



# Contents

Welcome to Bruce Goldsmith Design .....	4
Quick Summary .....	5
Introduction .....	6
Weight Range .....	6
Modifications .....	7
Flying in rain.....	7
Test flight and Warranty.....	7
Glider overview.....	8
Risers .....	9
Brake Handles .....	10
Trimmers, speed bar and steering.....	11
Preparation .....	13
Connecting the speed bar .....	13
Laying out and connecting to motor/chassis	13
Pre-flight inspection.....	14
Flight Characteristics .....	16
Take-off .....	16
Initial Climb.....	16
Rapid Descent Techniques.....	18
Landing .....	19
Recovery Techniques .....	21
Stalls .....	21

Spins .....	22
Symmetric Front Collapse .....	22
Asymmetric Front Collapse .....	22
Releasing a trapped tip (cravat) .....	23
Loss of brakes.....	23
Storage, repairs and servicing .....	24
Storage and care .....	24
Trimmers.....	24
Small Repairs.....	24
Other Checks.....	25
Lines.....	26
Servicing / Inspection .....	29
Environmental protection and recycling .....	29
Technical Data .....	30
Materials.....	30
Specifications .....	31
Line Plan.....	32
Line Lengths .....	33
Service Records.....	40
Closing Words.....	43

# LUNA 3 OWNER'S MANUAL

**Solo paraglider designed for paramotor use**

## **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 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 LUNA 3**

The LUNA 3 is made for powered paragliding, and offers the perfect blend of comfort and performance, and speed. It is suitable for intermediate pilots up to competition racers.

The LUNA 3 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 contains information on how to look after your paraglider, as well as techniques to get the best out of it in the air. If you ever need replacement parts or further information, please do not hesitate to contact your nearest BGD dealer or contact BGD directly.

# Quick Summary

The LUNA 3 has our latest **paramotor risers**, which offer a very wide speed range thanks to the long-range trimmers and accelerator system. Please note the following:

1. The risers are delivered ready for use with a **high hangpoint** set-up. To fly with **low hangpoints**, the brakes should be moved to their lower position. See the [Risers section](#).
2. The best trimmer setting for an easy **launch**, is position 2. This is the sweet spot where the sail rises easily but take-off speed is not too high.
3. The LUNA 3 has standard brakes, and also **tip-steering** handles which control the wing tips and should be used when flying at speed. With the trimmers released to position 4 (half way) or more, you should always use the tip-steering and not the brakes.
4. The tip-steering lines can be attached to the main [brake handle](#), so the brakes and tip-steering can be controlled together (**2D steering**). 2D steering is only recommended for experienced pilots.
5. The LUNA 3 has a very wide speed range. Trimmers fully released and full bar at the same time gives a top speed of 75km/h. With the glider fully accelerated, it is at a greater risk of deflations in turbulent air. Using the speed bar with trimmers released is only recommended in calm conditions, and for experienced pilots.

# Introduction

The LUNA 3 is a solo paraglider. It is not intended for tandem use or aerobatic manoeuvres. It should 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 flown in strong turbulence or violent winds .

## Weight Range

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

If you fly in the lower half of the weight range the turning agility will be lower and the glider will be more damped, 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.

## 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. However, the **length of the brake lines** should be adjusted according to whether it is being flown with high or low hangpoints, or trikes.

## Flying in rain

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

## 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 on the website ([www.flybgd.com](http://www.flybgd.com))

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

Shown in the **standard Set-up** for **high hangpoints** and **standard steering**. To use with **low hangpoints**, the brake legs (3) should be moved to the lower position (4)

### Brakes

1. Brake line
2. Brake pulley
3. Brake leg (high-hangpoint position)
4. Brake leg position for low hangpoints
5. Loop to attach TST line for 2D steering

