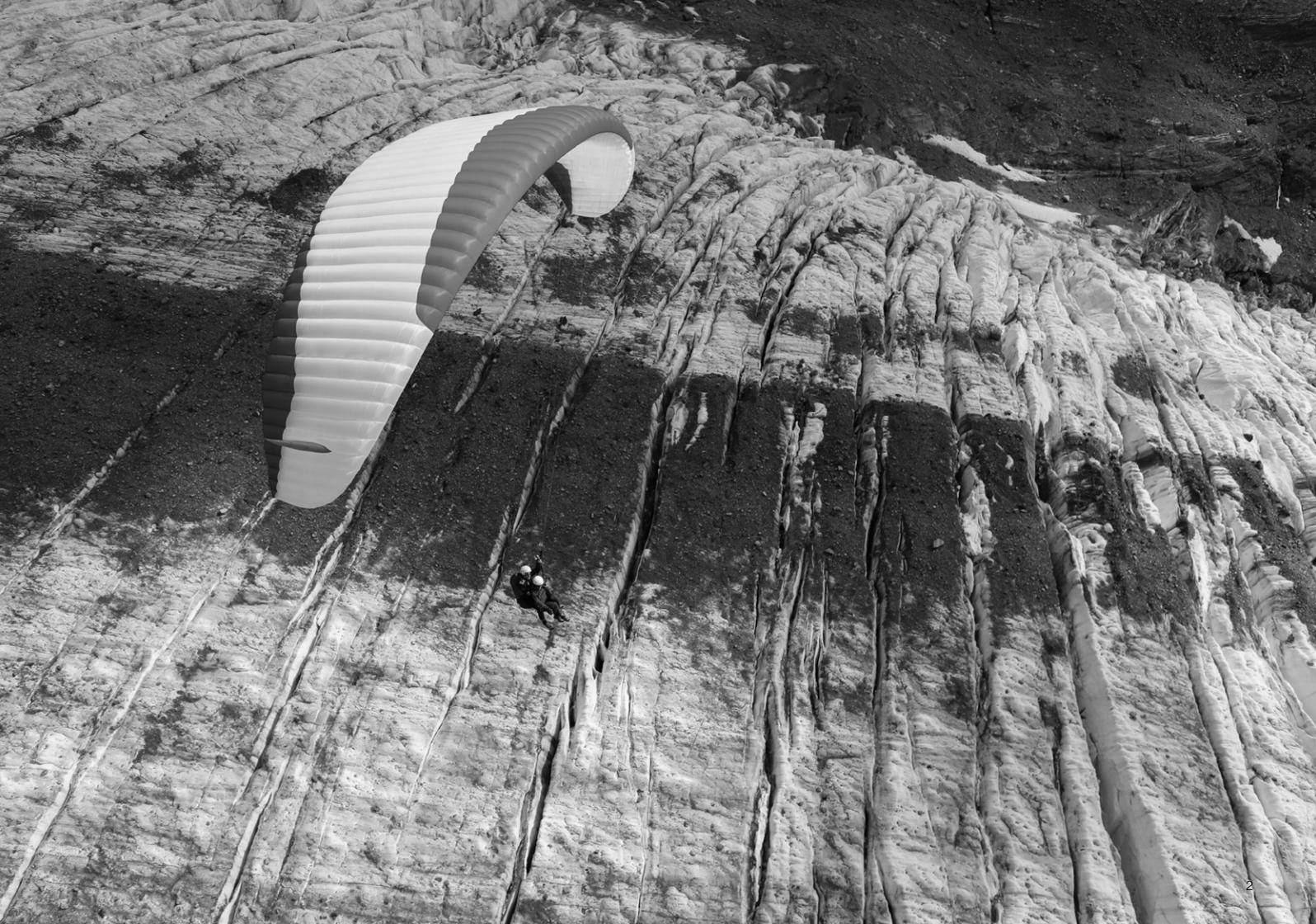




ADVANCEP|BI



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Thank you for flying ADVANCE

Congratulations on your choice of a PI BI - a quality product from ADVANCE. We hope that you will spend many rewarding hours in the air with it.

This user manual is an important part of the glider. Here you will find instructions and important information about safety, care and maintenance, and that's why we recommend that you read this document carefully before your first flight

Register your PI BI online on www.advance.ch/warranty; you will then receive product updates or safety-related bulletins about the PI BI direct from us. This information will also be available to download from our website at www.advance.ch, as will the latest version of this manual and further updated information.

If you have any further questions or problems please contact your dealer or get in touch directly with ADVANCE.

Now we wish you a lot of enjoyment with your PI BI, and always «happy landings».

Team ADVANCE

About ADVANCE

ADVANCE, based in Switzerland, is one of the world's leading paraglider manufacturers. Since it was founded in 1988, the company has consistently pursued its own directions and concepts, both in development and production. The results are quality products with distinctive characteristics.

Behind the ADVANCE brand name is a team of specialists who share the passion and trust in the company's products. At home in the air themselves, they contribute their valuable personal experience and dedication to the working processes.

Total control of the production process and supervision of the working practices at the ADVANCE factory in Vietnam ensure a high standard of workmanship. Long term relationships with fabric and line manufacturers means that ADVANCE knowledge and expertise also finds its way directly into the development of new materials.

ADVANCE attaches great importance to after-sales customer support, and has built up a worldwide service network for this purpose. An on-going interaction with its customers brings in a steady flow of new knowledge that finds its way into ADVANCE products, thus completing the «Circle of Service».



The PI BI

Easy for two to go flying

As a result of its well-engineered Lightbuild construction the PI BI weighs only 4.8 kg. Also the packed volume of this fully-functioning tandem matches that of a size M solo wing. These qualities make the PI BI eminently suitable for Hike and Fly with friends and family.

The ADVANCE Light tandem is downright simple to take off, and tops for flaring. In flight the lively agility is surprising, and this means small circles in narrow thermals are possible. Trimmers allow a speed increase of up to 6 km/h. Even takeoff preparation and packing are easy. Like the BIBETA 6 the PI BI has three riser levels only. That makes for fast line sorting.



Requirements for the pilot

The PI BI is a middle EN B and its easy takeoff and good landing behaviour make it equally suitable for the leisure tandem pilot as for the professional. Despite its light weight and small pack volume the PI BI is still a fully-fledged tandem paraglider with corresponding performance.

General advice about paragliding

Flying a paraglider calls for appropriate training and a sound knowledge of the subject, and of course the requisite insurance cover and licences. A tandem pilot must be able to correctly assess the meteorological conditions before taking off. His or her capabilities must match the responsibilities of tandem flying. The paraglider pilot is also required bear a sense of responsibility towards the natural world, especially regarding the preservation of wildlife and landscape.

The wearing of an adequate helmet, suitable shoes and clothing of pilot and passenger as well as carrying an emergency reserve parachute are indispensable. All components of the equipment must be checked for damage and airworthiness before every flight. A thorough pre-flight check should also be carried out.

The pilot bears sole responsibility when making a tandem flight. Neither the manufacturer nor the seller of a paraglider can guarantee, or be held responsible for, the safety of pilot and passenger.

Handle with care

The ADVANCE PI 2 is designed to be as light as possible for its specific areas of use. This places significant demands on those who use and look after it. The owner should become very familiar with the product, its qualities and requirements. Because of its specialised materials and construction the PI 2 can suffer wear and damage if it is carelessly or ignorantly used.

The PI 2 should never be dragged over the ground. Pointed and sharp objects such as stones or twigs can damage the lines and fabric. ADVANCE recommend that you choose your takeoff surface carefully.

! **Caution:** ADVANCE considers it important that you are aware of and respect the PI 2's lightweight materials. The PI 2 will provide long-term enjoyment, but only if you look after it carefully. Always bear the «Handle with Care» label in mind; the lifetime of this product depends largely on your care.



