

UNITED STATES PARACHUTE ASSOCIATION® PUBLICATIONS

THE 1998 SKYDIVER'S INFORMATION MANUAL



EDITION 4

This manual includes:

Change Package #1, July 1998

Change Package #2, January 1999

Change Package #3, July 1999

Change Package #4, February 2000

WARNING

IMPORTANT NOTICE

Sport parachuting or skydiving is a potentially dangerous activity that can result in injury or death. **EACH INDIVIDUAL PARTICIPANT, REGARDLESS OF EXPERIENCE, HAS FINAL RESPONSIBILITY FOR HIS OR HER OWN SAFETY.**

THE FOLLOWING INFORMATION IS PRESENTED AS A MEMBERSHIP SERVICE BY THE UNITED STATES PARACHUTE ASSOCIATION (USPA). USPA MAKES NO WARRANTIES OR REPRESENTATIONS AND ASSUMES NO LIABILITY CONCERNING THE VALIDITY OF ANY ADVICE, OPINION OR RECOMMENDATION EXPRESSED IN THIS MATERIAL. ALL INDIVIDUALS RELYING ON THIS MATERIAL DO SO AT THEIR OWN RISK.

An individual's safety can be enhanced by exercising proper precautions and procedures. This manual contains some of the knowledge and practices that, in the opinion of USPA, will promote the safe enjoyment of skydiving.

The UNITED STATES PARACHUTE ASSOCIATION is a not-for-profit, voluntary membership organization of the participants and supporters of the sport of parachuting. The sport is also referred to as skydiving. USPA has no involvement in the conduct or operations of any skydiving center, parachute center or drop zone. **USPA, AS A PRIVATE, NON-REGULATORY ORGANIZATION WHICH HAS NO LEGAL AUTHORITY TO REGULATE OR CONTROL INDIVIDUALS OR CORPORATIONS, CANNOT BE HELD LIABLE FOR ANY JUMP OR TRAINING OPERATIONS THAT RESULT IN INJURY OR DEATH TO ANY PARTY.** Regardless of any statements made in any USPA publications, USPA has neither been given nor has it assumed any duty to anyone. USPA has no obligation to anyone concerning his or her skydiving activities. All references by USPA to self-regulation refer to each individual person regulating or being responsible for him or herself.

USPA issues various licenses, ratings, awards and appointments and provides various types of information, advice and training, but does not authorize anyone in any capacity to act for USPA, as an agent or representative in connection with the regulation or control of skydiving operations.

It is the responsibility of each student to ask whatever questions are necessary for him or her to have a thorough understanding of the actions and procedures that he or she must perform in order to make a safe jump. Each skydiver has the responsibility to exercise certain practices and perform certain actions to maintain safety for himself or herself and for other people.

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INTRODUCTION

Purpose: The Skydiver's Information Manual (SIM) provides basic rules, standards and recommendations for the conduct of safe and enjoyable skydiving.

Scope: This manual includes basic safety rules and recommendations, training programs and guidance, awards programs recognizing training advancement and other skydiving accomplishments, and first aid procedures. It is not intended to be all inclusive, but rather the basic essential information. Skydivers are encouraged to research further and to ask their Safety and Training Advisor, Jumpmaster, Instructor, Instructor/Examiner, Regional or National Director, or USPA staff for additional information or clarification.

Applicability: Although USPA is a voluntary membership association with no regulatory power, USPA can suspend or revoke any license, rating, award, appointment or membership. Compliance with the Basic Safety Requirements (BSRs) contained herein is mandatory for participation in USPA programs. The BSRs represent the commonly accepted standards for a reasonable level of safety.

The recommendations contained herein, unless otherwise stated, are put forth as guidance and are not mandatory. A deviation from these recommendations does not necessarily imply negligence and is not to be used in a court of law to demonstrate negligence.

It is voluntary compliance with rules, recommendations and standards within the SIM that demonstrates jumpers and drop zone operators are capable of self-regulation in the view of federal, state and local governments.

Changes: The SIM from time to time requires updating. Although USPA may provide periodic updates to subscribers, it is the responsibility of SIM holders to ensure that their version is current. New copies and updates may be purchased from the USPA Store at (703) 836-3495 or FAX (703) 836-2843. Subscribers or readers are encouraged to contact the Director of Safety and Training for comments or recommended changes to the SIM.

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SUGGESTED READING FOR LICENSE AND RATING TESTS

This list was created to assist a jumper in preparing for USPA license and rating exams. This list is not all inclusive but is provided only as a guide to assist the jumper in his reading. SIM sections listed alone (1, 4, 5, etc.) implies that you are responsible for the entire section.

A License:	SIM Sections 1, 2, 3-1, 4, 8-2, 8-3, 8-4, 8-5, 9-2, 9-3, 11, 12
B License:	SIM Sections 2, 3-1, 4, 8-2, 8-3, 8-4, 8-5, 9-1, 9-2, 9-3, 11, 12
C License:	SIM Sections 2, 3-1, 3-2, 3-3, 4, 8, 9-2, 9-3, 9-5, 11, 12
D License:	SIM Sections 2, 3-1, 3-2, 3-3, 3-4, 4, 8, 9, 11, 12
ICC:	SIM Sections 2, 3-2, 3-3, 4, 5, 8, 11, 12, ICC Handbook
JM (S/L and IAD):	SIM Sections 2, 3-2, 3-3, 4, 5, 8, 11, 12, JCC Handbook
PRO:	SIM Sections 2, 3-4, 9-4, 11, 12
BIC Entrance Exam	SIM Sections 1, 1-2, 2-1, 3-2, 12

SECTION 1

THE UNITED STATES PARACHUTE ASSOCIATION®

1.01 INTRODUCTION

This section will explain what the United States Parachute Association (USPA) is, how it operates and how it is structured.

1.02 DEFINITION

The United States Parachute Association is a membership organization. It has been incorporated as a not-for-profit association. Each regular member has an equal vote and an equal voice in establishing the policies of the Association.

1.03 PURPOSE

- A. USPA is the official U.S. skydiving representative recognized by the National Aeronautic Association (NAA) and the official skydiving representative of the Federation Aeronautique Internationale (FAI) in the USA.
- B. USPA is officially recognized by the Federal Aviation Administration (FAA) as the representative of skydivers in the United States.
- C. USPA is an organization of skydivers, run by skydivers for skydivers, and it is your voice in skydiving.
- D. USPA keeps skydivers skydiving.

1.04 REPRESENTATION

- A. Nearly all drop zones have a USPA Safety & Training Advisor (S&TA) who is your direct link to your Regional Director. The S&TA is a local jumper who is available on your drop zone to provide you with administrative services and information. The S&TA is appointed by your Regional Director.
- B. Regional Directors are jumpers from your region of the country and are elected by you (and the other members within your Region) every two years. Ballots are distributed in *Parachutist* magazine, the official publication of USPA. The Regional Director is a member of the Board of Directors (BOD); he or she is your representative on the Board. There are 14 Regional Directors.
- C. The Board also includes eight National Directors who are elected by the USPA membership at large.

1.05 BOARD OF DIRECTORS

- A. The BOD establishes USPA policies and procedures by a majority vote at the meetings held twice a year. The BOD operates through the committee system and has

established small committees (comprised of BOD members with special qualifications and interests) to provide guidance and advice in major areas of activity within the sport.

- B. The BOD elects officers (president, vice president, secretary, treasurer). The officers, together with an elected member-at-large, make up the Executive Committee. The Executive Committee is responsible for making decisions and taking care of important matters that arise between the semi-annual Board meetings.
- C. The actions of each working committee must be approved by the full Board before becoming USPA policy. Each Director has one vote at BOD meetings. Voting responsibility includes not only making business decisions and setting policy but also the establishment and modification of the Basic Safety Requirements and Recommendations. BOD members cast their votes based on the input they receive from their constituency (the membership) and their own judgement.

1.06 HEADQUARTERS

- A. Since the Board of Directors meets only twice a year, it is necessary to have an administrative staff to conduct the day-to-day business of the organization. This staff is USPA Headquarters and it is located at 1440 Duke Street, Alexandria, VA 22314. Telephone: (703) 836-3495, Fax: (703) 836-2843.
- B. The BOD hires an Executive Director to run Headquarters. He is given various responsibilities and duties by the BOD. The Headquarters staff in turn works for the Executive Director. USPA Headquarters has a number of duties, obligations and functions that can be summarized by saying that its job is to serve the USPA membership and carry out the instructions and policies of the Board of Directors.

1.07 BY-LAWS

USPA operates under a constitution and by-laws that define the organization's purpose. The by-laws define the conditions for both individual and group membership.

Pages 2-10 have been moved to the
USPA Governance Manual.

SECTION 2

BASIC SAFETY REQUIREMENTS AND WAIVERS

2.01 INTRODUCTION

The Basic Safety Requirements (BSRs) have been established as the cornerstone of the self-policing principle upon which skydiving is based. The BSRs represent the industry standard generally agreed upon as necessary for an adequate level of safety. Research can be conducted to develop and document new methods and procedures within the BSRs and, when necessary, under waivers to the BSRs, in order to establish a justifiable basis to modify these standards.

2.02 SCOPE

This section includes two fundamental, interrelated USPA publications:

- A. The Basic Safety Requirements
- B. Waivers to the Basic Safety Requirements

2.03 BASIC SAFETY REQUIREMENTS

Referred to as the BSRs and included below, these principles describe the generally accepted practices and conditions considered important for a desirable level of safety.

- A. Purpose—The reason for the BSRs is to promote practices aimed at eliminating incidents in skydiving and, by doing so, make skydiving safe and enjoyable.
- B. Safety is accomplished by reducing the risk factors. This requires everyone involved in skydiving to:
 - 1. Acquire knowledge and make a continuing effort to add to and improve that knowledge.
 - 2. Practice and prepare for both the expected and the unexpected.
 - 3. Accurately evaluate personal capabilities and limitations.

- 4. Stay alert and aware of surroundings.
- 5. Keep options open.
- 6. Exercise good judgment.
- 7. Evaluate the risk factors.

- C. The BSRs are established by evaluating incidents and identifying their root causes. Failure to follow the BSRs may not always result in an incident, but many incidents are the result of not following these risk reduction procedures.
- D. The BSRs are changed from time to time by the Board of Directors, as equipment and practices develop and evolve.

2.04 WAIVERS TO THE BASIC SAFETY REQUIREMENTS

Also included in this section, waivers to the BSRs describe procedures for documenting exceptions to the BSRs.

- A. Waivers also provide for the responsible development of new techniques and methods. The BSRs are designed to establish safety standards for common situations; however, local circumstances may allow for greater tolerance in some cases.
- B. Each BSR is categorized as either waiverable or non-waiverable. Those which are waiverable are categorized as to who may file the waiver.
- C. The purpose for filing a waiver is to document that the particular BSR has been evaluated in the individual case and that the prescribed deviation and conditions do not represent an unacceptable compromise of safety.

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.

NW 2-1.01 APPLICABILITY

- A. These procedures apply to all jumps except those made under military orders and those made because of in-flight emergencies. Voluntary compliance with these procedures will protect the best interests of both the participants and the general public.
- B. A “skydive” is defined as the descent of a person to the surface from an aircraft in flight when he or she uses or intends to use a parachute during all or part of that descent.
- C. All persons participating in skydiving should be familiar with:
 - 1. SIM Section 2 through 2-2.
 - 2. SIM Section 3-1 USPA licenses.
 - 3. USPA Recommendations.
 - 4. All federal, state and local regulations and rules pertaining to skydiving.

NW 2-1.02 COMPLIANCE WITH FEDERAL REGULATIONS

No skydive shall be made in violation of Federal Aviation Administration (FAA) regulations. This includes the use of restraint systems in the aircraft by all skydivers during movement on the surface, take off, and landing.

NW 2-1.03 MEDICAL REQUIREMENTS

All persons engaging in skydiving should:

- A. Carry a valid Class I, II or III Federal Aviation Administration Medical Certificate; OR
- B. Carry a certificate of physical fitness for skydiving from a registered physician; OR
- C. Have completed the USPA recommended medical statement.

NW 2-1.04 AGE REQUIREMENTS

Civilian skydivers are to be at least:

- A. The age of legal majority (to execute contracts); or
- B. 16 years of age with notarized parental or guardian consent.

2-1.05 STUDENT SKYDIVERS

- E** A. All student first jump instruction is to be under the direct supervision of a currently and appropriately rated USPA Instructor. All subsequent instruction is

to be under the direct supervision of a currently and appropriately rated USPA Jumpmaster.

- E** B. All student skydives are to be made under the direct supervision of a currently and appropriately rated USPA Jumpmaster aboard the aircraft until the student has been cleared by a USPA Instructor to jumpmaster himself.
 - 1. Accelerated Freefall students on Levels I, II or III require two currently rated USPA AFF Jumpmasters to accompany the student in freefall. All AFF jumps on Levels IV through VII require at least one USPA AFF Jumpmaster to accompany the student in freefall. All IAF jumps in the Tandem/IAF progression method require at least one USPA AFF Jumpmaster to accompany the student in freefall.
 - 2. Foreign non-resident Jumpmasters and Instructors appropriately and currently rated by their national aero club may train students from that nation in the U.S., provided the instruction is conducted in accordance with Skydiver’s Information Manual Section 2-1. Appropriately and currently rated U.S. Jumpmasters and Instructors may assist in this training.

- NW** C. No skydiver will simultaneously perform the duties of Jumpmaster and pilot-in-command of an aircraft in flight.

- NW** D. All student jumps must be completed between official sunrise and sunset.

- E. Student skydivers are to:
 - E** 1. Initially make five (5) static line or five (5) IAD jumps to include successfully pulling a practice ripcord (or throw out pilot chute on IAD jumps) on three (3) successive jumps while demonstrating the ability to maintain stability and control prior to being cleared for freefall; OR
 - NW** 2. Successfully complete all learning objectives of AFF Levels I through III before being cleared for Level IV and complete all learning objectives of Level IV through VII prior to being cleared to jump without direct supervision; OR
 - E** 3. Initially make a minimum of three (3) tandem jumps with a USPA Tandem rating holder and complete all TLOs of the Tandem Phase of instruction prior to being cleared by a USPA Tandem Instructor for the IAF Phase of instruction of the USPA Tandem / IAF training program.

S 2-1.06 WINDS

Maximum ground winds:

- A. For all solo student and novice skydivers:
 - 1. 14 mph for ram-air canopies.
 - 2. 10 mph for round reserves.
- B. For licensed skydivers are unlimited.

E 2-1.07 MINIMUM OPENING ALTITUDES

Minimum container opening altitudes above the ground for skydivers are:

- A. Tandem jumps—4,000 feet AGL
- B. All students and novices—3,000 feet AGL
- C. A and B license holders—2,500 feet AGL
- D. C and D license holders—2,000 feet AGL

S 2-1.08 DROP ZONE REQUIREMENTS

- A. Areas used for skydiving should be unobstructed, with the following minimum radial distance to the nearest hazard:
 - 1. Solo students and novices—100 meters
 - 2. A license holders—100 meters
 - 3. B license holders—50 meters
 - 4. C license holders—50 meters
 - 5. D license holders—Unlimited
- NW** B. Hazards are defined as telephone and power lines, towers, buildings, open bodies of water, highways, automobiles and clusters of trees covering more than 3000 square meters.
- NW** C. Manned ground-to-air communications (e.g., radios, panels, smoke, lights) are to be present on the drop zone during skydiving operations.

NW 2-1.09 PRE-JUMP REQUIREMENTS

The appropriate altitude and surface winds are to be determined prior to conducting any skydive.

2-1.10 EXTRAORDINARY SKYDIVES

- NW** A. Night, water, and demonstration jumps are to be performed only with the advice of the local USPA S&TA, Instructor/Examiner, or Regional Director.
- E** B. Pre-planned breakaway jumps are to be made by only class C and D license holders using FAA TSO'd equipment.

- E** C. Demonstration jumps into Level 2 areas, to include stadiums, require a D license with a USPA PRO Rating

2-1.11 PARACHUTE EQUIPMENT

- NW** A. Each skydiver is to be equipped with a light when performing night jumps.
- B. All students are to be equipped with the following equipment until they have been cleared by a USPA-rated Instructor to jumpmaster themselves.
 - NW** **FB** 1. A rigid helmet (except tandem students)
 - FB** 2. A piggyback harness/container system that includes a single point riser release and a reserve static line
 - NW** **FB** 3. A visually accessible altimeter
 - FB** 4. A functional automatic activation device that meets the manufacturer's recommended service schedule
 - FB** 5. A ram-air main canopy suitable for student use
 - FB** 6. A steerable reserve canopy appropriate to the student's weight
 - FB** 7. For freefall, a ripcord-activated, spring-loaded, pilot chute-equipped main parachute (except tandem students) or bottom of container (BOC), throw-out pilot chute
- NW** C. Novices must receive additional ground instruction in emergency procedures and deployment-specific information before jumping any unfamiliar system.
- NW** D. For each AFF jump, each AFF Jumpmaster shall be equipped with a visually accessible altimeter.
- S** E. Students, non-licensed skydivers, and all skydivers wearing a round main or reserve canopy shall 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.)

NW 2-1.12 SPECIAL ALTITUDE EQUIPMENT, SUPPLEMENTARY OXYGEN

Supplementary oxygen available on the aircraft is mandatory on skydives made from over 15,000 feet (MSL).

2-2 WAIVERS TO THE BASIC SAFETY REQUIREMENTS

2-2.01 PURPOSE

The United States Parachute Association makes a concentrated effort to give maximum advice and information to the skydiving community. To meet this objective, USPA provides recommended procedures for conducting skydiving operations. The Basic Safety Requirements, however, represent the commonly accepted standards believed to be necessary to promote safety in average conditions. Since these standards may be an unnecessary burden in some individual circumstances, USPA provides procedures to document exceptions, known as waivers to the BSRs. These waivers also provide for the responsible research and development of improved techniques and methods.

2-2.02 CLASSIFICATION OF WAIVERS

Waivers to the Basic Safety Requirements are filed at three levels: the S&TA or USPA Instructor/Examiner, the Executive Committee of USPA and the full Board of Directors of USPA. Neither USPA Headquarters nor any other person or group of persons except those here stated has the authorization to file a waiver to any BSR.

2-2.03 PROCEDURES FOR FILING WAIVERS

- A. Each paragraph of the BSRs will be identified as to who is required to file the waiver.
- B. Waivers are to be filed only when the person(s) filing the waiver is assured that there will be no compromise of safety.
- C. The person(s) filing the waiver should make periodic inspections to ensure that safety is not being compromised and to determine if the waiver should be rescinded. In the case of waivers by the Executive Committee, the Regional Director will perform these inspections and make recommendations to the Board.
- D. Any waiver filed by an S&TA or I/E will be in writing. A copy of the waiver will be sent to both the Regional Director and USPA HQ.

- E. S&TAs are not to file waivers for skydiving activities outside their assigned area.
- F. If there is a conflict between an S&TA and an I/E as to whether a waiver should be filed, the decision of the S&TA will be final.
- G. The Executive Committee or full Board of Directors will not file a waiver without consulting and notifying the local S&TA and Regional Director.

2-2.04 FILING OF WAIVERS

- A. Persons filing waivers will maintain permanent records of all waivers filed by themselves.
- B. The S&TA and Regional Director will maintain permanent records of all waivers filed for skydiving activities within their area. The records will be kept in such a manner as to indicate those waivers currently in effect and those which have been rescinded.
- C. USPA Headquarters will maintain a permanent record of all waivers.

2-2.05 WAIVER FILING AUTHORIZATION

The following symbols are used to identify who may file a waiver:

- S** Safety & Training Advisor or Instructor/Examiner only
- E** Executive Committee of the USPA Board of Directors only
- FB** Full Board of Directors only
- NW** May not be waived - (The waiver filing authorization code (NW) must first be eliminated by a vote of the full BOD before the BSR can be waived.)

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SECTION 3

CLASSIFICATION OF SKYDIVERS

3.01 INTRODUCTION

Skydivers can qualify for and receive a variety of licenses and ratings according to their experience, skill and knowledge level. Licenses are essentially documents of proficiency and are divided into four classes. Many skydivers also pursue ratings which require qualifications in addition to those required for licenses. Three separate types of ratings can be obtained as an individual develops expertise in a specific area. Ratings are available for student instruction, professional demonstration jumping and competition judging. (*See the USPA Skydiver's Competition Manual.*)

3.02 SCOPE

Information in this section covers:

- A. Licenses
 - 1. USPA A License-Basic
 - 2. USPA B License-Intermediate
 - 3. USPA C License-Advanced
 - 4. USPA D License-Master
- B. Ratings
 - 1. Instructional Ratings
 - 2. Professional Exhibition (PRO) Rating
 - 3. Competition Judge Rating

3.03 LICENSES

- A. License requirements are intended to encourage the development of the knowledge and skills which should be acquired by each skydiver as experience is gained. USPA licenses, recognized in all FAI member countries, serve as official documentation that the stated experience and skills have been attained.
- B. Licenses are a valuable instructional tool in that they serve both as goals to be accomplished and as a guideline to acquire the skills and knowledge necessary to provide a reasonable level of safety and enjoyment.
- C. Each person who successfully completes student training should apply for the A, or first level license. The A license is the certificate that shows the jumper has completed the novice phase.

3.04 RATINGS

- A. Instructional Ratings: Are issued to each skydiver who qualifies by fulfilling all requirements for the rating being sought. These ratings are issued as certificates that the holder has not only achieved skydiving skills but has also demonstrated the techniques needed to teach these skills to others.
 - 1. Instructional ratings are issued at three levels within each training method:
 - a. Jumpmaster—the entry level of the Instructional rating program. It is required to provide pre-jump training and supervise a student on each jump in the training program.
 - b. Instructor—the journeyman rank of the rating. It represents a higher level of experience and skill in skydiving instruction. This level of rating is required for presentation of the first jump course and to supervise a training program and its personnel.
 - c. Instructor/Examiner—the master rank of the Instructor rating. It denotes supervisory and administrative ability for the instruction of both students and rating candidates.
 - 2. Instructional ratings are issued for four categories of student training methods:
 - a. Static Line (S/L)
 - b. Accelerated Freefall (AFF)
 - c. Instructor Assisted Deployment (IAD)
 - d. Tandem/IAF
- B. Professional Exhibition (PRO) Rating. The PRO Rating is issued to any USPA member who has met the current requirements for the rating. The PRO rating is recognized by the FAA and serves as a certificate of proficiency. It is not required for all demos, but may be a valuable advantage in working with the FAA.

3-1 USPA LICENSES

3-1.01 INTRODUCTION

The United States Parachute Association is authorized by the National Aeronautic Association and the Federation Aeronautique Internationale to issue internationally recognized sporting licenses. Licenses are issued based upon demonstration of skill, knowledge and experience and are ranked according to the level of accomplishment.

3-1.02 SCOPE

This Part specifies the procedures and requirements for:

- issuance of USPA licenses
- issuance of restricted licenses
- license renewal requirements

3-1.03 GENERAL CONDITIONS

- A. USPA licenses are valid only while the holder is a current USPA member. There is no other renewal requirement.
- B. USPA licenses are valid in all FAI member countries and, while valid, entitle the holder to participate in open skydiving events organized in FAI member countries.
- C. USPA issues licenses only to USPA members who meet the conditions set forth for that license.
- D. “Military Freefall Jumps”- If properly recorded, may be used to satisfy the requirements for all classes of license, except that the initial license application for any person trained by “military freefall jumps” who has not made the sport novice jumps required for an A license must include verification from an S&TA or USPA I that the applicant is capable of controlled freefall and stability during manual parachute deployment.
- E. “Controlled” means the jumper has effective control of his body position.
- F. USPA licenses may be refused, suspended or revoked only when authorized by the USPA Board of Directors or in compliance with existing BOD directives.
- G. Total freefall time is defined to include both freefall and droguefall time.

3-1.04 LOGBOOKS

- A. Skydives offered as evidence of qualification must have been:
 1. Made in accordance with the USPA requirements in effect at the time of the jump.

2. Legibly recorded in chronological order in an appropriate log that contains the following information:
 - a. jump number
 - b. date
 - c. location
 - d. exit altitude
 - e. freefall length (time)
 - f. type of jump (RW, style, etc.)
 - g. landing distance from target
 - h. equipment used
 - i. verifying signature
3. Made with a single harness dual parachute assembly with manual activation as the intended method of parachute deployment.

- B. Jumps for license and rating qualifications must be signed by another skydiver, pilot, or USPA National or FAI Judge who witnessed the jump. Jumps to meet skill requirements must be signed by a USPA Jumpmaster, Instructor, Instructor/Examiner, Safety and Training Advisor, or a member of the USPA Board of Directors.

3-1.05 LICENSE APPLICATION

- A. Experience Verification: The certifying official should verify that the numbers listed in these tables (number of jumps and total freefall time) are correct and meet the listed requirements for the license the candidate is applying for.
- B. Skill Verification: Jump numbers, scores or date of completion require the initials of a current I, S&TA, I/E or BOD member.
- C. Knowledge Verification: The certifying official should make sure that the exam answer sheet(s) is forwarded along with the application.
- D. Application Verification: Applications for all licenses must be signed by an appropriate official before the application is forwarded to USPA HQ.
 1. Instructors may verify A, B and C licenses.
 2. S&TAs may verify A, B and C licenses and may verify D licenses if they are an I.
 3. I/Es and BOD members may verify any license application.

LICENSE REQUIREMENTS

3-1.06 USPA A LICENSE—BASIC

Persons holding a USPA A license are able to pack their own main parachute, perform basic relative work and water jumps and must have:

- A. Completed 20 freefall jumps including:
 - 1. At least three controlled freefalls of 40 seconds or longer.
 - 2. Accumulating five minutes of controlled freefall time.
- B. Landed within 20 meters of target center on five freefall jumps during which they selected the exit and opening points.
- C. Demonstrated the ability to hold heading during freefall and make 360 degree flat turns to both the right and left.
- D. Demonstrated the ability to safely jumpmaster themselves to include independently selecting the proper altitude, exit and opening points.
- E. Demonstrated the ability to properly pack their own main parachute and conduct safety checks on their own and other skydivers' equipment.
- F. Documentation of unintentional water landing training from a USPA Instructor.
- G. Demonstrated the ability to safely engage in relative work by:
 - 1. Performing satisfactory door exits.
 - 2. Varying both rate of descent and horizontal movement.
 - 3. Participating in at least three 2-way RW jumps.
 - 4. Moving horizontally away from other skydivers in freefall and checking the air so the parachute may be deployed without creating a danger of collision with other jumpers and keeping track of other canopies in order to avoid collision.
- H. Passed a written exam administered by a current USPA I, I/E, S&TA or BOD member.

License Fee: \$20.00, effective February 1986.

3-1.07 USPA B LICENSE—INTERMEDIATE

Persons holding a USPA B license are able to exercise all privileges of an A license holder, perform night jumps, and must have:

- A. Met all current requirements for or hold a USPA A license.

- B. Completed 50 freefall jumps including:
 - 1. At least three controlled freefalls of 45 seconds or longer.
 - 2. Accumulating at least ten minutes of controlled freefall time.
- C. Landed within ten meters of target center on ten jumps.
- D. Demonstrated the ability to perform individual maneuvers (a figure 8, backloop, figure 8, backloop) in freefall in 18 seconds or less.
- E. Documentation of live water landing training with full equipment in accordance with the procedures in SIM, Section 9-2.
- F. Passed a written exam conducted by a current USPA I, I/E, S&TA or BOD member.

License Fee: \$20.00, effective February 1986.

3-1.08 USPA C LICENSE—ADVANCED

Persons holding a USPA C license are able to exercise all privileges of a B license jumper, are eligible for the USPA Jumpmaster rating and must have:

- A. Met all current requirements for or hold a USPA B license.
- B. Completed 100 freefall jumps including:
 - 1. At least ten controlled freefalls of 45 seconds or longer;
 - 2. Accumulating at least 20 minutes of controlled freefall time.
- C. Landed within five meters of target center on 20 jumps.
- D. Completed at least four points on a 4-way or larger random skydive (meeting the requirements for the Falcon Award) or perform individual maneuvers (a figure 8, backloop, figure 8, backloop) in freefall in 15 seconds or less.
- E. Passed a written exam conducted by a current USPA I, I/E, S&TA or BOD member.

License Fee: \$20.00, effective February 1986.

3-1.09 USPA D LICENSE—MASTER

Persons holding a USPA D license are able to exercise all privileges of a C license holder, participate in certain demonstration jumps, are eligible for all USPA ratings and must have:

- A. Met all current requirements for or hold a USPA C license.
- B. Completed 200 freefall jumps including:
 - 1. At least ten controlled freefalls of 60 seconds or longer.
 - 2. Accumulating at least one hour of controlled freefall time.
- C. Landed within two meters of target center on 25 jumps.
- D. Demonstrated the ability to perform individual maneuvers (in sequence-back loop, front loop, left turn, right turn, right barrel roll and left barrel roll) in freefall in 18 seconds or less; OR completed at least two points on an 8-way or larger random skydive (meeting the requirements for the Eagle Award).
- E. Made two night jumps (one solo and one RW) with a delay of at least 20 seconds, with verification of prior night jump training from a USPA Instructor. The night jumps must be made with the advice of an S&TA in accordance with USPA BSRs.
- F. Passed a written exam conducted by a current USPA I/E, S&TA/I or BOD member.

License Fee: \$20.00, effective February 1986.

3-1.10 RESTRICTED USPA LICENSES

- A. Under extreme circumstances, such as physical handicaps, a USPA Restricted license may be issued to applicants who are unable to meet all of the specific license requirements.
- B. A person may be qualified for a Restricted license if or the rating holder has:
 - 1. Met all requirements for the license desired except for those listed in the petition.
 - 2. Submitted a petition to the Safety and Training Committee containing:
 - a. Type of license requested;
 - b. Specific license requirement(s) which cannot be met;
 - c. Circumstances which prevent compliance with license requirements;
 - d. A license application (USPA Form 104-1).
- C. Each application will be considered individually on its own merit, totally without precedent.
- D. Exceptions to qualifications implied by the license will be listed on each Restricted license in the following manner: "Restricted license holder has not demonstrated the ability to (list specific limitation)."
- E. Restricted license numbers will be followed by the letter "R" (e.g C-11376R).

3-1.11 APPLICATION CHECKLIST

The verifying official signing the license application should double check that each of these items has been completed:

- A. Applicant's personal information.
- B. Experience verification:
 - 1. Number of jumps
 - 2. Freefall time
- C. Skill verification:
 - 1. Verify (with your initials) that the jump number, date, or score for each requirement is correct and can be found in the applicants logbook, OR
 - 2. Enter the applicant's appropriate license number in the box provided.
- D. Knowledge verification:
 - 1. Check that the written exam answer sheet is complete with a passing score.
- E. Final verification:
 - 1. Sign the verifying official's certification statement and print your name, title and date.
 - 2. Mail the completed license application along with the fee.

3-1.12 LICENSE EXAM INSTRUCTIONS

- A. Exam administrator:
 - 1. Give the applicant this answer sheet and the questions to the exam. Do not permit references or other assistance during the exam. After the test, collect the materials and grade the exam. 75% (15 correct answers or more) is required to pass.
 - 2. Record the score on the license application and in the applicant's logbook. The applicant not passing will be eligible to retake this exam after seven days. To qualify for a higher license, the applicant must have passed all lower class license exams.
 - 3. Enclose this answer sheet with the applicant's license application.
- B. Applicant:
 - 1. Write your name on this answer sheet.
 - 2. Select the best available answer for each question and write the corresponding letter in the space provided.
 - 3. When you finish, return this answer sheet and all exam questions to the person administering the exam to you.

USPA License Exam Answer Sheet

A License Exam	B License Exam	C License Exam	D License Exam
1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____
5. _____	5. _____	5. _____	5. _____
6. _____	6. _____	6. _____	6. _____
7. _____	7. _____	7. _____	7. _____
8. _____	8. _____	8. _____	8. _____
9. _____	9. _____	9. _____	9. _____
10. _____	10. _____	10. _____	10. _____
11. _____	11. _____	11. _____	11. _____
12. _____	12. _____	12. _____	12. _____
13. _____	13. _____	13. _____	13. _____
14. _____	14. _____	14. _____	14. _____
15. _____	15. _____	15. _____	15. _____
16. _____	16. _____	16. _____	16. _____
17. _____	17. _____	17. _____	17. _____
18. _____	18. _____	18. _____	18. _____
19. _____	19. _____	19. _____	19. _____
20. _____	20. _____	20. _____	20. _____

Name: _____ Signature of person administering the exam: _____

Score: A B C D Date: _____

3-2 USPA BASIC INSTRUCTIONAL COURSE

3-2.01 INTRODUCTION

The USPA Basic Instructional Course is designed to be a starting point for all those who enter the instructional ranks. It provides for commonality and quality control of instruction and is in place to: 1) enhance instructional skills; 2) promote marketability of jumpmasters and instructors by creating a more comprehensive method of providing better instructional skills; 3) streamline the USPA instructional system; 4) clearly define USPA's ratings and endorsements.

3-2.02 SCOPE

The requirements to attend the Basic Instructional Course are:

- A. Have a current USPA membership;
- B. Possess a USPA B, C, or D License or FAI equivalent;
- C. Have the desire to become a USPA instructional rating holder.

3-2.03 GENERAL CONDITIONS

- A. Attendance at a BIC does not qualify as a rating. The BIC attendance is a certification that the instructional candidate understands the principals and fundamentals of instruction. After successful completion of the BIC, the instructional candidate may then proceed to a method-specific course of choice.
- B. Once an instructional candidate has successfully attended a Basic Instructional Course, there is no annual renewal requirement.
- C. The emphasis of the Basic Instructional Course is on the mechanics of instruction, not on any method-specific discipline.

3-2.04 BASIC INSTRUCTIONAL COURSE DESIGNATED COURSE DIRECTOR (DCD)

- A. The USPA's Basic Instructional Course is conducted by Designated Course Directors (DCD).
- B. The DCD is solely responsible for all aspects of the course:
 - 1. Planning
 - 2. Scheduling
 - 3. Staffing
 - 4. Conduct and after-action reporting
- C. The DCD must personally ensure that those who graduate from the BIC have met the following requirements. This responsibility cannot be delegated.

- 1. Take and pass the entrance exam with a minimum score of 75%;
- 2. Attend both days of the classroom portion;
- 3. Perform a minimum of two practice practical teaching evaluations;
- 4. Perform a Practical Teaching Evaluation with an overall score of "Satisfactory";
- 5. Take and pass the final exam with a minimum score of 75%.

- D. USPA's Director of Safety and Training awards DCD authority to those USPA instructional rating holders who apply for DCD authority and who have specific qualifications and requirements. Application requirements are different, depending on which USPA instructional rating the DCD applicant holds.
- E. Since all DCDs report to USPA's Director of Safety and Training, the Safety and Training Committee holds the director accountable for the conduct of training and certification courses for the DCDs.

3-2.05 DCD APPLICATION REQUIREMENTS

- A. Instructor/Examiner: To receive DCD authority, a current USPA Instructor/Examiner must:
 - 1. assist in at least one BIC as a staff member and receive a written recommendation from the course director that the I/E has demonstrated the ability to conduct BICs;
 - 2. receive signed authorization from the USPA Director of Safety & Training.
- B. Instructor: To receive DCD authority, a current USPA Instructor must:
 - 1. hold the USPA Instructor rating for a minimum of three years;
 - 2. assist in at least three BICs as a staff member and receive the written recommendation from the DCD and staff of the third BIC that the instructor has clearly demonstrated the ability to conduct BICs;
 - 3. receive signed authorization from the USPA Director of Safety & Training.

3-2.06 DCD RENEWAL REQUIREMENTS

- A. DCD authority expires annually, when the associated instructional rating expires. To renew DCD authority, a rating holder must:
 - 1. Meet all renewal requirements of the associated rating;
 - 2. Within the previous 24 months, serve on the staff of at least one USPA BIC, and provide dates(s) and locations(s) of the course(s);
 - 3. Received signed authorization from the Director of Safety and Training.

- B. An applicant who has earned DCD authority within the previous 12 months need not meet the requirements of A.2.

3-2.07 REINSTATEMENT REQUIREMENTS

- A. Should DCD authority lapse for any reason (e.g., nonrenewal, surrender, revocation), the rating holder must:
 - 1. meet all rating renewal requirements of the associated instructional rating;

- 2. within the previous 24 months, serve on the staff of at least two USPA BICs and provide dates and locations of the courses. Documented staff participation in a USPA ICC, JCC OR AFFCC may be substituted for one of the two BICs;
- 3. receive signed authorization from the Director of Safety & Training.

3-2.08 DCD REVOCATION

DCD appointment will be revoked for the following reasons: if—

- A. within the previous 12 months, the DCD fails to conduct a BIC.

- B. within the previous 12 months, the DCD fails to undergo a DCD Annual Recertification and Evaluation.

- C. the DCD fails to renew his or her instructional ratings.

3-3 USPA INSTRUCTIONAL RATINGS

3-3.01 INTRODUCTION

The instructional rating program is intended to disseminate safe and effective information on skydiving procedures for the instruction of student skydivers. This program provides a realistic and practical system for issuing Jumpmaster (JM), Instructor (I), and Instructor/Examiner (I/E) ratings in the Static Line, Accelerated Freefall, Instructor Assisted Deployment and Tandem / Instructor Assisted Freefall training programs. It establishes the requirements for both initial qualification and renewal.

3-3.02 SCOPE

- A. These requirements are for instructional ratings at the following levels:
 - 1. Jumpmaster
 - 2. Instructor
 - 3. Instructor/Examiner
 - 4. Course Director (BIC and Tandem only)
- B. Each level of rating can be obtained in the following training programs:
 - 1. Static Line
 - 2. Accelerated Freefall
 - 3. Instructor Assisted Deployment
 - 4. Tandem/Instructor Assisted Freefall (Instructor only)

3-3.03 GENERAL CONDITIONS

- A. USPA instructional ratings are valid for one year. The renewal date coincides with the USPA membership renewal date.
- B. Instructional ratings are issued only to USPA members who meet the requirements for the particular rating.
- C. All USPA rating holders will comply with the applicable BSRs and FARs while conducting student training.
- D. Instructional ratings may be renewed when the established requirements have been met. Expired ratings may be renewed by meeting the current renewal requirements under appropriate supervision or by reapplying for the rating.
- E. Instructional ratings may be refused, suspended, or revoked only when authorized by the USPA Board of Directors or in compliance with existing BOD directives.
- F. Waivers:
 - 1. Any person may request a waiver to the requirements for any rating.
 - 2. A waiver may be issued if it is verified to both the applicant's Regional Director and the S&T Committee that some practical requirement(s) cannot or need not be met.

- 3. A written request must be submitted to the Safety and Training Committee containing:
 - a. Type of rating requested.
 - b. Specific rating requirement(s) which cannot be met.
 - c. Circumstances which prevent compliance with rating requirements.
- 4. The request will be reviewed by:
 - a. USPA HQ for administrative requirements
 - b. The S&T Committee for completeness and assurance that the applicant will maintain safety.
 - c. The applicant's Regional Director to monitor matters concerning this waiver and to coordinate with USPA HQ for administration.
- 5. A person receiving a waiver may be designated as a Restricted rating holder. The rating card will state the applicable restrictions.

3-3.04 ISSUANCE OF USPA RATINGS TO FOREIGN NATIONALS

- A. Foreign nationals desiring any USPA rating must have adequate command of the English language and meet all requirements for the rating desired.
- B. If the foreign national has met all requirements for a rating and does not have adequate command of the English language, a Restricted rating may be issued. The Restricted rating would preclude the rating holder from exercising his privileges with students not speaking his native language.

3-3.05 STATIC LINE JUMPMASER RATING

Persons holding a USPA Static Line Jumpmaster rating have demonstrated the ability to provide practical instruction for and direct supervision of students in the aircraft and on static line and solo freefall jumps. A USPA Static Line JM rating holder must:

- A. Attend and successfully complete the Basic Instructional Course prior to attending the S/L Certification Course.
- B. Have presented documentation of completing all requirements on the static line JM proficiency card dated April 1997.
- C. Hold a current USPA C or D license or FAI equivalent.
- D. Have successfully completed a static line JCC registered with USPA HQ or; hold a current IAD JM rating and have successfully completed a static line method specific transition course that has been registered with and approved by USPA HQ.
- E. Have reached the age of eighteen years.

Rating fee: \$25.00

3-3.06 STATIC LINE INSTRUCTOR RATING

Persons holding a USPA Static Line Instructor rating have demonstrated all the abilities of a Static Line Jumpmaster and also the ability to instruct students in both the theoretical and practical skydiving skills required to attain the USPA A license.

A USPA Static Line I rating holder must:

- A. Have held a USPA JM rating for at least 12 months.
- B. Meet static line JM rating requirements by successfully completing a static line JCC.
- C. Have presented documentation of completing all requirements on any USPA Instructor proficiency card dated October 1989 or later, as long as they hold a USPA JM rating for the training method specific to that proficiency card.
- D. Hold a current USPA D license (or FAI equivalent).
- E. Have successfully completed an ICC registered with USPA HQ.

Note: I ratings are not numbered. Instructors may sign logbooks and other records with their signature, rating and the current year, e.g., "USPA I 1992"

Rating fee: \$25.00

3-3.07 STATIC LINE INSTRUCTOR/EXAMINER RATING

Persons holding a Static Line Instructor/Examiner rating have demonstrated all the requirements of the Static Line Instructor rating and also the ability to:

- A. Provide skydiving instruction and supervise student and advanced training and jumping in accordance with the USPA BSRs.
- B. Answer questions concerning high altitude jumps, record attempts, basic first aid, and packing and maintenance of parachutes and parachute equipment.
- C. Provide guidance for night, water, and demonstration jumps and other jumps in accordance with USPA BSRs. Make night, water, demonstration and pre-planned break-away jumps without S&TA guidance, but in accordance with BSRs.
- D. Verify the qualifications of applicants for all USPA licenses and USPA JM, I, and I/E ratings in the training method for which the rating holder is rated.
- E. Verify the renewal requirements for Jumpmaster and Instructor ratings in the training method for which /the rating holder is rated.
- F. File waivers for the following BSRs in accordance with Section 2-2: 2-1.05.D, 2-1.07.A, 2-1.10.A 1

- G. Be given priority for appointment as a USPA Safety & Training Advisor.
- H. Receive authorization to administer the written exam for the I/E rating.
- I. Investigate accidents, incidents, and fatalities and report same to USPA HQ.
- J. Receive authorization to conduct JCCs and ICCs.

Notes: An I/E should be able to brief news media and the general public on the history and the future of skydiving and serve local aviation circles as a recognized skydiving expert.

I/E ratings are not numbered. I/Es may sign logbooks and other records with their signature, rating and the current year, e.g., "USPA I/E 1992."

An expired I/E rating is honorary and the rating privileges may not be exercised until the rating is renewed.

If an I/E's competence is questioned by a FAA or USPA official, including S&TAs or persons of higher position, the I/E may be required, upon 60 days notice, to pass exams to determine that the rating holder meets current standards.

3-3.08 I/E RATING REQUIREMENTS

USPA members wishing to earn a USPA I/E rating must:

- A. Have held a valid USPA Instructor rating for at least one year in each USPA training method in which they want to be rated as an I/E.
- B. Have submitted the application form 106-1 to USPA HQ which includes:
 - 1. Three character witnesses.
 - 2. A copy of an FAA Senior or Master Rigger's Certificate.
- C. Have presented documentation of completing all requirements on the current I/E proficiency card.
- D. Have passed the written exam in accordance with these procedures:
 - 1. USPA HQ has sole testing authority and responsibility. Only those authorized by HQ may administer the written exam. HQ may authorize the following:
 - a. A USPA Instructor/Examiner
 - b. A USPA BOD member
 - c. An FAA Flight Standards District Office (FSDO)
 - d. Other FAA offices
 - e. An educational testing office of the U.S. Armed Forces
 - f. USPA Headquarters
 - g. Other approved designees
 - 2. USPA HQ will make arrangements for the written exam to be administered by any of the above named persons or offices.

3. The exam is to be administered in a professional manner and under normally accepted testing conditions.
4. The exam will be sent to the designee with instructions for administration and return to USPA HQ.
5. The exam will be graded by HQ and the applicant will be notified of the results and advised as to further requirements or procedures.
6. The written exam is divided into 11 categories:
 - I. Basic Safety Requirements
 - II. High Altitude Doctrine
 - III. Sport Parachuting—General
 - IV. FAA Regulations
 - V. Parachuting History
 - VI. Maintenance and Nomenclature of the Parachute
 - VII. World Record Attempts
 - VIII. First Aid
 - IX. Recommendations
 - X. Methods of Instruction
 - XI. Essay Questions
7. The applicant must pass the written exam by scoring not less than 75% on each of the eleven sections.
8. Retesting:
 - a. An applicant not passing any section of the written exam will be retested ONLY on the sections not passed.
 - b. An applicant not passing the written exam the first time may retake the exam after waiting 60 days.
 - c. An applicant not passing the written exam the second time may retake the exam after waiting 120 days.
 - d. A written request for retesting must be made directly to USPA HQ.
 - e. An applicant not passing the written exam after three tries may re-apply for the rating (including paying the rating fee) after waiting one year from the last exam.

E. Not have a safety violation on record at USPA HQ.

Notes: It is recommended, but not required, for an I/E rating holder to have attended a physiological flight training course and hold a current Red Cross first aid card.

Except for the first step of submitting the completed application form and fee, the applicant may complete the other requirements in any order.

Rating fee: \$50 for initial I/E rating.

3-3.09 ACCELERATED FREEFALL JUMPMAS- TER RATING

Persons holding a USPA Accelerated Freefall Jumpmaster rating have demonstrated the ability to instruct and jumpmaster Levels I through VII of the USPA AFF Program, under the direction of an AFF I, and instruct and jumpmaster students in the IAF (Instructor Assisted Freefall) portion of the USPA Tandem / IAF program under the direction of an AFF I. USPA members wishing to obtain an AFF JM rating must:

- A. Attend and successfully complete the Basic Instructional Course prior to attending the AFF Certification Course.
- B. Have at least six hours of documented freefall time.
- C. Have successfully complete the AFF Certification Course.
- D. Hold a USPA D license (or FAI equivalent).
- E. Have reached the age of eighteen years.

Rating fee: as specified by USPA HQ.

3-3.10 ACCELERATED FREEFALL INSTRUCTOR RATING

Persons holding a USPA Accelerated Freefall Instructor rating have demonstrated all the abilities of an AFF JM and also the ability to instruct AFF students, and students in the IAF portion of the USPA Tandem / IAF training program, in both the theoretical and practical skills required to complete the AFF training program or the IAF portion of the Tandem/IAF training program and attain the USPA A license as well as supervise AFF JMs. A USPA member wishing to obtain an AFF I rating:

- A. Must have held a valid USPA JM rating for at least one year.
- B. Must meet AFF JM rating requirements.
- C. Must have presented documentation of completing all requirements on any USPA Instructor proficiency card (except tandem), as long as they hold a USPA JM rating for the training method specific to that proficiency card.
- D. Must have successfully completed an ICC registered with USPA HQ.
- E. May be eligible for appointment as an AFF evaluator.

Note: AFF I ratings are not numbered. AFF I's sign logbooks and other records with their signature, rating and the current year, e.g., "USPA AFF I 2000."

Rating fee: as specified by USPA HQ.

3-3.11 ACCELERATED FREEFALL INSTRUCTOR/EXAMINER RATING

Persons wishing to obtain a USPA Accelerated Freefall Instructor/Examiner rating:

- A. Must have held a valid USPA AFF Instructor rating for at least one year.
- B. Must complete all steps listed in 3-3.08.
- C. May be eligible for appointment as an AFF evaluator.

Rating fee: \$50.00 for initial I/E rating.

