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***Ritma***

***Manual***

 **APCO Aviation**  
*Setting Future Standards*

Factory: 7, Chalamish Street - Industrial Park - Caesarea 38900 ISRAEL [www.apcoaviation.com](http://www.apcoaviation.com)  
Tel: +972 4 6273727 Fax +972 4 6273728



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## 1. Introduction



The RITMA Harness is the result of Apco's policy on ongoing research, development and product improvement. Having realized that the market demanded a harness with maximum pilot protection without excessive weight, volume and cumbersome, the engineers in the R&D team at Apco set about designing the RITMA.

The RITMA has a unique pilot protection system, combining the usual airfoam type protector with a airbag which offers the maximum protection available to a paraglider pilot today.

Apart from the unbeatable pilot protection, the RITMA offers other great features such as the floating seat board which is connected to the speed system to improve comfort and aerodynamics while you are accelerating, and makes it very easy to slip in and out of the harness after take-off and before landing.

The New Harness geometry gives great comfort, with perfect adjustment possibilities, while eliminating excessive webbing and straps. Two PVC Battens aid in spreading the load evenly along the back, increasing comfort while reducing the amount of webbing supports required.

The RITMA has a bottom mounted reserve with the handle on the right side of the harness, which gives you both an easy accessible reserve and a well balanced harness in the air.

The clean aerodynamic form of the RITMA reduces drag created by the pilot and Harness, giving you higher performance all round.

## 2. Harness Sizing

The RITMA is currently available in three sizes for pilots from under 150cm up to 200cm.

Small/Medium	Up to 170cm	(45050)
Large/X-Large	165 to 185cm	(45100)
XX-Large	180cm and up	(45150)



### 3. Harness Colors

The RITMA is available in several Color combinations here are the options:



### 4. Disclaimer

In designing and manufacturing the RITMA and any of its subassemblies or accessories, our aim has been to create a harness system that will allow the user to engage in the sport of paragliding in a safe and comfortable way.

However, paragliding is a high-risk activity, which may cause or result in serious injury or death. When you take it upon yourself to participate in the sport of paragliding, you accept the risk inherent therein. You may reduce the risk by receiving proper instruction and by following the basic safety requirements. The RITMA is a sensitive device, which may easily be damaged. Before each flight, the harness should carefully be inspected for evidence of damage or wear. Any deviation from the manufacturer's specifications concerning maintenance, repair, alterations and modifications constitutes willful negligence.

It is expressly understood and agreed that by the use hereof by the buyer or any subsequent user that Apco Aviation Ltd. And/or the seller shall in no way be deemed or held liable or accountable and makes no warranty, either expressed or implied, statutory, by operation of law or otherwise, beyond that expressed herein.

Paragliding equipment is sold with all faults and without any warranty of merchantability or fitness for any purpose, expressed or implied. Apco Aviation Ltd. Disclaims any liability in tort for damages, direct or consequential, including personal injuries, resulting from a malfunction or from a defect in design, manufacturing, materials or workmanship, whether caused by negligence on the part of Apco Aviation Ltd. or otherwise.

By using any Paragliding equipment manufactured or sold by Apco Aviation Ltd., or allowing it to be used by others, the buyer and/or user waives any liability on the part of Apco Aviation Ltd., for personal injuries or any other damages arising from such use.

The liability of Apco Aviation Ltd. is limited to the replacement of defective parts found under examination by manufacturer to be defective in material or workmanship within 120 days after purchase, and which has not been caused by an accident, striking, improper use, alteration, tampering, excessive use, misuse or abuse.

The damages of the buyer and/or user shall be deemed liquidated in the costs of replacement as above.



## 5. Speed System Assembly



Brummel hook attachment to speedbar lines

To rig the speed system, first disconnect the Brummel hooks connected to speed bar lines as detailed below:

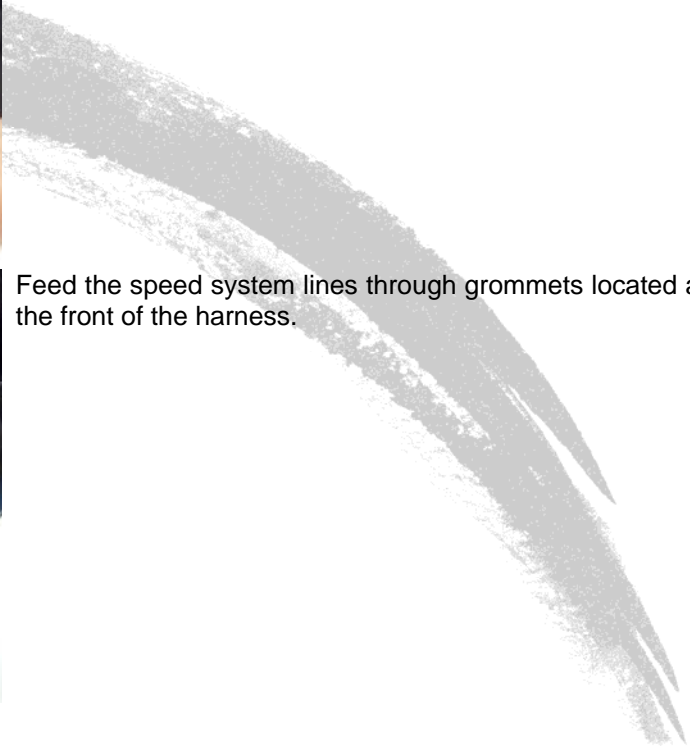
- Create slack by feeding more line at the base of the Brummel hook
- Slide the line end loop with your thumbs over the top of the hook
- Disconnect the Brummel hook from the line



Pass the speed system lines through the bungee-secured metal rings at the front of the seat



Feed the speed system lines through grommets located at the front of the harness.







Pull out the speed system lines.  
Pass the speed system lines through the pulley on either side of the harness and exit through the side grommet.



Feed the line through the "pom-pom" supplied with the speed bar.  
Re-connect the Brummel hooks to the speedbar lines as shown at the beginning.



## 6. Adding a Wonder Bar (two-step handsfree Speedbar)



Thanks to the WONDER Bar's unique geometry, the pilot can easily find and reach the second stage using the feet only without having to take the hands off the brakes.

This handsfree operation contributes to improved flight safety as well as increased usable speed range. In order to attach the WONDER BAR, simply replace the regular stirrup following the instructions above.

**NOTE:** When attaching the WONDER BAR, make sure the black plastic coated wire loop is facing down and the red loop is facing forward.





### Storing the WONDER BAR:

In order to prolong your wonder bar life span, store it with the black plastic coated wire loop on the seat board.

## 7. Speed System Adjustment

It is very important to ensure that your speed system is adjusted correctly before flying for the first time with your new harness, and/or after making any changes or modifications to the system.

The best way to correctly adjust your speed system is to hang your harness from a suitable structure which can support your weight. Attach the risers to the harness and sit in the harness while a friend holds up the risers to simulate a flying position.

When properly adjusted, a regular speed bar should hang ~10cm below the rings at the front of the harness. If you use a WONDER BAR, place the bar approx. 2cm below the rings. Under no circumstance should the bar be closer to the seat. This will cause the lines to be taut resulting in permanent application of the speed system during flight. It is also very important to check that the speed system is not accidentally applied while standing for take-off or landing. A minimum of 2cm between the bar and the harness will eliminate the problems mentioned above.

To reach the necessary speed system line length, adjust the knots found on both sides of the bar to the desirable length.

### **WARNING:**

USING THE SPEED SYSTEM OR TRIMMERS IN TURBULENT CONDITIONS OR NEAR THE GROUND IS DANGEROUS. WHILE FLYING WITH THE ACCELERATOR, THE GLIDER HAS A REDUCED ANGLE OF ATTACK AND IS THEREFORE MORE SUSCEPTIBLE TO COLLAPSES AND/OR DEFLATIONS. GLIDERS REACT MORE DYNAMICALLY WHEN ACCELERATED AND MAY TURN MORE - RELEASE THE ACCELERATOR IMMEDIATELY IN THIS CASE.



## 8. Adjustments



Shoulder Strap Adjusters are a pull-pull system. They are located at the end of the shoulder padding. The shoulder straps pass through the chest strap creating a “floating shoulder-seat system” for easier entry and exit into the harness during take off and landing. To tighten the shoulder strap, pull the bottom end loop. To release, pull the top end loop.



Comfort chest strap with integrated emergency whistle.



Back Support Straps are best adjusted while the harness is suspended from a suitable structure before flying for the first time. To change to full upright position, pull on the forward loop. To recline back, pull on the back loop.





### Chest Strap Adjustment

Can be made any time during or before flight. Chest strap adjustment does not change the seating position. The primary function of this strap is semi cross-bracing functionality also known as **ABS**<sup>1</sup>. A wide setting provides little cross bracing with maximum weight shift control. The tightest setting offers maximum cross-over stability with minimum weight-shift steering control. We recommend setting the distance between the carabiners as noted on the glider's certification report.