Using the paraglider for the first time

Delivery

Before delivery every ADVANCE paraglider has to be flown by the dealer and checked for correct settings and trim. When this has been done the dealer enters the date of the first flight on the label attached to a centre rib. This entry, together with a completed warranty card, will ensure that defects in the product attributable to manufacturing faults are covered by the ADVANCE warranty. See 'Warranty' in the section «Service».

Within 10 days of purchasing your glider we ask you to fill in the registration form on the internet, to be found under "Warranty".

Delivery of a PI BI includes an inner bag, a compression strap, a repair kit, a mini-windsock in the glider colours and a «Getting Started booklet». Available as options are a "Comfortpack 2" rucksack of 130 or 145 litre volume as well as rigid, soft or soft adjustable spreaders.

PI BI delivery includes a pair of pre-mounted light spreaders with Edelrid FORAS carabiners, a COMPRESSBAG Light, a compression strap, a repair kit and a mini-windsock in the wing colours. A "COMFORTPACK 3" rucksack, 100 or 115 litres, or the 90 litre "LIGHTPACK 2", are available as options. Under "Correct rucksack size" you can find a compilation of the various PI BI harness and rucksack choices.

Lines

The PI BI is mainly fitted with colour coded, exceptionally length-stable "Magix Pro" Aramid lines from German quality manufacturer Edelrid. The big ear and stabilo lines are also Aramid, but are covered on their lower sections. Brake base lines are of covered Edelrid Dyneema. The broad gauge uncovered lines need no special handling in normal use thanks to their extensive preparation process e.g. Thermo Shield and UV-Protec-Coating. Normal line care (e.g. storing dry, avoiding mechanical abuse or unnecessary treading) is naturally also appropriate for this product. More information about the lines on the PI BI product is available on page 28 of this manual. Please read this carefully.

Basic set-up

The basic set-up of the PI BI at delivery is that which has been found to be ideal by the ADVANCE test team; it is in this condition that the glider was awarded its certification. Any unapproved changes or modifications, such as changes to the line lengths or the attachment of other risers or quicklinks by the owner, will result in the paraglider losing its certification (see the «Certification» section).

Adjustment of the brake lines

The brake line length is set at the factory so that the trailing edge is unbraked (crease-free) in fully accelerated flight with brakes fully released. Fundamentally this setting should be kept.

If the brake lines have to be reset there must be approx. 6–8 cm free line movement (at the rings) between brakes fully released and that brake position that first affects the trailing edge in unaccelerated flight. We recommend that the brake handles are secured using a bowline knot (see illustration in the appendix page 36).

Speed system/Trimmer

The PI BI has an accelerate system in the form of trim **1**. It is very effective and easy to use. It provides for a significant increase in speed of ca. 6 km/h.

The PI BI accelerate system is not only intended to provide a better performance reserve for dealing with strong winds (e.g. slope soaring, strong valley winds), but it also increases the glider's general user-friendliness, mainly when carrying light passengers. In addition, when used with big ears the trim improves the most agreeable way of getting down if passenger well-being requires it (see also section «Fast Descent»).



In accelerated flight the rear risers are lengthened and this reduces the angle of attack of the wing. The accelerate system on the PI BI is so designed that the wing profile remains the same in accelerated flight (reduced angle of attack). This keeps the best wing shape at higher speeds. The trimmers do not initial adjustment. Just make sure that they are closed before takeoff (neutral position i.e. unaccelerated). To open them in the air press both spring clips **2** on the back of the risers at the same time. You can set any trim position as you wish using these clips. They will not slip even under extreme load. To close the trimmers pull the tapes down as far as possible using the blue loops **3**.



Caution: Keep the trimmer settings symmetrical.



Caution: When the trimmers are open the brake handles will be in a noticeably higher position than in unaccelerated (normal) flight.

Big ears

The PI BI has split A-risers **4**, which make the application of big ears easy.

Fitting the light spreaders

Because it makes no sense to combine a light tandem with heavy spreaders, the PI BI is normally delivered with light spreaders, with reserve connection lines attached. The spreaders connect to the PI BI using the supplied Edelrid FORAS carabiners. So that they do not slide, they must be secured on the carabiners by an anchor hitch, and must not under any circumstances be simply hooked into the carabiner. This caution also applies if other carabiners are used.

If you have taken this pre-mounted standard attachment system off, proceed as follows for reassembly:

First fasten the FORAS carabiners to the PI BI risers as shown. Then fix a spreader to the end of a closed carabiner with an anchor hitch (kite knot).



Pilot

Passenger

To end up with a tidy anchor hitch first take the single, support loop of the spreader and roll it inside out.



Then fasten each spreader with an anchor hitch to a closed FORAS carabiner.

It is important to finally pull everything tight.



Caution: The spreaders must, without fail, be connected to the FORAS-carabiners using an anchor hitch. They must never be hooked directly into the carabiner; this would allow them to slip!

Suitable harnesses

The ADVANCE PI BI is certified for harnesses in Group GH (without rigid cross-bracing - see section «Certification»). The suspension points of the chosen harness should ideally have a carabiner distance of approximately 48 (+2) cm (equivalent to your shoulder width) and a height of 40 to 48 cm.

The PI BI is neither suitable nor certified for use with harnesses in group GX (with effective cross-bracing). The use of such harnesses can have a bad effect on both handling and extreme flight characteristics.

The PI BI was tested and certified with a size M BIPRO 2 harness (carabiner height 44 cm, chest strap width 55 cm). An EASINESS 2 harness, size M (carabiner height 45 cm) was used for the passenger.

Weight range

PI BI 37 weight range is given in the «Technical Data» section. The weights quoted are total in-flight weight. This includes the body weights of pilot and passenger including their clothes - and everything else that is to fly (paraglider, harnesses, reserve, instruments etc.).

Flying at lower or upper weight limits can influence the flying characteristics and handling of the paraglider, but does not affect safety. When the PI BI is flown in the upper part of its weight range the higher wing loading results in a higher trim speed, which results in more agile and dynamic behaviour, and a longer takeoff run.

Flight characteristics

We recommend that you make your first flights with your new glider in quiet conditions, in a familiar flying area. A few pull-ups at an easy site will give you confidence in the PI BI's handling qualities, from the very beginning.

Takeoff

Takeoff preparation

Sorting PI BI lines is especially simple. A brief shake will separate the three riser levels' few lines. Colour coded A and brake lines make for very effective final line checking.

Before every takeoff carry out the following pre-takeoff checks:

1. Reserve OK: Pins correctly stowed, Reserve handle secure?
2. Harnesses and helmets done up?
3. Pilot-glider-passenger connections OK?
4. Lines free?
5. Canopy open?
6. Wind direction and strength assessed?
7. Airspace and view clear?
8. Passenger ready?

PI BI takeoff behaviour is very smooth and straightforward for both forward and backward launches. Nylon wires and light weight ensure that the canopy fills quickly and climbs evenly, without hanging or shooting ahead.

The PI BI is pulled up using both the inner, wide A-risers. This takes less effort, and the wing will come up very straight. The canopy should always be laid out in a slightly curved shape, so that all A-lines are equally loaded during the pull up.



Tip: To get the PI BI in just the right curved shape for takeoff stand abeam the centre of each wing after you have sorted the lines; take the brake line and pull it in until all the brake junctions are tensioned.

Light Wind Takeoff (Forwards)

The PI BI only needs a modest tug in a light wind. It is not necessary to step back and then 'run' into the lines. Lead the glider up with committed and forward-leaning body weight, but without too much pull on the inner A-risers, until the canopy is nicely above you. Any directional correcting during the pull-up phase should be done by going under the glider, without use of brake. After the correction phase and a look at

the glider a few brisk steps with determined leaning forward is enough to get you airborne, even in little wind. The takeoff run can be shortened by an appropriate touch of brake.

