



FRESH  **BREEZE**
POWERED PARAGLIDER

Allround Glider

APAX

MANUAL

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INTRODUCTION

Thank you for choosing the APAX from *Fresh Breeze*. You will for sure have many amazing flights with your new glider.

This manual contains all information necessary for using and checking the glider. Knowing your device and the equipment helps you to be safe and confident while flying and turn your flight into an unforgettable experience.

We wrote this manual to give pilots and instructors information about how to efficient- and safely operate this paraglider.

In order to fly this device you are obliged to hold an aero-license for paramotor trikes or sail glider.

It is only allowed to take off and land on air fields. Furthermore it is only permitted to fly in uncontrolled areas if you got an extra permission, which you can get via radio.

Please **check on further legal requirements, such as (liability) insurance and conditions of admission in your own country.**

The pilot has to get familiar with special features and characteristics before flying. **It is compulsory to read the whole manual.**

SAFETY

All instructions must be followed under all circumstances. **If you do not follow the manual the permission to operate the glider becomes invalid.** Furthermore, the insurance may expire. It may cause bad injuries or could end in death.

SAFETY INSTRUCTIONS

Not many sports require as much self-responsibility as paragliding. Especially because nearly everybody can learn how to fly a glider, it is important to know about the risks. Operating the glider calm and with care are basic requirements for this sport.

Overestimating your own skills and imprudence can lead to hazardous situations. It is very important to familiarise yourself with the weather conditions. Gliders are **not constructed for turbulent weather**. Most accidents with gliders occur because of misjudgement of weather conditions.

In Germany, paragliders are subject to the policy of aircraft equipment and **can only to be flown by someone who owns a valid license**. It is forbidden to fly the glider if you are not in hold of such, testing your skills.

This manual is no substitute for flying lessons.

If you sell your glider as second hand you have to include the manual.

It is a part of the operation permission. Please read through all the safety instructions in every single chapter of this manual with greatest attention.

SAFETY ANNOUNCEMENT

In case of any defects of the APAX or similar devices, the manufacturer will release safety announcements. These announcements will contain instructions how to check your device on the defect and what to do to solve the problem.

Fresh Breeze publishes all technical safety announcements and instructions concerning the airworthiness of the APAX.

WARNING: Following these safety precautions lies within the owner's self-responsibility.

Safety updates will be published from a licensing authority on whose homepages they will also be available. We suggest visiting the latter from time to time to check on any updates regarding your very own safety with any paragliding equipment.

OPERATING LIMITS EXCLUSION OF WARRANTY

Using the glider is at your own risk!

In case of personal or material damages where a *Gin Gliders* Glider was used, **the manufacturer cannot be held responsible.**

The operating permission and warranty expires if:

- You use self-made modifications (modifications of the cap and all break lines over the tolerance limit)
- The glider has not been repaired properly
- You missed resits (annual check or every second year)

Every pilot is responsible for his own safety. He has to check the glider before every start for its efficiency.

It is only allowed to start with the glider if it works perfectly. Moreover the pilot has to follow the respective national rules.

It is only allowed to use the glider with a pilot licence valid in the current area or in guardian of an authorised instructor.

All third party liabilities, especially of manufacturer and dealer, are excluded.

EXCLUSION OF LIABILITY AND WARRANTY

It is not permitted to fly the glider, if one or more of the following bullet points apply:

- Time-limit of annual checks has not been observed, such as check on your own behalf or from non-authorized persons
- Missing equipment like no rescue glider, protector or helmet (or equipment is damaged etc.)
- The glider is used for winch launching using a winch which has not been inspected or by non-licensed pilots and/or winch operators
- the pilot has insufficient experience or training.

OPERATING LIMITS

It is only allowed to use the glider within the operating limits. You trespass these limits if one or more of the following points apply:

- Disregard of the weight limits
- Flying in the rain (even drizzle), flying in clouds, fog or in snow Flying with wet glider cap
- Turbulent weather and wind conditions at the start area which are higher than 2/3 of the max. flying speed (depends on the start weight of the device)
- Temperatures underneath -10°C or above 50 °C (<14°F and >122°F)
- Aerobatics/extreme flights or flying manoeuvres with more than 90 degrees tendency
- Not approved modifications of the cap, the painters or the risers.

SUITABILITY FOR EDUCATION

Generally the APAX is suitable for education. It is a wing for beginner and intermediate paramotor pilots. It is suitable for pilots from the earliest stages, first flights and well beyond into Cross Country.

BEFORE THE FIRST FLIGHT

WARNING: The seller of this APAX should inflate the glider to check it and do a test flight before delivery. The verification must be marked on the type plate.

During the production of the APAX there are many quality checks, which are nonetheless all followed by a final all-round individual inspection.

Before delivery, the product will be checked if it is identical to the approved sample and will be licensed.

All cutting patterns, line length and riser length are manufactured very precisely and are not allowed to be modified at all.

You will find all information concerning brake and accelerator adjustment such as further technical features in this manual.

SPEED SYSTEM

The speed system accelerates the wing by progressively shortening the risers towards the front. Make sure that the speed system lines are routed properly through your harness and attached with the supplied fastening system. The length of the accelerator bar should be pre-adjusted on the ground by sitting in your harness. Adjust the speed system so that the maximum speed is attained ("pulley-to-pulley" on the riser) when your legs are fully extended. Ask a friend to hold the risers in the flying position while you are seated in your harness on the ground. If in doubt about this procedure, please consult your instructor or dealer.

TRIMS

In addition to the speed system, the APAX is equipped with trim risers. The trims must not be used if the wing is flown without an engine. In such a case, disable the trimmers via the carabiners.

The trimmer allows the pilot to increase cruising speed in motorised flight and to counter the torque effect. We recommend that you always have the trimmers closed when launching or landing. Use the trimmer only in motorised flight. We generally recommend that you do not use the trimmer to increase speed in turbulent areas or near the ground because of the increased risk of collapse. Do not brake the glider symmetrically in accelerated flight. Pulling both brakes down firmly can deform the profile and, in an extreme case, cause a frontal collapse. The trimmer must be locked off using the metal loop in nonmotorised flight. It is possible to loop the metal loop attached to the end of the trimmer tab through the Carabiner before takeoff. This locks the trimmer in the neutral position and makes it impossible for the trimmer to be released in flight. **WARNING** Under no circumstances should the grip loop for the trimmer lock be put into the main hangpoint. This shortens the D-riser considerably, and this effect is increased by opening the trimmer when it is like this.

HARNESSES

It's important for your comfort and safety to fly with a suitable harness that is properly adjusted. When choosing a harness, remember that the height of the attachment points (i.e. distance from the carabiners to the seat plate) affects the sensitivity of the glider and the relative brake travel. The lower (shorter) the attachment points, the more sensitive the glider is to weightshift.

RESCUE SYSTEM

There is a rescue system for an emergency if the glider fails to work e.g. due to a collision with another aircraft. It is compulsory to carry a proved rescue system with you at all times.

When choosing a rescue system, check whether your device is still within the permitted start weight limit. You have to install the rescue system according to the instructions of the manufacturer.

WEIGHT RANGE

Be sure to fly your glider within the certified weight range given in the technical info section. Due to EPT technology, the APAX flies well at any wing loading within this weight range. If you are choosing between two sizes, choose your optimum wing loading according to your personal preferences and the conditions you fly in. If you prefer a dynamic flight behaviour with fast reactions, you should fly at a high wing loading, i.e. choose the smaller model. This may be an advantage in strong, tight thermals. The dynamics are reduced for a lower to middle rated weight. Flight behaviour becomes more straightforward and many pilots fly with a lower wing loading because they find it easier to centre in thermals, especially weaker and wider thermals. If these features are more appealing to you, you should fly with a lower wing loading and choose the larger model

PREPARATION FOR LAUNCH

CONDITIONS FOR FLYING

Before flying your paraglider check the following:

- Have you been theoretically and practically educated for flying a glider?
- Are you in a good physical and mental condition (not under influence of legal or other drugs)?
- Are you familiar and compliant with all applicable laws and regulations in your area?
- Are you within the certified weight range of your paraglider?
- Do you have the necessary valid insurance coverage (e.g. liability, health or life insurance)?
- Are you briefed thoroughly about the site, airspace and expected weather conditions of the day?
- Is your equipment and choice of site suitable for your level of experience?
- Do you have a suitable helmet, gloves, boots, eyewear and adequate clothing?
- Are you carrying some form of identification, so that people know who you are in case of an accident?

- Take along a radio and mobile phone if possible.
- Did you do already a **precise pre-flight check**?

Before every flight follow the same procedure and pre-flight check. This is very important to fly safely. We recommend the following procedure:

1. First of all get an impression of the circumstances, such as direction and speed of wind, air space, turbulences and thermal cycle when you arrive at site.
2. Prove your glider, harness, rescue system grip incl. splint, helmet and the other equipment.
3. Choose a large take-off site; even and without barriers.
4. Put on your harness and **never forget to close the leg belts**. Put on your helmet.
5. Spread your glider out on the ground and sort the lines.
6. Connect the risers using the snap hooks attached to the harness. Pay attention the fasten the snap hooks properly and not to twist any straps.
7. Connect the speed system to the carry strap and harness using the Brummel hooks.
8. Check one last time if lines aren't tangled up, got knots or are caught under roots or stones. If there is less wind you have to be particularly attentive.

