

# WINGS TANDEM

## Operations Manual

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## 1. Introduction

Thank you for your purchase of the most comfortable, most affordable tandem system on the market today.

Be sure to check with [www.WingsTandem.com](http://www.WingsTandem.com) for comprehensive information on gear, operations, maintenance and training. For the latest on Wings Tandem, visit our Facebook page at [Facebook.com/SkydiveWingsTandem](https://Facebook.com/SkydiveWingsTandem).

## 2. Equipment Features

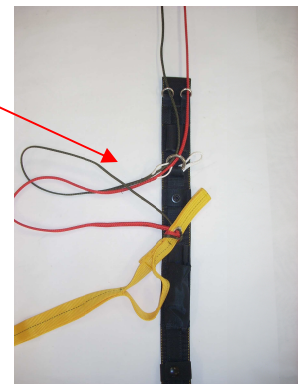
### a. Flexibility

The single most important advantage of the Wings Tandem system is flexibility.

Canopies: Wings Tandem leaves the decision of what canopies may be used to the assembling rigger. The rigger assembling the system determines what main and reserve canopies to use. You are not locked into any particular brand of canopy, but can choose the canopy that works best for your situation. But we do give guidance and advice. Wings Tandem has packed and jumped a variety of canopies, and we share with you how those canopies fit into our rigs.



Toggles: Want to save your arm strength and use dual steering/flare toggles? Prefer the simplicity of a single set of toggles? With Wings Tandem, you can change to your preference in a moment.



Emergency Handles: Do you prefer traditional emergency handles, or fabric loops? Wings Tandem offers you the choice. Order your rig with your preferred handles, or easily swap them out as you wish.

Leg Straps: Order your Wings Tandem with B-12 snaps on the leg straps for convenience, or step-through hardware for comfort and simplicity.

Leg Straps: Order your Wings Tandem with B-12 snaps on the leg straps for convenience, or step-through hardware for comfort and simplicity.

### b. **RESERVE BOOST**

Reserve Boost is a simple, reliable device that uses the cutaway main canopy to lift the reserve bag out of the container. Tied into the RSL, Reserve Boost mechanically senses which pulls more; the cutaway main or the reserve pilot chute. Because of this, during a total malfunction Reserve Boost lets the reserve pilot chute pull the free bag out, allowing a normal deployment without interference.

Nothing gets a reserve out faster than Reserve Boost.



### c. Maximum Carrying Capacity

No other tandem system can carry as much total weight as the Wings Tandem. The harness/container is tested for and rated to 550 pounds (250 kilograms), a capacity beyond any other civilian tandem system and only approached by military heavy lift gear.

### d. Centered Drogue Attachment

The drogue attaches to the tandem pair with something every skydiver knows well, the durable and reliable 3-ring release. The drogue is anchored through the container between the main and reserve to the tandem pair's center of gravity. This central attachment allows a comfortable, slightly head high droguefall position.



### e. Comfort

The design of the harness/ container closely matches high-end backpacks. Wings Tandem places much of the weight high and on the tandem instructor's hips, rather than hanging the weight from the shoulders. More comfort means less instructor fatigue.

After opening, the top anchor points of the student harness run forward to the shoulders, which place the student in a comfortable seated position. This not only eases pressure on the student's chest, it also helps the student lift their legs for landing. The telescoping, adjustable leg pads allow the instructor to position the leg pads in just the right place.

### f. Full Power Drogue

Just like the pilot chute of a sport rig, the Wings Tandem drogue stays inflated until the canopy is completely out of the bag, giving up none of its power until its job is done. This eliminates any "trap door" effect while providing maximum lift to your main bag.



g. Anti Line Dump Bag



The most common cause of hard openings in a tandem skydive is the canopy sneaking out of the deployment bag prior to line stretch. The simple and quick-packing flaps of the anti line dump bag combined with the four locking stows keep the canopy under control.

h. Rigger Friendly, Packer Friendly, Instructor Friendly

The Wings Tandem is filled with details that make it durable, as well as easy to use and maintain. For example, replaceable leg pads make changing this high-wear item a literal snap.



Stainless steel hardware throughout the rig inhibit corrosion and wear. The low-positioned floating RSL attachment eliminates the need for a complex Collins Lanyard.

The Cordura drogue pouch will last the lifetime of the rig. Its tubular design and slick ripstop lining prevents hard drogue pulls, and the drogue magnet positively locks the drogue into the pouch until the instructor wants it out.

Even little things, like placing an air sickness bag and a hook knife in the instructor's easy reach, add up to a system that takes every effort to make your job easier and more efficient.





### 3. Tandem Instructor Currency Requirements

To keep the “muscle memory” required to safely take students, you must be current. To maintain currency, you must make 15 tandem skydives within the past year as well as three tandems within the last 90 days. A jump on any tandem system (with either a student or an experienced jumper on the front of you) will keep you current, but one of the tandem skydives within the past 90 days must be on a Wings Tandem.

If you exceed the 90 day limit, you may regain your currency by taking an experienced skydiver (at least 100 jumps) in the student position on one jump after reviewing standard and emergency procedures.

If you have not made a tandem jump within the last 6 months, you may regain your currency by taking a current tandem instructor in the student position, after the current instructor reviews standard and emergency procedures with you.

If you have not made a tandem jump within the last 12 months you must attend a recurrency course with a Wings Tandem instructor examiner.

You must also hold a current FAA Class III flight physical, or a parachuting physical approved by a national parachuting association or the military.

Note the recurrency training in your logbook.

## 4. Discipline

On rare occasions, a Wings Tandem Instructor or Instructor/Examiner may violate safety or professionalism in a way that requires action or response. We cannot predict every possible action that needs correction.

Because of this, Wings Tandem Instructor Examiners not only have the authority to restrict or revoke a Wings Tandem Instructor's rating for safety violations they witness, they have the further authority to do so for unprofessional conduct at the IE's discretion.

Suspension from the field is limited to 30 days from the date of suspension by the IE. This time allows for Wings Tandem to investigate and take appropriate action. Wings Tandem shares this information with other tandem manufacturers as well as the United States Parachute Association and, where appropriate, the Federal Aviation Administration. These other organizations may impart their own disciplinary or corrective actions.

Wings Tandem has final authority for all Wings Tandem Instructors and IEs, and will make the final decision on any disputed ratings suspension, whether temporary or permanent.

## 5. Who Can Jump?

An advantage of tandem skydiving is that the student needs little training before experiencing a jump. But the student must meet certain minimum standards.

1. **Physical Condition:** The student should be in reasonably good shape. The higher body fat percentage of the student, the more difficult you will have fitting the harness properly. A student's body fat can squeeze around the straps, turning a snug fit on the ground into a dangerously loose fit under canopy. Evaluate each student to determine if tandem skydiving is appropriate for that particular person.

Even if your student's body is lean enough to get a safe harness fit, they still may not have the strength or flexibility to make a tandem skydive. One way to test your student is to simulate all parts of the skydive while still on the ground. After you demonstrate a proper arch, have them lie down and arch. A good rule of thumb is they must hold an acceptable arch for five seconds. Suspend the student in a harness for five minutes. See if they can tolerate sitting in the harness for the time they will actually spend under canopy. Put on a rig and walk through a climb out.

The wavier (see page 63 of this manual) asks the student to list any physical ailments or infirmities. If in doubt, require your student to get a physician's letter allowing the jump. Pay special attention to any upper respiratory problems, such as a cold or stuffed nose. If your student has any trouble equalizing their ears, they could spend their jump in discomfort or pain.

You may encounter a tandem student who has a physical disability. Only experienced tandem instructors (minimum 500 tandem jumps) should make a special needs skydive.

2. **Weight:** The Wings Tandem harness/ container is rated for a maximum of 550 pounds. The total combined weight of the tandem instructor and the student (including gear) must never exceed 550 lbs. The maximum weight actually taken on a skydive depends on the weight limit for the main and reserve canopies. Do not exceed the weight limit listed on the reserve canopy's data panel, even if your total weight is less than 550 lbs. Novice tandem instructors should start with students no heavier than themselves, and should increase weight about 20 pounds at a time while gaining experience.

3. Wavier: All Wings Tandem students must fill out the “Wings Tandem Wavier” before making their jump. You can find the waiver on page 63 of this manual. To legally fill out the waiver, each person wishing to make a tandem skydive must be at least the age of legal majority. Wings Tandem requires the owner of a tandem system and the tandem instructor to make sure that every tandem student is at least 18 years of age or the local age of majority, whichever is higher, and thus able to legally complete a wavier.

No one under the minimum age is allowed to jump as a tandem student.

**TIP: Special Needs Students**

Each tandem skydive is unique. And tandem skydiving allows a greater variety of people to experience skydiving. This includes students with special needs. You as a skydiving professional must determine if the student’s unique physical, mental or emotional limitations will or will not allow a safe skydive. Not everyone who wants to make a skydive will be able to make one. What one tandem instructor is able to handle may be beyond another’s ability. Critically evaluate your physical abilities, your experience and your skills when you decide whether or not you will take a particular student on a tandem skydive.

Wings Tandem strongly recommending that the tandem instructor have at least 500 tandem skydives before considering taking a special needs tandem student.

## 6. Standard Tandem Procedures

A standard tandem skydive follows these steps. All steps must be followed on all tandem skydives as described in the following section:

- a. Gear Check (#1)
- b. Student Brief
- c. Harness Student
- d. Aircraft Procedures
  - 1) Walk to Aircraft, Pre-board Check (#2)
  - 2) Taxi, Take-off, Climb to Altitude
  - 3) In-air Hook up, Pre-jump Checks (#3, #4),
  - 4) Safe Exit
- e. Freefall
  - 1) Drogue Throw and Checks (#5)
  - 2) Drogue Release
- f. Canopy Procedures
  - 1) Top-to-bottom Check
  - 2) Canopy Flight
  - 3) Safe Landing

### a. Gear Check

Prior to donning your gear before each jump, you must perform your first gear check. Use a systematic method of checking your gear, such as from the bottom front, up and over to the back, and down to the bottom rear.

This is the first and most complete of your gear checks. The second gear check is in the loading area, just before boarding. The third and fourth are on the aircraft, shortly before exit. The fifth is in freefall, immediately after you throw the drogue.

**TIP: Gear Check**

- Know the maximum weight allowed for your tandem gear.
- Primary (right) drogue release handle in place.
- Secondary (left) drogue release handle in place, ring around housing, housing properly seated.
- Adjustable Main Lift Web symmetrical and adjusted for you.
- Cutaway handle in place and secure.
- Reserve ripcord handle in place and secure.
- RSL shackle attached.
- Both main riser 3-rings routed properly, yellow cutaway cable in loop.
- Riser covers closed.
- AAD on.
- Reserve flap secured.
- Drogue bridle routed properly
- Drogue 3-ring routed properly.
- Green showing in drogue bridle window.
- Main cover closed.
- Drogue in pouch, magnet secured.

**b. Student Brief**

Your student is more than likely nervous, about to do something that generates not only excitement but fear. A calming, reassuring tone combined with giving them a good idea of what to expect will go a long way towards avoiding a panicked student.

Tell your student what they will see and do on the skydive. A convenient time to do this is while fitting them with their harness. Explain how the two of you will get to the flight line and how to be safe in and around an aircraft. Tell about the seat belt, who puts it on and when it comes off. If you have a camera flyer joining you, outline the camera flyer's role. Explain how you will exit the aircraft and the body position your student will take, both before and after you throw the drogue. Tell them what freefall will be like. Describe how the parachute will open and what you want them to do at

that time. Let your student know how the parachute is steered, what you expect them to do on landing and after the two of you are on the ground.

Consider the pitfalls of telling a student what not to do. While we do not want them to grab any handles without training or permission, if you say “Don’t grab these handles,” they might hear, “GRAB these handles.” Instead, tell them what you want them to do with their hands. For example, you can say, “When we leave the aircraft, hold onto your harness. Bring them out to the open free-fall position when I tap your shoulders. When the parachute is open, let them drop to your sides.”

If your students know in broad terms what to expect, they will be less overwhelmed, calmer and better able to follow your instructions.

### **TIP: Staying Inoffensive**

You as a tandem instructor are a representative of the sport, the giver of the first impression of most people’s introduction to skydiving. While you may be on your 15<sup>th</sup> jump of the day, this will probably be your student’s first and only skydive. Act in a courteous and professional manner whenever dealing with people in your role of tandem instructor.

