VERSION 8 July 2026

MANUAL

DUAL 3

BRUCE GOLDSMITH DESIGN

CONTENTS

BRUCE GOLDSMITH DESIGN

DUAL 3 Owner's Manual

Tandem paraglider | EN/LTF B

Welcome to BGD

BGD is a world leader in paraglider design and production. Led by Bruce Goldsmith, our team has been creating high-performance products that balance safety, handling, and reliability for many years. Our reputation is built on expertise in aerodynamic design and advanced materials. Every BGD paraglider reflects our commitment to precision, performance, and quality craftsmanship.

Congratulations on your purchase of the DUAL 3
The DUAL 3 is designed 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 short take-off run, helping you get airborne safely with first-time passengers. The handling is light, direct and intuitive, and the DUAL 3 has an excellent climb rate and an outstanding sink rate.

As with all aircraft, regular maintenance and checks are mandatory. Proper care will ensure your new glider keeps its original characteristics and lasts for many years.

This manual contains information on how to look after your paraglider and how to get the best out of it in the air. If you ever need replacement parts or advice, do not hesitate to contact your nearest BGD dealer or contact BGD directly.

BRUCE GOLDSMITH DESIGN

QUICK SUMMARY

1. The best take-off and landing characteristics are with the trimmers released 3-5cm from the white mark (this is 5-7cm from their fully closed position).
2. Trimmer webbing is subject to wear, so the Dual 3 is delivered with a spare set of trimmers. These can be easily changed by the pilot.
3. The big ears blocker system is fitted as standard, but can be removed by the pilot if preferred.

Recommended checks and inspections:

Release loops on rear lines	After 30 hours
Full inspection	Every 150 hours or 300 flights or 2 years, whichever comes first
Spreaders	As soon as there are signs of wear or damage and Every 500 hours or 1000 flights or 5 years, whichever comes first.
Karabiners	According to manufacturer's advice. In any case, every 5 years or 500 hours or 1000 flights, whichever comes first.

INTRODUCTION

Intended use

The DUAL 3 is a tandem paraglider. It is not intended for aerobatic manoeuvres.

It is suitable for winching. Both pilot and winch operator should have the necessary training and qualifications for winching, and the winch system should be certified for paraglider use.

The DUAL 3 has not yet been tested for paramotor use.

Tandem	Yes
Towing	Yes
Paramotor	Not yet tested

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 and passenger, the glider, the harnesses and all other equipment carried 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, but it will have a slightly greater tendency to collapse in strong turbulence.

If you fly in the upper half of the weight range you will have greater agility and speed, and greater stability in turbulence, but your wing will be less damped in turns and after collapses. If you prefer a dynamic flight characteristic you should choose to fly higher in the weight range.

Safe Operation

For your safety, do not:

1. Fly outside the certified weight range
2. Adjust the trim speed by changing the length of risers or lines
3. Fly in rain or snow. A wet canopy is much more likely to enter a parachutal or full stall. If you fly into a rain shower, you should immediately go and land somewhere safe, steering the canopy gently and avoiding manoeuvres such as Big Ears which can make it more likely to stall.
4. Fly in strong turbulence or violent winds
5. Perform spiral dives with big ears or asymmetric collapses. The high G-loading on fewer lines could overload and break the lines.

6. Fly with knots in the lines. Flying a glider with knots in the lines will affect its airworthiness. Checking for knots should always be part of your pre-flight checks. If you do notice a knot in your glider's lines after you have pulled the canopy up, if you can safely abort the launch, then do so. If you are already airborne, you should avoid accelerating the glider and avoid deep brake inputs. Use weightshift or minimal brake inputs to steer the glider to a safe landing place as soon as possible.

Brake Line lengths

There should be enough slack in the brake lines so that in flight with 'hands up' the glider's trailing edge is not deflected either at trim speed or accelerated. The brakes have a knot at the handle so the pilot can adjust them if necessary.

As a glider ages the brake lines can shrink. Even the presence of multiple twists in the brake lines can effectively shorten them. You should make it a habit to check for this and untwist the brake lines on launch or lengthen them at the knot. Avoid over-shortening the brake lines.

It is a good idea to check from time to time that when you fly hands up, you can see a slight 'bow' or 'slack' in the brake lines and there is no deflection of the trailing edge.

Modifications

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.

Harness dimensions use during testing

The glider was tested with a 'GH' (without diagonal bracing) type harness. The GH category includes weightshift harnesses as well as ABS style (semi-stable) harnesses. The

