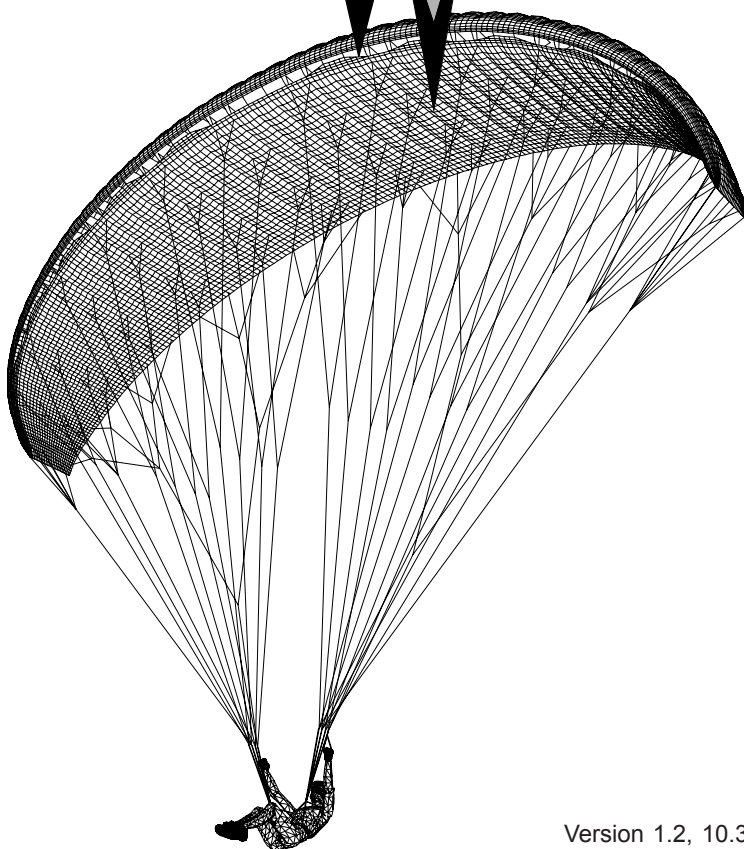


# MANUAL



# MENTOR



Version 1.2, 10.3.2008



# Table of Contents

<b>Technical Data:</b> .....	<b>35</b>
<b>NOVA MENTOR Technical Description:</b> .....	<b>36</b>
Buildup of canopy: .....	36
Rigging system of the NOVA MENTOR: .....	37
Speed system: .....	38
The Harness: .....	40
<b>The Flight:</b> .....	<b>40</b>
Preflight check and launch preparations: .....	40
Checklist: .....	41
Launch: .....	42
Turns: .....	43
Spiral dive: .....	43
"Thermalling and soaring": .....	44
Flying with speed system:="!" .....	44
Landing: .....	45
Towing: .....	45
Motored Flight / Aerobatics: .....	45
<b>Extreme Flying Manoeuvres:</b> .....	<b>46</b>
Collapse: .....	46
Line over: .....	46
Front stall: .....	46
Parachutal Stall (deep stall): .....	47
Full stall: .....	47
Spin (or negative spin): .....	48
Wingover: .....	49
<b>Rapid Descents:</b> .....	<b>49</b>
Spiral dive: .....	49
Big ears: .....	49
B-line stall: .....	50
<b>Looking after your Paraglider:</b> .....	<b>51</b>
Storage: .....	51
Transport: .....	51
Cleaning: .....	51
Repair: .....	51
Deterioration: a few tips! .....	51
Check: .....	52
Treating nature with respect: .....	53
Disposal: .....	53
<b>In Conclusion:</b> .....	<b>53</b>
<b>Overall Plan:</b> .....	<b>54</b>
<b>Lineplans:</b> .....	<b>55</b>



Für den Inhalt verantwortlich:  
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# WELCOME TO THE FAMILY OF NOVA PILOTS!

WE CONGRATULATE YOU ON BUYING  
YOUR NEW NOVA MENTOR  
AND WISH YOU MANY ENJOYABLE FLYING HOURS!

IF YOU HAVE ANY QUESTIONS,  
SUGGESTIONS OR CRITICISM  
REGARDING ANY NOVA PRODUCT PLEASE  
DO NOT HESITATE TO CONTACT US.  
WE ARE HAPPY TO GIVE HELP AND ADVICE.



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WE ARE LOOKING FORWARD TO HEAR FROM YOU!



PLEASE READ THIS MANUAL CAREFULLY AND  
NOTE THE FOLLOWING DETAILS:

THIS PARAGLIDER MEETS AT THE TIME OF DELIVERY THE  
REQUIREMENTS OF THE EN (EUROPEAN NORM 926) OR OF  
THE GERMAN LTF (GERMAN CERTIFICATE OF AIRWORTHI-  
NESS).

ANY ALTERATIONS TO THE PARAGLIDER WILL  
RENDER ITS CERTIFICATION INVALID!

THE USE OF THIS PARAGLIDER IS SOLELY  
AT THE USER'S OWN RISK!

MANUFACTURER AND DISTRIBUTOR DO NOT  
ACCEPT ANY LIABILITY.

PILOTS ARE RESPONSIBLE FOR THEIR OWN SAFETY AND  
THEIR PARAGLIDER'S AIRWORTHINESS.

THE PARAGLIDER CARRIES NO WARRANTY!

THE AUTHOR ASSUMES, THAT THE PILOT IS  
IN POSSESSION OF A VALID PARAGLIDING  
LICENCE!