You can do much to make your student more comfortable while the two of you are in close contact. Use proper hygiene. Avoid smoking. Keep yourself clean. Use deodorant. Brush your teeth. Avoid foods that will leave an unpleasant odor on you, such as garlic. During a long, hot day, consider taking a short break from jumping to quickly wash off your sweat and change your shirt. Your student will appreciate your thoughtfulness.

Besides being physically inoffensive, stay sensitive to your student’s emotional needs. Many instructors try to ease their student’s anxiety by joking. But the wrong joke can backfire. Avoid sensitive subjects like sex, religion and safety. When at the door ready for exit, you want your student thinking about their role in the jump, not how offended they are.

### **TIP: Sample Briefing**

The following is a sample briefing. It contains all the points you need to cover.

“Hi, I’m Chris and I’ll be your tandem instructor. What brings you here today?” As your student tells you why they are making a skydive, you fit them with their harness. You adjust all of the straps into their proper position so they are ready to jump before you board the aircraft. As you finish you tell a little about yourself to reassure your student as to your skills and experience.

“Before we get to the aircraft,” you say, “you need to know a few things.” You describe how to approach the aircraft, how to enter and where to sit. “You’ll wear a seatbelt when the plane taxis and takes off. I’ll tell you when we can remove the seatbelt.” For emergency procedures, you can tell your student, “If there is an emergency, I’ll tell you what to do. While it’s rare for something to go wrong, we have a plan for everything that can go wrong. Your job is to follow my instructions.” This is a good time to explain the “safety position,” where they arch while holding the harness.

As you continue with the brief, you say, “We’ll take off and climb to our exit altitude. You may see other jumper’s equipment in front of you. Please keep your hands to yourself. A few minutes before we leave the plane, I’ll hook you up to me, two at the hips and two at the shoulders. I’ll tug on all four points of attachment and ask you to confirm that we are attached. Out loud, I’ll do a complete gear check and then I’ll ask you if you’re ready to skydive.” You explain how you want the two of you to move to the door and exit.

“Once we’re out of the plane, you have two jobs; relax and arch. Keep your body relaxed and move into the proper arched position: head back, hands on your harness in the safety position, hips forward, feet together and legs curled back. When I tap you on the shoulders, bring your arms out, 90 degrees at the elbows, shoulders rolled back, and your hands relaxed.” You demonstrate the position and ask your student to try. You make any corrections you need in their body position. If you have time, you may demonstrate the proper freefall position in a belly-down position to increase realism, and then invite your student to try.

Let them know about the altimeter, how to read it during freefall, and what it will read at opening altitude. “When it’s time to open, I’ll wave off and pull my deployment handle. We’ll be pulled upright by the opening parachute. Once we have a good parachute over our heads, I’ll check your harness for comfort and teach you how to steer the canopy. I’ll tell you to put your hands in the bottom loop of the toggles. Hands all the way up is how we go straight ahead. To go left, look left and pull the left toggle down. To stop the turn, put your hand back up. To go right, look right and pull right. And to land, we flare the canopy by pulling both toggles all the way down and hold them down. At about a thousand feet over the ground, I’ll take over for the landing. Your job is to lift your legs for the landing. We’ll either slide in, or I’ll tell you to put your feet down and stand. Is there anything about the jump you want me to explain?”

This briefing can take as little as two minutes, and covers all required points.



While for most people, a tandem skydive is a once-in-a-lifetime event, they still usually want to be a part of the experience, not “cargo.” As a tandem instructor, you can involve your student by explaining their role.

At the minimum, your student must contribute to stability and not increase risk. This can be accomplished by teaching them to “relax and arch.” Let them know the advantages of keeping their body and mind relaxed, and break down the elements of the arch, including keeping their hands in the “safety position” before exit and waiting until your cue to bring their arms out.

FAR 105.45 is the federal regulation that covers tandem skydives. The section that addresses your student’s briefing says, “...has briefed the student parachutist before boarding the aircraft. The briefing must include the procedures to be used in case of an emergency with the aircraft or after exiting the aircraft, while preparing to exit and exiting the aircraft, freefall, operating the parachute after freefall, landing approach and landing.”

Note that your briefing must take place before boarding the aircraft. Failure to accomplish this briefing prior to boarding violates FAA regulations.

In an emergency, a tandem student can do little except follow your instructions. Explain that you are highly trained and will tell them what to do when the time comes, that the only thing they can do to help in an emergency is to listen to you, follow your instructions and “relax and arch.” A little explanation gives them confidence in you and a basic idea of what to expect. Too much information may overwhelm them. As a tandem instructor, you must find the balance.

SCUBA divers have decompression limitations on flying. Most will be familiar with those restrictions, but if you think they may have been diving, consider asking about the last time they were underwater.

Your briefing must also tell them what they will do prior to exit, the actual exit, while in freefall, and how to operate the parachute from opening to landing. Each element must be touched on, however briefly.

Your student may wish to jump with street clothes, or they may want a jump suit. They may wish a frap hat, or to go with a bare head. They might want gloves, or not. If they have long hair, you may wish to offer them a hair tie and ask them to put their hair into a bun. Consider advising them of the availability and advantages of a jumpsuit, a frap hat, or gloves. If they want such jump gear, help them choose appropriate, well-fitting gear.

Assist them in fitting goggles. Goggles should be able to be adjusted to snug but not painfully tight. Goggles that come loose in freefall can distract you and temporarily blind your student. If they wear glasses, pick goggles that fit over the glasses. Ask if they wear contact lenses. Some goggles allow too much air flow and can cause a contact lens to lift off of your student's eye.

#### c. Harness Student

Properly fitting the harness to your student can mean the difference between a fun and comfortable experience, or a painful and unpleasant event. An improperly fit harness can even kill your student.

While the student harness is built with significant adjustability, not everyone will fit. You have the responsibility to judge whether or not a particular person can safely make a tandem skydive based on if they can fit into the harness.

#### **TIP: Student Jumpsuits**

You may have heard the phrase, “dress for success.” This advice means to choose clothing that will help you on your tandem skydive. A tight-fitting jumpsuit (or shorts and a tee shirt) will not grab air in freefall as much as loose clothing or a baggy jumpsuit. Avoid giving your student a baggy jumpsuit that will give them more control in freefall than you want them to have. Resist the temptation to dress your student to make droguefall speeds easier for your camera flyer, such as giving a baggy jumpsuit to a heavy student. Your safety and the safety of your student far outweigh the convenience of your camera flyer! If your student wears street clothing, evaluate it for safety. Loose clothing can blow around and cover your handles, to say nothing about discomfort for your student.

**You may NEVER board the aircraft with a harness in anything but a jumpable configuration!**

To fit the harness onto your student, start with the harness fully extended. As you gain experience, you may save time by adjusting the harness to what you think is a loose fit prior to putting it on your student.

There are two ways you may get the harness on your student. The most common is to place the harness on the ground and ask your student to step into the leg straps. Ask your student to reach forward and lift the leg straps as you slip the harness over their shoulders. The second is to wear the harness on your front, the back pad against your chest. Ask your student to face away from you as you hold the leg straps open for them, directing them to step into first one and then the other leg strap, and then slip the harness over their shoulders.

Fasten the chest strap and the belly band. This step is to get the front straps out of the way and align the main lift webs straight down from the shoulders to the hips. Position the chest strap so the attached shoulder pads fit comfortably. Since the chest strap will usually sit higher on your student after opening, place it slightly lower than what would be normal on a sport rig. It should sit close to the bottom of the sternum.

With your student facing you, position the hip rings so they sit over the point of their hip bone. Make sure the rings are well forward.

Place the rings on the forward point of their hips. Ask your student to hold them in place. Position the adjustable leg pads. You may find asking your student to spread their feet helps get the leg straps comfortably situated. Snug the leg straps and stow the excess strap. Take out the slack in the belly band and the back horizontal strap. Make sure the back strap sits above the buttocks. The back strap and belly band should work together to fit like a belt.

Place the top attachment hooks forward over your student's clavicle while confirming that the harness yoke sits just below the neck. Take out the slack from the main lift webs.

Take up the slack in the back lateral straps. Make sure the T strap is loose enough to allow your student to lift their legs during canopy flight. Do not overtighten the T strap.

Move to the side and check the fit by lifting the harness at the shoulders. You should be able to lift about one inch. If you have significantly more or less, readjust the harness for a better fit. After fitting the harness on your student, make a final check of the harness. Assure all adjustments are proper and all straps are secured. While the student will usually be able to walk comfortably to the aircraft, a safely adjusted harness is more important than comfort on the ground.

**The student harness must be in a jumpable configuration before boarding aircraft!**

**TIP: Student Harnessing Steps**

1. Have the student step into the harness.
2. Fasten the chest strap and the belly band.
3. Position the chest strap so the attached shoulder pads fit comfortably.
4. Position the hip rings so they sit over the point of their hip bone.  
Make sure the rings are well forward.
5. Position the adjustable leg pads. Snug the leg straps, stow the excess.
6. Take out the slack in the belly band and the back horizontal strap.  
Make sure the back strap sits above the buttocks. The back strap and belly band should work together to fit like a belt.
7. Place the top attachment hooks forward over your student's clavicle while confirming that the harness yoke sits just below the neck. Take out the slack from the main lift webs.
8. Take up the slack in the back lateral straps.
9. Make sure the T strap is loose enough to allow your student to lift their legs during canopy flight. Do not overtighten the T strap.
10. Move to the side and check the fit by lifting the harness at the shoulders. You should be able to lift about one inch. If you have significantly more or less, readjust.
11. Make a final check of the harness. Assure all adjustments are proper and all straps are secured.

## d. Aircraft Procedures

### 1) Walk to the Aircraft, Pre-board Check

The second gear check happens prior to boarding. Check your student's gear, including eye protection and harness fit. Be aware that students have loosened their harness without their instructor's knowledge while waiting to board. You may wish to tell them that if the harness becomes uncomfortable while waiting for their jump, they should tell you and you will readjust the harness. But if you do loosen their harness for comfort, readjust it before moving toward the aircraft. Never let a student board an aircraft with their harness in anything less than a safely jumpable configuration! Check your own handles in the order you would use them prior to boarding the aircraft.

#### **TIP: Watch Their Mouth**

Students may have things in their mouth they might breathe in and cause them to choke in freefall or under canopy. Many will chew gum to help clear their ears. Others may wear dentures. Make sure your student has nothing in their mouth that can be a danger before you walk to the aircraft.

When you walk to the aircraft, keep yourself between the propeller and your student. Many tandem instructors put a hand on their student or keep a grip on their harness at this time. As you board the aircraft, stay aware of your handles so they do not snag.

Most dropzones have established an exit order. Follow the exit order used at your dropzone. Because tandems open higher

than most, tandems are usually the last to exit, except for wingsuits and CReW. Since camera flyers open lower than tandems, tandems with camera flyers usually are the first tandems to exit.

### 2) Taxi, Take-Off, Climb to Altitude

Once you and your student are seated, fasten your seatbelts. FAA regulations require that everyone on board must wear their own seatbelt for taxi, take-off and landing. Do not share a seatbelt. The belt is designed to handle only one person at a time. Unless you are next to an

open door, do not hook your student to you prior to minimum exit altitude of 2000 feet AGL. In the event of a crash, the two of you will have to move quickly away from the aircraft. If you are hooked together, you will have to unhook before moving to safety.

Wait until your minimum emergency exit altitude of 2000 feet AGL before removing your seatbelt. The aircraft door should not be opened until you have your seatbelt off in case of an accidental deployment.

As soon as you remove your student's seat belt, attach the two lower attachment points for the ride to altitude. If the door opens for a low pass, add at least one upper attachment point to prepare for an emergency exit. Many tandem instructors attach all four connections whenever the door opens. If your aircraft seating positions you sitting next to your student, keep their seat belt on until you are ready for your complete hook up procedures.

### 3) Hook Up and Checks

A few minutes before you exit, begin your hook up sequence. At the start of your tandem career, plan on beginning your procedure ten minutes before exit. You must not rush this procedure and possibly miss something. As you gain experience, you will better judge the time you need to complete the hook up procedure. Most tandem instructors take about five minutes for the complete sequence.

