Relative Work Breakoff Procedures

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Complacency and It’s Results

In the last 60 days, there have been at least four reported collisions between freefalling jumpers and open canopies. These collisions have resulted in two fatalities and four jumpers in the hospital. Only two jumpers escaped injury - but their canopies were destroyed and their friends are either grounded or dead.

This shouldn’t be happening.

When doing RW, we tend to lose ourselves to the dive, concentrating on the next point, focusing on flying properly, or simply geeking a camera. But when we reach breakoff altitude, the priorities change; We must deploy our canopies in a manner that is safe both for ourselves and for the other jumpers in the air with us. The larger the load, the more critical proper breakoff procedures become.

As the jumping season heats up, many folks are going to be making more dives, in larger groups, and from bigger aircraft than they have ever done before. But whether we are novices, experts, fun jumpers, competitors, or instructors, we must maintain awareness of what is happening around us, particularly when it comes to breakoff. It is imperative to have good breakoff procedures ingrained as habits.

Jumprun

A safe breakoff begins on jumprun. Busy dropzones often have several aircraft in the air simultaneously. There should be adequate time provided between passes to let previous loads clear the vicinity of the spot. Pilots should maintain a minimum of two minutes between passes. More time may be necessary in no wind or low wind conditions when canopies tend to hang over the spot longer. This applies not only to DC3s and Twin Otters, but to smaller aircraft as well. Two Cessnas coming across the drop zone a minute apart can easily put freefalling jumpers in the midst of open canopies.

Next, the spotter should be doing more than simply making sure his (or her) group exits over the spot. The spotter should be looking for other traffic in the area. Traffic can be other aircraft flying towards the DZ, or more likely, open canopies from another load still over the spot. Do not assume open canopies will be downwind of the spot by the time the next pass needs the airspace to open. A bad spot may put you right in the middle of them. Be aware that students and tandems normally open much higher
than experienced jumpers and may need extra time to clear the spot. And
then there is the unexpected: a premature opening can put a canopy at any
altitude. The spotter must insure that the freefallers have adequate clearance
from these hazards - even if that means aborting the pass and going around
again. The life you save may be your own.

Third, large aircraft require special skill to spot. If you don’t know how,
or if you are not so good at it, don’t experiment with 20 other people aboard.
Watch someone who does it well and ask questions. Then try it later with
their assistance. Big planes, with multiple groups exiting on each pass, possi-
ably with novices and/or students, is not the time to learn.

Finally, when there are several groups exiting on a single pass, make sure
there is ample time between exits to insure adequate horizontal separation
at breakoff. You should allow a minimum of 5 seconds between groups. As
groups get larger, more space is required at breakoff, and consequently larger
exit delays are necessary. A reasonable rule of thumb is to take the combined
number of jumpers in your group and in the group preceding yours, divide
by two, and use the result as the minimum exit delay - but never less than 5
seconds.

For example: If you have a 4-way following an AFF group (4 way), allow
5 seconds or more. If your 4 way is following a 16 way, allow a minimum of
10 seconds.

Remember: at breakoff some members of both groups will be tracking
towards each other. Each second delayed on exit puts another 125 feet of
separation between the groups. If your group is last out and ends up long,
take it up with the spotter when you land - don’t cut the exit interval.

Freefall

Even in freefall there are things you must remember in order to make
the breakoff work properly. The most common errors seem to occur when
someone goes low.

First, if you find yourself in this embarassing position, don’t compound
the situation by flying underneath the formation. In addition to the problems
your burble may cause to the formation above you, a premature deployment
(or AAD malfunction, rare as it may be) would certainly cause significant
injury or death. Get out from under the formation immediately.

Second, if you can’t get into the formation, stay nearby (but out of the
Tracking off at 6000 or 7000 feet makes it difficult for people to find you when the rest of the formation finally breaks off, and you may find yourself tracking into another group that left the aircraft on the same pass. When you see your formation break off, turn and track like everyone else.

**Breakoff**

Breakoff is the most critical part of the dive. The objective is to establish enough horizontal and vertical separation between jumpers so that deployment can occur safely. Executed properly, this will prevent freefall-canopy collisions and post-deployment canopy entanglements. And all this must happen high enough so that there is enough time remaining to deal with a high-speed malfunction should it occur.

