

ONTARGET

BY PAT CANNON

Equip Yourself to Compete

Next to your crew chief, proper equipment is the next most important element in doing well in competition. Equipment includes everything from the gloves you and your crew will wear to the balloon over your head. Let's focus on those that will most positively affect your performance.

The items of greatest concern to me are the balloon, its configuration, size and limitations, fuel capacity and basket support equipment. Without the proper setup, your chances of consistently being in the top ten are limited, but for different reasons for each piece of equipment.

Let's start with the envelope. As far as I am concerned, this is one of those little secrets that you won't learn from the book. For national and international competition, the wrong balloon envelope will almost guarantee a poor finish. Why?

A balloon that is too large for the small load it will carry will not perform either going up or coming down at rates in excess of 500 feet per minute. A balloon that is too large will not be as tight or rigid. The net effect of rapid rates of climb and descent with a soft balloon will be distortion.

Any time you distort an aerodynamic object the results will be uneven lift. Remember, lift can be in any direction, which means that a sphere passing through the air in any direction will experience symmetrical lift around its circumference, perpendicular to its direction of flight, causing the flight path to be straight. So, the balloon (sphere) traveling up or down, must remain round, so as not to cause it to distort the lift on any side.

A balloon distorted on a side will cause the lift to be greater on one side over the other resulting in a slide or slip of the balloon toward the direction of greater lift. Once started, a sideslip can cause the balloon to radically change direction, distorting your intended flight path.

If you were making your final descent toward the target, it can cause you to miss altogether. So, how do cause your balloon not to lose its shape? Pressure is the answer, and pressure is produced by the ratio of temp inside the envelope to temp outside. The greater the difference, the more inside pressure. Thus, a more rigid envelope.

I accomplish this by choosing an envelope size that will produce an equilibrium temperature of about thirty to forty degrees below the red line. For me, at two hundred pounds and 40 gallons of fuel, this is a 60,000 cubic foot balloon. This is valid at about seventy-five degrees of outside temp at sea level. I make corrections from there.

If it is really cold, I will add weight to the basket to bring up the total takeoff weight. An additional tank is a great option. Pretty aggressive maneuvers can still be performed with this temperature cushion, especially if you make use of the transient temperature limitations provided by most envelope manufacturers.

This year, I will upgrade by about by a few thousand cubic feet to accommodate additional fuel for all flights. Don't forget that in national and, especially international competition, it is not unusual to fly to a multitude of targets with more than two hours of flight time.

The basket and burner that you choose will be just as important in several respects, but for a different reason. As for the basket, you can fly any reasonable size basket and do just as well as the next guy. I won the Nationals with a 60,000 cu ft envelope over a 42X58-inch basket. Now, that's pretty large, but I can carry anything I want and not be crowded.

Actually, the basket should be sized to carry at least 50 gallons of fuel, your required equipment and have a place to put your map board inside while you are over the target or goal. If the basket is too small, things outside the basket will interfere with your marker toss at the worst possible time.

To be rigid or not to be rigid; that is the question. Many competitors fly without rigid uprights. The idea is still popular for competition-packing of the balloon, but it serves no functional purpose in flight. I fly with the nylon poles provided by the manufacturer and they don't affect my assembly time. Since we travel with the balloon in a pickup truck, it can remain assembled all the time.

The burner is next. Lots of competitors fly two burners for both redundancy and for power. With today's new burner systems, you can get both in a single burner can and coil at



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about half the weight. I use a single burner that incorporates two blast valves from different fuel systems, two whisper valves from different fuel systems and two pilot lights from different fuel systems. I love it, and I can hard burn from two different fuel systems, through different final vaporization paths, giving me double burner performance without the weight of the unnecessary extra burner can and coil.

If you ask most competitors, they rarely use both full burners anyway. They are just carrying around the weight.

The last item I will cover will be the basket organizer. I happen to have made this one myself, and it incorporates pockets for everything from marker pens, maps, strikers, magnifying glass, and water, to at least four marker pouches. They are numbered and are at the top of the unit to provide easy, visible access.

I have a place for everything that I might use in flight, and it's marked for easy identification. These organizers are not commercially available but can be built to your specs by most balloon repair stations.

It's value is to reduce technical mistakes, such as tossing the wrong marker, or losing a marker pen when you need it. Either error can cost you valuable points, and points are the name of the game in competition.

Next issue, we will talk about how to prepare your maps and how to orient yourself to the flying area including how to really read the piball.



Cannon's self-styled basket organizer, a place for everything, everything in its place. The back side of the organizer can be built with an attached duffel to accommodate helmets and other bulky items.