

XRW Training Syllabus – DRAFT Content

(accompanies a presentation made by Darren Griggs at the APF Symposium, May 2016)

Disclaimer

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This draft document is not a do-it-yourself guide to XRW skydiving but should only be used while under the supervision of suitably qualified instructors or coaches. Individual skydivers should check the information in this document and assess the risks involved before carrying out any of the procedures or manoeuvres described.

Potential levels (WS)

1. Learning the intercept and starting to fly proximity
2. Flying in formation and taking hand docks
3. Flying in larger formations; multiple canopies/WS
4. Surf docks
5. Movement jumps

Potential levels (CP)

1. Flying relative to another canopy (flocking)
2. Using body position to fly to formation
3. Controlling the jump and navigating
4. Taking hand docks
5. Surf docks
6. Building larger mixed formations
7. Movement

Safety things before starting (list) – CP & WS

- Approaches should not be made from head on or at greater than 45 degrees as the closing speed is excessive
- WS should fly below the level of the CP shoulders, any higher and they risk potential canopy/line collision with catastrophic potential
- Any sort of movement/manoeuvring should be agreed prior with relevant signalling
- CP think up for any sort of safety or evasion manoeuvre, WS down
- Any docks should aim for no tension style docks (surf or hand). Should not be made in close proximity to other flyers due to the risk of heading change
- WS lateral speed is very fast. WS also tends to slide a lot more than canopy will during a turn (don't aim at me or slide into me with momentum!)
- Initial jumps should only consist of one canopy pilot and one wingsuiter
- Before attempting should jump/talk with a suitably experienced pilot

- If you lose sight of the canopy during the intercept, have an agreed heading/ flight plan to fly to avoid possible collisions or off DZ landings.
- Wingsuit pilots attempting to join/form an XRW formation for the first time, should only do so under the supervision or guidance of an experienced XRW wingsuit pilot.
- A clear flight plan should be made and approved by the DZSO
- If the canopy guys cut away, be a mate and deploy off door and chase canopy down.

Safety things before starting (list) – WS

- Wingsuiters that have snag hazards (e.g. ring sites and other snag hazards) should remove / change helmets prior to any XRW descent
- Canopy chasers (in event of a CP cutaway) should use judgement if the exit is out over water

Safety things before starting (list) – CP

- Don't take of your chest strap, sometimes the WS will burble you and make your canopy stop flying
- Stow toggles during flight as they can flip through line group. This is especially true when doing any sort of dynamic flying
- Don't go overboard with weight, think of your reserve and what it might be like opening at terminal at 14k feet (higher loading and airspeed)
- Line wear is likely to be higher, monitor line condition
- Select landing area with care; how comfortable are you in that landing area with extra lead and smoke canister strapped to your leg? E.g. not smooth landing areas can become a hazard in themselves
- While trim tabs make a canopy fly steeper they are highly recommended against – distorts the wing and increase chances of collapse with wake turbulence. Not to mention more fun mals and another possible failure point – if you are thinking of doing this, don't. Get a better canopy
- What is the plan if you have a mal? Will the WS follow your gear for you?
- Will you do your normal landing approach or something different

Other thoughts:

- Aim to work on controlling proximity and maintain flight profile more than docks
- Take time building up and doing docks – heaps of working time, good docks much better than rough ones that possibly change heading
- Remember it is a 3D moving intercept, much harder than other disciplines. Getting this consistent means that you can shorten the gap between exits.
- Build up (and walk out) exits to maximise consistency of exit and intercepts
- It helps if the WS counts out the exit for consistency
- Check weather conditions before you jump and alter your spot accordingly. If you are doing a dynamic jump alter spot to account for movement
- Flysight data can tell you whether you are flying within the flight envelope to do XRW
- Talk about what you would do in emergency situations and have plans for gear failure, landing off, etc
- Slicker clothing will help maintain a faster forward rate, assisting the WS folk
- Experiment with different docks, intercepts and flight modes