3-3.12 INSTRUCTOR ASSISTED DEPLOYMENT (IAD) JUMPMASTER RATING

Persons holding a USPA IAD Jumpmaster rating have demonstrated the ability to provide practical instruction for and direct supervision of students in the aircraft and on IAD and solo freefall jumps. A USPA IAD JM rating holder must:

- A. Attend and successfully complete the Basic Instructional Course prior to attending the IAD Certification Course.
- B. Have presented documentation of completing all requirements on the IAD JM proficiency card.
- C. Hold a current USPA C or D license (or FAI equivalent).
- D. Have successfully completed an IAD JCC registered with USPA Headquarters; or hold a current S/L JM rating and have successfully completed an IAD method specific transition course that has been registered with and approved by USPA HQ.
- E. Have reached the age of eighteen years.

Rating fee: \$25.00

3-3.13 INSTRUCTOR ASSISTED DEPLOYMENT (IAD) INSTRUCTOR RATING

Persons holding a USPA IAD Instructor rating have demonstrated all the abilities of an IAD Jumpmaster and also the ability to instruct students in both the theoretical and practical skydiving skills required to attain the USPA A license. A USPA IAD Instructor rating holder must:

- A. Have held a USPA JM rating for at least 12 months.
- B. Meet IAD JM rating requirements by successfully completing an IAD JCC; or hold a current S/L I rating and have successfully completed an IAD method specific transition course that has been registered with and approved by USPA HQ.
- C. Have presented documentation of completing all requirements on any USPA Instructor proficiency card dated October 1989 or later, as long as they hold a USPA JM rating for the training method specific to that proficiency card.
- D. Have successfully completed an ICC registered with USPA HQ.

Rating fee: \$25.00

3-3.14 INSTRUCTOR ASSISTED DEPLOYMENT (IAD) INSTRUCTOR/ EXAMINER RATING

Persons holding an IAD Instructor/Examiner rating have demonstrated all the requirements of the IAD Instructor rating and also demonstrated all of the abilities listed in 3-3.07.A through 3-3.07.J, including notes.

3-3.15 IAD INSTRUCTOR/EXAMINER RATING REQUIREMENTS

Persons wishing to obtain a USPA IAD Instructor/Examiner rating :

- A. Must have held a valid IAD Instructor rating for at least one year.
- B. Meet all IAD Instructor rating requirements.
- C. Must complete all steps listed in 3-3.08.

Rating fee: \$50.00 for initial I/E rating.

3-3.16 USPA TANDEM INSTRUCTOR RATING

Persons holding a USPA Tandem Instructor rating have demonstrated the ability to provide practical instruction for and direct supervision of tandem students in the aircraft, in tandem freefall and under canopy. Each candidate for a USPA Tandem rating shall have as a minimum the following skydiving qualifications:

- A. Attend and successfully complete the Basic Instructional Course or hold or have held a USPA instructional rating prior to attending the Tandem Certification Course. USPA members who do not have or have not held a USPA instructional rating but have attended a BIC and a tandem manufacturer's certification course will be permitted to conduct introductory tandem student jumps at USPA Group Member DZs. This authorization will be in effect until 120 days after the implementation of the USPA Tandem Certification Course. These members must by then attain the USPA Tandem Instructor Rating by reviewing and completing all TCC material with a USPA Tandem Course Director before continuing to conduct student tandem jumps at USPA Group Member DZs.
- B. 500 freefall skydives with a ram-air parachute.
- C. 50 freefall skydives with a ram-air parachute within the preceding 12 months.
- D. Four hours of accumulated freefall time.
- E. One breakaway and/or reserve deployment either as an actual emergency or as an intentional breakaway or five satisfactory breakaways from a suspended harness while wearing a tandem rig with passenger attached, conducted under the supervision of a tandem USPA Instructor or I/E.
- F. USPA class D license or FAI equivalent.
- G. FAA Class III medical certificate or equivalent.
- H. Currently valid authorization from the manufacturer of each tandem parachute assembly the applicant will utilize.
- I. Have reached the age of 18 years.

- J. Submitted the required documentation as required to USPA.

Rating fee \$25.00

3-3.17 TANDEM COURSE DIRECTOR

Persons holding a USPA Tandem Instructor Rating and designated by the tandem equipment manufacturer to train tandem instructor candidates on that manufacturer's equipment may be designated as USPA Tandem Instructor Certification Course Directors to teach the Tandem Instructor Certification Course.

3-3.18 TANDEM INSTRUCTOR/EXAMINER RATING REQUIREMENTS

Persons wishing to obtain a USPA Tandem Instructor/Examiner rating:

- A. Must have held a valid USPA Instructor rating for at least one year.
- B. Have met all USPA Tandem Instructor rating requirements.
- C. Must complete all steps listed in 3-3.08.

Rating fee: \$50.00 for initial I/E rating.

3-3.19 RENEWAL REQUIREMENTS

- A. General:
1. All rating renewals are submitted by completing the USPA Rating Renewal Form on the rating renewal section of the Membership Renewal Form.
 2. All rating renewals require current USPA membership.
 3. In order to renew any rating, the rating holder must meet the renewal requirements of that rating. Each JM, I or I/E must pay a flat rating renewal fee of \$20 to renew any or all ratings they have earned. (i.e.- A person holding a S/L JM rating and an AFF JM rating will pay only \$20 total when renewing one or both ratings.)
 4. Any rating earned within the previous 12 months is automatically renewed without a renewal fee.
 5. A skydiver may not certify his or her own ratings.
 6. Static Line and IAD instructional rating holders who become non-current or unable to meet the renewal requirements must audit a JCC or ICC
 - a. The rating holder must audit the classroom portion and perform the practicals as directed by the Course Director, if the rating has lapsed for more than one year.
 - b. For less than one year, the rating holder must perform the following under the direct supervision of an appropriately-rated S&TA/I or I/E: perform the appropriate ground preparation for the student; supervise the jump; conduct the post-jump critique; and make the appropriate logbook entry for the student.

5. AFF rating holders who have not met the annual renewal requirements will comply with the following under the supervision of a USPA Headquarters approved AFF Designated Evaluator.
- a. If the rating has been non-current for one year, perform one ground prep with an AFF Level 4 evaluation jump.
 - b. If the rating has been non-current for two years, perform one ground prep with two evaluation jumps, one Level 3, and one Level 4.
 - c. If the rating is non-current for three years or longer—attend the entire classroom instruction, conduct one ground prep, and perform two evaluation jumps, one Level 3, and Level 4.
 - d. A minimum score of "Satisfactory" must be attained in all sections of the Practical Teaching Evaluation Form.
 - e. The rating renewal fee of \$20.00 must be returned to USPA Headquarters with the Practical Teaching Evaluation Form(s).

- B. Static Line Jumpmaster ratings:
Within the previous 12 months, the rating holder must have:
1. Acted as JM for ten S/L and five freefall students.
 2. Attended a JM and/or I seminar.
 3. Acquired the signature of a current S/L I, S&TA, I/E or BOD member on his membership application.
 4. Sent in the current renewal fee.
- C. Static Line Instructor ratings:
Within the previous 12 months, the rating holder must have:
1. Met the S/L JM requirements.
 2. Taught a First Jump Course.
 3. Trained and jumpmastered at least one student (or the equivalent) through first freefall.
 4. Acquired the signature of a current S&TA, I/E or BOD member on their membership application.
 5. Sent in the current renewal fee.
- D. Static Line I/E ratings:
Within the previous 24 months, the rating holder must have:
1. Met the S/L I renewal requirements.
 2. Participated in one S/L JCC as a certifying official.
 3. participated in one ICC as a certifying official.
 4. Acquired the signature of a current BOD member annually, on his membership application.
 5. Sent in the current renewal fee.
- E. AFF Jumpmaster ratings:
Within the previous 12 months, the rating holder must have:
1. Acted as jumpmaster for 15 AFF and/or IAF students or satisfactorily completed an AFF evaluation jump.*
 2. Attended a JM and/or I seminar.

3. Acquired the signature of a current S&TA, AFF/I, I/E or BOD member on his membership application.
 4. Sent in the current renewal fee.
- E. AFF Instructor ratings:
Within the previous 12 months, the rating holder must have:
1. Met all renewal requirements for the AFF JM rating.
 2. Taught a First Jump Course.
 3. Acquired the signature of a current S&TA, I/E or BOD member on his membership application.
 4. Sent in the current renewal fee.
- G. AFF I/E ratings:
Within the previous 24 months, the rating holder must have:
1. Met all renewal requirements for the AFF I rating.
 2. Participated in one ICC or AFF Certification Course as a certifying official.
 3. Acquired the signature of a current BOD member annually on his membership application.
 4. Sent in the current renewal fee.

** AFF evaluation jumps must be performed by a designated evaluator or an AFF course director.*

- H. IAD Jumpmaster ratings:
Within the previous 12 months, the rating holder must have:
1. Acted as JM for ten IAD and five freefall students.
 2. Attended a JM and/or I seminar.
 3. Acquired the signature of a current IAD Instructor, S&TA, I/E or BOD member on his membership application.
 4. Sent in the current renewal fee.
- I. IAD Instructor ratings:
Within the previous 12 months, the rating holder must have:
1. Met the IAD JM requirements.
 2. Taught a first jump course.
 3. Trained and jumpmastered at least one student through first freefall.
 4. Acquired the signature of a current S&TA, I/E or BOD member on his membership application.
 5. Sent in the current renewal fee.
- J. IAD I/E ratings:
Within the previous 24 months, the rating holder must have:
1. Met the IAD/I renewal requirements and
 2. Participated in one IAD JCC as a certifying official and
 3. Participated in one ICC as a certifying official.

4. Acquired the signature of a current BOD member annually on his membership application.
5. Sent in the current renewal fee.

- K. Tandem Instructor Rating:
Within the previous 12 months, the rating holder must have:
1. Acted as Tandem Instructor for 25 students or met the recurrency procedures listed in 3-3.20.B.
 2. Met all renewal requirements from the manufacturer(s) of the tandem system(s) the rating holders is qualified for
 3. Personally trained and jumpmastered at least one student through all the TLOs of the tandem phase of the Tandem /IAF program or trained two tandem first-jump courses.
 4. Attended a JM and/or I seminar.
 5. Acquired the signature of a current Tandem Certification Course Director, Tandem I/E, Tandem I-S&TA or BOD member on his membership application.
 6. Sent in the current renewal fee.
- L. Tandem I/E rating:
Within the previous 24 months, the rating holder must have:
1. Met the Tandem Instructor renewal requirements.
 2. Personally trained and jumpmastered at least one student through all the TLOs of the tandem phase of the Tandem/IAF program; or trained two tandem first-jump courses.
 3. Acquired the signature of a current BOD member annually, on his membership application.
 4. Sent in the current renewal fee.

3-3.20 RECENT EXPERIENCE REQUIREMENTS FOR USPA TANDEM RATING HOLDERS

- A. To jump with a student, the USPA Tandem rating holder must have made a minimum of three tandem skydives within the preceding 90 days.
- B. Recurrency Procedures—The following recurrency procedures must be fulfilled before a USPA tandem rating holder may engage in tandem skydiving with student skydivers:
1. If more than 90 days have elapsed since the rating holder's last tandem jump, the rating holder must log three tandem jumps with an experienced skydiver (over 100 jumps) acting as the student.
 2. If more than 180 days have elapsed since the rating holder's last tandem jump, the rating holder must log three tandem jumps with a tandem parachute assembly. The first must be a solo and the next two must be with a USPA Tandem I, I/E or TICC Course Director acting as a student. (Note: The tandem rating holder who acts as the student may count this jump towards his own currency requirements.)

3. If more than 365 days have elapsed since the rating holder's last tandem jump the rating holder must:
 - a. Provide to USPA Headquarters a written endorsement obtained from a USPA TICC Course Director verifying that the rating holder has received gear-specific retraining and is again qualified to use that gear with students.
 - b. Once the endorsement is obtained, the rating holder must meet the practical requirements of 3-3.20.B.2.

3-4 USPA PROFESSIONAL EXHIBITION RATINGS

3-4.01 INTRODUCTION

Working in conjunction with the FAA, the USPA issues Professional Exhibition Ratings (PRO) to qualified expert skydivers. This rating identifies the jumper as highly proficient and accurate in canopy control. He is also quite knowledgeable in the areas of coordination with the Federal Aviation Administration, obtaining insurance coverage and providing a professional demonstration of his skills.

3-4.02 SCOPE

This section specifies the procedures for obtaining and renewing the USPA PRO Rating.

3-4.03 PURPOSE

The Professional Exhibition Rating (PRO) is recognized by the FAA and serves as a certificate of proficiency. It is not required for all demos, but may be a valuable advantage in working with the FAA.

3-4.04 INITIAL REQUIREMENTS

- A. To qualify for the PRO Rating, the applicant must:
1. Be a current member of the USPA.
 2. Possess a USPA D license.
 3. Have at least 500 jumps on a ram-air type canopy.
 4. Make ten successive, pre-declared jumps into a circle ten meters in diameter (within 5 meters of the center point) using the same canopy.
NOTE: This means that these ten jumps must be one declared jump after another declared jump. If a jump is not predeclared then it does not count for or against meeting the requirements.
 - a. Make all landings standing up.
 - b. Make all jumps in front of at least three witnesses, one of whom is an S&TA, I/E or Regional or National Director.
 - c. Obtain signatures for each of the ten jumps.
 5. Score at least 75% on the PRO Rating Exam.
 6. Forward the completed application form to his Regional Director for his signature and include:
 - a. A 1" x 1" full face photo of the applicant.
 - b. The completed PRO test.
 - c. The rating fee.
 - d. The PRO Rating Proficiency card signed off by an I/E, S&TA, or PRO Rating holder indicating that the PRO Rating applicant has received training in the following areas:
 1. Ground Crew—served as ground crew member on at least one Level 1 or Level 2 demo jump
 2. Flag rigging instructions and made at least one jump with a flag

3. Smoke rigging instruction and made at least one jump with smoke
4. NOTAM filing and certificates of authorization
5. Crowd control
6. Post-jump procedures
7. The Regional Director will forward the application to USPA HQ.

3-4.05 CONDITIONS

The following conditions apply:

- A. The smallest canopy used during qualification will be the smallest size canopy to be used for minimum (Level 2) landing area jumps. The canopy used during qualification will be the smallest-sized canopy to be used for minimum (Level 2) landing area jumps. The canopy size will be noted on the PRO Rating card.
- B. USPA will issue an annual PRO Rating expiring not less than 12 months from the last date on the rating application.
- C. If a PRO Rating holder's competence is questioned by a FAA or USPA official (including S&TAs), the PRO Rating holder may be required to reaffirm his or her proficiency.
- D. To requalify on a smaller canopy, the rating holder must make three successive, pre-declared jumps into a circle 10 meters in diameter with that canopy. All landings must be made standing up and be verified by an S&TA, I/E, USPA Judge, or a Regional or National Director.

3-4.06 ANNUAL RENEWAL REQUIREMENTS

Annually the PRO rating holder must demonstrate his or her continued proficiency and forward a completed PRO renewal application to USPA HQ. Within the previous 12 months the PRO holder must:

- A. Make at least 50 jumps.
- B. Perform a stand-up landing within a ten-meter diameter circle (landing within five meters of the center) in the presence of a current Regional-, National-, or FAI-rated judge; Regional or National Director; S&T/A; I/E; OR
- C. Perform a Level 2 (as defined by USPA and accepted by the FAA) demo jump in the presence of any of the above mentioned persons; AND
- D. Acquire the signature of a current S&TA, I/E, Judge or Board member (you may not renew yourself).

E. Submit a 1" x 1" full face photo.

F. Include the current renewal fee.

3-4.07 LAPSED PRO RATING RENEWAL REQUIREMENTS

In the event that a PRO rating holder allows his or her rating to lapse for two years or longer, the initial qualification requirements must be met with 10 successful pre-declared jumps into a circle 10 meters in diameter (within 5 meters of the center point). The canopy used for requalification will be the smallest-sized canopy to be used for minimum Level 2 landing area jumps. The canopy size will be noted on the PRO Rating card.

SECTION 4

BEGINNING SKYDIVING—FIRST JUMP TRAINING

4.01 INTRODUCTION

This section covers information, guidelines and recommendations for first jump course training. There are three principal methods by which a person may make his or her first jump. The information in this section applies to each method. Detailed information pertaining to each specific method will be explained in later sections.

4.02 SCOPE

Information in this section covers:

- Training methods
- Training facilities and staff
- Registration procedures
- FAA regulations
- Rules of operation
- Equipment
- Weather
- Aircraft
- Exit
- Parachute opening and canopy steering
- Landing
- Emergency situations
- Recurrent training

4.03 TRAINING OPTIONS

Most people make their first jump to satisfy their curiosity. For some, this is their only objective; many others will enjoy the experience so much that they will want to continue and learn how to become a skydiver. In each case, a certain amount of knowledge and skill must be acquired to maintain safety. Currently, the USPA recognizes several methods by which a person may make a first jump, and there are also a number of ways a person may learn the basic skills of skydiving.

- A. **General:** There are several factors which are common to all methods. With each method the first time jumper will exit from an aircraft in flight and use a steerable parachute to glide to the ground. All jumpers are required to be equipped with a parachute system which has a main and a reserve parachute.
- B. **Static Line:** Includes a solo exit from the aircraft and a solo descent under a parachute. This method requires the student to attend ground school before jumping. First jump classes typically start in the morning and conclude with the jump that evening or the next morning. The length may vary depending on a number of factors such as the size of the class, the type of equipment, or the student's learning rate. The goal is for the student to meet the learning objectives, instead of just spending a certain amount of time in the class room. Static line jumps should be made from no lower than 3,000 feet AGL.
- C. **Instructor Assisted Deployment (IAD):** The IAD program closely resembles the static line method of instruction. The main difference is the method of deployment for the students main canopy. In this program the jumpmaster will assist in the deployment of the students main during the initial jumps by holding the pilot chute as the student moves into position to exit the aircraft. When the student exits, the jumpmaster will release the pilot chute into the airstream, initiating the deployment of the students main parachute. When the student progresses to freefall jumps they have the option of using a throw out pilot chute or a ripcord activated, spring loaded pilot chute. IAD students will follow the same progression as static line students.
- D. **Accelerated Freefall (AFF):** With AFF training, the student receives dual instruction in freefall. The jump is made with two Jumpmasters who provide direct assistance during the exit and freefall. Once the parachute is deployed, the Jumpmasters leave and the student makes a solo canopy descent. This method also requires completion of ground school before the jump. AFF jumps are usually made from at least 9,000 feet, which allows for freefalls of about 40 seconds or longer. A higher exit altitude allows for a longer freefall. Upon reaching the ripcord pull altitude of 4,000 feet, the student pulls his or her own ripcord. Then the jumper steers the parachute to the designated landing area. As with the static line method, the student is required to exercise emergency procedures if necessary.
- E. **Tandem/IAF Program:** The student is attached to the front of the Instructor's harness and is carried as a passenger throughout the jump from the exit until landing. This method requires minimal ground school before jumping. Tandem jumps are made from at least 5,000 feet and should include a freefall with a drogue chute followed by a canopy descent of about four minutes. The student may be allowed to help steer the canopy by using the dual controls featured on equipment designed for tandem jumping. With this method the student can receive dual instruction while learning to steer and land the parachute. A drogue chute on a tandem system slows the freefall to the average speed of a solo jumper.

4.04 SUPERVISION

All student training and jumps should be made under the supervision of an experienced jumper who has been properly trained and rated to teach the specific method being utilized. A student may ask to see the credentials which verify that an Instructor is appropriately rated for the type of training being offered.

4.05 SCHOOLS

Many regions are served by more than one skydiving center. The USPA maintains a list of current Group Member drop zones and will send this list to any interested individual; also, the yellow pages of the phone book are a good place to find them. People interested in beginning this sport are encouraged to shop around. Ask questions (personal observation is even better) about the types of training offered, type of equipment used, staff qualifications, etc. The cost of lessons may often reflect the quality of service.

- A. **Registration:** Upon arrival at the jump center, register with the skydiving school. The prospective student, and all jumpers, will be required to fill out a registration form which will usually ask for—name, address, age, height, weight, occupation and the name, address, phone number and relationship of someone to contact in case of emergency.
- B. **Waivers:** Each participant will also be required to agree to and sign a “waiver” or legal release. This release will verify that the person understands that there is an element of risk involved in skydiving and that the participant freely agrees to accept that risk. The legal release will usually contain a contract or covenant by which the participant agrees not to sue the skydiving school, or anyone else, if the jumper is injured.
- C. **Medical Fitness:** The registration may also include a statement of medical fitness. A person should be in good health and physical condition and should not be on medication. However, there are some conditions that can be properly managed if the Instructor knows about them. A FAA flight physical or a doctor’s statement of fitness for skydiving may be required in some cases. The Instructor also needs to know about any recent donations of blood.
- D. **Medical Statement:** USPA provides the following statement: *“I, the participant, represent and warrant that I have no physical infirmities, except as listed below; am not under treatment for any other physical infirmity or chronic ailment or injury of any nature; and have never been treated for or diagnosed to have any of the following: cardiac or pulmonary conditions or diseases, diabetes, fainting spells or convulsions, nervous disorders, kidney or related diseases, high or low blood pressure, or any other disability which might in any way affect my ability to participate in skydiving.”*

- E. **Height/weight table:** This table is provided on the following page, as a guide in determining physical fitness. Anyone more than 10% above or below the indicated weight for their height, or anyone over 50 years of age, should demonstrate an adequate level of strength and agility before beginning training.
- F. **Age:** All participants in skydiving are required to be adults, except:
 - 1. Minors who are at least sixteen years of age and have notarized parental or guardian consent can participate in the static line or accelerated free fall methods of instruction.
 - 2. The person providing consent for a minor may be required to observe all pre-jump instruction.
- G. All persons should avoid skydiving or flying for at least 24 hours after scuba diving.

HEIGHT/WEIGHT TABLE

HEIGHT	AVERAGE WEIGHT (LBS.)					
	Men			Women		
	Small	Medium	Large	Small	Medium	Large
4'10"	85	94	103	81	90	99
4'11"	90	100	110	86	95	105
5'	95	106	117	90	100	110
5'1"	101	112	123	95	105	116
5'2"	106	118	130	99	110	121
5'3"	112	124	136	104	115	127
5'4"	117	130	143	108	120	132
5'5"	122	136	150	113	125	138
5'6"	128	142	156	117	130	143
5'7"	133	148	163	122	135	149
5'8"	139	154	169	126	140	154
5'9"	144	160	176	131	145	160
5'10"	149	166	183	135	150	165
5'11"	155	172	189	140	155	171
6'	160	178	196	144	160	176
6'1"	166	184	202	149	165	182
6'2"	171	190	209	153	170	187
6'3"	176	196	216	158	175	193
6'4"	182	202	222	162	180	198
6'5"	187	208	229	167	185	204
6'6"	193	214	235	171	190	209

4.06 FAA REQUIREMENTS

- A. The Federal Aviation Administration (FAA) has enacted a number of regulations covering parachute jumping (skydiving). In most cases, these Federal Aviation Regulations (FARs) concern the conditions, airspace requirements and air traffic control procedures with which the pilot must comply. Also, each individual jumper is responsible for compliance. These conditions and limitations are contained in FAR 105 and further explained in Advisory Circular 105-2C (see Section 12).
- B. The FAA's primary goal is to protect the general public, including other air traffic and persons and property on the ground, rather than the skydivers.
- C. FARs include:
 - 1. Drugs and alcohol: No person may jump if they under the influence of alcohol or drugs. The effects of these substances are magnified by the change in atmospheric conditions that result at higher altitudes.
 - 2. Equipment: Each person making an intentional parachute jump must be equipped with a single harness, dual pack parachute assembly including at least one main parachute and one approved reserve parachute. Tandem jumping which uses two harnesses and a dual pack parachute is also provided for by an exemption held by the manufacturers.
 - 3. Reserve and main: The reserve parachute must be inspected and packed by an FAA certificated and appropriately rated parachute rigger within 120 days of the date of use. The main parachute must be packed by a certificated parachute rigger or by the person jumping it and is also required to be packed within 120 days of its use. FAA certificated riggers may also supervise others in the inspecting and packing of parachutes.
 - 4. Assist device: Static line-deployed parachutes are to be equipped with an assist device and the technical requirements for the device are specified in the FAR.
 - 5. Night jumps: All persons jumping between sunset and sunrise are to display a light that is visible for at least three miles from time of exit until landing.
 - 6. Aircraft weight and balance: The pilot must operate the aircraft within the weight and balance limitations established by the manufacturer. It is in the best interests of each jumper to understand and comply with these limitations.
 - 7. Seat belts: Each person on board an aircraft must wear a seat belt during movement on the ground, take-off and landing.
 - 8. High altitude: Each occupant must be provided with supplemental oxygen if the aircraft exceeds 15,000 feet MSL.

- D. The FAA has the legal authority to fine anyone who violates an FAR. They may also suspend or revoke any license or certificate they have issued.

4.07 LOCAL REQUIREMENTS

A small number of states and some local communities have laws concerning skydiving. These laws usually repeat the FAA regulations and, in some cases, USPA's Basic Safety Requirements (BSRs). Some states may also have additional regulations.

4.08 USPA REQUIREMENTS

- A. USPA Basic Safety Requirements (see Section 2-1) have been established to provide standards of operation for safe skydiving activities. Compliance with the BSRs does not guarantee safety nor does violation of them always result in an accident, but experience has shown that the chances of a safe skydive are much higher when following the BSRs. While the BSRs represent commonly accepted standards, local circumstances may allow more tolerance and so some of the BSRs may be waived. There are specific procedures and restrictions for filing waivers which are spelled out in Section 2-2.
- B. USPA BSRs require:
 - 1. Automatic activation devices (AADs) for all students (including tandem students).
 - 2. Visually accessible altimeters for all students.
 - 3. Flotation gear when jumping within one mile to a body of water.
 - 4. Rigid helmets for all students (except tandem students).
 - 5. A piggyback harness container system for all students that includes a single point riser release, a reserve static line (RSL), a ram-air main and steerable reserve.

4.09 DROP ZONE RULES

Most drop zones also establish rules of conduct for their own operation. Each person making a solo canopy descent should be aware of all of these rules and also know the location of all nearby landing hazards.

4.10 USPA RECOMMENDATIONS

- A. AADs are:
 - 1. Mechanical devices that are designed to open the container if the jumper is exceeding a certain speed and below the preset firing altitude.
 - 2. Usually used on the reserve.
 - 3. Intended to be used only as back-up devices and should not be relied upon as they may not work as intended.
 - 4. No substitute for proper action on the part of the skydiver.

- B. All students should wear:
 1. Gloves—if the temperature at jump altitude is 40° F or less.
 2. A jumpsuit (coveralls).
- C. Knowledge: Each student making a solo canopy descent should have a thorough understanding of how to operate his or her parachute system before making the jump. This understanding should include knowledge of how the system works and proficiency with the operational controls of the parachute system, to include emergency procedures.

4.11 PARACHUTE EQUIPMENT

- A. Reference paragraphs 4.06 for the equipment requirements and standards established in the FARs, 4.08 for USPA requirements and 4.10 for USPA recommendations.
- B. The typical parachute system consists of the following component parts:
 1. Harness—an arrangement of webbing and fittings that enclose the body and connect the wearer with the canopy through the risers.
 2. Container—the portion of the assembly that is used to store the folded parachute canopy.
 3. Canopy—the component which slows your rate of descent when open and inflated. It must be a ram-air for use as a student main and may be either a ram-air or round for use as a reserve. The canopy includes the fabric portion and the suspension lines.
 4. Pilot chute—a small parachute that aids deployment by acting as an air anchor. Some contain a spring to launch it out of the container and others do not. It may be packed in the same container as its canopy or in a separate container or pouch.
 5. Deployment device—a bag, sleeve, diaper or other device used to stage and control the deployment sequence of the canopy. It is intended to increase reliability and reduce opening force.
 6. Ripcord—a device used to hold the container closed. Pulling the ripcord allows the container to open and the deployment to begin.
 7. Risers—straps of webbing that connect the harness to the suspension lines of the canopy. Steering controls are usually located on the risers.
- C. There are a number of additional parts which are assembled together to make up each component. These will vary according to the particular product. Definitions for some of these parts may be found in the glossary.

4.12 EQUIPMENT OPERATION

- A. It is important for everyone making a solo canopy descent to understand the operation of the parachute system. This operation is divided into three separate functions:

1. Activation—the container is opened, or activated either by pulling the ripcord, releasing the pilot chute or by the static line, depending on the design.
2. Deployment—the next step is the stretching out of the canopy and the other parts stowed in the container. A pilot chute aids deployment by putting drag on the system while the jumper continues to fall away.
3. Inflation—the final step in the opening process is inflation, which is the filling of the canopy with air. It is the inflated canopy that slows the jumper down for a safe landing.

- B. Each jumper should physically practice on the ground with the type of equipment to be used until completely familiar and proficient in its operation.
- C. Every jumper should receive a thorough and systematic equipment check before boarding the aircraft and again before exit.

4.13 WEATHER CONDITIONS

- A. The BSRs require that the wind conditions at the surface and the appropriate altitude be determined before jumping. There is no specific method that must be used to make this determination. It may be done by measuring the wind speed on the ground and calling the FAA for the winds aloft forecast. It is also common to release a piece of weighted crepe paper (wind drift indicator or WDI) at canopy opening altitude. This will indicate the direction and magnitude of the wind that will affect the drift of a jumper under canopy. Winds can change at any time so other indications should be checked by the jumper before and during the jump.
- B. Appropriate vertical and horizontal clearance from clouds and visibility need to be determined before exiting the aircraft. Reference FAR 105.

4.14 AIRCRAFT

Every jump begins with the aircraft ride to altitude. In order to use the aircraft safely there are some basic rules and procedures with which everyone needs to be familiar:

- A. Entering the aircraft:
 1. Students should never approach an aircraft, whether the engine is running or not, unless they are under the direct supervision of their Jumpmaster.
 2. Everyone should always approach a fixed-wing aircraft from behind the wing and always approach a helicopter from the front.
 3. Everyone should always protect their ripcord handles while entering the aircraft and follow procedures to avoid the accidental activation of their equipment.

4. Aircraft fueling operations should occur away from skydiver landing and loading areas, and no person, except the pilot and necessary fueling crew, should be aboard the aircraft during fueling. USPA accepts the practice of rapid refueling (fueling an aircraft while an engine is running) for certain turbine powered aircraft when performed in accordance with the guidelines of Parachute Industry Association Technical Standard, TS-122.
- B. Ride to altitude:
1. Everyone should have a thorough understanding and be prepared to take the appropriate actions in the event of an accidental activation of the parachute equipment in the aircraft.
 2. Students should sit still and move only when specifically directed to do so by the Jumpmaster.
 3. In the event of an aircraft emergency, everyone should follow the instructions of the Jumpmaster or the spotter.
 4. Seating arrangements will be determined in advance and will vary according to the particular aircraft and the size and type of the load.
 5. It is important for the load to be properly distributed in the aircraft to maintain the balance in relation to the center of gravity, which is necessary for the aircraft to fly safely. The jumpers should cooperate fully with the pilot in order to keep the aircraft within its safe performance envelope throughout the entire flight.
 6. The aircraft should not be loaded with more weight than the maximum allowed for in the manufacturer's operating manual. Nor should it be loaded with more occupants than it is approved to carry.

Note: Failure to maintain proper weight and balance throughout the flight may result in loss of control of the aircraft.

7. Seat belts are required to be worn by all aircraft occupants during movement on the ground, take-off and landing. When not in use, seat belts should be stowed out of the way, but they should never be fastened together unless they are being worn.
8. The smallest aircraft which should be used for student jumping is one which will carry the pilot and at least three jumpers.

4.15 AIRCRAFT EMERGENCY PROCEDURES

Each skydiving operation should establish procedures for all possible emergencies. Every pilot and non-student jumper should thoroughly understand these procedures. All students should be familiar with them, but they should take direction from their Jumpmaster.

4.16 EXIT

Specific procedures for the exit and the actions before parachute opening will depend on the training method being followed. Procedures for freefall emergencies are also covered in the lessons for each training method.

4.17 PARACHUTE OPENING

- A. The first rule for all skydivers is to land with an open parachute. In order to have time to respond to all emergencies and allow for errors, the following minimum opening altitudes should be observed:
1. Tandem jumps- 4,000 feet AGL
 2. Freefall students and novices- 3,000 feet AGL
 3. Static line & IAD jumps- 3,000 feet AGL
 4. A and B license holders- 2,500 feet AGL
 5. C and D license holders- 2,000 feet AGL
- B. The pilot and all jumpers on board the aircraft should be informed in advance whenever an opening is planned to be above the normal opening altitude. When more than one aircraft is being used, the pilots of each aircraft in flight at the time of the jump should be notified.
- C. It is of the utmost importance for every skydiver to understand that his or her order of priorities for every jump should always be:
1. Open the parachute.
 2. Open at the assigned altitude or higher—whether stable or not.
 3. Open with stability—to improve opening reliability.
 4. Check canopy—promptly determine if the canopy has properly opened.
 5. Activate the reserve—perform the appropriate emergency procedures if there is any doubt whether the main canopy is open properly and controllable.
 6. Land in a clear area—a long walk is better than landing in a hazardous area.
 7. Land safely—be prepared to perform a PLF (parachute landing fall) with the feet and knees together to avoid injury.
- D. The following are sample count sequences. Once the main parachute has been activated, the jumper should continue to count in order to keep track of time. Within three seconds the jumper should determine whether or not the canopy has opened properly and is controllable.
1. Visible deployment handle:
 - a. ARCH thousand—Exit aircraft and arch.
 - b. LOOK thousand—Maintain arch and look at the ripcord handle.
 - c. REACH thousand—Maintain arch and simultaneously move the left hand over the head and the right hand to the ripcord handle.
 - d. PULL thousand—Pull the handle vigorously, return the arms to the original position.
 - e. CHECK over the right shoulder.
 2. For BOC:
 - a. ARCH thousand—Exit aircraft and arch.
 - b. REACH thousand—Maintain arch and simultaneously move the left hand over the head (palm open and parallel to the ground) and the right hand to the deployment handle.

- c. FEEL thousand—Locate the deployment handle on the bottom right-hand corner of the container and grasp with the thumb pointed downward.
- d. PULL (OR THROW) thousand—Vigorously to the side; return arms to the original position.
- e. CHECK over the right shoulder.

2. LOOK at the combination release and reserve ripcord handle.
3. REACH for the combination handle with both hands.
4. PULL the combination handle to full arm extension and clear cables.
5. PULL again- reach back in with one hand, grasp the cables where they come out of the housing and clear the cables.
6. CHECK CANOPY.

4.18 EQUIPMENT EMERGENCY PROCEDURES

If the parachute is not fully open *or* if it is not controllable, *or* if there is any doubt, it is the jumper's responsibility to perform the appropriate emergency procedures. Specific procedures depend upon the type of equipment being used and the training method being taught. Specific procedures can be found in the equipment owners operating manual.

A. USPA recommends that within 30 days before any jump, each student should practice emergency procedures from a suspended harness. It is best if this practice is conducted under the guidance of a rated Jumpmaster.

B. Piggyback with single point release—the following are sample procedures for use with this type of system.

Note: "Single point release" refers to systems that use one handle, usually located on the right main lift web, to release both risers. Not to be confused with an SOS (see note below).

- Total (nothing deploying) malfunction:
 1. ARCH.
 2. LOOK at the reserve ripcord handle.
 3. REACH for the reserve ripcord handle with both hands.
 4. PULL the reserve ripcord handle with both hands and clear the cables.
 5. CHECK CANOPY.
- Partial (canopy out, but not working properly) malfunction:
 1. ARCH.
 2. LOOK at the release handle.
 3. REACH for the release handle.
 4. LOOK at the reserve ripcord handle before cutting away.
 5. PULL the release handle and throw it away while still looking at the reserve ripcord handle and clear the cables.
 6. REACH for the reserve ripcord handle with both hands.
 7. PULL the reserve ripcord.
 8. CHECK CANOPY.

C. Piggyback with SOS- The following are sample procedures for use with this type of system.

Note: SOS or "Single Operation System" refers to systems which use one combined handle, usually located on the left main lift web, to release both risers AND pull the reserve.

- In the event of any type of malfunction:
1. ARCH.

D. For whichever system is used, it is recommended that if after a maximum of two attempts the main canopy cannot be activated, the jumper should immediately deploy the reserve.

4.19 CANOPY STEERING

A. Before the jump, the student should:

1. Know the intended opening point.
2. Have a flight plan established to guide the canopy to the correct landing area.
3. Use an aerial photo, diagram or observe other jumpers in the air (whenever possible) to give him an advantage in executing the pre-determined flight plan.
4. Be prepared to steer the canopy without depending on assistance. Ground-to-air radios and signals are commonly used but should only be considered as a backup to good training.

B. Under canopy: Once the jumper is under an open parachute, the student should:

1. Locate the intended landing area.
2. Select an open area free of obstacles in which to land:
 - a. It may be necessary to select an alternate landing area if the jumper is unable to steer the parachute to the originally intended landing area.
 - b. It is the jumper's responsibility to continually estimate the probable landing point and make appropriate adjustments to land in a clear area.

C. Canopy control: The task of steering the parachute is called canopy control. Specific procedures may vary depending on the type of equipment and the drop zone being used. The jumper should consult the owners manual for specific procedures on his or her canopy. In general:

1. There are two steering toggles or handles, one on the back of each rear riser.
2. The canopy is turned by pulling down one of the steering toggles:
 - a. Pulling the left toggle will make the canopy turn left.

- b. Pulling the right toggle will make the canopy turn right.
 - 3. The canopy will continue turning as long as the toggle is held down; letting the toggle all the way up will stop the turn.
 - 4. Pulling both toggles down at the same time will cause the canopy to slow its forward speed.
 - 5. Pulling both toggles down and holding them may cause the canopy to stall. This should be avoided at low altitudes. The only exception is that both toggles are pulled down when landing a ram-air canopy.
- D. Canopy maneuvers—full flight: The parachute canopy can be steered to a landing area because of its air speed and steering ability. It travels forward through the air at speeds up to 30 mph depending on its size and type. The jumper can select from three basic flight modes:
- 1. Running—the canopy is facing downwind; the forward speed of the canopy is added to the wind speed to yield the fastest possible ground speed when the canopy is in full flight.
 - 2. Holding—the canopy is facing upwind; the forward speed of the canopy is subtracted from the wind speed to yield the slowest possible ground speed when the canopy is in full flight.
 - 3. Crabbing—also called quartering, the canopy is faced at an angle to the windline. The canopy will drive forward across the windline and at the same time it will drift downwind, resulting in a flight path across the ground that is diagonal to the windline.
- E. Canopy maneuvers—brake flight: The canopy can be flown in various braking modes which affect its forward airspeed and glide angle. When both toggles are all the way up, the canopy is in full flight. Pulling down both toggles evenly will reduce the air speed; the farther they are pulled down the more the canopy's air speed will be reduced. Once the lowest possible air speed is reached further depression of the toggles will result in a stall. In a stall the canopy will rock back and dramatically increase its rate of descent. Stalls should be avoided below 500 feet AGL.
- 1. Half brakes—both toggles are pulled down to about chest level. The forward speed decreases and the angle of attack increases.
 - 2. Full brakes—both toggles are pulled until forward speed is nearly zero.
 - 3. Brake turns—both toggles are pulled down and then one toggle is either depressed further or let up a little. This creates a flatter turn with less loss of altitude than a full-flight turn (only one toggle depressed).
- F. Right-of-way: The lower person has the right of way, both in freefall and under canopy. The higher person should always yield to anyone below. It is important to avoid collisions at all cost.

4.20 LANDING

- A. General: All landings should be made facing into the wind unless it is necessary to take evasive action to avoid obstacles. In that case, the landing should still be made flying straight ahead (not turning). The jumper should always be prepared to perform a parachute landing fall (PLF).
- B. PLF: A PLF is the best way to distribute the landing forces to avoid injury. The proper body position for a PLF includes:
- 1. The feet and knees held tightly together with the knees slightly bent.
 - 2. The thigh muscles tensed and the toes pointed down.
 - 3. The points of contact are:
 - a. The balls of the feet
 - b. The side of the calf
 - c. The side of the thigh
 - d. The side of the buttock
 - e. The side of the back
- C. Recovery: As the jumper rolls smoothly into the PLF the jumper should:
- 1. Follow through by returning to his or her feet.
 - 2. Immediately move down wind of the canopy in order to collapse it and avoid being dragged in high winds.
 - 3. Collapse the canopy by pulling one steering line to rotate the canopy 180 degrees, if a jumper is unable to get back on his or her feet.
- D. Where to land: All landings should be made in a clear area. Beginning skydivers especially should land as far as they can from any type of obstacle. An effective method of avoiding an isolated hazard is to face away from it while still checking periodically to keep track of its location. Since obstacles may be difficult to identify from the air, the jumper should steer clear of all straight line terrain features (roads, ditches, fence rows, etc., since these usually indicate hazards). Before jumping, each jumper should examine an aerial photo of the drop zone and determine the location of all obstacles and potential hazards. It is the jumper's responsibility to continually estimate the actual landing point and make the adjustments necessary to avoid a hazardous landing.

4.21 HAZARDOUS LANDING PROCEDURES

- A. The most important thing to know about landing hazards is to continually make efforts to avoid them.
- B. If the jumper does need to make a hazardous landing, the following procedures should be followed. These procedures should be practiced in a suspended harness.

- C. Powerlines:
1. Continue steering to avoid power lines above all else.
 2. If they cannot be avoided, the jumper should drop the ripcord or anything else in his or her hand.
 3. With a ram-air canopy, hold the toggles at 50% brakes.
 4. With a round canopy, place the hands in between the front and rear risers on each side.
 5. Prepare for a PLF with feet and knees tight together and turn the head to the side.
 6. Do not touch more than one wire at a time.
 7. If suspended in the wires, wait for help from the drop zone personnel.
 8. A jumper suspended from power lines should not let anyone touch him until the power is turned off.

- D. Water: Refer to Section 9-2 for water landing training recommendations.

1. Continue steering to avoid the water.
2. As soon as the jumper determines that the water cannot be avoided, the jumper should begin preparations.
3. Release the chest strap.
4. Inflate the flotation gear.
5. Prepare for a PLF.
6. After entering the water, get out of the parachute equipment and get completely clear of it to avoid becoming entangled.

- E. Trees:

1. Continue steering to avoid the trees.
2. With a ram-air canopy, hold the toggles at 50% brakes until tree contact.
3. Prepare for a PLF.
4. If they cannot be avoided, prepare for a tree landing.
5. Protect the body by keeping the legs tight together (do not cross feet or legs) and cover the face with the hands while holding the elbows tight into the stomach.
6. Steer for the middle of the tree, then hold on to the trunk or main branch to avoid falling.
7. If the feet are above the ground, wait for help from drop zone personnel to get down.

- F. Objects:

1. Continue steering to avoid the object.
2. If it cannot be avoided, prepare for a PLF.
3. Strike the object feet first.

4.22 EMERGENCY PROCEDURES SUMMARY

- A. Emergencies can be divided into four categories:
1. Aircraft emergencies
 2. Freefall emergencies
 3. Equipment emergencies
 4. Landing emergencies

- B. Proper preparation and responsible judgment greatly reduce the probability of encountering an emergency situation, but even with the most careful precautions emergencies may still occur from time to time.

- C. Skydiving is made safe by always anticipating and being prepared to respond to the types of emergencies which are likely to arise.

- D. Before each jump the skydiver should review the procedures to avoid emergency situations and the procedures to respond to emergencies if they do occur.

- E. Safety is defined as reducing the risk factors. Risk can be reduced by:

1. Acquiring accurate knowledge.
2. Jumping in suitable conditions.
3. Evaluating the risk factors.
4. Knowing personal limitations.
5. Keeping options open.

4.23 VERIFICATION OF TRAINING

- A. Testing:

1. Upon completion of ground school and before the first jump, it is common practice and good teaching procedures for all students to be required to pass written, oral and practical tests.
2. Written tests should be designed to have the student explain his or her knowledge and understanding. Oral tests should be used to develop decision making ability. Practical tests should be designed so the student can demonstrate reactions and skills.
3. Tests will not only assure the Instructor that the student has learned, but will also give the student confidence that he has learned how to safely make a skydive.

- B. Before making each subsequent jump, each student should explain and demonstrate to the Jumpmaster that they still remember the knowledge and skills which were previously attained in addition to explaining and demonstrating the new lessons learned.

4.24 RECURRENT TRAINING

- A. Students and novices:

1. All students and novices who have not jumped in 30 days or more should receive refresher training for all standard and emergency procedures which were, or should have been, previously acquired.
2. Special care should be taken to verify that physical skills as well as theoretical knowledge are adequately demonstrated by the student.

- B. Experienced skydivers:
 1. Skydivers who are not current are in a high risk group which needs special consideration to properly manage that risk.
 2. Care should be taken to regain or develop the knowledge, skills and awareness needed to satisfactorily perform the tasks planned for the jump.
 3. Jumps aimed at sharpening survival skills should precede jumps with other goals.

4.25 CURRENCY JUMPS

Experience shows that proficiency in any skill is in direct proportion to the frequency with which the skill is exercised. This is especially true with skills which require presence of mind, coordination, sharpness of reflexes, and control of emotions. The second jump of the day is always easier since anxiety is reduced—the jumper has already experienced one jump. Long lay-offs between jumps not only dull skills but heighten apprehensions. Because of this human characteristic, these procedures are presented to establish currency.

- A. Students—Static Line:
 1. Student skydivers on freefall, being trained by the static line progression method, who have not made a skydive within the preceding 30 days, should make at least one satisfactory static-line jump with a successful practice ripcord pull (PRCP) under the direct supervision of a currently rated USPA SL JM, before returning to freefall status.
- B. Students—Instructor Assisted Deployment (IAD):
 1. Student skydivers on freefall, being trained by the IAD progression method, who have not made a skydive within the preceding 30 days, should make at least one satisfactory IAD jump with a successful practice ripcord pull or practice pilot chute throw under the direct supervision of a currently rated USPA IAD JM, before returning to freefall status.
- C. Novices—Static line and Instructor Assisted Deployment (IAD):
 1. who have graduated from the static line or IAD program but have not yet obtained a USPA A license and have not jumped in the preceding 30 days, should make at least one jump under the direct supervision of a currently rated S/L, IAD, or AFF jumpmaster.
 2. who have graduated from the static line or IAD program but have not yet obtained a USPA A

license and have not jumped in the preceding 60 days, should follow the recurrency recommendations for students.

- D. Students and Novices—AFF and Tandem/IAF:
 1. Who have graduated from the AFF or Tandem/IAF program but have not yet obtained a USPA A license and have not jumped in the preceding 30 days should make at least one jump and demonstrate the ability to start and stop turns, maintain altitude awareness and the ability to maintain stability during deployment. This jump must be made under the direct supervision of a currently rated AFF JM.
- E. Basic Skydivers—USPA A License holders:
 1. 60 days: who have not made a freefall skydive within the preceding 60 days should make at least one solo jump under the direct supervision of a currently rated USPA S/L, IAD, or AFF JM.
 2. 90 days:
 - a. Static Line and IAD: who have not made a freefall skydive within the preceding 90 days should make at least one satisfactory static line jump with a practice ripcord pull and one freefall under the direct supervision of a USPA JM currently rated in the method by which the jumper was trained, or:
 - b. AFF or IAF: make at least one jump to demonstrate the ability to start and stop turns and maintain altitude awareness and stability during deployment. This jump should be made under the direct supervision of a currently rated AFF JM.
- F. Intermediate Skydivers—USPA B License holders: who have not made a freefall skydive within the preceding 90 days should make at least one jump under the direct supervision of a S/L, IAD, or AFF Jumpmaster.
- G. Advanced Skydivers—USPA C License holders: who have not made a freefall skydive within the preceding 120 days should make at least one jump under the direct supervision of a S/L, IAD, or AFF Jumpmaster.
- H. Master Skydivers—USPA D License holders: who have not made a freefall skydive within the preceding six months should make at least one jump under the direct supervision of a S/L, IAD, or AFF Jumpmaster.

SECTION 5

STATIC LINE AND INSTRUCTOR ASSISTED DEPLOYMENT (IAD) PROGRESSION METHODS

5.01 INTRODUCTION

This section includes procedures and progression for both the Static Line and IAD methods of instruction. The main difference between these two programs is the deployment method used for the student's main parachute. The progression sequence listed in 5.08 through 5.14 of this section apply to both S/L and IAD students.

