



ICARO
PARAGLIDERS

INNOVATIVE
CREATIVE
AIRCRAFT MADE IN
ROSENHEIM

MANUAL

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LTF/ NfL II 91/09 „C“

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***Congratulations on buying your
MAVERICK 2 and welcome to the
family of ICARO- pilots!***

All technical data and instructions in this manual were drawn up with great care.

Fly & more Handels GmbH ICARO Paragliders cannot be made responsible for any possible errors in this manual.

Any important changes to this manual will be published in our Homepage <http://www.icaro-paragliders.com>.



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IMPORTANT INFORMATIONS

THIS PARAGLIDER WAS PRODUCED WITH GREAT CARE SO THAT YOU CAN ENJOY MANY FLIGHTS, BUT BE AWARED:

- PLEASE READ THIS MANUAL THOROUGHLY BEFORE YOUR FIRST FLIGHT WITH THE **MAVERICK 2**. THIS MANUAL GIVE YOU INFORMATIONS ON THE ENTIRE SPECIFIC AND GENERAL FLYING CHARACTERISTICS OF THE **MAVERICK 2**.
- PARAGLIDING IS AN EXTREMELY DEMANDING SPORT REQUIRING THE HIGHEST LEVELS OF ATTENTION, JUDGMENT, MATURITY, AND SELF-DISCIPLINE. DUE TO THE INHERENT RISKS IN FLYING THIS OR ANY PARAGLIDER.
- NO GUARANTEE OF ANY KIND CAN BE MADE AGAINST ACCIDENTS, INJURY, EQUIPMENT FAILURE, AND/OR DEATH.
- IT IS ASSUMED THAT THE PILOT IS IN POSSESSION OF THE NECESSARY QUALIFICATIONS AND PROVISIONS OF ANY RELEVANT LAWS ARE OBSERVED.
- EVERY PILOT MUST ENSURE THAT THE PARAGLIDER IS PROPERLY CHECKED AT REGULAR INTERVALS.
- THIS PARAGLIDER IS NOT COVERED BY PRODUCT LIABILITY INSURANCE.
- DO NOT FLY UNLESS YOU ARE PERSONALLY WILLING TO ASSUME ALL RISKS INHERENT IN THE SPORT OF PARAGLIDING AND ALL RESPONSIBILITY FOR ANY PROPERTY DAMAGE, INJURY, OR DEATH, WHICH MAY RESULT FROM USE OF THIS PARAGLIDER.
- THE USE OF THIS PARAGLIDER IS ENTIRELY AT YOUR OWN RISK. EVERY PILOT BEARS THE RESPONSIBILITY OF HIS/HER OWN SAFETY. THE MANUFACTURER OR DISTRIBUTOR ASSUMES NO RESPONSIBILITY FOR ACCIDENTS OCCURRING WHILE USING IT.
- THIS MANUAL DOES NOT REPLACE ATTENDING A PARAGLIDING SCHOOL.
- AT THE TIME OF DELIVERY THE **MAVERICK 2** CONFORMS TO EN 926-2:2005 AND LTF NFL II/ 91/09. ANY CHANGES OF CONFIGURATION INVALIDATE ANY AND ALL CLAIMS UNDER THE GUARANTEE.
- SHOULD YOU DECIDE TO SELL THIS PARAGLIDER AT A LATER DATE, PLEASE PASS ON THIS MANUAL TO THE NEW OWNER.



IT IS STRICTLY PROHIBITED TO FLY THE *MAVERICK 2*

- WITH INSIGNIFICANT TRAINING AND EXPERIENCE OF THE PILOT
- OUTSIDE THE SPECIFIED WEIGHT RANGE
- IN RAIN, SNOWFALL, CLOUDS OR FOG
- IN TURBULENT WEATHER CONDITIONS
- WITH ROLL ANGLES EXCEEDING 90°
- AEROBATICS ARE HIGHLY DANGEROUS AND THEREFORE NOT PERMITTED

GUARANTEE INFORMATION

WE ASK FOR YOUR UNDERSTANDING THAT ALL GUARANTEE CLAIMS (CAN BE READ IN THE SECTION GUARANTEE TERMS IN THIS MANUAL) CAN ONLY BE PUT TO A CLAIM IF

- THE CORRECTLY COMPLETED GUARANTEE CARD IS FILLED OUT (CAN BE FOUND IN THIS MANUAL OR ON OUR WEBSITE WWW.ICARO-PARAGLIDERS.COM) AND SENT TO FLY & MORE HANDELS GMBH ICARO PARAGLIDERS WITHIN 6 WEEKS AFTER PURCHASING THE GLIDER AT AN OFFICIAL DEALER/SCHOOL OF ICARO PARAGLIDERS AND
- THE FIRST 2-YEAR-COMPLETE-CHECK IS CARRIED OUT BY AN FROM ICARO PARAGLIDERS AUTHORISED CHECK ESTABLISHMENT.

The Guarantee will be prolonged to next 2-year-complete-check.



I. Your **MAVERICK 2**

Characteristics of MAVERICK 2

MAVERICK 2 offers the pilot a high safety potential, but the pilot must observe the rules of the air for all flight sports, especially the rules of right of way so as to avoid dangerous situations.

Our main design goal was to develop sophisticated wing profiles that result in maximum safety combined with well balanced handling. These profiles were calculated and designed one by one. In combination with an optimised leading edge, we created a paraglider with high safety factor.

The cleverly designed line gallery gives the **MAVERICK 2** a line layout, which ensures stability and excellent flight characteristics.

The use of extensive internal v-ribs makes the canopy more stable, especially in turbulence, and maintains a cleaner, more tensioned, wing profile.

This also causes the load to be distributed more uniformly throughout the glider, allowing for a reduced number of line attachment points. Fewer lines lead to less drag and an increase in glide performance.

