

# Safety in Numbers

Creating Separation by Using Canopy Control



by **Jim Crouch** | D-16979 | USPA Director of Safety & Training

**T**he February issue of *Parachutist* included the article “Safety First,” which explained how to implement the USPA Group Member Pledge separating high-speed landings from standard-pattern approaches. This is a critical component in ensuring the airspace above our landing areas is as safe as possible. However, to guarantee your survival, it takes a lot more than just separating the two styles of landings.

Maintaining clear airspace during the canopy descent can be extremely simple or extremely difficult, depending on a great number of variables. The challenge comes from the fact that canopy pilots will face radically different situations during every canopy descent. What worked well for one jump could very well get you in deep trouble on your next. Our airspace is a fluid environment, always changing and requiring each canopy pilot to adjust as events unfold.

## **Laying the Groundwork**

Safety under canopy requires that the planning begin even before a load is manifested. Skydivers spend lots of time dirt diving formations to help ensure successful freefall, but how much time do they put into planning canopy descent and landing? For many jumpers, the canopy flight is almost an afterthought, only coming to

mind once the parachute is inflated. We spend much more time under canopy than we do in freefall, so it only makes sense to spend time planning for that part of the skydive, too.

Before you board the aircraft, you should have an idea of where the spot will be and how much drift you will experience during freefall; also, you should already have a plan for your deployment altitude. If you don't know this information ahead of time, it is really hard to know where you should be when you are under canopy.

The groups on the aircraft and the exit order also need to be considered before you board. Of course, this is much easier to plan when you are jumping with three other jumpers from a Cessna 182 than it is for a CASA with 31 other jumpers. But it only takes two to create a canopy collision; one recent fatality occurred after three jumpers exited a Cessna 182, and two of them collided on final approach. Don't let your guard down just because there are only one or two other jumpers in the air at the same time. If you are jumping from a King Air or Twin Otter there will be several groups of jumpers on the load. Each group needs to create separation within their group by breaking off at a safe altitude and tracking from the center, and each group in the plane needs to maintain safe separation from prior jumpers by wait-



ing the proper number of seconds before starting to climb out and exit. For jump runs that are flown into the wind, that time needs to be increased as the upper winds increase. Section 4, Category E of the Skydiver's Information Manual and Section 5-7 provide helpful spotting, group separation and freefall drift information.

Your deployment altitude and group exit order will factor greatly into your canopy descent plan. If you have enough separation from others it is not a crisis if you are off heading when your canopy inflates, but it is still safer to have an opening that keeps you flying in a straight line, continuing away from the other jumpers.

### **A Place in the Crowd**

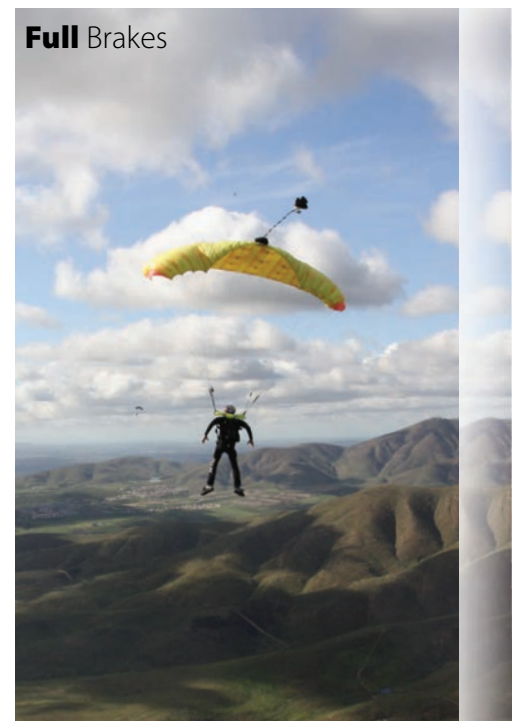
Rather than just accepting the direction your parachute starts to fly during inflation, there are several tricks you can use to help it fly straight. For starters, keep your feet and knees together as the lines unstow and the canopy begins to open. This will keep the harness symmetrical and place an even load across both sides of the canopy during inflation. Regardless, if your canopy begins to veer off heading during or immediately after opening, in most cases it will help to be proactive and counter this by pulling down on the rear riser that is opposite the direction of the turn. If the canopy begins to veer left, pull on the right rear riser to keep the canopy flying on its original heading. Start with small amounts of riser input at first to see how it works, bearing in mind

that small canopies with high wing loadings will be proportionally more sensitive to input. It is also a good idea to keep an eye out for other traffic during inflation in case somebody else is opening nearby. If so, you will need to steer away as soon as possible, and it is much faster to make a rear-riser turn than it is to grab the toggles, unstow both brakes and initiate a turn with the steering line. Leaning in the harness can also help to offset the effects of an off-heading opening.