## Technical Data:

Type		XS	S	M	L
Zoom factor		0.929	0.973	1.015	1.055
No. of cells		53	53	53	53
Projected wingspan	m	9.06	9.48	9.89	10.28
- surface area	m <sup>2</sup>	20.59	22.59	24.58	26.56
- aspect ratio		3.98	3.98	3.98	3.98
Flat wingspan	m	11.42	11.96	12.48	12.97
- surface area	m <sup>2</sup>	24	26.33	28.65	30.96
- aspect ratio		5.43	5.43	5.43	5.43
Line diameter	mm	1 / 1.2 / 1.45			
Line length	m	6.97	7.3	7.61	7.91
Line consumption	m	311	326	340.6	354
max. profile depth	m	2.60	2.72	2.84	2.95
min. profile depth	m	0.65	0.68	0.71	0.74
Weight	kg	5.4	5.9	6.4	6.9
Legal takeoff weight*	kg	70-90	80-100	95-110	105-130

\* Pilot + approx. 17 to 20kg of equipment (including wing)

Changes of these data is possible: Please look after the actual version of this manual or the technical data table on the NOVA homepage: [www.nova-wings.com/downloads](http://www.nova-wings.com/downloads)

Further details concerning measurements and design may be taken from the engineering specifications of the certification. This form can be found on the NOVA homepage (certification documents) or asked from the NOVA office.

Line specifications are detailed in the certification certificate or in the line plans. They are measured under a 5kg load.

The certification test centers measure overall line length from the quick link to the undersurface.

The line lengths as specified in the line plans are of the single elements including the end loops.

The certification label is printed onto the right wing tip.



DATE OF, AND PILOT'S NAME COMPLETING  
TEST FLIGHT SHOULD BE WRITTEN IN SPACE PROVIDED!

THE CERTIFICATION LABEL HAS TO BE MOUNTED (STICKER) OR  
PRINTED ON THE WING!

## **NOVA MENTOR Technical Description:**

The NOVA MENTOR is an high performance wing in the intermediate class LTF 1-2 / EN B for regularly practising pilots. Like it's predecessor the MENTOR offers a maximum of performance in this class combined with a high level of safety. Owing to it's easy and reliable flying behaviour the MENTOR is suitable for a big pilot's target group.

The basic form of the NOVA MENTOR is a slim, elliptical, rearward swept wing.

### **Buildup of canopy:**

The canopy of the MENTOR is built by 53 cells over the wingspan. The wingtip is slightly pulled down, building a kind of stabilizer.

2 suspended ribs are building a suspension group, which are connected by short forks of the top line elements. Between those suspended ribs, the ribs are suspended by diagonal ribs.

This buildup ensures a smooth top surface, exact airfoil reproduction, and yet most importantly, very few suspension points. So the NOVA MENTOR has very few lines and thus associated parasitic drag, which gives it an excellent glide angle.

The profile of the NOVA MENTOR was basically adapted by it's predecessor, but redesigned in some areas. It excels with very high stability, easy handling (low brake pressure), a big speed range and amazingly high performance.

The NOVA MENTOR presents a closed leading edge to the airflow. Internal Trilam reinforcements maintain its precise form and provides stability. The cell openings on the undersurface of the profile's nose provide airflow into the glider. Stretch resistant flares, integrated with diagonal ribs at the suspension points, ensure an even distribution of load throughout the canopy. A stretch resistant Mylar stripe on the trailing edge defines the wingspan and guarantees, together with an optimized sail tension, a high form stability.



Large cross port vents allow effective airflow inside the canopy, providing good reinflation without reducing the profile accuracy.

### **Rigging system of the NOVA MENTOR:**

The lines of the NOVA MENTOR are made of strong and stretch resistant Polyester / Polyethylene (Dyneema: white core) or Polyester / Aramid (Technora: yellow core) lines.

The entire rigging system comprises individual suspension lines looped and stitched at each end.

The main lines are between 1.2 and 1.45mm strong, the main brake lines are 1.85mm in diameter, the middle elements 1.2mm, the top lines are made of 0.6mm unsheeted but coated Dyneema lines. The brake cascades and stabilizer lines are all 1mm.

The suspension lines are comprised of "cascaded top lines" (attached to the undersurface), "cascaded middle lines" (cascade 2 to 3 top lines together), and "main lines". These cascade 2 middle elements and lead to the "quick link" (a Maillon Rapide that connects lines and risers).

The "stabilizer lines" connect the upper stabilizer lines on the outer suspension points with the quick link.

The "brake lines" are not load carrying suspension lines. They lead from the trailing edge of the canopy to the "main brake lines" running through the "pulleys" on the D-risers to the "brake handles".

A mark on the main brake line indicates the position of the brake handle.

This adjustment, on the one hand, allows sufficient brake to be applied during extreme flying situations and when landing, while on the other hand, it ensures that the canopy is not permanently braked (especially when fully accelerated). This trimming should not be altered.

For differentiation purposes A-lines, A-risers, stabilizer lines and the upper brake lines are coloured red, all brake lines are blue and all remaining lines are yellow.

Also the main suspension loop, on the bottom of the riser, is covered red. Here the main carabiner has to be hooked in, which is connecting the risers with the harness.



The line connections are made to triangular Maillon rapides (quick links) fitted with a rubber "o- ring" (normally used as a seal) in the form of a "figure eight" which prevents any slipping of the lines on the quick link.

The NOVA MENTOR is equipped with 5 risers per side. The A-lines are attached to the 2 A-risers. The B-lines and the stabilizer lines are attached to the B-riser. The C-lines to the C-riser and the D- and brake-lines attach to the D-riser.

