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CYCLONE-manual-EN-1.6 April 2022

CYCLONE Owner's Manual

Powered paraglider for footlaunch/trike | DGAC

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 CYCLONE

The CYCLONE is a reflex paraglider designed to carry heavy loads for foot or trike launched powered flight. Its dedicated risers have a trike launch-assist system, tip-steering and trimmers. Launching the CYCLONE is easy and requires just a short run. It is roll stable, assuring a comfortable ride for pilot and passenger.

Your 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. It is not a training manual. If you need replacement parts or further information, please contact your BGD dealer or 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.

ntroduction

Introduction

Limitations

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 200 kg

*A wet canopy is much more likely to enter a parachural 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.

Power Unit

The CYCLONE is suitable for all types of paramotor / trike power units. You should choose the unit that matches your needs, weight and skill level. The wing is delivered without any special equipment for tandem paramotor / trike flying. Accessories such as tandem spreader bars, tandem roll bar etc are specific to the paramotor / trike unit and should be provided by the paramotor / trike manufacture. It is the pilot's responsibility to make a hang-test to ensure the set-up is well adjusted and balanced.

Warranty

In order to benefit from the BGD warranty, you are required to complete the warranty form on www.flybgd.com.

It is the dealer's responsibility to test-fly the paraglider before you receive it and to complete the test flight record at the end of this manual. Please check that this has been completed by your dealer. The warranty may be invalidated if the paraglider has not been test-flown by the dealer.

Brake line length

The length of the brake and tip steering lines are set in the factory, but they can be adjusted according to whether the wing is being flown with high or low hangpoints or a trike. Always ensure that both brakes are the same length, and that they do not engage when the trimmers are released as this could deform the profile and cause a collapse.

Modifications

Modifications such as changing line lengths can cause a loss of airworthiness and certification. We recommend that you contact your dealer or BGD directly before performing any kind of change.

Preparation

- Select a suitable take-off area determined by wind and terrain, and free from any obstacles that may catch in the lines or damage the canopy. Make sure there is enough clear space upwind of your launch area to climb out safely, avoiding trees, power lines and any other obstacles. You should always be able to glide to a suitable landing place should your engine cut out.
- 2. Open out your paraglider so that the bottom surface is facing upwards, with the cell openings at the downwind end of the take-off area and the risers at the trailing edge at the upwind side.
- 3. Unfold the canopy 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.
- 4. Set up and check your paramotor / trike, according to the manufacturer's instructions.
- 5. Connect the risers to the trike/paramotor attachment points so that risers and lines are correctly ordered and free of twists, and making sure the lines are free of the trike's wheels etc. Check that the karabiners are securely closed.
- 6. Connect the A-assist system, attaching the loops on the CYCLONE's risers to the karabiners on the trike.
- 7. Ensure that all the connections used (maillons, karabiners, quick-outs, etc.) are appropriate and certified to carry the all-up load.
- 8. Take care to protect yourself and other people from the propeller of your motor. Always start the motor up at a safe distance from other people. The blades can pick up and fire out debris which could injure people several metres away. Remember there are inherent risks with petrol, oil and volatile or flammable materials.

Preparatior

Pre-flight inspection

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

- 1. Whilst opening out the paraglider check the outside of the canopy for any tears where your paraglider may have been caught on a sharp object or even have been damaged whilst in its bag.
- 2. Check that the lines are not twisted or knotted. Divide the suspension lines into groups, each group coming from one riser. By starting from the harness and running towards the canopy remove any tangles or twists in the lines. Partially inflating the canopy in the wind will help to sort out the lines.
- 3. It is important that the brake and tip-steering lines are clear and free to move. Check the knots which attaches the handles to the lines. (Avoid having too many knots, as there is a risk the knots could become stuck in the brake pulleys). Both brakes, and both tip-steering lines, should be the same length and this can be checked by asking an assistant to hold the upper end of the lines together whilst you hold the handles. The brake lines should be just slack with the wing inflated when the brakes are not applied. After checking the brake lines lay them on the ground.
- 4. Always check the riser maillons and the attachment points to the paramotor frame or buggy. It is strongly recommended to use a safety strap. Before you or your passenger get into the harness, you should be wearing a good crash helmet. Put on the harness ensuring all the buckles are secure and properly adjusted for comfort.
- 5. Ensure the trimmers are fully closed and maillons at the same height the position recommended for take-off.

