Papillon®

RAQOON

LTF/EN **A**

MANUAL

English • Rev. 1.5 Effective: July 2017

Please read this manual
before you fly your new Papillon RAQOON
for the first time.


Papillon
RAQOON

PAPILLON RAQOON: LIGHTWEIGHT, SAFE, HIGH PERFORMANCE

Congratulations, you have chosen the new lightweight A-Class glider PAPILLON RAQOON. We would like to thank you for your confidence in Papillon and see this as confirmation to continue to pursue and further develop our uncompromising quality standards. We wish you many enjoyable flights and great moments in the air.

If you are preparing for the launch with your Raqoon, you know that it doesn't take much to start, because this is what the Raqoon was designed for. With its hybrid properties, it starts with 30% less wind and running. The control phase becomes easier. Its properties in the air also help you: with its lighter canopy it wants to lead you into the thermals.

The dialogue is important to us because we are always trying to optimize the products in terms of "from pilots for pilots". The exchange of experience at Papillon is a high priority. Therefore, we are looking forward to active contributions in the form of suggestions and criticism. If questions remain open, we will gladly help you at any time.

See you UP in the sky!

Your Papillon Paragliders Team

This manual is an important part of the glider.
Please read it carefully, because there is an OBLIGATION to deal with the glider and its special features. The manual is supposed to make the handling with the PAPILLON RAQOON as easy and safe as possible.

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WELCOME
TO THE PAPILLON *WORLD OF PARAGLIDING!*

PAPILLON RAQOON
LIGHTWEIGHT, SAFE, HIGH PERFORMANCE

The RAQOON combines safety, low weight, performance and a direct sporty handling. This makes it a perfect all-round glider. His forgiving behaviour not only ensures a good feeling for beginners, but also for ambitious cross-country pilots and alpinists.

The RAQOON precisely applies control impulses and combines EN-A typical tolerance with dynamics. The good-natured flight characteristics are additionally enhanced by the low canopy weight. His reactions are correspondingly damped. Its excellent gliding and climbing ability helps you to efficiently convert even weak thermals into heights.

Its launch behaviour is extremely simple and good-natured. Even in zero wind, the lightweight canopy reliably climbs above the pilot with little effort. In addition, the RAQOON's excellent low-speed flight characteristics allow a low take-off speed, allowing you to maintain a longer control phase at take-off.

The RAQOON is based on the latest findings of flow simulation. Complex calculations of the High Pressure Crossport Design (HPCD) not only reduce weight, but also maximize cross-ventilation of the Crossports. The efficiency of the system is already evident in the lifting phase. It provides a very fast pressure build-up and gives the wing a balanced internal pressure during flight. The 3D-shaping and optimized wing prestressing ensure perfect airflow, while the Precision Profile Nose System (PPN) ensures optimum airflow to the profile. Miniribs and the Brake Gathering System (BGS) help the profile achieve greater shape fidelity at the rear edge and transfer control impulses precisely to the wing. A very straightforward line concept with just a few main lines ensures easy handling and a good overview for ground handling. The risers are equipped with the Pilot Assistant (PAS) - in addition to the colour markings, icons provide a better orientation of the line levels.

Only high-quality durable materials were used for the material mix. When it comes to porosity, the lightweight material with double coating is clearly superior to heavy materials. This is now confirmed by long-term results and thus refute the myth that heavier materials should achieve better check results.

RAQOON

Usage

The RAQOON is suitable as a training glider and not only aimed at beginners, who want to fly with a small pack size and little weight, the modern wing also guarantees sustainable fun for ambitioned pilots. The RAQOON is only designed for solo usage.

The RAQOON is a light aircraft with a mass of less than 120 kg in the class of paragliders. All sizes are certified according to LTF/EN-A.

The size XL is additionally approved for double-seat operation.

Motorised Paragliding

The HIMALAYA is not certified for paramotor usage.

Winching

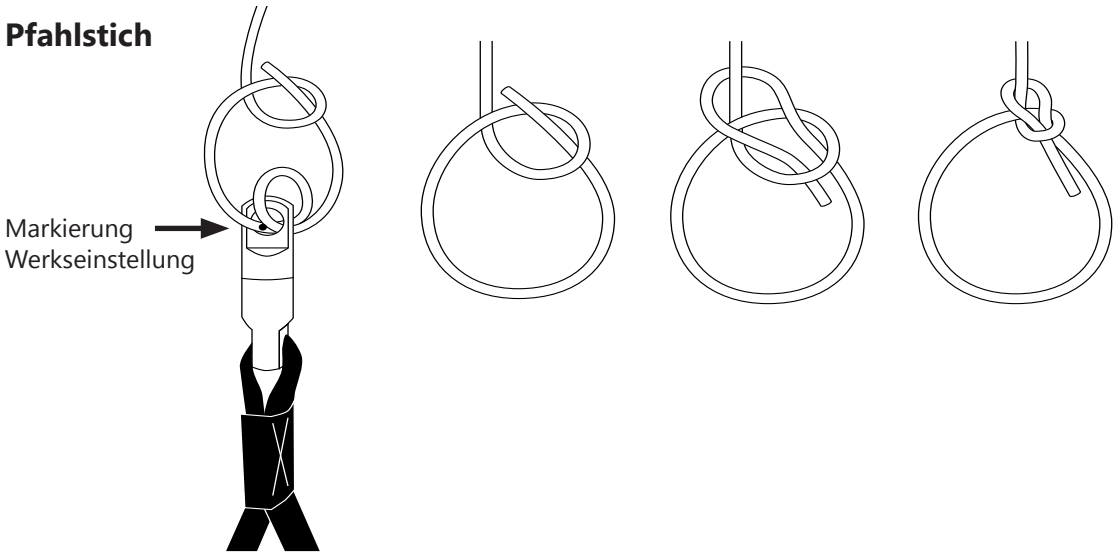
Because of its excellent start characteristics and its high trimmed speed, the Papillon RAQOON offers the best conditions for winching operations. Take the following points into account:

- Do not use a tow line tension over 100 kp with the Papillon RAQOON.
- If you are not operating at your usual winch, get aquainted with the local procedures. Every visitor on unfamiliar flying grounds needs to get a good briefing by a local pilot.
- Never winch the Papillon RAQOON with loads outside the permitted weight range.
- All involved persons, machines and accessories need to have the appropriate licenses, approvals or certification for winching. That applies to pilots, hoist operator, towing attachment, attachment points as well as all further machines and accessories for wich a certificate of competence is required.

Base- and brakeline adjustment

The factory brake-line setting corresponds to 0-free travel plus 5 cm. It is recommended to adjust your brake line travel after the first flight to your personal preferences. Be aware not to adjust the brakes too short, otherwise the glider may fly with a little, but continuous applied brake pressure. This could be extremely dangerous during takeoff , flight and landing!
The afore mentioned factory brake setting allows for ample brake travel in extreme flight situations as well as for landing. At the same time it enables during flight at trim-speed a position of comfort for the pilots arms. In no case the setup A, B and C main lines should be changed before the wing has been flown in the original setup. Please also note that adjusting the height of the suspension to the hangpoints on the harness, changes the relative braking travel. When setting the adjustment it is to be made certain that both sides are symmetrical and that a permanent knot is used. The bowline works particularly well because of the fact that it weakens the lines the least with excellent slip resistance.

