

CSPA

Wingsuit Flight Reference Guide

Coach 3: Wingsuit Coach

The Canadian Sport Parachuting Association
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INTRODUCTION

This 2022 version of Coach 3 Wingsuit is the third release. The CWC is aware that there are knowledge gaps in this manual, in part due to the high pace of advancement of this discipline. Please, send in your suggestions, updates, new ideas, and technical advancements that will help keep all of our manuals on the cutting edge. Submission of graphics is welcomed. This is a living document; it will only grow with your input.

This document is intended for electronic reading in PDF/online format. Click on resource links located throughout the document for additional information.



Please, print only as necessary.

If you have questions, suggestions, corrections or additional material relevant to this or any CSPA manual, please forward them to cwc@cspa.ca so that your ideas can be considered.

The Canadian Sport Parachuting Association (CSPA) provides these manuals to our Members and Registered Participants to ensure that standards and proven methods of training and skydiving are being followed across Canada. The sport of parachuting continues to grow around the world, and as the sport enlarges, so does our knowledge of the technical and training complexities. As new ideas and systems introduced to our sport are proven sound, they are adopted by the CSPA and new information is distributed. To ensure that the best available techniques are being utilised, it is your responsibility to keep abreast of them by participating in Coaching and Instructor programmes and seminars offered by both local organizations and the CSPA.

This manual will not answer all the questions regarding our sport. It is to be used as a guide only, and in conjunction with the CSPA coaching programme and CSPA qualified coaches and instructors. To guarantee the most enjoyment, remember to always

THINK SAFETY - JUMP SAFELY - STAY CURRENT

Skydiving questions not answered in this manual, or in other CSPA publications, may be directed to CSPA's Coaching Working Committee cwc@cspa.ca or the National Office office@cspa.ca

ABOUT THIS MANUAL

This document was originally based on the information contained with the "SEWS Wingsuit Flight Reference Guide" (2012), reproduced by kind permission of Douglas Spotted Eagle (DSE). Our sincere thanks to Douglas Spotted Eagle (DSE) for sharing his knowledge and experience with the CSPA.

Contributors to "SEWS Wingsuit Flight Reference Guide" gratefully acknowledged: Douglas Spotted Eagle/DSE, Joel Hindman, Tom van Dijck, Jarno Cordia, Robert Pecnik, Andreea Olea, Jeff Donohue, Matt Santa Maria, John Hamilton, Karl Gullledge, Laurent Lobjoit, Jason Timm, Jay Stokes, Chuck Blue, Barry Williams, Darren Burke, Alan Martinez, Scotty Burns

The manual is laid out in the standard skydiving progression format of preparation, equipment, in-flight, freefall, and canopy control. Technical knowledge and information for endorsements is associated with the appropriate skill section.

This manual contains information to help prepare the Coach 3 Wingsuit Candidate and provide the requisite information to complete the CSPA's examination for qualification as a Coach 3 Wingsuit.

The information in this manual is based on the information collected from experienced sources. While all efforts have been made to ensure that it is correct and up-to-date, it may contain information that is incorrect and / or out of date.

The techniques discussed in this manual are dangerous, even if carried out correctly, and under the direct supervision of a Coach 3 Wingsuit, may still result in serious injury or death.

This manual is designed to supplement your wingsuit coaching; it does not replace proper training and instruction.

ACKNOWLEDGEMENTS

Thank you to Daniel Grant and the CWC for the most recent edits to this manual (2022). Thanks also to Andrew Leveson for provider user feedback. Thank you to Scott McEown for editing the 2016 version. Thanks for the keen eyes of our proofreaders.

We gratefully appreciate the specific contribution from members of the CWC and the wingsuiting community.

DISCLAIMER AND COPYRIGHT

The Canadian Sport Parachuting Association (CSPA) wishes to note that this publication has been prepared for general information only. Readers are advised that the information printed herein should not be relied upon unless competent advice has been obtained with respect to its suitability for a particular use. Failure to follow the Rules and Recommendations can result in injury or death.

This is a controlled document. The only official version of this document is the version on the CSPA website. All printed versions are not official versions.

LIST OF UPDATES

August 2022 – full manual update

2022 – updates to: prerequisites and currency requirements

2020 – updates to pre-course tasks/requirements

2016 – first release

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FORWARD

This manual is intended as a resource for CSPA Coach 3: Wingsuit, who are regarded as being highly experienced wingsuiters. It is not a substitute for training by a wingsuit instructor certified by any other comparable rating program.

This reference manual is intended as a guide for CSPA C3 Wingsuit coaches who have been fully trained in the methods used at an approved wingsuit school/manufacturer. It is not intended as a training program that does not include a coach and should not be used by any person who is not a CSPA-trained coach, as the methods and techniques are designed for a specific progression.

It is strongly encouraged that coaches, novice, and intermediate wingsuiters to seek out reputable, qualified, rated instructors to develop the skills necessary to fly a wingsuit safely and enjoyably.

This manual and the method of coaching described in it are provided for educational purposes and as a reference tool. The use of this manual does not indicate endorsement by the CSPA (or its members, affiliates, employees, or sponsors).

As a licensed skydiver, you understand that skydiving, and wingsuiting in particular, can result in severe injuries and death. You are responsible for your own safety. As a result, the information in this manual is provided “as is”, and without any warranties or representations as to its completeness or accuracy. While the goal is to improve the overall safety of the wingsuiting community, the use of or reliance on this manual does not guarantee that wingsuiting will be incident free. This manual is not intended to establish a legal standard of care with respect to wingsuit instruction. As a result, no inference should be drawn from the use or reliance upon this manual (or the failure to use or rely on this manual) by any person in connection with wingsuit instruction.

By using this manual, you are agreeing to indemnify and hold harmless CSPA (and its owners, affiliates, employees, and sponsors) from any claims (whether by you or by a third party) relating to this manual or its use.

RULES

Everyone who wishes to learn to wingsuit must receive training from an instructor who is endorsed by a wingsuit manufacturer.

Wingsuiters shall fly for whatever distance or time may be required to take them at least 1000' off the line of flight/other exiting skydivers.

Wingsuiters will stay in their pre - determined area/pattern of flight. It is important that wingsuiters are informed of which area/pattern they and others will be flying.

Off landings should not occur. It is good practice to carry a cell phone to call Manifest to let them know of any off-landing.

Wingsuit pilots must notify Manifest and the aircraft Pilot-in-Command that they are flying a wingsuit. This is important information for the pilot and manifest personnel.

Note – these rules are generally accepted practices for wingsuiting – individual dropzone specific rules will apply.

SECTION 1 - THE COACH 3 – WINGSUIT

The purpose of this part of the manual is to provide the Coach 3 Wingsuit with relevant information in preparation to become a certified Coach 3 Wingsuit. It follows from the Coach 2 program.

Wingsuiting is becoming more and more popular. A Coach 3 Wingsuit must coach novice wingsuit pilots using safe and up-to-date progression and techniques.

WHAT IS THE COACH 3 – WINGSUIT

The CSPA Coach 3 - Wingsuit is an individual who has been identified by the CSPA and its community as a Subject Matter Expert (SME) in the discipline of wingsuiting. The Coach 3 Wingsuit has proven their abilities through performance in records, competition or evaluation.

WHY IS THERE A COACH 3 – WINGSUIT

The discipline of wingsuiting is constantly increasing in popularity throughout the skydiving community, both within Canada and worldwide. In addition, the technology and capabilities of wingsuiting equipment is ever evolving, allowing pilots to fly further, fly faster, and fly with more acrobatic ability. In response to this, it is imperative that novices and newcomers to the discipline can identify and have access to individuals who have proven themselves to be both experts in the field, but also competent coaches.

The Coach 3 Wingsuit program is intended to allow CSPA to identify and reward those individuals who are prepared and willing to fulfill the role of coach and mentor in the discipline of wingsuiting.

EARNING THE COACH 3 – WINGSUIT

The Coach 3 Wingsuit rating is accomplished through a process of mentorship with current Coach 3 Wingsuit(s). Perspective candidates to the program should seek out existing Coach 3 Wingsuit, which can be identified on the CSPA website, or by contacting the CSPA office at office@cspa.ca.

The portfolio contains all of the requirements for obtaining the Coach 3 Wingsuit and can be downloaded from the CSPA website. Additional details regarding the specifics of key requirements is provided below.

WINGSUIT MANUFACTURER FIRST FLIGHT INSTRUCTOR COURSE

As a prerequisite to becoming a Coach 3 Wingsuit, the candidate must succeed at obtaining a First Flight Instructor rating from a wingsuit manufacturer. Manufacturer's can be contacted for further details on these courses.

