Windtech

manual

KINETIK

Windtech

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KINETIK

25-27-30

flight manual

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> congratulations

Congratulations on the purchase of your new **KINETIK .**

The **KINETIK** has been carefully thought out and designed to make paramotor flying as simple and enjoyable as possible.

We strongly recommend that before you fly the **KINETIK** you carefully read this manual in order to be aware of any limitations, performances, take off and flight characteristics, landing procedures, emergency situation and maintenance.

We always appreciate your feedback, so please send us your comments, positive or negative, in regard to the ***Windtech*** range.

You are the best feedback and support for future products, and please remember that we are always happy to give you any help & advice.

Best winds >***Windtech*** team

> warning & liability

We have produced this manual so that you can get to know your KINETIK better, with some helpful tips to help you feel comfortable with it from the very first day. ***Windtech*** assumes that the purchasing pilot has the appropriate pilot's licence, has taken a training course, and has the suitable ability and enough experience to safely fly the KINETIK.

THIS INSTRUCTION MANUAL IS NOT INTENDED AS A "TEACH YOURSELF PARAMOTORING" BOOKLET. We have to make it very clear that to fly this wing safely and proficiently IT IS NOT ENOUGH JUST TO READ THIS MANUAL, and that you, the pilot, MUST complete a suitable paramotor flying course, and gain a good understanding of the concepts of flight, both powered and un-powered. It is also imperative that you gain a good understanding of the weather and flying conditions, so that you know when it is safe to fly, and WHEN IT IS NOT SAFE TO FLY.

This manual cannot be used for operational purposes. The flight log & registration card must be filled and stamped by the dealer & returned to ***Windtech*** in order to claim on the guarantee.

The use of this paraglider is entirely at the user's own risk. As with any adventure sport paragliding is a high risk activity-especially without taking the appropriate precautions- therefore it must be absolutely understood that ***Windtech*** & the dealer do not accept any responsibility for accidents, losses, injuries, direct or indirect damage following the use or misuse of this product.

> design materials

The KINETIK is a glider that offers total security with beautiful handling & perfomance. The performance is very high due to a well-defined structure with 52 cells, with an internal structure comprised of diagonals of different types, depending on the width of the cell and an optimized line layout to reduce the overall number of lines.

This specifically designed paramotor wing has been reinforced in key areas of the wing, especially at all of the attachment points on both the under-surface and the cell walls.

-- cloth

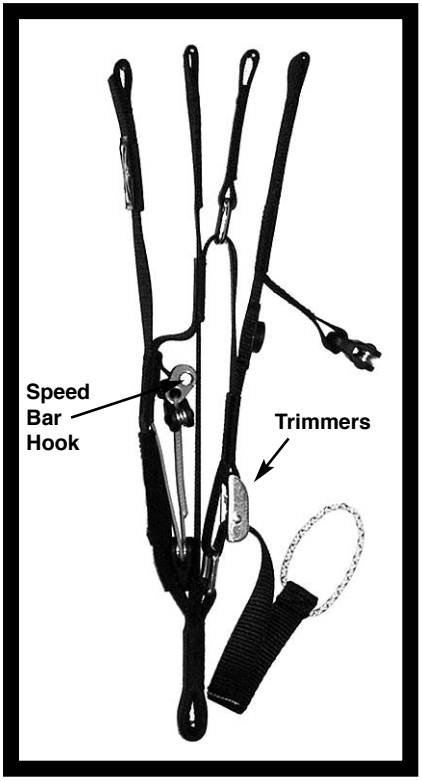
The upper and lower panels are made with 45 gr. Porcher Marine Skytex nylon. The ribs are made with stronger nylon of to prevent airofoil deformation, even after several years of intensive use. Rib (cell wall) reinforcements are made of Dacron 310 &180 gr. Line attachment points are made of polyester.

-- lines

The KINETIK's lines are made from the highest quality Kevlar, with a polyester outer sheath to protect the inner Kevlar core from abrasion and UV. The main (lower cascade) "A" and "B" lines are 2.2mm, rated at 240kg, and the main "C" and "D" lines, are 1.7mm.

-- risers

WWe have designed the KINETIK's paramotor riser system to help overcome the various complexities that powered flight entails.



The risers are shorter than usual (42cm), to allow for the different flying position and help minimise the effects of the chassis of the engine.

The construction and materials of the wing have been made stronger, especially the stitching of the main attachment points of the wing.

The big-ears can be operated with one hand easily and without strain.

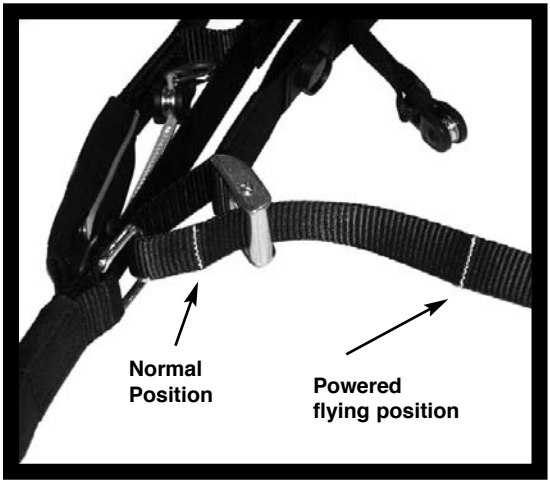
The travel of the webbing of the trimmers is on a pulley system, which means a greatly reduced chance that they will slip (a big problem with normal trimmers) in normal flight or after a sudden shock or under high pressure, such as a collapse or steep turn, offering a greater amount of security with a very effective and easy to use system.