Pfahlstich



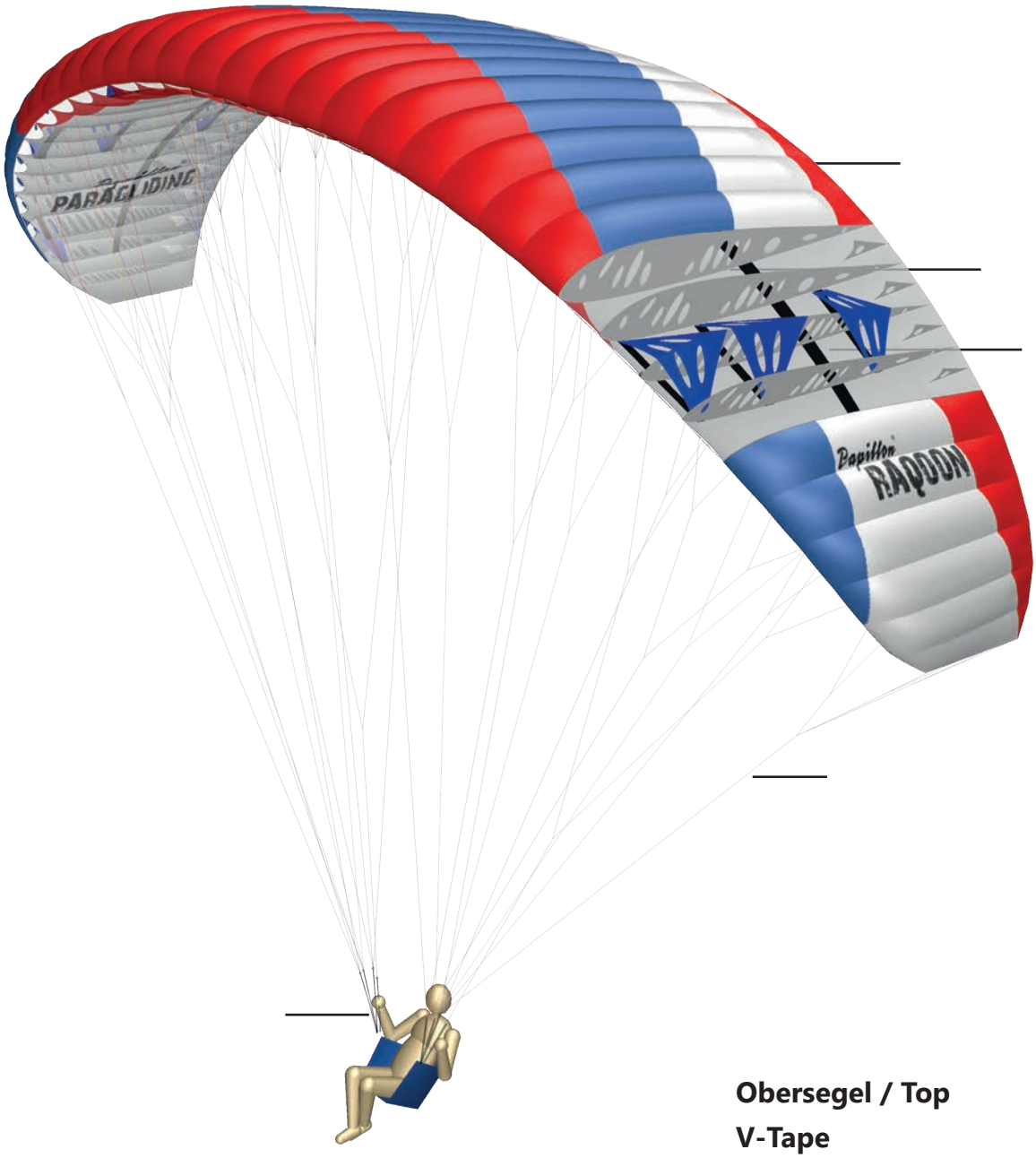
Safety precautions

- Before the first flight, the canopy, lines, all connections and sutures, the shackles and brake lines, as well as any twisted lines must be checked by appropriately trained personnel and confirmed in the type plate.
- Make your maiden flight in a familiar flying site and calm conditons.
- Test your Papillon RAQOON only over water.
- In a „dynamic flight“ not only you are exposed to Hike loads but also the glider. Do not underestimate this!
- Only fly the RAQOON with at least one reserve parachute.
- Observe and abide to the local aviation laws which rule in the respective country in question.
- Successful completion of appropriate training/schooling, having the needed knowledge as well as the actual flight experience are a prerequisite to operate your Papillon RAQOON.
- The use of suitable, certified and in the respective country approved accessories (helmet, harness, reserve) is a requirement for the use of the Papillon RAQOON.
- Before every take off execute a thorough inspection of your equipment (top sail, bottom sail, ribs, especially the lines, carabiners, buckles, cloth speed system etc.) A flight with a tear in a glider or lines can be life threatening.
- Always make sure that your flying gear is in good condition and all checks are done.
- Be aware that you as a pilot have to be in a physical and mental state to control each flight unimpaired. You have to concentrate completely on flying, in order to avoid potential distressing flight conditions. Most accidents are caused by pilot error.
- Never fly in close proximity to high voltage power lines, airports or motorways, over people or with lightning! You cold endanger your life and the physcial well being of yourself as well as third parties and at the same time act reckless and negligent. At no circumstance should the minimum distance fall below 50m at any given time. At airports this minimum distance to maintain is 5km.
- Inform yourself on the weather forecast and/or the predominating local weather conditions. Use the Papillon RAQOON only in wind strengths, in which you are able to control the wing to 100%. Do not use the Papillon RAQOON, in wind with a great gust factor. Never use the glider with approaching thunderstorms or if probability of those of the development of thunderstorms is high. If a thunderstorm is approaching land immediately!
- The flying of aerobatics is generally forbidden and is dangerous. Unforeseen flight orientations can occur, which can spill out of control, arising the danger of overload on pilot and equipment.

ATTENTION: Ignoring one or several safety precautions can lead to a leisurely fun flight turning into a fatal event!

EQUIPMENT DESCRIPTION

Short description

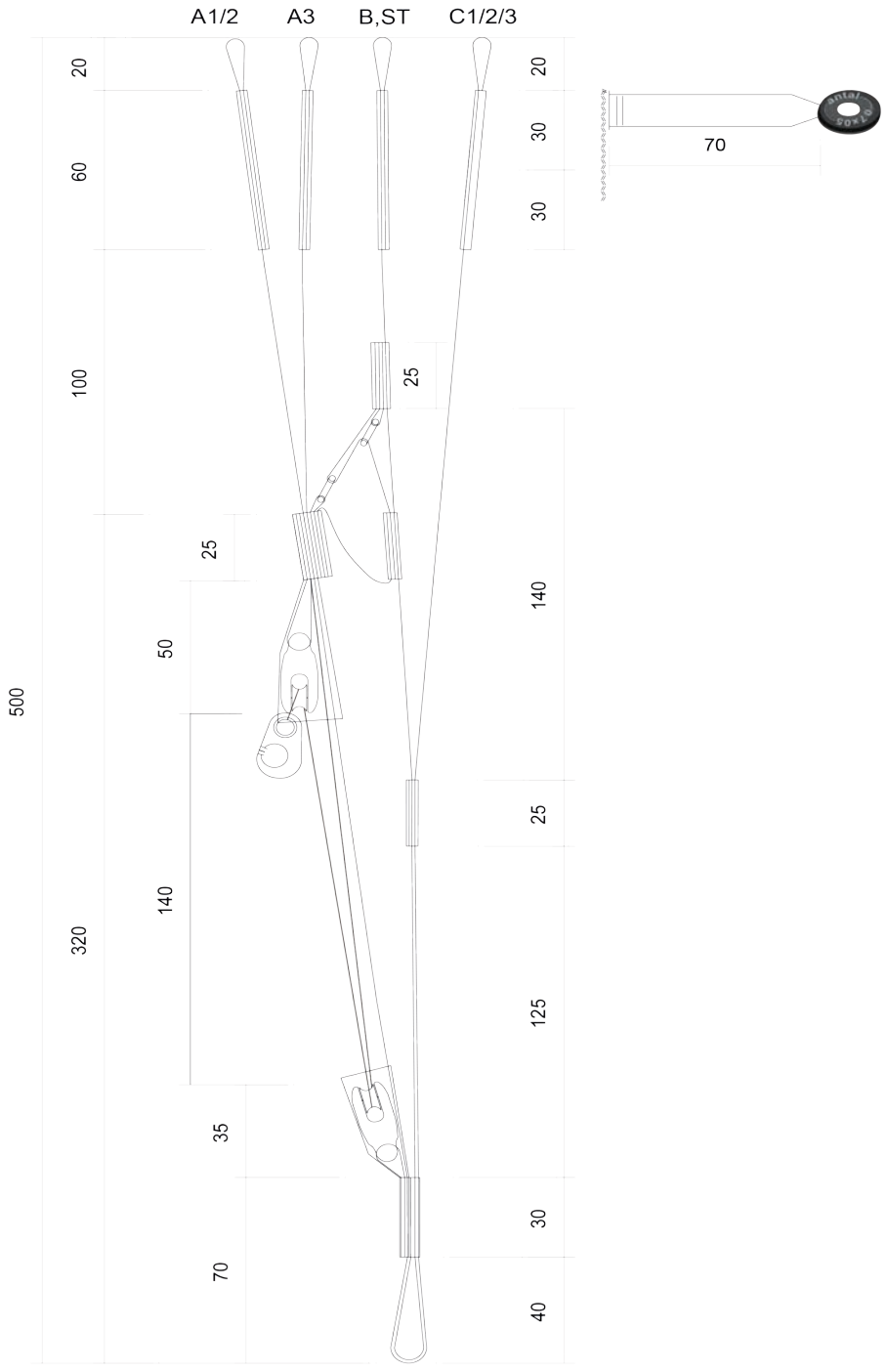


Obersegel / Top
V-Tape
Profilrippen / Profil rips
Galerieleine / Galeryline
Untersegel / Bottom
Gabelleine / Gabelline
Stabiloleine / Stabiloline
Stammleine / Mainline
Tragegurte / Riser

Risers

The A- and B-risers have different colors to ensure positive identification at take off and during a B-stall decent. Other adjustable, removeable or variable mechanisms are nonexistent.
Number of risers: 3+1

The risers of the Papillon RAQOON consist of LIROS 13mm Keflar webbing/Polyester cover.



Speed system

The Papillon RAQOON is equipped with a very effective foot actutated speed system. It increases the speed when applied up to approx. 18 km/h, depending on the wing size and pilot weight or surface loading.

Therefore it should not be activated in extreme flight situations or deactivated immediately when they are occuring. All extreme flight attitudes (e.g. collapses) happen at accelerated speed more dynamically. Since the maximum acceleration is part of the safety behavior of the glider, it can happen that with some harnesses the speed bar to full speed cannot be used.

The speed system needs to be adjusted before the first flight. Therefore the connection lines of the foot extensor are being connected through the Brummel hooks with the speed system on the riser.

To be able to untertake the right adjustment the harness should be hung up so you can sit in flying position. The attached risers are best held up by someone else.

It should be adjusted in a way so that the pulleys are on top of each other and you have your legs stretched out. And you are also responsible to watch out that the speed system is adjusted symmetrically and not too short so the glider is not pre-accelerated in the flight.

THE FLIGHT

Flying experience

This manual is only focusing on the points of the technique of flying that are important for the Papillon BODYGUARD 7. It cannot and should not replace a profound flight training in an approved flying school! Without flight training and according experience paragliding is life-endangering!

The Launch

The 5-point pre-launch check must be performed before each flight. It is helpful to have the check conducted additionally by a second pilot (partner check).

1. PILOT: All buckles, straps and clips of the harness closed? Leg straps closed? Carabiner untwisted and closed properly? Helmet on? Radio on?

2. LINES: Lines free? A–lines on top? Risers untwisted? Speed system attached and untwisted? Control lines free and not twisted?

3. CANOPY: Laid out in an arch? All chambers open?

4. WIND: From the right direction? Is the wind speed right?

5. AIRSPACE: Free on all sides?

The paraglider is laid out symmetrically in an arch, so that the canopy behind you can fill evenly from the centre. The center of the Papillon BODYGUARD 7 is marked on the leading edge.

You launch the wing by a metered pull on the front risers with your arms stretched back and down and running against the wind.

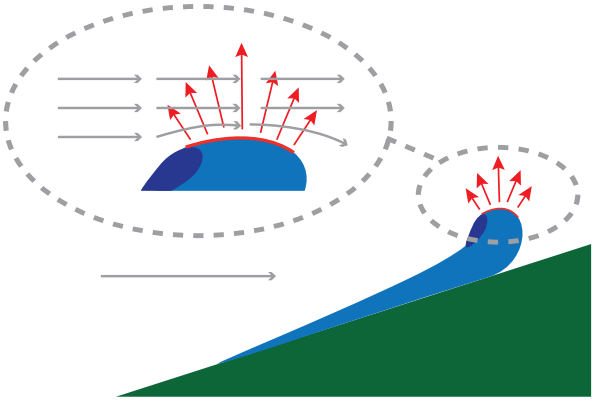
⚠ **NOTE: Unlike other gliders, it is not necessary to inflate the Papillon BODYGUARD 7 with aggressive pulling or even fast running. That is also true when there is little to zero wind. Measured pulling up is the simplest and safest way to launch the Papillon BODYGUARD 7.**

Once the canopy is above you, you let go of the risers and only keep the control lines in hand. Keep running quickly, but not too fast, adapted to the wind situation. After a visual check of the canopy, for which you possibly apply some brake pressure to stabilize the wing, the acceleration phase begins. With big, bold steps and still arms you reach take-off speed.

