



Wingsuit formation flying

by Jarno Cordia

Introduction



Left to right: Costyn van Dongen, Alejandro Lopez, Jarno Cordia

Lets start with a little introduction. As its always nice to know who is talking to you. My name is Jarno Cordia, and I'm an avid fan, flyer, addict and fulltime daydreamer when it comes to wingsuits. At the time of writing, I have about 1200 skydives, roughly 500 of which are wingsuit jumps. I am in a 3 way wingsuit team called flylikebrick and also a flyer and testpilot for the birdman factory team.

After making my first wingsuit jump in 2003, I was lucky enough to meet a number of good wingsuit pilots, coaches and organizers at dropzones and boogies throughout Europe. They answered the millions of questions we all have when we start flying for the first time. Either in person, or over the internet - they were always available - and I learned a lot by just watching them fly, listening to their briefings at boogies / wingsuit events, reading their articles and watching their videos.

After about 300 wingsuit jumps, joined by my good friends and fellow wingsuit pilots, Costyn van Dongen and Alejandro Lopez, I slowly started getting into load-organizing and coaching myself.

During this period, we came up with our own set of briefings and instructions for people who wanted to give formation flying - otherwise known as 'flocking' - a go.

Receiving a great deal of positive feedback from our briefings, it seemed like a good idea to put some of our discussions in to writing.

This article is by no means meant as the ultimate guide to flocking, or the definitive book of 'how it works'. It's merely the way we choose to organize our jumps.

This article will focus on the thinking behind the flying, and less on the actual body positions and angles flown. Strategy as opposed to technique - though the two are obviously closely related.

*Tristan and Jarno flying in the Belgian sunset.
Cover photo by Costyn van Dongen*

Where to start

Once you get past the first flight course, there are no limits to what you can do in the air, but all too often people rush into more advanced types of flying long before they've mastered a lot of the essential basic skills.

If you look at big way formation flying within RW and freefly, as a lower experienced jumper, you will not be allowed on a dive unless you demonstrate the skills and discipline needed to safely execute the jump.

It usually takes quite a while for organizers to get to know you, and more importantly, your skill level.

Traditional skydiving ideals and safety dictate that people slowly work their way up from small formations, to larger multiple point dives and then, *finally* on to big ways.

However, many people involved in wingsuiting mistakenly believe it's OK to skip a lot of steps.

It's a very common sight to see someone go from their first one or two wingsuit jumps, straight to a 10 way flock.

This might be somewhat acceptable if we employed the same discipline in formation wingsuit flying as *bigway* RW and Freefly jumps, where a common sight there is a jump with just one inexperienced flyer amongst a group of very experienced jumpers.

This can be done relatively safely when the person with the least experience only needs to maintain a stable position and have the more experienced jumpers fly their slots around him or her.

In wingsuit flying, this concept doesn't work as well due a larger demands put on the actual flying.

Quite often after exit, there is already a big distance to cover to get to the base, making the flying quite demanding straight from the start.

Even though someone may be considered a 'natural' at flying a wingsuit, there are certain skills that don't develop until you've made a reasonable number of wingsuit jumps.

These include:

- 1 Judging the distance and speed of an approach
- 2 Judging the time it takes to level out and/or brake your forward speed
- 3 The subtle inputs needed to fly in your slot
- 4 Instinctively knowing where the burbles are.
- 5 The ability to know where the flock is heading and using that ability to safely upfloat beside a formation if you go low
- 6 Knowing your own performance, and using those skills in the approach, formation and break-off
- 7 Knowing your own limitations and how they will effect your ability to maintain proximity to the rest of the flock

Use the force...

All these separate skills are often described as *awareness*. Though many skills translate from other sports or disciplines quite well, wingsuits have a lot of unique challenges you won't find anywhere else, no matter what previous experience the jumper has in any other sport.

Awareness is something that only develops by doing one thing: Flying a wingsuit - and flying it a lot.