The final note of the **MAVERICK 2** is "C"; is the result of the lesser note assigned in any of the tests. This means that no test was rated higher than „C“.

We recommend the **MAVERICK 2** performance-oriented cross country pilots with several years of regular flying behind them and no less than 50 hours/ year in combination with adequate knowledge of safety training because wings in this class are characterised by their demanding behaviour in case of in-flight disturbances.

Short brake travel, dynamic reactions and little dampening along all 3 axis require a great deal of feeling and experience from the pilot.

Intensive training of the control techniques as well as profound knowledge of the appreciation and prevention of unintended wing configurations are required.

Attention: *The behaviour during manoeuvres of paragliders in this class can be demanding (e.g. spiral dives, B-line- stalls, ...). You should possess adequate skills for the safe execution of these rapid descent manoeuvres. In case of insufficient skills or experience in this department we strongly recommend a safety training with the MAVERICK 2.*

The glider has not been certified for aerobatic. Performing aerobatic with the MAVERICK 2 can be very dangerous. Doing aerobatic can induce flying configurations well beyond the tested flight envelope, and can lead to total loss of control. Aerobatic can also overload your glider and break it in flight.

“MAVERICK 2 is not suitable for training”.



Technical data

MAVERICK 2		S	S / M	M	L
Wing Area flat	m ²	S	S	27,10	29,88
Wing Area projected	m ²	S	S	22,42	24,72
Wing Span flat	m	S	S	12,81	13,45
Wing Span projected	m	S	S	10,60	11,13
Aspect Ratio	A/R	6,06	6,06	6,06	6,06
Cells		67	67	67	67
Take off weight	kg	65 - 80	75 - 95	85 - 110	105 - 130
V trim	km/h	39	39	39	39
V max	km/h	> 57	> 57	> 57	> 57
Number of risers		3+1	3+1	3+1	3+1
Certification	LTF/	C	C	C	C
	EN	C	C	C	C

Canopy

Porcher Marine NCV 9017 is used for the **MAVERICK 2** in different colours. Selected for its durability and resistance to UV-damage and it reduces weight.

Lines

To ensure durability, we use Liros Dynema and Edelrid Technora with HMA core (High Molecular Aramid) and a PE covering for the other lines. Depending on the line level, we use different line diameters.

Attention: The length of the steering lines is set correctly at the factory and should not be changed. The improper adjustment of the steering lines can cause severe changes to in flight behaviour.

All lines were hung and sewn with precision. The end control of all line lengths is documented for all paragliders produced by ICARO paragliders. The complete geometry of the lines is shown on the single line plan, which you find in the annex of the manual.

Risers

MAVERICK 2 has 3 fold risers with acceleration system. Big and Small Ears are made easier by the separation of the A-risers.

Simple launch behaviour, B-Stall, steering with the D-risers and an optimal geometry for accelerated flight were important aspects in the development of these risers.

We use 10 mm Kevlar with PE covering for protection (Race-Risers) and Maillon Rapide oval, 3,5 cm.



Risers not accelerated



Risers accelerated

Acceleration system

When you use the accelerator, the D-risers remain unchanged the C-, B and A-level aero design-related under the D-level at full acceleration. This decreases the angle of attack of the whole glider and increases speed.

How to mount the acceleration system at the harness

Put the ropes which are attached at the foot bar through the rings at the front right and left of the harness from the outside and then through the eyelets on the side.

Afterwards put the ropes which are now running inside the harness through the pulley which can be found at the left and right of the sitting board.

The ropes which have been put through the eyelets and the pulley need to be bypassed on the outside along the harness bands and fastened with the brummel hook.

Adjust the length of the rope in this way that both legs are straightened completely when flying maximum speed (both pulley of the risers are laying on top of each other).

Attention: Please pay attention that the glider will not be pre-accelerated, while the accelerator is loosened, when the acceleration ropes are set too short.

At the start we advice to fix the accelerator with the Velcro which is attached at the front of the sitting board, in order to avoid tripping while pulling up the glider or when starting up.

Attention: The description refers to the rope characteristics of an ICARO harness. When using a different harness the application can be different.



If you have any problem or queries to the assembly please contact your flight school or get in touch with ICARO paragliders directly.

Functionality

Before starting the brummel hook (foot accelerator-glider-riser) are stuck together. When flying normal all risers have the same length. When using the accelerator system the risers A, B and C are shortened by a constructive exactly defined length and therefore the angle of attack of the canopy is smaller. The length of the D-riser however is not changed.

This causes a reduction of the angle of attack of the whole glider and results to an increase of speed.

Harness

MAVERICK 2 certification is valid using any harness which has been categorized by the DHV "GH". Harnesses with the category "GX" and other special single purpose harnesses are not recommended because of the cross-braced strapping which detracts from the ability to steer by weight shifting.

To find out which class of harness your harness belongs to, check the certification sticker or ask the manufacturer. A list of all harnesses certified by the DHV is available from the DHV.

II. FLIGHT TIPS

Pre Flight Check & Flight Preparation

Attention: Before the first flight the MAVERICK 2 must be inflated in the wind on a flat surface. An approved ICARO dealer should carry out the first flight before the wing is handed over to you.

It is important to perform a pre flight check before taking off. Please give the following points your special attention:

- Whilst unfolding your paraglider check the canopy and cell walls for damage. Always take into consideration that the paraglider may have become damaged during transportation.
- Check the lines for knots, twisting and damage. Also check the brake lines for knots and kinks. Check the main brake lines. They must be symmetric.

Attention: Loose or incorrect brake knots can cause serious accidents through loss of the steering of the glider!

The correct length of the main brake line must not be altered.

- Check your harness and make sure that all connections to pilot are correctly closed. Check that all karabiners are closed and can not be opened accidentally in flight and that the risers are not twisted.
- Please ensure that you are wearing gear which offers optimal comfort and protection (helmet with chin protection, boots, gloves and an overall).

