Kibo X

Operating manual
and service booklet

Seriennummer:_____

AIRBORNE SENSATIONS since 1979

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Important
Where necessary, we use the following words and symbols to draw attention to important issues:

WARNING!
These instructions draw attention to dangers that can lead to injury or death if ignored.

CAUTION!
These instructions draw attention to dangers that can lead to damage to the paraglider or to premature wear.

NOTE
This is a note that is considered helpful or additional information.

Welcome to UP

Congratulations on the purchase of your new UP Kibo X. UP International is known worldwide for developing and manufacturing first-class paragliders - paragliders that focus on maximum safety, optimum performance and top quality. UP wings are designed and developed based on the demands our customers place on UP products. We are therefore open to all suggestions and ideas for improvement from you. With your suggestions and constructive criticism, you can play an active role in the continuous development process of our products. We want to be able to provide you with the latest technical innovations for your UP paraglider and information about the latest developments at UP at all times. However, we can only do this if your glider is registered with us after purchase. Product registration also guarantees you preferential treatment in all service matters in the unlikely event of any irregularities. You can register your UP Kibo X online at:

http://www.up-paragliders.com/de/service/product-registration

If you have any questions, please contact your UP dealer or UP International directly:

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Have fun and enjoy your UP Kibo X - Your UP International Team

Safety instructions

Please read this manual before your first flight with the UP Kibo X. This will help you to familiarize yourself with your new wing more quickly. The manual provides you with information about all the important features and characteristics of the UP Kibo X, but is not a substitute for attending a flying school. Please pay particular attention to the following points:

- At the time of delivery, this paraglider corresponds to the type tested in accordance with EN 926-1: 2015, EN 926-2:2013+A1:2021 and LTF NFL HG/GS 2-565-20. Any unauthorized modification beyond the permissible adjustment options will result in the invalidation of the operating license!
- The use of this paraglider is exclusively at your own risk. Any liability on the part of the manufacturer and distributor is excluded.

- Every pilot is responsible for their own safety and must also ensure that the glider hey are flying is checked for airworthiness before every take-off.
- We also assume that the pilot is in possession of the required certificate of competence and complies with the applicable legal regulations.

Nature and landscape-friendly behaviour

Paragliding is a very natural and environmentally friendly sport. For this reason, respectful treatment of the environment should be a matter of course for every (paraglider) athlete. When practicing our sport, care must be taken to protect nature and the landscape. We therefore ask you not to make noise, not to go off the marked hiking trails and not to leave any garbage behind in order to preserve the ecological balance of our nature for our children. Please inform yourself before each flight about the valid nature conservation regulations in the respective flight area or on the planned flight route in order not to unnecessarily annoy hunters, landscape conservation authorities and landowners.

Technical description

The UP Kibo X was developed by UP International to meet the special requirements of a safe intermediate performance paraglider with excellent launch characteristics and a remarkable performance spectrum. Like all UP products, all materials used are of a high quality standard. To ensure a long service life, they are carefully selected and subjected to extensive testing before use. Further details of the design and dimensions, including the dimensions of the UP Kibo X lines, can be found on the type approval certificate issued by the certification authority or in this manual. Any technical changes can be found in the appendix to this operating manual or on our website

Intended use

In accordance with LTF-HG/GS 2-565-20, the Kibo X can be used as a "light aircraft" with an empty mass of less than 120 kg in the paraglider category

LTF and EN classification

The UP Kibo X is classified in the final classification in EN 926-2:2013+A1:2021 / EN B.

Target group and recommended flying experience

Pilots who have regular flying experience and intermediate flying skills, with at least 20 to 30 flying hours per year.

Requirements in normal flight

The flight and control behaviour of paragliders in this class requires an advanced, precise and sensitive control technique due to shorter control travel, lower roll and

pitch damping and more dynamic turn handling. It also requires a largely automated active flying style.

Requirements in the event of malfunctions

The behaviour of the glider after malfunctions places increased demands on the pilot's skill and speed of reaction. The pilot should have sufficient practical knowledge to avoid and control the most common malfunctions, especially lateral and frontal collapses. If this experience is not sufficient, we recommend instruction on the respective glider type, preferably in a safety training course.

Requirements for rapid descent

Flight manoeuvres such as spiral dives or B-stalls place higher demands on the pilot due to the overall more demanding control characteristics. Good practical knowledge of these manoeuvres should be available. If this is not the case, special instruction on the respective glider type is recommended, ideally in a safety training course.

Suitability for training

The UP Kibo X is **not** suitable for training.

Tandem and paramotor license

The UP Kibo X is certified as a solo glider. Suspension is only provided for a harness. The UP Kibo X is not certified as a paramotor glider. There are no trimmers on the risers.

Recommended weight range

The UP Kibo X must be flown within the permitted take-off weight. This can be found under "Technical data UP Kibo X". The weight refers to the take-off weight (pilot weight plus clothing, glider, harness equipment, etc.). The easiest way to determine your take-off weight is to stand on a scale with your rucksack and equipment.

UP International offers the UP Kibo X in five different sizes, each optimized for the medium weight range. Each size can be flown within the approved weight range without any problems. To help you find the size that best suits your personal needs, here are a few practical tips.

Pilots who are within the middle third of the weight of a size are ideal when traveling. They should opt for this size. Within this weight range, they can center the thermals more closely and fly the Kibo X with slightly less dynamics. This UP variant is particularly recommended for pilots from the lowlands.

Pilots who can choose between two sizes because they are either in the upper third of a smaller size or in the lower third of a larger size should proceed as follows: Experienced LTF/EN B pilots should assess for themselves how they prefer to travel, with a buffer upwards or loaded high.

Pilots who prefer a high wing loading should fly the UP Kibo X in the upper weight range. This makes your Kibo X slightly faster and more dynamic.

The UP Kibo X reacts to weight changes with a slight increase or decrease in trim speed, with hardly any effect on glide performance. The size can therefore be selected to suit your personal flying style.

Operating limits

For the commissioning of the Kibo X, compliance with the operating limits for the entire flight duration, including preparation and follow-up, must be ensured. These are exceeded as soon as one of the following points applies:

- Flying with an incorrect number of seats
- Failure to comply with the respective upper and lower weight limits of the starting weight
- Temperatures of more than -30° C or more than 50° C
- Flying in rain, snow, clouds or fog or with a wet canopy for any other reason
- Unauthorized modifications to the canopy, lines or risers
- Acrobatic flying and manoeuvres with more than 90° bank angle
- Wind speeds at the take-off site and expected wind speeds in flight that are higher than 2/3 of the achievable speed with the take-off weight intended for the flight
- Turbulent weather conditions that are expected to cause extreme flight conditions outside the flight conditions tested in the certification

Technical data of the UP Kibo X

Size	XS	S	SM	M	L
Surface area flat [m²]	20,4	22,5	24,5	26,3	28,0
Surface area projected [m²]	17,4	19,2	20,9	22,4	23,9
Flat span [m]	10,7	11,2	11,7	12,2	12,5
Projected span [m]	8,7	9,1	10,1	9,1	9,9
Flat aspect ratio	5,6	5,6	5,6	5,6	5,6
Projected aspect ratio	4,4	4,4	4,4	4,4	4,4
Number of Chambers	51	51	51	51	51
Total line length incl. Brake [m]	238	250	261	270	279
Total # of lines incl.Brake	158	158	158	158	158
Glider weight [kg]	4	4,2	4,5	4,8	5,1
Takeoff weight [kg] with LTF/EN Category certified	60-78: B	70-90: B	80-103: B	90-115: B	105-130: B
maximum symmetrical steering travel at maximum weight [cm]	60	60	65	65	65
Accelerator travel [mm]	135	145	145	160	160
Number of risers (split A-risers)	3 + 1	3 + 1	3 + 1	3 + 1	3 + 1
Trimmer	no	no	no	no	no
Description		Intermediate			

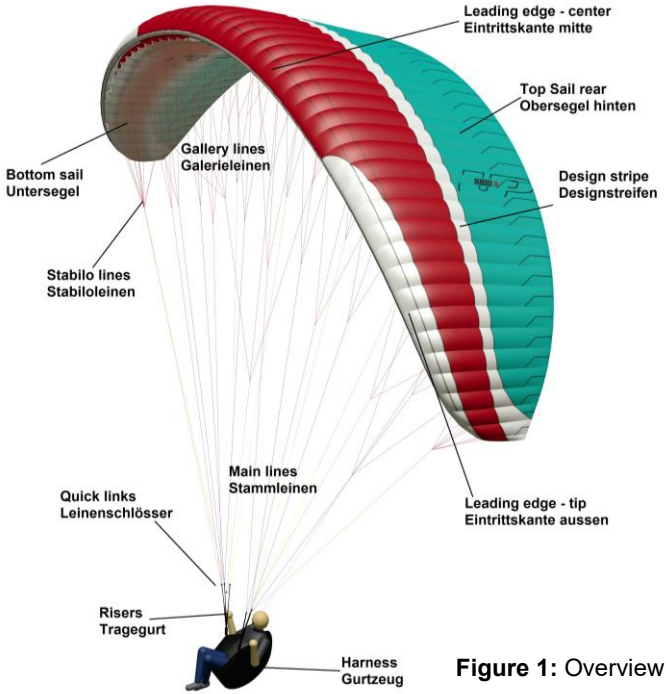


Figure 1: Overview

Construction

For the first time, the 2.5-line construction has been included in the popular KIBO series and now also offers pilots in the middle B segment the opportunity to enjoy such a powerful yet safe paraglider. The top speed and thermal characteristics, such as pitch stability, have been further improved. Also new are the HPR risers, which enable easy and efficient acceleration, and the option of C-steering. C-steering means controlling the wing by precisely optimizing the angle of attack, just as these systems work on 2-liner competition wings and our high-performance B- and C-gliders SUMMIT X, KANGRI X and TRANGO X.

