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ADAM 2 MOTOR Owner's Manual

Solo paraglider for free-flight and paramotor use: EN / LTF A

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 ADAM 2 MOTOR

The ADAM 2 MOTOR is a safe and fun wing, suitable for beginners and perfectly adapted for paramotoring. It is a hybrid wing, which means it can be used for free flight and for paramotoring. This manual refers to the ADAM 2 MOTOR, which is delivered with paramotor risers with trimmers. The only difference between the ADAM 2 and the ADAM 2 MOTOR is the risers.

In order to ensure your wing retains its original flight characteristics, it should be properly looked after. Please read this manual from the first to the last chapter to ensure you get the best out of it.

Do not hesitate to contact your nearest BGD dealer if you need advice or information about your paraglider, or any replacement parts.

Introduction

The ADAM 2 MOTOR is suitable for beginners. It can be flown with or without a motor.

The MOTOR version is supplied with paramotor risers which have trimmers. The EN/LTF A certification for free flight is valid only when it is flown within the 'in-flight weight range for free flight' with the trimmers in their fully closed (slow) position. If the trimmers are at any other setting, it is no longer EN / LTF certified.

When using the paramotor risers, the brake line lengths should be adjusted to suit the hangpoints (high, low, trike). See [Preparation](#).

We recommend setting the trimmers to position 2 for take-off.

Safety Notes

Your 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 strong turbulence, violent winds, 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. Be towed with a tow-line tension in excess of 200kg.

5. Do not perform spiral dives with big ears or asymmetric collapses. The high G loading on fewer lines could overload and break the lines.
6. When using the PPG riser-set, only the brake line lengths should be adjusted. No other changes or modifications should be performed without first consulting your BGD dealer, as they may invalidate the warranty or certification.
7. Brakes should not be used when trimmers and speed bar are both applied. It is safe to use the brakes with the trimmers (and no speed bar) at all trimmer settings.

Trimmers + brakes = OK

Trimmers + speed bar + brakes - No!

Warranty

Information about the BGD warranty can be found on the Warranty page of our website. In order to benefit from it, you must complete the [warranty registration form on the website](http://www.flybgd.com/warranty-registration-form) (www.flybgd.com)

It is your dealer's responsibility to test fly the paraglider before you receive it, to check the trim settings are correct. Please check that this has been completed. The warranty may be void if the test flight has not been completed by the dealer.

Preparation

Riser set-up

The risers on the ADAM 2 Motor can be adapted to the height of the **hangpoints** of your paramotor frame/harness. The risers are delivered ready for use with a low-hanpoint machine. For a paramotor with high hangpoints you will need to move the brake leg to the lower position, as shown:

1. Take the brake lines off the handles they are knotted to.
2. Remove the brake leg which is attached to the upper webbing loop on the D riser and move it to the lower position on the D riser.
3. Tie the brake handle back on, and lengthen the brake lines by the distance between the loops (20cm). If they are not long enough, you will either need to get longer lines, or the line can be extended at the top where it does not run through any rings or pulleys.

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 check the brakes are long enough and adjust them if necessary.

For free-flight gliders 5-10cm slack is usual; for paramotor wings it can be as much as 15cm. When your dealer test-flies a brand new wing, it is one of the things they check. New gliders will be delivered with the correct brake length which is also the certified length.



However, 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.

When your glider is serviced, brake line shrinkage will be spotted but it is also a good idea as a pilot 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.

On launch

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. Unroll the canopy with the bottom surface facing upwards, 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 at the centre of the 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 paramotor, making sure there are no twists in the risers, and that the maillons or karabiners are correctly closed.

Pre-flight Checks

A thorough pre-flight procedure is mandatory on all aircraft. The following should be carried out before each flight.

1. Whilst opening out the paraglider check the outside of the canopy for any tears..
2. Check that the lines are not twisted or knotted. Divide the suspension lines into six 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. 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. Always check the riser maillons and the attachment points to the paramotor frame or buggy. It is strongly recommended to use a safety strap.
5. Before getting into the harness you should be wearing a good helmet. Put on the harness ensuring all the buckles are secure adjusted for comfort.
6. Check that the trimmers are set to position 2, the position recommended for take-off, and maillons at the same height.

Take care to protect yourself and other people from the propeller. Always start your motor up at a safe distance from other people. If it touches the ground it can fire objects into the air which could injure people several metres away. Remember there are inherent risks with petrol, oil and volatile or flammable materials.