See line plan for details.

### **Speed system:**

The NOVA MENTOR can be equipped with a stirrup operated speed system. The riser of the MENTOR does not have a fixable trimmer.

The speed system affects the A-, B- and C-risers. In normal flight all risers have an overall length of 52cm (the risers of the XS are only 47cm long).

When the stirrup is pushed out the A-risers are shortened by up to 16cm, the B-risers by up to max. 13cm, the C-risers by 8cm, the D-risers retain their original length.

On the riser of the MENTOR XS, the A-risers are shortened by 14cm, the B-risers up to 10.5 and the C-risers by 5.2cm. The D risers retain their length.

This measurements influence the certification!

An incorrectly fitted speed system causes a loss of certification!

How is the speedsystem fitted?

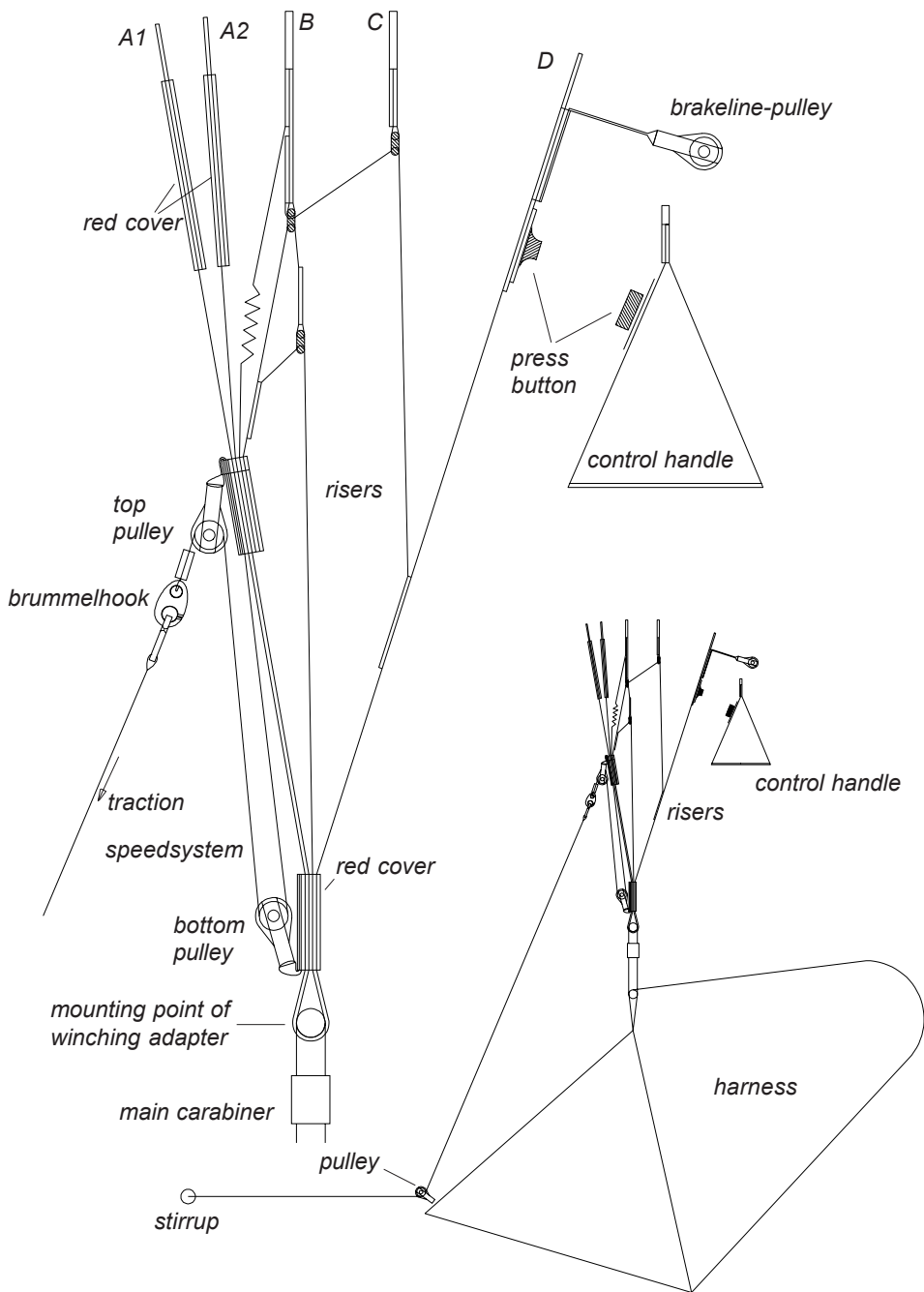
Most modern harnesses have pulleys attached for speed system fitting. In case not, it is important to attach pulleys (sewn on tabs) in such a way that allows the pilot to maximize the power vector of his / her legs without "pushing back" in the harness.

The NOVA speed system, including "Brummel-hooks" supplied, must be assembled as per instructions.

The speed system cord is firmly attached (use bowline or other nonslip knot) to the foot stirrup (webbing or alloy bar). The other end of the cord is run through a pulley on the harness and then in an upward direction to be then firmly attached to the "Brummel-hooks"!

The length of the cord leading to the stirrup should be adjusted so that it is easy to put your feet into the stirrup in flight but still short enough to allow full speed system travel. (Use of 2 stirrups in a ladder fashion can enable you to reach the full range if your legs are not long enough.)





Ensure both cords on the stirrup are of equal length, to avoid putting a turn in the glider.

