Mayday 28 UL

Manual

APCO Aviation
Setting Future Standards

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Introduction

Even pilots flying the safest paragliders, hang gliders and powered flight, can sometimes find themselves with their glider damaged, disabled or tangled and out of control. In such cases a reliable emergency system with a fast opening parachute can make the difference between a simple scare and a fatal accident. Your emergency system has been designed for a fast opening at a low air speed. Do not, under any circumstances use this emergency system for free fall parachuting. APCO is happy and proud that its emergency systems, developed and perfected over nearly three decades have saved the lives of many pilots, from beginners to world champions. This manual describes 6 such emergency systems: three for paragliding and three for hang gliding.

WARNING
Your emergency system has been designed for a fast opening at a low air speed. Do not, under any circumstances use this emergency system for free fall parachuting.

Disclaimer of Liability and Warranty

In designing and manufacturing the Mayday parachutes and any of its subassemblies or accessories, our aim has been to create a rescue system that will allow the user to engage in the sport of paragliding or hang gliding in a safe and confident way.

However, paragliders, hang gliders and powered flight are high risk activity, which may cause or result in serious injury or death. When you take it upon yourself to participate in one or both of these sports, you accept the risk inherent therein. You may reduce the risk by receiving proper instruction and by following the basic safety requirements. The Mayday Reserve Parachute System is a sensitive device, which may easily be damaged. Before each flight, the container should carefully be inspected for evidence of damage or wear and proper closure. Any deviation from the manufacturers 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 and Hang gliding equipment is sold with all faults and without any warranty of merchantability or fitness for any purpose, expressed or implied. Apco Aviation Ltd.

Description

The Apco Mayday 28 UL is a flat circular reserve. The line attachments to the skirt are reinforced with V-Tabs, and the skirt is reinforced with 1'tape, and sewn with a four needle machine for an exact finish. And in addition is equipped with a special slider to reduce the opening shock.

Specifications

Mayday	28 UL
Area [m^2]	64
Gores	28
Line Length [m]	5.4
Weight [kg]	4
Sink Rate	6.3 (at max load)
Max Load [kg]	340
Certification	EN load and drop test

Maintainance
The materials we use to manufacture the Mayday range of parachutes are carefully selected from the best mil. Spec Products available on the market today. These materials are however sensitive to sunlight (UV). The container or harness will protect the canopy from ultra-violet rays. When storing the parachute it should be kept in a cool dry place. Beware of mildew. Should your parachute be exposed to any moisture, it must be opened and air dried, out of direct sunlight, and repacked when completely dry.

Cleaning
If your parachute requires cleaning, it should be soaked in Luke warm water with a little mild soap. No rubbing or scrubbing of the canopy fabric! It should then be thoroughly and repeatedly rinsed with fresh water and allowed to drip dry out of direct sunlight.

Repairs
Should your Mayday parachute require any repairs or you suspect it may be damaged, it must be referred back to APCO Aviation Ltd. or a professional parachute loft, with a certified parachute rigger to carry-out the repair.

Periodical Repacks
Even though the Mayday Emergency System should remain in good condition and work
Properly over a number of years, we strongly recommend that the parachute be repacked by a qualified person once every six months. Packing by an unqualified person is undertaken at the pilots own risk, and is not recommended by Apco.

Identification
In the corner where the #1 suspension line meets the skirt, there is an Apco stamp, along with the individual serial number, canopy type and manufacture date.
In any correspondence to Apco regarding your Mayday, please quote this information.

Attachment Procedure
There are many different harnesses on the market today, with several different reserve stowing systems. Make sure your harness is certified and has an adequate instruction manual. For attaching and fitting your reserve to your harness follow your harness manual instructions carefully.

Preliminary Notes on Packing
When first delivered, your new emergency parachute system has been inspected and packed by Apco or an Apco approved dealer and is ready for use. The following set of folding instructions is intended for a qualified packer familiar with conventional parachute packing, to guide him/her in packing of these particular types of parachutes.

The Modularity of Apco Emergency Systems
Although the above specifications list eight separate types, with slightly different inner and or outer containers, the "heart" of the system, the parachute and its bridle, are only a combination of four different parachutes, and three different types of bridles:

Bridle
Double universal bridle (bridle designed to fit quite a few trikes – e.g. Fly Products trike, but custom made bridles can be ordered too)

Tools and Equipment

Table
Although the Mayday can be folded on the ground, provided it is smooth and clean, the best arrangement is to use a long table, or several tables placed end to end, with a smooth surface, 8m long, 1m wide and about 80 cm high. At each end of the table there should be a hook-up point for attaching and tensioning the reserve. Woodwork clamps work well.