CSPA requires this manufacturer's training and endorsement to ensure that Coach 3 Wingsuit candidates have received the most current and accurate information as it regards to teaching the First Flight Course and the overall application of utilizing a wingsuit.

RECOMMENDATIONS

The Coach 3 Wingsuit program is administered as a mentorship program. Collecting the recommendation of two SSE / DZO and a DZSO indicates that the candidate has the support and recognition of the skydiving community as both an expert and as a safety-oriented individual.

TECHNICAL EVALUATION

The technical evaluation of a candidate is intended to provide evidence that the candidate does possess the skills of a Subject Matter Expert. The Coach 3 Wingsuit program has two avenues for this evaluation:

- The candidate provides evidence of having participated in two judged events or competitions
- The candidates completes the two Technical Evaluation Jumps provided in the portfolio

CANDIDATE EXPERIENCE

The following spaces are provided for the candidate to summarize relevant details leading up to earning the Coach 3 Wingsuit. It is recommended that candidates complete this section and use them in discussion with the supervising Coach 3 Wingsuit mentor.

State your previous parachuting, wingsuiting, and/or coaching experience

Detail your educational background:

List any courses related to coaching you have attended:

List any parachuting or other athletic experience you may have:

List any certifications you have achieved include where and when you received them:

List any other achievements:

COACH 3 WINGSUIT CURRENCY

See the CSPA website and / or PIM 1 for the currency requirements for the Coach 3 Wingsuit.

SECTION 2 - MENTORING A NEW COACH 3 - WINGSUIT

Existing Coach 3 Wingsuits have the privilege of mentoring future C3 Wingsuit candidates. The role of mentor is an important one in all CSPA programs. As a mentor, it is the duty of the current Coach 3 Wingsuit to guide new candidates through the program, share their experience, and provide feedback to the CSPA and CWC for the continued growth of the program.

It is the duty of the current Coach 3 Wingsuit to evaluate and confirm the abilities of candidates, provide feedback and coaching to those candidates for improvement where needed, and to sign-off those individuals who have completed the steps towards earning the Coach 3 Wingsuit rating.

If an existing Coach 3 Wingsuit has any questions regarding assisting candidates through this program, they can reach out to the CWC through the CSPA office at office@cspa.ca.

SECTION 3 - COACHING A WINGSUIT NOVICE

This section discusses topics related to the coaching of wingsuit novices as a Coach 3 Wingsuit.

WINGSUIT STUDENT VERSUS NOVICE

It is important for a Coach 3 Wingsuit to understand the difference between a wingsuit student and a wingsuit novice in order to ensure the Coach 3 Wingsuit is providing the appropriate level of instruction and freedoms to the individual whom they are assisting.

A wingsuit student is an individual who has no competency level in the discipline of wingsuit. These individuals require complete instruction and supervision in the use of a wingsuit to ensure the safety of themselves and everyone around them. The Coach 3 Wingsuit rating does not infer the privilege to teach or instruct wingsuit students. This privilege is provided through the manufacturer's First Flight Instructor endorsement.

A wingsuit novice is an individual who has received training and instruction from an appropriate instructor(s) in the use of a wingsuit, and has since been endorsed by that instructor(s) to continuing wingsuiting on their own. The role of a Coach 3 Wingsuit is to assist these individuals in further improving and refining their wingsuiting skills. In the discipline of wingsuiting, and throughout skydiving, everyone (even the Coach 3 Wingsuit) can be considered a novice when compared to someone else.

RECURRENCY JUMPS

Wingsuit skydivers that either have not jumped in a long time, or who are unfamiliar with requirements for flight, may need a currency check - dive with a coach. This is at the discretion of the wingsuit flyer and the coaches. If there is doubt, ask for guidance.

The following is a guideline for formulating a wingsuit currency jump with a novice:

- Have the novice demonstrate their current exit method at the mock-up
- Review Instability-Recovery techniques
- Plan a complete wingsuit skydive considering all elements of the skills grid
- Safely execute that skydive
- Re-train and / or repeat any elements as necessary

HAND SIGNALS

In-flight communication in any aspect of skydiving can be difficult. The following figure provides an example of common hand signals that the Coach 3 Wingsuit can employ to provide the most basic communications to novices. It is important to note that the Coach 3 Wingsuit must review any communication techniques with their novices well in advance of the wingsuit flight.

Key to the use of visual communication techniques is the both the ability of the Coach 3 Wingsuit to ensure they are well within the field of view of the novice (as necessary) and that the novice is relaxed and anticipates that communication will be available.

VOICE COMMS

It is a growing trend for wingsuit pilots to incorporate the use of Bluetooth / wireless headset units borrowed from the motorcycle industry. These units allow pilots to have literal “on-the-fly” vocal communication during flights. As a Coach 3 Wingsuit, this can be a very powerful tool. In contrast, for a given novice, this could also be a very powerful distraction. The Coach 3 Wingsuit must evaluate the appropriate use of voice comms with the novice to ensure that the training tool is being used to improve the coaching experience.

As a baseline recommendation, voice comms should be limited to one-way communication from the Coach 3 Wingsuit to the novice, with communications being kept to simple pre-discussed inputs, such as “relax”, “hips down”, “point toes”, etc. However, it is also within the scope of the Coach 3 Wingsuit to identify when open two-way communication will have its benefits.

NON-CSPA REGISTERED PARTICIPANTS

If a foreign visitor is using their FAI or other foreign membership to obtain jumping privileges, it is very important that the Coach 3 - Wingsuit verify that they meet the minimum CSPA standards for wingsuiting.

SECTION 4 - TECHNICAL INFORMATION

The following sections provide the Coach 3 Wingsuit with information that is useful when developing the skills of novice wingsuiters. The evolving nature of the discipline necessitates that this information be updated regularly. However, the CSPA and the CWC rely heavily on the feedback and input from current and prospective Coach 3 Wingsuits to ensure this information is updated as and when appropriate.

PREPARATION

PHYSICAL FITNESS

Wingsuit flight is an especially taxing form of skydiving. Additional muscle groups utilized, and a longer duration of the skydive make wingsuit flight a considerable work out. It is important that wingsuit pilots are aware of this added physical demand in their skydive. The best performance for a wingsuit pilot will be developed partially through development and maintenance of good physical form, in both strength and flexibility. Some items to consider are:

1. Advanced Stretching and Conditioning
 - a. Pilates, Yoga , Warm up, partner stretching, visualization, progressive muscle relaxation, stretch, cardio, strength, diet, daily plan
2. Morning Briefing – prepare your body for what you'll do that day
3. Nutrition

PSYCHOLOGY

1. Mental Training
2. Conflict Resolution
3. Team Building
4. Emotional Control
5. Visualization Training and Techniques
6. Distraction control: internal and external and action plan w/implementation
7. Progressive muscle relaxation
8. Meditation
9. Strengthen visualization (strengths and weaknesses) training plan
10. Team building, develop supportive network
11. Annual planning meeting
12. Situation analysis
13. Arousal identification and control
14. Visualization for arousal control
15. Cross brain exercises
16. Focus: personal best

PILOT BRIEFING / AIRCRAFT INFORMATION

ALWAYS notify Manifest and the Pilot-In-Command that there are wingsuits aboard. Notify the pilot of the wingsuit flight plan.

Do not distract the pilot during take-off or in the first 2000 feet of flight

PLANNING THE SKYDIVE: LANES OF FLIGHT

Planning the lanes of flight for wingsuiting is dropzone specific. The following is provided as an example only. The Coach 3 must work with the DZO/DZSO to establish the local rules.

These lanes work in either a northbound (most common) or southbound jump run. If there are several groups, the pilot will try to accommodate a 90 degree turn. Southbound jump runs cannot see the airport on a left-directed 90 turn, and should be avoided whenever possible during level one jumps.

PRE-BOARDING PREPARATION

Instruct your students:

- The 10 minute call is the **5 minute call for wingsuits**.
- **The 5 minute call is the “now” call for wingsuits.**

Wingsuits board before tandems, and, even if we are on-time, it still will often appear that “wingsuits are making the tandems wait”. Have booties on, zipped, and ready to board at the 5 minute call. While unpleasant in hot weather, we need to do our part to keep the planes moving.

Before getting on the aircraft:

- Make sure that your wings are correctly assembled and that all snaps, zippers, and clips are correctly attached.
- Ensure that emergency handles are in position and are not hindered or covered.
- Fasten your chest strap securely.
- Ensure that your leg straps are fastened and snug inside the suit.
- Check that all the zippers are completely closed.
- Ensure the waist belt is tightened firmly
- Have someone give you a pin check.
- Check that the BOC throw-out pilot chute and handle are in the correct position.

Perform some practice pulls before you enter the aircraft to ensure that you can reach your pilot chute and that it is in the correct position. To do so, touch your pilot chute handle with your pull hand while bringing your opposite arm in symmetrically and closing your leg wing.

