



NESTRA

USER MANUAL

Rev 1/24

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THANK YOU

We are happy to be chosen to take you to your future adventures. As manufacturers of sports aviation equipment for over 45 years, we understand how important is to have a reliable and durable equipment, with this in mind, we carefully choose the best materials and technologies available in the market, produce them under the supervision of our team with the high standards at our own facility located in Israel.

With this manual, we would like to share and introduce you to our new paraglider model, the "NESTRA".

Following our philosophy, like all of our products, this paraglider was intensively tested by our team to be launched.



Here you will find important information on using your paraglider, we strongly recommend you to read it carefully before flying your wing for the first time, if you have any doubts or suggestions, please, don't hesitate to contact your APCO dealer or us at www.apcoaviation.com.

We wish you awesome and safe flights.

TEAM APCO.

NESTRA

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NESTRA

THE BEST THAT MAN CAN GET

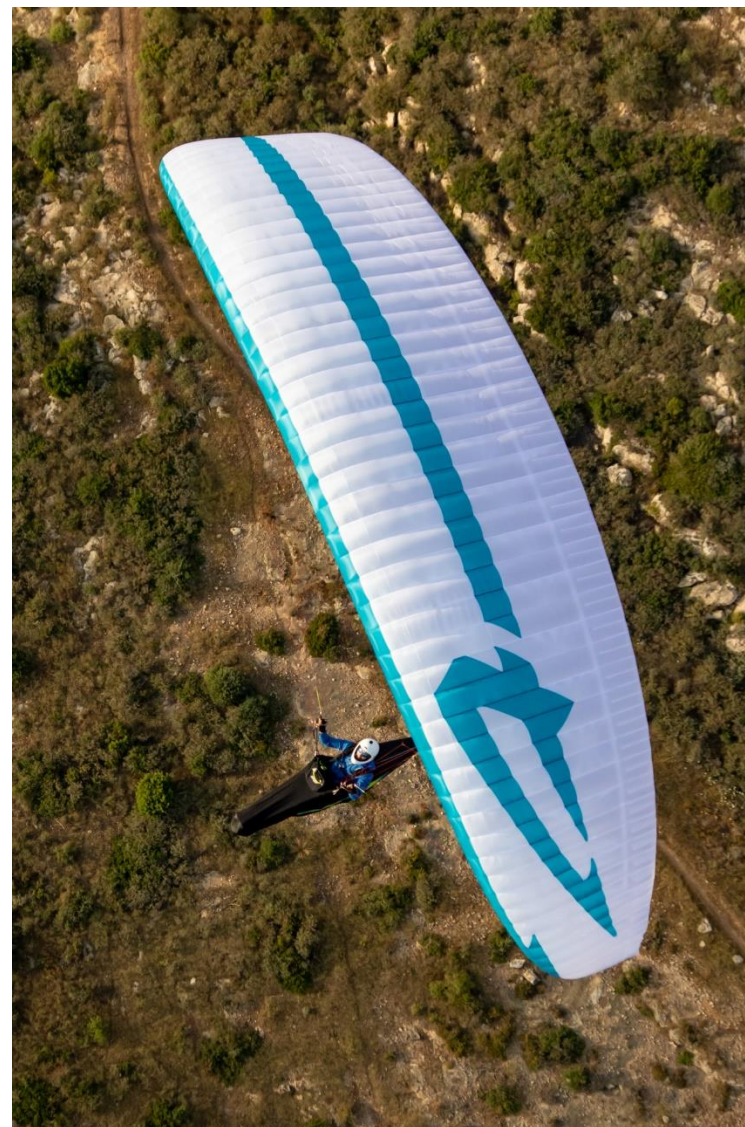
The NESTRA is APCO's all new high end EN-B.

A true cross country machine offering C level performance in the EN-B category with real life B level safety for pilots looking for the best that man can get!

No effort was spared to make it the best possible product, which can be summed up with the following:

- True 2.5 liner - the only wing in the B category to date!
- Light weight – starting from 4.35 kg including standard risers.
- 6.0 aspect ratio with impressive passive safety.
- Only 215m of lines - less than new generation EN-C 2-liners!
- APCO's embedded hook up points (*link*) for the cleanest, most aerodynamic connection between line and canopy
- Risers, including C steering, supported only by ball bearing pulleys for amazing smoothness
- Flow aligned ribs (*link to features page*)
- Double diagonal ribs
- APCO's Flexon battens - memory free, do not require any special care or folding technique
- 3D shaping, butt holes, competition lines, shark nose, APCO V-links, brake tensioners and more.

The Nestra is intended to pilots who has experience with EN-B paragliders and flying at least 50h per year, and also recommended for pilots that are already flying EN C wings but wants to move for a lower class without sacrificing performance.



Cutting Edge Handling

Enjoy direct precision steering and World Class APCO'S refinement in a beautifully balanced wing.

With the aid of the dyneema brake shrinkers, the handling is direct and precise with light linear brake pressure up to the 90% mark where it becomes stone hard indicating the stall point.

The Risers are a true masterpiece, equipped with C steering handles that are operated solely on Ball Bearing Pulleys, giving you the feeling of a two liner paraglider, it is effortless to use and will become second nature quickly to those coming up from lower category.

The Line to riser interface is with APCO unique V-Links, light and strong, they are like pieces of jewelry at the end of your lines.

NESTRA – “You’ll be on your way up! You’ll be seeing great sights! You’ll join the high fliers who soar to high heights.”

