Skydiver's Information Manual

Section 2-1—Basic Safety Requirements

Note: Each paragraph in the BSRs has a marginal notation of S, E, FB, or NW, which identifies its waiverability as indicated in Section 2-2.

H. Drop zone requirements

1. Areas used for skydiving should be unobstructed, with the following minimum radial distances to the nearest hazard: [S]
    a. solo students and A-license holders—100 meters
    b. B- and C-license holders and all tandem skydives—50 meters
    c. D-license holders—12 meters

    2. Hazards are defined as telephone and power lines, towers, buildings, open bodies of water, highways, automobiles, and clusters of trees covering more than 3,000 square meters. [NW]
    3. Manned ground-to-air communications (e.g., radios, panels, smoke, lights) are to be present on the drop zone during skydiving operations. [NW]

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K. Parachute equipment

1. FAA regulations [FAR 105.19] require that when performing night jumps, each skydiver must display a light that is visible for at least three statute miles from the time the jumper is under an open parachute until landing. [NW]
2. All students are to be equipped with the following equipment until they have obtained a USPA A license:
    a. a rigid helmet (except tandem students) [NW]
    b. a piggyback harness and container system that includes a single-point riser release and a reserve static line, except: [FB]
        (1) A student who has been cleared for freefall self-supervision may jump without a reserve static line upon endorsement from his or her supervising instructor.
        (2) Such endorsement may be for one jump or a series of jumps.
    c. a visually accessible altimeter (except tandem students) [NW]
    d. a functional automatic activation device that meets the manufacturer's recommended service schedule [FB]
    e. a ram-air main canopy suitable for student use [FB]
    f. a steerable reserve canopy appropriate to the student's weight [FB]
    g. for freefall, a ripcord-activated, spring-loaded, pilot-chute-equipped main parachute or a bottom-of-container (BOC) throw-out pilot chute [FB]
3. Students must receive additional ground instruction in emergency procedures and deployment-specific information before jumping any unfamiliar system. [NW]
4. For each harness-hold jump, each AFF rating holder supervising the jump must be equipped with a visually accessible altimeter. [NW]
5. All skydivers wearing a round main or reserve canopy and all solo students must wear flotation gear when the intended exit, opening, or landing point is within one mile of an open body of water (an open body of water is defined as one in which a skydiver could drown). [S]

Section 2-2—

Section Three

Classification of Skydivers

Section 3-1—USPA Licenses

E. License privileges and requirements

B License

2. Persons holding a USPA B license are able to exercise all privileges of an A-license holder, perform night jumps, with 100 jumps are eligible for the USPA Coach Rating, and must have—
    a. obtained a USPA A license
    b. completed 50 jumps including:
        (1) accumulated at least 30 minutes of controlled freefall time
        (2) landed within ten meters of target center
        on ten jumps
    c. aerial performance requirements, either:
        (1) demonstrated the ability to perform individual maneuvers (left 360, right 360, backloop, left 360, right 360, backloop) in freefall in 18 seconds or less
        (2) or successful completion of the planned formation(s) on ten group freefall jumps
    d. documentation of live water landing training with full equipment in accordance with the procedures in the Skydiver's Information Manual
    e. complete all of the requirements listed on the USPA Canopy Piloting Proficiency Card (effective January 1, 2012)
    ef. passed the written USPA B license exam conducted by a current USPA I, I/E, S&TA, or USPA Board member.

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D License

4. Persons holding a USPA D license are able to exercise all privileges of a C-license holder, are eligible for all USPA ratings, and must have—
    a. met all current requirements for or hold a USPA C license
    b. completed 500 jumps including accumulating at least three hours of controlled freefall time
    c. made two night jumps (recommended that the first one be a solo and one in a group) with a freefall of at least 20 seconds
        (1) with verification of prior night-jump training from a USPA Instructor holding a USPA D license
        (2) with the advice of an S&TA, in accordance with USPA BSRs
    d. Passed the written USPA D license exam conducted by a current USPA I/E, S&TA, or board member.

Section Four

USPA Integrated Student Program

Section Summary:

Regardless of discipline, the USPA Integrated Student Program advances students through eight categories of proficiency (A-H) to qualify them for their USPA A license.

Each student completes a series of required skills and knowledge sets while making the prescribed training jumps in each category. At the end of each category, a student in any training discipline has achieved similar skills and knowledge. The number of jumps to complete each category depends on the training discipline and the student's performance.

