

# APCO Aviation Ltd.

## POWER PARACHUTE OWNERS MANUAL

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### CONSTRUCTION

The Apco power parachute is constructed from top and bottom surfaces which are connected by profiled ribs.

One top and bottom panel, between two connecting ribs is called a cell. Each of these cells has an opening on the lower side of the leading edge. The cells fill with air under pressure forcing the panels to take the shape dictated by the airfoil section of the ribs. The ribs are reinforced with tape above the line hook-up points.

On both wingtips there are stabilizers which increase the span wise tension and also improve the Yaw stability.

### MATERIALS

The parachute is made from tear resistant ripstop nylon cloth, which is Polyurethane coated to zero porosity and the top surface is double siliconized for extra durability and resistance to UV exposure and the elements.

The cloth for the top and bottom surfaces and ribs are of different types selected for their different functions.

The lower and steering lines are of superaramid Kevlar and the upper lines are Dyneema. All lines are sheathed with polyester for protection against UV and abrasion. The lower steering line is made with a polyester core and sheath because of its superior mechanical properties resisting wear while bending through the polis of the steering system.

The rapide-links used to connect the parachute lines to the flying cables are of corrosion resistant steel.

### FIRST CHECK AND PRE-FLIGHT INSPECTION

When you receive a new parachute you should check the following points:

1. carefully check that there are no tangles, knots or rigging errors in the lines, and that the different groups of lines are sorted correctly and attached to the correct points.
2. Check that the steering lines are attached securely to the steering system and adjusted to the correct length.
3. Always use the advice and supervision or help of qualified persons familiar with the setup of the wing to the frame.
4. Do not take-off before rigging and assembly was checked by a qualified person. Demand a test flight from your dealer.

### PREFLIGHT:

The parachute should be checked regularly. In order not to overlook anything, we recommend always following a systematic manner, from bottom to top:

1. rapide -links in good condition and secure.
2. Check that all lines are free of damage/abrasion and that their sewing is in good condition.
3. Check that there are no tangles or knots on the lines.
4. Check that the steering line is routed correctly, secure and free of twists and knots.
5. Check the parachute for tears, torn stitching, abrasion or deterioration from UV exposure.
6. Check line hook-up points on parachute for wear, or tears and in the adjacent fabric.
7. Check for internal damage to ribs.

#### **Inflation and take off.**

In order to inflate a power wing (pw) properly please follows the next steps:

1. Open the pw and put it on the ground on its back.



2. Sort out all the knots and tangles in the lines.



3. Place the trike next to the center of the trailing edge.
4. Pull the center of the leading edge back creating a half moon shape with the canopy.



5. Make sure that the trike is placed close to the center of the trailing edge.



6. Place all the lines on the canopy.
7. If your trike has special hooks for the risers place your risers on the hooks.



8. Take the main brake line and wrap it 3-4 times to the rest of the lines, make sure not to wrap the risers or the carabiners.



9. Open the throttle continuously at a rate that when the lines are fully straightened the throttle is fully open. And let the canopy climb above your head.
10. When the canopy is above your head decrease the throttle to about half of the range. And check the canopy. If necessary center it above your head.
11. Open the throttle fully and take off.

#### **LINE MAINTENANCE**

There are three groups of lines that connect the parachute to the frame. Two groups are suspension lines and connect to the flying cables and the third is the steering lines.

Superaramid lines are known to be sensitive to the elements. They must be carefully inspected periodically. The pilot in his own interest must observe the following points to ensure maximum safety and performance from their parachute:

1. Avoid sharp bending and squeezing of the lines.
2. Do not step on the lines.
3. Take care of your lines in crowded take-off areas.
4. Do not pull on the lines if they get caught on rocks or vegetation.
5. Avoid getting the lines wet. Dry as soon as possible at room temperature out of direct sunlight.

IT IS RECOMMENDED TO REPLACE THE LOWER FLYING LINES EVERY YEAR OR 100 HOURS FLYING, WHICH EVER COMES FIRST. THE UPPER LINES SHOULD BE CHECKED AND REPLACED IF NECESSARY. This is only a precautionary

measure to ensure integrity of the wing and safety of flying. The cost of bottom line replacement is very moderate (US\$ 70-90, according to the type of the wing) and well worth the investment.

Every six months one upper and one lower line should be checked to half its rated strength. If the line fails all the corresponding lines should be replaced.

Commercial use of the Apco power wing requires more frequent inspection and replacement of lines.