Dr. Seuss



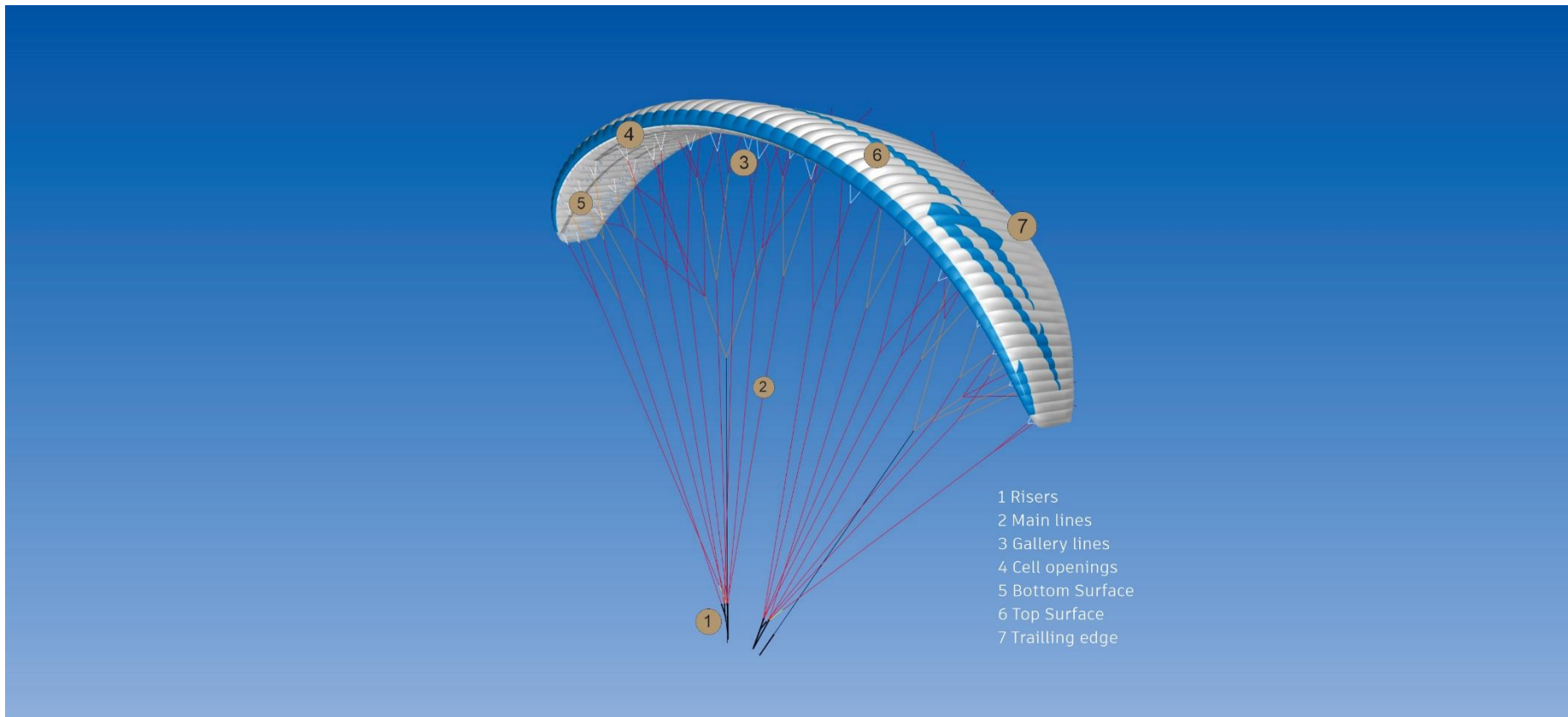
CONSTRUCTION

This paraglider is built with top and bottom surface connected by ribs, these three parts connected together is called by cell, each cell has an opening on the front lower part, they are filled by air, forcing the panels to take the shape dictated by the air-foil (rib) section.

Both sides of the wing end in a stabilizer or wing tip, which provides straight-line (yaw) stability and produces outward lift to keep the span-wise tension.

The front part of the ribs uses APCO's FLEXON batten system to keep the shape of the leading edge at high speeds and in turbulent air, they also improve the performance and launching characteristics of the paraglider.

The hook-up point lines are made of dyneema and embedded on the bottom surface of the wing for minimal drag and maximum performance.



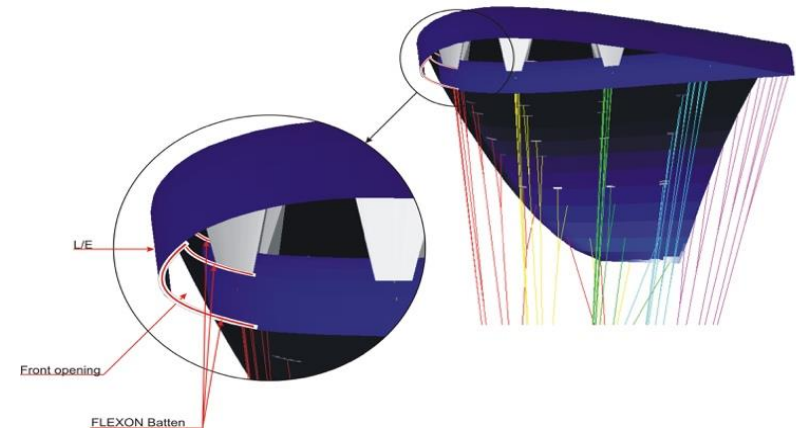
1 MATERIALS

The paraglider is made from tear resistant ripstop nylon cloth, which is P.U. coated to zero porosity and then siliconized to give the fabric high resistance to the elements, different cloths are used for top, bottom and ribs due their different functions, the lines are made of unsheathed Kevlar, for best performance and dimensional stability length-wise, the bottom section of the brake lines is made of sheathed dyneema because of its better mechanical properties, quick links that attach the lines to the risers are made of stainless steel are unique APCO's V-Links.

2 FLEXON® Batten system:

New generation FLEXON® Batten system incorporated to the leading edge of the ribs, insuring perfect profile shape. FLEXON® battens reduce the weight of the glider by 500g.

Additional advantage of FLEXON batten is that it is practically indestructible, making packing easier, safeguarding the performance and launch easiness over the lifespan of the glider.



3 DOUBLE DIAGONAL RIBS (DDR)

Diagonal ribs are the internal structure of the canopy which supports all the ribs that are not supported by lines, it is a unique structure in which the diagonal rib is doubled in the same location twice - once to partial height of the rib and another time to the top of the rib, to create the most stable and supported structure possible.

With the DDR system, we were able to reach a distance of up to 4 unsupported panels, reducing lines, drag and improving performance.

4 TRIMMING

All APCO paragliders are trimmed for optimum performance combined with unsurpassed safety. It's very important to not re-trim or tamper with any of the lines or risers, as this may change performance and safety.

5 HARNESS

All the APCO's paragliders are developed with the use of ABS (Automatic Bracing System) type harnesses without cross bracing. We recommend the use of an ABS harness with all our paragliders. All certified harnesses can be used with our gliders. For best safety and performance, we recommend an APCO harness equipped with a Mayday emergency parachute.

6 EMERGENCY PARACHUTE

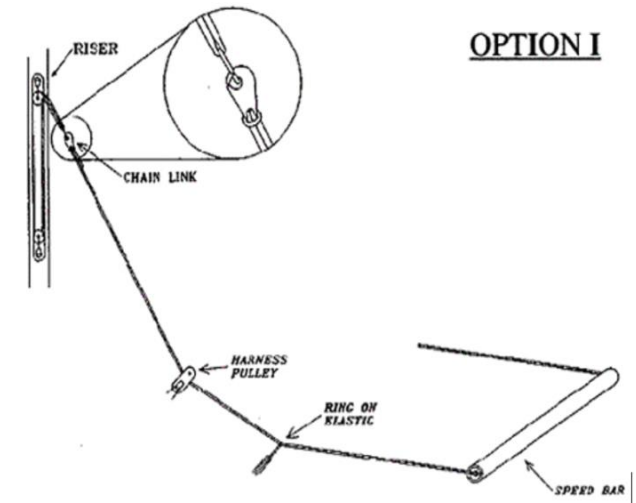
It's highly recommended to use a certified rescue parachute when flying, no matter your intended altitude or flying style. Attaching the rescue parachute should be done in accordance with the recommendations of the harness and reserve parachute manufacturer. *Always check the reserve handle and locking pins during every pre-flight check.*

7 SPEED SYSTEM

ASSEMBLY & ADJUSTMENT

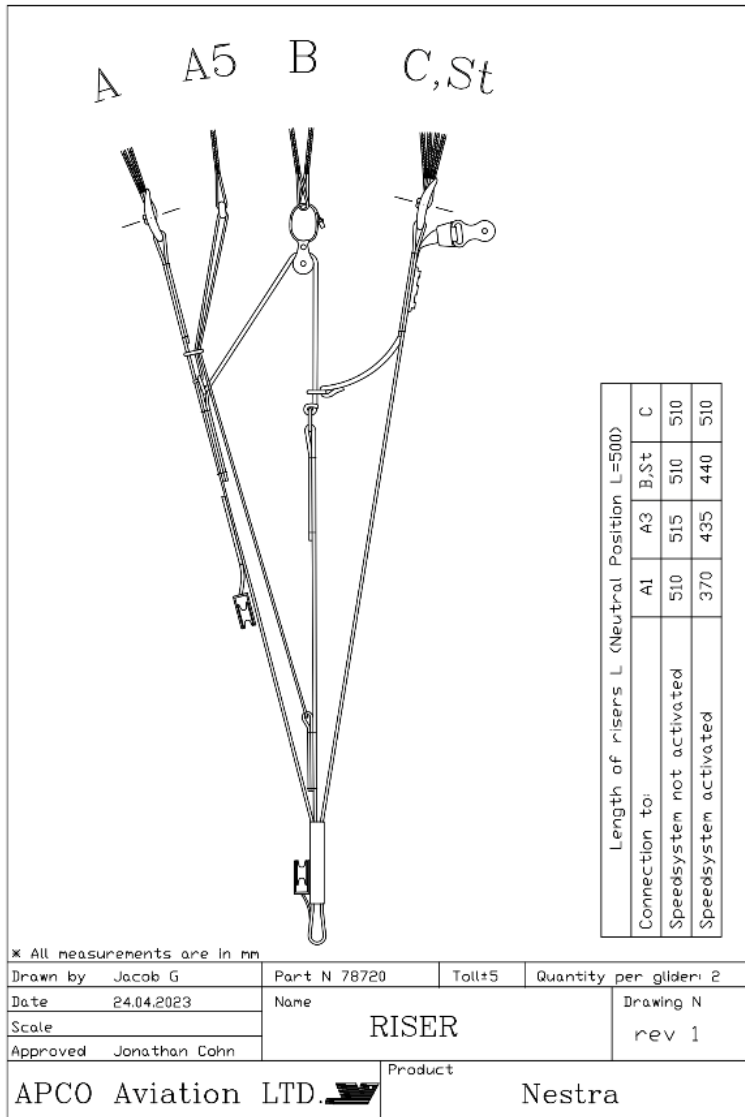
APCO's paragliders can be ordered with the Wonder-Bar, which makes reaching the speed bar a breeze.