### Tip Steering (TST)

6. TST line
7. Low-friction rings
8. Tip-steering handle

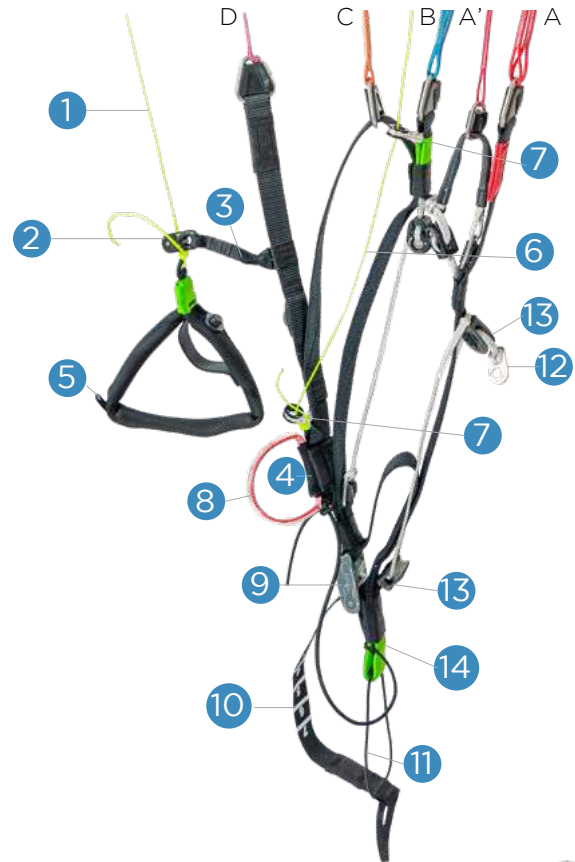
### Trimmer

9. Trimmer buckle
10. Trimmer webbing
11. Elastic keeper

### Speed System

12. Brummel hook
13. Speed system pulleys

### 14. Hook-in loop



## Brake Handles

The brake handles are stiffened, and have a loop for your first two fingers. This means your hand is less likely to slip out of the brake handle, and it leaves your other fingers free to hold the throttle.

The brake handles can be held in the traditional way, without using the loop, if preferred.

The LUNA 3 is delivered in its standard set-up, as shown in the Risers diagram on the previous page. The tip-steering line runs through two low-friction rings and attaches to the pink Tip-Steering handle.

**To use 2D steering**, the tip-steering line should be removed from the tip-steering handle and the low friction rings, and attached to the tip-steering loop on the brake handle, as shown in the image, right.



### 2D set-up

Brake line

Tip-steering line

Finger loop



## Trimmers, speed bar and steering

Both trimmers and speed bar increase the speed of the paraglider and activate the reflex system. When the wing is accelerated, it is more sensitive to turbulence and closer to a possible frontal collapse. It is NOT recommended to fly accelerated in turbulent conditions or near obstacles. Flying in turbulent conditions should be for expert pilots only.

### Trimmers

These alter the glider's trim. When they are fully closed (position 0), the glider is trimmed slow; when they are fully opened, the glider is trimmed fast.

To reduce fuel consumption or to fly in thermals, the trimmers should be closed.

Flying with the trimmers fully open is only recommended in very smooth and calm conditions. Brakes should not be applied when the trimmers are fully open.

The recommended trimmer position for launching is mark 2, as shown in the picture. After take-off, once a safe altitude is reached, the trimmers can be progressively released to increase speed. If unexpected turbulence is encountered during the flight, it is advised to close the trimmers to between between positions 0 and 2 and to actively pilot the glider using the brakes.

Brakes should only be used with trimmers between closed and position 5. Using the brakes with the trimmers open beyond position 5 will reduce the stability of the wing and increase the risk of collapse in the event of unexpected turbulence.

It is safe to use the **TST** for directional control at any trim or speed bar configuration.



## 2D steering

With 2D steering, a single handle is used to control both the tip steering and the brakes. It is a technique for advanced pilots, which takes some practice to master. Care must be taken to avoid accidentally pulling the brakes when the trimmers are released.