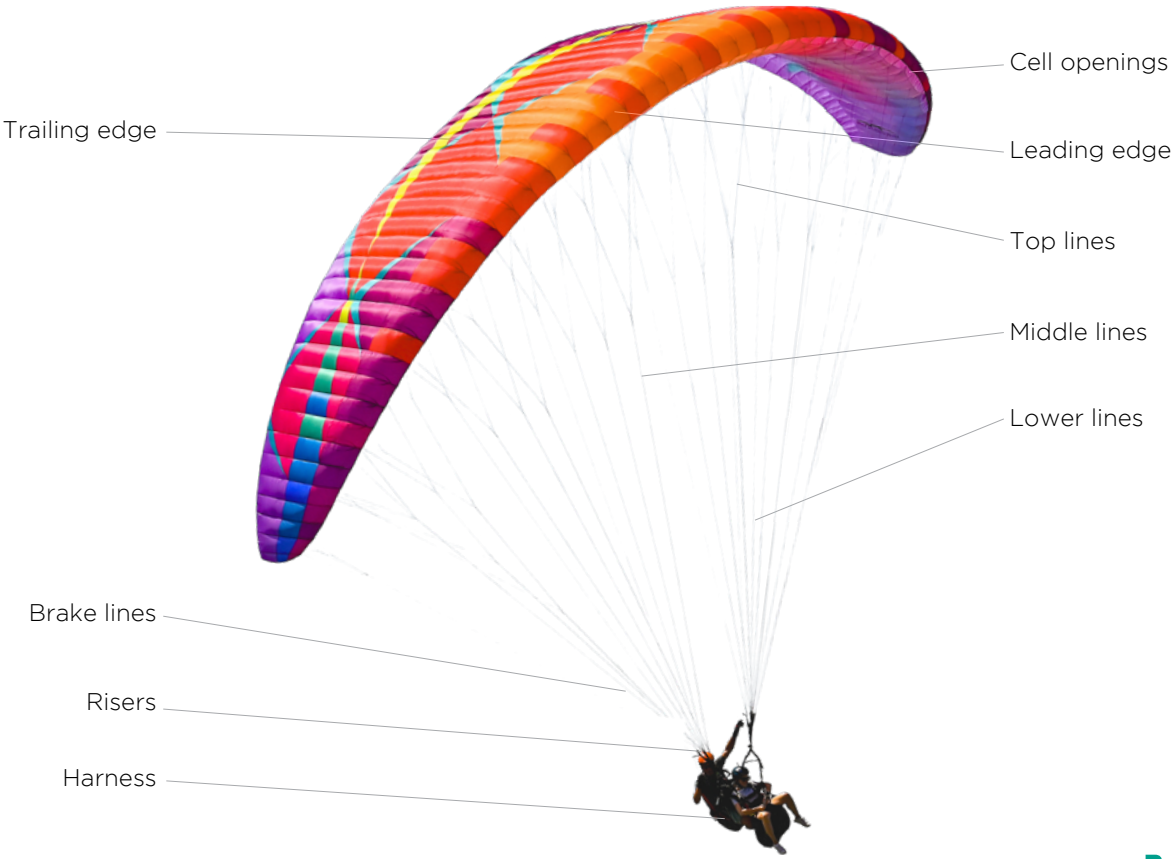
EN standard harness dimensions are a seat board width of 42cm. The horizontal distance between the attachment points of the paraglider risers (measured from the centre line of the karabiners) should be 55cm.

Test flight and warranty

All information about the BGD warranty can be found on the Warranty page of our website. To benefit from the warranty, you must complete the warranty registration form.

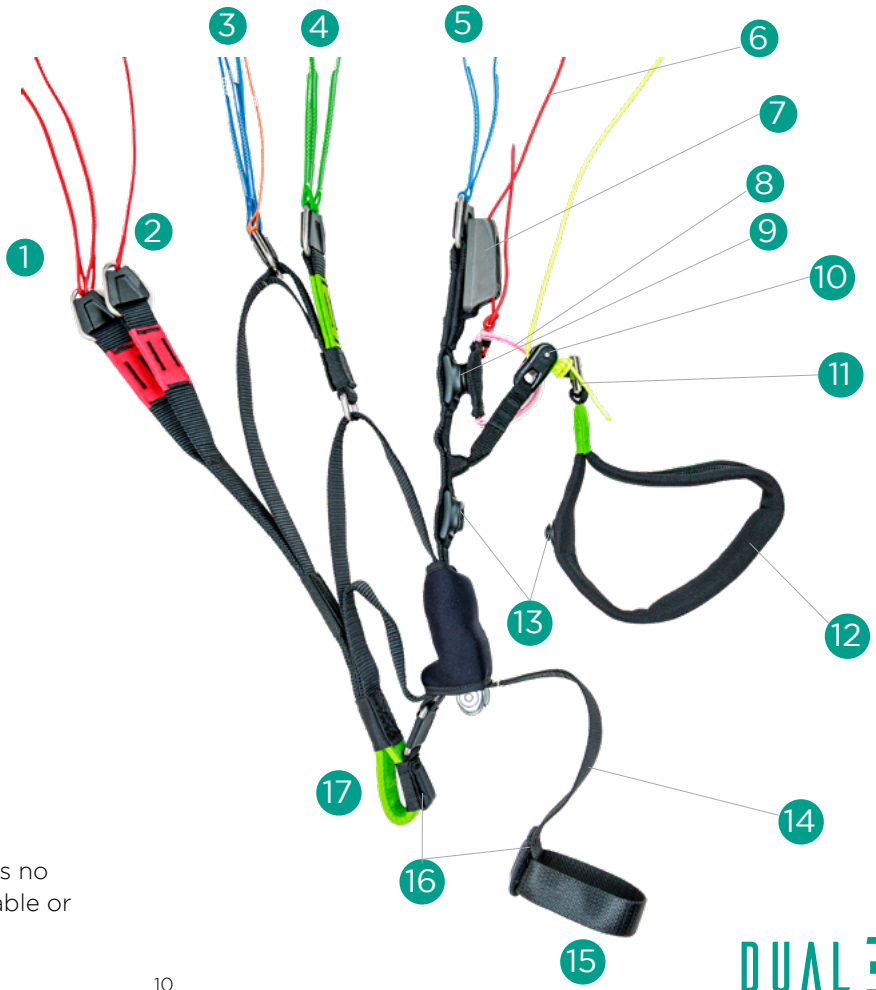
It is your dealer´s responsibility to test fly the paraglider before you receive it in order to verify the trim settings. The warranty may be void if the test flight has not been completed by the dealer.