### The floating seat locker

Adjustment can be made at any time during flight or before. It is connected to the floating seat and when tightened it will lock the pitching of the seat.



### Leg Straps Adjustment

Should be made in an upright position after having buckled both leg straps and the chest strap. If you cannot stand upright comfortably while the leg straps are fully extended, the shoulder straps may be too tight. If the leg straps are too long, it may be difficult to transition to a seated position after take-off. Generally, we advise to adjust the leg straps short and the shoulder straps long.

## 9. Reserve Parachute



The Ritma is the most comfortable and safe light  
**NOTE: When attaching the WONDER BAR, make sure the black plastic coated wire loop is facing down and the red loop is facing forward.** harness featuring an integral reserve compartment. It can be used with MayDay / Guided Mayday reserve range and most rescue system existing on the market. Assembly as follows.

## 10. Reserve Assembly and Installation



Your harness is supplied with a deployment handle fitted in the correct way. Remove the handle by pulling it out of the elastic retainers. Attach the handle to the deployment bag (44120T) supplied with your [Mayday](#) reserve parachute. If your Reserve is not already fitted inside the deployment bag, follow the instructions for doing this on the [Mayday](#) page.

**Step 1:** The handle has a split ring fixed to one of its attachment loops. Thread the first (without the Split Ring) attachment loop through one of the attachment points on the deployment bag. Pass the handle through the protruding loop to form a lark Head knot as shown.



**Step 2:** Thread the second attachment loop through the other attachment point on the deployment bag, making sure to center the split ring on the loop, passing it through first. Use the split ring to complete the second "larks head knot" by attaching it to both the strips of the attachment loop on the other side of the attachment point. The handle should now be attached at two points to the deployment bag as shown.

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Harness from more recent manufacturing batches have only hook in points for a bridle but do not include a built in bridle, to allow easy connection of GMD / GMD SLT and reduce weight.

If you own a harness of this kind follow steps 1 to 4.



**Step 1:** Attach a #42024 Universal harness bridle to the reserve connection loop located on each shoulder strap of the harness (**THROUGH THE YELLOW WEBBING LOOP**).

Use the small connection loop of the bridle, keeping the large loop for later use.

**For GMD / GMD SLT** attach the built in bridle directly to the reserve connection loop of the harness using a suitable maillon, secure it with a heat shrink.



**Step 2:** Join the two bridles, pre attached to the harness and guide them through the Velcroed sleeve along the right side of the harness, up to the rescue pocket.



**Step 3:** Place the two big loops of the #42024 bridles together, attach the reserve parachute bridle to the center of the two #42024 bridles using a larks head knot.

\*\* for MD LT/SLT connect using the maillon supplied with the MD LT/SLT \*\*



**Step 4:** Neatly arrange the bridles at the connection point as on the picture





**WARNING! : Tighten each bridle separately to ensure no slack is left on the bridle loops.**



Preferably secure it with a heat shrink tube to keep it in place.



**Step 5:** Attach the reserve to the Y bridle using a suitable mailon secure it with a heat shrink.



**Step 6:** insert the reserve with handle attachment side facing downwards in to the compartment above the inner cloth tongue.





**WARNING! Do not place the reserve with handle attachment side facing upwards**



**Step 7:** pull the cloth tongue in between the attachment loops of the deployment handle.



**Step 8:** Individually thread two pull cords through the two closing loops located on the cloth tongue (one through each loop). The pull cords must be between the attachment loops of the deployment handle.



**Step 9:** thread the two pull cords through the upper closing flap grommets.





**Step 10:** fit the deployment handle in to the upper flap by pushing its ends (cable first) into the elasticized sleeves with the locking cables protruding on the other side. The webbing part of the handles should be pushed almost all the way into the elasticized sleeves (stop about 8-10mm before the opening where the cable is protruding). Pull the closing loop through the grommets and push the locking cable through it.



**Step 11:** Carefully remove the pull cords by passing one of its ends under the locking cable and pulling it out slowly.



**Step 12:** neatly close the Y-bridle sleeve (pressing the Velcro together) hold the lower flap corner and attach it by Velcro to the top flap front end.



**Step 13:** neatly attach the left Velcro. As shown.



**Step 14:** neatly attach the right flap Velcro.



**Step 15:** secure the deployment handle to the harness using the Velcro As shown.

## 11. The Reserve Deployment

Once you have decided to deploy your reserve parachute, place both brake handles in your left hand. Look for the reserve handle and firmly take it with your right hand. Pull upwards and sideways on the handle to release the two locking cables and subsequently releasing the reserve from the harness container. You will now be holding the reserve closed inside the deployment bag, hanging from the deployment handle. Look for a clear area and throw the reserve away from you and the glider.