Flight Characteristics

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

Weight range

Each size of paraglider is certified for a certain weight range. The weight refers to the 'overall take-off weight'.

The '**Free flight (EN / LTF A) weight range**' is the weight of the pilot, paraglider, harness and other equipment carried when free-flying. The paraglider is EN/LTF certified for this weight range.

The '**Paramotor weight range**' allows for all of the above, plus the paramotor and a full tank of fuel.

We recommend flying in the middle of the weight range.

If you fly in the lower half of the weight range, the glider's turning agility decreases and it will be more damped. In strong turbulence the wing will have a slightly increased tendency to deform and to collapse than with a higher wing loading. Only fly lightly loaded if you fly in aerologically stable conditions, such as in the morning or evening.

If you fly in the upper half of the weight range, agility and stability in turbulence will increase, and speed will increase slightly. The self-damping will decrease in turns, as well as after collapses.

Take-off

We recommend setting the trimmers to position 2 for take-off.



Your wing is easy to inflate in light or stronger winds and will quickly rise overhead to the flying position. The best inflation technique is to hold one A-riser in each hand. Hold the brakes in your hands and rest the risers on your arms. Hold the A risers and Baby A together at the links as shown in the image. Never try to launch if the wing is not fully inflated and above your head, and if you do not have full control of pitch and / or roll.

Initial climb

Once in the air, you should continue to face into the wind while you gain altitude. Leave the trimmers in the take-off position (mark 2) to attain 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 sufficient 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 and Speed Bar

The PPG risers have trimmers and an accelerator system (speed bar), which can be used to increase the speed. The standard trimmer setting is fully closed (maillons level), which is the slowest position. For best fuel consumption or to fly in thermals, the trimmers should be closed.

After take-off, once you have gained a safe altitude if you want to increase your speed you can open up the trimmers, keeping your hands up, or apply the speed bar.

Trimmers should be pulled backwards or down when applied. The trimmer 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.

To increase speed using the speed bar, pressure should be applied gradually to the bar. Do not use excessive force to attempt to go beyond the point where the pulleys touch, as this may result in the glider collapsing. Using the speed system can affect the pilot's balance in the harness and it may be necessary to make some adjustments to the harness.

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.

We recommend you fly in conditions where you can penetrate into wind without having to use the accelerator or fully opening the trimmers, which gives you a safety margin of extra speed should you need it.

Glide deteriorates slightly and the glider is slightly more susceptible to collapses with trimmers open or the speed bar applied.

We do not recommend pilots to fly with full accelerator and trimmers fully open at the same time at low altitude.

The ADAM 2 MOTOR has roller-cam trimmers, which are smooth to operate and reduce wear on the webbing.

Nonetheless, 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.

Using brakes when accelerated

It is safe to use the brakes at all trimmer settings. Brakes should not be used when trimmets and speed bar are both applied.

Trimmers + brakes = OK

Trimmers + speed bar + brakes - No!

Turning

Your first turns should be gradual and progressive. The first 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.

Remember that to violently apply pressure 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.

Landing

Set the trimmers to the closed position (maillons aligned) and set up your approach downwind of the landing field. When your height above the field is around 40m, slow the motor down and glide in the direction of your intended

landing point. If you are sure to be able to reach your landing place, you should switch the engine off ready for landing. If you land with the engine running there is a considerable risk of rotational propeller damage, (lines passing through the propeller, or even injury).

If you are likely to arrive short of your intended landed spot, power up, gain some height and make your approach again.

When you are on your final approach with your engine off, maintain your speed (hands up) to keep plenty of energy in the wing until you are about 1-2 metres 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.

Active Piloting

Active Piloting is a tool that will help you fly with greater safety and enjoyment. It means flying in empathy with your paraglider, guiding it through the air and being aware of feedback from the wing, especially in thermals and turbulence. If the air is smooth the feedback can be minimal but in turbulence feedback is continuous and needs to be constantly assessed by the pilot. This becomes instinctive in good pilots.

Rapid Descent Techniques

Always keep hold of both brakes in order to retain control of your glider when doing Big Ears or B-Line stalls. We do not recommend putting your hands through the brake handles, as this makes it harder to recover from a deep stall situation. There is a risk of deep stall occurring with both Big Ears and B-Line Stall.

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. It 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 by weightshifting is possible 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.

B-Line Stall

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 30cm. 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 10m/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.