GLIDER OVERVIEW



RISERS

1) A riser
2) A' riser
3) B riser
4) C riser
5) D riser
6) Big Ears line
7) Big Ears Blocker
8) Big Ears handle
9) Big Ears snaplock
10) Brake pulley
11) Swivel
12) Brake handle
13) Brake Snaplock
14) Trimmer
15) Trimmer handle
16) Magnet keeper
17) Hook-in loop



The riser set has trimmers. It has no speed bar, and no other adjustable or removable device.

Big-Ears Blocker

The big-ears blocker is on the D riser where it is easy to see and operate.

The dedicated big-ears line is red, like the other A lines. A big-ears handle with a snap-lock keeper on the D-riser, makes it easy to pull the ears in.

Two knots in the big-ears line (not shown) offer alternative positions to block the line in the cleat, to block big ears whether the trimmers are open or closed.

To unblock big ears, the pilot simply pulls down on the handle to release the knot from the cleat.

The big ears blocker system can be removed by the pilot if they do not wish to use it.

Trimmers

The trimmers have 153mm travel (sizes 41 and 43) or 125mm travel (size 38), and smooth-operating rollercams. A protective neoprene cover keeps dust and grit out.

A white line on the trimmer webbing marks the neutral position.

There are magnetic keepers on the main hangpoint loops to stow the trimmer handles.

Using the trimmers

The best take-off and landing characteristics are with the trimmers released 3-5cm from the white mark (5-7cm from their fully closed position).

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 trimmed fully-slow.

The pilot should regularly check the wear of the webbing and ensure the system works freely without sticking points. Worn trimmers can be easily replaced by the pilot.

CONNECTING TO SPREADERS

The passenger and pilot harnesses should be attached to the paraglider using certified spreaders. BGD's Tandem Spreaders are available on the eShop.

Spreaders have reinforced loops to connect the paraglider (1) and the pilot (2) and passenger (3) (4) harnesses. There are two passenger harness loops on the BGD Tandem spreaders to allow the pilot to choose the best option depending on the weight of their passenger.

Care should be taken when attaching the paraglider, to use the riser's reinforced hook-in loop and not any other loop such as a trimmer handle.

BGD Tandem Spreaders have an attachment loop for the reserve parachute bridle underneath the cover (5).

Karabiners

The paraglider should be connected to the spreaders using karabiners with a breaking load of 30KN which are recommended for tandem use.

Solo karabiners with a breaking load of 20KN can be used to attach the individual harnesses to the spreaders.

Spreaders 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.

PREPARATION

Setting up

Harnesses

We recommend a dedicated tandem harness for the pilot that allows freedom of movement such as a split-legs design. For safety reasons, the passenger harness should not have a reserve parachute installed, and the reserve parachute handle of the pilot's harness should not be accessible to the passenger.

Glider

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.Open out the glider with the under-surface facing upwards.

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, tangled, or knotted. It is best to sort the lines from the brakes to the A-lines from bottom to top. Starting from the harness, untangle the lines towards the canopy. Sorting the lines is easier if you partially inflate the wing.

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. KARABINERS AND MAILLONS: 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. Also ensure the reserve housing is correctly closed and the pins in place and the handle secure.
5. BIG EARS BLOCKERS: Ensure these are released for launch
6. TRIMMERS: Ensure the trimmers are set equally on each side, open 3-5cm from the white mark for launching.
7. 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.

Your paraglider is now ready for flight.

FLIGHT CHARACTERISTICS

This manual is not intended as an instruction book on how to fly your paraglider but these tips will help ensure you get the best from your wing.

Launching

The trimmers should be open 3-5cm from the white mark for launching. In this position the inflation will be smooth and consistent and the wing will lift easily off the ground with minimal running required.

We recommend using a forward launch technique for light winds; a reverse launch is best for stronger winds.

The Dual 3 has split A-risers. The glider should be launched using the central A-risers only, without the A' (Baby-A) riser which is used for big ears.

Forward Launch
Stand facing into wind with your back to the canopy and the A-lines almost taut behind you (step back slightly from their taut position). With an A-riser in each hand, walk forwards, maintaining a constant pressure on the A risers until the wing is overhead. Be ready to slow up the canopy with the brakes if it starts to accelerate past you. Once the canopy is above your head, after a quick visual check that it is inflated correctly, accelerate smoothly off the launch.

