANDEM GLIDER: to be checked according to the BGD Service Requirements above.

KARABINERS: Make sure you use only certified karabiners with a breaking load of 30KN recommended for tandem use to attach the spreaders to the glider. Solo karabiners with a breaking load of 20KN can only be used to attach the individual harnesses to the spreaders. All karabiners must be replaced according the manufacturer's instructions. We recommend to replace them at least every 5 years or 500 hours or 1000 flights, whichever comes first.

SPREADERS: Spreader bars should be replaced as soon as there is any sign of wear or damage and replaced every 500 hours or 1000 flights or 5 years, whichever comes first.

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 span, please remove all metal parts and put the different materials in an appropriate waste/recycling plant.

8. Technical data

Materials

The DUAL 2 is made from the following quality materials:

Top surface:	Porcher Skytex 38g/m² Universal
Bottom surface:	Dominico N20 DMF 36g/m²
Internal structure:	Porcher Skytex 40g/m² Hard
Nose reinforcing:	Plastic wire 2.5mm and 2.0mm
Pulleys:	Riley steel roller
Risers:	20mm black nylon webbing
Top lines:	Liros PPSL, DSL (sheathed)
Middle lines:	Liros TSL (sheathed)
Lower lines:	Liros TSL (sheathed)
Brakes:	Liros DSL (sheathed)

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

For a full list check www.flybgd.com

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Specifications

	38	40	42
Linear scaling factor	0.95	0.98	1
Projected area (m^2)	32.30	34.02	35.70
Flat area (m^2)	37.80	39.80	41.80
Glider weight (kg)	7.5	7.5	7.9
Total line length (m)	416	426	436
Height (m)	9.3	9.6	9.8
Number of main lines		3/4/3/3	
Cells		52	
Flat aspect ratio		5.5	
Projected aspect ratio		4.1	
Root chord (m)	3.31	3.4	3.48
Flat span (m)	14.46	14.83	15.20
Projected span (m)	11.47	11.77	12.06
Weight range (kg)	100-200	110-210	120-220
Trim speed (km/h)		40	
Top speed (km/h)		52	
Min sink (m/s)		1	
Best glide		9	
Certification		EN+LTF: B	

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Overview of glider parts

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Risers

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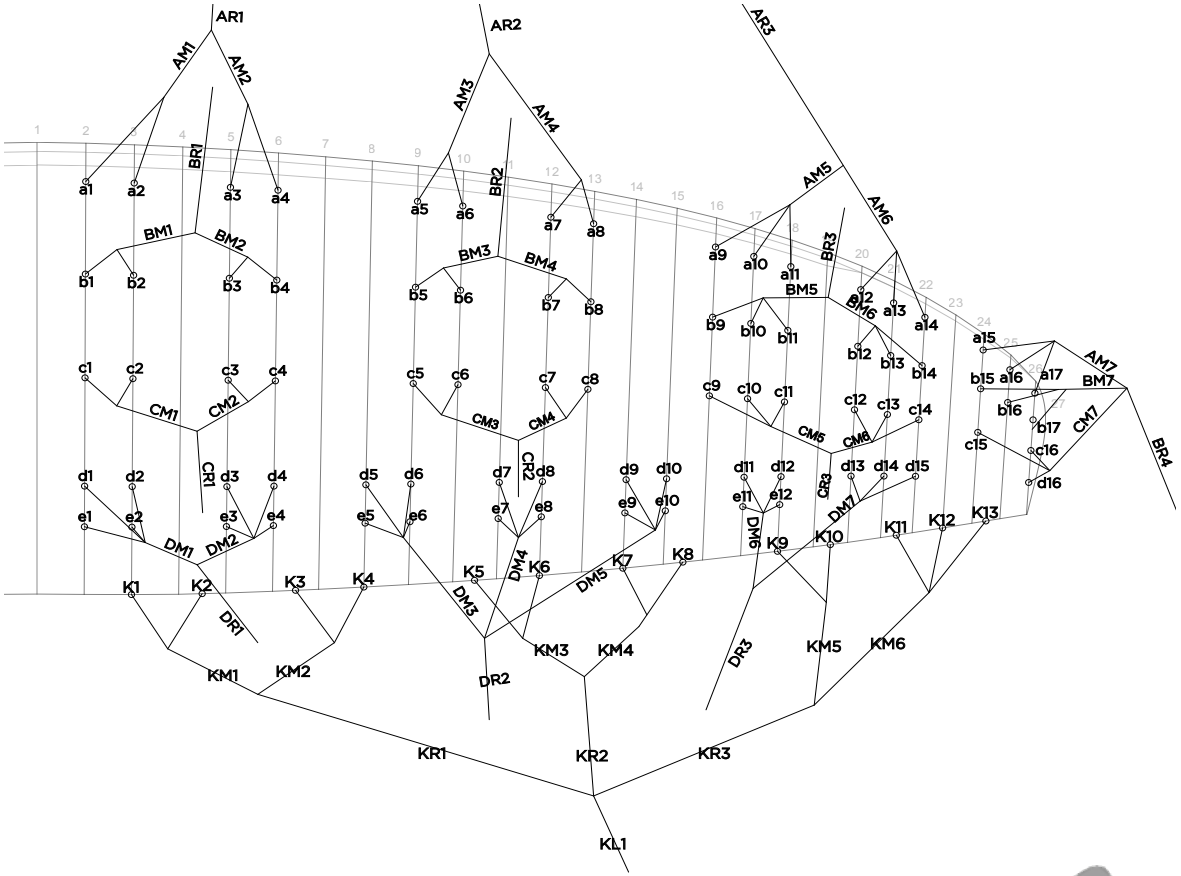
Line Plan