The 'trimmers' are used to set the 'trim speed' of the wing, and have been carefully designed to give the best combination of efficiency and stability across the whole speed range. When

the trimmers are pulled fully ON (pulled all the way through the ratchet, so that the rear risers are effectively pulled down to their shortest position) the glider will fly at full slow trim speed. When the risers are released all the way OFF (ratchet pressed, so that the webbing slips all the way and the rear risers are in their longest position) the glider will fly at full fast speed. It is vitally important that that you fully understand all of the effects and implications of flying at different trim speeds, as this changes the handling, safety and performance characteristics of any wing.

There are two lines of stitching on the webbing of the trimmers which are set at "normal" trim and a faster "powered flying" position. When the trim is set to the first stitching line (normal trim), this is the speed that should be used for taking off, landing and flying in turbulence.

If you then raise the trimmers up to the second line of stitching, this is the faster "powered flying" trim position (the actual speed will depend a lot on wing loading), in which the trimmers are set to compensate for the pitching back effect caused by the push of the motor, bringing the wing into a more overhead position and giving increased speed and performance. Of course, caution should always be used when low down and one should always fly with the trimmers in the "normal" trim position in turbulence and when near the ground.



The trim travel will continue slightly further than the "powered flying" setting, to "full trim speed", but one should only ever use this trim position in very smooth conditions, and with plenty of height, due to the greatly reduced angle of attack of the wing. If the pilot requires more speed in turbulent conditions, we recommend that the pilot leaves the glider in "normal" trim position and makes use of the speed system.

> best glide

-- un-powered flight

Best glide in nil wind, and still air, is obtained at "trim" speed that is brakes fully released and no accelerator (speed bar) applied. It is always best to fly with a light pressure on the brakes, keeping a "feel" on the wing in case of unexpected turbulence.

When flying into (against the) wind a better glide can be obtained by using the speed system. The following is rough guide line as to how much to apply.

-With around 10 km/h of head wind, best glide is obtained with 25% accelerator applied.

-With around 15-25 km/h of head wind, best glide is obtained with 50% accelerator.

-With around +25 km/h of head wind, best glide is obtained with 75-100% accelerator.

When flying downwind (wind from behind) the best glide is obtained between 0% brake and 10% of brake.

The trim travel of the glider has been limited to a point where the security/safety of the wing is still high and yet permits a gain of 12km/h. In any case it is recommended not to use the trimmers close to the ground, or when conditions are turbulent. If turbulent conditions are encountered, or if you are nearing the ground we recommend that you return the trimmers without delay to the "normal" trim position, for take-off, landing and flying turbulence.

Always fly a glider that is the correct size for you, and remember that if your flying weight is below the stated minimum, the speed range will diminish and inflation problems may appear. Also the handling will degrade in turbulent conditions, and it will be easier to sustain collapses. If your flying weight is above the stipulated weight range, this will result in a higher minimum speed and faster landing speed and the stall speed of the glider will also be higher.

-- powered flight

The concept of performance under power is considerably different to that in free-flight (without power). Factors that affect this include: thrust; power and size of the engine; diameter of the cage; flight altitude; meteorological conditions, such as density of the air; wing loading, etc. We STRONGLY recommend that you try to learn all about these effects, by reading books about paramotoring and speaking with more experienced paramotor pilots, coaches and instructors, BEFORE you start flying.

What is certain is that, due to an increase in wing loading and the extra drag caused by the chassis of the motor, the sink rate, flying and handling characteristics, and performance of the glider will be affected. For this reason we consider it extremely important that the pilot chooses a motor that is most suited to the pilot's weight, abilities, and intended uses in flight, etc. When one takes into consideration all of the factors, one will arrive at one set of performances and flight characteristics, or another.

> flight

Each and every glider has a checklist note passed though our strict quality control in the factory. This includes line measurement, ground inflation and flight testing. Contact your distributor for more information about this, and if your glider has not been pre-inflated

ask them to do so for you. Every glider should be test flown before it is sold.

Note that each glider has a unique sticker attached to the centre cell with the serial number, type of glider, size and weight range.

We recommend that your first flight on your new glider be on a gentle slope in calm conditions before making any further higher flights, just to check the glider and for you to get used to flying it.

You should use a harness that has an ABS cross strap system and the maximum width possible for the chest strap is 38 cm between karabiners.

For you own safety, we strongly recommend the use of back protection, helmet and ***Windtech*** WindSOS reserve.

-- inflation and take off

A paramotor launch is always more complicated than a free-flying (without paramotor) one. More weight, the thrusting force of the wing, different position of the risers, accelerator throttle in one's hand, etc, makes this usually the most difficult part of a paramotoring flight.

One has to bear in mind that a failed launch could result in the lines getting caught in the propeller, breaking not only the lines but also the propeller itself, and in the worst case could result in injuring oneself, or a bystander. For this reason it is very important that you should not launch your paramotor in the vicinity of other people, and you should always make sure that no one is near enough to sustain any injury from your launch attempt. This could be either directly, for example from you colliding into them, or indirectly, from flying debris blown up from the ground behind you from the thrust of the engine, or from flying debris from a damaged propeller.

