

“Into the thick of it” – canopy skills and exercises for teams.

Some of the best jumps, meals and bedroom experiences are best described as “quick and dirty”, so I won’t waste time apologising for the rough guide material that follows. The bottom line is simple. If you are training as a team, make the ***most*** out of your jumps by briefing canopy exercises ***into*** the jump from very start. Follow your plan through under canopy, and then debrief how well you went afterwards – just like you do for freefall.

Michael Vaughan, Luke Oliver, Robbie McMillan, Cameron Rolfe and Drew Lipinski are some of the names that lead the way in canopy skills training here in Australia, and they have all made a valuable contribution toward inspiring the exercises that are provided here – and I have no doubt they are as keen as I am to see ***smart skydivers*** turn ***good knowledge*** into ***great jumps***, and help create safer skies and smoother landings for everyone who is willing to learn.

These tips and exercises works for everyone! 4-ways, 8-ways, free fliers, big-way groups, tandem pilots alike, and ***includes the cameraflyers*** – so get them involved! They are carrying a camera that (usually) never lies, and is your best debriefing tool by far.

Get in there and give it a try! In your bigger skydiving lifetime, it won’t be a waste of time or effort.

Tim Bates
VPC State Coach

“My opening to lines to canopy briefings now follow this theme...”

Drop zone landing areas are like the busiest airports in the country! We land MORE canopies into a landing area in one day than some airports have landings in a month, and yet look at the differences...

Airports and aircraft have mandatory runways, approaches and circuit directions depending on wind. Drop zones have "landing patterns" that are optional at best ! Busy airports usually have control towers staging aircraft to land in a predictable and sensible sequence. The DZ usually has no control tower, just a DZSO, who cannot be babysitting everyone all the time.

Airports and aircraft have radar and radios to help see and communicate. Canopy pilots have one set of eyes, no radar, and we can't communicate well under canopy - short of waving arms, kicking legs, or yelling and screaming as we collide.

Aircraft can usually "power up and go round again" if safety dictates - but once a skydiver commits to a landing approach, they are locked in to that landing, one way or another.

We survive (busy) drop zone landing areas using a combination of ***skill***, ***communication*** and ***luck*** - which *two* would you rather rely upon?

Basic Level

Goals:

1. Improve awareness under canopy.
2. Begin to learn how other canopies can influence the flight plan of the team. (E.g. tandems won't have much impact, as they are out last and open higher, but experienced free fliers on smaller canopies may exit after your team, and be flying back underneath you to the landing area).
3. Look after your team mates in case one of them has a chop or lands off DZ.
4. Increase personal knowledge to include ways of describing the parachutes and their pilots - e.g. terms like "wing loading", "aggressive/passive" etc, and decide on your team goals for canopy skills.

Exercises:

Count as many canopies as possible while in the air, starting with your team mates and camera, then the ones who got out before and after your team then the rest working outwards.

Get to know your teammates canopy colours "by name" so you can glance at the canopy in the air and know WHO is underneath it. E.g. "Red with Blue end cells - That's Dave... XLR8 canopy colours - that's Tim, our camera..." etc. By the end of a few jumps you should be able to expand your ID's to include canopy type and some background info. E.g. "Red with Blue end cells - That's Dave's STILETTO 120 - He's faster than I am, and he likes to spiral down..."

Develop a "**cycle of awareness**" like we use in freefall ("Do something, check alti") - but under canopy the cycle consists of something more like:

"Look front" - Check proximity of where I am about to fly or make a turn, *is it clear and safe to maneuver?* **See ** below.**

"Look down" - Check my own flight path relative to DZ landing area, notice any wind drift? Visually check current altitude, and use the 'accuracy trick' to assess if you will reach the desired landing area with altitude to spare.

"Look around" - for others, identify teammates, count canopies, check for other people having malfunctions, spot other groups etc - this is your "working time" where you can do stuff, before you go back to ...repeat the cycle again.

**** Learn the unnatural habit of "looking up and ahead"** as well as looking "down and ahead". This helps you to see who is above and ahead of you, and perhaps flying a parallel flight path. **You will be in their true blind spot!** ...and one day ***they will turn***, and end up right in front of you!

Increase your general awareness under canopy! As a tutor I should never be able to sneak up on a team member without them knowing that I am coming or am at least close to them. This goes back to the counting canopies. I.e. count your teammates first!

Bad Weather?

Discuss as a team your canopy types and choices, your flying styles, and learning objectives (e.g. "I'm wanting to practice safe front riser 90' turns onto final..."). Take the time to calculate and remember your own wing loading, and your teammates.

Wing loading = Exit weight including lead and rig in kilograms, multiply by 2.2 (converts to pounds), and then divide by canopy size.

E.g. $78\text{kg} \times 2.2 = 172$ pounds. Divide by 'Stiletto 120' = 1.43 WL
Knowing your wing loading helps to appreciate just how "fast" you will be going (both 'fast forward' and 'fast downward') compared to others around you, relative to your teammates, and others outside your immediate team exit group. (More on this later.)