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 include 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.

Bridle check table, 38m²

	A	B	C	D	E	K
1	8864	8745	8744	8875	8978	9355
2	8791	8673	8673	8786	8903	9130
3	8749	8632	8631	8747	8861	8940
4	8762	8646	8649	8805	8905	8876
5	8703	8600	8608	8808	8910	8758
6	8656	8555	8566	8725	8833	8600
7	8604	8506	8524	8618	8717	8453
8	8610	8514	8535	8606	8697	8426
9	8481	8417	8455	8636	8727	8364
10	8393	8335	8373	8685	8761	8244
11	8385	8332	8366	8521	8591	8187
12	8277	8242	8285	8433	8503	8091
13	8212	8198	8252	8335		8098
14	8227	8219	8277	8280		
15	7993	7935	7978	8284		
16	7864	7836	7830	7957		
17	7785	7786				

Bridle check table, 40m²

	A	B	C	D	E	K
1	9135	9013	8980	9107	9220	9455
2	9045	8924	8913	9020	9150	9261
3	9001	8880	8875	8988	9113	9108
4	9030	8910	8890	9049	9159	9072
5	8955	8841	8842	9050	9167	8908
6	8906	8794	8802	8965	9090	8773
7	8854	8744	8754	8851	8964	8691
8	8863	8755	8761	8833	8943	8692
9	8704	8634	8671	8857	8961	8664
10	8626	8559	8586	8907	8991	8557
11	8605	8552	8580	8739	8824	8504
12	8500	8462	8503	8647	8735	8427
13	8440	8420	8476	8554		8442
14	8436	8433	8511	8502		
15	8232	8183	8234	8517		
16	8106	8089	8192			
17	8028	8050				

Bridle check table, 42m²

	A	B	C	D	E	K
1	9329	9203	9207	9344	9418	9923
2	9260	9127	9123	9253	9334	9687
3	9230	9086	9084	9216	9296	9488
4	9250	9101	9121	9279	9351	9422
5	9177	9064	9090	9263	9340	9324
6	9131	9018	9018	9181	9262	9159
7	9080	8968	8979	9090	9155	9038
8	9086	8977	9007	9085	9145	9010
9	8941	8868	8919	9133	9225	8961
10	8848	8779	8819	9196	9269	8835
11	8834	8773	8796	8960	9034	8761
12	8719	8676	8723	8873	8946	8660
13	8649	8638	8679	8782		8667
14	8659	8668	8697	8732		
15	8439	8370	8402	8748		
16	8302	8267	8257	8398		
17	8217	8213				