Watch how many people become completely lost when they tumble out of the door. They become confused and have no idea as to which direction they are flying. Obviously, in a group setting this can be extremely dangerous; flying back in the wrong direction can cause serious collisions.

Some wingsuiters mistakenly feel that the ability to fly on their back or belly, or loop and play around others makes them a safe and experienced wingsuit pilot. This simply is not so.

Know what's happening around you. Know where other people are - or may be coming from. This is what adds the most safety to your skydive. This is during all of the stages of the jump; be it during the exit, the jump itself or breakoff. **You must always be aware of your surroundings.**

This includes the whereabouts of other jumpers, or where and which direction you are flying when you hit a small cloud - or accidentally go unstable.

If you can combine that with the knowledge and the use of your own personal skills in a wingsuit, the sky will be full of good flocks - instead of the many people '*zooming through the sky*' as we are still often described by people outside of our discipline.



*A wingsuit formation flying over the sea in Castellon, Spain.
The flyers are from the Birdman factory team "Topgun". photo by Mark Harris.*

How to fly

Once you've moved past the basic flight controls, one of the first challenges you'll meet when you start flocking is actually getting to the formation itself.

When you're the last person to exit the aircraft, the difference in both distance and altitude between you and the group is often huge.

The first rule – RELAX. Don't freak out and start diving like a madman. You're flying a wingsuit; you have the time and range (in terms of speed) to close the gap - vertical (up or down) or horizontal. You'll be surprised to see the difference in your flying when you're calm and relaxed compared to being a stressed-out monkey on caffeine when you exit the plane.

Catching Up

Let's look at some of the methods you can use.

There are two ways to get down to the level of a group - you can arch, or you can fly.

The first method requires that you collapse your wings and slowly sink to the level of the group. Though it's a method that works quite well, this 'sinking' can take you ages to get down, and it may take you from exit till break off to finally get to your slot.

The second method requires that you use the wingsuit to its full potential and 'fly' to your slot.

With control, you can alter your angle of attack and go into a steeper dive - just like divers last out on an RW or Freefly bigway do. This will get you to the formation much quicker. More often than not, people overlook and forget about techniques that have been tried and perfected in other disciplines years ago. There really is no point reinventing the wheel when we know these techniques work.

There is a famous quote; "with great power comes great responsibility" which perfectly describes the dive, or "swoop" as it's often called.

If you perform such a dive, speed/momentum gathered in the dive will help you close the distance. However, if you haven't practiced and mastered this technique, the relative forward speed may make it difficult to judge the amount of time and power required to bring yourself to a full stop (relative to the formation).

If you find yourself doing ground speeds of 300 km/h - which are not uncommon after heavy dives - towards a flock only doing a ground speed of 100 km/h, you and the person you could collide with, are likely in for a lethal surprise.

Practice diving in 2-ways first, and always make your flight path a smooth and predictable one.

And even if you have mastered the dive, never aim it directly at a person or formation. It only takes a tiny miscalculation to hit someone at full speed. So always be careful.

Where are you going?

Make sure your flight path is roughly the same as the direction of the flock.

NEVER do a 180 to drop back or approach a formation! When you're flying with other people, **your direction of flight must never vary more than a few degrees.** This prevents people getting caught in sideways (or worse, head-on) collisions.

The closer you are to the group, the lesser the difference in speed and direction there should be!

Note that there is a huge difference between a nice controlled dive, and a head down kamikaze-swoop.

When you're flying a slotted formation, arrive in the order in which the formation should be built.

Even though it's cool to show people you can be first in your slot, if you're meant to be in the back of the formation, chances are you are only hindering people in getting to their slots in front of you. Again, take a good close look at the way big ways are built in RW.



*A wingsuit formation flying over the sea in Castellon, Spain.
The flyers are from the Birdman factory team "Topgun".
Photo by Mark Harris.*

Moving forward

One thing a big way RW or freefly formation doesn't have however, is forward speed. With this forward speed comes its own unique set of challenges and difficulties - especially if you happen to overshoot the formation.