The pilot needs to always be very thorough and methodical with carefully preparing their equipment and doing all of the required pre-flight checks, using a clear and complete checklist. Always allow ample security margins to make room for any error, especially

during take-off and landing, and never forget that flying with a propeller that is rotating 40cm from your body carries inherent risks of serious injury and is therefore NEVER a game!

For a good launch with the KiNETiK always remember AT LEAST the following:

Lay out the glider as perpendicular to the wind as possible, for a better inflation.

Lay the glider out in an arc, which will help the wing inflate in the centre first and come up straight and uniformly. If there is some wind, a pre-inflation, to get some air in the glider and clear the lines, will increase the chances of a successful launch.

Make sure that the risers are not twisted and everything is set up correctly.

Carefully check all of the lines and attachments points, to make sure there are no twists, knots, or tangles, and that everything is correct and free running.

Make sure that the trimmers are on the "normal" position for take off (first line of stitching on the webbing)

Make sure that the brake toggles are free running and not tangled.

- If you have attached the speed system, make sure that it is correctly set up, completely free running, and not tangled or caught up in any other part of your equipment.

- If you have a reserve parachute, make sure that this is also correctly set up, and that nothing will either cause your parachute to deploy accidentally or prevent it from deploying correctly should you need to do so in an emergency.

-Continue with a full check of your paramotor engine, harness, and any other equipment, carefully following all of the checks and recommendations as stipulated in your paramotor's manual.

- Once you have commenced the launch run and the wing is roughly in the 10 to 11 O'clock position, and flying correctly, applying a little thrust from the motor will greatly help with the launch.

- Before you start your launch run, make 100% sure that the wind & weather conditions are safe and correct for taking off and flying, and that your take off run and the air space you are about to launch into is clear of people, vehicles, any obstacles, or air traffic. IF IN ANY DOUBT, DO NOT LAUNCH.

With the wing nicely overhead in the correct flying position, a quick BUT THOROUGH visual check to make 100% sure that everything is in order, ensuring that the wing, lines, risers, etc, are all in perfect order before committing to take off.

Now it is very important to keep your body as vertical as you can, so that the thrust of the engine acts horizontally, and as much away from the canopy as possible, and then accelerate to take off speed. If you do this correctly, you should find yourself in the air within only a few meters.

> flying in turbulence

Only an experienced and proficient pilot should ever fly in any kind of turbulent conditions. The pilot has to fly 'actively' (to maintain correct air speed and glider attitude) in effect 'absorbing' turbulence with the controls and weight shift to keep the glider overhead and help prevent any deflations and always to be extremely careful not to stall the wing, through bad pilot input or use of motor, especially through overuse of thrust and/or the controls.

Always remember that by applying thrust this pushes the pilot forwards relative to the wing, increasing the angle of attack and wing loading, at least momentarily. This in effect shortens the available brake travel (speed range) of the glider, making it stall at a higher brake position. For this reason, under power it is not recommended to use more than 70% of the brake travel and to generally use less brake than you would when not under thrust, especially as you increase power. If the pilot encounters an area of turbulence just as they apply power (they are pushed forward by the power of the engine and the angle of attack of the wing therefore increases), one should be extremely careful as the control and flight behaviour of the wing is very different whilst under power.

In turbulent conditions, it is possible for your wing to suffer from either an "asymmetric" or "symmetric" collapse. Also known as "tucks", these are described in the following paragraphs, along with a description of what to expect and the recovery techniques recommended.

-- asymmetrical tuck/collapse

An asymmetric collapse, is a longitudinal (lengthwise) collapse of a part of the wing (say 20 – 70%) which is normally caused by turbulence (although it is also possible to induce collapses through poor pilot input). In un-powered flight, any tucks or collapses on the Kinetik should sort themselves out automatically within 90 degrees. If you have a collapse whilst under power, you should always ease off the thrust gradually, as the thrust of the motor can considerably complicate the wing's reactions and recovery behaviour. In any case, the pilot should know how to first prevent and, failing this, to deal with, an asymmetric collapse. They should also be familiar with the required recovery procedures and techniques to return the glider to normal flight, with the minimum loss of height or directional control.

If you have an asymmetric collapse, remember: "Course, then Correction". First try to maintain a SAFE course, WITHOUT STALLING THE WING BY OVER-CORRECTING, by first weight shift towards the (still inflated) flying side of the wing (this will give a better wing loading and augment the internal pressure of the wing) and apply around 20-40% brake on the open side of the wing to try to minimise the turn induced by the collapse. Remember that you should have gradually reduced the power of the engine.

BE CAREFUL when trying to stop the turn of the glider after a collapse not to use too much brake and so stall the flying part of the wing, as this could cause more problems

than the collapse itself. Once you have maintained a safe course, and minimized the turn induced by the collapse, you can apply CORRECTION to re-inflate the collapsed side of the wing by giving smooth but firm pumps on the brake on the collapsed side, holding down the brake until the glider re-inflates. Do not give small 'panicky' dabs of brake to the collapsed side of the wing as this does not really help and will make the wing take much longer to re-inflate. Once the wing re-inflates be careful not to hold down the brake too much, for too long, as this could stall the wing, or induce a spin.

-- front/symmetrical tuck collapse

This is when the whole leading edge of the wing, from the centre to the tips, collapses.