You may hear the term "H-H-H-C." This is an easy way to remember each step of the hook-up procedure: Handles, Harness (yours), Harness (theirs), Connection.

First, check your handles. Touch each handle in the order you will use them: drogue, primary (right) handle, secondary (left) handle, cutaway handle, reserve handle. Make sure each handle is properly attached and has not accidentally dislodged. If any handle has been dislodged, either have someone you trust check your gear, or land with the plane. Look at your three ring assembly on each riser, including the cutaway cable. Confirm your RSL shackle is attached. Next, check your harness. Look at and touch your leg straps and chest strap. See that each strap is properly threaded. If your leg straps have B-12 snap hooks, make sure the gates are closed.

Third, check your student's harness. Make sure the chest trap, the belly band and the leg straps are properly threaded, and all excess is stowed. During the certification course, you must look at the harness to make sure it is correct. As you gain experience, you may be able to do this check by touch.

Now you are ready to attach your student to you. You may use the "Circle of Connection" method to assure you connect all four hooks. Start with the lower right, moving to lower left, then upper left and finishing with the upper right.

**TIP: Getting the Side Straps Snug**

Position your student so you can get your hips close to theirs. You can have them sit on your lap, or drop a knee as you tighten each side. Your adjustment will be more even if you pull both straps at the same time to take out the slack, and then snug each side a little at a time. Look at or feel the side strap material to make sure both sides are even. Do not overtighten the side straps. Their purpose of the side straps is to keep their body close to you in freefall. Overtightening can pull their harness adjustment out of position and make the fit uncomfortable.

After pulling the side straps snug, check your student's belly band. Tightening the side straps may pull the belly band uncomfortably tight. Check the belly band while tightening the side straps. If it is too tight, loosen the belly band slightly. When you are done, the belly band should be snug across your student but not uncomfortable. Stow any excess material.

When you stow the excess material of your side straps, pull the excess back. Pinch that loop of material and place it through the snap. This secures the excess webbing while still allowing it to come free easily under canopy.

Snap the side straps to your harness. Pull them snug. Press down on the quick release covers, making sure they are snapped closed. Stow the excess material.

Attach the top hooks. Look at the top hooks and confirm the locking snaps are closed. All four attachment points must be secured and checked. This is the end of the third gear check, and your gear is now ready to jump.



Next, you will perform a “Systems Check” that will give your student confidence that the two of you are ready to make a skydive. In the “Systems Check,” you will ask your student two questions: “Did you feel all four points of attachment?” and “Are you ready to skydive?”

Out loud, so your student can hear, check your gear. First, check your attachment to your student. Say, “Lower right on, lower left on, upper left on, upper right on,” giving a tug on each point of attachment as you say it. Ask your student if they felt each attachment point. If they did not feel all four points of connection, perform the attachment point tug again. Next, touch each handle on your rig in the order you will use it, counting or naming out loud as you touch the drogue handle, the primary (right) drogue release, the secondary (left) drogue release, the cutaway handle and the reserve handle.

Finally, check your student’s harness. Reach to the front of your student and confirm that the leg straps, belly band and chest straps are threaded properly, and all excess straps are secure. Tell them their harness check is complete. If they are wearing a frap hat or helmet, make sure it is fastened securely. Check that they have their goggles. Many students want to put their goggles on early. You may wish to tell them to wait until the door is open before putting them on to avoid fogging. In any event, assure their goggles are on, seated properly and secure before exiting. Say to your student, “We are ready to skydive. Are you ready to skydive?” Listen to their answer. Their telling you that they are ready to jump is the last step before moving to the door.



### TIP: Move to the Door

Do a sweep with your hand to make sure your and your student's seat-belt are no longer on. This simple check can prevent an embarrassing delay and dangerous situation.

A tandem pair has two people trying to get to the door, one of which has probably never jumped from an airplane. If you don't coordinate your movements, this can be awkward. Talk with your student about how the two of you will move.

On an Otter with bench seats, try telling your student to lean forward from the waist, and you will do the scooting. When you get to the end of the seat, direct them to stand but stay low as you move to the door.

On a smaller Cessna, like a 182, you can say, "left, right" and rock side to side as you move forward on your knees. This gives your student both a sound and feel cue of where you want them and which leg the two of you will move at a time.

When moving toward the door on a tailgate aircraft like a CASA 212 or a Sky Van, your student will often look down. When they do, many times they will make smaller and smaller steps as they walk closer to the exit. Try telling them to look up at the aircraft ceiling until freefall. If your student refuses to jump, first communicate. Discover why they do not want to jump. Address their concerns. Be mindful of your spot if you are delayed. Ask the pilot for a go-around if necessary. If you cannot solve the problem, land with the plane. Under no circumstance force a student to jump!

If your student is not ready, find out the source of the problem. They may be afraid. If so, you can reassure them by doing another gear check, or going over the dive flow again. They may be uncomfortable or feeling ill. Do not assume that they are afraid. Fix any problem before exit. If you cannot fix the problem, let the pilot know that you cannot jump and ride the plane back down to the ground. Do not jump unless they tell you they are ready.

The reason for the third gear check is for you as the tandem instructor to know that you and your student are ready to jump. The reason for the fourth “Systems Check” is to reassure your student. A student who has confidence in you and your gear is less likely to panic and give you problems, either moving to the door or in freefall.

#### 4) Safe Exit

Each time you leave an aircraft with a student, you should exit with your belly into the relative wind. Flips and other unstable exits introduce unnecessary risk. There are only two exceptions to this guidance.

The first is if you take an experienced jumper on the front. An experienced jumper is not necessarily a licensed skydiver. If you take a student who has already demonstrated competence and familiarity with the freefall environment and stable body position, you as a tandem instructor may use your judgment on how the two of you will exit.

The second exception is when exiting a tailgate aircraft. You will find details on exiting a tailgate aircraft below.

After you exit the aircraft, you will throw the drogue. You must get stable before you throw. Do not depend on your drogue to get you stable. Two to five seconds after you exit is the ideal delay from exit to drogue throw. After you throw the drogue, look over your shoulder and spot the drogue. Check it for clear deployment and full inflation.

Next, perform a handles check. Touch each handle in the order you would use it: main drogue release, secondary drogue release, cutaway handle, reserve ripcord. You are now ready to tap your student on the shoulders, letting them know they may let go of the harness and spread their arms as trained.

**TIP: Safe “Flips”**

As a tandem instructor, you will sometimes be asked by your student to exit in an unstable orientation. Performing flips out of the door can be accomplished with relative safety in most cases. But as a tandem instructor, you must ask yourself if the benefit is worth the added risk. Consider if you are truly giving your student something extra, or instead just keeping the jump interesting for yourself. Remember that in a tandem skydive, you are a pilot for hire, a commercial driver who’s duty is to provide a safe experience. The jump is about them, not about you.

Most first-time tandem students will not remember their experience completely, and many will be so overwhelmed that they will be as likely to believe you flipped on exit when you were stable as remember a flip. Keeping the jump stable, with your heads upright, can increase ease in your student, helping them keep oriented and better able to remember the jump.

But some students will be adamant about flips. An effective option to give your student an extra (but still safe) thrill is to spin on exit while keeping your belly facing into the relative wind. Start from a seated position in a side-door aircraft. As you hop off the door and turn to face into the relative wind, push hard on the side of the aircraft. This will put you into a rotation but keep proper orientation with the relative wind. For a similar but less intense exit, you can dive, putting your heads down in relation to the horizon but still keeping your bellies into the relative wind.

Wings Tandem does not forbid unstable exits, but we do discourage them. We strongly recommend a minimum of 500 tandem skydives before attempting any exit that does not immediately present the tandem pair’s belly into the relative wind, except for tailgate exits.

## Type of Exits

You are a professional skydiver, taking people for a tandem skydive. You have the responsibility to provide a safe experience every time. This includes minimizing risk, both for you and for your student. An unstable exit increases risk. You also have the responsibility to provide an enjoyable experience. Your student usually will not know enough to ask for an exit that will be enjoyable. An unstable exit can cause disorientation in your student.

On a side door aircraft, do not exit facing into the aircraft. This exposes your container to the wind and increases the risk of a deployment out of the door and possibly over the tail. It also presents the tandem pair's side to the relative wind, increasing the chance of a tandem side spin.

**Tall, Narrow Door (King Air):** The doors to most King Airs are narrow. This means that most tandem pairs can only exit at right angles to the relative wind. Since this puts you at risk for a tandem side spin, you must turn into the relative wind as soon as possible. You can either rotate right and put yourself head up, or dive to the left and go head down. Each will safely put your belly into the relative wind.

**Short, Wide Door (PAC 750 XL, Caravan, Pilatus Porter):** These aircraft have lower ceilings than an Otter or King Air. While you may be able to crouch for your exit, many tandem instructors prefer to sit. Scoot to the door with your student holding their harness in the safety position. Be aware of the danger of your drogue coming loose as you move along the floor towards the door. Once in the door, have your student pull their feet back in an arch. If possible, have your student put their feet on the underside of the aircraft. Sit on the edge of the door, supporting the weight of the student. On exit, pivot into the relative wind so you face the aircraft's direction of travel. You can use your hand to swing yourself into the relative wind. You can also place one foot at the rear of the door for leverage and push yourself into position. Be aware that The Porter's airspeed is often slower than many other turbines. Also, the Porter's door is on the right side, while the PAC and Caravan have left side doors. Some have steps under the door, while others do not. The exit technique is the same.

Tall, Wide Door (Twin Otter): These doors give you the most flexibility on your exit. You can stand while facing the direction of flight, stepping to the left and directly into the relative wind. You can stand but face out at right angles to the wind and dip your left shoulder to turn the pair of you into the relative wind, similar to a King Air exit. You can dive down and left, again putting your belly directly into the wind but head low and feet high in relation to the horizon.



Larger or less flexible students can have trouble getting up and standing by the door. In these cases you may wish to sit on the floor, as you would on an aircraft with a short, wide door. When taking smaller students, you have the option of hanging them from your harness, supporting their weight completely. This method gives you complete control over your student, and puts them in an arch before they leave the aircraft.

Short, Narrow Door (Cessna 182): Consider using knee pads if you use a small Cessna. Be aware of weight and balance limitations for the aircraft. Consider placing the heaviest tandem pair in front, closest to the aircraft's center of gravity. On the ride to altitude, the students usually sit close to the pilot. One sits between the pilot and the door, while the other sits behind the pilot facing the tail.



When you reach hook up altitude, have your student face forward, point their toes and sit on their feet. Less flexible students may need to sit with their legs straight ahead of them. If you have an inflexible student, you should have that

student sit in the rear position to help accommodate their need for leg room. After the door opens, move forward together so their knees are even with the front corner of the door. This forward position allows room for your rig.

Place your right foot on the step or wheel (if the aircraft has no step and you will use the wheel, make sure the pilot knows to lock the wheel before you try to step on it.) Direct your student to place their foot next to



yours, dip their right shoulder and position their elbow inside their right knee. Lean forward and grab the strut with your left hand. Avoid rig damage by not using a full body count but instead use either a head count or an arm count.

If you have difficulty with this method, you may place both of your student's legs on the step while you keep your legs inside the aircraft. On exit, extend both of your legs and the two of you will pivot over the step into freefall.

An alternative exit if you have the room for your rig is to start with you seated between the pilot and the door, facing the tail. Your student sits in front of you, also facing the tail. At hook up altitude, have your student sit in your lap. For the climb out, pivot to your left and both of you place your feet onto the step. Make sure you are far enough forward so your student has room to move their legs out. On exit, roll forward. Avoid over rotation by reaching out with your arms and tucking your legs back.

Tailgate (CASA 212, Sky Van): The simplest and most stable exit from a tailgate aircraft is walking out while facing the rear of the aircraft. Step off the tail gate, extend your legs, reach down with your arms and look up and back. When the wind hits your legs and arms, you will flip more than 180 degrees and head down but belly into the relative wind. Do not hop out and try to flip yourself backwards, as this can bring your head dangerously close to the aircraft floor. Simply allow the relative wind to hit your arms and legs which will flip you.