When a student completes the requirements for each category, the USPA Instructor records it on the student's USPA A-License Proficiency Card and Application and administers an oral quiz. Especially in Categories A-D, the student should complete all the objectives of one category before making any jumps in the next.

An appropriately rated USPA Instructor must directly supervise each student jump until the student is cleared to self supervise during Category E. A USPA Coach may conduct freefall training and supervise jumps for those students in Categories E through H. A USPA Coach may also supervise static-line and IAD students following a successful clear-and-pull in Category C. Until the USPA A license, all student training remains the responsibility of the USPA Instructor.

Once meeting all the requirements listed on the USPA A-License Application, the student will make a check jump with a USPA Instructor to be issued the USPA A license. The check jump consists of an overall review of the training and includes a final quiz with questions taken from the quizzes at the end of each category.

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The USPA Integrated Student Program provides one effective and detailed progression for training students for their A license. It is not a required program or the only good training outline. However, students should ensure that the training program at their school meets the USPA standards outlined in the Basic Safety Requirements.

Section 4—

Category A: First-Jump Course outline

I. Solo: General Section

Note: The needs of the operation will determine the order of presentation of the topics taught in the first-jump course. This section may be taught by a USPA Coach under the supervision of any USPA Instructor.

D. Canopy Piloting Skills

1. Basic canopy aerodynamics
   a. A ram-air canopy is an inflatable wing that performs like the wing of an airplane.

(1) Once it is open and inflated, the canopy will start gliding forward and down through the air.
(2) The forward movement creates a flow of relative wind around the canopy.

b. The airflow around the canopy creates lift.

2. Steering the canopy
   a. With both toggles all the way up, the canopy should glide straight ahead at full speed.
   b. The canopy turns right when you pull the right toggle (steering control line handle) down and turns left when you pull the left toggle down.
   c. To prevent a collision with another jumper, always look first in the direction of the intended turn.
   d. The canopy will turn as long as one toggle is held down and stops turning when it is let up.
   e. Pulling one toggle down a small amount produces a slow turn with a relatively small amount of dive.
   f. Small toggle inputs can be used to make minor heading corrections at any point in the canopy flight.
   g. Pulling one toggle down farther will produce a faster turn and causes the canopy to dive, which can have serious consequences near the ground.
   h. Pulling both toggles down decreases the rate of descent and forward speed of the canopy.

7. Final approach and landing
   a. Once you have begun your final approach, your main priority is to keep the canopy flying straight toward a clear, open area.
      (1) Small toggle inputs may be used to avoid obstacles on the ground.
      (2) If the canopy begins to drift, use the appropriate input to stop the turn and keep the canopy flying straight toward a clear area.
   b. If the canopy is flying straight, keeping the toggles all the way up in the full glide position will help the canopy produce more lift when you flare.
   c. It is easier to judge the flare height by looking mid-way towards the horizon rather than straight down below your feet.
   d. During the last part of the final approach, put your feet and knees together in a PLF position.
   e. Just before landing, convert the forward speed of the parachute to lift by flaring.
      (1) When your feet are approximately twice your height above the ground, flare to half brakes.
      (2) Flare the remainder of the way just before touching down.
      (3) Your instructor may vary the exact flare technique based on the type of canopy you will be using or other factors.
   f. If you start the flare too high, stop flaring and hold the toggles where they are.
      (1) Letting the toggles up abruptly causes a steep dive.
      (2) Keep looking ahead and keep the canopy flying straight.
      (3) Push the toggles the rest of the way down before touching down.

   Note: Beginners should jump large, docile canopies that allow for errors. These canopies should be resistant to stalling and should simply maintain a low airspeed and rate of descent if flared too high.

   g. You should be prepared to perform a parachute landing fall *(see Illustration 4-A.3)* every time you land.
   h. A stand-up landing should only be attempted if you touch down softly and are confident that you can comfortably remain on your feet.

8. Perception of speed
   a. The canopy may seem to fly very slowly until you get lower on final approach.
   b. You may notice the speed for the first time at this point, which may trick you into flaring early.
   c. The canopy needs speed for an effective flare.
   d. Wait until the correct altitude to flare.

II. Solo: Method-Specific Section

Note: This section must be taught by either a USPA Instructor or Instructor Examiner rated for the method-specific discipline in which the student is being trained.