Strong Wind Takeoff (Backwards)

A backward pull up is recommended for stronger wind. Like a forward takeoff the pull up should be made using the inner A-risers. During the pull up walk towards the PI BI as necessary to control the rising rate, and correct the direction by walking under the wing. Turning round and lifting off are straightforward.

Normal flight

Best PI BI glide in calm air is achieved with fully released brakes. Light braking results in minimum sink speed. Appropriate use of trims can significantly improve glide performance relative to headwind, sink rate and expected next climb.

Always be careful not to fly below minimum speed, and avoid overreacting with the brakes.

Turns

The PI BI turns with precision. It responds directly and progressively to increasing steering input, once the brake line free play has been taken

up. The agreeable and compact character of the wing means that weight shift is not necessary to assist turning.

When thermaling set your angle of bank (and turn radius) with inside brake and allow the paraglider to turn evenly in this attitude. Use outside brake to both steady the outer wingtip and, in particular, keep a constant rate of turn going. Excessive use of outside brake will try to stop the turn, and therefore lose the glider's good climbing qualities.



Caution: To keep good manoeuvrability in thermals it is important to always keep enough flying speed. Do not hold too much outside brake, and avoid overcontrolling.



Tip: If a brake line were to break the PI BI can be steered with the rear risers (C-risers) if necessary.

Accelerated flight

The PI BI canopy remains stable even when accelerated. At their upper speed range however, paragliders fly at a lower angle of attack, and are generally considered to be less structurally stable at high speed. Because of the higher forces and energy, collapses at high speed are more dynamic. See also section “Collapses”.

- You can fly through light turbulence while accelerated thanks to the PI BI's high canopy stability.
- With open trimmers you can also control and stabilise the PI BI with the brakes in turbulence.

 **Caution:** With open trimmers the steering/braking hand position is significantly displaced upwards, and brake force increases due to the higher airspeed.

 **Tip:** We recommend that you circle in thermals with closed trimmers. You will then be flying closer to best stability and minimum sink configurations.

Collapses

Asymmetric collapse of the wing

The PI BI is notable for its very solid and stiff canopy. With an active flying technique in normal conditions collapses should be more or less completely avoidable.

If, however, the glider should suffer a greater-than-50 % asymmetric collapse at trim speed the reaction will only be a slight turning tendency, and track can be maintained without problem by means of light braking. Under normal conditions the wing will open by itself.

An asymmetric collapse in accelerated flight will produce a slightly more impulsive reaction due to the higher aerodynamic forces involved at the higher speed. The turning away behaviour at a collapse at fully accelerated speed is a little more dynamic, but is well manageable. After an asymmetric collapse direction should be maintained by careful opposite braking, and wing pressure raised on the collapsed side by brake pumping. This will quicken canopy reopening. Only use just enough brake on the open side so as not to stall this wing.

Poorly flown wingovers can make the wing tips fold in and cause a cravat. Because of the high drag that they produce at the wingtip cravats can cause a strong rotation moment (=spiralling). Oppose this desire to rotate with careful use of opposite brake. Then clear the cravat by

means of the orange stabilo line. Opening a cravat can also be speeded up by pumping. To do this the relevant brake should be pulled down to up to 75 % brake travel within two seconds (no longer), then immediately released.

Symmetrical leading edge collapse (Frontstall)

Following a spontaneous or deliberately provoked (using all A risers) front collapse airflow breaks away from the wing, which pitches back. Pilot and passenger will swing back underneath after a short delay. Wait, without pulling the brakes, until the wing is again overhead and flying forward. After a large front collapse reopening can be delayed. This should not be forced (helped) by excessive brake activity, which could raise the risk of a complete stall.



Caution: After a very impulsively provoked front collapse in accelerated configuration (for example during SIV tandem training) it can happen that the front of the canopy does not open by itself. Help the wing to open with a brief brake impulse by pulling the brakes to 75 % within one second, immediately and completely release them, then be prepared to control the forward surge.



Caution: To simulate a front collapse all A-risers must be taken hold of and pulled down.

Fast descents

For a fast and efficient descent the ADVANCE Test team recommend, depending on the situation, a big ears descent (with closed or open trimmers) or a steep spiral.

 **Tip:** Fast descents should be practised now and then in quiet conditions – so they won't become emergencies when you need them.

Symmetrically folded wingtips (big ears)

For big ears pull the outer, thin, A-risers briskly downwards, at the same time. This will fold the wingtips which can be easily held in this position.

To reopen the big ears let go of the outer A-risers. The wingtips will open by themselves, thanks to the PI BI's high internal wing pressure. While in big ears the paraglider can be steered with the brakes, without problem.

 **Caution:** Don't fly spiral dives with big ears applied. The increased wing loading supported by fewer lines can cause damage to the wing.

 **Caution:** Be aware that flying with big ears puts you closer to a stall. Don't rely on the use of big ears with a wet glider – there's more information on this in the chapter "Flying with a wet paraglider".

 **Tip:** If you want to descend fast and comfortably for the passenger, or fly away from a problem area we recommend that you apply big ears and then accelerate the glider by releasing the trimmers.

 **Info:** In the fully accelerated state the big ears do not open by themselves, because of the higher airspeed, dynamic pressure, and a higher stagnation point position. Help the opening with a brief but determined pump: i.e. pull the brakes down within two seconds to full arm's length and release.

Spiral dive

Enter the spiral with a progressive increase of brake application. Head and vision should be directed in the direction of turn. As the bank increases so does the rotation rate and the centrifugal force.

Basically the behaviour of the glider can be divided into two phases: in the first the glider increases its angle of bank and turns in ever decreasing circles. At the second phase the glider bites into the spiral: this means that the wing dives forward relative to the pilot and appears to be aligned with the horizon – the airspeed, g and rate of rotation increase markedly. During the spiral try to maintain the neutral sitting position and don't fight the centrifugal force – your body will be pulled outwards.

Recovery requires a progressive releasing of the brake on the inside of the turn. From a spiral dive with high sink and rotation rates it is essential to carefully apply some inside brake again while recovery is taking place, in order to slow down the natural recovery behaviour and subsequent high energy climb. This is the only way to avoid an excessive pitch up attitude and consequent surge. Make sure you recover with enough height above the ground. Generally one should expect the recovery to take the same amount of time as the entry, but the rate of descent during recovery will be higher!

The PI BI comes out of the spiral by itself if a neutral sitting position is maintained. Active weight shift to the inside of the turn can lead to greater acceleration and a delayed natural recovery.



Caution: Do not fly spiral dives with big ears; the raised wing loading on a reduced wing area together with the reduction of effective lines can seriously overstress and damage your glider.



Caution: To avoid a collapse enter the spiral carefully when in accelerated flight, because the angle of attack is reduced.



Caution: Remember that you, the pilot, may be familiar with the high g-loading in a spiral dive, but it might upset your passenger a lot. If a descent is required for passenger wellbeing we recommend the big ears together with a speed increase using the trim system.

B-Stall

The B-stall puts extreme stress on the entire glider as well as threatening its profile shape. This kind of fast descent is not particularly effective either. We recommend that you do not do B-stalls with your PI BI and so give no instructions here. Because of the wing's high structural stiffness the B-stall is just about impossible to achieve.

Stall

Fullstall

The PI BI responds early to brake inputs, but the brake travel is also very long. This implies a large safety margin for the pilot, and it is difficult to encourage the PI BI to fullstall.

Should the glider be stalled, however, and depending on the situation from which you let the glider recover, a vigorous response can result (surging forward with an increased risk of collapse). While shooting forward the wing can be slowed down by appropriate brake. If this is done normal flight can be resumed without further collapse

 **Tip:** We recommend that the simulating of the fullstall is avoided in safety training. The high wing loading means that some reactions could turn out to be very dynamic.

 **Tip:** Fundamentally, you should respond to all out-of-control behaviour by completely releasing both brakes (both hands up).