After that lay your glider in an arc form and observe the following points:



- When you pull on the A-risers, the lines in the middle of the wing should be under tension before the lines on the wing ends. This ensures an even easier start.
- Separate the line groups carefully and bring the risers in order.
- All lines must run freely from harness to canopy. It is equally important that the lines are unhindered and cannot get caught up during the launch. If the risers are not twisted, the brake lines run freely through the roll on the D-riser to the back of the canopy.
- It is also important that no line is under the canopy. A cravat during the launch can be extremely dangerous.

Launch

The most important thing during the take-off is, like at all other gliders too, not the force but the constancy of the pull.

Hold the A- risers but not the baby- risers (they are for small and big ears) and the handles of the brakes. Use progressive pressure on the A-risers and the energy of your own body weight until the wing is fully inflated overhead.

The canopy of the **MAVERICK 2** is inflated quickly. Hold you arms out and up as an extension of the A-lines. When there is no pull from the lines and the wing is overhead, use slight pressure on the brake. Look up and make sure that the canopy is fully inflated. After a few accelerating steps and at the same time let go of the brakes gently, you will take off. Then use slight pressure again on the brakes to fly at a speed with minimal sink rate.

Turning

A combined steering technique (weight shift and pulling the brake line on the inside of the curve) is suitable for every situation. The **MAVERICK 2** is agile and reacts to steering impulses quickly and directly. Strong, one sided pulling of the brakes brings the **MAVERICK 2** into an obvious side angle and the glider flies fast steep curves until spiral dive begins.

Attention: If the brake lines are pulled too fast or too far the glider will be stalled! A one-sided stall is signaled clearly by: The curves´ inner side of the wing is getting soft, and nearly stops. In this case you have to release the brake-line!

Acceleration (with speed system)

The length of the accelerator is adjusted to the left and right of the foot pedal so that when your leg is fully extended, then the acceleration is at maximum – both rollers are touching.

Before using an acceleration system you must ensure that it is attached properly and that the speed system and harness are adjusted to each other for best performance. For the majority of your flight you will not use the accelerator. For better penetration in headwinds you can fly faster by using the accelerator system. When you want to descend quickly and the ears have been folded in, push down on the foot accelerator.



The flight stability of the **MAVERICK 2** remains intact at increased speed because of the adapted geometry of the acceleration system.

Flying with an integrated acceleration system should be used in proper doses. The more turbulent the weather conditions and when near the ground, the less acceleration should be used. Using the accelerator decreases the angle of attack and can make the glider more prone to collapse.

Therefore excessive use of the accelerator near the ground should be avoided. The increase in speed using an acceleration system is considerable and should not be underestimated.

Attention: Do not use the acceleration system and brakes at the same time! It is very dangerous to use both simultaneously as it can result in serious collapses.

All extreme flight situations, such as collapses, happen more dramatically at increased speed. Therefore the speed system should not be operated near the ground or in noticeable turbulence.

Landing

The **MAVERICK 2** is very easy to land. Always stand up in the harness in the landing position very early in order to be able to react as fast as possible to sudden events. Give yourself plenty of options and a safe margin of error. Set up your final landing leg to face into the wind to minimize groundspeed.

Once below 25 m and on final landing approach, the glider should be allowed to fly at trim speed by going "hands up" with the brakes. This allows more energy to be converted into a full flare. Then, 2 m above the ground, both brakes are applied smoothly and forcefully to full arm extension, below the seat of the harness, resulting in a full flare and reduced speed on landing. In stronger winds, the flare can be reduced or eliminated to prevent being blown back when landing.

Attention: If you leave the inflated leading edge bang on the ground, this can cause the cell walls to burst! Please always keep check on other pilots in the air so that you can avoid a collision.

Do not brake it too much, to avoid a stall of the glider in this very low altitude!!

Do not reduce height by "pumping" with the brakes.

Do not fly sharp turns or changing the direction while landing.

Towing

Generally the **MAVERICK 2** is also allowed for towing. You have to note the regulations of the country where towing is in practice.

Attention: If you are using a frontmounted reserve system when winch towing it is very important to verify the unhindered deployment before every flight. In case of doubt please only tow using a textile release system.



Ground Training

In order to get to know your **MAVERICK 2**, we recommend that you practise with your glider on the ground. Pulling up in flat gradients is great practise for fine tuning your launch techniques.

Here you can get to learn the reactions of your glider without any stress and hectic. Ground practise pays off in the air.

Thermals and flying in turbulences, “active flying”

The **MAVERICK 2** has an extremely high stability due to its construction. Through the innovative profile in combination with the battens in the profile nose and the far back attached A-level the **MAVERICK 2** softens in a great manner.

The advanced pilot may think that the conditions are not very turbulent. We recommend flying your old glider with the same conditions in order for you to get a feeling for the cushioning effect of the **MAVERICK 2**.

We advise you to apply the brakes at all times whilst flying in turbulences. You hereby increase the opening angle and the wing is more stable. At the same time the pilot has a better feeling for the canopy via the brakes.

When the pressure on the brakes decreases, then pull down more on the brakes for a short moment to avoid a possible collapse. According to the strength and length of turbulences this can be more than 100% of the brake path for a short time. Under normal conditions, with 100% of the brake path is the point where deep stall begins.

When flying into strong thermals please pay attention that the canopy does not remain behind the pilot. This is avoided by releasing the brakes when entering an up-wind to increase speed.

Vice versa the glider must be slowed down with the brakes if the canopy falls before the pilot when entering a down-wind or exiting a thermal. We recommend increasing speed when crossing a downwind or during headwind.

This type of flight technique is called “active flying”. The pilot may roll his body with weight shift to move with the glider when the glider rolls to the right or left. These subtle adjustments keep the glider flying smoothly.