Pilots learning to use the 2D steering system are advised to do so with the trimmers between position 0 and 5, and with no speed bar applied. In this way, if the brakes are accidentally applied, there will not be a safety issue. Once pilots have fully mastered the 2D system, it can be used with the trimmers open.

## Speed bar

To increase speed using the speed bar, pressure should be applied gradually to the bar. Maximum bar speed is achieved when the two pulleys on each A-riser touch. Do not go beyond this point by using excessive force to attempt to make the glider go faster as this may result in the glider collapsing.

Using speed bar is not as comfortable as using trimmers but is safer, because in the event of unexpected turbulence the pilot can react immediately by releasing the bar. With speed bar applied, only TST should be used for directional control, not the brakes.

## Speed bar + Trimmers

The glider's maximum speed is with the trimmers released and the speedbar pushed out fully so that the pulleys touch. This is for expert pilots only, in smooth conditions. Brakes should absolutely not be used! If the 2D Steering is configured, pilots should be extremely careful not to apply brakes by accident when using TST. For pilots flying regularly with speed bar + trimmers, we recommend using the standard configuration where TST and brakes are separate.

# Preparation

## Connecting the speed bar

The LUNA 3 comes with accelerator risers and can be flown with or without a speed bar attached. The speed bar should be connected and adjusted following the instructions in your harness manual to ensure correct routing of the lines.

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

## Laying out and connecting to motor/chassis

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 and the harness at the trailing edge at the upwind side.
3. Unroll the canopy to each side so that the leading edge openings form a semicircular shape, with the trailing edge drawn together to form an arc. The harness should be drawn away from the canopy until the suspension lines are just tight.
4. Prepare and check your paramotor, according to the manufacturer's instructions.
5. Connect the wing to the chassis, ensuring the risers are connected the right way round and that the maillons

or karabiners are correctly closed.

Prepare the paramotor. Take care to protect yourself and other people from the propeller, ensuring you start your 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.

## Pre-flight inspection

Your paraglider is designed to be simple 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 the paraglider check the outside of the canopy for any tears where it could have been caught on a sharp object or even have been damaged whilst in its bag. Visually inspect the risers for any signs of damage.
2. Check the lines for signs of damage, twists or knots. 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. Ensure 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 having an assistant hold the upper end of the brake lines together whilst you hold the brake handles. The brake lines should be just slack with the wing inflated when the brakes are not applied.
4. Always check the buckles and attachments on the harness. Ensure the two main attachment maillons/ karabiners from the harness to the main risers, and the individual shackles which attach the risers to the lines, are tightly done up.

5. Before getting in to the harness you should be wearing a good helmet. Check the parachute container is correctly closed and the handle is secure. Put on the harness ensuring all the buckles are fastened and that it is well 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. You should be a qualified pilot, but the following comments describe how to get the best from your wing.

## Take-off

The trimmers should be set to position 2 for take-off. The LUNA 3 is easy to inflate in light or stronger winds and will quickly rise overhead to the flying position. 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.

## 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.

## Turning

Your first turns should be gradual and progressive. The initial action to change direction should be the movement of your weight in the harness towards the side of the intended turn. Then gently relax the pressure on the outer brake, and gently apply pressure to the inner brake until you attain the desired bank angle.



To adjust your speed and turning-circle size, coordinate your weightshift with pressure on the outer brake. How your glider reacts to weightshift will depend on the type of paramotor setup you use, for instance with a trike no weightshift at all is possible.

Remember that to violently apply high force on 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 System, TST.

The Tip steering system can be used to turn without slowing the glider. This is the usual way to turn when you have the trimmers released. It can also be used in conjunction with the brakes to adjust the characteristics of the turn. With the trimmers released to level 4 or further, it is advised to use the TST only, and not the brakes.

You should adjust the length of the brakes and TST according to your own paramotor set-up in order to get the best out of your LUNA 3.

## Unintended Oscillations

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.

## 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.

### 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 through 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

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 and able to land on your feet.

\*If you land with the engine running there is a considerable risk of rotational propeller damage (lines passing through the propeller, or even injury).