One-sided stall (spin)

In a tight turn the PI BI gives early and clear warning of the risk of stalling by strongly rising brake loading. If the wing should stall, however, the PI BI will react dynamically. Depending on the situation from which you let the glider recover a vigorous response can result (surging forward with an increased risk of collapse). While shooting forward the wing can be slowed down by appropriate brake. If this is done normal flight can be resumed without further collapse.

 **Tip:** We recommend that the simulation of spins and spin entries are not carried out in safety training. The high wing loading means that some reactions could turn out to be very dynamic.

 **Tip:** Fundamentally, you should respond to all out-of-control behaviour, especially the start of spin rotation, by completely releasing both brakes (both hands up).

Deep stall

The PI BI cannot go into stable parachutal stall by itself. The wing can be brought to the point of parachutal stall, however, by means of the brakes, and can stay there (see chapter “Flying with a Wet Glider”).

 **Caution:** If you are flying tight, slow airspeed circles in significant turbulence you may stall unexpectedly. If this happens let both brakes go immediately.

Landing

Notably good flare behaviour and precise handling make for very easy PI BI landings. Residual energy trades well for height, allowing you and your passenger to make a gentle touchdown.

Always fly a proper landing circuit with a defined final approach, without rolling and pitching. From a final approach to the ground at trim speed apply the PI BI brakes continuously, finally going through to full brake. By making this kind of “fully flared” landing the speed can be brought to a minimum, and the passenger sets down softly.

 **Caution:** Steep turn reversals lead to strong swinging of the pilot and passenger, and should not be done near the ground

 **Caution:** Braking will reduce your speed and increase your sink rate, but it will certainly seriously restrict your ability to manoeuvre.

 **Caution:** Getting below minimum speed leads to stalling: this should unquestionably be avoided when top landing, and on final approach.

 **Handle with care:** Never let your glider fall to the ground on its leading edge. The overpressure so caused inside the wing can rip the cell walls and damage the leading edge. The material can be damaged by the friction.

 **Handle with care:** After landing in water the canopy can quickly fill up, and become very heavy. The canopy should be lifted out of the water by its trailing edge, giving the water a chance to run out. Otherwise it might tear under this unaccustomed heavy load.

Flying with a wet paraglider

Flying with a wet glider creates a risk of deep stall. Deep stall is often the result of a combination of factors. The weight of the wet canopy goes up, and this increased weight increases the angle of attack, which always puts the glider nearer the deep stall limit. Added to this, water drops on the top surface have a detrimental effect on the laminar flow of the boundary layer near the leading edge, which distinctly reduces the maximum lift coefficient. If the wet glider is also being flown at its lower weight limit there is a further small effect of an increased

angle of attack, as well as flight at lower airspeed because of the reduced wing loading.

To avoid the risk of deep stall with a wet glider you should brake as little as possible and never use big ears. A further preventative measure is to fly with trimmers open.

These tactics have a small effect on the angle of attack. If the wet glider were still to go into deep stall opening the trimmers is your only recourse. See section “Deep stall”.

Winching

The PI BI is suitable for winch launching. When taking off in windless conditions, ensure that the paraglider is laid out in an arched or even wedge shape (to avoid risk of the glider rosetting).

Winch launch is only permitted if::

- the pilot has completed a tow training course (only Germany/DHV),
- the winch system is certified for use with paragliders,
- the winch operator has been fully trained in how to winch paragliders.

Acro

The PI BI was not designed as a tandem-acro wing. However, its eagerness to turn and precise handling allows very nice wingovers, asymmetric spirals and SATs to be flown. Even helicoids have been observed.



Caution: Be aware that dynamic manoeuvring puts heavy loading on the structure and can reduce your wing's lifespan. Regular checks of the glider become necessary for your safety. You should also take note of the legal requirements of your country.

Solo flying

The PI BI is certified for a maximum of two people and can also be used as a solo wing provided that the all up weight limits (in “Technical Data”) are observed. The risers must then be fitted with riser extensions. These have been specially created for solo use of the PI BI and are available from ADVANCE as an option.



Care, repairs and service life

Packing

Pack your PI BI rib on rib, so that the plastic rods in the leading edge lie flat on each other at the same height. This will maintain the long life of the PI BI and keep its good inflation and takeoff qualities. Avoid excessive wear on the centre lane by routinely changing the position of the final fold when packing up. Store your glider in a dry and dark place.

Care and maintenance

Ultraviolet light, heat, humidity, sea water, aggressive cleaning agents, unsuitable storing and physical abuse (dragging across the ground) speed up the ageing process.

The life of a paraglider can be extended significantly by observing the following advice:

- Allow a wet or damp glider to dry by leaving it completely unpacked at room temperature, or outside in the shade.
- If the glider gets wet with salt (sea) water rinse it thoroughly with fresh water.
- Clean the glider only with fresh water, and a little neutral soap if necessary. Do not use solvents under any circumstances.
- Regularly remove sand, leaves, stones and snow from the cells.

Openings with Velcro closures are provided at the wing tips for this purpose

- If the glider has been subjected to increased stress (such as a tree landing) have it examined by an expert.
- Do not leave the glider out in the sun unnecessarily before and after flight (UV light).
- Do not subject the packed glider to excessive temperature fluctuations, and do ensure adequate air circulation to prevent condensation forming.
- Do not drag the glider across the ground.
- When landing, make sure that the canopy does not fall on its leading edge.

Check

The PI BI has to have a check every 24 months, or 100 flights, or 100 flying hours – whichever comes first – at an approved ADVANCE checking organisation.

At the check the condition of all materials is inspected according to strict guidelines, and with great care and attention to detail. Finally, the overall condition of the paraglider is assessed and recorded in a test report. There's more information about the check in the "Service" section of this manual, or on www.advance.ch.

The general check procedure for ADVANCE paragliders is a necessary part of the PI BI manual. The manual also contains the glider's technical fundamentals and line lengths.

Lifetime

The lifespan of a paraglider depends very much on how it is used and the conditions it encounters. A tandem wing in commercial use is often used to the limit, so it is very important that permanent observation of the material and its flying behaviour should be practised, as well as adherence to the check routine as stated above.

Canopy

Potential working life can be less than half of this expectation if the glider is used on stony or sandy and dusty ground, gets into contact with sea water, is not stored properly or is subjected to excessive mechanical trauma. Even an occasional damp pack-and-store can massively reduce the canopy's life. Porosity check results give a good indication of a canopy's condition, and is a very important decisive factor for continued use of the wing.

Lines

The Edelrid "Magix Pro" Aramid lines on the PI BI are considerably stronger than conventional covered lines, and this continues to apply as time and use go by. After the standard kink test (5.000 bendings from new) residual strength is 17 % more than a comparable covered product. In addition, the thousands of routine line snapping tests carried out by ADVANCE after at least a year's use show Edelrid Aramid line strength to be 20% higher – again when compared to a covered line.

Extensive preparation and inspection complete a depiction of this high quality product. According to the current requirements uncovered Aramid lines have to have at the least the same lifespan as conventional covered line. Despite comprehensive coating (mainly

UV-Protec-Coating and Thermo Shield treatment) however, this product also needs the same care as other lines: damp storage, dust, physical abuse by stones or boots - all reduce the lifespan massively.

Compared with other products the PI BI has virtually no Dyneema line. Dyneema lines withstand loading very well, but are generally not stable in length compared to Edelrid Aramid line. We do not expect a PI BI to need retriming – for this reason.

If, after much use, line surface roughens and makes sorting more difficult, the lines can be treated with candle wax. Run a white candle along the entire line several times until it is shiny and smooth. The lines will again become easy to sort.

Repairs

A paraglider is a lifting surface of complex construction. Seams and lines have been made with great precision. In general, therefore, an unauthorised individual should not carry out paraglider repairs. Only the manufacturer or an authorised Service Organisation should replace components with identical parts, or refit complete cells.