Comb
This is a wooden board with a row of two groups of 11 nails each, which serves to keep the lines separated and in correct order during folding. The nails protrude about 20mm above the board. The central gap between the two groups of nails is 20mm. The general nail spacing is 10mm. The board measures approximately 30cm long, 7-10cm wide and around 20mm thick. The board and the nails should be smooth, without any sharp corners or edges that may damage the parachute or lines.

Clamps or weights
Six lightly spring-loaded clamps, such as paper clamps are ideal. It is also possible to use weights, such as small sandbags, solid weights or even books. Whichever you use, they should have smooth edges and no sharp corners.

Carabineers
It is useful but not essential to have two carabineers for attaching the apex and lines to the table hook-up points. Some string such as glider lines will also do.

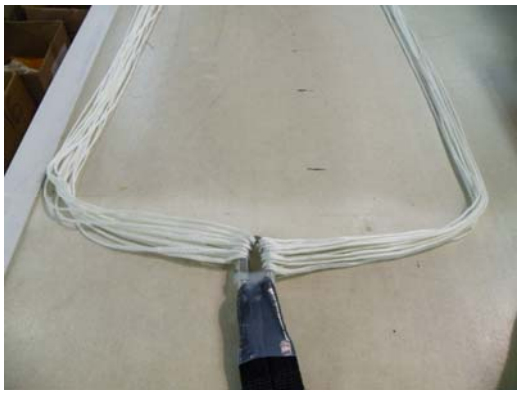
Tie-down Straps (2)
This is also useful but not necessary. It is used to tension the lines. Some rope or line will suffice.

Airing, Layout and Folding

Airing
Before starting the repack procedures it is recomended to "air" the canopy for 24 hours. This is best done by suspending the canopy from its apex, from a point on the ceiling. This should be done in a cool dry place out of direct sunlight.

Layout
Lay the extended canopy on the table as shown. Attach a carabineer through all the apex lines.
Clip this carabineer to the hook-up point on one side of the table.
One of the gores bears an Apco tag in a lower corner, next to the attachment point of a line. This is the No.1 line. The first and Last lines (No.1 and 28) are numbered in this way. The remaining lines (no.2 and up) are not be numbered, count them in a counter-clockwise fashion, (When standing near the skirt looking toward the apex, starting at the bottom).

Apex Hook-up Detail
The Apex should be clipped or tied through all the apex cross-over lines.



Bridle Hook-up
Clip another carabiner to the Bridle and attach it with tie-down straps, to the second hook-up point on the opposite end of the table from the apex. Apply some tension until all the lines are straight.
Count the saspention lines and sprade them in to tou groups of 14 lines each group. Holed each group in a hand and wolking towards the canopy sprade them.(as shown)

Comb Placement
Place the comb under the lines near the skirt of the canopy. The purpose of the comb is to ensure that all the lines run parallel to each other all the way from the skirt to the bridle, without crossing, twisting or tangling.
Mack sure the slider is pushed all the way against the skirt.

Line placement into the Comb

Place line No.1 at the Center of the comb, then Line No.2 immiediatly right of line No.1. and continue in this fasion until half of the lines are used. It is important to ensure that you use the lines in the correct order. The easyest way to do this is to flip the gores over onto the left hand side. The amount will be 14.

Now use a strong elastic to secure these lines in place, by hooking the elastic over the first and last nails in the group. Flip all the gores over to the right hand side and start with the lines on the left hand side in a similar fasion to the right. Place the last line (No.28), in the gap immiediatly left of line no 1, then follow it with the line before last, and so on until you have an equal number of lines on either side of the comb. Secure the lines with a second strong elastic band or hair elastic.

Paging the Left

Flip the left hand-group of gores over the right-hand group. Bring the flipped gores back one by one, lifting them with one hand by the point halfway between the two line attachment points, while holding all the lines down together on the table with the other hand. Make sure to lift the complete gore up by applying a little tension with the lifting hand against the apex. While doing this carefully inspect each panel on both sides for wear, damage, stains, deterioration, mildew, etc.

After each gore is laid down posh and flatten out the slider in between the two hook-up points.

Stacking the Left

Neatly place each panel down on top of each other, making sure that the folds halfway between the two hook-up points are all lining up at the corner formed by the gores on the left. Also take time to neatly align all the skirt webbing, one fold on top of the next. Do not take more than half of the gores! Use some paper clamps, or weights to keep the folded gores in place.

Corner fold-over - Left
Make a fold halfway along the left-hand base at 45° and clamp it in place.