WARNING: If the glider shows remarkable wrinkles due to long-term storage in a bag or compressing it is wise to inflate the glider a couple of time before usage to straighten the leading edges. This way the wind current will flow perfectly. At low temperatures it is especially important to straighten the leading edges.

5-POINT-CHECK

Immediately before launching, the pilot has to follow the 5-point-check to check on the most important safety points. To prevent missing an aspect, you should follow the instructions one by one.

1. Put on personal equipment (helmet, harness, carabiner, rescue glider) properly and check if all loops are closed.
2. Is the canopy arranged in the shape of a half moon and are all the air-entrances open?
3. Are all lines untangled and not under the canopy?
4. Do weather and wind conditions enable a safe flight?
5. Are take-off site and air field free?

START

YOUR FIRST FLIGHT

Make your first flight in stable conditions in a familiar environment. Acclimatize yourself to the characteristic handling of your wing in a progressive manner by first ground handling. Make your first flight with the trims in the neutral position. In this configuration, the Apex acts as a classic paraglider. Apply normal brake

pressure and try to find the point at which the pressure starts to increase. The point is about 25% of the total length of the brakes. When you are used to your Apax, try to fly with faster or slower trim settings, use weight shift during turns and experiment with the accelerator (at safe altitude!). Enjoy the speed and security of the Apax.

MOTORIZED FLIGHT

Be sure to always perform a pre-flight inspection of your wing, harness and engine. For powered flight, you need to know the thrust and torque of your engine. Fresh Breeze cannot be held responsible for a bad wing-engine combination. If in doubt, please contact us for further information.

WEAK WIND / NO WIND

If there is no wind the APAX inflates evenly. Hold the glider at the A-risers with bended arms and hands on shoulder level. Follow the movement of the glider with your arms arc-like until the glider is filled with air and above your head. There is no need for pulling the risers with force. Run while the glider rises above your head. Before taking-off look up to check whether the glider is fully filled with air and the lines are all untangled and knot-free.

If something isn't in order and you're still on the ground interrupt the take-off and let the glider fall down. If the slope is steep only pull one brake line completely and run along parallel to the slope.

TIP

- * If the structure of the cage is too rigid, the pressure of the lines during launch can deform it until the point of collision with the propeller. * Before you apply full throttle, check that the cage does not catch the lines. Any operation with the brakes (to brake or to steer) must be flexible. * Do not try to take off before your wing has reached a stable position above your head. If you do, it could cause dangerous oscillations. * Do not sit in the harness until you are sure you are flying!
- * The faster you set your trims, the more speed you will need to take off.

STRONG WIND

Due to its easy take-off characteristics, the APAX can be started facing the wing. Hold both risers and one brake in one hand and hold the other brake and throttle in the other hand. This is by far the best option in strong wind (In lighter winds, it is better to prepare for a classic launch, as running backwards with an engine on your back is not easy). After warming up your engine, turn it on, turn to face your wing, and clip the risers into the snap hooks. Open the cells of your wing by gently pulling alternately on the front and rear risers. Then pull briefly to ensure that the lines are not tangled. Holding the risers, brakes and throttle as described above, pull the front risers so the wing is pulled over your head. In most cases, you will not need to brake, especially if the trimmers are set for fast flight (neutral and beyond). It may be surprising, but this is how this device operates. With the trimmers fully off, the profile stabilizes the wing and prevents it from pitching forward. It can even stay back a little - in this case pull the brakes a little bit and

the wing will return - paradoxically - forward. Once the wing is above your head, turn around, accelerate the engine and take off. As in a conventional take-off, you must find the right combination of settings of the trims, brakes and engine power to optimize your climb rate.

KNOTS AND TANGLES

If you take off with a line knotted or tangled up, make sure you are clear of terrain and other traffic before attempting corrective action. Weight shift away from any turn and counter brake the opposite side while pumping the brake on the side of the knot. Take care not to apply too much brake. That would lead to a loss of speed and therefore increase the risk of a stall or spin. If the knot or tangle is too tight to pump out, immediately fly to the landing zone and land safely.

TAKE OFF

On every take-off, ALWAYS ensure that your wing has enough airspeed before opening the gas or pulling on the brakes. If, despite these recommendations, you do take off without sufficient speed, DO NOT OPEN the gas and do not pull on the brakes. Gently let up the brakes to allow the wing to accelerate. If this does not occur, land! Also take into account the presence of wind shear during take off.

FLYING

CRUISING FLIGHT

Once you have reached a satisfactory altitude after take-off, you can turn in your chosen direction, fully open the trimmers if they were previously in the "slow" configuration and go "hands-up" on the brakes. If conditions are strong, you will need to fly actively. For each paramotor, you must make an adjustment of the length of your brakes to prevent them interfering with the propellers when you do release in flight. If you have a vario or altimeter, keep an eye on it. In level flight, it is very easy to climb unintentionally. The instruments exist to help you maximize your speed and fuel economy. Naturally, the safety and success of each flight will depend on your piloting set-up, and thanks to its ability to fly safely without constant piloting adjustments, the APAX will leave you all the comfort to adjust everything properly. A good knowledge of weather conditions (including the wind at different altitudes) and a good use of thermal or other types of lift to gain altitude will help you reduce your fuel consumption and expand your flight range. The engine is there to help you find such advantageous situations, but you must have the knowledge and experience to make the most of such opportunities. Do not hesitate to fly the APAX in tight thermals, you will be surprised at its effectiveness. By shortening the trims, the rate of climb will be even better.

USING THE TRIMS AND SPEED SYSTEM

Fully opened trims increase the speed of the wing, but make the profile more sensitive to turbulence. With a slower trim setting, the brake pressure and sink

rate decreases and thermaling becomes easier. Adapt your piloting according to the positions of trimmers and accelerator. Turns can be much tighter and more effective with differential brake operation. A few cm of outer brake (with a deeper application of inside brake) will reduce the sink rate during the turn. Turns can be greatly enhanced by the additional use of the engine, throttle etc. When, with experience you have mastered these techniques, you will be able to execute fully coordinated and effective turns, comparable with those of other aircraft.

ACTIVE FLYING

The APAX has a high internal pressure, high resistance to tucking and a very high level of

passive safety. Developing an active flying style will help you avoid collapses in all but the most turbulent conditions. The key to active piloting is keeping the glider above your head. If the glider pitches in front of you, apply brake to slow it down. If the glider drops behind you, ease off the brakes to allow it to speed up. The objective is to reduce the pendulum effect by adjusting the speed of your glider so that glider and pilot are travelling at the same speed. If you feel a loss of pressure in one or both sides of the wing, quickly apply the appropriate brake(s) to re-gain pressure. Release the brake promptly as soon as normal pressure is resumed. If you miss the above timing and get a collapse, be sure to first raise your hands and release the brakes before considering any other corrective actions.

LANDING

- Landing without an engine:

At an altitude of 50 meters, turn off the engine and start to descend like a conventional paraglider. This reduces the chances of damaging the propeller while landing. There is only one possible attempt - so the landing must be done correctly! With or without the engine, the APAX reacts better in turbulence with the trimmers open. Therefore, if the conditions are strong, it is better to make an approach with greater speed, and use plenty of space to bleed off the speed before touching the ground (like in hang gliding). The APAX has good energy retention, A long final approach should be used to store energy for the flare. If you are attempting precision landings or landing in nil wind, it is recommended to use the trimmers to half or completely closed (maximum lift). Your performance in sink rate will be better. This choice is even more crucial at a high wing loading.

- Landing with an engine:

Make a flat approach with the engine idling, then stabilize and lose speed before the final approach. Immediately after touchdown, switch off the engine. The main advantage of this procedure is the possibility to abort the landing and repeat the approach in case of bad judgment. However, if you forget to turn off the engine before the wing deflates there is a considerable risk of damaging your propeller, catching lines, or even injuring yourself by falling with your gear on.

MANOEUVER

FLYING CURVES

The APAX reacts immediately when setting steering impulses. Besides, it is also very manoeuvrable.

You will get the maximum gradient while flying curves with enough speed and shifting your body weight. Pulling the brake lines too much will only make you yourself descent.

There is only a low negative tendency, which means when you pull the inner brake lines you can turn the glider even in a small space. While your first flights and until you feel confident with the APAX, though, keep enough distance to the slope and other barriers. The stronger you pull the brake lines the faster and steeper the curves become. At some point the steep curves become spiral dives (see more information under spiral dive).

ADVICES FOR DESCENDING

You can experience extremely intense and extensive **souring in thunderstorms**. In this case it is **much better being on the ground** than in the air. If the weather surprises you there are several possibilities to **descent very fast**. **All possibilities to descent should be practiced** in smooth air and with enough distance to the ground, so you are prepared for any emergency.

There are three different manoeuvres to decent. **The manoeuvres stress your paraglider more than normally and should only be performed for practise or in a real emergency**. We recommend practicing these manoeuvres with a professional instructor in a safety training.

EXTREME MANOEUVER

It is strongly advised to avoid strong or turbulent conditions, and to take specific professional training on the following manoeuvres. Also make sure to fly with a parachute.