Your paraglider is now ready for flight.

Flight Characteristics

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

Weight range

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Each size is certified for a certain weight range, noted on the Specifications table. The weight refers to the 'overall take-off weight', that is: the pilot, passenger, glider, harness, paramotor or trike and all other equipment carried with you in flight.

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 increased tendency to collapse in strong turbulence. If you mainly fly in weak conditions you might choose to fly towards the lower end of the weight range.

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.

Launching

The CYCLONE is easy to inflate in light or stronger winds and will quickly rise overhead to the flying position.

The best launch characteristics are usually with the trimmers in the fully closed position, maillons aligned, unless the wind at launch is more than about 10km/h, in which case we recommend that the trimmers be partially released for launch.

You can launch the wing by taking the A-risers in each hand in the usual way, or by using the launch assist system.

Elight Characterist

Never try to launch if the wing is not perfectly inflated above your head and you do not have full control of pitch and roll.

A-assist launch system

The A-assist system allows the pilot to link the A-risers through additional risers connected to the trike, leaving the pilot's hands free to manipulate the brakes and the throttle and control the launch.

Initial Climb

Once in the air you should continue to fly into wind while gaining altitude. Leave the trimmers in the take-off position to get the best climb rate. Do not attempt to increase your climb rate by braking, as using the brakes combined with the engine's thrust can increase the angle of attack to the point where the wing can stall. In addition, this high angle of attack can result in a big dive if the motor suddenly dies, which could be dangerous if you are near the ground.

Do not initiate a turn until you have enough height and speed to do so.

In certain circumstances, a pilot can induce unintended oscillations. This can be due to a combination of the engine/ propeller and pilot's weightshift and / or action on the brakes. To stop these oscillations you should reduce the power, ensure that you are seated centrally and not accidentally applying weightshift, and that you are not acting on the brakes. Once the oscillations have stabilised you can gently reapply power.

Trimmers

The CYCLONE risers are equipped with trimmers to change its speed. The trimmer has the new **rollercam mechanism.** This allows for lighter trimmer loads and a better grip on the webbing as well as causing less wear on the trimmer.

The trimmers should be gently pulled and released in the axis of the risers, and not pulled to the side. Pulling the trimmers to the side will put undue load on the trimmer webbing causing damage of the trimmer.

It is important to regularly check the wear on the trimmers and to ensure 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.

Replacement trimmers can be ordered online at https://tinyurl.com/BGDshop

Trimmers closed: The standard trimmer setting is fully closed, which is the slowest position. The speed of the glider with the trimmers closed is referred to in the specifications table as 'trim speed'.

Trimmers-closed position is best for launching. Your glider is most efficient with the trimmers closed, and you will get the best glide and the best fuel consumption. It is also the best setting to use for ridge-soaring or thermalling, and the setting to use in turbulence as the wing's passive safety is highest with the trimmers closed.

Trimmers released: With the trimmers released (open) the glider will fly faster. If the trimmers are open to more than halfway, steering should be done through the tip steering handles so as not to deform the reflex profile.

The 'Top speed' referred to in the specs table is the speed with the trimmers fully released.

With trimmers open, the wing will become more stable and will be feel more comfortable in turbulence, but it will react more dynamically to any collapse. For this reason we recommend flying with the timmers closed in turbulent air.

We recommend that you choose to fly in conditions where the wing can move forwards into wind without the trimmers released. In this way you have a safety margin.

Straight Flight

Once you have gained a safe altitude, if you want to increase your speed you can open up the trimmers completely. Do not use the brakes with the trimmers fully released; the glider should be steered with the tip steering handles.

Turning

Turns should be gradual and progressive. Remember that to apply pressure violently with the brakes is dangerous and should be avoided. Never initiate a turn if you are flying slowly, as you risk the glider entering a spin.

Tip-Steering

The tip-steering system is operated by a separate handle on the riser, and acts on the wingtips. It should be used when flying with the trimmers released. Using the brakes with the trimmers released would deform the reflex profile, decreasing performance and speed.