An important thing to note here is: If you're in front of the formation,
DO NOT brake to get to your slot!

If you are slowing down, you'll be traveling backwards relative to the formation - going in the one direction you can't see. This means you won't be able to spot someone, or even multiple people approaching you from that direction.

To get behind the formation, look at techniques used by canopy pilots in CReW. Making a 'chasse' (sideway zigzag) towards the side, slowly let the formation overtake you while still keeping an eye on the direction you're flying.

The further away from the formation you make this move, the safer it is for the other people on the dive.

Going low

It shouldn't happen, but at some point you will find yourself going low on the formation.

Upfloating directly underneath the formation could cause a dangerous collision. So upfloating always happens off to the side of the formation.

Fly away from the formation, a few degrees off the direction the rest of the formation is flying. Then use your most optimal flying position to slowly climb back to slightly above and beside the formation. Now use that altitude to fall back, and start your approach again.

Getting down (or up) to the level of the formation and lining yourself up for your slot should be your number one priority. By doing this, you can still be half a mile away from the formation, but the path to your slot should always be a straight line, on level.

It's very important not to cross or cut off other people who are also flying towards their slot.

If you're asked to join a larger flock, and you want to make it as safe as you can, look at the experience in the group and listen carefully during the briefing. Speak up when you see problems or improvements on the safety aspects of the dive.

To summarize;

Always:

- Line yourself up behind the formation, on a direct approach to your slot
- Get down/up to the level of the formation.
- Fly towards your slot
- Fly a smooth and controlled path
- only fly within your own skills and limits
- Fly your slot until breakoff

Never:

- Never fly/brake backwards to get to your slot
- Never do a 180, or even differ your flightpath relative to the formation more than a few degrees.
- Never dive directly towards a person or formation
- Never upfloat underneath the formation. Do it off to the side.
- If you can not get back up to the level of the formation. Get away from underneath the group.

Plan the dive, dive the plan!

The most important factor in having a successful flocking dive is the practice on the ground, also called dirtdiving. This is the time and place to work out who flies where, what the exit order is, and at what altitude breakoff happens, which direction everybody goes after that, and at what altitude everybody pulls – as not everybody uses the same 'low' 3000 ft pull altitude.



*Dirtdiving for a small group jump.
The flyers are from the Birdman factory team "Topgun", photo by Mark Harris.*

If there are people on the jump who seem a little bit too eager to improvise small creative dives within big flocks, your decision becomes simple; tell them to stick to the plan, or don't jump with them.

On a 15 way where the majority don't make it to their slots, it can be all too tempting to mess around with two other people you find on your level. Try to resist this, and instead fly your slot, continuing to work until break off, which gives others a chance to get to their slot.

As soon as people start to play around with whoever is closest, the dive is lost and those who hadn't yet made it to their slots, never will.

What am I doing here?

Look at the dive plan and ask yourself, 'can I fly this slot within this formation?'

If you are in any doubt about making the slot, ask for a different position, or simply don't go on the dive, but instead focus on doing 2 and 3 ways.

Focus on flying your slot smooth and solid for the entirety of the dive.

Once you can quickly and safely make it to your slot, flying in a big formation is no harder than a 3 or 4 way, with people flying a slot relative to one or two other flyers.

If the ability to fly safely in close proximity to other wingsuit flyers is not a skill you possess, think hard, and ask yourself "Do I want to practice gaining these skills on a comfortable small jump with only my flying close to one other person to worry about?" Or do I want to practice gaining these skills in a larger formation with 10 or more people zooming around, adding additional worries to an already complex jump?"

Hopefully common sense will prevail, and you'll choose the former, not the latter.

Working on the skills you need will help you progress a lot faster, and enable you to join bigger jumps where you will be able to fly the slot you're asked to fly.



