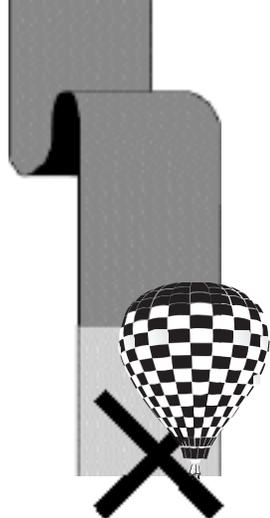


ONTARGET

BY PAT CANNON

The Tale of the Pibal



I have always said that in order to compete well, you need to think in 3D. What that means is that you can visualize flight path and position in space in three separate planes. You can actually draw curved intended flight path lines in your mind and project them as an overlay from your point in space to the target.

The same concept of three dimensional vision would apply to your pre-launch planning while standing in place, on the ground, watching a pibal. You should be able to visualize an intended three dimensional flight path based on the flight of that balloon. Sound easy? It may not be too difficult when the pibal is flying away from your position at about six to eight knots and changing direction rapidly. It gives you a big chunk of airspace within which to choose your launch site. But, try using only a hand held compass when the winds are light and variable and the angle of ascent of the pibal is in the seventy degree up range. It becomes a whole lot more difficult and sometimes just downright impossible.

Mother nature has a way of bringing every pilot to their knees once in a while, no matter their skill level. She will invariably do it by making some very subtle change to the wind speed or direction, just after you have read your last pibal and are laying out to launch. Most of the top pilots occasionally fall victim to Mother Nature's tricks.

How do you avoid this dilemma? The answer, if there is one when dealing with the wind, is to educate yourself about the local wind patterns, find the altitude of the most consistent winds, and take a conservative approach when choosing your wind line. Let's see if I can explain...

First, every geographic location will have its own set of wind changes during sunrise and sunset flight periods. For North Texas, where the rule of thumb has always been, "the low left leaves", may not be true for a location only a couple of hundred miles away. Wind changes will take on their own pattern, based on the terrain, the elevation above sea level, the general direction the wind is coming from, and the angle of the sun.

For any new flying area, you need to be very observant of these changes and record, if possible, your observations. I find myself putting up numerous pibals, just to get a feel for the change. It always helps and can give you the little advantage of anticipation based on your research. In other words, given a constant atmospheric pattern, a surface wind that shallows by twenty degrees, two days in row, within one hour of sunrise, is likely to do so the third day as well.

Turns to the right with altitude with winds from the South, can do the exact opposite if the wind is from the North. Learn the local conditions and patterns. Ask someone who flies there on a regular basis. If they compete, they can tell you a lot.

Second, and I have talked about this in the past, always look for the most consistent wind. Watch the pibal and record the direction and incline angle. Most changes in the wind, during our usual flight periods, happen close to the ground. Occasionally, the mid levels will change, as well. But, the higher winds will remain mostly constant in direction and speed.

These are winds you can count on, and you should use them as a basis for your constant wind line to the target. It's like getting on the freeway. You use the ramps and cloverleaves for the fine work, but the basis for travel from A to B is the mainline. As a competitor, I really hate it when the constant wind line is over a thousand feet up for fly in tasks, but remember, the wind line for a land run or max distance task might be as high as several thousand feet.

It can make for an interesting guessing game, with the choices being, descent point, descent rate, drift rate, room for adjustment and marker release point. I will always look for the lowest constant wind possible, in order to leave less room for error at the target end.

Finally, let's discuss what you see through the compass when tracking the pibal and how you use that to find your wind line and launch site. I have stood and listened to pilots reading off their direction to the pibal and developing their wind line based on those numbers alone. That's OK if the wind is not changing direction with altitude, but if the pibal is turning, a lot



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might be missed without some interpretation of what you are actually seeing the pibal do.

Let's look at the example (A). After release, you record the magnetic direction at two hundred feet as 300 degrees magnetic. We can consider this to be the surface wind. Any turn or direction change lower than this should be cause for a great deal of caution. It will change.

Next, at 400 feet you read the direction to the pibal as 330 degrees magnetic. And the angle of ascent remains constant. The pibal records a definite turn, but how much? The answer is the magnetic direction of an invisible line that lies directly between the two points on the earth that the pibal passed when the reading was taken. Is the pibal traveling in a 330 degree direction? No. It is somewhere farther toward the North. How much? It depends

on the ascent angle. The greater the angle, the more the change in direction. The shallower the angle, the less the change in direction.

Now, the last reading is taken at 600 feet and the reading is 360 degrees magnetic. If the pibal is still moving from left to right, the resultant direction of the pibal is something more than 360 degrees. It is passing through the compass heading and is continuing to turn right with altitude. In fact, the angle is increasing, because each change of 200 feet, which is measured in time, resulted in a change in the angle to the pibal of an equal number of degrees, thirty. Because the pibal is farther away from you than when it started, that much angle deviation indicates that the pibal needed to turn farther right to intersect the next thirty degree angle line in the same time.

Standing on the ground, you do not know what that angle is unless you are using a wind reader or computer program. Without those aids, the best way to find the optimum safe angle of usable wind is to take the conservative approach. Given these example numbers, I would throw out the 300 degree line and move it to about 320 degrees. That will form my left side, or left turn limit for the flight. I will then take the last reading, or 360 degrees as my right turn limit, but only if the pibal is continuing to move right from that last point. If it has shallowed, I may bring the line in to 345 degrees.

This now provides me with a flyable wedge of between 25 and 40 degrees. I will probably choose a launch site on the left third of that wedge, or somewhere around the 325 or 330 degree 'to the target' line, if I

feel good about the higher turn. If I'm not confident about the high turn or if the pibal turn shallows up higher, I will choose a line in the 335 to 340 degree range.

I will say again. It doesn't matter how good you are, or how much planning you do. When Mother Nature sneezes, balloon pilots miss targets. Count on it. The best you can hope for is to make a fast comprehensive decision, get up early, before the inevitable change and don't wave any feathers under Mother Nature's nose.