Test your speed system for the correct length of cord on the ground first, with your harness and risers, before flying with it! The full range is reached when the 2 pulleys join together.

How does it work?

The speed system utilizes a 3 to 1 pulley mechanism which results in shortening the A-, B-risers and C-risers as described above.

How to use it?

Before launch, attach the paraglider's risers to the harness with the main carabiners. Then attach the "Brummel-hook" on the end of each speed system cord to the Brummel hook on the end of the cord which runs through the 2 pulleys on the A risers.

Ensure that the speed system is untangled and operates freely before flying!

### **The Harness:**

Any certified harness with a hang point at about chest height may be used with a NOVA MENTOR (37-50cm over seat plate).

Please note: the hang point position changes the position of the brakes relative to the pilots body.

The distance between left and right main carabiner should be between 45 and 60cm, depending on the size of the pilot and the type of the harness.

The NOVA test crew prefers flying with low hang point and wide distance between main carabiners, to get a maximum of feedback from the wing.

**CAUTION! CROSS STRAPS THAT ARE ADJUSTED TOO TIGHTLY CAN DRASTICALLY EFFECT YOUR GLIDERS HANDLING, AND THUS MAY NOT CONTRIBUTE TO HIGHER ACTIVE SAFETY! HAVE THEM TIGHTENED THE CORRECT AMOUNT.**

## **The Flight:**

### **Preflight check and launch preparations:**

As for any aircraft a thorough preflight check must be made prior to each flight on the NOVA MENTOR!

Having unpacked and laid out the paraglider in a slight horseshoe pattern the following checks must be made:



Before every launch check lines, risers and canopy for damage! Do not launch in case of even the smallest damage!

Also check the rapid links connecting the lines and the risers. They have to be closed tight.

Put on the harness with maximum care and check the handle of the safety system and that all the splints of the outer container are placed correctly.

The main carabiner has to be checked carefully as well. Replace it if any damage is visible, or generally after 300 flying hours.

When laying out the glider, the wind direction should be observed. The canopy should be deployed into the wind so both halves of it are loaded symmetrically.

The paraglider should be arranged in a semicircle against the wind. This ensures that the A-lines in the centre section of the canopy will tension before the ones at the wing tips. Thus the canopy inflates evenly and an easy launch in the desired direction is guaranteed.

All lines and risers should be carefully untangled and arranged in a way that they do not catch on anything. Special attention should be paid to the A-lines, which should run free and untangled from the A-risers (red sleeve) to the canopy.

It is equally important to untangle the brake lines so that they are clear and can not catch on any thing during launch. The brake lines should run freely through the pulleys to the trailing edge of the canopy.

Make sure the risers are not twisted. When not, the brake lines will be able to run freely through their pulleys.

It is often impossible to untangle lines during flight.

It is important that no lines are looped around the canopy. Also called a "line-over", this may have disastrous consequences during take off.

Finally connect the risers with your harness by using the main carabiners. Check carefully that they are closing properly.

**ATTENTION! NEVER FLY WITH AN OPEN MAIN CARABINER!**

### **Checklist:**

Preparing the wing:

- canopy without any damage
- risers without damage
- maillon rapides (rapid links) closed tight
- seams of the main lines near the risers are o.k.
- all main lines run free from the riser to the canopy, brake lines are free



Getting on the harness:

- rescue handle and splint
- buckles (leg- ,front riser) closed
- main carabiner

Before takeoff:

- speedsystem mounted and connected properly
- risers not twisted
- brake handle in hands, brake lines free
- pilot's position towards the wing (centered: all lines same tension)
- wind direction
- obstacles on the ground
- free airspace

### **Launch:**

The NOVA MENTOR is very easy to launch.

When the pilot is ready to take off he / she holds the A-risers and the brake handles in each hand.

To facilitate differentiation between the risers, the A-lines, including the sleeves on the A-risers, are coloured red.

Hold the A risers with arms outstretched behind you.

Before take off recheck the canopy, the direction of the wind and the air space around you! A good progressive run ensures your NOVA MENTOR will inflate and come up equally and quickly.

After the initial effort of inflation, keep applying forward pressure on the A-risers (pushing them forward, not pulling down) until the pressure on the A risers eases. The canopy should now be directly over the pilot's head. Should the canopy surge forward, control it by braking gently. The paraglider should be braked gently to stabilize the glider and possibly correct for drift. Moving the pilots body to the centre of the glider is the best method of correction, if there is sufficient room.

The pilot looks up and checks that the canopy is fully inflated with no line tangles.

Only then is the final decision to continue the launch taken!  
If anything is not completely safe the launch should be aborted!

The NOVA MENTOR is easy to reverse launch.



When doing a reverse launch or when launching in strong winds the paraglider can possibly surge forward more quickly or lift off sooner than desired. To avoid this, walk uphill following the canopy during inflation.

As this launch technique can be difficult and turning the wrong way can result in the pilot taking off with twisted risers. It is recommended to practice the reverse launch on a training hill or slight slope first.

When deflating the canopy in strong winds, or aborting a launch, use the C- or D- risers, not the brakes. Using the brakes in strong wind will cause more lift, lifting the pilot up and dragging him/her much further back.

When you let the brake handles out of your hands during takeoff, take care that the brake line is not twisted around the brake pulley!

### **Turns:**

The NOVA MENTOR is very responsive and reacts very directly and instantly to any steering input. Weight shift input even quickens turns and ensures minimal height loss.

A combined technique of weight shift and pulling on the inside brake line is the most efficient turning method, whereby the radius of the turn is determined by the amount of inside brake pulled and weight shift.