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 less than 16m/s, automatically without pilot input. If the pilot increases the descent rate of the spiral to over 16m/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.

Do not perform spiral dives with big ears or asymmetric collapses. The high G loading on fewer lines could overload and break the lines.

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 through 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:

- 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.

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 paraglider will resist spinning, but if a spin is inadvertently induced the pilot should release the brake pressure but always be ready to damp out any dive as the glider exits the spin. If the pilot does not damp the dive on exiting the spin the glider may have 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 wing will automatically recover on its own from this situation in around 3 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, the pilot 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)

It should be difficult to trap the tip so that it will not come out quickly. However, following a very severe deflation any canopy could become tied up in its own lines. 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.

Maintenance

Storage

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.

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 flammable!

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.

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 of up to 100mm can be repaired in this way providing they are not in a high-stress area.

Lines

Releasing line loops



Left: loops on maillons; Right: loops released

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.

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 2 years, the loops should already have been released, and this should be verified and fine-tuned by the check centre.

Replacing 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://flybgd.com/lines>

Replacement lines can be ordered from the Accessories section of www.flybgd.com. Check that the lines you have

received correspond with the line layout diagram, and that this matches the line layout of your wing.

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 mounted the correct way up (see diagram on the following page). Microlines have internal reinforcing in one end, marked by yellow thread. This must be put on 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 reinforcing 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. So 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 Loops

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

Maillon Inserts

The maillons have black plastic inserts to stop them coming undone accidentally and the lines falling off. Always ensure these are correctly installed after rigging the glider. If they are lost then use a locktight to secure the maillon closed. New inserts can be ordered at www.flybgd.com.

Check before flying

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

Correct alignment of microlines



yellow thread



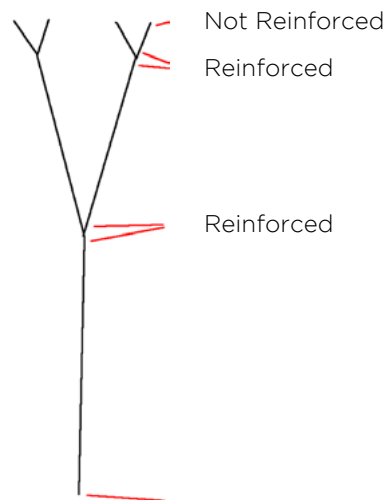
white thread



Sheathed lines have no additional reinforcement and can be mounted either way up

Yellow thread marks the reinforced end of a microline

White thread marks the non-reinforced end of a microline



Connecting lines

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



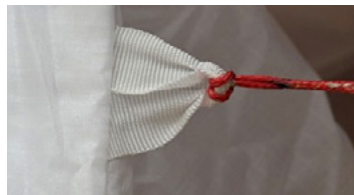
Interlocked junction – correct



Looped junction – incorrect



Interlocked junction – correct



Looped junction – incorrect

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

Technical data

Materials

The ADAM 2 MOTOR is made from the following quality materials:

Sail

Top surface	Dominico D30 42g/m ²
Bottom surface:	Porcher Eazyfly 40g/m ²
Internal Structure	Porcher Skytex hard finish 40g/m ²
Nose reinforcing	Plastic wire

Risers

Webbing	20mm Kevlar/Nylon webbing
Maillons	Maillon Rapide 3.5D Delta shackles + inserts
Pulleys	Sprenger Allen

Lines

Top lines	Liros PPSL
Middle lines	Liros PPSL
Lower lines	Liros PPSL
Brakes	Liros DSL