Intermediate Level

Working on new skills here does not mean abandoning habits developed in the basic section. ***Canopy flight should be busy!*** - Always looking, counting, checking options, forming escape plans, and adjusting for others around you!

Goals:

1. Improve team member awareness of others in the sky, especially those in closest vicinity - their teammates
2. Challenge team members to gain skills at placing themselves at different points in a canopy "conga line" and landing sequence, rather than *always* being 1st or *always* being last, and help them to gain skills required to fly in the other slots.
3. Develop a good grasp of "circuit pattern approaches" and etiquette.

Exercises:

Group team members together, in pairs to begin with, and assign a landing order for each team member in the group. Encourage these pairs to "form up" again under canopy after tracking and deploying. Keep a constant watch for other groups under canopy! Fly pairs loosely together on return toward the DZ landing area. Remember to maintain the basic "cycle of awareness" (look front, look down, look around) even while flying as a pair!

Once in the landing area, team members should land in the predetermined order as best they can. They can be encouraged to land nearby to each other, but be sure to discuss the safety issues of landing "together" (i.e. use parallel "runways", beware of canopy wake turbulence, avoid landing collisions etc.)

Improve the previous exercise by encouraging pairs to fly indifferent canopy "slots", one leading, the other following, and changing the landing order each load, and include some loads flying "line abreast" (i.e. side-by-side with a small horizontal separation.

Extend this further by assigning groups of 3 or more and set different landing orders within the groups.

Slow descent competitions; see who can land last out of the team members. This exercise develops: -

1. Learning to fly a canopy slowly
2. Learning whether rear risers or toggles will keep you up longest.
3. Learning what will get you back from a long spot better, rear risers vs. toggles, into wind or downwind.
4. Learning to sit or wait up high and enter the landing pattern late, rather than always rushing go down to land early.

Fly an entire flight plan and landing setup using risers or braked flight, rather than the just using the usual toggle turns. Get team members to do ALL turns except maybe the last turn onto finals) using risers or brakes or harness input. This exercise develops: -

1. Learning what different steering inputs will do to a canopy and the effect they have on turns
2. Learning the efficient use of risers. E.g. **NEVER** put all your toggle fingers through a front riser!

Bad Weather?

Discuss the LANDING CIRCUIT PATTERN, and the benefits to *all* jumpers on a load flying predictable approaches into the landing area. Include some discussion of circuit joining etiquette, such as 'not cutting off' other jumpers flying their base leg by hooking in front of them to 'steal' a slot for final your approach.

Discuss all the segments of a circuit approach. i.e.: -

1. Circuit joining area (a.k.a the "setup reference" point.)
2. The downwind leg
3. The base leg
4. The initiation point (a.k.a the "final turn reference" point.) for the turn to final approach - this is particularly relevant to high-speed 'swoop' landings, but is still worth understanding for *all* landings.

5. The final approach including canopy plane-out phase.
6. The flare point and/or 'entry gate'.
7. The final touchdown point (which may be some distance down the runway from the flare point - which is important when considering "accuracy" landings!

(**This section could be expanded to fill a whole page** - but this information is already well documented by many authors, such as Brian Germain's book "*The Parachute and its Pilot*")

Advanced Level

Goals:

1. Learn to be accurate on every jump rather than just land anywhere.
2. Combine drills together to add versatility. E.g. combine accuracy with braked/riser approaches etc.
3. Learn what a good picture is and what a bad picture is (i.e. "too low!"), so that the picture can be easily recognised **earlier** in the future.
4. Develop "deal with it" skills to provide viable options that can be used in funky situations. e.g. learning techniques for downwind landings in light winds, so they can be applied in ANY winds!
5. Combine team canopy exercises into more complex procedures that bring the entire team together after opening, and has them flying safely and cohesively as a group all the way to a safe touchdown.

Exercises:

Use front risers on finals; begin with straight in approaches and progress to 45/90/180/270 turns over 100's of jumps. Need to stress that this is not compulsory! **All** team members need to make their own safe decisions at the time they set up to land. This exercise develops: -

1. Develop an appreciation of the speed increase (both descent rate and forward speed) that front risers deliver.
2. See the "good pictures" over and over on **straight in** approaches before moving on to turning approaches (90's, 180's etc).