- First attach the harness to the glider.
- Remove the Chain Link from the end of the accelerator line attached to the speed bar, then thread it through the elasticized ring on the harness, then through harness pulley and then re-attach it to the Chain link with a larks-head knot.
- Hook the Chain link onto the Chain Link on the riser of the corresponding side.
- Sit in the harness and have someone hold the riser up in a flying position for you.
- Adjust the speed bar line by pulling the end through the speed bar tube and moving the knot.
- The Bar should be about 10 cm (or closer if you have a second step) away from the front of the harness seat, this allows you to easily reach the bar with your foot, and will allow you to use the full range of the speed bar if you extend your legs fully.
- Do not adjust the speed system too short, as this will cause it to be activated permanently while flying, and could be dangerous.
- It is possible to fit a second step to the system, if one has trouble using the full range of the system (supplied separately).



WARNING:

The use of the speed system in turbulent conditions or close to the ground is dangerous. While flying with the accelerator, the paraglider has a reduced angle of attack and is therefore more susceptible to turbulence and may collapse or partially deflate. Paragliders react faster when accelerated and may turn more. The accelerator should immediately be released in this case.



8 RISERS

The NESTRA is supplied with risers featuring a split A riser. The 1st A-riser attaches to the central two A lines (A1 & A3). The second A-riser is attached to the outermost A line (A5). At no time should the pilot change the risers or use risers not intended for this specific glider as this will affect the performance and safety of the glider.

**This paraglider has no trimmers.*

V-Links

On NESTRA, you will find APCO's V-Links connecting lines to the risers. In case you need to replace a line, you will have to open the plastic locks using a small and flat screwdriver, placing it between both plastics and gently inserting the screwdriver between the two pieces of plastic in order to open them. After you



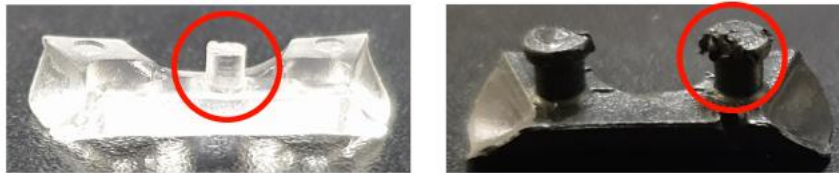
replace the line, don't re-use the same plastic pieces, you can replace them by new ones as you will get 8 extra V-Links locks with your wing.

**Difference not more than 5mm from the lengths laid down in this user's manual*

V-LINK SNAP-ON PLASTIC INSERT INSTALLATION MANUAL

**INSTALL ONLY NEW PARTS EACH SERVICE DONE ON LINES
DO NOT ATTEMPT TO REUSE DEFECTIVE OR DAMAGED PARTS
DO NOT REUSE DISASSEMBLED PARTS**

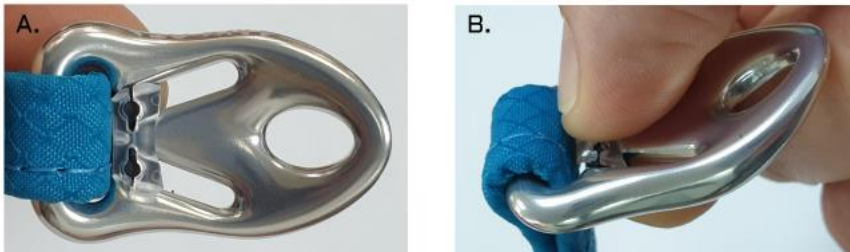
1. Inspect male and female parts for any defects before installation. Discard any defective part and do not attempt to install it.



2. Attach the lines to the v-links prior to installing snap-on locking inserts. Place the male part under the v-link correctly oriented and with teeth facing upwards. Make sure it is installed on the front side of the v-link.



3. Place the female part on top of the male part teeth in the following orientation (a). Make sure it is installed on the back side of the v-link. Press both parts together until they snap lock (b).



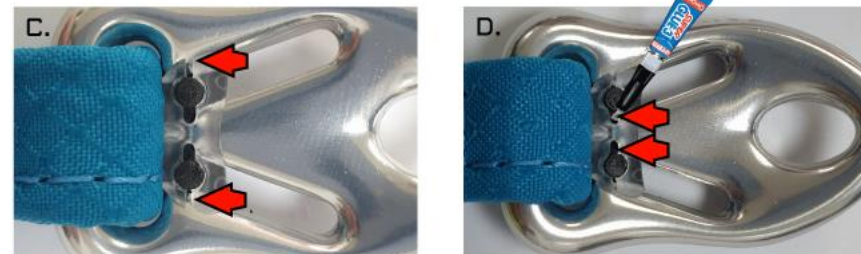
4. Inspect for correct installation. Pins must be clamped inside holes and both parts attached without any space in between. When installed correctly, pins are tightly clamped in a symmetrical manner with even grooves on the edges of the female part (c).

PLASTIC SNAP-ON INSERTS MUST BE INSTALLED BY HAND PREFERABLY

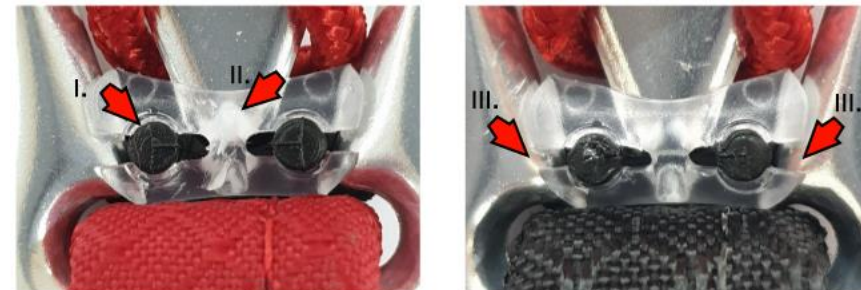
secure the lock of both parts with a tiny amount of superglue (or similar) inside the grooves (d).

Take extra care to avoid gluing lines together or to the v-link assembly. Ensure free movement of v-link on the riser webbing after installation process!

4. Inspect for correct installation. Pins must be clamped inside holes and both parts attached without any space in between. When installed correctly, pins are tightly clamped in a symmetrical manner with even grooves on the edges of the female part (c). Secure the lock of both parts with a tiny amount of superglue (or similar) inside the grooves (d). Take extra care to avoid gluing lines together or to the v-link assembly. Ensure free movement of v-link on the riser webbing after installation process!



5. The process is now complete. Pay attention to the following incorrect installation photos. Please remove and discard the snap-on insert if one of the following faults is present.