It is possible to have a front tuck on exit from a strong thermal, when using the speed system or trimmers in turbulent conditions, hitting a (wind) shear layer, etc. Generally, this situation does not require any pilot intervention as the glider will re-inflate quickly, autonomously and without problem. However, if the pilot wishes to help with re-inflation of the glider, this is the procedure to follow:

First, one should release the speed system (if one has it on) and pull both brakes approximately 50% until the glider reopens, and then immediately release the brakes so as to not stall the wing. After the glider has re-inflated it is always a good idea to check the trimmer's, to make sure that they have not been pulled open by the shock of the re-inflation of he wing, and as you have suffered a collapse, it is best to make sure that the trimmers are in the "normal" position as it is clear that you are flying in a turbulent area!

-- asymmetric stall (spin)

It is extremely difficult to accidentally provoke a stall with the **KINETIK**, given the glider's very forgiving flying characteristics and extremely low stall speed, the pilot has to really abuse the brakes to do this. Of course, one should bear in mind that the brake travel is substantially reduced, and the stall point easier to reach when full thrust is applied and the trimmers are in the slower "normal" flying position for take off.

In any case, it is possible for the pilot to stall the wing if, for example, when flying very slowly (nearly at stall point) the pilot gradually releases the outer brake (the correct thing to do) but then also applies more inside brake (on the side of the turn), thereby stalling the inside wing. The stalled side of the wing now drops back into stall, rotating backwards (negative), whilst the still flying outside wing rotates forwards (positive) around the pilot. In this case, to return to normal flight, the pilot has to raise the inside brake to reduce the angle of attack, allowing positive airflow to return over the wing, and taking that side of the wing out of the stall. In releasing the brake on the stalled side of the wing (which is necessary to regain normal flight), the wing will then try to regain normal airspeed which, depending on the moment at which the spin is released and how 'flat' the spin was, will result in a dive which is more, or less, strong. If the wing dives forward violently then the pilot should try to damp the dive by quickly applying a bit more than approximately half brake (only enough to stop the dive) which should be

immediately released as soon as the dive is stopped, so as to avoid stalling the wing by over-braking.

-- landing

You should pay extra care and attention for your first landings, especially if it is the first time that you fly a paramotor. Above all, it is vital that you are 100% sure of the wind direction in the landing area (ideally you should have a windsock and other pilots in the landing field to guide you for this) and, once you are sure that you have enough height, and glide, to reach the landing field easily, it is generally much better, and safer, to turn off the engine on final approach. The rest of the landing should be the same as for a normal gliding (unpowered) landing approach. If AT ALL unsure of the techniques and methods for setting up a good and safe controlled landing approach, you should talk to other more experienced pilots, and/or a club coach or instructor BEFORE YOU FLY. You should have a thorough briefing on the site, conditions, take-off, flight plan and landing BEFORE you fly, ideally with radio guidance. It is not good realising that you do not know how to land safely after you have already taken off, as it is TOO LATE by then.

In the last few meters the pilot should lift the brakes, to gain good airspeed (being careful to fly actively in case of turbulence, and in some cases you may have to keep some brake pressure to give a more positive angle of attack and therefore reduce the chance of a collapse). It is best to have plenty of airspeed on landing as this will help you, at the last moment, to convert some of this air speed into a very positive flare, substantially reducing your forward and downward speed and thereby leading to a softer landing.

Don't forget that once on the ground one should always avoid allowing the glider to land heavily on it's leading edge, as it is possible to damage the cells, or cell walls, of the glider in this way.

> weather to fly

If in doubt about the weather and flying conditions, do not launch! Before going flying you should check the weather forecast & always ask more experienced pilots about the conditions expected for the day. Never fly if the weather conditions are unsuitable, especially with any of the following are present or even threatening: Strong wind; Rain; Thunderstorms; Cumuli nimbus; or Cumulus congestus. If you are already in the air then get down safely before it's too late! Always be aware of the weather changing & if in doubt land as quickly as is safely possible.

> emergency procedures & quick descent techniques

The following techniques are advanced & should be practiced ONLY with qualified radio supervision and adequate safety back up. Always be prepared and consider what will

happen if things go wrong! With enough altitude it is possible to safely master these manoeuvres ready for the day you may need them for real!

More radical's manoeuvres such as full stall, asymmetrical stall and flat spin are not described in our manual. In order to perform these manoeuvres you should do a special safety course with the correct instructor & over the water with a rescue boat standing by, and all safety precations taken.

-- big ears

Big Ears is the simplest descent technique & can be very useful for top landing.

Sit upright in your harness & with the brakes in your hands reach up to the split "A" outer riser, and be careful to watch the glider while you pull down one side, then the other.

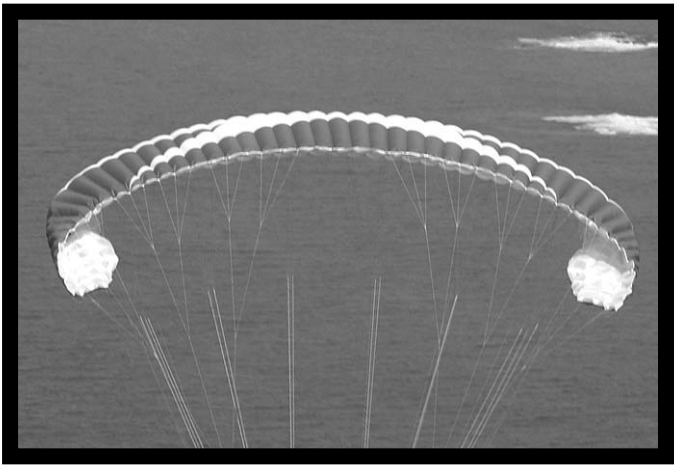
Once you are sure that you have the correct riser, watch as you pull out & down, and the tips of your glider should fold under symmetrically.