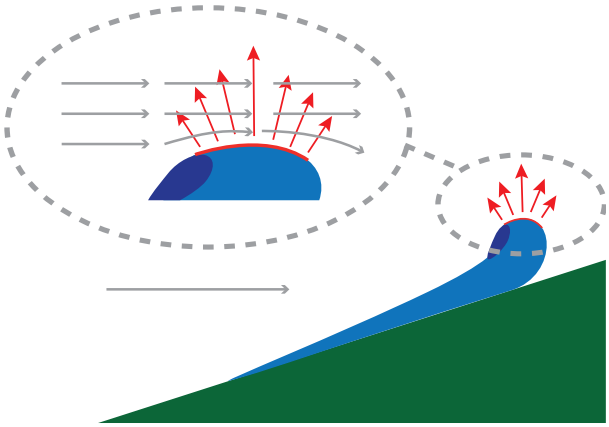
You take off the ground but remain ready to run in order to react to an unexpected drop. Only sit down with sufficient ground clearance. The control lines are not released.

In flat launch sites you pay attention to the acceleration phase. Large, long and expansive steps with little brake are ideal here. In steep terrain, on the other hand, you pull gently and apply brake pressure to stabilize. The glider must not be allowed to over shoot as collapses in the lift-off phase on steep slopes can become unpleasant. Since take off is very quick in steep terrain, it is a good idea to have an experienced pilot friend who observes and checks the take-off during the lift-up phase.

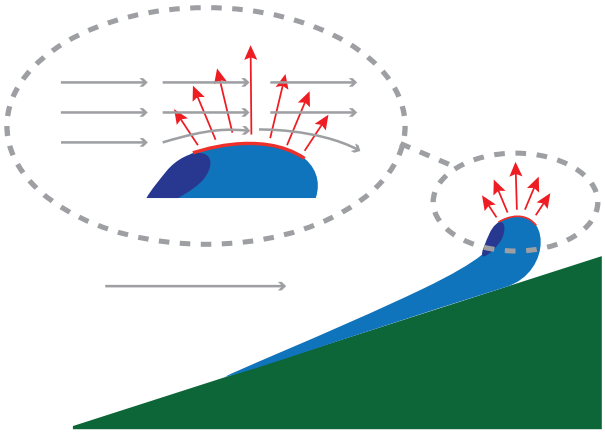
In flat terrain take-off may be more impulsive. After inflating and lifting the paraglider, perform a detailed visual check of the canopy. The running speed is reduced and adapted to the wind situation. In the steep launch site, the start is initiated with a small impulse and then a clear brake pull.



With an adequate launch impulse/input the canopy lifts off. The lifting force caused by the pronounced curvature of the profile at the leading edge is sufficient to lift a portion of the wing with its own weight.



As the canopy rises, the effective curved surface increases and with it the lifting force until it is strong enough to lift off the entire weight of the canopy.



Thereby and by the air entering the cell openings in the canopy's leading edge the profile becomes fully inflated. The forward force of the aerofoil profile accelerates the canopy forward. In order to stabilize the wing above the pilot a slight brake pull is used.

Reverse Launch

In strong winds and challenging conditions a reverse launch is recommended, as this allows better control of the canopy. Possible cravats and disorders of the canopy can be detected in the launch phase already. Thus, the control phase is simpler and an asymmetric rising of the wing can be corrected early on.

To perform a reverse launch, face the canopy and cross the risers when clipping in. If you want to turn to the right, turn the risers to the right before hooking-in and after sorting the lines. Make sure that the green loop is hooked into the carabiner on the right and the red loop into the carabiner on the left side.

Always untwist in the direction in which the upper riser is attached to the harness. Before lifting the wing, hold the brake lines and make sure that they are not twisted or reversed! Then take all the A-risers in one hand and step slightly out of the middle of the glider onto the side where you have only the control loop in your hand. With this control loop the ascent of the canopy is controlled until the canopy can be stabilized centrally above you.

Thereafter, take all A-risers in one hand. With the second hand, the rising of the canopy is controlled. To perfect the reverse launch technique, we recommend taking part in a reverse launch training.

Turning

The Papillon BODYGUARD 7 has a high agility and reacts to steering inputs directly and instantly. You can fly flat turns with little altitude loss by shifting your body weight. A combined steering technique of appropriate pull on the inner brake line and shift of body weight is the best way for a coordinated turn. The turn radius depends on the amount of pull on the brake line. At about 75 % of the brake line travel, the Papillon BODYGUARD 7 increases bank significantly and performs a fast steep turn that can lead to a spiral dive.

⚠ **ATTENTION: A rapid pull on the brakeline may cause a negative spin!**

Active Flying

The Papillon BODYGUARD 7 should be flown with light braking on both sides when there is turbulent air. An increased angle of attack provides better stability. When entering heavy thermals or strong turbulences be careful that the canopy does not get behind you. To avoid that, release the brakes a bit to get an increase in speed when entering the updraft. If the canopy gets in front of you when leaving an updraft or entering a downdraft, the brakes must be applied to counter that. Accelerated flight, however, is advisable when flying through downdraft zones.

The Papillon BODYGUARD 7 is naturally very stable due to its unique way of construction. Active flying in turbulent air (as described above) significantly increases safety. Collapsing and deforming of the canopy can be avoided through active flying.

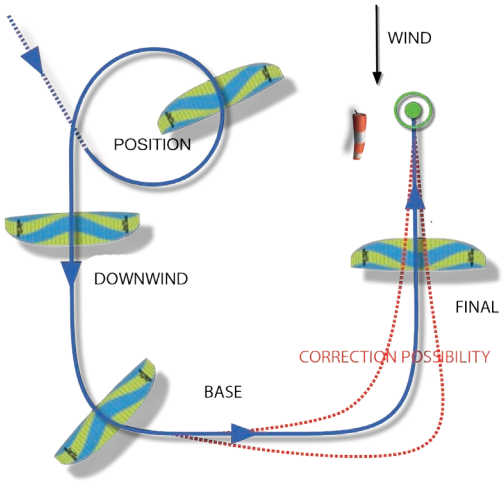
Landing

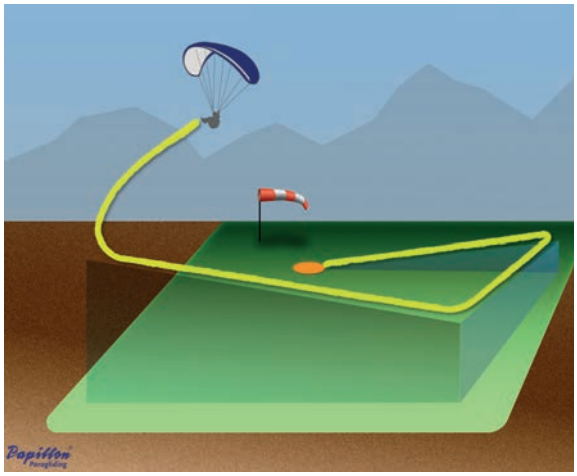
The landing should always be upwind. At a safe altitude the wind direction and strength are judged and the landing pattern and approach are planned.

The normal landing pattern begins at the position, where any remaining excess altitude is de-creased, in case of a left pattern by flying left circles. The downwind, base and final legs follow. Final approach is into the wind.

Throughout the entire pattern the paraglider is flown with a slight brake pull for maximum canopy stability. The landing spot serves as a reference point and is constantly observed.

On the approach legs you have good correction possibilities (dashed red lines).





Straighten up in the harness at least 5 metres above ground. In about one metre above ground pull the brakes fully to perform a landing stall in order to reduce the rate of descent and airspeed. The touchdown is simplified and standing landings are easily possible.

Don't pull the brakes too early. Especially in the final approach it would be dangerous if a stall oc-curred in 3, 4 or 5 metres already. The best landings are those with a nice flare.

Due to its excellent flaring characteristics the Papillon BODYGUARD 7 is very easy to land, when the brake is applied at the right moment.

The final approach is carried out in trim speed, if possible. In thermal conditions a final approach with maximum canopy stability (10-20% brake pull) is recommended.

ATTENTION: Remember that landing requires your highest concentration again. So plan your landing in such a way that you are safely on the ground before your mental and physical performance diminishes.

Strong Wind Landings

In strong winds you fly several base legs before the landing point with semicircles into the wind (called an "eight setup"). Begin a short final approach into the wind in about 10 to 20 metres above ground using slight brake pressure.

Do not turn with the wind as airspeed and wind speed add up. A landing at a high ground speed could be dangerous.

After touchdown turn around quickly and bring the canopy down by using the C-risers in order to avoid being dragged across the ground.

Landing on Slopes

A landing on the slope is always done sideways to the slope and never against it due to the increasing risk of injury. Hang landings require some routine. At the beginning of the flying career areas with large landing fields are recommended.

Top Landings

Landings at the launch site require wind or thermals. Therefore, they are recommended only for experienced pilots with lots of groundhandling experience.

ATTENTION: During a strong wind take off attempt, ground handling and landing the leading edge can hit the ground with high speed. This is to be avoided because otherwise the ribs, the sewing or the fabric can be damaged!

RAPID DESCENT

In any situation where you have to get down ASAP for different reasons (e.g. thunderstorms, extreme updraft or other dangers) there are a couple of techniques to do so:

ATTENTION: The described maneuvers stress your paraglider more than normal and should only be performed for practice or in a real emergency situation!

„Big Ears“

Another important and in many cases recommended rapid descent method is called „Big Ears“. By pulling on the outer A-lines, the „ears“ of the paraglider (usually two to four cells) are collapsed. The sink rate increases, while the airspeed remains approximately constant. This can help, for example, to escape cloud suck, whereas in a spiral the paraglider would still remain in the area of suction under the cloud.

Both designated outer A2-risers (grab at or above the quick links) are being pulled down simultaneously for 15-20 cm to fold in the wing tips. The brake toggles are to be held in hand together with the pulled down A-lines.

For additional stability and for an increased sink rate the speedsystem should be actuated. The glider remains fully steerable by weightshifting and descends at an elevated sink rate (4-7m/sec, depending on how many cells are folded in).

Once the A-risers are released, the folded wingtips re-inflate automatically, if not, you may pump the brakes gently.

Due to the high wingload “big earing” is a very stable flight condition even in turbulent conditions. Please be aware that you reduce the trimspeed during “big ears”, but this can be compensated by applying the speedbar.

Since the wing loading increases and the airspeed remains roughly the same due to the greater drag, the stall speed increases.

The BODYGUARD 7 shows an unproblematic behaviour during this manoeuvre.

NOTE: The BODYGUARD 7 facilitates big ears with a special big ear aid (seperate riser with big ear icon).

B-Stall

This maneuvre offers the possibility to descend comfortably and safely: By pulling down the B-risers the wing is folded along its lateral axis and thereby stalled, which causes a sink rate of about 6 to 9 metres per second.

Entry

Keep the brake handles in your hands. Sit up and at the same time take the B-risers. Make sure that really the B-risers are taken and not the C-risers. This could happen if a pilot incorrectly starts counting from the trailing edge instead of the leading edge of the wing.