IN TURBULENCE

A collapse can occur in strong turbulence. The APAX will resume normal flight in almost all flight configurations, so if you have any doubt, let up the brakes and let the glider fly. On the other hand, if your wing dives violently in front of you, immediately and firmly apply the brakes until the dive is checked.

ASYMMETRIC (SIDE) COLLAPSE

Use active flying techniques to virtually eliminate collapses in normal flying conditions. Nevertheless, if you do get a collapse, stabilize your weight in your harness and do not allow yourself to fall to the collapsed side. Control your course

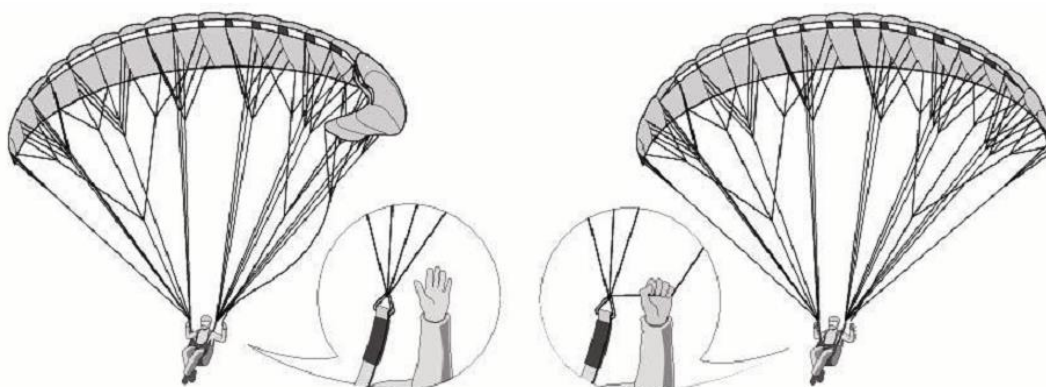
with weight shift and a little outside brake. The deflation should re-inflate spontaneously. If the deflation does not re-inflate spontaneously, apply brake on the closed side in a smooth, progressive pumping action. Be sure not to apply too much brake too slowly as this may risk a stall. Remember that a partly collapsed wing has a reduced surface area and thus a higher stall speed.

SYMMETRIC (FRONT) COLLAPSE

Symmetric (frontal) collapses will normally re-open without pilot input. Assist this process if necessary with a symmetric application of the brakes. Take care not to apply too much brake for too long as this may stall the wing.

CRAVATTES

A cravatte occurs when a wing tip becomes stuck between the glider lines, for example, following a bad take-off preparation. On the APAX a cravatte is unlikely to occur. If you do get a cravatte, first control your direction. Do this by using weight shift and enough counter-brake to stop the turn, but not too much to risk a stall of the opposite side. Then pull down the stabilo line (STB-see line plan) until it becomes tight. This normally frees the cravatte.



CASCADES

Many reserve deployments and accidents are a result of a cascade of over-corrections by the pilot. Please note that overreactions are often worse than no input at all.

TYPES OF STALLS

When a glider is flying through the air a laminar and turbulent airflow will form around the surface of the wing. If the laminar airflow along the top surface is interrupted, dangerous flight configurations follow. We call this a 'wing stall'.

WARNING: Full stall and tailspin are flight manoeuvres which are very dangerous if the pilot does not react correctly. These manoeuvres must be avoided.

Moreover, it is important to **recognise the stall from the very beginning**, so the pilot can prevent it with an immediate reaction.

In the following, the three different types of stalls for gliders will be described more precisely.

DEEP STALL (PARACHUTING, STABLE STALL)

The APAX has no tendency to get into a deep stall. Should this nevertheless occur, make sure your brakes are fully released. This way the glider will immediately recover on its own. If the glider still doesn't recover, either put your hands on the A-risers and push forward or use the speed bar to accelerate the wing. You can recognise a deep stall by the glider getting "mushy" and the airflow around your ears decreasing. The glider may also compress span wise.

Flying in strong turbulence or exiting a deflation with too much brake applied can cause a situation like this. A wet glider also has a higher deep stall tendency, and you should do everything you can to avoid flying in the rain. If you do pass through some rain apply speed bar until you are confident that the wing has dried out. An out-of-trim glider, caused by changes in line lengths due to prolonged use, may also have a higher deep stall tendency.

FULL STALL (DYNAMIC STALL)

This is an extreme manoeuvre outside the normal flight envelope. You should never need to perform this manoeuvre. During the stall, keep your hands close to your body and if necessary lock your hands under your harness seat plate. In a stable stall, the wing oscillates forward and backward. Before releasing the stall, raise your hands slightly and evenly to partly fill the canopy with air. If possible, let the brakes up when the wing is moving forwards in front of you to avoid excessive surge. The APAX will damp the dive by itself, but you may counter brake for comfort and release the brakes to regain speed. Be careful not to brake too much or for too long as this could cause another stall. **Never attempt a stall and then change your mind and release the brakes**, the wing will surge violently.

TAILSPIN

The Tailspin is a stable flight condition. Meanwhile one side of the glider has a full stall the other side keeps enabling an increase of height. The glider rotates around the full stall wing side.

It is unusual to get a tailspin during normal thermic conditions.

If you are in that case unfortunately that your glider got a tailspin, hold your hands higher. The glider will shoot forwards and recover from the tailspin.

If it's not possible to recover try only to release the brake when the glider is moving above or in front of the pilot.

PILOTING WITHOUT BRAKES

If, for any reason, you are unable to use the brakes to steer the glider, you can also use the rear risers. Take care to give only small inputs. Pulling the rear risers too hard may cause a stall.

ADVERTISEMENT AND SEALS

Before installing any kind of seals and advertisements check that it does not change any flight characteristics. If you are in doubt avoid the advertisement.

RAPID DESCENT TECHNIQUES

Learn and practice the techniques in this section under qualified supervision. Big ears and spiral dives are generally the most common methods of descent. Big ears can achieve a moderate rate of descent with the advantage of forward speed and manoeuvrability. Spiral dives attain higher rates of descent, but the G-forces can be significant and the manoeuvre is more technically demanding. 'B-stalls' have little or no advantages compared to the other methods of descent and therefore are not recommended in normal situations.

BIG EARS

To enter big ears, pull the outermost A-lines down firmly on each side of the wing one-by-one until the wingtips fold under. The glider can then be steered by shifting weight. Do not use the brakes unless you intend to exit big ears. Once in big ears, you can increase your sink rate and forward speed by applying the speed bar. Always apply the speed bar AFTER entering big ears, never before.

To exit big ears, release both A-lines at the same time. Apply brake progressively one side at a time to help re-inflation. Be careful not to brake too strong on both sides at the same time as this could cause a stall.

WARNING: The 'big ears' manoeuvre stresses the supporting lines even more. Thus you should **never fly extreme manoeuvre with big ears**. Avoid this manoeuvre during low temperature. Always be aware of a full Stall.

SPIRAL DIVE

Before entering a spiral, make sure you have adequate height for recovery. To enter the spiral dive, shift weight and progressively apply the inside brake until the glider enters the spiral. As the glider accelerates into the spiral, centre your weight and control your rate of descend by shifting weight and using the outer brake. To exit the spiral, check whether your weight is centred (or slightly towards the outside) and release the inside brake bit by bit. As the glider starts to exit the spiral, you may also choose to reduce the pendulum moment by briefly re-applying the inside brake. The APAX has no tendency to remain in a stable spiral dive under normal conditions. However, in certain cases, such as spirals with excessive sink rates or wrong harness settings, pilot action may be required. In such cases, exit the spiral by shifting weight to the outside and progressively applying the outside brake.

It is advisable to fly only soft spirals no faster than 14m/s descending speed.

B-STALL

Although it is not recommended for normal situations, the B-stall does not present particular difficulties. It can be done at average rising and weak wind.

To enter a B-stall, symmetrically pull down the B-risers. This action may require considerable effort. To exit the manoeuvre, release the B-risers smoothly and symmetrically. Be sure to allow the glider to resume normal flight before making any other actions.

WARNING: The **canopy speeds up after you release the B-risers** until the stream is around the glider. In this situation **never pull the brake lines!**
Do not do this manoeuvre at low temperatures. The full stall possibility is much higher when the temperature is low.

GOLDEN RULES

- * Never place your engine downwind of your sail, to avoid trouble due to possible gusts.
- * Check, check and check again that there is no fuel leakage.
- * Do you have enough fuel? It is always better to have too much than too little!
- * Make sure nothing is loose in the harness, which could come into contact with the propeller during flight.
- * If you find any anomalies, IMMEDIATELY address the problem!
- * Put on the helmet and fasten it systematically before you get into your harness.
- * Make all your pre-flight checks before taking off.
- * After landing, keep your wing facing in the direction of flight. If you don't, you risk the lines coming into contact with the propeller.
- * Do not ask for trouble - do not fly over water, between trees or power lines or any other place where an engine failure would put you in an emergency situation.
- * Do not neglect turbulence caused by other gliders or even yourself, especially when flying low.
- * It is not reasonable to let go of the brakes below 100 meters, a possible malfunction of your paramotor may require an immediate steering response.
- * Generally do not trust your engine, act as if it may fail at any time.
- * Unless it is absolutely necessary (eg. to avoid a collision), do not make sharp turns in the opposite direction to the wind direction. Especially when climbing, you could easily cause a collapse.
- * Do not fly at low altitude with the wind behind you, this greatly limits your options.
- * Do not wait until a minor problem gets worse; any change in noise or vibration can indicate the presence of a potentially serious problem. Land and investigate.
- * Be sure of your navigation.
- * Remember that not everyone enjoys your engine noise. Do not scare the livestock and wildlife.