You should be applying NO brake, as you could stall the wing in this way.

Steering is done by weigh-shift.

To recover, release the outer 'A' lines & the KINETIK will return to normal flight.

The sink rate achieved from pulling big-ears is around 3–5 m/s. This manoeuvre is recommended close to the ground, as it allows the pilot to keep the big-ears in even until on the ground (although of course the pilot needs be aware of the higher descent rate, and possible hard landing that may result). If one combines the big-ears with the trimmers (and possibly the accelerator as well), one gets a very good descent rate whilst keeping an acceptable speed.



-- spiral dive

The Spiral Dive is obtained by maintaining the glider in a steep turn. Little by little (the speed at which the spiral is entered depends greatly on how much brake is induced and also wing loading) the glider will accelerate into the spiral, especially if one aids this with weight-shift. Once the turn has converted into a spiral dive the pilot can control the

speed of rotation and descent with small changes of interior and exterior brake, and more or less weight shift. It is possible to achieve descent rates of 10-15m/s or more in this manoeuvre.

It is dangerous to induce spiral dives close to the ground due to the extreme centrifugal forces which can cause fainting and, in some cases, blackouts or blurred vision..If you are at all susceptible to any of these conditions, or are feeling at all unwell for any reason, then you should not induce a spiral dive for this reason.

The exit from this manoeuvre should be performed gradually and progressively, finishing in a nice controlled gentle turn to re-stabilise the wing. To do this, the pilot has to gradually ease off the inside brake, and reduce weight shift, then gently apply a little outside brake to ease the glider out of the spiral. The pilot must be very careful not to exit a spiral (especially if well developed) too briskly, as this could result in a steep climb out (with the wing far behind the pilot and in a very vulnerable position, with little internal pressure, no airspeed and prone to collapses) followed by a sharp dive which may need damping to prevent a collapse.

It is NOT recommended to induce a spiral dive at the same time as applying any thrust or power from the engine, as this could result in instability.

-- b-line stall

To induce a 'B-line" stall, first take hold of both 'B' risers (left and right) one in each hand (left and right respectively) FIRMLY at the maillons. Then, pull the B-risers down together to approximately the level of the karabiners, BEING VERY CAREFUL TO DO THIS SYMMETRICALLY so as to not induce a spin. This will "B-stall" the glider, by deforming the aerofoil section of the wing in such a way as to stop the airflow going over it as normal, effectively 'breaking' the aerofoil effect. If done correctly, the glider will now enter into a "B-line stall", which is a kind of "parachutal" stall, stopping the glider flying and rendering one's trajectory effectively straight down through the air (BUT DRIFTING WITH THE WIND). Once in the "B-line" stall one can control the descent rate to a degree by pulling down more or less on the B-risers and it is possible (in still air) to achieve descent rates from 5-11 m/s. BE CAREFUL, AS PULLING DOWN TOO FAR ON THE B-LINES CAN CAUSE THE GLIDER TO BECOME UNSTABLE, SO THIS SHOULD BE AVOIDED.

To exit from the B-line stall correctly, and minimise the chance of any instability, the pilot should keep a firm hold of the B-risers and raise them until there remains 10cm of travel of the B-risers and then release them completely, taking care to do this SIMULTANEOUSLY. If the B-line is entered, or released, asymmetrically, it is possible to enter a spin, and so this should always be avoided. Once the B-risers have been released in the correct manner the glider will return to normal flight spontaneously with a small dive as it regains "healthy" airspeed.

Obviously, one should never do a B-line stall at the same time as engaging any thrust or power from the engine as this could result in unstable situations which could lead to dangerous loss of control.

> maintenance

Store the paraglider in a dry space away from chemical agents, UV light and high temperature. If the canopy has been packed wet it is necessary to reopen it and let it dry before packing away for a sustained period. Keep the canopy and lines clean, as dirt may penetrate into the fibres and damage them.

Clean the paraglider only with fresh water and a soft sponge. If you are unfortunate to land in the sea & survive! Hose/soak the glider with fresh water & dry completely. Absolutely avoid contact with chemical agents like oil, petrol, solvent and similar, which can damage the fabric and its surface covering.

We strongly recommend you to have a full inspection of the paraglider by ***Windtech*** or an approved ***Windtech*** repair centre at least once a year. Besides this you should check periodically the lines, cloth and stitching.

Every 150 h. or once a year, which ever comes first, change all bottom lines. This is very important to maintain the flying and safety characteristics of the wing. The rest of the lines must also be checked and change them if they have deteriorated. Test some of the lines that are not changed for minimum 40% of the rated strength. If the line fails you should replace them all before using your glider.

Small tears in the sail can be repaired by using adhesive spinnaker cloth, which we supply with every new glider.

Big tears and repairs regarding sewing or structural parts of the paraglider must be carried out only by the manufacturer or authorised service centres.

> warranty

This glider carries a two-years guarantee from defects due to materials and manufacturing.

If a product is deemed to be defective by ***Windtech***, the warranty covers the repair or replacement of the defective product only. ***Windtech*** will not be responsible for any costs, losses or damages incurred as a result of loss of this product.