Small repairs become exceptions to this principle. Examples could be repairs to small tears or holes with self-adhesive Ripstop material, or replacing lines. In every case of repair or line change the paraglider must be pulled up on the ground before its next flight, and visually checked.

Your paraglider is delivered with a repair kit containing self-adhesive Ripstop. Other parts, such as lines, quicklinks, softlinks or risers can be obtained from your ADVANCE dealer, an ADVANCE Service Center or direct from ADVANCE. Addresses are on www.advance.ch.

Canopy Repairs

Tears up to 3 cm in length, and very small holes that do not meet a seam, can be patched with the self-adhesive Ripstop from your repair kit. Make sure that the patch is cut out in a round or oval shape, and is big enough to generously overlap the damage. The similar piece of sticky Ripstop on the inside of the repair should be of a different size. Detailed instructions can be found on www.advance.ch.

Line repairs

A damaged line must be changed, without exception. The easiest option is to go to an ADVANCE Service Centre or your ADVANCE dealer. Alternatively you can order the specific replacement line direct from ADVANCE or an ADVANCE dealer and fit it yourself. All the addresses are on: www.advance.ch. Under “Service” on www.advance.ch there are detailed instructions for identifying your line so that you can order it, and then fit it correctly on the wing.

Disposal

Environmental protection plays an important role in the selection of materials and the manufacture of an ADVANCE product. We use only non-hazardous materials that are subjected to continuous quality and environmental impact assessments. When your paraglider reaches the end of its useful life in a number of years time, please remove all metal parts and dispose of the lines, canopy and risers in a waste incineration plant.

Technical details

PI BI		37
Area flat	m ²	37.2
Area projected	m ²	31.8
Recommended Takeoff weight ¹	kg	100–180
Glider weight	kg	4.8
Aspect ratio flat		5.4
Aspect ratio projected		4.10
Span flat	m	14.20
Span projected	m	11.40
Certification		EN/LTF B
Number of cells		53
Number of risers		3+1
Maximum chord	m	3.20
Riser lengths	cm	32
Max. line lengths incl. risers	m	9.0
Trims	cm	Yes, 8 cm
Max. sym. brake travel at max. weight	cm	97
Other adjustable/removable devices		–

¹ Pilot, passenger, wing, equipment

Materials used

We routinely inspect and test our materials many times over. Like all ADVANCE products the PI BI is designed and produced as a result of the latest developments and contemporary knowledge.

We have chosen all the materials very carefully, under conditions of the strictest quality control.

Leading edge	Skytex 32 Universal, 70032 E3W
Upper surface	Skytex 27 ,70000 E3H
Lower surface	Skytex 27 ,70000 E3H
Ribs	70032 Skytex 32 HF E4D
Intermediate Ribs	Skytex 27 Hard, 70000 E91
Base lines	Edelrid A-8000U-360 / 280 / 230 / 190, uncovered, 1.7 mm / 1.5 mm / 1.3 mm / 1.2 mm
Gallery lines	Edelrid A-8000U-190 / 130 / 090 / 070 / 050, uncovered, 1.2 mm / 0.9 mm / 0.8 mm / 0.7 mm / 0.5 mm
Brake lines	Edelrid A-8000U-190 / 130 / 090, uncovered, 1.2 mm / 0.9 mm / 0.8 mm
Lower main brake line	A-7850-240, covered, 1.9 mm
Risers	Polyester / Technora, 13 mm, 1.000 kg
Softlinks	Liros DC 500

Line material designation and length of each line

A		
Name	Material	Length
4A1	A-8000U-360	554.6
4A2	A-8000U-280	559.4
3A1	A-8000U-190	181.2
3A2	A-8000U-190	177.2
3A3	A-8000U-190	173.8
3A4	A-8000U-190	164.7
3A5	A-8000U-190	556.9
2A1	A-8000U-130	80.6
2A2	A-8000U-090	72.3
2A3	A-8000U-090	75.0
2A4	A-8000U-090	81.6
2A5	A-8000U-090	75.3
2A6	A-8000U-090	65.3
2A7	A-8000U-090	71.6
2A8	A-8000U-090	75.9
2A9	A-8000U-130	195.0
2A10	A-8000U-090	172.5
1A1	A-8000U-090	59.1
1A2	A-8000U-090	48.6
1A3	A-8000U-090	52.2
1A4	A-8000U-090	54.2
1A5	A-8000U-090	53.9
1A6	A-8000U-090	50.6
1A7	A-8000U-090	46.9
1A8	A-8000U-090	55.4
1A9	A-8000U-090	55.4
1A10	A-8000U-090	44.5
1A11	A-8000U-090	48.8
1A12	A-8000U-090	49.8
1A13	A-8000U-090	49.4
1A14	A-8000U-090	45.1
1A15	A-8000U-090	42.3
1A16	A-8000U-090	47.3
1A17	A-8000U-090	74.4
1A18	A-8000U-090	65.2
1A19	A-8000U-090	63.4
1A20	A-8000U-090	70.2
1A21	A-8000U-090	65.4
1A22	A-8000U-090	65.8

B		
Name	Material	Length
4B1	A-8000U-360	568.5
4B2	A-8000U-230	573.8
3BC1	A-8000U-190	124.4
3BC2	A-8000U-190	120.6
3BC3	A-8000U-190	116.7
3BC4	A-8000U-130	108.1
3B5	A-8000U-190	572.6
2B1	A-8000U-090	120.4
2B2	A-8000U-090	111.1
2B3	A-8000U-090	114.0
2B4	A-8000U-090	121.3
2B5	A-8000U-090	115.4
2B6	A-8000U-090	104.3
2B7	A-8000U-090	110.5
2B8	A-8000U-090	115.6
2BC9	A-8000U-090	166.0
2BC10	A-8000U-090	154.0
1B1	A-8000U-070	56.7
1B2	A-8000U-070	47.3
1B3	A-8000U-070	51.3
1B4	A-8000U-070	51.1
1B5	A-8000U-070	50.8
1B6	A-8000U-070	49.7
1B7	A-8000U-070	45.6
1B8	A-8000U-070	52.8
1B9	A-8000U-070	52.8
1B10	A-8000U-070	43.2
1B11	A-8000U-070	47.9
1B12	A-8000U-070	46.6
1B13	A-8000U-070	46.3
1B14	A-8000U-070	44.2
1B15	A-8000U-070	41.0
1B16	A-8000U-070	44.7
1B17	A-8000U-070	84.2
1B18	A-8000U-070	75.2
1B19	A-8000U-070	71.9
1B20	A-8000U-070	70.3
1B21	A-8000U-070	65.2
1B22	A-8000U-070	64.4

C		
Name	Material	Length
2C1	A-8000U-070	125.0
2C2	A-8000U-070	115.9
2C3	A-8000U-070	118.6
2C4	A-8000U-070	127.0
2C5	A-8000U-070	120.9
2C6	A-8000U-070	111.2
2C7	A-8000U-070	116.9
2C8	A-8000U-070	121.4
1C1	A-8000U-070	55.7
1C2	A-8000U-070	46.5
1C3	A-8000U-070	50.4
1C4	A-8000U-070	50.3
1C5	A-8000U-070	49.9
1C6	A-8000U-070	48.9
1C7	A-8000U-070	43.8
1C8	A-8000U-070	51.0
1C9	A-8000U-070	50.0
1C10	A-8000U-070	40.6
1C11	A-8000U-070	44.2
1C12	A-8000U-070	43.1
1C13	A-8000U-070	42.6
1C14	A-8000U-070	40.7
1C15	A-8000U-070	38.3
1C16	A-8000U-070	42.0
1C17	A-8000U-070	86.2
1C18	A-8000U-070	78.3
1C19	A-8000U-070	76.0
1C20	A-8000U-070	72.3
1C21	A-8000U-070	68.7
1C22	A-8000U-070	69.6