NOTE: The BODYGUARD 7 facilitates big ears with special big ear aid (separate riser with big ear icon).

With the Papillon BODYGUARD 7 the B risers are labelled to avoid confusion.

The B-risers are pulled down slowly, thus slowing down the entire paraglider. After a pull of about 15-20 cm the stall occurs. Slowed down like this, the canopy barely falls behind the pilot with an increasing sink rate.

The Manoeuvre

Look immediately upwards, if the desired B-stall occurred. Then look down to control the loss of altitude and the area below you. Then alternately look upwards and downwards.

Should an atypical deformation of the canopy occur, immediately release the B-risers and recover from the manoeuvre. A slight turning tendency is normal, because the manoeuvre often cannot be initiated 100 percent symmetrical. The wind may also have an influence. If the change in direction feels unpleasant, just recover and repeat the manoeuvre.

Recovery

By a brisk - but most importantly symmetrical - release of the B-risers, the manoeuvre is terminated. The canopy dives forward to reattach the airflow and end the stall. Do not prevent this pitching forward by braking. Pilots with an active flying style tend to stop this desired pitching moment.

The difference of the forward pitching moment after a B-stall and the pitching moment after a thermal flight is that the paraglider needs to accelerate after a B-stall while it simply swings back and forth in the turbulences caused by thermals.

ADVANCED HANDLING

Even though the Papillon BODYGUARD 7 has a very high aerodynamic stability it is possible that the glider gets into an extreme flight situation due to pilot errors or turbulent air. The best method to stay calm and react correctly is to take part in a flight safety course. The pilot will learn to manage extreme flight situation under professional supervision. Extreme flight maneuvers may only be executed in calm air and in sufficient altitude under professional supervision (e.g. safety training). Once again we mention that a rescue system is required by the law. The following extreme flight figures and flight maneuvers can either be caused intentionally, through turbulences or through pilot errors. Every pilot can get into these flight situations! All mentioned extreme flight figures and maneuvers are dangerous if performed without the appropriate knowledge, enough altitude or necessary introduction. A wrong execution of these described figures and maneuvers may have fatal consequences!

Spiral Dive

Like a normal turn, initiating the spiral dive is easy with the Papillon BODYGUARD 7.

ATTENTION: The spiral is considered an extreme manoeuvre and should be flown only under expert guidance above water. Owing to the high physical stress the manoeuvre is only recommended for experienced pilots.

Entry

For a first circle a turn is flown tighter with body weight and inner brake. For the 2nd circle the bank is increased. The outer brake line is also pulled with increasing speed. In the 3rd circle the wing banks into the spiral and reaches sink rates of about 10 m/s.

Spiral phase

With the outer brake (10 to 30%) you can control the bank angle, the sink rate and the speed during the manoeuvre. Thereby a G-load of about 2.5 to 4 acts on the body.

Note: The wing should not be forced into the spiral too quickly as this could cause a stall on one side with extreme sink rates, the wing could even flip over.

Recovery

To recover from a spiral release the brake pressure on the inner brake, neutralize the body weight and increase the pressure on the outer brake. Before being fully recovered, the paraglider will continue to turn for one or two more circles. The speed and bank angle will be reduced. The regulation takes place via the outer brake.

Note: Trying to recover too quickly can cause a collapse when the wing swings behind the pilot. When recovering too slowly, a full recovery might not be achieved and the rapid loss of altitude may continue. If that happens, the dynamic may be reduced by applying brakes on both sides. The brake pressure increases during the manoeuvre because of the increased G-force. If the recovery is not possible, deploy the rescue!

⚠ **ATTENTION: If the initiation is too fast there is a danger of a spin, in this case release the brakes and try a smoother initiation.**

Wingover

The pilot has to perform right and left turns with increasing bank until the desired angle is reached. Collapsing wingtips are prevented by gently applying brake pressure in the up- and/or down-swing of the wingover. Normally there is no danger of collapsing wing tips with the Papillon BODYGUARD 7 except for when there is a very high bank. With shifting the bodyweight while applying the brake it is possible to fly the highest possible wingovers.

Full Frontal

A negative AoA caused by turbulences or the simultaneous pull-down of the A-risers by the pilot, results in a frontal collapse of the leading edge. The Papillon BODYGUARD 7 recovers from a frontstall by itself very quickly. Smooth and symmetric applying of the brake positively influences the re-opening of the canopy.

Collapses

Even with its high stability and very well responses in turbulences, strong turbulences can cause the canopy of the Papillon BODYGUARD 7 to collapse. Usually that situation is not dangerous and resolves itself automatically without any further input. To support the recovery, firmly apply the brakes on the affected side and simultaneously steer opposite to the open side. When a large part of the canopy collapses the counter steering is to be exercised in moderation in order to avoid a complete interruption of the airflow.

How to avoid collapses

Single side collapses, especially close to the ground, are the number one reason for accidents with paragliders. How to avoid them or how to handle the situation when it already happened, some tips and tricks from test- and competition pilot Ernst Strobl:

The best way to avoid collapses upfront is the right choice of the paraglider. A lot of pilots fly a glider that is a little too hot to handle for them. So why don`t you get a glider with a lower rating but in the end fly better and higher in the updrafts and have a lot more fun and by the way be safer, too. To optimize the feeling for your glider on the ground, try the following:

Practice on the ground with the right wind at a suitable location. Slowly pull up the canopy and try to hold it up as long as possible without looking at it. That is a good way to improve the feeling for your glider and is a prerequisite for „active flying" (the key to avoid collapses). Very important is also a close look at the terrain. Watch for obstacles that could cause turbulences (buildings, trees, ...). On certain days, for example a freshly mowed meadow as landing field, could cause a lot of thermal activity.

Fly very alert on a thermally active day. Watch your canopy, collapses most of the time, announce themselves. Light braking in turbulences mostly avoids a collapse. You should have already practiced that on the ground. Should a collapse occur close to the ground don`t always try to prevent a turn away. There is a danger when the braking on the open side is to strong, to lose the airflow on this side and stall the glider. Rather use the turn away motion to try to open the collapsed side.

Apply smooth braking on the open side, depending on the size of the collapse, and maybe a little pumping action. Some canopies open a lot better when the brakes are fully applied once on the according side, but that depends on the brakelines adjustment and your armlength.

Wrapped lines are cleared by braking the opposite side at enough altitude and pumping the affected side a couple of times. Watch out for a possible stall. If that does no clear the situation, try to pull dow the outer lines as much as possible. If you are too low for that, stabilize the canopy on the opposite side avoid turning away, and leave the lines like they are. Instead of any risky manoeuvres rather concentrate on the landing. In the end one more advice in order to have all kinds of situations under control.

Visit a safety-training above water. There is no better way to practice the right behaviour than simulating a dangerous situation. Don`t get caught off guard by your first collapse. In addition, during safety-training you can familiarize yourself with the particulars of your equipment and you gain confidence in your gliders as well as your own abilities.

Thus far the expert advice concerning collapses by Ernst Strobl.

Deep Stall

If the wing stalls but is still filled with air, you are in a deep stall. Strictly speaking, this is not a flight because no airflow is attached to the canopy. Further brake pull leads to a full stall, a stall with partial emptying of the canopy, forward folded ears and backward flight.

The Papillon BODYGUARD 7 is not stall sensitive. If in a stall, caused by overpulling on the brakes or rear risers or a delayed B-stall exit, the release of the brakes or rear risers, recovers the stall. Should the stall be caused by an extreme flight condition or configuration (i.e. takeoff weight too low), a symmetric forward push on the A-riser or use of the speed system recovers the stall.

ATTENTION: Practicing stalls should be done with enough safe altitude. Never apply asymmetric brakes during a stall, it could cause a spin.

ATTENTION: If the BODYGUARD 7 is in deep stall, the brake should only be released after approx. 3 seconds if the height above ground is sufficient. The glider will finish the manoeuvre on its own. In case of low altitude or little flight experience we recommend deploying the rescue system.

Fullstall

The stall is recognized by the decrease of wind noises and by a high rate of descent (5 - 20m/s).

There can be several causes: pilot errors (too much brake application, changing wind conditions or deficiencies of the canopy (high air permeability due to aging).

The pilot should allow the wing to re-establish airflow. Modern paragliders like the Papillon BODY-GUARD 7 recover independently. To do so, release the brakes (but keep them in your hands), so that the wing can accelerate again.

Partial Stall

A stall can also occur on one side only by a rapid strong pull on one brake. The wing enters a sudden, highly accelerated rotation around its vertical axis, with almost no bank. This uncontrollable flight condition is called (flat) spin. The pilot releases the brakes.

The secure paragliders of the new generation end a spin independently and immediately. In a stable spin with sufficient altitude, the manoeuvre can be terminated with a full stall, at a lower altitude you have to deploy the reserve.

Negative Turn

A negative turn/spin is initiated, when the pilot pulls the brake on one side fast and completely through to the point of stall while letting the other brake partly free. With a negative turn the glider turns relatively fast around its center, while the inside flies backwards.

In order to exit a negative spin, the applied brake is released, where the stalled side of the wing can pick up speed or one exits though a full stall, by braking the flying side into a stall as well.

ATTENTION: The Spin and the Fullstall and unpredictable and dangerous flight figures and should only be executed in a safety training under supervision and never be executed intentionally. There is danger of a riser twist. With a riser twist the brake lines can get blocked.

ATTENTION: Fullstalls and negative turns/spins as a descent method are dangerous, because a wrong exit, regardless of glider type, can have fatal consequences.

Emergency Piloting

In any situation where normal steering is not possible, the Papillon BODYGUARD 7 can easily be steered and landed with the back risers. Turns can be flown with weightshift, however be careful that the glider doesn`t lock into a spiral.

Transport and storage

When transporting the glider don't expose it to any liquids. It has to be packed completely dry. Always store the BODYGUARD 7 away from UV radiation. Furthermore never store the wing together with acids or similar goods. A dry storage is of utmost importance!

ATTENTION: After a longer storage period the glider needs to be checked.

Repairs

Basically only authorized service centers may execute repairs on paragliders. Small damages like tears or small holes up to a size of 2 x 2 cm, where a repair without special equipment is possible, the pilot may do by himself. The included self-sticky tape from the repair-kit is to be used for that. Tears or holes need to be fixed from both sides. Please take care that the repair tape sticks out at least 2cm beyond the damaged area on all sides. The self-sticky tape can be cut into the right form. Rounding off the corners prevents it from becoming detached.

