Student Guide

AFF Integrated Student Program

Skydive City/Z-Hills

50TH REUNION

Z-Hills

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Thanks to everyone who contributed, all the Skydive City Instructional staff and others who made this latest version.

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NOTE: This manual is not intended in any way to teach anyone how to skydive. It is merely supplemental material to assist with a properly conducted Accelerated Freefall Ground School and Jump Course at Skydive City, Zephyrhills, FL

Introduction

Learning to Skydive

Welcome to the world of skydiving, and thanks for coming to Skydive City/Z-Hills. We are one of the world's premier skydiving centers, and regularly host skydivers from around the world, as well as help thousands of first timers through their first jump

This is an advanced training program designed to teach you to become a skydiver, and it not intended to be a "I just want to do this once" method of jumping.

Things you need to know:

There are limitations to your ability to make a skydive in this program. You must be in good physical condition, less than 240lbs (108kg), and if you are over the age of 60, we would like to chat with you first about your aspirations and goals. This is not for anyone or everyone.

And if you are only planning to do a single jump, we highly recommend a tandem skydive. Accelerated Freefall is a training program and a training environment.

You are ultimately responsible for your safety on this skydive – everything in the world can go wrong and you may find yourself alone in freefall, and you will be alone under the parachute. This means you will have to deal with every situation imposed upon you

We cannot jump in all weather and may choose to sit you down at any time due to winds, clouds, or turbulence, etc. The maximum wind speed for you as a student is 14MPH.

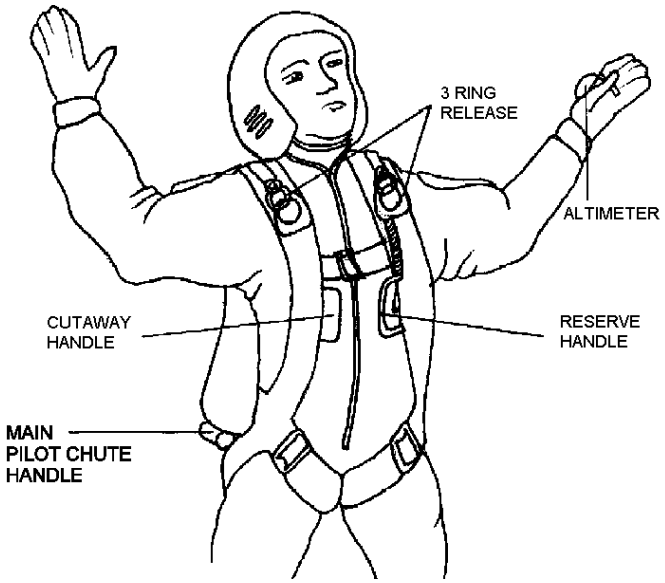
Mostly, we are concerned with your safety and at the same time trying to make this a fun and exciting accomplishment for you. Which it is!

Equipment

Also refer to the USPA Skydiver Information Manual,

Section 5-3 "Equipment"

The Student "Wings" Container System



Main Pilot Chute Handle – Used to deploy the pilot chute to open the main parachute

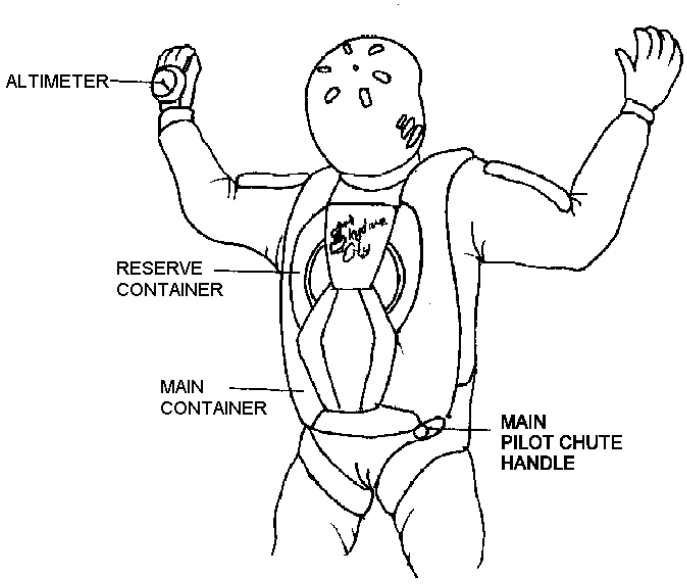
3-Ring Release – Attaches (and detaches) the main parachute to the container.

Cutaway Handle – When pulled, this will detach the main parachute from the container at the 3-Rings

Reserve Handle – will deploy the reserve parachute

Main Container – the lower half of the rig, where the main parachute is packed

Reserve Container – the upper half of the rig where the reserve parachute is packed



Other Equipment and Accessories:

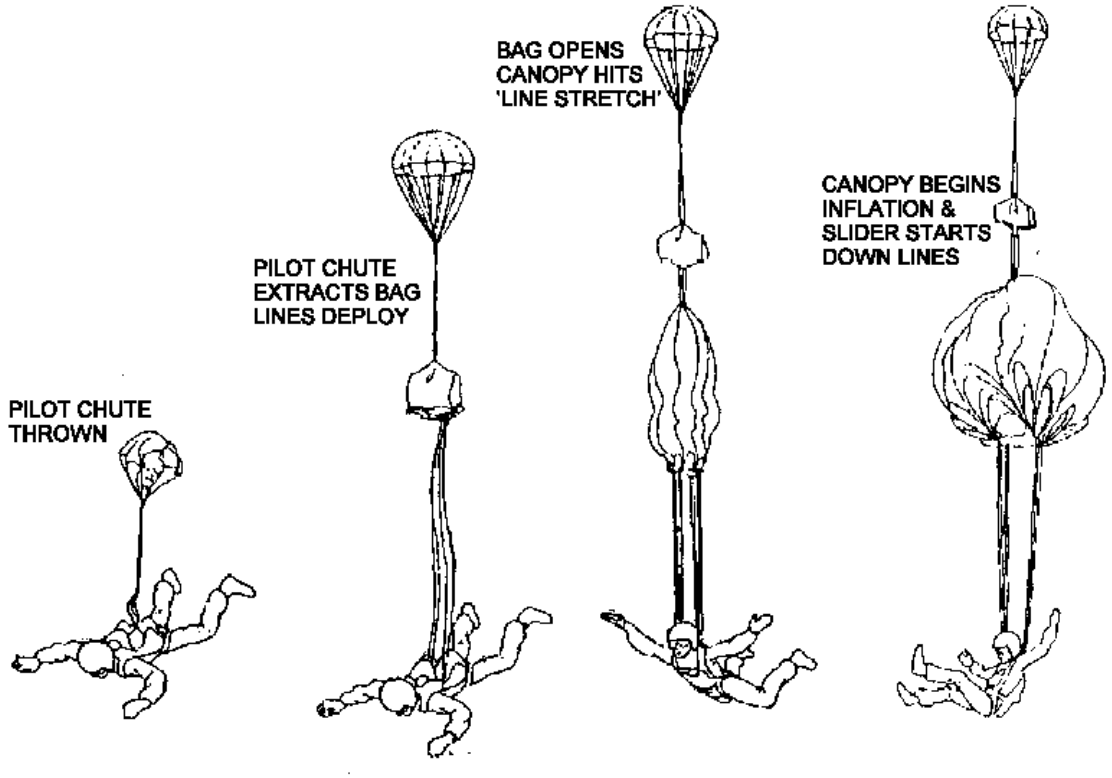
AAD – Automatic Activation Device – A computer based device that will deploy the reserve parachute if you are still in freefall at a very low altitude. Manufacturers include Airtec GmbH (the Cypres), and Vigil. All do about the same thing, by deploying your reserve parachute if you were still in freefall at about 750' (230m). Your normal opening altitude is about 4500', so this is only used as a backup emergency device.

Altimeter – usually mounted on your wrist, it tells you how high above the ground you are.

Helmet – All students must wear some sort of a hard helmet.

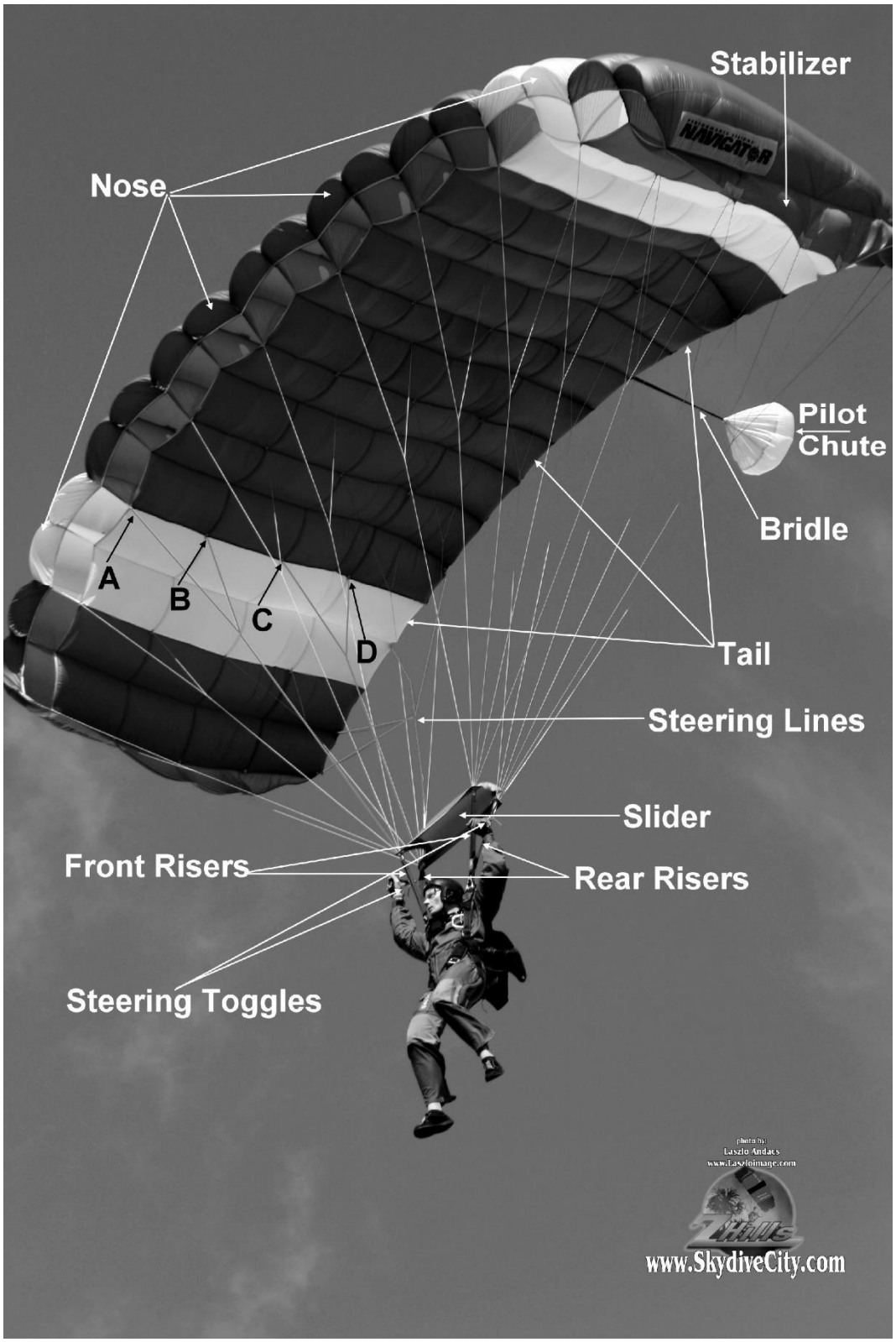
Jumpsuit – Jumpsuits are used to help control the freefall speed, as well as help to keep your clothes clean.