### **TIP: Exit counts**

Using the standard "Ready, set, go" with your student keeps your exit count standard with other jump practice. Some tandem instructors have had success using a variant, "Ready, set, ARCH!", so the last thing the student hears before leaving the aircraft is the proper body position. Besides using the words, you may use movement. A head tilt or arm movement of "out, in, out" communicates to your student and anyone else exiting with you. While using a full body exit count is easy to see for others and easy for your student to feel, it does have a significant disadvantage. The rocking motion has caused dislodged pins and premature openings by rubbing on the aircraft. Use your judgment when deciding on your exit count.

Another method is facing forward while stepping back. When using this technique, step back far enough to allow your student's face to clear the floor.

The third method of exiting a tailgate aircraft is to dive out, then make a steep roll to the side. Be careful to avoid over rotating on exit and winding up on your back.

### Altitude

The higher a tandem pair exits, the more freefall time the student gets. But there can be good reasons for exiting lower. A dropzone may offer a lower price for a lower exit, allowing people to get a taste of skydiving who couldn't afford the higher altitude. Clouds may move in, preventing a jump from full altitude.

Wings Tandem recommends a minimum exit altitude of 7500 feet AGL for all tandem skydives, and recommends a drogue release pull at 5500 feet AGL. Remember that minimum tandem drogue release altitude is 4500 feet AGL, and you will need 500 feet to exit, throw and check the drogue and pull the drogue release handle. Because of this, Wings Tandem allows non-emergency tandem skydives from as low as 5000 feet AGL. These low exits should only be performed by an experienced (500 tandem jumps) tandem instructor.

## e. Freefall

### 1) Standard Dive Flow

The standard tandem skydive dive flow is:

- Exit stable, head up and belly into the relative wind
- Throw and check the drogue
- Perform handles check: main (right) drogue deployment handle, secondary (left) drogue deployment handle, cutaway handle, reserve handle
- Shoulder tap
- Check altitude
- Check position over ground
- Altitude awareness until pull time
- Wave off and pull at 5500' AGL
- Top to bottom gear check
- Airspace check
- Position check

### 2) Drogue Fall

#### Deploying the Drogue

The drogue was designed to allow a tandem pair to fall the same speed as a solo skydiver, about 120 mph. Without the drogue, the tandem pair will fall at about 180 mph. As you leave the aircraft, use the relative wind to get and maintain stability. Once you have cleared the aircraft and gained stability, you may throw the drogue. We recommend waiting two to five seconds. Throwing the drogue too soon builds dependence on the drogue for stability. Except for a rare emergency, you will not need to throw the drogue for stability. Grab the drogue handle and deploy the drogue just as you would a pilot chute. Throw it forcefully in one motion away from you. Glance at the drogue over your shoulder and look at the drogue to assure inflation.

After exiting the aircraft and deploying the drogue, check your handles. Touch each handle in the order you will use it: primary (right) drogue release, secondary (left) drogue release, cutaway handle, reserve handle. This is your fifth and last gear check of your jump.

After your handles check, tap your student on the shoulders to let them know they have permission to bring their arms out. They do not have to bring their arms out, but feeling the wind



on their arms does make for a more full experience for them.

Check your altitude. You should check your altitude about every five seconds to maintain altitude awareness. Tandem skydives can get busy and distracting, and checking your altitude regularly keeps you ahead of any problems that might occur.

Check your position over the ground. If you had a long spot, you may wish to open higher than usual to give yourself room to return to the drop zone. Remember that camera flyers open lower than you and cannot look down in freefall to check the spot. Be courteous, signal them that you are long, and open high enough for them to make it back to the landing area.

If you are jumping with a camera flyer, turn roughly towards the sun to give the best picture. Many tandem instructors will perform a single 360 degree turn to demonstrate the maneuverability possible in a skydive. Avoid putting your hand or arm within the grasp of your student. But if they do grab you, remember that you have drogue release handles available to either hand.

A student may not perform as trained and will not arch properly. This will increase the chance of instability. The single best thing you can do is to outfly your student. To do this, you should start immediately out of the aircraft in a stable exit, with your belly in the relative wind. Prepare for the possibility of an unstable student by wearing clothing that will help you grab more air. Be aware that smaller, thinner students are more likely to cause instability because they can act as a weather vane, flipping you to the side. Once you have gained stability and thrown the drogue, you may make an attempt to pull their body into the correct position.

### Hand Cam

A tandem skydive is already a busy skydive. Adding a hand-mounted camera adds another element to a challenging situation. Wings Tandem recommends making several solo jumps with a hand cam and waiting until you have at least 200 tandem jumps before attempting to add it to your tandem skydive.

When jumping with students, do not attach a camera to a pole or other extension, increasing the danger of entanglement. Do not put a camera on your student, as your student has enough to think about during the jump.

## Sharing the Air: Camera Flyers

Camera flyers bring the amazing experience of a skydive back to a student. The student will show the jump experience to untold numbers of others. But by sharing the air with a tandem pair, a camera flyer holds great responsibility for the safety of the jump. The camera flyer must possess a minimum of experience:

- Have at least 100 camera jumps, and
- Hold a current AFF-I or Tandem-I rating, or
- 300 jumps, and passed air skills of a USPA Coach Course, or
- 500 total formation skydive (FS) jumps, and 100 FS jumps in the past year.

The tandem instructor must brief the camera flyer as well as the student on the camera plan. This brief can be institutional. In other words, if the chief camera flyer at the drop zone establishes policy and both the camera flyer and tandem instructor knows that policy, the policy counts as a brief.

Camera flyers must NEVER get close to the drogue!

Tandem students may deploy without warning, and both tandem mains and reserves have opened prematurely. Likewise, camera flyers must NEVER get directly below the tandem pair. Sport rigs may deploy unexpectedly. Imagine a cone below and above the tandem pair. A jumper joining the tandem pair must never fly within those cones.



## Sharing the Air: Fun Jumpers

Often, you will have an experienced skydiver ask to “lurk” your tandem jump. Having a friend or loved one along in freefall can greatly enhance the experience for your student. But adding another person near you and your student increases the risk of the jump. Manage the risk by following these guidelines:

The jumper joining the tandem skydive must have a minimum experience:

- Hold a current AFF-I or Tandem-I rating, or
- 300 jumps, and passed air skills of a USPA Coach Course, or
- 500 total formation skydive (FS) jumps, and 100 FS jumps in the past year.

The above are minimum guidelines for the tandem instructor to evaluate the jumper who wants to join the tandem pair. Never allow yourself to bend to pressure to have someone in freefall with you. When in doubt, say no.

Brief the fun jumper as well as the student, so everyone on the jump knows what to expect and what is expected of them. The fun jumper must give room for the deploying drogue after exit. That person must stay clear of the drogue, because an open drogue can quickly become an open canopy. Like a camera flyer, the fun jumper must not fly either directly above or below the tandem pair. If grips are taken, take them on the student. Keep the tandem instructor’s hands free. Contact must cease by 6,500 feet AGL.

### **TIP: Altitude Awareness**

A tandem skydive can be a busy skydive, especially when the tandem instructor is inexperienced or the unexpected happens. Use an audible altimeter that will warn you of your standard wave-off altitude, your minimum opening altitude and your reserve hard deck. Most audible altimeters also record your jumps. Keeping track of your jump numbers when doing back-to-back jumps is a valuable bonus. Wings Tandem does not require an audible altimeter but highly advises its use for all Wings Tandem skydives.

## f. Canopy Procedures

### 1. Drogue Release

As soon as you pull the drogue release handle, you should feel the drogue release and the canopy pull you upright. Look up and watch the opening, aware of your canopy's inflation.

### 2. Top-to-Bottom Check

Do a top-to-bottom check, examining your canopy, lines, links, risers, 3-rings, top connection hooks and your emergency handles. Next, look for traffic as you free the toggles. Finally, check your location over the ground to make sure you can fly back to your planned landing area as you perform a controllability check.

### 3. Canopy Flight

Let your student know you have a good canopy. Ask about their ears, and remind them how they can equalize their ears if they experience discomfort. You may wish to lift your student in their harness. An easy way to do this is to guide their hands as you tell them to grab their harness and stand on your feet. With the weight off their adjustable main lift webs, you can more easily pull the webbing tighter by the two of you pulling on the straps. If you have trouble releasing the side connectors, getting your student's weight off the side straps will make that easier. Once their weight is held only by their main attachment points, tell your student to lift their knees up, and then bring their toes up. This will test to see if they are in a sitting position and will also show you how high they can raise their legs for landing. Check their chest strap. You may loosen it about two inches if necessary, but remember that doing so will possibly increase pressure on your student's shoulders.

#### **TIP: Side Connectors under Canopy**

After you confirm that you have a good canopy, loosen the side connectors. If you have stowed the excess webbing inside the side straps, you will have an easier time if you pull out that excess before you try to loosen the connectors. If you have trouble loosening the side connectors, have your student stand on your feet. This takes the pressure off of the side connectors enough to easily release the connectors. Do not release and let the side connectors dangle, as that can create an entanglement hazard. If you release your side connectors to loosen them, you must reattach the connectors to your harness. This has the benefit of lessening the chance of flipping over your student if they dig in their feet on landing.

Pull the toggles down and in front of your student while opening the bottom loops of the toggles, saying, “Take a grip on the bottom of the toggles.” Guide them in full forward flight, a left turn, a right turn and a landing flare. Coach them to look before they turn. Letting your student steer gives them a feeling of control, lessens the chance of their getting nauseous, and allows them a more complete skydiving experience. Plus, it helps save your arm strength.

If you believe you have a chance of being dragged on landing because of high winds, disconnect your RSL. This way, you have the option of pulling the cutaway handle without the added problem of a deployed reserve pilot chute. Some tandem instructors routinely disconnect their RSL after determining they have a good canopy.

Keep an eye on other tandems in the air. If you want to avoid coming in at the same time as other tandem canopies, communicate with each other by your canopy control. If you spiral, that tells other tandems that you want to get down earlier. If you go into half brakes, that says, “go ahead.”

#### 4. Safe Landing

Under normal circumstances, pick up the flare toggles at 1500 feet AGL (if your gear is so equipped) and take the controls from your student at 1000 feet AGL. Guide their hands to a safe position, such as their harness. Fly a predictable pattern. The standard “downwind-base-final” begun at 1000 feet AGL makes for a predictable canopy flight while giving you plenty of time to land safely. To land in a smaller area, you may wish to lower your pattern initiation altitude to 600 feet, turning onto base at 400 feet and final at 200 feet.

#### **TIP: CReW**

In a word, don't.

When jumping multiple students who know each other, being close enough to shout to one another and see each other can be an intense experience. But the added risk of canopy collision and wrap can turn a wonderful time into a tragedy. Under no circumstance should a tandem canopy ever touch another canopy in the air. Tandems must maintain adequate separation from other jumpers under canopy.

**TIP: Air Sickness**

Occasionally, a student may feel nauseous. Make sure their eyes are open. Motion sickness frequently occurs when their inner ear tells them they are moving in one way but their eyes disagree. If the situation safely allows, offer them the steering toggles. This gives them control over their movements. An air sickness bag, the same as found on airliners, can come in handy at these times. The Wings Tandem student harness has a pocket for an air sickness bag. Give them the bag and instruct them to use it if they feel sick. Reassure them that you have the situation under control. Keep your canopy movements gentle.

Wingsuit flyers on your own load often land about the same time as tandems. Other jumpers on other loads might land at the same time as you. Others in the air might concentrate on their own landings and not notice you. Watch for other canopies at all times, but especially when you are at pattern altitude.

Do not make any turn greater than 90 degrees below 500 feet AGL. The risks of misjudging your landing are too great, and if you turn more than 90 degrees, you are turning blind. One of the most common causes of tandem fatalities since 1999 has been landing problems under perfectly flying canopies.

As you approach the ground, cue your student to raise their legs. Your legs should touch first. Be careful when taking larger students that their butt doesn't sink too low as they raise their legs, hitting tail first and possibly injuring themselves.

You have two options for touching down; sliding in or standing up. In general, the safest option is to slide in. A sliding or seated landing should be your default landing technique. Sliding in your landing gives your student the fewest opportunities to injure themselves. Let your feet be the first point of contact. As you touch the ground, lean back. Your student should end up on your lap.

A standing landing starts exactly like a sliding landing, with your legs touching down first. If you decide that you can safely stand up your landing, simply tell your student to put their feet down when you are no longer traveling horizontally.