Single lines, 38m²

A		B		C		D		E		K	
a1	503	b1	593	c1	502	d1	652	e1	758	k1	1286
a2	431	b2	523	c2	433	d2	565	e2	685	k2	1062
a3	463	b3	518	c3	513	d3	585	e3	701	k3	1069
a4	478	b4	534	c4	532	d4	644	e4	747	k4	1007
a5	461	b5	451	c5	451	d5	614	e5	719	k5	1111
a6	416	b6	409	c6	411	d6	532	e6	643	k6	954
a7	416	b7	408	c7	407	d7	575	e7	677	k7	845
a8	423	b8	417	c8	419	d8	564	e8	658	k8	819
a9	790	b9	773	c9	775	d9	497	e9	591	k9	675
a10	703	b10	693	c10	694	d10	548	e10	627	k10	557
a11	697	b11	691	c11	689	d11	612	e11	685	k11	731
a12	663	b12	641	c12	636	d12	525	e12	598	k12	636
a13	600	b13	599	c13	604	d13	659			k13	644
a14	616	b14	621	c14	630	d14	605				
a15	811	b15	727	c15	849	d15	615				
a16	684	b16	629	c16	703	d16	821				
a17	606	b17	580								
AM1	2214	BM1	2083	CM1	2172	DM1	1313			KM1	1590
AM2	2141	BM2	2047	CM2	2051	DM2	1255			KM2	1393
AM3	2083	BM3	2053	CM3	2053	DM3	2087			KM3	1526
AM4	2032	BM4	2006	CM4	2016	DM4	1938			KM4	1488
AM5	2161	BM5	1877	CM5	1583	DM5	2033			KM5	1337
AM6	2085	BM6	1836	CM6	1552	DM6	1127			KM6	1106
AM7	493	BM7	518	CM7	440	DM7	896				
AR1	5769	BR1	5687	CR1	5687	DR1	6541			KR1	3625
AR2	5781	BR2	5713	CR2	5721	DR2	5738			KR2	3269
AR3	5149	BR3	5384	CR3	5714	DR3	6411			KR3	3501
		BR4	6323							KL1	2866

Single lines, 40m²

A		B		C		D		E		K	
a1	482	b1	465	c1	451	d1	659	e1	777	k1	1279
a2	392	b2	376	c2	384	d2	572	e2	707	k2	1085
a3	441	b3	435	c3	443	d3	579	e3	709	k3	1114
a4	470	b4	465	c4	458	d4	640	e4	755	k4	1078
a5	472	b5	463	c5	461	d5	606	e5	723	k5	1076
a6	423	b6	416	c6	421	d6	521	e6	646	k6	941
a7	408	b7	419	c7	420	d7	553	e7	666	k7	846
a8	417	b8	430	c8	427	d8	535	e8	642	k8	847
a9	1080	b9	905	c9	794	d9	504	e9	606	k9	716
a10	1002	b10	830	c10	709	d10	554	e10	636	k10	609
a11	981	b11	823	c11	703	d11	487	e11	570	k11	801
a12	968	b12	782	c12	650	d12	395	e12	481	k12	724
a13	908	b13	740	c13	623	d13	676			k13	739
a14	904	b14	753	c14	658	d14	624				
a15	833	b15	794	c15	790	d15	639				
a16	707	b16	700	c16	748						
a17	629	b17	661								
AM1	1789	BM1	1781	CM1	2398	DM1	1342			KM1	1620
AM2	1696	BM2	1678	CM2	2301	DM2	1303			KM2	1438
AM3	2028	BM3	1998	CM3	2220	DM3	2166			KM3	1551
AM4	1991	BM4	1945	CM4	2173	DM4	2020			KM4	1564
AM5	2228	BM5	2129	CM5	1619	DM5	2070			KM5	1442
AM6	2136	BM6	2080	CM6	1593	DM6	1320			KM6	1197
AM7	374	BM7	361	CM7	416	DM7	941				
AR1	6479	BR1	6388	CR1	5748	DR1	6742			KR1	3530
AR2	6070	BR2	6000	CR2	5778	DR2	5912			KR2	3255
AR3	5015	BR3	5217	CR3	5875	DR3	6561			KR3	3480
		BR4	6641							KL1	3008