Active Piloting

Active piloting means flying in empathy with your paraglider. This means not only guiding the glider through the air but also controlling the movements of the wing, especially in thermals and turbulence. If the air is smooth the wing does not need much input from the pilot, but in turbulent air a continual action of the pilot on the brakes and in the harness is necessary. These reactions are instinctive in experienced pilots. It is essential to maintain contact with the paraglider by a light pressure on the brakes. This allows the pilot to feel decreases in the wing's internal pressure which often precede collapses. Remember, you should not fly a paramotor in windy or turbulent conditions.

Rapid Descent Techniques

Big Ears

The 'baby A-riser' allows the wing tips of the paraglider to be folded in simply and easily to increase its sink rate. This big ear facility does not mean you should fly in stronger winds, but allows you to descend quickly without substantially reducing the forward speed of the canopy (B-lining substantially reduces the canopy's forward speed). To engage big ears, lean forward in the harness and grasp the baby A-risers (one in each hand) at the maillons, keeping hold of both brake handles if possible. Pull the risers 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 this could cause the leading edge to collapse. Steering is possible by weightshifting with big ears in. If the big ears do not come out quickly on their own, a gentle 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 fast descent method 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 doing so 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 when escaping from a thunderstorm. It should not be performed with less than 100m of ground clearance (see also also Chapter 5).

Spiral Dive

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

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 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 are tested up to a sink rate of 15m/s. We do not recommend spiralling at descent rates greater than this. Spiral dives can cause loss of orientatation (black out) and some time is needed to exit the manoeuvre. This manoeuvre must be exited with sufficient height.

Landing

Set the trimmers to the closed position and set up your approach downwind of the landing field. When your height above the field is around 40m and you are in a good position to land in your intended landing spot, switch the engine off* and make your final approach, keeping your hands up to keep plenty of energy in the wing until you are about a metre above the ground. Flare, braking slowly and gradually to slow down the wing until you are close to the stall-point.

*If you land with the engine running there is a considerable risk of injury to yourself if you execute a poor landing, or of lines passing through the propeller and getting damaged.

Recovery Techniques

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

Stalls

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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.

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 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, 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.

Storage and Servicing

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 selfadhesive ripstop nylon. Tears no longer than 100 mm can be repaired in this way providing they are not in a highstress 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 24 months or every 150 flight hours, whichever occurs first. This check must be made by the manufacturer, importer, distributor or other authorised persons.

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

Environmental protection and recycling

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

Technical data

Materials

The CYCLONE is made from the following quality materials:

| Top surface: | Porcher Skytex 38 g/m² |
|---------------------|-------------------------------------|
| Bottom surface: | Porcher Eazyfly |
| Internal structure: | Porcher Skytex 40 g/m² |
| Nose reinforcing: | Plastic wire 2.4 mm and 2.7 mm |
| Risers: | 20 mm Kevlar / nylon |
| Top lines: | Liros PPSL120 |
| Middle lines: | Liros PPSL200 |
| Lower lines: | TSL500, TSL380, TSL220 |
| Brakes: | Liros DSL70, PPSL120, DSL350 yellow |

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

For a full list check <u>www.flybgd.com</u>

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Specifications

| | 38 | 42 |
|---|------|------|
| Projected area (m²) | 32 | 35 |
| Flat area (m²) | 38 | 42 |
| Glider weight (kg) | 8.4 | 9.2 |
| Number of main lines | 4/5/ | 4/4 |
| Cells | 5 | 4 |
| Flat aspect ratio | 5 | .1 |
| Projected aspect ratio | 3. | 6 |
| Central chord (m) | 3.4 | 3.6 |
| Flat span (m) | 13.9 | 14.6 |
| Projected span (m) | 10.7 | 11.3 |
| Trim speed*(km/h) | 5 | C |
| Top speed* (km/h) | 70 | C |
| Minimum in-flight weight paramotor (kg) | 120 | 150 |
| Maximum in-flight weight paramotor (kg) | 450 | 450 |
| Certification | DGAC | DGAC |
| Load test (kg) | 550 | 550 |

*Straight and level flight with motor

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echnical data

Line length checks

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

The lengths are measured from the lower surface of the canopy and include the risers and maillons.