III. Descent Techniques

Attention: *Training of descent techniques and simulation of flight incidents (SFI) should only take place at professional safetytraining seminars with professional trainer and only while flying over water.*

Use the manoeuvres Small/ Big ears with the acceleration system, B-line-stall and spiral dive as ways of descending.

Attention: *Manoeuvres such as full stalls and spins should be avoided as fast descent techniques. They are not very efficient, and incorrect recovery can have dangerous consequences (as with any paraglider)!*

Never pull Big Ears in a spiral dive, as it's relatively easy to overload the paraglider, pilot and equipment.



Big & Small Ears

The aim of this manoeuvre is to descend in strong thermals. Take the outer A-isers of the **MAVERICK 2** in your hand, without releasing the brakes and pull down leaving it run through your hands (use gloves!). Sink rate increases to 5m/ sec but not the forward speed.

If you use the acceleration system then sink speeds of 5m/ sec can be achieved. Reopen the wing by pushing up with your hands and if necessary then pump the brakes with short symmetric movements. For directional control while using the big ears, you should use weight shift.

The pitch angle of your paraglider is increased using small and big ears, the brake path is shortened and the risk of inducing a deep stall is high. Using acceleration system during this manoeuvre helps reduce these negative risks.

Before landing, release the pulled down A-risers to achieve normal sink speed for a gentle landing. Just like in the C-line-stall manoeuvre, keep the brakes in your hand. In this way, it is possible to fold in up to two thirds of the leading edge.

Attention: The pitch angle of your paraglider is increased using small and big ears, the brake path is shortened and the risk of inducing a deep stall is high. Using acceleration system during this manoeuvre helps reduce these negative risks.

Never attempt tight turns or spirals with Big Ears, as the A-lines will be over stressed.

B-Line-Stall

It is common knowledge that to enter and hold a B-line-stall requires considerable strength. Entering a B-line-stall in strong upward air movements may not be possible for weaker pilots, even with gliders equipped with easy enter B-line-stall aids.

Entering a B-line-stall can also be damaging to the canopy material because of the strain on certain points of the material. This is mentioned in several other user manuals.

Attention: It is very dangerous to exit a B-line-stall incorrectly and following errors must be avoided:

- ***Exit is too slow***
- ***Releasing the B-line-stall aid without simultaneously pushing up with your hands***
- ***Using brakes during or directly after exiting***
- ***Pulling too far on the B-line-stall aid, so that the A-lines are pulled too***
- ***Brakes must not be shortened by twisting around your hand during the manoeuvre***

Spiral Dive

To initiate a spiral dive, look in the direction you want to go, roll your body weight in that direction and at the same time smoothly pull down on the inside brake. The **MAVERICK 2** will start to turn, speed up and then drop into a spiral. To keep the



wing under control you must pull and release the inside brake. Safe decent rates of 7-9 m/ sec are possible. Please ensure that you have enough distance to the ground to exit the spiral dive.

Please exit slowly. Bring your body weight back to a neutral position and as soon as the wing levels out, apply the brakes gently. This procedure should be done slowly and will take a couple of turns to complete.

The **MAVERICK 2** does not have a tendency for stable spiral dive. If under certain conditions, it should go into a stable spiral dive then actively exit the manoeuvre by bringing your weight into a neutral position, release the brakes of the inner curve side and brake gently on the outer curve side until you notice that the wing starts to level out. Then gently brake on the inside curve for several turns until normal flights returns.

Attention: *If you pull abruptly and too far on the brakes, the canopy may enter a negative spin. When entering a spiral dive keep the brake on the outer curve released.*

Nearly every paraglider at some point reaches a sink-speed at which the canopy moves with its frontal edge downwards and stays in this position and keep spiralling (stable steep-spiral), even if the brake-line is released. During a stable steep-spiral very high G-forces will occur, which require a high strain of a physical fit pilot!

Wingovers

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

Attention: *The MAVERICK 2 is a agile glider, and it is quite easy to get to an excessively high angle of bank in just a few turns. Practice wingovers gently at first, as there is a chance of quite large collapses at high bank angles.*

Also notice that a wingover flown with more than 90 degrees bank angle is classified as illegal aerobatics in some countries!

IV. Flight Incidents

General information for safety training with the MAVERICK 2

The innovative concept of the **MAVERICK 2** offers an unmatched stability in non-accelerated and accelerated flight through strong turbulences.

This stability has also an effect when stimulating clappers and front stalls:

The forces to get the glider clapped are extremely high and in accelerated flight hardly to manage.

With lots of force and a courageous pull of the A-risers you can still manage big clappers. The faster you pull the less fierce will be the reaction in the canopy.

This is because the profile is bent down due to the built in battens when pulling the A-risers. Through this and the negative flow angle a low-pressure develops on the lower sail which accelerates the glider downwards.



This is less distinctive in conventional gliders and the reaction is according to this more moderate.

The conventional clapper generated through pulling the A-risers has hardly anything to do with reality. The deformation of the profile in real flight is missing: clappers are possible but the acceleration downwards is missing mostly.

This is why the real clapper behaviour is being simulated by using an A-folding line at certification.

Clapper and front stalls which you create through pulling the A-risers during safety training for example will turn out much more fiercely than is real flight.

The advantage is that you can practise the correct reaction. The training effect is very high and the increased safety you gain covers all situations in free flight.

For this reason we offer all interested Safety trainers a practical and theoretical briefing for the **MAVERICK 2**.

Attention: We recommend that you only book safety training with trainers who have been briefed in this matter. The simulation wants to be learned because the MAVERICK 2 can not be clapped as any other glider will.

Knots

The best way to avoid knots and tangles is to inspect the lines before you inflate the wing for take-off. If you notice a knot before take off, immediately stop running and do not take-off.

