

## 'HOW TO FLY' SERIES

# DEVELOPING THE FREESTYLE

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Over the years a lot has been written about designing a Freestyle program and everyone has an opinion as to what should be included. The rules are specific on the families that must be used in this program, depending upon the category in which you are flying. The intent of this article is to show the problems that may exist with certain figures as they are placed within your sequence.

From Sportsman up, the ground rules are basically identical. Freestyles should be developed to fly into a wind. The logical assumption is that some headwind will exist in the box as well as some crosswind. Divide your sequence into the required number of figures. For example, if the required number of figures is 18, then you would expect a crosswind figure to exist at approximately six-figure intervals. Some cardinal rules about developing Frees include: do not put a spin downwind in a sequence and do not put two hammerheads on the downwind end for a crosswind corrector because these figures stand a very good chance of blowing you out downwind. The same holds true for a tailslide. They should be done upwind, either centerbox or at the upwind end of the box, but not downwind.

Half-looping figures tend to float nicely if they are looped back into the wind. Square loops belong on the upwind end of the box. However, if planning is proper, half-square loops could be planned downwind and finished going upwind. Underpowered aircraft should use the wind to an advantage. For instance, reverse Cuban eights would look prettier when initiated downwind because the backside of the loop will fill out and give the appearance of a higher ground speed than what is actual.

Humpty bumps can generally be flown into the wind, crosswind or downwind; however, the first vertical line in the humpty bumps should be on the outer edge of the box. For instance, a pull, half-roll, push hump

would be better off done into the wind so that the first vertical line is as upwind as possible, with a half roll and pushing downwind. The hump that you might want to avoid is a downwind hump with a half roll up. An example is a pull-pull-pull hump where you're starting the vertical line. You do the half roll and now you have to pull further downwind. This would be very difficult to plan and stay in the box with any kind of wind. Why risk going out of the box during the half loop downwind?

Many times we'll see crosswind correctors done centerbox. As a matter of personal preference and, of course, looking at a lot of Freestyles by the best in the sport in each category, I find that crosswind correctors should be done on the upwind end of the box.

If there's a strong wind, two hammerheads started on the upwind part of the box may serve as an upwind crosswind corrector. However, with a significant headwind on the X-axis, the amount of hang time on higher performance aircraft may cause problems because by the time the second hammerhead is done, you may find yourself at centerbox. If there's another figure to be done, you're apt to find yourself crowding the downwind end of the box and this should be taken into account.

This brings me to the next point. It isn't a good idea to have a downwind centerbox figure. First, you can see that a crosswind corrector, a hump, a tailslide, or any figure on the upwind end of the box, with any kind of wind, will make it very difficult to score high in positioning (centering) that downwind centerbox figure. Second, if that figure is positioned slightly downwind because of the wind, you still have a downwind figure to complete and the chance of being blown out of the box is excellent. Keep the center of the box open when going WITH THE WIND. Centerbox figures generally work very well for openers. Spins, tailslides, humps and hammerheads all work well to start your sequence.

Yes, there are required figures and you can consult the rule book for the

category that you're flying, but let me say a few things about some of those figures. Some are very easy to do but hard to score — for instance, a full loop. We know that full loops are picked apart by judges, just like 45-degree lines have been. A full loop, although a required family, is not a required figure. Avoid a full loop in the Freestyle. Also avoid a full six-sided or eight-sided loop for the same reason. The judges have too much to look at, too much to critique, and you can get around the rule by putting in a half loop within the same family to meet the versatility requirement of this program.

Advanced and Unlimited pilots are required to have a rolling turn and will probably set up their Freestyles to do the easiest rolling turn possible with the lowest K-factor for the same reasons just stated regarding the looping families. The judges have six or seven criteria to review and it is very easy to pick it apart. Most of us would be very happy with 8.5 on a rolling turn. A 180-degree two-turn roller to the inside is a very low K-factor and will score a lot better than four rolls in a 360-degree turn.

Intermediate, Advanced and Unlimited pilots are required a maximum number of figures, and no more. Why not go ahead and do as many figures as the rules allow? For instance, in Intermediate, if 15 figures are the maximum allowed, go with 15 figures because this reduces the K per figure, the difficulty per figure, and gives you a chance of bringing your overall grade per figure up. In Unlimited, we have 18 figures. Not many Unlimited pilots have less than 18. You can imagine what the K is for 18 figures, much less what it would be if you only had 16. That would raise the K to an exorbitant amount.

After you've put your Freestyle together and you've gone ahead and checked the versatility requirements from the rule book, take out a piece of paper and draw a big square to represent the box. Now, place the figures from 1 (one) to 15 (for Intermediate) on the piece of paper inside the square. If #1 is a centerbox hump,

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then put a little 1 right in the center of your square. If #2 is on the upwind end, place it there. Go through the entire 15 figures and see how it's going to position and fly with a 10-knot headwind.

Now take another piece of paper and draw another square. Place the wind arrow at about 45 degrees to the left or right, somewhere between the X and Y-axis. Take the same sequence and start #1 on the upwind center (if that was your opening centerbox figure). And #2, point out there that the drift will bring you somewhat downwind on the Y-axis. Go all the way through your sequence and see if you have the crosswind correctors spaced evenly for a 10 or 15-knot crosswind in the box. Will it flow without allowing you to drop out of the box at any time?