Now that the canopy has fully inflated and you are in clear air-space, it is time to again check the positions of other canopies and initiate your planned descent. This is where an infinite number of situations can develop, requiring a canopy pilot to constantly assess the traffic situation and make the appropriate decisions.

Determine which canopies are closest to you since they pose the most immediate threat of a collision. Next, look for the canopies from the groups that exited before and after you. This is where knowing

*Opposite page: At Red Rock Skydiving in Cottonwood, Arizona, Bryan Herrick (right) and Brian Foote safely land in proximity to one another using straight-in approaches and predictable landing patterns. Photo by Gordon Goddard. This page, above: A quick, spiraling turn (purposefully demonstrated here by Adam Tippie at Skydive San Diego in California) can make it difficult to see canopies below. To maintain a straight heading while still losing altitude rapidly, a canopy pilot can instead pull down evenly on both front risers. Below: Tippie demonstrates how a canopy's glide path, and therefore the descent rate, changes with the application of brakes. Photos by Eric Skrabby.*



# Safety in Numbers

the jump run for the load really helps, since you can look up and down the line of flight and quickly find the other canopies, rather than having to scan across the entire sky. It is safest to keep yourself in as much open space as possible. It also helps to be familiar with the flying styles of others who are in the sky with you; knowing who is a hot dog and who is conservative can help you plot a course. Canopies will descend at different rates, depending on their wing loadings and other design factors. This can lead to interference as canopies descend at various rates toward the landing area. The good news is that there is a lot you can do to alter your descent rate and forward speed, should it become necessary.

If you find that most of the traffic is already below you, it is safer for everyone if you remain above the majority of traffic and land after them. Using brakes will help slow your descent rate and forward speed, allowing you to remain above the lower canopies. Experiment with different levels of braked flight to become familiar with the increased toggle pressure and slow-flight characteristics of your canopy. Keep an eye on the traffic above you and make sure you are not creating issues for anyone by slowing down too much, particularly if there are students or jumpers with less experience behind you. You should also become familiar with rear-riser control. Pulling both rear risers evenly will flatten the glide of your canopy and slow your descent rate without slowing your forward speed as much as you would by flying in deep brakes. The descent rate and forward speed effects using rear risers are different than the effects from braked flight using steering-line input of various depths. So practice with each of the various controls until it is second nature. Use a canopy coach who can provide some tips and training as you practice.

## Keeping Things Straight

If you need to speed up your descent in order to get below other canopy traffic and land ahead of others, pull down on both front risers evenly (provided you have the strength given the size of your main canopy), which allows you to fly in a straight line. A hard, spiraling turn will certainly lose a lot of altitude quickly but at the risk of colliding with an unsuspecting canopy below. It can be very difficult to see other canopies while spiraling.

A common problem at drop zones is the jumper who flies his large, lightly wing-loaded canopy directly over the landing area, spirals down to the 1,000-foot pattern altitude and then creates traffic issues for those he just passed during his spiraling descent. It makes much more sense for the larger and slower canopies to land after the smaller and faster canopies, if it is at all possible. Why unnecessarily create additional congestion?

Learn to fly your landing pattern with predictable downwind, base and final-approach legs without making S-turns during any part of the pattern. There have been many fatal collisions caused by jumpers who made last-second S-turns or directional corrections just before landing. Consistency and predictable behavior under canopy will help everyone stay safer.

It is relatively easy to maintain your canopy separation in order to inhabit clear airspace. But it takes planning, quick thinking and common sense if we are all going to share the sky safely. Keep your head on a swivel, fly defensively and enjoy the peaceful and serene experience that canopy flight can provide. Apply some basic control skills, and you will soon find that flying your canopy is the best part of your skydive. ♡

*Below, from left: A jumper increases his chances of an on-heading opening by maintaining a symmetrical body position. Photo by Dan Wayland. Erika Dufort shares the sky with photographer Javier Ortiz. Photo by Javier Ortiz. A jumper deploys from a big-way with his hands on the rear risers in case he needs to quickly correct his heading. Photo by Luciano Bacque.*