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

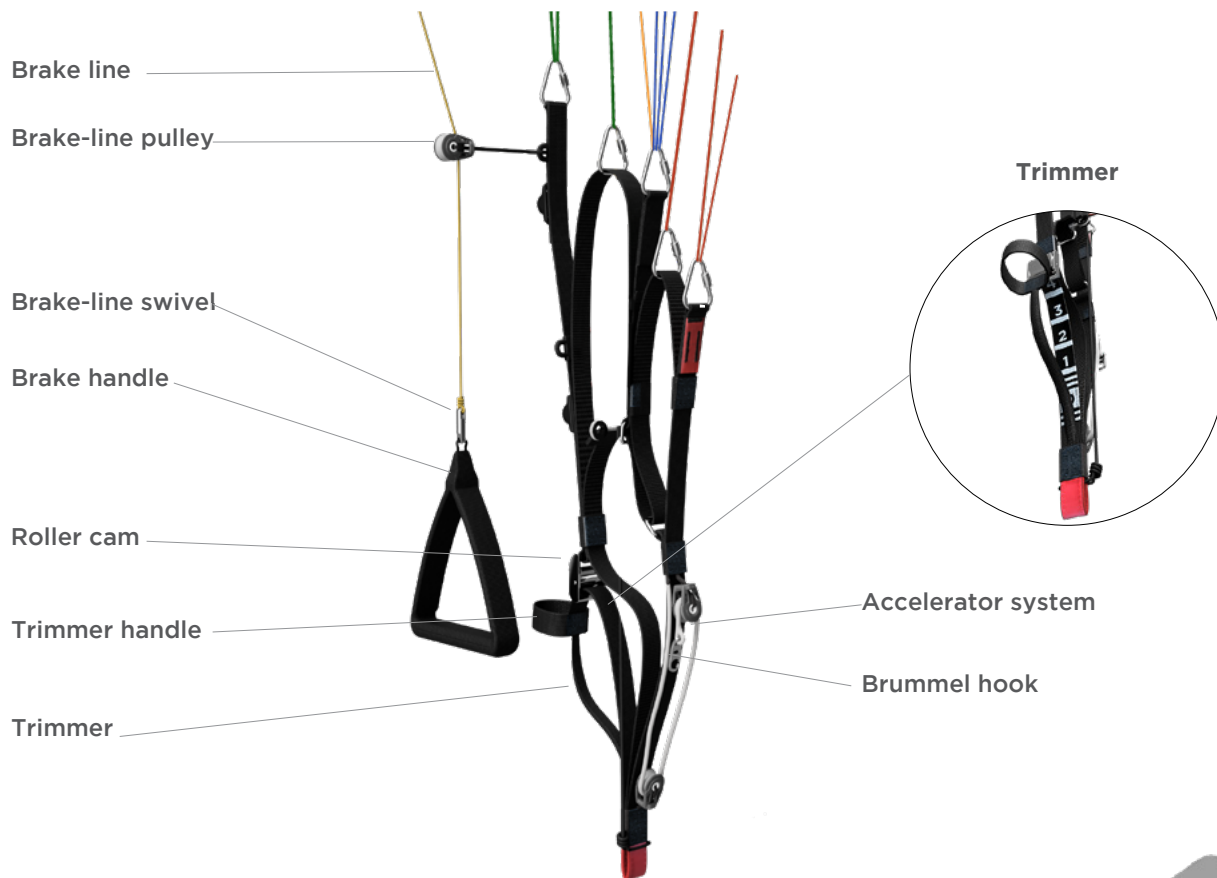
Specifications

	XS	S	M	ML	L
Linear scaling factor	0.96	1.00	1.04	1.08	1.12
Projected area (m²)	17.9	19.7	21.4	23.1	24.8
Flat area (m²)	21	23	25	27	29
Glider weight (kg)	4.1	4.4	4.75	4.96	5.4
Total line length (m)	212	232	252	272	293
Number of main lines	3/4/3				
Cells	36				
Flat aspect ratio	4.8				
Projected aspect ratio	3.4				
Root chord (m)	2.6	2.7	2.9	3.0	3.1
Flat span (m)	10.0	10.5	11.0	11.4	11.8
Projected span (m)	7.9	8.2	8.6	8.9	9.2
Free-flight weight range (kg)	50 - 65	60 - 80	75 - 95	88 - 108	100 - 125
PPG weight range (kg)	65 - 95	75 - 105	90 - 120	103 - 133	115 - 150
Trim speed (km/h)	35	36	38	39	39
Top speed (km/h)	48	50	51	50	50
Min. sink (m/s)	1				
Best glide	8.5				
Certification (free flight)	EN+LTF: A				
DGAC registration (paramotor)	Yes				
Max. engine power (HP / kW)	27 / 20	27 / 20	27 / 20	37 / 27	37 / 27
Suitable for towing	Yes				