EXTREME FLIGHT AND DANGER

INFORMATION ABOUT DANGER

If the pilot makes mistakes while flying or there are extreme wind conditions or turbulences which the pilot does not asses correctly, the glider can react abnormally. These situations require special reactions and skills of the pilot.

The best way to stay calm and make the right decisions in such an emergency is to do a safety training. You would be practicing with professional help on how to handle extreme flight situations. Another good method is to get confident with the reactions of the glider on the ground. You can practice the launch as well as small manoeuvres like stall, front stall, one side fold up...etc. Every pilot who flies in turbulences and makes mistakes with steering puts himself in danger of an extreme flight situation.

WARNING: All extreme flight and aerobatics are dangerous if the pilot does not have enough adequate knowledge or enough safety height. **Please stay in all operating limits. Avoid aerobatics and extreme stresses.** Like that you avoid accidents and too much stress on the glider fabric.

Always keep enough distance to cliffs and other barriers during turbulences. You need **enough height** and time for recovery in extreme situations. If no recovery technics help or the height is too low, release the rescue system.

SAFETY PRACTICE

Basically it is recommended to join a safety practice in order for you to know how to react in extreme situations and get confident with your device. Nevertheless it is always a high stress for the material if you practice these situations.

STRESS FOR MATERIAL AND DAMAGES

Uncontrolled flight situations – like they can be encountered during safety training, extreme manoeuvres or after massive collapses or cascades - are outside the manufacturer's limits of the paramotor glider. This may cause a general deterioration in flight characteristics, premature ageing, or even structural failure.

AREA OF OPERATION

AREA OF APPLICATION

The APAX was developed and tested **only to operate as a glider for foot launch** with or without an engine. **Using it out of the area of application is illegal.** Never use it for skydiving. Aerobatics are illegal.

WINCHING

The APAX is adapted for winching using standard winching procedures. You are responsible to ensure that your winching operations are safe and in compliance with the applicable procedures. Make sure to have adequate training - suitable for

winching, too -, that you have the correct attachment to the harness and the winching mechanism works. Always use an approved winch system and a thoroughly trained operator.

DOUBLE SEATER OPERATION

The APAX is not **approved to operate with a double seater device**.

AEROBATICS

Look up the laws in your country about aerobatics with a glider. Aerobatics are flight configurations with a tendency of more than 135 degrees of the canopy (transverse axis or longitudinal axis). The APAX isn't developed and tested for aerobatics. The pilot is in risk of life if he is doing aerobatics. There is the risk of uncalculated flight situations which can cause damage of material or structural failure.

CARE AND MAINTENANCE

PACKING INSTRUCTION

Although the plastic rods used in the sail have been selected for their excellent recovery characteristics and, in the worst case, can be replaced, we recommend keeping them in their best condition by packing your glider concertina style. Pack your glider so that the plastic rods lie as flat as possible on each other and there is no unnecessary bending or twisting of the rods. Fasten any straps or bands by pulling gently. **Do not over tighten**. Tight packing of the glider is not good for the material. You should pack the glider as loose as possible and take care that the glider is only gently folded, not bended or strongly compressed.

HOW TO PACK

Either you can pack the glider in its provided fast-pack sack or like the following method of packing:

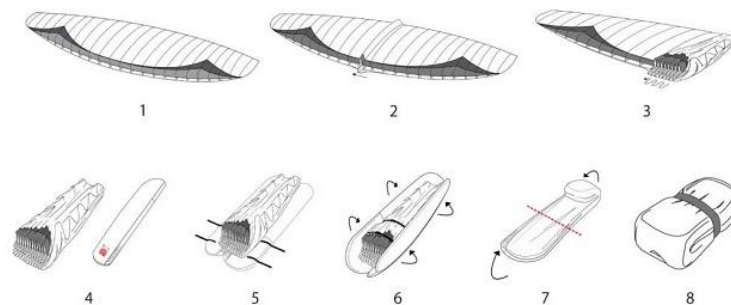


Abbildung 2: Packen des Bolero 5

1. Spread out the paramotor glider completely on a smooth surface.
2. All the ribs on one side are placed one on top of one another, so that the leading edges are not bend.
3. Then continue as in the second step, placing the leading edges of the other side on top of the next until you reach the tip of the glider. Place the

concertina bag underneath the glider which has been folded together, so that the ribs are all lying along the length of the concertina bag.

4. The glider is now folded up along its length, and the leading edges are on top of each other without having being bent. Fasten the straps near the leading edges, so that they do not slip, and the straps in the middle and at the end of the glider
5. Do up the zip, making sure that none of the lines or fabric is caught in the zip
6. Fold up the glider along its length, if possible with the first fold below the leading edge reinforcements. Pay particular care not to bend any of the rigid reinforcements! Fold up the glider along its length, with the first fold below the leading edge reinforcements. Pay particular care not to bend any of the rigid reinforcements!

TRANSPORT AND STORAGE

Always make sure your **glider is completely dry before storage**. **Do not store** your glider for a prolonged period if it is **sandy, salty or if other objects have entered the cells**. Store your glider in a dry **place out of direct heat and away from chemicals or small animals**. If you intend to store your glider for a long period, we recommend storing it loosely.

If you store it for a longer time the temperature should lay between 10°C and 25° C(50-77°F). The air humidity should be between 50 to 75%.

Transport the glider with an appropriate bag.

CARE

FABRIC

Care is essential to ensure that the fabric and glider remain durable and retain their qualities. The glider should therefore be protected from unnecessary UV light. Do not unpack your glider until immediately before flight and pack it up straight after landing. Modern paramotor glider fabrics have better protection against the sun, but UV rays in particular are still one of the decisive factors in how the fabric ages. The colours will fade first and then the coating and fibres will begin to age. When choosing a place to launch, try to find somewhere that is smooth and free of stones and sharp objects. Do not stand on the glider. This weakens the fabric, especially if it is on a hard or stony surface. Pay attention to the behaviour of spectators at the launch site, especially children: do not hesitate to draw their attention to the sensitive nature of the fabric. When you are packing up your glider, make sure that there are no insects trapped inside. Many insects produce acids when they decompose, which can cause holes in the fabric. Grasshoppers make holes by biting through the fabric and also excrete a dark liquid that stains. Keep animals away when you are packing up. Insects are not attracted by any particular colours, contrary to what is commonly believed. If the glider gets wet or damp, it should be dried as soon as possible in a well-ventilated room (but out of the sun).

It may take several days before the canopy has dried completely because the fibres absorb water. Mould may form if the paramotor glider is stored wet and the fibres may rot, particularly when it is warm. This can make the paramotor glider unsuitable for flying within a short time. A brand-new glider will often be compressed when delivered. This is solely for the initial delivery and the glider should not be compressed in such a way again. Do not pack your glider too tightly after use and, even though it is very comfortable, never sit on the backpack with the glider inside. If salt water gets on the glider, it should be rinsed immediately in fresh water.

OVERSTRESSING

Overstressing of the canopy happens because of extreme flight manoeuvre, fast descending manoeuvres (spiral dives) or forbidden aerobatics. They accelerate the aging process. If the pilot over stresses the glider it is necessary to do the annual check earlier than usually.

SAND AND SALTY AIR

Sand and salty air accelerate the aging process of lines and canopy material very strongly. If so you should do the annual check earlier than usually.

AREA OF TEMPERATURE

Temperatures under -10 °C degrees and over + 50°C (under 14 and over 122°F) can incapacitate the glider. The warranty expires immediately as you fly the glider out of the temperature limits.

CLEANING

Remove sand, dirt or small stones from inside the canopy. Use only lukewarm water and a sponge or soft cloth to clean your glider. Leave your glider to dry naturally in a well-ventilated area out of direct sunlight. **Never use abrasive materials, solvents or detergents.**

GENERAL CARE ADVICE

Do not ground handle or take-off on abrasive surfaces. To move the paraglider to another spot, **do not drag it across the ground.** Pick it up and carry it. **Do not** repeatedly inflate the glider and **allow it to crash back down.** Step towards the wing as it comes down to take the force out of this action. **Do not let the leading edge crash to the ground.** This stresses the seams and can even cause the cell to explode. Do not step on the lines or the canopy, or allow others to do so. Do not open your wing in strong winds without untangling the lines first. Do not leave your glider out in direct sunlight longer than necessary. Do not sit on your rucksack when your glider is packed inside. Do not pack your glider with foreign objects inside. In particular, insects may bite through the 25 fabric or produce acids when their bodies decompose. Always rinse your glider immediately if it has been exposed to salt water.