MAINTENANCE AND CARE

Maintenance and care

Since only high-quality material is used for the Papillon RAQOON it will be unrelievedely airworthy for many years at good care and maintenance. The aging of your Papillon RAQOON depends on the total flying time, the conditions in which you fly in, the amount of UV radiation it is exposed to and the intensity and quality of care. A couple of tips for maintenance and care:

Long lasting exposure to UV radiation and extreme acro maneuvers reduce the strength of every material over time.

- Do not leave your Papillon RAQOON out in the sun more than necessary, but put it back into the backpack after your flight.
- Consider the choice of terrain when choosing a take-off site to lay out your glider.
- Placing the opening reinforcements on top of each order prolongs the life time of your glider.
- Do not drag your glider on the ground and pack it on a patch of grass.

Please consider that:
- the lines need to be checked for damage regularly.
- the lines are not being bent unnecessarily and you don’t step on the lines when laying out the glider.
- lines need to be checked after overloads (tree or water landings etc.) for their strength and correct length and exchanged if necessary.
- lines need to be checked for their correct length in case of changing inflight handling characteristics.
- the main brake lines aren’t knotted too many times at the grip since every knot weakens the line.

To clean the canopy only use warm water and a soft sponge. Never apply any chemicals for cleaning, since they weaken the material and damage the coating. Store your glider at a dry and dark location away from any chemicals. After 24 months or 150 flighthours, whichever occurs first, your Papillon RAQOON has to be inspected by the manufacturer or importeur. In case of extreme use we are glad to do that earlier. You know best about the condition of your glider.

Nature and environment-friendly behaviour

We ask you to perform our sport in a manner, that impacts nature and environment with minimum intensity. Please do not walk off marked paths, don`t leave any waste, don’t make noise uselessly and respect the sensitive biological equilibrium in the mountains. Especially at take-off areas maximum care for nature is necessary.

The synthetic materials your glider is build of must be depolluted appropriately. At the end of its life-cycle please return your glider to us, we will take care of recycling and removal.

FLYING ACCESSORIES

Harness

All certified harness systems with mounting at about breast height are compatible with the Papillon RAQOON. The lower the mounting point of the harness, the better you can steer the Papillon RAQOON by shifting your bodyweight.

Please keep in mind, that also your harness is exposed to extreme loads.

If you have any questions regarding the use of your harness with the Papillon RAQOON, please contact us. We are happy to help!

Suitable Rescue Systems

It is required by law and absolutely neccessary for safe operation of your paraglider that you always carry a rescue system.

When choosing your rescue system, watch out that it is approved and suitable for the intended takeoff weight.

In the Papillon Shops we will be pleased to advise you personally and assist you with the choice of the flight equipment, which best suits your needs and requirements.

PRESUMPTION OF RISK

The usage of the Papillon RAQOON inherents certain dangers of bodily harm or even death of the user of this product or a third party. With the use of the RAQOON you consent to all known and unknown risks and accept probable and improbable risks of injury. The dangers innate with the practice this kind of sport can be reduced by adhering to the warning notes in the manual, as well as the required attention to detail on each flight. The risks inherent to the sport can be reduced to a large degree, if one adheres to both the maintenance guidelines, which are listed in this operating manual, as well as using common sense.

Liability claim and renouncement of exclution

With the completion of the purchase of a Papillon RAQOON you express your in consent with the following points of legal specifications:

THE RENOUNCEMENT EXCLUSION OF ALL LIABILITY CLAIMS,

deriving from the use of the Papillon RAQOON and or either compenents thereof, now or in the future, against the PAPILLON PARAGLIDERS GLEITSCHIRM DIREKT GmbH and all other contracting parties.

Releasing PAPILLON PARAGLIDERS GLEITSCHIRM DIREKT GmbH and all other contracting parties of all liability claims concerning loss, damage, injury or expenses that you, your next of kin, relatives or any other user of the Papillon RAQOON could suffer as a result of the usage of the RAQOON. This includes but is not limited to lawful or contractual liability on behalf of PAPILLON PARAGLIDERS GLEITSCHIRM DIREKT GmbH and all other contracting parties as a result of the of production and processing the Papillon RAQOON and all its components. With the occurrence of death or disability, all directives stated here come into force and bind their beneficiaries, next of kin, trustees, legal successors and/or representatives. The PAPILLON PARAGLIDERS GLEITSCHIRM DIREKT GmbH and all other contracting parties express no verbal or written representation and deny assertively that this was done with exception of what is specified here and in the manual of Papillon RAQOON.

Safety Advice and Liability

This glider complies with EAPR regulations, for the tested type, at time of delivery (see appendix). Any unauthorized alteration is followed by the expiration of the operating licence! The operation of the glider is at your own risk and the pilot needs to make sure that the aircraft is checked for its airworthyness before every flight. We also take it as a given that the pilot is in posession of the required certificate of qualification and that the given legal requirements are met. Use of the equipment is at your own risk! The manufacturer and the dealer don`t take any liability for accidents and possible consequential damages. Please consider all safety notes, cautions and warnings for safe flying.

RELEASE OF LIABILITY, RENOUNCEMENT OF ENTITLEMENT

Hereby you declare, that - prior to use of the Papillon RAQOON - you have read and understood the Papillon RAQOON user manual in its entirety, including directions and warnings, which are included in this user manual.

Moreover you declare to carry responsibility - prior to granting the use of Papillon RAQOON to a third party - through transferring ownership temporary or permanently, for this other user to have read and unterstood the Papillon RAQOON user manual in its entirety, including directions and warnings, which are included in this user manual.

Place and date

Signature of the first pilot

Place and date

Signature of the second pilot

Place and date

Signature of the third pilot

PAPILLON PARAGLIDERS - GLEITSCHIRM DIREKT GmbH does not take responsibility, liabiltiy and/or guarentee for inspections and repairs that are not porformed by Papillon.

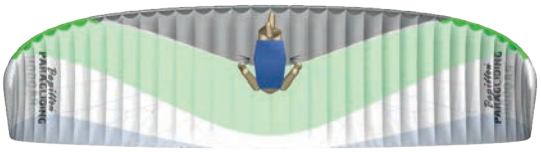
TECHNICAL DATA PAPILLON RAQOON

	55	60	80	85	100	120
Recommended Start weight **** / Empfohlenes Startgewicht ****	60-70 kg	60-85 kg	80-95 kg	85-105 kg	100-120 kg	120-140 kg
Extended Start weight *** / Erweitertes Startgewicht ***	60-80 kg	60-95 kg	80-110 kg	85-115 kg	100-130 kg	120-150 kg
Flat area / Fläche ausgelegt	23 m^2	25,5 m^2	28,5 m^2	30 m^2	31,5 m^2	35 m^2
Projected area / Fläche projiziert	19,119 m^2	21,197 m^2	23,691 m^2	24,938 m^2	26,184 m^2	29,51 m^2
Flat wingspan / Spannweite ausgelegt	10,724 m	11,292 m	11,937 m	12,247 m	12,55 m	13,323 m
Projected wingspan / Spannweite projiziert	8,273 m	8,711 m	9,209 m	9,449 m	9,682 m	10,278 m
Flat AR / Streckung ausgelegt	5	5	5	5	5	5
Projected AR / Streckung projiziert	3,58	3,58	3,58	3,58	3,58	3,58
Chord: center / wingtip / Flügeltiefe: Mitte / Stabilo	2,550 m / 0,721 m	2,686 m / 0,769 m	2,849 m / 0,805 m	2,913 m / 0,823 m	3,008 m / 0,850 m	3,186 m / 0,901 m
V-trim / V-Trimm	~ 37-39 km/h	~ 37-39 km/h	~ 37-39 km/h	~ 37-39 km/h	~ 37-39 km/h	~ 37-39 km/h
V-max / V-Max.	52 + km/h	52 + km/h	52 + km/h	52 + km/h	52 + km/h	52 + km/h
Bridle height / Abstand Tragegurt-Kappe	6,649 m	7,001 m	7,401 m	7,593 m	7,781 m	8,26 m
Nr. of cells / Zellenanzahl	36	36	36	36	36	36
Glider weight / Gewicht	3,45 kg	3,75kg	3,95 kg	4,25kg	4,55 kg	4,85 kg
Bridle length / Gesamt Leinenlänge	243 m	256m	269m	279 m	286 m	304 m
Line diameter / Leinenduchmesser	0,95 / 1,2 / 1,65 1,8 / 2,0 mm	0,95 / 1,2 / 1,65 1,8 / 2,0 mm	0,95 / 1,2 / 1,65 1,8 / 2,0 mm	0,95 / 1,2 / 1,65 1,8 / 2,0 mm	0,95 / 1,2 / 1,65 1,8 / 2,0 mm	0,95 / 1,2 / 1,65 1,8 / 2,0 mm
Speed system / trimmer Fuß Beschleuniger / Trimmer	Yes / No Ja / Nein	Yes / No Ja / Nein	Yes / No Ja / Nein	Yes / No Ja / Nein	Yes / No Ja / Nein	Yes / No Ja / Nein
Beschleunigerweg max.way of accelaration	140 mm	140 mm	140 mm	140 mm	140 mm	140 mm
Certification / Zulassung	EN-A / LTF-A	EN-A / LTF-A	EN-A / LTF-A	EN-A / LTF-A	EN-A / LTF-A	EN-A / LTF-A
Certified standards and procedures Angewandte Testverfahren	LTF 91/09 & EN 926-1:2006, 926-2:2013	LTF 91/09 & EN 926-1:2006, 926-2:2013	LTF 91/09 & EN 926-1:2006, 926-2:2013	LTF 91/09 & EN 926-1:2006, 926-2:2013	LTF 91/09 & EN 926-1:2006, 926-2:2013	LTF 91/09 & EN 926-1:2006, 926-2:2013
Folding lines used for certification Faltleinen für Testflüge benutzt	No Nein	No Nein	No Nein	No Nein	No Nein	No Nein
Number seats Anzahl Sitze	1	1	1	1	1	1-2
Certification No. Zulassungsnummer	EAPR-GS-0665/17	EAPR-GS-0666/17	EAPR-GS-0667/17	EAPR-GS-0668/17	EAPR-GS-0669/17	EAPR-GS-0670/17

**** Recommended Start weight *** Extended Start weight 1. pilot, glider, equipment

**** Empfohlener Gewichtsbereich[1] für die Schulung *** Erweiterter Gewichtsbereich[1] mit LTF/EN-A Zulassung 1. Pilot, Schirm, Ausrüstung.