*A clean, disciplined bigway formation in Cochstedt Germany 2006.
Photo by Mark Harris.*

Practice

The most important tip of all!

Don't get frustrated!

When you look at RW and Freefly, everyone knows that the top jumpers they see in videos doing amazing things, put in hundreds, if not thousands of jumps to get to that level of skill, but when it comes to wingsuit flying, everyone expects to be able to play 'with the big boys' from the outset.

When you watch amazing videos online, or see someone doing some impressive moves next to you, know that these people have also made a great number of wingsuit jumps. No matter how 'ahead of the curve' you think you are, owning a wingsuit does not make you a skilled flyer from the start.

No matter what brand you fly, no matter how big your wings are, it all comes down to the pilot, and the skills he or she has. These skills **develop only with practice.**



Alejandro taking dock on Jarno. Small jumps like these are the best way to practice docking and flying your slot. Photo by Costyn van Dongen.

Wingsuit flying as a discipline needs to develop more in the (multi-point) 4 way to 8 way segment before we start making realistic and safe plans for bigger formations in the 20 to 60 way range. There are more and more skilled individuals capable of flying such formations, but the overall skill-level hasn't progressed to the point where everyone who owns a wingsuit is capable of doing so.

Sadly, owning a wingsuit and being enthusiastic quite often seems to be the only selection criteria for being on these bigger jumps.

I want to go faster!

One of the greatest shortcomings in current wingsuit formation flying, is that a group will only fly as well as the person with the least skills on the jump and more often than not this person is usually put as base, or the base adjusts to a flying speed everyone can keep up with.

As a result of that, the formations we see these days tend to fall more than they actually fly - cruising at fall-rates and glide ratios that come close to those of a normal freefly tracking dive. Learning to actually fly the suit and covering ground - instead of using it as a big camera suit for braked freefall - are just some of the many aspects of what people still need to work on in wingsuit flying.

A wingsuit jump should never be 100% about flight performance alone.

The formation you are trying to accomplish is equally as important, but when you are flying a wingsuit, it's also a shame not to use that 1000 dollar piece of equipment to its full potential.

At the moment, there seems to be this need to be flying in the biggest formation ever built with wingsuits. For a lot of people **improving individual skills should be their first goal.** If we want to accomplish these bigways as true wingsuit formations: Flying assigned slots, whilst really flying our wingsuits as a group, safely and near to their full potential are all skills that need to be worked on.

Formation flying is difficult, and it adds a whole new dimension to the type of jump that already demands a lot of extra attention - when compared to other freefall disciplines.



*A wingsuit formation flying over the sea in Castellon, Spain.
The flyers are from Birdman factory team "Topgun", photo by Mark Harris.*

Who's base?

Putting a beginner as base in a medium to large sized group adds some variables to a bigway jump that can lead to dangerous situations. However, quite often this is exactly what is done when people involve someone with less experience on a jump.

Unless he or she already has some experience, there is no telling what could happen.

They may not be that good in flying the correct pattern, and could put the whole group in the wrong piece of airspace. Also beginners sometimes have the tendency to not fly a good smooth line, but instead wobble and sway a bit - Not something you'd want to be following with a whole group.

Even when someone performs well on their first few solos or 2 ways, there is no telling how distracted he or she is going to be when there is suddenly a whole group flying along with them.

When it comes to leading the group to the correct opening spot, someone seeing a huge flock in the corner of their eyes for the first time will probably not be the best captain to steer the boat back to port.

This could put them, or worse the whole group, into a situation of having to land out.

Add to that the slower and more stressed unzipping a wingsuit under canopy for an inexperienced wingsuiter, and you have a potentially dangerous situation on your hands.

More importantly though, the new flyer is not learning as much as they could have, compared to a 2 way or 3 way, and had the opportunity to **learn to fly relative to someone**.

All a bigger formation jump does, is add a lot of complications to what is in essence, still a solo jump (as the base) with a dozen or so people following.