A static line student must be jumpmastered by a currently rated USPA S/L JM. A S/L student is put out on his or her initial five jumps with a static line system that complies with FAR 105.43(b) regarding assist devices. The S/L student uses a ripcord activated, spring loaded pilot chute for their freefall jumps.

An IAD student must be jumpmastered by a currently rated USPA IAD JM. An IAD student is put out on his or her initial five jumps with an appropriately sized throw out pilot chute that is released by the JM at the proper moment during the student's exit. The IAD student may use either a ripcord activated, spring loaded pilot chute or a throw out pilot chute for freefall jumps. It is recommended that an IAD student use the same method of deployment on all freefall jumps.

Each lesson or phase of instruction includes five basic skill areas. In this section, information pertaining to the student's action in performing each skill is identified along with the theoretical knowledge that should be learned as these skills are being developed. The model for each phase lists the learning objectives and performance or knowledge requirements each student should meet. Each phase expands and builds upon the knowledge and skills acquired during the previous phase, so correct performance is required for advancement.

5.02 SCOPE

This training program features lessons in the following:

Basic orientation:

- Equipment preparation
- Performance preparation
- Aircraft procedures and exit
- Body position
- Canopy check, control and landing
- Altimeter use

Practice ripcord pulls or practice pilot chute throws:

- Coordinated movement

First freefall:

- Time awareness
- Stability

10-second freefalls:

- Heading maintenance
- Spotting introduction

15-second freefalls:

- Controlled turns
- Equipment checks

30-second freefalls:

- Figure-8s

- Backloops
- Delta position
- RW introduction (hook-up)
- Wave off

45-second freefalls:

- Equipment inspection
- Self-spotting
- Front loops
- Barrel rolls
- Turns and redocks

5.03 SUPERVISION REQUIREMENT

Student participation in this program requires instruction from an appropriately rated (S/L or IAD) USPA Instructor. Each jump requires the direct supervision of an appropriately rated (S/L or IAD) USPA Jumpmaster until the student has been released from this requirement by the Instructor. Only AFF rating holders are authorized to make harness hold jumps with students. All other student jumps, except tandem jumps, are to be solo, no-contact exits.

5.04 SKILL MODEL DEFINITION

Each segment of the skill model illustrates the actions required of the student.

- Equipment Preparation:** This area defines the learning objectives related to operating, donning, inspecting and packing the parachute system and accessory equipment. It includes the knowledge and skills each student should acquire before being cleared to jump without direct Jumpmaster supervision.
- Performance Preparation:** This area defines techniques for each student to physically and mentally use before each jump in order to enhance performance and maintain safety.
- In Flight:** This area defines procedures to be employed during the aircraft ride, to include boarding, the climb to altitude and the exit. These procedures should be used by all skydivers.
- Freefall:** This area defines the maneuvers and actions which occur after exit and until opening the parachute. Since each phase builds upon the previous phase, correct performance is required for advancement.
- Canopy Control and Landing:** This area defines the techniques used to guide the parachute to a safe landing in the designated area. Each step is designed to improve the student's skill and proficiency. Student performance is the basis for advancement.

5.05 GENERAL

Specific training programs may vary from one drop zone to another but the information presented here serves as a general indication of how the static line progression program is structured. Emphasis is on the knowledge and skills which must be acquired by the skydiving student to progress to the recreational level. No specific number of hours of instruction is required since each student learns at his or her own rate. A satisfactory performance is necessary for advancement.

5.06 GROUND SCHOOL

Each student should satisfactorily complete a first-jump course, as outlined in Section 4, before jumping. The following information describes a course of instruction which includes the first jump and continues through a progression system which will qualify the student for the Basic Skydiver A License upon satisfactory completion.

5.07 EXIT PROCEDURES

Exit procedures will vary according to the type of aircraft being used but will generally include the following:

- A. Basic commands (from Jumpmaster):
 - 1. Preparatory: This command tells the student to stand by or be ready to move into the exit position. For example: "Put your feet out!" or "Move to the door!"
 - 2. Move to the exit position: This command directs the student into the position from which he or she will launch from the aircraft. For example: "Hang from the strut!" or "Stand in the door!"
 - 3. Exit: This is the command to exit the aircraft. For example: "GO!"
- B. Body position: Proper body position is important for a good exit.
 - 1. The specific launch or exit position will vary according to the aircraft type.
 - 2. The exit will usually be designed so the student will launch himself into a position facing into the relative wind with the arms and legs fully spread, the head back and the back fully arched. By maintaining a good arch the jumper will initially be facing forward in the direction of flight and gradually settle into a face-to-earth position.
 - 3. At the moment of exit the jumper should begin a loud verbal count. For example:
 - "Arch-thousand"
 - "Two-thousand"
 - "Three-thousand"
 - "Four-thousand"
 - "Check" (canopy)

Note: The length of the count may be adjusted depending on the equipment and aircraft being used.

- C. Common types of exit:
 - 1. Poised—standing on the step outside the door with the hands braced against the wing strut.
 - 2. Hanging—from the strut with the legs blowing back in the slipstream is a successful technique for encouraging stability.
 - 3. Sitting—in some types of aircraft the student may sit on the floor with his or her feet out or simply stand in the door.

5.08 BASIC ORIENTATION (2 JUMPS)

Static line or IAD from 3,000 feet AGL

- A. Equipment preparation:
 - 1. Explain main parachute deployment.
 - 2. Explain how to distinguish between a properly opened canopy and a partial or total malfunction.
 - 3. Explain and demonstrate reserve deployment procedures.
 - 4. Explain and demonstrate the use of flotation equipment (when used).
 - 5. Explain the use and handling of an altimeter.
- B. Performance preparation:
 - 1. Demonstrate the proper technique for moving from the climb-to-altitude position in the aircraft to the ready-to-jump position.
 - 2. Demonstrate the proper sequence and body position to perform a stable, controlled exit, to include a verbal count and canopy check.
 - 3. Physically rehearse all routine phases of the planned jump.
 - 4. Physically rehearse responses to emergencies that could occur during the flight or jump.
 - 5. Identify the wind direction relative to recognizable landmarks and explain the pre-planned canopy flight pattern, including use of altimeter to coordinate altitude and position over the ground.
 - 6. Demonstrate the proper body position and technique for landing.
- C. In flight:
 - 1. Perform correct procedures for entry and seating in the aircraft.
 - 2. Verbally review the key points of the jump with the Jumpmaster.
 - 3. Visually locate the DZ, target and windsock from 2,000 feet or higher.
 - 4. Perform a controlled exit.
- D. Freefall:
 - 1. Demonstrate the stable spread body position.
 - 2. Check the canopy within six seconds after exit.
- E. Canopy control and landing:
 - 1. Release the deployment brakes and establish steering control.

2. Perform in accordance with the predetermined flight plan and in response to directions received during the descent.
3. Make all major turns above 500 feet AGL.
4. Land in a clear area; minor turns below 500 feet are acceptable to avoid obstacles or stay facing into the wind.
5. Land with feet and knees together and be prepared to perform a PLF.
6. Immediately after landing, run to the downwind side of the canopy to avoid the chance of being dragged.

6. Utilize positive mental imagery to practice all actions planned for the jump.

- C. In flight:
 1. Repeat all in flight procedures of previous lesson.
 2. Use controlled breathing to relax (inhale slowly and deeply, hold it for a second and relax while exhaling).

Note: Three controlled exits are required for advancement.

- D. Freefall:
 1. Demonstrate stability throughout entire freefall.
 2. Check canopy upon completion of PRCP or PPCT.

Note: three satisfactory PRCPs or PPCTs are required for advancement.

- E. Canopy control and landing:
 1. Perform all objectives of previous lesson.

Note: Landings with ram-air canopies may include stand-ups.

5.09 PRACTICE RIPCORD PULLS OR PRACTICE PILOT CHUTE THROWS/PULLS (3 JUMPS)

Static line or IAD from 3,000 feet AGL

- A. Equipment preparation:
 1. Explain and demonstrate knowledge and skills acquired in previous lesson.
 2. Increase involvement with inspection and donning of equipment.
- B. Performance preparation:
 1. Explain and demonstrate knowledge and skills acquired in previous lesson.
 2. Practice body position for stability in a horizontal trainer.
 3. Practice sequence of actions necessary for practice ripcord pull (PRCP) or practice pilot chute pull (PPCT) in the same manner that will be used on the first freefall:
 - a. For visible deployment handle:
 - i. LOOK- while maintaining arch, establish visual contact with the deployment handle.
 - ii. REACH- maintain arch and view of the handle while reaching for it with the right hand; at the same time, move the left hand over the head with the palm open and parallel to the ground.
 - iii. PULL- grasp the handle and pull it, returning to the spread position while keeping the eyes on the handle.
 - b. For BOC-mounted systems:
 - i. ARCH
 - ii. REACH- maintain arch while reaching for handle with right hand; at the same time, move the left hand over the head with the palm open and parallel to the ground.
 - iii. THROW- grasp the handle; with the palm of the hand facing up and the thumb down, pull (or throw) the handle vigorously to the side.
 4. Physically rehearse all phases as in previous lesson.
 5. Identify DZ and pre-planned flight path as in previous lesson.

5.10 FIRST FREEFALL (1 JUMP)

Freefall from 3200 feet AGL. To be made on the same day as the last properly performed PRCP or PPCT.

- A. Equipment preparation:
 1. Explain and demonstrate knowledge and skills acquired in previous lessons.
 2. Actually pull ripcord or throw pilot chute on the on the rig that will be used on this jump.
- B. Performance preparation:
 1. Demonstrate entire jump sequence to the Jumpmaster; sequence of actions to be the same as for the preceding jump except deployment will not begin until pull.
 2. Demonstrate proper response to freefall emergency situations.
- C. In flight:
 1. Repeat all procedures of previous lessons.
 2. Concentrate on positive mental imagery and controlled breathing.
- D. Freefall:
 1. Perform sequence identical to PRCP jumps.
 2. Pull ripcord or throw pilot chute not more than five seconds after exit.
 3. Maintain stability to qualify for advancement.
- E. Canopy control and landing:
 1. Perform all objectives of previous lesson.

5.11 10-SECOND FREEFALLS (2 JUMPS)

Freefalls from 4,000 feet AGL

- A. Equipment preparation:
 1. Demonstrate ability to inspect, don and adjust equipment with assistance.

Note: Packing instructions should begin by the time this level is reached.

- B. Performance preparation:
 - 1. Demonstrate knowledge of and ability to use an altimeter.
 - 2. Demonstrate technique required to maintain heading during freefall.
 - 3. Concentrate on relaxing physically and mentally in freefall by using the basic stable freefall position.
 - 4. Physically rehearse entire jump.
- C. In flight:
 - 1. Repeat all in flight procedures of previous lessons.
 - 2. Demonstrate understanding of the basics of spotting and observe the spotting process.
- D. Freefall:
 - 1. Maintain a relaxed, stable body position during freefall.
 - 2. Maintain heading within 90-degree during freefall.
 - 3. Demonstrate altitude awareness by pulling at the proper altitude.
- E. Canopy control and landing:
 - 1. Perform all objectives of previous lessons.
 - 2. Land within 50 meters of center of landing area with minimal ground-to air instruction.

5.12 15-SECOND FREEFALLS (2 JUMPS)

Freefalls from 5,000 feet AGL

- A. Equipment preparation:
 - 1. Demonstrate ability to inspect, don and adjust equipment without assistance.
- B. Performance preparation:
 - 1. Practice body position and technique for basic, controlled turns.
 - 2. Physically rehearse entire jump.
- C. In flight:
 - 1. Apply knowledge of spotting principles and wind at altitude.
 - 2. Perform spotting with direct supervision.
 - 3. Self-check equipment before exit.
- D. Freefall:
 - 1. Hold heading for five seconds and then perform slow, controlled 180-degree and 360-degree turns in alternating directions.
 - 2. Maintain stability and altitude awareness throughout freefall.
 - 3. Pull at the proper altitude.
- E. Canopy control and landing:
 - 1. Land within 50 meters of center of landing area without ground-to-air supervision.

- 2. Demonstrate proper approach and landing techniques.

5.13 30-SECOND FREEFALLS (2 JUMPS)

Freefalls from 7,500 feet AGL

- A. Equipment preparation:
 - 1. Pack main canopy.
 - 2. Repeat all procedures of previous lesson.
- B. Performance preparation:
 - 1. Practice body position and techniques for alternating 360-degree turns, backloops and the delta position.
 - 2. Practice techniques for being the base for a two-way hook-up.
 - 3. Explain RW safety procedures including maintaining altitude awareness during the freefall and waving off before pulling.
 - 4. Physically practice entire jump.

Note: JM should select the maneuvers to be performed; it will require more than one jump to meet all of the objectives of this phase.

- C. In flight:
 - 1. Brief pilot with assistance.
 - 2. Repeat all procedures of previous lessons.
 - 3. Perform a door exit.
- D. Freefall:
 - 1. Establish heading and altitude after exit.
 - 2. Maintain altitude awareness.
 - 3. Perform backloop followed by two alternating 360-degree turns.
 - 4. Maintain heading while assuming delta position and hold for five seconds
 - 5. Exit and lay base for a hook-up with the Jumpmaster.
 - 6. Wave off before pulling on all RW jumps
 - 7. Pull at the proper altitude.
- E. Canopy control and landing:
 - 1. Land within 25 meters of center of the landing area.
 - 2. Demonstrate proper approach and landing techniques.

5.14 45-SECOND FREEFALLS (3 JUMPS)

Freefalls from 9,500 feet AGL

- A. Equipment preparation:
 - 1. Demonstrate ability to inspect, don and adjust equipment properly.
 - 2. Demonstrate ability to inspect and pack main canopy.
- B. Performance preparation:

1. Explain and demonstrate knowledge of RW safety procedures (both in freefall and under canopy) including wave off before pulling.
2. Practice techniques for front loops and barrel rolls.
3. Practice techniques for 2-way hook-ups followed by turns and redocks.
4. Rehearse entire jump sequence.

Note: Jumpmaster should select the maneuvers to be performed; it will require more than one jump to meet all of the objectives of this phase.

- C. In flight:
 1. Brief pilot without assistance.
 2. Spot properly without assistance.
 3. Self-check equipment.
- D. Freefall:
 1. Demonstrate full body control and ability to perform all individual maneuvers.
 2. Successfully turn and redock with Jumpmaster.

3. Demonstrate ability to turn 180-degree from the center of the formation, achieve proper separation and perform a wave off before pull.
4. Pull at the proper altitude.

- E. Canopy control and landing:
 1. On each jump land within 25 meters of center of the landing area.
 2. Demonstrate safe canopy control procedures.

5.15 CONTINUING ADVANCEMENT

- A. The novice skydiver's immediate goal should be to obtain the USPA A License, which is the classification of Basic Skydiver.
- B. Progress should continue with supervision and coaching, although supervision by a USPA rated Jumpmaster may no longer be necessary.
- C. Level 8—Continuing Education is a training outline designed to serve as a guideline in developing the skills and experience required to progress to the A License level and beyond. Level 8 is described in Section 8.

SECTION 6

ACCELERATED FREEFALL PROGRESSION METHOD

6.01 INTRODUCTION

Each lesson or phase of instruction includes five basic skill areas. In this section, information pertaining to the student's action in performing each skill is identified along with the theoretical knowledge which should be learned as these skills are being developed. The model for each phase lists the learning objectives and performance or knowledge requirements each student should meet. Each phase expands and builds upon the knowledge and skills acquired during the previous phase, so correct performance is required for advancement.

6.02 SCOPE

This training program features lessons in the following:

Level I

- Basic orientation
- Aircraft procedures
- Exit
- Body position
- Canopy controllability check
- Canopy control
- Landing
- Practice ripcord pulls
- Coordinated movement
- Altimeter use
- Time awareness

Level II

- Awareness
- Stability
- Coordinated movement

Level III

- Heading maintenance
- Solo pull
- Spotting introduction

Level IV

- Controlled 90-degree turns
- Turns and redocks
- Equipment checks

Level V

- Forward movement
- Controlled 360-degree turns
- Wave-off

Level VI

- Solo poised exit
- Backloops
- Delta position

Level VII

- Diving exit
- Front loops
- Sequence of maneuvers

6.03 BACKGROUND

The Accelerated Freefall method of instruction is a modernized approach to basic skydiving instruction which was developed by Kenneth F. Coleman, Jr. This method is targeted to the serious skydiving student but is also a good opportunity for the one-time student to experience skydiving.

6.04 CONCEPT

The AFF method is based on three concepts:

- A. Direct assistance provided by the jumpmaster during the pre-jump training and utilization of the harness-hold technique during freefall.
- B. The presentation of information and development of skills in a logical progression system.
- C. The use of modern equipment and skills for maximum benefit.

6.05 DIRECT ASSISTANCE-HARNES HOLD

The student receives a private lesson for each jump. One or two AFF-rated Jumpmasters accompany the student on each jump to provide dual instruction in freefall and assist the student as much as possible.

6.06 PROGRESSION SYSTEM

This method teaches the fundamental skydiving skills in a logical order beginning with basic survival skills and progressing through basic maneuvering skills. The program has been divided into seven steps or levels. Each level is a convenient grouping of lessons and targeted learning objectives (TLOs), although a lesson can be tailored to fit a specific student or circumstances.

6.07 EQUIPMENT

The AFF method stresses the use of modern equipment for the student's best advantage. The BSRs require that each student be equipped with a piggyback harness and container system which has a spring-loaded pilot chute activated by a ripcord or a throw-out pilot chute mounted on the bottom of the main container, an AAD, a ram-air main, a steerable reserve, and his or her own visually accessible altimeter. The main should have docile handling characteristics and be appropriate for his or her weight. The reserve is to be steerable and equipped with an RSL.

6.08 APPLICATION

- A. AFF is primarily a training method for first-time students or for students who have already had an introduction to skydiving through other methods and want to learn skydiving in an efficient program.

- B. AFF training techniques can also be effectively used as isolated lessons for students being trained by the static-line method; or this technique can be used in hybrid training methods which combine tandem, static-line, and AFF training methods.
- C. Regardless of the training method, all harness-hold jumps made with students are to be performed only with Accelerated Freefall rating holders. All other student jumps (except tandem jumps) are to be solo, no-contact exits.

6.09 SUPERVISION REQUIREMENT

Student participation in this program requires instruction from a USPA AFF Instructor rating holder. Each jump requires the direct supervision of a USPA AFF Jumpmaster rating holder until the student has passed all of the learning objectives of the AFF program.

6.10 SKILL MODEL DEFINITION

Each segment of the skill model illustrates the actions required of the student.

- A. **Equipment Preparation:**
This area defines the learning objectives related to operating, donning, inspecting and packing the parachute system and accessory equipment. It includes the knowledge and skills which each student should acquire before being cleared from the AFF program.
- B. **Performance Preparation:**
This area defines techniques for each student to physically and mentally prepare for each jump in order to enhance performance and enjoyment and maintain safety.
- C. **In Flight:**
This area defines procedures to be employed during the aircraft ride, to include boarding, the climb to altitude and the exit. These procedures should be used by all skydivers.
- D. **Freefall:**
This area defines the maneuvers and actions which occur after exit and until opening the parachute. Since each phase builds upon the knowledge and skills acquired in the previous phase, correct performance is required for advancement.
- E. **Canopy Control and Landing:**
This area defines the techniques to guide the parachute to a safe landing in the designated area. Each step is designed to improve the student's skill and proficiency. The student's performance is the criterion for advancement.

6.11 TRAINING—GENERAL

- A. Specific training programs may have minor variations from one drop zone to another, but the information presented here serves as an indication of how the AFF pro-

gram is structured. Emphasis is on the knowledge and skills which must be acquired by the skydiving student to progress to the recreational level. No specific number of hours of instruction is required; each student learns at his or her own rate. Since each lesson builds upon and advances from the previous lesson, a satisfactory performance is necessary for advancement.

- B. **Ground School:** Each AFF student should satisfactorily complete a first jump course, as outlined in Section 4, before jumping. The following information describes a course of instruction which includes the first jump and continues through a progression system which will qualify the student for the Basic Skydiver, A License upon satisfactory completion.
- C. **Exit Procedures:** Exit procedures will vary according to the type of aircraft being used but will generally include the following:
 1. **Basic Commands:**
 - a. **Preparatory (from Jumpmaster):** This command tells the student to stand by or be ready to move into the exit position. For example: "Put your feet out!" or "Move to the door!"
 - b. **Move to the exit position (from Jumpmaster):** This command directs the student into the position from which they will launch from the aircraft. For example: "Climb out!" or "Stand in the door!"
 - c. **Exit (from student):** This is the command to jump. For example: "Up, down, ARCH!"
 2. **Proper body position is important for a good exit.**
 - a. The specific launch or exit position will vary according to the aircraft type.
 - b. The exit will usually be designed so the student will launch into a position facing into the relative wind with the arms and legs spread, the head back, and the back fully arched. By maintaining a good arch, the jumper will initially be facing forward in the direction of flight and gradually settle into a face-to-earth position.

6.12 LEVEL 1—FREEARM

- A. **Equipment preparation:**
 1. Explain main parachute deployment.
 2. Explain how to distinguish between a properly opened canopy and a partial or total malfunction.
 3. Explain and demonstrate reserve deployment procedures.
 4. Explain and demonstrate the use of flotation equipment (when used).
 5. Perform an actual ripcord pull before the jump.
- B. **Performance preparation:**

1. Demonstrate the proper technique for moving from the climb-to-altitude position in the aircraft to the ready-to-jump position.
 2. Demonstrate the proper sequence and body position to perform a stable, controlled exit, to include a verbal count and canopy check.
 3. Physically rehearse all routine phases of the planned jump.
 4. Practice sequence of actions for practice ripcord pulls (PRCPs) in the same manner that will be used for the actual pull:
 - a. LOOK—while maintaining arch, establish visual contact with the ripcord handle.
 - b. REACH—maintain arch and view of the handle while reaching for it with the right hand; simultaneously move the left hand to a position over the head with the palm open and parallel to the ground.
 - c. PULL—Grasp the handle and pull it, returning to the spread position while keeping the eyes on the handle.
 - d. CHECK—Look over the right shoulder at the pilot chute.
 5. Physically rehearse responses to emergencies that could occur during the flight or jump.
 6. Identify the wind direction relative to recognizable landmarks and explain the pre-planned canopy flight pattern.
 7. Demonstrate the proper body position and technique for landing.
- C. In flight:
1. Perform correct procedures for entry and seating in the aircraft.
 2. verbally review the key points of the jump with the Jumpmaster.
 3. Visually locate the DZ, target and windsock from 2,000 feet or higher.
 4. Perform a controlled exit.
- D. Freefall:
1. Exposure to continuous freefall.
 2. Heading awareness.
 3. Focused awareness and attention.
 4. Three coordinated practice pulls.
 5. Altitude awareness.
 6. Actual ripcord pull by 4,000 feet.
- E. Canopy control and landing:
1. Release the main canopy deployment brakes and establish steering control.
 2. Perform in accordance with the predetermined flight plan and in response to any directions received during the descent.
 3. Make all major turns above 500 feet AGL.
 4. Land in a clear area; minor turns below 500 feet are acceptable to avoid obstacles or stay facing into the wind.

5. Land with feet and knees together and be prepared to perform a PLF.
6. Immediately after landing, pull one toggle in and run to the down-wind side of the canopy to avoid the chance of being dragged.

6.13 LEVEL 2—BODY AWARENESS

- A. Equipment preparation:
1. Explain and demonstrate knowledge and skills acquired in previous lesson.
 2. Increase involvement with inspection and donning of equipment.
- B. Performance preparation:
1. Explain and demonstrate knowledge and skills acquired in the previous lesson.
 2. Practice body position for stability in a horizontal trainer.
 3. Practice sequence of actions for a practice ripcord pull (PRCP) in the same manner that will be used during the actual pull:
 - a. LOOK—while maintaining arch, establish visual contact with the ripcord handle.
 - b. REACH—maintain arch and view of the handle while reaching for it with the right hand; at the same time move the left hand to a position over the head with the palm open and parallel to the ground.
 - c. PULL—grasp the handle and pull it, returning to the spread position while keeping the eyes on the handle.
 4. Physically rehearse all planned freefall actions as in previous lesson.
 5. Identify DZ and pre-planned flight path as in previous lesson.
 6. Utilize positive mental imagery to practice all actions planned for the jump.
- C. In flight:
1. Repeat all in flight procedures of previous lesson.
 2. Use controlled breathing to relax (inhale slowly and deeply, hold it for a few seconds and relax while exhaling).
 3. Call out altitudes and landmarks to jumpmaster.
- D. Freefall:
1. Maximum free-arm time.
 2. Three PRCPs.
 3. Heading awareness during freefall.
 4. Trim control or body awareness exercises.
 5. Relaxed, arched body position.
 6. Pull by 3,500 feet.
 7. Observe pilot chute deployment.
- E. Canopy control and landing:
1. Perform all objectives of previous lesson.

Note: Landings may include stand-ups.

6.14 LEVEL 3—RELEASE DIVE

- A. Equipment preparation: Explain and demonstrate knowledge and skills acquired in previous lessons.
- B. Performance preparation:
 - 1. Demonstrate knowledge of and ability to use an altimeter.
 - 2. Demonstrate technique required to maintain heading during freefall.
 - 3. Concentrate on relaxing physically and mentally in freefall by using a properly trimmed, neutral, relaxed arch position.
 - 4. Physically rehearse entire jump.
- C. In flight:
 - 1. Repeat all procedures of previous lessons.
 - 2. Concentrate on positive mental imagery and controlled breathing.
- D. Freefall:
 - 1. Leg awareness and control modes (practice pull optional)
 - 2. Heading maintenance—principles of turning
 - 3. Hover control—release by 6,000 feet.
 - 4. Unassisted solo pull by 3,000 feet (start by 3,500 feet).
- E. Canopy control and landing: Perform all objectives of previous lesson with more precision.

6.15 LEVEL 4—TURNS TO REDOCK

- A. Equipment preparation: Demonstrate ability to inspect, don, and adjust equipment with assistance.
- B. Performance preparation:
 - 1. Demonstrate knowledge of and ability to use an altimeter.
 - 2. Demonstrate technique required to maintain heading during freefall.
 - 3. Concentrate on relaxing physically and mentally in freefall by using the proper neutral body (box) position.
 - 4. Explain formation skydiving safety procedures, including maintaining altitude awareness during the freefall and waving off before pulling.
 - 5. Physically rehearse the entire jump.
- C. In flight:
 - 1. Repeat all in flight procedures of previous lessons.
 - 2. Demonstrate understanding of the basics of spotting and observe the spotting process.
- D. Freefall:
 - 1. Controlled turns—Stop and start 90-degree alternating turns.
 - 2. Forward movement to redock—introduction

- 3. Wave off, then pull at or above 3,000 feet.
- E. Canopy control and landing:
 - 1. Perform all objectives of previous lessons.
 - 2. Land within 50 meters of center of landing area with minimal ground-to-air instruction.

6.16 LEVEL 5—TURNS TO REDOCK

- A. Equipment preparation: Demonstrate ability to inspect, don, and adjust equipment without assistance.
- B. Performance preparation: Same as Level 4 but with greater precision.
- C. In flight:
 - 1. Apply knowledge of spotting principles and winds aloft.
 - 2. Perform spotting with direct supervision, calling out corrections to the jumpmaster.
 - 3. Self-check equipment prior to exit.
- D. Freefall:
 - 1. 360-degree turns, one before each dock.
 - 2. Forward movement and docking without assistance.
 - 3. Control of all three axes—pitch, yaw, and roll.
 - 4. Wave off before pull.
- E. Canopy control and landing:
 - 1. Land within 50 meters of center of landing area without ground-to-air supervision.
 - 2. Demonstrate proper approach and landing techniques.

6.17 LEVEL 6—SOLO EXIT

- A. Equipment preparation:
 - 1. Repeat all procedures of previous lesson.

Note: Packing instructions should have begun by the time this level is reached.
- B. Performance preparation:
 - 1. Practice body position and techniques for alternating 360-degree turns.
 - 2. Practice backloops and recovery.
 - 3. Practice delta position.
- C. In flight:
 - 1. Brief pilot with assistance.
 - 2. Repeat all procedures of previous lessons.
 - 3. Perform a stable, poised exit without assistance.
 - 4. Spotting (direct to pilot).
- D. Freefall:
 - 1. Solo no-contact exit.
 - 2. Subterminal heading control.
 - 3. Two backloops.

4. Tracking to (introduction) demonstrate ability to gain horizontal separation.
 5. Wave off before pull.
- E. Canopy control and landing:
1. Land within 25 meters of center of the landing area.
 2. Demonstrate proper approach and landing techniques.

6.18 LEVEL 7—CLEARANCE DIVE

- A. Equipment preparation:
1. Demonstrate ability to inspect, don, and adjust equipment properly.
 2. Demonstrate ability to inspect and pack main canopy.
- B. Performance preparation:
1. Practice body position and technique for a controlled diving exit.
 2. Practice techniques for front loops.
 3. Practice tracking for horizontal separation.
 4. Explain and demonstrate knowledge of formation skydiving safety procedures (both in freefall and under canopy), including wave-off before pulling.
 5. Rehearse entire jump sequence.
- C. In flight:
1. Brief pilot without assistance.
 2. Spot properly without assistance.

3. Self-check equipment.

- D. Freefall:
1. Diving exit with no contact—maintain or recover control.
 2. Intentional front loop.
 3. Chain of controlled maneuvers—right turn, left turn, backloop (1/2 series); a barrel roll may also be used.
 4. Tracking as altitude permits; wave off prior to pull.
- E. Canopy control and landing:
1. Land within 25 meters of center of the landing area.
 2. Demonstrate safe canopy control procedures.

6.19 LEVEL 8—CONTINUING EDUCATION

- A. The novice skydiver's immediate goal should be to obtain the USPA A license which is the classification of Basic Skydiver.
- B. Progress should continue as supervision and coaching, although supervision by a USPA rated Jumpmaster is no longer required, at least until the skydiver obtains an A License.
- C. Level 8 is a training outline designed to serve as a guideline in developing the skills and experience required to progress to the A License level and beyond. Level 8 is outlined in Section 8.

SECTION 7

TANDEM/INSTRUCTOR ASSISTED FREEFALL (IAF) PROGRESSION METHOD

7.01 INTRODUCTION

- A. The Tandem/IAF (instructor assisted freefall) program is an accelerated training method combining tandem and single-jumpmaster AFF. This method is designed to efficiently provide individualized instruction to all students. By teaching each student progressively through each successive level, a student's training is completed over the course of several sessions rather than in a single, lengthy first-jump course. This allows students who want to pursue skydiving seriously to do so at a comfortable pace, while those who wish to make only one jump need complete only the portion of instruction required for their first level.
- B. The direct physical presence of a Tandem Instructor on a first jump greatly reduces a student's level of stress. Thus, the student is able to relax and overcome sensory overload easily. This greatly increases a student's self-confidence and allows instructors to quickly advance the student from tandem instruction to instructor assisted freefall skydives using one jumpmaster.

7.02 SCOPE

- A. There are two phases of training:
 - Phase 1. The Tandem Phase
 - Phase 2. The Single-Jumpmaster Phase (IAF)

Each sets forth guidelines by which the student progresses, but also allows some discretion as to the precise manner or progress. There can be no compromise of the essential notion that the student must progress as a result of satisfactory accomplishment of all TLOs (targeted learning objectives) of each phase before advancing. This program specifies the minimum number of jumps and freefall time that the student must achieve before advancing. This program also acknowledges the latitude that must be allowed for varying physical facilities and aircraft existing within the skydiving industry.

- B. The tandem phase is divided into two parts. The first part specifies the required material that all tandem jumpers must be taught before making their first jump. The second part addresses the material that a continuing student will be taught while advancing toward the IAF phase.
- C. Before entry to the single-jumpmaster phase (IAF), the student must have completed all elements of the tandem phase, plus the comprehensive ground school (CGS). The CGS is the sum of all learning that the student must have achieved prior to making the first IAF skydive. The con-

tent should include ultimately all topics taught in the AFF first-jump course. The CGS may be ongoing during the tandem phase, but the structure of the CGS is such that wide discretion is allowed in the manner of its accomplishment. As long as all pertinent instruction is provided before the first IAF jump, the specific technique is not mandated. For example, over a range of three or more tandem jumps made in Phase 1, the CGS may be presented in one or more sessions, ranging from pre-first jump to post-tandem phase. The instruction is distributed throughout the tandem phase so that it is more easily absorbed. In this way, the transition to IAF jumps will be smooth and relatively stress-free.

- D. The IAF phase of the program is similar to the tandem phase in that it specifies a minimum number of jumps and freefall time that the student must achieve before being cleared to solo freefalls. During these IAF jumps, the student must complete all the required TLOs. The manner and order in which an instructional staff wishes to have their students meet the TLOs of this course is left to their discretion as long as minimums are met. Once solo status has been achieved, novices will begin to further their skills by working toward and completing the USPA A license requirements.

7.03 SUPERVISION REQUIREMENTS

- A. Student participation in the tandem phase of this program requires instruction from a USPA Tandem Instructor for the tandem first jump ground school. Each jump requires the direct supervision of a USPA Tandem Instructor until the student has completed all TLOs of the Tandem phase and has been cleared for the IAF phase by a USPA Tandem Instructor.
- B. Student participation in the IAF portion of this program requires instruction from a USPA AFF Instructor for the comprehensive ground school prior to making any IAF jumps. Each IAF jump requires the direct supervision of a USPA AFF Jumpmaster until the student has completed all TLOs of the IAF phase and has been released from this requirement by a USPA AFF Instructor.

7.04 TANDEM FIRST-JUMP COURSE

One USPA Tandem Instructor required.

- A. Goals: To provide environmental familiarization of skydiving in an effort to introduce basic survival skills needed to continue in the sport. Emphasis is placed on the safe, low-anxiety aspect of the jump.

- B. Student Procedures: Minimum TLOs for the first tandem jump are listed below in sections 1 and 2, inclusive. These must be satisfactorily completed by the student before advancing to the next level. **These are the minimum TLOs that every tandem first-jump student must be taught:**
1. Equipment Orientation:
 - a. Main: Explain location, size compared with solo canopy.
 - b. Reserve: Explain location, size compared with main canopy.
 - c. Drogue: Use, function, location.
 - d. Student ripcord (i.e. student drogue release): Use, function, location.
 - e. Student harness: Four attachment points plus student ripcord.
 - f. Clothing: Jumpsuit or clothing (tight-fitting).
 - g. Goggles: Accommodate glasses, contact lenses.
 - h. Soft helmet
 - i. Shoes
 - j. Altimeter
 - k. AAD
 2. Performance Preparation:
 - a. Exit: Prior to any exit, run through the entire hook-up and exit sequence with the student's harness attached and tightened down to the Tandem Instructor. Review exit and initial freefall body position. Repeat verbal checklist with student, and get student acknowledgment prior to exit.
 - b. Freefall Stability: Explain basic principles of body control.
 - 1) Arm position
 - 2) Head
 - 3) Leg position
 - 4) Torso position
 - c. Altitude Awareness:
 - 1) Altitude awareness is extremely important to every skydiver.
 - 2) Each jumper must know when to deploy the main to provide enough time and altitude to perform emergency procedures, if necessary.
 - 3) A jumper can determine altitude by cross checking the altimeter with his or her internal clock and the ground.
 - 4) A back-up method is to look at the ground.
 - 5) Introduce and explain how to read an altimeter.
 - 6) Explain the relationship between time and altitude.
 - 7) Establish and explain altitude check procedures.
 - d. Ripcord Pull: Each tandem student must receive instruction in the proper use of the ripcord.
 - e. Canopy Control: Each tandem student must be introduced to the basics of canopy control.
 - f. Landings: Tandem students must be familiar with landing to include landing direction, hand position, leg position, and verbal commands.
 - g. Post Landings: Each tandem student shall be briefed on his or her actions following the landing until debriefed and released from supervision.
 - h. Emergencies: Each tandem student must be taught to follow the instructions of the Tandem Instructor during any emergency in the aircraft, in freefall, or under canopy.
 - i. Tandem Instructor Responsibilities:
 - 1) Interview the student: Ask questions covering background, physical condition, previous training if any, etc. Establish rapport with the student.
 - 2) Using the DZ photo: Brief for expected exit and opening points. Discuss and demonstrate canopy control.
 - 3) During rehearsal:
 - a. Emphasize arch: Chest and pelvis pushed forward, head back, arm position and legs out past the vertical.
 - b. Instructor demonstrates entire dive.
 - c. Full-dress dirt dive prior to exit of the aircraft.
 - 4) Do a complete equipment check before boarding the aircraft.
 - 5) Control seating, seatbelt use, and proper hook up prior to exit.
 - 6) Jump sequence:
 - a. Instructor monitors awareness and body position.
 - b. Instructor uses hand and/or verbal signals.
 - 7) Debriefing (this procedure should be used for all levels):
 - a. Discuss student's version first, instructor's second, view video afterwards, if available.
 - b. Train student to correct any weak areas and preview the TLOs and dive sequence for the next jump.
 - c. Fill out student's and instructor's logbooks and DZ training records, if applicable. Include clearance for the next jump or repeat.
 - d. Appropriate first-jump ceremony, certificate, traditions.

7.05 CONTINUING TANDEM INSTRUCTION

PHASE

One USPA Tandem Instructor required.

- A. Goals: To move the student from direct control of the instructor to moderate control. During each jump of the program, the student is to be given greater responsibilities for properly executing the skydive, from gearing up through landing of the canopy, until he or she is prepared to participate in IAF skydives. There is a minimum of three tandem jumps and 120 seconds of freefall required in the tandem phase of the Tandem/IAF program before the student can advance to the IAF phase.
- B. Student Procedures: TLOs for the remainder of the tandem phase of this program are listed below in sections 1 through 5, inclusive. These must be satisfactorily completed along with a CGS before advancing to the IAF training phase. Elements of the CGS can be presented as the tandem instruction phase progresses.
1. Equipment Preparation:
 - a. Explain main parachute deployment
 - b. Explain how to distinguish between a good canopy and a malfunction.
 - c. Explain and demonstrate reserve deployment procedures. (Practice breakaway and reserve handles can be attached to student harness.)
 - d. Explain and demonstrate the use of flotation equipment (when used).
 - e. Increased involvement with inspection and donning of equipment.
 - 1) Gear checks
 - 2) Proper fit of harness
 - 3) Hook-up procedures
 - a. When (altitude)
 - b. Student monitors
 - 4) Check list procedures
 2. Performance Preparation:
 - a. Explain and demonstrate knowledge and skills acquired in previous lessons.
 - b. Practice body position for stability in a horizontal trainer.
 - c. Demonstrate the correct sequence and body position to make a stable, controlled exit to include a verbal count.
 - d. Physically rehearse all phases of the planned jump.
 - e. Demonstrate the ability to use an altimeter
 - 1) When to check
 - 2) How to check
 - 3) Ground as a back-up
 - 4) Management of altitude (time and altitude relationship)
 - f. Demonstrate technique required to maintain heading during freefall.
 - 1) Overall body position (freefall stable)
 - a. Pelvis forward
 - b. Knees back
 - c. Shoulders back
 - d. Head up
 - 2) Heading—Maintain with:
 - a. Body—180-degree and 360-degree turns
 - b. Legs—180-degree and 360-degree turns
 - 3) Forward and backward movement—motion and awareness
 - a. Drive—legs extended and arms back
 - b. Backslide (optional)—legs retracted and arms outstretched
 - c. Toe taps
 - g. Concentrate on relaxing physically and mentally in freefall by using a correctly trimmed RW stable position.
 - h. Practice sequence of actions for practice ripcord pulls (PRCP) in the same manner that will be used during the actual pull:
 - 1) LOOK—while maintaining arch, establish visual contact with ripcord handle.
 - 2) REACH—maintain arch and view of the handle while reaching for it with the right hand; simultaneously move the left hand to a position over the head with the palm open and parallel to the ground.
 - 3) PULL—grasp the handle and pull it, returning to the spread position while keeping the eyes on the handle.
 - 4) CHECK—look over the right shoulder at the pilot chute.
 - i. Physically rehearse responses to emergencies that could occur while in aircraft, freefall or under canopy.
 - j. Identify the DZ and the wind direction relative to recognizable landmarks and explain the pre-planned canopy flight pattern.
 - k. Demonstrate the correct body position and technique for landing.
 - l. Use positive mental imagery to practice all actions planned for the jump.
 - m. Demonstrate understanding of basics of spotting and selecting exit and opening points on DZ photo.
3. In Aircraft:
 - a. Review all in-aircraft (pre-exit) procedures.
 - b. Verbally review the jump to the instructor.
 - c. Visually locate the DZ, target and windsock from 2,000 feet or higher (when possible).
 - d. Point out altitudes to instructor.
 - e. Concentrate on positive mental imagery and controlled breathing to relax (inhale slowly and deeply, hold it for a few seconds and relax while exhaling.)
 4. Freefall: Items (a) through (l) below are the TLOs that must be satisfactorily completed in freefall by the student before moving on to the IAF phase of

this program. They can be accomplished in any order unless specified.

- a. Exposure to continuous freefall.
 - b. Heading awareness and maintenance during freefall using the principles of turning.
 - c. Controlled turns; start and stop on heading.
 - d. Trim control (forward and/or backward movement).
 - e. Relaxed, arched body position through entire freefall.
 - f. Leg awareness (toe and heel clicks optional).
 - g. Altitude awareness.
 - h. Coordinated body movements with six practice pulls.
 - i. Must wave-off and pull ripcord while maintaining satisfactory body position and pulling at the established altitude on the last two tandems to advance to IAF.
 - j. Perform one controlled exit without instructors help.
 - k. Complete at least three tandem jumps and accumulate 120 seconds of freefall time.
5. Canopy Control and Landing:
- a. Describe and perform the release of the deployment brakes and establish steering by:
 - 1) DZ familiarization and aircraft and air-port operations
 - 2) Turning
 - 3) Braking
 - 4) Flaring
 - 5) Wind line
 - 6) Holding
 - 7) Running
 - 8) Crabbing
 - 9) Awareness of other canopies (look before you turn)
 - 10) Pattern for landing
 - 11) Use of altimeter
 - b. Perform according to any directions received during the descent.
 - c. Describe and perform the landing in tandem by:
 - 1) Sliding—leg and foot placement
 - 2) Stand-up—leg and foot placement
 - 3) Others off-field, reserve, high winds
 - d. Complete all objectives of each previous jump with more precision.
 - e. Practice parachute emergency procedures
 - 1) Check canopy
 - 2) Practice breakaway (Use training handles attached to student harness)
 - 3) Line twists
 - 4) How to get slider down
 - 5) How to get end cells open
 - f. Must exhibit a good understanding of canopy control before advancing to the IAF phase of this program.
6. Post-Jump Procedures:

- a. Debriefing: (This procedure should be used for all levels.)
 - 1) Discuss student's version first, instructor's second; view video afterwards if available.
 - 2) Give student corrective training to correct any weak areas and preview the TLOs and dive sequence for the next jump.
 - 3) Fill out student's and instructor's logbooks and DZ training records, if applicable; include clearance for the next level or repeat.
- C. Tandem Instructor Responsibilities:
1. Inspect the student's logbook, review the previous dive and discuss the good points and problem areas.
 2. Refresh previous training and give additional training with emphasis on the TLOs.
 3. Using a DZ photo, map or diagram, discuss where to climb out, the intended exit, opening, and landing points.
 4. Rehearsal:
 - a. Emphasize arch: chest and pelvis pushed forward, head back, arm position and legs out past the vertical.
 - 1) Explain use of head and arms to turn
 - 2) Explain use of legs to turn
 - 3) Explain arm and leg adjustment for forward and backward movement.
 - b. Practice with emphasis on trim control, a relaxed body position, heading control, and a stable, timely deployment. Alternate between standing and prone (vertical and horizontal) practice.
 - c. Full dress vertical dirt dives (prior to boarding): Visualize and verbalize the jump.
 5. Perform a thorough gear check of the student and the instructor before boarding the aircraft.
 6. Control seating and seatbelt use.
 7. Student observes DZ after takeoff (when possible), goes through mental rehearsal, and verbally reviews jump before exit.
 8. Jump sequence:
 - a. Student exits, arches, and stabilizes without instructor's assistance, unless necessary.
 - b. Student performs circle of awareness (COA) and correct body position.
 - c. Student performs dive sequence as taught by instructor.
 - d. If the student does not respond at pull time, the instructor may give the pull signal, assist with the pull, or perform the pull.
 9. Each tandem student must be instructed in the basics of canopy control.
 10. Tandem students must be instructed in all landing techniques.
 11. Standard debrief.

7.06 INSTRUCTOR ASSISTED FREEFALL (IAF) PHASE

- A. Prerequisites:
1. Minimum of three tandem jumps made in accordance with the tandem instruction phase.
 2. Accumulation of at least 120 seconds of freefall during the tandem instruction phase.
 3. Accomplishment of all other TLOs in the tandem instruction phase.
 4. Completion of the CGS conducted by an AFF Instructor.
- B. Goals:
1. To take the student from the direct and moderate control of tandem jumps to solo freefalls. At each level of the program, the student is given greater responsibilities for properly executing the skydive from gearing up to exit through landing of the canopy until he or she is capable of skydiving safely without direct supervision.
 2. The student must receive the comprehensive ground school from a USPA AFF Instructor before being handed over to a USPA AFF Jumpmaster for the IAF jumps. The IAF phase allows for one AFF JM to perform each of these jumps. If it is decided to use two jumpmasters on any of the jumps, they must both be USPA AFF JM's. The first IAF jump must be a non-release dive. A minimum of four IAF jumps and 160 seconds of freefall time are required for completion of this phase.
- C. Student Procedures:
- Targeted Learning Objectives (TLOs) are listed in sections 1 through 5 below and must be satisfactorily completed by the student before completing this phase of the program and being cleared by an AFF Instructor to self-jumpmaster.
1. Equipment Preparation:
 - a. Demonstrate ability to inspect, don, and adjust equipment with assistance.
 - b. Demonstrate ability to inspect, don, and adjust equipment correctly.
 2. Performance Preparation:
 - a. Practice body position and techniques for exit with jumpmaster.
 - b. Demonstrate ability to use an altimeter.
 - c. Demonstrate knowledge of AFF hand signals.
 - d. Demonstrate technique required to control heading.
 - 1) Heading—Maintain with:
 - a. Body—180-degree and 360-degree turns
 - b. Legs—180-degree and 360-degree turns
 - 2) Forward and/or backward movement—motion awareness
 - a. Drive—legs extended and arms back
 - b. Backslide a (optional)—legs retracted and arms stretched
 - c. Toe taps
- 3) Overall body position (freefall stable)
 - a. Pelvis forward
 - b. Knees back
 - c. Shoulders back
 - d. Head up
 - e. Demonstrate understanding of basics of spotting and select exit and opening points on DZ photo.
 - f. Physically rehearse the entire jump.
 - g. Demonstrate knowledge of safety procedures both in freefall and under canopy, including wave-off prior to pull.
 - b. Demonstrate knowledge of emergency procedures in aircraft, in freefall, and under canopy.
3. In Aircraft:
- a. Repeat all in-flight procedures of previous jump.
 - b. Observe the spotting process (when possible).
 - c. Apply knowledge of spotting principles and winds aloft (when possible).
 - d. Spot with direct supervision, calling out corrections to jumpmaster (when possible).
 - e. Explain aircraft spotting procedures and pilot briefing to jumpmaster.
 - f. Self-check equipment prior to exit.
4. Freefall: Items (a) through (g) below are the TLOs that must be satisfactorily completed in freefall by the student before graduating from the IAF phase of this program. They can be accomplished in any order unless specified.
- a. Must wave-off and pull ripcord while maintaining satisfactory body position and pulling at the established altitude prior to first release dive.
 - b. Controlled turns—start and stop on heading with both body and legs.
 - c. Forward movement.
 - d. Backward movement (optional).
 - e. Control of all three axes (pitch, roll and yaw).
 - f. Solo, no-contact exit.
 - g. Sub-terminal heading and stability control.
5. Canopy Control:
- a. Complete all objectives of each previous jump with more precision.
 - b. Demonstrate safe canopy control procedures.
 - c. Land within 25 meters of center of the landing area, without assistance.
- D. AFF Jumpmaster Responsibilities on IAF Jumps:
1. Inspect the student's logbook, review the previous dives, and discuss good points and problem areas.