It is preferable but not absolutely essential to throw the reserve away from the direction of rotation, and with the air stream passing you. This will speed up the deployment process.

Once the reserve has opened, immobilize your glider either by pulling it in completely, or by pulling the brakes, B or C lines to stall the glider. If you do not do this, the glider and the reserve will oppose each other and increase your sink-rate considerably, and there will be an increased chance of the two becoming entangled.

We recommend that if your glider is in a flat spin, if you have the necessary height that you try to stop the spin (i.e. Full stall, B-Stall etc.) before deploying your reserve, since there is a much greater danger of entanglement if you are in a flat spin. The fastest deployment will be if you are in a spiral.

**We recommend practicing the deployment of the reserve, before first use of the harness in flight.**



## 12. Pilot Protection

The RITMA has a pilot protection system, combining the usual airfoam type protector with a lexan sheet (47143) which aids in spreading the load over the absorbing area of the airfoam and a airbag which offers the maximum protection available to a paraglider pilot today.



### The lexan sheet (47143)

should be inserted into the pocket on the rear side of the Airfoam (42150)



The Airfoam Protector (42150) for the RITMA was derived from the very successful Airfoam for the Silhouette and Contour Harnesses.

Due to the floating seat board system used in the RITMA, it is important to install the airfoam correctly, so as not to restrict the movement of the seat plate. The two velcro attachment straps must be matched perfectly with the velcro on the airfoam, leaving an open space between the airfoam and the pilots back. Only the Airfoam (42150) specifically designed for the RITMA should be used.

To insert the airfoam:

1. Open the zipper located inside the back compartment
2. Open the bottom zipper located inside the airform compartment (open on step 1)
3. Install the airfoam in place with the two webbing velcro tabs on the sides and one patch of velcro centrally located higher up on the back, in the upper rear section of the harness.

**If only airbag is in use, please be sure that all zippers are closed.**



**Note:** Do not install the Airfoam protector under the webbing in the upper section of the harness.

## 13. Storage Space

The RITMA has ample storage space in its rear compartment, has a large side pocket on the left hand side and some smaller additional pockets.



### The Main Back Compartment

Is accessed through the back zipper. Storage is most useful for articles that you will not need during your flight, i.e. your Glider Bag.



### The Top Side Pockets

Are useful for items that you will need to access during your flight, i.e. Camera, Radio, Map, etc.



### The Side Pocket

Is useful for items that you will need to access during your flight, i.e. Camera, Radio, Map, etc.

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## 14. Accessories

Several Harness accessories are available for the RITMA, if you have upgraded to the RITMA from another Apco Harness, you will be able to use your accessories from your old harness on your RITMA. All the RITMA accessories are compatible with Apco's previous and current harnesses.



### The Foot Rest (44015).

Is really useful for improving your aerodynamic shape, improving the weight shifting and taking the load off your feet.



### The WONDER STIRRUP - 2 step integrated stirrup

Instead of using a main and second step it is recommended to use the revolutionary wonder stirrup that contains a stirrup and a second step, all in one.



When the WONDER STIRRUP is connected to the harness it's held in a position which allows the pilot to insert his foot into the second step easily without ever needing to leave the hands from the brake. This system increase safety of flight and glider speed range.







## The Radio Pocket (44003).

Inside the main back compartment of the RITMA, there are two retainers, to which the radio pocket can be attached. Above it on the left shoulder, there is a neoprene patch which can be cut to enable you to pass a connection from your speaker-mike or headset to your radio.

## Flight Panel Cockpit (80053)



The flight deck has been specially redesigned to suit all the APCO harnesses as well as undergoing a complete overhaul. It is designed to be used when flying in pod harness and also will accept zipped on ballast bag 9L at the bottom or can be integrated with new zipped on emergency parachute container (instead of ballast bag)

As all other cockpits, top part is designed to hold flying instruments. The floor is velcroed to keep the instruments in place and the floor angle is adjustable for optimal viewing possibilities. The instruments are covered with a padded flap.

Of course there is no compromise on quality and materials. Attention to detail is exceptional as always.

Code: 80053 - Flight Deck Top Part

Code: 80052 - Bottom Ballast Bag

Code: 20005 - Inner Ballast bag to be ordered separately, if required

Code: 80054 - Emergency parachute Front container



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Inside the main back compartment of the RITMA, there are two loops to which you can attach your "**Camelback**" or similar water container.

Do not attach a ballast container in this position, it will alter the center of gravity of the harness and your sitting position will change. We recommend installing a maximum of 2kg to this points.