More guidance and experienced gained in smaller groups will not only make them progress faster, but will also make bigway formation flying a lot safer and a lot more fun.

Role of the Base

The most important things for the base to do, is to fly the correct pattern towards the opening spot, flying at a smooth and constant speed - both horizontal and vertically. This should be just beneath every ones maximum range, so people still have some power/lift left in case they go low or need to catch up from the back.



A three way flying over Rotterdam. Hans Polak flying Base, Tristan and Jarno forming a stack above him. Photo by Costyn van Dongen.

Though the pace set by the base is important, I feel the actual navigating is the more important factor.

A base has to keep an eye open for things such as high canopies, big clouds and other factors that could seriously complicate a big group jump.

If you want to have a base that can confidently perform all these tasks, an experienced flyer is the only way to go; even then you'll find that flying base is a skill not everyone is good at.

Exit order



Bigway exit from an Antonov 72. Photo by Mark Harris

Another important issue with the base flyer is where to put them during the exit. This depends a lot on the diveplan, but most importantly, the pattern being flown.

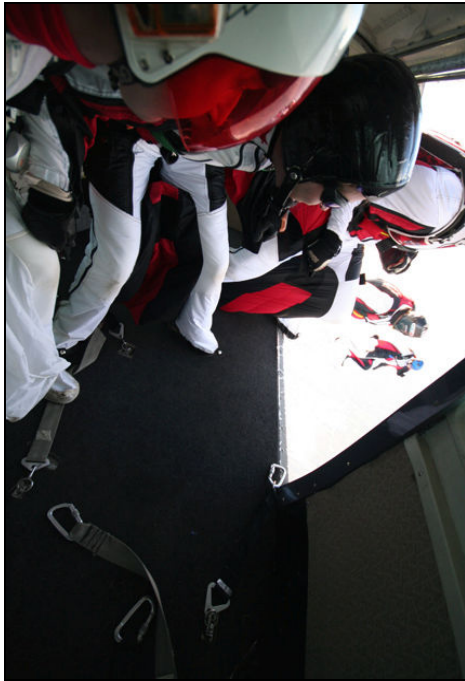
There are about over a dozen exit orders you can come up with, but breaking it down, there are just **two basic patterns**:

1. The whole group exits, and then does a **180 back towards the DZ**. Either directly, or in two 90 degree turns. In this case the position of the base in the exit doesn't matter that much. Because of the turn(s) the base makes, people will be able to see it either left or right of them, and be able to cut the corner, and fly to the point where the formation and their slot will be. This means that it doesn't really matter where the base is in the exit of a big group. First, middle or last.
2. The group **continues flying up the line of flight** of the aircraft. This could be from having the plane make a 180 degree turn after dropping all the regular freefallers, or having a dedicated wingsuit load with its own jumprun towards the dropzone. In this case, it is recommendable to have some flyers exit first and then put the base out somewhere in the middle, or last. This means that everyone can see the base and everyone really has to fly their suits to *climb* back up to the formation. The first flyers to exit will take some time to get back up to level, but if the others closer to the base, both in terms of exit and slot, are working it straight from the start, they should have built the whole front of the formation already - People should arrive in the order of their slot. Another advantage of putting the base out close to last is that it maximizes the flight-time for the formation. Instead of a lot of diving during the first part of the jump, people are flying their suit at a high performance level already on exit, not just at separation.

Even though having the base exit first, and having everyone diving for their slot seems easiest, and will definitely work for smaller groups, this creates a scary situation when the group is bigger -Especially on multi aircraft loads.

This means that every person exiting will be coming out of the airplane *ahead* of all the jumpers that previously exited, which means the way to your slot is flying backwards.

There are safe ways to do this, as discussed earlier, but there is a limit to how many people can safely be flying backwards besides a formation, and at some point people will start crossing each other.



Birdman factory team "Topgun" exit the Cessna Caravan. Photo by Mark Harris.