SECTION 5 - EQUIPMENT

This section discusses the equipment details specific to the discipline of wingsuiting. In general, wingsuits should be equipped with:

- Hard Helmet shell helmet
- Audible altimeter
 - Note: some audibles has “slow flight” specific settings that will impact their use with wingsuits. Be sure to refer to the manual for specific equipment and that wingsuit pilots are familiar with the appropriate operations of their devices
- AAD
- RSL
- MARD
- Appropriate wingsuiting canopy (see following sections)
- Appropriate wingsuit (see following sections)
- Cell phone (in event of off landings)

WINGSUITS

As with any piece of skydiving equipment, it is critical that wingsuit pilots choose a wingsuit that is well suited to them in terms of fit, skill level, and wingsuit flight requirements.

Wingsuit manufacturers are constantly testing and developing new designs and technologies, as such is inappropriate for this guide to list exact models appropriate for a given situation. However, the following will discuss characterises and features of wingsuits that potential pilots should be aware of. In contrast, this guide is not intended to provide a complete and comprehensive discussion of every possible consideration and technological advancement available.

A wingsuit consists of two basic elements which allow the pilot to manipulate their relative airflow to produce drive and glide not possible without the wingsuit.

Body

The body of the of the wingsuit encompasses the skydiver and allows provisions for the skydiving container to be incorporated into the wingsuit system. The body of a wingsuit can include additional accessories such as pockets, zippers for the adjustment of fit, or openings for the mounting of ancillary equipment (cameras).

Wings

The wings give the wingsuit its obvious name and are the primary tool used by the wingsuit pilot to manipulate relative air. The wings are generally classified into two types: Arm wings and Tail wing. Arm wings occupy the space between the pilot's arms and body, or even the legs on larger suits, while the Tail wing occupies space between the pilot's legs, and may or may not extend past the pilot's feet. Both wings incorporate a celled structure, similar to a ram-air canopy, with inlets (often on back and front) to facilitate inflation of the wings. Most modern suits also include additional pockets within the structure

of wings, and mechanisms (often zippers) that a wingsuiter can use to customize the pressurization of the wings.

WINGSUIT FIT

This section provides a generalized discussion on the fitting of a wingsuit to a wingsuit pilot. As with any piece of skydiving equipment, it is important to reference and understand the manufacturer's guidelines and manuals for proper use. Ensuring that a wingsuit is appropriately fitted to a wingsuit pilot is critical for both the success of the wingsuit flight, and the safety of the wingsuit pilot.

Handles

All handles (Main pilot chute, cutaway, and reserve) must be fully accessible while wearing the wingsuit. Any restriction provided by the wingsuit that prevents access to any of these handles is unsuitable and must be avoided. Modern wingsuit designs generally incorporate the ability to adjust openings to ensure that handles are not enveloped by the wingsuit.

Range of Motion

The wingsuit inherently limits the range of motion of the wingsuit pilot. A common example of such is attempting to reach overhead without bending one's knees or undoing any wings. However, the wingsuit should not be so limiting as to prevent the wingsuit pilot from fully extending their legs and toes (maximum drive), or adjusting their level of arch (vertical speed adjustments). In contrast, a wingsuit should not fit so loose that the pilot is unable to fully utilize the complete extent of the fabric around them.

WINGSUIT DESIGNS

This section provides a generalized outline to the consideration of the design of wingsuits and when they may be appropriate for use by a novice. There are countless designs of wingsuits, and these are ever changing, evolving, and being added to. As a Coach 3 Wingsuit it is important that your novice is utilize an appropriate design for their skill level, and that you are using an appropriate suit for the flying with that novice. The adage of "dressing for success" holds very true for the discipline of wingsuiting. Most manufacturers provide well detailed outlines for conditions pertaining to when wingsuit pilots can consider utilizing a given wingsuit.

At the most basic level, the less experience a wingsuiter has, the smaller and easier to fly the wingsuit must be. As a wingsuiter develops further skill, currency, and competency in the discipline, they may begin exploring larger more complicated suits.

Understanding that some wingsuits may not be suitable for some wingsuit flights is an important distinction any wingsuiter must make. A large wingsuit intended for performance competition (speed, distance, time) may not be an ideal choice for acrobatic flights or chasing students and novices, while a small acrobatic suit may not provide the lift and surface area required to keep up with a flock of large suits.

CANOPIES

This section discusses the considerations in choosing an appropriate canopy to be used while wingsuiting. Wingsuiting introduces additional considerations when it comes to flying a parachute, including but not limited to:

- Additional house keeping under canopy
- The potential to end up well outside of the range at which they can return to the landing area
- Increased potential for more severe line twists
- Increased potential for bag-lock or streamer malfunctions

As a blanket recommendation, larger, more stable, docile, 7-cell, non-elliptical canopies loaded below 1.5 are ideal. These recommendations aim to reduce the chance of malfunctions occurring due to the operation alongside a wingsuit. It is also important to consider that the larger the wingsuit being flown, the larger the canopy should be. At the time of updating this manual, many parachute manufacturers have identified the growing market of wingsuit pilots and have begun developing and market canopies designed specifically for the discipline of wingsuiting.

CAMERAS

Most prospective wingsuit pilots already own and use a camera on their skydives. However, addition of the typical skydiving camera to a wingsuit flight can make entanglement issues very possible.

It is recommended *at least* 25 clean deployments (no line twists or other issues) prior to attaching a camera to the wingsuiter's helmet.

GPS RECORDING AND READ-OUT DEVICES

As the discipline of wingsuit has evolved, so to have the devices that supplement the wingsuiter's experience. A growing commonality among wingsuiters is to utilize GPS devices that record and / or provide an on-the-fly readout of the wingsuiter's GPS coordinates. The capabilities of these devices is truly impressive, allowing the wingsuit pilot to:

- Receive current location and distance relative to a set target
- Record the 3D location, speed, and altitude for later review
- Receive readout of speed, direction, or glide ratio

While these devices are great devices for reviewing, recording, and training various aspects of the wingsuit flight, the Coach 3 Wingsuit must be cognoscente that they are not becoming distractions from the flight plan or replacements for good skill development (such as visually identifying current location and returning to the dropzone).

GEARING UP

Wingsuiters must receive a thorough gear check specific to the equipment being used.

The following is an example of a wingsuit specific gear check.

http://www.dropzone.com/safety/Disciplines/Wingsuiting/Wingsuit_Gear_Check_712.html

A wingsuit also creates unique concerns that a watchful eye can catch; Regardless of experience level, it's possible to make a mistake while gearing up with a wingsuit; AAD is on; Pay particular attention to the cutaway and reserve handles, in some suits, especially if ill-fitting, handles can become pulled into or obstructed by the suit. Making it a habit to look at others' gear can only result in positive results. Save someone's life this year - it could be yours!

Examine the wingsuiter's arm wings, and in particular, examine the connection between the wing and the jumper's torso. Different wingsuit designs have different wing configurations.

Cable Thread Systems. Cable Thread Systems consist of a cutaway-style cable that runs through alternating torso and wing tabs, which keep the wing attached to the torso. By pulling on the cutaway cables, the wingsuiter can release the arms of the suit in an emergency; see if the cables are threaded correctly through the tabs, all the way up; Make sure the wing cutaway handles are properly secured in a Velcro or tuck-tab housing;

Zipper Attachment Systems. There are many different suit designs on the market; generally come in two types: "over the shoulder zippers" and "bottom of wing".

"Over the shoulder zippers" are what their name implies – a zipper that runs over the wingsuiter's shoulder, which connects the wing to the torso; in this design, the wing isn't detached from the torso even in an emergency; Look to see if the zipper is attached properly and zipped all the way down; make sure the Velcro is holding the top and bottom of the wing together and that the Velcro isn't bunched or pinched.

A "safety sleeve" – a ZP liner – that allows the armwing to slide up the jumper's arm, permitting the wingsuiter to reach canopy controls in an emergency; there's no arm wing cutaway system. Make sure that the arm zipper that runs from the jumper's shoulder to his or her wrist is fully zipped.

