

FROM EXIT TO DOCK (AND BEYOND) or HOW TO GET ON, AND STAY ON LARGE FORMATION SKYDIVES.

This paper is derived from the briefings that Kate Cooper gave to World Team 2006.

EXIT POSITIONS

These are Floater, in the Door, and Diver.

- **Floating**, refers to any person—regardless of exit position—who exits before, and therefore below, the base piece. Our exit timing allows for floaters on all aircraft who will exit before the base chunk.
- The **in the Door** position is, in my opinion, the most challenging slot on a multi plane formation. The timing is often very difficult, and an exit may result in the need to dive, float, or go straight across to reach the formation. Add to this the fact that in a trail aircraft position the above can easily change from dive to dive.
- The **diver** exits later from the aircraft. While this position requires a certain amount of skill and timing, it tends to be one of the more simple tasks on a large formation because it is usually a straight line from exit to formation with little need for decision-making en route to the formation.

No matter what type of exit position you have been assigned, and no matter what slot you have in the formation, once you are in freefall, you must get to your position in the formation safely, smoothly, and on time.

Let's talk about how you will be doing that.

PRESENT – IDENTIFY- INTERCEPT

These words describe what you must do on any skydive where you are not physically attached to the base.

PRESENT.

In any exit you need to **present your torso to the relative wind.**

On a high-speed tailgate with a high chance for contact out the door, it can be difficult.

Please be aware that there is no skipping this step.

Failing to present your torso to the relative wind will, at best, result in losing eye contact with the base. At worst, the result will be a tumbled exit or an injury, especially at higher airspeeds and altitudes. Even in the case of incidental contact directly after exit the presentation must not be ignored. While it seems to add time

to the exit, a proper presentation will save you time by allowing you to take the cleanest line possible path to your position in the formation.

IDENTIFY.

You must **see and recognize** where you are going.

You may be docking on a base launched from your aircraft or another aircraft, or you may be entering a line of divers (or floaters) en route to the base.

It does not matter. You need to identify where you are going.

Identification is best done during the exit—while you are presenting your torso to the relative wind your head can be turned to identify your target. If your exit is less than perfect then work on identification as soon as possible.

NEVER blindly dive (or float) without knowing where you are going.

INTERCEPT.

This is the act of, after identifying your target, and computing not where it **IS**, but where it **WILL BE** when you get there.

A base, especially out of a tailgate, can “sail” on exit and you are literally diving or floating on a moving target. We will all know tomorrow, and in the following days how the bases will launch from the AN-28. Acknowledge this and plot your approach with the correct intercept in mind.

QUADRANTS AND STADIUM APPROACHES

QUADRANTS.

As you dirt dive identify the quadrant your slot belongs to and design your dive and approach so that you enter in a straight line to your slot.

The bases for Large Formation week can be of any size from one person to 10 or more. Even six person bases often can be easily broken into a four to eight way “piece of the pie” when viewed as the full formation. Find your quarter, then eighth and **follow a vector from the center of your pie directly into your slot.** If your slot does not face straight in then treat it as if it is a straight in terms of quadrant approaches and make the final turn or move once you are stopped and in your slot.

When Diving down or Floating up towards the base, DO NOT DIVE BLINDLY!

The fastest way to the formation is **ALWAYS** a straight line. Too many people confuse a perceived fast “Down and Over” line with a straight line. Identify your diving line upon exit and follow it to your quadrant to set up in your approach line. It is **ALWAYS** quicker to your slot this way even if it seems slower on a personal basis. You are only as fast as your teammates. There is no benefit to your team in your being the fastest diver or floater. We are a **TEAM** and as such we are as good as the sum of our abilities and talents.

STADIUM SET UP

Large formation approaches are often compared to a stadium or “tea cup” set up. For a general rule, we will ask each ring of non-docked people to set up **approximately at a 30-degree angle**. As the row or line in front of you moves down and forward to their slot your row or line then takes the place in the stadium that they vacated, and down to the slot. The size of the stadium varies with the size of the formation, but the important thing to remember is not the size or height of the stadium, but that the rows are clearly defined and follow each other down in and orderly fashion.

VISUALIZATION - aids to help you remember your approach line and slot in the formation

- **Memory: It is easier to remember two-word descriptions than longer ones.**

As you dirt dive notice things that may stand out in freefall and remember them. Matching jumpsuits and helmets will make this procedure FAR more important than in other dives you may have participated in. I recommend using descriptive terms that use the container of the person(s). If you choose something common like “blue suit” then you may find that there are more blue suits in your approach pattern than you anticipated. Body positions can also be used as descriptive terms.