Reverse Launch
In winds over 10km/h it is recommended to do a reverse launch and inflate the canopy whilst facing it. Inflate the canopy with the central A-risers and your body weight. The stronger the wind or the harder the pull on the A-risers, the more quickly the canopy will rise. In stronger winds, taking a step towards the glider as it rises can take some of the

energy out of the sail and it will be less likely to overshoot. Once the canopy is overhead, release the risers, brake gently if necessary, turn and launch.

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. The wing will turn far more efficiently if you weightshift into the turn in the harness. To attain a more efficient turn at minimum sink, apply some brake to the outside wing to slow the turn and prevent excessive banking. Care must be taken not to over-apply the brakes, as this could result in a spin. Remember that violent brake application is dangerous and should be avoided.

Active piloting

The objective of active piloting is to get the glider to fly smoothly through the air with a stable position above your head, and controlled angle of incidence. Active piloting means flying in empathy with your paraglider, guiding it through the air and being aware of feedback from the wing. If the air is smooth the feedback can be minimal but in turbulence feedback is continuous and needs to be constantly checked.

In order to get the best performance from your wing it is best to control it though small brake inputs and weightshift rather than constantly being present on the brakes. A small brake movement early is more efficient than a big input later. The more you let the glider fly at trim speed, the better performance you will get out of it.

Your paraglider is resistant to collapse without any pilot action, but flying actively will increase the safety margin. Active piloting can make your flying experience safer and more enjoyable, and it becomes instinctive in good pilots.

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 weightshifting 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).

Trimmers and speed

The trimmers can be used to speed up or slow the glider. When the trimmers are closed, the paraglider is trimmed slowly; when they are completely open, the paraglider is trimmed fast.

The trimmers should be pulled backwards or down when applied. They should not be pulled to the side or in towards the pilot, as this will cause the webbing to rub on the trimmer buckle causing premature wear on the trimmer. Take care to avoid this issue especially when flying with a trike.

It is important to regularly check the wear on the trimmers and that the system is functioning cleanly with no sticking points. If they are showing signs of wear, the trimmers should be replaced. This can be done by the pilot.

Rapid Descent Techniques

Big Ears

Big Ears allow you to descend quickly without substantially reducing the forward speed of the canopy. (By contrast, B-line stalls substantially reduce the canopy's forward speed.)

To engage big ears, lean forward in the harness and grasp the big ears lines (one in each hand) at the maillons, keeping hold of both brake handles if possible. Pull them out and down at least 30cm 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 it could cause the leading edge to collapse. With big ears in, steering is possible by weightshifting.

The risers have **Big Ears blockers**, which are plastic cleats. The pilot can 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. If they do not come out quickly on their own, a gentle pump on the brakes will speed things up.

Before using big ears 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.

B-Line Stall

B-line stall on the DUAL 3 is safe but the pressure is very high. In reality it would need the both the pilot and passenger's efforts to perform this manoeuvre.

This fast descent method is a useful emergency procedure. Keeping hold of the brake handles, take hold of the top of the B-risers, one in each hand, and pull them down by around 10-15cm. 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/s.
To increase the descent rate pull harder on the B-risers. When you release the B-risers the canopy will automatically start flying again, usually within two seconds.
Sometimes the canopy will turn gently when it exits from a B-line stall. It is better to release the B-risers fairly quickly, as releasing them slowly 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.

This manoeuvre is useful if you need to lose a lot of height quickly, perhaps to escape

from a thunderstorm. It should not be performed with less than 100m of ground clearance.

Spiral Dive

A normal turn can be converted into a 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.

BGD gliders are designed and tested to recover from normal spirals with a descent rate inferior to 16 m/s automatically without pilot input. 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 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, gradually release the inner brake or gradually apply opposite brake. Releasing the brake too abruptly 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 plenty of time and with sufficient height!

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.

Landing

Landing is very straightforward. When landing in light winds, flare in the normal way from a height 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 in strong winds, 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 B-risers can also be used to collapse the canopy after landing, although it is more difficult to control the collapsed canopy on the ground with the B-risers.

RECOVERY TECHNIQUES

The following manoeuvres can be dangerous, and should only be practised in a secure environment, such as an SIV course.

Stalls

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 may even eventually collapse. If this occurs, it is important to release the brakes at the right moment. The brakes should never be released while the wing is behind the pilot; they should be released 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.

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:

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

To recover a glider from deep stall, it just needs to be given a bit of speed to enable the airflow to reattach to the leading edge again. Firstly, you should release the brakes to fully hands-up. Be aware that it can shoot forward quite sharply. If the glider remains in a stall, next ensure the trimmers are fully released. If this still does not work, pull gently on the A-risers. Do not pull too hard on the A-risers, as this could cause a front collapse.

If the glider remains in a stall despite all these actions, smoothly apply and release about 50% brake so that the glider will rock backwards and gently surge forwards. The surge or dive will cause it to exit from its deep stall state.

Spins

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 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 paraglider well beyond the normal flight envelope. 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.

STORAGE, REPAIRS & SERVICING

Storage and care

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.

Cleaning

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.

Trimmers

It is important to regularly check the wear on the trimmers and that the system is functioning cleanly with no sticking points. If they are showing signs of wear, the trimmers should be replaced. This can be done by the pilot.

Lines

Releasing loops on the rear lines

All BGD gliders are rigged from new with loops on the maillons of the C lines (and D lines if any) plus the stabi line. The loops are there so that they can be released to compensate for any shrinkage of the back lines as the glider gets older.