A stalling wing tip announces itself by a gentle surge backwards of the wingtip. In this situation you have to loosen brakes immediately.

In case it is impossible to control the NOVA MENTOR with the brake lines the D-risers may be used to steer and land the canopy.

**CAUTION: PULLING A BRAKE TOO FAST OR TOO HARD CAN RESULT IN  
THE CANOPY ENTERING A NEGATIVE SPIN.  
(SEE "SPIN" FOR REMEDY)**

### **Spiral dive:**

To enter a spiral dive with a NOVA MENTOR the pilot must use weight shift while slowly applying more and more brake on one side.

During a spiral dive the angle of bank can be controlled by increasing or reducing the amount of inside brake.

When spiralling the NOVA MENTOR it is recommended to apply some outside brake. This helps stabilize the wing and enables an easier and safer exit from the spiral.

To exit, ease off the inside brake slowly. The NOVA MENTOR did not show a tendency to remain in a stable spiral during testing. However, should a glider in abnormal conditions (e.g. asymmetrical cross strap settings) continue to spiral, it has to be actively exited. This is done by weight shifting to the outside and more gentle braking of the outside wing.



NEVER DO BIG EARS IN SPIRALS, AS THIS MAY DRASTICALLY REDUCE THE NUMBER OF LINES TAKING THE ALREADY HIGH LOADS, CAUSING STRUCTURAL FAILURE.

ATTENTION: CAUSED BY THE VERY GOOD PERFORMANCE AND ENERGY RETENTION, THE MENTOR IS RISING UP A LOT AFTER SPIRAL DIVE RELEASE. THERE THE WING CAN BE HIT BY IT'S OWN TURBULENCES.

### **”Thermalling and soaring”:**

In turbulent conditions the glider should be flown actively. The canopy should be flown with a small amount of brake applied. This improves stability by increasing the angle of attack of the canopy. The canopy should not rock back or surge forward much but should remain above the pilot. Thus, the pilot should increase speed by carefully reducing applied brake when entering a strong thermal. The pilot should brake the canopy on exiting. This is part of basic active flying.

### **Flying with speed system:="!”**

When flying with the speed system applied the angle of attack is lower and the canopy can collapse more easily than in normal trim. The faster the canopy is flown the more dynamic the collapses and stalls will be and the more skill will be required for quick recoveries.

To use the speed system, simply place your feet on the stirrup and push forward in a horizontal plane. If a loss of back pressure of the stirrup on your legs is noticed, this is a warning that the canopy is probably about to collapse. Release the stirrup and thus the speed system immediately.

With this "feeling" you may actually prevent most collapses from happening while using the speed system. If a collapse still happens, release the speed system immediately and correct the collapse as described in "Collapses" section.

**BE CAREFUL!**

**WHEN USING THE SPEEDSYSTEM THE ANGLE OF ATTACK IS LOWERED, THUS AIRSPEED IS INCREASING, AND THE CANOPY IS DESTABILIZING. THEREFORE DO NOT USE THE SPEEDSYSTEM IN TURBULENT CONDITIONS, CLOSE TO THE GROUND OR NEAR OTHER AIRSPACE USERS!**

**NEVER RELEASE THE BRAKE HANDLES!**



DON'T APPLY BRAKE WHEN FULLY ACCELERATED!  
BRAKING IS INCREASING LIFT NEAR THE TRAILING EDGE: THE MAIN  
LIFT POINT IS MOVING BACKWARDS. CAUSED BY THIS, THE WING IS  
LOSING STABILITY FOR A SHORT MOMENT.

SHOULD YOU HAVE A COLLAPSE, RELEASE THE SPEED SYSTEM IMMEDIATELY, TO ENABLE THE GLIDER TO RETURN TO STANDARD TRIM AND THEN RECOVER WITH CORRECT PILOT INPUT AS IN A NORMAL COLLAPSE.

DO NOT USE THE SPEEDSYSTEM IN ANY EXTREME MANOEUVRES!

### **Landing:**

The NOVA MENTOR is easy to land. The final leg of the landing approach must be into the wind. During this final glide the paraglider should be decelerated slowly and at approximately one meter above the ground, according to conditions, the pilot should "flare" the canopy. The glider may climb again, gaining height, if too much brake is used too early.

Strong wind landings require little brake. Do not apply full brake before the pilot is safely on the ground.

The final glide during the landing approach should be straight and not marked by steep or alternating turns as these can result in a dangerous pendulum effect near the ground.

### **Towing:**

The NOVA MENTOR has no special towing characteristics, although a relatively low angle of attack and thus low tow tension should be maintained during launch and the initial part of the tow.

NOVA is recommending the use of a winching adapter: this should be mounted on the upper end of the main carabiner (see drawing page 38).

### **Motored Flight / Aerobatics:**

Contact the manufacturer or importer for the current legality of motorized flight. The NOVA MENTOR is not designed to be used for aerobatics.



## Extreme Flying Manoeuvres:

### **Collapse:**

A negative angle of attack will cause the NOVA MENTOR to collapse (e.g. in turbulent air).

If one wing tucks, straight flight should be maintained by "correcting for direction" - braking gently on the inflated side.

In case of a big collapse, this braking should be applied very carefully to avoid stalling the remaining inflated wing. The pilot's "correction for direction" can be aided by a "pumping out of the deflation", a slow, long pumping action on the brake of the deflated side of the wing helps the canopy to re-inflate.

If the pilot does not correct, the NOVA MENTOR usually self-recovers. However, if it does not self recover and the pilot does not correct the canopy can enter a stable spiral dive.