- **Locations: Choose identifiers** not only in the base but scattered through the formation. Have at least one from a line docking behind you—then if you have a horrible exit and others have a great one you will not be surprised when you see strange people in the line ahead of you. If you are in a trail plane then at least one of your identifiers should be from a different aircraft so you can identify where the “cusp line” between the two aircraft intersect. Six identifiers on a 100-way formation is not an undue amount of reminders.
- **Checklist:** Take these identifiers and **place them on a mental checklist** in the order that you anticipate seeing them in freefall. The base identifier may not be, and often is not, the first thing you will see on exit. Quite often it will be from another teammate from your aircraft, or even an identifier from a different aircraft. Recite the mental checklist and make it part of your visualized dirt dives. If, in freefall, your first identifier is not there then simply move to the next one on the list. Don’t fall into the trap of knowing you dock on a “red suit” and making that your only visual reference—you will regret it when that red suit goes low or is lost.
- **Knowing people** on the dive: It is easy to know that your are docking on a specific person if you have many jumps with him or her but stress, exhaustion and hypoxia can all affect judgment and if your teammate has made even minor changes in the equipment you are used to then you may find them difficult to identify by name.
- **Visualize your perfect skydive**, from exit to canopy, then make it happen. Have the composure and ability to close your eyes and know who and what you expect to see in freefall throughout the jump. **Visualize Perfection**—this is possibly the most important tool available to a formation skydiver—regardless of chosen discipline. **DO IT.**

FALL RATE - How to identify fall rates to your advantage

- **GOING LOW.** Going low is the phrase used when a person cannot match the fall rate of the formation prior to docking. **The place to go low is 10 meters (or more) ABOVE the formation.** On a large formation a fall rate check should be done mid way through your approach. One does not need to stop a dive to do this—simply look at the building formation and note the body positions of those who are waiting in queue ahead of you. Are they in tight fast falling body positions or are they stretched out? If the former then you know you can continue on an aggressive line, the latter tells you that you should come out of your approach a bit earlier. Don't be afraid to extend your body into a slow fall position above the formation, it looks much less silly than the same body position 10 meters below the formation. Make the appropriate equipment change for the next skydive.
- **ASSESS THE FORMATION.** Different formations will fall at different speeds due to design. Recognize these changes and make your equipment decisions accordingly. Learn that larger bases—six to eight person—will fall faster than smaller bases or intricate set ups such as donuts or compressed accordions.
- **DRESS FOR SUCCESS.** Choose the equipment to place you in the middle of your fall rate comfort zone. This may mean wearing weights. Taping up your booties, or choosing a larger suit or even wearing a t-shirt or sweatshirt over your jumpsuit. **No one looks silly in a completed formation !**
- **FLOATING.** This is possibly a worse problem in large formation than skydiving than going low as the former is easier to recognize and address. As noted above you need to choose your equipment so that you are in the middle of your fall rate. You may not always have the luxury of being in a slot that matches your optimal fall rate. In some larger formations, or for smaller, lighter people this often means wearing lead weights and sometime altering their jumpsuits by taping up the booties. There is **NO DANGER** in this—you can **STILL TRACK SAFELY**--and if an organizer recommends that you do this there is probably a reason. Remember that adding a significant amount of weights can alter the wing loading of your canopy so it is advised to have experience with this prior to being in the formation. If you cannot stick your legs out and engage your booties to push towards the formation without floating up on it then **YOU ARE FLOATING!**

RED ZONE: The area around a large formation where most problems occur

The **red zone** is commonly known as the approach area in the stadium covered by video. Red zone violations can consist of either lateral movement or a too steep stadium approach—either of which can, and often do result in freefall collisions. Virtually all large formations are hampered by red zone violations and this is an area where the jumper needs to place greatest effort.

LATERAL MOVEMENT VIOLATIONS.

This subject was addressed in the quadrant section but absolutely **NO** lateral, or sideways movement is acceptable in the red zone. Once jumpers are entered into the stadium and move forward into the red zone any lateral movement can cause problems. If you are in a position where this is necessary you are best to be quite aware of the people in your general area and, if possible, make eye contact with them (perhaps even with hand gestures) before making the move.

ALTITUDE VIOLATIONS.

It is common to see jumpers who are uncomfortable with larger formation pad their approach altitudes by being too high in their stadium set up. It is important that all jumpers in the red zone be on the same stadium approach. A simple altitude difference of 1 meter can be catastrophic when two bodies attempt to share the same place in freefall. The same action when the jumpers are at the same altitude can be considered incidental contact. If you are uncomfortable maintaining the altitude on approach that is set by the stadium then make the appropriate equipment change on the ground.