LINES

The APAX has various different high-quality and accurately manufactured lines which have been selected according to the load and area of use. You should also protect the lines from unnecessary UV light because, as with the fabric, UV light in particular will weaken the lines. Dyneema lines for example, are very temperature-sensitive and can be permanently damaged at temperatures above 75° C. Therefore your glider should never be stored in a hot car especially during summer. Be careful that there is no abrasion caused to the coating on the lines by rubbing, particularly when ground-training with crossed risers. Do not walk on the lines after the glider has been spread out and watch out for spectators or skiers who may inadvertently go over the lines. When you are packing up the glider, be careful to avoid putting any unnecessary kinks in the lines and use only the overhand knot or bowline knots described for the brake lines.

DAMAGE CAUSED BY UV-RAYS

Avoid the glider and lines being unnecessarily exposed to the sun. **UV-Rays damage the material and lines.**

RIGID-CONSTRUCTIONS

The APAX contains plastic rods, which shape the glider's leading edge (Ridgid-Constructions). In order to guarantee the plastic rods keeping this profile, it is important to pack the glider as described in this manual.

All rods can be replaced through small openings. If you notice a broken or bent plastic rod you can contact Fresh Breeze.

TYPE DESIGNATION

There is a marking on the bottom side of the wingtip or on the centre rib, which is obligatory for all paramotor gliders. All information required is set out in the airworthiness requirements. It is helpful to provide the type designation of the paramotor glider if you are contacting your dealer with any queries or ordering replacement parts or accessories to ensure accurate identification.

INSPECTION PERIODS

Failure to observe the inspection periods shall render the certification and warranty invalid. A properly filled out logbook with details of all flying and training will help you to comply with these periods. A qualified professional should perform a **formal maintenance inspection no later than 36 months after the first flight or after 150 hours of flying, whichever is sooner. Subsequent inspections should be carried out every 24 months or 150 hours, whichever is sooner.**

Inspections should include measurements of the fabric porosity, tear resistance, line strengths and lengths and a full visual check. The complete protocol is available on our website. If you ground handle frequently or fly in harsh conditions, we recommend an annual check. It is **your responsibility** as a pilot to ensure that your wing is airworthy at all times. A full inspection will give you peace of mind and extend the lifetime of your glider. Additional inspections (following a crash or violent landing on the leading edge, or if you note a deterioration of performance or behaviour) should be performed by a qualified person.

VALIDITY OF INSPECTION

It is very important that your glider is serviced in the mentioned intervals throughout its entire life. In order to benefit from Gin Gliders warranty...:

- You must have your paramotor glider inspected by Gin Gliders or an inspection agent authorised by Gin Gliders
- The documentation and the result of the inspection must be clearly identifiable (date and place / name of the inspector) and be noted near the glider information/certification sticker

INDEPENDENT INSPECTION ACCORDING TO GERMAN POLICIES

According to §14(5) LuftGerPV (Ordinance on Aircraft and Aeronautical Products), the holder can inspect his own glider or get it inspected by a third party (e.g. manufacturer/ importer), if all the required conditions are fulfilled. **When inspected independently, though, Fresh Breezes liability and warranty will be canceled.**

It is recommended by the DHV to get the glider inspected by the manufacturer/ importer or a service place assigned by the latter and authorized by the former.

FRESH BREEZES WORKSHOPS

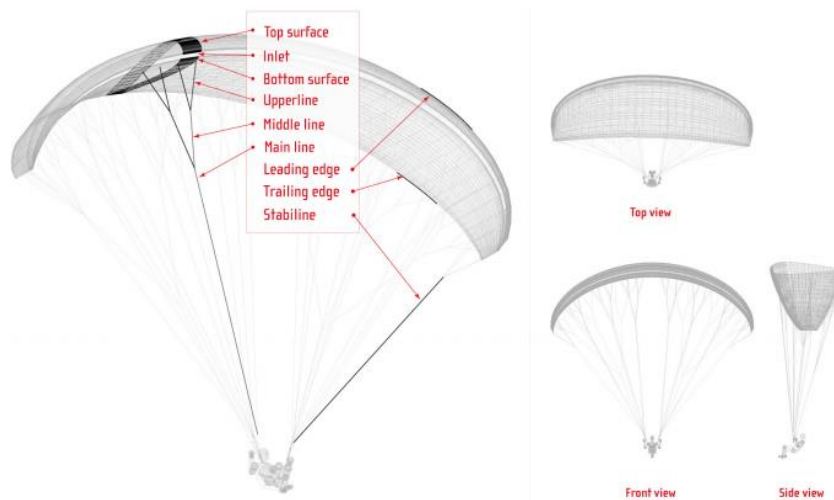
All repairs and servicing should be carried out by a workshop authorised by Fresh Breeze or directly. Major repairs at the APAX, such as replacing panels, should only be carried out by the distributor or manufacturer.

SMALL REPAIRS TO THE GLIDER

Very small holes in the sail can be repaired with the sticky back tape provided with your glider.

Damaged lines should be replaced by an authorised servicing shop. Before fitting a replacement line, compare its length with its counterpart on the other side of the wing. When a line has been replaced, always inflate the glider on flat ground to **check that everything is in order before flying.**

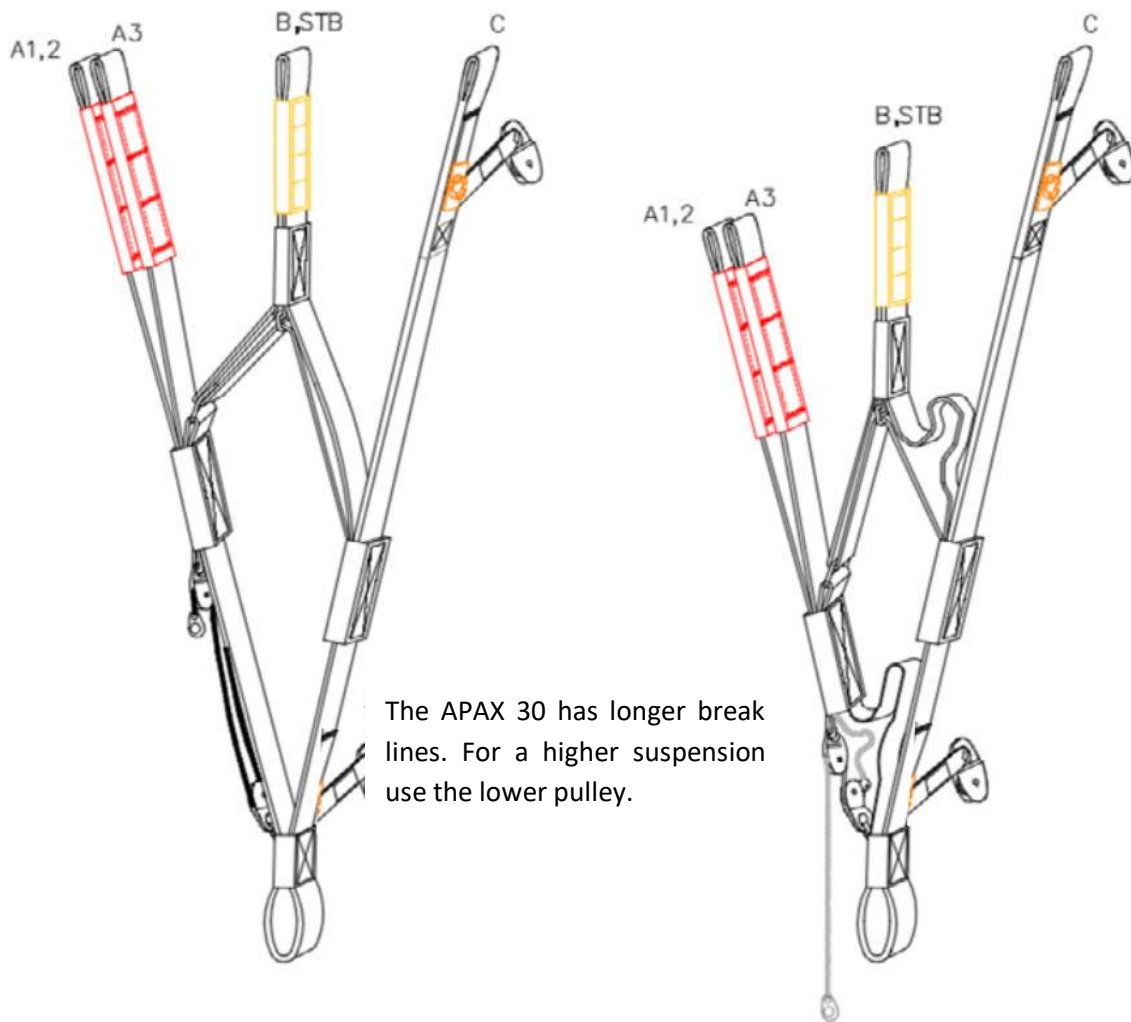
PARTS AND TECHNICAL INFORMATION



Appendix

Technical specifications

Size	22	24	26	28	30	34
Flat area [m ²]	22.22	24.12	26.26	28.50	30.83	33.24
Flat span [m]	10.30	10.76	11.23	11.70	12.16	12.63
Flat aspect ratio	4.8	4.8	4.8	4.8	4.8	4.8
Projected area [m ²]	19.29	20.94	22.80	24.74	26.76	28.25
Projected span [m]	8.33	8.67	9.05	9.43	9.80	10.18
Projected aspect ratio	3.6	3.6	3.6	3.6	3.6	3.6
Cell number	36	36	36	36	36	36
Glider weight [kg]	5.0	5.3	5.5	5.8	6.2	6.8
Weight in flight (solo) [kg]	55-75	65-85	75-95	85-105	95-115	105-130
Weight in flight (paramotor)[kg]	65-110	75-120	85-130	95-140	99-160	115-240
Certification (SOLO)	EN/LTF A	EN/LTF A	EN/LTF A	EN/LTF A	EN/LTF A	EN/LTF A
Certification (PARAMOTOR)	DGAC	DGAC	DGAC	DGAC	DGAC	DGAC



RISER AND SPEED SYSTEM

The 20mm wide risers specially developed for the APAX are grouped into three risers and allow a variety of uses for the APAX. Only for free flight, it is fitted with a speed system which is activated using a speed bar. The riser has a trimmer which allows the pilot to increase the cruising speed in motorised flight and to counter the torque effect. There is also a choice of two riser hang points to allow the best set-up for the APAX for the particular motor system used. The brake pulley can be moved so it can also be adjusted to the ideal position for this.