D		
Name	Material	Length
4D1	A-8000U-230	600.1
4D2	A-8000U-190	601.5
3DF1	A-8000U-090	134.7
3DF2	A-8000U-090	130.1
3DF3	A-8000U-090	118.4
3DF4	A-8000U-090	107.0
3D5	A-8000U-190	615.4
2D1	A-8000U-070	94.6
2D2	A-8000U-070	81.9
2D3	A-8000U-070	85.5
2D4	A-8000U-070	92.0
2D5	A-8000U-070	100.3
2D6	A-8000U-070	86.5
2D7	A-8000U-070	94.6
2D8	A-8000U-070	98.1
2D9	A-8000U-070	143.2
2D10	A-8000U-070	129.2
1D1	A-8000U-070	56.1
1D2	A-8000U-070	44.1
1D3	A-8000U-070	49.7
1D4	A-8000U-070	49.3
1D5	A-8000U-070	50.0
1D6	A-8000U-070	47.0
1D7	A-8000U-070	43.4
1D8	A-8000U-070	51.5
1D9	A-8000U-070	51.1
1D10	A-8000U-070	39.2
1D11	A-8000U-070	44.8
1D12	A-8000U-070	42.5
1D13	A-8000U-070	43.4
1D14	A-8000U-070	39.9
1D15	A-8000U-070	37.6
1D16	A-8000U-070	41.0
1D17	A-8000U-070	70.2
1D18	A-8000U-070	59.9
1D19	A-8000U-070	56.8
1D20	A-8000U-070	55.5
1D21	A-8000U-070	50.6
1D22	A-8000U-070	51.8

E

Name	Material	Length
1E1	A-8000U-070	151.4
1E2	A-8000U-070	144.3
1E3	A-8000U-070	145.2
1E4	A-8000U-070	154.6
1E5	A-8000U-070	150.1
1E6	A-8000U-070	138.9
1E7	A-8000U-070	142.9
1E8	A-8000U-070	146.0

Stabi

Name	Material	Length
STB	A-8000U-190	562.7
2StAB	A-8000U-070	161.8
2StCD	A-8000U-070	168.6
1A23	A-8000U-050	39.2
1StA	A-8000U-050	35.9
1B23	A-8000U-050	42.4
1StB	A-8000U-050	48.4
1C23	A-8000U-050	37.0
1StC	A-8000U-050	36.2
1D23	A-8000U-050	44.7
1StD	A-8000U-050	48.1

Brakes

Name	Material	Length
SL Low	A-7850-240	177.5
SL Up	A-8000U-190	194.0
VR1	A-8000U-130	332.6
VR2	A-8000U-130	316.5
VR3	A-8000U-130	344.5
F1	A-8000U-090	170.9
F2	A-8000U-090	148.1
F3	A-8000U-090	145.3
F4	A-8000U-090	135.0
F5	A-8000U-090	105.8
F6	A-8000U-090	94.5
1	A-8000U-090	98.5
2	A-8000U-090	71.7
3	A-8000U-090	77.0
4	A-8000U-090	73.5
5	A-8000U-090	76.6
6	A-8000U-090	58.9
7	A-8000U-090	61.1
8	A-8000U-090	64.8
9	A-8000U-090	56.6
10	A-8000U-090	43.4
11	A-8000U-090	48.2
12	A-8000U-090	51.8

Line strenghts

Line	Strength new [daN]	Strength bended [daN]	Paratest Test date
A-8000U-360	345	209	28.07.2015
A-8000U-280	286	161	28.07.2015
A-8000U-230	253	140	07.07.2015
A-8000U-190	189	107	07.07.2015
A-8000U-130	131	68	07.07.2015
A-8000U-090	100	48	07.07.2015
A-8000U-070	64	26	07.07.2015
A-8000U-050	54	21	07.07.2015
A-7850-240	214	227	02.03.2016

Certification

The PI BI has EN and LTF certification. The test reports can be downloaded from www.advance.ch.

Certification ratings can only provide limited information about a paraglider's flying behaviour in thermally active and turbulent air. The certification grading is based primarily on provoked extreme flight manoeuvres in calm air.

During the development of an ADVANCE paraglider, the emphasis is first and foremost on flying behaviour and handling, and not exclusively on the certification test. The result is a well-rounded product with the familiar ADVANCE handling. Nevertheless, the certification rating occupies a significant proportion of the specifications that have to be met.

Service

ADVANCE Service Centres

ADVANCE operates two company-owned Service Centres that carry out checks and repairs of all types. The workshops based in Switzerland and France are official maintenance operations, certified by the German Hanggliding and Paragliding Federation (DHV), which has many years' experience and in-depth product-specific expertise. The ADVANCE worldwide service network includes other authorised service centres which provide the same services. All service facilities use original ADVANCE materials exclusively. You can find all the information about checks and repairs, and the relevant addresses at www.advance.ch.

The ADVANCE website

At www.advance.ch you will find detailed information about ADVANCE and its products, as well as useful addresses which you can contact if you have any questions.

Among the things you will be able to do on the website are:

- complete the warranty card online up to 10 days after purchasing the glider, enabling you to enjoy the full benefits of the ADVANCE warranty.

- find out about new safety-related knowledge and advice concerning ADVANCE products
- download an application form in PDF format which you can use when sending your glider in for a check at ADVANCE.
- find an answer to a burning question among the FAQs (Frequently Asked Questions)
- subscribe to the ADVANCE Newsletter so that you will be regularly informed by e-mail about news and products.

It is well worth visiting the ADVANCE website regularly because the range of services offered is continuously being expanded.

Warranty

In order to enjoy the full benefits of the ADVANCE warranty, you are requested to complete the relevant form on the website in the «Warranty» section within 10 days of purchase.

As part of the ADVANCE warranty, we undertake to rectify any defects in our products that are attributable to manufacturing faults. In order for a warranty claim to be made, ADVANCE must be notified immediately on discovery of a defect, and the defective product sent in for inspection. The manufacturer will then decide how a possible manufacturing fault is to be rectified (repair, replacement of parts or

replacement of the product). This warranty is valid for three years from the date of purchase of the product. Warranty and Service Intervals begin from the date of the glider's first flight, recorded on the identification plate. If no date is evident the applicable date is that on which the glider was transferred from ADVANCE to the ADVANCE dealer. The ADVANCE warranty does not cover any other claim. Claims in respect of damage resulting from careless or incorrect use of the product (e.g. inadequate maintenance, unsuitable storage, overloading, exposure to extreme temperatures, etc.) are expressly excluded. The same applies to damage attributable to an accident or normal wear and tear.

Correct rucksack sizes

The choice of the correct rucksack size is important for the PI BI.
Depending on how light and small the total equipment package should be, various harness/rucksack combinations are possible.

ADVANCE recommend the following setups:

COMFORTPACK 3, 115 ltrs

PI BI + BI PRO 3 incl. Protector + Standard Passenger harness.