Paging the Right
Flip all the right hand gores across onto the left. Now repeat the above paging steps for the right-hand side. Remember to clamp or hold all the lines together at the hook-up points.

Corner fold-over - Right
Lift the uppermost gore from the right hand side and then make the 45° corner in a similar fasion as done on the left.
Clamp the fold in place.

Gore arrangement
Neatly arrange all of the gorse on each side
On top of each other all along the way.

Clamp
Place two additional clamps just less than halfway along the folded canopy. Making sure that all the folds are even on both sides.

Top Fold

Remove the top clamps and make a fold on each corner as shown and then replace the clamps to hold the folds.

Continue both the folds along the length of the canopy by folding over the bottom corners (45^{o} corners) to achieve a rectangular shape as shown in the next photo.

Apex placement
Place all the apex lines on top of the gores.

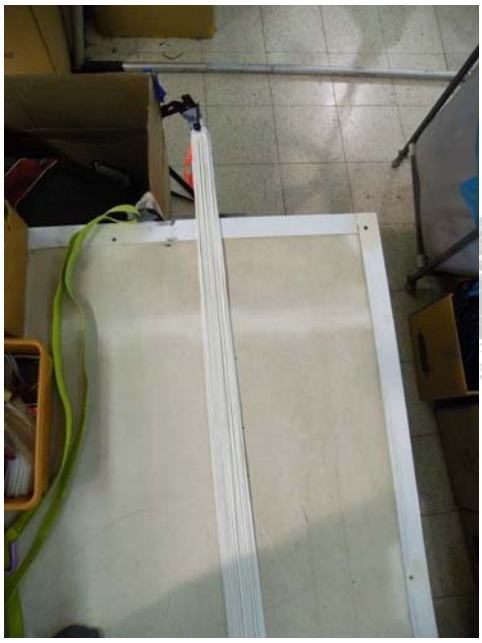
Top Fold
Fold the top of the reserve in half.
Place one of the free clamps to hold the new fold in place.

Folding
Fold the right hand side of the bottom section onto the left. Remove the clamps and replace it to hold the new fold in place

Combing
Move the comb all the way towards the bridle, "combing" the lines all the way up to their attachment points on the bridle.

IT IS OF UTMOST IMPORTANCE THAT THE LINES SHOULD RUN STRAIGHT AND PARALLEL TO ONE ANOTHER ALL THE WAY FROM THE CANOPY SKIRT TO THE BRIDLE, WITHOUT ANY CROSSING OR TWISTING, AND THAT THE BRIDLE SHOULD LAY SO THAT THEY JOIN IT SIDE BY SIDE. THE BRIDLE SHOULD NOT BE TURNED OR TWISTED IN THE SUBSEQUENT STAGES OF FOLDING.

Any twists or tangles can be undone by manipulating the bridle in the correct direction. If not, you have laid some of the panels incorrectly and you will have to start over.



Remove Comb
Remove the comb, inspect each attachment carefully. Make sure there is no wear or unraveling of stitching.

Tension Release
Release the tension at the top and unclip both the carabineer, on the lines near the bridle and the Apex fastening carabineer.

Deployment container/Nappy Sizing
Place the deployment container/nappy next to the reserve. Make sure that the side with the bungee is facing up and that the bungee is pointing to the side the lines leave the pack.
Fold the "pack" in a Zigzag pattern so as to form a square that will fit in the center part of the Deployment container.

Zigzag Folding
First zigzag should bee folded half way to create a flat surface for the rest of the zigzags.

Zigzag Folding

The rest of the zigzags should bee should be piled on top.

Zigzag Folding

The last zigzag should bee in to previous the zigzag.

Closing (Step 1)

Lift the pack onto the deployment container. Closing (Step 1) Lift flap No.1 (Opposite side of the Bungee) and thread a loop from the center of the bungee through the grommet in the flap.

Closing (Step2)
Lift flap No.2 (on the left) and thread the bungee loop through the grommet in the flap.

Closing (Step 3)
Lift flap No.3 (on the right) and thread the bungee loop through the grommet in the flap.
Now pass a loop of the suspension lines through the bungee loop to lock the three flaps in place.
The loop of lines should protrude only about 5-6cm through the bungee.

An additional check of the bungee: the loop of the lines should begin to slip out under a force of not more than 200grams.