# 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

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

### 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 flying too slowly, from a B-line stall or even from big ears. When in deep stall the pilot will notice the following:

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

Recovery from deep stall is quite simple: The normal method is to simply initiate a mild turn. As the canopy starts to turn it will automatically revert to normal flight, but it is very important not to turn too fast as this could induce a spin. The second method is to pull gently on the A-risers. This helps the airflow to re-attach to the leading edge, but be careful not to pull down too hard as this will induce a front collapse.

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

## Spins

Spins occur when the pilot tries to turn too fast. In a spin the pilot, lines and canopy basically stay vertical and rotate around a vertical axis. Your glider will resist spinning, but if a spin is inadvertently induced you should release the brake pressure but always be ready to damp out any dive as the glider exits the spin. Failure to damp the dive on exiting the spin may result in an asymmetric deflation.

## Symmetric Front Collapse

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

## Asymmetric Front Collapse

Your paraglider is very resistant to deflations; however if the canopy collapses on one side due to turbulence, you should first of all control the direction of flight by countering on the opposite brake. Most normal collapses will immediately reinflate on

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

## Releasing a trapped tip (cravat)

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

NOTE: Test pilots have tested the model 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, repairs and 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. Dry it out as soon as possible, but do not use direct heat sources as it is flammable!

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.

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.

## 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 up to around 10cm can be repaired in this way as long as they are not in high-stress areas.



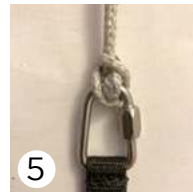
## Other Checks

It is possible that the Dyneema line marked A in the photograph, may stretch or shrink. After the first 50 hours of flying, and then every 50 hours or so, its length should be checked. This is easily done by comparing it to the length of the webbing marked B. They should be the same length.

To check: fully close the trimmers and pull on the B riser. The line should be the same length as the riser. If it has stretched or shrunk, it can be shortened or lengthened by adjusting or removing a larkshead loop on the maillon.



- 1 Factory setting
- 2 Lengthening option 1
- 3 Lengthening option 2 (if 1 is not enough)
- 4 Shortening option 1
- 5 Shortening option 2 (if 1 is not enough)



## Lines

### Releasing loops on the rear lines

All BGD gliders are rigged from new with loops on the maillons or softlinks of the rear lines and 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

We recommend releasing the loops after 100 hours or 1 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 2 years, the loops should already have been released, and this should be verified and fine-tuned by the check centre.

### Mounting Replacement Lines

If you need to replace lines on your glider, we recommended that a professional should mount the new lines. The airworthiness 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://tinyurl.com/BGDlines>

Replacement lines can be ordered from the [Accessories section](#) of the BGD website. Check that the lines you have received correspond with the latest update of the line checksheet from the dropbox. 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 lineset 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 (see diagram on the following page). Unsheathed lines are reinforced at one end, marked by a yellow thread. This end 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 tabs, except for A tabs, which are inclined backwards to align with the direction of pull of the line.



Interlocked junction - correct



Looped junction - incorrect

When assembling lines, the A tabs should be angled back, and the B, C and D tabs should be perpendicular to the canopy undersurface.



Interlocked junction - correct



Looped junction - incorrect

### Line Junctions

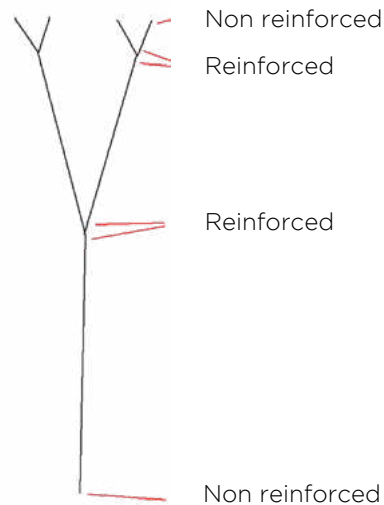
All lines are connected to other lines or to tabs with lark's foot junctions. Make sure that these are joined correctly with interlocked and not looped junctions.