Left: loops on maillons
Right: loops released

BGD recommends releasing the loops after 100 hours or one year, whichever comes first, or earlier if the pilot feels the glider does not come up as easily on launch. When the first line check is done, normally at two years, the loops should already have been released, and this should be verified and fine-tuned by the check centre.

Installing Replacement Lines

If you need to replace lines on your glider, we recommend that a professional should mount the new lines. The airworth-iness of your glider, and your safety, depends on it being done correctly.

You can identify the line(s) you need to replace from the line layout diagram for your wing. Download the latest version here: https://flybgd.com/lines. Replacement lines can be ordered from the Accessories section of the BGD website. Check that the new lines correspond with the latest update of the line sheet. Also check the line layout on the glider corresponds with the line layout in the manual. The quickest way to remove the old lines is to cut them off. Don't cut the old lines off if you have not received the new ones or you may end up not being able to fly! Sometimes only a part line set is needed (eg excluding top lines or brakes) so take care not to cut any lines that need to be retained.

It is important that lines are fitted the right way up. Unsheathed lines are reinforced at one end, marked by a yellow thread. This is the line-junction end. The non-reinforced end is marked with white thread and should be attached to the glider tab or the maillon. Sheathed lines have no additional reinforcement and can be mounted either way up.

Tab Alignment

Lines should be symmetrically placed on the tab, except where the tab is inclined. The A tabs are inclined backwards on all BGD gliders, to align with the direction of pull of the line. When assembling the lines, the A tabs should be angled back, and the B, C and D tabs should be perpendicular to the undersurface.

Line Junctions

All lines are connected to other lines or to tabs with lark's foot junctions. Make sure that these are joined correctly with interlocked and not looped junctions.

Loops on rear lines

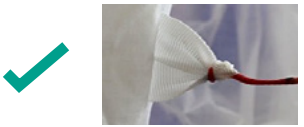
New lines should be mounted on the maillons without loops on the A and B risers. The Stabi line and the C and D risers should have a single loop on the maillon.

Interlocked junction

Looped junction

Maillons

The maillons have black plastic inserts to stop them coming undone accidently and the lines falling off. Always install them correctly after rigging the glider. If they are lost then use a locktight to secure the maillon closed. Order new inserts on flybgd.com.



Interlocked junction

Line Check

After changing lines, you should always do a full dimensional line check of the wing, and also inflate the wing to check everything is correct before flying.

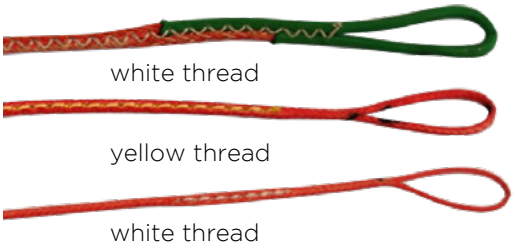
Looped junction

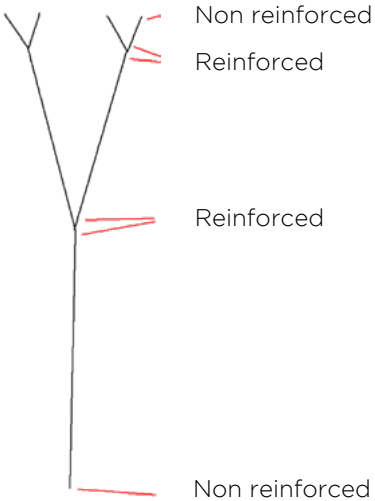
Correct alignment of lines

Sheathed lines have no internal reinforcing and can be mounted either way up

On unsheathed lines, yellow thread marks the reinforced end

On unsheathed lines, white thread marks the non-reinforced end





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.

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.

If you are concerned about any aspect of the integrity of your paraglider please contact your nearest BGD dealer or talk to BGD directly.

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.

TECHNICAL DATA

Materials

The DUAL 3 is made from the following quality materials:

TOP SURFACE	Porcher Skytex 38g/m^2
BOTTOM SURFACE	MJ32 32g/m^2
INTERNAL STRUCTURE	Porcher Skytex hard finish 40g/m^2
NOSE REINFORCING	Plastic wire 2,0 / 2,5mm
RISERS	20mm Kevlar / nylon webbing
PULLEYS	Riley
TOP LINES	Liros DC
MIDDLE LINES	Liros TSL
LOWER LINES	Liros TSL