The right adjustment and setting of the speed system is very important for a trouble-free flight. That is why you should adjust the length of the speed system individual for you before the first flight.

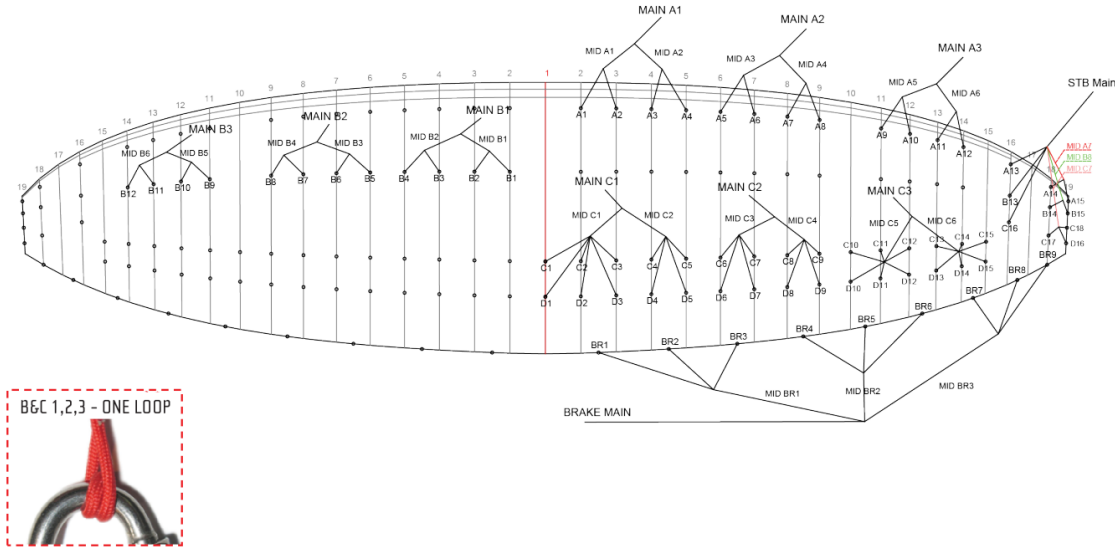
The connection between foot accelerator and riser is with a special Brummel hook. Adjust the length of the leg stretcher, that the maximum accelerated flight condition your legs are full stretched (both pulleys of the riser lay on each other). Otherwise it can come to fatigue phenomena. The riser has got an additional pulley close to the hanging points. You should use them when flying the APAX with a trike with a high glider suspension. This ensures that the pilot can grab the break lines at any time.

The APAX 30 is already manufactured with the correct length of the break lines.

LINE PLAN AND BRAKE LINES

LINE PLAN

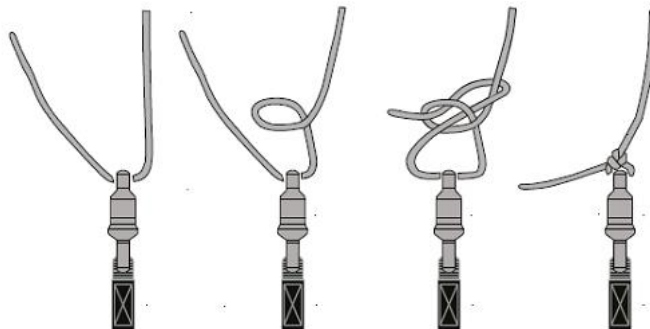
Please refer to this line plan when ordering replacement lines



BREAK LINE ADJUSTMENT

Factory setting: Correctly installed brake lines should have a slight slack in the brake lines when the glider is in fully accelerated flight. Normally this is about 10 cm in trim flight. This is how far you must pull down the brakes before the trailing edge of the paraglider starts to move downwards and begins to brake. Note that the brake cascades already causes dragging by their aerodynamic resistance. If you do need to make adjustments to suit your harness/ motor combination, body and flying style, we strongly recommend that you **test fly the glider after every 2 cm of adjustment**. There should be a minimum of 10 cm of free brake travel when the glider is flown hands-off. This prevents the brakes being applied unintentionally when the speed system is fully engaged. We recommend a double sheepshank or a bowline knot for the brake handle attachment as shown in the diagram.

Bowline knot:



WARNING:

Loose, unsuitable or incorrectly tied brake line knots can cause the main brake line to loosen and then lead to loss of control of the glider.

Pay attention that only overhand or bowline knots are used for the connections.

Incorrect adjustment

If the brake lines are too long, the paramotor glider reacts slowly and is difficult to land. The brake lines can be adjusted during flight by wrapping them around your hands which will improve the flight characteristics. Adjust the brake lines to the correct length after you have landed. If the brakes are shortened, care must be taken that the paramotor glider is not slowed down in trim and accelerated flight. If the brake lines are too short, the following issues could arise:

- There could be an early stall
- The paramotor glider does not launch well and there is a risk of deep stall
- The paramotor glider exhibits dangerous behaviour in extreme flying
- The trailing edge of the paramotor glider is braked in accelerated flight which, in an extreme case, could cause a frontal collapse
- Other safety issues may arise and performance may deteriorate

Environmental conditions can also cause the brake lines to shorten. Brake line length should therefore be checked regularly, particularly if there is any change in launch or flight characteristics.

VARIABLE BRAKE PULLEY

The height of the brake pulley can be adjusted to suit the needs of the pilot. If doing this, make sure that the brake line length is aligned to the top position. If the brake line pulley is pushed down, the main brake lines should be lengthened by the same distance. The APAX riser has a lower brake pulley which is appropriate for very high attachments, e.g. when the glider is used with a trike. If you choose to use the lower brake pulley in this way, be sure to check that the brake lines are the right length. You may have to lengthen the brake lines to avoid the trailing edge being inadvertently pulled down when the glider is fully accelerated with the trimmers open.



MATERIAL

Canopy fabric

Upper surface	Dominico Dokdo 30D 42g/m ² water repellent
Lower surface	Dominico Dokdo 30D 42g/m ² water repellent
Ribs	Dominico Dokdo N30 DFM 42g/m ²

Lines

Upper	Liros DSL 70 Dyneema / GIN TGL 80 Aramid
Middle	Liros DSL 70, PPSL 120, 160 Dyneema
Main/ Brake	Liros PPSL 120,160,200 Dyneema / GIN TGL 280 Aramid

Riser

Güth & Wolf M20030 20mm

Maillons

Stainless steel Ø 3.85mm

Thread

Amann & Söhne - Mill Faden 150D/3 Polyester bonded

FICHE D'IDENTIFICATION



MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE
ET DE L'ÉNERGIE



DSAC

FICHE D'IDENTIFICATION ULM DE CLASSE 1

(à joindre à la carte d'identification)

a	b	c	d	e	f	Rév n°
B	1	01	SF	02946	E	-

- a) Construction en série : B - autres cas : A
 b) Monoplace : 1 - Biplane : 2
 c) Paramoteur : 01 - Pendulaire : 02 - Multiaxe : 03 - Autogire : 04 - Aérostat : 05 - ULM à motorisation auxiliaire : 1A - 2A - 3A - Hélicoptère : 06
 d) Code de l'autorité aéronautique
 e) Numéro d'ordre
 f) Utilisation : Loisir : L - Activité particulière : T - Loisir et activité particulière : E

Appellation ou type d'ULM	APAX 24
Constructeur	FRESH BREEZE GMBH & CO. KG
Adresse	Langer Acker 11 30900 WEDEMARK - ALLEMAGNE

DESCRIPTION DE L'ULM

Activités particulières prévues	n/a		
Options prévues	n/a		
Masse minimale	Masse maximale	Voilure	
		Fabricant	Modèle/Référence
75 kg	120 kg	FRESH BREEZE	APAX 24
Référence manuel d'utilisation	Référence manuel d'entretien	Surface à plat	Résistance minimale d'ancrage
APAX_OM_mai 2015 V1.0	APAX_OM_mai 2015 V1.0	24,10 m ²	588 daN
Limitations du constructeur de la voile vis-à-vis des GMP			



A remplir par le constructeur d'ULM en série ou par son représentant pour toute copie conforme remise à l'acheteur.