Tristan and Jarno make a creative 2 way Exit. Photo by Costyn van Dongen

When you are trying to get behind the formation to line up for your slot - braking by flying off to the side - you can't completely see what's coming from behind. You're still traveling backwards at a slower rate than the formation already flying and someone else might already be flying along with the formation at the same speed. Every time you're not flying in the same direction as the formation, at the same speed, you are risking a collision

The more people there are in the sky, the more risky this becomes.

Ideally you want all the flyers to fly in the direction in which you have the most visibility and have everyone be able to see the base straight from exit, without losing sight of it.

In a dive setup like this, two fundamentals become apparent:

- 1 The people first to exit, furthest away from the base, need to be really *good, disciplined and skilled flyers* to be able to make it back to the formation.
- 2 The people who exit closest to the base, need to be really *good, disciplined and skilled flyers* to be able to fly their slot straight from exit so there is a finished forward part of the formation waiting for the floaters by the time they reach it.

Note the demands on each slot and now try and figure out where the pilot with *little to no experience* fits into a bigway dive.

Does not play well with others

A lot of people want wingsuits to be about laughs, fun and friendship, which is great, and definitely the way it should be - However, putting someone outside of their skill or comfort level does not contribute to laughs, fun, and friendship. It is potentially dangerous for the inexperienced jumper and everyone around him, and could turn a fun group jump into a scary experience.

It should not just be a load-organisers task. ALL jumpers should know the skilllevel of the people they are flying with, and use that information to form jumps accordingly. Ask people about their previous experience, and tell people your experience level. And be honest about it, both ways.

If someone doesn't have the experience for a jump, then there isn't a single reason for that person to be on that load.

A big reason people don't want to exclude others is because they feel the low experienced flyers also deserve their slot on a big formation, but if experience and fun is really what you want to offer them, doing a good two way with them will help them much more.

Big ways

A lot of people look at bigways as something cool and mythical. Of course I would be lying if I said it wasn't. A well flown, organized bigway can truly be the most awesome thing you'll ever experience, and when you're ready to fly in bigger groups, you definitely should!

But cutting it down to the bare bone though, it's still only a two or three way you're flying, trying to stay in your slot, relative to another flyer. You may be cross-referencing your position relative to the person next to you, but that's it.

All a bigway adds to your two way is a lot of extra people, trying to bomb you out of the sky, and a lot of extra worries. These worries and concerns will get less and less as you gain more experience.



Bigway formation in Cochstedt Germany 2006. Photo by Mark Harris.

Only fly within your own flight envelope

When talking about aircraft, there is always a certain limit to what it can and can't do in terms of speed, glide and maneuverability - This is often described as the flight envelope.

This also holds true for wingsuiting;

You have the flight envelope of your wingsuit, and this combined with your body/build. How fast and far can you fly? How quick you can dive? How well can you fly on your back? Just generally how much you can throw the suit around in the air.

These are all components of the flight envelope.



*2 way practice of aerobatic manoeuvres by Alejandro and Jarno.
Small jumps with a lot of creative play help increase skills and overall awareness.
Photo by Costyn van Dongen.*

The performance envelope of your wingsuit however, doesn't mean a single thing as you and your personal flying skills are what ultimately determine what the suit is capable of doing in the air.

Two way jumps and solos – depending on what you are practicing - are the only way to practice new skills. Be it maximum flight, diving, barrel rolls, backflying or other creative manouvers.

Once you've mastered those skills on your own, you can slowly start trying them out in two ways, then work your way up from that, as you gain more trust in your own ability to pull off these maneuvres successfully.

Though it seems like a fun thing to do, practicing something like backflying for the first time on a big dive with a lot people can quickly turn ugly. Only fly within your own comfort zone, and within your own ability.

If there is a certain new skill you want to learn, try and set up practice dives. - Solo or two way jumps with a more experienced flyer. Always try to create the safest and most productive environment possible for you to learn in.