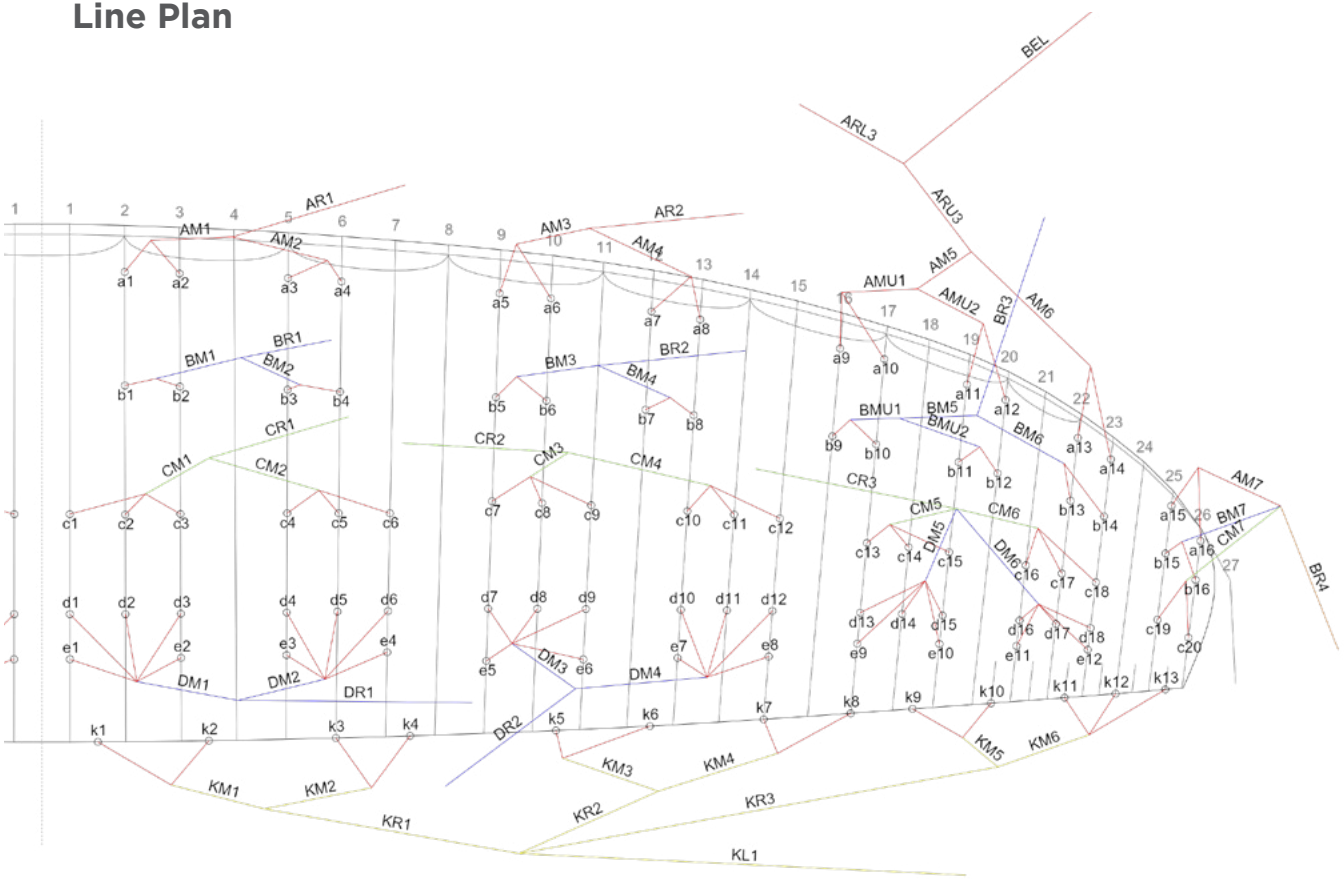
Spare parts can be obtained directly from BGD or though our network of registered BGD repair shops. For a full list see www.flybgd.com

Specifications

	38	41	43
LINEAR SCALING FACTOR	0.97	1	1.03
PROJECTED AREA (M^2)	32	34	37
FLAT AREA (M^2)	38	41	43
GLIDER WEIGHT (KG)	7	7.3	7.6
NUMBER OF MAIN LINES (A/B/C)		3/3/4/2	
CELLS		53	
FLAT ASPECT RATIO		5.45	
ROOT CHORD (M)	3.2	3.3	3.4
FLAT SPAN (M)	14.4	14.8	15.3
IDEAL WEIGHT RANGE (KG)	130-180	140-190	150-200
CERTIFIED WEIGHT RANGE (KG)	110-200	120-215	120-239
CERTIFICATION (EN/LTF)		B	

BRUCE GOLDSMITH DESIGN

Line Plan



Riser Lengths, Brake and Trimmer Travel

Size	Riser lengths at trim speed (mm)	Brake travel (mm)	Trimmer travel (mm)
38	360	800	125
41	360	840	153
43	360	880	153

Actual riser lengths may differ by not more than 5mm

Brake travel is the maximum symmetrical control travel at maximum weight in flight.

The Dual 3 has no accelerator bar.

Line length checks

All measures are in millimetres, 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 and **include the risers and maillons**.

Line lengths are for a flown glider. 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 latest line lengths and diagrams can be downloaded from https://flybgd.com/lines.