If you have taken-off with a knot you will have to correct the drift by leaning on the opposite side of the knot and gently apply the brake line on that side too. You can gently try to pull on the brake line to see if the knot becomes unfastened or try to identify the line with the knot in it. Try to pull the identified line to see if the knot releases.

Before trying to remove a knot, make sure there are no pilots flying nearby and never try these manoeuvres near the mountainside. If the knot is too tight and you cannot remove it, carefully and safely fly to the nearest landing place.

Attention: Be very careful when trying to remove a knot. When there are knots in the lines or when they are tangled, do not pull too hard on the brake lines, there is an increased risk of the wing to stalling or negative turn being initiated.

Deep / Parachute Stall

Your **MAVERICK 2** has been carefully designed to resist entering deep stall. If you pull strongly on the rear risers the **MAVERICK 2** normally ends a deep stall independently when you release the rear risers. Before exiting a deep stall please ensure that the brakes are fully released. Actively exit the deep stall by reaching up and push forward with both palms on both A-risers or pull on the risers.

Attention: Never pull the brake-lines during a parachutal stall, because the glider would go into a full stall immediately. Does the glider stay in a repetitively parachutal stall without any noticeable reason the glider have to be checked before the next flight by your dealer or by the manufacturer.



Rain-induced Deep / Parachute Stall

There are two reasons why flying with a wet wing increases the risk of deep stalling:

First reason is that the canopy cloth may absorb water, making it much heavier and moving the centre of gravity around in unpredictable ways, increasing the risk of a stall/deep stall.

The more water a wing can absorb the higher the risk, which means that older wings with damaged coating are more prone to these deep stalls than new wings. It should also be noted that a wing already flying close to the edge due to line shrinkage or other factors will deep stall sooner due to water absorption.

Second reason has to do with the actual rain drops on the top surface – if enough large rain drops form that the entire top surface is covered, but they don't join together to either flow off or become a homogenous mass, the surface will become so rugged that the airflow separates and the wing stalls.

This phenomenon has been observed on hang gliders and gliders for years but only recently have we discovered that paragliders may also be affected. It is more likely to happen with new wings where the cloth is still highly hydrophobic and the drops thus do not penetrate but remain on the surface.

We know from computer simulations and practical tests that this is physically possible but we also suspect that it occurs very seldom in real life flying.

In both cases the brakeline travel becomes very short and even small input may suddenly induce an airflow separation; in some cases even a gust or a sudden thermal may change the angle of incidence enough to cause the deep stall.

If you find yourself flying in unavoidable rain we strongly recommend that you avoid any sudden movements or radical brakeline input, that you do not pull Big Ears or B-Line-Stall, and that you steer clear of turbulence and avoid a deep flare on landing.

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

Asymmetric Collapse

While flying in turbulent conditions it may occur that a portion of your glider deflates. This is normally not a critical situation and re-inflation occurs quickly without any input from the pilot. However, just like in flying in turbulences, please pull gently on both brakes. Re-inflation is speeded up by counteracting the turning movement of the canopy until normal forward flight return. Then pump the brake line on the collapsed side.

Attention: *If the collapsed part of the canopy is very big, you have to break the open side very dosed (not too much!) to avoid a stall.*

Symmetric Collapse

A glider may collapse symmetrically when flying through sudden down draughts in a front stall or by pulling strongly on the A-risers. The leading edge collapses abruptly along the whole wing span.



The pendulum movement is eased by applying the brakes and speeds up re-inflation. Your **MAVERICK 2** normally re-inflates promptly in a symmetric collapse without pilot input. Applying the brakes symmetrically will speed things up.

Cravat

This never occurred during any of our test flights. However, it could happen in rare circumstances that a part of the glider, particularly a wing tip, gets caught in its own lines (e.g. in extreme turbulences or an error in the visual line check of the canopy before take-off. Large cravats result mainly in uncontrollable spiral dives.

There are a few ways to try to rectify this situation:

- Try pumping on the side of the cravat
- Pull the stabilo line (the outermost B-line)
- Actively collapse the cravat side and release
- If all else fails, attempt a full stall – only if sufficient altitude remains.

Attention: *Freeing a cravat may be complicated, even for an experienced pilot. If you have exhausted all these options, you are uncertain how to proceed and you do not have control over your glider and you are running out of altitude, immediately deploy your reserve parachute.*

Emergency Steering

Should it no longer be possible to steer your **MAVERICK 2**, for example due to a broken line, the glider may be steered by gently pulling on either D-riser.

Attention: *Handling will be more direct so be careful not to pull too hard. A good way to get practice is during ground handling.*

Negative Spin

A negative spin should not happen in normal flight. However, spins are often performed in SFI training to experience the gliders limits and so that pilots have a better understanding of the safe range of brake use.

If the pilot abruptly applies full brake to one side of the glider while the other side is at zero brake, the faster side may fly around the braked and stalled side resulting in a spin. Alternatively, if flying very slowly with almost full brakes on both sides, if one hand releases one brake suddenly, while the other continues with full brake, the glider may enter a negative spin.

To exit a spin with your **MAVERICK 2** just do “hands up” to release the brakes and the glider will return to normal flight.

Attention: *If you do not have control over your glider and you are running out of altitude, immediately deploy your reserve parachute.*

Full Stall

To initiate a full stable stall, apply both brakes to maximum arm extension. If possible grasp the seat of your harness to assist keeping your arms locked.



Attention: *It is imperative that the pilot fully completes this manoeuvre and holds on, as a premature release while the glider is still falling back may cause the glider to rapidly dive ahead past the pilot. There is a possibility of the pilot landing in or entangling in the glider.*

Do not –under any circumstances- release at this point. The glider will slow down and stall, falling quickly behind the pilot. Avoid the urge to release. The pilot will swing back under the canopy and finally the canopy will stabilize to a full stall.