The Opening/Deployment Sequence



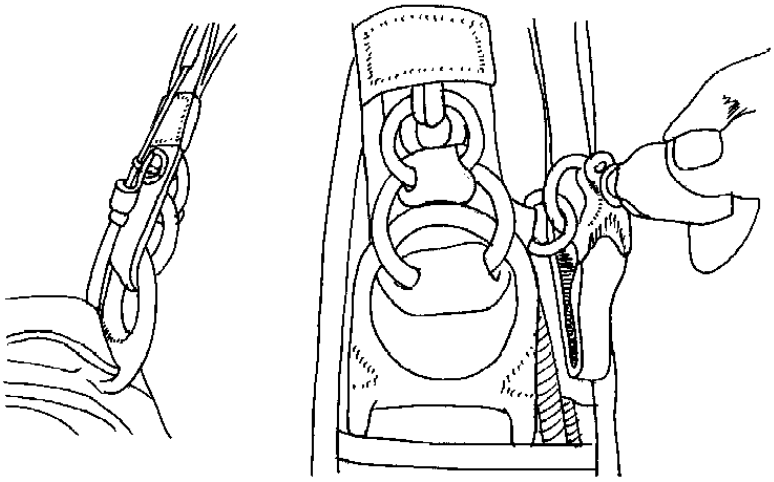
The Pilot chute is deployed, which then pulls the pin holding the main container closed. Once the pin is pulled, the pilot then continues to pull the 'deployment bag' with main parachute in it, out of the container. The lines unstow from rubber bands on the outside of this bag, and last, the main parachute comes out of the bag and begins to inflate. All this takes 3-5 seconds.

Main Parachute Components



The reserve parachute has similar components and flies the same way.

3-Ring Release



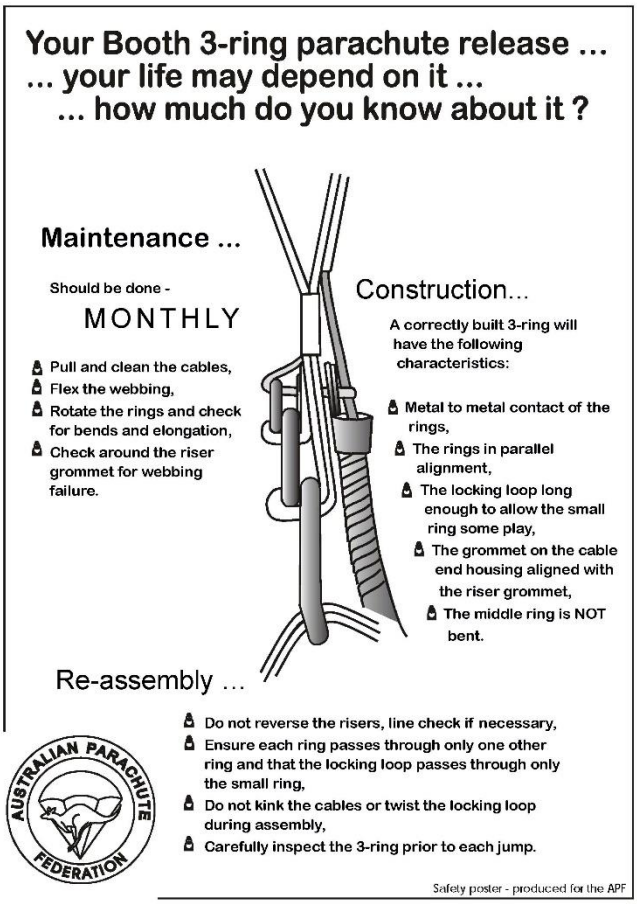
The 3-Ring was invented by Bill Booth in the late 1970's and is still in use today on almost every rig manufactured in the world.

It allows the main parachute to be disconnected (in case of a malfunction) easily by pulling one handle.