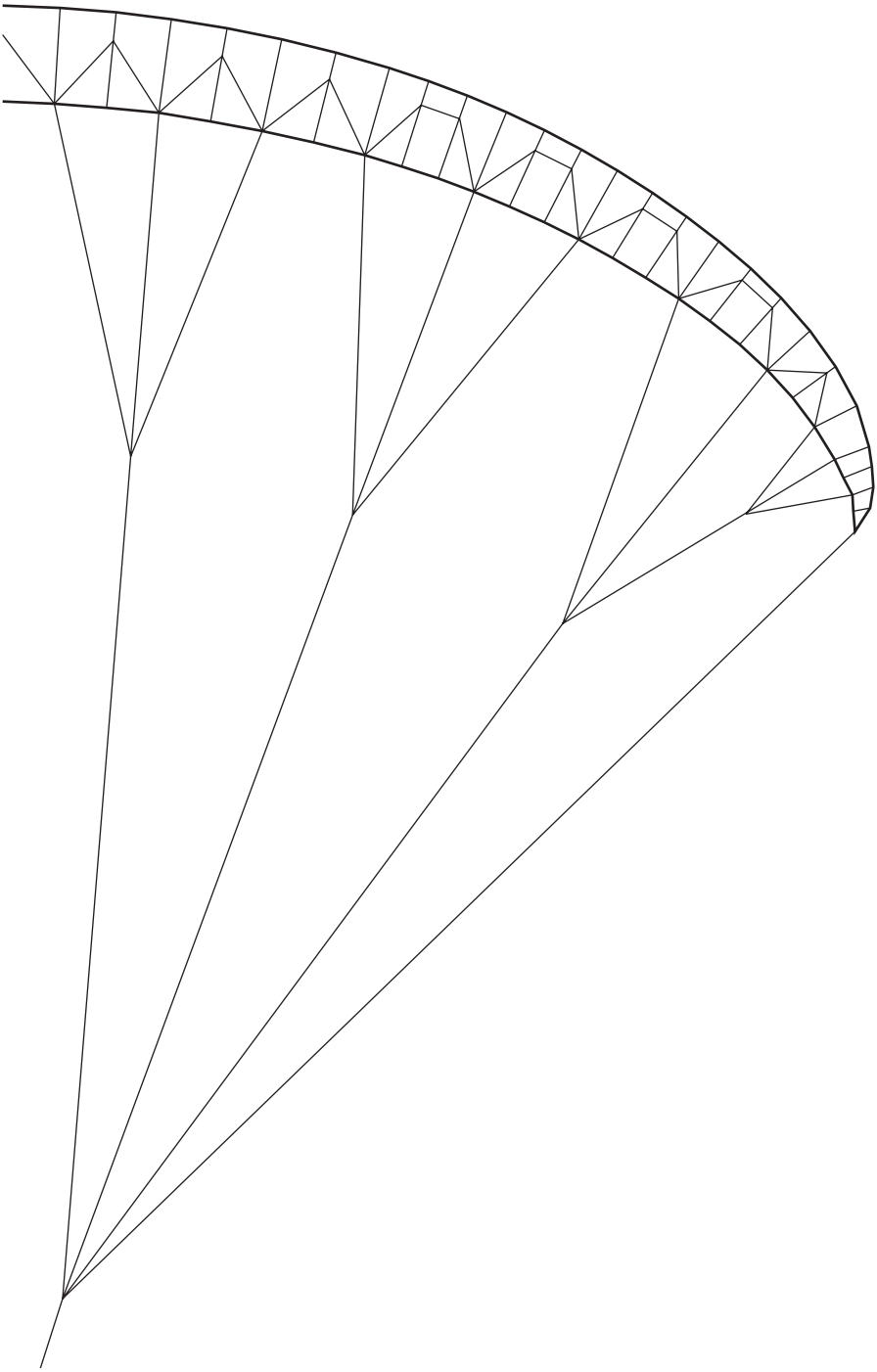
Windtech is not responsible for mailing costs or material costs used other than what is found to be defective.

This warranty does not cover damage caused by misuse, abuse, neglect or normal wear & tear including damage due to excessive sun exposure, damage caused by improper handling & damage caused by anything other than defects in material & workmanship.

KINETIK

| technical specifications |

Size	25	27	30
Area (m^2)	25.85	27.6	30.15
Projected area (m^2)	22.8	24.3	26.6
Span (m)	11.52	11.9	12.44
Projected span (m)	9.55	9.86	10.31
Aspect ratio	5.13	5.13	5.13
Projected aspect ratio	4	4	4
Max .chord (m)	2.82	2.91	3.04
Min. chord (m)	0.63	0.65	0.68
N° cells	52	52	52
Line lenght (m)	6.94	7.17	7.49
Canopy weight (kg)	6.47	6.68	7.3
Pilot weight (kg)	52-72	67-87	82-107
Weight in fly (kg)	70-120	85-145	100-165
Certification D.H.V. - Standard Risers	1-2	1-2	1-2
Certification CEN - Paramotor Risers	paramotor	paramotor	paramotor