Single lines, 42m²

A		B		C		D		E		K	
a1	528	b1	625	c1	531	d1	682	e1	750	k1	1352
a2	461	b2	551	c2	449	d2	591	e2	668	k2	1117
a3	485	b3	545	c3	434	d3	610	e3	685	k3	1123
a4	507	b4	562	c4	472	d4	674	e4	740	k4	1059
a5	485	b5	475	c5	482	d5	640	e5	715	k5	1168
a6	440	b6	431	c6	412	d6	559	e6	636	k6	1004
a7	438	b7	430	c7	419	d7	597	e7	668	k7	888
a8	446	b8	440	c8	448	d8	593	e8	656	k8	861
a9	832	b9	815	c9	822	d9	513	e9	609	k9	670
a10	741	b10	728	c10	723	d10	578	e10	655	k10	586
a11	733	b11	723	c11	702	d11	643	e11	715	k11	769
a12	699	b12	668	c12	677	d12	557	e12	631	k12	669
a13	631	b13	632	c13	634	d13	687			k13	677
a14	647	b14	663	c14	653	d14	638				
a15	854	b15	764	c15	891	d15	655				
a16	718	b16	662	c16	748	d16	895				
a17	635	b17	609								
AM1	2323	BM1	2193	CM1	2184	DM1	1384			KM1	1680
AM2	2269	BM2	2158	CM2	2161	DM2	1329			KM2	1475
AM3	2193	BM3	2161	CM3	2003	DM3	2156			KM3	1612
AM4	2145	BM4	2113	CM4	1958	DM4	2028			KM4	1607
AM5	2275	BM5	1903	CM5	1640	DM5	2151			KM5	1461
AM6	2193	BM6	1860	CM6	1589	DM6	1166			KM6	1204
AM7	532	BM7	553	CM7	459	DM7	941				
AR1	6090	BR1	6000	CR1	6108	DR1	6926			KR1	3811
AR2	6111	BR2	6042	CR2	6221	DR2	6103			KR2	3466
AR3	5446	BR3	5773	CR3	6071	DR3	6779			KR3	3713
		BR4	6667							KL1	3100

BRUCE GOLDSMITH DESIGN

9. Service Booklet

Test Flight Record

Model	
Size	
Serial Number	
Colour	
Date of test flight	
Company signature and stamp	

BRUCE GOLDSMITH DESIGN

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 :

BRUCE GOLDSMITH DESIGN

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:	

10. 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 internationally under current airworthiness standards, and these represent the current knowledge concerning the safety of a glider. However, since there are still many unknown issues, 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 certified harness with back protection and a reserve parachute. Always use trusted equipment and an approved helmet.

See you in the sky!

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11. 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 8.

38m²

Weight of EN test sample = 7.40kg

	A	B	C	D	E	K
1	8859	8737	8730	8875	8982	9345
2	8786	8663	8663	8788	8907	9120
3	8751	8622	8620	8750	8863	8933
4	8763	8638	8642	8809	8910	8873
5	8698	8590	8602	8800	8905	8752
6	8654	8546	8561	8720	8829	8601
7	8605	8502	8521	8613	8713	8459
8	8612	8508	8533	8605	8692	8429
9	8478	8407	8444	8637	8727	8370
10	8390	8326	8361	8684	8763	8252
11	8387	8325	8356	8515	8590	8195
12	8274	8233	8277	8430	8502	8104
13	8211	8190	8240	8332		8109
14	8226	8212	8266	8279		
15	7994	7934	7952	8289		
16	7865	7835	7837	7958		
17	7791	7792				

40m²

Weight of EN test sample = 7.42kg

	A	B	C	D	E	K
1	9126	9003	8983	9114	9232	9446
2	9038	8921	8913	9028	9161	9251
3	8995	8879	8874	8996	9123	9099
4	9027	8910	8892	9055	9170	9060
5	8948	8839	8842	9055	9175	8894
6	8900	8792	8800	8977	9098	8764
7	8848	8742	8755	8854	8968	8679
8	8857	8754	8763	8838	8943	8685
9	8700	8632	8674	8860	8957	8651
10	8621	8555	8589	8909	8987	8546
11	8602	8551	8583	8745	8827	8491
12	8498	8459	8507	8654	8737	8418
13	8437	8418	8479	8556		8432
14	8435	8433	8512	8505		
15	8222	8174	8224	8519		
16	8098	8079	8180	8413		
17	8020	8041				

42m²

Weight of EN test sample = 7.96kg

	A	B	C	D	E	K
1	9326	9198	9201	9339	9409	9917
2	9265	9123	9124	9251	9324	9685
3	9235	9084	9088	9215	9287	9486
4	9253	9101	9125	9280	9344	9423
5	9182	9064	9084	9257	9330	9324
6	9135	9018	9016	9178	9252	9159
7	9086	8970	8979	9084	9155	9042
8	9097	8980	9007	9084	9146	9013
9	8940	8870	8918	9130	9222	8965
10	8840	8782	8819	9195	9266	8840
11	8835	8776	8798	8961	9034	8769
12	8717	8678	8725	8874	8951	8666
13	8649	8640	8680	8785		8672
14	8664	8674	8698	8734		
15	8435	8372	8405	8752		
16	8299	8268	8265	8413		
17	8219	8214				