Avoid running while landing. Two sets of legs, one attached to a novice, can easily get tangled and cause an unnecessary fall.

Keep control of your student on the ground. Other canopies may be landing, and your student will probably be too excited or overwhelmed to notice. The best place for them is at your side, within your reach. You may give them your drogue to hold while walking back from the landing area. This has the dual benefit of keeping your student close while allowing them to help you. If you cannot escort your student to safety, hand them off only to another responsible person, like a camera flyer or another staff member. Your student should not remove their own harness, as they may unthread it improperly, creating an unnecessary delay while you put it back together properly.

**TIP: Windy Landings**

-You can do two things to help improve your safety on landing in higher winds. Once you know you will not cut away your main canopy, undo your RSL. This will allow you to pull your cutaway handle if a gust pulls you over and starts to drag you and your student. Also, watch for and land close to catchers who will take one toggle and collapse your canopy for you.

g. More Student Involvement

Most students want nothing more than a fun ride and brief introduction to skydiving. But some want more. You may of course give them a Category A skydive as described in USPA's Skydiver Information Manual. But if they only want a little more involvement and you have the time to train them, you can allow them to do any or all of these three things; check their altitude, pull the drogue release handle and/or help land. All of these involve at least some additional training. Two involve increased risk for both student and instructor.

### 1) Check Altitude

If your student checks their altitude, it involves them in the skydive and helps orient them to the unfamiliar environment of freefall. After tapping your student on the shoulders, have them check altitude. If you will have them look at your altimeter, practice on the ground, so they will have an idea of where to look. If you provide an altimeter for them, have them turn their wrist and turn their head, maintaining a stable body position. Remind them that they fall about 1000 feet in five seconds, so they should check their altitude about every five seconds.

### 2) Pull Drogue Release Handle

If the student mistakes the shoulder tap for a signal to pull or misreads the altimeter (both have happened) the two of you can find yourselves at an unexpectedly high altitude. Your student may become uncomfortable or queasy from sitting in the harness for an extended time. If your dropzone runs multiple aircraft, you may find the next plane dropping jumpers on top of you. And if you have high winds at altitude, you might be blown completely off the dropzone. Be aware of unexpected movements by your student that signal their early pull. If you are fast enough, you may be able to grab their hand and prevent them from pulling early. If you have any doubts about your student being able to pull at the correct time, suggest waiting for the second jump before adding things besides relaxing during freefall, arching properly and maintaining awareness.

### 3) Help Land

A strong or adrenaline-enhanced student can lock their elbows and possibly overpower you at a critical point when landing. Practice landing flares at altitude. Wings Tandem recommends that you only allow a student to assist with the landing if the student performs three correct practice landing flares under canopy, and if you as the tandem instructor are completely confident they will follow your instructions on the right time to flare.



## 7. Emergencies and Malfunctions

In this section, we first list the malfunction, then highlight a thumbnail of emergency steps, and finally discuss the emergency procedure. Your standard emergency procedures will handle most malfunctions you will encounter. They are:

1. Deploy the drogue
2. Pull both drogue release handles
3. Pull cutaway handle
4. Pull reserve ripcord

You will almost always pull your handles in this order. This is the same order you touch your handles when performing your practice touches in the aircraft and in freefall.

Use one hand per handle, looking directly at your handles. Place your right hand on the cutaway handle and your left hand on the reserve ripcord. Peel and pull the cutaway handle to full arm extension. Once you have separated from your main risers, peel and pull the reserve ripcord handle to full arm extension. Your RSL, an emergency backup, should pull the ripcord before you pull your reserve handle, but pull it anyway! Never depend on your emergency back ups.

Besides landing problems, most tandem fatalities since 1999 happened from not sticking to proper procedures, pulling handles out of the correct order, or not doing a proper gear check prior to boarding the aircraft.

Before cutting away, if possible direct your student to arch, with their hands on their harness, hips forward, legs together and back. At least one tandem fatality since 1999 may have been prevented by the tandem pair arching properly during the cutaway.

You face the greatest danger when something on the jump is different. The more different things you place on the jump, the greater the danger you face. If you already have something different or unusual on your jump, do not add any more different or unusual things. For example, if you are about to make your first tandem out of a Cessna 182 while you're used to an Otter, this is not a good time to add your first hand camera.

Your minimum decision/action altitude for tandem is **3500 feet AGL**. In a low speed malfunction, you must perform your emergency procedures no lower than this altitude.

**a. Emergency Altitudes**

In general, use these altitudes as a guide for emergencies.

0-2000' AGL: Stay with the aircraft.

2000-4000': Exit, then activate your reserve.

4000-5000': Exit, throw the drogue once clear of the aircraft, pull the drogue release handle.

Above 5000': Normal procedures.

These altitudes are guidelines only. You as the tandem instructor must use your experience and training to decide the best way to handle any emergency situation. For example, in the event of a catastrophic aircraft failure, you may judge that landing in the aircraft is impossible to survive and decide to exit lower than recommended.

**b. Aircraft Emergencies**

While in the aircraft, the pilot is in charge. Coordinate with the pilot before taking action. Keep your student under control. In your pre-jump briefing, you told your student to follow your directions during an emergency. Your standard procedures prepare you for an in-flight emergency. You as a tandem instructor will determine the best way to keep you and your student safe.

Remember that the Cypres Tandem AAD is designed to fire at 1900 feet AGL while falling in excess of 78 mph. It will not arm itself until you reach an altitude of 3000 feet AGL. Other tandem AADs arm and fire at similar altitudes. Be familiar with the AAD on your rig and know the arming and fire altitudes on it.

### c. Drogue Malfunctions

#### **1) Drogue Can't be Pulled**

- Two tries
- Pull reserve

The design of the Wings Tandem drogue pouch makes a hard or impossible pull highly unlikely. But if it does happen, make two attempts to pull, then pull your reserve handle.

Another possible problem is your right arm becoming incapacitated. This would either be from injuring your arm on exit, or your student grabbing your right arm. Try to use or free your arm twice. If you are unsuccessful, pull your reserve handle.

#### **2) Unseen Drogue**

- Check pouch
- Roll right
- Roll left
- Pull reserve

After your freefall handles check, turn your head and look at the drogue. If you do not see it, reach back and check to see if the drogue is still in the drogue pouch. Tandem instructors have forgotten to throw the drogue. If the drogue is not in the pouch, roll to the right for two or three seconds. An ineffective throw may cause the drogue to become caught in your burble, a low pressure area behind you. If the drogue is caught in your burble, this may change the airflow over you and free it. Look again. If you still do not see the drogue, roll to your left for two or three seconds. If you still do not see the drogue, assume that your drogue has separated from you, leaving your main still in the container. Pull your reserve ripcord handle.

If the drogue or bridle separate anywhere above the 3-ring assembly, your container will still be closed and you will have a total malfunction. If it fails at or below the three-ring, your main will deploy normally when the bridle breaks.

#### **3) Drogue or Bridle Entangles with Tandem Pair**

- Two tries
- Pull reserve

Prevention is the key here. Exit stable and throw the drogue forcefully. If you exited unstable and/or throw the drogue improperly, you or your student may entangle with the drogue. Take two seconds or two tries to free yourself from the drogue. If you are still tangled, immediately pull your reserve. Do not pull your drogue release handles in this case.

**4) Drogue into Other Jumper**

- Wait :05
- Undo RSL
- Pull cutaway
- Pull drogue release handle
- Track
- Pull reserve

Whether you throw the drogue into a fun jumper lurking your tandem or the camera flyer documenting the jump, a drogue entanglement with another jumper is one of the most serious malfunctions you can experience, one where pulling your handles in order will not work. The best way to deal with it is prevention. Assure that it never happens. In your briefing with other jumpers, emphasize that no one is to ever be above you in the relative wind and in

the way of your drogue. When you exit, look before you throw. Make sure you throw into clean air. If in doubt, wait to throw.

Despite precautions, if another jumper entangles with your drogue, that other jumper might be able to get free. Allow no more than five seconds for that attempt. Once you determine that the other jumper cannot get free in time, detach the RSL coupling from your riser. You do not want to open your reserve close to another jumper. Next, pull your cut away handle. Finally, pull the drogue release handle. The wrapped drogue should still have enough drag to pull your bag and main canopy off of your back, freeing you from the malfunction. If it does not, you may need to assist the cutaway by opening your riser covers and pulling your risers off of your rings. Once you are clear, track away from under the entanglement as far as your altitude allows. Pull your reserve handle no lower than your minimum opening altitude of 4500' AGL.

**5) Drogue in Tow**

- Pull both drogue release handles
- Pull reserve handle

Once you pull the drogue release handle, your drogue acts as a pilot chute. If you cannot release your drogue, you cannot open your main canopy. If one drogue release handle does not release the drogue, the

cable may have been misrouted, possibly trapping the cable. Pull the second handle to fully pull the release cable. If this does not free the drogue, your only remaining option is to pull the reserve handle. Test jumps show that the reserve pilot chute clears the drogue after no more than two seconds passing the drogue's burble, and then the reserve canopy will deploy past the drogue and open. But prevention is the key. During your initial gear check, assure the 3-ring on the drogue riser is routed correctly. Avoid this malfunction by performing a good gear check prior to putting your gear on.

**6) Drogue Not Inflated**

- Pull Drogue Release Handle
- Wait
- Pull Reserve Handle

Tests show that even with the limiter line missing, an intact drogue will still inflate adequately. If you throw the drogue and it does not inflate, your drogue is severely damaged. Immediately pull your drogue release handle. Depending on how much drogue you have left, it still may be

enough to pull your main out of your container. If your main still has not come out by the time you reach opening altitude, pull your reserve handle.

## d. Main Canopy Malfunctions

**1) Premature Main Container Open**

- Pull Drogue Release Handle
- Assess

While fairly common in the early days of tandem, this malfunction has been almost eliminated. The Wings Tandem system prevents this from happening by using the safety bungee. If your main container

opens while you are still attached to your drogue, you must release the drogue immediately. Failure to pull the drogue release handle in time could cause the bag and lines to bind the drogue 3-rings and cause a drogue in tow.

**2) Unlandable Main**

- Pull cutaway handle
- Pull reserve handle

Evaluate the open main to make sure you can land it. If not, pull your cutaway handle, then the reserve handle.

The main canopy can malfunction in any number of ways. As a tandem instructor, you must evaluate your canopy and judge if you can land it.

**3) Broken Line**

- Pull cutaway handle
- Pull reserve handle

While under your personal sport rig, you have the option of performing a controllability check and landing with a broken line. In tandem, do not take a chance. You are unlikely to steer and flare on your rear risers if a brake line snaps. Any broken suspension line can alter the shape of your tandem canopy enough to reduce your canopy's performance.

Any broken line, whether a suspension line or a brake line, is reason enough for you to perform your emergency procedures.

**4) Main Damage**

- Pull cutaway handle
- Pull reserve handle

If you can see damage on your tandem main canopy, do not gamble on the extent of that damage. Any visible damage to your tandem canopy is reason to perform your emergency procedures.

**e. Correctable Situations**

Your canopy may be unlandable at opening, but you don't necessarily have to cut it away immediately. You at least have the possibility of getting control over your main.

**1) Tension Knot**

- Try to clear
- Pull cutaway handle
- Pull reserve handle

A tension knot creating a spinning main is a common cause of reserve rides. Tension knots have been cleared by flaring hard and snapping the control lines up, taking some weight off of the lines.

**2) Line Over**

- Try to clear
- Pull cutaway handle
- Pull reserve handle

Line over malfunctions can not only make your canopy to spin, they can also cause canopy damage from friction and melting. If you are able to free the line, assess your canopy for damage.

**3) Line Twists**

- Assess

Having a student in front of you can make kicking out of line twists difficult or awkward. If you have a good canopy above the line twists, note what direction you are flying. If you are moving in a dangerous direction such as over water, you may decide to perform your emergency procedures to avoid a risky landing.

**4) Drogue Under Nose**

-Assess

Occasionally, the drogue will fall in front of the leading edge of your canopy. If your drogue is somewhere other than directly behind your canopy, determine if you can land by performing a controllability check. Because of the light weight of the Wings Tandem bridle and 3-ring assembly, your canopy will usually fly properly. But if you determine that you cannot safely land it, perform your emergency procedures.