### 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



## 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 records](#) 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 lines and repairs which we have produced and which have been fitted or repaired by an approved service centre

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

## Environmental protection and recycling

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

# Technical Data

## Materials

The LUNA 3 is made from the following quality materials:

Top surface:	Porcher Skytex 38g/m <sup>2</sup>
Bottom surface:	Porcher Eazyfly
Internal structure:	Porcher Skytex 40 g/m <sup>2</sup> hard
Nose reinforcing:	Perlon / F.line
Risers:	12 mm nylon black
Top lines:	Edelrid 8000U series
Middle lines:	Edelrid 8000U series
Lower lines:	Edelrid 8000U series and PPSL
Brakes:	Liros 8000U
Brake line KL1:	DSL350

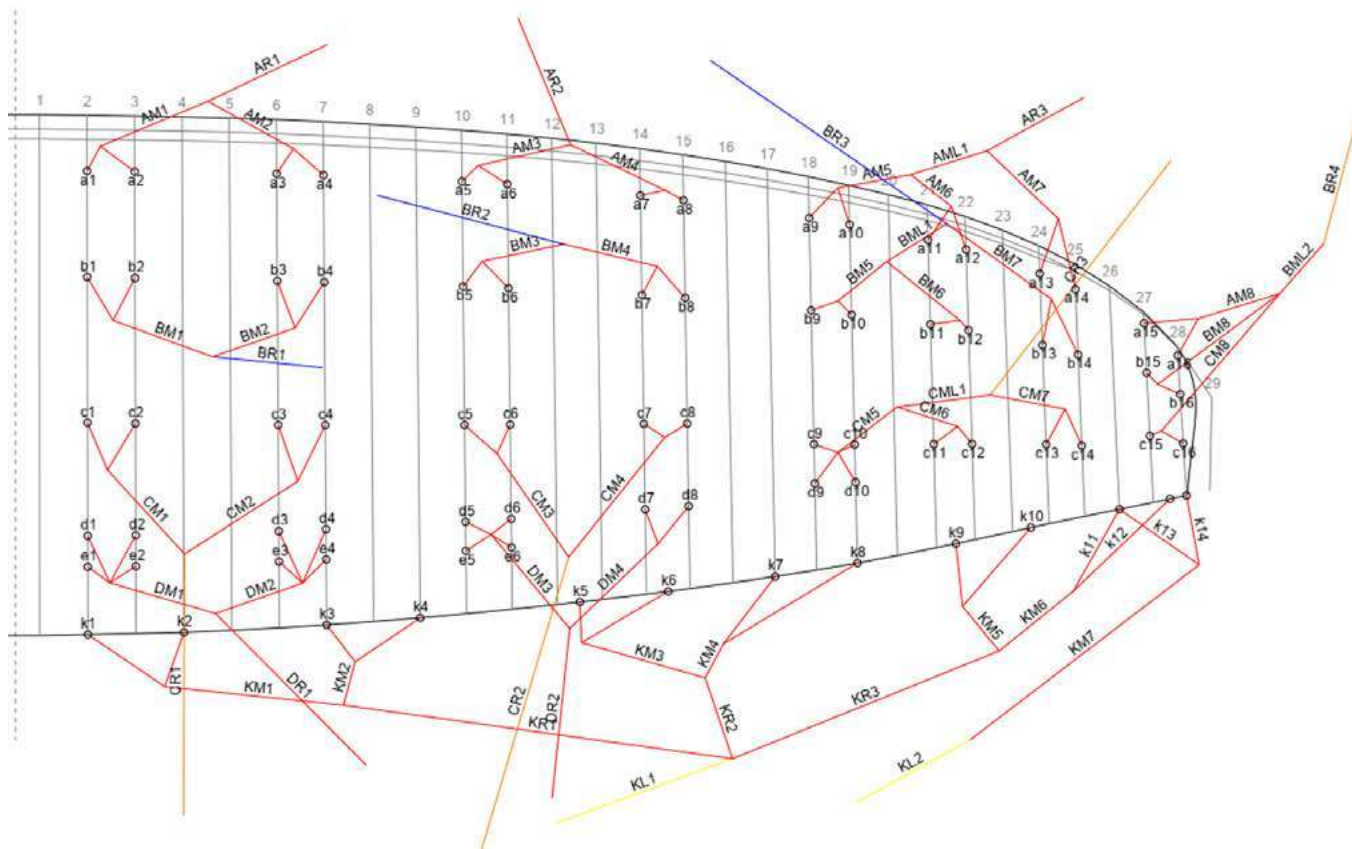
Spare parts can be obtained directly from BGD or through our network of registered BGD repair shops. For a full list see [www.flybgd.com](http://www.flybgd.com)