- Don't start playing with dynamic flying till you have mastered static and have many jumps and great understanding with your team mate
- Don't go in

WS Syllabus

1. Learning the intercept and starting to fly proximity

The first XRW jumps should focus on teaching and showing the intercept, the wingsuit pilot should be following in the experienced wingsuit coach in order to see and understand the process of the intercept, the timing and angles that they will need to fly. When the WS are close enough to the canopy pilot, the WS pilots will then be able to assess their forward speed and descent rate against the canopy (base). The WS pilot will then also be able to trial small movements to see what impact this has against their flight profile

Some things to cover:

- Learning what the intercept looks like
- Managing approach and forward speed
- Convergence for the wingsuiters
- No fly zones
- Recovering from sinking out (open door)
- Canopy losing height for WS (450s)
- Breakoff

2. Flying in formation and taking hand docks

After the first jumps, the WS pilot may start to lead the intercept without a coach (as appropriate), the jumps should now focus on flying tighter and looking at actually taking their first docks. The first docks should build on flying tight and controlled with the canopy before attempting some hand docks. The WS will also get to experience the burble and having their wing deform from any pressure in the dock

Some things to cover:

- Building up from positioning to docks
- Flying with docks
- Still on one side of the formation

3. Flying in larger formations; multiple canopies/WS

Once the WS pilot is proficient in being able to fly the intercept, able to safely hold formation and take docks the WS can now start to build formations on both sides of the canopy pilot. The WS pilot can also participate in multiple canopy / multiple wingsuit pilot formations. This is a significant milestone as it means that the WS pilot should be safe to fly with others (e.g. can hold a slot and not cause carnage for others)

Some things to cover:

- Importance of sticking to the plan
- Difference in flight approach (may not be same quadrant)
- Where are people looking, higher chance of collision, etc
- What to do when things don't go according to plan

4. Surf docks

Once the WS pilot is competent in holding slot and is used to cross referencing on the canopy pilot and other wingsuit pilots, the WS can then safely move onto surf docks. Note – these should only be conducted with one canopy / smaller groups due to the tendency to lose some heading control. Trying to have a surf dock also create a blind sight picture for the WS – as the reference is slightly ahead of the canopy pilot and below

Some things to cover:

- Possible heading changes while docking
- How CP can control WS pilot, tightness of rig
- WS positioning (blind) with CP – CP may close on fronts
- Rising into the dock
- Keep flying – don't just hang off the CP

5. Movement jumps

Once the wingsuit pilot has mastered all of the prior static stages, the wingsuit pilot will be in a good place to try some dynamic (moving) style of XRW jumps. The starting point of these type of skydives should be small in size and limited in terms of degree of movement. Additional planning should be utilised given the change in flight time, ground covered, heading, etc. Movement style of jumps have a higher chance of collisions given the fact the base is moving

Some things to cover:

- Navigation and traffic separation
- Positioning (differences from static)
- What happens when you start to move
- Canopy recovery arc when finishing move
- Sliding movement
- Eye lines / communications
- Emergency breakoff

CP Syllabus

1. Flying relative to another canopy (flocking)

Ideally the first jumps with a new canopy pilot will simply focus on flocking with another canopy. This will give the best chance of understanding the relative characteristics of the canopy relative to a base (often sizing and loading differences). This is especially important if the pilot has not had previous

flocking or CRW experience. The CP needs to know how they will manage any gaps or closure with the lead canopy while only having access to limited inputs (e.g. formation flying on full drive). The CP needs to get used to flying to intercept, flying in close proximity with another canopy and not shifting heading while concentrating on the base. There is a lot to cover off and getting used to visuals may take some time – even for experienced CPs

Some things to cover:

- Wingloading and canopy sizing
- Flight plan
- Exits and intercepts
- Relative positioning on opening and where to fly
- Getting into position from different openings (don't be high and behind)
- Maintain heading control (free hands) – don't wander
- Position relative to lead (building to the left)
- Escape plan
- Landing location and order

2. Using body position to fly to formation

Since XRW is usually conducted at full speed for the WS pilots, the CP must learn to fly the intercept and build on formation without access to the usual inputs. E.g. the CP must maintain speed at all times so as not to burn the WS. Furthermore, the tighter the flock is the less freedom of input the CP has – need to be able to manage building to lead smoothly / predictably. The CP needs to experiment and understand their flight envelope with the base canopy

Some things to cover:

- Being ready for full drive – understanding when the brakes will be blown
- Generally don't use toggles or slow down
- Getting more dive out of the canopy via body position
- Getting more drive out of the wing (increase forward speed)
- Inputs take time to have full impact and may have an impact coming off the input (e.g. be smooth / patient)
- Having a little more power than base

3. Controlling the jump and navigating

Once the CP is across the basic flow of XRW, the base will swap so the new CP will get the opportunity to fly as the base with the WS pilots. The CP will now focus setting up the intercept with the WS, maintaining a solid base, controlling the spot/navigation and ensuring that all land on the DZ. The CP must maintain solid heading control and be conscious of the DZ at all times

Some things to cover:

- Pressure of the WS exits and the intercepts
- Smooth, slow moves/lines
- Maintain heading control (no oscillations)
- In charge of the dive, keep on the plan

4. Taking hand docks

After controlling and directing the formation, the canopy pilot can now experiment with taking hand/leg docks with WS pilots. The CP needs to be conscious of maintaining heading control (not messing with rest of formation) while taking docks. The CP also needs to learn how to actually take hand docks without burbling the wingsuiter, how much force can be used, etc. The CP will continue building on earlier skill set

Some things to cover:

- Positioning of wingsuiter for easier docking (not reaching)
- Burlbling the WS pilot
- Maintaining docks and not compromising WS

5. Surf docks

Learning to master surf docks requires is somewhat more difficult as the WS pilot makes the initial move and loses the visual of the canopy pilot and can therefore get out of position (or potentially burble the CP). If the wingsuiter is capable, an easier alternative may be for the WS pilot to fly on their back to the dock – while the visuals are easier, this is considerably harder for the WS to fly. The CP may need to manoeuvre to manage the dock and will need to learn how to take the dock without losing heading control

Some things to cover:

- Tendency for heading changes on rough or uneven docks, picking up one side first can turn the canopy, as can any lateral movement – very bad for formations
- Foot position and keeping a solid dock with the WS
- Steering the WS
- Taking other docks at the same time

6. Building larger mixed formations

Having all of these skills the CP can look forward to controlling and executing multiple point XRW jumps. Keys to the skill set are around the jump planning, sequencing and utilisation of the previously listed flying skills – the CP needs to be able to multitask and handle what they need to

Some things to cover:

- Plan the dive, dive the plan
- Unlinked is much easier and cleaner than docked
- More stuff going on, formation can be 3D with builds in every direction (left/right, up/down, forward/back – this makes for a lot of looking around)
- Radios can help with communications
- Changing navigation on the fly and signalling
- Smooth transition of points
- Control brake off

7. Movement

Movement jumps should be started in very small group as the chances for collisions is significantly higher (and at much faster speeds). First jumps should be simple carving style of jumps with slow rotational speed, clear key to commence. This will leverage some of the navigation work previously completed, but needs to be recognised as separate. Any higher speed manoeuvring, different angles or freely combinations need to be thought of as cutting edge

Some things to cover:

- Reduced freefall drift – change spot and plan where to be. Will also likely encounter traffic
- Everything happens way faster – much bigger chance for catastrophe
- Can easily lose visual with more rotation
- Changing angles of interception – wingsuiters slide way more than CP
- Having aborts
- Radios recommended
- Don't die