2. Refresh previous training and give additional training with emphasis on TLOs.
3. Using a DZ photo, map, or diagram, discuss where to climb out, and the intended exit, opening, and landing points.
4. Discuss spotting. When possible, have the student give corrections first to the jumpmaster then eventually to the pilot.
5. Explain winds:
 - a. Velocity at different altitudes.
 - b. Direction at different altitudes.
 - c. No-wind conditions.
6. Rehearsal:
 - a. Practice climb-out procedures for IAFs and solo exits
 - b. Explain use of head and arms to turn
 - c. Explain use of legs to turn
 - d. Explain arm and leg adjustment for forward and/or backward movement.
- e. Use previous training techniques (vertical and horizontal).
7. Perform a thorough gear check of the student and the jumpmaster before boarding the aircraft.
8. Jump Sequence:
 - a. Student exits, arches, and stabilizes without jumpmaster assistance.
 - b. Student performs COA
 - c. Student performs alternating turns with heading control
 - d. Student performs forward and/or backward movement by moving legs and arms.
 - e. Student performs toe taps.
 - f. Student demonstrates ability to maintain stability.
 - g. Student demonstrates altitude awareness and proper pull procedures.
9. Standard debriefing.

SECTION 8

GRADUATE STUDENT PROGRESSION

8.01 INTRODUCTION

This section includes information and training exercises intended to help a novice skydiver successfully make the transition from being a student under direct supervision to being a self-sufficient, licensed skydiver. A novice is one who is no longer under direct supervision but has not yet obtained a license. This section applies to novices who have been trained according to any USPA training method.

8.02 SCOPE

This section includes recommendations and guidelines for:

- Level 8—Post graduate training
- Level 8 A
- Level 8 B
- Safety checks and briefings
- Skydiving equipment
- Freefall relative work
- Freefall rate of descent and exit altitude tables

8-1 LEVEL 8—CONTINUING EDUCATION

8-1.01 INTRODUCTION

Level 8 is a training program intended to develop freefall skills. These exercises are divided into two phases. In order to be successful, it is necessary to have first completed the learning objectives of the AFF or Tandem/IAF method or to have fully completed the progression of the static line or IAD training method. Completion of these exercises should result in the student being integrated into normal drop zone activities in a safe and successful manner.

This level of instruction has targeted learning objectives and exercises to accomplish those objectives, just as in first-jump formal training methods. But the actual sequence of progression is much less structured and there is the opportunity for “fun dives” which can be included at any time.

8-1.02 LEVEL 8—POST GRADUATE TRAINING

A. General Learning Objectives:

1. To qualify for and receive the USPA A License.
2. To improve body control and awareness.
3. To develop basic relative work skills.
4. To improve canopy control skills.
5. To improve survival skills.
6. To inspect and pack own main canopy and equipment.

B. These learning objectives will not only develop the skills necessary to enjoy skydiving but they also serve as goals to motivate the novice. The accomplishment of attainable goals contributes to the enjoyment and satisfaction which is important for long term retention.

8-1.03 LEVEL 8A

A. Targeted Learning Objectives:

1. Solo clear and pull (five second freefall)
2. Transition to own equipment
3. Aggressive hook-ups
4. Two-way sequence—five points
5. Right turn, left turn, backloop, left turn, right turn, backloop in 18 seconds or less
6. Eight minutes of freefall time
7. Pack own main parachute

B. Procedures:

1. Solo clear and pull:
 - a. A novice who has not yet performed a clear and pull is trained by a JM to perform a controlled clear and pull with a freefall of approximately five seconds. The jump is made from 3,500 feet to 4,000 feet and observed by the Jumpmaster.

- b. This exercise should be satisfactorily completed very soon after graduation from the AFF or IAF programs.
 - c. This exercise will give a novice confidence and prepare him or her for the low altitude exit and clear and pull he or she will eventually have to make.
2. Equipment transitions: reference Section 8-3.
3. Aggressive hook-ups:
 - a. The novice should exit without contact following a freefall coach and satisfactorily dock with him. The exit should be controlled. The coach should “lay base” and not assist with the hook-up.
 - b. The novice should make a series of redocks with the coach while the coach changes his or her rate of fall.
4. Two-way sequences:
 - a. The novice is to learn to maneuver while staying in his or her own column of air (no sliding) by practicing docking on different parts of the coach arms, legs and side. The novice practices hook-ups, side docks and back-ins.
 - b. The novice should be able to perform five points during a jump in order to advance to the next level.
5. Solo jumps:
 - a. Novices often want to make solo dives to just enjoy freefall. These jumps also afford novices the opportunity to stay “in the air” without waiting for an RW coach, other jumpers, etc. Solo dives give the novice a chance to concentrate on body position and awareness without the pressure of filling his or her slot and the worry of spoiling someone else’s jump.
 - b. Jumps of this nature can include a classic style series or any other sequence of individual maneuvers. It is a B License requirement to perform a full style series in 18 seconds or less.
6. Freefall time—eight minutes: Freefall time is a basic yardstick for measuring skydiving experience. A novice will accumulate most of this time working on specific training exercises but can also make less structured (low pressure) jumps to build enjoyment, confidence and experience.
7. Personal equipment: The novice should receive sufficient instruction and supervision in the proper techniques for inspecting and packing the type of equipment which he or she will be jumping. Usually an individual will purchase equipment at this stage of development. The novice should not struggle

through this transition without assistance from an Instructor.

8-1.04 LEVEL 8B

- A. Targeted learning objectives:
 - 1. Launch 3-way pieces.
 - 2. 3-way sequences—five points.
 - 3. 15 minutes of freefall time.
 - 4. Land at least five times within 20 meters of target center.
 - 5. Pass the A License written test.
- B. Procedures:
 - 1. Launching exits:
 - a. The novice should be making 3-way jumps with at least one freefall coach; the other skydiver may also be a level 8B novice. The novice should have a thorough understanding of the procedures necessary to successfully launch a 3-way in each exit position.
 - b. Successfully launch the piece from each of the three positions.
 - 2. 3-way sequences:
 - a. The purpose of this lesson is to further develop freefall relative work skills.
 - b. The novice should continue to receive instruction until he or she can perform five points with the following sequence: Free fly the exit, star, donut, opposed wedge, murphy and repeat.
 - c. Freefall exercises at this level should also include no-contact formation flying.
 - 3. Freefall time: Accumulate at least 15 minutes of freefall time before advancing to the next phase.
 - 4. Canopy control: The novice should receive appropriate instruction and coaching in canopy control to make five landings within 20 meters of target center. He or she should be able to make a graceful stand-up landing.
 - 5. Written exam: The novice should have enough understanding of FAA regulations and USPA Recommendations to score at least 75% on the A License test. Passing this test should complete the requirements for the A License.

8-2 PRE-JUMP SAFETY CHECK AND BRIEFING RECOMMENDATIONS

8-2.01 INTRODUCTION

Initially the Jumpmaster performs these prejump safety checks and briefings. As the student progresses, he or she should begin to learn to do them himself. Through leadership and attitude, the Jumpmaster has the opportunity to foster a respect for safety which will serve the beginning skydiver well when he or she assumes sole responsibility for his or her own activities.

8-2.02 PURPOSE

This information is intended to provide the Jumpmaster and the spotter or jump leader with a reference to use as guidance in developing a personal checklist appropriate to the procedures and equipment in use at his or her drop zone. In some cases, these checks will be the principal responsibility of others—the pilot, Instructor, rigger, ground crew chief, etc. But a Jumpmaster or spotter should not assume that these responsibilities have been carried out by others. Jumpmasters and spotters should review all of the items on these lists to familiarize themselves with the wide range of details which contribute to safe jumping.

8-2.03 SCOPE

This section includes checklists for:

- Aircraft preflight
- Ground crew briefing
- Pilot briefing
- Skydivers briefing
- Equipment check
- Before takeoff check
- Takeoff
- Spotting
- Jump run
- Descent and landing in aircraft
- Post jump debriefing

8-2.04 BRIEFINGS

- A. Aircraft preflight: Primarily the responsibility of the pilot, but the Jumpmaster or spotter should check also:
1. Placards: in place (as required)
 2. Seats: removed (as required)
 3. Door stop (on wing): removed
 4. Sharp objects: taped
 5. Loose objects: secured
 6. Step: secure, clean of oil
 7. Altimeter: set
 8. Notice To Airmen (NOTAM): filed and activated
 9. Aircraft radio: serviceable
 10. Static line attachment: secure
 11. Knife: in place, accessible
 12. Jumpmaster to pilot signals (larger aircraft): operational
- B. Ground Crew Briefing: The Jumpmaster should coordinate to ensure that everyone is in agreement:
1. Communications procedures: smoke, panels, radio, etc.
 2. Wind limitations
 3. Jump order
 4. Control of spectators and vehicles
 5. Critiques of student landings
 6. Maintenance of master log
 7. Setting up and maintaining target
 8. Accident and first aid procedures
- C. Pilot Briefing: The Jumpmaster or spotter coordinates with the pilot:
1. Jump run altitudes
 2. Flight patterns
 3. Communications (air to ground, Jumpmaster to pilot, FAA)
 4. Aircraft attitudes (level flight, flat turns, bank limits)
 5. Jump run speed and cut
 6. Locking wheel brake (if applicable)
Note: This is not the parking brake.
 7. Gross weight and center of gravity requirements and limitations
 8. Procedures for aircraft emergencies
 9. Procedures for equipment emergencies
- D. Skydivers Briefing: Conducted by the Jumpmaster or load organizer:
1. Review student log or record and plan jump
 2. Exit procedures and count
 3. Jump commands
 4. Protection of ripcords and reserve
 5. Conduct in aircraft: mental preparation and movement
 6. Seat belt off altitude: 1,500 feet or DZ policy
 7. Aircraft emergency procedures
 8. Equipment emergency procedures
 9. Drop zone appearance and hazards (an aerial photo or map is recommended)
 10. Canopy control and landing

8-2.05 CHECK LIST

- A. Equipment: The responsibility of the Jumpmaster and each individual skydiver before boarding and before exiting:
1. Helmet:
 - a. Proper fit
 - b. Threaded chin strap
 2. Goggles or glasses:
 - a. Secure
 - b. Clean
 3. Canopy releases:
 - a. Properly assembled
 - b. Maintenance performed
 4. Reserve static line (RSL):
 - a. Hooked-up, refer to manufacturer's instructions
 5. Chest strap:
 - a. Properly routed (not around harness or through ripcord handle)
 - b. Friction adapter threaded properly
 6. Instruments:
 - a. Check and set altimeter
 - b. Check that instruments do not block vision of handles
 7. Practice handle or ripcord:
 - a. Secure in pocket
 - b. Housing tacked no more than three inches from pocket
 8. Housing: Secured on both ends and properly routed
 9. Activation device:
 - a. Ripcord:
 - 1) Slide in housing to ensure freedom from pigtailed or gravel
 - 2) Check cable condition
 - b. Pilot chute:
 - 1) Bridle routed correctly
 - 2) Mesh, velcro and material in good working order
 - 3) Pouch or pud in good working order
 10. Harness adjustments:
 - a. Adjusted for proper fit
 - b. Running ends turned back and sewn
 - c. Friction adapters properly threaded
 - d. Loose ends tucked into keepers
 11. Belly band:
 - a. Adjusted
 - b. Friction adapter properly threaded
 12. Leg straps:
 - a. Not twisted
 - b. Snaps secured and closed or friction adapters properly threaded
 - c. Loose ends in keepers
 13. Reserve:
 - a. Check proper size for jumper
 - b. Pin condition and seating
 - c. Closing loop in good condition
 - d. Pilot chute seated
 - e. Packing data card in date
 - f. Seal in place
 - g. Check pocket condition
 - h. Flap closed
 - i. Overall appearance
 14. Stiffener (if required):
 - a. Proper type
 - b. Secure mounting
 - c. Cover in place
 15. Risers:
 - a. Not twisted
 - b. Toggles and lines not exposed
 16. Main container:
 - a. Check overall appearance
 - b. Properly closed
 - c. Closing loop in good condition
 - d. Pull-up cord removed
 17. Static Lines:
 - a. Direct bag
 - b. Pilot chute assist in place, properly routed; assure sufficient slack to allow proper operation of static line
 - c. Static line properly secured and routed, not around container
 18. Accessories:
 - a. Footwear—proper fit, type; no open hooks or buckles
 - b. Goggles or glasses—secure
 - c. Protective clothing—jumpsuit pockets closed; gloves as required; no unnecessary accessories, such as cameras; empty pockets
 19. Automatic activation device (AAD):
 - a. Checked and calibrated
 - b. Proper routing of cable
 - c. Control unit secured in proper location
 - d. Armed or turned on as required
 20. Radio:
 - a. Properly secured
 - b. Functional (test with base station)
 21. Check condition of all velcro
 22. Check overall fit and appearance
- B. Before Takeoff: The responsibility of the Jumpmaster or aircraft loader:
1. Pilot briefed on exit altitudes and number of passes.
 2. Jumpers arranged for proper exit order.
 3. Seat belts fastened prior to aircraft movement.
 4. Helmets on, fastened.
- C. Takeoff: Checked by the Jumpmaster or each skydiver:
1. Seat belts: Off at 1,500 feet or according to DZ policy.
 2. Student skydiver: Review techniques; point out target; observe mental and physical condition.
- D. Spotting: Performed by the Jumpmaster or spotter:
1. Altitude: Check.
 2. Wind drift indicator (WDI): Drop, observe and time.

3. Landing location of WDI and opening point: Advise all skydivers.
- E. Jump Run: Checked by the Jumpmaster or spotter:
1. Static line: Properly secured to aircraft; properly routed (not under harness, riser, etc.).
 2. Automatic activation device: Check, armed as required.
 3. Radio: On.
 4. Final equipment check.
 5. Jump commands: Review with jumper.
 6. Altimeters: Recheck with aircraft altimeter.
 7. Other aircraft in area: Check for presence.
 8. Check ground signals: Smoke or panels.
 9. Wheel brake: Assure locked when used as step.
Note: this is not the parking brake
 10. Aircraft attitude: Level flight.
 11. Corrections and cut: As required.
12. Static line: Assure proper payout; "short-line" if appropriate (not appropriate with direct bag deployment).
 13. Performance of jumper: Observe; time; record
 14. Static line: Retrieve; disconnect; store safely before moving next jumper into ready position.
 15. Shut jump door before moving next jumper.
- F. Descent and Landing In Aircraft: Coordinated by the Jumpmaster or spotter:
1. Automatic activation device: Disarm.
 2. Seat belt: Fasten.
 3. Explain to skydivers, if appropriate, reason for descent.
- G. Post Jump Debriefing: Conducted by the Jumpmaster:
1. Assist with field packing of equipment, as needed
 2. Review student jump; offer encouragement and constructive criticism.
 3. Fill out and sign student log and/or record card.

8-3 SKYDIVING EQUIPMENT RECOMMENDATIONS

8-3.01 INTRODUCTION

This section provides guidance concerning the requirements and use of both parachute and accessory equipment used for skydiving. Information in this section includes:

- Federal regulations
- Equipment description
- Training procedures
- Packing
- Repairs and alterations

8-3.02 PURPOSE

- A. These recommendations are intended to serve as guidelines for all users of parachute equipment and for everyone involved in the use and development of equipment and student training procedures.
- B. They apply to all skydivers, regardless of experience, skill level, or type of equipment, unless the recommendation is identified as applying to students.
- C. Parachutes should not be rented or loaned to persons unqualified to carry out an intended skydive or to persons of unknown ability. The use of unfamiliar (borrowed, new) equipment, without sufficient preparation, has been a factor in many fatalities.

8-3.03 FEDERAL AVIATION ADMINISTRATION

- A. The design, maintenance and alteration of parachute equipment is regulated by the Federal Aviation Administration of the U.S. Department of Transportation which publishes Federal Aviation Regulations (FARs). All skydivers should be familiar with the following FARs and their applicability to skydiving:
 1. Part 65—Certification of parachute riggers
 2. Part 91—General flight rules
 3. Part 105—Parachute jumping
 4. Advisory Circular 105-2C—explains in detail various areas of parachute equipment, maintenance and modifications.
- B. Approval of parachutes is granted to manufacturers in the form of Technical Standard Orders (TSOs).
 1. TSO C-23 is issued to parachutes that comply with the current performance standards. NAS 804 for TSO C-23b or AS-8015A for TSO C-23c.
 2. These standards specify the tests that must be passed for a parachute system and its component parts to receive approval for civilian use.

- C. Procedures for obtaining TSO approval for parachutes or component parts may be found in FAR Part 21.
- D. Alterations to approved parachutes may be performed only by those who have been issued an FAA approval for the alteration.
 1. Approval may be obtained by submitting a request and description of the alteration, to the manufacturer, or to an FAA Flight Standards District Office.
 2. The following are eligible to receive alteration approval:
 - a. Master rigger
 - b. Parachute loft
 - c. Manufacturer with an approved quality assurance program
 3. Alterations should not be performed without full documentation of FAA approval for the specific alteration.
- E. The FAA requires all skydivers to wear a single harness, dual parachute pack, having at least one main parachute and one approved reserve parachute. Tandem jumps, which use a dual harness, dual pack parachute, are approved by an FAA exemption with special requirements.
- F. All pilots and other occupants of a jump aircraft must wear parachutes when required by the FAA. This requirement is usually specified in the STC for the jump aircraft.

8-3.04 DEFINITIONS AND TERMINOLOGY

An understanding of the terminology used in this section, which conforms to that published in the FARs, is essential to understanding these guidelines. Terms used in this section are defined in the Glossary.

8-3.05 STUDENT EQUIPMENT

There are special considerations for equipment provided for student use.

- A. Changes in type of equipment should be avoided or minimized whenever possible during student training. When changes are made, adequate transition training should be provided.
- B. Student equipment should be well maintained.
- C. Students should be provided with additional safety devices not usually found on equipment used by non-students.
 1. From the start, a student should be taught to be self-reliant and to respond quickly to emergency situations.

2. Safety devices and features should be designed so they will be used as emergency overrides or backups only, in the event that the student does not properly perform emergency procedures.
3. Never use these features as a substitute for proper training and supervision or to give confidence to the student, but rather to give peace of mind to the Instructor by providing multiple safety backup systems.

- D. An automatic activation device (AAD) is required for all students. An AAD initiates the reserve deployment sequence. The use of an AAD for activation of the reserve parachute, coupled with proper training in its use, has been shown to significantly increase the chances of surviving a malfunction.
- E. A reserve static line device (RSL) connects the risers of the main parachute to the reserve ripcord assembly. It activates the reserve during a cutaway. It is required for all students.
- F. A ram-air main canopy is required for all students. It should be large and docile and appropriate for the student's weight.
- G. A visual altimeter is required for all students. It helps with canopy control and altitude recognition.
- H. Audio altimeters should be used only after a student has demonstrated a satisfactory level of altitude awareness.

8-3.06 EXPERIENCED JUMPER EQUIPMENT

- A. A reserve static line (RSL) is recommended for all experienced jumpers.
- B. A functional automatic activation device (AAD) that meets the manufacturer's service schedule is encouraged for all jumpers.

8-3.07 RESERVE PARACHUTE

- A. All skydivers should use a steerable reserve canopy.
- B. The FAA requires the reserve parachute assembly, including harness, container, canopy, risers, pilot chute, deployment device and ripcord, to be approved.
- C. A reserve canopy should have a rate of descent that does not exceed 18 feet per second (fps). It must not exceed a rate of descent of 25 fps at sea level conditions (NAS 804). The following scale indicates the minimum size round reserve canopy recommended for use according to the weight of the skydiver:

Total Suspended Weight*	Recommended Canopy High porosity flat circular
Up to 149 lbs.	24'
150 to 199 lbs.	26'
200 lbs. and over.	28'

**The use of lower porosity materials can reduce the rate of descent/canopy size ratio. A canopy with a performance equivalent to the high porosity canopies may be substituted. Suspended weight is the combined weight of the jumper, his or her harness and the main.*

- D. For a ram-air reserve, do not exceed the maximum suspended weight specified by the manufacturer.

8-3.08 MAIN PARACHUTE

- A. The main parachute is not required to be approved. However, the FAA requires all main parachute alterations to be made by a master rigger, the manufacturer or any other manufacturer with an FAA approved quality assurance program.
- B. Skydivers weighing over 200 lbs. or over 35 years of age using a round main canopy should use one which provides a rate of descent less than that of a 1.1 oz. high porosity 28-foot flat circular canopy.

8-3.09 PARACHUTE HARNESS

- A. The FAA requires the harness of a dual parachute assembly to be approved.
- B. Reserve attachments (i.e. connector links) must be capable of withstanding a shock load of at least 3,000 lbs. (NAS-804—low speed category).
- C. All harness ends must be folded over and sewn down or wrapped and sewn down to prevent the harness from unthreading through the hardware upon opening.
- D. Harnesses should have canopy releases which allow for easy operation.

8-3.10 RIPCORD OR BOC PILOT CHUTE

- A. It is desirable for the manufacturing industry to standardize the location of all operational controls.
- B. A change in the location of deployment handles should be made only after extensive ground training and followed by a familiarization jump.
- C. Reserve ripcord handles should be made of metal.
- D. The housing should be secured to the harness within 3" of the ripcord handle end.
- E. Ripcord pins, when seated, should either be started inside the housing or clear the loop before entering the housing.
- F. A ripcord cable stop should NOT be used. Fatal accidents caused by reserve entanglements with main ripcords secured in this manner have been documented.
- G. Anti-wind blast handles are NOT recommended.

8-3.11 DEPLOYMENT DEVICE

A deployment device is recommended for all main and reserve canopies to reduce the opening force and to control deployment.

8-3.12 RESERVE PILOT CHUTE

The reserve system is usually designed to use a specific type of pilot chute. It should be properly seated in the container and repacked if it has shifted.

8-3.13 STATIC LINE

- A. The FAA requires static line deployment to be either by:
 - 1. Direct bag
 - 2. Pilot chute assist
- B. The direct bag is a more positive method of static line deployment because it reduces the chance of the student interfering with main canopy deployment.
- C. The FAA requires an assist device to be used with static line deployment. An assist device pulls the canopy or the pilot chute out of the container.
 - 1. The assist device must be attached at one end to the static line so that the container is opened before the device is loaded, and at the other end to the main canopy or the pilot chute.
 - 2. The FAA requires the direct bag assist device to have a load strength of at least 56 but not more than 320 lbs.
 - 3. The FAA requires the pilot chute assist device to have a load strength of at least 28 but not more than 160 lbs.
- D. The static line should be attached with a locking slide fastener to an approved structural point of the airframe.
 - 1. A seat belt attachment point is considered part of the airframe, but the static line should pull on it in a longitudinal direction.
 - 2. Aircraft seats are NOT considered to be part of the airframe.
- E. A static line should be constructed:
 - 1. With a length of at least eight feet but not more than 15 feet and should never come into contact with the aircraft's tail surfaces.
 - 2. With a locking slide fastener ID number.
 - 3. With webbing of not less than 3600 lbs. tensile strength.
 - 4. With a pin assembly (when used) which will withstand a pull of 300 lbs., attached to the webbing in such a manner that the attachment and cable will withstand a pull of 600 lbs.

8-3.14 ACCESSORY EQUIPMENT

The use of personal equipment should be determined by the type of jump, experience and proficiency of the skydiver, weather and drop zone conditions.

- A. Clothing and equipment:
 - 1. Adequate protective clothing, including jumpsuit, helmet, gloves, goggles and footwear should be worn for all land jumps.
 - 2. Gloves are essential when the jump altitude temperature is lower than 40° F.
 - 3. A protected but accessible knife should always be carried.
 - 4. A rigid helmet should be worn on all skydives. It should be light weight and not restrict vision or hearing.
 - 5. All jumpers are advised to wear flotation gear when the intended exit, opening, or landing point of a skydiver 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).
- B. Instruments:
 - 1. A visual altimeter must be used by all students.
 - 2. Skydivers should also know there is a great reduction of depth perception over water and at night.
 - 3. An audio altimeter is a helpful device provided it is used as a backup to check the ground and altimeter to determine altitude.

8-3.15 TYPES OF MALFUNCTIONS

All malfunctions can be classified as one of two types:

- A. Total Malfunction: Any malfunction in which nothing is deploying.
- B. Partial Malfunction: Any malfunction accompanied by full or partial deployment.

8-3.16 TOTAL MALFUNCTIONS

- A. A total malfunction includes deployment handle problems (unable to locate or extract the main parachute deployment handle), pack closure, and a pilot chute in tow.
- B. There are currently two common and acceptable procedures, both of which have pros and cons. An instructor should be consulted prior to gearing up, and each skydiver should have a pre-determined course of action.
 - 1. Pull the reserve immediately. All three types of total malfunctions are associated with a high descent rate and require immediate action. the chance of a main-reserve entanglement is slim, and valuable time and altitude could be lost by initiating a cutaway prior to deploying the reserve; OR
 - 2. Cut away, then deploy the reserve. Because there is a chance the main parachute could deploy during or as a result of the reserve activation, a cutaway might be the best response in some situations.

8-3.17 PARTIAL MALFUNCTIONS

Two methods of reserve deployment are recognized for partial malfunctions. In order of preference, they are:

- Cutaway (breakaway); and
- Canopy transfer.

- A. The cutaway method is recommended because:
1. It is a single procedure that applies to all partial malfunctions, fast or slow.
 2. Partial malfunctions are more common than totals and frequently result in spins. The rotation of the jumper beneath the canopy during reserve deployment may easily result in entanglement of the reserve and main canopies unless it is released.
 3. It is necessary with high-performance main canopies, whose malfunctions often include rapid rotation.
 4. It is necessary for skydivers using a piggyback reserve system.
 5. The decision to cut away should be made by an altitude of 1,800 feet AGL; the cutaway should begin by 1,600 feet AGL. With high speed malfunctions, rate of descent may be 120 mph or faster, leaving seven seconds or less to take corrective action to allow time for a normal deployment.
 6. LOOK at the reserve handle before cutting away and keep your eyes on it until the reserve has been pulled.

Note: Skydivers should be equipped with single-point riser releases (one handle releases both risers) for easy and rapid disengagement from the main canopy.

- B. The canopy transfer method may be necessary if jumper is too low to cutaway safely. The reserve is deployed without releasing the main.

8-3.18 RESERVE STATIC LINE

All skydivers should consider using a reserve static line device (RSL):

- A. This is a lanyard that is attached to a main canopy riser, which activates the reserve ripcord so that reserve deployment begins immediately and automatically after separation of the main risers from the harness.
- B. Full deployment can be achieved within 100 feet after cutaway, although it may take longer.
- C. An RSL may not be desirable when engaging in canopy relative work (CRW).
- D. When using a reserve static line device, a cross connector should not be attached when using piggyback equipment unless the manufacturer's instructions require one.

Important: When using a reserve static line device, the skydiver must not depend on the static line device—immediately after the cutaway, manually pull the reserve ripcord.

8-3.19 DUAL RAM-AIR DEPLOYMENT

- A. Once two parachutes have deployed, they tend to stabilize in one of three configurations:
1. biplane, generally safe to land
 2. side-by-side, may be safe to land but potentially less stable
 3. downplane or spinning downplane (pinwheel), extremely dangerous to land
- B. It is typically futile to attempt to fly from an undesirable configuration to one that is more desirable. Observe the problem, assess rapidly, and focus on the correct procedure.
1. One canopy inflated, another deploying
 - a. Attempt to contain the deploying reserve or main canopy and stuff it between your legs.
 - b. If the second canopy deployment is inevitable and there is sufficient altitude, disconnect the reserve static line and cut away the main.
 - c. If the second deployment is inevitable and there is insufficient altitude for a cutaway, wait for inflation of the second canopy and evaluate the result.
 2. Stable biplane
 - a. Unstow brakes on the front canopy and recover gently to full flight; leave brakes stowed on rear canopy.
 - b. Steer gently with front canopy only as necessary to maneuver for a safe landing.
 - c. Use minimal control input as necessary for landing.
 - d. Perform a parachute landing fall.
 3. Stable side-by-side
 - a. Leave brakes set (stowed) on both canopies. Steer gently using the rear risers of the main canopy.
 - b. If both canopies are flying without interference or possibility of entanglement, cut away the main (altitude permitting) and steer the reserve to a normal landing.
OR;
Land without flaring and perform a parachute landing fall.
 4. Downplane or pinwheel
 - a. Disconnect the reserve static line if altitude permits.
 - b. Cut away the main canopy and steer the reserve to a normal landing.
 5. Main-reserve entanglement
 - a. Attempt to clear the problem by retrieving the least inflated canopy.
 - b. Perform a parachute landing fall.

Note: Insufficient study has been done to recommend procedures for the dual deployment of a ram-air main and a round reserve.

8-3.20 TRAINING

- A. Learning should begin with the first jump and continue throughout the entire jumping career.
- B. Initial training, even if the student intends to make only one jump, should be designed to establish a foundation for the continuing growth and development of skills. Foresight should be used to minimize the need to change emergency procedures as a student progresses.
- C. The most important skill a student must develop is the ability to cope with and respond to emergency situations:
 - 1. Development of this skill should start with the first jump rather than at a point where supervision of jumping activities is reduced.
 - 2. Safety is enhanced with an understanding of the importance of dealing with emergency situations promptly.
 - 3. Failure to quickly deal with an emergency situation is the greatest cause of fatal incidents in skydiving.
- D. The majority of all malfunctions can be traced to three primary causes:
 - 1. Poor or unstable body position during parachute deployment
 - 2. Faulty equipment
 - 3. Improper or careless packing
- E. Poor or inadequate preparation is a major factor contributing to malfunctions and the injuries and deaths that sometimes result. It is essential for a student to practice (with repeated drills) so that emergency procedures become automatic.
- F. Skydiving requires the repeated practice of old techniques and proper training in new ones to be conditioned to cope with the potential emergencies of the sport.
- G. At least once a year, all skydivers should practice emergency procedures. The practice should include use of a suspended harness.

8-3.21 TRAINING OUTLINE

- A. The training outline listed below is recommended for all students before their first jump.
- B. An Instructor should supervise and critique the jumper throughout all ground training and use a watch to assist in developing time awareness.
- C. Training should consist of a demonstration and discussion, followed by practice, and should include:
 - 1. The primary causes of malfunctions.

- 2. Stable freefall techniques, including exit, count, and pull.
 - 3. Various types of malfunctions and how to recognize them from the viewpoint of the skydiver in the harness.
 - 4. Procedures for activating and deploying the reserve parachute.
- D. When practicing:
- 1. Wear the parachute, plus all personal equipment including helmet, goggles and gloves during at least part of the drill.
 - 2. Go through the normal sequence of a jump (arch, look, reach and pull of the main ripcord handle)
 - 3. Perform the emergency procedures, by the numbers, several times.
 - 4. Go through the procedures in sequence without by-the-numbers assistance.
 - 5. An Instructor should periodically give the command "malfunction." The student should react by going through the procedures for reserve activation.
 - 6. Repeat steps 1 through 5 in a suspended harness trainer equipped with a reserve ripcord handle which can be actually pulled.

8-3.22 EQUIPMENT TRANSITION TRAINING

- A. Change of emergency procedures:
 - 1. If emergency procedures are changed at anytime, the skydiver should be thoroughly trained and then given supervised practice in a suspended harness until proficient.
 - 2. This practice should be repeated at short intervals, such as before each weekend's jump activities, until the skydiver is thoroughly familiar with the new procedures.
- B. Changes in deployment procedures:
 - 1. If deployment procedures are changed at anytime, the skydiver should be thoroughly trained and then given supervised practice in a suspended harness until proficient.
 - 2. Ground training should be followed by a solo jump which includes several practice pulls and the actual pull at a higher than normal altitude.

8-3.23 RECURRENT TRAINING

A student or novice should repeat reserve deployment training once each month until obtaining a USPA A License. This training should include the use of a suspended harness trainer and the pull of an actual reserve ripcord while in the suspended harness.

8-3.24 PARACHUTE PACKING

- A. Main: The main parachute of a dual assembly may be packed by an FAA rigger or by the skydiver who intends to use it and:

1. The individual skydiver should have the written approval of an S&TA, USPA Instructor, I/E, or an FAA certificated parachute rigger.
 2. The FAA requires it to be packed within 120 days before the date of its use.
- B. Reserve: The reserve parachute of a dual assembly must be packed by an FAA certificated and appropriately-rated parachute rigger. The FAA requires the reserve to be inspected and packed within 120 days before the date of its use.
- C. Maintenance: All work required to be done by a certified rigger may actually be done by someone else, provided a rigger:
1. Supervises the work.
 2. Takes responsibility for the work.
- D. Packing: All parachute packers should know and understand the manufacturer's instructions for packing, maintenance and use.
- E. Temporary packing pins: Temporary packing pins should only be used for parachute packing when they are:
1. Individually marked with a large strip of red cloth, or:
 2. Tied together and then attached to the packing table or mat.
- b. An FAA certificated and appropriately rated parachute loft
 - c. The parachute manufacturer
 - d. Any other manufacturer the FAA considers competent
2. Minor repairs (maintenance) may be performed by those persons and facilities listed in paragraph one above or an FAA senior parachute rigger.
- C. Alterations:
1. Alterations to the main parachute and the reserve parachute system must be performed only by those persons or facilities listed in paragraph B.1.
 2. The main parachute and its container need not be maintained as "approved."
 3. The FAA requires the entire reserve assembly to be maintained as an approved parachute.

8-3.25 REPAIRS AND ALTERATIONS

- A. Inspection: The equipment owner should frequently inspect for damage and wear. Any questionable condition should be promptly corrected.
1. Repairs to the reserve assembly must be done by an FAA certificated parachute rigger.
 2. Repairs to the main may be done by an FAA certificated rigger or by the owner if he or she has adequate knowledge and skill.
 3. The most important reason for the reserve repack cycle is the need for a thorough inspection of the parachute system.
- B. Repairs:
1. Major repairs may be performed only by or under the supervision of:
 - a. An FAA master rigger

8-4 FORMATION SKYDIVING RECOMMENDATIONS

8-4.01 INTRODUCTION

Formation Skydiving or “relative work,” may be described as the intentional maneuvering of two or more skydivers in proximity to one another in freefall.

The concept of relative work is the smooth flow and grace of two or more jumpers in aerial harmony. Mid-air collisions and funneled formations are not only frowned upon but can be quite dangerous. The colliding of two bodies in flight can cause severe injuries or death. The greatest danger in relative work exists when jumpers lose sight of each other and open independently, which sets the stage for a jumper in freefall to collide with an open canopy. Even after opening, there is the possible danger of canopy collisions if proper safety procedures are not followed.

8-4.02 SCOPE

This section provides guidelines for the following:

- Qualifications
- Training
- Procedures
- Night relative work

8-4.03 QUALIFICATIONS

Before participating in relative work, the jumper should:

- A. Delays: Be making controlled 30-second freefalls or be in a recognized AFF program.
- B. Aerial Skills: Have demonstrated the ability to perform:
 1. Both front and back loops without loss of orientation.
 2. Alternating 360-degree turns.
 3. Door exits.
 4. Tracking, and waving off before pulling.
- C. Awareness: Have demonstrated awareness of altitude and surrounding space.

8-4.04 TRAINING

- A. Introduction: Initial RW training should begin as soon as the novice meets the qualifications listed above, to maintain interest in skydiving, to encourage relaxation in the air, to develop coordination, to establish participation in group activities, and to encourage the development of safe attitudes and procedures.
 1. Initial RW training should begin with no more than two jumpers—the trainee and an RW coach.
 2. Initially, the trainee should exit first with the RW coach following to close the vertical and lateral distance at a moderate speed.
 3. Emphasis in training should be on maintaining an awareness of altitude above the ground and the breakoff altitude.

- B. Training Outline: The novice should receive instruction in awareness, body position, maneuvering techniques, standard procedures, and safety procedures. Each jump must be preplanned and rehearsed to gain maximum benefit. The novice should know exactly what to expect and what is expected of him. Each of the following training maneuvers should be practiced one or more times until properly performed. RW is not difficult to learn when the beginner is properly coached. The procedures outlined here should safely introduce the novice to RW.

1. First Hook-up—the trainee makes a poised exit and assumes the basic stable freefall position observing the coach. The coach should teach the novice to avoid backsliding. The coach should close slowly for an easy, clean hookup. The novice should be advised that “reaching” will cause backsliding. Separation is accomplished at 3,500 feet by releasing grips, making a 180° turn and tracking.
2. Vertical and Horizontal Maneuvers—the same exit procedure is used, but contact is not made. The coach stops about five feet in front of the novice and then proceeds to adjust his or her position with the novice following. They move up, down, right and left. The proximity of the coach allows the beginner to “relate” to something so that he or she can learn the effect of various body positions.
3. Docking Maneuvers—the same exit procedure is used, but the coach backs up about 20 feet. The novice then moves forward and docks with the coach taking grips. Repeat until break-off at 3,500 feet.
4. Aggressive hook-ups—the coach exits first and the novice dives after and docks on the coach. Practice redocking with turns or loops in between the hook-ups. At this point the novice can begin jumping with others in addition to the coach, gradually increasing the number of participants.

8-4.05 PROCEDURES

- A. Preplan the jump: The movement in the aircraft, exit procedure, freefall maneuvers and breakoff altitude should be agreed upon before the jump.
- B. Collisions: Jumpers on a collision course, either in freefall or under the canopy, should turn to the right. Continual awareness throughout the jump is absolutely necessary to avoid collisions. Both freefall and canopy collisions have the potential for fatal results.
- C. Equipment: Both main and reserve ripcord handles should be guarded.

- D. Breakoff:
1. The minimum breakoff altitude should be:
 - a. 3,500 feet for small groups.
 - b. 4,000 feet for groups of six or more.
 2. At the breakoff signal or upon reaching the breakoff altitude, each participant should:
 - a. Turn 180-degrees from the center of the formation.
 - b. Flat track away; and
 - c. Wave-off before pulling—flat tracking will achieve more separation than diving.
- E. Opening:
1. Wave-off: During the wave-off, one should look down and to the sides to insure that the area below is clear.
 2. Pull: The pull should be preceded by a distinct wave-off to signal jumpers who may be above.
 3. Right-of-way: The low person has the right-of-way, both in freefall and under the canopy.

8-4.06 NIGHT RELATIVE WORK

- A. It is recommended that night relative work be planned for a full moon.
- B. Participants should wear white or light colored jumpsuits.
- C. Lights: The FAA requires that any parachutist making a jump between sunset and sunrise wear a light visible for at least three statute miles.
 1. The light must be displayed from exit until the jumper is on the ground.
 2. Strobe lights are not recommended, because they interfere with night vision. Constant lights are preferable.
- D. Reference Section 9-1 – Night Jump Recommendations, for further guidance.

8-5 FREEFALL RATE OF DESCENT AND EXIT ALTITUDE TABLES

8-5.01 INTRODUCTION

This table is intended to provide a reference for determining typical amounts of freefall time based upon the distance covered in freefall. This reference will assist in estimating the approximate amount of freefall time to be expected from a given altitude and in logging the correct amount of freefall time for a given jump. Each skydiver should log every jump made, including the amount of freefall time experienced. The amount of freefall time logged for each jump should be “real time.”

8-5.02 SCOPE

The chart above lists freefall times for three different terminal velocities:

- 98 miles per hour
- 109 miles per hour
- 120 miles per hour
- Plus exit altitudes based upon a 2,500 foot opening

8-5.03 APPLICATION

- A. Pull altitude and other critical altitudes should be determined by using a combination of visual reference to the ground and to an altimeter. The following procedures are recommended:
1. An altimeter should be set at zero at the intended landing site.
 2. Cross check the altimeter reading with other altimeters in the aircraft at key altitudes during the climb to altitude.
 3. Minor differences in indicated altitude are to be expected—do not readjust the altimeter after leaving the ground.
 4. An altimeter is a delicate instrument—treat it with care.
- B. Initial and refamiliarization training for altimeter use should include:
1. Look at the ground.
 2. Look at the altimeter and note the altitude.
 3. Repeat this procedure several times per jump to develop the ability to “eyeball” the altitude.
- C. Considerations:
1. An altimeter may lag during both ascent and descent; plus or minus 0–500 feet is to be expected.
 2. The needle can stick during both ascent and descent—a visual cross reference with the ground should be used in combination with the altimeter.
 3. When the altimeter is in a burble (as when falling back-to-earth), it may read high by as much as 1,000 feet.

8-5.04 COMPUTATION

- A. Many factors affect the rate of fall or terminal velocity in freefall. These include the total weight of the jumper including equipment, the surface area to weight ratio (physical build), jumpsuit size and altitude above sea level (air density).
- B. The preceding chart lists freefall times for three different terminal velocities and provides an exit altitude reference for 2,500 foot openings.
1. 120 mph (176 feet per second) terminal velocity:
This is the “old” freefall time chart based upon the typical terminal velocity experienced when jumpers wore 45 pounds of equipment and tight jumpsuits.
 2. 98 mph (144 feet per second) terminal velocity:
This chart was developed when the typical jumper carried about 30 pounds of equipment and jumped a large winged jumpsuit.
 3. 109 mph (160 feet per second) terminal velocity:
This terminal velocity is typical of skydivers carrying 20 pounds of equipment and jumping tight jumpsuits.
- C. In order to determine the approximate amount of freefall time to expect on a jump and to log a realistic amount of freefall time for a jump, use the following procedures:
1. Determine your approximate terminal velocity by taking actual measurements of jumps with known exit and opening altitudes.
 2. This can be done by timing video tapes or by having someone on the ground time the skydive.
 3. Subtract your opening altitude from your exit altitude to determine the length of your freefall.
 4. Reference the length of freefall to the approximate terminal velocity to find freefall time.

FREEFALL TIME TABLE

Exit Altitude (feet) with opening at 2500'	Length of freefall (feet)	Time of Freefall (with given terminal velocity)		
		120 mph	109 mph	98 mph
3000	500	6	6	6
3500	1000	9	10	10
4000	1500	12	13	14
4500	2000	15	16	17
5000	2500	18	20	21
5500	3000	21	23	24
6000	3500	24	26	28
6500	4000	26	29	31
7000	4500	29	32	35
7500	5000	32	35	38
8000	5500	35	39	42
8500	6000	38	42	45
9000	6500	41	45	49
9500	7000	43	48	52
10000	7500	46	51	55
10500	8000	49	54	59
11000	8500	52	57	62
11500	9000	55	61	66
12000	9500	58	64	70
12500	10000	60	67	73
13000	10500	63	70	76
13500	11000	66	73	80
14000	11500	69	76	83
14500	12000	72	80	87
15000	12500	75	83	90

SECTION 9

ADVANCED PROGRESSION

9.01 INTRODUCTION

Once a skydiver has completed the basic instruction and progressed to being a licensed skydiver, many new opportunities for advanced progression are available. Advancement in one or more of the areas discussed in this section will help to improve skills and increase enjoyment and satisfaction for most skydivers. These guidelines will assist in meeting both the skill and knowledge requirement for the A, B, C and D licenses and the Professional Exhibition (PRO) Rating.

9.02 SCOPE

Information in this section provides guidance for:

- Night Jumping
- Water Landings
- Canopy Relative Work
- Demonstration Jumps—includes the Professional Exhibition (PRO) Rating
- High Altitude Jumps and Oxygen Use

9-1 NIGHT JUMP RECOMMENDATIONS

9-1.01 INTRODUCTION

To meet license requirements and to establish world records, night jumps are those jumps made in the period between one hour after official sunset and one hour before official sunrise. In order to maintain safety and comply with FAA Regulations, any jumps between sunset and sunrise are considered as night jumps. Night jumps can be challenging, educational, and just plain fun, but they require additional pre-training and increased care. A considerable reduction of vision poses certain problems. Overcoming these problems is what makes night jumping interesting and enjoyable. Night jumping not only places increased requirements on the jumper, but also the pilot, spotter and ground crew.

9-1.02 QUALIFICATIONS

- A. License: Skydivers participating in night jumping should possess a currently valid USPA B or higher license.
- B. Training: Participants should complete a comprehensive briefing and drill within 60 days before the intended night jump. The training should be conducted by a Safety & Training Advisor (S&TA), I/E or USPA Instructor. The training (including the date and location) should be documented in the jumper's logbook and signed by an S&TA or USPA I.

9-1.03 SPECIAL EQUIPMENT

- A. A light visible for three miles (an FAA requirement for protection from aircraft)
- B. Lighted altimeter (recommended)
- C. Clear goggles (recommended)
- D. Jumper manifest (essential)
- E. Target lighting equipment: Sufficient lighting to illuminate the target. Lighting can be provided by flashlights, electric lights or such devices. Road flares or other pyrotechnics and open flames can be extremely hazardous and should not be used.
- F. Flashlight (to check canopy)

9-1.04 TRAINING

- A. Every skydiver, regardless of his experience, should participate in night jump training to learn or review:
 - 1. Techniques of avoiding disorientation.

- 2. Use of identification light, lighted instruments and flashlight.
- 3. Target lighting.
- 4. Ground-to-air communications.
- 5. Reserve activation.
- 6. Use of a topographical map or photo with FAA Flight Service weather information for appropriate altitude and surface winds to compute jump run compass heading, exit and opening point.

- B. As with all phases of skydiving, night jumping is made safe through:
 - 1. Special training
 - 2. Suitable equipment
 - 3. Pre-planning
 - 4. Good judgment

9-1.05 PROCEDURES

- A. General:
 - 1. One senior member should be designated load master of each pass and be responsible for accounting for each member of his pass, once they have landed.
 - 2. Night jumps provide the challenge of a new and unusual situation that must be approached with caution because of:
 - a. The opportunity for disorientation.
 - b. The earth's surface takes on a new appearance, and familiar reference points are not available.
 - c. The visual senses are greatly impaired by darkness and reduction of depth perception. Be thoroughly familiar with night vision problems.
 - d. Skydivers infrequently make night jumps, and are less familiar with and less proficient in handling themselves under the conditions of this new environment.
 - 3. BSRs require that the local S&TA or a USPA Instructor/Examiner be consulted for advice for conducting night jumps.
 - 4. Since the skydiver cannot perceive what is taking place around him as rapidly and easily as in daylight, the time it takes to react to each situation will be increased. Night jumps should be conducted in weather conditions of light winds and good visibility.
 - 5. Notify FAA, state and local officials as required.
- B. Target configuration for accuracy:
 - 1. Arrange lights in a circle around the target area at a radius of 25 meters from the center.
 - 2. Remove three or four of the lights closest to the wind line on the downwind side of the target and

- arrange them in a line leading into the target area. This will indicate both wind line and wind direction. By following a flight path over this line of lights, the jumper will be on the wind line and land upwind.
3. Place a red light at dead center, protected by a plexi-glass cover flush with the surface.
- C. Emergency: Extinguish all lights in the event of adverse weather or other hazardous jump conditions to indicate no jump. Ground-to-air radio communications should be available.
- D. Night Spotting:
1. Winds: current wind information, for both surface and aloft conditions, is critical at night.
 2. Surrounding area: spotters should familiarize themselves with the drop zone and surrounding area in flight during daylight, noting ground points that will display lights at night and their relationship to the drop zone and any hazardous areas.
 3. Instruments: the spotter should plan to use both his own visual spotting and aircraft instruments to assure accurate positioning of the aircraft.
 4. Climb to altitude:
 - a. Conduct an orientation to familiarize each jumper with the night landmarks surrounding the drop zone.
 - b. Wind drift indicator: Several methods are available for determining drift and the best opening point.
- E. Jumps:
1. General:
 - a. A jumper making a first night jump should exit solo (no RW).
 - b. Strobe lights are not recommended for use in freefall, because they can interfere with night vision and cause disorientation. Constant lights are preferable. Flashing lights can be used once the jumper has opened and is in full control of his canopy.
 - c. WARNING: Road flares and other pyrotechnics exude hot melted chemicals while burning and are hazardous when used by skydivers in freefall. In addition, the bright glare greatly increases the possibility of disorientation.
 2. RW:
 - 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 two-way to larger formations should be made on subsequent night jumps.
 3. CRW:
 - a. Night canopy relative work should be undertaken with extreme care and with a progression similar to that of night freefall relative work.