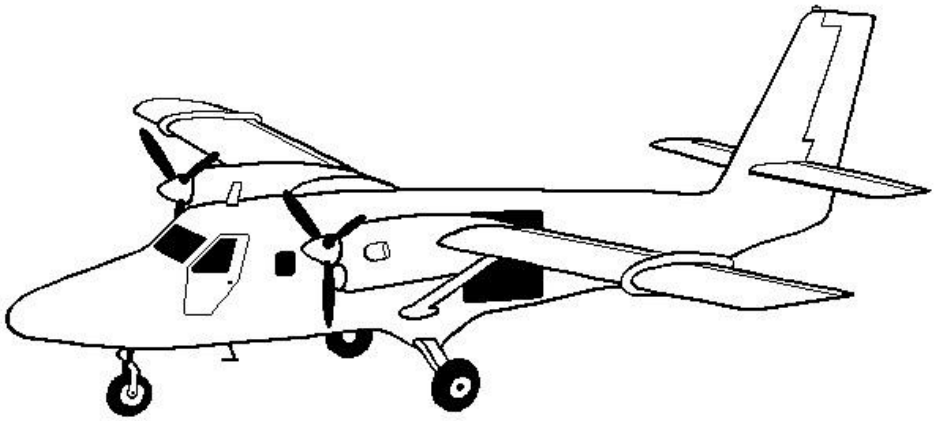
It requires some regular maintenance, and needs to be thoroughly inspected on EVERY skydive to ensure that it is assembled correctly and is not showing any signs of wear or damage.

Every student will learn how to assemble and disassemble a 3-Ring system before obtaining your license.

It is generally part of your parachute packing lessons.



Aircraft



The DeHavilland DHC-6 Twin Otter is a very common skydiving aircraft around the world. It has a large door, reliable turbine engines, and can carry up to 23 jumpers and a pilot to 13500' in about 15 minutes.

This is the most common aircraft used at Skydive City, but is not the only aircraft that you might jump out of.

Aircraft are flown under the Federal Aviation Regulations. Part 91 and Part 105 of the FARs deal with aircraft & skydiving operations respectively. Any violations of the Regulations by you could result in the pilot getting penalized. We pay attention to these FARs because they are the law – not just 'skydiving rules'

Aircraft emergencies are important to know about and plan for ahead of time. Generally we rank emergencies in the airplane by altitude:

- Below 1000' – there is generally not enough time or altitude to exit the airplane. Seatbelt should be fastened for takeoff and let on until you are at an altitude in which you could leave the plane if you had to (FARs)
- 1000' up to 2500' – "Bail-Out" altitude. In an emergency at this height, you would exit and deploy your reserve parachute immediately. You might not have the time for the main parachute and your AAD may fire in this case, depending on the actual altitude you leave the plane.
- Above 2500' – Situations differ depending on the altitude, but generally these are not radical emergencies. Since you have altitude, you can exit, deploy your main parachute, or depending on the altitude and aircraft problem, you may even complete the planned skydive.

Aircraft emergencies are real and you spend far more time in an airplane than during any other part of your skydive. Plan for them on every jump.

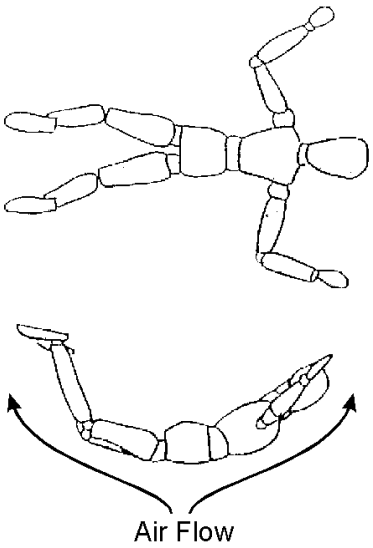
Freefall & Body Position

The ‘Arch” Body Position

From the very first moment of the exit until the end of your freefall it is your responsibility to ARCH. This basic, stable, body position is known as the ‘Arch’ and sometimes the ‘Box’ Position.

We freefall at 120MPH +/- and freefall speeds depend on many factors. Generally that means every 1000’ (300m) takes 5 seconds of freefall time, but you also have to first accelerate to ‘terminal velocity’, so the first 1000’ (300m) will take about 10 seconds to reach that 120MPH.

A good arch will always eventually result in a good, stable, face to earth body position and will help you recover from any unusual attitudes or instability.



Much like a badminton bird or a lawn dart will always fall heavy-side down, the ARCH puts your ‘center of gravity’ forward and will cause you to fall face-to-earth.

Skydivers will always fall in this position when learning to skydive, because the parachute is on your back and requires a good ‘platform’ to launch from.

Of course, you can fall in any body position (almost), but ALL SKYDIVERS will transition to a face-to-earth position when it is time to open their parachutes.

The Category A Dive Flow

Also refer to the USPA Skydiver Information Manual,

Section 4 "Category A" for a complete review of Ground School

1) ACTUAL EXIT

a) During the plane ride, we will perform gear checks, review of the skydive, and prior to jumping, we will ask you ***"Are you ready to Skydive?"***

b) The student is in control of the 'Exit' by moving to the door and getting into position with the instructors. The HOTEL CHECK is used to make sure that both your instructors are ready to make the exit with you.

2) HOTEL CHECK

a) ***"CHECK IN"*** Check with the instructor on your right side, DO NOT LOOK AWAY until you have received an O.K.

b) ***"CHECK OUT"*** Check with the instructor on your left side, DO NOT LOOK AWAY until you have received an O.K.

c) Shout out – ***"READY!"*** *(Head high, Rock/Lean out)* ***"SET!"*** *(Rock/Lean in)* ***"GO!"*** *(Step off the airplane and ARCH!)*

3) EXIT!

a) For the first few seconds after exit, the student should try to watch the aircraft. This helps the student maintain a good body position during the initial transition from a vertical attitude to a horizontal one.