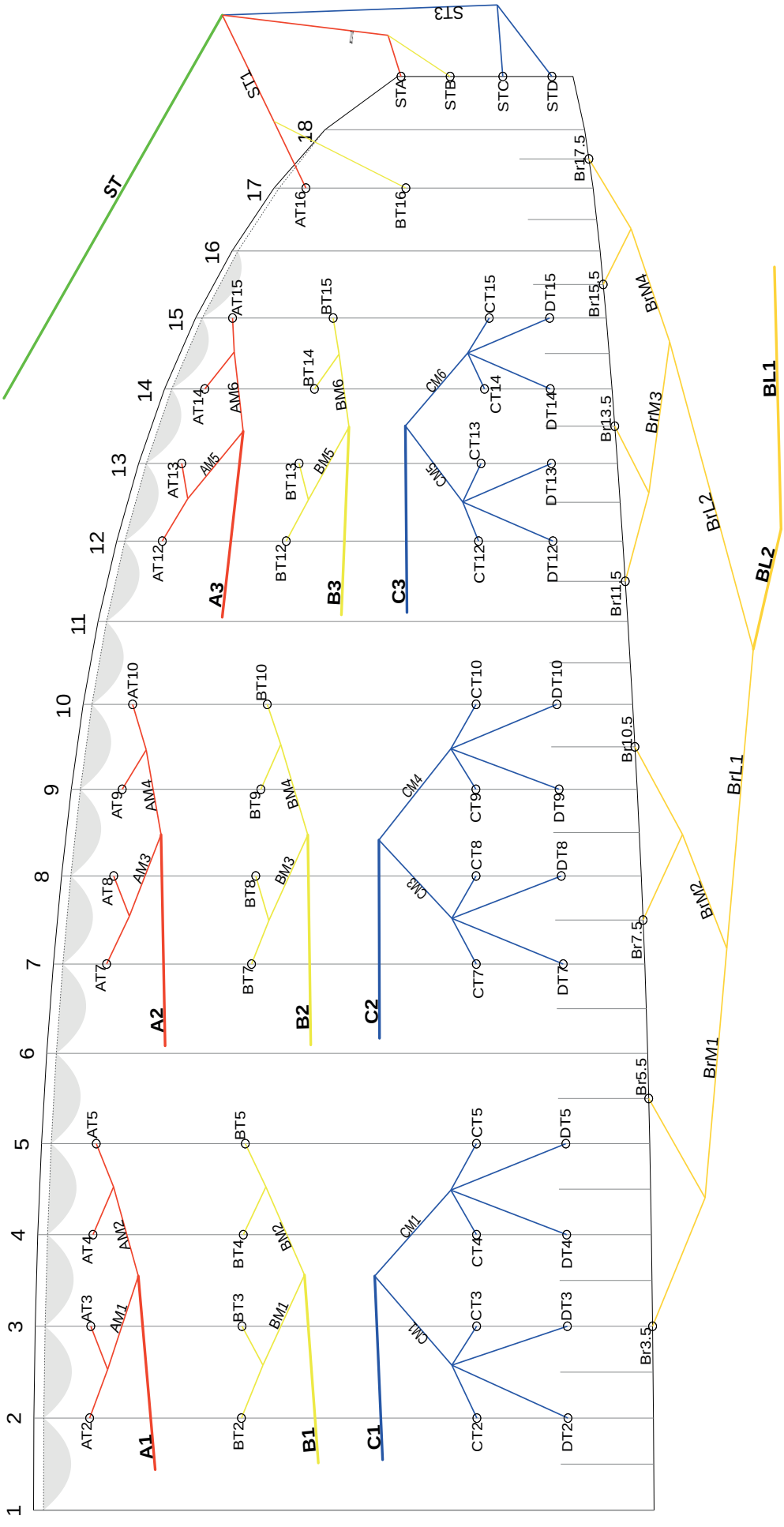
COLOR-INFO PAPILLON RAQOON



COLOR 1

COLOR 2

LINE CODE RAQOON



LINE PLAN RAQOON 55

RAQOON 55			Lineplan rev4				Line plan length		EAPR Check Sheet
A-Lines									**A-Lines**
r 2	658	1253	4276				6187		6167
r 3	627						6155		6135
r 4	627	1250					6152		6129
r 5	642						6167		6147
r 7	671	1253	4203				6128		6108
r 8	627						6083		6061
r 9	627	1228					6058		6033
r 10	625						6056		6035
r 12	586	1164	4207				5958		5934
r 13	531						5902		5876
r 14	531	1108					5847		5822
r 15	491						5806		5782
r 17	895	448					5550		5529
Stabilo	431	671					5310		5287
B-Lines									**B-Lines**
r 2	658	1253	4193				6104		6080
r 3	627						6073		6050
r 4	627	1250					6069		6043
r 5	642						6085		6059
r 7	671	1253	4113				6038		6015
r 8	627						5993		5968
r 9	627	1226					5966		5942
r 10	625						5964		5938
r 12	586	1164	4108				5858		5836
r 13	536						5808		5783
r 14	546	1108					5762		5738
r 15	513						5729		5707
r 17	885						5540		5518
Stabilo	480		4207				5359		5334
C-Lines									**C-Lines**
r 2	658	1253	4316				6227		6202
r 3	627						6196		6173
r 4	627	1250					6192		6170
r 5	645						6211		6189
r 7	680	1253	4243				6177		6152
r 8	627						6123		6099
r 9	627	1221					6091		6065
r 10	620						6085		6062
r 12	586	1164	4216				5967		5946
r 13	531						5911		5887
r 14	534	1119					5870		5853
r 15	503						5839		5819
Stabilo	522	716					5446		5429
D-Lines									**D-Lines**
r 2	775						6344		6321
r 3	747						6316		6292
r 4	747						6312		6292
r 5	758						6324		6299
r 7	792						6289		6264
r 8	737						6233		6211
r 9	731						6196		6174
r 10	716						6181		6159
r 12	670						6050		6026
r 13	613						5993		5971
r 14	610						5945		5920
r 15	578						5914		5891
Stabilo	630						5554		5535
Brake									**Brake**
r 3	1555	1880		1611	260	1650	6956		6933
r 5,5	1253					. + 150	6655		6632
r 7,5	1307	1611					6440		6416
r 9,5	1249						6382		6361
r 11,5	1057	1164		2063			6194		6172
r 13,5	1001						6138		6115
r 15,5	796	1325					6094		6071
r 17,5	794						6092		6065

Complete length of main brake line: 1800mm
Handle on: 1650mm

RAQOON 60

RAQOON 60			Lineplan rev5				Lineplan length		EAPR Mesurements
A-Lines									
r 2	702	1338	4551				6591		6578
r 3	669						6557		6543
r 4	669	1334					6554		6536
r 5	685						6570		6555
r 7	717	1338	4486				6540		6521
r 8	669						6492		6472
r 9	669	1311					6466		6443
r 10	667						6464		6442
r 12	626	1242	4491				6359		6337
r 13	567						6299		6279
r 14	567	1183					6240		6218
r 15	524						6197		6174
r 17	955	478					5923		5902
Stabilo	461	717					5667		5646
B-Lines									
r 2	702	1338	4467				6507		6491
r 3	669						6473		6455
r 4	669	1334					6470		6453
r 5	685						6486		6470
r 7	717	1338	4391				6445		6428
r 8	669						6397		6383
r 9	669	1309					6369		6348
r 10	667						6367		6350
r 12	626	1242	4386				6254		6234
r 13	572						6200		6180
r 14	583	1183					6152		6131
r 15	547						6116		6095
r 17	945						5913		5889
Stabilo	512		4490				5719		5694
C-Lines									
r 2	704	1338	4596				6638		6611
r 3	671						6604		6579
r 4	671	1334					6601		6572
r 5	691						6621		6592
r 7	728	1338	4529				6595		6567
r 8	671						6537		6511
r 9	671	1303					6503		6475
r 10	664						6496		6465
r 12	628	1242	4500				6370		6343
r 13	569						6311		6283
r 14	572	1194					6267		6234
r 15	537						6231		6202
Stabilo	557	764					5811		5786
D-Lines									
r 2	827						6761		6735
r 3	797						6730		6700
r 4	797						6727		6695
r 5	809						6739		6710
r 7	846						6712		6685
r 8	786						6653		6625
r 9	781						6613		6585
r 10	764						6596		6570
r 12	715						6457		6430
r 13	654						6397		6370
r 14	651						6345		6320
r 15	617						6312		6280
Stabilo	673						5927		5900
Brake									
r 3	1660	2006		1720	400	1650	7436		7416
r 5,5	1338					. + 150	7114		7095
r 7,5	1395	1720					6885		6866
r 9,5	1333						6822		6803
r 11,5	1128	1242		2202			6623		6603
r 13,5	1068						6563		6544
r 15,5	849	1414					6516		6496
r 17,5	847						6514		6494

Complete length of main brake line: 1800mm
Handle on: 1650mm

RAQOON 80

RAQOON 80			Lineplan rev4				line plan		Check length EAPR
A-Lines									
r 2	735	1400	4788				6923		6922
r 3	700						6888		6888
r 4	700	1396					6884		6884
r 5	717						6901		6900
r 7	750	1400	4690				6840		6838
r 8	700						6790		6787
r 9	700	1372					6762		6759
r 10	698						6760		6757
r 12	655	1300	4700				6655		6654
r 13	593						6593		6592
r 14	593	1238					6531		6528
r 15	548						6486		6482
r 17	1000	500					6200		6198
Stabilo	482	750					5932		5930
B-Lines									
r 2	735	1400	4700				6835		6834
r 3	700						6800		6799
r 4	700	1396					6796		6795
r 5	717						6813		6812
r 7	750	1400	4605				6755		6753
r 8	700						6705		6700
r 9	700	1370					6675		6669
r 10	698						6673		6667
r 12	655	1300	4610				6565		6564
r 13	599						6509		6507
r 14	610	1238					6458		6454
r 15	573						6421		6420
r 17	989						6189		6188
Stabilo	536		4700				5986		5985
C-Lines									
r 2	735	1400	4835				6970		6968
r 3	700						6935		6933
r 4	700	1396					6931		6922
r 5	721						6952		6944
r 7	760	1400	4735				6895		6887
r 8	700						6835		6827
r 9	700	1364					6799		6791
r 10	693						6792		6785
r 12	655	1300	4710				6665		6662
r 13	593						6603		6596
r 14	597	1250					6557		6548
r 15	562						6522		6516
Stabilo	583	800					6083		6078
D-Lines									
r 2	866						7101		7097
r 3	834						7069		7063
r 4	834						7065		7059
r 5	847						7078		7071
r 7	885						7020		7013
r 8	823						6958		6952
r 9	817						6916		6910
r 10	800						6899		6892
r 12	748						6758		6751
r 13	685						6695		6688
r 14	681						6641		6634
r 15	646						6606		6599
Stabilo	704						6204		6197
Brake									
r 3	1737	2100		1800	500	1650	7787		7781
r 5,5	1400					. + 150	7450		7442
r 7,5	1460	1800					7210		7205
r 9,5	1395						7145		7140
r 11,5	1181	1300		2335			6966		6962
r 13,5	1118						6903		6901
r 15,5	889	1485					6859		6857
r 17,5	887						6857		6855