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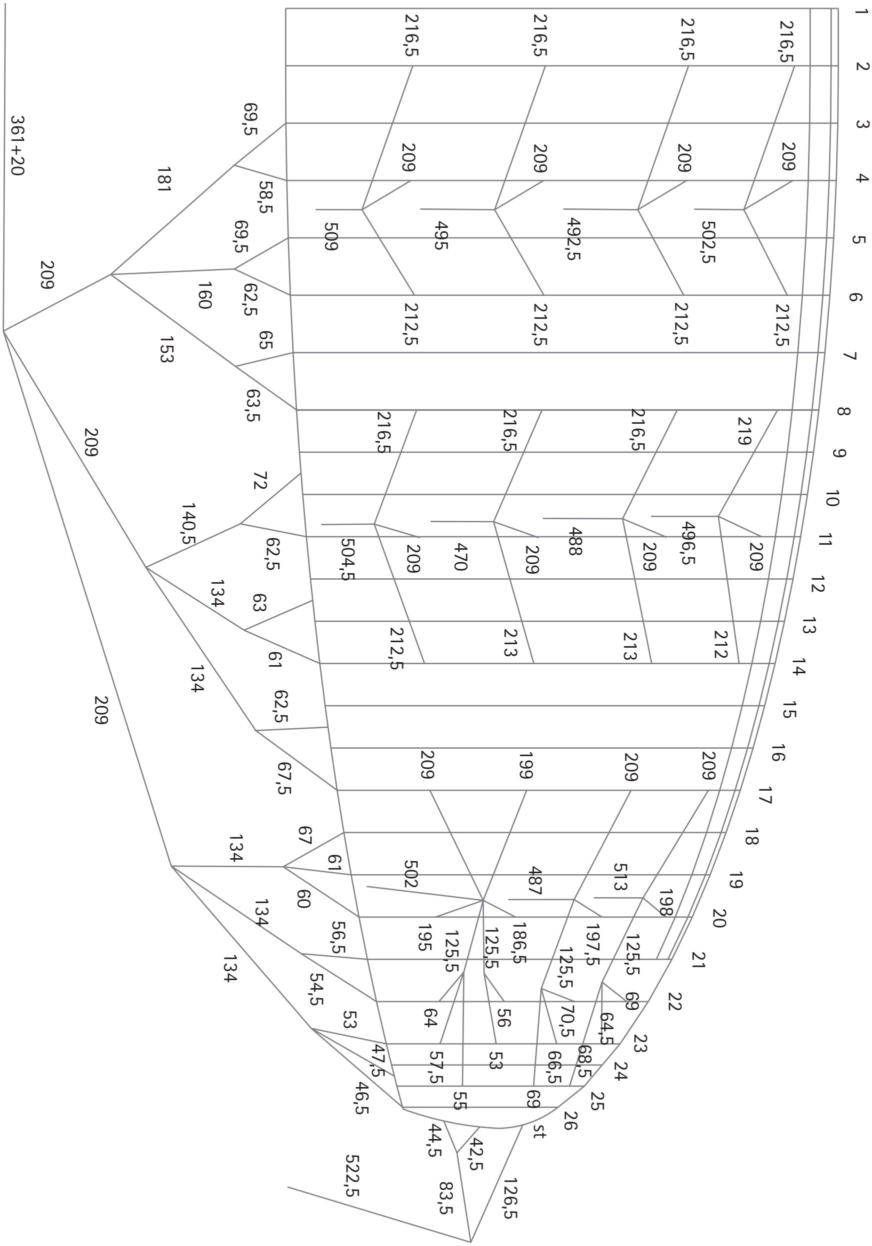
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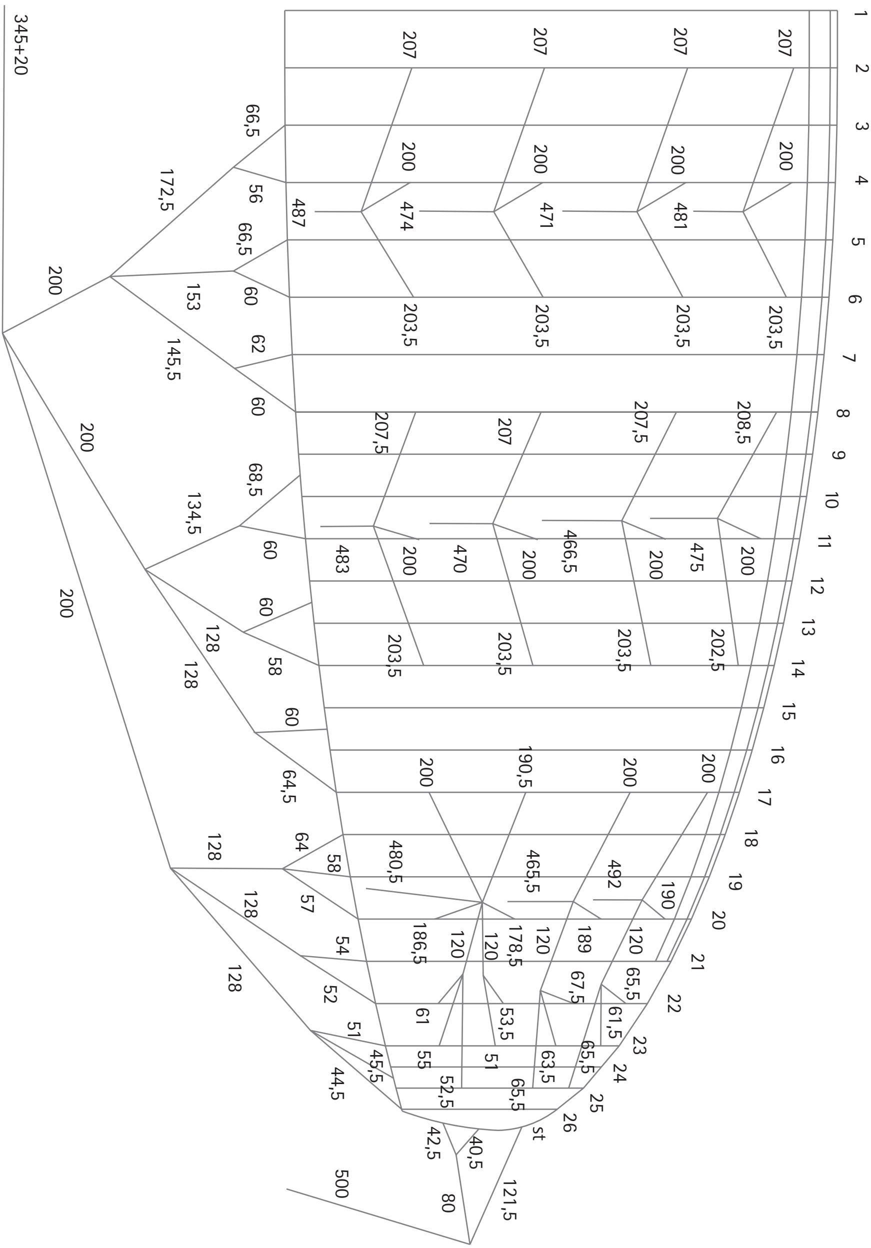
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