9-2 WATER LANDING RECOMMENDATIONS

9-2.01 INTRODUCTION

Water landing training should be provided at a minimum of three points in a skydiver's progression and development:

- A. During the First Jump Course (FJC) dry training to prepare the student to successfully cope with an unintentional water landing.
- B. Review of initial training should be provided as qualification for the USPA A license.
- C. Wet training to prepare the skydiver for an unintentional or intentional water landing is a USPA B license requirement. Periodic refresher training should be provided, especially for those on student status, and may include advanced water survival and lifesaving techniques (Reference: Current American National Red Cross publications).

9-2.02 PURPOSE

In the early years, there were a number of fatalities on accidental water landings. These deaths were usually due to the absence of flotation gear, use of incorrect procedures, and/or extremely cold water. Water landing training is recommended to form a better basis for survival from both intentional and unintentional water landings.

The purpose of wet training (B-license requirement) is to expose the individual to a worst-case-scenario in a controlled situation. Drownings are usually brought on by panic. Proper training in advance should decrease the likelihood of panic and therefore decrease the likelihood of a drowning.

The potential always exists for unintentional water entry due to spotting error, radical wind changes, malfunctions, and landing under a reserve rather than a main. It is essential that persons jumping within one mile of an open body of water wear flotation gear and be trained to cope with this potential hazard.

Intentional water jumps are preplanned jumps into a body of water. A water jump can be the easiest and safest of all skydives provided normal procedures and a few additional precautions are employed. Physical injuries and drownings are almost unknown on preplanned, intentional water landings.

These recommendations provide the S&TA and USPA I with guidelines to train skydivers to effectively deal with water hazards.

9-2.03 SCOPE

This section covers recommendations and procedures for the following:

- First jump course training for unintentional water landings.
- Wet training for water landings, both unintentional and intentional.
- Water jumps.

- A. The first jump course should include theory, practice and suspended harness training as parts of dry training for water landings.
- B. Dry training should be repeated with greater emphasis on performance at the time a skydiver advances beyond student status.
- C. Wet training should be conducted, following a class on theory, in a suitable environment such as a swimming pool, lake or other body of water at least six feet deep, as part of the USPA B license requirements and in preparation for intentional water landings:
 - 1. Non-swimmer: Training is to include basic skills covering breath control, bobbing and front and back floating. Non-swimmers must be equipped with flotation gear.
 - 2. Swimmer: Training is to include all of the above plus the breast stroke, side stroke, back stroke and treading water while clothed.
 - 3. General: Initial training may be conducted in swimsuits, but training should be conducted in normal jump clothing to simulate a water landing.
- D. Safety personnel must include properly trained and certified lifeguards; if suitably qualified skydivers are not available, assistance may normally be solicited from the local American National Red Cross or other recognized training organization. Flotation gear for non-swimmers and other lifesaving apparatus is required; persons conducting this training are reminded that they are directly responsible for safety.

9-2.04 PROCEDURES FOR DRY TRAINING FOR UNINTENTIONAL WATER LANDING

These procedures outline recommendations for water hazard training which is usually included in the first jump course. It is an advantage for the student to undergo this training again, especially the suspended harness drill, just prior to meeting A license requirements. This training (including the date and location) should be documented in the student's logbook, or on a separate statement, and signed by an S&TA or USPA I.

- A. Theoretical training should include classroom lessons covering:
 - 1. Techniques for avoiding water hazards.
 - 2. Lack of depth perception over water and how to compensate.
 - 3. Preparation for water entry.
 - 4. Recovery after landing.

- B. Practice should combine both ground and suspended harness drills and should continue until the jumper is able to perform the following procedures in a reasonable amount of time.
- C. When encountering an unavoidable, unintentional water landing, the jumper should continue to maintain canopy control, and just before landing, prepare for a PLF since the depth of the water and the existence of submerged obstacles are unknown. Any other available time should be used to make additional preparations for the water entry.
- D. With piggyback equipment preparations should include:
 1. Determine the angle of drift toward the landing area and the wind direction.
 2. Inflate flotation gear if so equipped.
 3. Unfasten belly band (if applicable) and chest strap.
 4. With a split saddle: loosen leg straps (DO NOT unfasten; also be careful, if you loosen the leg strap too much, you may not be able to reach the toggles); after entering the water, throw the arms back and slide forward out of the harness.
 5. With a solid saddle: slide saddle up underneath the buttocks to form a seat. Unfasten one leg strap. Just prior to entry into water, the other leg strap can be released.
 6. Abandon the equipment by swimming upstream or upwind to avoid becoming entangled.
- E. With front and back mounted equipment procedures should include:
 1. All of the above listed procedures, and:
 2. Unfasten the reserve belly band.
 3. Unfasten one side of the reserve.
- F. Warnings:
 1. Remain in the harness and attached to the canopy until actually in the water.
 2. If flotation gear is not used separation from the equipment is essential.
 3. If the Air Force type (LPU) underarm flotation equipment is used, the bladders inflate outside the harness (although worn underneath) and removal of the harness is not practical without deflation of the bladders. If the harness must be removed after landing, the bladders should be deflated, extricated from the harness, and reinflated (orally) one at a time.

9-2.05 PROCEDURES FOR WET TRAINING FOR UNINTENTIONAL WATER LANDING

These procedures outline recommendations for water landing training to meet USPA B license requirements. This training (including the date and location) should be documented in the jumper's logbook and signed by an S&TA or USPA I.

- A. Review the theoretical and practical training outlined above.
- B. Practice the techniques described in 9-2.03C while fully clothed.
- C. While wearing a parachute harness/container and all associated equipment, jump into the water. The Instructor should then cast an open canopy over the jumper before any wave action subsides. Any type of canopy may be utilized.
- D. The jumper should then perform the steps necessary to escape from the equipment and the water.
- E. Repeat this drill until proficient.

9-2.06 PROCEDURES FOR INTENTIONAL WATER LANDING TRAINING AND JUMPING

- A. Any person intending to make an intentional water landing should:
 1. Undergo preparatory training within 60 days of the water jump. The training should be conducted by an S&TA or USPA Instructor. The training (including the date and location) should be documented in the jumper's logbook and signed by an S&TA or USPA Instructor.
 2. Hold a USPA A license and have undergone wet training for water landings.
 3. Be a swimmer.
- B. Theoretical training should include classroom lessons covering:
 1. Preparations necessary for safe operations.
 2. Equipment to be utilized.
 3. Procedures for the actual jump.
 4. Recovery of jumpers and equipment.
 5. Care of equipment.
- C. Preparation:
 1. Obtain advice for the water jump from the local USPA S&TA or USPA I/E.
 2. Check the landing site for underwater hazards.
 3. An altimeter should be used for freefalls of thirty seconds (30) or more. Note that water may damage an altimeter.
 4. Provide no less than one recovery boat per jumper, or, if the aircraft drops one jumper per pass, one boat for every three jumpers.
 5. Boat personnel should include at least one qualified skydiver and stand-by swimmer with face mask, swim fins, and experience in life saving techniques, including resuscitation.
 6. Each jumper should be thoroughly briefed concerning the possible emergencies that may occur after water entry and the proper corrective procedures.

7. Opening altitude should be no less than 3000 feet AGL to provide ample time to prepare for water entry. This is especially true when the DZ is a small body of water and the jumper must concentrate on both accuracy and water entry.
 8. A second jump run should not be made until the jumper(s) from the first pass is safely aboard the pickup boat(s).
- D. After canopy inflation:
1. In calm conditions with readily accessible pick-up boats the best procedure is simply to inflate the flotation gear and concentrate on landing in the proper area.
 2. In strong winds, choppy water conditions, in competitive water jump events, or if the flotation gear can not be inflated, separation from equipment after water entry is essential.

Note: Some skydivers may want to remove instruments and place in a waterproof bag.

9-2.07 WATER JUMP SAFETY CHECKS AND BRIEFINGS

- A. Section 8-2, Prejump Safety Checks, should be reviewed.
- B. Boat and Ground Crew Briefings:
 1. Communications procedures (smoke, radio, buoys, boats)
 2. Wind limitations
 3. Jump order
 4. Control of spectators and other boats
 5. Setting up the target
 6. Maintenance of master log
 7. How to approach jumper and canopy in the water (direction, proximity)

9-3 CANOPY RELATIVE WORK RECOMMENDATIONS

9-3.01 INTRODUCTION

Canopy Relative Work (CRW) may be described as the intentional maneuvering of two or more open parachute canopies in close proximity to or contact with one another during descent. The most basic maneuver in CRW is the hooking up of two canopies in flight. This formation, known as a “stack” or “plane,” is the most common maneuver in CRW. Night CRW, large stacks, planes and formations may be accomplished by experienced canopy relative workers. These recommendations are intended to provide guidance to CRW participants.

9-3.02 PURPOSE

The purpose of this part is to recommend certain procedures which experienced canopy relative workers have determined to be the safest methods of conducting aerial maneuvers under canopy.

Like freefall relative work, the concept of canopy relative work is that of smooth flow and grace between two or more jumpers and their canopies. Collisions that result in deflated canopies or entanglements and fast closing speeds are potentially very dangerous, not to mention aesthetically undesirable. Entanglements between two or more canopies in flight are the greatest danger in CRW, for they can easily result in serious injury or death.

9-3.03 QUALIFICATIONS

Before engaging in CRW, the beginner should have:

- A. At least 20 jumps on a ram-air canopy.
- B. Thorough knowledge of canopy flight characteristics, to include riser maneuvers and an understanding of the relative compatibility of various canopies.
- C. Demonstrated accuracy capability of consistently landing within five meters of a target.

Note: Initial training should be conducted with two jumpers—the beginner and an instructor experienced in CRW and include lessons in basic docking and break-off procedures as well as emergency procedures.

9-3.04 EQUIPMENT

- A. The following items are *essential* for safely doing CRW:
 1. Hook knife—necessary for resolving entanglements.
 2. ankle protection—adequate socks prevent abrasion from canopy lines. If boots are used, cover any exposed metal hooks.
 3. Short bridle cords—short, single attachment point bridle cords are essential to reduce the danger of entanglement. Retracting bridle pilot chute systems are desirable.

4. Cross connectors—are essential for building planes. They should be connected between the front and rear risers only.

- B. The following items are *strongly recommended* for safely doing CRW:
 1. Altimeter—provides altitude information for dock, abort, and entanglement decisions.
 2. Protective headgear—must allow adequate hearing capability for voice commands, in addition to collision protection.
 3. Soft toggles—provide less possibility of entanglement than hard toggles and better flight control.
 4. Trim tabs (go toggles)—helpful for equalizing descent rates and increasing control envelope.
 5. Cell crossporting (two rows)—is recommended (when done per manufacturer’s specs) to minimize the likelihood of canopy collapse.
 6. Cascades—recommended to be removed from the two center A lines.

9-3.05 INITIAL TRAINING

For the first few CRW jumps, stacks might be simpler, but planes are more desirable since a plane is much more stable and has a reduced chance of resulting in canopy collapse. It is an advantage to have the center lines cascade free and to have cross connectors installed on the risers. Do not attempt to fly a plane formation without cross connectors.

9-3.06 RULES OF ENGAGEMENT

- A. Weather considerations:
 1. Avoid jumping in turbulent air or gusty wind conditions. Early morning and early evening jumps are recommended in areas subject to thermals and other unstable air conditions.
 2. Avoid passing through or near clouds. Unpredictable air conditions are found there.
 3. Use caution in flying formations over plowed fields, paved surfaces, or other areas where thermal conditions often exist.
 4. When encountering bumpy or unexpected turbulent air, it is recommended that all efforts be made to fly the formation directly into the wind.
- B. Planning the jump—Factors which must be considered in every prejump briefing include:
 1. Exit order.
 2. Time between exits.
 3. Length of freefall.
 4. Designation of base-pin.
 5. Order of entry.

6. Direction of flight and techniques of rendezvous.
 7. Approach and breakoff traffic patterns.
 8. Docking procedures.
 9. Formation flight procedures.
 10. One word verbal commands.
 11. Breakoff and landing procedures.
 12. Emergency procedures.
- C. Exit and Opening Procedures:
1. Spotting procedures should be adjusted to include calculations for upper wind velocity and direction.
 2. Exits should be made at one to three second intervals.
 3. Freefall length should be adequate to assure clearance of aircraft, jumper separation, and stable body position at opening.
 4. Upon opening, be prepared to take immediate evasive action before adjusting canopy for maneuvering.
- D. Docking Procedures:
1. Base-pin—This position requires the most expertise of all. However, these skills are used in all slots. It is recommended that two experienced canopy relative workers perform this task.
 2. Formation flight courses—It is important that the formation pilot maintain a constant direction of flight along a predetermined course.
 3. Traffic patterns—Establish an orderly flight pattern for canopies attempting to dock. This will enable approaches to be made without interference, and lessen the possibility of canopy collisions. No canopies should pass in front of a formation, ever. The wake turbulence created will disturb the formation's stability and quite possibly lead to a very dangerous situation.
 4. Approaches—For smoothness and safety, each person entering the formation after base-pin should enter from behind and below. Moderate angles of approach are recommended.
 5. Docking—Only the center section of a docking canopy should be grasped when the canopy closes third or later in a stack formation. To complete the hookup, the feet can be placed behind and around the lines of the center cell. The line dock method is recommended.
 6. Collapses—Improper docks are the most common cause of collapsed canopies. Collapsed canopies should be released to allow reinflation. Experienced participants may be able to reinflate a collapsed canopy by continuing to plane down the lines. The term "drop" should be used by a jumper wishing to be released from the formation. This command is to be obeyed immediately. Be sure to check behind you for other canopies on approach before asking to be dropped.
- E. Formation Flight Procedures:
1. Verbal commands should be concise and direct. There should be no nonessential conversation.
 2. The pilot should fly the formation with limited control movements to minimize oscillations and facilitate docking.
 3. The formation pilot should never use deep brakes in the formation.
 4. Oscillations are a primary concern in canopy formations, for they can result in collapsed canopies and entanglements. Their effect and frequency can be minimized by sitting still in the harness and crossing the legs when on the bottom of the formation. However, if oscillations occur, they can be reduced or stopped by the bottom jumper adding front riser trim to add tension to the formation.
- F. Breakoff and Landing Procedures:
1. Docking—Approaches and docking should stop no lower than 2,500 feet AGL.
 2. Obstacles—Formation pilots should avoid all obstacles, including those which produce thermal activity, such as paved surfaces, plowed fields, buildings, etc.
 3. Breakoff techniques—The landing of CRW formations should only be attempted by those with a high level of CRW proficiency. Breakoff for landing should take place no lower than 2,500 feet AGL, as recommended above, because of the danger of entanglement at breakoff time.
 4. Landing techniques—Do not attempt to land formations in high or gusty winds, high density altitudes, or high field elevations.
- G. Emergency Procedures: Entanglements are the greatest hazards in CRW. If entanglements occur, several things must be kept in mind:
1. The most important aspect of a canopy entanglement is awareness of altitude. Know your altitude at all times, for altitude will often dictate your course of action.
 2. If a collision is imminent, spread one arm and both legs as wide as possible to reduce the possibility of penetrating the suspension lines. Use the other hand to the protect reserve ripcord.
 3. Be specific in discussing your intentions. If altitude allows, begin emergency procedures only after acknowledgment by other jumper(s).
 4. In the event of multiple cutaways, and if altitude allows, jumpers should stagger reserve openings to avoid possible canopy collisions.
 5. When entanglements occur in CRW, be prepared to react quickly and creatively because in many cases the emergency is one you can't prepare for in advance. It may even be a problem no one imagined could happen.
 6. If you become entangled and have sufficient altitude, attempt to clear the entanglement by following your lines out before initiating emergency procedures.

9-3.07 NIGHT CANOPY RELATIVE WORK

- A. It is recommended that night CRW be performed during a full moon.
- B. Brightly colored clothing should be worn by jumpers with dark-colored canopies.
- C. Strobes are not recommended, as they interfere with night vision and depth perception. Constant beam lights are preferred.
- D. Reference Section 9-1 - Night Jump Recommendations for further guidance.

9-4 DEMONSTRATION JUMP RECOMMENDATIONS

9-4.01 INTRODUCTION

A demonstration jump, also called a display or exhibition jump, is a jump at a location other than an existing drop zone done for the purpose of reward, remuneration, or promotion and principally for the benefit of spectators.

9-4.02 PURPOSE

One purpose of the USPA is to promote successful demonstration jumps as part of an overall public relations program for the sport. These demonstration jump recommendations provide a checklist and guidance on suggested procedures to help demo jumpers reach this goal.

9-4.03 SCOPE

These recommendations cover the following:

- Experience, ability and attitude
- Professional Exhibition (PRO) Rating
- Landing area size
- Technical considerations
- Insurance

9-4.04 GENERAL

As with all jumps, safety must be the first consideration. Next, realize that the most important aspect of a demo jump is landing in the target area. Good aerial work is not impressive if the jumpers land out. A standup landing in the target area is usually the most visible and impressive portion of a demo jump.

Demo jumps have many variables which must be considered, including wind speed and direction, equipment type, jumper experience, target areas, and alternate landing areas. Each proposed demo needs to be evaluated on an individual basis.

9-4.05 EXPERIENCE AND ABILITY

The recommended license, ratings and currency requirements are:

- A. Open Field and Level 1 (as defined by USPA and accepted by the FAA):
 1. USPA D license or higher
 2. 50 jumps on the same canopy within the past 12 months
- B. Level 2 (as defined by USPA and accepted by the FAA):
 1. Hold the USPA Pro Rating.
 2. 50 jumps on the same canopy within the past 12 months
- C. Stadium (as defined by USPA and accepted by the FAA):
 1. Hold the PRO rating.
 2. 50 jumps on the same canopy within the past 12 months

9-4.06 ATTITUDE

While a good demo jump is great public relations to the sport, a poorly performed demo may severely damage skydiving's image. Therefore, it is important to recognize and understand that sometimes it may be in the best interest of the individual jumper and skydiving in general not to make the jump at all. A mature attitude should be exhibited at all times.

- A. Promise no more than you can produce and then perform with expertise and efficiency.
- B. Take no unnecessary chances.
- C. Know what you are getting into *before* getting there.
- D. Recognize and deal with the air of excitement that surrounds a demo jump.
- E. Make mature and professional judgments in dealing with unforeseen circumstances.
- F. Delay or cancel the demo when conditions are not right for a safe jump.

9-4.07 PROFESSIONAL EXHIBITION (PRO) RATING

The Professional Exhibition Rating is recognized by the FAA and serves as a certificate of proficiency. It is not required for all demos, but may be a valuable advantage for working with the FAA.

For further information on obtaining or renewing the PRO rating, please refer to SIM Section 3-4.

9-4.08 SIZE AND DEFINITION OF LANDING AREA

- A. Level 1 and Level 2: All FAA-authorized demonstration jumps are classified as either Level I or Level II. USPA with the FAA's concurrence defines these areas as follows:
 1. Level 1: An area that will accommodate a landing area no smaller than at least 250,000 square feet up to 500,000 square feet (example: 500 x 500 feet, up to 750 x 750 feet, or an area with the sum total that equals 250,000 square feet, up to 500,000 square feet) with a one-sided linear crowd line that allows jumpers to drift over the spectators with sufficient altitude (250 feet) so as not to create a hazard to persons or property on the ground, landing no closer than 50 feet from the spectators. Many open-field athletic areas constitute a Level 1 area. Minimum requirements for this landing area are a USPA Class D License and 50 jumps within the previous 12 months, with five jumps within the previous 60 days.
 2. Level 2: An area that will not accommodate a 250,000 square-foot area (500 x 500-foot area) but will allow an area no smaller than 5,000 square feet per four jumpers where a jumper can fly under

canopy no lower than 50 feet above the crowd and land no closer than 15 feet from the crowd line. Parachutists who certify that they will use both ram-air main and ram-air reserve parachutes will be permitted to exit over or into a congested area, but not exit over an open-air assembly of people. Minimum requirements to conduct this demonstration jump are a USPA D license with a PRO Rating and 50 jumps within the previous 12 months, with five jumps within the previous 60 days. This area would require an FAA Form 7711-2 to conduct an approved demo.

3. Stadium: A Level 2 landing area smaller than 150 yards in length by 80 yards in width and bounded on two or more sides by bleachers, walls, or buildings in excess of 50 feet high. This area would also require an FAA Form 7711-2 to conduct an approved demo and requires a USPA PRO rating.
- B. Open Field
1. A minimum-sized area that will accommodate an area no less than 500,000 square feet (e.g., 750 x 750 feet, or an area with the sum total that equals 500,000 square feet), that allows a jumper to drift over the spectators with sufficient altitude (250 feet) so as not to create a hazard to persons or property on the ground, landing no closer than 100 feet from the spectators. Minimum requirements for this landing area are a USPA D License and 50 jumps within the previous 12 months, with 5 jumps within the previous 60 days.
 2. Jumper-to-spectator separation should not exceed those limits required of a Level 1 demo.
- C. For PRO Ratings holders, there should be no less than 5,000 square feet of landing area per four jumpers. An additional 800 square feet per jumper is required for any jumper landing within 30 seconds of the last of any four jumpers.
- D. Alternate landing areas (run-offs or escape areas) must be considered when evaluating a demonstration jump. Small targets often become acceptable when alternates are available. The alternate landing area must be of sufficient size to accommodate, as a minimum, a Level 1 landing area for the jumper(s) and as not to create a hazard to persons or property on the ground.

9-4.09 TURBULENCE AND TARGET PLACEMENT

Recommended minimum distances from major obstacles should never be disregarded, especially in windy conditions. Major obstacles affect air currents and can cause turbulence. Major obstacles include large buildings and trees. A single tree, pole, fence, etc., is not considered as a major obstacle. Stadium

jumps usually involve turbulence that should be considered. Jumpers should be thoroughly familiar with the turbulent-air flight characteristics of their canopies.

9-4.10 MAXIMUM WINDS

- A. When considering wind limits, include wind turbulence and the capabilities of the reserve canopy.
- B. USPA recommends that all demonstration jumps be conducted with a maximum 15 mph ground wind limitation.
- C. For stadium jumps, the wind should be measured at the top of the stadium and turbulence should always be anticipated.

9-4.11 EQUIPMENT

- A. Main canopy:
 1. Level 1, open field, and stadium: ram-air type required.
 2. Level 2: ram-air required by FAA.
- B. Reserve canopy:
 1. Open field: should be steerable.
 2. Level 1, Level 2, and Stadium: the FAA requires that jumpers making a demonstration jump over or into a congested area use a square reserve canopy.
- C. Smoke: should be hand-carried or attached to an easily ejectable boot bracket. Warning: military type (M-18) smoke grenades are extremely hot and should not be hand held.
- D. Personnel: jumpers and support staff should have a sharp, clean appearance to make a better impression and present a professional image.

9-4.12 AERIAL MANEUVERS

Aerial maneuvers should be rehearsed, just as any professional would give a show a dry run. Participants should be aware of their exit point, freefall drift, and opening point. Landing on target takes priority over air work. One should be prepared to break off, track, or pull high if necessary. Some suggested maneuvers:

- A. Freefall:
 1. Barber pole: two or more jumpers with two or more colors of smoke, exit and hook up. The jumpers then spin the formation creating a giant barber pole.
 2. Starburst: three or more jumpers exit and form a star, then break, make a 180° turn, and track apart.
 3. Cutaway: one jumper opens, cuts away and deploys a second main canopy.

Note: The jumper is required to wear three parachutes, one of which must be a TSO'd reserve and the rating holder must wear a TSO'd harness.

- B. Canopy: radical canopy maneuvers should not be performed below 500 feet. At this point the jumper has about 30 seconds to set up for landing. Some suggested maneuvers:
1. Smoke: after opening, ignite smoke and drop on a 10-foot line. Make a series of turns in one direction. Line should be releasable from the upper end if it becomes necessary. Be careful in crossing over obstacles on approach. Make sure the smoke container won't burn through the line.
 2. Flag: a flag may be attached to the rear lines or dropped below the jumper on a weighted line. A ground crew should catch the flag so that it won't touch the ground.
 3. CRW: should only be performed by experienced CRW jumpers. Efforts at CRW should stop no lower than 2,500 feet AGL.

Note: It is much more difficult and dangerous to land a canopy stack on target than it is to land canopies separately.

9-4.13 CROWD CONTROL

- A. Fortunately, jumper-spectator contact rarely occurs and it should be avoided if at all possible. Reasonable precautions should be taken to keep the spectators out of the landing area. People not sitting may move toward the target, but they will not always move out of the way of the landing jumper.
- B. Jumpers should pick up their canopies immediately after landing, or some spectators may decide that they make good souvenirs. If you plan on packing in the crowd, keep an eye open for drinks and cigarettes.

9-4.14 GROUND SIGNALS

Ground-to-air communication should be maintained. This may be accomplished by a radio, smoke or a panel. It is best if a backup to your primary signal exists in case the primary fails.

If a Certificate of Authorization (FAA Form 7711-1) is issued, it may require ground-to-air radio communication .

9-4.15 ANNOUNCER

An experienced skydiver on the public address system contributes to a quality demonstration jump:

- A. The announcer can point out the aircraft, explain each phase of the jump, give general information and explain any unusual occurrences such as a reserve activation or a jumper missing the target.
- B. The announcer can contribute to crowd control by asking spectators not to enter the target area.

9-4.16 OTHER ACTIVITIES

Activities after the jump add to the entertainment of the spectators.

- A. Packing demonstration: Team members pack their parachutes in view of the spectators. Pack slowly, explaining

each step and answer questions. Often this facet of the demonstration is more effective if one person packs while another does the talking.

- B. Answer questions: Respond to spectator questions politely and factually. Direct persons interested in jumping to the USPA or distribute brochures advertising a drop zone.

9-4.17 ADVICE AND APPROVAL

Approval may need to be secured from Federal, State or local officials before a demo can be performed.

- A. Local:
1. It may be necessary to contact local authorities prior to a jump.
 2. The FARs require airport management approval prior to a jump onto the airport. (Reference section 12, FAR 105.17).
 3. A call to the local police is recommended. They may offer to help in crowd control and with prior knowledge of the jump, they are less likely to respond to a call that "there has been a mishap and people are falling out of the sky."
- B. State:
1. It may be necessary to contact the state department of aviation.
 2. The local S&TA or I/E notified of the demo should be able to assist the organizers in meeting all state requirements.
- C. FAA:
1. Almost every jump requires that the FAA be notified. (Reference section 12, FAR 105.25)
 - a. For any jump the nearest ATC or FSS must be notified at least one hour before the jump.
 2. Congested areas and open air assembly of persons:
 - a. FAR 105.15 states that no jump be made over or into a congested area or open air assembly of persons until a application for a certificate of authorization (FAA form 7711-2) has been filed and a certificate of authorization (FAA form 7711-1) has been issued.
 - b. The local S&TA or I/E notified of the demo should be able to assist the organizers in meeting all federal requirements.
- D. USPA:
1. The jumper is required by the BSRs to contact the local S&TA or an I/E for demonstration jump advice. The following information should be provided:
 - a. Date and time of jump
 - b. Exact location
 - c. Exit altitude
 - d. Aircraft identification
 - e. Pilot
 - f. Participants by name and qualification
 - g. Planned routines

2. The S&TA or an I/E providing advice for a demonstration jump should use this section as a guideline. The I/E whose advice was sought should contact the S&TA for the area or the drop zone at which the flight will originate.
3. The S&TA should assist the jumpers in meeting all applicable state and federal requirements and check that the requirements have been met. All authorizations and permits should be carried on the jump by the organizer or team captain.
4. The S&TA should investigate both the proposed area and the participants. The rating holder may recommend the use of specific jumpers or advise the organizer to use only individuals meeting certain experience requirements. General advice allows the organizer greater flexibility in making last-minute substitutions of aircraft and participants.
5. When consulted for a demonstration jump, the S&TA may recommend certain additional limitations such as wind speed and direction, altitude, etc. The S&TA should consider the information in this section when making recommendations and should

question, “All things considered, are the chances of performing a safe and professional demonstration jump reasonably good?”

9-4.18 INSURANCE

- A. USPA individual membership insurance (property damage and public liability), which is included as a benefit of USPA membership, is not valid for demonstration jumps.
- B. Demonstration jump insurance can be obtained through USPA in accordance with the Demonstration Jump Insurance Program. Contact USPA for information.

9-4.19 RELATED READINGS

- A. *FAA Part 105, Parachute Jumping*
- B. *FAA AC 105-2C, Sport Parachute Jumping*
- C. *FAA AC 91-45C, Waivers: Aviation Events*
- D. *SIM section 3-4*

9-5 HIGH ALTITUDE JUMP AND OXYGEN USE RECOMMENDATIONS

9-5.01 INTRODUCTION

Skydives from altitudes higher than 15,000 feet above sea level (MSL) present the participants with a new range of important considerations. The reduced oxygen, atmospheric pressure and temperature and the winds and airspeed above 15,000 feet MSL make skydiving more potentially hazardous in this region than at lower altitudes.

Hypoxia, which is oxygen deficiency, is the most immediate concern at higher altitudes because it can result in impaired judgement and even unconsciousness and death. Hypoxia can be prevented by the use of supplemental oxygen and procedures not required for skydives from lower altitudes.

With proper training, adequate equipment, and well-planned procedures, high altitude skydives can be conducted within acceptable safety limits. Without such precautions, they may result in disaster.

9-5.02 SCOPE

These recommendations are presented to familiarize skydivers with:

- Altitude classifications
- Experience recommendations
- Training recommendations
- Equipment recommendations
- Procedural recommendations

General information is provided on the accompanying Planning Chart.

9-5.03 ALTITUDE CLASSIFICATIONS

- A. Low Altitude: Less than 15,000 feet MSL.
- B. Intermediate Altitude: From 15,000 feet up to 20,000 feet MSL.
- C. High Altitude: From 20,000 feet up to 40,000 feet MSL.
- D. Extreme Altitude: Above 40,000 feet MSL.

9-5.04 EXPERIENCE RECOMMENDED

Persons making skydives from altitudes above 15,000 feet MSL are advised to have the following minimum experience:

- A. For Intermediate Altitude jumps (15,000 feet - 20,000 feet MSL), participants should hold at least a USPA C license.
- B. For High Altitude jumps (20,000 feet - 40,000 feet MSL), participants should:
 1. Hold a USPA D license.

2. Have made at least one jump from 15,000 feet MSL or below using the same functioning bailout oxygen system.
- C. For Extreme Altitude jumps (40,000 feet MSL and higher), participants should:
 1. Hold a USPA D license.
 2. Have made at least two jumps from below 35,000 feet MSL using the same functioning bailout oxygen and pressure systems.

9-5.05 TRAINING RECOMMENDATIONS

- A. It is a benefit for participants on intermediate altitude skydives to have completed physiological flight training (PFT) within the preceding twelve months.
- B. It is essential for all participants on high and extreme altitude skydives to have completed PFT within the preceding twelve months.
- C. PFT is provided by the U.S. Air Force to USPA members through an agreement between the Federal Aviation Administration and USPA. In order to attend training, applicants for PFT must hold at least a current FAA Class III Medical Certificate.
- D. The PFT Course:
 1. Familiarizes the skydiver with the problems encountered in the high altitude environment.
 2. Introduces basic high altitude oxygen and pressure equipment and its use.
 3. Provides the opportunity to discover individual reactions to hypoxia and other altitude diseases through simulated high altitude flights in a decompression chamber.
- E. Applications for PFT are available from USPA, 1440 Duke Street, Alexandria, VA 22314.

9-5.06 EQUIPMENT RECOMMENDED

- A. General: A sensitive altimeter and adequate protective clothing is recommended for skydives from above 15,000 feet MSL in addition to the oxygen and body pressurization equipment listed below. Backup oxygen systems and components should be available on board the aircraft, in the event of a malfunction in the primary systems and components. Medical Oxygen, which has a high moisture content, may be used when freezing temperatures will not be encountered. Oxygen systems should only be filled with Aviator's Oxygen, which has the moisture removed,

whenever freezing temperatures will be encountered since moisture can cause oxygen mask valves to freeze.

- B. Intermediate Altitude Jumps: A separate oxygen mask should be provided for each skydiver and aircrew member, although a common central oxygen bottle and regulator system may be used.
- C. High Altitude Jumps: All skydivers must be equipped with an appropriate on-board oxygen source (see attached chart) and compatible bailout oxygen system, preferably with a backup bottle. An automatic activation device (AAD) is recommended.
- D. Extreme Altitude Jumps: All skydivers must be equipped with compatible on-board and bailout oxygen and body pressurization systems appropriate to the goal altitude (*see Planning Chart following this Section*). An AAD is recommended.

9-5.07 PREPARATIONS RECOMMENDED

- A. General:
 - 1. All jumps must be coordinated in advance with the appropriate local, state, and federal aviation authorities.
 - 2. All jumps should be coordinated in advance with USPA for safety and for establishing new national and international skydiving records under the FAI Sporting Code.
- B. Groups: For group jumps from above 15,000 feet MSL, it is helpful to appoint an Oxygen Monitor whose duties are to:
 - 1. Be familiar with the operation of and to inspect, operate, and monitor the oxygen systems during their use.
 - 2. Be watchful for symptoms of hypoxia and other altitude diseases in all jumpers.
 - 3. Initiate appropriate remedial measures in the event of oxygen equipment malfunction or jumper illness.
 - 4. See that oxygen equipment is properly stowed before exit.

Note: There should be one Oxygen Monitor for each six persons or each oxygen bottle, whichever is fewer.

- C. Communications in the aircraft are extremely limited by the wearing of oxygen masks. The spotter and oxygen monitor should establish with the jumpers and aircrew a standard set of hand signals for the commands, inquiries, and responses required during flight. A small blackboard or similar device may be helpful for communicating lengthier messages.
- D. Warning: Oxygen explosively accelerates burning. To prevent damage to aircraft and equipment and injury to persons by oxygen-fed flash fires, the aircraft should be electrically grounded during all ground practice. No smoking should be permitted in the vicinity of the aircraft,

either on the ground or aloft, while oxygen equipment is on board.

- E. Ground practice is essential due to the restrictions on communication, the additional pre-exit activities required, the restriction on vision (by the mask) and on movement (by bulkier clothing, often further irritated by long periods of sitting and low cabin temperatures during the climb to jump altitude). Signals and exit procedures should be practiced on the ground, in the actual jump aircraft, until everyone can perform the procedures listed, by hand signal command, smoothly and without discussion. This will prevent confusion aloft, which is inevitable without adequate rehearsal.
- F. Equipment checks should be performed prior to loading the aircraft and especially before exit. In addition, the oxygen monitor should perform the "P.D. McCripe" oxygen equipment inspection:
 - P - Pressure gauge
 - D - Diaphragm
 - M - Mask
 - C - Connections at mask
 - C - Connections at disconnect
 - R - Regulator
 - I - Indicator
 - P - Portable unit (walk-around bottle)
 - E - Emergency cylinders (bailout bottles)

9-5.08 OXYGEN USE PROCEDURES

Oxygen use procedures will vary with the equipment used, but the following are basic:

- A. Intermediate Altitude:
 - 1. All participants should put on masks and begin breathing oxygen at 8,000 feet MSL, continuing throughout the climb and jump run, under the supervision of the Oxygen Monitor. This is important, even if it doesn't seem necessary, especially if more than one jump per day is planned.
 - 2. Two minutes from exit, the spotter signals get ready. At this time, all jumpers move into the ready position and prepare to doff their oxygen masks.
 - 3. 30 seconds before exit, the spotter signals by removing his mask and all jumpers follow suit, stowing masks as planned. The spotter need do nothing further than signal or lead the exit.
 - 4. In the event of an aborted jump run, the oxygen masks should be redistributed and donned, a wide orbit made, and the process repeated, with all skydivers again breathing oxygen until within 30 seconds of exit.
- B. High Altitude:
 - 1. All skydivers should pre-breathe 100% oxygen under the supervision of the Oxygen Monitor for 30 minutes prior to takeoff when goal altitude is above 25,000 feet MSL.

2. When goal altitude is lower than 25,000 feet MSL, all skydivers should begin breathing from their on-board oxygen source at 8000 feet MSL, under the supervision of the oxygen monitor.
 3. About five minutes before exit, the spotter signals get ready. All jumpers arm AADs and prepare to move.
 4. Two minutes from exit, the spotter signals two with his fingers and gives the command to activate bailout bottles, activates his own and, when he feels its pressure, disconnects from the aircraft oxygen system. Jumpers should leave their goggles raised until bailout bottle activation is completed, to prevent goggles from fogging.
 5. The spotter goes back to spotting and the oxygen monitor gives him the thumbs up signal when all other jumpers have functioning bailout bottles and are disconnected from the aircraft oxygen. The spotter then need only signal or lead the exit.
 6. In the event of malfunction of the skydiver's first bailout bottle, he has sufficient time (two minutes) to switch to the backup bottle.
 7. In the event that no backup bottle is carried, the skydiver would be forced to remain connected to the aircraft oxygen system and, after the other jumpers exit, either descend to 20,000 feet MSL (or lower) and jump or land with the aircraft.
- C. Extreme Altitude: Standard procedures are not established, but must be developed for the specific mission and equipment.

9-5.09 SPOTTING PROCEDURES

- A. Altitude wind and surface wind direction may not coincide. Winds aloft may also be stronger than surface winds (the jet stream is found at high altitude). Due to freefall drift, it is necessary to adjust the exit point to allow for winds aloft. Exit point and opening point will not coincide.
- B. The higher ground speeds attained by an aircraft indicating the same airspeed as usual at lower altitude, radically increases the distance of forward throw that will be encountered on exit.
- C. To calculate the exit point call Aviation Weather for the winds aloft up to the planned exit altitude. Use an average freefall rate of 10,000 feet per minute, compute the time required to freefall through each different layer of wind direction and speed reported. Insert the time and wind speed figure into the following equation and solve for wind drift through each layer.

$$\text{Drift} = \text{Wind Velocity} \times \text{Time of Exposure}$$

Note: The time component of wind speed and time of exposure must both be expressed in or converted to the same units, (i.e., feet per second and seconds, miles per hour and hours). The drift distance will then be expressed in the same unit as the distance unit of the wind speed figure.

- D. Use a sheet of acetate, a grease pencil, and a map or aerial photo of the DZ and surrounding area to plot the exit point. On the acetate, mark a North-South reference line, then begin with the topmost wind layer and proceed to the lowest layer, plot the computed wind drift for each by a line in the same scale as the map or photo, join the beginning of the line representing the drift anticipated in the next lower layer to the end of the line from the higher layer. The resulting zigzag line represents the total wind drift expected during freefall, without tracking. In the opposite direction of the exit altitude wind drift (or in the direction of the jump run, if it is not to coincide with the wind direction) add 2,000 feet to compensate for forward throw from the aircraft.
- E. Throw wind drift indicators at the planned opening altitude to determine the opening point. Then orient the acetate over the photo or map, placing the end of the freefall wind drift line on the opening point indicated by the wind drift indicators. The other end of the wind drift line now indicates the exit point. Jump run should be oriented directly into the wind at exit altitude to prevent lateral drift if spotting is to be primarily visual. Navigational aids may be used as the primary spotting reference, but the spot should *always* be confirmed visually prior to exit.

9-5.10 HAZARDS OF INADVERTENT OPENINGS AT ALTITUDE


- A. At normal opening altitude, terminal velocity is about 160 feet per second (fps) and the rate of descent under open canopy is about 15 fps; thus, the change in velocity at opening is about 145 fps. By comparison, the figures for an opening at 40,000 feet MSL are 336 minus 40, or a 296 fps change in velocity. At 60,000 feet MSL the change in velocity is even more striking: 543 minus 64, or 479 fps. Because of the higher terminal velocity at the higher altitudes, it is clear that an inadvertent opening can cause serious injury as result of the greater opening shock experienced. In addition, the equipment may not be able to withstand the load without damage.
- B. Even if a skydiver was not injured and the equipment not damaged, he would still face an extended period of exposure to the extreme cold at altitude.
- C. Another hazard of a canopy opening at altitude is hypoxia.






SECTION 9-5

HIGH ALTITUDE JUMP

PLANNING CHART

PLANNING CHART

Goal (MSL) Altitude	Classification	License Recommended	Equipment Required *****							Training Recommended **
70,000	 Extreme		Mask	Aircraft Onboard Oxygen Source			Bailout Oxygen Source		Pressure Suit	
60,000				Regulator	Setting		Freefall descent	Canopy descent	Full pressure required.	
					Auto	Manual	Standard emergency "bailout bottle" assembly.	No suitable "off the shelf" hard- ware available at this time.		
				Pressure suit helmet—integrated breathing apparatus required.						
50,000										
45,000				Emer- gency	Above 45M	Standard emergency "bailout bottle" assembly.	No suitable "off the shelf" hard- ware available at this time.	Partial pressure required.		
43,000				45M						
40,000					43M					
35,000	High	USPA Class D	Positive pressure	Pressure breathing	100% oxygen	Safety	Average duration 10–12 mins.	Standard "bailout bottle"	None required	Physiological flight train- ing course and at least one jumps from below 15,000 feet or below using full oxygen gear in freefall.
33,000										
30,000										
25,000			Diluter demand	Diluter demand	On normal oxygen	Normal oxygen				
20,000	Intermediate	USPA Class C	Constant flow	Continuous flow	On	On	None required	None required	None required	Physiological flight training course
15,000			Use supplemental oxygen on board above 8,000 ft. MSL until exit.							
10,000	Low	None required	Supplemental oxygen on board aircraft. Use above 10,000 ft. MSL, whenever elapsed time above 8,000 feet MSL is expected to exceed 30 minutes.							
8,000										
Sea level										

Average Freefall Delay (seconds)	Time of Useful Consciousness w/out Oxygen or Pressure	Aircraft Capable of Altitude	Hypoxia Symptoms	Special Considerations
Unknown	9 seconds	 Gas Balloon		<p>In this region, supersonic speeds may be attained during the freefall. The effects of trans-sonic and supersonic freefall on sky divers and their equipment are not known at this time.</p> <p>At 63,000 feet MSL, the critical pressure of your blood and body fluids is reached. Without pressurization, or in the event of a failure of pressurization at or above this altitude, your blood and body fluids will boil.</p>
		 Turbo Jet		
190	20 seconds			<p>In the event of an inadvertent parachute deployment at high or extreme altitude, the parachutist (if conscious) should break away from that parachute and freefall to a lower altitude, if there is insufficient oxygen for a canopy descent to 15,000 feet MSL.</p>
178 170 160	1 minute 1 minute, 30 seconds	 Turboprop		
140	2 minutes, 30 seconds 5 minutes	 Turbocharged engine	<p>Loss of Consciousness.</p> <p>Convulsions, loss of consciousness.</p> <p>Loss of muscular control, judgment, memory, reasoning, time-sense, repeated purposeless movements, emotional outbursts.</p>	<p>The opening shock and malfunction probability of a deploying parachute INCREASES radically with altitude. A final equipment check before leaving the aircraft will help prevent premature deployment.</p>
		 Reciprocating engine		
120			<p>False sense of well-being, overconfidence, faulty reasoning, narrowing field of attention, blurring vision, poor memory.</p> <p>Fatigue drowsiness, headache, poor judgment.</p> <p>Fatigue, sluggishness.</p> <p>Deterioration of night vision.</p>	<p>Above 25,000 feet MSL, the skydiver is subject to decompression sickness including the bends, chokes and cramps, resulting from the nitrogen in the bloodstream coming out of solution and forming a froth of bubbles around joints. Decompression sicknesses are avoided to a large extent by denitrogenization of the bloodstream by breathing 100% oxygen for at least one hour before reaching an altitude of 25,000 feet MSL.</p> <p>Air temperature above 20,000 feet MSL may be expected to be below zero, year-round. All skin should be protected from wind blast by clothing since exposed skin areas are subject to severe frostbite.</p> <p>All airspace above 18,000 feet is designated as Class A airspace. Refer to FAR Part 105 for special rules governing the conduct of skydiving operations in this area.</p>
85				
55				

* AADs are recommended as a backup system on all high-altitude jumps, due to the possibility of the skydiver being rendered unconscious by an oxygen system failure. ** ALWAYS rehearse oxygen, communication and exit procedures before takeoff. *** Minimum equipment listed. Equipment shown for higher altitudes satisfies all requirements for use at lower altitudes. **** Oxygen systems for high-altitude flight and skydiving should be filled with aviator's oxygen, not medical oxygen. Medical oxygen has a high moisture content which can cause oxygen mask valves to ice over in high-altitude operations.

SECTION 9-6

FREEFLYING, SKYSURFING AND FREESTYLE SKYDIVING RECOMMENDATIONS

9-6.01 INTRODUCTION

During the 1990s, freefall techniques incorporating body positions other than the traditional face-to-earth position became increasingly common. However, many drop zone procedures and equipment designs are based largely around face-to-earth freefall. These recommendations provide guidance for other freefall body positions, which may result in significantly higher fall rates, rapid changes in relative speed, and which affect separation between groups engaged in different freefall activities on the same pass over the drop zone. The term “freeflying” is applied to all activities that incorporate standing, head-down, or sitting freefall positions, including skysurfing and freestyle skydiving.

9-6.02 QUALIFICATIONS

Before engaging in freeflying, the skydiver should have demonstrated air skills, including:

- A. consistent altitude awareness
- B. basic formation skydiving skills
- C. ability to track to achieve horizontal separation
- D. understanding of the jump run line of flight
- E. proficiency at sit-flying before attempting standing or head-down maneuvers

9-6.03 EQUIPMENT

Equipment for freeflying should include:

- A. Personal accessories
 - 1. audible altimeter
 - 2. visible altimeter
 - 3. hard helmet
 - 4. clothing or jumpsuit that will remain in place during inverted and stand-up freefall and will not obscure or obstruct deployment or emergency handles or altimeters
- B. Deployment systems and operation handles that remain secure during inverted and stand-up flight.
 - 1. bottom-of-container mounted throw-out pilot chute pouch, pull-out pilot chute, or ripcord main deployment system
 - a. exposed leg-strap-mounted pilot chutes present an extreme hazard
 - b. any exposed pilot chute bridle presents a hazard
 - 2. cutaway and reserve ripcord handles (pillow-type handles require special consideration and practice;

- 3. simulated harness practice with the actual handles is recommended)
- 3. closing loops, pin protection flaps, and riser covers must be well maintained and properly sized
- C. Leg and chest straps tightly stowed
- D. Leg straps connected with a seat strap to keep the leg straps from moving toward the knees while in sitting freefall position or making transitions
- E. Automatic activation device because of the high potential for collisions and loss of altitude awareness associated with freeflying
- F. In the case of skysurfing boards, a release system that can be activated with either hand without bending at the waist

9-6.04 TRAINING

Freeflying has many things in common with face-to-earth formation skydiving. A beginner will progress much faster and more safely with a qualified expert coach. Novices should not jump with each other until receiving basic training in freeflying.

- A. Prior to jumping with larger groups, progress should follow the same model as for the freefall and canopy formation disciplines: 2-way formations of novice and coach to develop exit, body position, docking, transition, and break-off skills.
- B. Special hazards associated with freeflying in groups:
 - 1. Inadvertently transitioning from a fast-falling body position to a face-to-earth position (“corking”) results in rapid deceleration from typically 175 mph to 120 mph. Freeflying in a group requires the ability to:
 - a. remain in a fast-flying position at all times
 - b. remain clear of the airspace above other freeflyers
 - 2. Assuming a fast-falling position when the other skydivers are in a slow-falling position puts the freeflyer below the formation, creating a hazard at break-off.
 - 3. Freeflying offers more potential for loss of altitude awareness than traditional skydiving for several reasons.
 - a. Higher speeds means shorter freefalls.
 - i. Face-to-earth freefall time from 13,000 feet to routine deployment altitudes takes about 60-65 seconds.
 - ii. Typical freefly times from 13,000 feet may be as short as 40 seconds.
 - b. Head-down and sit-fly positions present a different visual picture of the earth; freeflyers may not be visually aware of their altitude.