**5) Slider Hangs**

-Assess

Your slider must descend at least halfway down for you to safely land. Pump your brakes, or flare and hold to get it down. If the slider is not closer to you than to the canopy, perform your emergency procedures no lower than 3000 feet AGL.

## 8. Tandem Side Spin

A tandem side spin is a dangerous and violent freefall event that can cause the tandem pair to spin so rapidly that the pair can quickly become disoriented or pass out. The phenomenon happens when the tandem instructor's body position becomes one half of a propeller shape and the student becomes the other half of the propeller.

A tandem side spin begins when the tandem pair presents their side to the relative wind. The student bends forward and the tandem instructor tries to counter by arching hard.

The most important way to deal with a tandem side spin is to prevent it from happening in the first place. Take a moment to teach your student how to arch properly on exit. Make sure the student's harness is adjusted properly, paying special attention to keeping the side connectors snug. Exit with your belly into the relative wind.

You cannot always hold yourself into the relative wind. A student may de-arch on exit, causing the pair of you to fall one side into the relative wind. Immediately evaluate your situation. If you are not accelerating, you are not yet in a side spin. Counter your student's bad body position by arching hard and spreading your arms and legs. If you feel yourself accelerating, you are most likely in a side spin.

The recovery position removes the propeller effect. Place your student's hands on their hips. Scissor their legs with yours. Arch hard, bringing your student's body into alignment with yours. If you cannot get them to arch, then match their de-arch. )( = propeller. (( or )) eliminate the propeller. Note that you only have a few seconds to recover using this technique before the energy in the side spin will overcome the recovery.

If you cannot recover and you are drogue side up, throw your drogue. This will stop the spin. If you are drogue side down, either throw the drogue or pull your reserve handle. The g-forces you experience in a side spin may prevent you from making your first choice.



## 9. Allowable AADs

FAR 105.45 (b) (3) states that the tandem system must have an AAD that is “approved by the manufacturer of that tandem parachute system.” As of the writing of this operations manual the following are AADs approved for use in the Wings Tandem:

- Cypres Tandem
- Cypres 2 Tandem
- Cypres 2 Changable Mode set to Tandem.
- Vigil set to Tandem Mode
- Vigil II set to Tandem Mode
- m2 Tandem

Go to [www.WingsTandem.com](http://www.WingsTandem.com) or [www.facebook.com/SkydiveWingsTandem](http://www.facebook.com/SkydiveWingsTandem) to see the most current list of approved AADs.



## Training Handout #1: Gear Check

- Know the maximum weight allowed for your tandem gear.
- Primary (right) drogue release handle in place.
- Secondary (left) drogue release handle in place, ring around housing, housing properly seated.
- Adjustable Main Lift Web symmetrical and adjusted for you.
- Cutaway handle in place and secure.
- Reserve ripcord handle in place and secure.
- RSL shackle attached.
- Both main riser 3-rings routed properly, yellow cutaway cable in loop.
- Riser covers closed.
- AAD on.
- Reserve flap secured.
- Drogue bridle routed properly
- Drogue 3-ring routed properly.
- Green showing in drogue bridle window.
- Main cover closed.
- Drogue in pouch, magnet secured.



## Training Handout #2: Harness the Student

1. Have the student step into the harness.
2. Fasten the chest strap and the belly band.
3. Position the chest strap so the attached shoulder pads fit comfortably.
4. Position the hip rings so they sit over the point of their hip bone. Make sure the rings are well forward.
5. Position the adjustable leg pads. Snug the leg straps, stow the excess.
6. Take out the slack in the belly band and the back horizontal strap. Make sure the back strap sits above the buttocks. The back strap and belly band should work together to fit like a belt.
7. Place the top attachment hooks forward over your student's clavicle while confirming that the harness yoke sits just below the neck. Take out the slack from the main lift webs.
8. Take up the slack in the back lateral straps.
9. Make sure the T strap is loose enough to allow your student to lift their legs during canopy flight. Do not overtighten the T strap.
10. Move to the side and check the fit by lifting the harness at the shoulders. You should be able to lift about one inch. If you have significantly more or less, readjust.
11. Make a final check of the harness. Assure all adjustments are proper and all straps are secured.



## Training Handout #3: Systems Check

The reason for the gear check after hook-up is for you as the tandem instructor to know that you and your student are ready to jump. The “Systems Check” that takes place after your gear check and before exit has a related but separate purpose: **to reassure your student**. A student who has confidence in you and your gear is less likely to panic and give you problems, either moving to the door or in freefall.

1. Tug on the four points of connection.
2. Ask “Did you feel all four points of connection?” The answer confirms attachment in your student’s mind.
3. Handles Check. Count or name the five handles in order of use.
4. Harness Check. Confirm that each friction adapter is properly threaded and all excess is stowed.
5. “System check is complete. We are ready to skydive. Are you ready to skydive?”

This question gives your student the opportunity to commit to the jump, and to voice any concerns or problems you may be able to address. You want your student to feel confident in you and your gear.



## Training Handout #4: Standard Dive Flow

1. Exit stable, head up and belly into the relative wind.
2. Throw and check the drogue.
3. Perform handles check (main drogue deployment handle, secondary drogue deployment handle, cutaway handle, reserve handle.)
4. Shoulder tap.
5. Check altitude.
6. Check position over ground.
7. Altitude awareness until pull time.
8. Wave off and pull at 5500' AGL.
9. Top to bottom gear check.
10. Airspace check.



# Training Handout #5: Emergency Procedures

## Standard Emergency Procedures:

1. Deploy the drogue.
2. Pull both drogue release handles.
3. Pull cutaway handle.
4. Pull reserve ripcord.

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## Hard Deck (Decision/Action Altitude): 3500' AGL

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### Drogue Deployment Malfunctions

1. Drogue Hard Pull.
  - Two tries
  - Pull reserve
2. Unseen Drogue.
  - Check pouch
  - Roll right
  - Roll left
  - Pull reserve
3. Drogue or Bridle Entangles with Tandem Pair.
  - Two tries
  - Pull reserve
4. Drogue into Other Jumper
  - Wait :05
  - Undo RSL
  - Pull cutaway
  - Pull drogue release handle
  - Track
  - Pull reserve
5. Drogue in tow
  - Pull both drogue release handles
  - Pull reserve handle
6. Drogue Not Inflated
  - Pull Drogue Release Handle
  - Wait
  - Pull Reserve Handle

## Aircraft Emergencies

- 0-2000' AGL: Stay with aircraft.
  - 2000-4000': Exit, then activate reserve.
  - 4000-5000': Exit, throw drogue once clear of aircraft, pull drogue release.
  - +5000': Normal procedures.
- 

## Main Canopy Malfunctions

1. Main Container Opens Prematurely
  - Pull Drogue Release Handle
  - Assess
2. Unlandable Main
  - Pull cutaway handle
  - Pull reserve handle
3. Broken Line
  - Pull cutaway handle
  - Pull reserve handle
4. Main Damage
  - Pull cutaway handle
  - Pull reserve handle

## Correctable Situations

1. Line Over
  - Try to Clear
  - Pull cutaway handle
  - Pull reserve handle
2. Line Twists
  - Try to clear
  - Pull cutaway handle
  - Pull reserve handle
3. Tension Knot
  - Try to clear
  - Pull cutaway handle
  - Pull reserve handle
4. Drogue Under Nose
  - Assess
5. Slider Hangs
  - Assess



## Training Handout #6: Currency

To keep the “muscle memory” required to safely take students, you must be current. To maintain currency, you must make 15 tandem skydives within the past year as well as three tandems within the last 90 days. A jump on any tandem system (with either a student or an experienced jumper on the front of you) will keep you current, but one of the tandem skydives within the past 90 days must be on a Wings Tandem.

If you exceed the 90 day limit, you may regain your currency by taking an experienced skydiver (at least 100 jumps) in the student position on one jump after reviewing standard and emergency procedures.

If you have not made a tandem jump within the last 6 months, you may regain your currency by taking a current tandem instructor in the student position, after the current instructor reviews standard and emergency procedures with you.

If you have not made a tandem jump within the last 12 months you must attend a recurrency course with a Wings Tandem instructor examiner.

You must also hold a current FAA Class III flight physical, or a parachuting physical approved by a national parachuting association or the military.

Note the recurrency training in your logbook.



## Training Handout #7: Sharing the Air

### **Fun Jumpers:**

- Hold a current AFF-I or Tandem-I rating, **or**
- 300 jumps, and passed air skills of a USPA Coach Course, **or**
- 500 total formation skydive (FS) jumps, and 100 FS jumps in the past year.

### **Camera Flyers:**

- Have at least 100 camera jumps, **and**
- Hold a current AFF-I or Tandem-I rating, **or**
- 300 jumps, and passed air skills of a USPA Coach Course, **or**
- 500 total formation skydive (FS) jumps, and 100 FS jumps in the past year.

The above are minimum guidelines for the tandem instructor to evaluate the jumper who wants to join the tandem pair. Never allow yourself to bend to pressure to have someone in freefall with you. When in doubt, say no.





## Training Handout #8:

### Training Jump #1: Solo

- 1) Exit stable, head up and belly into the relative wind.
- 2) Throw and check the drogue.
- 3) Perform handles check (main drogue deployment handle, secondary drogue deployment handle, cutaway handle, reserve handle.)
- 4) Check altitude.
- 5) Check position over ground.
- 6) Second handle check.
- 7) Second altitude check.
- 8) Third handle check.
- 9) Third altitude check.
- 10) Altitude awareness until 6000' AGL.
- 11) Wave off and pull no lower than 5500' AGL.
- 12) Top to bottom gear check.
- 13) Airspace check.
- 14) Position check



## Training Handout #9:

### Training Jump #2, Front Ride Standard Tandem

1. Exit stable, head up and belly into the relative wind.
2. Throw and check the drogue.
3. Perform handles check (main drogue deployment handle, secondary drogue deployment handle, cutaway handle, reserve handle.)
4. Shoulder tap.
5. Check altitude.
6. Check position over ground.
7. Altitude awareness until 6000' AGL.
8. Wave off and pull no lower than 5500' AGL.
9. Top to bottom gear check.
10. Airspace check.
11. Position check.



## Training Handout #10: Training Jump #3, Standard Tandem

1. Exit stable, head up and belly into the relative wind.
2. Throw and check the drogue.
3. Perform handles check (main drogue deployment handle, secondary drogue deployment handle, cutaway handle, reserve handle.)
4. Shoulder tap. Evaluator gives “thumbs up” to confirm handles check.
5. Check altitude.
6. Check position over ground.
7. Altitude awareness until 6000’ AGL.
8. Wave off and pull no lower than 5500’ AGL.
9. Top to bottom gear check.
10. Airspace check.
11. Position check.



## Training Handout #11:

### Training Jump #4, Tandem Terminal

1. Exit stable, head up and belly into the relative wind
2. Arms and legs out for stability
3. Check altitude every five seconds
4. At no lower than 8000' AGL, throw and check the drogue
5. Perform handles check (main drogue deployment handle, secondary drogue deployment handle, cutaway handle, reserve handle.) Give evaluator "thumbs up" to confirm handles check.
6. Shoulder tap. Evaluator performs handle check and returns a "thumbs up."
7. Check altitude
8. Check position over ground
9. Altitude awareness until 6000' AGL
10. Wave off and pull no lower than 5500' AGL
11. Top to bottom gear check
12. Airspace check
13. Position check



## Training Handout #12:

### Training Jump #5, Unstable Exit

1. Exit unstable
2. Regain stability
3. Throw and check the drogue
4. Perform handles check (main drogue deployment handle, secondary drogue deployment handle, cutaway handle, reserve handle.) Give evaluator “thumbs up” to confirm handles check.
5. Shoulder tap. Evaluator performs handle check and returns a “thumbs up.”
6. Check altitude
7. Check position over ground
8. Altitude awareness until 6000’ AGL
9. Wave off and pull no lower than 5500’ AGL
10. Top to bottom gear check
11. Airspace check
12. Position check



## Training Handout #13: Tandem Progression in the ISP

### Cat A Dive Flow:

1. Safety position
2. Neutral arch on signal
3. Check altitude
4. 3x practice touches
5. Altitude-Arch-Legs-Relax
6. Wave-off 6000'
7. Pull 5500'

### Cat B Dive Flow:

1. Initiate count after TI OK
2. Exit in relaxed arch
3. Altitude-Arch-Legs-Relax
4. Practice deployment until smooth and comfortable
5. Extend legs and hold :03
6. Altitude-Arch-Legs-Relax
7. Repeat as altitude permits, or turns if trained
8. Wave-off 6000'
9. Pull 5500'

### Cat A Advancement:

1. reasonable arch and stability within :10 prior to planned deployment altitude
2. Reasonable altitude awareness
3. Initiate deployment within 1000' of assigned altitude

### Cat B Advancement:

1. Stability within :10 of exit
2. Maintain correct body position for stability throughout, including leg awareness
3. Initiate deployment within 500' of assigned altitude

### Prior to Cat C:

1. Demonstrate stable practice deployment on IAD or SL
2. Complete solo FJC



# Instructor Application Phase I Date \_\_\_\_\_

## Candidate Information *(Please type or print clearly and legibly.)*

Last Name \_\_\_\_\_ First Name \_\_\_\_\_ MI \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Tel 1 \_\_\_\_\_ Tel 2 \_\_\_\_\_

E-mail \_\_\_\_\_

## Experience

Years in Sport \_\_\_\_\_ Jump # \_\_\_\_\_ Freefall Time \_\_\_\_\_

USPA # \_\_\_\_\_ D# \_\_\_\_\_ Exp Date \_\_\_\_\_ FAI # \_\_\_\_\_

Medical Type \_\_\_\_\_ Exam Date \_\_\_\_\_

Instructional Ratings Held \_\_\_\_\_

Other Tandem Ratings \_\_\_\_\_

## Phase I Jumps

Asterisk (\*) denotes Crossover Training jumps.