4) CIRCLE OF AWARENESS (COA)

a) Look at your heading on the horizon out at a 45 degree angle (orientation and heading awareness)

b) Read your altimeter (Altitude Awareness)

c) Look at the left side Instructor. Under your arm they will give any appropriate corrections for body position improvement followed by an O.K. (thumbs up) when you have responded. Do not look away from the instructor until the O.K. signal has been given to you.

d) Look at the right side instructor and do the same as (c) above

5) PRACTICE PULLS

a) The student performs 3 practice throws of the pilot chute using the sequence ARCH, REACH, LOCATE, THROW, then RECOVER back to relaxed arch.

b) Maintaining your arch, reach your right hand to the pilot chute handle while bringing your left hand, palm down, above your head.

c) Recover back to a neutral body position.

6) **2ND CIRCLE OF AWARENESS** ***(Same as 1st one)***

a) Horizon, Altitude, Left Side (thumbs up), Right Side (thumbs up)

7) HEADING AND ALTITUDE AWARENESS

a) Look at your heading and your altimeter every 5-6 seconds, then glancing to the left and right Instructors until you have reached 6000' (1800m).

8) PREPARING TO PULL

a) Lock on to your altimeter at 6000 feet watching it move until it reaches 5500' (1650m) (approx. 5 seconds).

b) At 5500' wave with both arms crossing over your head smoothly, followed by the pull. 5000' (1500m) is your typical pull altitude.

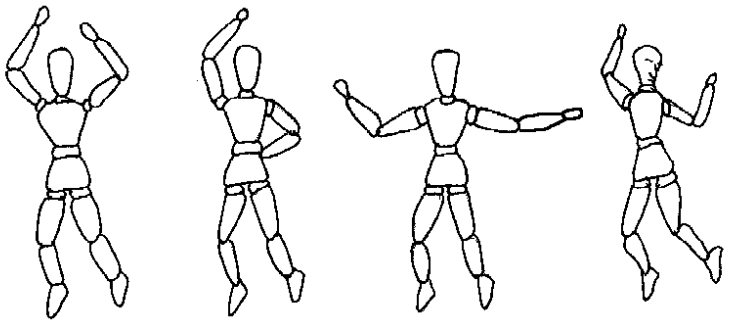
9) **PULL SEQUENCE** *(Wave-Wave-Arch-Reach-Pull-Arch)*

a) The student initiates the pull with a wave maintaining a good arch.

b) The student then reaches to the right side bottom of the container grasping the pilot chute handle while simultaneously bringing his left hand above his head, palm down.

c) The student then pulls the pilot chute, rolling the hand backwards, and throwing it to the right at full arms extension while bringing his left hand back to a neutral position.

d) Start a count – "1000-2000-3000-CHECK Thousand" and check for main parachute deployment.



10) PULL PRIORITIES (for every skydive you will ever do)

a) Pull

b) Pull at the proper altitude

c) Pull Stable (at proper altitude)

11) EXIT PROBLEMS

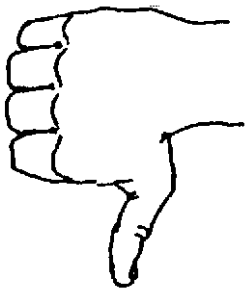
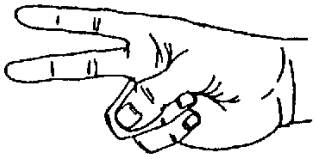
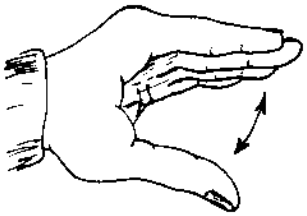
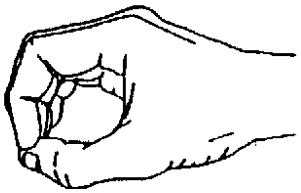
a) Tumbling on exit or during the skydive during ARCH!!!!

b) Loss of one instructor during the skydive? Continue.

c) Loss of both instructors during the skydive? PULL NOW!

d) Unstable during pull time – PULL ANYWAY!