COMFORTPACK 3, 100 ltrs or LIGHTPACK 2, 90 ltrs

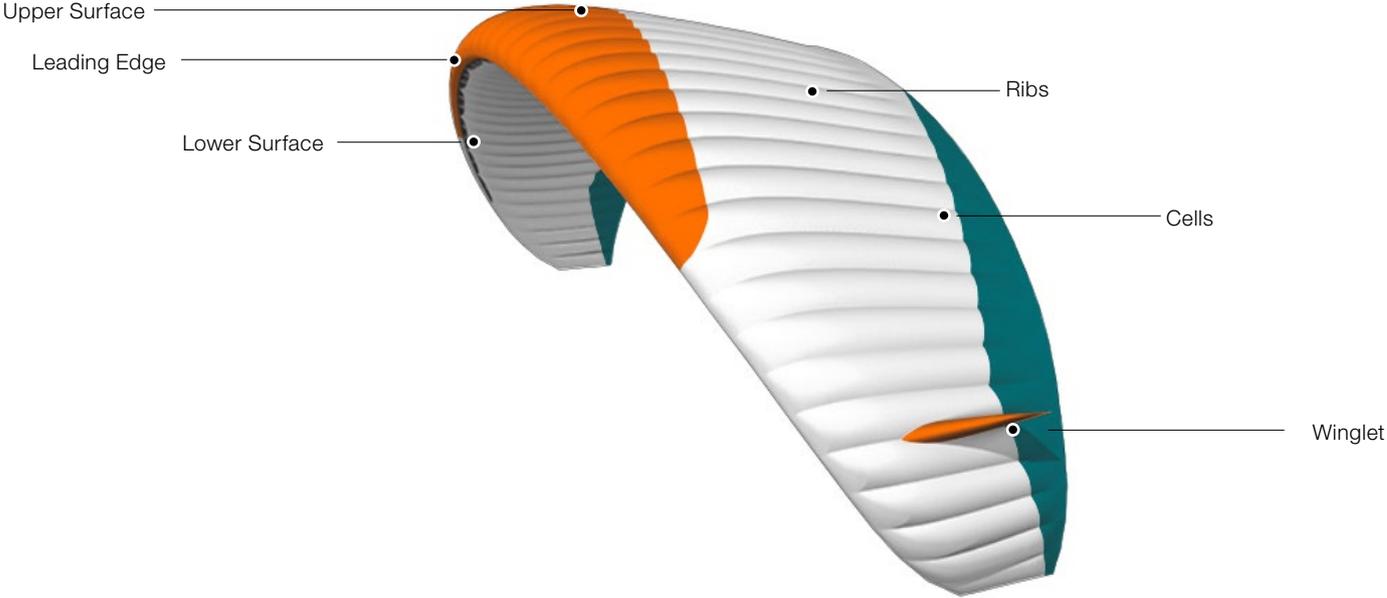
PI BI + BI PRO 3 without Protector + Standard Passenger harness.

EASINESS 2-Rucksack* and PIPACK 2*

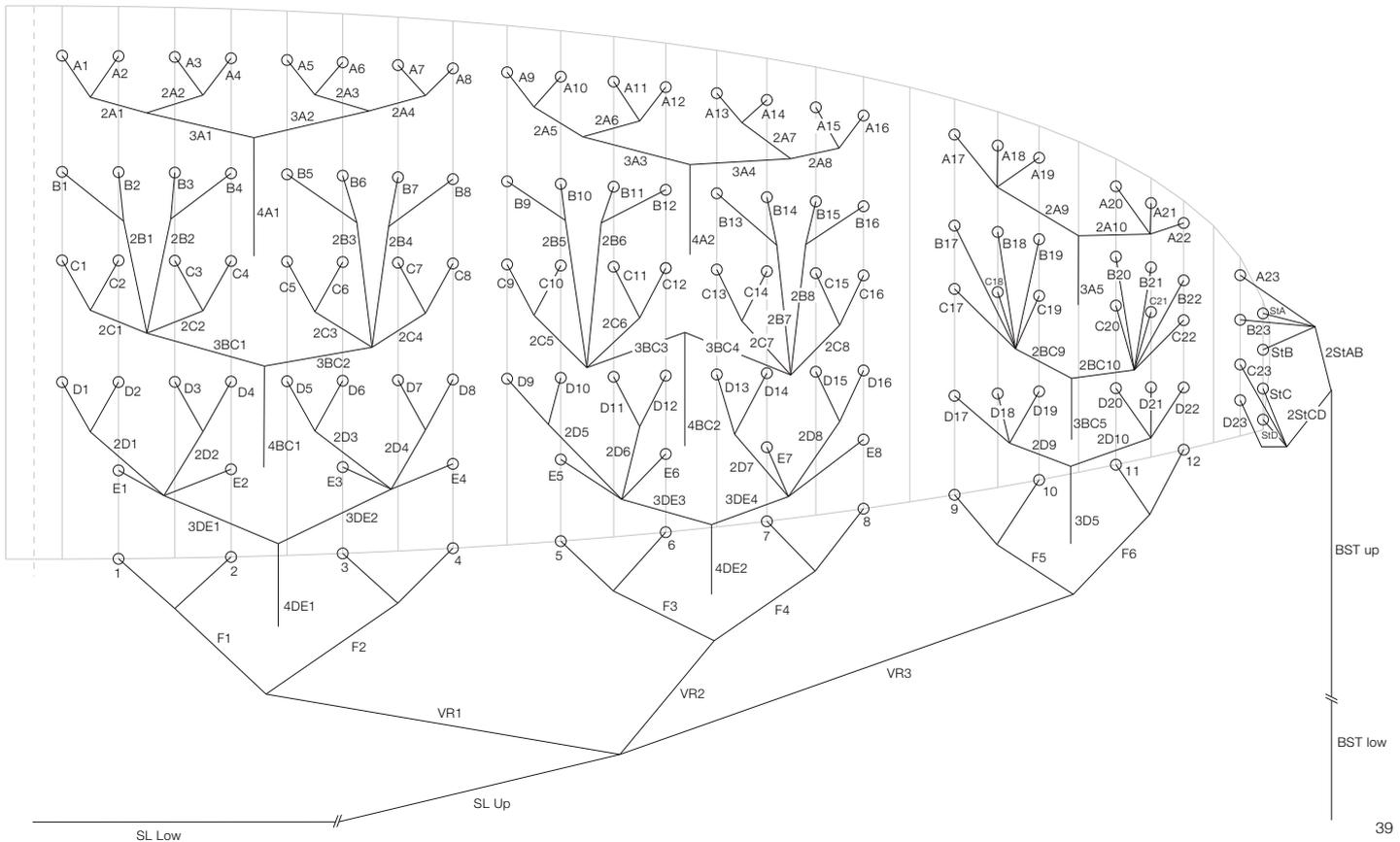
PI BI + BI PRO 3 without Protector + EASINESS 2 for Passenger