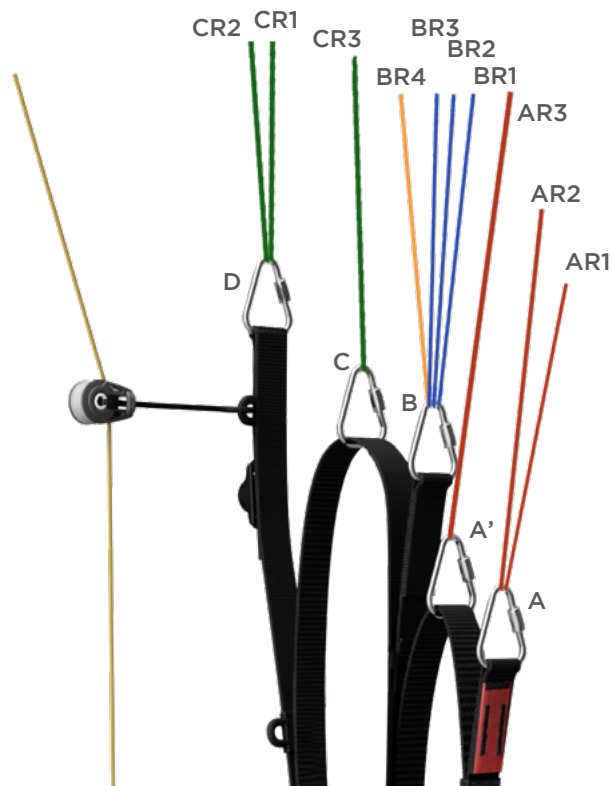
Overview of glider parts



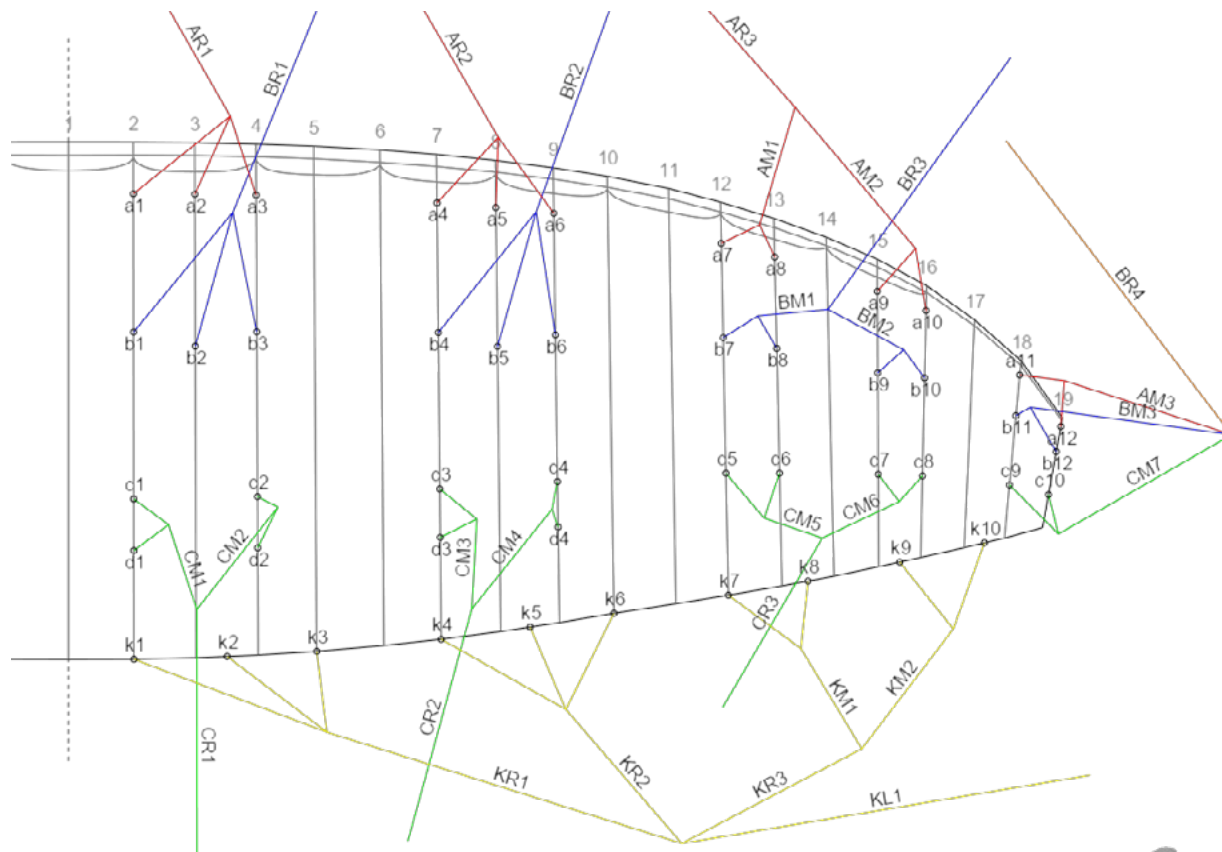
ADAM 2 Motor Risers



Lines / Risers



Line Plan



Line Lengths

All measures are in mm, with 50N line tension, the 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.