- I. Grooves around pins on female part are enlarged indicating the pin is incorrectly clamped. Not symmetrical round grooves.
- II. White area indicates internal damage due to over bending/stretching of plastic.
- III. Uneven and non-symmetrical grooves on edges indicating female part incorrectly clamping male part

Snap-on plastic inserts model supersede previous bolt on plastic inserts model. Contact your APCO AVIATION dealer to place an order for a kit of new Snap-On inserts.

9 GENERAL INSPECTION

Pilots, please ensure that your paraglider has been test flown and fully checked by your dealer before taking it into your possession. Verify that the dealer checked and confirms that the glider is airworthy.

10 ANNUAL / PERIODICAL AIRWORTHINESS INSPECTION

It is highly recommended that your glider (and other equipment), undergo a periodical airworthiness inspection which is to be done by APCO, or an APCO approved/appointed service centre.

This is recommended to be done every 24 months or 100 hours, whichever comes first.

This recommendation is in line with Israeli regulations, binding in Israel. As an alternative, we suggest you to follow the regulations set by your national authorities.

POROSITY

Porosity is measured with a calibrated Porosimeter. It should be measured in at least 5 different places on the upper surface. Below is an example of the sections we test at APCO. The upper surface, at 20-35% chord (from L/E) is most prone to become porous, and is thus the most important section to test. It's also important to test the different cloth types, and different colours used.



LINE MAINTENANCE AND ADJUSTMENT

Unsheathed Kevlar lines are known by their resistance to stretching, warm temperatures and durability, even being durable and resistant, they must be carefully inspected periodically. In his/her own interest, the pilot must observe the following points to ensure maximum performance and safety from the glider:

- Take care that people do not step on the lines.
- Avoid sharp bending and squeezing of lines.
- Do not pull on the lines if they are caught on rocks or vegetation.
- Avoid getting the lines wet. If they do get wet, dry them as soon as possible at room temperature, and never store them wet.
- One line of each line group (A, B, C, upper and lower) must be tested for minimum 50% of the rated strength, if the line fails under the load test or does not return to its specified length all the corresponding lines must be replaced.

Never replace lines with different diameter or type of lines as all gliders were flight and load tested for safety in their original configuration. Changing line diameter/strength can have dangerous/fatal consequences.

Professional use of paragliders: towing, tandem, schooling and competition flying requires more frequent line inspection and replacement of A, B, C and brake lines. [For replacement lines please refer to our online direct line services.](#)

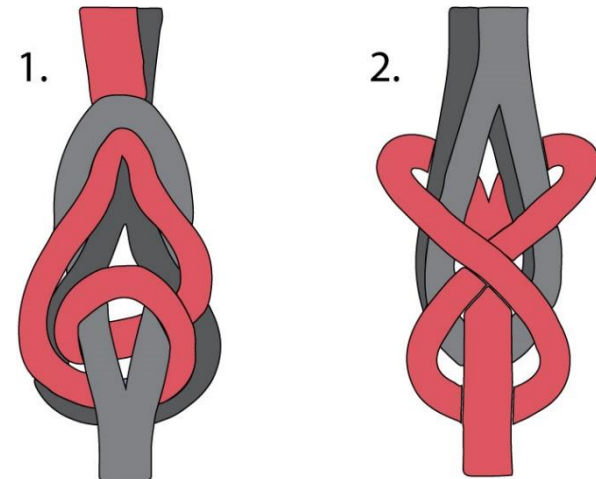
Line adjustment is not possible on a VLINK. We recommend to adjust the line length using the following method:

Make sure you have a replacement unit of Snap-on lock per VLINK you are about to work on. Refer to RISER section on p.11 for more info.

- Make adjustment of line length between two connecting lines using method 1 or 2 as illustrated.
- Line adjustment is possible on bottom, mid or top lines loops.

The following table shows approx. length reduction of different lines

Line size	Method 1	Method 2
1.5mm	5mm	7.5mm
1.3mm	5mm	6.5mm
1mm	5mm	6mm



11 BEFORE THE FIRST FLIGHT

FIRST CHECK AND PREFLIGHT INSPECTION

With every new paraglider, the following points should be checked:

- Connection points between paraglider and harness.
- Check that there are no lines twisted, tangled or knotted.
- Check that the risers and speed-system are hooked up to the harness correctly, without any interference.
- Check that V-Links are snapped and closed.

**On the Nestra we have no adjustable or removable devices.*

REGULAR INSPECTION CHECKS

- Damage to lines, webbing and thread on the stitching of the harness and risers.
- The V-Links connections on the risers are not damaged and the plastic locks are fully closed and tight.
- The pulleys of the speed system and c-steering system are free to move and the lines are not twisted.
- The condition of the brake lines, stainless steel rings and the security of the knot attaching the brake handle to the brake line.
- The sewing and connection of the lines.
- No damage to hook up points on the glider.
- No damage to the ribs and diagonal ribs.
- No damage to the top and bottom panels and seams between panels.

12 PARAGLIDING

TAKE OFF

As this is not a training manual, we will not teach you launching techniques. We will briefly go through the different launch techniques to help you get the most out of your glider.

LAYOUT

- Pre-flight check should be done before every flight.
- Spread the glider on the ground. Spread the lines, dividing them into groups A, B, C and brake lines, left and right sides. Make sure the lines are free and not twisted or knotted.
- Make sure all the lines are on top of the glider and none are caught on vegetation or rocks under the glider. Lay out the glider in a horseshoe shape. This method ensures that all the lines are equally tensioned on launch, and results in an even inflation.
- The FLEXON rib reinforcements will keep the shape, and the leading edge open for easy inflation.

ALPINE LAUNCH OR FORWARD LAUNCH

- The NESTRA has very good launch behaviour in no wind conditions.
- For the best results we recommend the use of the following technique:
- Lay out the glider and position yourself in the centre of the wing with the lines almost tight.
- With a positive and constant force, inflate the wing holding only the A-risers, and smoothly increase your running speed, the wing will quickly inflate and settle above your head without the tendency to stick behind.
- After you leave the A-risers, if it's needed, you just need to control the paraglider in order to keep it over your head and then take-off.

STRONG WIND AND REVERSE LAUNCH

The NESTRA is easy to inflate and control, but like any other wing, it's important to be careful in strong wind conditions to not be over pulled.

Due our improved new risers design, we recommend you to pull the A risers in your direction, instead of pulling up, this movement will lead into an easier inflation. In strong wind conditions, it also helps if you walk towards the canopy while the glider rises, and leave the A-riser just before the glider gets above your head, then, if necessary, pull the brake to stop the wing from overshooting, (be careful to not apply too much of brake as the glider might pull you off your feet too early) turn and launch.

TOW OR WINCH LAUNCHING

All APCO gliders are well suited for winching and have no bad tendencies on the winch. With towing it is important to have the wing above your head on launch and not to try and force a stalled wing into the air, this is especially important if the winch operator is using high tension on the winch.

Very little brake if any need be applied on launch and during the tow.

Directional changes can be made with weight shift rather than brakes. While on tow, the brake pressure will be higher and more force will be required to make corrections.

FLIGHT TECHNIQUES

THERMAL FLYING

In light lift it is advised to make flat turns to keep the glider from banking too much and avoid increasing the sink rate.

In strong lift conditions it is most effective to make small turns in the core with relatively high bank.

The NESTRA has excellent thermalling capacity and will be a pleasure even when you are in a big gaggle or just having fun on a long XC flight.

The glider behaves really well even in strong thermal conditions, with no strong pitch tendency, it is normal to sometimes have some small and smooth tips collapses, we have designed the NESTRA on purpose to be more communicative, so you will be aware when you are flying through unstable air and will be ready to act accordingly.

WARNING:

The use of the speed system in turbulent conditions or close to the ground is dangerous. While flying with the accelerator, the glider has a reduced angle of attack and is therefore more susceptible to turbulence and may collapse or partially deflate. Gliders react faster when accelerated and may turn more. The accelerator should immediately be released in this case.