- c. Visual altimeters can be difficult to read in some body positions.
 - d. Audible altimeters can be hard to hear in the higher wind noise associated with freefly speeds.
 - e. As with other skydiving disciplines, participants must guard against focusing on an unimportant goal and losing track of the more important aspects of the skydive, time and altitude.
- C. Horizontal Drift
- 1. Novice freeflyers may drift in freefall. An experienced coach can correct the problem. On solo jumps, freeflyers should practice movement perpendicular to the line of flight (90 degrees to jump run heading). Separation can be enhanced from other groups by tracking perpendicular to the line of flight at a routine breakoff altitude.
 - 2. Experienced freeflyers must also be aware of lateral movement when coaching novices or performing dives involving horizontal movement.
 - 3. All skydivers on loads mixing freeflyers and traditional formation skydiving must consider the overall effect of the wind on their drift during freefall.
- 4. As a general rule, faster-falling groups should leave after slower-falling groups particularly when jump run is flown against a strong headwind.
- D. Separation under canopy: Faster-falling groups should delay canopy flight downwind. This to allow jumpers who exited before them but who fell slower to deploy and then turn downwind also.
- E. Loss of visual contact with other skydivers: The rapid changes in vertical separation that can occur in freefly positions makes it easy to lose contact with others on the dive. Even jumpers with extensive experience in formation skydiving may have trouble locating everyone on a freefly dive. Breakoff can be more confusing than usual. Important considerations in planning a freefly dive are:
- 1. Keep the size of the groups small until proficient.
 - 2. Plan higher breakoffs than usual.
 - 3. Transition from fast-fall rate to normal tracking for separation gradually in case of a skydiver above the formation in a high-speed descent.
 - 4. Avoid maneuvers near breakoff that increase vertical separation.

SECTION 10

MEMBERSHIP AWARDS PROGRAMS

10.01 INTRODUCTION

USPA presents awards to individual members in recognition of their accomplishments in skydiving. Awards programs have been established to provide both goals and recognition in a variety of fields. Each of these awards represents a significant milestone achieved by an individual skydiver.

10.02 SCOPE

This section provides information concerning these awards programs:

- A. Gold, Diamond and Ruby Expert Wings—these awards are presented to skydivers who have completed 1,000 freefall skydives and subsequent multiples of 1,000 freefall skydives.
- B. Gold, Diamond and Ruby Freefall Badges—these awards are presented to skydivers who have accumulated 12 hours of freefall time and subsequent multiples of 12 hours.
- C. Membership Seniority Certificates—these Certificates are presented in recognition of 10, 15, 20, etc. years of accumulated membership in USPA (formerly, the Parachute Club of America).
- D. Sequential Relative Work Awards:
 - 1. The Falcon Award is available for individual relative workers who have performed the required number

of sequential formations on 4-person and larger skydives.

- 2. The Eagle Award is available for individual skydivers who have performed the required number of sequential formations on 8-person and larger skydives.
- E. Canopy Relative Work Awards:
 - 1. The 4-Stack Award is available for individuals who have successfully participated in canopy formations of four or larger.
 - 2. The CCR (Canopy Crest Recipient) or 8-Stack Award is available for individuals who have successfully participated in canopy formations of eight or larger.
 - 3. The CCS (Canopy Crest Solo) Award is available for individuals who have entered eighth or later in a completed eight-canopy or larger formation.
 - 4. Night versions of these awards are available for those who have completed these formations at night.
- F. Large Formation Awards (Freefall):
 - 1. The USPA Silver Falcon Award is presented to those who have participated in a 36-person or larger freefall formation.
 - 2. The USPA Golden Eagle Award is presented to those who have participated in a 64-person or larger freefall formation.

10-1 EXPERT WINGS AND FREEFALL BADGES

10-1.01 INTRODUCTION

These two types of awards are intended to provide a special kind of recognition to those United States Parachute Association members who have accumulated significant levels of experience in both number of freefall skydives and amount of freefall time.

10-1.02 SCOPE

USPA proudly recognizes those members:

- A. Who have accumulated:
 - 1. 1,000 freefall skydives by awarding them Gold Expert Wings.
 - 2. Diamond Expert Wings are awarded for each multiple of 1,000 freefall skydives up to 10,000.
 - 3. Ruby Expert Wings are awarded for each multiple of 1,000 freefall skydives from 11,000 to 19,000.
 - 4. Emerald Expert Wings are awarded for each multiple of 1,000 freefall skydives from 20,000 to 29,000.
 - 5. Sapphire Expert Wings are awarded for each multiple of 1,000 freefall skydives from 30,000 to 39,000.
- B. Who have accumulated:
 - 1. 12 hours of time in freefall by awarding them Gold Freefall Badges.
 - 2. Diamond Freefall Badges are awarded for each multiple of 12 hours of freefall time up to 120 hours.
 - 3. Ruby Freefall Badges are awarded for each multiple of 12 hours of freefall time from 132 hours up to 228 hours.
 - 4. Emerald are awarded for each multiple of 12 hours of freefall time from 240 hours up to 348 hours.
 - 5. Sapphire are awarded for each multiple of 12 hours of freefall time from 360 hours up to 468 hours.

10-1.03 GENERAL REQUIREMENTS

- A. To be eligible for any of these awards a person must:
 - 1. Have completed the required number of freefall skydives or accumulated the required amount of freefall time.
 - 2. Have made each jump being presented as qualification in compliance with the USPA BSRs.
 - 3. Be a current USPA member at the time of application for the award.
 - 4. Be the holder of a current USPA D license or its accepted foreign equivalent.
 - 5. Have no record of a BSR violation on file with USPA.
 - 6. Have met the requirements of the previous award.

- B. The applicant must present logbook evidence of the required number of freefall skydives or amount of freefall time for which the award is being made. For jumps made after December 31, 1987, each jump shall be listed as a separate entry, and each entry shall at least contain:
 - 1. The jump number
 - 2. Date
 - 3. Location
 - 4. Exit altitude
 - 5. Freefall length
 - 6. Type of jump (RW, accuracy, Jumpmaster, photography, etc).
 - 7. Signatures (witness jumpers or pilots are encouraged but not required).
- C. Verification of the required number of freefall skydives or freefall time and other requirements will be made by:
 - 1. A USPA Regional Director
 - 2. A USPA National Director
 - 3. A USPA Administrative Officer
 - 4. In case of hardship or extraordinary conditions, other persons deemed acceptable to USPA Headquarters or the USPA Board of Directors.
- D. The verifying official will submit to USPA HQ a letter or certification form verifying that the applicant has met all requirements.
- E. Upon receipt of the letter or Certification Form, USPA HQ will issue the award as directed by the verifying official. All awards will be issued by USPA HQ in the order the qualified application is received.
- F. Waiver of these requirements and procedures, due to special circumstances or hardships, may be applied for through the USPA Board of Directors.

10-1.04 PRESENTATION

Because of the particular significance of the milestone represented by the award of Gold, Diamond and Ruby Expert Wings and Gold, Diamond and Ruby Freefall Badges, it is in the best interests of the United States Parachute Association and the sport of skydiving that these awards be presented to the recipient with appropriate ceremony and recognition. Except when not practical, these awards should be presented by a USPA National or Regional Director, to whom the award will normally be entrusted before presentation.

It is also recommended and urged that all recipients of Gold, Diamond and Ruby Expert Wings and Gold, Diamond and Ruby Freefall Badges be publicized as widely as possible through skydiving publications and local news media. Whenever possible, a brief report and photograph of the presentation should be submitted to:

Editor
Parachutist Magazine
 1440 Duke Street
 Alexandria, VA 22314

10-1.05 EXPERT WINGS

A person is eligible for the following USPA award after completing:

Expert Wings Award Definitions	
No. of Freefall Skydives	Award Title
1,000	Gold
2,000	Diamond
3,000	Double Diamond
4,000	Triple Diamond
5,000	Quadra Diamond
6,000	Penta Diamond
7,000	Sexta Diamond
8,000	Septa Diamond
9,000	Octa Diamond
10,000	Nona Diamond
11,000	Ruby
12,000	Double Ruby
13,000	Triple Ruby
14,000	Quadra Ruby
15,000	Penta Ruby
16,000	Sexta Ruby
17,000	Septa Ruby
18,000	Octa Ruby
19,000	Nona Ruby
20,000	Emerald
21,000	Double Emerald
22,000	Triple Emerald
23,000	Quadra Emerald
24,000	Penta Emerald
25,000	Sexta Emerald
26,000	Septa Emerald
27,000	Octa Emerald
28,000	Nona Emerald
29,000	Deci Emerald
30,000	Sapphire
31,000	Double Sapphire
32,000	Triple Sapphire
33,000	Quadra Sapphire
34,000	Penta Sapphire
35,000	Sexta Sapphire
36,000	Septa Sapphire
37,000	Octa Sapphire
38,000	Nona Sapphire
39,000	Deci Sapphire

10-1.06 FREEFALL BADGES

A person is eligible for the following USPA award after accumulating:

Freefall Badge Award Definitions	
Hours of Freefall Time	Award Title
12	Gold
24	Diamond
36	Double Diamond
48	Triple Diamond
60	Quadra Diamond
72	Penta Diamond
84	Sexta Diamond
96	Septa Diamond
108	Octa Diamond
120	Nona Diamond
132	Ruby
144	Double Ruby
156	Triple Ruby
168	Quadra Ruby
180	Penta Ruby
192	Sexta Ruby
204	Septa Ruby
216	Octa Ruby
228	Nona Ruby
240	Emerald
252	Double Emerald
264	Triple Emerald
276	Quadra Emerald
288	Penta Emerald
300	Sexta Emerald
312	Septa Emerald
324	Octa Emerald
336	Nona Emerald
348	Deci Emerald
360	Sapphire
372	Double Sapphire
384	Triple Sapphire
396	Quadra Sapphire
408	Penta Sapphire
420	Sexta Sapphire
432	Septa Sapphire
444	Octa Sapphire
456	Nona Sapphire
468	Deci Sapphire

10-2 SEQUENTIAL RELATIVE WORK AWARDS

10-2.01 INTRODUCTION

This is an international awards program of the United States Parachute Association. These awards are available for individuals who have successfully participated in four person and larger relative work skydives and recognize each applicant's progression towards higher levels of freefall body control and awareness. These freefall achievement awards are also known as the Falcon and Eagle Awards and coincide with certain license requirements.

10-2.02 SCOPE

This program provides the following awards:

- A. The Falcon award is presented to those who have successfully participated in a four-person or larger sequential skydive during which at least four points were completed.
- B. The Double Falcon Award is presented to those who have participated in a four-person or larger sequential skydive during which at least eight points were completed.
- C. The Eagle Award is presented to those who have successfully participated in an eight-person or larger sequential skydive during which at least two points were completed.
- D. The Double Eagle award is presented to those who have participated in an eight-person or larger sequential skydive during which at least four points were completed.

10-2.03 RULES

The following conditions must be met to qualify for these awards:

- A. Prerequisites:
 - 1. Either be a current USPA member or a member of another FAI Aero Club.
 - 2. Jumps used to qualify for these awards are to comply with the USPA BSRs.
- B. Qualification:
 - 1. The formations completed for this award may come from USPA Part 55 (the IPC dive pool) or may be other formations.
 - 2. Complete separation between each formation is required.
 - 3. All formations must be planned in advance.
 - 4. All participants must be "in" for the formation to be considered complete.
 - 5. Formations may be launched from the aircraft.
- C. Application: Send the completed application to USPA Headquarters, 1440 Duke Street, Alexandria, VA 22314 and include:
 - 1. Your name as you want it to appear on official certificates.
 - 2. The location of the jump: city, state, country (if not USA).
 - 3. Diagram or name of each completed formation.
 - 4. A list of the other participants—their signatures are not required.
 - 5. The date on which you qualified for the award.
 - 6. The points scored on the skydive.
 - 7. Check off the award applied for.
 - 8. The appropriate fee for the award and any additional materials you request (such as decals, pins, or additional certificates).

10-3 CANOPY RELATIVE WORK AWARDS PROGRAM

10-3.01 INTRODUCTION

This is an international awards program of the United States Parachute Association. These awards are available for those who have successfully participated in four person and larger canopy relative work formations. These awards recognize each applicant's progression towards higher levels of canopy control, maneuverability and proficiency. In receiving and exhibiting these awards, the recipient agrees to exercise good judgement and wisdom in promoting safe canopy relative work among his or her peers; among those less experienced than himself; and towards observers of the sport.

10-3.02 SCOPE

This program provides the following awards:

- A. The 4-Stack Award for building a canopy formation of four or more canopies.
- B. The CCR (Canopy Crest Recipient) or 8-Stack Award for building a canopy formation of eight or more canopies.
- C. The CCS (Canopy Crest Solo) Award for entering eighth or later in a complete eight-canopy or larger formation.
- D. Night versions of each of these awards are available for those who have completed these formations at night.

10-3.03 RULES

The following conditions are required to qualify for these awards:

- A. Prerequisites:
 - 1. Either be a current USPA member or a member of another FAI Aero Club.

- 2. Jumps used to qualify for these awards are to comply with the USPA BSRs.

B. Qualifications:

- 1. The formations completed for this award may come from the USPA Skydiver's Competition Manual or may be other recognizable formations.
- 2. All formations must be planned in advance.
- 3. All participants must be "in" for the formation to be considered complete.
- 4. Any formation completed to qualify for this award can be a stack, plane or any other recognizable formation.
- 5. The completed formation must be held for a minimum of ten seconds.

C. Application: Send the completed application to USPA Headquarters, 1440 Duke Street, Alexandria, VA 22314, and include:

- 1. Your name as you want it to appear on official certificates.
- 2. The location of the jump: city, state, country (if not USA).
- 3. A list of the other participants – their signatures are not required.
- 4. The time and date when you qualified for the award
- 5. The holding time for the formation.
- 6. Check off the award applied for.
- 7. The appropriate fee for the award and any additional materials you request (such as decals, pins, or additional certificates).

10-4 MEMBERSHIP SENIORITY CERTIFICATES

10-4.01 INTRODUCTION

Membership Seniority Certificates are issued to acknowledge support of skydiving through membership in USPA for significant periods of time.

10-4.02 SCOPE

USPA Membership Seniority Certificates are issued at the completion of ten years of accumulated membership and at each five years thereafter.

10-4.03 QUALIFICATION

A. Computation of seniority:

1. The ten-year certificate is issued when a full ten years of membership has been accumulated. In other words, the certificate is issued at the end of the tenth year of membership.
2. Lapses in membership are subtracted from the total time of membership. Membership records are adjusted by changing the "member since" date to reflect periods of expired membership.

B. Certificates are issued automatically whenever a member's records indicate an accumulation of the appropriate amount of time.

10-5 LARGE FORMATION AWARDS (FREEFALL)

10-5.01 INTRODUCTION

This is an international awards program of the United States Parachute Association. These awards are available for individuals who have successfully participated in large freefall relative work formations and recognize each applicant's progression towards higher levels of freefall body control and awareness. These freefall achievement awards are also known as the "USPA Silver Falcon Award" and the "USPA Golden Eagle Award."

10-5.02 SCOPE

This program provides the following awards:

- A. The USPA Silver Falcon Award is presented to those who have successfully participated in a 36-person or larger skydive.
- B. The USPA Golden Eagle Award is presented to those who have successfully participated in a 64-person or larger skydive.

10-5.03 RULES

The following conditions must be met to qualify for these awards:

- A. Prerequisites:
 - 1. Either be a current USPA member or a member of another FAI Aero Club.
 - 2. Jumps used to qualify for these awards must comply with the USPA BSRs.
- B. Qualifications:
 - 1. All formations must be planned in advance.
 - 2. All participants must be "in" for the formation to be considered complete.
 - 3. Formations may be launched from the aircraft.
 - 4. The completed formation must be held for a minimum of three seconds.
- C. Application: Send the completed application to USPA Headquarters, 1440 Duke Street, Alexandria, VA 22314, and include:
 - 1. Your name as you want it to appear on official certificates.
 - 2. The location of the jump: city, state, country (if not USA).
 - 3. Diagram or photograph of the completed formation.
 - 4. A list of the other participants—their signatures are not required.
 - 5. The date on which you qualified for the award.
 - 6. Check off the award applied for.
 - 7. The appropriate fee for the award and any additional materials you request (such as decals, pins, or additional certificates).
 - 8. All awards will be issued by USPA Headquarters in the order the qualified application is received.

SECTION 11

FIRST AID GUIDELINES

11.01 INTRODUCTION

We have written this second edition of First Aid Guidelines in response to recent changes in philosophy of both the American Red Cross and the American Heart Association. We wrote the first edition in response to USPA's request to completely revamp and revise both the questions and the entire First Aid Course for the Instructor/Examiner candidates.

We have made this section concise, yet comprehensive enough to cover what we believe anyone in a position of responsibility at a drop zone should know about First Aid and CPR (cardiopulmonary resuscitation). In so doing, we have kept the philosophy of teaching the citizen responder First Aid and CPR comparable to that of the American Red Cross, the American Heart Association, the Armed Forces of the United States, and Professionals in Medicine Parachuting Society, Inc. Therefore, anyone trained by any of these organizations will function in pretty much the same manner during an emergency. Where there are differences in philosophy, we have given what we believe is the safest approach for both the victim and the rescuer.

We do not pretend that even the most careful study of this manual is a substitute for a course and formal certification in First Aid and CPR given by any of the above captioned organizations. We strongly encourage all those in a position of responsibility to take such a course and to remain current in their certification in First Aid and CPR. This manual will thoroughly prepare anyone who studies it for certification in First Aid and CPR.

Professionals in Medicine Parachuting Society, Inc.
6 Tuxedo Drive, Melville, NY 11747
(516) 681-5290 • FAX (516) 681-5302
Stuart G. Selkin, MD, FACS
Chairman, Board of Directors
Claudia L. Roussos MT
President
Department of Surgery
Division of Otolaryngology
Stony Brook University Medical School
Stony Brook, New York

11-1 MEDICAL OR SURGICAL EMERGENCIES

11-1.01 PROCEDURES

- A. Recognize that an emergency exists.
- B. Decide to act.
- C. Call Emergency Medical Service (EMS).
- D. Provide First Aid. First Aid is immediate care given to a victim of an injury or sudden illness until more advanced care can be obtained.
- E. There are four steps to be taken in every emergency:
 - 1. Analyze the scene.
 - 2. Call EMS.
 - 3. Monitor the ABCs.
 - 4. Check for other injuries.
- F. These four steps are presented in more detail:
 - 1. Analyze the scene. Make sure the scene of the emergency is safe for you and for any bystanders. See what happened and how many victims there are. Check for unresponsiveness, then:
 - 2. Call EMS. If there are bystanders, have them call EMS, and provide:
 - a. Location of the emergency.
 - b. Caller's name.
 - c. What happened.
 - d. How many victims there are.
 - e. What is being done for each victim.
 - 3. Monitor the ABCs. This examination checks for life threatening situations.
 - a. Airway.
 - b. Breathing.
 - c. Circulation.
 - d. Open airway: Tilt head back; clear mouth of foreign matter.
 - 1) If no breathing, initiate rescue breathing.
 - 2) If no pulse, initiate cardiopulmonary resuscitation.
 - 3) Check and care for significant bleeding.
 - 4. Check for other injuries. This examination deals with matters that are not immediately life-threatening, but which, if not taken care of, could be.
 - a. Try to remain calm.
 - b. Speak quietly to reassure the victim.
 - c. "Primo non nocere"—First do no harm.
 - d. Clear the area of onlookers.
 - e. If a vehicle is involved:
 - 1) Be wary of gasoline; if there is either spillage or fumes:
 - 2) Do not smoke cigarettes.
 - 3) Do not allow anyone else to smoke.
 - 4) Do not light flares near the downed vehicle.
 - 5) Do not extricate passengers unless it can be done safely.
 - 6) If wires are touching the vehicle or the victims:
 - a. Do not touch the vehicle.
 - b. Do not touch or attempt to move the wires.
 - c. Do not touch the victims who are in contact with the wire.
 - d. Call the power company.
 - e. Do not let passengers leave the vehicle.
 - 8) If there is a danger that the vehicle may fall off an embankment:
 - a. Clear the area of onlookers.
 - b. Do not let passengers leave the vehicle.
 - 9) If the vehicle is on fire:
 - a. Do not endanger yourself.
 - b. Extinguish the fire with one or more of the following:
 - 1. An approved fire extinguisher, not sprayed on people.
 - 2. A blanket.
 - 3. Baking soda.
 - 4. Dirt.
 - c. Turn off ignition without touching anything else.
 - d. Extricate victims only if necessary. See basic transport procedures.
 - f. Do not move the victim, especially if there has been a back or neck injury, unless:
 - 1) There is a threat of fire or explosion or,
 - 2) Crucial care to restore breathing or circulation cannot be given in place.
 - 3) Immobilize all injured parts if possible.
 - 4) Do not straighten fractured or dislocated limbs.
 - 5) Do not remove objects embedded in a person (pieces of metal, branches, etc.)
 - 6) Do not attempt to remove a victim who has been impaled on any object from the object. Immobilize victim and object.

11-1.02 RESCUE BREATHING

A. Artificial Respiration (Rescue Breathing)

1. Rescue breathing is used only if the victim:
 - a. Is not breathing at all.
 - b. Has a heartbeat.
 - c. If fire, gas, or smoke are present and it is safe for you to enter the scene, move the victim to safety. Follow basic transport procedures.
 - d. If the victim choked before breathing stopped, see choking.
 - e. Ask: "Are you O.K.?" or call the victim's name 2 or 3 times. If the victim does not respond, shake him gently or slap him lightly on the shoulder. If there is no response, call EMS immediately, and turn the victim on his back onto a hard surface such as the ground. Kneel at either side of victim's head.
2. If the victim is an adult or child 8 or more years old:
 - a. Using 1 hand, gently lift the victim's chin while pushing the forehead down with the other hand. Do not do this if there is a neck injury. Check, for about 5 seconds, if the victim is breathing.
 - 1) If there is no breathing, pinch the victim's nostrils with the fingers of the hand resting on the forehead. While lifting the victim's chin, take a deep breath. Seal your mouth tightly around the victim's mouth.
 - 2) Blow 2 breaths watching the victim's chest rise on each breath. Release your mouth between breaths. Make sure that the victim's chest rises with each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Be sure the victim's head is tilted back to maximum extension, unless there is a neck injury. Repeat 2 full breaths. If the victim's chest still does not rise, see choking.
 - b. Check the victim's neck carefully for a pulse. This is most easily checked at the carotid region, on either side of the neck, about halfway between the front and back of the neck, and halfway between the jaw and collarbone. Do not use your thumb to check the victim's pulse since there is a pulse in the thumb which can interfere. Never check for both carotid pulses at the same time, since this can kill the victim. The pulse may be very faint.
 - 1) If there is no pulse, initiate cardiopulmonary resuscitation (CPR) immediately.
- 2) If the victim has a pulse, however faint, continue ventilating him by repositioning the victim's head (head tilt and chin lift) and providing one breath every 5 seconds. Check the victim's neck for a carotid pulse every minute (12 cycles), until the victim breathes regularly without assistance. When this occurs, cover the victim with a blanket or extra clothing, keep him quiet, and check for continued breathing. Keep an open airway at all times. If, at any time, the victim loses his carotid pulse, initiate cardiopulmonary resuscitation (CPR).
3. If the victim is a child 1 to 8 years old:
 - a. Tilt the head slightly back and lift the chin (neutral plus position). Check, for about 5 seconds, if the victim is breathing.
 - 1) If there is no breathing, give 2 gentle breaths, watching the chest rise between each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Reposition the victim's head. Repeat giving 2 gentle breaths. If the victim's chest still does not rise, see choking. Check the victim's neck carefully for a pulse. This is most easily checked at the carotid region, on either side of the neck, about halfway between the front and back of the neck, and halfway between the jaw and collarbone. Do not use your thumb to check the victim's pulse since there is a pulse in the thumb which can interfere. Never check for both carotid pulses at the same time, since this can kill the victim. The pulse may be very faint. Initiate cardiopulmonary resuscitation (CPR) immediately only if there is no pulse.
 - 2) If the victim has a pulse, however faint, continue ventilating him by repositioning the victim's head (slight head tilt and chin lift) and providing one breath every 3 seconds. Check the victim's neck for a carotid pulse every minute (20 cycles), until the victim breathes regularly without assistance. When this occurs, cover the victim with a blanket or extra clothing, keep him quiet, and check for continued breathing. Keep an open airway at all times. If, at any time, the victim loses his carotid pulse, initiate cardiopulmonary resuscitation (CPR).

4. If the victim is an infant (under 1 year):
 - a. Do not tilt the forehead back, but keep the head in a neutral position while lifting the chin with one or two finger(s). Check, for about 5 seconds, if the victim is breathing.
 - 1) If there is no breathing, do not pinch the victim's nostrils. Seal your mouth over the victim's nose and mouth. Blow only 2 small puffs of air. Be aware of how little air is needed to inflate an infant's lungs. Be careful not to overinflate the infant's lungs. Make sure that the victim's chest rises with each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Reposition the victim's head. Repeat 2 small puffs. If the victim's chest still does not rise, see choking.
 - b. Check above the victim's left nipple for 5 to 10 seconds to see if there is still a pulse. The pulse may be very faint. If there is none, initiate cardiopulmonary resuscitation (CPR) immediately.
 - 1) If the victim does have a pulse, however faint, reposition the victim's head and continue ventilating for him at a rate of 1 breath every 3 seconds. Check above the victim's left nipple for a pulse every 1 minute (20 cycles), until he or she breathes regularly without assistance. When this occurs, cover the victim with a blanket or extra clothing, keep him quiet, and check for continued breathing. If at any time the victim loses his pulse, initiate cardiopulmonary resuscitation (CPR).

- B. Rescue breathing is difficult work. You must expect to become tired. Continue rescue breathing until:
1. The victim begins breathing on his/her own; or
 2. Professional help arrives; or
 3. You are too exhausted to continue.

Adult or Older Child	Child (1–8 Years)	Infant
Check for unresponsiveness.	Check for unresponsiveness.	Check for unresponsiveness.
Call EMS.	Call EMS.	Call EMS.
2 slow breaths.	2 slow breaths.	2 slow breaths.
Check carotid pulse.	Check carotid pulse.	Check carotid pulse.
1 breath/5 sec.	1 breath/3 sec.	1 breath/3 sec.
Check pulse after 1 min or 12 cycles.	Check pulse after 1 min or 20 cycles.	Check pulse after 1 min or 20 cycles.

- C. Cardiopulmonary Resuscitation (CPR)
1. Cardiopulmonary Resuscitation (CPR) is used only if the victim:
 - a. Is not breathing at all, and
 - b. Has no heartbeat (pulse).
 - 1) If there is no heartbeat, the victim will not be able to breath, since no blood will reach the lungs or the brain.
 2. Do not use CPR if the victim has a pulse, however faint. If the victim has a pulse, but is not breathing, initiate rescue breathing.
 3. If fire, gas, or smoke are present and it is safe for you to enter the scene, move the victim to safety. Follow basic transport procedures.
 4. If the victim choked before breathing stopped, see choking.
 5. Ask: "Are you O.K.?" or call victim's name 2 or 3 times. If victim does not respond, shake him gently or slap him lightly on the shoulder. If there is no response, turn the victim on his back onto a hard surface such as the ground. Kneel at either side of the victim's head.
 6. If the victim is an adult or child 8 or more years old:
 - a. Using 1 hand, gently lift the victim's chin while pushing the forehead down with the other hand. Do not do this if there is a neck injury. Check, for about 5 seconds, if the victim is breathing.
 - 1) If there is no breathing, pinch the victim's nostrils with the fingers of the hand resting on the forehead. While lifting the victim's chin, take a deep breath. Seal your mouth tightly around the victim's mouth.
 - 2) Blow 2 breaths watching the victim's chest rise on each breath. Release your mouth between breaths. Make sure that the victim's chest rises with each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Be sure the victim's head is tilted back to maximum extension, unless there is a neck injury. Repeat 2 full breaths. If the victim's chest still does not rise, see choking.
 - b. Check the victim's neck carefully for a pulse. This is most easily checked at the carotid region, on either side of the neck, about halfway between the front and back of the neck, and halfway between the jaw and collarbone. Do not use your thumb to check the victim's pulse since there is a pulse in the thumb which can interfere. Never check for both carotid pulses at the same time, since this can kill the victim. The pulse may be very faint. If there is a pulse, however faint, continue only ventilation by rescue breathing at a rate of 1 breath every 5 seconds.

- 1) If there is no pulse, follow the victim's rib cage up to the center of his chest. Place your index and middle finger on the tip of the victim's breastbone. Place the heel of your free hand next to and touching the index finger of the first hand, so that it is centered on the breastbone. Place the heel of the first hand over the wrist of the second hand on the victim's breastbone. Clasp fingers and bend those of the lower hand back. Lean directly over the victim and straighten your arms. Use straight down pressure through both arms to push breastbone against heart. Depress 1 1/2 inches to 2 inches. This compression relaxation combination is done at a rate of 80-100 times per minute. Completely release pressure during the relaxation phase without lifting your hands from the victim's chest. After 15 compressions, breathe twice into the victim's mouth. Repeat the 15 compression/relaxation to 2 breaths cycle until the victim is revived or until you can no longer continue. Check for pulse and breathing every 4 cycles. If the pulse returns, continue only ventilation by rescue breathing at a rate of 1 every 5 seconds until the victim is revived. When the victim is revived, keep him warm, and check for continued breathing and pulse. Keep the airway open.
7. If the victim is a child 1 to 8 years old:
 - a. Tilt the head slightly back and lift the chin (neutral plus position). Check, for about 5 seconds, if the victim is breathing.
 - 1) If there is no breathing, give 2 breaths watching the chest rise between each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Reposition the victim's head. Repeat giving 2 breaths. If the victim's chest still does not rise, see choking. Check the victim's neck carefully for a pulse. This is most easily checked at the carotid region, on either side of the neck, about halfway between the front and back of the neck, and halfway between the jaw and collarbone. Do not use your thumb to check the victim's pulse since there is a pulse in the thumb which can interfere. Never check for both carotid pulses at the same time, since this can kill the victim. The pulse may be very faint.
- b. If the victim has no pulse, place the heel of your free hand next to and touching the index finger of the first hand, so that it is centered on the breastbone. Place the heel of the first hand on the victim's forehead. You will perform CPR with one hand only, on the victim's breastbone. Lean directly over the victim and straighten your arm. Use straight down pressure to push the breastbone against the heart. Depress 1 inch to 1 1/2 inches. Completely release pressure during the relaxation phase without lifting your hands from the victim's chest. After 5 compressions, breathe once into the victim's mouth, watching the victim's chest rise. Repeat the 5 compression/relaxation to 1 breaths cycle until the victim is revived or EMS arrives, or until you can no longer continue. Check for pulse and breathing every minute (about 20 cycles). If the pulse returns, continue only ventilation by rescue breathing at a rate of 1 every 3 seconds until the victim is revived. When the victim is revived, keep him warm, and check for continued breathing and pulse. Keep the airway open.
8. If the victim is an infant (under 1 year):
 - a. Do not tilt the forehead back, but keep the head in a neutral position while lifting the chin with one or two finger(s). Check, for about 5 seconds, if the victim is breathing.
 - 1) If there is no breathing, do not pinch the victim's nostrils. Seal your mouth over the victim's nose and mouth. Blow only 2 small puffs of air. Be aware of how little air is needed to inflate an infant's lungs. Be careful not to overinflate the infant's lungs. Make sure that the victim's chest rises with each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Reposition the victim's head. Repeat 2 small puffs. If the victim's chest still does not rise, see choking.
 - b. Check above the victim's left nipple for 5 to 10 seconds to see if there is still a pulse. The pulse may be very faint. If there is a pulse, however faint, continue only ventilation by rescue breathing at a rate of 1 breath every 3 seconds.
 - 1) If there is no pulse, place two fingers in the middle of the breastbone and give 5 compressions, taking only about 3 seconds. After 5 compressions, give one puff, watching the chest gently rise. Continue CPR for about one minute (about 20 cycles), then recheck pulse. Repeat the 5 compression/relaxation to

1 breaths cycle until the victim is revived or EMS arrives, or until you can no longer continue. Check for pulse and breathing every minute (about 20 cycles). If the pulse returns, continue only ventilation by rescue breathing at a rate of 1 every 3 seconds until the victim is revived. When the victim is revived, keep him warm, and check for continued breathing and pulse. Keep the airway open.

9. Cardiopulmonary resuscitation (CPR) is difficult work. You must expect to become tired. Continue CPR until:
 - a. The victim begins breathing on his/her own; and
 - b. The victim's pulse continues on its own; or
 - c. Professional help arrives; or
 - d. You are too exhausted to continue.

Adult or Older Child	Child (1–8 years)	Infant
Check for unresponsiveness.	Check for unresponsiveness.	Check for unresponsiveness.
Call EMS.	Call EMS.	Call EMS.
2 slow breaths.	2 slow breaths.	2 slow breaths.
Check carotid pulse.	Check carotid pulse.	Check carotid pulse.
No pulse: 15 chest compressions followed by 2 breaths.	No pulse: 5 chest compressions followed by 1 breath.	No pulse: 5 chest compressions followed by 1 breath.
Check pulse after cycles.	Check pulse after 12 cycles.	Check pulse after 4 cycles.

11-1.03 CHOKING

- A. Signs and symptoms of choking:
 1. Clutching throat (this is a universal signal for choking).
 2. Initial coughing with gasping, then:
 3. Inability to cough, speak or breathe.
 4. If the victim can cough or speak, the victim can breathe.
 5. Sudden loss of consciousness while eating.
 6. Blue/gray skin, fingernails, and mucous membranes.
- B. If the victim has been injured, do not move him unless necessary.
 1. If the victim is an adult or child 8 or more years old, and is awake (not unconscious):
 - a. Determine that the victim is choking. Shout for help, and call (or have someone call) EMS. With the victim standing, wrap both arms around him from behind. Make a fist with

one hand, covering it with the other. Place the thumb side of your fist just above the victim's navel, but below the rib cage. Thrust your fist sharply upward and back into the victim's abdomen. Repeat 5 times. If the victim vomits, turn his head to either side, and wipe foreign matter and secretions out of his mouth by sweeping it with your finger. If the victim is obese or pregnant, place your fist in the center of the victim's chest and thrust backwards. Encourage the victim to continue coughing. Repeat thrusts until the object is dislodged, or until the victim becomes unconscious.

2. If the victim is an adult or child 8 or more years old, and is unconscious:
 - a. Shout for help, and call (or have someone call) EMS.
 - b. Be sure the victim is lying down, in a face up position. If necessary, turn the victim to a face up position. Attempt to dislodge and remove foreign matter and secretions by sweeping it with your finger.
 - c. Using 1 hand, gently lift the victim's chin while pushing the forehead down with the other hand. Do not do this if there is a neck injury.
 - 1) Pinch the victim's nostrils with the fingers of the hand resting on the forehead. While lifting the victim's chin, take a deep breath. Seal your mouth tightly around the victim's mouth. If a pocket mask is available, this is preferable to direct contact.
 - 2) Blow 2 full breaths. Release your mouth between breaths. Make sure that the victim's chest rises with each breath. If it does not, clear out all foreign matter and secretions from the victim's mouth with a finger sweep. Be sure the victim's head is tilted back to maximum extension, unless there is a neck injury. Repeat 2 full breaths. If the victim's chest still does not rise, straddle the victim's thighs. Place hands flat, one on top of the other in a crossed position, just above the victim's navel, but below the victim's rib cage. Thrust the heel of your bottom hand into the victim's abdomen with a quick upward thrust. Repeat 5 times. If the victim vomits, turn his head to either side, and wipe foreign matter and secretions out of his mouth with your fingers.
 - 3) If the object is not dislodged, repeat the cycle of 5 abdominal thrusts, a finger sweep, followed tilting the head back, pinching the nose shut, and giving 2

full breaths. Continue this cycle until the object is expelled, you can breathe into the victim, or EMS personnel arrive and take over.

3. If the victim is a child 1 to 8 years old:
 - a. Follow the same sequence as for an adult, but use much less force.
4. If the victim is an infant (under 1 year):
 - a. Shout for help, and call (or have someone call) EMS.
 - b. Turn and hold the infant face down, supporting its head on your forearm, and supporting your forearm on your thigh. Deliver 5 sharp blows with the heel of your hand to its back, between its shoulder blades. Turn the infant onto its back, supporting the head and neck on your forearm, and supporting your forearm on your thigh. Place your middle and index finger on the middle of the infant's breastbone and quickly compress the breastbone 1/2 inch to 1 inch on each thrust. Repeat the cycle of turning the infant face down, delivering 5 back blows, then turning the infant onto its back and giving 5 chest thrusts until the object is coughed up, or the infant starts to cry, cough, or breathe. If the infant becomes unconscious, grasp the tongue and lower jaw and lift the jaw. Try to remove foreign objects with a finger sweep from the inside of the cheek to the base of the tongue. Keep the head in the neutral position and lift the chin, seal your lips around the infant's nose and mouth and give 2 gentle puffs for 1 to 1 1/2 seconds each, watching the chest gently rise. If the breaths do not go in and the chest does not rise, turn and hold the infant face down, supporting its head on your forearm, and supporting your forearm on your thigh. Deliver 5 sharp blows with the heel of your hand to its back, between its shoulder blades. Turn the infant onto its back, supporting the head and neck on your forearm, and supporting your forearm on your thigh. Place your middle and index finger on the infant's breastbone and quickly compress the breastbone 1/2 inch to 1 inch on each thrust. Repeat the cycle of turning the infant face down, delivering 5 back blows, then turning the infant onto its back and giving 5 chest thrusts until the object is coughed up, or the infant starts to cry, cough, or breathe, or until the EMS arrives.

Remember: If the victim can cough or speak, the victim can breathe and is not choking.

11-1.04 SHOCK

Shock is a failure of the body to circulate oxygen-rich blood to all parts of the body. It may be caused by severe injury, bleeding, or a heart attack. As shock worsens, the vital organs (heart, lungs, kidneys, brain) stop functioning, and the victim will die.

- A. Signs and symptoms of shock:
 1. Restlessness or irritability.
 2. Rapid, weak pulse.
 3. Rapid breathing.
 4. Pale or blue, cool, moist skin.
 5. Excessive thirst.
 6. Nausea and vomiting.
 7. Drowsiness or loss of consciousness.
- B. First Aid for shock:
 1. Call EMS.
 2. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 3. Help the victim rest in order to reduce pain. Pain will make shock worse.
 4. Keep the victim warm, with clothing or blankets.
 5. Control external bleeding.
 6. Elevate the legs about 12 inches, unless you suspect fractures of extremities.
 7. Do not give the victim anything to drink or to eat.
 8. Speak calmly and reassuringly to the victim.
- C. How to care for external bleeding:
 1. Direct pressure will stop most bleeding. Apply pressure with your or the victim's hand, via a thick sterile, or clean gauze pad or other material. The material will help prevent infection. As a last resort, use your bare hand. Do not remove original pads. Let blood soak through and begin to clot. If necessary, place additional pads over the original and apply pressure for 5 to 10 minutes and elevate the area unless you suspect a fracture. If you suspect a fracture, do not elevate the injured part. When bleeding slows, tape the original dressing in place. Check the nail beds of fingers and toes for color, making sure they are not blue. If they are, or if there is no pulse in the wrist or on the foot, the dressing must be loosened. *DO NOT apply a tourniquet.*

11-1.05 BASIC TRANSPORT PROCEDURES

- A. Do not move the victim unless there is danger to the victim or to the rescuer.
- B. If there is a possibility of neck or back injury, see back and neck injuries.
- C. If the victim is injured, unconscious, or is having a heart attack, and a stretcher, board, or blanket is available:
 1. Lay it along the victim's more injured side. Gather a blanket lengthwise in folds. Grasp victim's hips and

head, and neck, and then entire body. Keep his head straight; do not raise or lower the chin; do not turn the head.

3. If the victim is in an unsafe area:
 - a. If the victim is on his back, gather his clothes behind his neck. Using victim's clothes, pull him to safety, cradling his head in clothing and your hands.
 - b. If the victim is not lying on his back, it is extremely dangerous to move him. If necessary, the rescuer must cradle the victim's neck and head with his (the rescuer's) forearms, turn the victim in a straight line, and move him to safety.
 - c. If 2 or more rescuers, and an ironing board, door, or leaf from a table are available, place it beside the victim. One rescuer coordinates turning victim's head. Other rescuers grasp victim's clothing and turn him onto his back, onto the board. The victim's head must be kept straight. Middle rescuer slides board under victim. Immobilize victim by placing pillows, towels, or rolled blankets around his entire body. Secure victim to board with belts, ties, straps, rope.
4. Do not move the victim's head in line with his body if:
 - a. The victim's neck is angled significantly to one side.
 - b. The victim has pain on movement of the neck.
 - c. The victim meets resistance when attempting to move his head.

C. Monitor ABCs. If breathing stops, roll victim onto his back, keeping neck and head as straight as possible and initiate rescue breathing. If pulse stops, roll victim onto his back, keeping his neck and head as straight as possible and initiate cardiopulmonary resuscitation (CPR).

11-1.08 BURNS

Burns may be caused by thermal (heat) factors, lightning, electric shock, chemicals, and excess exposure to the sun. If in doubt about the classification of a burn, choose the more serious one.

A. First degree burn:

1. Redness of skin.
2. Pain.
3. Mild swelling.

B. Second degree burn:

1. Blistering of the skin.
2. Deep reddening of skin.
3. Glossy appearance.
4. Leaking of fluid.
5. Sometimes loss of some skin.
6. If over 10% of the body, is to be considered serious.

C. Third degree burn:

1. Loss of full thickness of skin.

2. Possible charred edges.
3. If over 2% of the body, is to be considered severe.

D. If wires are touching the vehicle or the victims:

1. Do not touch the vehicle.
2. Do not touch or attempt to move the wires.
3. Do not touch the victims who are in contact with the wire.
4. Call the power company.
5. Do not let passengers leave the vehicle

E. Treating burns:

1. Monitor the ABCs. If breathing stops, initiate rescue breathing. If pulse stops initiate cardiopulmonary resuscitation (CPR).
2. Cut clothing and jewelry away from the burned area unless it sticks to the burn.
3. For chemical burns:
 - a. Flush the area thoroughly with cool water for at least 5 minutes. This is especially important if the chemical burn affects the victim's eye.
4. For first degree burns:
 - a. Apply cold wet compresses to the burned area, or immerse the area into cold water for 5 to 10 minutes. Do not use ice.
 - b. Leave the area uncovered if possible, or cover with a dry sterile or clean gauze.
 - c. Do not apply ointments.
5. For second degree burns:
 - a. Apply cold wet compresses to the burned area, or immerse the area into cold water for 5 to 10 minutes. Do not use ice.
 - b. Do not open or break blisters.
 - c. If an extremity is involved, keep it elevated.
 - d. If burns are extensive, keep the victim flat, with both legs elevated.
 - e. Cover the burned area with sterile or clean gauze or cloth.
 - f. Do not apply ointments.
6. Consult a physician. In case of shock call EMS.
 - a. There may be signs and symptoms of shock:
 - 1) Restlessness or irritability.
 - 2) Rapid, weak pulse.
 - 3) Rapid breathing.
 - 4) Pale or blue, cool, moist skin.
 - 5) Excessive thirst.
 - 6) Nausea and vomiting.
 - 7) Drowsiness or loss of consciousness.
 - b. First Aid for shock:
 - 1) Call EMS.
 - 2) Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 - 3) Help the victim rest in order to reduce pain. Pain will make shock worse.
 - 4) Keep the victim warm, with clothing or blankets.

- shoulder, and gently roll him onto the less injured side. Slide board or blanket underneath the victim, then roll him gently onto his back.
2. If there is 1 rescuer: Grasp stretcher, board, or blanket under the victim's head and neck and pull him to safety.
 3. If there are 2 or more rescuers: Stand on either side of the victim, lift slowly and simultaneously, and take the victim to safety.
- D. If the victim is injured, unconscious, or is having a heart attack, and a stretcher, board, or blanket is not available:
1. If there is 1 rescuer: Place the victim on his back. Stand at the victim's head, supporting his head and back of neck. Slowly drag the victim to safety using the victim's clothing. Keep the victim low to ground. Do not pull clothing so tight that it blocks the airway.
 2. If there are 2 or more rescuers: 2 rescuers stand on the same side of the victim, facing him. The rescuer nearest the victim's feet places one arm under the victim's knees, and crosses the other arm over the victim's hips. The rescuer nearest the victim's head places the arm closest to the first rescuer underneath the victim's hip and grasps the first rescuer's hand. The other arm supports the victim's neck and back. If a third rescuer is available, he or she supports the victim's legs. All rescuers then carry the victim to safety.
- E. If the victim is not injured, is not unconscious, and is not having a heart attack, place his arm around your neck and support at the waist. If the victim is too heavy or too weak, use blanket or clothes drag described above.

11-1.06 FRACTURES AND DISLOCATIONS

- A. Signs and symptoms of fractures or dislocations:
1. Sound of bone snapping.
 2. Deformity.
 3. Swelling.
 4. Discoloration (black and blue, bleeding under skin).
 5. Possible grating of bony ends on each other.
 6. Pain, usually made worse by movement.
 7. Tenderness to touch.
 8. Loss of movement around a joint.
 9. Shorter or longer extremity as compared with the other side.
 10. Muscle spasm.
- B. Signs and symptoms of fractures, dislocations, sprains, and strains are very similar, and often not distinguishable from each other. It is not the rescuer's role to do this.
- C. First Aid for fractures and dislocations:
1. The primary objective is to immobilize a suspected fracture. Splint the injured limb in place with rolled towels, blankets, pillows, newspapers or clothing,

- one joint above, and one joint below the injury. Do not attempt to set the fracture or straighten the injured part.
2. The most common fractures in parachutists involve the ankle. Since boots and shoes provide stability, do not attempt to remove them. Rolled towels, blankets, pillows, newspapers or clothing will provide additional stability.
 3. See back and neck injuries.
 4. If a bone fragment is protruding through the skin (a compound fracture), do not attempt to push it back. Cover it with sterile or clean gauze or cloth.
 5. Direct pressure will stop most bleeding. Apply pressure with your or the victim's hand, via a thick sterile, or clean gauze pad or other material. The material will help prevent infection. As a last resort, use your bare hand. Do not remove original pads. Let blood soak through and begin to clot. If necessary, place additional pads over the original and apply pressure for 5 to 10 minutes. Since you suspect a fracture, do not elevate the injured part. When bleeding slows, tape the original dressing in place. Check the nail beds of fingers and toes for color, making sure they are not blue. If they are, or if there is no pulse in the wrist or on the foot, the dressing must be loosened.
 6. Allow the victim as little movement as possible.
 7. A very significant amount of bleeding can occur at a fracture site, especially of the upper leg (femur) or pelvis. See shock.
 8. If the jaw is dislocated, give the victim nothing to eat or drink.

11-1.07 NECK AND BACK INJURIES

Suspect injury of the neck or back as well as head injury if victim is dazed, groggy, or unconscious from any injury, or if there has been a fall or injury to the back.

- A. Signs and symptoms of a fracture of the neck or back:
1. Severe pain at the site of injury.
 2. Tenderness to pressure at the site of injury.
 3. Deformity at the site of injury.
 4. Discoloration (black and blue, bleeding under skin).
 5. Pain on movement at the site of injury.
 6. Possible paralysis of one or more limbs.
 7. Numbness of one or more limbs.
- B. First Aid for neck and back injuries:
1. Do not move the victim if there has been a back or neck injury; unless there is a threat of fire or explosion, or if crucial emergency care to restore breathing or circulation cannot be given at the victim's present location.
 2. If the victim is in a safe area:
 - a. Leave the victim in his present position, and cover him with a blanket. Secure his neck very carefully, using a collar or pillows, towels, or rolled blankets, or clothing placed around his

- 5) Control any external bleeding.
 - 6) Elevate the legs about 12 inches unless you suspect fractures of extremities.
 - 7) Do not give the victim anything to drink or to eat.
 - 8) Speak calmly and reassuringly to the victim.
7. For third degree burns:
- a. Call EMS immediately.
 - b. Unless there is a chemical burn, do not wet the burned area in any way.
 - c. If the head or face are involved, have the victim sit up. Otherwise, keep him flat, with legs elevated.
 - d. Do not apply ointments.
 - e. There may be signs and symptoms of shock:
 - 1) See above for signs and symptoms of shock.
 - 2) See above for First Aid for shock.