echnical data

Bridle Check, Size 38m²

| | Α | в | с | D | E | к | |
|---|------|------|------|------|------|------|--|
| | 8331 | 8192 | 8198 | 8335 | 8529 | 9558 | |
| 2 | 8285 | 8145 | 8151 | 8283 | 8487 | 9337 | |
| 3 | 8269 | 8131 | 8135 | 8268 | 8474 | 9151 | |
| 1 | 8287 | 8148 | 8156 | 8291 | 8488 | 9084 | |
| 5 | 8245 | 8112 | 8121 | 8253 | 8443 | 8797 | |
| 5 | 8198 | 8067 | 8076 | 8201 | 8398 | 8623 | |
| 7 | 8178 | 8049 | 8057 | 8183 | 8376 | 8538 | |
| 3 | 8190 | 8065 | 8076 | 8204 | 8386 | 8544 | |
|) | 8138 | 8020 | 8045 | 8170 | 8322 | 8360 | |
| 0 | 8086 | 7971 | 7993 | 8109 | 8260 | 8269 | |
| 1 | 8048 | 7946 | 7973 | 8082 | 8234 | 8140 | |
| 2 | 8070 | 7974 | 8010 | 8122 | 8248 | 7998 | |
| 3 | 7999 | 7915 | 7957 | 8072 | 8057 | | |
| 4 | 7877 | 7802 | 7841 | 7926 | 7780 | | |
| 5 | 7773 | 7714 | 7749 | 7822 | | | |
| 6 | 7657 | 7614 | 7651 | 7684 | | | |
| 7 | 7376 | 7317 | 7366 | | | | |
| 8 | 7215 | 7209 | 7304 | | | | |

Bridle Check, Size 42m²

| | Α | в | с | D | E | к |
|----|------|------|------|------|------|------|
| 1 | 8753 | 8611 | 8612 | 8754 | 8959 | 9770 |
| 2 | 8704 | 8562 | 8612 | 8699 | 8915 | 9523 |
| 3 | 8689 | 8545 | 8612 | 8684 | 8901 | 9317 |
| 4 | 8708 | 8564 | 8612 | 8708 | 8916 | 9235 |
| 5 | 8669 | 8529 | 8612 | 8671 | 8872 | 8984 |
| 6 | 8620 | 8482 | 8612 | 8617 | 8823 | 8772 |
| 7 | 8600 | 8464 | 8612 | 8598 | 8801 | 8672 |
| 8 | 8612 | 8479 | 8612 | 8619 | 8810 | 8683 |
| 9 | 8563 | 8438 | 8612 | 8588 | 8749 | 8524 |
| 10 | 8507 | 8385 | 8612 | 8523 | 8683 | 8407 |
| 11 | 8470 | 8360 | 8612 | 8496 | 8656 | 8274 |
| 12 | 8493 | 8389 | 8612 | 8538 | 8671 | 8138 |
| 13 | 8421 | 8335 | 8612 | 8490 | 8474 | |
| 14 | 8294 | 8217 | 8612 | 8335 | 8189 | |
| 15 | 8187 | 8123 | 8612 | 8228 | | |
| 16 | 8064 | 8018 | 8612 | 8084 | | |
| 17 | 7747 | 7711 | 8612 | | | |
| 18 | 7606 | 7631 | 8612 | | | |

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Single line lengths, Size 38m²