Sail material

- Topsail /bottom sail: Dominico D30
- Ribs/horizontal belts: Skytex 40 Hard Finish
- Secondary ribs: Dominico D30

Line material

The UP Kibo X uses sheathed Dyneema® from Edelrid and Liros, as well as unsheathed aramid lines from Edelrid.

Lines

The lines of one half of the canopy are combined into three groups and the brake lines:

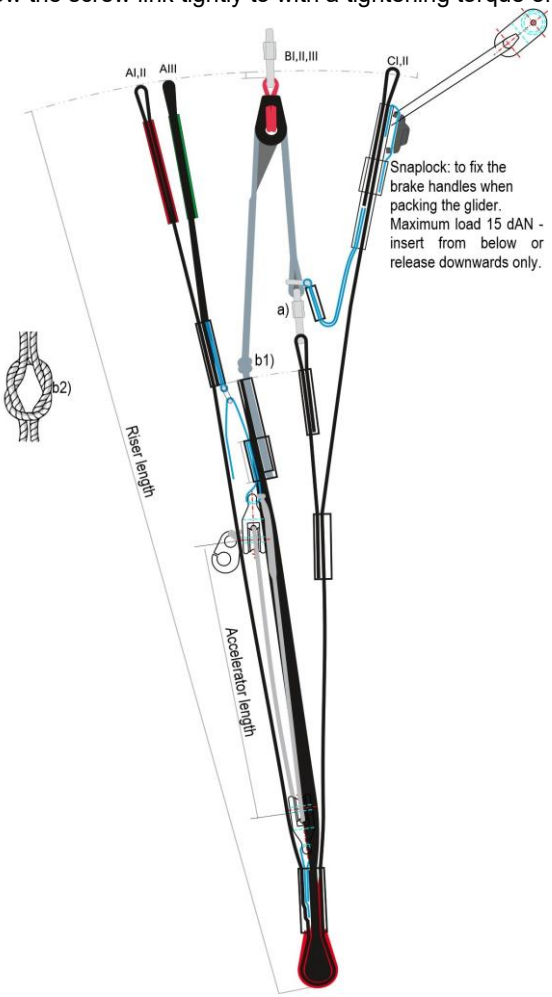
A-level: AI, AII, AIII
B level: BI, BII, BIII, STI
C-level: CI, CII
Brake lines: BRI

The individual brake lines are each connected to a main brake line. This main brake line is guided through a pulley on the C-riser. There is a marking on it at the height of which the brake handle is knotted. All main lines on one level are looped separately into quick links and connected to the risers. There are special line collectors in the quick links to prevent the lines from slipping.

Risers

The risers of the Kibo X are supplied in different lengths for XS, S/SM and M/L. This improves the ergonomics of the different sizes and facilitates manoeuvres such as take-off, ear placement, B-stall, etc. in particular. It also optimizes the accelerator travel for different wing sizes. When the speed bar is activated, the length of the A- and B-risers is changed at the same time. The largest change in angle of attack is achieved when the front upper accelerator pulley of the riser meets the lower accelerator pulley. The BI,II,III risers made of Liros D-Pro 3mm can be replaced if they show signs of wear. To do this, open the line lock **(position a)**, open the anchor stitch on the riser **(position b1)** and attach the new line there with a "handshake

loop" **(b2)**. Then feed it through the Ronstan pulley and attach it to the line buckle (position **a).** Then screw the screw link tightly to with a tightening torque of 0.60 Nm.



Riser length [mm]	XS	XS accel.	S	S accel.	SM	SM accel.	M	M accel.	L	L accel.
A I, II	495	380	515	390	515	390	540	400	540	400
A III	495	380	515	390	515	390	540	400	540	400
B I, II, III, STI	492	425,5	512	439,5	512	439,5	537	457	537	457
C I,II	495	495	515	515	515	515	540	540	540	540
Accelerator travel	145		155		155		165		165	

Figure 2: UP Kibo X risers

Accessories

The UP Kibo X is supplied with a flexbag and repair material. The manual is available to download from the UP homepage. Every UP Kibo X is subjected to a precise routine test at the factory and checked for conformity with the test sample.

Before the first flight

CAUTION! The UP Kibo X must be inflated on a flat field before the first flight and a complete pre-flight check must be carried out (visual check for damage, check the line locks). The first flight should be carried out by a flying school or an authorized person before the glider is delivered .

Settings

During its development process, the UP Kibo X was adjusted by the test pilots and designers so that the series product has the optimum trim in terms of safety, handling and flight performance. Due to the high quality standard that UP International applies to all its products, all line and harness lengths are manufactured with the utmost precision. Each wing is fully measured and cataloged before delivery. The line lengths and riser settings of the UP Kibo X are extremely precise and must not be altered under any circumstances!

WARNING! Any unauthorized modification to the gliderwill invalidate the operating license! Only the adjustment of the brake handle position allows individual modification.

Positioning the brake levers

The UP Kibo X is delivered from the factory with a brake setting that offers optimum use for most pilots when flying. However, for very tall or short pilots and when using harnesses with high or low pilot suspension, it may be necessary to change the position of the brake handles.

If the brake setting is shortened, particular care must be taken to ensure that the UP Kibo X is not slowed down by brake lines that are too short when trimming and accelerating. In addition to a deterioration in performance and take-off characteristics, safety problems can also occur if the brakes are shortened considerably. There should therefore always be a "free travel" of a few centimeters to prevent the glider from braking unintentionally. It should also be noted that the brake already causes a pulling force due to its air resistance. If the brake setting is extended, it must be

ensured that the pilot is able to reach the stall point without winding the brakes in extreme flight situations and when landing. Changes to the brake travel should only ever be made in small steps (3 to 4 centimeters) and should be checked on the practice slope. Make sure that the left and right brake lines are set symmetrically! An individually correctly adjusted brake is the prerequisite for active and fatigue-free flying. If you have any questions about your body size and harness in relation to the brake settings, these must always be clarified before making any changes. Please contact a UP dealer or UP International directly for personal advice.

To prevent unintentional release of the brake handles, it is essential to ensure that the brake line knot is correctly designed and securely fastened**.**

Caution! Loose or unsuitable brake line knots can lead to serious accidents due to the brake handles coming loose and the paraglider temporarily becoming uncontrollable!

Acceleration system

Correct attachment and adjustment of the speed system is an important prerequisite for later smooth use in flight. The length should therefore be individually adjusted and the cable routing checked before the first launch.

The connection between the foot accelerator and the riser is made using special Brummel hooks or screw carabiners. The speed bar itself usually consists of one or more steps, two cords and two Brummel hooks. Starting from the steps, the two cords are pulled through the eyelets and pulleys provided.

If you have any problems or questions regarding attachment and rope routing, you should contact the respective harness manufacturer.

Suitable harnesses

All tested and approved harnesses with a suspension point at around chest height are suitable for the UP Kibo X. The lower the suspension point of the harness, the easier it is to steer the UP Kibo X by shifting your weight.

The recommended carabiner distance depends on the pilot's weight:

<50kg: 38cm

50-80kg: 42cm

>80kg: 46cm

The harness should ensure that the UP Kibo X can be accelerated to its maximum speed via the pulleys of the speed system (both Riley pulleys of the riser lie on top of each other).

It should also be noted that the relative braking distance changes with the height of the harness suspension. Please note that different harnesses can lead to different extreme flight behaviour (e.g. increased risk of twisting with recumbent harnesses). If you have any questions or doubts regarding the use of your harness with the UP Kibo X, please contact a UP dealer or UP International directly. We will be happy to advise you.

Harness dimensions for certification

Harnesses with the following dimensions are used for the type test:

Total flight weight	**Width**: horizontal distance between the attachment points of the risers (measured from the center lines of the carabiners)	**Height**: normal distance from the attachment points of the risers (measured from the center lines of the carabiners) to the seat board surface
< 80 kg	40 +/- 2 cm	40 +/- 2 cm
80 - 100 kg	44 +/- 2 cm	42 +/- 2 cm
> 100 kg	48 +/- 2 cm	44 +/- 2 cm

Rescue

Carrying a suitable rescue parachute is not only required by law in most countries, it is absolutely vital for the safe operation of a paraglider. When selecting a rescue parachute, make sure that it is suitable and approved for the intended take-off weight.

The prescribed rescue system must be attached in accordance with the manufacturer's instructions. The reserve parachute bridle is normally passed over the pilot's back and hooked into the shoulder strap loops.

Field of application

The UP Kibo X has been developed and tested exclusively for use as a paraglider for foot and winch launch. Any use other than the intended use is not permitted.

Aerobatics

The UP Kibo X has not been built and tested for aerobatics. It is not suitable or approved for this purpose.

WARNING! Anyone performing aerobatics with the UP Kibo X is putting their life in danger. Performing aerobatic manoeuvres can result in unpredictable flight attitudes as well as the risk of overloading the material and pilot!

Flight practice and flight safety

The following two chapters, Flight practice and Flight safety, describe basic aspects of paragliding. They serve to make this manual complete, but should be a matter of course for pilots who have decided to fly with a glider like the Kibo X.

Flight practice

Pre-flight check

A thorough pre-flight check is necessary for every aircraft, including the UP Kibo X. Please ensure that you carry out each check with the same care. The take-off check (five-point check) is necessary before every take-off. In order not to forget anything, it is advantageous to always do it in the same order.