Run the water pipe through the hole located under the H2O marking and exit on the end of the left shoulder strap.



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## Inspections

These can generally be divided into two kinds, namely: - short preflight inspections, done before each flight and the more thorough inspections that are carried out periodically in order to ensure the airworthiness of the harness.

### Preflight Inspections

- Paraglider is connected correctly and both carabineers secured by their locking mechanisms.
- There is no visible damage to the harness that could affect its airworthiness.
- The reserve parachute container is closed correctly with both locking cables in place.
- The deployment handle is inserted all the way into the elastic pockets.
- All pockets closed properly and all loose items tied down safely.
- Both quick lock buckles should operate and should be closed securely.
- All adjustable straps are set as you desire and symmetrical.

### Periodic Inspections

The harness is inspected for airworthiness on every reserve repack, or if there are any signs of damage or wear to the harness structure. Inspect the harness after any crash or bad landing or takeoff where it could have been damaged. Also inspect the harness after long periods of storage, or if another pilot has used the harness not directly under your supervision (you never know what it has been through). Also inspect the harness if for any other reason there may be damage to it. In any case the harness must be thoroughly inspected every 12 months as a minimum. The points to check are as follows:

All webbing and straps are inspected for damage or wear and tear and repaired or replaced if necessary. Special attention should be paid to points where wear may not be easily seen such as the inside of the carabineer hook up points and the loops of webbing holding the quick lock buckles and also the various Kamet buckles and adjusters.

All sewing, sewing patterns and sewing lines are inspected and must be intact. Should any sewing show signs of un-raveling, wear or excess stress, it must be attended to before your next flight. A qualified person using the correct thread must carry out repairs.

Elastic retainer cords are inspected and replaced if necessary. Pay attention to the elastic sheath holding the reserve deployment handle in place. It must retain its elasticity and hold the handle properly in place.

All buckles must be in a safe working condition, including the carabineers, quick lock buckles and kamets.

The seat and back plates must be in one piece and without cracks.

All sub assemblies are in good condition. Take special care to inspect the parts that belong to the reserve container system.

Dirt can be cleaned off gently - you can use a damp rag or wash the harness with a mild soap. Make sure you remove all the sub assemblies, seat board, back plate, reserve parachute and foam padding etc. Drip-dry the harness in an open shady place.

Open the harness and inspect all interior parts, including the fabric, webbing straps, buckles, kamets, and all sewing.

If everything is found to be in an airworthy condition you can re-assemble the harness and pack the reserve,

A handwritten signature in black ink, appearing to read 'Ritza'.



if not the necessary repairs must first be carried out before the harness can be approved and used. Remember that a seam that has started unraveling may go a long way before the next inspection!

All materials needed for repairs are obtainable through your dealer.

## 15. Maintenance and Repairs

By keeping your harness clean and airworthy you will prolong its life and retain a higher resale value, if you ever decide to upgrade it.

We have carefully selected the materials we use to provide you with a durable harness that will be able to give you years of use. By following some of the advice given below you can further extend the life of your harness and its accessories.

Follow all recommendations regarding inspections and maintenance in this manual.

Always keep the harness in a protective bag (glider bag) when not in use, and do not expose it to UV rays unnecessarily. Sunlight will weaken the materials and cause fading of colors.

Never store the harness in a wet or damp location or if the harness or a part of it is wet or damp. First let it dry out completely. Store it away from direct sunlight, a dark place is best.

Avoid leaving your harness exposed to the elements while not flying, pack it away or at least cover it.

Wipe away any dirt and dust regularly. Do not allow dirt to settle permanently. Use a plastic bristle brush and a mild soap to clean it if necessary.

Do not drag or pull the harness on the ground, be especially careful on rocky areas.

Use a competent launch assistant when necessary. A failed takeoff is one of the most common times to damage a harness.

If you discover any damage on the harness you should make an effort to repair it as soon as possible. Even apparently minor damage can continue tearing or unraveling, complicating the repair or even becoming dangerous.

If any of the elastic retainers which keep the shoulder and leg straps in place wear out they can easily be replaced. You can obtain these or any other spare parts from any Apco dealer.

Any repair that involves reinforcing or replacement of vital parts of the harness should be carried out by a facility recommended by Apco. Some materials on the harness will wear out sooner than others.

Thank you for your patience in reading this manual - we would like to hear your comments and criticisms as you get used to your harness. This will help us to continue developing better products for you in the future.

Comments Please send to us through our contact form available [here..](#)

Take Air

A stylized, handwritten signature in black ink, likely belonging to a representative of APCO Aviation.