| Α | | в | | с | | D | | E | | | |
|------|------|-----|-------|------|---------------|-----|-------|-----|------|-----|------|
| al | 630 | b1 | 625 | c1 | 703 | d1 | 517 | e1 | 458 | k1 | 1455 |
| a2 | 584 | b2 | 578 | c2 | 656 | d2 | 465 | e2 | 416 | k2 | 1234 |
| аЗ | 599 | b3 | 593 | c3 | 669 | d3 | 481 | e3 | 431 | k3 | 1241 |
| a4 | 617 | b4 | 610 | c4 | 690 | d4 | 504 | e4 | 445 | k4 | 1174 |
| a5 | 610 | b5 | 603 | c5 | 679 | d5 | 501 | e5 | 446 | k5 | 1279 |
| a6 | 563 | b6 | 558 | с6 | 634 | d6 | 449 | e6 | 401 | k6 | 1105 |
| a7 | 578 | b7 | 568 | c7 | 639 | d7 | 459 | e7 | 412 | k7 | 1103 |
| a8 | 590 | b8 | 584 | c8 | 658 | d8 | 480 | e8 | 422 | k8 | 1109 |
| a9 | 644 | b9 | 634 | с9 | 636 | d9 | 468 | e9 | 419 | k9 | 1138 |
| a10 | 592 | b10 | 585 | c10 | 584 | d10 | 407 | e10 | 357 | k10 | 1047 |
| a11 | 582 | b11 | 566 | c11 | 559 | d11 | 395 | e11 | 365 | k11 | 1034 |
| a12 | 604 | b12 | 594 | c12 | 596 | d12 | 435 | e12 | 379 | k12 | 892 |
| a13 | 1396 | b13 | 1351 | c13 | 1086 | d13 | 1003 | e13 | 988 | | |
| a14 | 1274 | b14 | 1238 | c14 | 970 | d14 | 857 | e14 | 794 | | |
| a15 | 1228 | b15 | 1140 | c15 | 894 | d15 | 836 | | | | |
| a16 | 1112 | b16 | 1040 | c16 | 796 | d16 | 698 | | | | |
| a17 | 432 | b17 | 426 | c17 | 368 | | | | | | |
| a18 | 271 | b18 | 318 | c18 | 306 | | | | | | |
| AM1 | 1132 | BM1 | 1122 | CM1 | 1059 | DM1 | 1077 | EM1 | 1329 | KM1 | 1388 |
| AM2 | 1101 | BM2 | 1093 | CM2 | 1030 | DM2 | 1046 | EM2 | 1301 | KM2 | 1195 |
| AM3 | 1092 | BM3 | 1079 | CM3 | 1015 | DM3 | 1020 | EM3 | 1264 | KM3 | 1183 |
| AM4 | 1057 | BM4 | 1051 | CM4 | 991 | DM4 | 992 | EM4 | 1231 | KM4 | 1100 |
| AM5 | 1615 | BM5 | 1485 | CM5 | 1309 | DM5 | 1339 | EM5 | 1539 | KM5 | 1097 |
| AM6 | 1587 | BM6 | 1479 | CM6 | 1314 | DM6 | 1324 | EM6 | 1505 | KM6 | 981 |
| AM7 | 1382 | BM7 | 1202 | CM7 | 1222 | DM7 | 1255 | | | | |
| AM8 | 1324 | BW8 | 1212 | CM8 | 1206 | DM8 | 11/2 | | | KRI | 2590 |
| AM9 | 339 | BM3 | 284 | CM9 | 391 | | | | | KR2 | 2210 |
| . 51 | 0050 | | 610.4 | 0.01 | C 11.4 | | 6.405 | | | KR3 | 2000 |
| ARI | 6250 | BRI | 6124 | CRI | 6114 | DRI | 6425 | | | KLI | 4134 |
| AR2 | 6224 | BR2 | 6109 | CR2 | 6105 | DR2 | 6416 | | | KKI | 1000 |
| AR3 | 5560 | BR3 | 55/9 | CR3 | 5776 | DR3 | 6046 | | | кк2 | 820 |
| AR4 | 4901 | BR4 | 5040 | CR4 | 5324 | DR4 | 5497 | | | KL2 | 6360 |
| | | RRP | 6290 | | | | | | | | |