### **Line over:**

The pilot stabilizes the glider by gently applying the brakes. Without the pilot's action the line over will result in a stable spiral dive.

Here are various possibilities to untangle a line over:

- pumping the collapsed side.
- pulling the stabilizer line or lines causing problem.
- should both measures fail, it is possible to untangle the line over by inducing a full stall. This manoeuvre, however, should only be carried out by advanced pilots with experience in extreme flight situations and with sufficient altitude available.

**IF THESE MANOEUVRES FAIL OR IF IN ANY DOUBT, THE PILOT SHOULD INSTANTLY USE THE RESCUE SYSTEM!**

### **Front stall:**

A front stall can be induced by strongly pulling the A-risers or by sudden, heavy turbulence. The entire leading edge impulsively collapses.

Gentle braking on both sides will reduce the lateral pendulum motions and simultaneously accelerate reinflation. The NOVA MENTOR generally self recovers from an initiated front stall.

When having a very big front stall, a front rosette can happen (wingtips are moving forwards: the wing is shaping a horse shoe). Gentle braking can avoid this deformation.



**Parachutal Stall (deep stall):**

The paraglider has no forward momentum combined with a high descent rate. A parachutal stall is caused, among other reasons, by a too slowly exited B-stall or severe turbulence.

Porous canopies (UV influence) or canopies out of trim (stretched or shrunken lines) are much more susceptible to a parachutal stall and therefore should not be flown. These are some of the reasons regular checks should be carried out on your glider.

A whet canopy, or temperatures below zero centigrades (0°C) may as well cause a stable parachutal stall.

The NOVA MENTOR generally is self recovering from parachutal stall. If the canopy remains in a parachutal stall, it is sufficient to gently push both A risers forward or to push the accelerator.

**WARNING: IF BRAKES ARE APPLIED WHILE IN A PARACHUTAL STALL, THE GLIDER MAY SUDDENLY ENTER A FULL STALL.**

In close proximity to the ground, due to the forward surging pendulum effect, a recovery may be more dangerous than a hard landing in parachutal. If landing in a parachutal stall, the pilot should prepare for a hard landing and make a parachute roll landing.

**Full stall:**

To induce a full stall, apply full brake on both sides.

The glider slows down steadily until it stalls completely. The canopy suddenly surges backwards a long way. In spite of this uncomfortable reaction of the canopy, both brake lines must be consequently held down with all your strength until the canopy is stabilized (directly overhead).

The NOVA MENTOR generally flies backwards during a full stall but doesn't always form a front rosette.

A frontal rosette can be formed by entering the full stall slowly. When entering (braking) fast, the canopy will not always form the desired front rosette.

**ALWAYS APPLY BOTH BRAKES EVENLY!**

To recover from a full stall, both brakes must be let up symmetrically at a fast to moderate speed (within 1 second).



The NOVA MENTOR surges forward a moderate amount after recovering from a full stall, whereby a resulting front collapse is possible. Gentle symmetrical braking as soon as the wing begins to move forward is recommended. If the pilot does not brake the canopy, the NOVA MENTOR surges forward to 90° angle. In the worst case a big collapse will follow.

An "asymmetric" recovery (one control released faster than the other) from a full stall can cause a big dynamic collapse.

IF A FULL STALL IS RELEASED TOO EARLY, TOO SLOW OR TOO FAST,  
OR OTHERWISE INCORRECTLY, THE CANOPY CAN SURGE EXTREMELY  
FAR FORWARD.

The danger of overcorrecting and overreacting exists during all extreme flight manoeuvres. Thus, any corrective action must be gentle and steady and done with feel!

### **Spin (or negative spin):**

During a spin the canopy turns relatively fast around the centre section of the canopy while the inner wing flies backwards (hence the term negative).

There are two usual reasons for an unintentional spin:

- one brake line is being pulled down too far and too fast (e.g. when inducing a spiral dive)
- when flying at low speed one side is being braked too hard (e.g. when thermalling).

To recover from an unintentional spin, the pulled down brake line should be immediately released as soon as a spin is suspected. The canopy will accelerate and return to its normal straight and stable flying position, without losing too much height.

In case the spin is allowed to develop for some time, the NOVA MENTOR surges far forward on one side and a dynamic asymmetric collapse or a line over can occur. If so, brake gently to stop canopy surging and correct any collapse: See "collapses".

Too tight cross bracing increases the probability of a spin with most paragliders!

NEVER DO AN INTENTIONAL SPIN OVER LAND OR IF YOU DON'T HAVE  
SUFFICIENT EXPERIENCE!



## **Wingover:**

To induce a wingover the pilot flies consecutive alternating turns to gradually steepen the angle of bank.

During wingovers with high bank angle, the outside wing begins to unload. Further increase of the angle of bank must be avoided, for a possible resulting collapse may be quite dynamic!

### **WARNING:**

**FULLSTALL, SPIN AND WINGOVER (OVER 90 DEGREE ANGLE OF BANK) ARE ILLEGAL AEROBATIC MANOEUVRES AND MAY NOT BE PERFORMED DURING NORMAL FLYING.**

**INCORRECT RECOVERY PROCEDURES OR OVERREACTING OF THE PILOT MAY HAVE DANGEROUS CONSEQUENCES WITH ANY TYPE OF PARAGLIDER!**

## **Rapid Descents:**

### **Spiral dive:**

The spiral dive is the fastest way to lose altitude. As explained previously (see under main section "Flight" ) they have a rapid descent rate, however, the very high G-forces make it difficult to sustain a spiral dive for long and it can place high loads on the pilot and glider. As soon as any, even slight, light dizziness or impaired vision is noticed the spiral should be exited immediately. If done in strong winds the pilot may drift off course.