Compliance of the test sample's suspension lines, control lines and risers with the dimensions given in the user's manual are checked by the testing laboratory after the test flights have been completed.

The difference in line lengths between the manual and the sample may be no more than 10mm. The measured lengths are in the appendix.

The latest line lengths and diagrams can be downloaded from <https://flybgd.com/lines>

Size XS

	A	B	C	D	K
1	6159	6090	6174	6250	6558
2	6132	6041	6153	6226	6335
3	6137	6067	6126	6195	6246
4	6149	6058	6117	6177	6044
5	6139	6039	6105		5945
6	6150	6058	6036		5977
7	6110	6048	5942		5938
8	6064	6001	5926		5873
9	5933	5895	5711		5848
10	5873	5855	5612		5926
11	5549	5563			
12	5404	5453			

Bridle check ▲

Single line lengths ►

A	B	C	D	K
a1 1749	b1 1730	c1 865	d1 941	k1 1440
a2 1722	b2 1681	c2 855	d2 928	k2 1217
a3 1727	b3 1707	c3 819	d3 888	k3 1128
a4 1647	b4 1436	c4 815	d4 875	k4 1280
a5 1637	b5 1417	c5 724		k5 1181
a6 1648	b6 1436	c6 655		k6 1213
a7 474	b7 416	c7 492		k7 773
a8 428	b8 369	c8 476		k8 708
a9 429	b9 364	c9 496		k9 474
a10 369	b10 324	c10 397		k10 552
a11 426	b11 415	CM1 901		KR1 2550
a12 281	b12 305	CM2 890		KR2 2196
AR1 3929	BR1 3881	CM3 853		KM1 822
AR2 4021	BR2 4141	CM4 848		KM2 1031
AM1 2076	BM1 1589	CM5 776		KR3 1782
AM2 1944	BM2 1487	CM6 845		KL1 2551
AM3 362	BM3 385	CM7 452		
AR3 3084	BR3 3568	CR1 3950		
	BR4 4302	CR2 3996		
		CR3 4144		

Size S

	A	B	C	D	K
1	6487	6411	6507	6586	6887
2	6459	6376	6486	6563	6667
3	6465	6388	6477	6550	6584
4	6474	6385	6468	6530	6392
5	6465	6370	6450		6270
6	6476	6386	6379		6305
7	6436	6384	6280		6223
8	6388	6335	6263		6149
9	6253	6225	6032		6133
10	6189	6183	5928		6201
11	5884	5893			
12	5734	5779			

Bridle check ▲
Single line lengths ►

A	B	C	D	K
a1 1830	b1 1833	c1 906	d1 985	k1 1503
a2 1802	b2 1788	c2 896	d2 973	k2 1283
a3 1808	b3 1810	c3 857	d3 930	k3 1200
a4 1723	b4 1718	c4 854	d4 916	k4 1345
a5 1714	b5 1703	c5 758		k5 1223
a6 1725	b6 1719	c6 687		k6 1258
a7 496	b7 436	c7 516		k7 816
a8 448	b8 387	c8 499		k8 742
a9 450	b9 382	c9 520		k9 505
a10 386	b10 340	c10 416		k10 573
a11 446	b11 435	CM1 943		KR1 2667
a12 296	b12 321	CM2 932		KR2 2330
AR1 4143	BR1 4061	CM3 893		KM1 859
AR2 4232	BR2 4148	CM4 887		KM2 1080
AM1 2172	BM1 1662	CM5 812		KR3 1838
AM2 2035	BM2 1556	CM6 884		KL1 2695
AM3 395	BM3 413	CM7 472		
AR3 3254	BR3 3768	CR1 4145		
	BR4 4529	CR2 4214		
		CR3 4369		

Size M

	A	B	C	D	K
1	6768	6689	6779	6861	7178
2	6739	6653	6759	6839	6936
3	6747	6666	6750	6826	6841
4	6753	6661	6742	6807	6623
5	6743	6648	6729		6515
6	6755	6662	6655		6552
7	6716	6662	6551		6510
8	6666	6611	6534		6440
9	6524	6496	6292		6416
10	6458	6453	6184		6502
11	6142	6146			
12	5987	6028			