1. The paraglider should be laid out in an arc so that when pulling up with the middle A-risers (red), the lines in the middle of the glider are tensioned slightly earlier than those at the wing tips. This ensures an easy and directionally stable take-off. When laying out the canopy, please pay attention to the wind direction so that both halves of the glider are filled symmetrically when pulling up into the wind and the canopy does not break out sideways.
2. Then carefully sort all lines and risers. Particular attention should be paid to the A-lines. They must run freely and without entanglement from the A-riser to the canopy. It is equally important that the brake lines are free and cannot get caught during take-off. Make sure that no lines run under the canopy. A line overthrow during take-off can have serious consequences.
3. Then make sure that all the straps on the harness are fastened. This should be checked from bottom to top in the same order by touching the respective buckles. Also check that the helmet is closed, the reserve parachute is attached (when using a front container) and the carabiners are secured.
4. Immediately before take-off you must check that the airspace is clear (including behind you).
5. The last step is to check the wind direction. If everything fits, you can take off.

Take-off phases

The Kibo X is characterized by very good launch behaviour. Even a slight pull on the middle A-lines (AI, AII - risers, red) is enough for the canopy to inflate evenly and immediately rise above the pilot. The Kibo X has no tendency to hang up during the inflation phase.

During the inflation phase, the pilot holds the middle A-risers (red) and the brake handles in his hands. A final check of the deployed wing is mandatory. The center of the Kibo X canopy is indicated by the UP logo on the leading edge. Careful deployment of the canopy according to the wind direction and a take-off run in line with the center of the canopy make the inflation phase easier.

The canopy is filled with a consistent and even pull. The arms are held slightly bent in extension of the A-lines. As soon as the pull on the lines eases - the canopy is above you at this point - look up and make sure that the canopy is fully open above you. Depending on the initial impulse, wind strength and slope inclination, it may be necessary to brake the UP Kibo X slightly at the apex.

Any directional corrections with the brakes should only be made when the canopy is already above you, otherwise the glider could fall back again if the brakes are applied too hard.

The final decision to take off is only made at the end of the control phase. During the acceleration and take-off phase, you take off from the ground at an appropriate speed, which can be supported by controlled use of the brakes depending on the take-off terrain. After a pendulum-free take-off and reaching the safety altitude, take a seat in your harness without letting go of the brake handles. If you cannot get into the upright sitting position without additional help, hand over the brake handles to one hand. Use your free hand to get into the desired sitting position.

Speed control

By means of brake lines

The Kibo X has a very high speed range combined with great aerodynamic stability. The speed can be adjusted using the brake lines so that the optimum performance and safety can be selected for every flying situation.

The Kibo X achieves its best glide speed in calm air when it is unbraked. If the brake lines are pulled up about 10 to 15 centimetres on both sides, the wing will sink as little as possible. If the pull on the brakes is increased further, the sink rate is no longer reduced, the steering forces increase noticeably and the pilot reaches the minimum speed.

CAUTION! Flying too slowly close to stall speed carries the risk of an unintentional stall or spin, so this speed range must be avoided at all costs.

By means of an acceleration system

The UP Kibo X is equipped with a very efficient acceleration system that is activated by a foot stretcher. When activated, this speed system increases the speed very effectively by around 11 to 13 km/h. Using the speed system is very useful in some situations and should be part of an active flying style.

If the speed is increased to the maximum via the leg extension, you can fly out of downwind zones more quickly, achieve a better glide angle in headwinds or still arrive upwind. The action radius of the UP Kibo X increases considerably when fully accelerated and noticeably increases the performance potential that can be achieved. When using the speed system, it is important to ensure that the speed system is deactivated immediately if an extreme flight situation occurs or that it is not activated in extreme flight situations. The advantage of using the speed system is that fluctuations in lift and the resulting collapse of the glider can be detected by sudden differences in pressure on the leg extensions. If the pilot senses that the back pressure is suddenly reduced, the speed must be immediately reduced to trim speed in order to avoid possible collapses in advance.

CAUTION! All extreme flight conditions (e.g. collapses) are more dynamic at higher speeds. For this reason, the speed system should be operated only a little or not at all in low ground clearance or very turbulent conditions.

Turning

By shifting weight, flat turns can be flown very well with minimal loss of altitude. A combined steering technique - weight shift and pulling the brake line inside the turn - is ideal for flying turns in any situation, whereby the radius of the turn is determined by the amount of brake line pulled. If it is necessary to turn the UP Kibo X in a very tight space, it is advisable to control the pre-braked glider by releasing the outside brake line and pulling the inside brake line sensitively (opposite movement of the brake lines). From approx. 50 percent brake line pull on one side, the UP Kibo X takes a clear sideways tilt and flies a fast and steep turn, which can be extended into a spiral dive (see chapter "Spiral dive").

C- riser control

When accelerated, the Kibo X can also be steered by pulling down the soft handle on the C-riser. Make sure that you only pull until there is a noticeable increase in brake pressure. If for any reason it is no longer possible to fly the UP Kibo X with the brake lines (e.g. loss of the brake handle due to loosening of the attachment knot), it can also be steered and landed using the C-lines. You should react carefully and sensitively. The stall occurs somewhat earlier when steering via the rear risers or the C-lines than when steering via the brake lines.

Landing

The UP Kibo X is easy to land. From a straight, pendulum-free final approach into the wind, let the glider glide out at normal speed and then apply the brakes decisively and quickly at a height of about one meter above the ground. If there is a strong headwind, slow down accordingly. Landings out of steep turns and rapid turn changes before landing should be avoided due to the associated pendulum movements.

Winch towing

The UP Kibo X has no special features for winch towing. To ensure safe and accident-free towing, the following points must be observed:

- Unless you are towing on your "home winch", where you know both the towing winch and the towing area as well as the way of towing, it is absolutely necessary to familiarize yourself with the local conditions. Every "guest" at an unfamiliar flying site will certainly be instructed by the local pilots.

- When launching, make sure that the canopy is completely over the pilot before giving the launch command. Any directional corrections with the brakes should only be made when the canopy is already above the pilot, as otherwise the glider may fall back again if the brakes are applied too hard, or the glider may be dragged away when not yet airworthy.
- Under no circumstances should the launch command be given before the glider is fully under control. Strong directional corrections during the take-off phase and before reaching the safety altitude must be avoided.
- Make sure you ascend at a flat angle from the start to the safety height.
- The UP Kibo X must not be towed with a towline pull of more than 90 daN.
- All persons and equipment involved in winch operation must be in possession of the relevant prescribed certificates of competence or approvals in order to ensure safe towing operations. This applies to the pilot, towing device, towing pawl and winch operator, as well as all other equipment for which a special certificate of operational suitability is required.
-

Handle attachment for paraglider towing

The optimum towing point for the tow rope should be as close as possible to the system's center of gravity. In the case of a paraglider, the ideal pulling point is at the height of the riser attachments or directly on the risers. When using spreader bar pawls, the pawl/shackle distance should be sufficiently extended (cord or webbing) and the pawl must be secured with a hold-down rubber to prevent it from kicking back. The distance between the risers must not become narrower when using the ratchet attachment (risk of twisting)!

CAUTION! If towing with a chest container, it must be ensured before the first launch that the release of the reserve parachute is unhindered at all times. If this is not the case, you may only tow with a webbing release.

Flight safety

A development has taken place from the rectangular parachute to the low-drag high performance wing, which offers new flying possibilities, but at the same time demands a forward-looking and sensitive flying style from the pilot. Every wing, whether beginner or high performance, can collapse in turbulent conditions or if the pilot reacts incorrectly. This makes it all the more important to master the paraglider, have a feel for the controls and recognize natural processes.

Today, pilots can choose from a wide range of different types of UP wings. The main difference within the individual classes lies in the aerodynamic stability of the canopies. Beginner wings react less dynamically to disturbances and have a largely forgiving flight behaviour, while high performance wings only allow a very small margin for pilot error. Choosing the right glider is therefore crucial for flight safety.

Pilots should therefore self-critically check their skills and level of knowledge before deciding on a glider.

Ground training is a safe and effective method of familiarizing yourself with your new paraglider. On a suitable meadow and in light to moderate winds, control impulses can be practiced very well and glider reactions can be observed. You can also practice launching and flight manoeuvres (e.g. folding the outer wings or other minor malfunctions).

Before and during the flight, it is important to plan your route with foresight. Very little turbulence occurs suddenly, but has a causal origin. If you think about the day's weather conditions and the flying area in advance, you can avoid many dangers later on.

Flying in thermals and turbulent conditions

In turbulent air, the UP Kibo X should be flown with a light brake line pull. This increases the angle of attack and thus the canopy stability. When flying into strong thermals or torn thermals, make sure that the canopy does not lag behind the pilot. This can be prevented by loosening the brake line when flying into the thermal to pick up some speed. Conversely, the paraglider must be slowed down if the canopy gets in front of the pilot by flying into a downwind area or flying out of a thermal.
Alternatively, experienced pilots can also use the C-risers to control the glider in thermals.
Flying faster is useful for crossing downwind zones. The UP Kibo X has a very high stability due to its design. However, an active flying style in turbulent air, as described above, contributes to additional safety. A collapse and deformation of the canopy can be largely prevented by an active flying style on the part of the pilot.

Descent aids

All descent aids should be practiced in calm air and at a sufficient height in order to be able to use them effectively in extreme conditions! There are essentially three different ways of safely and controllably increasing your descent speed.

WARNING! All other flight maneuvers, such as full stalls and negative turns, should be avoided as descent aids, as they do not achieve higher sink rates and incorrect recovery can have dangerous consequences regardless of the glider type!

Steep spiral

The highest sink rates of over 15 m/s can be achieved using the spiral dive. However, it is advisable to approach the high sink rates slowly.