BRUCE GOLDSMITH DESIGN

Size 38

Bridle check

	A	B	C	D	E	K
1	8983	8850	9026	9147	9231	9481
2	8925	8801	8912	9018	9064	9233
3	8892	8772	8869	8972	9032	9108
4	8920	8792	8837	8943	9097	9087
5	8899	8754	8832	8943	9046	8945
6	8841	8706	8896	9019	8906	8783
7	8774	8647	8838	8940	8852	8702
8	8777	8653	8736	8833	8887	8729
9	8628	8559	8713	8800	8724	8675
10	8574	8493	8650	8747	8601	8521
11	8452	8386	8628	8739	8499	8440
12	8433	8375	8683	8798	8453	8351
13	8248	8252	8544	8639		8354
14	8209	8224	8457	8540		
15	7969	7996	8434	8515		
16	7922	7989	8327	8419		
17			8281	8371		
18			8295	8383		
19			8199			
20			8198			

BRUCE GOLDSMITH DESIGN

Size 38

Single line lengths

A		B		C		D		E		K	
a1	580	b1	573	c1	1341	d1	1264	e1	1348	k1	1750
a2	519	b2	522	c2	1226	d2	1135	e2	1181	k2	1502
a3	531	b3	519	c3	1184	d3	1089	e3	1147	k3	1162
a4	558	b4	538	c4	1171	d4	1059	e4	1213	k4	1140
a5	542	b5	526	c5	1165	d5	1058	e5	1177	k5	1381
a6	483	b6	477	c6	1229	d6	1134	e6	1037	k6	1218
a7	497	b7	483	c7	1041	d7	1072	e7	1062	k7	1235
a8	501	b8	488	c8	939	d8	964	e8	1096	k8	1261
a9	422	b9	532	c9	915	d9	931	e9	874	k9	930
a10	365	b10	465	c10	918	d10	958	e10	751	k10	775
a11	376	b11	469	c11	896	d11	948	e11	736	k11	777
a12	356	b12	457	c12	950	d12	1008	e12	689	k12	687
a13	412	b13	380	c13	843	d13	789			k13	690
a14	372	b14	351	c14	755	d14	690			KM1	1442
a15	486	b15	413	c15	733	d15	665			KM2	1657
a16	439	b16	406	c16	647	d16	657			KM3	1445
AMU1	1934	BMU1	1463	c17	601	d17	608			KM4	1347
AMU2	1802	BMU2	1351	c18	615	d18	620			KM5	1283
AM1	1861	BM1	2142	c19	369	DM1	1399			KM6	1201
AM2	1816	BM2	2115	c20	368	DM2	1400			KR1	3872
AM3	1925	BM3	1982	CM1	1703	DM3	1340			KR2	3702
AM4	1843	BM4	1916	CM2	1684	DM4	1260			KR3	4045
AM5	2274	BM5	1409	CM3	1774	DM5	1654			KL1	2388
AM6	3832	BM6	2707	CM4	1709	DM6	1567			BEL	992
AR1	6180	BM7	789	CM5	1507	DR1	6123				
AR2	6066	BR1	5771	CM6	1484	DR2	6168				
ARU3	2965	BR2	5884	CM7	1035						
ARL3	700	BR3	4800	CR1	5627						
AM7	690	BR4	6434	CR2	5668						
				CR3	5836						

BRUCE GOLDSMITH DESIGN

Size 41

Bridle check

	A	B	C	D	E	K
1	9317	9180	9330	9462	9559	9818
2	9256	9130	9212	9331	9385	9563
3	9214	9088	9169	9282	9343	9402
4	9243	9109	9125	9244	9412	9381
5	9179	9043	9120	9244	9358	9266
6	9119	8995	9187	9323	9214	9098
7	9048	8932	9123	9241	9159	9014
8	9053	8939	9019	9130	9195	9043
9	8893	8822	8995	9097	9045	8993
10	8837	8755	8930	9044	8918	8835
11	8711	8644	8909	9035	8816	8751
12	8691	8633	8964	9098	8765	8659
13	8506	8506	8837	8952		8662
14	8466	8478	8748	8850		
15	8215	8243	8726	8826		
16	8166	8236	8622	8727		
17			8576	8678		
18			8589	8690		
19			8452			
20			8451			

BRUCE GOLDSMITH DESIGN

Size 41

Single line lengths

A		B		C		D		E		K	
a1	579	b1	573	c1	1367	d1	1276	e1	1373	k1	1789
a2	518	b2	523	c2	1249	d2	1145	e2	1199	k2	1534
a3	529	b3	518	c3	1206	d3	1096	e3	1162	k3	1181
a4	558	b4	539	c4	1190	d4	1063	e4	1231	k4	1160
a5	543	b5	525	c5	1185	d5	1063	e5	1193	k5	1393
a6	483	b6	477	c6	1252	d6	1142	e6	1049	k6	1225
a7	496	b7	481	c7	1057	d7	1076	e7	1073	k7	1240
a8	501	b8	488	c8	953	d8	965	e8	1109	k8	1269
a9	419	b9	531	c9	929	d9	932	e9	886	k9	927
a10	363	b10	464	c10	929	d10	958	e10	759	k10	769
a11	373	b11	467	c11	908	d11	949	e11	747	k11	769
a12	353	b12	456	c12	963	d12	1012	e12	696	k12	677
a13	411	b13	376	c13	853	d13	793			k13	680
a14	371	b14	348	c14	764	d14	691				
a15	488	b15	411	c15	742	d15	667			KM1	1516
a16	439	b16	404	c16	652	d16	658			KM2	1708
AMU1	1991	BMU1	1507	c17	606	d17	609			KM3	1487
AMU2	1855	BMU2	1393	c18	619	d18	621			KM4	1388
AM1	1900	BM1	2204	c19	367					KM5	1321
AM2	1852	BM2	2167	c20	366					KM6	1237
AM3	1977	BM3	2040	CM1	1751	DM1	1452			KR1	3977
AM4	1893	BM4	1973	CM2	1723	DM2	1447			KR2	3850
AM5	2340	BM5	1449	CM3	1824	DM3	1393			KR3	4209
AM6	3944	BM6	2788	CM4	1759	DM4	1314			KL1	2493
AR1	6451	BM7	797	CM5	1558	DM5	1732			BEL	1010
AR2	6281	BR1	6021	CM6	1543	DM6	1642				
ARU3	3065	BR2	6094	CM7	1050	DR1	6354				
ARL3	705	BR3	4957	CR1	5837	DR2	6392				
AM7	709	BR4	6640	CR2	5867						
				CR3	6048						