Bridle check ▲
Single line lengths ►

A	B	C	D	K
a1 1907	b1 1932	c1 945	d1 1027	k1 1571
a2 1878	b2 1896	c2 935	d2 1015	k2 1329
a3 1886	b3 1909	c3 894	d3 970	k3 1234
a4 1797	b4 1989	c4 891	d4 956	k4 1397
a5 1787	b5 1976	c5 791		k5 1289
a6 1799	b6 1990	c6 717		k6 1326
a7 518	b7 455	c7 538		k7 844
a8 468	b8 404	c8 521		k8 774
a9 469	b9 398	c9 542		k9 518
a10 403	b10 355	c10 434		k10 604
a11 466	b11 455	CM1 982		KR1 2777
a12 311	b12 337	CM2 972		KR2 2396
AR1 4340	BR1 4233	CM3 930		KM1 895
AR2 4435	BR2 4146	CM4 925		KM2 1127
AM1 2263	BM1 1732	CM5 846		KR3 1948
AM2 2120	BM2 1622	CM6 921		KL1 2803
AM3 412	BM3 430	CM7 492		
AR3 3416	BR3 3952	CR1 4342		
	BR4 4745	CR2 4416		
		CR3 4579		

Size ML

	A	B	C	D	K
1	7020	6945	7049	7134	7506
2	6991	6911	7029	7112	7254
3	6999	6923	7005	7085	7156
4	7016	6911	6998	7065	6930
5	7006	6900	6982		6820
6	7019	6912	6905		6858
7	6976	6911	6798		6814
8	6925	6859	6780		6741
9	6778	6739	6540		6717
10	6710	6694	6427		6807
11	6379	6385			
13	6219	6264			

Bridle check ▲

Single line lengths ►

A	B	C	D	K
a1 1981	b1 2025	c1 982	d1 1067	k1 1634
a2 1952	b2 1991	c2 972	d2 1055	k2 1382
a3 1960	b3 2003	c3 929	d3 1009	k3 1284
a4 1866	b4 2250	c4 927	d4 994	k4 1451
a5 1856	b5 2239	c5 822		k5 1341
a6 1869	b6 2251	c6 745		k6 1379
a7 538	b7 473	c7 560		k7 878
a8 487	b8 421	c8 542		k8 805
a9 488	b9 414	c9 564		k9 538
a10 420	b10 369	c10 451		k10 628
a11 485	b11 473	CM1 1020		KR1 2884
a12 325	b12 352	CM2 1010		KR2 2491
AR1 4518	BR1 4398	CM3 966		KM1 929
AR2 4629	BR2 4137	CM4 961		KM2 1172
AM1 2351	BM1 1799	CM5 879		KR3 2026
AM2 2203	BM2 1685	CM6 957		KL1 2966
AM3 429	BM3 447	CM7 511		
AR3 3571	BR3 4121	CR1 4541		
	BR4 4954	CR2 4604		
		CR3 4774		

Size L

	A	B	C	D	K
1	7279	7194	7296	7385	7782
2	7239	7152	7276	7363	7521
3	7258	7173	7262	7345	7420
4	7269	7159	7253	7323	7184
5	7250	7149	7243		7069
6	7274	7160	7163		7109
7	7227	7162	7051		7068
8	7175	7108	7031		6997
9	7023	6986	6780		6974
10	6953	6939	6664		7063
11	6621	6617			
12	6452	6490			

Bridle check ▲

Single line lengths ►

A	B	C	D	K
a1 2052	b1 2115	c1 1018	d1 1107	k1 1694
a2 2012	b2 2073	c2 1008	d2 1095	k2 1433
a3 2031	b3 2094	c3 963	d3 1046	k3 1332
a4 1934	b4 2500	c4 960	d4 1030	k4 1504
a5 1915	b5 2490	c5 854		k5 1389
a6 1939	b6 2501	c6 774		k6 1429
a7 557	b7 491	c7 582		k7 910
a8 505	b8 437	c8 562		k8 839
a9 506	b9 430	c9 585		k9 561
a10 436	b10 383	c10 469		k10 650
a11 502	b11 490	CM1 1057		KR1 2988
a12 338	b12 366	CM2 1047		KR2 2580
AR1 4706	BR1 4557	CM3 1001		KM1 964
AR2 4814	BR2 4135	CM4 995		KM2 1219
AM1 2434	BM1 1864	CM5 906		KR3 2101
AM2 2281	BM2 1748	CM6 986		KL1 3093
AM3 454	BM3 462	CM7 530		
AR3 3720	BR3 4289	CR1 4715		
	BR4 5154	CR2 4792		
		CR3 4976		