Initiating a spiral dive with the UP Kibo X is simple and has already been described in the chapter "Turning". It is important that the transition from a turn to a spiral dive is flown slowly and steadily. If the brake lines are pulled too abruptly, there is a risk of spinning. In this case, the brakes must be released immediately so that the glider can pick up speed again.

The bank angle and sink rate are controlled by pulling and releasing the brake line on the inside of the turn. The brake on the outer wing can also be used to stabilize the canopy at very high sink rates.

The exit of the spiral dive is performed in the same way as the entry, slowly and steadily. The brake on the inside of the turn is released in a controlled manner. You can support the exit by braking slightly on the outside of the turn. Excessive oscillation can be prevented by controlled and soft counter-braking.

As the sink rate increases, the outer wing of the Kibo X deforms. This condition is intentional and improves safety in the spiral dive.

The pilot must know that high forces act on him and the material during a spiral dive with high sink rates.

WARNING! In spiral dives with high sink rates, very high forces can act on the pilot and material. The high centrifugal forces can cause the pilot to lose consciousness and lose control of the paraglider. This flight condition can have life-threatening consequences!

B-stall

The launch is made from unaccelerated straight flight by pulling the BI,II,III (gray Dyneema lines) about 10 centimeters down on the pulley. The pilot can keep the brakes in his hands. For the first few centimeters, a lot of force is required to pull out the B-risers. Once the airflow at the top of the profile is largely torn away, the glider enters a stall-like flight state without forward motion. By pulling the risers further, the surface area can be reduced and the sink rate increased. The sink rate reaches its maximum after approx. 10 cm. The risers should then not be pulled down any further, as otherwise the wing may become unstable or form a front rosette. If the B-risers have been pulled down too far, they must be released immediately so that the glider can return to a stable flying position and the B-stall can then be continued.
If you release the risers simultaneously, quickly and without using the brakes, the paraglider picks up speed again independently and goes into stationary gliding flight. It is normal for the canopy to pitch approx. 30-45 degrees in front of the pilot. The glider must not be braked during this phase! If the UP Kibo X goes into a stall due to the B-risers being released too slowly, which is not normally the case, it will be terminated by a standard recovery (see the section on stalls in the description of extreme flight situations).

WARNING! An incorrectly executed B-stall can lead to dangerous flight conditions! Due to the special design of the Kibo X, pilots should only practice this maneuver under supervision in a safety training course or generally choose other manoeuvres for rapid descent.

Big Ears

After preparing the speed system, the outermost A-lines (AIII risers) on both sides of the line lock are pulled down simultaneously by approx. 20 to 30 centimeters, causing the outer wings to collapse. Hold the brake handles together with the pulled down A-

risers in your hand. After folding in the outer wings, the angle of attack of the Kibo X should be reduced again using the speed bar. The wing remains fully controllable by shifting your weight and flies straight ahead at an increased sink rate (3-5 m/s depending on the number of folded cells and the use of the speed system). After releasing the A-lines, the pilot deactivates the speed system and the collapsed cells open automatically. If this is not the case, the flight condition can be actively exited by applying the brakes alternately and gently. No extreme flight manoeuvres may be flown in this configuration!
If the UP Kibo X is flown at the lower weight limit, the canopy can enter a deep stall if the outer wings are folded in over a very large area and the brakes are applied. If this happens, which is not normally the case, the stall is terminated by a standard recovery (see the chapter on stalls in the description of extreme flight attitudes).

Extreme flight maneuvers

Behaviour in extreme flight situations

Although the UP Kibo X has very high aerodynamic stability, turbulence or pilot error can lead to an extreme flight situation. The best way to react calmly and correctly in such a situation is to attend a safety training course. Here you learn to master extreme flight situations under professional guidance.

Extreme flight manoeuvres should be performed in calm air, at sufficient altitude and only during safety training over water under professional guidance. We would like to point out once again that a reserve parachute is mandatory.

The extreme flight manoeuvres and flight conditions described in the following section can be caused either intentionally, by turbulence, or by pilot error. Any pilot who flies in turbulence or makes a mistake when controlling their paraglider can get into these flight conditions. All extreme flight manoeuvres and flight conditions described here are dangerous if they are performed without adequate knowledge, without sufficient safety altitude, or without appropriate instruction.

WARNING! Incorrect execution of the flight manoeuvres and flight conditions described here can be life-threatening!

Collapses

Asymmetrical collapse

The KIBO X belongs to the new generation of paragliders that, as well as having very good performance, also exhibit a high degree of stability. Wing tip collapses can almost always be prevented through active flying. Once an asymmetric collapse has occurred, the pilot aims to maintain flying direction through weight shift and careful application of brake input on the open side. If the open side is braked too much it may stall, and the wing will enter a spin – this is the classical recipe for cascading events (see the spin chapter). In rare instances a wingtip may catch in the lines during asymmetric collapses (see cravats here below).

Cravattes

During the extensive test phase of the Kibo X, our test pilots were unable to detect any tendency to hang up. However, should a hang-up occur, the wing should be prevented from turning away IMMEDIATELY or the rotation should be slowed down . You can then pull on the specially marked stabilo line (orange) in an attempt to free the tangled end of the wing. Short braking impulses can also help to release the tangled wing tip.

Other manoeuvres to release hang-ups are the "full stall" or "short negative turning of the wing". However, these manoeuvres should only be practiced in a special safety training course.

WARNING: If you are unable to prevent the glider from spinning away, the rescue system must be activated IMMEDIATELY! Otherwise a very dangerous, uncontrolled spiral dive may occur. This flight condition can have life-threatening consequences - also for third parties!

Front stable

A negative angle of attack due to turbulence or the pilot pulling down the A-risers on both sides causes a frontal collapse of the leading edge. The UP Kibo X normally ends a frontal stall quickly and automatically. Short, even, light symmetrical braking on both sides can support the re-opening. Braking too hard can lead to a stall.

Types of stall

A laminar and turbulent boundary layer zone is always created as the air flows around the paraglider. Extremely dangerous flight conditions can occur when the laminar boundary layer separates, causing practically the entire flow on the upper side of the wing to break off. This mainly occurs at large angles of attack of the wing. There are three different types of stall in paragliders.

CAUTION! Spins and full stalls are dangerous and sometimes unpredictable flight maneuvers. They should therefore not be flown intentionally. Rather, it is important to know the beginnings of a stall so that it can be prevented by the pilot's immediate reaction!

Deep Stall

The UP Kibo X is not sensitive to stalls. It will automatically stop a possible stall caused by pulling the brake lines or the rear risers too hard, or if the B-stall is too slow, as soon as the brakes or the rear risers are released. Should the UP Kibo X enter a stall due to a particular flight situation or configuration (e.g. too low take-off weight), this can be stopped by symmetrically pushing the A-risers forward on both sides. Flight exercises in which you intentionally approach a stall should only be carried out with sufficient safety altitude and always under professional guidance

(safety training). If you think you have entered a stall, do not brake under any circumstances! This could result in a spin or a full stall.

Fullstall

Flying a full stall only makes sense for very experienced pilots. This is a complete stall. If the speed falls below the minimum speed, the airflow breaks off. Pilot and paraglider are accelerated backwards. Under no circumstances should the brakes be released in this situation, as a recovery will cause the canopy to shoot far forward. In extreme cases, the glider can accelerate to below the pilot and the pilot can then fall into the canopy. After tipping backwards, the canopy forms a rosette and the outer wings begin to flap. These flapping movements are transmitted to the pilot via the brakes. A great deal of force is required to keep the canopy in a stalled position.

Before releasing the full stall, the canopy must be stabilized. To recover, both brakes are then released slowly and symmetrically until the glider has pre-inflated over its entire span. During this phase, the glider will pitch slightly around its lateral axis. When the canopy is in front of the pilot, the remaining brake travel is released. If the canopy is released symmetrically, it will accelerate forward without collapsing. However, it must always be taken into account that the glider can collapse sideways or head-on if it is pushed forward too much.

The asymmetric recovery of the full stall carried out by test pilots is only used to check the glider and, like the full stall, should not be flown intentionally. Due to the dynamic forces involved, the reactions of the canopy during recovery are very demanding. An impulsive, large-scale collapse of the wing is possible.

CAUTION! When minimum speed is reached, this is indicated by a noticeable reduction in driving noise and an increase in steering forces. Up to this point, the glider can be started by simply releasing the brakes.

Spin

The spin (negative turn/vrille) is a one-sided stall and occurs when the pilot applies the brakes quickly and completely at high speed. Asymmetric braking close to the stall has the same effect. The wing turns quickly during a spin. The inner wing flies backwards. To stop the spin, both brakes must be opened. This allows the wing to regain speed. The canopy can shoot forward on one side and collapse sideways.

WARNING! Spins followed by folding the wing halves in on one side can lead to cravattes!

Wingover

Wingovers are induced by flying alternating turns; each time letting the pendulum effect increase the bank angle.

CAUTION! Due to its high manoeuvrability, the UP KIBO X achieves a high bank angle after just a few turns. We recommend approaching this manoeuvre slowly, as parts of the wing can collapse if the angle of attack is too high

Further information

Rain-induced deep stall

There are two reasons why flying with a wet wing increases the risk of deep stalling:
First reason: A paraglider flying in heavy rain will soon grow significantly heavier and thereby undergo changes in the centre of gravity and the angle of incidence. This may lead to deep stalls. Note that older wings will absorb more water than newer ones due to the coating on older wings being more permeable – this means that the critical mass may be reached sooner on older wings.
Second reason has to do with the actual rain drops on the top surface – if enough large rain drops form that the entire top surface is covered, but they don't join to either flow off or become a homogeneous mass, the surface may become so rugged that the airflow separates and the wing stalls.
This phenomenon has been observed on hang-gliders and gliders for years, but only recently have we discovered that paragliders may also be affected. It is more likely to happen with new wings where the cloth is still highly hydrophobic, and the drops thus do not penetrate but remain on the surface.
We know from computer simulations and practical tests that this is physically possible, but we also suspect that it occurs very seldom in real life flying.
In both cases the brake line travel becomes very short and even small input may suddenly induce an airflow separation; in some cases, even a gust or a sudden thermal may change the angle of incidence enough to cause the deep stall.
If you find yourself flying in unavoidable rain, we strongly recommend that you avoid any sudden movements or radical brake line input, that you do not pull Big Ears or B-stall, and that you steer clear of turbulence and avoid a deep flare on landing.