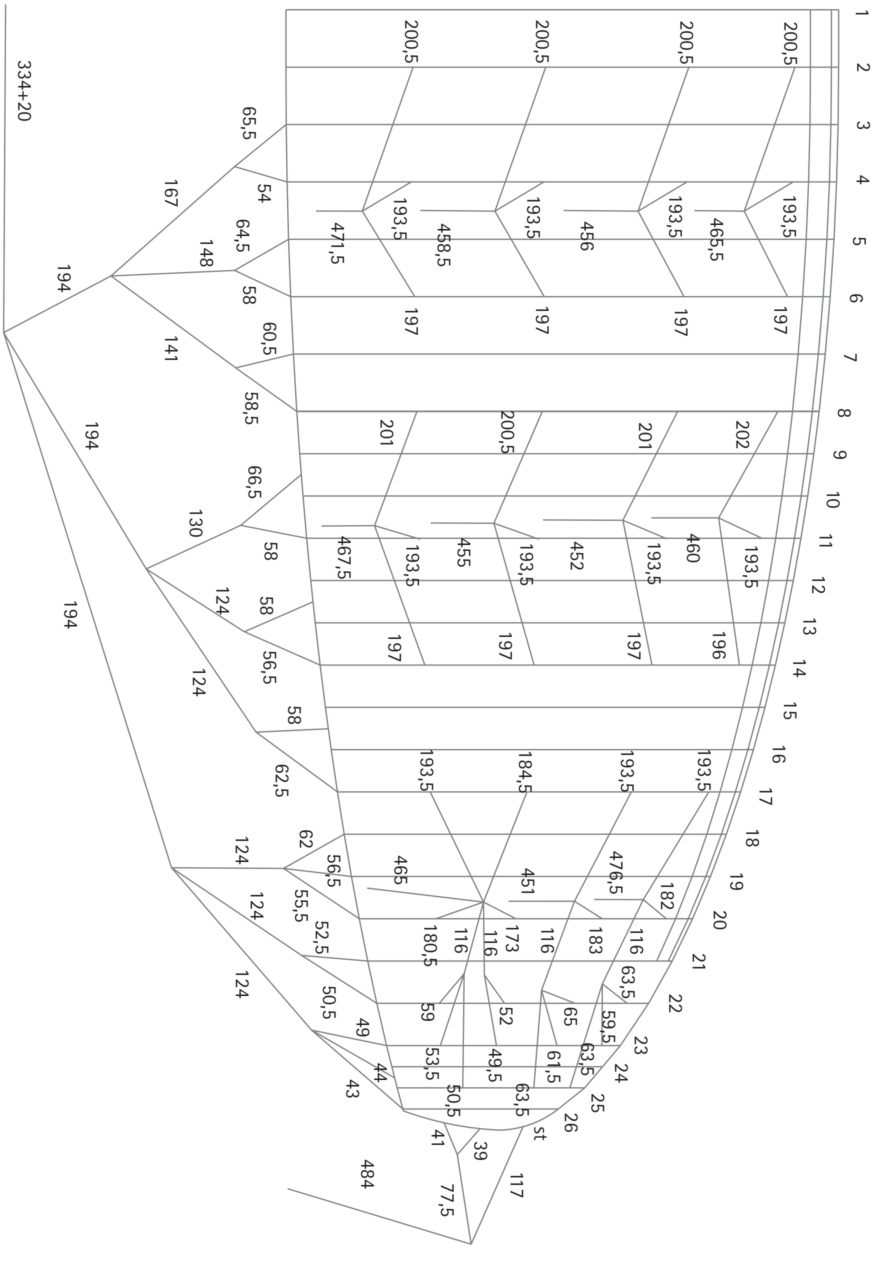
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KINETIK

| flight log |

size

date	site	duration	flight details

KINETIK

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