Service Record

Service No 1

Date

Stamp / Signature

N° flights

Type of Service

Notes

Service No 2

Date

Stamp / Signature

N° flights

Type of Service

Notes

Service No 3

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

N° flights

Type of Service

Notes

Service No 6

Date

Stamp / Signature

N° flights

Type of Service

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 new paraglider promises many hours of safe and enjoyable flying, provided you treat it with care and always respect the potential dangers of aviation.

Please always remember that flying can be dangerous and your safety depends on you. With careful treatment your wing should last for many years. It has been tested under current international airworthiness standards, and these represent the current knowledge concerning the safety of a glider. However, since there are still many unknown issues, for example the effective lifespan of the current generation of gliders and how strong the material aging can be accepted without affecting the airworthiness. There are natural forces that can threaten your safety, regardless of the quality of construction or the condition of your glider. Your security is ultimately your responsibility. We strongly recommend that you fly carefully, adapt to the weather conditions and keep your safety in mind. Flying in a club or a school with experienced pilots is highly recommended. We recommend that you fly with a standard harness with back protection and a reserve parachute. Always use good equipment and an approved helmet.

See you in the sky!

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Appendix

EN line measurements

The tables below show the line measurements for the test wings, as measured by the test house during the certification procedure. These figures relate to the Bridle Check Tables.

Size XS

	A	B	C	D	K
1	6462	6358	6420	6530	6789
2	6451	6347	6409	6518	6521
3	6422	6324	6398	6491	6485
4	6409	6310	6375	6471	6534
5	6380	6289	6378	6458	6312
6	6377	6298	6412	6491	6228
7	6277	6196	6261		6170
8	6178	6108	6145		6181
9	6150	6090	6115		6029
10	6022	6004	6099		5978
11	5972	5973	6098		5900
12	5752	5766	5908		5889
13	5557	5621	5785		

Size S

	A	B	C	D	K
1	6791	6688	6762	6878	7141
2	6781	6678	6751	6864	6880
3	6763	6660	6733	6828	6834
4	6746	6646	6710	6810	6890
5	6718	6621	6715	6794	6661
6	6715	6629	6748	6829	6565
7	6612	6533	6620		6507
8	6506	6441	6499		6524
9	6477	6423	6468		6363
10	6342	6326	6431		6313
11	6293	6292	6429		6229
12	6063	6078	6230		6218
13	5885	5945	6100		

Size M

	A	B	C	D	K
1	7085	6977	7060	7183	7479
2	7083	6971	7049	7172	7259
3	7049	6947	7040	7142	7116
4	7039	6933	7017	7124	7168
5	7007	6910	7017	7109	6931
6	7006	6924	7051	7137	6792
7	6897	6823	6920		6728
8	6791	6718	6770		6799
9	6760	6695	6735		6627
10	6613	6587	6687		6544
11	6564	6551	6686		6488
12	6324	6347	6508		6477
13	6140	6211	6372		

Size L

	A	B	C	D	K
1	7633	7502	7590	7715	8019
2	7622	7492	7578	7703	7711
3	7592	7479	7571	7675	7669
4	7579	7465	7546	7655	7728
5	7546	7443	7551	7643	7469
6	7542	7455	7593	7683	7369
7	7424	7354	7464	0	7307
8	7311	7251	7326	0	7327
9	7279	7230	7292	0	7147
10	7130	7112	7235	0	7080
11	7072	7076	7233	0	6995
12	6821	6837	7007	0	6981
13	6620	6695	6861	0	0

Size ML

	A	B	C	D	K
1	7360	7239	7318	7442	7749
2	7351	7228	7310	7430	7455
3	7319	7211	7301	7405	7410
4	7308	7198	7276	7386	7470
5	7276	7175	7281	7370	7223
6	7272	7183	7320	7411	7122
7	7167	7091	7194		7064
8	7051	6987	7056		7086
9	7016	6967	7022		6905
10	6878	6855	6970		6847
11	6821	6819	6968		6766
12	6577	6590	6753		6754
13	6380	6450	6610		