WARNING! Avoid flying in very humid air or in rain. A wet canopy may have very unpredictable flying characteristics, one of which is a radically increased risk of deep stall!

Advertising and adhesive sails

Before attaching advertising and adhesive sails, every pilot should make sure that there are no changes to the flight characteristics. If in doubt, adhesive sails should not be attached.

CAUTION! If the glider is covered with large, heavy or unsuitable adhesive sails (e.g. for advertising purposes), the operating license will expire. This will render your paraglider unairworthy.

Overload

Extreme flight manoeuvres such as steep spirals as well as acro and freestyle manoeuvres such as SAT or tumbling do not normally pose an acute risk to the structure of the UP Kibo X. However, frequent overloading of the material accelerates the ageing process considerably. Gliders that are subjected to these manoeuvres above the normal level must be sent for inspection sooner.

Flying by the sea

If the glider is flown for long periods by the sea or in salty air, this will lead to premature ageing of the material. In this case, the glider should be sent for inspection at an early stage.

Care of the paraglider

How quickly a paraglider ages depends on how often and where it is flown, how many UV hours it accumulates and the care and attention with which it is treated. Below are some tips on how best to care for, maintain and store your paraglider.

Packing the paraglider

The Kibo X is supplied with a FlexBag in the right size for the respective sunshade size. The canopy is laid out flat with the suspension points facing upwards, then fold the ends together towards the middle. The riser can be packed with the supplied riser bag and should protrude slightly beyond the rear edge in the middle. Finally, fold the strips so that the resulting package corresponds to the size of the FlexBag. Now open the zipper of the FlexBag and insert the package. The Kibo X has short but stiff rods at the leading edge. If you fold in the leading edge, make sure that the rods are not kinked. However, it is also possible not to fold in the leading edge. As soon as the package has been inserted into the FlexBag, the remaining air can be pressed out of the FlexBag and the zipper closed. Then roll up the open end and close it with the buckles.

Figure 4: UP FlexBag (scope of delivery: 1 piece in the corresponding size)

Paraglider cloth

To build our paragliders, we use a high-quality polyamide cloth with special protection for improved UV resistance and air impermeability. Prolonged UV exposure and normal use reduce the strength of any paraglider cloth. Therefore, do not leave your glider in the sun unnecessarily, unpack it just before take-off and pack it up again immediately after landing. Even though modern paraglider fabrics are increasingly better protected against the effects of sunlight, UV radiation in particular is still one of the decisive factors in cloth ageing. First the colors fade, then the coating and the fibers begin to age.

During production of the UP Kibo X, the coated side of the fabric is placed on the inside. This protects the coating, which is crucial for the fabric's properties, from mechanical damage. When choosing a launch site, however, you should still select a surface that is as free as possible from sharp-edged and protruding objects.

Do not step on the glider. Kicking weakens the fabric, especially on hard and stony ground. Pay attention to the behaviour of spectators at the launch site, especially children and dogs: Do not hesitate to draw attention to the sensitivity of the cloth.

Please make sure that there are no insects in the canopy when packing the paraglider. Some species produce acids during decomposition which can etch holes in the cloth. Grasshoppers bite through the material with their mouthparts and cause holes. They also secrete a dark, strongly staining sap. Scare the animals away before folding. Incidentally, insects are not particularly attracted to any particular color - even if this misconception is widespread.

If the paraglider has become damp or wet, it should be dried as quickly as possible in a well-ventilated place (but never in the sun!). If it remains damp when packed, this can lead to the formation of mildew and - especially in warm conditions - to the fibers decomposing!

A brand new sunshade is often heavily compressed on delivery. This compression is only for initial transportation. From the first use, the sunshade should not be packed too tightly. You should also not sit on a packing bag in which an glider is packed.

If the sunshade has come into contact with salt water, it should be rinsed thoroughly with fresh water (see chapter Cleaning).

Paraglider lines

The UP Kibo X uses extremely high-quality Dyneema and Aramid lines.
Please note the following points when handling your paraglider lines:

- Check the lines regularly for damage
- Make sure that the surface of the lines is not chafed by friction
- Avoid unnecessary bending
- Do not knot the brake line on the brake handle unnecessarily. Every knot weakens the line.
- After overloading (e.g. tree landings, water landings or other extreme situations) all lines must be checked for strength and length and replaced if necessary. Send your glider directly to UP International or a UP Service Center for inspection
- If the flying behaviour changes, the length of the lines must be checked and, if necessary, re-looped or replaced. Send your glider directly to UP International or a UP Service Center for inspection

Storage and transportation

Even if your glider was completely dry when you packed it after the last flight of the season, you should remove it from the FlexBag if possible for longer periods of storage and spread the canopy out slightly in a clean, dry place protected from light. If you do not have a suitable space, avoid compressing the paraglider too much and open the FlexBag as wide as possible for ventilation. The UP quick pack bag is also suitable for this purpose. Also make sure that no animals, such as mice or cats, use the glider as a place to sleep during longer periods of storage. No chemical substances such as fuels should be stored in the immediate vicinity of the material. Petrol dissolves the fabric and can cause serious damage to your glider. Store the pack sack in the trunk as far away as possible from reserve canisters or oil containers. The permanent storage temperature must be between 10° and 25° C with a relative humidity of between 50 and 75%.

The UP Kibo X should not be exposed to extreme heat (e.g. in the trunk of a parked car in summer). The heat will force any remaining moisture through the fabric, which can damage the coating. Especially in combination with moisture, high temperatures accelerate the hydrolysis process, which damages the fibers and coating. Do not store your sunshade near radiators or other heat sources. Heat-related changes to the material occur after a short time at temperatures as low as 60° Celsius.

Cleaning

To clean the UP Kibo X, it is best to use lukewarm fresh water and a soft sponge. For more stubborn cases, we recommend using a mild detergent, which must then be rinsed carefully and thoroughly. Then leave your glider to dry in a shady and well-ventilated place.

CAUTION! Never use chemicals, brushes or hard sponges to clean the screen. They could damage the coating and strength of the fabric. This will cause the sail to become porous and lose its tear resistance.

Never put an glider in the washing machine: even without detergent, the mechanical stress would severely damage the fabric. Never immerse the canopy in a swimming pool either: The chlorinated water attacks the fabric. If you absolutely have to rinse your canopy, for example after landing in the sea, spray it inside and out with a gentle jet of water. Frequent rinsing accelerates the ageing process**!**

Inspection and repairs

Major repairs and inspections may only be carried out by UP International or a recognized service company. Failure to do so will invalidate the operating license. See also the Service section at: **www.up-paragliders.com**

UP International not only contributes its know-how to the development of paragliders and accessories, but also offers a range of services to ensure the safety of your paraglider. All services must be carried out at an authorized UP service center as recommended by UP International. In order for the warranty to remain valid for new UP wings, the conditions listed in the section "UP International Warranty" must be met. Current conditions can be found at www.up-paragliders.com *in the Service* section.

Maintenance and minor repairs

Adhesive sail

Small damages such as tears or small holes up to a size of 2 x 2 cm, which can be carried out without special equipment, may be carried out by the pilot himself. Each glider is supplied with adhesive tape for this purpose. The adhesive sail must protrude at least 2 cm over the damaged area on all sides. The adhesive sail must be applied on both sides; rounding off the corners can prevent it from coming off.

Airworthiness review

If one of the following conditions occurs, the Kibo X must be checked for airworthiness:

- 2 years after the first routine test
- every further 2 years or earlier if prescribed by the UP Service Center
- after 150 flying hours

Of course, we are also happy to carry out the prescribed inspection earlier if you consider it necessary due to extreme use. You will receive the inspection instructions separately from this manual.

CAUTION! If you notice any changes in the flight behaviour of your Kibo X, please have it checked immediately by UP or a UP Service Center

Professional competence

To ensure that your UP Kibo X offers maximum functionality and safety at all times, you should entrust its maintenance and repair to UP International. Our service staff are fully trained to carry out any work on your wing professionally and correctly. UP International is also equipped with all the special tools and equipment required for quick and flawless repairs.

Airworthiness check

Thanks to its many years of experience in paragliding, UP International can guarantee a professional airworthiness check. The canopy including the "inner workings", the entire line system, the risers and all connecting parts are checked for damage of any kind. Our service workshop is specially equipped to carry out precise airworthiness checks. In addition to specially developed suspension devices, calibrated and regularly maintained measuring equipment is used, which is essential for determining airworthiness. Our computer-aided laser measurement of the line system is the final step in recording the measured values.
In addition to the measured values obtained in this way, the assessment of the tester is decisive for the overall evaluation of the paraglider. This requires a high level of expertise and experience. Individual wings where the tester suspects a change in flight characteristics based on the data obtained are flown and checked by the UP test pilots. In this way, UP International can always guarantee high quality in the testing of paragliders. Only through a careful and professional airworthiness check can the certification regulations be complied with and the safety of the glider guaranteed. In your own interest, you should therefore only have your UP glider checked by the specialists of the UP Service Team or a recognized service company. You can find a list of these approved service centers in the *Service* section at *www.up-paragliders.com*

ATTENTION: If your UP paraglider is not serviced and checked by an approved service company or UP International GmbH, its operating license will expire!