The first rule is to breakoff at a reasonable altitude. Two thousand feet is not reasonable. The recommended altitude for all jumpers to cease RW and to initiate breakoff procedures is 3500 feet. Higher breakoff altitudes may be appropriate for larger loads or for groups with less experience. Ideally, you should be open by 2000 feet, which means you only have 5 to 8 seconds to perform a good breakoff. You will need the time to do it properly.

When you initiate breakoff, you should turn 180 degrees from the center of the formation and flat track away. The flat track is important. By staying on level with the formation, you can easily see other jumpers tracking off in your vicinity, and they can see you. It will also prevent one jumper from flying underneath another (i.e. you) just prior to deploying.

A diving track at breakoff is “Not a Good Thing” and should be avoided. It does not increase your horizontal separation, is more likely to put one jumper over another at pull time, and makes it more difficult for everyone involved to clear their airspace prior to deployment.

Camera persons pose another problem. They do not have the visibility or maneuverability of real jumpers. At breakoff, they are almost always above you. Standard procedures are for camera folks to deploy immediately upon breakoff - without tracking. So never get over the camera. Sometimes, the camera person may elect to take the center of the formation as their deployment airspace. This makes it imperative that everyone else tracks away. Make sure you know what the cameraperson is going to do, and what they expect you to do.

When breaking off, never track across the formation for the airport. This
action will not improve the spot and only causes confusion. Don’t do it.

It is not cool to grab someone at breakoff and take them down to two grand. Even a little playing when someone wants to track is inconsiderate and risky.

The most dangerous place to be at breakoff is over someone else’s back. If you ever find yourself in such a situation, regardless of how it occurred, you must take immediate action to get clear. The lower jumper may not see you and may deploy at any moment. Striking an open canopy at 100+ miles per hour can kill someone. A good flat track will keep this from happening.

Once you have established adequate horizontal separation, you must **visually clear your airspace**. This means looking over both shoulders to make sure there is no lost soul over your back. A waveoff alone is not sufficient! You must make the effort to see into the blind spot behind you. Hopefully, all you’ll see is sky.

The waveoff can be done in conjunction with clearing your back. It informs people of your impending deployment. If someone is unfortunate enough to be over you, they have a fleeting chance to execute evasive maneuvers - and you will be able to give them time to do so. More practically though, it tells other jumpers in your quadrant that you are going to deploy. If horizontal separation is minimal, a nearby jumper may (and should) elect to delay their deployment an extra second or two so that both jumpers do not open on the same level. This is called a staggered deployment.

Finally, you don’t need to deploy as soon as you see other canopies blossoming. Proper altitude awareness will tell you if you have time to track further. The ideal situation is to gain horizontal separation by tracking and vertical separation by a staggered deployment.

**Opening**

This is where the vertical separation becomes important. Two of today’s high performance canopies, opening on level facing each other, can easily have a closing speed of over 50 miles per hour! Line twists, snivels, premature brake release, etc., can cause a canopy to open in unpredictable states, frequently surprising everyone involved. A staggered deployment will minimize the risk of post-deployment canopy collisions by minimizing the likelihood of two canopies opening on the same level.

Once you have saddled in, having watched your own canopy open, you
should *immediately* be looking for other canopies in the vicinity and be prepared to take any necessary evasive action. Quickly check your front quadrant and then each side to make sure someone else isn’t flying towards you. Fly defensively. Remember, the other jumper may have line twists and cannot control their canopy, or they may just be oblivious to what is happening around them. If evasive maneuvers are required, quick action on the rear risers can prevent a tragedy. It takes two geeks to cause an entanglement, it only takes one heads up pilot to avoid it.

**Summary**

To summarize, here are the basic Breakoff Procedures:

- **Jumprun**
  - *Minimum* two minutes between passes.
  - Spotters should watch for open canopies and other hazards.
  - *Minimum* 5 seconds between groups on a pass.

- **Freefall**
  - Never get underneath the formation.
  - Stay near the formation until breakoff.

- **Breakoff**
  - *Minimum* breakoff altitude is 3500 feet.
  - Turn 180 degrees from center and track.
  - Flat track.
  - Visually clear your back.
  - Waveoff and dump when clear.

- **Opening**
  - Clear your airspace immediately upon opening.

Practice. Keep these procedures in mind and put them into practice. If you get under canopy and realize you forgot one of them, make a point to execute it properly next time. It’ll make for a good summer.