Complete length of main brake line: 1800mm
Handle on: 1650mm

RAQOON 85

RAQOON 85			Lineplan rev7				line plan		Check length EAPR
A-Lines									
r 2	754	1436	4915				7105		7088
r 3	718						7069		7050
r 4	718	1432					7065		7047
r 5	735						7083		7065
r 7	769	1436	4816				7022		7005
r 8	718						6970		6953
r 9	718	1407					6942		6925
r 10	716						6940		6925
r 12	672	1334	4821				6827		6809
r 13	608						6763		6746
r 14	608	1270					6699		6681
r 15	562						6653		6636
r 17	1026	513					6360		6341
Stabilo	494	769					6085		6069
B-Lines									
r 2	754	1436	4820				7010		6990
r 3	718						6974		6955
r 4	718	1432					6970		6951
r 5	735						6988		6970
r 7	769	1436	4729				6934		6917
r 8	718						6883		6865
r 9	718	1405					6852		6835
r 10	716						6850		6833
r 12	672	1334	4729				6734		6715
r 13	614						6677		6660
r 14	626	1270					6625		6605
r 15	588						6587		6568
r 17	1015						6349		6330
Stabilo	550		4821				6140		6122
C-Lines									
r 2	754	1436	4945				7135		7115
r 3	718						7099		7080
r 4	718	1432					7095		7077
r 5	740						7117		7100
r 7	780	1436	4862				7078		7060
r 8	718						7016		6997
r 9	718	1399					6980		6960
r 10	711						6972		6955
r 12	672	1334	4832				6837		6820
r 13	608						6773		6755
r 14	612	1282					6726		6707
r 15	576						6690		6670
Stabilo	598	821					6240		6220
D-Lines									
r 2	888						7269		7250
r 3	856						7237		7220
r 4	856						7233		7215
r 5	869						7246		7227
r 7	908						7206		7187
r 8	844						7143		7124
r 9	838						7100		7081
r 10	821						7082		7065
r 12	767						6932		6915
r 13	703						6868		6850
r 14	699						6812		6795
r 15	663						6776		6757
Stabilo	722						6364		6345
Brake									
r 3	1782	2154		1846	520	1650	7952		7925
r 5,5	1436					. + 150	7607		7586
r 7,5	1498	1846				Complete length of main brake line: 1800mm Handle on: 1650mm	7361		7340
r 9,5	1431						7294		7270
r 11,5	1215	1334		2395			7114		7093
r 13,5	1147						7046		7025
r 15,5	912	1523					7000		6975
r 17,5	910						6998		6975

RAQOON 100

RAQOON 100			Lineplan rev4		line plan length		Check length EAPR
A-Lines							
r 2	776	1478	5019		7273		7276
r 3	739				7236		7238
r 4	739	1474			7232		7230
r 5	757				7250		7253
r 7	792	1478	4958		7228		7230
r 8	739				7175		7173
r 9	739	1449			7145		7146
r 10	737				7143		7142
r 12	692	1373	4963		7027		7025
r 13	626				6962		6965
r 14	626	1307			6896		6899
r 15	579				6849		6853
r 17	1056	528			6547		6549
Stabilo	509	792			6264		6262
B-Lines							
r 2	776	1478	4937		7191		7197
r 3	739				7154		7157
r 4	739	1474			7150		7152
r 5	757				7168		7172
r 7	792	1478	4857		7127		7129
r 8	739				7074		7072
r 9	739	1447			7043		7045
r 10	737				7041		7044
r 12	692	1373	4852		6916		6918
r 13	633				6857		6859
r 14	644	1307			6803		6808
r 15	605				6764		6768
r 17	1044				6535		6535
Stabilo	566		4963		6321		6318
C-Lines							
r 2	776	1478	5069		7323		7321
r 3	739				7286		7282
r 4	739	1474			7282		7278
r 5	761				7304		7299
r 7	803	1478	4996		7277		7272
r 8	739				7213		7210
r 9	739	1440			7175		7170
r 10	732				7168		7164
r 12	692	1373	4963		7027		7026
r 13	626				6962		6958
r 14	630	1320			6913		6908
r 15	593				6876		6873
Stabilo	616	845			6423		6418
D-Lines							
r 2	914				7462		7456
r 3	881				7428		7423
r 4	881				7424		7418
r 5	894				7437		7434
r 7	934				7409		7403
r 8	869				7343		7339
r 9	863				7299		7296
r 10	845				7281		7275
r 12	790				7126		7120
r 13	723				7059		7055

PAPILLON RAQOON 120

ETERNITY 120			Lineplan rev5			Lineplan length	EAPR mesurements
A-Lines							
r 2	822	1566	5340			7728	7726
r 3	783					7689	7685
r 4	783	1561				7684	7680
r 5	802					7703	7700
r 7	839	1566	5251			7656	7660
r 8	783					7600	7600
r 9	783	1534				7568	7565
r 10	781					7566	7564
r 12	733	1454	5257			7443	7445
r 13	663					7374	7375
r 14	663	1385				7304	7305
r 15	613					7254	7260
r 17	1118	559				6934	6940
Stabilo	539	839				6634	6640
B-Lines							
r 2	822	1566	5247			7635	7635
r 3	783					7596	7596
r 4	783	1561				7591	7591
r 5	802					7610	7610
r 7	839	1566	5152			7557	7555
r 8	783					7501	7500
r 9	783	1532				7467	7464
r 10	781					7465	7464
r 12	733	1454	5150			7337	7340
r 13	670					7274	7278
r 14	682	1385				7217	7220
r 15	641					7176	7180
r 17	1106					6922	6925
Stabilo	599		5257			6695	6695
C-Lines							
r 2	822	1566	5390			7778	7775
r 3	783					7739	7735
r 4	783	1561				7734	7730
r 5	806					7758	7754
r 7	850	1566	5300			7716	7712
r 8	783					7649	7645
r 9	783	1526				7608	7605
r 10	775					7601	7596
r 12	733	1454	5268			7454	7450
r 13	663					7385	7380
r 14	668	1398				7334	7330
r 15	629					7294	7290
Stabilo	652	895				6803	6805
D-Lines							
r 2	969					7924	7920
r 3	933					7889	7885
r 4	933					7884	7880
r 5	947					7899	7895
r 7	990					7856	7854
r 8	920					7786	7784
r 9	914					7739	7736
r 10	895					7720	7717
r 12	837					7558	7555
r 13	766					7488	7485
r 14	762					7427	7425
r 15	723					7388	7385
Stabilo	787					6939	6940
Brake							
r 3	1945	2349	2013	690	1650	8647	8645
r 5,5	1566				. + 150	8268	8265
r 7,5	1633	2013				7999	7995
r 9,5	1560					7927	7922
r 11,5	1321	1454	2578			7693	7691
r 13,5	1250					7622	7620
r 15,5	994	1655				7568	7563
r 17,5	992					7565	7560

Complete length of main brake line: 1800mm
Handle on: 1650mm

REQUIREMENT FOR LTF/EN A-CERTIFICATION

Harness-Dimensions

Weight	A-dimension	B-dimension
< 50 kg	38 cm	38 cm
50-80 kg	42 cm	42 cm
> 80 kg	46 cm	46 cm

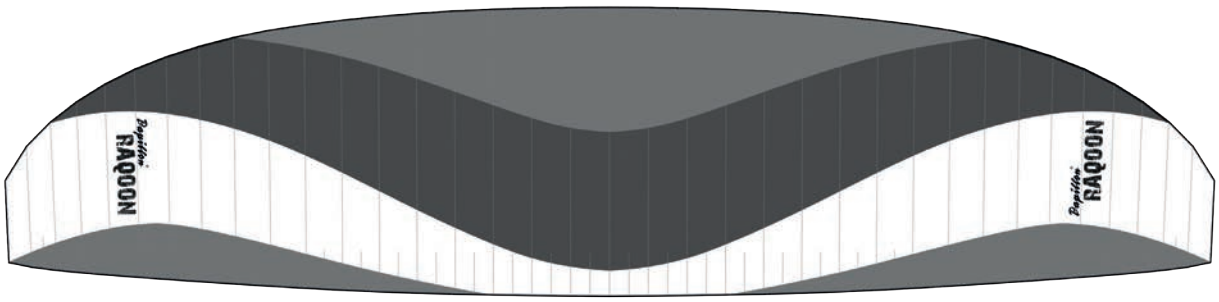
Control Travel

RAQOON Size	max. symmetrical control travel at max. weight
55	> 55 cm
60	> 60 cm
80	> 60 cm
85	> 65 cm
100	> 65 cm
120	> 65 cm

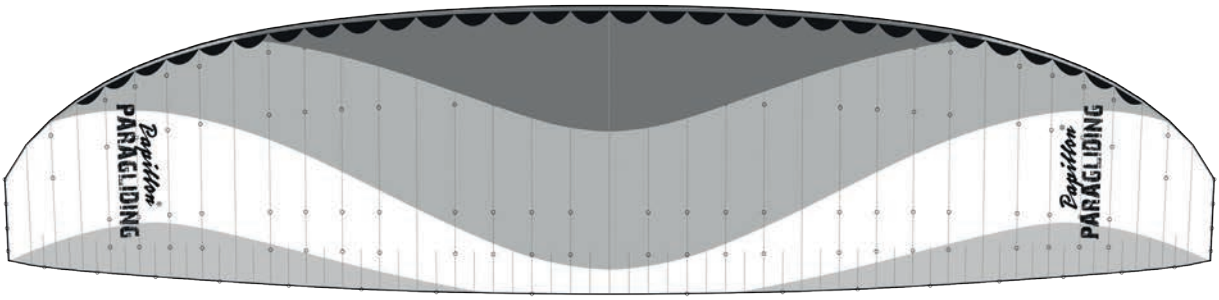
INSTRUCTION LEAFLET FOR REPAIRS & 2-YEARLY-CHECK

Last name:	First name:
Street address:	ZIP code, city:
Country:	Phone number:
E-mail address:	
Glider model and color:	
Serialnumber:	
Coments/notes:	

- ☐ 2-yearly-check
- ☐ Air permability check
- ☐ Call-back at sighting of the glider
- ☐ Line check inkl. strength test
- ☐ Repair of the marked damage



Obersegel / Top



Untersegel / Bottom

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LINE ORDER FORM

Last name:	First name:
Street address:	ZIP code, city:
Country:	Phone number:
E-mail address:	
Glider model and color:	
Size:	
Serialnumber:	
Comment/notes:	

Line ID-code	quantity

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REPLY CARD

Last name:	First name:
Street address:	ZIP code, city:
Country:	Phone number:
E-mail address:	
Product:	
Serialnumber:	
Date of purchase:	
Purchased at:	
Pilot since:	
Number of flights per year:	
Club:	

☐ Yes, I would liket to get informed on the newest activities and developments of Papillon Paragliding.