C-STEERING SYSTEM (CSTR)

The CSTR is essentially a system that cancels the effect of the speed system. It rotates the canopy to a higher angle of attack in a clean rotation exactly as the speed system rotates the wing to a lower angle of attack, with this technology you will have a similar feeling of flying a two liner paraglider.

The working principle is that while accelerated the pilot can control the wing by pulling the C steering thereby cancelling the effect of the speed system on that side, leading to turning or slowing down the wing without releasing the speed system, this allows instant changes of angle of attack without distorting the shape of the profile.

The CSTR system adds another level of safety as will pilot the wing without using the brakes greatly improves the safety of the wing during accelerated flight.

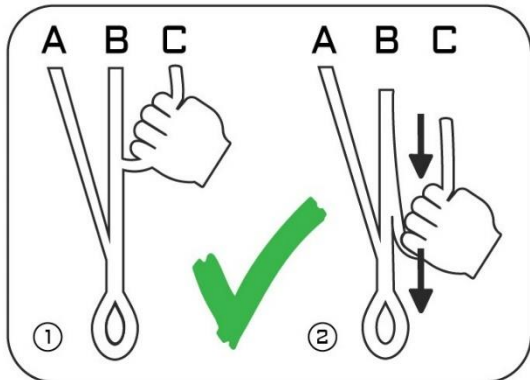
It is important to use CSTR in the correct way - which means pulling the handles down towards the carabiners and not back towards the shoulders of the pilot.

Before using the CSTR, is important to remove any wraps on the brakes.

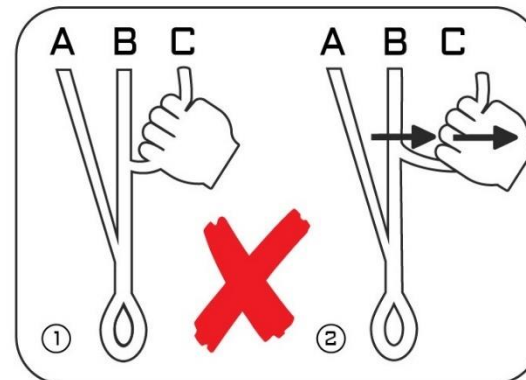
If you have any failure on your main brakes, you can always use the CSTR to handle and control your paraglider, in this case we recommend you to go landing as soon as possible, once flying without having the main brakes control is not advised and will compromise your handling possibilities.

**Always use the CSTR system during accelerated flight.*

Correct operation method of C-Steering system



Incorrect operation method of C-Steering system



ASYMMETRIC COLLAPSE

If one side of the glider partially folds or collapses it is important to keep your flying direction by applying weight shift and some brake on the opposite side.

The wing should re-inflate on its own without any input from the pilot.

To help re-inflation it is possible to pull some brake on the collapsed side and release immediately.

In the event of a big deflation, i.e. 70%, it is important to apply brake on the inflated side of the wing, but care must be taken not to pull too much as you could stall the flying side.

B-STALL

B-stall is not suitable for the NESTRA.

CRAVAT

In case a cravat occurs after a collapse, it is important to keep your flying direction by applying some brake on the opposite side and then it can usually be opened by pulling down on the stabilo line, or an effective brake input on the affected side while countering the turn with the opposite brake and weight shift.

FRONT STALL OR SYMMETRIC COLLAPSE

In the event of a front stall the glider will normally re-inflate on its own immediately without any change of direction. To speed up re-inflation briefly apply 30%-40% brake (to pump open the leading edge). **Do not hold the brakes down** permanently to avoid an unwanted stall.

SIGNS OF PARACHUTAL STALL

- The pilot has very little or no forward airspeed and no wind in his face.
- The glider will be fully open but the cells will be bulging in and not out on the bottom surface.
- The glider might have a very slow turning sensation.
- You will have an increased vertical descent.

RECOVERY FROM PARACHUTAL STALL

It is important to recognize this situation, most accidents involving parachutal stall happens because the pilot did not realize that he was in this configuration.

- The best way to exit a parachutal stall is fully raise both hands, if the glider continues in stall configuration you have to pull both A risers down to get the wing flying again. The pilot can pull the riser down until the wing starts to fly again. The moment the wing starts to fly the pilot should release the A risers, or the wing might suffer a frontal collapse.
- Alternatively, the pilot can push the speed bar to lower the angle of attack and get the wing flying again.
- By pulling one or both brakes while in deep stall the pilot can accidentally enter a full stall or spin. (Not recommended)

BIG EARS

Altitude can be lost in a controlled way by collapsing both tips. To do this, take the outer-most A-line (split A-Riser) on both sides and pull them down until the tips collapse. Pulling one side at a time may be more comfortable and easier, especially for smaller pilots. This should close about 30% of the wing in total. It is possible to steer with weight shift.

To increase the sink rate the pilot can push the speed system after he/she has collapsed the tips. This can give up to about 7 m/s sink-rate with about 50km/h forward speed, if you want to combine big ears with speed system, always pull the big ears first then push the speed system (pulling big ears with accelerator applied can lead to big deflation). To exit, release the speed system and then release the tip A-lines, it might be necessary to apply brake to open the tips, we recommend you to open one side at a time to avoid reducing your speed and accidentally inducing stall.

SPIRAL DIVES

The NESTRA has very good behaviour in spiral and has no tendency to stick in the spiral. By progressively applying brake on one side the glider can be put into a spiral dive. Safe high sink rates can be achieved like this. The spiral has to be exited slowly by releasing the brake over one complete turn or the glider may pitch forward and possibly suffer a collapse.
Care must be taken that the pilot has enough height to exit the spiral safely.

CAUTION:

Some gliders can be neutral in spiral and may not exit without pilot input. To exit a neutral spiral the pilot has to lean his/her weight to the outside of the turn or apply brake input to turn out of the spiral (on the outside wing). As soon as the glider starts to slow down in the spiral the outside brake must be released.

Pilots can suffer black outs in spiral, the pilot has to exit the spiral as soon as he/she feels any abnormal symptoms.
(Black dots in field of vision or light-headedness).

STRONG TURBULENCE

If you unexpectedly encounter strong turbulence, release the speed system if you have it activated, or, using the c-steering system you can neutralize the angle of attack by pulling the c-steering system down until your V-Links are levelled.

STEERING NOT FUNCTIONING

If the pilot cannot reach the brake or steering lines for any reason or if they are not functioning properly, (for example: If they break on a damaged point) the pilot can control the glider by the c-steering system.

Care must be taken when using c-steering system, as much less input is needed to turn the wing and the response of the wing is also much slower than when using the brakes.

On the landing flare the pilot should be especially careful to not stall the glider too high.

CAUTION:

IF YOU PULL TOO MUCH ON ONE OR BOTH C-STEERING SYSTEM, THE GLIDER CAN SPIN OR STALL.

LANDING

Before landing, the pilot should determine the wind direction, usually by checking a windsock, flags, smoke or your drift over the ground while doing one or more 360° turns.

- Always land into the wind.
- At a height of about 50 meters your landing setup should begin. The most commonly used one is to head into the wind and depending on the wind strength the pilot should reach his/her landing point by making s-turns.
- At a height of about 15 meters the final part of your descent should be made at trim speed into the wind.
- At a height between half a meter and one meter you can gently flare the glider by pulling gradually down on the brakes to the stall point.

When top-landing it is sometimes not necessary to flare or a much smaller flare may be required, especially in strong ridge conditions.

TREE LANDING

If it is not possible to land in an open area, steer into the wind towards an unobstructed tree and do a normal landing approach as if the tree is your landing spot. Flare as for a normal landing. On impact hold your legs together and protect your face with your arms.

After any tree landing it is very important to check all the lines, line measurements, and the canopy for damage.