BRUCE GOLDSMITH DESIGN

Size 43

Bridle check

	A	B	C	D	E	K
1	9571	9422	9613	9744	9834	10104
2	9508	9371	9492	9610	9656	9841
3	9475	9340	9449	9560	9624	9706
4	9505	9362	9415	9531	9695	9685
5	9481	9329	9410	9531	9638	9538
6	9420	9279	9480	9613	9492	9365
7	9350	9218	9416	9527	9435	9280
8	9355	9223	9309	9414	9472	9311
9	9197	9124	9285	9379	9303	9256
10	9141	9054	9219	9324	9171	9092
11	9011	8939	9197	9316	9062	9007
12	8990	8928	9255	9380	9014	8913
13	8786	8798	9109	9211		8916
14	8745	8769	9017	9108		
15	8497	8525	8993	9081		
16	8447	8518	8879	8979		
17			8831	8929		
18			8846	8942		
19			8740			
20			8741			

BRUCE GOLDSMITH DESIGN

Size 43

Single line lengths

A		B		C		D		E		K	
a1	617	b1	609	c1	1427	d1	1344	e1	1433	k1	1877
a2	552	b2	556	c2	1305	d2	1208	e2	1255	k2	1613
a3	564	b3	551	c3	1261	d3	1159	e3	1218	k3	1249
a4	593	b4	573	c4	1244	d4	1125	e4	1289	k4	1227
a5	576	b5	559	c5	1238	d5	1125	e5	1250	k5	1483
a6	514	b6	508	c6	1308	d6	1207	e6	1103	k6	1309
a7	528	b7	514	c7	1107	d7	1139	e7	1128	k7	1325
a8	533	b8	519	c8	999	d8	1026	e8	1166	k8	1355
a9	448	b9	566	c9	975	d9	990	e9	929	k9	1002
a10	389	b10	494	c10	975	d10	1018	e10	798	k10	838
a11	400	b11	498	c11	953	d11	1010	e11	781	k11	839
a12	378	b12	486	c12	1010	d12	1074	e12	733	k12	744
a13	438	b13	404	c13	896	d13	839			k13	747
a14	396	b14	375	c14	803	d14	735				
a15	516	b15	439	c15	780	d15	708			KM1	1535
a16	466	b16	432	c16	687	d16	698			KM2	1764
AMU1	2057	BMU1	1556	c17	639	d17	647			KM3	1536
AMU2	1917	BMU2	1438	c18	654	d18	660			KM4	1435
AM1	1977	BM1	2277	c19	392					KM5	1364
AM2	1932	BM2	2250	c20	392					KM6	1278
AM3	2046	BM3	2107	CM1	1809	DM1	1486			KR1	4117
AM4	1961	BM4	2039	CM2	1792	DM2	1490			KR2	3942
AM5	2419	BM5	1499	CM3	1885	DM3	1424			KR3	4313
AM6	4077	BM6	2880	CM4	1819	DM4	1341			KL1	2560
AR1	6604	BM7	838	CM5	1601	DM5	1759			BEL	990
AR2	6483	BR1	6167	CM6	1578	DM6	1667				
ARU3	3230	BR2	6291	CM7	1100	DR1	6544				
ARL3	700	BR3	5139	CR1	6013	DR2	6593				
AM7	734	BR4	6877	CR2	6059						
				CR3	6244						

BRUCE GOLDSMITH DESIGN

CLOSING WORDS

Paragliding is a wonderful sport, and we hope you enjoy many hours of flights and adventures with your new paraglider.

Please keep in mind that paragliding is a potentially dangerous activity. We work hard to make all our equipment as safe as it can be, but your safety always comes down to you. You should have the correct training before using this equipment, and flying in a club or a school with experienced pilots is highly recommended.

Use equipment and fly in conditions that are appropriate to your skill level. Check the weather forecast but don't always rely on it. Actual conditions might not be as forecast, and can change fast.

It is important to look after your equipment. The UV in direct sunlight degrades materials, whether in flight or on the ground. By minimising your equipment's exposure to sunlight and always keeping it dry, you can maximise its lifespan. It is important to have your paraglider serviced at regular intervals.

Your security is ultimately your responsibility. Please fly carefully keeping your safety in mind, and have fun!

See you in the sky!

BGD GmbH
Am Gewerbepark 11, 9413 St. Gertraud, Austria
Tel: +43 (0) 4352 20477
e-mail: sales@flybgd.com
www.flybgd.com