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ChairBag 4

Manual

APCO Aviation Ltd.
Setting Future Standards

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1. Introduction

The ChairBag is the convertible harness/backpack by Apco. The ChairBag is a sophisticated, super-light dual-purpose harness ***- a harness when flying and a backpack when traveling****, all* ***under 2.6kg***. The ChairBag was designed for pilots on the go who want the comfort and safety of a full feature harness for half the weight. Just flip the harness inside out, throw in your glider and you are ready to go. The professional carrying system specially adapted at the body anatomy and ventilating better your back for more comfortable, effortless hikes to take-off.

The ChairBag comes with a full-size seat plate for maximum comfort and weight shift control. Maximum pilot protection insured by integrated Cygnus air bag system with specially designed one-way air valve.

Built-in hook up points for your reserve and integrated reserve compartment make this harness fully usable for all flying styles. Floating seat geometry guarantees easy entry and exit during take off and landing respectively.

Fitted with quick lock buckles throughout and Aluminum loop-and-slide adjusters for easy in-flight use, the ChairBag provides lavish comfort where you least expect it.

The ChairBag 4 include a rescue pocket located under the seat board and a webbing system incorporating four quick lock buckles – two for the legs, and two more connecting to a T-lock male part on the chest strap**.**

2. Harness Sizing

The ChairBag is currently available in a single size, for all pilots from 160cm and up to 185cm tall.

3. Harness Colors

Either model is available in four colors:

a. Black with red trim
b. Black with blue trim
c. Black with green trim
d. Black with orange trim

4. Disclaimer

In designing and manufacturing the ChairBag 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 ChairBag 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.

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 tight 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.

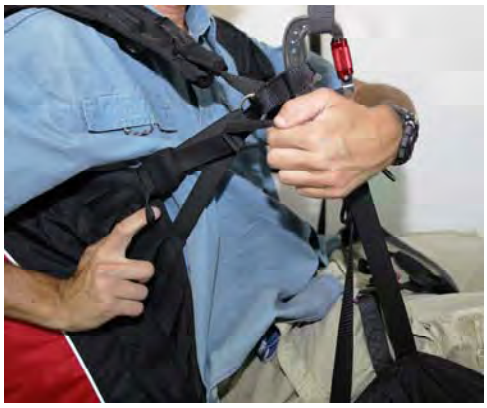
To reach the necessary speed system line length, adjust the knots found on both sides of the bar to the desirable length.

WARNING:

USING OF 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. Harness Adjustments

Shoulder Strap Adjusters are a pull-pull system. They are located at the end of the shoulder straps. 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.



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 up right 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**[1]. 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.

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 assembly & installation

The ChairBag is the most comfortable and safe light harness featuring an integral reserve compartment. It can be used with MayDay reserve range, from MD p/p16 SLT to MD p/p20 or GMD / GMD SLT.
Assembly as follows.

Step 1: Your harness is supplied with a deployment handle fitted in the correct way. Remove the handle by pulling it out of the elastic retainers. Fully open the compartment .

Step 2: Attach the handle to the deployment bag supplied with your reserve parachute. 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 larks Head knot.

Step 3: 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.

Step 4: Attach a #42024 Universal harness bridle to the reserve connection lop 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 lop of the harness using a suitable maillon, secure it with a heat shrink.

Step 5: 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 6: 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 7: 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 8: insert the reserve with handle attachment side facing downwards in to the compartment above the inner cloth tongue.

WARNING! <u>Do not</u> place the reserve with handle attachment side facing <u>upwards</u>

Step 9: pull the cloth tongue in between the attachment loops of the deployment handle.

Step 10: 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 11: thread the two pull cords through the upper closing flap grommets.

Step 12: 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 13: Carefully remove the pull cords by passing one of its ends under the locking cable and pulling it out slowly.

Step 14: 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 15: neatly attach the left Velcro. As shown.

Step 16: neatly attach the right flap Velcro.

Step 17: secure the deployment handle to the harness using the Velcro As shown.

10. Reserve Deployment

Once you decide to deploy your reserve place both brake handles in your left hand. Look for the reserve handle and firmly take it in your right hand. Pull the handle upwards to release the locks and extract the reserve from the container. You will now be holding the handle with the reserve packed inside the deployment bag, hanging from the deployment handle. Look for an open space and throw the reserve (with its handle) away from you and the glider.

If you are in a spiral, it is best to throw the reserve against the direction of rotation.