Original parts

Your UP sunshade consists of many high-quality components with a long service life. When replacing parts (lines, risers, cloth panels etc.), only original parts may be used. In addition to maintaining the airworthiness of your paraglider, this is also very important for your safety. The following spare parts can be ordered from your dealer or directly from UP International GmbH:

- Complete risers or their individual components such as Brummel hooks, snaplocks, line locks, O-rings, brake handles
- Single lines according to line plan
- Cloth material
- Adhesive sail

Delivery service

Before your UP glider left the workshop, all the work carried out was checked again and carefully tested. In addition, a comprehensive inspection was carried out by the UP service team or a recognized service company before the glider was delivered to ensure that your Kibo X complies with UP International standards and the type-approved device.

Warranty conditions

The conditions and scope of the UP International warranty are described on the following pages. Further information can be obtained from your UP Service Center or directly from UP International. The UP importer in your country is also available at any time for customer service and warranty queries.

National warranty provisions

In some countries, UP importers/general representatives provide special guarantees based on national laws and regulations, which vary from country to country. These national conditions only apply in the country in which the glider was delivered. You will receive information about national warranty conditions when you purchase your paraglider.

Guarantee in D-A-CH

In Germany, Austria and Switzerland, the UP warranty is extended to 36 months if the first 2-year check is carried out directly at UP International or our Swiss service center (see UP homepage).

International UP guarantee

The UP International warranty covers material and manufacturing defects and is valid for a period of 2 years from the date of delivery of the new glider. The UP

International Warranty covers the reimbursement of the cost of necessary spare parts and labor incurred in connection with the replacement or repair of defective parts, provided that UP International has recognized a material or manufacturing defect as such.
The international UP warranty does not cover wings that have been involved in an accident or have been modified or altered. The warranty does not cover parts that have to be replaced due to normal wear and tear.
In addition, changes in the color of the cloth material used and damage caused by solvents and/or salt water as well as improper handling of the paraglider and force majeure are excluded from the warranty.

The guarantee applies under the following conditions

- The glider has been used normally and has been cared for and maintained in accordance with the applicable guidelines issued by UP International. This includes, in particular, careful drying, cleaning and storage.
- The glider was only used within the applicable guidelines. All applicable approval regulations have been complied with.
- All flights performed must be fully verifiable on the basis of the flight logbook, including the respective flight duration and the flight area.
- Only UP original spare parts have been used and inspections, replacements and/or repairs have been carried out and properly documented exclusively by UP International.
- The glider was registered within 14 days of delivery at: http://www.up-paragliders.com/de/service/product-registration
- The guarantee is only granted to the first owner of the glider.

UP International does not assume any responsibility or compensation beyond the above-mentioned obligations. However, a goodwill arrangement is possible.

Inspection of new devices

According to Section 1 (5) LuftGerPV, the owner can inspect his device himself or commission a third party, such as the manufacturer/importer, to carry out the inspection.

UP International requires a briefing for an independent inspection. Instruction is given by arrangement directly at UP International and is only valid for the corresponding device sample. The inspection instructions will be handed over to the owner after the instruction.

If the owner inspects his device himself or commissions a third party to carry out the inspection, it must be ensured under all circumstances that the specifications of UP International regarding the inspection are observed. The operating license expires if the inspection is carried out incorrectly or incompletely.

You can find current regulations in the *Service* section under
www.up-paragliders.com

Sending in the UP screen and other UP products

Please use the form that you can download from our website to send us your return. If you live outside Germany, please use our service telephone to find out about the nearest UP Service Center in your area.

UP International GmbH
Kreuzeckbahnstrasse 7
D-8267 Garmisch-Partenkirchen

E-mail: info@up-paragliders.com
Phone: +9 (0) 88 21-7 30 99-0
Fax: +9 (0) 88 21-7 30 99-16

Waste disposal

Despite careful material selection, even the best product only has a limited service life. The plastic material used in a paraglider requires proper disposal. Please have your paraglider disposed of properly. You can also send it back to us for disposal.

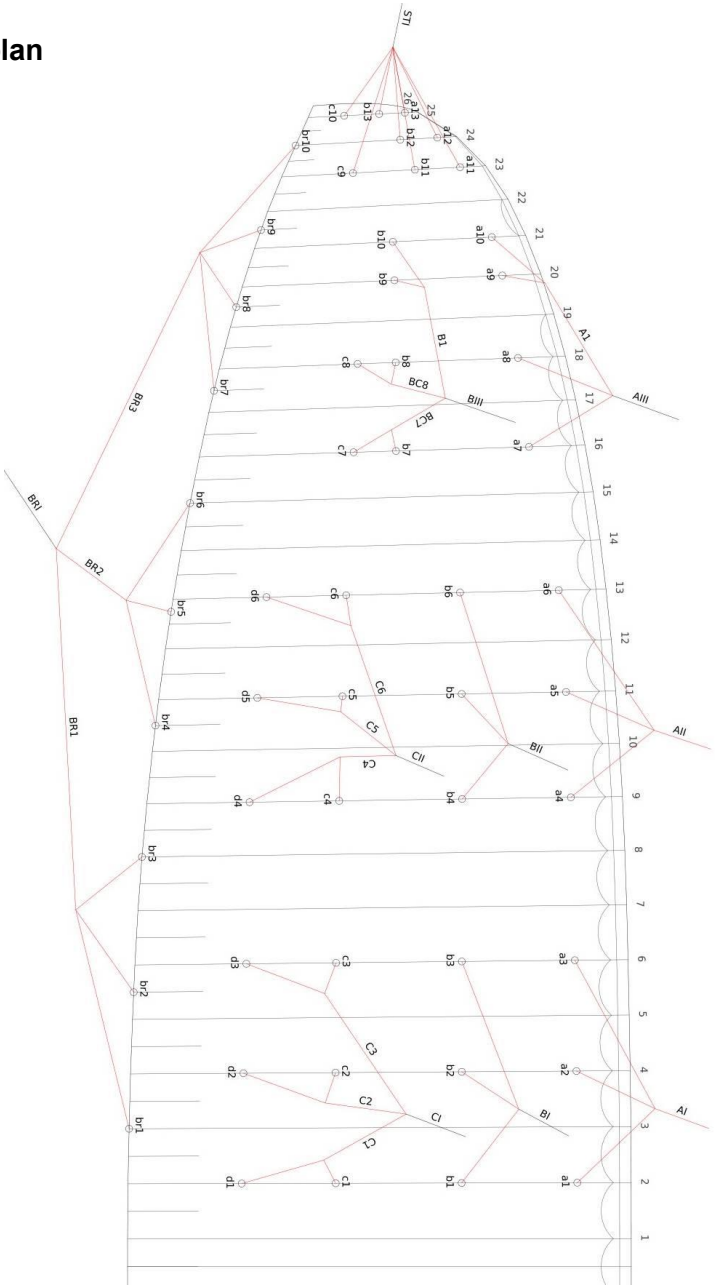
Closing words

We at UP wish you lots of fun and wonderful, accident-free flights with your UP Kibo X.

See you UP in the sky - Your UP-International team

Appendix

Linen plan



Line lengths

Line	Kibo X L	Kibo X M	Kibo X SM	Kibo X S	Kibo X XS
a1	7886	7632	7347	7075	6734
a2	7806	7551	7267	6999	6661
a3	7810	7554	7270	7002	6661
a4	7733	7486	7205	6938	6600
a5	7651	7404	7127	6863	6528
a6	7672	7423	7143	6882	6540
a7	7573	7324	7051	6791	6466
a8	7452	7208	6938	6681	6359
a9	7401	7161	6894	6639	6318
a10	7394	7155	6893	6635	6317
a11	7129	6900	6634	6391	6089
a12	7066	6840	6574	6334	6033
a13	7023	6798	6535	6296	5997
b1	7796	7545	7263	6996	6662
b2	7717	7467	7186	6923	6586
b3	7727	7476	7196	6928	6594
b4	7675	7426	7147	6886	6551
b5	7598	7353	7075	6816	6483
b6	7620	7373	7095	6835	6498
b7	7520	7272	7001	6741	6418
b8	7398	7156	6887	6632	6311
b9	7378	7139	6871	6620	6302
b10	7373	7136	6869	6613	6303
b11	7121	6891	6625	6383	6077
b12	7079	6849	6586	6346	6044
b13	7074	6847	6583	6343	6041
c1	7821	7567	7287	7018	6683
c2	7735	7486	7204	6938	6605
c3	7761	7510	7230	6961	6624
c4	7725	7476	7196	6931	6597
c5	7645	7396	7118	6857	6521
c6	7680	7429	7151	6887	6551
c7	7581	7332	7055	6796	6468

Line	Kibo X L	Kibo X M	Kibo X SM	Kibo X S	Kibo X XS
c8	7459	7215	6942	6686	6372
c9	7201	6968	6702	6456	6152
c10	7151	6922	6658	6412	6106
d1	7981	7722	7434	7159	6814
d2	7890	7636	7349	7075	6735
d3	7910	7655	7368	7094	6749
d4	7874	7618	7331	7061	6718
d5	7778	7526	7243	6975	6633
d6	7795	7542	7259	6989	6645
br1	8087	7835	7559	7237	6969
br2	7736	7495	7229	6923	6671
br3	7571	7338	7076	6774	6530
br4	7449	7215	6961	6661	6419
br5	7303	7071	6817	6524	6293
br6	7300	7070	6816	6519	6284
br7	7210	6982	6729	6439	6212
br8	7130	6904	6654	6367	6141
br9	7087	6863	6613	6329	6107
br10	7137	6911	6661	6373	6147