12) AFF HAND SIGNALS

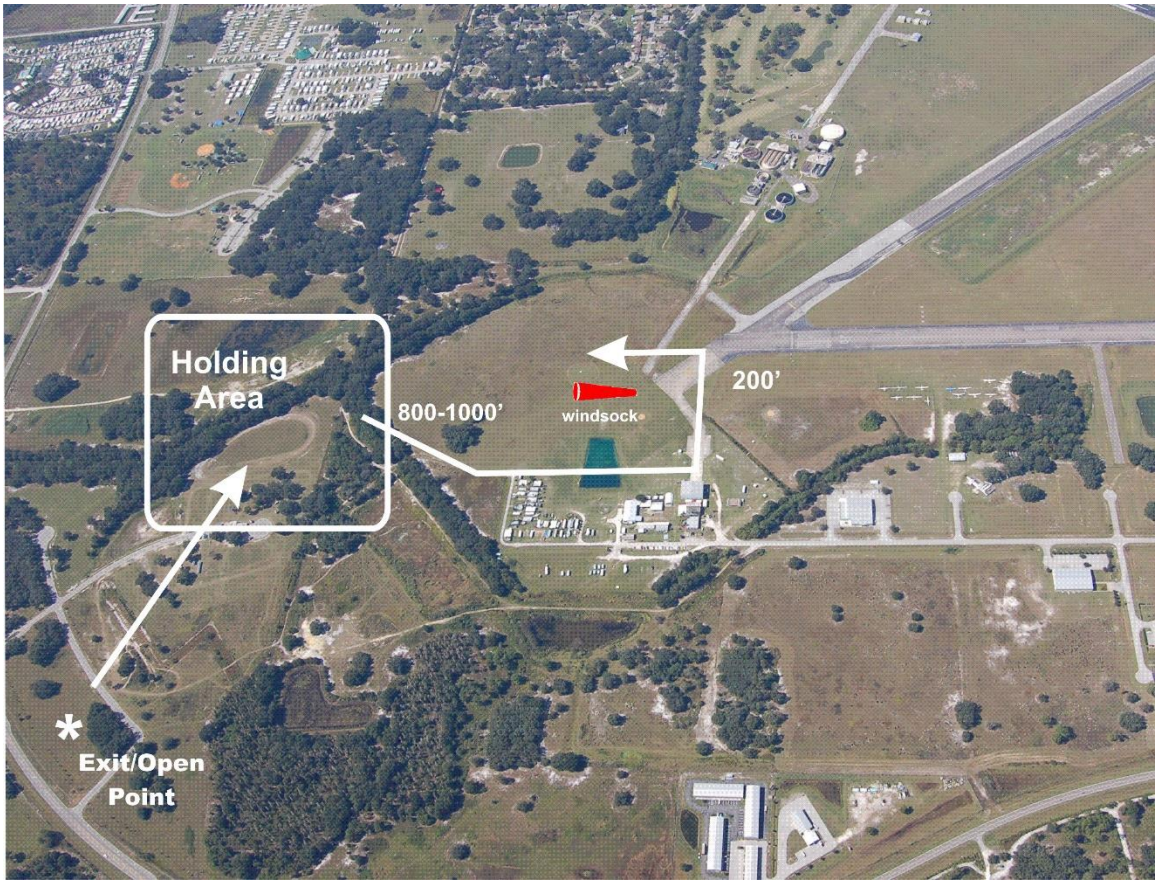
 Pelvis Down (Arch)	 Extend Legs Out (more than they are now)	 Bend Legs at Knee (More than they are now)
 *(Bring knees closer)* Toe Taps	 **PULL IMMEDIATELY!**	 Circle of Awareness (or Check Altitude)
 Shake at Harness means WAKE-UP, Check Altitude, take appropriate action	 *(Open and closing fist)* Practice Pulls	OR Light shake at the wrist, means RELAX…… Sometimes we do the same signal by lightly waving our hand in front of your face

Much communication takes place just with eye contact with your instructor!
When in doubt – Check in with your Instructor. They are there to help.

Canopy Control

Check your parachute

- Criteria for a good parachute:
  - Square?
  - Stable?
  - Steerable?
- Release Steering Toggles/Brakes and Flare
- Look left, turn left. Look right, turn right.
- Flare again
- Locate the Dropzone/Landing Area and your Holding Area and immediately go there (look around, it may not be in front of you)



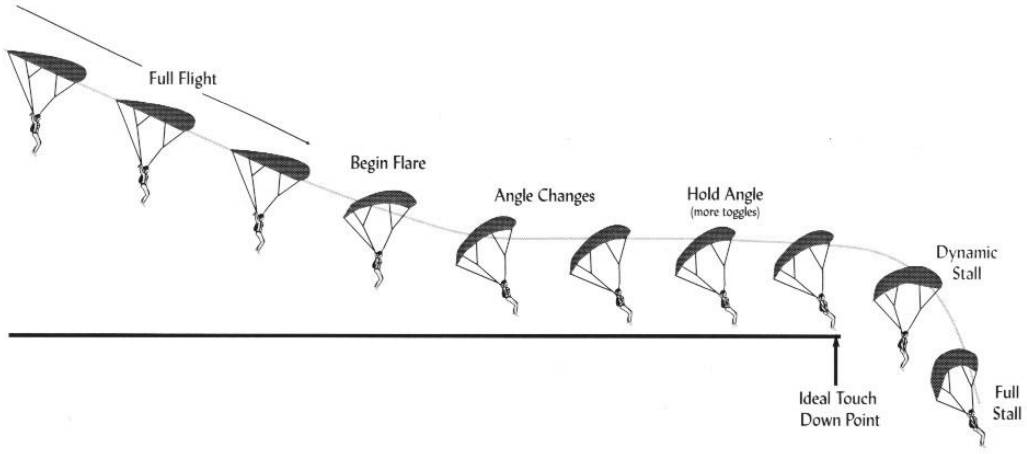
Typical Canopy Control Pattern

Landing & Flare

Also refer to the USPA Skydiver Information Manual,
Section 4 "Category A and C" for a review of Landing and the 'Flare'

Typical 'Final Approach' under canopy

- HANDS UP – more airspeed means more lift when you actually flare
- STEER all the way to avoid obstacles and stay facing into the wind
- EYES FRONT – Looking ahead, not down, helps you judge your height above the ground
- FEET & KNEES bent and together – Prepare for Parachute Landing Fall
- FLARE, FLARE, FLARE – at about twice your body height, Pull toggles down smoothly to shoulders, then chest/waist, then all the way down



The objective is to create level flight with the first part of the flare, and then hold that level flight by continuing to apply the brakes as the parachute slows down.

Landing in high winds? You may have to collapse the parachute to prevent being dragged. Pull ONE toggle only, all the way down until parachute collapses

What makes a good “Practice Flare”?