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MAINTENANCE MANUAL

as developer and manufacturer for paragliders,
harnesses and rescue parachutes

English Rev. 1.2 Effective: June 2017

TOPIC OF THE INSPECTION AND REINSPECTION INTERVALS

Regular inspection according to aircraft inspection ordinance for standardized evaluated gliders. For school gliders after 1 year, aircraft for recreational use after 2 years. Tandem gliders for commercial purposes annually, non commercial use every 2 years to be inspected. The inspection shall take place in the aforementioned intervals, or no later than 150 hours. Ground handling needs to be included in the sum of flight hours.

⚠ ATTENTION: in the case any abnormal flight behavior, the manufacturer should be informed and the canopy, if necessary, sent in for inspection.

Who may inspect/test?

Besides the manufacturer or the by him approved person or instance is authorized the owner of the glider to warrant the bi-annual inspection and only if in compliance with pre-requisites set forth.

Individual personal prerequisites for the inspections

Personal prerequisites for the inspection of individually owned solo gliders for recreational use only:
– Holder of a valid unrestricted license for paragliders or equivalent accredited license.
– An adequate orientation in the operation by the manufacturer. For this a 3 month formation with the manufacturer is necessary.
– If a glider was tested for personal use exclusively, then its use by a third party is not allowed.

Individual personal prerequisites for the inspection of gliders, RG, GZ, used by third parties or for tandem purpose:
– A for the testing prescribed professional training.
– A vocational activity in the production or maintenance of GS, RG, GZ or one of a technically similar nature. Of which 6 month within the last 24 in a manufacturing operation recreational free flight aircraft.
– An at least 2 week, subject to charge, relevant training course at the operation of the manufacturer.
– An applicable orientation for each type of device, which is to be refreshed annually.

Necessary equipment and documentation

– Gauge, preferably Kretschmer (brand) with manual.
– Bettsometer with manual.
– Maintenance directions by manufacturer.
– Original materials and -spare parts, as well as original material-record for the device.
– Assertion of airworthiness for the device.
– Airsports device identification tag (see manual).
– Line length table (see manual).
– Line length logs (if available).
– Inspection log (collecting main) to the documentation.
– Lighttable for visual inspection of the reserve.

DURING THE INSPECTION THE FOLLOWING STEPS ARE TO BE TAKEN IN:

Positive identification of the device:

Positive identification of the aircraft (Type, size, etc.) on the basis certification seal or placard.
– Are the pertinent manufacturer documents available?
– If certification seal and/or placard are in place, are they readable and correct?
– If not so: Please obtain from manufacturer or dealer in question.

The determined values/modifications are to be noted in an inspection log!

Inspection of the reserve parachute

Before packing the reserve parachute this is to be checked by packer. If the parachute was deployed for a rescue, then it is subject to an inspection. If a folded reserve parachute is re-packed again a deployment check is to be staged, to be determined is if the force for deployment is between a minimum of 3kg and maximum of 6kg.

Testing of the topsail, undersail, seams, reserve parachute of

Holes and tears

The topsail and undersail of both paragliders as well as reserve parachutes must, for each cell (paragliders) and each gore (parachutes), from the leading edge to the trailing edge, submitted to the following checks. If in one of the following attributes anomalies are discovered, the glider is to be sent in to the manufacturer for inspection.
– Check for holes smaller or larger tears, deformations and abraded areas.
– Deficiencies in the coating, other aberrations in the canopy like e.g. old repairs.
– With reserve parachutes a light-talbe is to be used for an inspection for holes, tears and deformations.

Abrasion and deformities

With large and critical abrasion and deformations, the entire cell panel in question must be replaced by the manufacturer. The determined values/modifications are to be noted in the testing log!

Testing of the ribs

Visual inspection of the chambers (from the leading to the trailing edge) whether the stitching in the seams, cell partition ribs and reinforcements are in good shape, thus without tears, deformations, abrasions or damage of the coating.
With torn ribs, defective, loose or missing stitching in the seams the glider must be returned to the manufacturer or authorized inspection operation. The determined values/modifications are to be noted in the inspection log!

Check of the tear resistance

To be conducted with the Bettsometer at the following points (B.M.A.A. approved patent number GB2270768 Clive of bed Sails)
The test sequence is to be inferred from the operating instruction the Bettosometer.

- In both the top and undersail where the A-lines connect, push a needle-thick hole and check the tear resistance.
- The limit value of the measurement is determined at 500g, and a tear width of fewer than 5mm.

The determined values/modifications are to be noted in the inspection log!

Porosity check of the canopy

At all following measuring points the air porosity has to be more than at least 20 sec. (by Kretschmer).
At smaller air permeability values the paraglider must be returned to the manufacturer.
Measuring points: The porosity measurements by the Kretschmer measuring method (please consider operating instruction) are to be conducted at the following points on the canopy check on both under and upper sail.

- Center cell approx. 20-30cm back from leading edge
- 3rd Cell off center both to the left/right approx. 20-30cm back from leading edge
- 10th Cell off center both to the left/right approx. 20-30cm back from leading edge

The determined values/modifications are to be noted in the inspection log!

Connection parts

Check of the webbing and maillons
- are there abrasions, buckling, tears, strong signs of wear obvious?
- Is all the stitching fast and firm?
- Is the accelerator running free and intact?
- Are brake toggle attachments still firmly sewn on?
- Are the maillons corrosion free, are the sleeves of the gates free moving on the thread?

Measure under a load of 5 kg. The determined values are to be compared with the specifications from the EAPR-Technical data sheet. Allowable variations are to be inferred from the manufacturer directions. If the webbing or parts thereof are defective, spare parts are to be ordered from the manufacturer and replace the defective parts with original parts. The determined values/modification are to be note in the inspection log!

Lines

Test of the line tensile strength:
Line selection: select a middle, lower cascade of the A, B and a C- lines as well as if available a middle A and B upper cascade, and stress test for tensile strength testing device on their tensile strength. Tension velocity of the tension cylinder: v=30cm/min Tear/tensile strength values: the determined values/modifications are to be noted in the inspection!

ATTENTION: Each size (line diameter) is to be assigned a fixed value. In case the lines cannot withstand the indicated load/stress or pass tensile strength test, all other lines must also be changed. If the checked lines fulfill the test criteria, only those are replaced by new lines. All replaced lines are to be marked in the proximity of the maillon (seam) with a black felt marker pen and noted in the inspection log with the date of the exchange and the logged of hours of flight time of the glider. During the next test for tensile strength an original line, neighbouring the replaced line is to be sampled. The various line diameters are allocated a minimal Sewing length!

Check of the line length and line attachments

Bottom cascade, upper cascades and brake lines for, breaks, abrasions, visual check. First the A-lines, then B. etc.
- Are all lines adequately sewn and attached to the line attachments?
- Is the sheathing of the lines even are exactly?
- Are all loops, knots, seams in good shape?
- Are there any abrasions present?

Measuring the line lengths:

- The lines must be measured with a load of 5 kg, in order to obtain comparable results. The relevant line lengths are in the technical data sheet of the user manual.
- The measurement takes place in accordance with DHV method, from the maillon to the canopy (inclusive attachment loop at the sail).
- The numbering takes place from the center toward the stabilo Measuring the opposite facing of the wing can under same conditions also be conducted by a symmetry comparison.
- The results are again noted the inspection log and should be compared side by side to line lengths of the EAPR technical data sheet. The tolerance in deviation of these values should not exceed more than + /- 1,5cm
- If a line is defective, it is to be exchanged immediately. Please acquire the identification reference marking of the line from the line plan, order from the manufacturer and replace accordingly or have it replaced.

The determined values/modifications are to be noted in the inspection log!

Occasional check of trim and adjustment

Before a test flight a visual inspection of the canopy and lines is to be conducted with the glider laid out as well as pulled up inflated.
In particular attention should be paid to the length of the brake lines with the canopy inflated. Only if all doubts are cleared concerning faulty adjustment of the brake lines, a check flight may be conducted.

Description of the materials and technical data

See manual of your paraglider.

Miscellaneous

- All measurement and repair work at paraglider and rescue system must be documented completely in the inspection log.
- When packing or repacking the reserve parachute, special attention is to be paid to the particular packing directions of the manufacturer! See rescue/reserve equipment manual.
- With the exchange of parts or component modules only original materials or original replacement parts may be used!
- With sewing work the original sewing pattern is to be kept, patching and thread material of same strength and quality as original!
- The inspection survey and/or test log must with be signed, complete with place and date!
- The period for recordkeeping is 4 years.

COMPLETED CHECK VERY IMPORTANT!

Before you perform any checks and/or repairs yourself on your glider, we ask to read you the following pages carefully. You inform yourself hereby about prerequisites and conditions of a done in person bi-annual inspection.

– According to new DHV regulation, the customer (Glider-owner) can conduct the 2-yearly check of the canopy with the help of the inspection directions and all necessary testing equipment and documents in person on his own responsibility. In addition the wing does not have to be sent in to the manufacturer.

– The 2-yearly check may only be conducted by the glider owner personally, if he fulfils the prerequisites, or an inspection station authorized by the manufacturer. Inquire therefore with the manufacturer on authorized inspection stations.

– The owner of the canopy must be aware of the responsibility, which he takes with a self conducted 2-yearly check of the glider. The self performed 2-yearly check is only legally effective, if this is acknowledged after the check with date, name (in capitals) and signature on or beside the placard.

– Reserve equipment re-packing interval in accordance with DHV: Every 4 months a repacking is required. Allowed period of operation: 8 years, afterwards up to 12 years with an annual check

– About insurance-legal consequences of yourself performed 2-yearly inspection you should inform with your insurer in a timely fashion.

– An inspection is valid only if the inspection log is completely filled out. Inform also about possible revisions of the inspection directions with the manufacturer before the inspection.

– Important: If the necessary efforts for the maintenance inspection cannot be carried out (required equipment and documents), should the canopy be sent in to the manufacturer.

– Any warranty and guarantee will be voided for paragliders, harnesses and reserve parachutes, which are checked, controlled, repaired, packed or repacked, test-flown and/or have other maintenance work done by personnel not authorized by Papillon Paragliders!

– All maintenance work must in be accordance with the maintenance specifications of the operation manual and the special maintenance directions of the manufacturer and the publications of the IHB to be conducted.

– With any abnormal appearances during the performance of maintenance is the technical manager to be informed, who has to decide on how to proceed.

– With the replacement of parts or component modules only original materials or original party may be used!

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