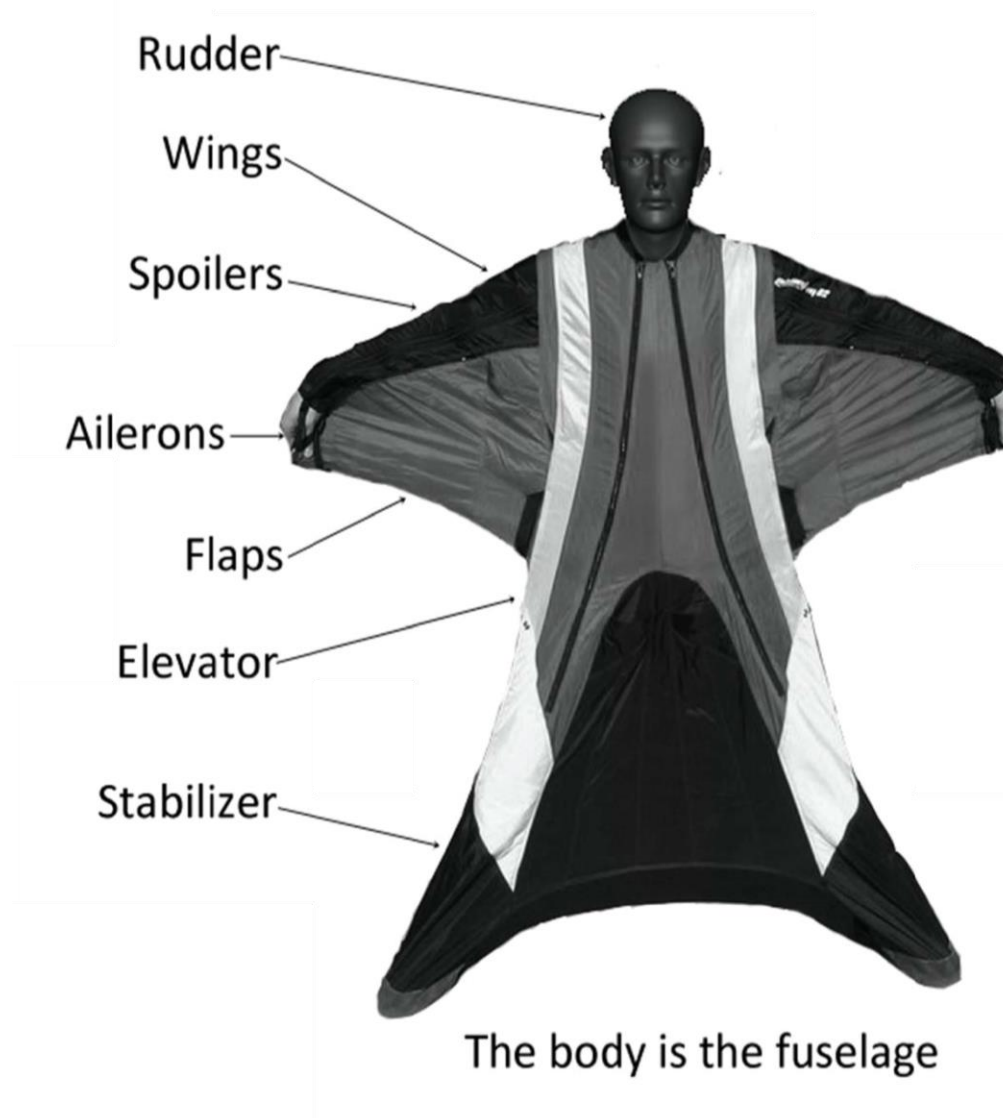
Wrist-mount altimeter: Make sure that the jumper can release his or her wings without undoing the wrist-mount; most wingsuit have a small loop attached to the end of the arm-sleeve. This loop wraps around the thumb or hand to assist in tensing up the armwing for flying and closing and opening the zippers on the sleeve. Make sure this thumb or hand-loop is worn over the altimeter, and not underneath

Make sure the wingsuiter's legstraps are on. Leg straps can be missed by wingsuiters while gearing up, as the suits tends to restrict motion and prevent the jumper from seeing the legstraps. Visual inspection is insufficient to make sure that the leg straps are on – the wingsuit can deceptively pull the strap against the leg, making it appear that the strap is on. Ask the wingsuiter to shrug – the jumper should feel the resistance in the harness created by tightly worn leg straps. Alternately, you can lift the bottom of the wingsuiters rig (in other words, under the pilot chute). If the rig moves more than a couple of inches, it's not secure enough. By lifting the rig slightly by the shoulder, it is fairly easy to check if the leg

straps are on and fastened. However, a full visual inspection before closing the suit, and thus hiding the leg straps from view, is recommended.

Booties: when the wingsuiter is using a borrowed or rental suit, booties may be ill-fitting. Badly fitted and poorly positioned booties can result in a lost bootie, which can make for an incredibly difficult flight and dangerous canopy deployment

Don't forget basic things such as goggles or gloves; new wingsuiters can get so involved in the jumpsuit that they forget the basic accessories.



SECTION 6 - INFLIGHT

EXITS

Wingsuit exits will be specific to the aircraft being used. The following exits are included for your reference.

Communicate with the pilot. Always. Even if it is just to let him know you are there.

EXIT ORDER

Wingsuits are generally either last or first in the exit order, both first and last (in the case of multiple moving groups), and very rarely in the middle (e.g. multiple passes).

Wingsuits should exit after tandems and before CRW. Wingsuiters must pay particular attention if other moving groups are on the aircraft; moving groups must be organized such that they will not occupy the same areas or patterns as each other or any other exiting group. This is particularly important if any group has any participants deploying higher than 3000 feet.

Putting wingsuiters out in front of normal free fallers introduces a lot of extra risks, such as the 'normal' jumpers on the load accidentally passing the wingsuit flyer in freefall if he or she didn't fly a perfect pattern (or the pilot of the plane slightly turned/changed the direction of jump run).

If jump run includes a 180 degree turn for tandems or PFF students, it is imperative that wingsuiters be aware of lanes of flight and the potential for high-altitude canopies being in the lanes of flight.

Wingsuiters may exit first in the load as well; this is another means of separating groups when tracking groups are on the load.

In general (when wingsuits are on board), the exit order is as follows:

1. Tracking skydivers/groups
2. FS groups, large groups then small groups
3. Freely/VFS groups, large groups then small groups
4. PFF/Students/Higher deployments
5. Tandems
6. Wingsuits
7. CRW
8. High-pulls

Remember to communicate at the mock-up or boarding area to save boarding/loading time.

However, dropzones will have their own rules and requirements that must be adhered to. Be sure to make yourself familiar with dropzone specific rules prior to manifesting.

LARGE SIDE DOOR EXITS

Knees-on-floor will be a full-roll exit where the wingsuiter will be executing a full barrel roll out of the door.

Butt-on-floor facing the tail is a half-roll exit where the wingsuiter will execute a half-over roll.

Coach the wingsuiter to “roll” without momentum while looking up at the aircraft/prop/door. This offers the best approach to a stable exit from the Caravan. Keeping hands to chest aids in a clean exit. Hands on floor or float bar will often lead to an asymmetrical exit, resulting in a tumble/instability.

Wingsuiters may also leave from any poised exit utilizing aircraft handles. It is imperative that wingsuiters never JUMP during an exit. Exits are always in an out and down direction to avoid the tail of the aircraft.

Wings must stay closed until clear of the aircraft tail regardless of the exit type.

SMALL SIDE DOOR EXITS WITH HIGH AIRSPEED

Exits remain the same as large side door aircraft. However, the small space, high airspeed, and often low tail of these aircraft dictate that wingsuiters MUST keep wings closed until clear of the tail, and reminded that jumping will absolutely put them at risk of striking the tail.

SMALL PLANES WITH STRUTS AND STEPS

As with other aircraft, it must be ensured that wings are closed until clear of the aircraft, and that exits do not involved upwards jumping motions.

Unique to the C-182 style climb-out is the added difficulty of climbing out on the strut while maintaining control of wings, particularly preventing the wings from inflating.



Butt on floor is a half-roll, and easiest exit for most wingsuit pilots



The half-roll puts the wingsuit pilot on their belly while easily clearing the tail.

UNUSUAL SITUATIONS ON EXIT

Tail Strikes can occur regardless of experience. Proper exit position/launch practices can prevent tail strikes. Pictured below is a high risk exit. Diving exits, open wing exits are cause for grounding.



SECTION 7 - FREEFALL

HELICOPTER JUMPS

Wingsuit helicopter jumps require at least 25 previous wingsuit jumps, currency in the wingsuit, and we highly recommend a hard helmet and a smaller suit for a first exit.

Helicopter jumps are typically low-altitude exits. Combined with the zero-wind environment, it is very easy to go unstable upon exit. Advise the wingsuit pilot to remain head-up on exit, arms open, legs closed until flying. Additionally, reiterate the pilot's command of "no jump, only fall off" on exit. Jumping can cause instability of the helicopter and possible injury to other jumpers on the aircraft.

Advise first-time helicopter jumpers of the time difference. Body clocks are powerful, and low deployments are common (and problematic) with helicopter exits.

NIGHT JUMPS

Wingsuit pilots must have a minimum of 50 wingsuit jumps prior to doing night.