WATER LANDING

As you approach landing, open all the buckles of the harness except for one leg. Just before landing, release the remaining buckle. Let the wing pitch completely forward until it hits the water with the leading edge openings; the air inside will then be trapped, forming a big air mattress and giving the pilot more time to escape. Less water will enter the canopy this way, making the recovery much easier. ***Get away from the glider and lines as soon as possible***, to avoid entanglement. Remember that a ballast bag can be emptied and then inflated with air for a flotation aid.

The wing should be carefully inspected after a water landing, since it is very easy to cause internal damage to the ribs if the canopy is lifted while containing water. Always lift the canopy by the trailing edge, not by the lines or top or bottom surface fabric.

13 PACKING

Spread the wing completely out on the ground. Separate the lines to the left and the right side of the glider. If the risers are removed from the harness, join the two risers together by passing one carabiner loop through the other. This keeps them neatly together and helps to stop line tangles.

Fold the canopy alternately from the right and left sides, working towards the centre, press out the air, working from the rear towards the front. Place the risers at the trailing edge of the folded canopy and use them to finally roll up the canopy.

14 MAINTENANCE & CLEANING

Cleaning should be carried out with water and if necessary, gentle soap. If the glider comes in contact with salt water, clean thoroughly with fresh water. **Do not use solvents of any kind**, as this may remove the protective coatings and destroy the fabric.

15 BUTT HOLE II (Auto Debris release valves)

The NESTRA is equipped with Butt-Hole II, which automatically clears smaller particles such as sand, grass and stones from the wing.



16 STORAGE

When the glider is not in use, the glider should be stored in a cool, dry place. A wet glider should first be dried (out of direct sunlight). Protect the glider against sunlight (UV radiation). When on the hill keep the glider covered or in the bag. Never store or transport the glider near paint, petrol or any other chemicals.

Do not leave your paraglider in the trunk of a car or exposed to the sun.

Temperatures on a hot summer's day in a closed environment: car, etc. can easily reach over 60°C, at these temperatures Nylon permanently changes its characteristics which may alter the behaviour and shape of the wing.

It will cause permanent damage to the paraglider, rendering it non-airworthy. APCO's warranty will not be applicable.

17 DAMAGE

Using spinnaker repair tape (for non-siliconized cloth) can repair tears in the wing (up to 5cm). A professional repair facility should repair greater damage.

18 THREE YEAR WARRANTY

The following warranty is granted by APCO Aviation Ltd. with respect to all of its standard Serial Production Wings, manufactured from January 1, 1994, subject to full compliance by the purchaser/owner to its following terms, as hereby detailed: APCO Aviation Ltd. guarantees the fabric of its wings against porosity to the extent that the wing becomes non airworthy. The fabric is warranted to remain sufficiently impermeable to air, to fly safely for a period of 250 hours or 3 years, whichever comes first. APCO Aviation Ltd. undertakes at its option to repair or replace the wing, as necessary, at APCO's discretion. The under-surface porosity does not affect airworthiness, and does not need to be checked during annual inspection.

This warranty is subject to the following limitations:^{[[1]]}a. The original purchaser has properly completed and returned the Warranty Registration Card to APCO Aviation Ltd.^{[[1]]}b. The wing owner duly records the wing's flight time and use, in an official Log Book, signed by himself and/or an official instructor site supervisor, meet official etc. This Warranty will not be in force for wings without properly registered and logged Flight Records. The wing has undergone its periodical inspections as required in accordance with its users' Manual and Directives of Association, to which the owner is affiliated, and has received its periodical signed Airworthiness Certificates from the owner's local paragliding authority, to this effect. ^{[[1]]}d. The wing has been properly maintained and serviced, exclusively by APCO authorized dealers and their employees, and cleaned, dried, packed and stored in accordance to the manufacturer's instructions. For replacement wings the owner shall be entitled to a discount from the retail price proportionate to the remaining life span of the wing, as covered by this Warranty (pro-rata). The wing has been flown for recreational use only – high stress applications, including (but not exclusive to) towing, instability manoeuvres, schooling, training and any professional use of the wing, are expressly excluded from the terms of this Warranty.

This warranty does not apply to the following:

Use outside the specified load limitations.

Colour fading of the fabric.

Damage or corrosion caused by solvents, fuel or other chemicals.

Accidental or flight (take off/landing) related damage.

Damage caused by emergency parachute deployment.

Modified wings.

Any special, indirect, incidental or consequential damages of any nature whatsoever, resulting from the use of the wing, or lack of use and pleasure thereof, other than the cost of the product.

This warranty is transferable.

Your statutory rights are in no way affected by this warranty.

The manufacturer retains the right of final decision regarding any claims made within the framework of this warranty.

19 GENERAL ADVICE

- A qualified person or agent of the company should check the glider every year or after 150h flying time, whichever comes first.
- The glider is carefully manufactured and checked by the factory. Never make changes to the wing or the lines. Changes can introduce dangerous flying characteristics and will not improve flying performance.
- Do not put the glider in direct sunlight when not necessary. In order to protect the glider during transportation or waiting time we recommend one of our lightweight storage bags.
- Do not fly over water, between trees or power lines and other places where engine failure will leave you helpless, always make sure you have possibility for emergency landing.
- Mind the turbulence caused by other gliders or even by yourself, especially when flying low.
- It is not recommended to let go of the brakes below 100 meters, because a possible power unit malfunction may require immediate attention.
- In general, never trust your engine, as it can stop at any moment. Always fly prepared for engine failure.
- Unless it is absolutely necessary (e.g. collision avoidance), do not execute tight turns against the torque direction.
- Especially when climbing you can easily enter a stall or negative spin.
- Do not fly with tail wind at low altitudes - it narrows your options!
- Do not wait for the problem to grow - any change of engine sound or a vibration may indicate a problem. You'll never know until you land and check it out!
- Be certain of your navigation
- Remember that not everyone is fond of your engine noise.
- If you have any doubts about flying conditions - do not begin.
- If you have any questions, please contact your dealer or us.
- Lastly, be equipped with a certified emergency parachute and helmet on every flight.

RECYCLING

If you need to dispose the wing, do so in an environmentally responsible manner. Recycling of many parts of the wing is possible, and there are some organizations that manufacture reusable shopping bags, windsocks, backpacks and more using old donated wings. Funds raised are often used for charitable donations. Search the web, or contact *The Cloudbase Foundation* for more information or advice. Do not dispose of a retired wing with normal household waste.

Paragliding and Paramotor flying should always be done in a way that has minimum impact on wildlife and the environment. Respect access regulations and the wishes and rights of landowners. Do not litter or start fires, do not smoke near your or other people's wing and equipment. Do not launch, fly or land in a manner that harasses, disturbs or endangers people, wildlife or property.

20 TECHNICAL SPECIFICATIONS AND DOCUMENTS

NESTRA		XS	S	M	L
<i>Flat Aspect Ratio</i>	m	5.75	6	6	6
<i>Number of cells</i>		59	61	61	61
<i>Projected Aspect Ratio</i>	m	4.22	4.39	4.39	4.39
<i>Flat Area</i>	m ²	22.4m ²	23.35m ²	25.00m ²	27.12m ²
<i>Projected Area</i>	m ²	18.85m ²	19.64m ²	21.09m ²	22.81m ²
<i>Span</i>	m	8.9m	9.285m	9.624m	10.007m
<i>Chord</i>	m	2.40m	2.40m	2.49m	2.59m
<i>Lines</i>	m	200	208	215	225
<i>Risers</i>		3+1	3+1	3+1	3+1
<i>Glider weight</i>	kg	4.35	4.45	4.55	4.65
<i>Total weight in flight</i>	kg	50-65	60-80	76-96	90-110
<i>Certification</i>	EN/LTF	Not certified	B	B	B
<i>Code</i>		191200	191300	191400	191500