Single line lengths Kibo X L

Line	Length	Loop length	Material	Color	Loop on Quicklink
a1	2393	140	DC120	Red	
a2	2312	140	DC120	Red	
a3	2316	140	DC120	Red	
a4	2175	140	DC120	Red	
a5	2093	140	DC120	Red	
a6	2115	140	DC120	Red	
a7	1807	140	8000U-090	Red	
a8	1688	140	8000U-090	Red	
a9	342	140	8000U-070	Red	
a10	336	140	8000U-070	Red	
a11	1015	140	8000U-070	Red	
a12	949	140	8000U-050	Red	
a13	905	140	8000U-050	Red	
AI	4935	260	7950-200	Red	+
AII	5007	260	7950-200	Red	+
A1	1295	140	8000U-090	Red	
AIII	5214	260	7950-150	Green	+
b1	2312	140	DC120	Red	
b2	2233	140	DC120	Red	
b3	2245	140	DC120	Red	
b4	2122	140	DC120	Red	
b5	2046	140	DC120	Red	
b6	2068	140	DC120	Red	
b7	466	140	8000U-070	Red	
b8	345	140	8000U-070	Red	
b9	253	140	8000U-070	Red	
b10	247	140	8000U-070	Red	
b11	1004	140	8000U-070	Red	
b12	962	140	8000U-050	Red	
b13	956	140	8000U-050	Red	
BI	4935	260	7950-200	Blue	+
BII	5007	260	7950-200	Blue	+
BC7	1291	140	8000U-090	Red	

Line	Length	Loop length	Material	Color	Loop on Quicklink
BC8	1291	140	8000U-090	Red	
B1	1362	140	8000U-090	Red	
BIII	5214	260	7950-150	Blue	+
c1	1046	140	8000U-090	Natural	
c2	1001	140	8000U-090	Natural	
c3	1021	140	8000U-090	Natural	
c4	971	140	8000U-090	Natural	
c5	929	140	8000U-090	Natural	
c6	948	140	8000U-090	Natural	
c7	526	140	8000U-070	Natural	
c8	403	140	8000U-050	Natural	
c9	1082	140	8000U-050	Natural	
c10	1037	140	8000U-050	Natural	
C1	1000	140	8001-130	Orange	
C2	960	140	8001-130	Orange	
C3	968	140	8001-130	Orange	
C4	912	140	8001-130	Orange	
C5	873	140	8001-130	Orange	
C6	889	140	8001-130	Orange	
CI	5234	260	7950-200	Yellow	+
CII	5307	260	7950-200	Yellow	+
d1	1203	140	8000U-070	Natural	
d2	1157	140	8000U-070	Natural	
d3	1169	140	8000U-070	Natural	
d4	1129	140	8000U-070	Natural	
d5	1072	140	8000U-070	Natural	
d6	1072	140	8000U-070	Natural	
br1	2428	140	8000U-050	Natural	
br2	2079	140	8000U-050	Natural	
br3	1919	140	8000U-050	Natural	
br4	1795	140	8000U-050	Natural	
br5	1647	140	8000U-050	Natural	
br6	1646	140	8000U-050	Natural	
br7	1583	140	8000U-050	Natural	
br8	1503	140	8000U-050	Natural	

Line	Length	Loop length	Material	Color	Loop on Quicklink
br9	1462	140	8000U-050	Natural	
br10	1513	140	8000U-050	Natural	
BR1	2788	140	8000U-090	Natural	
BR2	2788	140	8000U-090	Natural	
BR3	2762	140	8000U-070	Natural	
BRI	2818	300	989/2,1	Red	
STI	5573	260	7950-100	Orange	+

Single line lengths Kibo X M

Line	Length	Loop length	Material	Color	Loop on Quicklink
a1	2307	140	DC120	Red	
a2	2226	140	DC120	Red	
a3	2230	140	DC120	Red	
a4	2093	140	DC120	Red	
a5	2012	140	DC120	Red	
a6	2033	140	DC120	Red	
a7	1731	140	8000U-090	Red	
a8	1615	140	8000U-090	Red	
a9	275	140	8000U-070	Red	
a10	271	140	8000U-070	Red	
a11	962	140	8000U-070	Red	
a12	899	140	8000U-050	Red	
a13	857	140	8000U-050	Red	
AI	4780	260	7950-200	Red	+
AII	4850	260	7950-200	Red	+
A1	1295	140	8000U-090	Red	
AIII	5050	260	7950-150	Green	+
b1	2224	140	DC120	Red	
b2	2145	140	DC120	Red	
b3	2156	140	DC120	Red	
b4	2036	140	DC120	Red	
b5	1962	140	DC120	Red	
b6	1984	140	DC120	Red	
b7	431	140	8000U-070	Red	
b8	313	140	8000U-070	Red	
b9	226	140	8000U-070	Red	
b10	222	140	8000U-070	Red	
b11	952	140	8000U-070	Red	
b12	912	140	8000U-050	Red	
b13	907	140	8000U-050	Red	
BI	4780	260	7950-200	Blue	+
BII	4850	260	7950-200	Blue	+
BC7	1250	140	8000U-090	Red	

Line	Length	Loop length	Material	Color	Loop on Quicklink
BC8	1250	140	8000U-090	Red	
B1	1320	140	8000U-090	Red	
BIII	5050	260	7950-150	Blue	+
c1	997	140	8000U-090	Natural	
c2	952	140	8000U-090	Natural	
c3	971	140	8000U-090	Natural	
c4	923	140	8000U-090	Natural	
c5	881	140	8000U-090	Natural	
c6	901	140	8000U-090	Natural	
c7	491	140	8000U-070	Natural	
c8	372	140	8000U-050	Natural	
c9	1028	140	8000U-050	Natural	
c10	982	140	8000U-050	Natural	
C1	969	140	8001-130	Orange	
C2	930	140	8001-130	Orange	
C3	938	140	8001-130	Orange	
C4	883	140	8001-130	Orange	
C5	846	140	8001-130	Orange	
C6	861	140	8001-130	Orange	
CI	5070	260	7950-200	Yellow	+
CII	5140	260	7950-200	Yellow	+
d1	1149	140	8000U-070	Natural	
d2	1103	140	8000U-070	Natural	
d3	1114	140	8000U-070	Natural	
d4	1064	140	8000U-070	Natural	
d5	1008	140	8000U-070	Natural	
d6	1010	140	8000U-070	Natural	
br1	2352	140	8000U-050	Natural	
br2	2012	140	8000U-050	Natural	
br3	1856	140	8000U-050	Natural	
br4	1734	140	8000U-050	Natural	
br5	1590	140	8000U-050	Natural	
br6	1588	140	8000U-050	Natural	
br7	1526	140	8000U-050	Natural	
br8	1448	140	8000U-050	Natural	

Line	Length	Loop length	Material	Color	Loop on Quicklink
br9	1408	140	8000U-050	Natural	
br10	1457	140	8000U-050	Natural	
BR1	2700	140	8000U-090	Natural	
BR2	2700	140	8000U-090	Natural	
BR3	2675	140	8000U-070	Natural	
BRI	2729	300	989/2,1	Red	
STI	5399	260	7950-100	Orange	+

Single line lengths Kibo X SM

Line	Length	Loop length	Material	Color	Loop on Quicklink
a1	2208	140	DC120	Red	
a2	2129	140	DC120	Red	
a3	2132	140	DC120	Red	
a4	1998	140	DC120	Red	
a5	1919	140	DC120	Red	
a6	1940	140	DC120	Red	
a7	1649	140	8000U-090	Red	
a8	1536	140	8000U-090	Red	
a9	245	140	8000U-070	Red	
a10	244	140	8000U-070	Red	
a11	904	140	8000U-070	Red	
a12	844	140	8000U-050	Red	
a13	804	140	8000U-050	Red	
AI	4613	260	7950-200	Red	+
AII	4681	260	7950-200	Red	+
A1	1250	140	8000U-090	Red	
AIII	4874	260	7950-150	Green	+
b1	2128	140	DC120	Red	
b2	2051	140	DC120	Red	
b3	2061	140	DC120	Red	
b4	1945	140	DC120	Red	
b5	1872	140	DC120	Red	
b6	1893	140	DC120	Red	
b7	393	140	8000U-070	Red	
b8	279	140	8000U-070	Red	
b9	197	140	8000U-070	Red	
b10	196	140	8000U-070	Red	
b11	895	140	8000U-070	Red	
b12	857	140	8000U-050	Red	
b13	855	140	8000U-050	Red	
BI	4613	260	7950-200	Blue	+
BII	4681	260	7950-200	Blue	+
BC7	1206	140	8000U-090	Red	