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D. Aircraft emergencies

1. In the event of an aircraft emergency:

a. Sit still, with helmet on and seatbelt fastened
b. Wait for a command from your instructor

2. In the event of a problem during flight, the instructor will help prepare you for one of four actions:
   a. All land with the aircraft.
   b. Exit and deploy the reserve parachute.
   c. Exit and deploy the main parachute (passive deployment for IAD and static-line).
   d. Perform a routine exit with or without instructor assistance.

3. Rough landing procedures:
   a. Helmet and seat belt on
   b. Knees to chest
   c. Hands clasped behind head to reinforce neck
   d. Immediate but orderly exit from the aircraft on landing
   e. Jumpers exiting a wrecked aircraft should go immediately to the nearest exit, touch nothing on the aircraft, and walk at least 100 feet away from the plane.

4. After an emergency exit and once under an open canopy:
   a. Look for the instructor's parachute and follow it to a clear, open landing area.
   b. Select any clear area if an instructor can't be found.

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Category F

IN THE GRAPHIC ON PAGE 75 AT THE TOP, CHANGE THE RECOMMENDED DEPLOYMENT ALTITUDE TO SAY TRACKING-4,000 FEET.

Section Five

Section 5-6—Aircraft

6. Entering the aircraft
   a. Students should never approach an aircraft, whether the engine is running or not, unless they are under the direct supervision of a USPA instructional rating holder.
   b. Everyone should always approach a fixed-wing aircraft from behind the wing and always approach a helicopter from the front or the side, only after making eye contact with the pilot.
   c. Everyone should always protect his or her ripcord handles while entering the aircraft and follow procedures to avoid the accidental activation of any equipment.

Section Six

Section 6-4—Night Jumps

G. Group jumps: freefall and canopy

1. Freefall
   a. It is recommended that night relative work be planned for a full moon.
   b. Skydivers should wear white or light-colored jumpsuits.
   c. A safe progression from a 2-way to larger formations should be made on subsequent night jumps.
   d. Staggering the deployment altitudes can reduce the risk of a canopy collision
      i. During deployment, in the event there is a lack of horizontal separation
      ii. During the canopy descent and landing pattern, when all canopies are converging above the landing area
      iii. The deployments should be staggered in order, with the lowest wing-loaded jumper deploying at the highest altitude, continuing in order until the highest wing-loaded jumper is deploying at the lowest altitude
2. Under canopy:
   a. With others in the air, jumpers should fly predictably and avoid spirals.
   b. All jumpers on each pass should agree to the same downwind, base, and final approach and the altitudes for turns to each leg of the landing pattern.
3. Jumpers planning canopy formations should practice together during daylight and rehearse prior to boarding for each night jump.
   a. It is recommended that night canopy formation activity be performed during a full moon.
   b. Brightly colored clothing should be worn by all jumpers.
   c. Lighting
      (1) Constant beam lights are preferred.
      (2) Strobes can interfere with night vision and depth perception.

Section 6-6—Canopy Formations

F. Emergency procedures:

1. Entanglements are the greatest hazards when building canopy formations.
2. Jumpers should know their altitude at all times, because altitude will often dictate the course of action.
3. If a collision is imminent:
   a. The jumpers should spread one arm and both legs as wide as possible to reduce the possibility of penetrating the suspension lines, provided the suspension lines are made from larger diameter Dacron©.
   b. The other hand is used to protect the reserve ripcord.
   c. Canopies with small diameter suspension line, such as Spectra or HMA, can lead to more serious injuries during a collision than canopies using larger diameter suspension lines made from Dacron©.
      i. Jumpers should tuck in arms, legs and head if the collision involves canopies with small diameter suspension lines.
      ii. Avoid hitting the suspension lines or other jumper, if at all possible.
4. Jumpers should be specific in discussing their intentions.
5. If altitude allows, emergency procedures should proceed only after acknowledgment by other jumper(s).
6. In the event of multiple cutaways and if altitude allows, jumpers should stagger reserve openings to avoid possible canopy collisions.
7. Respond to the given situation.
   a. When entanglements occur, jumpers must be prepared to react quickly and creatively.
   b. In many cases, the emergency is one that can't be prepared for in advance; it may even be a problem no one imagined could happen.

8. If the entanglement occurs with sufficient altitude, the jumpers should attempt to clear the entanglement by following lines out before initiating emergency procedures.
9. Jumpers should try to land together following a canopy relative work emergency.

G. Night canopy formations

See SIM Section 6-4, "Night Jump Recommendations," for guidance.