Jump #	Evaluator Initials	Candidate Initials	Notes
Jump 1 *			
Jump 2			
Jump 3 *			
Jump 4			
Jump 5			

## Candidate initials when lessons completed:

Written test reviewed and corrected _____	Deploying the drogue _____	Hook up and pre-jump check _____
Authority to suspend rating _____	Canopy procedures _____	Standard tandem dive flow _____
Who can jump _____	Emergency procedures _____	Sharing the air _____
Student brief _____	Equipment familiarization _____	More student involvement _____
Preboard procedures _____	First gear check _____	Tandem sidespins _____
Exits _____	Harness student _____	Packing seminar _____

Course location \_\_\_\_\_ Course Examiner \_\_\_\_\_

\_\_\_\_\_ Cleared for Phase II/ Completed Cross Training? \_\_\_\_\_

\_\_\_\_\_ IE Signature \_\_\_\_\_

# Instructor Application Phase II



Candidate \_\_\_\_\_

## Phase II Guidance:

1. All Phase II jumps will be made in accordance with FAA FAR 105.45.
2. Use of safety handles are not required but may be used.
3. Jumpers riding in the student position must be licensed jumpers with at least 100 jumps.
4. Both jumpers must wear a hard helmet or soft “frap hat” with appropriate eye protection.
5. The candidate has control of the canopy during all of the canopy flight including landing.  
Allowing the person in the student position to assist with landing is the candidate’s choice.
6. All Phase II landings will be seated or sliding, never standing.
7. Hand cam or outside video is allowed at the discretion of the course IE.

## Phase II Jumps

Jump #	Student Position Jumper	Candidate Initials	Date	Notes
Jump 6				
Jump 7				
Jump 8				
Jump 9				
Jump 10				

---

Course Examiner \_\_\_\_\_

Examiner Signature \_\_\_\_\_



***Wings Tandem Test******Name:*** \_\_\_\_\_ ***Date:*** \_\_\_\_\_***Location:*** \_\_\_\_\_ ***Examiner:*** \_\_\_\_\_

1. What must you do after exit before you throw the drogue?
2. How many seconds after exit should you wait before throwing the drogue?
3. What is terminal freefall speed with a drogue? Without a drogue?
4. What steps make up the standard tandem skydive dive flow, from exit through opening?
5. What is the technique of deploying the drogue?
6. What is the primary cause of hard openings in a tandem skydive, and how is that prevented in a Wings Tandem?
7. Is your student allowed to board the aircraft with their harness looser than what would be correct for jumping?
8. When does the drogue collapse?
9. What is the maximum total weight the Wings Tandem may carry?
10. How can I maintain my currency?
11. Do I have to use a Wings system on my jumps to remain current?
12. If I exceed my time and lose my currency, what must I do?
13. What is involved in a Wings Tandem gear check?
14. What Federal Aviation Regulation governs tandem operations? What does that regulation say about what must be included in a student briefing?
15. According to the FAA, when must you and your student wear a seatbelt?
16. What two questions will you ask your student during and after hook-up? What are the benefits of asking these questions?

**Name:** \_\_\_\_\_**Date:** \_\_\_\_\_**Location:** \_\_\_\_\_**Examiner:** \_\_\_\_\_

17. What are the two exceptions to exiting belly into the relative wind?
  
18. What is the recommended minimum altitude for a non-emergency tandem skydive? What is the absolute minimum altitude for a tandem skydive?
  
19. When are the five equipment checks?
  
20. How many tandems should you make before attempting to shoot hand cam?
  
21. What is the minimum experience for a fun jumper to join you on a tandem skydive?
  
22. What is the minimum experience for a camera flyer to join you on a tandem skydive?
  
23. What actions should you perform for almost all Wings Tandem emergency procedures, and in what order?
  
24. What are the recommended emergency exit altitudes for Wings Tandem?
  
25. What are the emergency procedures if another jumper gets tangled in your drogue?
  
26. What situation begins a tandem side spin?
  
27. If you feel a side spin starting, what do you do?
  
28. Where do you find out what AAD is approved for the Wings Tandem?
  
29. What canopies are allowed in the Wings Tandem?
  
30. What is your decision/action altitude for your main canopy while jumping tandems?

**Tandem Designs, Inc., and Tandem Solutions, Inc.  
Doing Business As "Wings Tandem"  
TANDEM JUMPER ASSUMPTION OF RISK AGREEMENT  
AND  
AGREEMENT NOT TO SUE**

**TANDEM STUDENT: (Please Print Neatly)**

**Name:** \_\_\_\_\_

**Driver's License State:** \_\_\_\_\_

**Driver's License Number:** \_\_\_\_\_

**Age:** \_\_\_\_\_ **Birthdate:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_

**Telephone #:** \_\_\_\_\_

**This is an important legal document. Allow yourself sufficient time to carefully read and understand the entire document, because by signing it, you are agreeing to give up certain legal rights.**

\_\_\_\_\_  
\*Initial

I know how to read, write, and understand the English language, sufficiently to understand this document and to fully appreciate its nature and the consequences of each and every covenant contained in this Agreement and the consequences of my consent thereto.

\_\_\_\_\_  
\*Initial

My initials or signatures, where indicated, are my acknowledgment of the contents of the paragraph preceding my initials or signature, and by said initials or signature I am indicating that I have read the subject preceding paragraph, and that, subject to the further terms of this Tandem Jumper Assumption of Risk Agreement and Agreement Not to Sue (hereinafter sometimes referred to in this document as the "Agreement,"), I fully understand and agree to be bound by its contents.

\_\_\_\_\_  
\*Initial

For and in consideration of my being permitted by Tandem Designs, Inc., and Tandem Solutions, Inc. doing business as "Wings Tandem," and \_\_\_\_\_ (Name of Tandem Operator), hereinafter referred to as "The Corporations", allowing me the privilege of utilizing a dual-harness, dual container parachute pack assembly (also known as a "Tandem Parachute System"), designed, manufactured, and/or assembled by The Corporations, for the purpose of performing an intentional tandem parachute jump, and for and in consideration of the thrill of participation in tandem parachute jumping and its related activities, and for other good and valuable

consideration the receipt and sufficiency of which is hereby acknowledged, I **HEREBY AGREE AS FOLLOWS:**

\_\_\_\_\_  
\*Initial

I have come to participate in tandem parachuting of my own free will and not due to any inducement or duress. I understand that prior to being allowed to make a tandem parachute jump in any way involving the "Released Parties," as hereinafter defined, or any of them, I must understand and agree to be bound by all of the provisions of this Agreement. I further understand that this is not the only location where I may make a tandem parachute jump, nor are the methods employed by any or all of the Released Parties the only methods available to enable me to make a tandem parachute jump, and that if I do not fully understand and agree to be bound by all of the provisions of this Agreement, then I shall not be permitted to make a tandem parachute jump at this location, but there may be other locations at which I may make a tandem parachute jump.

\_\_\_\_\_  
\*Initial

1) Representations, Warranties, & Assumptions of Risk: I understand that **PARACHUTING, INCLUDING TANDEM PARACHUTE JUMPING, IS A DANGEROUS ACTIVITY, WHICH CAN, AND SOMETIMES DOES, RESULT IN BODILY INJURY OR DEATH** to its participants. I understand that I will be parachuting from an aircraft in flight, which is a dangerous thing to do. I understand that tandem parachute jumping will expose me to the risk of personal injury, property damage and/or death. I understand that the success of my jump is dependent upon the perfect functioning of the airplane from which I intend to jump and the tandem parachute system and all of its components. I understand that parachute jumping will expose me to the risk of personal injury, property damage and/or death. I understand that the success of my jump is dependent upon the perfect functioning of the airplane from which I intend to jump and perfect functioning of the parachute system, and that neither the airplane nor the parachute system can be guaranteed to function perfectly. I **UNDERSTAND THAT I MAY BE INJURED OR KILLED OR SUFFER PROPERTY DAMAGE, EVEN IF I DO EVERYTHING I WAS TRAINED TO DO**, through my own fault or negligence, or through the fault or negligence of others, including but not limited to pilots, parachute packers, my tandem instructor and other parachutists.

\_\_\_\_\_  
\*Initial

I further understand and that there is not now, nor will there ever be, a perfect tandem parachute system, a perfect airplane, a perfect pilot, a perfect tandem instructor, or a perfect tandem student, and that each of the foregoing and others involved in the process of enabling me to make a parachute jump can, and likely will, fail to perform as intended. I understand that the airplane and the tandem parachute system are both subject to mechanical malfunctions as well as to operator error. I understand that unanticipated weather conditions may occur which may result in my severe injury or death. I understand that third parties, including other pilots and parachutists may cause my injury or death. I freely, voluntarily and expressly choose to assume any and all risks inherent in tandem parachute jumping, including, but not limited to, risks of equipment malfunction and/or failure to function, including those which may result from some defect in design, assembly, and/or manufacture as well as those risks arising from improper and/or negligent operation and/or use of the equipment, and/or from actions or inactions of others, understanding

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full well that those risks may include personal injury, property damage, and/or death.

\*Initial

2) Exemption and Release from Liability: I exempt and release the following persons and organizations (individually and collectively hereinafter referred to as the "Released Parties"):

\*Initial

(A) The Corporations and their officers, directors, agents, servants, employees, shareholders, and other representatives;

\*Initial

(B) AAD nv/sa - Advanced Aerospace Designs, Vigil America, Inc., Airtec GmbH & Co. KG Safety Systems, SSK Industries, Inc., manufacturers, designers, and suppliers of component equipment incorporated in the dual-harness, dual-container parachute pack assembly and the tandem passenger harness and any of their components, to which assembly and harness I will be attached during my intentional parachute jump;

\*Initial

(C) Owners, suppliers, and operators of aircraft from which I am to make my intentional parachute jump;

\*Initial

(D) The owner of the dual-harness, dual-container parachute pack assembly and the tandem passenger harness, and any of their components, to which I will be attached during my intentional parachute jump;

\*Initial

(E) The operator ("parachutist in command") of the dual-harness, dual-container parachute pack assembly and the tandem passenger harness, to which assembly and harness I will be attached during my intentional parachute jump;

\*Initial

(F) If I am making my intentional parachute jump at or near a parachuting/skydiving facility, the owners and operators of that facility, as well as their officers, directors, agents, servants, employees, shareholders, and other representatives;

\*Initial

(G) The owners and lessees, if any, of land upon and from which the parachute jumping and related aircraft operations are conducted;

\*Initial

(H) The Toll-Free Skydiving Network, Inc., Uninsured (800) Skydive Leasing Corp., and any and all other skydiving referral service business entities, and/or owners of fictitious name entities and/or individuals which I may have used in locating and/or deciding upon a parachuting/skydiving facility or other location at which to perform an intentional parachute jump.