*PI BI in EASINESS 2, BI PRO 3 in PIPACK 2

Components



Line plan



Bowline

Step 1



Step 2



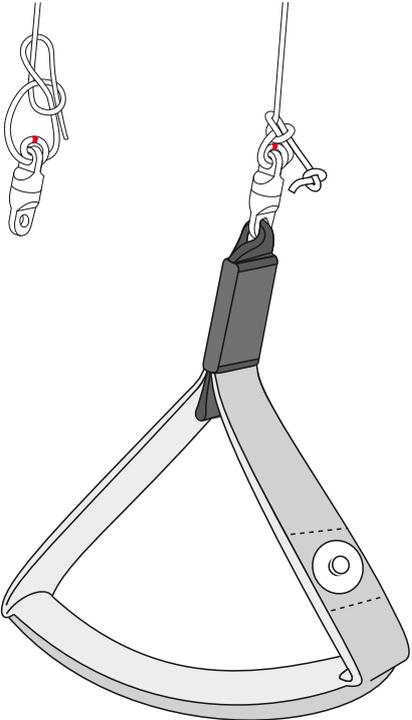
Step 3



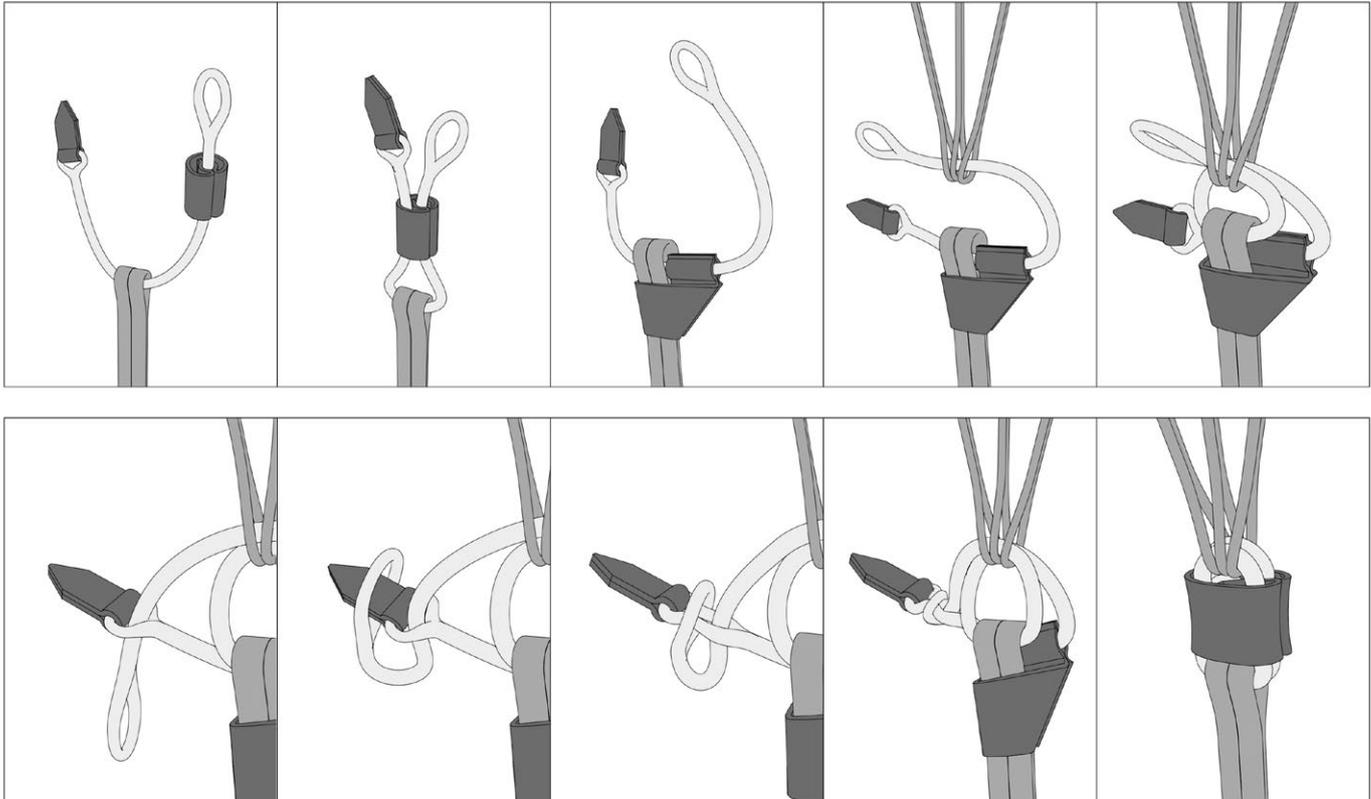
Step 4



Step 5



Installation instructions Softlink



Line plus riser length check

Measuring total line lengths

Total line lengths must be measured under a slow and steadily applied load of 50 N. The measured total line length should not vary from the

length specified in this manual by more than 10 mm. “Sample” in the table is the measured value of the certification wing

A			
Name	Reference	Sample	Diff.
A 1	9116	9111	-5
A 2	9011	9005	-6
A 3	8962	8957	-5
A 4	8982	8978	-4
A 5	8968	8964	-4
A 6	8934	8931	-3
A 7	8960	8961	1
A 8	9045	9042	-3
A 9	8985	8987	2
A 10	8875	8879	4
A 11	8820	8822	2
A 12	8827	8832	6
A 13	8793	8796	4
A 14	8750	8752	2
A 15	8764	8765	1
A 16	8813	8815	2
A 17	8608	8608	1
A 18	8515	8514	-1
A 19	8497	8494	-3
A 20	8341	8336	-5
A 21	8292	8288	-4
A 22	8293	8289	-4

B			
Name	Reference	Sample	Diff.
B 1	9051	9055	4
B 2	8959	8962	3
B 3	8903	8908	6
B 4	8900	8907	7
B 5	8890	8893	3
B 6	8878	8884	6
B 7	8908	8912	4
B 8	8976	8985	9
B 9	8931	8935	4
B 10	8833	8836	3
B 11	8771	8775	5
B 12	8757	8761	5
B 13	8733	8736	4
B 14	8712	8716	5
B 15	8731	8732	1
B 16	8766	8769	3
B 17	8575	8575	0
B 18	8482	8483	1
B 19	8450	8449	-1
B 20	8312	8312	1
B 21	8259	8259	1
B 22	8248	8247	-1

C			
Name	Reference	Sample	Diff.
C 1	9087	9095	9
C 2	8995	9004	9
C 3	8945	8951	6
C 4	8941	8950	9
C 5	8927	8931	4
C 6	8916	8920	4
C 7	8949	8954	6
C 8	9018	9027	9
C 9	8959	8963	4
C 10	8866	8868	3
C 11	8803	8807	4
C 12	8793	8797	5
C 13	8756	8758	3
C 14	8739	8740	2
C 15	8760	8763	3
C 16	8792	8799	7
C 17	8592	8594	3
C 18	8513	8514	1
C 19	8488	8489	1
C 20	8331	8331	0
C 21	8293	8292	-1
C 22	8299	8295	-4

D			
Name	Reference	Sample	Diff.
D 1	9195	9195	0
D 2	9075	9075	1
D 3	9002	9001	-1
D 4	8997	8997	0
D 5	8996	8993	-3
D 6	8965	8964	-1
D 7	8993	8993	1
D 8	9074	9074	0
D 9	9051	9050	-1
D 10	8931	8931	0
D 11	8849	8849	0
D 12	8828	8828	0
D 13	8803	8802	-1
D 14	8765	8764	-1
D 15	8780	8778	-2
D 16	8813	8813	1
D 17	8631	8625	-6
D 18	8527	8524	-3
D 19	8496	8492	-4
D 20	8341	8338	-3
D 21	8293	8287	-6
D 22	8303	8296	-7

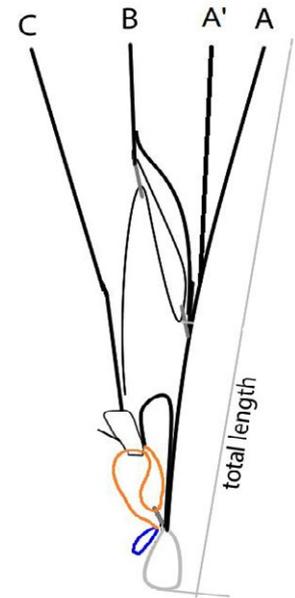
E			
Name	Reference	Sample	Diff.
E 1	9202	9204	3
E 2	9131	9130	-1
E 3	9094	9093	-1
E 4	9187	9184	-3
E 5	9040	9038	-2
E 6	8926	8924	-2
E 7	8854	8848	-6
E 8	8883	8879	-4

Stabilo lines			
Name	Reference	Sample	Diff.
A 23	7981	7976	-5
A 24	7949	7944	-5
B 23	8012	8010	-2
B 24	8071	8065	-6
C 23	8029	8028	-1
C 24	8018	8014	-4
D 23	8104	8099	-5
D 24	8140	8133	-7

Brakes			
Name	Reference	Sample	Diff.
br 1	9563	9566	3
br 2	9292	9297	5
br 3	9117	9121	5
br 4	9082	9088	7
br 5	8926	8931	6
br 6	8750	8756	6
br 7	8670	8677	7
br 8	8703	8711	9
br 9	8610	8614	4
br 10	8479	8483	5
br 11	8412	8414	2
br 12	8446	8452	6

Risers with softlinks		
Risers	trim	accel
A	345	345
A'	345	345
B	345	371
C	345	422
Acc.	n/a	*[mm]
Trimmer	77	[mm]

Risers only		
Risers	trim	accel
A	316	316
A'	316	316
B	316	342
C	316	393
Acc.	n/a	*[mm]
Trimmer	77	[mm]



Total length measured from the underside of the wing to the inner edge of the risers base with a tension of 50 [N].

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