

Safety First

Separating High-Performance
from Standard Landing Patterns

by Todd Spillers

USPA Group Member Pledge:

[A DZ will] establish and disseminate landing procedures that will include separation of high-speed landings and normal landings.

What's the big deal? We all know that the low canopy has right-of-way, the high-performance canopy pilot has the heightened skills and judgment to make snap decisions about whether he should swoop or not and our instructors are providing all the education needed to avoid canopy collisions, right? The rising number of canopy-related fatalities is painting a very different picture. Canopy collisions were the cause of 13 fatalities since 2006 and an additional fatality was caused by a near miss. This is the "big deal," and we must do everything we can to minimize these needless accidents. Separating high performance landings by time or location is imperative if we are to lower these negative statistics.

We must first decide how to define a standard pattern versus a high-performance pattern. The simplest definition would be: a standard pattern consists of a downwind, base, and final leg with turns of approximately 90 degrees at each leg; a high-performance pattern consists of a more varied form of these components with more radical turns. Another factor for DZs to consider is a jumper—who may be learning high performance landings—using a double-front-riser-straight-in or a 90-degree-front-riser-turn approach. Depending upon the specific circumstances, either a standard pattern or a high-performance pattern could be dictated for someone learning a 90-degree-front-riser-turn approach, while people learning the double-front-riser approach will most likely fit better with the standard landing pattern.

SEPARATION BY LOCATION

Separation by location can be very straightforward if you have enough acreage. It is easy to designate huge landing areas for everyone: students can land in Area A, those choosing a standard pattern in Area B, 90- to 270-degree turns are confined to Area C and larger than 270-degree turns to Area D. This may be a bit extreme but not totally ridiculous. Many, if not most drop zones can sufficiently provide at least two separate landing areas. The challenge here is enforcing that the appropriate landings take place in the designated areas. There will always be the possibility of landings occurring in unexpected areas as a result of less-than-desirable spotting. And the

big decision, if you have a lot of property, is who gets to land closest to the hangar and spectators, and who has to walk.

Of course, some drop zones have barely enough acreage to have one landing area. This calls for creative ideas when trying to separate high-performance landings by location. The long and slender drop zone has a few options. Landing areas could be separated in a front-and-back arrangement where all canopies are flying in the same direction on final, although over separate areas (see diagram one). The longer final leg for larger, more lightly loaded canopies must be considered for this approach.

Another option for the long-and-skinny layout is to separate landings by some line (such as a runway), so that canopies are landing side by side (see diagram two). High-performance pilots need a long area as they come across the ground, but should be able to land in a narrower spot than the wider, larger spot reserved for standard-pattern jumpers (which include students and jumpers with low experience levels, whose accuracy skills may not be as advanced). This option promotes opposite (right- and left-hand) patterns, the drawback of which is that canopies could be flying a base leg toward another canopy. However, in most cases the high performance canopy will be at a considerably higher altitude than a canopy flying a traditional pattern for the corresponding downwind, base and beginning of final.

It is also possible for the high-performance pilots' landing area to rely less on the wind for direction of final since they should be able to handle crosswind landings. This can be helpful if a drop zone has a P-shaped landing area. The high-performance pilots could be required to land in a designated direction (such as along one side of a runway, as in diagram three) regardless of the wind direction, while canopy pilots flying a standard pattern could land into the wind in their larger space.

The optimal separation-by-location configuration would use a distinct do-not-cross boundary such as a runway, taxiway, building, or water. This is crucial for skydivers to easily identify where their pattern's limit should be located if the landing areas are adjacent to one another. Skydivers need to learn the rules and follow them as though their life depends on it, because it does.



SEPARATION BY TIME

Separation by time is another effective technique and may be a better solution for some DZs, especially where space is limited. To understand this option, we must realize the capabilities of high-performance canopies at high wing loadings. These canopies deploy at altitude and land before today's fastest turbine jump planes can return to the runway, and with little effort. For a high-performance canopy to fly a standard pattern amidst slower canopies, it is often necessary to fly the entire pattern in deep brakes to prevent overtaking the next canopy. Although a seemingly simple solution would be to have exit order dictated by wing loading, this is rarely practical as there are other safety considerations based on body position in freefall that determine exit order, and high-performance landings are not limited to any one discipline.

To solve these complex problems, we need to analyze basic scenarios. Let's look at a Cessna 182 jump plane with four skydivers. Even four skydivers in a moderately sized landing area must plan to separate high-performance from standard landings. In a small plane, this is often decided among the skydivers on the ride to altitude. If the high-performance canopy ends up higher than other canopies, it is often necessary for that pilot to resort to a standard pattern if there is not an alternate landing area. With only four skydivers, it is also possible for the high-performance canopy to quickly get below the slower canopies and land first.

The more skydivers there are, the more dangerous improvising becomes due to the greater number of canopies, high-performance as well as more docile, in the air. Someone trying to swoop in the middle of a Twin Otter load of landing jumpers can probably not account for the position of all other jumpers in the air. Larger aircraft also presents the added challenge of skydivers being unfamiliar with every other canopy on their load, and it will take more time to ascertain the best sequencing option. Having a pre-existing plan in place for separating the landings will help with this. No matter how many skydivers are on a load, you should have an idea of where and when you will be landing before you get on the plane; one of the fatal collisions last year started from a Cessna load with just three jumpers aboard. It only takes two jumpers to have a collision.

One option for DZs with larger aircraft may be to provide multiple passes to allow separation by time. This option requires more planning in order to actually increase safety. Faster canopies on the second pass could easily overtake or interfere with slower canopies on the first pass if there isn't sufficient time between passes. Although this practice would likely increase the cost of lift tickets, most skydivers would think the additional price well worth the added safety.

Unless we find some magic fairy dust to sprinkle and make everything perfect, drop zones need to formulate a plan and educate their skydivers about it. They must also enforce their policy as they would any other rule. Skydivers must be responsible for themselves and demand that drop zones both formulate and enforce a plan for separating high-performance landings from standard landings. This is a serious issue that must be addressed and enforced on a local level, taking into account your drop zone's unique circumstances. This is what will ultimately lead to a decrease in canopy-related fatalities and a safer atmosphere for all of us to continue enjoying our wonderful sport.

Parachutist hopes that this article will encourage discussions at individual drop zones as to how the USPA Group Member Pledge can be best implemented given the unique circumstances at any given DZ. ♦



ABOUT THE AUTHOR

Todd Spillers, D-21601, has been skydiving for more than 13 years and has 4,300-plus skydives. He is an Instructor Examiner in all four training disciplines, has served as Chairman of the USPA Safety & Training Committee and is a senior rigger.