## Specifications

	<b>18</b>	<b>20</b>	<b>23</b>	<b>26</b>	<b>29</b>
Projected area (m <sup>2</sup> )	15.6	17.3	19.9	22.5	25.1
Flat area (m <sup>2</sup> )	18	20	23	26	29
Glider weight (kg)	4.5	4.8	5.3	5.7	6.1
Height (m)	6.19	6.53	7.00	7.44	7.86
Number of main lines	3/4/3/2	3/4/3/2	3/4/3/2	3/4/3/2	3/4/3/2
Cells	57	57	57	57	57
Flat aspect ratio	5.7	5.7	5.7	5.7	5.7
Root chord (m)	2.23	2.35	2.52	2.68	2.83
Flat span (m)	10.03	10.57	11.34	12.06	12.73
Projected span (m)	8.16	8.60	9.22	9.80	10.35
PPG weight range (kg)	70 - 120	80 - 130	90 - 140	105 - 160	130 - 200
Min speed* (km/h)	24 - 29	23 - 29	23 - 28	23 - 28	23 - 28
Trim speed* (km/h)	38 - 46	38 - 46	36 - 44	36 - 44	36 - 44
Trimmers open* (km/h)	53 - 65	50 - 64	50 - 62	50 - 62	50 - 62
Full speed * (km/h)	64 - 79	61 - 78	60 - 75	61 - 75	61 - 75
Max power (KW / hp)	27 / 36	27 / 36	27 / 36	27 / 36	27 / 36
Approval - Microlight (ULM)identification	In progress	In progress	In progress		

\* At minimum and maximum all-up weights

## Line Plan





## Line Lengths

Up to date line lengths can be found on the LUNA 3 product page on the website.

Measurements are in mm, measured with 50N line tension which was slowly and gradually applied. Lengths are measured from the lower surface of the canopy and include the risers.

**Size 18**

Bridle check

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>K</b>
1	6220	6149	6191	6292	6331	6660
2	6195	6122	6161	6261	6302	6432
3	6165	6087	6131	6235	6276	6254
4	6176	6100	6146	6250	6287	6260
5	6149	6077	6133	6237	6276	6161
6	6134	6060	6110	6205	6242	6069
7	6122	6055	6102	6217		5990
8	6134	6080	6120	6254		5992
9	6087	6036	6145	6206		5947
10	6065	6013	6100	6166		5873
11	6008	5972	6048			5879
12	6008	5979	6040			5907
13	5924	5902	5967			5696
14	5908	5894	5942			5536
15	5718	5712	5830			
16	5664	5686	5796			

Line Lengths

2D steering, TST on brake handle:

K 13 5418

K 14 5258

## Size 18

Single line lengths

A		B		C		D		E		K	
a1	265	b1	264	c1	333	d1	337	e1	376	k1	563
a2	240	b2	237	c2	303	d2	306	e2	347	k2	335
a3	246	b3	261	c3	309	d3	314	e3	355	k3	512
a4	257	b4	274	c4	324	d4	329	e4	366	k4	518
a5	255	b5	259	c5	315	d5	361	e5	401	k5	507
a6	240	b6	242	c6	292	d6	329	e6	367	k6	415
a7	229	b7	235	c7	279	d7	270			k7	471
a8	241	b8	260	c8	297	d8	307			k8	473
a9	230	b9	275	c9	345	d9	406			k9	430
a10	208	b10	252	c10	300	d10	366			k10	356
a11	255	b11	242	c11	255	DM1	2027			k11	216
a12	255	b12	249	c12	247	DM2	1993			k12	244
a13	264	b13	243	c13	244	DM3	1116			k13	538
a14	248	b14	235	c14	219	DM4	1187			k14	378
a15	309	b15	264	c15	369	DR1	3414			KM1	1266
a16	255	b16	238	c16	335	DR2	4244			KM2	911
AM1	2436	BM1	2285	CM1	2003					KM3	1020
AM2	2400	BM2	2226	CM2	1966					KM4	885
AM3	2275	BM3	1864	CM3	1841					KM5	610
AM4	2274	BM4	1865	CM4	1845					KM6	756
AM5	1184	BM5	1090	CM5	983					KM7	3494
AM6	1081	BM6	1059	CM6	972					KL2	1660
AM7	1973	BM7	1862	CM7	1548					KR1	2315
AM8	318	BM8	355	CM8	368					KR2	2118
AR1	3005	BR1	3081	CR1	3344					KR3	2391
AR2	3105	BR2	3433	CR2	3464					KL1	2519
AML1	995	BML1	883	CML1	651						
AR3	3170	BR3	3273	CR3	3654						
		BML2	3568								
		BR4	1017								

**Size 20**

Bridle check

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>K</b>
1	6553	6479	6525	6628	6671	6997
2	6527	6450	6495	6596	6640	6753
3	6496	6417	6465	6570	6614	6583
4	6508	6430	6481	6587	6625	6602
5	6483	6407	6470	6575	6616	6487
6	6468	6389	6446	6541	6580	6357
7	6457	6387	6439	6555		6286
8	6470	6414	6459	6594		6289
9	6422	6368	6481	6545		6216
10	6399	6343	6434	6504		6143
11	6338	6300	6379			6070
12	6339	6307	6370			6096
13	6250	6225	6293			6020
14	6233	6216	6266			5852
15	6032	6025	6151			
16	5974	5997	6113			

Line Lengths

2D steering, TST on brake handle:

K 13 5785

K 14 5617

**Size 20**

## Single line lengths

<b>A</b>		<b>B</b>		<b>C</b>		<b>D</b>		<b>E</b>		<b>K</b>	
a1	280	b1	279	c1	351	d1	355	e1	398	k1	599
a2	254	b2	250	c2	321	d2	323	e2	367	k2	355
a3	259	b3	276	c3	326	d3	331	e3	375	k3	528
a4	271	b4	289	c4	342	d4	348	e4	386	k4	547
a5	269	b5	274	c5	333	d5	381	e5	423	k5	559
a6	254	b6	256	c6	309	d6	347	e6	387	k6	429
a7	242	b7	248	c7	294	d7	285			k7	498
a8	255	b8	275	c8	314	d8	324			k8	501
a9	243	b9	291	c9	364	d9	428			k9	449
a10	220	b10	266	c10	317	d10	387			k10	376
a11	269	b11	256	c11	270	DM1	2132			k11	217
a12	270	b12	263	c12	261	DM2	2098			k12	243
a13	279	b13	257	c13	258	DM3	1175			k13	568
a14	262	b14	248	c14	231	DM4	1251			k14	400
a15	327	b15	279	c15	391	DR1	3627			KM1	1324
a16	269	b16	251	c16	353	DR2	4503			KM2	981
AM1	2566	BM1	2407	CM1	2111					KM3	1074
AM2	2530	BM2	2348	CM2	2075					KM4	934
AM3	2396	BM3	1962	CM3	1940					KM5	643
AM4	2397	BM4	1967	CM4	1947					KM6	729
AM5	1248	BM5	1149	CM5	1036					KM7	3797
AM6	1139	BM6	1116	CM6	1024					KL2	1651
AM7	2080	BM7	1962	CM7	1631					KR1	2454
AM8	335	BM8	374	CM8	388					KR2	2234
AR1	3193	BR1	3274	CR1	3552					KR3	2504
AR2	3304	BR2	3650	CR2	3684					KL1	2623
AML1	1049	BML1	931	CML1	686						
AR3	3374	BR3	3482	CR3	3883						
		BML2	3847								
		BR4	1017								