BALLOON JUMPS

Recommend at least 25 WS skydives prior to undertaking a balloon jump.

Advise the student to exit head-high, arms open, legs closed. Use the stair-steps to teach this exit; remind them to hold head-high until the WS starts flying. It is also recommended that the first exit be a smaller suit (such as a Phantom) before attempting larger suits.

Advise that booties should be zipped on prior to exiting the basket, advise arm wings being open during the climb out.

A deep breath and release will help with a clean, head-high, relaxed exit.

Zero wind can easily cause instability. Remind balloon wingsuit jumpers of their ISR procedures (Instability-Recovery) and that their **first priority is to pull**, pull at the correct/assigned altitude, and to pull stable.

DISTANCE RUNS

If you are fortunate to be able to do distance runs, with this privilege comes responsibility on the part of both the organizer and the participant. These runs can travel as far as five miles from point of exit.

Participants must have a minimum of 50 WS jumps prior to doing a distance run.

Participants must be evaluated and/or known to the organizer/coach prior to the jump. *If there is any doubt about the performance flight skills of the potential participant, they should not go on this jump.*

Procedures for a Distance Run:

- Check winds aloft
- Identify potential participants, be certain of their skill level
- Obtain permission from DZO
- Communicate with the pilot-in-command prior to boarding aircraft. The pilot needs to know the plan
- Brief the group on off-landings, arrange for any pickups if necessary.
- Show the group an overhead, indicate the lines of flight. Indicate the danger areas of the dropzone/airport.
- Verify there are no high-pull fun jumpers on the load
- Organizer should direct exit separations as follows;
 - Most experienced jumpers/large suits first
 - Lesser experienced and smaller suits last
- No one deploys higher than 3500 unless they feel they cannot make it back to the dropzone
- Everyone must land on the dropzone
- Everyone must carry a cell phone
- All wingsuit pilots must check in with Manifest upon landing

SECTION 8 - WINGSUIT FUN STUFF

This is a random collection of wingsuit activities for one or more persons.

- Flat flocks shaped as diamonds, wedges, chevrons, inverted V's (forward chevrons), or letters of the alphabet.
- Vertical flocks shaped as diamonds, wedges.
- Haystacks- (three or more). A vertical stack is built. The bottom person moves to side and climbs the "ladder."

The next to the bottom person stays as "base" for a few seconds, and then too, moves to the side and climbs the "ladder." This is an evolution where each person is on top and on the bottom of the formation. Be cautious about getting this formation larger than 5-6 people, as lesser experienced people on top may take out the group.

A variation on the haystack is that the bottom/base person flips to their back as the bottom person moves to the side and climbs to the top of the vertical stack. The person above the 'base' may also direct the line of flight.

Organizing tip: *Left side of formation exits first, right side exits last. In groups larger than 5-6, it's a good idea to have the base exit in the middle of the group vs in the first part of the group. It's often a good idea to put base as front float, left side as rear float, and right side as center float.*

*Dirt-dive the formation, then have the right rear side of the formation load into the mockup, loading from right rear to left front. This will help clearly define the exit order. **ALWAYS dirt-dive group dives to be sure no one is crossing in front of someone else; this helps avoid collisions.***

- Over-under (Two or more): Start by flying side-by-side, one person flies over the other. To add variety, alternate between flying over, and then flying under each other.
- French Braid (three or more): fly all wingsuiters in a straight line next to each other. Right side floats up/over to the left, taking the left end slot. The former left slot (now middle) flies to the right slot. The former right slot (now middle) flies to left slot. The new right slot then flies to left (either over or under the group). This can be done with as many as five wingsuiters without much difficulty.
- Orbits (two or more): start flying relative. One person pulls ahead of the other and flies forward, to the side, and then behind the other, returning to original position.
- Carving Rolls/Rotors (two): One flyer is on back, other on belly straight over. Each wingsuiter reaches towards the other, and carves into a reverse role where the backflyer becomes the bellyflyer and vice-versa.
- Team barrel rolls (two or more): Get out of the plane, get relative, and on a head-nod or other cue, everyone does a barrel roll in the same direction. The goal is to see if the heading and horizontal proximity can be kept on heading and equal.

- Team front rolls/fruity loops (two or more): Get out, get relative. Do front rolls one at a time (they can be done together, but you'll both want to be very able to do these well, otherwise a collision is almost assured)
- Learn a backfly exit
- Do some forward Orbits

WINGSUIT RODEOS

Rider must have a 75 jump minimum. Wingsuit pilot should have at least 100 WS jumps before attempting a rodeo.

****Logbook verifications are important!**

Wingsuit rodeos are a lot of fun for both rider and pilot. The combination of wingsuit and rider make for a steep flight, and it is important that the wingsuit pilot keep this in mind when choosing the exit distance. Even so, exit instability for the rider may result in an off-DZ landing, or landing away from the familiar main landing area.

For best results, have the rider sit as far forward of the bottom of the wingsuiter's container, while holding the yoke of the wingsuiter's rig. This provides for better balance/center of gravity, and helps pull off a successful rodeo ride.



Sometimes, a rodeo rider will deploy straight off the 'horse's back.' While this is a lot of fun and makes for great video, it also usually results in a snappy opening for the rider. Riders should be warned in advance that this kind of deployment may be brisk. Dismounting and freefalling prior to deployment is a preferred (and safer) method of deploying for all parties concerned. An AAD should be considered if deploying off the back of the horse. Deployments are sometimes very, very hard. Demonstrate the best arm position for deployment off the wingsuit pilot's back.

Riders should also be advised on dismounting and to avoid the wingsuit pilot's handles (Main, cutaway, reserve).

The wingsuit rodeo briefing should also include:

- The rider's **altimeter is likely not going to be accurate**, as it is in the burble of the wingsuiter.

- Rider should deploy at a higher altitude/above 5000 feet**; this helps avoid off-landings, allows the wingsuit pilot time for recovery in the event of instability at dismount, and accounts for any altimeter reading errors. Be certain to brief EVERYONE on the load of the higher opening, even though wingsuits are generally exiting last (if there are other wingsuiters following the rodeo, it is important they know that there will be higher canopies in the area).

- The rider should keep themselves tight against the wingsuit pilot's rig. If the rider and wingsuit pilot have air between them, it usually goes bad fairly fast, and the rider can easily twist a wrist and/or cause instability for the wingsuit pilot.

Advise the rider that if the rodeo rolls over, the wingsuit pilot may still be able to 'right' the rodeo within one or two flips. The rider should stay as tight as possible during the rolls/flips.

Dirt-dive the ENTIRE jump, including the exit. Regardless of experience, dirt-dives can reveal potential problems. This also helps place hands, elbows, hips, legs, and feet in proper positions. Riders should not wrap their legs around the wingsuit pilot's legs. This can generate instability and will reduce drive. Be sure to set a high break-off altitude; this is especially important if there is a camera flyer or trackers with the wingsuit rodeo team. Everyone needs to be clear of the rider regardless of deployment from the wingsuiter's back or a dismount deployment.

If the rider feels the wingsuit pilot "shaking" beneath them, they must dismount immediately.

If the rider/wingsuit pilot is in a fast spin, the rider should dismount immediately.

Remember, although rodeos are a lot of fun, they are not "just another skydive." Have fun, just be sure that both rider and wingsuiter are communicating and have a plan between themselves and the pilot.

WINGSUIT WATER TRAINING

Wingsuits in the water are more difficult than standard skydiving water landings. As a result, wingsuit water training is unique and valuable when wingsuiters are planning to jump near bodies of water.



Not a good place to be in wingsuit.

Every wingsuiter receiving water training should have already completed their CSPA water endorsement with practical training.

Wingsuit landings begin with these same steps when possible. A water landing sequence is as follows:

- Unzip arms
- Loosen or undo chest strap
- Do not remove helmet
- Put canopy in half-brakes
- After impact with water, cutaway main.

It is likely that the impact will force a face-down position. Roll over onto back immediately. The reserve will act as a flotation device for up to 30 minutes in fresh water, longer in salt water. The tail wing may also be inflated, making a roll-over a bit more difficult (in repeated water training, it is unlikely the tail will remain inflated once it has become entirely soaked). While on the back, calmly unzip the body zippers, and unzip the leg zippers. In the event of a unibody zipper, the zippers should be positioned below the knee for efficient escape.

- Loosen leg straps

- Work legs from leg straps first, then pull arms from harness/wingsuit, and roll forward
- Dive to swim away from rig/wingsuit/main
- Remove helmet when/if appropriate (in moving water, keep the helmet on to protect the head unless the helmet impedes breathing)

If landing in moving water, it is important to stay upstream of canopy. In moving water, it is very easy to become entangled in the main and attached lines.