Line	Length	Loop length	Material	Color	Loop on Quicklink
BC8	1206	140	8000U-090	Red	
B1	1275	140	8000U-090	Red	
BIII	4874	260	7950-150	Blue	+
c1	944	140	8000U-090	Natural	
c2	899	140	8000U-090	Natural	
c3	918	140	8000U-090	Natural	
c4	871	140	8000U-090	Natural	
c5	829	140	8000U-090	Natural	
c6	849	140	8000U-090	Natural	
c7	453	140	8000U-070	Natural	
c8	339	140	8000U-050	Natural	
c9	971	140	8000U-050	Natural	
c10	928	140	8000U-050	Natural	
C1	935	140	8001-130	Orange	
C2	897	140	8001-130	Orange	
C3	905	140	8001-130	Orange	
C4	852	140	8001-130	Orange	
C5	816	140	8001-130	Orange	
C6	831	140	8001-130	Orange	
CI	4893	260	7950-200	Yellow	+
CII	4960	260	7950-200	Yellow	+
d1	1091	140	8000U-070	Natural	
d2	1044	140	8000U-070	Natural	
d3	1056	140	8000U-070	Natural	
d4	1007	140	8000U-070	Natural	
d5	953	140	8000U-070	Natural	
d6	955	140	8000U-070	Natural	
br1	2270	140	8000U-050	Natural	
br2	1940	140	8000U-050	Natural	
br3	1788	140	8000U-050	Natural	
br4	1670	140	8000U-050	Natural	
br5	1529	140	8000U-050	Natural	
br6	1526	140	8000U-050	Natural	
br7	1465	140	8000U-050	Natural	
br8	1389	140	8000U-050	Natural	

Line	Length	Loop length	Material	Color	Loop on Quicklink
br9	1349	140	8000U-050	Natural	
br10	1396	140	8000U-050	Natural	
BR1	2605	140	8000U-090	Natural	
BR2	2605	140	8000U-090	Natural	
BR3	2581	140	8000U-070	Natural	
BRI	2633	300	989/2,1	Red	
STI	5212	260	7950-100	Orange	+

Single line lengths Kibo X S

Line	Length	Loop length	Material	Color	Loop on Quicklink
a1	2133	140	DC120	Red	
a2	2057	140	DC120	Red	
a3	2058	140	DC120	Red	
a4	1929	140	DC120	Red	
a5	1853	140	DC120	Red	
a6	1872	140	DC120	Red	
a7	1592	140	8000U-090	Red	
a8	1484	140	8000U-090	Red	
a9	245	140	8000U-070	Red	
a10	242	140	8000U-070	Red	
a11	875	140	8000U-070	Red	
a12	817	140	8000U-050	Red	
a13	779	140	8000U-050	Red	
AI	4422	260	7950-200	Red	+
AII	4487	260	7950-200	Red	+
A1	1198	140	8000U-090	Red	
AIII	4672	260	7950-150	Green	+
b1	2056	140	DC120	Red	
b2	1981	140	DC120	Red	
b3	1991	140	DC120	Red	
b4	1878	140	DC120	Red	
b5	1808	140	DC120	Red	
b6	1828	140	DC120	Red	
b7	388	140	8000U-070	Red	
b8	278	140	8000U-070	Red	
b9	197	140	8000U-070	Red	
b10	195	140	8000U-070	Red	
b11	867	140	8000U-070	Red	
b12	831	140	8000U-050	Red	
b13	828	140	8000U-050	Red	
BI	4422	260	7950-200	Blue	+
BII	4487	260	7950-200	Blue	+
BC7	1156	140	8000U-090	Red	

Line	Length	Loop length	Material	Color	Loop on Quicklink
BC8	1156	140	8000U-090	Red	
B1	1223	140	8000U-090	Red	
BIII	4672	260	7950-150	Blue	+
c1	921	140	8000U-090	Natural	
c2	878	140	8000U-090	Natural	
c3	895	140	8000U-090	Natural	
c4	850	140	8000U-090	Natural	
c5	810	140	8000U-090	Natural	
c6	828	140	8000U-090	Natural	
c7	444	140	8000U-070	Natural	
c8	333	140	8000U-050	Natural	
c9	939	140	8000U-050	Natural	
c10	898	140	8000U-050	Natural	
C1	896	140	8001-130	Orange	
C2	860	140	8001-130	Orange	
C3	868	140	8001-130	Orange	
C4	817	140	8001-130	Orange	
C5	783	140	8001-130	Orange	
C6	796	140	8001-130	Orange	
CI	4690	260	7950-200	Yellow	+
CII	4755	260	7950-200	Yellow	+
d1	1059	140	8000U-070	Natural	
d2	1014	140	8000U-070	Natural	
d3	1025	140	8000U-070	Natural	
d4	978	140	8000U-070	Natural	
d5	925	140	8000U-070	Natural	
d6	927	140	8000U-070	Natural	
br1	2176	140	8000U-050	Natural	
br2	1857	140	8000U-050	Natural	
br3	1710	140	8000U-050	Natural	
br4	1595	140	8000U-050	Natural	
br5	1459	140	8000U-050	Natural	
br6	1454	140	8000U-050	Natural	
br7	1396	140	8000U-050	Natural	
br8	1322	140	8000U-050	Natural	

Line	Length	Loop length	Material	Color	Loop on Quicklink
br9	1283	140	8000U-050	Natural	
br10	1327	140	8000U-050	Natural	
BR1	2497	140	8000U-090	Natural	
BR2	2497	140	8000U-090	Natural	
BR3	2474	140	8000U-070	Natural	
BRI	2524	300	989/2,1	Red	
STI	4998	260	7950-100	Orange	+

Single line lengths Kibo X XS

Line	Length	Loop length	Material	Color	Loop on Quicklink
a1	2006	140	DC120	Red	
a2	1932	140	DC120	Red	
a3	1933	140	DC120	Red	
a4	1808	140	DC120	Red	
a5	1734	140	DC120	Red	
a6	1752	140	DC120	Red	
a7	1486	140	8000U-090	Red	
a8	1383	140	8000U-090	Red	
a9	207	140	8000U-070	Red	
a10	207	140	8000U-070	Red	
a11	801	140	8000U-070	Red	
a12	747	140	8000U-050	Red	
a13	711	140	8000U-050	Red	
AI	4208	260	7950-200	Red	+
AII	4269	260	7950-200	Red	+
A1	1140	140	8000U-090	Red	
AIII	4445	260	7950-150	Green	+
b1	1933	140	DC120	Red	
b2	1860	140	DC120	Red	
b3	1868	140	DC120	Red	
b4	1761	140	DC120	Red	
b5	1692	140	DC120	Red	
b6	1711	140	DC120	Red	
b7	340	140	8000U-070	Red	
b8	233	140	8000U-070	Red	
b9	160	140	8000U-070	Red	
b10	162	140	8000U-070	Red	
b11	794	140	8000U-070	Red	
b12	761	140	8000U-050	Red	
b13	761	140	8000U-050	Red	
BI	4208	260	7950-200	Blue	+
BII	4269	260	7950-200	Blue	+
BC7	1100	140	8000U-090	Red	

Line	Length	Loop length	Material	Color	Loop on Quicklink
BC8	1100	140	8000U-090	Red	
B1	1165	140	8000U-090	Red	
BIII	4445	260	7950-150	Blue	+
c1	853	140	8000U-090	Natural	
c2	810	140	8000U-090	Natural	
c3	826	140	8000U-090	Natural	
c4	784	140	8000U-090	Natural	
c5	744	140	8000U-090	Natural	
c6	762	140	8000U-090	Natural	
c7	396	140	8000U-070	Natural	
c8	291	140	8000U-050	Natural	
c9	864	140	8000U-050	Natural	
c10	829	140	8000U-050	Natural	
C1	853	140	8001-130	Orange	
C2	818	140	8001-130	Orange	
C3	825	140	8001-130	Orange	
C4	777	140	8001-130	Orange	
C5	744	140	8001-130	Orange	
C6	758	140	8001-130	Orange	
CI	4463	260	7950-200	Yellow	+
CII	4524	260	7950-200	Yellow	+
d1	983	140	8000U-070	Natural	
d2	939	140	8000U-070	Natural	
d3	949	140	8000U-070	Natural	
d4	905	140	8000U-070	Natural	
d5	854	140	8000U-070	Natural	
d6	856	140	8000U-070	Natural	
br1	2070	140	8000U-050	Natural	
br2	1765	140	8000U-050	Natural	
br3	1623	140	8000U-050	Natural	
br4	1512	140	8000U-050	Natural	
br5	1380	140	8000U-050	Natural	
br6	1374	140	8000U-050	Natural	
br7	1317	140	8000U-050	Natural	
br8	1246	140	8000U-050	Natural	

Line	Length	Loop length	Material	Color	Loop on Quicklink
br9	1207	140	8000U-050	Natural	
br10	1250	140	8000U-050	Natural	
BR1	2376	140	8000U-090	Natural	
BR2	2376	140	8000U-090	Natural	
BR3	2354	140	8000U-070	Natural	
BRI	2402	300	989/2,1	Red	
STI	4757	260	7950-100	Orange	+

Service booklet

Shield and pilot data

Model: **Kibo X**

Size: XS ❒ S❒ ❒ SM ❒ M ❒ L

Serial number: _____

Color: _____

Purchase date: _____

First flight: _____

Dealer's stamp and signature

Pilot (1st holder)

First name: _____

Surname: _____

Street: _____

Place of residence: _____

ZIP CODE: _____

Country: _____

Phone: _____

Fax: _____

Email: _____

Pilot (2nd holder)

First name:_____

Surname:_____

Street: _____

Place of residence: _____

ZIP CODE:_____

Country:_____

Phone:_____

Fax: _____

Email:_____

Pilot (3rd holder)

First name:_____

Surname:_____

Street: _____

Place of residence: _____

ZIP CODE:_____

Country:_____

Phone:_____

Fax: _____

Email:_____

Please make sure that your UP Service Center stamps and signs after each inspection.

Service 1

Executed on _____

Type of service

Order no.
Stamp

Service 2

Executed on _____

Type of service

Order no.
Stamp

Service 3

Executed on _____

Type of service

Order no.
Stamp

Please make sure that your UP Service Center stamps and signs after each inspection.

Service 4

Executed on _____

Type of service

Order no.
Stamp

Service 5

Executed on _____

Type of service

Order no.
Stamp

Service 6

Executed on _____

Type of service

Order no.
Stamp