Line Stacking (Step 1)
Take four light latex-rubber bands and inspect them for cracks, wear, and fatigue. It is best to use special parachute grade elastics obtainable from Apco, or your Apco dealer. If, however, you must use simple office rubber bands, they must be approximately 4cm in diameter, with a square section of 1-1.5mm, fresh and of good quality and of uniform cross-section.
Attach two elastics to each side of the bungee cord, approximately 3cm apart, and 3cm away from the end (attachment point to the deployment bag) of the cord.
Begin to fold the lines into a zig-zag of a width equal to the width of the folded canopy package. It is easiest to do this properly by folding them into flattened figure-eights, on top of one another.

Line Stacking (Step 2)
After using just less than half the tolat line length, stop and insert the "stack into the lower set of elastics attached to the bungee.

Line Stacking (Step 3)
The right hand elastic should be to the left of the lines leading from the skirt to the first closing loop, but to the right of where the lines lead from the first closing loop to the line "stack".

Line Stacking (Step 4)
Now make a second "stack" of lines in a simalar fasion to the first, using all but the last 60-70cm of suspension lines.

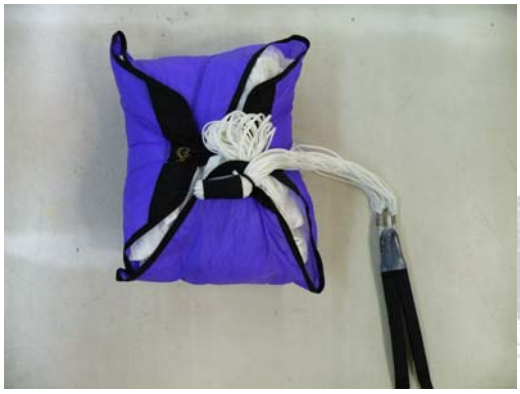
Line Stacking (Step 5)
Place this "stack" in the upper set of elastics. The right hand elastic should be to the right of the lines leading from the skirt to the first closing loop.

Line Stacking (Step 6)
Make sure that all the lines are arranged neatly with out twists, line-overs, etc.

Line Stacking (Step 7)
Now fold the remaining section of the suspension lines across the "pack".

Second Closing Loop
Fold the fourth flap of the container over the stacked lines. Lift the bungee on top of the first closing loop and pass the loop through the grommet on the flap.

Second Closing Loop
Lock the last flap in place with a loop of the suspension lines to make the second closing loop.



Second Closing Loop
Pass the closing loop through the webbing loop on the last flap to keep it clear of the loop of the first closing loop.

The packed Parachute

Test
Test the force required for the closing loop to slip through the bungee. There are two methods to do this.
Hook a spring balance to a loop in the remaining part of the suspension lines and hold the bridle down next to the container. Slowly lift the scale until the lines start to slip through the bungee and take the reading of the scale at this point.

The force required using this method **should not exceed 400 grams**.

Test
Using the second (direct) method one hooks the scale directly to the bridle.
The force should **not exceed 200 grams** with this method.

Using Your Mayday

It is of course best if you never have to use it, but even then, flying with an emergency system provides peace of mind and a feeling of security, which make your flights even more enjoyable.

Some paragliding and Hang-gliding schools and clubs offer courses in the use of emergency systems, and it is recommended to take such a course. The openings are carried out over water and the pilot wears a flotation vest. Once in the water a boat picks them and the equipment out. Such a course provides valuable experience, and adds confidence in your emergency system.

OPENING YOUR EMERGENCY PARACHUTE The first step in opening your emergency parachute is the decision to do so. If you have lost control of your aircraft at a considerable height and there is a chance of regaining it, you still have time to try. Once you have opened your emergency parachute, you are committed to it and where it is going, there's no turning back and you are committed to an emergency landing.

If on the other hand, the emergency arises at a low altitude, you should decide as quickly as possible. It is generally considered that emergency parachutes should be carried whenever you intend to fly higher than 50m above ground. There are recorded cases of saves occuring at even lower altitudes.

Once you have decided to open your emergency parachute, do it in the following steps:

If the motor is on tern it off.
Look for your emergency handle and identify it. This is no time for mistakes.
Grab the handle firmly with your thumb as well as the four fingers.
Give a strong pull. This undoes the Velcro covers and pulls the locking pins out of the loops. The outer container opens and you are now holding the closed inner container attached to the handle with the canopy and lines stowed inside.
Throw the parachute as strongly as you can in the direction which is
A) Unobstructed by your paraglider or hang-glider, and
B) Which is also preferably the direction of the airsteam past you, this will help to open your parachute faster.
If you have been flying a paraglider, neutralize it as soon as the emergency parachute opens, and keep it neutralized. If it re-opens, it will interfere with the emergency parachute.

APCO wishes you many hours of enjoyable flying.

Take Air!