- h. Do not let the victim do any exercise for the remainder of the day.
- C. Heat Stroke
1. Signs and symptoms of heat stroke:
 - a. Red, hot, dry skin.
 - b. No perspiration.
 - c. Rapid pulse.
 - d. Convulsions.
 - e. Stupor or unconsciousness.
 - f. Very high body temperature (around 106° F).
 - g. Cardiac or respiratory arrest and death.
 2. First Aid for heat stroke:
 - a. Call EMS immediately since this is a life threatening situation.
 - b. If possible, bring the victim indoors.
 - c. Outdoors, move the victim to a shaded area.
 - d. Fan the victim vigorously.
 - e. If the victim is fully conscious, give sips of cool, but not cold water to drink.
 - f. Loosen or remove the victim's clothing.
 - g. Cool the victim's skin by applying wet, luke-warm or cool cloths on face and extremities. Evaporation will do the work.
 - h. This is a much more serious situation than is heat exhaustion, and may be fatal.
 - i. Have the victim lie down, and elevate his legs.
 - j. Monitor the ABCs. If breathing stops, initiate rescue breathing. If pulse stops initiate cardiopulmonary resuscitation (CPR).
 - k. If convulsions occur, see convulsions.

11-1.09 HEAT EMERGENCIES

Heat Cramps, Heat Exhaustion, and Heat Stroke

A. Heat Cramps

1. Signs and symptoms of heat cramps:
 - a. Severe muscle cramps, especially in legs.
 - b. Body temperature is usually normal.
 - c. Skin is moist.
2. First Aid for heat cramps:
 - a. If possible, bring the victim indoors.
 - b. Outdoors, move the victim to a shaded area.
 - c. Fan the victim vigorously.
 - d. Give plenty of fluids to drink.

B. Heat Exhaustion

1. Signs and symptoms of heat exhaustion:
 - a. Cool, pale, clammy skin.
 - b. Fatigue.
 - c. Fainting.
 - d. Headache.
 - e. Heavy sweating.
 - f. Weak pulse.
 - g. Nausea.
 - h. Gradual onset.
 - i. The victim is alert.
 - j. Near normal body temperature.
2. First Aid for heat exhaustion:
 - a. Call EMS if the victim vomits, refuses to drink, or becomes drowsy.
 - b. If possible, bring the victim indoors.
 - c. Outdoors, move the victim to a shaded area.
 - d. Fan the victim vigorously.
 - e. If the victim is fully conscious, give sips of cool water to drink.
 - f. Loosen or remove the victim's clothing.
 - g. Cool the victim's skin by applying wet, luke-warm or cool cloths on face and extremities. Evaporation will do the work.

11-1.10 COLD EMERGENCIES

Frostbite and Hypothermia

- A. Frostbite occurs in body parts exposed to the cold, and is a freezing of the tissues. It typically affects fingers, toes, and the nose.
1. Signs and symptoms of frostbite:
 - a. Pain in affected part.
 - b. Severe itching of affected part.
 - c. White or grayish-yellow skin.
 - d. Extreme coldness of affected part.
 - e. Numbness of affected part.
 - f. Blisters.
 2. First Aid for frostbite:
 - a. Remove any and all wet clothing, even if it must be cut away.
 - b. Do not rub the affected part.
 - c. Fill a pot with warm water (about 100° F to 104° F); immerse affected part.
 - d. If this cannot be done, soak clean cloths or sponges in the warm water, and apply to the frostbitten parts.
 - e. Keep the affected part in water until it is red and feels warm.
 - f. Bandage with dry, sterile dressings, putting dressing between fingers or toes.

- g. Do not break any blisters.
 - h. If the victim is conscious and alert, give him warm liquids to drink.
 - i. Do not allow the victim to smoke, as this will cause blood vessels to narrow.
 - j. Do not give alcoholic beverages, as this will cause further loss of body heat from dilating (widening) the superficial vessels.
- B. Hypothermia is a general body cooling that develops when the body cannot generate enough heat to maintain normal body temperature. Hypothermia is life-threatening.
1. Signs and symptoms of hypothermia:
 - a. Low body temperature.
 - b. Uncontrollable shivering.
 - c. Poor muscle coordination.
 - d. Shallow breathing.
 - e. Numbness.
 - f. Confusion, drowsiness.
 - g. Loss of consciousness.
 - h. Death.
 2. First Aid for hypothermia:
 - a. This is a life threatening emergency. Call EMS immediately.
 - b. Remove any and all wet clothing, even if it must be cut away.
 - c. Wrap the victim in blankets and dry clothing.
 - d. Move the victim inside, where it is warm.
 - e. If the victim is conscious and alert, give warm liquids to drink.
 - f. Do not allow the victim to smoke, as this will cause blood vessels to narrow.
 - g. Do not give alcoholic beverages, as this will cause further loss of body heat from dilating (widening) the superficial vessels.
 - h. Monitor the ABCs: If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 - i. If available, use a hot water bottle or heating pad to warm the victim. Be careful not to burn the victim.

11-1.11 CONVULSIONS (SEIZURES)

- A. Signs and symptoms of convulsions:
 1. Involuntary jerking of muscles.
 2. Possible loss of bowel and bladder control.
 3. Unconsciousness.
 4. Cessation of breathing.
 5. The victim may appear to be dazed.
- B. First Aid for convulsions:
 1. Clear the area of harmful objects.
 2. Do not try to hold the victim down.
 3. Surround the victim with rolled blankets, pillow, or clothing for protection.

4. Pay special attention to protection of the victim's head.
5. Do not place anything between the victim's teeth.
6. Do not interfere with convulsive movements.
7. Do not give the victim anything to drink or eat.
8. Monitor the ABCs and call EMS. If breathing stops, initiate rescue breathing. If pulse stops initiate cardiopulmonary resuscitation (CPR).
9. If the victim has a head injury see head injury.
10. If the victim has ingested any poison, call Poison Control.
11. If the victim has a high fever after convulsions stop, cool him down by applying wet, lukewarm cloths on face and extremities. Evaporation will do the work.
12. After convulsions stop, cover the victim with a blanket.

11-1.12 HEAD INJURY

The brain is enclosed in a rigid, unyielding skull. There is no room for expansion from swelling, or from bleeding which may follow an injury. When brain swelling or bleeding occurs, vital centers may be compressed, and breathing and circulation may stop. Thus, a head injury may be rapidly life threatening. A skull fracture is not life threatening; the swelling of the brain that may accompany it can be. A concussion is defined by the neurosurgeons as a temporary loss of consciousness, with inability to recall the injury.

- A. Signs and symptoms of head injury:
 1. Alteration of consciousness.
 2. Disorientation as to time, place, or person.
 3. Dizziness.
 4. Double vision.
 5. Nausea and/or vomiting, especially if progressively increasing.
 6. Pupils of unequal size.
 7. Pupils that do not constrict (narrow) to the stimulus of light.
 8. Convulsions.
 9. Slurred speech.
 10. Paralysis of any extremity, especially if on the side opposite to the injury.
 11. Headache, especially if progressively increasing.
- B. Signs and symptoms of a skull fracture:
 1. Depression of a region of the skull.
 2. Clear fluid (cerebrospinal fluid, or CSF) from the ears, nose, or mouth.
 3. Bleeding or bloody fluid from the ears, nose, or mouth.
 4. Do not give the victim anything to eat or to drink.
 5. Monitor the ABCs. If breathing stops, initiate rescue breathing. If pulse stops initiate cardiopulmonary resuscitation (CPR).
 - a. Keep the airway clear. Clear out all foreign matter (like dentures and fractured teeth) and secretions from the victim's mouth with a finger sweep.

6. Assume that there is a neck injury. See back and neck injury.
7. If the victim has convulsions see convulsions.
8. If there is an open wound of the face or of the skull, see wounds. Direct pressure will stop most bleeding. Apply pressure with your or the victim's hand, it via a thick sterile, or clean gauze pad or other material. The material will help prevent infection. As a last resort, use your bare hand. Keep the injured area elevated. Do not remove original pads. Let blood soak through and begin to clot and elevate injured part. If necessary, place additional pads over the original and apply pressure for 5 to 10 minutes. When bleeding slows, tape the original dressing in place. If the dressing is very tight, it may be loosened gradually.
9. If there is a foreign object penetrating the eye:
 - a. Do not attempt to remove it.
 - b. If it is long, do not attempt to shorten it.
 - c. Do not attempt to stop any bleeding from the eye.
 - d. Pack gauze around it.
 - e. Tape a paper cup over the eye and the foreign object.
10. If the victim has a nosebleed:
 - a. Sit him up so that gravity will help stop the bleeding.
 - b. Lean the victim's head slightly forward.
 - c. Pinch the nostrils shut.
 - d. Soak a little cotton in Afrin or neosynephrine, and place it in each nostril.

- C. Signs and symptoms of a "sucking" chest wound:
 1. Deep wound in the chest penetrating the lung.
 2. The sound of air being drawn into the chest may be audible.
 3. Hissing sound may be audible.
 4. Loud, grunting breathing.
- D. First Aid for a sucking chest wound:
 1. Cover the entire wound. Use a plastic bag, plastic wrap, or aluminum foil. If nothing else is available, use your hand. If you do not cover the wound, air pressure inside and outside the chest will become equal, and the victim will be unable to breathe.
 2. Do not probe for objects.
 3. Do not remove any protruding objects.
 4. Have the victim exhale and hold it while you press the dressing firmly on the wound. Fix the dressing tightly in place, taping it all around.
 5. Turn the victim onto the injured side.
- E. Signs and symptoms of a "flail" chest:
 1. All or a portion of the chest collapses when the victim inhales.
- F. First Aid for a flail chest:
 1. Turn the victim onto the injured side, with a pillow or blanket or rolled clothing under the moving section of the chest.
 2. Immobilize the moving section of the chest with tape or with a heavy object wrapped in a towel or a blanket.
 3. Keep the victim's head elevated slightly.
 4. Have the victim cough in order to clear the lungs.

11-1.13 CHEST INJURY

Call EMS.

- A. There may be signs and symptoms of shock:
 1. Restlessness or irritability.
 2. Rapid, weak pulse.
 3. Rapid breathing.
 4. Pale or blue, cool, moist skin.
 5. Excessive thirst.
 6. Nausea and vomiting.
 7. Drowsiness or loss of consciousness.
- B. First Aid for shock:
 1. Call EMS.
 2. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 3. Help the victim rest in order to reduce pain. Pain will make shock worse.
 4. Keep the victim warm, with clothing or blankets.
 5. Control any external bleeding.
 6. Elevate the legs about 12 inches unless you suspect fractures of extremities.
 7. Do not give the victim anything to drink or to eat.
 8. Speak calmly and reassuringly to the victim.

11-1.14 ABDOMINAL INJURY

Call EMS.

- A. There may be signs and symptoms of shock:
 1. Restlessness or irritability.
 2. Rapid, weak pulse.
 3. Rapid breathing.
 4. Pale or blue, cool, moist skin.
 5. Excessive thirst.
 6. Nausea and vomiting.
 7. Drowsiness or loss of consciousness.
- B. First Aid for shock:
 1. Call EMS.
 2. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 3. If the victim vomits, turn his head to either side, and wipe foreign matter and secretions out of his mouth with your fingers.
 4. Help the victim rest in order to reduce pain. Pain will make shock worse.
 5. Keep the victim warm, with clothing or blankets.
 6. Control any external bleeding.

7. Elevate the legs about 12 inches unless you suspect fractures of extremities.
 8. Do not give the victim anything to drink or to eat.
 9. Speak calmly and reassuringly to the victim.
- C. In addition, there may be:
1. Rigid abdomen.
 2. Abdominal pain.
 3. Localized tenderness and swelling.
 4. Bloody or “coffee grounds” vomit.
 5. Smoky or bloody urine.
 6. Dark, bloody, or tar-like stools
 7. Pink or bloody sputum.
 8. Elevate the victim’s knees with a rolled blanket or pillow to relax abdominal muscles.

D. Abdominal Wounds:

1. If there is an open wound with organs protruding (evisceration) do not try to replace the organs. Cover the organs with a sterile, nonadherent dressing. If none is available, use a clean sheet or towel wet with cool water, or plastic wrap, or aluminum foil. Then place an outer bandage to hold the dressing in place. Do not apply pressure.
2. If there is an open wound with a foreign object penetrating (either with or without an evisceration), do not attempt to remove the foreign object. Do not attempt to remove a victim who has been impaled on an object (a fence post, a branch, etc). Immobilize victim and object.
3. If there is an open wound and there is no foreign object and no evisceration, control bleeding by covering with thick sterile (or clean) gauze, and applying gentle pressure with the palm of your hand. If bleeding does not slow down, apply more gauze over the present gauze, and continue gentle, firm, continuous pressure. Do not remove original gauze.

11-1.14 WOUNDS

A. Definition of a deep wound:

1. Heavy bleeding.
2. Involvement of underlying tissues (muscles, nerves, tendons and blood vessels).

B. First Aid for a deep wound:

1. Direct pressure will stop most bleeding. Apply pressure with your or the victim’s hand, it via a thick sterile, or clean gauze pad or other material. The material will help prevent infection. As a last resort, use your bare hand. Do not remove original pads. Elevate injured part. Let blood soak through and begin to clot. If necessary, place additional pads over the original and apply pressure for 5 to 10 minutes. When bleeding slows, tape the original dressing in place. Check the nail beds of fingers and toes for color, making sure they are not blue. If they are, or

- if there is no pulse in the wrist or on the foot, the dressing must be loosened.
2. Immobilize and elevate the injured part with pillows, blankets, or clothing. If you suspect a fracture, do not elevate the injured part, but be sure to immobilize it.
 3. Be aware and treat for shock.
 4. Do not use a tourniquet for any reason.
 5. If the wound is on the victim’s head, keep it elevated. If not, have the victim lie down, and elevate the legs.
 - a. If the wound is on the face, do not let the dressing choke the victim.
 6. If a part has been amputated:
 - a. Rinse it in clean water.
 - b. Wrap it in sterile or clean gauze or cloth.
 - c. Seal it in a plastic bag.
 - d. Place the bag in ice water
 7. If a tooth has been knocked out, seal it in a plastic bag.
 8. Cover the victim with a blanket in order to retain body heat.
 9. Monitor the ABCs. If breathing stops, initiate rescue breathing. If pulse stops initiate cardiopulmonary resuscitation (CPR).

11-1.15 CHEST PAIN

- A. Monitor the ABCs. If at any time the victim stops breathing initiate rescue breathing. If pulse stops initiate cardiopulmonary resuscitation (CPR).
- B. If the victim has fallen or has been struck on the chest see chest injury.
- C. Suspect a heart attack if the victim has any of the following:
 - Intense, squeezing, or constricting pain.
 - Pain radiating to the neck, jaw, shoulders, shoulder blade.
 - Nausea and/or vomiting.
 - Cold sweats.
 - Difficulty breathing.
 1. First Aid for suspected heart attack:
 - a. Call EMS.
 - b. Advise the victim to stay calm.
 - c. Lie victim down with pillows or rolled blanket behind his head and shoulders.
 - d. If the victim has difficulty breathing, sit him up.
 - e. Loosen the victim’s clothing.
 - f. Provide ventilation.
 - g. Cover the victim if he or she is cold.
 - h. Monitor the ABCs
 - i. If breathing stops, initiate rescue breathing.
 - j. If pulse stops, initiate cardiopulmonary resuscitation (CPR).
 2. There may be signs and symptoms of shock:
 - a. Restlessness or irritability.
 - b. Rapid, weak pulse.

- c. Rapid breathing.
 - d. Pale or blue, cool, moist skin.
 - e. Excessive thirst.
 - f. Nausea and vomiting.
 - g. Drowsiness or loss of consciousness.
3. First Aid for shock:
- a. Call EMS.
 - b. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 - c. Help the victim rest in order to reduce pain. Pain will make shock worse.
 - d. Keep the victim warm, with clothing or blankets.
 - e. Control any external bleeding.
 - f. Elevate the legs about 12 inches unless you suspect fractures of extremities.
 - g. Do not give the victim anything to drink or to eat.
 - h. Speak calmly and reassuringly to the victim.

- a. Severe pain in the area of the bite.
 - b. Swelling in the area of the bite.
 - c. Nausea and vomiting.
 - d. Difficulty swallowing.
 - e. Difficulty breathing.
 - f. Irregular pulse, leading to cardiac arrest.
2. First Aid for spider or scorpion bites:
- a. Call EMS.
 - b. Wash the site.
 - c. Apply a cold pack to the site.
 - d. Immobilize the affected part.
 - e. Keep affected part lower than the heart. This reduces blood flow to the body.
 - f. If a suction kit for snakebite is available, use it.
 - g. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 - h. The victim may carry an anaphylaxis kit. Follow instructions for injection.

11-1.16 INSECTS, SNAKES, AND TICKS

- A. Insect stings are rarely fatal. However, if the victim has a severe allergy to the sting, a life threatening situation called anaphylaxis may develop.
- B. Anaphylaxis:
- 1. Signs and symptoms of anaphylaxis:
 - a. Skin swells and turns red, or develops a rash.
 - b. Hives (welts), and itching
 - c. Nausea and vomiting.
 - d. Weakness and dizziness.
 - e. Difficulty breathing including coughing and wheezing, which may cause death.
 - 2. First Aid for anaphylaxis:
 - a. Call EMS.
 - b. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 - c. The victim may carry an anaphylaxis kit. Follow instructions for injection.
- C. Insect sting:
- 1. First Aid for insect stings:
 - a. Examine to see if the stinger is in the skin.
 - b. Scrape the stinger away from the skin with your fingernail or with a credit card.
 - c. In order to avoid further poisoning, do not remove the stinger with tweezers.
 - d. Wash the site with soap and water, then cover it.
 - e. Apply a cold pack to the site.
 - f. Monitor the ABCs.
- D. Spider or scorpion bites:
- 1. Signs and symptoms of spider or scorpion bites:

- E. Snakebite (rattlesnakes, water moccasins, copperheads):
- 1. Signs and symptoms of snakebite:
 - a. Severe burning at the site.
 - b. Rapidly spreading swelling.
 - c. Black and blue marks.
 - d. Fluid oozing from fang marks.
 - e. Fever.
 - f. Nausea and vomiting.
 - g. Bleeding from the mouth and the rectum.
 - h. Muscle cramps.
 - i. Disorientation.
 - j. Convulsions.
 - k. Shock, and collapse of the circulatory system.
 - 2. Signs and symptoms of snakebite (coral snakes):
 - a. Little pain and swelling.
 - b. Multiple fang marks.
 - c. Paralysis of voluntary muscles (leg, arm, head movements).
 - d. Paralysis of involuntary muscles (swallowing, breathing, digestion).
 - e. Slurred speech.
 - f. Coma.
 - g. Collapse of the respiratory (breathing) system.
 - 3. First Aid for snakebite (All types of poisonous snakes):
 - a. Call EMS.
 - b. Wash the wound.
 - c. Immobilize the affected part.
 - d. Keep affected part lower than the heart. This reduces blood flow to the body.
 - e. If a suction kit for snakebite is available, use it.
 - f. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).
 - g. Do not cut the wound.

- h. Do not apply a tourniquet.
 - i. Do not use electric shock.
 - j. Do not apply ice.
- F. Ticks are usually only a nuisance; most do not carry disease. However, Lyme disease and Rocky Mountain Spotted Fever are serious, but preventable bacterial infections carried by ticks. Rocky Mountain Spotted Fever causes death in one out of every five patients if untreated, and Lyme disease causes facial paralysis, aseptic meningitis (inflammation of the brain linings), cardiac abnormalities, and pains and swelling in the large joints. Both diseases can be treated with antibiotics if recognized early.
1. Signs and symptoms of Lyme disease:
 - a. Small, painless, occasionally itchy red area which slowly expands.
 - b. Red rim with clear center or,
 - c. a uniform red area or,
 - d. a bull's eye.
 - e. The red area may expand to encompass the entire torso, arm, or leg.
 - f. Flu-like symptoms such as fever, headache, and fatigue.
 - g. Nervous system involvement, including meningitis (inflammation of the sheaths of the brain and spinal cord), encephalitis (inflammation of brain tissue) or facial palsy (paralysis of the face).
 - h. Heart block (abnormal slowing of the heart beat) causing dizziness or fainting.
 - i. Arthritis (pain in the joints) may develop months or years later.
 2. Signs and symptoms of Rocky Mountain Spotted Fever:
 - a. High fever, chills.
 - b. Headache.
 - c. Severe fatigue.
 - d. Generalized skin rash especially on the extremities, palms and soles (the rash is usually in the form of reddish spots which may be raised above the skin surface).
 3. First Aid for tick bites: Preventing bites is very important.
 - a. Avoid heavily infested areas especially near water or woods.
 - b. Wear closed shoes and pull socks over pant legs.
 - c. Be aware of ticks crawling on the packing mat.
 - d. Don't leave jumpsuits or other clothing lying on the ground.
 - e. Inspect yourself or others for ticks.
 - f. Shower and wash clothes as soon as possible.
 - g. DEET in tick/insect repellent can help, but follow directions carefully.
 - h. Check your pets. Flea and tick collars may help.
 4. If you find a tick:

- a. Use tweezers to grasp the tick's mouth as close to your skin as possible.
- b. If necessary, use a glove, plastic wrap, a piece of paper, or a leaf.
- c. Pull steadily and firmly until it lets go.
- d. Apply antiseptic.
- e. Place tick in alcohol to kill and preserve it for later identification.
- f. Wash your hands immediately.
- g. See a physician as soon as possible.
- h. Do not try to burn the tick.
- i. Do not coat the tick in vaseline or nail polish.

11-1.17 POISONS

- A. When a vehicle such as an automobile or an airplane is involved, there is a possibility that the victim could have inhaled carbon monoxide.
1. Signs and symptoms of ingested or inhaled poisons:
 - a. Different breath odor.
 - b. Dizziness.
 - c. Headache.
 - d. Irritability.
 - e. Difficulty breathing.
 - f. Nausea and/or vomiting.
 - g. Diarrhea.
 - h. Fainting.
 - i. Pale color of skin.
 - j. Pale, blue, or bright red lips
 - k. Burns around the lips or tongue if poison was ingested.
 - l. Unconsciousness.
 2. First Aid for poisoning:
 - a. Be sure it is safe to enter the scene.
 - b. Try to identify the source of the poisoning.
 - c. Remove the victim from the source of poisoning.
 - d. Shut off any open source of poisoning, such as a car or airplane engine.
 - e. If the victim is in an enclosed area, quickly open all windows and doors.
 - f. If the victim ingested a poison, call the Poison Control Center.
 - g. Do not induce vomiting unless so directed by the Poison Control Center.
 - h. Do not give the victim anything to eat or to drink.
 - i. If the victim has a convulsion, see convulsions.
 - j. If the victim has burn, see burns.
 - k. Monitor the ABCs. If the victim is not breathing, initiate rescue breathing. If there is no pulse, initiate cardiopulmonary resuscitation (CPR).

FIRST AID KIT

A First Aid kit should contain the following items:

- Adhesive tape (1 inch)

- Antacids (Gelusil, maalox)
- Antihistamines (benadryl)
- Acetaminophen (tylenol)
- Betadine or other sterilizing solution
- Calamine lotion
- Cold pack
- Cotton swabs
- Elastic bandage (3 inch)
- Insect and snake bite kit
- Petroleum jelly (vaseline)
- Pocket mask (for CPR)
- Rubbing alcohol
- Scissors
- Soap (without deodorant or cold cream)

- Smelling salts (ammonia capsules)
- Splinting material
- Sterile gauze bandage (3 inch)
- Sterile gauze pads (4 x 4 inches)
- Sugar sweetened drinks
- Syrup of ipecac
- Thermal blanket
- Thermometer
- Topical antibiotic ointment (bacitracin, neosporin, triple-A)
- Tweezers
- Wire cutters

Everyone should know where it is located, and what its contents are.

11-2 SAMPLE FIRST AID EXAMINATION

1. Why should you check a victim's vital signs?
 - a. To check for broken bones.
 - b. To check for bleeding.
 - c. To check for life threatening conditions.
 - d. To get some secret from the victim.
2. How will you first attempt to stop bleeding?
 - a. Elevate the injured part.
 - b. Apply direct pressure.
 - c. Use tissues to soak up blood.
 - d. Use a tourniquet.
3. When is it appropriate to call EMS?
 - a. After a complete physical examination.
 - b. As soon as the emergency occurred.
 - c. After you have the situation under control.
 - d. After you have determined that the victim is not responsive.
4. Why do you elevate the legs of a person who is in shock?
 - a. To make the victim more comfortable.
 - b. To improve circulation to the vital organs, especially the brain.
 - c. To start rescue breathing and CPR.
 - d. For easier transportation.
5. The adult CPR cycle consist of:
 - a. 10 chest compressions and 2 breaths.
 - b. 10 chest compressions and 1 breath.
 - c. 15 chest compressions and 2 breaths.
 - d. 15 chest compressions and 1 breath.
6. You have established that an adult victim is not breathing. You initiate rescue breathing, trying to give 2 full breaths, but they do not go in. What do you do next?
 - a. Do a finger sweep.
 - b. Retilt the head.
 - c. Initiate chest compressions.
 - d. Give up and wait for EMS.
7. A tree landing ended with the skydiver's getting out of his harness and jumping off the tree. On landing, he hurt his ankle. You are not sure if the ankle is broken.
 - a. You put some cold compresses around the ankle.
 - b. Let the victim walk on it and then make your decision.
 - c. Care for the ankle as if it is broken.
 - d. Bandage loosely and elevate ankle.
8. A foreign object (piece of gravel) in a jumper's eye remains despite repeated rinsing. Your next step is to:
 - a. Get pliers to remove the object.
 - b. Have the jumper close both eyes, and take him to a hospital, or call EMS.
 - c. Put a sterile bandage over the injured eye and wait for improvement.
 - d. Apply eye drops only.
9. How do you position someone with a severe nose bleed?
 - a. Sitting erect with head leaning back.
 - b. Lying down on back.
 - c. Sitting erect with head angled slightly forward.
 - d. Lying down on stomach.
10. You have to treat a burn on someone's forearm that has charred edges, open blisters and is oozing.
 - a. Immediately call EMS and immerse the arm in cold water.
 - b. Immediately call EMS and place arm in ice box.
 - c. Immediately call EMS, monitor ABCs and be prepared to care for shock.
 - d. Immediately call EMS and put ointment on affected area.
11. What do you advise a fellow jumper who has heat exhaustion?
 - a. Get her in a cool area, have her drink lots of water if conscious, and let her rest.
 - b. Get her in a cool area, rub her down with ice or cloth soaked in ice water.
 - c. To lay down for rescue breathing.
 - d. To eat a lot of food and then to run it off by jogging.
12. What are the possible symptoms of an allergic reaction to an insect bite?
 - a. Difficulty breathing.
 - b. Insane behavior.
 - c. Bulging of eyes.
 - d. Loss of hair.
13. You have to move a victim who has a possible neck/spine injury. How would you do it, if you are alone?
 - a. Drag the victim by his legs.
 - b. Use clothes drag.
 - c. Keeping the head straight, pull victim by hair.
 - d. Use 2-handed seat carry.

14. What are some basic principles you consider when treating fractures?
 - a. Immobilize limb, apply very tight bandage to slow circulation.
 - b. Immobilize limb, apply snug bandage that allows circulation.
 - c. Immobilize limb, apply bandage right on top of fracture.
 - d. None of the above.
15. You come to a scene of an emergency. What is the first of your concerns?
 - a. How many victims need CPR?
 - b. How many victims need rescue breathing?
 - c. Is it safe to help?
 - d. Do you have enough bandages?
16. You suspect a person may have sustained an abdominal injury. Identify the possible symptoms and actions appropriate in this situation.
 - a. Symptoms: Rigid abdomen and pain, rapid breathing, excessive thirst.
 Actions: Call EMS; do not give anything to eat or drink, elevate knees to relax abdominal muscles.
 - b. Symptoms: Hysteria, soft abdomen, numbness in abdomen.
 Actions: Call EMS, administer an antacid.
 - c. Symptoms: Loss of consciousness, anxiety, excessive thirst.
 Actions: Call EMS, give the victim little sips of water to drink and continue monitoring victim
 - d. Symptoms: Delirium, rapid pulse, vomit containing no blood.
 Actions: Call EMS, and do not attempt to give Rescue Breathing.
17. How many breaths per second are given in Rescue Breathing for an adult?
 - a. 2 breaths every 5 seconds
 - b. 1 breath every 5 seconds
 - c. 2 breaths every 15 seconds
 - d. 1 breath every 15 seconds
18. A person is clutching her throat and making wheezing sounds.
 - a. Pat the person on her back and reassure the victim that all will be O.K.
 - b. Ask the person for permission to engage in abdominal thrusts. Give upward thrusts until object is dislodged, or EMS personnel arrives.
 - c. Ask the person for permission to engage in abdominal thrusts. Give upward thrusts. If person becomes unconscious, stop and attempt rescue breathing, even if breaths will not go in.
 - d. Ask the person for permission to engage in abdominal thrusts. Give 4-6 upward thrusts, and if by then the object does not come out, give up and call EMS.
19. How do you handle someone who is having a seizure?
 - a. Place something rigid between the victim's teeth.
 - b. Hold victim still.
 - c. Clear area of harmful objects.
 - d. Call EMS and restrain at all cost.
20. What are some symptoms of a head injury?
 - a. Unequal size of pupils that do not respond by constriction to light stimulation.
 - b. Clear fluid oozing out of ear.
 - c. Victim is disoriented and speech is slurred.
 - d. All of the above.
21. How do you treat frostbite?
 - a. Rub area with snow.
 - b. Give victim alcohol to drink to warm him up.
 - c. Soak area in warm water, do not allow victim to smoke or drink.
 - d. None of the above.
22. How will you remove and then handle a tick?
 - a. Remove with tweezers only, and coat tick in vaseline.
 - b. Remove with anything but hands, and coat tick in nail polish.
 - c. Remove with anything but hands, and place tick in alcohol.
 - d. Remove with tweezers only, and burn the tick.

23. What are some of the symptoms and treatments of a chest injury?
- a. Symptoms: Hissing sound, loud grunting breathing.
Treatment: Cover entire wound with anything available.
 - b. Symptoms: Rapid breathing, pale blue skin.
Treatment: Remove protruding object, and keep victim warm.
 - c. Symptoms: Head ache, heart ache.
Treatment: Tell the victim to stop drinking and dump boyfriend.
 - d. Symptoms: Vomiting, excessive thirst.
Treatment: Give victim water, and monitor vital signs.
24. A person got bitten by a snake. How will you provide first aid?
- a. Call EMS, cut the wound open and suck out venom.
 - b. Call EMS, put tourniquet on and monitor vital signs.
 - c. Call EMS, keep affected part lower than heart, use snake bite kit if available.
 - d. Call EMS, apply ice and use electric shock to cauterize area.
25. What are the some of the allergic reactions to an insect bite?
- a. Swelling of skin, respiratory arrest
 - b. Blue stains on skin, and local swelling
 - c. Two little holes, especially in neck area
 - d. Delirium, high fever, and head aches

SAMPLE FIRST AID EXAMINATION

ANSWER KEY

- | | |
|-------|-------|
| 1. c | 14. b |
| 2. b | 15. c |
| 3. d | 16. a |
| 4. b | 17. b |
| 5. c | 18. b |
| 6. b | 19. c |
| 7. c | 20. d |
| 8. b | 21. c |
| 9. c | 22. c |
| 10. c | 23. a |
| 11. a | 24. c |
| 12. a | 25. a |
| 13. b | |

11-3 INCIDENT REPORTS

11-3.01 INTRODUCTION

The purpose of this section is to provide information and procedures for reporting skydiving incidents. Incidents include fatalities, injuries, malfunctions, aircraft accidents, or other unusual occurrences involving skydivers. The reports are used to prepare better safety and training programs. USPA also can use these reports to obtain insurance for the membership, comment on proposed legislation, and defend skydivers from unreasonable restrictions and regulations. These reports are analyzed by the Safety and Training Committee.

11-3.02 SCOPE

Information in this section covers:

- Incident Reports
- Fatality Reports
- Report Administration

11-3.03 FATALITY REPORTS

- A. USPA requests immediate notification of any skydiving fatality, by phone call to USPA Headquarters (703) 836-3495. The regional director should also be contacted. The phone report should include:
1. date;
 2. location;
 3. name;
 4. cause of accident;
 5. equipment used—if a factor.
- B. Fatality reports (USPA Fatality Report Form) are to be submitted for any person who dies as a direct result of engaging in skydiving. This includes such things as injuries from impact, drowning, electrocution, and heart attack. Fatality reports should be submitted by the Safety and Training Advisor; however, the report may be filed by a USPA instructor if he or she is in a better position to investigate the accident.
- C. The report should be printed or typewritten and distributed to only USPA Headquarters and the Regional Director.

11-3.04 INCIDENT REPORTS

- A. Incident and accident reports are to be submitted on any unusual skydiving incident to include injuries, malfunctions, noted unsafe procedures, unusual or ethically unacceptable skydivers or other extraordinary occurrences concerning skydiving operations, or anything else which would assist in developing safer recommendations and policies.

- B. The report should be printed or typewritten and distributed to only USPA Headquarters and the Regional Director.

11-3.05 ADMINISTRATION

- A. Fatality Reports:
1. USPA Headquarters will keep the original and make two copies.
 - a. One copy is forwarded to the Safety and Training Committee member who writes the incident reports for *Parachutist*.
 - b. One copy (with dates, location, names removed) is sent to the president of the Parachute Industry Association.
 2. Thirty days after USPA Headquarters receives the report, the regional director and the S&TA should destroy their copy.
 3. Thirty days after the publication of the incident report in *Parachutist*, the author should destroy his or her copy.
 4. Headquarters will extract all pertinent information from the original report and forward, no later than March 1 of the next year, all reports to the author of the annual fatality report in *Parachutist*.
 5. Thirty days after the annual report has been published, the originals are destroyed.
- B. Incident Reports
1. USPA Headquarters will maintain a file by calendar year of each report submitted.
 2. USPA headquarters will forward each report on serious injuries, unusual incidents or accidents, and all fatalities to designated members of the S&T Committee.

DISCLAIMER

The material presented here is published as part of an information dissemination service for USPA members. USPA makes no warranties or representations, and assumes no liability concerning the validity of any advice, opinion, or recommendation expressed in the materials. All individuals relying upon the material do so at their own risk.

SECTION 12

FEDERAL AVIATION REGULATIONS

12.01 INTRODUCTION

The Federal Aviation Administration (FAA) of the US Department of Transportation has the responsibility for regulating airspace usage in the United States. Concerning skydiving activities, the FAA fulfills this responsibility by specifically regulating certain aspects of skydiving and by relying upon the self-regulation of the participants through the guidelines and recommendations published by USPA. The FAA's main responsibility is to safeguard persons and property on the ground and to provide adequate control of airspace usage. The FAA does this by certificating pilots, mechanics, air traffic controllers and parachute riggers and by requiring approval data for aircraft and parachutes. The FAA relies upon self policing from within the skydiving community for most training and operational requirements.

12.02 SCOPE

This section contains all or part of the following FAA publications:

FAR Part 65

Certification: Airmen other than Flight Crew Members (Parachute Riggers), September 1974

FAR Part 91

General Operating and Flight Rules, August 18, 1990

FAR Part 105

Parachute Jumping, September 1992

AC 91-45C

Waivers (Certificates of Authorization): Aviation Events (Demonstration Jumps) February 1, 1990

AC 105-2C

Sport Parachute Jumping, January 2, 1991

12.03 ENFORCEMENT

The FAA has the authority to impose fines and suspend or revoke certificates it has issued. The FAA can fine the pilot and the jumpers as well as suspend or revoke the certificates of pilots and riggers.

12-1 FEDERAL AVIATION REGULATIONS

PART 65—CERTIFICATION: AIRMEN OTHER THAN FLIGHT CREWMEMBERS

SUBPART A—GENERAL

SEC. 65.1 APPLICABILITY

This part prescribes the requirements for issuing the following certificates and associated ratings and the general operating rules for the holders of those certificates and ratings:

- Air-traffic control-tower operator
- Aircraft dispatcher
- Mechanics
- Repairmen
- Parachute rigger

SEC. 65.11 APPLICATION AND ISSUE

- A. Application for a certificate and appropriate class rating, or for an additional rating, under this part must be made on a form and in a manner prescribed by the Administrator. Each person who is neither a U.S. citizen nor a resident alien and who applies for a written or practical test to be administered outside the United States or for any certificate or rating issued under this part must show evidence that the fee prescribed in *Appendix A of Part 187* of this chapter has been paid.
- B. An applicant who meets the requirements of this part is entitled to an appropriate certificate and rating.
- C. Unless authorized by the Administrator, a person whose air traffic control tower operator, mechanic, or parachute rigger certificate is suspended may not apply for any rating to be added to that certificate during the period of suspension.
- D. Unless the order of revocation provides otherwise—
1. A person whose air traffic control tower operator, aircraft dispatcher, or parachute rigger certificate is revoked may not apply for the same kind of certificate for 1 year after the date of revocation; and
 2. A person whose mechanic or repairman certificate is revoked may not apply for either of those kinds of certificates for 1 year after the date of revocation.

[*Doc. No. 1179, 27 FR 7973, Aug. 10, 1962, as amended by Amdt. 65-9, 31 FR 13524, Oct. 20, 1966; Amdt. 65-28, 47 FR 35693, Aug. 16, 1982*]

SEC. 65.12 OFFENSES INVOLVING ALCOHOL OR DRUGS

- A. A conviction for the violation of any Federal or state statute relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marijuana, or depressant or stimulant drugs or substances is grounds for:
1. Denial of an application for any certificate or rating issued under this part for a period of up to 1 year after the date of final conviction; or
 2. Suspension or revocation of any certificate or rating issued under this part.
- B. The commission of an act prohibited by Sec. 91.19A. of this chapter is grounds for:
1. Denial of an application for a certificate or rating issued under this part for a period of up to 1 year after the date of that act; or
 2. Suspension or revocation of any certificate or rating issued under this part.

[*Doc. No. 21956, Amdt. 65-29, 50 FR 15379, Apr. 17, 1985, as amended by Amdt. 65-34, 54 FR 34330, Aug. 18, 1989*]

SEC. 65.13 TEMPORARY CERTIFICATE

A certificate and ratings effective for a period of not more than 120 days may be issued to a qualified applicant, pending review of his application and supplementary documents and the issue of the certificate and ratings for which he applied.

[*Doc. No. 1179, 27 FR 7973, Aug. 10, 1962, as amended by Amdt. 65-23, 43 FR 22640, May 25, 1978*]

SEC. 65.15 DURATION OF CERTIFICATES

- A. Except for repairman certificates, a certificate or rating issued under this part is effective until it is surrendered, suspended, or revoked.
- B. Unless it is sooner surrendered, suspended, or revoked, a repairman certificate is effective until the holder is relieved from the duties for which the holder was employed and certificated.
- C. The holder of a certificate issued under this part that is suspended, revoked, or no longer effective shall return it to the Administrator.

[*Amdt. 65-28, 47 FR 35693, Aug. 16, 1982*]

SEC. 65.16 CHANGE OF NAME: REPLACEMENT OF LOST OR DESTROYED CERTIFICATE

- A. An application for a change of name on a certificate issued under this part must be accompanied by the applicant's current certificate and the marriage license, court order, or other document verifying the change. The documents are returned to the applicant after inspection.
- B. An application for a replacement of a lost or destroyed certificate is made by letter to the Department of Transportation, Federal Aviation Administration, Airman Certification Branch, Post Office Box 25082, Oklahoma City, OK 73125. The letter must contain:
 - 1. The name in which the certificate was issued, the permanent mailing address (including zip code), social security number (if any), and date and place of birth of the certificate holder, and any available information regarding the grade, number, and date of issue of the certificate, and the ratings on it; and
 - 2. A check or money order for \$2, payable to the Federal Aviation Administration.
- C. An application for a replacement of a lost or destroyed medical certificate is made by letter to the Department of Transportation, Federal Aviation Administration, Civil Aeromedical Institute, Aeromedical Certification Branch, Post Office Box 25082, Oklahoma City, OK 73125, accompanied by a check or money order for \$2.00.
- D. A person whose certificate issued under this part or medical certificate, or both, has been lost may obtain a telegram from the FAA confirming that it was issued. The telegram may be carried as a certificate for a period not to exceed 60 days pending his receiving a duplicate certificate under paragraph B or C of this section, unless he has been notified that the certificate has been suspended or revoked. The request for such a telegram may be made by prepaid telegram, stating the date upon which a duplicate certificate was requested, or including the request for a duplicate and a money order for the necessary amount. The request for a telegraphic certificate should be sent to the office prescribed in paragraph B or C of this section, as appropriate. However, a request for both at the same time should be sent to the office prescribed in paragraph B of this section.

[Amdt. 65-9, 31 FR 13524, Oct. 20, 1966, as amended by Doc. No. 8084, 32 FR 5769, Apr. 11, 1967; Amdt. 65-16, 35 FR 14075, Sept. 4, 1970; Amdt. 65-17, 36 FR 2865, Feb. 11, 1971]

SEC. 65.17 TESTS: GENERAL PROCEDURE

- A. Tests prescribed by or under this part are given at times and places, and by persons, designated by the Administrator.
- B. The minimum passing grade for each test is 70 percent.

SEC. 65.18 WRITTEN TESTS: CHEATING OR OTHER UNAUTHORIZED CONDUCT

- A. Except as authorized by the Administrator, no person may—
 - 1. Copy, or intentionally remove, a written test under this part.
 - 2. Give to another, or receive from another, any part or copy of that test.
 - 3. Give help on that test to, or receive help on that test from, any person during the period that test is being given.
 - 4. Take any part of that test in behalf of another person.
 - 5. Use any material or aid during the period that test is being given.
 - 6. Intentionally cause, assist, or participate in any act prohibited by this paragraph.
- B. No person who commits an act prohibited by paragraph A of this section is eligible for any airman or ground instructor certificate or rating under this chapter for a period of 1 year after the date of that act. In addition, the commission of that act is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.
[Amdt. 65-3, 30 FR 2196, Feb. 18, 1965]

SEC. 65.19 RETESTING AFTER FAILURE

An applicant for a written, oral, or practical test for a certificate and rating, or for an additional rating under this part, may apply for retesting:

- A. After 30 days after the date the applicant failed the test; or
- B. Before the 30 days have expired if the applicant presents a signed statement from an airman holding the certificate and rating sought by the applicant, certifying that the airman has given the applicant additional instruction in each of the subjects failed and that the airman considers the applicant ready for retesting.
[Amdt. 65-23, 43 FR 22640, May 25, 1978]

SEC. 65.20 APPLICATIONS, CERTIFICATES, LOGBOOKS, REPORTS, AND RECORDS: FALSIFICATION, REPRODUCTION, OR ALTERATION

- A. No person may make or cause to be made:
 - 1. Any fraudulent or intentionally false statement on any application for a certificate or rating under this part.
 - 2. Any fraudulent or intentionally false entry in any logbook, record, or report that is required to be kept, made, or used, to show compliance with any requirement for any certificate or rating under this part.
 - 3. Any reproduction, for fraudulent purpose, of any certificate or rating under this part.

4. Any alteration of any certificate or rating under this part.

B. The commission by any person of an act prohibited under paragraph A of this section is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

[Amdt. 65-3, 30 FR 2196, Feb. 18, 1965]

SEC. 65.21 CHANGE OF ADDRESS

Within 30 days after any change in his permanent mailing address, the holder of a certificate issued under this part shall notify the Department of Transportation, Federal Aviation Administration, Airman Certification Branch, Post Office Box 25082, Oklahoma City, OK 73125, in writing, of his new address.

[Amdt. 65-16, 35 FR 14075, Sept. 4, 1970]

SUBPART F—PARACHUTE RIGGERS

SEC. 65.111 CERTIFICATE REQUIRED

A. No person may pack, maintain, or alter any personnel carrying parachute intended for emergency use in connection with civil aircraft of the United States (including the auxiliary parachute of a dual parachute pack to be used for intentional jumping) unless he holds an appropriate current certificate and type rating issued under this subpart and complies with Secs. 65.127 through 65.133.

B. No person may pack, maintain, or alter any main parachute of a dual parachute pack to be used for intentional jumping in connection with civil aircraft of the United States unless he has an appropriate current certificate issued under this subpart. However, a person who does not hold such a certificate may pack the main parachute of a dual parachute pack that is to be used by him for intentional jumping.

C. Each person who holds a parachute rigger certificate shall present it for inspection upon the request of the Administrator or an authorized representative of the National Transportation Safety Board, or of any Federal, State, or local law enforcement officer.

D. The following parachute rigger certificates are issued under this part:

1. Senior parachute rigger.
2. Master parachute rigger.

E. Sections 65.127 through 65.133 do not apply to parachutes packed, maintained, or altered for the use of the armed forces.

[Doc. No. 1179, 27 FR 7973, Aug. 10, 1962, as amended by Amdt. 65-9, 31 FR 13524, Oct. 20, 1966; 32 FR 5769, Apr. 11, 1967]

SEC. 65.113 ELIGIBILITY REQUIREMENTS: GENERAL

A. To be eligible for a parachute rigger certificate, a person must:

1. Be at least 18 years of age;
2. Be able to read, write, speak, and understand the English language, or, in the case of a citizen of Puerto Rico, or a person who is employed outside of the United States by a U.S. air carrier, and who does not meet this requirement, be issued a certificate that is valid only in Puerto Rico or while he is employed outside of the United States by that air carrier, as the case may be; and
3. Comply with the sections of this subpart that apply to the certificate and type rating he seeks.

B. Except for a master parachute rigger certificate, a parachute rigger certificate that was issued before, and was valid on, October 31, 1962, is equal to a senior parachute rigger certificate, and may be exchanged for such a corresponding certificate.

SEC. 65.115 SENIOR PARACHUTE RIGGER CERTIFICATE: EXPERIENCE, KNOWLEDGE, AND SKILL REQUIREMENTS

Except as provided in Section 65.117, an applicant for a senior parachute rigger certificate must:

- A. Present evidence satisfactory to the Administrator that he has packed at least 20 parachutes of each type for which he seeks a rating, in accordance with the manufacturer's instructions and under the supervision of a certificated parachute rigger holding a rating for that type or a person holding an appropriate military rating;
- B. Pass a written test, with respect to parachutes in common use, on:
 1. Their construction, packing, and maintenance;
 2. The manufacturer's instructions;
 3. The regulations of this subpart; and
- C. Pass an oral and practical test showing his ability to pack and maintain at least one type of parachute in common use, appropriate to the type rating he seeks.

[Doc. No. 10468, Amdt. 65-20, 37 FR 13251, July 6, 1972]

SEC. 65.117 MILITARY RIGGERS OR FORMER MILITARY RIGGERS: SPECIAL CERTIFICATION RULE

In place of the procedure in Section 65.115, an applicant for a senior parachute rigger certificate is entitled to it if he passes a written test on the regulations of this subpart and presents satisfactory documentary evidence that he:

- A. Is a member or civilian employee of an Armed Force of the United States, is a civilian employee of a regular armed force of a foreign country, or has, within the 12 months before he applies, been honorably discharged or released from any status covered by this paragraph;

- B. Is serving, or has served within the 12 months before he applies, as a parachute rigger for such an Armed Force; and
- C. Has the experience required by Section 65.115A.