Practicing backflying over Empuria Brava. Photos by David Haygarth.

Break off

On a normal skydive break off and tracking away to pull time covers about 1000 to 1500 ft vertically and anything from 100 to 300 meters horizontally in separation in the +- 6 to 8 seconds before deployment.

On a wingsuit flight, this is easily doubled or even trebled. With the same vertical altitude we have 15 to 30 seconds of extra flight time after break off, even for less skilled wingsuit pilots. Some good flyers can even see greater times than these.

The speed and distances we can fly after break off mean we only need to veer slightly off the flight path of the flock by a few degrees to get a good separation before deployment.



Break off from a three way at 4500ft.
Photo by Costyn van Dongen.

The greatest safety concern for a wingsuit pilot is a colliding with another flyer who's not flying in the same direction or at different speed. Make sure the transition from the flocking speed to maximum flying at breakoff is smooth, as sudden changes in the fallrate and forward speed can be very dangerous.

Where do I go?

The most important guideline to remember though, is **never do anything more than a 90 degree turn at break off**. Some load organisers brief dirt dives so that the back of the formation turn 180 degrees on break off from the flocks flight line. This creates a huge potential for head-on collisions.

Wingsuit pilots have a large blind spot to the side and behind them and it is very easy to loose track of where a camera-flyer or stragglers behind the formation are positioned. If pilots on break off perform a 180 degree turn to the flocks line of flight, it puts them on a head-on collision course with the stray flyers. They will be passing each other at insane speeds in opposite directions. A collision in this situation will certainly ruin your day.

Limiting the change in course at break off by a few degrees up to 90 degrees from the flocks flight path is adequate. This eliminates the speed of convergence for the back markers and the slower closing distance allows more reaction time to avoid collisions.

Playtime is over

For some people , breakoff sometimes seems a key for a second part of the jump, where all bets are off, and everybody tries to put as many creative 2 ways in the final few seconds as possible.

This of course is NOT what breakoff is for.

Break off is intended to get some distance between all the flyers after the formation jump and provide everybody with clean airspace to open their parachute.

Be disciplined about your breakoff. And if any, make it a race to see who flies furthest or after breakoff. As long as the end result is, you opening without anyone else around, its all good.



*Jari and Jarno make a 2 way over Empuria Brava.
Though great fun, breakoff on a bigway is not the time
and place for these kind of manouvres.
Photo by David Haygarth*

Lets break it up

A single break off works fine for small flocks, but if groups get too big, there will be proximity issues during opening. In flocks of over 9, separation should always be in waves. The timing for the separation on the waves should be at 500 ft intervals.

In 20+ flock multiple waves are required where the outside/back of the group leave at 5000 ft, and then a second group (the forward sides) at 4500 ft, with the core group/base finally splitting at 4000 ft.

This should give everyone sufficient separation on deployment. This will also have everyone roughly flying in the same direction and should eliminate the danger of converging flight paths at break off - avoiding dangerous collisions that might follow as a result of that.

In RW groups doing big way formation jumps start their separation at 6000 ft and then continue separating in small groups in 1000 ft increments and this procedure is accepted as the logical and safest.

In comparison to RW and Freefly, wingsuit pilots have plenty of extra flight time to get a formation together, yet a lot of people complain about separating at over 4000 to 4500 ft. - Even though separating those few feet higher would make it a lot safer.

The perception is that wingsuit pilots seem to want more flight time to get the formation together. This in itself is probably a hint that the formation is too big for the individual skills of the people in the group. This could also be a signal that making the group smaller might actually be the better course of action.

AAD

Though not a popular subject among some experienced jumpers, the use of an AAD in bigger group jumps is definitely recommendable.

An AAD such as Cypres fires when the downward velocity exceeds 78 mph.

The pressure differences in the burble of a wingsuit flyer, though its bigger, are not any different than that of a normal skydiver. So the unit will not fire any higher or lower than it normally would. This has been tested and confirmed by Cypres/Airtec.