Once in a stable stall, the manoeuvre can be completed. Release the brakes just a little and let the glider fill until it regains shape. Then release the brakes fully and your **MAVERICK 2** will return to normal flight.

Attention: *Spin and full stall are both dangerous and somewhat unpredictable manoeuvres. Do not stall or spin your paraglider on purpose. However it is very important to learn how to recognize the symptoms of a glider about to stall or spin so that you can take correct action to avoid it happening.*

V. Service, Repairs and Maintenance

Care Instructions

Even with good care and maintenance, just like any item exposed to the elements, your glider can wear out after a certain amount of use. This can change flight behaviour and safety. We recommend a regular safety inspection of the canopy and all lines.

- If you wish to clean your glider it is best to use warm water and a soft sponge. Store your glider in a dry and dark place, ideally between 5° and 30° Celsius. Do not store it near chemicals or petrol.
- If you will not fly for longer period, store the glider releasing all compression straps and take it out of its backpack so that the fabric is not compressed, creased or stretched.
- Avoid storing your glider for days at a time in a hot car.
- If the glider has become wet, lay it out so that air can get to all areas of the fabric.

Attention: *It may take several days for your glider to dry out completely especially the lines, which take longer than the fabric. Do not fold and store your glider prematurely if it not completely dry. The performance of a wet glider can change significantly.*

How to pack your glider

It is not necessary to pack the glider in a special way. ICARO paragliders recommends the following method:

- The glider should be laid out neatly, the lines sorted, the risers stowed away either at the trailing edge or at the leading edge. The pilot stands at the leading edge by the outspread glider and a helper at the trailing edge.



- Both start on the inner side and putting one lane onto the next pulling the end of the glider more and more to the middle. Like this the reinforcements can be put on top of each other without being flexed.
- The same is done on the opposite side. Like this only two lane wide packages are left.
- These are being folded on top of each other and beginning at the trailing edge during simultaneous pressing to get rid of any air. The first fold over of the package should be between 30cm and 50cm. This way the material of the lower- and upper sail will not be stressed at the same area.
- ICARO paragliders recommends not rolling in the glider material since different strains apply to the material. Through folding this can be avoided.
- The last fold is carried out at the side of the leading edge. This is wrapped in direction of the trailing edge and packed between the part which has been folded before. Please pay attention that the reinforcements aren't flexed.
- The compression band is being attached to the glider package crossways to the folding direction and fastened only to hold the glider gently.
- Afterwards put the package into the glider bag....ready!

In order to pack your glider in the same way as above without a helper there are two possibilities:

1. Lay out your glider neatly, sort your lines and stow away your risers either at the trailing edge or at the leading edge. You begin at the trailing edge and fold these together. Like this the glider lays fan-shaped in front of you. Now you put the leading edge on top without flexing it and carry on folding the glider, as described above.
2. You use an ICARO fast packing bag (available online in our shop).
The fast packing bag has many advantages – not only folding your glider without any help.
 - Even at strong winds the glider can easily be handled since the canopy does not need to be spread out for folding.
 - The glider is lying during the procedure on the material of the packing bag therefore it is shielded from stones, plants and humidity of the ground.
 - Through the fixation in the front part of the packing bag the reinforcements of the leading edge stay flex-free on top of each other.

Adhesive logos

Always make sure that your intended logo will not in any way influence the glider behaviour. If in doubt we suggest avoiding the attachment of advertising logos on the wing. ICARO paragliders cannot be held responsible for any mishaps caused by intentional aftersales changes done to the wing.

Attention: *Attaching heavy adhesive logos made out of unsuited material to the wing may result in the revocation of the glider certification.*



Overloading

The **MAVERICK 2** is a very strong paraglider. Flying all the descent manoeuvres will not normally pose a structural problem but aerobatic training does accelerate the ageing process dramatically.

ICARO recommends having wings that are often used for training of descent manoeuvres (or aerobatics) subjected to checkups at shorter intervals than normally stipulated.

Salt water

If you are flying near the sea most the wing may age faster because the air is humid and salty. In this case we suggest you have it checked more often than prescribed in this manual.

Attention: *Never use chemical cleaning agents, brushes or hard sponges on the material, as these destroy the coating and affect the strength of the cloth. The canopy will become porous and will lose structural strength.*

Never attempt to clean your paraglider in a washing machine. Even without using detergents the simple mechanical abrasion will quickly finish the canopy and render it useless.

Also avoid dipping it in a swimming pool; the chlorine will damage the cloth.

If you must rinse or clean your glider do so with fresh water. Frequent cleaning will accelerate the ageing process.

Aerobatic flight

Although the **MAVERICK 2** has been tested by expert aerobatic pilots in extreme situations.

Attention: *The MAVERICK 2 has not been designed for aerobatic flight and we do not recommend the MAVERICK 2 for that use.*

Extreme manoeuvres take you and your wing to high centrifugal forces. Materials will wear more quickly than in normal flight.

If you do a lot of extreme manoeuvres we recommend a full line check at least every year or every 100 hours, whichever is the soonest.

Repairs

Small holes in the canopy can be repaired by the pilot by using self adhesive sailcloth on both sides of the perforation.

Damage to the lines or any other repairs should only be carried out at an authorized ICARO centre. If your **MAVERICK 2** needs to be repaired, please contact your local ICARO paragliders dealer.



Inspection, Prerequisites and Personal qualification

After 200 flight hours or 24 months, it is important to have your **MAVERICK 2** inspected by a trained ICARO technician. Without regular certified inspections, your glider will lose its certification and guarantee.

You will need the following items in order to perform a paraglider inspection:

- Standardized inspection report
- Porosity meter
- Spring scale
- Equipment for measuring line lengths
- Equipment for line strength testing
- Sewing machine
- Big, clean and bright room

Technical specifications about your glider (type, serial number, size and year of production). Please call Fly & more Handels GmbH ICARO paragliders for information.