Je soussigné, certifie que l'ULM, numéro de série est conforme au dossier technique ayant fait l'objet de la présente fiche d'identification.

à le :
signature et cachet de l'entreprise

TEST FLIGHT REPORT



DSAC

Epreuve sen vol pout la classe 1 (paramoteurs) Test flight report (PPG) | Prüfprotokoll Testflug für Motorschirme

Dénomination du constructeur <i>Company Hersteller</i>	Gin Gliders Inc. 		
Adresse <i>Adress Adresse</i>	2318-32, Baegok-daero, Mohyeon-myeon, Cheoin-Gu, Yongin-si, Gyeonggi-Do 449-851 Korea		
N° tél. fixe <i>Office phone no. Telefon Büro</i>	+82 31 333 1241	Courriel <i>Email E-Mail</i>	ginsong@gingliders.com
Date & place de rapport <i>Place and report date Ort und Datum</i>	Wedemark / Germany 09.03.2015	Numéro de rapport <i>Report number Protokoll Nummer</i>	Peg-26_MAR_15
Modèle de parapente <i>Paraglider model Gleitschirm Modell</i>	Pegasus 26	Poids de décollage <i>Take-off weight Startgewicht</i>	130 kg
Conditions de test <i>Test conditions Testbedingungen</i>	Altitude / <i>Altitude / Höhe</i>	65 m	
	Conditions météorologiques <i>Meteorological conditions Meteorologische Daten</i>	Temperature <i>Air temperature / Lufttemperatur</i>	7 °C
		Vitesse du vent <i>Wind speed / Windgeschwindigkeit</i>	9 km/h
		Pression atmosphérique <i>Pressure / Luftdruck</i>	995 hPa
	Degré d'humidité <i>Humidity / Luftfeuchtigkeit</i>	70 %	

Note: des mesures effectuées en d'autres conditions météorologiques pouvant être différentes
*Note: measurements in different weather conditions may be different
Hinweis: Messungen bei anderen Wetterbedingungen können abweichend ausfallen*

Test en vol pour classe 1 – paramoteurs

Le paramoteur doit être évalué selon les critères suivants à la masse maximum

Test flight for class 1 – powered paragliders

Powered paraglider was tested at maximum take-off weight for following aspects

Testflug für Klasse 1 – Motorschirm

Testflug wurde mit maximaler Abflugmasse durchgeführt

1. Comportement au gonflage / <i>Canopy inflation / Verhalten in der Aufziehphase</i>			
Simplement et régulier <i>Simple and regular Einfach und regelmäßig</i>			
2. Comportement au décollage / <i>Launch characteristics / Abflugverhalten</i> (Technique de décollage special requise / <i>Special launch techniques required / Spezielle Abflugtechniken erforderlich</i>)			
Non <i>No Nein</i>			
3. Exploitabilité en vitesse en vol droit / <i>Speed at level flight / Geschwindigkeiten</i>			
Vitesse de décrochage (ou vitesse minimale si la voile ne décroche pas) <i>Stall speed (or minimum speed if the wing does not stall) Stall-Geschwindigkeit (oder Minimalgeschwindigkeit, wenn Schirm nicht ställt)</i>		18 km/h	
Vitesse bras haut <i>Trim speed Trimm-Geschwindigkeit</i>	42 km/h	Vitesse accélérée* <i>Max speed Maximal-Geschwindigkeit</i>	47 km/h

* (Le cas échéant, trim et/ou accélérateur)

4. Comportement lors d'une mise en virage engagé <i>Conduct after entering the spiral / Verhalten nach Einleitung der Steilspirale</i>	
a) Tendance au retour en vol droit (spontanéité) <i>a) Tendency to level flight recovery (spontaneous)</i> <i>a) Tendenz des Wiederaufrichtens</i>	Oui – spontané <i>Yes – spontaneous</i> <i>Ja – leitet sofort selbstständig aus</i>
b) Nature des oscillations (amortissement) <i>b) Oscillations (reducing or not)</i> <i>b) Oszillation (Reduzierung ja oder nein)</i>	Retour au vol normal – amortissement <i>Reducing</i> <i>Reduzierung - Ja</i>
c) Commandes de pilotage alternatives* <i>c) Alternative steering methods</i> <i>c) Alternative Steuermöglichkeiten</i>	Les commandes de pilotages alternatives sont avec les C de l'élèvevateur <i>Alternative steering methods over C-riser</i> <i>Alternative Steuermöglichkeiten über C-Tragegurte</i>

* les identifier et préciser leurs positions

5. Comportement lors de atterrissage / <i>Landing characteristics / Landeverhalten</i>	
a) Comportement particulier <i>a) Special behaviours</i> <i>a) Spezielle Eigenschaften</i>	Non <i>No</i> <i>Nein</i>
b) Technique de atterrissage special require <i>b) Special landing techniques required</i> <i>b) Spezielle Landetechniken erforderlich</i>	Non <i>No</i> <i>Nein</i>

6. Commandes de pilotage alternatives <i>a) Alternative flying methods</i> <i>a) Alternative Flugpraktiken</i>	Les identifier et préciser, dans le manuel d'utilisation, leurs positions et les précautions à respecter en virage et à l'atterrissage <i>Appropriate descriptions with safety measures to be found in the user manual</i> <i>Genau Beschreibungen mit Sicherheitsmaßnahmen befinden sich im Benutzerhandbuch</i>
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7. Stabilité en tangage lors d'une action aux commandes en vol accéléré <i>Pitch stability while steering an accelerated flight</i> <i>Nickstabilität nach Eingriff im beschleunigten Flug</i>	OK
--	----

8. Stabilité en tangage en sortie de vol accéléré <i>Pitch stability while exiting an accelerated flight</i> <i>Nickstabilität beim Verlassen des beschleunigten Flugs</i>	OK
--	----

9. Essais sol-vol <i>Special preparation before flying</i> <i>Besonderheiten vor dem Start</i>	Non <i>No</i> <i>Nein</i>
--	---------------------------------

Pendant ces essais, les commandes de vol doivent rester manoeuvrables pour permettre le contrôle de la voile.
During these tests, the flight controls must remain in working order to allow control of the paraglider.
Bei diesen Prüfungen muss die Flugsteuerung funktionstüchtig sein, damit Kontrolle des Gleitschirms gewährleistet ist.


Yongin-city, le 20 avril 2015
Gin Seok Song



GIN GLIDERS INC.
Gin S.
GIN SEOK, SONG/PRESIDENT
285-1, LARNDAM-PL, NEUPHUN-MYUN, YONGIN-CITY, KYONGGI-DO, KOREA
TEL. 82-31-358-1041 FAX. 82-31-354-0718 www.gin-gliders.com

Signature et cachet de constructeur

Epreuve sen vol pout la classe 1 (paramoteurs) Test flight report (PPG) | Prüfprotokoll Testflug für Motorschirme

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N° tél. fixe <i>Office phone no. Telefon Büro</i>	+82 31 333 1241	Courriel <i>Email E-Mail</i>	ginsong@gingliders.com
Date & place de rapport <i>Place and report date Ort und Datum</i>	Wedemark / Germany 09.03.2015	Numéro de rapport <i>Report number Protokoll Nummer</i>	Peg-28_MAR_15
Modèle de parapente <i>Paraglider model Gleitschirm Modell</i>	Pegasus 28	Poids de décollage <i>Take-off weight Startgewicht</i>	140 kg
Conditions de test <i>Test conditions Testbedingungen</i>	Altitude / <i>Altitude / Höhe</i>		65 m
	Conditions météorologiques <i>Meteorological conditions Meteorologische Daten</i>	Temperature <i>Air temperature / Lufttemperatur</i>	7 °C
		Vitesse du vent <i>Wind speed / Windgeschwindigkeit</i>	9 km/h
		Pression atmosphérique <i>Pressure / Luftdruck</i>	995 hPa
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Testflug für Klasse 1 – Motorschirm

Testflug wurde mit maximaler Abflugmasse durchgeführt

1. Comportement au gonflage / <i>Canopy inflation / Verhalten in der Aufziehphase</i>			
Simplement et régulier <i>Simple and regular</i> <i>Einfach und regelmäßig</i>			
2. Comportement au décollage / <i>Launch characteristics / Abflugverhalten</i> (Technique de décollage special requise / <i>Special launch techniques required / Spezielle Abflugtechniken erforderlich</i>)			
Non <i>No</i> <i>Nein</i>			
3. Exploitabilité en vitesse en vol droit / <i>Speed at level flight / Geschwindigkeiten</i>			
Vitesse de décrochage (ou vitesse minimale si la voile ne décroche pas) <i>Stall speed (or minimum speed if the wing does not stall)</i> <i>Stall-Geschwindigkeit (oder Minimalgeschwindigkeit, wenn Schirm nicht ställt)</i>		22 km/h	
Vitesse bras haut <i>Trim speed</i> <i>Trimm-Geschwindigkeit</i>	46 km/h	Vitesse accélérée* <i>Max speed</i> <i>Maximal-Geschwindigkeit</i>	51 km/h