MATERIALS

Lines	Material	Manufacturer
<i>Embedded top A/B</i>	Dyneema 1mm	Edelrid
<i>Top C</i>	Kevlar 8000U-50 – Dyneema 1.0	Edelrid/Cousin
<i>Mid lines</i>	Kevlar 8000U series – 130/90/50	Edelrid
<i>Bottom lines</i>	Kevlar 8000U series – 280/230/130	Edelrid
<i>Brake lines</i>	Kevlar 8000U series – 50/90, Sheeted Dyneema 2.0	Edelrid/Cousin
Cloth		
<i>Leading edge</i>	"Zero Porosity" Ripstop Nylon 42gr/m2	APCO
<i>Upper surface</i>	Skytex 33gr/m2	Porcher
<i>Lower surface</i>	Skytex 27gr/m2	Porcher
<i>Rib</i>	Skytex 27gr/m2 - Sakai Ovex 42gr/m2	Porcher/Sakai
<i>Rib Reinforcement</i>	FLEXON® batten system	
<i>Warranty</i>	3 years / 250 Hours	

COLORS



BLACK



TURQUOISE

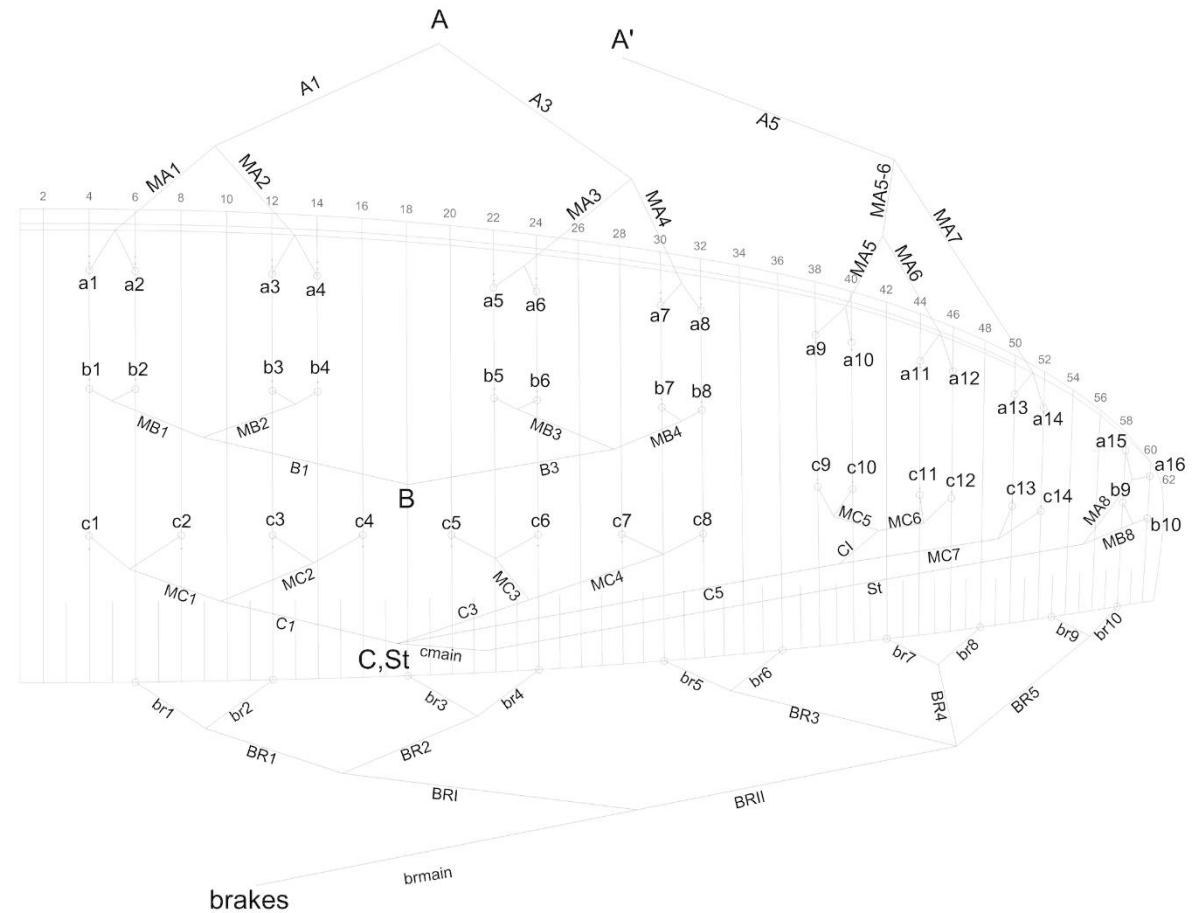


RED

Min speed	23km/h
Trim speed	39km/h
Max speed	52+km/h
Speed system travel	14cm

Glider Performance

Line Map



CERTIFICATION DATA – Flight Test Configuration

SIZE	Harness to riser		Distance between risers		Test Weight		Brake Range at Max Weight	Certification EN
	Min	Max	Min	Max	Min	Max		
S	40 (+-1)	40 (+-1)	40 (+-2)	40 (+-2)	60	80	>60cm	B
M	40 (+-1)	42 (+-1)	40 (+-2)	44 (+-2)	76	96	>60cm	B
L	42 (+-1)	44 (+-1)	44 (+-2)	48 (+-2)	90	110	>65cm	B



Line and Riser Measurements of flight test Paraglider ⁽¹⁾

Report No. : **PG_** Sample name: **NESTRA S** Date measure: **6/6/2023** Place: **Villeneuve**
 Manufacturer: **APCO Aviation** S/N: **Pr1014** Responsible: **Olivier Zoller** Linked: **ISO 91.20**

Total line length including risers [mm]

Main brake line with diff color than A,B,C main line? **Yes**

	A			B			C			D			E			Stab			Brake			+strap	
	Manu ⁽²⁾	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Sample	
Center 1		7206			7130			7231												7780			
2		7153			7081			7151												7430			
3		7121			7050			7129												7113			
4		7137			7065			7179												7006			
5		7078			7036			7125												6862			
6		7043			7001			7057												6734			
7		7001			6956			7009												6664			
8		7024			6955			7024												6669			
9		6926			6899															6713			
10		6857			6832															6742			
11		6767			6738																		
12		6752			6724																		
13		6658			6635																		
14		6639			6598																		
15		6400			6389																		
16		6360			6368																		
Wing																							
tip																							

Stab line to riser:

A'

Number Cell: **59**
 Weight of the glider [kg]: **4.48**

Tolerance [mm] ⁽⁴⁾: **±15**

Riser measurement - total length (inner edge) [mm] ⁽³⁾

Total length	Risers	Std	Acc	Trim
(incl. Carabiner or connect)	A	537	412	n/a
	A'	538	474	n/a
	B	537	472	n/a
	C	536	537	n/a
	D			n/a
	Acc	124.3	*[mm]	
	Trimmer	n/a	[mm]	

Total length	Risers	Std	Acc
(no carabiner or connect)	A	506	381
	A'	507	443
	B	506	441
	C	505	506
	D	-31	-31
	Acc	124.3	*[mm]
	Trimmer	n/a	[mm]

No. of risers **3+1**
 Tolerance [mm] **5**

Carabiner [mm] **31** n/a
 Tolerance [mm] **2**

*Travel range (distance between A and rear riser)

Acc system configuration max travel



Speed limiter **No**
 Another trim configuration **No**
 If yes (description):

Test Atmosphere AGL

Pressure [hPa] **24**
 Humidity [%] **43**
 Temperature [°C] **1003**

Plausibility check :
 [mm] 500 **500**
 [mm] 10002 **10003**
 Remark:

Instrument validity	date
Laser distance meter	07.09.2023
Line measurements system	07.09.2023

Uncertainty of instrument [mm] **3**

⁽¹⁾Present inspection's scope only extends to the conformity of a given sample, on a given date and in a given place -- as mentioned here above. The validation of this report is given by the signature of the test manager on inspection certificate 91.20
⁽²⁾Total length measured from the underside of the glider to the inner edge of the risers with a tension of 50 [N]. Measured values do not include the uncertainty/The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The measured values lies within the assigned range of values with a probability of 95%. ⁽³⁾ Manu=Values from manufacturer, Sample=Measured by inspector.