Once the reserve has opened, immobilize the glider by collecting the canopy completely. If you can not grab the sail directly, pull hard on the brakes, B or C lines to stall the glider. Immobilizing the main canopy reduces the sink-rate and the risk of reserve collapse by the main canopy.

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

The fastest deployment is in a spiral. Reserve deployment in a spin will almost always end in entanglement. Therefore, we strongly recommend, if altitude allows, that you first exit or stop the spin by any mean necessary and then deploy your reserve.

Pilot Protection:

The ChairBag features a passive Cygnus airbag system which inflates on its own without pilot input. This system delivers crash-test proven comprehensive pilot protection with light weight compact packing.

NOTE: To achieve the best performance for the ChairBag, verify that:

a. The back zipper is fully closed
b. All items for storage are placed inside the designated hooked in stuff pocket
c. The air compartment is clear of any storage items.

BEWARE OF SHARP OBJECTS THAT MAY COMPROMISE THE AIR BAG'S INTEGRITY.

11. Storage Space

The ChairBag harness converts inside out to a backpack eliminating the need to store a separate backpack. However, you may still pack small items in the designated stuff pocket that is hooked in inside the airbag. The ChairBag also features side pockets for easy access during flight.

Stuff Pocket – Use the stuff pocket to store items that are not needed during flight. In order to access the stuff pocket, unzip the ChairBag's main zipper. Once you've placed away items in the stuff pocket, verify that it is hooked in, the draw string is taut and the main zipper zipped up completely. Take care not to store sharp objects for they may puncture the airbag's compartment.

Side Pocket – Use the left to store small objects that you may need to access in flight (cell phone, gloves, camera etc.) You may use the utility loop inside the pocket to secure valuable items with a string.

12. Packing Your Harness

To pack your harness, flip the main back pocket inside out to convert the ChairBag to a backpack eliminating the need to carry a separate backpack. You may now use the storage space to pack your glider and other gear. Make sure to unhook the stuff pocket and place it inside the backpack. Take care not to compromise the integrity of you bag (punctures, cuts etc.) since it's also your airbag protector.

13. Accessories

Several Harness accessories are available for the ChairBag, if you have upgraded to the ChairBag from another Apco Harness, you will be able to use your accessories from your old harness on your ChairBag. All the ChairBag 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. It also helps to push back in the harness without having to take your hands off the brakes.

The Wonder Bar (43135)

WONDER BAR – Two Step Handsfree Speedbar
Instead of using a main and second step it is recommended to use the revolutionary Wonder Bar that contains a stirrup and a second step, all in one.

When the WONDER BAR 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.

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

14. Inspections

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

WARNING:

WITH THE EXCEPTION OF THE STUFF AND SIDE POCKETS THAT MAY BE USED TO STOW GEAR, THE MAIN AIR COMPARMENT MUST REMAIN FREE OF ANY OBSTRUCTIONS IN ORDER TO DELIVER SUFFICIENT PROTECTION ON IMPACT.

a. Preflight Inspections

- ❒ Paraglider is connected correctly and both carabiners are locked and secure
- ❒ No visible damage to the harness that could affect its airworthiness (punctures in airbag etc.)
- ❒ X-frame plastic ribs at the bottom of the harness in place
- ❒ Main back pocket zipped properly (Cygnus air chamber)
- ❒ All loose items safely secured in stuff pocket
- ❒ All quick lock buckles operate freely and closed securely
- ❒ All adjustable straps are set and symmetrical
- ❒ The reserve parachute container is closed correctly with both locking cables (pins) in place
- ❒ The deployment handle is inserted all the way into the elastic pockets

b. Periodic Inspections

The harness should be inspected for airworthiness 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 for damage. 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 for any other reason that might have caused 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 carabiner hook up points and the loops of webbing holding the quick lock buckles and also the various Kamet clamp-lock buckles and adjusters.

All sewing, sewing patterns and sewing lines are inspected and must be intact. Should any sewing show signs of unraveling, 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 carabiners, 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 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. 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 & Repair

By keeping your harness clean and airworthy you will prolong its life and retain a higher resale value. We have carefully selected the materials 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 and effectiveness of your harness and its accessories. Follow all recommendations regarding inspections and maintenance in this manual.

Always keep the harness in a dray and protected environment 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 it 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 to 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 reading this manual. Once you get accustomed to your new harness, we would like to get your ***feedback*** about the ChairBag as it will help us develop better products for you in the future.

Take Air,
APCO Team