### **PACKING**

After flying, packing the parachute back in the storage bag systematically will speed up your setup time the next time you go flying. you will come up with your own technique that works best for you. Spreading and/or packing of the parachute should be done immediately before/after flying to protect the cloth from unnecessary UV-exposure that is very harmful to the cloth!

Spread the parachute completely flat. Separate the groups of lines into left, right and front and back. Check that there are no tangles or knots and place the line protection sleeves on the groups or daisy-chain the lines and place them at the center of the trailing edge of the parachute. Fold the wingtips in to the center of the parachute, and continue halving until the two sides are approximately a foot wide each. Smooth out the fabric to avoid unnecessary folds in the material. Now fold the one wing over onto the other and then start to roll/fold the parachute from the trailing edge towards the leading edge pushing out the air as you go. Neatness adds to the life of the parachute.

### **MAINTENANCE**

**CLEANING** your parachute should be done with a damp cloth, water and if necessary a mild soap. If the parachute comes into contact with salt water it should be rinsed and dried out of direct sunlight, or inflated to let the air dry it out. **DONOT FLY A WET CANOPY.**

**STORAGE** should be in a cool dry place. A wet parachute should first be dried to avoid mildew and deterioration of the fabric and lines. Protect the parachute against UV and chemicals.

**REPAIRS** of small (up to 2 inches) tears in the sail can be repaired with repair tape, greater damage or tears at structurally important points like next to a line attachment point or next to a reinforcing tape should be repaired by a professional.

**DO NOT LET THE PARACHUTE LAY ON THE GROUND EXPOSED TO SUN RAYS. THEY ARE VERY HARMFUL TO NYLON AND QUICKLY DESTROY THE FABRIC AND CAUSE COLOR FADING. SOME COLORS ARE MORE SENSITIVE TO UV - RAYS - FADING FASTER AND LOSING TISSUE STRENGTH- THAN OTHERS. THE UV-RAYS ARE ESPECIALLY HARMFUL TO ALL FLUORESCENT COLORS (FL-PINK, FL-YELLOW, FL-GREEN, FL-ORANGE).**

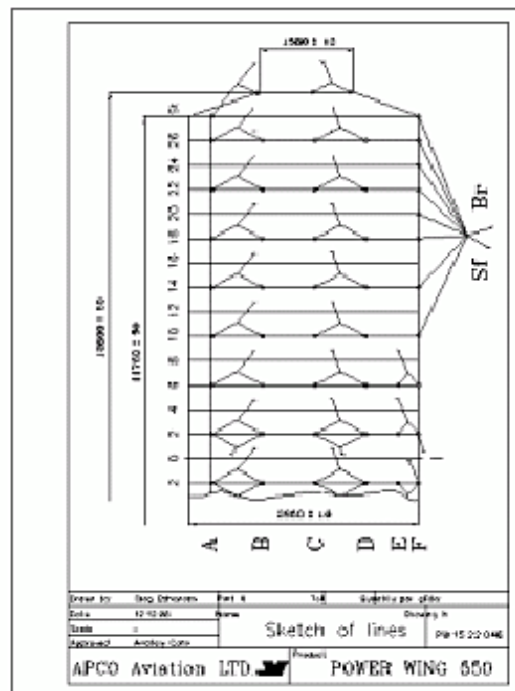
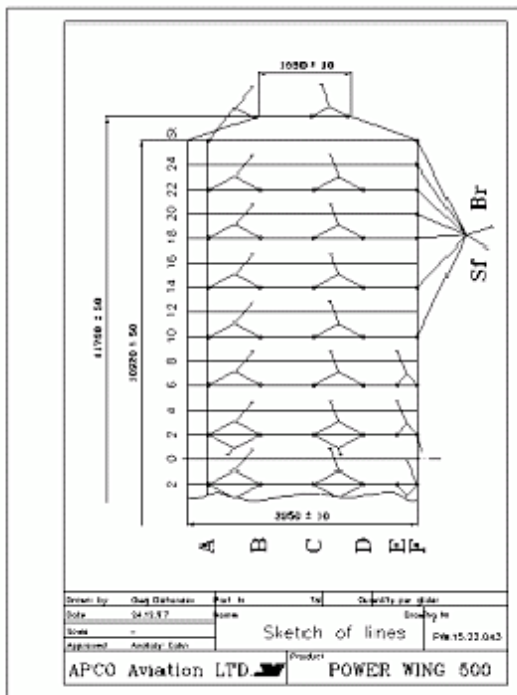
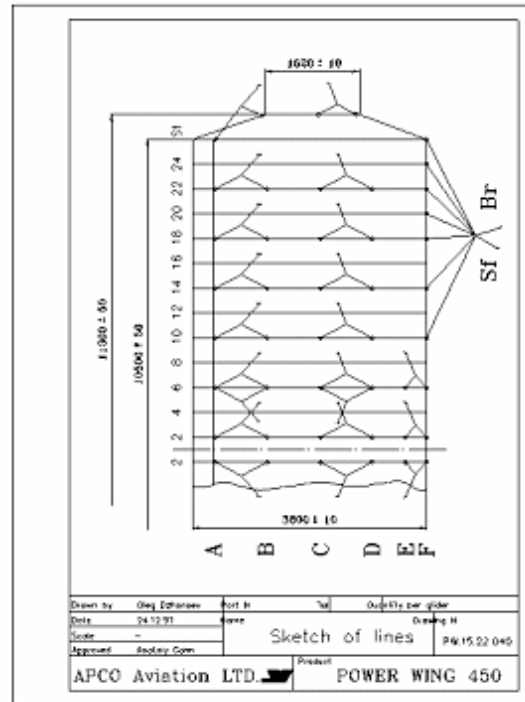
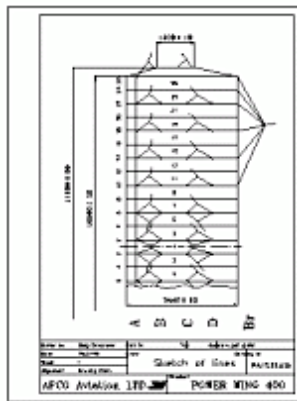
### **GENERAL ADVICE**