Though its definitely possible to fly *slower* than the activation speed on normal wingsuit flight, the biggest risk we face in a groupjump is that of a collision.

In case of someone getting hit, and loosing conciousness, the AAD *will* deploy the reserve. But of course, the final choice to use, or not use an AAD is up to each individual flyer.

Was that on video?

Another thing that seems to be happening more and more is the extreme focus on stills and video.

On any typical 10 way wingsuit dive, there is usually about 20 minutes of freefall footage to debrief, along with 500 stills.

Instead of a tight 9 way with camera, it usually ends up as a 2 way, with the rest of the flyers focusing on filming the two who are there, or worse, several small 2 way camera-geeking pairs, where they should be focused on getting to their slot and flying the formation.



Jarno geeking the camera. Photo by David Haygarth.

Both in terms of public image and in terms of focus on a dive, it would be nice if people left their cameras on the ground, or at least not focus on geeking cameras and filming during the dive. The best plan is to stick to one dedicated camera flyer and really work on showing good flying and good formations.

Instead of a playful 3 way, brief a 2 way dive with multiple points and docks and have the third flyer do (creative) outside video. This way, everybody gets good practice in flying, instead of just a static slot for the entire dive.

Also - depending on the skill of your cameraman – you'll have a good video to **debrief and learn** from.

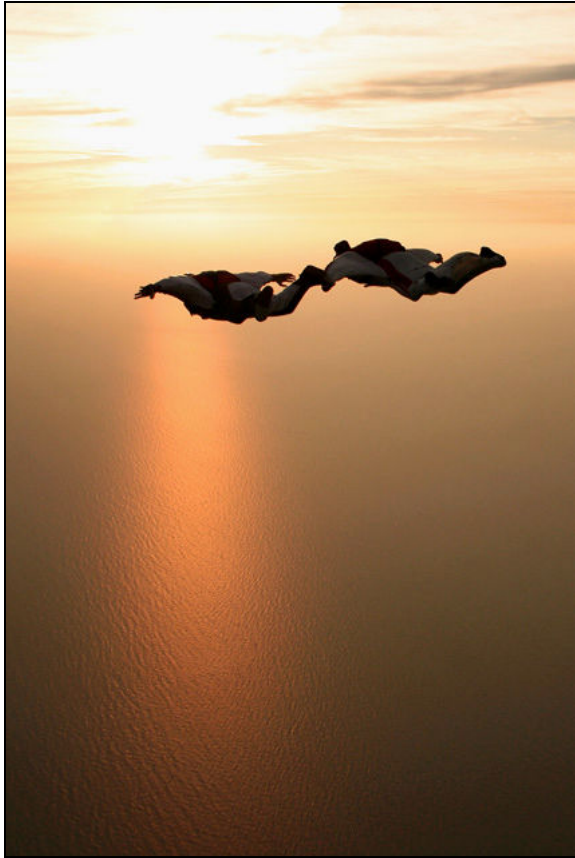
The future

If we work hard as a group, we may finally show people that we can do a lot more than just fly in a straight line while laughing at the camera and turn the static discipline of flocking into a more dynamic form of flight.

Though flying a wingsuit should always be about fun, look at freeflying and see what 4 way VRW - and other organized formation flying - have done for the image, and especially, the overall skill level.

Freeflyers who fly more complex VRW dives can and do still go out and do unplanned playtime jumps, but due to the skills they gained in the close, docked and creative flying with others on planned jumps, they have the skills and awareness to play around to a higher and safer degree. If we as a discipline work hard to increase the overall skill level, flying smaller and more complex dives, the flying will get better. The formations will get tighter, bigger and most of all, safer.

Does he ever shut up?



*Aeneas and Jarno fly a 2 way over the North Sea.
Photo by Costyn van Dongen.*

If you've made it this far. Thank you for reading my article, and it hope you have gained some usefull information, or at least been entertained for a few hours.

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