Section 6-11—

Advanced Canopy Piloting Topics

Overview

B. Background

1. Canopy design and flying techniques have advanced beyond what is expected of a USPA Instructor when preparing a skydiving student for the USPA A license.
2. Skydiving culture encourages skydivers to purchase and jump equipment that requires additional training to be jumped safely.
3. Analysis of accident reports indicates that jumpers are at risk without advanced canopy training beyond the A license.
    a. Jumpers who have progressed without advanced training to average designs at average wing loadings are largely unprepared for how their canopy will handle in difficult landing situations.
    b. Jumpers who pursue induced-speed landing techniques without training put themselves and other jumpers at extreme risk.
4. Rather than limit jumper flying style and equipment choice, USPA has pursued an "education, not regulation" strategy in coordination with expert canopy pilots, advanced canopy training schools, and canopy manufacturers.
    a. basic but comprehensive canopy flight training and discovery in the USPA Integrated Student Program, leading to the A license
    b. articles on basic and advanced canopy topics in Parachutist Magazine
    c. SIM Section 6-10, "Advanced Canopy Flight"
    d. this course outline for use preferably by USPA Instructors with additional qualifications as listed

D. Instructor qualifications

1. USPA does not issue instructional ratings specifically for canopy coaching.
2. It is essential that the information contained in this course be presented correctly.
3. Those who intend to teach an advanced canopy piloting course should hold a USPA Instructor rating and have extensive knowledge of canopy flight.
    a. Instructors who intend to teach this material must realistically assess their level of knowledge regarding canopy flight and instruction.
    b. Before teaching this course, instructors must work through the outlined canopy skills using a variety of canopy designs and wing loadings.

c. Attending any one of several commercially available factory-sponsored canopy schools as a student is highly recommended before teaching this course.

d. For USPA B license requirements, a Safety and Training Advisor must approve the course director and sign the Canopy Piloting Proficiency card once the course is completed.

E. USPA B License Requirements

1. Beginning January 1, 2012, any USPA B license must also include a completed and signed copy of the Canopy Piloting Proficiency card.

a. It is a requirement for the USPA B license.

b. Anyone applying for a USPA C or D license, who has been issued a B license prior to January 1, 2012, will not be required to submit the USPA Canopy Proficiency card with the C or D license application.

2. The completed Canopy Proficiency card must be signed by a current USPA Safety and Training Advisor.

a. The S&TA must ensure that a qualified course director conducts the training in this section.

b. In some situations, the best candidate to teach this material may not hold any USPA ratings, but may have extensive knowledge about canopy control and landings.

c. The signature of the S&TA on the proficiency card is to verify that the training has been satisfactorily completed by the candidate.

E. Evaluation

1. There is no "pass" or "fail" for a course of this nature, but attendees should be better able to self-assess their canopy aptitude and proficiency based on their own experience with the control maneuvers and an accurate evaluation of each approach and landing from a course director.

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2. The course director should sign and date the entries on the Canopy Piloting Proficiency Card as jumpers complete the items listed.
   a. control maneuvers
   b. loss of altitude in turns
   c. landing pattern
   d. varied approaches
   e. approach and landing accuracy objectives
   f. aborted approach
   g. carving landings
3. The Canopy Piloting Proficiency Card can assist drop zone management in assessing a jumper's canopy skills.
4. Each jumper should begin a new Canopy Piloting Proficiency Card for every new model and size canopy.

Ground School Topics

section 1: equipment

E. Controls: toggles and beyond

1. Brakes
   a. toggle types for ease of handling
   b. steering line length to allow front riser maneuvers (toggles in hand)
2. Front risers and control enhancement discussion (loops, blocks, etc.)
3. Back risers and how they work
4. Front risers and how they work
5. Harness turns

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G. Speed

1. The pilot's perceives the forward speed more than the downward speed, so a faster canopy can seem a lot scarier to fly.
2. The faster the canopy goes, the more effect adding drag (by using a control) will have on the flight path.

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Advanced Exercises

general procedures

jump 1—evaluation jump

A. The first jump in the course follows the presentation and discussion of the ground school topics.
B. The course director evaluates each student's accuracy and landing skills.
   1. Demonstration of a straight-in approach and natural-speed landing provides the course director with a baseline evaluation of flaring and landing skills.
   2. Each student should try for a target, with the first priority being a good landing from a straight-in approach, to provide the course director a starting point for accuracy improvement.
C. Each course candidate should inspect the canopy's steering lines while in full flight, with the brakes released.
   1. The steering lines on most canopies should bow slightly behind the back of the canopy and its suspension lines, while in full flight
   2. Check with the manufacturer to see what is recommended for steering line adjustments
   3. For jumpers who use front risers, the steering lines should have enough slack that the riser can be pulled with the toggle in hand and still not deflect the tail of the canopy.
   4. A parachute rigger should adjust the length of the steering lines if necessary, before the next jump.