Water moving at even moderate speed is very dangerous. It is important to become free of wingsuit, rig, and main as quickly as possible, while attempting to stay upstream of the canopy.

If landing in calm waters far from shore, stay near the container if the main has been cut away and can be avoided. The reserve parachute may act as a flotation device. However, there is always the risk of becoming entangled with the main and its lines. If skydiver can swim and is near a shoreline, then swimming to the shoreline is preferable to using the rig as a flotation device.



The tail will likely want to float, making it difficult to breathe if facing belly-down.

Get onto the back as quickly as possible. The reserve will act as a flotation device.

http://www.dropzone.com/safety/Disciplines/Wingsuiting/Getting_Wet_Wingsuits_In_The_Water_752.html

APPENDIX – DIVE FLOW PROGRESSION

The materials contained in this section are for reference.

This section covers examples of dive flows, training techniques, and tips for providing students the best information available. It does not supersede for attempt to replace lesson plans guided by manufacturer recommendations and endorsements.

PRE-FFC EVALUATION JUMP

This jump is for persons who have near to, or exactly, 200 jumps, persons that are unknown to the coach and persons who do not have logbooks but do have low jump numbers.

Skydiver attends the full Level One/FFC course, while wearing wingsuit.

Coach and skydiver will perform a skydive performing all tasks from the First Flight Course, with *the student NOT wearing a wingsuit*. The FFC skydiver candidate will:

- Perform poised exit/Wingsuit FFC exit
- 'Wings' closed (close one-thousand, fly one thousand)
- Practice touch w/wave-off
- 90° turn
- Practice touch w/wave-off
- Deploy at 4500'
- Land in designated area

Following ground training, show the relevant video.

Manifest and jump.

If all tasks are properly performed AND the student meets the CSPA requirement of B-CoP and 200 skydives, a Level One/First Flight in a wingsuit is appropriate.

A small-format camera is permissible on a pre-wingsuit FFC training jump student if the student has previous small-format camera experience and meets CSPA's camera recommendations.

****Logbook verifications are important!**

LEVEL ONE: FIRST FLIGHT JUMP

Training for the First Flight/Level One jump may only be provided by a Wingsuit coach. **Non-Wingsuit coaches may not train without prior clearance from the DZO.**

Training must include exit-appropriate training for the Otter or Caravan. Practice exits both in wingsuit-only and wingsuit/rig (with helmet) combinations must occur prior to manifesting the student.

****Logbook verifications are required!**

FFC DIVE FLOW:

- Perform poised exit/Wingsuit FFC exit
- 'Wings' closed (close one-thousand, fly one thousand)
- Practice touch w/wave-off
- 90 degree turn
- Practice touch w/wave-off
- Wave-off at 5500 feet
- Deploy at 5000 feet
- Land in designated area

The Coach shall record video when possible. This is not only valuable for providing the student a solid debrief, but also is valuable in making other skydivers aware.

An FFC/Level One student **may not wear a camera on this skydive**. Entanglement issues are very possible.

We recommend *at least* 25 clean deployments (no line twists or other issues) prior to attaching a camera to the student's helmet.

LEVEL TWO: NEW EXIT: FRONT FLOAT

This jump teaches the Floating Exit, forward drive, and stopping power. It is important to teach only the basics of acceleration in this level; *the objective is forward motion, stopping/slowing power with control, not performance flight.*

Student will be trained for a **Front Float Exit**.

KEY TRAINING POINTS FOR THIS EXIT:

-There is no 'jump' from the aircraft; it is merely a transfer of weight from the balls of the foot to the heel of the foot. When the "jump one-thousand/fly one-thousand" exit method is observed, the relative wind will turn the wingsuiter towards the line of flight and put them on their belly.

-Look towards the prop or door of the aircraft for stability.

KEY TRAINING POINTS FOR THIS JUMP:

-Have the student slightly lower head while performing the first two maneuvers. This not only helps maintain stability, but also gets the student in the habit of keeping their head lower.

-Tossing head back for the Emergency Stop/Stall is a significant component of stopping force.

DIVE FLOW:

Coach (rear float) and student exit (maintain "close one-thousand, fly one-thousand")

Coach and student turn to line of flight and fly relative (it is the coach's responsibility to fly relative to the student). Coach signals to the student to begin the maneuvers.

Student accelerates for 3 seconds, by lowering head and pointing toes. The coach should not accelerate, but rather performs a slight drop in altitude while observing the student's acceleration.

Student performs a "Stop n' Drop" maneuver. Student's legs remain in line with body while lower legs are raised to a 45 °angle. This will slow the student and drop them in altitude. The coach and student should once again be flying relative.

Student accelerates for 3 seconds. The coach should not accelerate, but rather slightly slows.

Student performs a "Slow and Hold/Flying Dirty" maneuver for 5 seconds. Knees are dropped, calves should remain parallel to earth.

This maneuver will allow student and coach to fly together at slow speed.

Student resumes normal flight, coach and student will fly relative for a moment.

Student accelerates for 3 seconds. The coach should not accelerate, but rather maintains speed while observing student's acceleration.

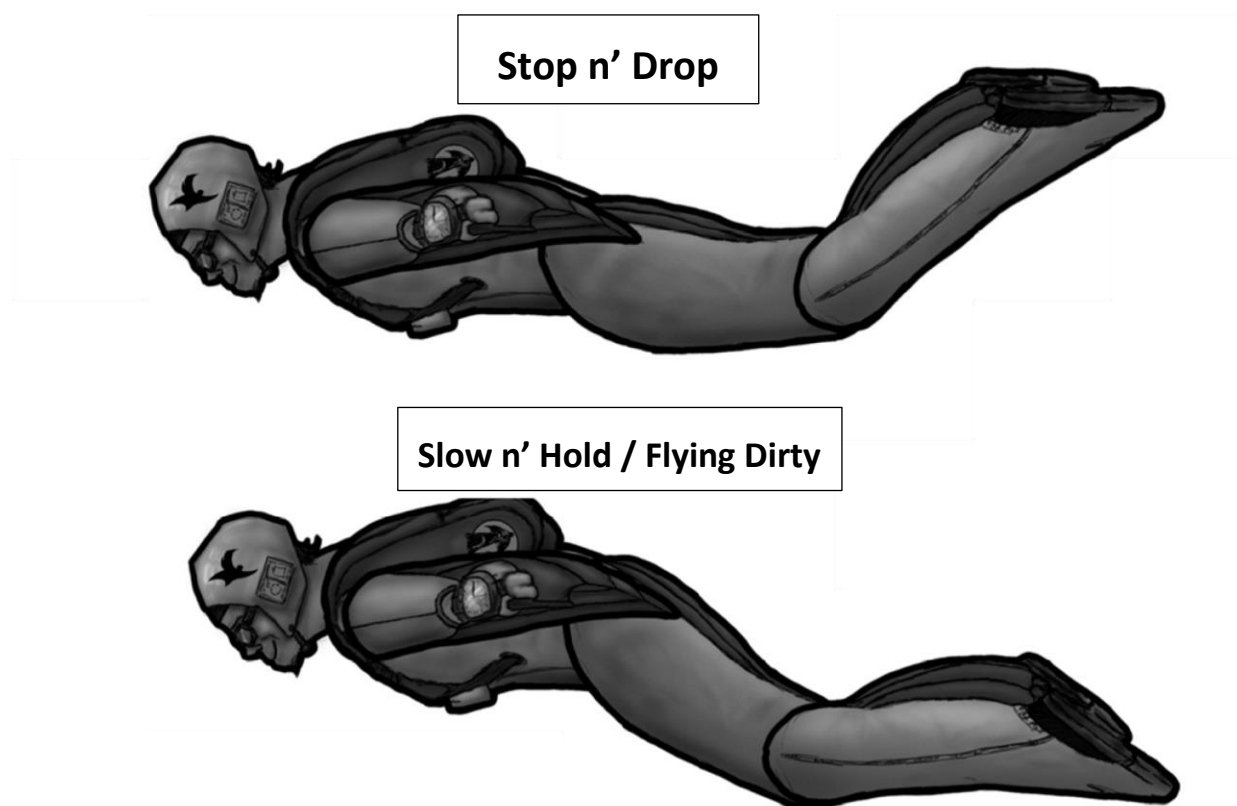
Student performs a Stall/Emergency stop by confidently throwing head backwards, pushing palms towards earth, spreading legs, and cupping/de-arching body for maximum size and air. This will stop the student and the coach will appear to fly rapidly past.

The coach slows so that student may catch up and fly relative to coach.