A three week course at Fly & More GmbH, specified to a glider type together with a legal flight license are the necessary prerequisites for permission to inspect ICARO paragliders. For questions about the costs and times of paragliding inspection courses please contact Fly & more Handels GmbH ICARO paragliders.

Inspection Instructions

Record Information

Spread out your paraglider in a big bright room and make a note of information such as model, type and serial number.

Porosity Test

Use your porosity meter to perform porosity checks at 4 different places of the canopy. The results are recorded in the inspection protocol and are to be evaluated according to the internal guidelines of the workshop.

Visual Control of the Canopy

Hang up the canopy so that you can do a visual check of your canopy. Check for perforations in the upper and lower sailcloth, damaged stitching between the cells, and damage to the leading/trailing edge reinforcements. Each cell must be checked.

Visual Control of the Risers and Lines

Check the risers, the trimmers, the stitching at each line loop, the brake lines, all seams and line contact points. Each line must be measured and inspected for kinks.

Strength test of the lines

One complete A- and B- line must be removed, measured and submitted to a strength test. The measured value of each individual line must be noted in the



inspection protocol. The minimum of the lines strength are 125% of the normative guidelines.

Measurement of the lines

Measure every single line while stressing it with defined tractive force. Compare with the line plan. The results are recorded in the inspection protocol and are to be evaluated according to the internal guidelines of the workshop.

Assessment

The measurements of all procedures are noted in the inspection protocol. When all facts have been recorded, the technician must make a general assessment.

Check the backpack for damage to the zips, seams and straps and repair if necessary with a sewing machine.

General Remarks

Any other repairs, corrections etc. to the general condition of the paraglider must be evaluated. A copy of the results of each inspection must be sent on to Fly & more Handels GmbH ICARO paragliders.

If the glider is not in great condition, the technician can decide to shorten the inspection interval time from 24 to 12 months. The technician must report any unusual faults to Fly & more Handels GmbH ICARO paragliders within 3 days.

Inspection Reference

Only an authorised technician who has been trained by Fly & more Handels GmbH ICARO paragliders is authorised to sign and date the glider certification label and sign the manual.

VI. Terms of the guarantee

The Fly & more Handels GmbH ICARO paragliders guarantees the proper processing, an operation within the allowable limits of proper operation and the fulfillment of the eligibility criteria of glider / harness / rescue equipment at the time of first delivery by the Fly & more Handels GmbH ICARO paragliders.

What is covered by the guarantee?

Provided that Fly & more GmbH accept the fault the guarantee contains all necessary spare parts related to the replacement or repair of defective parts and working time.

How long is the guarantee?

Paragliders: OXYGEN, GTO, NIKITA, INSTINCT 2 ACRO, CLOU:

150 flight hours, maximum for a period of two years

All other certified gliders:

300 flight hours maximum for a period of three years

Harnesses and Rescue systems: 3 years.

This period applies from registered year of construction.



What are the conditions of the guarantee?

- Fly & Handels GmbH needs to be informed immediately after the discovery of a defect and the defective product must be sent to us for testing.
- The glider / the harness was used in normal circumstances and maintained according to the instructions. This includes in particular the careful drying, cleaning and storage.
- The glider / the harness was used only within the applicable guidelines and all rules have been complied with all times.
- All flights must be accounted for within the flight book.
- There were only original spare parts used and checks, exchange and / or repairs were conducted by an authorized dealer or by Fly & more Handels GmbH ICARO paragliders company / person and properly documented.
- A fully and correctly completed guarantee card must be sent at least 6 weeks after buying the glider to Fly & more GmbH commercial. Alternatively can this be sent via the appropriate online form www.icaro-paragliders.com.
- Fly & more Handels GmbH ICARO paragliders does not accept any responsibility or replacement of the above obligation. However, there is the possibility that there will be a sign of goodwill.

What is excluded from this guarantee?

- Gliders and Harnesses that are used for training purposes, Aerobatic or other official competitions,
- Gliders / Harnesses who were involved in an accident,
- Rescue equipment, which has been thrown for a emergency,
- Gliders / harnesses and rescue equipment, which have been changed by yourself,
- Gliders / harnesses and rescue equipment that were not purchased from an authorized dealer / flight school,
- Gliders / harnesses and rescue equipment where the required inspection intervals were not met and the verification of the glider was not conducted by a Fly & more Handels GmbH ICARO paragliders authorized operation / person
- Damage which has occurred due to improper treatment (i.e. storage in humidity, heat or direct sunlight)
- Parts that need to be replaced due to normal wear and tear,
- Discoloration of the cloth material used,
- Damage caused by solvents, salt water, insects, sun, sand, humidity or "debag-jumps".
- Damage caused by force majeure.

How can I claim guarantee?

In order to claim a guarantee Fly & Handels GmbH ICARO paragliders needs to be informed immediately after the discovery of a defect and the defective product returned for inspection.



Fly & more Handels GmbH ICARO paragliders accept no freight costs (outbound and return transportation).

VII. Environmental aspects

The materials of which a paraglider is made require a special waste disposal. So please send disused gliders back to us.

We will care about a professional waste disposal without costing for you.

VIII. Attitude and behavior towards nature

Actually its self-evident, but nevertheless we would like to mention particularly:

- Please do our nature-near sport in a way which doesn't stress nature and environment!
- Please don't walk beside the marked ways, don't leave your litter, don't make unnecessary loud noises and respect the sensitive balance in the mountains.
- Especially at the take-off we have to take care for the nature!

****Especially at the launch site consideration is needed! ****

IX. Last but not Least

Again, we would like to congratulate you on the purchase of your **MAVERICK 2!**

Team ICARO thank you for your trust in our brand and should you have any questions, ideas or criticisms, please contact us.

This paraglider has been developed and produced by modern technology and will give you years of pleasurable and unforgettable flight experiences.