On light and variable days practice crosswind and downwind landings. These do not have to be in the main landing area or pit, they can be anywhere in the paddock. Assign and agree upon a team landing direction and land in that direction regardless of the wind direction when landing (**Note - this may need to be done with DZSO approval away from the main landing area to avoid landing direction clashes.**)

This is not a compulsory exercise; each team member needs to individually decide when he or she is ready to try this. The exercise develops the skills required to **land in any direction regardless of the wind** (in light wind conditions), rather than later on finding that a jumper has no choice but to go downwind in a *strong wind* situation, having never done so before

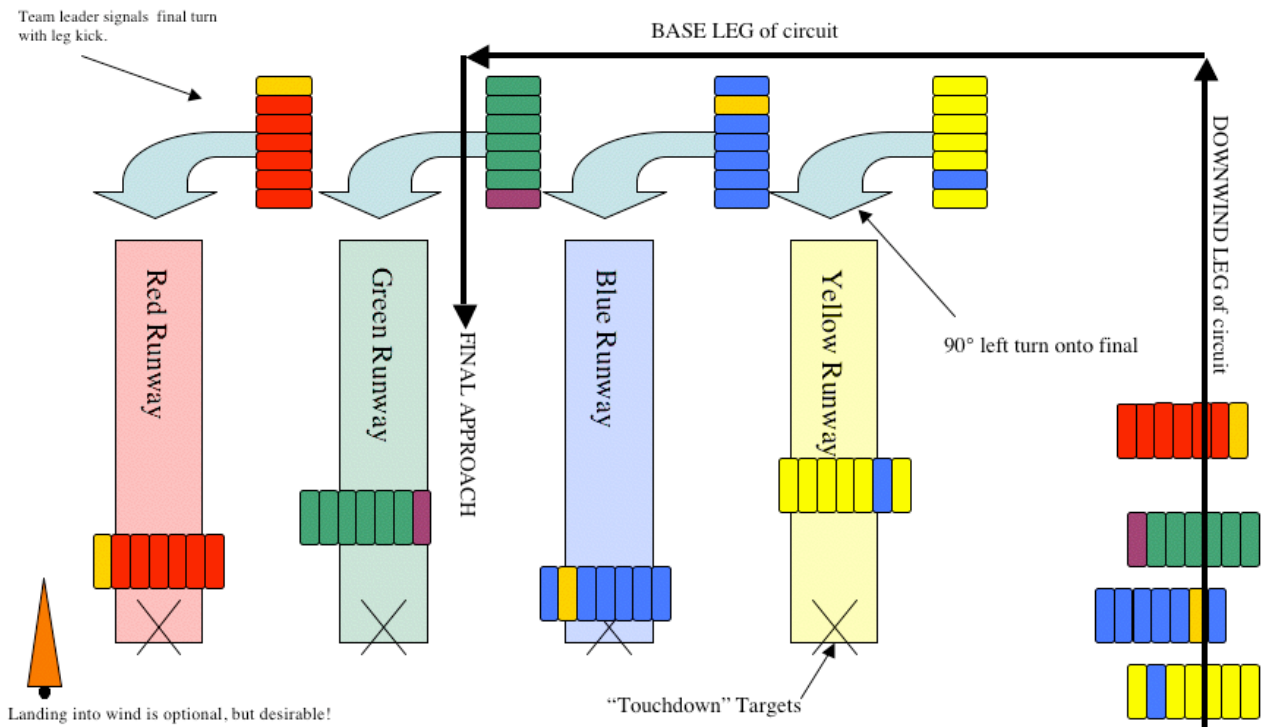
Put witches hats out in the paddock and **do accuracy on every jump**. Each team member gets his or her own witches hat. The exercise teaches people to 'be accurate on every jump' rather than just land 'anywhere convenient', while at the same time combining accuracy with previous drills such as brake, front and rear riser approaches.

Approach others closely under canopy! This is obviously an advanced activity, and needs to be **carefully briefed** before the jump. Try to fly to a position where you can communicate by yelling to one another (this may not work well if full-face helmets are in use, but you can still communicate turns etc using leg-kick signals etc.) This exercise teaches team members to fly their canopy using whatever inputs are required to approach and fly alongside someone else – **calmly** and **safely**. Be sure to keep your eyes open for other groups! Move on from here to basic no-contact CRW.

After tracking and deployment, bring entire team back together under canopy in a follow-the leader type of setup that is decided during the dirt dive. Follow the leader back to the landing area, and then break up and land individually, but with care and thought to higher wing loadings going first.

Flying one-behind-the-other, follow the leader under canopy back to the DZ, maintaining not more than 50m separation from each canopy – which implies that people leading the way need to fly with the followers in mind - so they don't "run ahead" or cause the group to bunch up! **Know your team mates canopies and wing loadings! Plan accordingly!**

On base leg of your landing circuit, **turn together 90 degrees simultaneously** (on a signal from the gaggle leader) from base leg to final approach, where your landing areas will become parallel but individual runways! This requires **discipline**, careful timing, in-flight communication (e.g. leg kicks), and trust in your teammates to do their job!!



Regardless of all else, ***never stop learning and enjoying*** your time under canopy, after all, it's the bit that gets you to the ground, safely!

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With grateful acknowledgement for significant contributions by Michael Vaughan (who has used these exercises with top results educating inter 4-way teams such as "Rockin" in 2004/2005), along with contributions from great canopy tutors and pilots including: Robbie McMillan, Cameron Rolfe, Luke Oliver, Kaz Sheeky and Drew Lipiniski, from Australia, and Brian Germain and J.C. Colclasure from the U.S.A.

Thanks guys! ...and here's to bigger and better sloop comps with lots of good canopy pilots.