\*Initial

(I) The United States Parachute Association.

\*Initial

(J) Any other person and/or entity which is or may be liable for any loss or injury to me and or my property, or my death, arising out of my participation in any of the activities covered by this Agreement (as defined below).

\*Initial

I, FOR MYSELF AND FOR MY HEIRS, REPRESENTATIVES, ASSIGNS, SUCCESSORS, AND ADMINISTRATORS, HEREBY EXPRESSLY RELEASE THE RELEASED PARTIES OF AND FROM ANY AND ALL CLAIMS FOR NEGLIGENCE, PRODUCTS LIABILITY, STRICT LIABILITY, BREACH OF IMPLIED WARRANTIES OF FITNESS FOR USE AND MERCHANTABILITY, AND FOR ANY OTHER CAUSE OF ACTION WHATSOEVER, (WHETHER IN CONTRACT OR IN TORT, OR OTHERWISE) WHICH I MAY PRESENTLY OR HEREAFTER HAVE, INCLUDING, BUT NOT LIMITED TO ANY AND ALL CLAIMS FOR NEGLIGENCE OR OTHER FAULT, WHETHER PASSIVE OR ACTIVE, AND INCLUDING WITHOUT LIMITATION NEGLIGENT RESCUE OPERATIONS, AND PRODUCTS LIABILITY, STRICT LIABILITY, BREACH OF IMPLIED WARRANTIES OF FITNESS FOR USE AND MERCHANTABILITY, OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, ARISING OUT OF ANY DAMAGE, LOSS OR INJURY TO ME OR MY PROPERTY, OR MY DEATH, WHETHER OCCURRING WHILE I AM TRAINING AND/OR PREPARING FOR MY TANDEM PARACHUTE JUMP, WHILE I AM PRESENT IN AIRCRAFT FROM WHICH THE JUMP IS TO BE MADE, WHILE I AM MAKING MY TANDEM PARACHUTE JUMP, OR WHILE I AM OTHERWISE ENGAGED IN ACTIVITIES RELATED TO MY TANDEM PARACHUTE JUMP, WHICH I MAY HAVE, AT ANY TIME, AGAINST ANY OR ALL OF THE RELEASED PARTIES, AND I HEREBY EXPRESSLY WAIVE ANY AND ALL SUCH CLAIMS.

\*Initial

3) Covenant Not to Sue: I agree never to institute any suit or action at law or otherwise against any of the Released Parties, or to initiate or assist in the prosecution of any claim for damages or cause of action which I may have by reason of injury to my person or property, or my death, arising from the activities covered by this Agreement, whether caused by the negligence and/or fault, either active or passive, of any of the Released Parties, or from any other cause. I further expressly agree that I will never raise any claim against any of the Released Parties for product liability, failure to warn, negligence, breach of warranty, breach of contract, or strict liability, regardless of whether my claims for damages or injuries are

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alleged to result from the fault or negligence of the parties released. I further agree that my heirs, executors, administrators, personal representatives, and/or anyone else claiming on my behalf, shall not institute any suit or action at law or otherwise against any of the Released Parties, or from any other cause, I hereby so instruct my heirs, executors, administrators, personal representatives, and/or anyone else claiming on my behalf. Should any suit or action at law or otherwise be instituted in violation of this Agreement against any of the Released Parties, I agree that such Released Parties shall be entitled to recover, in addition to any other damages which may be incurred, reasonable attorneys' fees and costs incurred in defense of such suit or action, including any appeals therefrom.

\*Initial

4) Consent to Physical Contact: I understand that I will be wearing a separate harness, which may need to be adjusted by my tandem instructor or others involved with my tandem parachute jump and that such adjustment may involve touching parts of my body which might otherwise be inappropriate. I further understand that my tandem instructor will attach my harness to his/her harness and that this will put my body in close proximity to that of the tandem master. I expressly consent to this physical contact between the tandem instructor involved and/or others involved in my tandem parachute jump and related activities and myself.

\*Initial

5) Indemnity Against Claims: I will indemnify, defend, save and hold harmless the Released Parties from any and all losses, claims, actions or proceedings of every kind and character, including attorneys' fees and expenses, which may be presented or initiated by any persons and/or organizations and which arise directly or indirectly from my participation in the activities covered by the Agreement, whether resulting from the negligence and/or other fault, either active or passive, or any of the Released Parties, or from any other cause.

\*Initial

6) Scope of Employment/Contract: In the event any agent or claimed agent or independent contractor of the Released Parties is found liable for willful and/or wanton conduct or misconduct, reckless conduct, or any conduct claimed to be or deemed to be outside the scope of this Agreement, by action or law or for any reason, I agree that the entity's or person's action shall be beyond the scope of his/her/its employment/contract and shall not be attributable to the Released Parties, or to any other entity or person on any agency theory, or on any other theory. This shall also apply to any acts which are alleged to be, or are deemed to be, willful and/or wanton or reckless on the part of any agent, employee, or any person or entity acting, or claimed to be acting, on behalf of, or instead of, any of the Released Parties.

\*Initial

7) Validity of Waiver: I understand that if I institute or anyone on my behalf institutes, any suit or action at law or any claim for damages or cause of action against any of the Released Parties because of injury to my person or property, or my death, due to the activities covered by this Agreement, this Agreement can and will be

used in court, and that such agreements have been upheld in courts in similar circumstances.

\*Initial

8) Representations and Warranties as to Medical Condition: I represent and warrant that: (a) I have a current FAA third-class or higher medical certificate, or (b) I have no physical or mental infirmity, except those listed below, and I am not under treatment for any other physical or mental infirmity or chronic ailment or injury of any nature that would impair my ability to participate in skydiving, or that any such infirmity, ailment or injury has been successfully treated so that it does not represent a foreseeable risk to my participation in skydiving; (c) I have never been treated for any of the following conditions: cardiac or pulmonary conditions or diseases, diabetes, fainting spells or convulsions, nervous disorder, kidney or related diseases, high or low blood pressure, or I have consulted a physician who has specifically approved my fitness for making an intentional parachute jump notwithstanding the infirmity, ailment, injury, condition or disease; (d) I am not under the influence of any medication or substance of any kind, prescription or otherwise, which would impair my ability to participate in skydiving; (e) I do/do not (strike one) wear corrective lenses. If I wear corrective lenses, I agree to wear them during my intentional parachute jump.

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(list injuries, infirmities and conditions, if none, state "none")

\*Initial

9) Non-use of Alcohol, Controlled Substances and Other Drugs: I HEREBY STATE AND AFFIRM THAT I WILL NOT USE, AND HAVE NOT USED, ALCOHOL, CONTROLLED SUBSTANCES, OR OTHER DRUGS, PRESCRIPTION OR OTHERWISE, WITHIN 8 HOURS PRIOR TO OR DURING MY TANDEM PARACHUTE JUMP.

\*Initial

10) Training, Performance and Harness Adjustment: I understand that the training I receive prior to making my tandem parachute jump is a critical part the success of my tandem parachute jump and my safety. Prior to making my tandem parachute jump, I will ensure that I can fully perform each and every requirement taught to me by my tandem instructor and others in my training. If I do not inform my tandem instructor of my inability to perform a requirement, I will be presumed to be capable of performing that requirement. I shall also be responsible for ensuring that my harness is properly adjusted and especially for ensuring that it is not too loose. If I believe that it is too loose, I shall immediately notify my tandem instructor.

\*Initial

11) No Insurance: I understand that NONE OF THE RELEASED PARTIES CARRIES ANY INSURANCE OF ANY KIND TO COVER ANY LOSS I MAY SUSTAIN. This means that they carry no medical insurance, no property insurance, no wage loss insurance, of any other insurance to cover any loss I may sustain, nor do any of the Released Parties employ a doctor to give medical advice to determine whether or not a past or current injury or condition should prohibit or affect my participation in Tandem Parachute Jumping and related activities. I UNDERSTAND AND

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AGREE THAT I MUST SEEK INDEPENDENT MEDICAL ADVICE REGARDING ANY QUESTIONS REGARDING MY PHYSICAL AND MENTAL ABILITY TO PARTICIPATE IN TANDEM PARACHUTE JUMPING AND RELATED ACTIVITIES." I further agree for myself and for my heirs, assigns, representatives, successors and administrators that **NEITHER I NOR ANY OF MY HEIRS, ASSIGNS, REPRESENTATIVES, SUCCESSORS OR ADMINISTRATORS WILL SEEK REIMBURSEMENT OR INDEMNIFICATION FROM ANY RELEASED PARTY OR RELEASED PARTIES, OR ANY OF THEM, FOR ANY INSURANCE PAYMENTS OF ANY KIND, OR FOR REIMBURSEMENT FOR ANY EXPENSES, INCLUDING BUT NOT LIMITED TO MEDICAL EXPENSES AND FUNERAL AND BURIAL EXPENSES, WHICH MAY BE INCURRED BY ME IN CONNECTION WITH MY TANDEM PARACHUTING AND RELATED ACTIVITIES.**

\*Initial

12) Release and Waiver Interpretation: I understand and agree that this Agreement Applies to all phases of my involvement in Tandem Parachute Jumping and related activities, and I **AGREE THAT THIS DOCUMENT SHALL BE BROADLY CONSTRUED IN FAVOR OF ANY AND ALL OF THE RELEASED PARTIES AND AGAINST ME** and that any and all ambiguities shall be resolved in favor of any and all of the Released Parties referred to in this agreement. I am, by reading this paragraph, being made aware that **THE GENERAL RULE IS THAT THIS TYPE OF DOCUMENT IS TO BE NARROWLY CONSTRUED AND AMBIGUITIES ARE TO BE DECIDED AGAINST THE PERSON OR ENTITY PREPARING THE DOCUMENT. I EXPRESSLY WAIVE THAT RULE.**

\*Initial

13) Continuation of Obligations: I agree and acknowledge that the terms and conditions of this Agreement shall continue in force and effect now and in the future at all times during which I participate in the activities covered by this Agreement, and shall be binding upon my heirs, executors, administrators, personal representatives, and/or anyone else claiming on my behalf. This Agreement supersedes and replaces any prior such agreement I have signed.

\*Initial

14) Severability/Multiple Waivers: I agree that should one or more provisions in this Agreement be judicially determined to be unenforceable, the remaining provisions shall continue to be binding and enforceable against me. If I have executed any other agreement containing provisions relating to the exemption and/or release from liability and/or covenant not to sue in connection with the activities covered by this Agreement, I agree that the agreement which provides the most protection from liability and/or suit to "The Corporations" shall be enforceable against me by "The Corporations," and any or all of them.

\*Initial

15) Release and Waiver Interpretation: I understand and agree that this Agreement Applies to all phases of my involvement in Tandem Parachute Jumping and related activities, and I agree that **THIS DOCUMENT SHALL BE BROADLY CONSTRUED IN FAVOR OF ANY AND ALL OF THE RELEASED PARTIES AND AGAINST**

**ME** and that any and all ambiguities shall be resolved in favor of any and all of the Released Parties referred to in this agreement. I am, by reading this paragraph, being made aware that the general rule is that this type of document is to be narrowly construed and ambiguities are to be decided against the person or entity preparing the document. I **EXPRESSLY WAIVE THAT RULE.**

\*Initial

16) Waiver of Jury Trial/Applicable Law/Venue/Headings: I agree that the law of the State of Florida shall apply to issues involving the construction, interpretation, and validity of this Agreement and that Florida law shall govern any dispute between the parties arising from the activities covered by this Agreement. In the event this Agreement is violated and suit is brought against any of the Released Parties, I waive my right to a jury trial, and agree that Pasco County, Florida shall be the sole venue for any suit or action arising from the activities covered by this Agreement. I agree that the headings and sub-headings used throughout this Agreement are for convenience only and have no significance in the interpretation of the body of this Agreement.

\*Initial

17) No Modification of Agreement: This Agreement shall not be amended, modified, or altered without the express, written, consent of all of the parties hereto.

\*Initial

I freely and voluntarily agree to all of the above covenants by signing this Agreement

on the \_\_\_\_\_ day of \_\_\_\_\_  
(day) (month and year)

at \_\_\_\_\_  
(location)

**Signature of Tandem Student:**

\_\_\_\_\_

**Signature of Witness:**

\_\_\_\_\_