After you've gone through this little scenario of drawing boxes and trying it out for various types of wind, now draw a square and do the sequence with a possible tailwind of about four or five knots. Will your sequence fly with a slight tailwind, because unfortunately, this does happen at contests? Even though the wind is from right to left on the ground, sometimes in the box we find out that the wind is from left to right at altitude. However, I wouldn't plan on anything more than a four or five-knot tailwind.

After you've checked your Free program for crosswind spacing and flyability with the wind, check it for energy control. Will your airplane fly the sequence safely without crowding the bottom of the box? Look at the sequence, take the first figure and determine the starting altitude of the first figure. Then work the second figure, third, etc. all the way to the last one. Having calculated the altitude gain and loss, what altitude do you finish with? Circle the low figure on the sequence card. When you go out and practice the sequence, check the altitude of each figure. See if your calculations on a standard day will give you the height and loss that you figured on the ground. Are you lower than you planned on paper? If so, a change in the figures may be required.

Californians are criticized for having what is referred to as a California Freestyle. That means it's all endbox and no centerbox figures. Lately, I've changed styles with the help of others and developed more centerbox figures, primarily because positioning has not been the penalty factor today that it was in the past. With the tick and half tick system, based on center and endbox figures, it's no longer a

critical grade in competition. However, in placing centerbox figures in a sequence, there are times when it is easier to place them than others. For instance, diving into the box for the opening figure is a good place to put a centerbox figure. When diving to enter your sequence, you can spot the center of the box and pull at that particular point, hitting it with pretty good accuracy. Also, coming out of a hump on the downwind end of the box (while you're on the vertical downline of the hump whether it's a pull-pull-pull or pull-push-pull), you can usually go into your next figure upwind centerbox and place that with some accuracy.

Looping figures, if you use them, should be done centerbox only. I find that spins are easier to position in the center of the box than they are at the upwind end of the box. Although the grading and mis-positioning of the figure is a bit more critical when placed in the center of the box, it is very difficult to hit the end of the box with accuracy on a spin. Full rolling turns would also be centerbox material.

If tailslides are required, I would suggest that you place them either center or upwind only. I would place a tailslide in the center of the box if it's a pull, slide, and pullout in the same direction as you pulled into the tailslide. However, if it was a pullup, slide, and pushout, I would place it at the upwind end of the box to give myself the opportunity to push out downwind, take a look at the box and go into the next downwind figure. Place nothing in the center of the box after pushing out from this tailslide, as was previously discussed.

We said earlier that half looping figures generally look better started downwind as you loop back into the wind. Let's take a two-point horizontal slow roll flown downwind with an inside half loop. We can now see that this looping portion would float into any kind of strong wind, but we can also load up the figure to meet the versatility requirement or to meet the K requirement by adding to it — for example, an outside snap followed by a full slow roll. This would give us plenty of time into the wind to do these two figures and give us additional K.

You can see the difficulty in doing that same figure, starting it into the wind. You've done your slow roll, your half loop and the wind is distorting the half loop and now you're traveling very fast DOWNWIND, trying to put in a half snap and full roll. And you still have a downwind figure to do.

This is poor planning.

Program two or the Freestyle is generally your opportunity to show the figures that you can do well in a sequence that will allow you to move up in standings. It should not be a difficult sequence. When you fly the sequence, it should be one that you feel excited about flying. Each figure should be a percentage figure, a figure that you're going to hit 9.9 times out of 10. If it's a good figure when you hit it, but you only hit it 50 percent of the time, it has no place in program two. Discard it.

Snaps should be done on figures you know you can hit well. Unless you can hit vertical up snaps, they're very difficult to do. Avoid them and put them on vertical downlines or horizontal lines to meet the versatility requirement. Generally, point rolls cannot be avoided. They are a requirement, but many of us put in so many that we leave ourselves vulnerable to missing points or the judges not seeing the points or the spaces between them have not been clear or defined, especially when we do these point rolls on the Y-axis. Judges can very easily see a missed four-point on the Y-axis coming right at them. I would avoid this type of figure in program two.

Let's talk about spins. We know that upright spins to the inside are probably the easiest spins to do, followed by the inverted spin from inverted or from upright. The spin that will get us in trouble the most is the three-quarter, the one and a quarter, or one and three-quarter spin. The airplane is transitioning from a slightly nose up attitude to vertical and then back to a slightly nose up attitude. With this type of spin, we will find a wing down during recovery from a one and a quarter or one and three-quarter spin. Try to avoid this type of spin in program two.

We've already mentioned that spins started downwind are taboo. It is difficult to slow the airplane and position it in the middle of the box, the end of the box, and keep it in the zone.

As I said earlier, much has been written about the development of Freestyles and everyone has an opinion, but the final determination for a successful Freestyle is the percentage that you've scored at the contest. Your Freestyle must be in the high 80s or low 90s in order to do well. If you have a Freestyle that's scoring appreciably lower than your other programs, there might be a problem with it. The best thing to do is recognize it, crumple up the paper and start again from scratch. Fly safe.