### **Big ears:**

When doing big ears, the horizontal speed is higher than the sink rate, unlike a spiral dive or a B-line stall. This rapid descent technique is used to quickly and horizontally exit a dangerous area into desired direction.

In order to collapse the outside wing, pull the outside A-lines .

When the pilot holds the outside A-risers on both sides and pulls them down, the NOVA MENTOR easily tucks the outside wings and enters a stable descent mode .

The pilot keeps the brake handles along with the outside A-risers in his hands. By braking on one side and shifting weight the canopy remains steer able. In order to increase the sink rate as well as the horizontal speed, this manoeuvre should be done together with use of the speed system. Apply speed system after big ears are induced (step into the pedal before you grab the outer A-risers).



Big ears substantially reduces the risk of canopy stability problems in turbulent air.

To exit the Big ears release the A-risers. The canopy does not always self-recover. If not, or to quicken the recovery, the pilot gently brakes the glider.

### **B-line stall:**

To induce a B-line stall symmetrically pull down both B-risers by about 20cm. The airflow over the top surface is almost fully detached and the canopy enters a vertical descent flight mode without forward movement.

Further pulling of the B-risers reduces the surface area more and increases the sink rate. (up to 10 m/s)

Be careful, pulling too far may cause a frontal horseshoe to form.

To exit from this flight mode release the B-risers quickly (1 sec).

The canopy surges forward reattaching airflow over the top surface again and resumes normal flight.

When the B-risers are released, the brakes should not be activated. This will give the canopy the possibility to gain speed and resume normal flight.

If canopy does not recover apply both brakes gently to recover.

ALL RAPID DESCENT TECHNIQUES SHOULD FIRST BE PRACTISED IN CALM AIR AND WITH SUFFICIENT HEIGHT SO THE PILOT CAN USE THEM IN EMERGENCY SITUATIONS!

FULL STALLS AND SPINS ARE TO BE AVOIDED AS WRONG RECOVERY PROCEDURES, IRRESPECTIVE OF THE TYPE OF PARAGLIDER, MAY HAVE DANGEROUS CONSEQUENCES!

BY FAR THE BEST TECHNIQUE IS TO FLY CORRECTLY AND SAFELY, SO YOU NEVER HAVE TO DESCEND RAPIDLY!

### **FOR ALL EXTREME MANOEUVRES AND RAPID DESCENTS PLEASE NOTE:**

- FIRST PRACTICE MANOEUVRES WITH AN INSTRUCTOR DURING SAFETY TRAINING
- BEFORE INDUCING THE MANOEUVRE THE PILOT MUST MAKE SURE THAT THERE ARE NO OTHER
  - AIR SPACE USERS BELOW HIM!
- DURING THE MANOEUVRE THE PILOT MUST HAVE THE CANOPY WITHIN HIS VIEW!



## Looking after your Paraglider:

Looking after your canopy correctly will prolong the life of your NOVA MENTOR.

### Storage:

Store the paraglider in a dry space away from chemicals and UV light. Never pack up or store the glider wet. This shortens the life of the cloth. Always dry glider thoroughly before any packing or storage.

### Transport:

During transport it has to be considered, that some materials of the paraglider are temperature sensible. Avoid applying your wing to high temperatures (i.e. luggage space of a parked car in the sun)!

When sending your wing as a parcel, care for a good packaging.

### Cleaning:

Clean the paraglider with water and a soft sponge. Do not use any chemicals or spirits for cleaning, as these can permanently damage the cloth.

### Repair:

Repairs should only be carried out by the manufacturer, distributor or authorized workshops.

Only original spare parts have to be used!

### Deterioration: a few tips!

The NOVA MENTOR is mainly made of NYLON, cloth which, like any synthetic material, deteriorates through excessive exposure to UV. Hence, it is recommended to reduce UV exposure to a minimum by keeping the paraglider packed away when not in use. Even when packed in the bag do not leave in the sun.

The lines of the NOVA MENTOR are made of an inner core of Aramid (Technora) or Polyethylene (Dyneema) and an outer sheath of Polyester. Any over stretching of lines apart from the strain imposed during normal flight, should be avoided as over stretching is irreversible.

Ensure that the lines are not folded tightly. It's extremely important to avoid any sharp bending of the lines, especially the main lines.

Prevent lines from catching on anything as they may be over stretched.



Do not step onto the lines.

The brake line can chafe badly if tangled with another line.

Uncontrolled strong wind takeoffs or landings can result in the leading edge of the canopy hitting the ground at high speed which may cause rips in the profile and damage the rib material.

Keep the canopy and lines clean as dirt may penetrate into the fibre and shorten the lines or damage the cloth.  
Check line length after tree or water landings. They can stretch or shrink lines. Clean the paraglider with fresh water after contact with salt water. Salt water crystal can weaken line strength, even after rinsing in fresh water. Replace lines immediately after contact with salt water. Also check canopy material after water landings, as waves can place uneven forces and cause cloth to distort in specific areas. Always remove gliders from the water by holding only the trailing edge.

A line plan is enclosed in this operators manual or may be requested from the manufacturer or importer.

Be careful, not to allow snow, sand or stones to enter inside the canopy's cells: the weight can brake, or even stall the glider, as well as the sharp edges can destroy the cloth!