While in the holding area, you can practice the real landing:

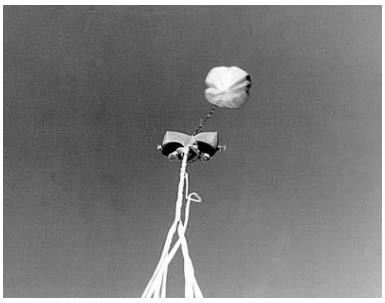
- Hands UP, Eyes FRONT, Feet and Knees together
- FLARE, FLARE, FLARE – pull toggles down smoothly to shoulders, then chest/waist, then all the way down.
- You should feel the “Elevator feeling” in your stomach and the airspeed should reduce and it will get quieter as the parachute slows down.
- Hold the toggles down until the parachute slows completely or stalls.

Malfunctions

Also refer to the USPA Skydiver Information Manual,

Section 5-1 "Skydiving Emergencies" for a complete review of all emergency procedures

Total or High Speed: Pack closure, Pilot Chute in Tow, Bag-Lock or Streamer - This type of malfunction is high speed and altitude is lost very quickly.



A. Maintain a good arch, look and locate cutaway handle, place both hands on your cutaway handle and then look at your reserve handle.
B. Peel and pull the cutaway handle out and down to full arms extension.
C. Strip Cutaway cable.
D. Locate reserve handle, place both hands on reserve.
E. Pull the reserve handle to full arms extension.
F. Strip remaining reserve cable.
G. Then arching, check for deployment.
H. Immediately plan your canopy flight back to the landing area. Reserve deployments usually mean that you opened lower than planned, i.e. less time under the parachute to make it home.

PARTIAL: Main pilot chute has been deployed and you have anything less than a good, controllable and landable parachute to land under. This type of malfunction can be low speed or high speed. Either way, altitude is still lost at a less than desirable rate.

A. Look and locate and grab both cutaway and reserve handles.
B. Peel and pull the cutaway handle out and down to full arms extension.
C. Pull the reserve ripcord to full arms extension. Then arching, check for deployment.
D. Immediately plan your canopy flight back to the landing area. Reserve deployments usually mean that you opened lower than planned, i.e. less time under the parachute to make it home.

DECISION ALTITUDE IS 2500' (800m)

What this means is that you should make a decision to keep or cutaway your main parachute by 2500' (800m). If you are not sure, then you may be better to cutaway than find out later on that you actually have some sort of malfunction.

However, cutting away too low can KILL YOU! Your reserve parachute may not have time to deploy fully prior to impact.

THE STUDENT IN A TRAINING ENVIRONMENT SHOULD PRACTICE ALL MALFUNCTION PROCEDURES UNTIL THEY ARE PERFORMED IN A SMOOTH, EXACT AND TIMELY MANNER. PRACTICE REGULARLY!!

Category A

Preparation

Accelerated Freefall Ground School completion. Also See USPA SIM Section 4, Category A topics.

Category A Dive Flow

- Hotel Check
- Ready Set Go
- Circle of Awareness
- 3 x Practice Pulls
- Circle of Awareness
- 6000' Lock On
- Begin Wave 5500'
- Pull by 4500'

Category A Canopy Dive Flow

- Visually Check Canopy and Release Brakes
- Flare
- Look Left, Turn Left
- Look Right, Turn Right
- Check for Traffic and Locate Drop Zone
- Fly to Holding Area and Remain There Until 1000'
- Follow Pre-assigned Pattern Over landing Area
- Flare to Land (PLF if necessary)

Review

USPA SIM Manual, Section 4, Category A Quiz

Category B

Preparation

USPA SIM Manual, Section 4, Category B

Category B Dive Flow

- Hotel Check
- Ready Set Go
- Circle of Awareness
- 2 x Practice Pulls
- Altitude Check
- Look Left, Turn Left (90 degrees)
- Altitude Check
- Look Right, Turn Right (90 degrees)
- 6000' Lock On
- Begin Wave 5500'
- Pull by 4500'

Category B Canopy Dive Flow

- Visually Check Canopy and Release Brakes
- Flare
- Look Left, Turn left
- Look Right, Turn Right
- Check for Traffic and Locate Drop Zone
- Locate Runway and Determine Compass Heading
- Divide Flight Path by 1000's of Feet
- Fly to Holding Area and Remain There Until 1000'
- Look for Obstacles Around Landing Area
- Follow Pre-assigned Pattern Over Landing Area
- Flare to Land (PLF if necessary)

Review

USPA SIM Manual, Section 4, Category B Quiz

Category C1

Preparation

USPA SIM Manual, Section 4, Category C

Category C1 Dive Flow

- Hotel Check
- Ready Set Go
- Circle of Awareness
- 1 x Practice Pull
- Forward Movement for 5 Seconds
- Instructors Release Grips
- Maintain Heading and Hover Control
- 6000' Lock On
- Begin Wave 5000'
- Pull by 4000'

Category C1 Canopy Dive Flow

- Visually Check Canopy and Release Brakes
- Flare
- Look Left, Turn Left
- Look Right, Turn Right
- Check for Traffic and Locate Drop Zone
- Divide Flight Path by 1000's of Feet
- Identify Areas of Turbulence
- Fly to Holding Area and Remain There Until 1000'
- Follow Planned Pattern Over Landing Area
- Flare to Land (PLF if necessary)

Review

USPA SIM Manual, Section 4, Category C Quiz

Category C2

Preparation

USPA SIM Manual, Section 4, Category C

Category C2 Dive Flow (one instructor)