The parachute should be checked every year by a qualified person or agent of the company. The parachute is carefully manufactured and checked by the factory. Never make changes to the parachute or its lines. Any changes can introduce dangerous flying characteristics and will not improve the flying performance. If you have any doubts about flying conditions and the weather, don't take - off.

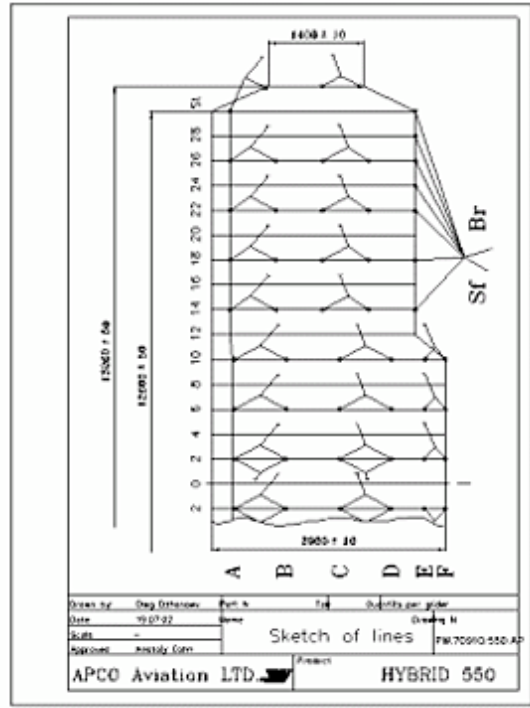
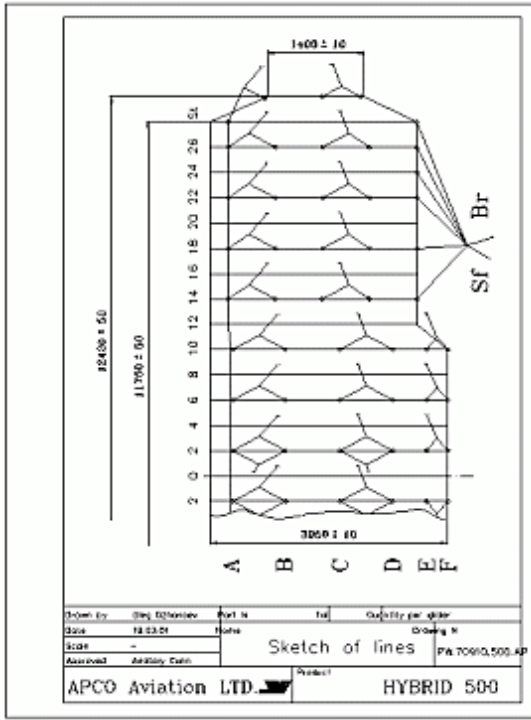
if you have any questions please contact your dealer.

Lastly, be equipped with an emergency parachute on every flight.

**APCO** wishes you many hours of enjoyable flying.







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