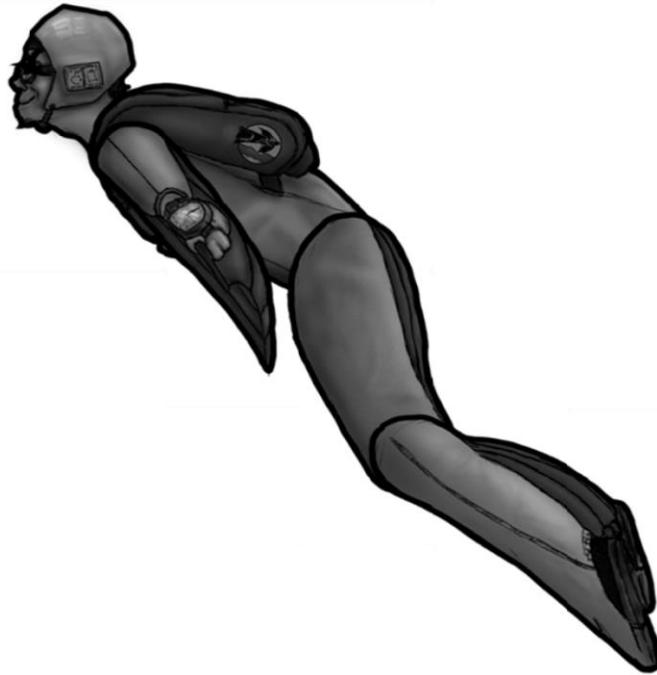
The student should be able to recover rapidly from lost altitude and speed. If sufficient altitude is available, the three maneuvers should be repeated.

At 6500 feet, the student looks to coach and shakes head, indicating "no more work". This informs the coach of the student's altitude awareness, and that the student is about to lock on at 6000 feet, and the deployment wave off begins at 5500 feet for a deployment at 5000 feet.

Following ground training, show a relevant video.



Emergency Stop / Stall



LEVEL THREE: NEW EXIT: RUNNING/PIVOT EXIT

The Running/Pivot Exit (Otter only) and Up/Down fall rate skills. The Running/Pivot exit is valuable for rapidly clearing an Otter or other large-door aircraft. The student objective is to maneuver upward and downward with control.

KEY TRAINING POINTS FOR THIS EXIT:

- The right foot must be on the edge of the door frame for proper launch.
- The student should look at the prop/door of the aircraft on exit while keeping wings closed for 2 seconds.

KEY TRAINING POINTS FOR THIS JUMP:

- These two maneuvers are accomplished exclusively with the hips.
- Squeeze gluteus (butt cheeks) to lose altitude/increase vertical fall rate.
- “Open” gluteus (butt cheeks) to ‘gain’ altitude/decrease vertical fall rate.
- Proper kinesthetic (against the wall) training is critical for dive success.

DIVE FLOW:

The Coach is a rear-float position. The coach will signal the student to exit. As the student’s foot reaches the door frame, the coach launches. This allows the coach to capture video of the student’s exit for debrief purposes. Observe “Close one-thousand, fly one thousand.”

Coach and student turn to line of flight and fly relative (it is the coach’s responsibility to fly relative to the student). Coach signals to student to begin the maneuvers.

The student will climb 10’ above the coach and wait for the coach to match altitude.

The student will drop 10’ below the coach and wait for the coach to match altitude.

Repeat these maneuvers until reaching an altitude of 6500 feet.

At 6500 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 6000 feet, and the deployment wave off begins at 5500 feet for a deployment at 5000 feet.

Following the ground training, show the student a relevant video.



Open up butt cheeks / elevators to gain altitude



Squeeze butt Cheeks / Elevators together to lose altitude



So sometimes we'll see this very poor form for "up". Give "arms" hand signal first, then give "Point Toes." If you give the "Point Toes" first, the student will often go head low / head down and be unstable.

LEVEL FOUR: NEW EXIT: GAINER

The Gainer Exit (Otter-only). This is an unstable exit that prepares the student for instability (Level Five jump) and teaches them to re-gain heading from a new perspective. It is critical that no other wingsuiters are on the load, or that all wingsuiters perform the same exit. This exit forces the student to fly opposite the aircraft line of flight, so adjust the spot accordingly (later exit point). The objective of this jump is to give the student a moving base in order to learn to use small movements to stay as near the Coach as possible. A secondary objective in this jump is to give the student a semi-unstable exit for recovery, and build confidence that the student is capable of recovering from minor instability.

In this jump, the coach follows the student.

KEY TRAINING POINTS FOR THIS JUMP:

*-Coach the student to move sideways using either grippers curled in, or using a *slight* drop of the hip/knee.*

DIVE FLOW

Coach and student turn to line of flight. The coach catches up to the student and flies relative. The coach then acts as a base for the student. This is the first jump in which the student is not the base.

The Coach should challenge the student with small movement up/down/forward/slowing/side to side to allow the student to practice their fall rate and forward motion skills.

At 6000 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 5500 feet, and the deployment wave off begins at 5000 feet for a deployment at 4500 feet (if the student is comfortable with the lower deployment altitude).

LEVEL FIVE: BARREL ROLL, INSTABILITY RECOVERY

This jump teaches Barrel Rolls and Instability Recovery. Although the training is aimed at barrel rolls, a primary objective is for the student to gain confidence in managing instability.

A Front Float Exit is used for this jump. The student will do two barrel rolls to the right, then two barrel rolls to the left.

KEY TRAINING POINTS FOR THIS DIVE FLOW:

- Use a count of 1, 2 (pause) 3, 4.
- Look in the direction of the turn.
- Close knees/feet slightly before closing arm wing.
- Do not force/muscle the rollover. Let the wind create the force.

DIVE FLOW:

Coach launches first, maintain altitude above the student.

Student sets heading towards dropzone.

Student begins barrel roll without input from coach. Coach should observe first barrel roll from above and second barrel roll from the side (if possible).

Student demonstrates two barrel rolls in one direction, then two barrel rolls in the other direction (right/left). One side will typically be weaker/less confident than the other side.

Heading should be re-set and altitude checked following each task.

At 6000 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 5500 feet, and the deployment wave off begins at 5000 feet for a deployment at 4500 feet (if student is comfortable with the lower deployment altitude).

Following ground training, show the student a relevant video.

****It is very important that the Coach maintain proximity during these jumps. The best camera angles are from the top and from the side. These positions also assist Coach in chasing student so that when student recovers, Coach is relative, providing instant feedback and boosting their confidence.**

LEVEL SIX: DOCKING

Introductory Docking Skills. This jump also provides an emphasis on stability during wing movement (as the student passes the training aid (rolled up newsprint) from hand to hand during flight). The objective is to make the student feel confident with moving towards another wingsuit pilot and confidence in collapsing the wing.

EXIT: Student choice of Front Float, Running/Pivot, or Gainer Exit. It is recommended that the student perform the exit in which they (or the coach) feel is the weakest or most difficult exit.

KEY TRAINING POINTS FOR THIS DIVE FLOW:

-The student should slightly dip the head with each hand transfer of the baton. This helps maintain altitude.

-The student should use hands, hips, or knees to slide sideways (as presented in Level Four) to bring the training aid to the coach slowly.

DIVE FLOW:

Coach has training aid in hand.

Coach exits from Front, Rear, Running, or Gainer slot (Student choice)

Student and coach turn to heading.

Student takes training aid from coach's hand. Coach does not provide any significant assistance to the student.

Student flies over coach to coach's opposite side.

Student transfers training aid from one hand to the other.

Student flies the training aid to the coach and places it in the coach's hand. Coach does not provide any significant assistance to the student.

At 6000 feet, the student looks to coach and shakes head, indicating "no more work". This informs the coach of the student's altitude awareness, and that the student is about to lock on at 5500 feet, and the deployment wave off begins at 5000 feet for a deployment at 4500 feet (if student is comfortable with the lower deployment altitude).

Following ground training, show the student a relevant video.

If the student has the training aid in their hand at 6000 feet, student should hold it in LEFT hand for deployment, then place it in chest strap or wingsuit tail vent for landing. Student should not attempt to hold it in hand while controlling the parachute.

It is also beneficial for a student to do a solo wingsuit skydive with the training aid in hand, and practice exchanging it from hand to hand.

LEVEL SEVEN: SIDE SLIDE

Docking and side slides using the hips. This jump uses a running exit.

The objective is to teach the student to use small hand/hip/knee movements to make a dock.

The Coach should be prepared for bumps and student instability.

KEY TRAINING POINTS FOR THIS DIVE FLOW:

-The Student slightly shifts weight to hips or slightly drops a knee to generate a side slide. This helps teach small movements.

-Student should breathe and exhale prior to making the move and a dock attempt.

DIVE FLOW:

Coach exits first, student follows.

Student flies to coach.

Coach flies a stable base.

Student docks on Coach and holds dock for 1-2 seconds.

Student/Coach releases.

Coach flies 4-5 feet away from student.

Student flies to coach.