**Size 23**

Bridle check

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>K</b>
1	7021	6942	6997	7108	7153	7555
2	6994	6912	6964	7074	7120	7294
3	6964	6879	6935	7048	7096	7094
4	6978	6895	6953	7066	7109	7103
5	6950	6872	6941	7062	7116	6981
6	6934	6852	6915	7025	7078	6853
7	6922	6853	6909	7042		6767
8	6936	6880	6931	7085		6760
9	6890	6836	6958	7026		6700
10	6865	6809	6907	6982		6617
11	6800	6763	6845			6549
12	6799	6770	6836			6599
13	6712	6682	6752			6480
14	6695	6673	6723			6300
15	6481	6463	6592			
16	6419	6433	6551			

Line Lengths

2D steering, TST on brake handle:

K 13 6221

K 14 6006

**Size 23**

Single line lengths

<b>A</b>		<b>B</b>		<b>C</b>		<b>D</b>		<b>E</b>		<b>K</b>	
a1	301	b1	300	c1	378	d1	382	e1	427	k1	643
a2	274	b2	270	c2	345	d2	348	e2	394	k2	382
a3	278	b3	296	c3	350	d3	356	e3	404	k3	579
a4	292	b4	312	c4	368	d4	374	e4	417	k4	588
a5	289	b5	295	c5	358	d5	411	e5	455	k5	600
a6	273	b6	275	c6	332	d6	374	e6	417	k6	472
a7	260	b7	268	c7	316	d7	306			k7	534
a8	274	b8	295	c8	338	d8	349			k8	527
a9	261	b9	313	c9	392	d9	460			k9	488
a10	236	b10	286	c10	341	d10	416			k10	405
a11	291	b11	276	c11	290	DM1	2285			k11	228
a12	290	b12	283	c12	281	DM2	2251			k12	278
a13	299	b13	276	c13	278	DM3	1258			k13	610
a14	282	b14	267	c14	249	DM4	1343			k14	430
a15	351	b15	300	c15	420	DR1	3930			KM1	1429
a16	289	b16	270	c16	379	DR2	4880			KM2	1032
AM1	2749	BM1	2579	CM1	2258					KM3	1151
AM2	2715	BM2	2520	CM2	2224					KM4	1003
AM3	2569	BM3	2103	CM3	2077					KM5	689
AM4	2570	BM4	2110	CM4	2087					KM6	798
AM5	1338	BM5	1232	CM5	1110					KM7	4224
AM6	1221	BM6	1196	CM6	1099					KL2	1642
AM7	2230	BM7	2104	CM7	1748					KR1	2649
AM8	361	BM8	392	CM8	401					KR2	2396
AR1	3454	BR1	3549	CR1	3855					KR3	2689
AR2	3576	BR2	3957	CR2	4001					KL1	2837
AML1	1115	BML1	996	CML1	735						
AR3	3664	BR3	3779	CR3	4215						
		BML2	4241								
		BR4	1026								

# Service Records

## Révisions

Date  Stamp / Signature  
N° flights   
Type   
Notes

Date  Stamp / Signature  
N° flights   
Type   
Notes

Date  Stamp / Signature  
N° flights   
Type   
Notes

Date  Stamp / Signature  
N° flights   
Type   
Notes

Date  Stamp / Signature  
N° flights   
Type   
Notes

Date  Stamp / Signature  
N° flights   
Type   
Notes



## 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:

# Closing Words

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

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

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

Have fun, and see you in the sky!

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