- Hotel Check
- Ready Set Go
- Circle of Awareness
- 1 x Practice Pull
- Instructor Releases Grips
- Maintain Heading and Hover Control
- 6000' Lock On
- Begin Wave 5000'
- Pull by 4000'

Category C2 Canopy Dive Flow

- Visually Check Canopy and Release Brakes
- Flare
- Look Left, Turn Left
- Look Right, Turn Right
- Check for Traffic and locate Drop Zone
- Divide Flight Path by 1000's of Feet
- Identify Areas of Turbulence
- Fly to Holding Area and Remain There Until 1000'
- Follow Planned Pattern Over Landing Area
- Flare to Land (PLF if necessary)

Review

USPA SIM Manual, Section 4, Category C Quiz

Category D1

Preparation

USPA SIM Manual, Section 4, Category D

Category D1 Dive Flow (solo exit)

- Hotel Check
- Ready Set Go
- Circle of Awareness
- Altitude Check
- Left 90
- Altitude Check
- Right 90
- Altitude check
- Continue as Altitude Permits
- 6000' Lock On
- Begin Wave 5000'
- Pull by 4000'

Category D1 Dive Flow

- Visually Check Canopy
- Look Left, Turn Left using Rear Risers (brakes set), Repeat to Right
- Flare (with brakes still set)
- Release Brakes
- Locate Drop Zone and Fly to Holding area
- Perform Rear Riser Flares if Above 2000'
- Perform 360 degree Turns using Rear Risers
- Follow Planned Pattern Over Landing Area

Review

USPA SIM Manual, Section 4, Category D Quiz

Category D2

Preparation

USPA SIM Manual, Section 4, Category D

Category D2 Dive Flow (solo exit)

- Hotel Check
- Ready Set Go
- Circle of Awareness
- Altitude Check
- Left 360
- Altitude Check
- Right 360
- Altitude check
- Continue as Altitude Permits
- 6000' Lock On
- Begin Wave 5000'
- Pull by 4000'

Category D2 Dive Flow

- Visually Check Canopy
- Look Left, Turn Left using Rear Risers (brakes set), Repeat to Right
- Flare (with brakes still set)
- Release Brakes
- Locate Drop Zone and Fly to Holding area
- Perform Rear Riser Flares if Above 2000'
- Perform 360 degree Turns using Rear Risers
- Follow Planned Pattern Over Landing Area

Review

USPA SIM Manual, Section 4, Category D Quiz

Category E1

Preparation

USPA SIM Manual, Section 4, Category E

Category E1 Dive Flow (dive exit)

- Ready Set Go
- Altitude Check
- Barrel Roll
- Altitude Check
- Front Loop
- Altitude Check
- Continue With Maneuvers Until 6000'
- Begin Wave 5000'
- Pull by 4000'

Category E1 Canopy Dive Flow

- Visually Check Canopy
- Perform Canopy Control Check
- Locate Drop Zone and Fly to Holding Area
- Perform Practice Landing Flares, Shoulder, Chest, Hip Positions
- Determine Which Position Gives the Strongest Sustainable Lift ("sweet spot")
- Follow Planned Pattern Over Landing Area
- Flare to Land Using Best Flare Position at Head Height Above Ground

Review

USPA SIM Manual, Section 4, Category E Quiz

Category E2

Preparation

USPA SIM Manual, Section 4, Category E

Category E2 Dive Flow (optional dive)

- Hotel Check
- Ready Set Go
- Altitude Check
- Backloop
- Altitude Check
- Frontloop
- Altitude Check
- Continue With Maneuvers Until 6000'
- Begin Wave 5000'
- Pull by 4000'

Category E2 Canopy Dive Flow

- Same Canopy Dive Flow As Category E1 Dive

Review

USPA SIM Manual, Section 4, Category E Quiz

Category E3

Preparation

USPA SIM Manual, Section 4, Category E

Category E2 – First Solo Skydive

- Weather assessment, winds and clouds
- Plan intended opening point, holding area, pattern and landing
- Have gear available and ready
- Jumpsuit, Goggles, helmet, rig
- Manifest with enough time to be ready
- Gear Check and gear up
- Be at Boarding Area on time
- Plan exit order and know the groups before and after you
- Seatbelts on to 1000’ min.
- Mentally rehearse skydive
- 10,000’ (3300m), pre-jump checklist, handles, gear check, all equipment
- 12500’ (4000m) helmet, goggles, handles check
- Door and watch groups exit ahead of you
- Pay attention to length of jump run – are you getting too long?
- Still have green light? Check spot and exit
- Have fun, and don’t forget to pull on time

Category E3 Canopy Dive Flow

- Canopy Check immediately after opening
- Locate dropzone, other canopies, holding area and begin to head there
- Heads-up for traffic
- Watch altitude in holding area
- Stick to planed altitudes if possible.
- Enter pattern at appropriate point, head on a swivel, and adjust for other traffic
- Final approach, decide if obstacles are an issue or not, adjust if necessary

- Spend the last 15 seconds of your final approach focused on nothing but the flare
- Hands up, Eyes Front, Feet positioned, Flare, and Finish the Flare
- Gather up your gear and come on back in….
- Congratulations – You Rock!

Review

USPA SIM Manual, Section 4, Category E Quiz

Revisions

- 5/31/2009 – First write of new manual to align with USPA ISP Program.
- 11/2011 – Several minor updates to align with ISP changes, clarification of items, all minor changes.
- April 2017 – tweaks and additions to better align with the FJC Test and the USPA SIM