Never drag the wing over rough ground! This will damage the cloth on the wear points. When preparing the wing on a takeoff with rough ground, don't pull the wing over it (i.e. by pulling the brakes). Please try to pack the wing on soft ground.

Do not always fold the canopy symmetrically to the centre cell as this can cause constant stress on the centre cell (centre cell always to the outside).

### **Check:**

The NOVA Check system is scheduling a small inspection in the first year (NOVA NTT). The next check has to be done 3 years after purchase. The check expert can define the next check interval on the basis of the wing's condition.

In the case the first free check is not done, the wing has to be checked every 2 years.

The check has to be confirmed with the check-stamp on the stabilo.  
All necessary documents for the inspection can be found on the NOVA homepage (<http://www.nova-wings.com>): Downloads: Check.



**Treating nature with respect:**

Finally the call to practise our sport with respect for nature and wildlife! Don't walk aside marked routes, don't leave any waste, don't make needless noise and respect the sensible biological balance in the mountain's öco systems: specially in the takeoff area!

**Disposal:**

The synthetic materials used in a paraglider need a professional disposal. Please send disused canopies back to us (NOVA): we will demount and dispose it.

**In Conclusion:**

The NOVA MENTOR is at the forefront of modern paraglider design.

You will enjoy many safe years of flying with your NOVA MENTOR if you look after it correctly and adopt a mature and responsible approach to the demands and dangers flying can pose.

It must be clearly understood that all air sports are potentially dangerous and that your safety is ultimately dependent upon you.

We strongly urge you to fly safely. This includes your choice of flying conditions as well as safety margins during flying manoeuvres.

We recommend once more that you only fly with a certified harness, reserve chute, and helmet.

Also the certification placard must be present on the glider.

Every pilot should have a valid license and 3rd party insurance.

FLYING YOUR CANOPY IS AT YOUR OWN RISK!

SEE YOU IN THE SKY!

NOVA

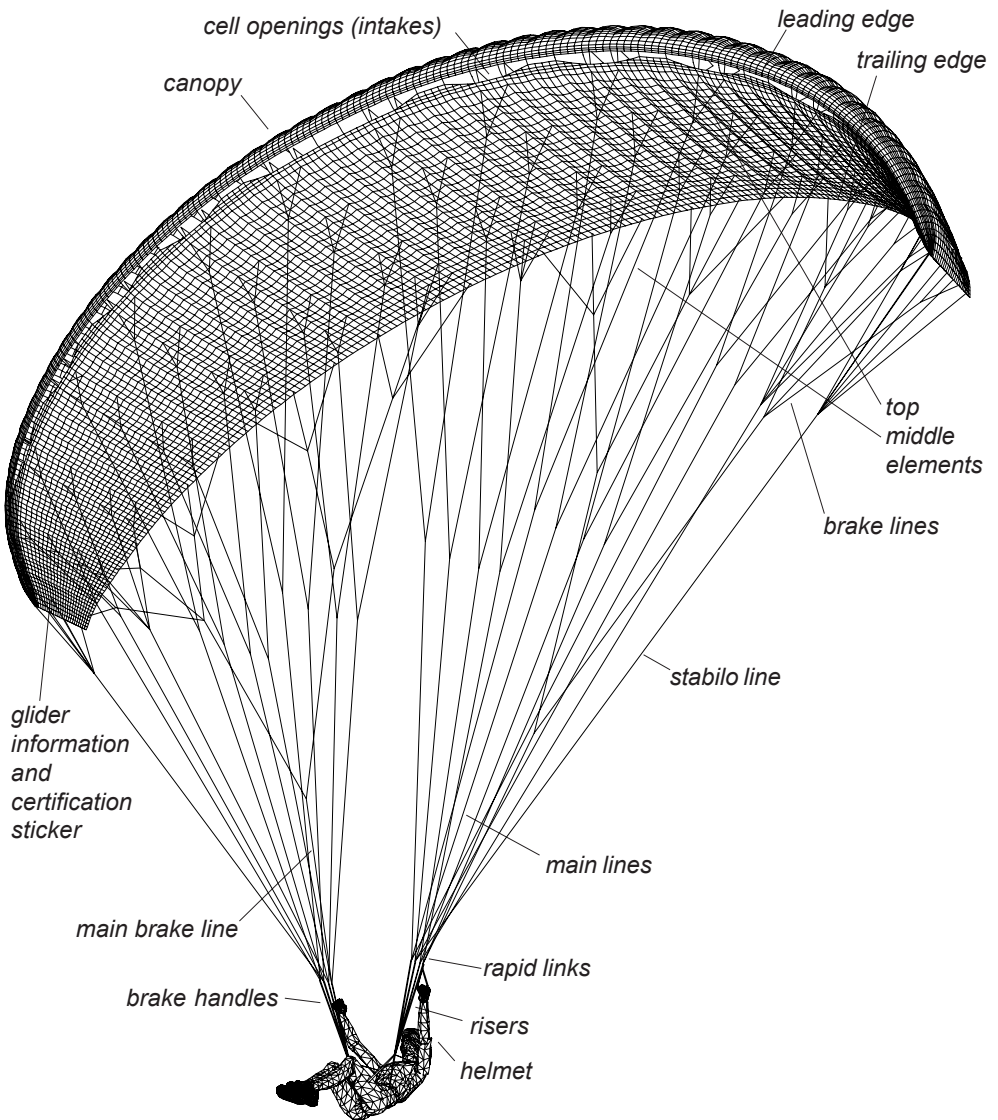
*Henno Papesch*

*Jonis Leder*

*(w) Bander*



## Overall Plan:



**NOVA MENTOR M**