RESPONSIBILITY.

For the purpose of Large Formation Week—unless you are specifically told otherwise—you are responsible for knowing the placement of all people **in your quadrant** who exit the plane closer to the base than you do. Simply put, the people between you and the base. If you have an excellent dive and/or they have a poor exit—it is **still your responsibility** to make sure they have an approach available to them to their quadrant and slot. The simplest way to affect this is to **KNOW THE PEOPLE AROUND YOU and to KNOW WHERE THEY DOCK.**

DOCKING.

- **Acceptable docks. ONLY PERFECT DOCKS ARE ACCEPTABLE.**

The way to make every dock a perfect dock is to come to your slot, assess and match the fall rate, come to a complete stop and **only then** pick up your grips. Make the taking of the grips secondary to the actual placement of your torso in the correct place

- **Keys before docking.**

In certain situations, waves may be keyed in to dock by the base.

In this case be aware of the key and remember that the key is simply an invitation to dock—nothing more. You are **NOT LATE** and should not go faster simply because the key has been given. The key is simply nothing more than permission to make a perfect dock. If you are comfortable in your slot go ahead and be in your slot so that when the key is given you can place your hand upon the grip without a torso change or movement.

- **Body position in the formation.**

Make sure you not only match the fall rate of the formation prior to docking but be prepared to make a change in the fall rate after being docked if needed. This may mean a change in your body position. Be aware of this and if you are in the **middle of your fall rate range** then a slight increase or decrease of fall rate should not be an issue

- **Seeing the keys.**

Sometimes a later diver, or a person with a poor exit or a longer approach may not see when the key—the permission to dock—is given. When you are assessing the formation and the base see where your clones—those that share your slot in the formation—are. If they have already docked you may assume that they key was given. If they are waiting then you may continue on your approach and anticipate the key.

- **Fly the formation light on grips!**

This is not permission to float—or push into the center, but at the same time do not drag down and away from the center as that places tension on the formation. As you fly your slot in the formation try and be in a body position that will allow you to drop grips and neither float up nor fall away.

- **Make every dock with the idea that your dock can and will improve the formation.**

If you are not sure of that, then take your time and wait until you can make the perfect dock.

STICK YOUR LEGS OUT.

Most of the slots on this skydive are in a loop or line of some fashion. The biomechanics of docking with two arm grips **BY DEFINITION** sits you slightly chest high. This in turn puts you automatically in a very slight backsliding position. If you are floating at all this position is magnified as you have the impression that you will float up if you do stick out your legs. It is **IMPERATIVE** that you have the ability to be docked in the middle of your fall rate range so you **DO** have the ability to push your line forward by stocking your legs out. This fact is probably the least understood yet simplest mechanic of large formation skydiving.

EYE CONTACT.

- Your **eye contact is always to the center** no matter what direction your body is placed. Do not fall into the trap of missing a key or other important information because you were not giving 100% attention to the base.
- Be aware of the correct relation of your torso to the base and do everything needed to keep your torso in the right place after you dock.
- People out of the formation or low. **Do NOT give up on the skydive** if you notice a person below the formation. Give them the same courtesy of keeping the fall rate going and keeping the formation strong that you would want were you in the same position. Quite often these people will make it back into the formation if the fall-rate is consistent and all people continue to concentrate on the center.

GIVE 110% FOR THE DURATION OF THE DIVE.

DON'T GET LAZY. It is easy to fall into a trap of complacency when performing the same slot on a one point skydive jump after jump. This leads most often to brain locks or personal errors in judgment.

DON'T BE A VICTIM. Yes—things will happen—on exit, on approach, and after you are docked. You may have a bad exit. Someone might fly underneath you—or land on you. You may feel push, lift or drag after you are docked. Skydive as if **YOU** are the **ONLY PERSON** who can save the formation. Be a Hero. If more people took this proactive approach to skydiving we would be in more completed formations. Trust me on that.

Set **personal goals** for each and every jump you make. They should be small achievable goals, but they should be something that allows you to land from any jump and take pride on having accomplished exactly what you set out to do.

Watch video and learn not only from your own dives but learn from the dives of others. Take what you like, learn from it, and discard the rest. Listen to those around you. There is likely a wealth of information on the same plane with you. **ASK QUESTIONS**. Don't think it's a "stupid" question. Trust me—others will be wanting to know the answer too.

Your dive is over when you are **BACK AT THE DROPZONE**. Do not give up, relax, or be complacent under canopy or even walking back from the landing area. Your other team mates are counting on you to be aware of them.

In closing, lets all have fun, learn and be safe.

And stick your legs out!