This paraglider will not protect you from the dangers of rash flight manoeuvres and weather changes.

Your ICARO-Team

Fly & more Handels GmbH ICARO paragliders
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Telephone: +49-(0) 8034-909 700 Fax: +49-(0) 8034-909 701
Email: office@icaro-wings.com Web: <http://www.icaro-paragliders.com>





Appendix: Guarantee card, Lineplan

GUARANTEE CARD

Customer data

All personal data will be treated in strict confidence and not passed on to third parties without the consent

Name	
Address	
Zip Code	City/ country
Phone / Fax / e- mail	
Common flying site	Flight experience

Main field of usage of the glider/ harness (please mark)			
Leisure	Competition	Training	Professional
Aerobatic	Powered	commercially	

Datas above glider/ harness/ rescue system		
Type und size of glider/ harness/ rescue system	Purchasing date	Serial number

Dealer/Icaro agency: (Name and address or stamp)

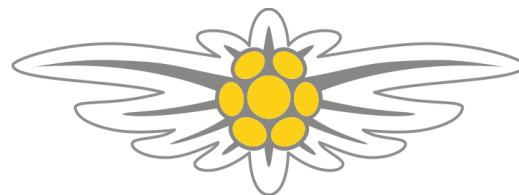
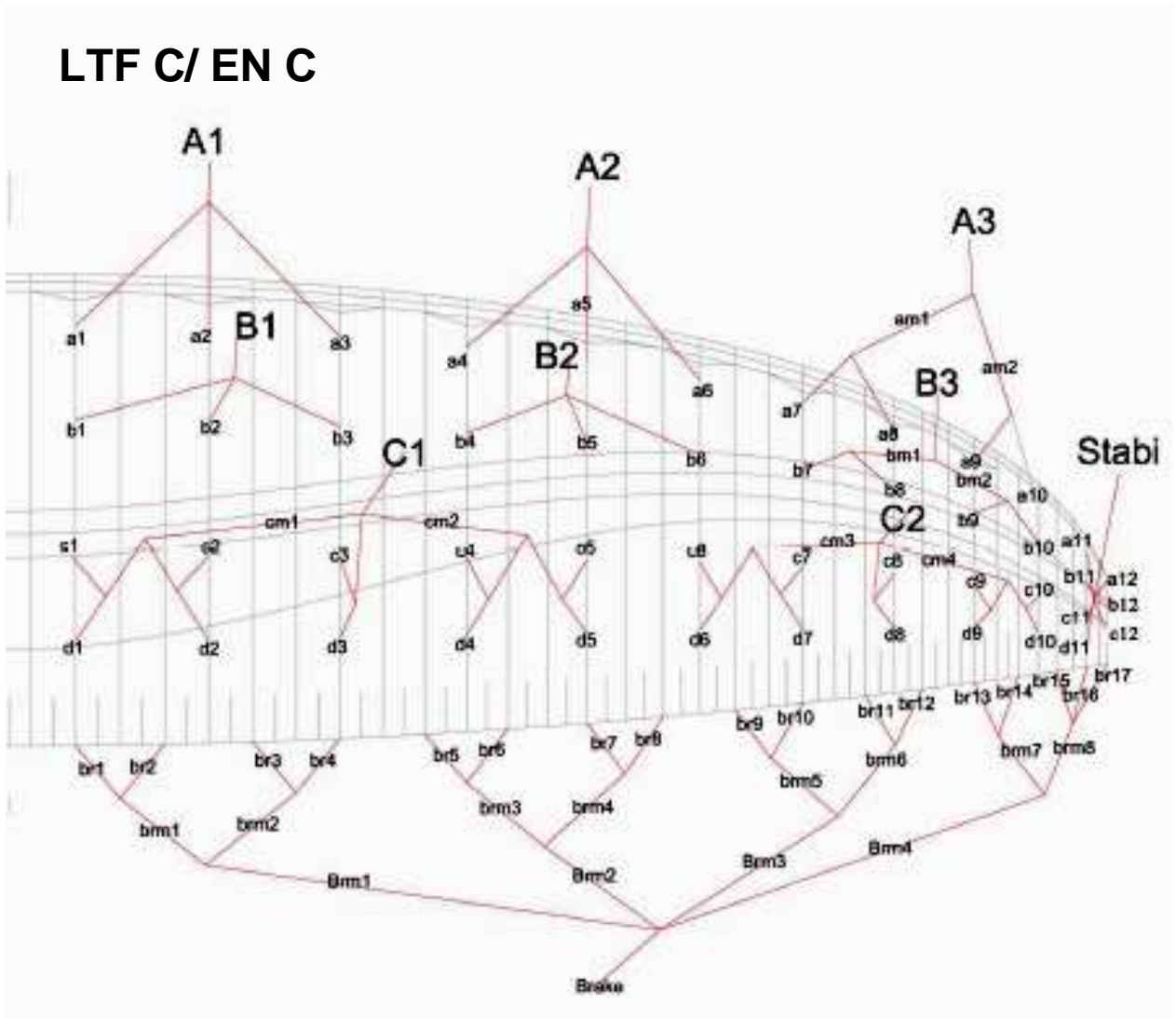
Furthermore, I would like to inform Fly & more Handels GmbH ICARO Paragliders as follows:

Date

Signature

LINEPLAN

LTF C/ EN C



ICARO
PARAGLIDERS

Fly & more Handels GmbH

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83126 Flintsbach

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Telefax: +49 (0) 8034 909 701

E-Mail: office@icaro-wings.com

Internet: www.icaro-paragliders.com

Dispatch protocol/ Delivery content

- Piece check complete
- Inner bag
- Compression band
- Speed system
- Outer rucksack
- Operating instructions
- Customer questionnaire
- Repair set
- T- Shirt
- Sticker

.....

Date

.....

Signature