At 6000 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 5500 feet, and the deployment wave off begins at 5000 feet for a deployment at 4500 feet (if student is comfortable with the lower deployment altitude).

LEVEL EIGHT: PROXIMITY

This jump teaches PROXIMITY. Coach challenges student with forward speed, diving, and floating. Objectives include student maintaining proximity even with high movement, breakoff speed, and using speed control/fall rate skills learned previously.

Exit: Running Exit after Coach

KEY TRAINING POINTS FOR THIS DIVE FLOW:

- Reiterate the importance of keeping head low for speed/drive.
- Reiterate the importance of hips/elevators keeping body on level.

DIVE FLOW:

Coach exits with a Running/Pivot exit.

Student exits after Coach.

Student dives to Coach.

After Coach has established the student being relative, Coach challenges student with increased/decreased forward speed, up/down movement, and floating. Student should stay proximate to Coach throughout the entire flight.

(If the student appears to be struggling and distance grows greater than major separation, the Coach should attempt to assist the student by slowing/speeding, floating to re-establish relative flight).

At 6000 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 5500 feet, and the deployment wave off begins at 5000 feet for a deployment at 4500 feet (if student is comfortable with the lower deployment altitude).

LEVEL NINE: PERFORMANCE FLIGHT

This jump will introduce the concepts of performance flight. The student should have a logging device (Altitrack or Neptune) that has previous flight data for purposes of comparison. A Flysight device is also useful for comparison and showing the track in Google Earth. The primary objective is to teach speed, which may translate to either distance or time, depending on how the student works with their body.

The exit is a student-choice (although Float or Running is the most efficient).

KEY TRAINING POINTS FOR THIS JUMP:

-Gear shifting

- Gear one-Head down
- Gear two-elbows forward
- Gear three-hips up/gluteus open
- Gear four-pointed toes

-Listen to the sound of the wind.

DIVE FLOW:

Exit

Coach and student fly relative.

Student engages Performance Flight for 10 seconds.

Student slows. This allows the student to feel the change in speed, with focus on listening to the wind.

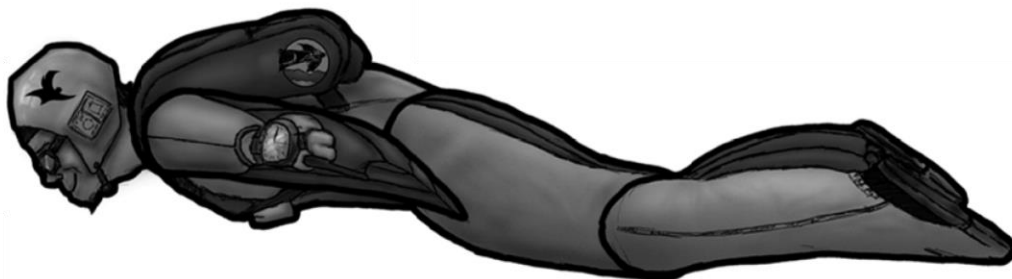
Coach follows/provides hand signals as necessary. Use Head Down, Arms, Hips Up/Down, Pointed Toes, hand signals.

At 6000 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 5000 feet, and the deployment wave off begins at 4500 feet for a deployment at 4000 feet (if student is comfortable with the lower deployment altitude).

(See next page for illustrations of correct body/arm position)



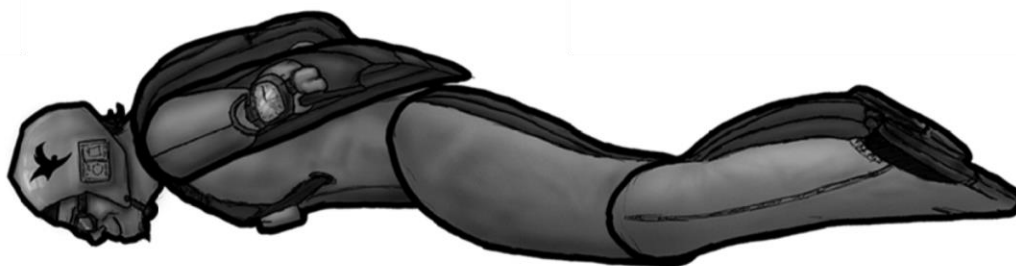
Body Position / Performance



This is a near-stall, commonly mistaken for a proper body position.



This is an appropriate position for performance flight (speed / distance). Note the head is lower than the knees, the wingsuit pilot should be able to look at the tailwing throughout the flight. Arms are swept back to reduce drag.



This is an appropriate position for performance flight (Time). Note the slightly bent knees and swept arms, with lowered head.

In each of these positions, coach the wingsuit student to listen to the wind, using the ear as a gauge for speed. Consider putting a rental Flysight in the students pocket as an aid to improve body position.

LEVEL TEN: BACKFLYING

This jump is an introduction to back flying. The purpose of the jump is to introduce back flying. The actual objective is to familiarize the student with *transitions* from belly to back and back to belly.

KEY TRAINING POINTS FOR THIS DIVE FLOW:

- Legwing should be kept closed. Focus on keeping knees close together.
- Armwings provide lift, legs provide drive.
- Describe the first backfly to be similar to sitting in a “lazy-boy lounge chair”.
- Demonstrate and observe the “dead cow”
- Reiterate ISR (Instability-Recovery)

EXIT:

The coach will exit from a front float, backfly position. The student will exit from a rear float, belly fly position.

This enables the student to see the backfly exit. The Coach exits first.

DIVE FLOW:

Student will drop below Coach after exit (Coach rolls over after exit).

The Coach should fly directly above the student, providing a visual point of reference.

Student transitions from front to back, and holds back **position #1** for 7-10 seconds.

Student transitions from back to belly, re-sets heading, and transitions from belly to back again, to **position #2**.

Student transitions from back to belly, re-sets heading, and transitions from belly to back again, to **position #3**.

At 7000 feet, the student transitions from back to belly and stays on belly.

At 6000 feet, the student looks to coach and shakes head, indicating “no more work”. This informs the coach of the student’s altitude awareness, and that the student is about to lock on at 5000 feet, and the deployment wave off begins at 4500 feet for a deployment at 4000 feet (if student is comfortable with the lower deployment altitude).

Following ground training, show a relevant video.



Positioning student for back flying. This is “Position 1”.

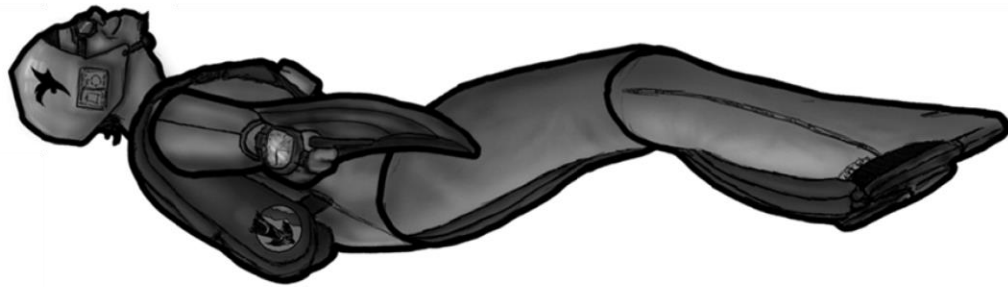
Coach should *not* be forward of student (as would normally be in a vertical jump). Coach should be slightly behind, so student is not bending neck backward. This example photograph is taken from below the student.



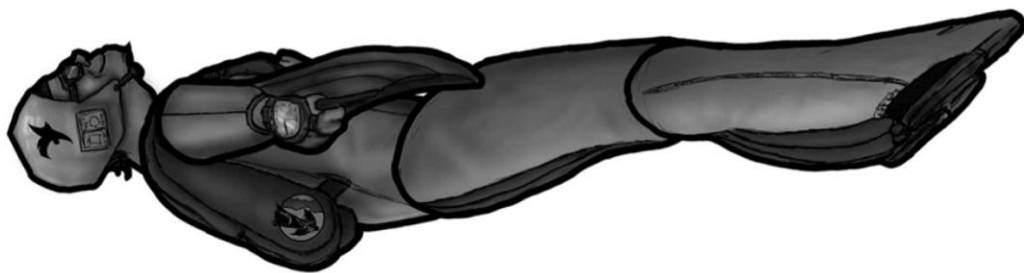
BACKFLY POSITION 1



Backfly Position



Backfly Position



This concludes the standardized levels.

All of these levels tend towards using smaller suits such as the Phoenix-Fly Phantom series; while big suits are a lot fun at times, they are typically meant for performance flight and not very suitable to the agile and precise flying style we teach at SEWS. Larger suits can be challenging in flocks; consider suit sizes and related experience when coaching, organizing, or assigning planes of flights.