* (le cas échéant, trim et/ou accélérateur)

4. Comportement lors d'une mise en virage engagé <i>Conduct after entering the spiral / Verhalten nach Einleitung der Steilspirale</i>	
a) Tendence au retour en vol droit (spontanéité) <i>a) Tendency to level flight recovery (spontaneous)</i> <i>a) Tendenz des Wiederaufrichtens</i>	Oui – spontané Yes – spontaneous Ja – leitet sofort selbstständig aus
b) Nature des oscillations (amortissement) <i>b) Oscillations (reducing or not)</i> <i>b) Oszillation (Reduzierung ja oder nein)</i>	Retour au vol normal – amortissement Reducing Reduzierung - Ja
c) Commandes de pilotage alternatives* <i>c) Alternative steering methods</i> <i>c) Alternative Steuermöglichkeiten</i>	Les commandes de pilotages alternatives sont avec les C de l'élèveur Alternative steering methods over C-riser Alternative Steuermöglichkeiten über C-Tragegurte

* les identifier et préciser leurs positions

5. Comportement lors de atterrissage / <i>Landing characteristics / Landeverhalten</i>	
a) Comportement particulier <i>a) Special behaviours</i> <i>a) Spezielle Eigenschaften</i>	Non No Nein
b) Technique de atterrissage special requise <i>b) Special landing techniques required</i> <i>b) Spezielle Landetechniken erforderlich</i>	Non No Nein

6. Commandes de pilotage alternatives <i>a) Alternative flying methods</i> <i>a) Alternative Flugpraktiken</i>	Les identifier et préciser, dans le manuel d'utilisation, leurs positions et les précautions à respecter en virage et à l'atterrissage Appropriate descriptions with safety measures to be found in the user manual Genau Beschreibungen mit Sicherheitsmaßnahmen befinden sich im Benutzerhandbuch
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7. Stabilité en tangage lors d'une action aux commandes en vol accéléré <i>Pitch stability while steering an accelerated flight</i> <i>Nickstabilität nach Eingriff im beschleunigten Flug</i>	OK
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8. Stabilité en tangage en sortie de vol accéléré <i>Pitch stability while exiting an accelerated flight</i> <i>Nickstabilität beim Verlassen des beschleunigten Flugs</i>	OK
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9. Essais sol-vol <i>Special preparation before flying</i> <i>Besonderheiten vor dem Start</i>	Non No Nein
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Pendant ces essais, les commandes de vol doivent rester manœuvrables pour permettre le contrôle de la voile.
During these tests, the flight controls must remain in working order to allow control of the paraglider.
Bei diesen Prüfungen muss die Flugsteuerung funktionstüchtig sein, damit Kontrolle des Gleitschirms gewährleistet ist.

Yongin-city, le 20 avril 2015
Gin Seok Song




GIN GLIDERS INC.
Gin Seok Song / PRESIDENT
289-1, GANDAM-RV, MOKYU-WON, YONGIN-CITY, KYONGGI-DO, KOREA
TEL: 01-91-352-1191 FAX: 01-91-354-0768 www.ginplanes.com

Signature et cachet de constructeur

Epreuve sen vol pout la classe 1 (paramoteurs) Test flight report (PPG) | Prüfprotokoll Testflug für Motorschirme

Dénomination du constructeur <i>Company Hersteller</i>	Gin Gliders Inc. 		
Adresse <i>Address Adresse</i>	2318-32, Baegok-daero, Moheon-myeon, Cheoin-Gu, Yongin-si, Gyeonggi-Do 449-851 Korea		
N° tél. fixe <i>Office phone no. Telefon Büro</i>	+82 31 333 1241	Courriel <i>Email E-Mail</i>	ginsong@gingliders.com
Date & place de rapport <i>Place and report date Ort und Datum</i>	Wedemark / Germany 14.04.2015	Numéro de rapport <i>Report number Protokoll Nummer</i>	Peg-30_APR_15
Modèle de parapente <i>Paraglider model Gleitschirm Modell</i>	Pegasus 30	Poids de décollage <i>Take-off weight Startgewicht</i>	160 kg
Conditions de test <i>Test conditions Testbedingungen</i>	Altitude / <i>Altitude</i> / Höhe		65 m
	Conditions météorologiques <i>Meteorological conditions Meteorologische Daten</i>	Temperature <i>Air temperature / Lufttemperatur</i>	6 °C
		Vitesse du vent <i>Wind speed / Windgeschwindigkeit</i>	12 km/h
		Pression atmosphérique <i>Pressure / Luftdruck</i>	1018 hPa
	Degré d'humidité <i>Humidity / Luftfeuchtigkeit</i>	66 %	

Note: des mesures effectuées en d'autres conditions météorologiques peuvent être différentes
Note: measurements in different weather conditions may be different
 Hinweis: Messungen bei anderen Wetterbedingungen können abweichend ausfallen

Test en vol pour classe 1 – paramoteurs

Le paramoteur doit être évalué selon les critères suivants à la masse maximum

Test flight for class 1 – powered paragliders

Powered paraglider was tested at maximum take-off weight for following aspects

Testflug für Klasse 1 – Motorschirm

Testflug wurde mit maximaler Abflugmasse durchgeführt

1. Comportement au gonflage / <i>Canopy inflation / Verhalten in der Aufziehphase</i>			
Simplement et régulier <i>Simple and regular</i> <i>Einfach und regelmäßig</i>			
2. Comportement au décollage / <i>Launch characteristics / Abflugverhalten</i> (Technique de décollage special requise / <i>Special launch techniques required / Spezielle Abflugtechniken erforderlich</i>)			
Non <i>No</i> <i>Nein</i>			
3. Exploitabilité en vitesse en vol droit / <i>Speed at level flight / Geschwindigkeiten</i>			
Vitesse de décrochage (ou vitesse minimale si la voile ne décroche pas) <i>Stall speed (or minimum speed if the wing does not stall)</i> <i>Stall-Geschwindigkeit (oder Minimalgeschwindigkeit, wenn Schirm nicht ställt)</i>		21 km/h	
Vitesse bras haut <i>Trim speed</i> <i>Trimm-Geschwindigkeit</i>	45 km/h	Vitesse accélérée* <i>Max speed</i> <i>Maximal-Geschwindigkeit</i>	50 km/h

* (le cas échéant, trim et/ou accélérateur)

4. Comportement lors d'une mise en virage engagé <i>Conduct after entering the spiral / Verhalten nach Einleitung der Steilspirale</i>	
a) Tendance au retour en vol droit (spontanéité) <i>a) Tendency to level flight recovery (spontaneous)</i> <i>a) Tendenz des Wiederaufrichtens</i>	Oui – spontané Yes – spontaneous <i>Ja – leitet sofort selbstständig aus</i>
b) Nature des oscillations (amortissement) <i>b) Oscillations (reducing or not)</i> <i>b) Oszillation (Reduzierung ja oder nein)</i>	Retour au vol normal – amortissement <i>Reducing</i> <i>Reduzierung - Ja</i>
c) Commandes de pilotage alternatives* <i>c) Alternative steering methods</i> <i>c) Alternative Steuermöglichkeiten</i>	Les commandes de pilotages alternatives sont avec les C de l'élèveur <i>Alternative steering methods over C-riser</i> <i>Alternative Steuermöglichkeiten über C-Tragegurte</i>

* les identifier et préciser leurs positions

5. Comportement lors de atterrissage / <i>Landing characteristics / Landeverhalten</i>	
a) Comportement particulier <i>a) Special behaviours</i> <i>a) Spezielle Eigenschaften</i>	Non <i>No</i> <i>Nein</i>
b) Technique de atterrissage special requise <i>b) Special landing techniques required</i> <i>b) Spezielle Landetechniken erforderlich</i>	Non <i>No</i> <i>Nein</i>

6. Commandes de pilotage alternatives <i>a) Alternative flying methods</i> <i>a) Alternative Flugpraktiken</i>	Les identifier et préciser, dans le manuel d'utilisation, leurs positions et les précautions à respecter en virage et à l'atterrissage <i>Appropriate descriptions with safety measures to be found in the user manual</i> <i>Genau Beschreibungen mit Sicherheitsmaßnahmen befinden sich im Benutzerhandbuch</i>
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7. Stabilité en tangage lors d'une action aux commandes en vol accéléré <i>Pitch stability while steering an accelerated flight</i> <i>Nickstabilität nach Eingriff im beschleunigten Flug</i>	OK
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8. Stabilité en tangage en sortie de vol accéléré <i>Pitch stability while exiting an accelerated flight</i> <i>Nickstabilität beim Verlassen des beschleunigten Flugs</i>	OK
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9. Essais sol-vol <i>Special preparation before flying</i> <i>Besonderheiten vor dem Start</i>	Non <i>No</i> <i>Nein</i>
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Pendant ces essais, les commandes de vol doivent rester manœuvrables pour permettre le contrôle de la voile.

During these tests, the flight controls must remain in working order to allow control of the paraglider.

Bei diesen Prüfungen muss die Flugsteuerung funktionstüchtig sein, damit Kontrolle des Gleitschirms gewährleistet ist.

Yongin-city, le 20 avril 2015

Gin Seok Song






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