*Dimensions given in the user's manual shall be checked by the testing laboratory



Line and Riser Measurements of flight test Paraglider ⁽¹⁾

Report No. : **PG_** Sample name: **NESTRA M** Date measure: **2/27/2023** Place: **Villeneuve**
 Manufacturer: **Apco Aviation** S/N: **Proto1011** Responsible: **Claude Thurnheer** Linked: **ISO 91.20**

Total line length including risers [mm]

Main brake line with diff color than A,B,C main line? Yes

	A			B			C			D			E			Stab			Brake			+strap	
	Manu ⁽²⁾	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Sample	
Center 1		7446			7367			7481												8039			
2		7391			7313			7404												7673			
3		7352			7278			7378												7332			
4		7369			7296			7436												7220			
5		7321			7260			7385												7078			
6		7287			7227			7293												6932			
7		7240			7178			7253												6868			
8		7262			7179			7261												6868			
9		7155			7119			7119												6918			
10		7087			7051			7051												6960			
11		6992						6948															
12		6983						6939															
13		6878						6577															
14		6857						6563															
Wing tip 15		6589																					
16		6550																					
17																							
18																							

Stab line to riser:

C

Number Cell:

Weight of the glider [kg]:

Tolerance [mm] ⁽⁴⁾:

Riser measurement - total length (inner edge) [mm] ⁽³⁾

Total length (incl. Carabiner or connect)	Risers	Std	Acc	Trim
	A	506	379	n/a
	A'	542	474	n/a
	B	522	455	n/a
	C	509	509	n/a
	D			n/a
	Acc	127	*[mm]	
	Trimmer	n/a	[mm]	

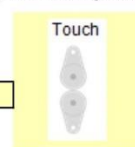
Total length (no carabiner or connect)	Risers	Std	Acc
	A	499	372
	A'	510	442
	B	483	416
	C	502	502
	D		
	Acc	127	*[mm]
	Trimmer	n/a	[mm]

No. of risers
 Tolerance [mm]

Carabiner [mm]
 Tolerance [mm]

*Travel range (distance between A and rear riser)

Acc system configuration max travel



Another trim configuration
 If yes (description):

Test Atmosphere AGL

Pressure [hPa]
 Humidity [%]
 Temperature [°C]

Plausibility check :
 [mm] 500
 [mm] 10000

Remark:

Instrument validity

date Uncertainty of instrument [mm]
 Laser distance meter
 Line measurements system

Present inspection's scope only extends to the conformity of a given sample, on a given date and in a given place – as mentioned here above. The validation of this report is given by the signature of the test manager on inspection certificate 91.20

⁽¹⁾Total length measured from the underside of the glider to the inner edge of the risers with a tension of 50 [N]. Measured values do not include the uncertainty/The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The measured values lies within the assigned range of values with a probability of 95%. ⁽²⁾ Manu=Values from manufacturer, Sample=Measured by inspector.

*Dimensions given in the user's manual shall be checked by the testing laboratory



Line and Riser Measurements of flight test Paraglider ⁽¹⁾

Report No. : **PG_** Sample name: **NESTRA L** Date measure: **6/8/2023** Place: **Villeneuve**
 Manufacturer: **APCO Aviation** S/N: **Pr1015** Responsible: **Olivier Zoller** Linked: **ISO 91.20**

Total line length including risers [mm]

Main brake line with diff color than A,B,C main line? Yes


	A			B			C			D			E			Stab			Brake			+strap	
	Manu ⁽²⁾	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Sample	
Center 1		7729			7665			7225														8411	
2		7667			7606			7135														8035	
3		7652			7570			7115														7684	
4		7671			7588			7170														7570	
5		7606			7547			7125														7427	
6		7566			7505			7030														7284	
7		7516			7470			7005														7220	
8		7539			7468			7015														7214	
9		7397			6830			6875														7248	
10		7323			6809			6800														7287	
11		7220						6695															
12		7210						6685															
13		7089						6580															
14		7065						6545															
Wing tip 15		6841																					
16		6798																					
17																							
18																							

Stab line to riser:

Number Cell:

Weight of the glider [kg]:

Tolerance [mm] ⁽⁴⁾:

Riser measurement - total length (inner edge) [mm] ⁽³⁾ <table border="1"> <tr><th>Total length</th><th>Risers</th><th>Std</th><th>Acc</th><th>Trim</th></tr> <tr><td>(incl. Carabiner or connect)</td><td>A</td><td>535</td><td>402</td><td>n/a</td></tr> <tr><td></td><td>A'</td><td>533</td><td>465</td><td>n/a</td></tr> <tr><td></td><td>B</td><td>537</td><td>469</td><td>n/a</td></tr> <tr><td></td><td>C</td><td>535</td><td>535</td><td>n/a</td></tr> <tr><td></td><td>D</td><td></td><td></td><td>n/a</td></tr> <tr><td></td><td>Acc</td><td>132.8</td><td>*[mm]</td><td></td></tr> <tr><td></td><td>Trimmer</td><td>n/a</td><td>[mm]</td><td></td></tr> </table>				Total length	Risers	Std	Acc	Trim	(incl. Carabiner or connect)	A	535	402	n/a		A'	533	465	n/a		B	537	469	n/a		C	535	535	n/a		D			n/a		Acc	132.8	*[mm]			Trimmer	n/a	[mm]		<table border="1"> <tr><th>Total length</th><th>Risers</th><th>Std</th><th>Acc</th></tr> <tr><td>(no carabiner or connect)</td><td>A</td><td>504</td><td>371</td></tr> <tr><td></td><td>A'</td><td>502</td><td>434</td></tr> <tr><td></td><td>B</td><td>506</td><td>438</td></tr> <tr><td></td><td>C</td><td>504</td><td>504</td></tr> <tr><td></td><td>D</td><td></td><td></td></tr> <tr><td></td><td>Acc</td><td>132.8</td><td>*[mm]</td></tr> <tr><td></td><td>Trimmer</td><td>n/a</td><td>[mm]</td></tr> </table>				Total length	Risers	Std	Acc	(no carabiner or connect)	A	504	371		A'	502	434		B	506	438		C	504	504		D				Acc	132.8	*[mm]		Trimmer	n/a	[mm]	No. of risers <input type="text" value="3+1"/> Tolerance [mm] <input type="text" value="5"/> Carabiner [mm] <input type="text" value="31"/> <input type="text" value="n/a"/> Tolerance [mm] <input type="text" value="2"/> *Travel range (distance between A and rear riser)				Acc system configuration max travel  Speed limiter <input type="text" value="No"/> Another trim configuration <input type="text" value="No"/> If yes (description):				Test Atmosphere AGL Pressure [hPa] <input type="text" value="49"/> Humidity [%] <input type="text" value="23"/> Temperature [°C] <input type="text" value="1002"/> Plausibility check : [mm] 500 <input type="text" value="500"/> [mm] 10002 <input type="text" value="10002"/> Remark:			
Total length	Risers	Std	Acc	Trim																																																																																							
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	Trimmer	n/a	[mm]																																																																																								

Instrument validity		date	
Laser distance meter	<input type="text" value="07.09.2023"/>	Uncertainty of instrument [mm]	<input type="text" value="3"/>
Line measurements system	<input type="text" value="07.09.2023"/>		

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⁽¹⁾Total length measured from the underside of the glider to the inner edge of the risers with a tension of 50 [N]. Measured values do not include the uncertainty/The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty

*Dimensions given in the user's manual shall be checked by the testing laboratory