Single line lengths, Size 42m²

| А | | В | | С | | D | | E | | | |
|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| al | 662 | b1 | 657 | c1 | 739 | d1 | 544 | e1 | 482 | k1 | 1519 |
| a2 | 613 | b2 | 608 | c2 | 689 | d2 | 489 | e2 | 438 | k2 | 1272 |
| aЗ | 629 | b3 | 622 | c3 | 704 | d3 | 506 | e3 | 453 | k3 | 1283 |
| a4 | 648 | b4 | 641 | c4 | 725 | d4 | 530 | e4 | 468 | k4 | 1201 |
| a5 | 641 | b5 | 634 | c5 | 714 | d5 | 527 | e5 | 470 | k5 | 1228 |
| a6 | 592 | b6 | 587 | с6 | 666 | d6 | 473 | e6 | 421 | k6 | 1016 |
| a7 | 607 | b7 | 598 | c7 | 672 | d7 | 483 | e7 | 434 | k7 | 1015 |
| a8 | 619 | b8 | 613 | c8 | 691 | d8 | 504 | e8 | 443 | k8 | 1026 |
| a9 | 678 | b9 | 668 | с9 | 670 | d9 | 493 | e9 | 441 | k9 | 1043 |
| a10 | 622 | b10 | 615 | c10 | 614 | d10 | 428 | e10 | 375 | k10 | 926 |
| a11 | 612 | b11 | 594 | c11 | 588 | d11 | 416 | e11 | 384 | k11 | 917 |
| a12 | 635 | b12 | 623 | c12 | 625 | d12 | 458 | e12 | 399 | k12 | 781 |
| a13 | 1467 | b13 | 1421 | c13 | 1141 | d13 | 1054 | e13 | 1038 | | |
| a14 | 1340 | b14 | 1303 | c14 | 1019 | d14 | 899 | e14 | 840 | | |
| a15 | 1291 | b15 | 1198 | c15 | 942 | d15 | 879 | | | | |
| a16 | 1168 | b16 | 1093 | c16 | 841 | d16 | 735 | | | | |
| a17 | 466 | b17 | 443 | c17 | 397 | | | | | | |
| a18 | 325 | b18 | 363 | c18 | 362 | | | | | | |
| AM1 | 1186 | BM1 | 1179 | CM1 | 1112 | DM1 | 1127 | EM1 | 1393 | KM1 | 1443 |
| AM2 | 1155 | BM2 | 1148 | CM2 | 1082 | DM2 | 1095 | EM2 | 1364 | KM2 | 1226 |
| AM3 | 1145 | BM3 | 1132 | CM3 | 1064 | DM3 | 1067 | EM3 | 1324 | KM3 | 1107 |
| AM4 | 1110 | BM4 | 1103 | CM4 | 1041 | DM4 | 1038 | EM4 | 1289 | KM4 | 1008 |
| AM5 | 1694 | BM5 | 1558 | CM5 | 1375 | DM5 | 1403 | EM5 | 1615 | KM5 | 984 |
| AM6 | 1667 | BM6 | 1554 | CM6 | 1380 | DM6 | 1388 | EM6 | 1579 | KM6 | 860 |
| AM7 | 1444 | BM7 | 1263 | CM7 | 1284 | DM7 | 1323 | | | | |
| AM8 | 1386 | BM8 | 1274 | CM8 | 1267 | DM8 | 1236 | | | KR1 | 2750 |
| AM9 | 572 | BM9 | 557 | CM9 | 738 | | | | | KR2 | 2591 |
| | | | | | | | | | | KR3 | 2439 |
| AR1 | 6586 | BR1 | 6454 | CR1 | 6439 | DR1 | 6767 | | | KL1 | 4067 |
| AR2 | 6564 | BR2 | 6442 | CR2 | 6435 | DR2 | 6761 | | | kk1 | 730 |
| AR3 | 5872 | BR3 | 5890 | CR3 | 6093 | DR3 | 6375 | | | kk2 | 466 |
| AR4 | 5190 | BR4 | 5329 | CR4 | 5620 | DR4 | 5796 | | | KL2 | 7281 |
| | | BR5 | 6394 | | | | | | | | |

Service Record

| Service No 1 | |
|-----------------|-------------------|
| Date | Stamp / Signature |
| N° flights | |
| Type of Service | |
| Notes | |
| | |

Service No 2

D

| ate | Stamp / Signature |
|----------------|-------------------|
| ° flights | |
| ype of Service | |
| otes | |
| | |
| | |

Service No 3 Da N٥ Ту

| Date | Stamp / Signature |
|-----------------|-------------------|
| N° flights | |
| Type of Service | |
| Notes | |
| | |

| Service No 4 | |
|-----------------|-------------------|
| Date | Stamp / Signature |
| N° flights | |
| Type of Service | |
| Notes | |
| | |
| | |

| Service No 5 | |
|-----------------|-------------------|
| Date | Stamp / Signature |
| Nº flights | |
| Type of Service | |
| Notes | |
| | |

| Service | No 6 | |
|-----------------|------------|-------------------|
| Date | | Stamp / Signature |
| N° flight | N° flights | |
| Type of Service | | |
| Notes | | |
| | | |
| | | |

Owner Record

and the second

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: | |

DESIGN

GOLDSMITH

BRUCE

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!

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