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jump 2—basic aerodynamics, effective flaring and riser turns

F. Riser turns
   1. During this jump you will make a series of riser turns above the traffic pattern altitude
   2. Most jumpers should have already been trained and practiced riser maneuvers as a requirement for the USPA A License.
   3. Jumpers hwo are completely unfamiliar with riser turns should make a separate training jump to focus solely on riser turns.

G. Under canopy
   1. Flare the canopy five times while observing the wing throughout the flare.
   2. Pay particular attention to your relative position under the canopy during the various stages of the flare.
   3. Check airspace frequently to maintain separation during the practice exercises.
   4. Repeat the five practice flares with eyes closed, paying close attention to the physical sensation during each phase of the practice flare.
   5. Check altitude, position and traffic, and initiate two alternating 90-degree turns using rear risers.
   6. Check altitude, position and traffic, and initiate two alternating 180-degree turns using rear risers.
   7. Check altitude, position and traffic, and initiate two alternating 360-degree turns using rear risers.
   8. Check altitude, position and traffic, and initiate two alternating 90-degree turns using front risers, strength permitting.

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9. Check altitude, position and traffic, and initiate two alternating 180-degree turns using front risers, strength permitting.
10. Check altitude, position and traffic, and initiate two alternating 360-degree turns using front risers, strength permitting.

11. On landing
    a. Make a straight-in approach facing into the wind, with minimal input for the last ten seconds before the landing flare.
    b. Practice an effective flaring technique, focusing on a smooth finish.

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jump 4—stalls, crosswind landing

F. Stall practice

1. Full ram-air stalls using toggles

a. Gently apply brakes to a point where forward flight diminishes and the canopy begins to sink.
b. Continue to depress the brakes fully down until the canopy "bow ties."
c. Slowly raise the toggles until resuming forward flight.

jump 4—stalls (cont.)

    d. High-performance canopies:
        (1) Full stalls may induce a line-twist malfunction with cross-braced or highly elliptical canopies and are not recommended.
        (2) Cross-braced and fully elliptical parachutes may be flown to very slow flight and a dynamic or aerodynamic stall without
        entering reverse flight or "bow tying" the canopy.
2. Stalls using rear risers
    a. Slowly pull down the rear risers until forward flight ceases.
    b. Adding more riser input, the canopy will eventually sink and begin to descend in a backwards direction.
    c. Risers should be slowly raised to recover to forward flight.
    d. Rear riser stalls are not as violent but occur more abruptly than toggle-induced stalls.

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G. Under canopy

1. Perform toggle stalls and rear-riser stalls while observing the canopy.
2. Fly a landing pattern that allows for a crosswind final approach and landing.
a. For purposes of training and familiarization, the crosswind landing should only be performed in winds up to five miles per hour.
b. All jumpers on the same pass must use the same landing pattern to promote a smooth flow of traffic.
3. On final approach, focus on crosswind correction necessary to prevent crabbing.
4. In order to land wing-level, more toggle input will be required on the upwind side of the canopy to counter the crosswind effect during the landing flare.

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Section 8-

8-1.4: Recipients of the USPA Lifetime Achievement Award

2011 Paul Sitter—"For nearly three decades of service to the U.S. Parachute Association and its members, particularly in the area of safety and training by helping to educate and improve safety for skydivers everywhere."

8-1.5: Recipients of the USPA Gold Medal for Meritorious Service

2011 Bill Wood—"For acting as a true worldwide ambassador of skydiving as both a demonstration jumper and leader of the Parachutists Over Phorty Society, and for earning an international reputation as a traveling good-vibes skydiver."
2011 Jeff Steinkamp—"For nearly four decades of service to the competition community as a nationally rated judge and to the accuracy community in particular as an innovator of accuracy events and scoring systems."

Glossary

Aspect Ratio: The aspect ratio of a ram-air parachute canopy is the ratio of its length (span) to its breadth (chord).

Solo jump: a jump where a skydiver is not engaged in formation skydiving.

Solo jumper: a skydiver who is not engaged in formation skydiving.

Solo skydiver: see solo jumper.