SEC. 65.119 MASTER PARACHUTE RIGGER CERTIFICATE: EXPERIENCE, KNOWLEDGE, AND SKILL REQUIREMENTS

An applicant for a master parachute rigger certificate must meet the following requirements:

- A. Present evidence satisfactory to the Administrator that he has had at least 3 years of experience as a parachute rigger and has satisfactorily packed at least 100 parachutes of each of two types in common use, in accordance with the manufacturer's instructions:
 - 1. While a certificated and appropriately rated senior parachute rigger; or
 - 2. While under the supervision of a certificated and appropriately rated parachute rigger or a person holding appropriate military ratings. An applicant may combine experience specified in paragraphs A.1 and A.2 of this section to meet the requirements of this paragraph.
- B. If the applicant is not the holder of a senior parachute rigger certificate, pass a written test, with respect to parachutes in common use, on:
 - 1. Their construction, packing, and maintenance;
 - 2. The manufacturer's instructions; and
 - 3. The regulations of this subpart.
- C. Pass an oral and practical test showing his ability to pack and maintain two types of parachutes in common use, appropriate to the type ratings he seeks.

[Doc. No. 10468, Amdt. 65-20, 37 FR 13252, July 6, 1972]

SEC. 65.121 TYPE RATINGS

- A. The following type ratings are issued under this subpart:
 - 1. Seat
 - 2. Back
 - 3. Chest
 - 4. Lap
- B. The holder of a senior parachute rigger certificate who qualifies for a master parachute rigger certificate is entitled to have placed on his master parachute rigger certificate the ratings that were on his senior parachute rigger certificate.

SEC. 65.123 ADDITIONAL TYPE RATINGS: REQUIREMENTS

A certificated parachute rigger who applies for an additional type rating must:

- A. Present evidence satisfactory to the Administrator that he has packed at least 20 parachutes of the type for which he seeks a rating, in accordance with the manufacturer's

instructions and under the supervision of a certificated parachute rigger holding a rating for that type or a person holding an appropriate military rating; and

- B. Pass a practical test, to the satisfaction of the Administrator, showing his ability to pack and maintain the type of parachute for which he seeks a rating.

[Doc. No. 1179, 27 FR 7973, Aug. 10, 1962, as amended by Amdt. 65-20, 37 FR 13251, July 6, 1972]

SEC. 65.125 CERTIFICATES: PRIVILEGES

- A. A certificated senior parachute rigger may:
 - 1. Pack or maintain (except for major repair) any type of parachute for which he is rated; and
 - 2. Supervise other persons in packing any type of parachute for which he is rated.
- B. A certificated master parachute rigger may:
 - 1. Pack, maintain, or alter any type of parachute for which he is rated; and
 - 2. Supervise other persons in packing, maintaining, or altering any type of parachute for which he is rated.
- C. A certificated parachute rigger need not comply with Sections 65.127 through 65.133 (relating to facilities, equipment, performance standards, records, recent experience, and seal) in packing, maintaining, or altering (if authorized) the main parachute of a dual parachute pack to be used for intentional jumping.

[Doc. No. 1179, 27 FR 7973, Aug. 10, 1962, as amended by Amdt. 65-20, 37 FR 13252, July 6, 1972]

SEC. 65.127 FACILITIES AND EQUIPMENT.

No certificated parachute rigger may exercise the privileges of his certificate unless he has at least the following facilities and equipment available to him:

- A. A smooth top table at least three feet wide by 40 feet long.
- B. Suitable housing that is adequately heated, lighted, and ventilated for drying and airing parachutes.
- C. Enough packing tools and other equipment to pack and maintain the types of parachutes that he services.
- D. Adequate housing facilities to perform his duties and to protect his tools and equipment.

[Doc. No. 1179, 27 FR 7973, Aug. 10, 1962, as amended by Amdt. 65-27, 47 FR 13316, Mar. 29, 1982]

SEC. 65.129 PERFORMANCE STANDARDS

No certificated parachute rigger may:

- A. Pack, maintain, or alter any parachute unless he is rated for that type;
- B. Pack a parachute that is not safe for emergency use;

- C. Pack a parachute that has not been thoroughly dried and aired;
- D. Alter a parachute in a manner that is not specifically authorized by the Administrator or the manufacturer;
- E. Pack, maintain, or alter a parachute in any manner that deviates from procedures approved by the Administrator or the manufacturer of the parachute; or
- F. Exercise the privileges of his certificate and type rating unless he understands the current manufacturer's instructions for the operation involved and has—
 - 1. Performed duties under his certificate for at least 90 days within the preceding 12 months; or
 - 2. Shown the Administrator that he is able to perform those duties.

SEC. 65.131 RECORDS

- A. Each certificated parachute rigger shall keep a record of the packing, maintenance, and alteration of parachutes performed or supervised by him. He shall keep in that record, with respect to each parachute worked on, a statement of:
 - 1. Its type and make;
 - 2. Its serial number;
 - 3. The name and address of its owner;
 - 4. The kind and extent of the work performed;
 - 5. The date when and place where the work was performed; and
 - 6. The results of any drop tests made with it.

- B. Each person who makes a record under paragraph A of this section shall keep it for at least 2 years after the date it is made.
- C. Each certificated parachute rigger who packs a parachute shall write, on the parachute packing record attached to the parachute, the date and place of the packing and a notation of any defects he finds on inspection. He shall sign that record with his name and the number of his certificate.

SEC. 65.133 SEAL.

Each certificated parachute rigger must have a seal with an identifying mark prescribed by the Administrator, and a seal press. After packing a parachute he shall seal the pack with his seal in accordance with the manufacturer's recommendation for that type of parachute.

PART 91—GENERAL OPERATION AND FLIGHT RULES

SUBPART A—GENERAL

SEC. 91.1 APPLICABILITY

- A. Except as provided in paragraph B of this section and Section 91.703, this part prescribes rules governing the operation of aircraft (other than moored balloons, kites, unmanned rockets, and unmanned free balloons, which are governed by part 101 of this chapter, and ultralight vehicles operated in accordance with part 103 of this chapter) within the United States, including the waters within 3 nautical miles of the U.S. coast.
- B. Each person operating an aircraft in the airspace overlying the waters between 3 and 12 nautical miles from the coast of the United States shall comply with Secs. 91.1 through 91.21; Secs. 91.101 through 91.143; Secs. 91.151 through 91.159; Secs. 91.167 through 91.193; Sec. 91.203; Sec. 91.205; Secs. 91.209 through 91.217; Sec. 91.221; Secs. 91.303 through 91.319; Sec. 91.323; Sec. 91.605; Sec. 91.609; Secs. 91.703 through 91.715; and 91.903.

SEC. 91.3 RESPONSIBILITY AND AUTHORITY OF THE PILOT IN COMMAND

- A. The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.
- B. In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.
- C. Each pilot in command who deviates from a rule under paragraph B of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

SEC. 91.7 CIVIL AIRCRAFT AIRWORTHINESS

- A. No person may operate a civil aircraft unless it is in an airworthy condition.
- B. The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

SEC. 91.11 PROHIBITION AGAINST INTERFERENCE WITH CREWMEMBERS

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.

SEC. 91.13 CARELESS OR RECKLESS OPERATION

- A. Aircraft operations for the purpose of air navigation. No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.
- B. Aircraft operations other than for the purpose of air navigation. No person may operate an aircraft, other than for the purpose of air navigation, on any part of the surface of an airport used by aircraft for air commerce (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or reckless manner so as to endanger the life or property of another.

SEC. 91.15 DROPPING OBJECTS

No pilot in command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

SEC. 91.17 ALCOHOL OR DRUGS

- A. No person may act or attempt to act as a crewmember of a civil aircraft—
 - 1. Within 8 hours after the consumption of any alcoholic beverage;
 - 2. While under the influence of alcohol;
 - 3. While using any drug that affects the person's faculties in any way contrary to safety; or
 - 4. While having .04 percent by weight or more alcohol in the blood.
- B. Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft.
- C. A crewmember shall do the following:
 - 1. On request of a law enforcement officer, submit to a test to indicate the percentage by weight of alcohol in the blood, when—
 - a. The law enforcement officer is authorized under State or local law to conduct the test or to have the test conducted; and
 - b. The law enforcement officer is requesting submission to the test to investigate a suspected violation of State or local law governing the same or substantially similar conduct prohibited by paragraph A.1, A.2, or A.4 of this section.

2. Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph A.1, A.2, or A.4 of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates percentage by weight of alcohol in the blood.
- D. Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph A.3 of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates the presence of any drugs in the body.
- E. Any test information obtained by the Administrator under paragraph C or D of this section may be evaluated in determining a person's qualifications for any airman certificate or possible violations of this chapter and may be used as evidence in any legal proceeding under section 602, 609, or 901 of the Federal Aviation Act of 1958.

SEC. 91.19 CARRIAGE OF NARCOTIC DRUGS, MARIHUANA, AND DEPRESSANT OR STIMULANT DRUGS OR SUBSTANCES

- A. Except as provided in paragraph B of this section, no person may operate a civil aircraft within the United States with knowledge that narcotic drugs, marijuana, and depressant or stimulant drugs or substances as defined in Federal or State statutes are carried in the aircraft.
- B. Paragraph A of this section does not apply to any carriage of narcotic drugs, marijuana, and depressant or stimulant drugs or substances authorized by or under any Federal or State statute or by any Federal or State agency.

SEC. 91.25 AVIATION SAFETY REPORTING PROGRAM: PROHIBITION AGAINST USE OF REPORTS FOR ENFORCEMENT PURPOSES

The Administrator of the FAA will not use reports submitted to the National Aeronautics and Space Administration under the Aviation Safety Reporting Program (or information derived there from) in any enforcement action except information concerning accidents or criminal offenses which are wholly excluded from the Program.

SUBPART B—FLIGHT RULES GENERAL

SEC. 91.101 APPLICABILITY

This subpart prescribes flight rules governing the operation of aircraft within the United States and within 12 nautical miles from the coast of the United States.

SEC. 91.103 PREFLIGHT ACTION

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include:

- A. For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;
- B. For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:
 1. For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and
 2. For civil aircraft other than those specified in paragraph B.1. of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

SEC. 91.107 USE OF SAFETY BELTS, SHOULDER HARNESSES, AND CHILD RESTRAINT SYSTEMS

- A. Unless otherwise authorized by the Administrator—
 1. No pilot may take off a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, shoulder harness.
 2. No pilot may cause to be moved on the surface, take off, or land a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) unless the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness.
 3. Except as provided in this paragraph, each person on board a U.S. registered civil aircraft (except a free balloon that incorporates a basket or gondola or an airship type certificated before November 2, 1987) must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about him or her during movement on the surface, takeoff, and landing. For seaplane and float equipped rotorcraft operations during movement on the surface, the person pushing off the seaplane or rotorcraft from the dock and the person mooring the seaplane or rotorcraft at the dock are excepted from the preceding seating and safety belt requirements. Notwithstanding the preceding requirements of this paragraph, a person may:

- a. Be held by an adult who is occupying a seat or berth if that person has not reached his or her second birthday;
- b. Use the floor of the aircraft as a seat, provided that the person is on board for the purpose of engaging in sport parachuting; or

SEC. 91.111 OPERATING NEAR OTHER AIRCRAFT

- A. No person may operate an aircraft so close to another aircraft as to create a collision hazard.
- B. No person may operate an aircraft in formation flight except by arrangement with the pilot in command of each aircraft in the formation.
- C. No person may operate an aircraft, carrying passengers for hire, in formation flight.

SEC. 91.113 RIGHT-OF-WAY RULES: EXCEPT WATER OPERATIONS

- A. Inapplicability: This section does not apply to the operation of an aircraft on water.
- B. General: When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.
- C. In distress: An aircraft in distress has the right-of-way over all other air traffic.
- D. Converging: When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way. If the aircraft are of different categories—
 - 1. A balloon has the right-of-way over any other category of aircraft;
 - 2. A glider has the right-of-way over an airship, airplane, or rotorcraft; and
 - 3. An airship has the right-of-way over an airplane or rotorcraft. However, an aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft.
- E. Approaching head-on: When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.
- F. Overtaking: Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

- G. Landing: Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

SEC. 91.119 MINIMUM SAFE ALTITUDES: GENERAL

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

- A. Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.
- B. Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
- C. Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

SEC. 91.127 OPERATING ON OR IN THE VICINITY OF AN AIRPORT IN CLASS E AIRSPACE

- A. Unless otherwise required by part 93 of this chapter or unless otherwise authorized or required by the ATC facility having jurisdiction over the Class E airspace area, each person operating an aircraft on or in the vicinity of an airport in a Class E airspace area must comply with the requirements of section 91.126.
- B. Departures: Each pilot of an aircraft must comply with any traffic patterns established for that airport in part 93 of this chapter.
- C. Communications with control towers: Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic Visual Flight Rules (VFR) weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If

the aircraft radio fails while in flight under IFR, the pilot must comply with section 91.185.

SEC. 91.151 FUEL REQUIREMENTS FOR FLIGHT IN VFR CONDITIONS

- A. No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed:
 - 1. During the day, to fly after that for at least 30 minutes; or
 - 2. At night, to fly after that for at least 45 minutes.

SUBPART C—EQUIPMENT, INSTRUMENT, AND CERTIFICATE REQUIREMENTS

SEC. 91.211 SUPPLEMENTAL OXYGEN

- A. General: No person may operate a civil aircraft of U.S. registry:
 - 1. At cabin pressure altitudes above 12,500 feet (MSL) up to and including 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration;
 - 2. At cabin pressure altitudes above 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes; and
 - 3. At cabin pressure altitudes above 15,000 feet (MSL) unless each occupant of the aircraft is provided with supplemental oxygen.
- B. Pressurized cabin aircraft:
 - 1. No person may operate a civil aircraft of U.S. registry with a pressurized cabin:
 - a. At flight altitudes above flight level 250 unless at least a 10-minute supply of supplemental oxygen, in addition to any oxygen required to satisfy paragraph A of this section, is available for each occupant of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and
 - b. At flight altitudes above flight level 350 unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 14,000 feet (MSL), except that the one pilot need not wear and use an oxygen mask while at or below flight level 410 if there are two pilots at the controls and each pilot has a quick-donning type of oxygen mask that can be placed on the face with one hand from the ready position within 5 seconds, supplying oxygen and properly secured and sealed.

- 2. Notwithstanding paragraph B.1.b of this section, if for any reason at any time it is necessary for one pilot to leave the controls of the aircraft when operating at flight altitudes above flight level 350, the remaining pilot at the controls shall put on and use an oxygen mask until the other pilot has returned to that crewmember's station.

SUBPART D—SPECIAL FLIGHT OPERATIONS

SEC. 91.307 PARACHUTES AND PARACHUTING

- A. No pilot of a civil aircraft may allow a parachute that is available for emergency use to be carried in that aircraft unless it is an approved type and—
 - 1. If a chair type (canopy in back), it has been packed by a certificated and appropriately rated parachute rigger within the preceding 120 days; or
 - 2. If any other type, it has been packed by a certificated and appropriately rated parachute rigger—
 - a. Within the preceding 120 days, if its canopy, shrouds, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or materials that are substantially resistant to damage from mold, mildew, or other fungi and other rotting agents propagated in a moist environment; or
 - b. Within the preceding 60 days, if any part of the parachute is composed of silk, pongee, or other natural fiber, or materials not specified in paragraph A.2.a of this section.
- B. Except in an emergency, no pilot in command may allow, and no person may make, a parachute jump from an aircraft within the United States except in accordance with Part 105.
- C. Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds:
 - 1. A bank of 60° relative to the horizon; or
 - 2. A nose-up or nose-down attitude of 30° relative to the horizon.
- D. Paragraph C of this section does not apply to—
 - 1. Flight tests for pilot certification or rating; or
 - 2. Spins and other flight maneuvers required by the regulations for any certificate or rating when given by:
 - a. A certificated flight instructor; or
 - b. An airline transport pilot instructing in accordance with Section 61.169 of this chapter.
- E. For the purposes of this section, “approved parachute” means:
 - 1. A parachute manufactured under a type certificate or a technical standard order (C-23 series); or
 - 2. A personnel-carrying military parachute identified by an NAF, AAF, or AN drawing number, an AAF

order number, or any other military designation or specification number.

PART 105—PARACHUTE JUMPS

SUBPART A—GENERAL

SEC 105.1 APPLICABILITY

- A. This part prescribes rules governing parachute jumps made in the United States except parachute jumps necessary because of an inflight emergency.
- B. For the purposes of this part, a “parachute jump” means the descent of a person, to the surface from an aircraft in flight, when he intends to use, or uses, a parachute during all or part of that descent.

SUBPART B—OPERATING RULES

SEC 105.11 APPLICABILITY

- A. Except as provided in paragraphs B and C of this section, this subpart prescribes operating rules governing parachute jumps to which this part applies.
- B. This subpart does not apply to a parachute jump necessary to meet an emergency on the surface, when it is made at the direction, or with the approval, of an agency of the United States, or of a State, Puerto Rico, the District of Columbia, or a possession of the United States, or of a political subdivision of any of them.
- C. Sections 105.13 through 105.17 and sections 105.27 through 105.37 of this subpart B do not apply to a parachute jump made by a member of an Armed Force:
 - 1. Over or within a restricted area when that area is under the control of an Armed Force; or
 - 2. In military operations in uncontrolled airspace.
- D. Section 105.23 does not apply to a parachute jump made by a member of an Armed Force within a restricted area that extends upward from the surface when that area is under the control of an Armed Force.

[Doc. No. 1491, 27 FR 11636, Nov. 27, 1962, as amended by Amdt. 105-4, 33 FR 11901, Aug. 22, 1968]

SEC 105.13 GENERAL

No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft, if that jump creates a hazard to air traffic or to persons or property on the surface.

SEC 105.14 RADIO EQUIPMENT AND USE REQUIREMENTS

- A. Except when otherwise authorized by ATC:

- 1. No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft, in or into controlled airspace unless, during that flight—
 - a. The aircraft is equipped with a functioning two-way radio communications system appropriate to the ATC facilities to be used;
 - b. Radio communications have been established between the aircraft and the nearest FAA air traffic control facility or FAA flight service station at least 5 minutes before the jumping activity is to begin, for the purpose of receiving information in the aircraft about known air traffic in the vicinity of the jumping activity; and
 - c. The information described in paragraph A.1.b of this section has been received by the pilot in command and the jumpers in that flight; and
- 2. The pilot in command of an aircraft used for any jumping activity in or into controlled airspace shall, during each flight:
 - a. Maintain or have maintained a continuous watch on the appropriate frequency of the aircraft's radio communications system from the time radio communications are first established between the aircraft and ATC, until he advises ATC that the jumping activity is ended from that flight; and
 - b. Advise ATC that the jumping activity is ended for that flight when the last parachute jumper from the aircraft reaches the ground.

- B. If, during any flight, the required radio communications system is or becomes inoperative, any jumping activity from the aircraft in or into controlled airspace shall be abandoned. However, if the communications system becomes inoperative in flight after receipt of a required ATC authorization, the jumping activity from that flight may be continued.

[Amdt. 105-2, 31 FR 16612, Dec. 29, 1966]

SEC 105.15 JUMPS OVER OR INTO CONGESTED AREAS OR OPEN AIR ASSEMBLY OF PERSONS

- A. No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft, over or into a congested area of a city, town, or settlement, or an open air assembly of person unless a certificate of authorization for that jump has been issued under this section. However, a parachutist may drift over that congested area or open air assembly with a fully deployed and properly functioning parachute if he is at a sufficient altitude to avoid creating a hazard to persons and property on the ground.
- B. An application for a certificate of authorization issued under this section is made in a form and in a manner pre-

scribed by the Administrator and must be submitted to the FAA Flight Standards District Office having jurisdiction over the area in which the parachute jump is to be made, at least 4 days before the day of that jump.

- C. Each holder of a certificate of authorization issued under this section shall present that certificate for inspection upon the request of the Administrator, or any Federal, State, or local official.

[Doc. No. 1491, 27 FR 11636, Nov. 27, 1962, as amended by Doc. No. 4057, Amdt. 105-1, 29 FR 14920, Nov. 4, 1964; Amdt. 105-7, 43 FR 22641, May 25, 1978]

SEC 105.17 JUMPS OVER OR ONTO AIRPORTS

Unless prior approval has been given by the airport management, no person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft:

- A. Over an airport that does not have a functioning control tower operated by the United States; or
- B. Onto any airport. However, a parachutist may drift over that airport with a fully deployed and properly functioning parachute if he is at least 2,000 feet above that airport's traffic pattern, and avoids creating a hazard to air traffic or to persons and property on the ground.

[Doc. No. 4057, Amdt. 105-1, 29 FR 14920, Nov. 4, 1964]

SEC 105.19 JUMPS IN OR INTO CLASS A, CLASS B, CLASS C, AND CLASS D AIRSPACE

- A. No person may make a parachute jump, and no pilot in command may allow a parachute jump to be made from that aircraft, in or into Class A, Class B, Class C, and Class D airspace without, or in violation of, the terms of an ATC authorization issued under this section.
- B. Each request for an authorization under this section must be submitted to the nearest FAA air traffic control facility or FAA flight service station and must include the information prescribed by Sec. 105.25A.

[Effective Date Note: Amdt. 105-10, 56 FR 65663, Dec. 17, 1991, revised Sec. 105.19 effective September 16, 1993.]

SEC 105.23 JUMPS IN OR INTO OTHER AIRSPACE

- A. No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft, in or into airspace unless the nearest FAA air traffic control facility or FAA flight service station was notified of that jump at least 1 hour before the jump is to be made, but not more than 24 hours before the jumping is to be completed, and the notice contained the information prescribed in section 105.25A.
- B. Notwithstanding paragraph A of this section, ATC may accept from a parachute jumping organization a written

notification of a scheduled series of jumps to be made over a stated period of time not longer than 12 calendar months. The notification must contain the information prescribed by section 105.25A, identify the responsible persons associated with that jumping activity, and be submitted at least 15 days, but not more than 30 days, before the jumping is to begin. ATC may revoke the acceptance of the notification for any failure of the jumping organization to comply with its terms.

- C. This section does not apply to parachute jumps in or into any airspace or place described in section 105.15, section 105.19, or section 105.21.

[Amdt. 105-2, 31 FR 16612, Dec. 29, 1966]

SEC 105.25 INFORMATION REQUIRED, AND NOTICE OF CANCELLATION OR POSTPONEMENT OF JUMP

- A. Each person requesting an authorization under section 105.19 or section 105.21, and each person submitting a notice under section 105.23, must include the following information (on an individual or group basis) in that request or notice:
1. The date and time jumping will begin.
 2. The size of the jump zone expressed in nautical mile radius around the target.
 3. The location of the center of the jump zone in relation to—
 - a. The nearest (VOR) facility in terms of the VOR radial on which it is located, and its distance in nautical miles from the VOR facility when that facility is 30 nautical miles or less from the drop zone target; or
 - b. The nearest airport, town, or city depicted on the appropriate Coast and Geodetic Survey WAC or Sectional Aeronautical chart, when the nearest VOR facility is more than 30 nautical miles from the drop zone target.
 4. The altitudes above mean sea level at which jumping will take place.
 5. The duration of the intended jump.
 6. The name, address, and telephone number of the person requesting the authorization or giving notice.
 7. The identification of the aircraft to be used.
 8. The radio frequencies, if any, available in the aircraft.
- B. Each person requesting an authorization under section 105.19 or section 105.21, and each person submitting a notice under section 105.23, must promptly notify the FAA air traffic control facility or FAA flight service station from which it requested authorization or which it notified, if the proposed or scheduled jumping activity is canceled or postponed.
- [Amdt. 105-2, 31 FR 16612, Dec. 29, 1966, as amended by Amdt. 105-6, 41 FR 47229, Oct. 28, 1976; Amdt. 105-9, 51 FR 21907, June 17, 1986]

SEC 105.27 JUMPS OVER OR WITHIN RESTRICTED OR PROHIBITED AREAS

No person may make a parachute jump, and no pilot in command may allow a parachute jump to be made from that aircraft, over or within a restricted area or prohibited area unless the controlling agency of the area concerned has authorized that jump.

SEC. 105.29 FLIGHT VISIBILITY AND CLEARANCE FROM CLOUDS REQUIREMENTS

No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft:

- A. Into or through a cloud; or
- B. When the flight visibility is less, or at a distance from clouds that is less, than that prescribed in the following table:

Altitude	Flight Visibility (statute miles)	Distance from clouds
1,200 feet or less above the surface regardless of the MSL altitude	3	500 feet below 1,000 feet above 2,000 feet horizontal
More than 1,200 feet above the surface but less than 10,000 feet MSL	3	500 feet below 1,000 above 2,000 feet horizontal
More than 1,200 feet above the surface and at 10,000 feet MSL	5	1,000 feet below 1,000 feet 1 mile horizontal

[Amdt. 105-5, 36 FR 8775, May 13, 1971]

SEC 105.33 PARACHUTE JUMPS BETWEEN SUNSET AND SUNRISE

- A. No person may make a parachute jump, and no pilot in command of an aircraft may allow any person to make a parachute jump from that aircraft, between sunset and sunrise, unless that person is equipped with a means of producing a light visible for at least 3 statute miles.
- B. Each person making a parachute jump between sunset and sunrise shall display the light required by paragraph A of this section from the time that person exits the aircraft until that person reaches the surface.

[Amdt. 105-7, 43 FR 22641, May 25, 1978]

SEC 105.35 LIQUOR AND DRUGS

No person may make a parachute jump while, and no pilot in command of an aircraft may allow a person to make a parachute jump from that aircraft if that person appears to be:

- A. Under the influence of intoxicating liquor; or
- B. Using any drug that affects his faculties in any way contrary to safety.

SEC 105.37 INSPECTIONS

The Administrator may inspect (including inspections at the jump site), any parachute jump operation to which this part applies, to determine compliance with the regulations of this part.

SUBPART C—PARACHUTE EQUIPMENT

SEC 105.41 APPLICABILITY

- A. Except as provided in paragraph B of this section, this subpart prescribes rules governing parachute equipment used in parachute jumps to which this part applies.
- B. This subpart does not apply to a parachute jump made by a member of an Armed Force using parachute equipment of an Armed Force.

SEC 105.43 PARACHUTE EQUIPMENT AND PACKING REQUIREMENTS

- A. No person may make a parachute jump, and no pilot in command of an aircraft may allow any person to make a parachute jump from that aircraft, unless that person is wearing a single harness dual parachute pack, having at least one main parachute and one approved auxiliary parachute that are packed as follows:
 - 1. The main parachute must have been packed by a certificated parachute rigger, or by the person making the jump, within 120 days before the date of its use.
 - 2. The auxiliary must have been packed by a certified and appropriately rated parachute rigger:
 - a. Within 120 days before the date of use, if its canopy, shroud, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or material that is substantially resistant to damage from mold, mildew, or other fungi and other rotting agents propagated in a moist environment; or
 - b. Within 60 days before the date of use, if it is composed in any amount of silk, pongee, or other natural fiber, or material not specified in paragraph A.2.a of this section.

- B. No person may make a parachute jump using a static line attached to the aircraft and the main parachute unless an assist device, described and attached as follows, is used to aid the pilot chute in performing its function, or, if no pilot chute is used, to aid in the direct deployment of the main parachute canopy.
1. The assist device must be long enough to allow the container to open before a load is placed on the device.
 2. The assist device must have a static load strength of:
 - a. At least 28 pounds but not more than 160 pounds, if it is used to aid the pilot chute in performing its function; or
 - b. At least 56 pounds but not more than 320 pounds, if it is used to aid in the direct deployment of the main parachute canopy.
 3. The assist device must be attached:
 - a. At one end, to the static line above the static line pins, or, if static pins are not used, above the static line ties to the parachute cone; and
 - b. At the other end, to the pilot chute apex, bridle cord or bridle loop, or, if no pilot chute is used, to the main parachute canopy.
- C. No person may attach an assist device required by paragraph B of this section to any main parachute unless he has a current parachute rigger certificate issued under Part 65 of this chapter or is the person who makes the jump with that parachute.
- D. For the purpose of this section, an “approved” parachute is:
1. A parachute manufactured under a type certificate or a technical standard order (C-23 series); or
 2. A personnel-carrying military parachute (other than a high altitude, high-speed, or ejection kind) identified by an NAF, AAF, or AN drawing number, an AAF order number, or any other military designation or specification number.

[Doc. No. 1491, 27 FR 11636, Nov. 27, 1962 as amended by Amdt. 105-3, 33 FR 8481 June 8, 1968; Amdt. 105-7, 43 FR 22641, May 25, 1978]

ADVISORY CIRCULAR 91-45C

77. CERTIFICATE OF AUTHORIZATION

While many of the activities associated with aviation events frequently require waivers, parachuting or skydiving demonstration jumps do not require waivers. As provided for in FAR Part 105, some of these jumps do require an FAA Form 7711-1, Certificate of Waiver or Authorization.

- A. FAR 105.15 is applicable to jumps over or into congested areas or open-air assemblies of persons. FAR 105.19 is applicable to jumps in or into control zones with functioning control towers. FAA Form 7711-1 is required for any jump over or into a congested area.
 - 1. The drift-over provision of FAR 105.15: Permits a jumper to exit an aircraft over something other than a congested area, and with a fully deployed parachute, drift over a congested area or open-air assembly of persons, and land in an open area. Under these circumstances an FAA Form 7711-1 is not required.
 - 2. The key to determine if an authorization is required are the words "over or into." In other words, the drift-over provision does not permit any jump that results in a landing into a congested area or open-air assembly of persons unless the parachutist has obtained an FAA Form 7711-1.

78. PARACHUTE ASSOCIATIONS/ORGANIZATIONS

- A. Parachutists who are not members of a recognized parachute organization or the participating branch of a national Aero club and who wishes to participate in a demonstration or exhibition jump over or into a congested area must present satisfactory evidence of the necessary experience, knowledge, and skill equivalent to that required by the United States Parachute Association (USPA).
 - 1. If the parachutist is unable to provide this information, the FAA inspector-in-charge may require a demonstration jump (not over a congested area) as a prerequisite before approving the request.
 - 2. The USPA has adopted its own safety rules and licensing standards for parachutists, instructors and jumpmasters. The USPA has pledged to implement a policy of self-policing to assist the FAA in avoiding conflicts with other airspace users and to maintain a high level of safety. Toward this end, the USPA has supplied every FAA FSDO with a brochure of its rules and safety programs and have offered their assistance anytime the FAA encounters problems with a particular club or has questions regarding parachuting.

79. PARACHUTIST'S COMPETENCE

- A. The competence of parachutist is extremely important when evaluating the suitability of a landing site.
 - 1. Holders of USPA Class C and D licenses have proven themselves to be highly skilled. Anyone

- holding such a license who has actively participated in the sport within the last 12 months should be competent to participate in any jump where the separation criteria meets or exceeds that established in a Level One landing area. (See paragraph 80.A.1.)
- 2. Persons holding a USPA Class D license with a current exhibition PRO rating have demonstrated the additional skills that are necessary to permit exhibition demonstrations in accordance with the separation criteria established in a Level Two landing area. (See paragraph 80.A.2.)
- 3. USPA exhibition ratings are issued to members who have a Class D license and who have accomplished 10 successive jumps into a 10-meter (32 ft.) diameter target area in accordance with the following criteria:
 - a. All landings must be made standing up.
 - b. The size of the canopy used during the exhibition certification determines the canopy limitation allowed in actual demonstration jumps (i.e., smallest canopy demonstrated).
 - c. Demonstration jumps must be witnessed by either a safety and training advisor (SATO) or by an instructor/examiner (I/E), and at least two other spectators/witnesses.
 - d. USPA issues the added exhibition rating with an expiration date 12 months from the certification date. Members are renewed on the basis of continued demonstration of the original certification requirements.

80. LANDING AREAS

- A. USPA divides landing areas into two distinct categories, depending on the demonstrated competency of the parachutist.
 - 1. Level One: Parachutists who hold a USPA Class C or D license must select a landing area that permits the jumper to land no closer than 50 feet from any spectator and does not involve passing over persons on the surface at an altitude of less than 250 feet.
 - 2. Level Two: Parachutists who hold a USPA Class D license with an exhibition (PRO) rating and who certify that they shall use a steerable square main and reserve canopy, shall be permitted to exit over or into a congested area. The selected landing area must permit the jumper to land no closer than 15 feet from any spectator and does not involve passing over persons on the surface at an altitude of less than 50 feet.

81. ALTERNATE LANDING AREAS

- A. Regardless of the experience of the parachutists, "runoffs" or "escape areas" should be considered. Small target areas may be acceptable when a suitable alternate landing area is available in the event of unexpected conditions.

**SPECIAL PROVISIONS FOR PARACHUTE
DEMONSTRATION JUMPS**

- A. For jumps into congested areas, two-way radio communication between the aircraft airlifting the parachutists and the landing area shall be continuously maintained for all jumps.
- B. Provisions shall be made by the holder of FAA Form 7711-1 to keep spectators out of the landing area.
- C. The parachute jump shall not be conducted when the ceiling is less than 2,500 feet and the visibility less than 5 miles.
- D. Use the appropriate landing area provision bas on the qualification of the jumper. Landing area will be divided into two distinct categories:
 - 1. Parachutists who hold a USPA Class C or D license, or are members of a DOD-sanctioned parachute demonstration team, must select a landing area that will permit the jumper to land not closer than 50 feet from any spectator and will not involve passing over persons on the surface at an altitude of less than 250 feet.
 - 2. Parachutists who hold a USPA Class D license with and exhibition rating, or are members of a DOD-sanctioned parachute demonstration team, who certify that they will use a steerable square main and reserve canopy, will be permitted to exit over of into a congested area. The selected landing area must not permit the jumper to land closer than 15 feet from any spectator and will not involve passing over persons on the surface at an altitude of less than 50 feet.
- E. The holder of FAA Form 7711-1 shall brief the pilot in command of the aircraft and the jumpers on the terms of this authorization.
- F. The FAA inspector may wish to develop a provision that directs the pilot in command of the holder of FAA Form 7711-1 to use a specific Air Traffic Control facility and frequency.

ADVISORY CIRCULAR 105-2C

1. PURPOSE

This advisory circular (AC) provides suggestions to improve sport parachuting safety and disseminates information to assist all parties associated with sport parachuting in complying with Federal Aviation Regulations (FAR) Part 105, Parachute Jumping. It also contains a list of aircraft which may be operated with one cabin door removed and includes procedures for obtaining Federal Aviation Administration (FAA) authorization for flight with the door removed.

2. CANCELLATION

AC 105-2B, Sport Parachute Jumping, dated August 21, 1989, is cancelled.

Note: Distribution of this AC (105-2B) was not made.

3. BACKGROUND

- A. Sport parachute jumping (also called skydiving) activity continues to increase and is an FAA-recognized aeronautical activity. Even though parachutists (also called skydivers) are not certificated airmen the FAA recommends that all beginning parachutists obtain formal training. Training should be conducted in accordance with the United States Parachute Association (USPA) training recommendations or by training programs from other similar organizations.
- B. Skydiving has certain inherent risks especially for students. In response to this risk, the skydiving community has developed procedures and practices to reduce the risk factors. A significant level of safety can be maintained by following these procedures and by properly preparing for each parachute jump. Developments in parachuting continue to contribute to the advancement of aviation technology and aviation safety.
- C. In the revision process of this AC, the FAA solicited comments from the parachute industry and users. The USPA should be contacted for state-of-the-art information which relates to parachute jumping that is not specifically mentioned in this AC (see paragraph 5c).

4. SAFETY SUGGESTIONS

- A. Medical. All prospective skydivers are urged to receive a physical examination prior to their first jump. The physician should be informed of the purpose of the examination.
- B. Initial Training. The FAA encourages beginning parachutists to seek instruction from a parachuting instructor recognized by the USPA. Initial training sets the foundation for the skydiver's continued education and advancement.

- C. Current sport parachute student training programs include the following programs, details of which can be obtained from the USPA (see paragraph 5c).
 - 1. The static line progression method.
 - 2. The accelerated free fall progression method.
 - 3. Tandem jumping, which uses a dual harness and dual pack parachute system.
- D. FAR, technical standard orders (TSO), and AC's on sport parachuting with which all skydivers and jump pilots should be familiar:
 - 1. FAR Part 65—Certification: Airmen Other Than Flight Crewmembers.
 - 2. FAR Part 91—General Operating and Flight Rules.
 - 3. FAR Part 105—Parachute Jumping.
 - 4. FAR Part 149—Parachute Lofts.
 - 5. TSO-C23c, Personnel Parachute Assemblies.
 - 6. AC 65-5 (latest edition), Parachute Rigger—Senior/Master Certification Guide.
 - 7. AC 140-7 (latest edition), Federal Aviation Administration Certificated Maintenance Agencies Directory. Note: See paragraph 5 for more detailed information.
- E. Safety Devices and Equipment.
 - 1. Deployment Assist Device. FAR Section 105.43(b) requires all persons making a parachute jump with a static line attached to the aircraft and the main parachute to use an assist device to aid the pilot chute in performing its function or, if no pilot chute is used, to aid in the direct deployment of the main parachute canopy.
 - 2. Automatic Activation Devices. A jumper may have a tendency to feel more at ease if equipped with an automatic activation device (AAD). However, experience shows that such devices may not be completely reliable and should be used only as a backup to proper training and procedures. Skydivers who use an AAD on their reserve/auxiliary parachute should ensure that the installation of such a device has been approved by the parachute manufacturer or the FAA (see paragraph 8). The FAA does not approve AAD's. They do approve the installation which is submitted with the manufacturer's TSO paperwork. The manufacturer's instructions for installation should be followed. The installation of an AAD to a TSO or military specification (MIL-SPEC)-approved parachute constitutes a major alteration to that parachute. A jumper who uses any type of AAD should be aware of its level of reliability and become fully proficient with the device. A prejump check should be made for proper setting, arming, and operational reliability to ensure proper functioning of the AAD. When the situation requires use of the reserve parachute, the jumper should always manually pull the reserve/auxiliary ripcord even when using an AAD.

3. Water Safety Equipment. Some type of flotation gear should be worn whenever the intended exit point, or landing point of a skydiver is within 1 mile of an open body of water.
 4. Oxygen Equipment. Jumpers should use supplemental breathing oxygen when the jump aircraft is at altitudes above 10,000 feet mean sea level (MSL) for more than 30 minutes. Oxygen must be used continuously at all times above 15,000 feet MSL. Above 25,000 MSL, pressure demand oxygen systems should be used. High altitude jumps should be made only after first becoming familiar with the problems and hazards created by low temperatures, lack of oxygen, and the various types of oxygen equipment. High altitude jumps should not be attempted under any circumstances without an adequate supply of breathing oxygen (welding and medical oxygen is unsafe and should not be used).
- F. Weather. Strong or gusty winds can be dangerous especially to student jumpers. In addition, skydivers and pilots should ensure that there is adequate ceiling and visibility (see paragraph 14i).
- G. Advanced Parachuting. Many of the safety suggestions presented in this AC are intended primarily for the student parachutist. All student jumps should be made in a controlled training environment. Individual experience and judgement dictate what additional training should be obtained before undertaking more advanced parachuting activities. Acquire proper experience and training before using unfamiliar or high-performance parachute equipment.

5. INFORMATION ON REGULATIONS AND ASSOCIATED PUBLICATIONS

- A. FAR. This paragraph describes the FAR parts which are of interest to skydivers and jump aircraft pilots. They may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325. AC 00-44 (latest edition), Status of Federal Aviation Regulation, contains ordering instructions, prices, and stock numbers. This AC is based on FAR requirements in effect on the date of this AC. Since the FAR may be amended at any time, skydivers and pilots should keep up with changes in the FAR and always comply with current requirements.
1. FAR Part 65—Certification: Airmen Other Than Flight Crewmembers. Subpart F concerns parachute riggers, their eligibility requirements, privileges and performance standards.
 2. FAR Part 91—General Operating and Flight Rules. FAR Section 91.307, Parachutes and Parachuting, prohibits a pilot of a civil aircraft from allowing an emergency parachute to be carried aboard that aircraft unless it is an approved type.
 3. FAR Part 105—Parachute Jumping. This part is especially important to parachutists and to the pilots

- who fly them since it contains the rules on intentional parachute jumping.
- B. TSO-C23c sets forth the minimum performance and safety requirements for parachutes. TSO-C23c may be obtained by writing to the FAA, Aircraft Certification Service, Aircraft Engineering Division (AIR-100), 800 Independence Avenue, SW., Washington, D.C. 20591.
 - C. The USPA has developed basic safety standards and additional information for skydiving activities. These standards and information are for training, checking equipment, and conducting a wide variety of sport parachuting activities. While not officially approved by the FAA, these standards are widely used for guidance by individuals and parachute centers. They may be obtained from the United States Parachute Association, 1440 Duke Street, Alexandria, Virginia 22314, (703) 836-3495.

6. PARACHUTE RULES

FAR Section 1.1 defines a parachute as a device used or intended to be used to retard the fall of a body or object through the air. For the purposes of this AC, a parachute assembly normally, but not exclusively, consists of the following major components: a canopy, a deployment device, a pilot chute and/or drogue, risers, a stowage container, a harness(es), and an actuation device (rip-cord). There are, of course, some lesser parts associated with these main components such as connector links, bridles, and hardware. The term pack (such as backpack or chestpack), when used in this AC, refers to the parachute assembly less the harness. In the case where the harness and parachute are TSO-approved as an intended component, the term pack refers to the complete parachute assembly, less the main canopy and risers. This distinction is essential for a clear understanding relating to the use, packing, repairing, and alteration of parachutes.

- A. Parachute Equipment. FAR Section 105.43 requires a parachutist making an intentional jump to wear a single harness dual pack parachute having at least one main parachute and one approved auxiliary/reserve parachute. The main pack need not be an approved type, but the auxiliary/reserve pack and the harness are required to be an FAA-approved type. The FAA issues a TSO which specifies the minimum performance standard for materials, parts, processes, or appliances used on civil aircraft. (See FAR Part 43, Appendix A4.) The following are examples of approved parachutes as explained in FAR Section 105.43(d).
1. Parachutes manufactured under a type certificate (an early method of approval).
 2. Parachutes manufactured under TSO-C23. This TSO, the most recent version of which is TSO-C23c, prescribes the minimum performance and quality assurance standards for a parachute which is carried aboard civil aircraft or by skydivers for emergency use. The manufacturer must meet

these standards before labeling its parachute or components as complying with the TSO.

3. Military parachutes (other than high altitude, high speed, or ejection kinds) are identified by a Naval Air Facility (NAF), Army Air Field (AAF), or Air Force-Navy (AFN) drawing number, an AAF order number, or any other military designation or specification number. These parachutes are often referred to as demilitarized or military surplus parachutes.

7. PARACHUTE PACKING

FAR Section 105.43 requires that a certificated and appropriately rated parachute rigger pack the reserve/auxiliary parachute. The main parachute may be packed by:

1. Any certificated parachute rigger; or
2. Anyone under the supervision of a certificated parachute rigger. However, only those who have been thoroughly checked out by a certificated parachute rigger or USPA-rated instructor should attempt to pack for themselves. The FAA requires each parachute to be packed as follows:
 - A. A certificated parachute rigger or the person making the jump must have packed the main parachute within 120 days before the date of its use.
 - B. A certificated and appropriately rated parachute rigger must have packed the auxiliary/reserve parachute:
 1. Within 120 days before the date of use, if its canopy, shroud, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or material that is substantially resistant to damage from mold, mildew, or other rotting agents propagated in a moist environment; or
 2. Within 60 days before the date of use, if the assembly is composed in any amount of silk, pongee, or any other natural fiber or material not specified above.

8. PARACHUTE ALTERATIONS

Parachute alterations are changes to the FAA-approved configuration. Examples include installation of reinforcement tape or fittings, alteration of the harness such as changing the size, removal of a manufacturer-installed part, or the installation of an AAD on an auxiliary/reserve parachute system in which the manufacturer does not authorize such installation.

- A. An alteration to an approved parachute system used for intentional jumping must be done in accordance with approved manuals and specifications and only by those with specific authorization to perform that alteration. Specific approval is not needed for the method of altering a main parachute. A person seeking authorization to alter an approved parachute system should proceed as follows:

1. A person qualified to alter a parachute (as listed below) should contact his/her local FAA Flight Standards District Office (FSDO) inspector to discuss the proposed alteration. The applicant should be prepared to show the inspector the nature of the alteration by using a sample assembly, sketch or drawing, and be prepared to discuss the nature of the tests that will be needed to show the altered parachute meets all applicable requirements.
2. The inspector will review the proposal with the applicant, and a plan of action will be agreed upon.
3. The applicant will then prepare an application, in letter form, addressed to the local FSDO. All pertinent data should be attached. The data should include:
 - a. A clear description of the alteration.
 - b. Drawings, sketches, or photographs if necessary.
 - c. Information such as thread size, stitch, pattern, materials used, and location of altered components.
 - d. Some means of identifying the altered parachute (model and serial number).
4. When satisfied, the inspector will indicate approval by date stamping, signing, and placing the FSDO identification stamp on the letter of application.
 - a. Alterations to Approved Parachutes may be Performed Only By:
 - 1) A certificated and appropriately rated master parachute rigger.
 - 2) A certificated parachute loft with an appropriate rating.
 - 3) A parachute manufacturer.
 - 4) Any other manufacturer that the Administrator considers to be competent.

9. REMOVAL OF PILOT CHUTE

A certificated senior or master parachute rigger may remove the pilot chute from an auxiliary/reserve parachute. When this is done, the parachute must be plainly marked "PILOT CHUTE REMOVED. This parachute may be used for intentional jumping only."

10. EXTRA EQUIPMENT

Attachment of an instrument panel, knife sheath, or other material to the exterior of the parachute assembly is not considered an alteration. If any extra equipment is attached to a harness, care should be taken not to impair the functional design of the system.

11. ASSEMBLY OF MAJOR PARACHUTE COMPONENTS

- A. The assembly or mating of approved parachute components from different manufacturers may be made by a certificated appropriately rated parachute rigger or parachute loft in accordance with the parachute manufacturer's

instructions and without further authorization by the manufacturer or the FAA. Specifically, when various parachute components are interchanged, the parachute rigger should follow the canopy manufacturer's instructions as well as the parachute container manufacturer's instructions. However, the container manufacturer's instructions take precedence when there is a conflict between the two.

- B. Assembled Parachute Components Must be Compatible. Each component of the resulting assembly must function properly and may not interfere with the operation of the other components. For example:
 - 1. Do not install a high volume canopy into a low-volume parachute container since the proper functioning of the entire parachute assembly could be adversely affected.
 - 2. A TSO'd canopy may be assembled with a demilitarized harness, or vice versa, as long as the assembled components comply with the safety standard of the original design.
- C. Any questions about the operation of the assembly should be resolved by actual tests by the rigger or loft to make certain the parachute is safe for emergency use.
- D. The parachute rigger or the parachute loft who are assembling components manufactured under TSO-C23c will record, in the space provided on the container, the data required by Aerospace Standard AS-8015B, paragraph 4.2.1. (Copies may be obtained from the Engineering Society for Advancing Mobility Land, Sea, Air and Space, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)
- E. The strength of the harness must always be equal to or greater than the maximum force generated by the canopy during certification tests.
 - 1. In a case where the harness is certificated under TSO-C23b and the canopy under TSO-C23c, the maximum generated force of the canopy must not exceed the certificated category force of the harness and container; i.e., Low-Speed Category (3,000 lbs.) and Standard Category (5,000 lbs.). In this instance, no additional marking on the container is necessary.
 - 2. In the case where the canopy is certificated under the TSO-C23b and the harness under TSO-C23c, the strength of the harness must be equal to or greater than the certificated category force of the canopy.
- F. The user of a single harness, dual pack parachute system, which is a sport assembly consisting of a main and auxiliary/reserve parachute, may perform simple assembly and disassembly operations necessary for transportation, handling, or storage between periods of use if the parachute is designed to simplify such assembly and disassembly without the use of complex operations.

12. REPAIRS

Parachute repairs can be classed as major repairs or minor repairs. A major repair, as defined in FAR Section 1.1, is a repair "...that, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness." (Balance and powerplant operation do not apply to parachutes.) A minor repair, as defined in FAR Section 1.1, "...means a repair other than a major repair." Major repairs to parachutes may be made by a master parachute rigger, an appropriately rated parachute loft, or a manufacturer. Examples of major repairs are replacement of a canopy panel or suspension line, or sewing a large patch on a canopy. The parachute manufacturer's instructions should be followed when completing repairs to any portion of the parachute.

13. PLATING OF FITTINGS

Plating or replating of load-carrying parachute fittings may cause hydrogen embrittlement and subsequent failure under stress unless the plating is done properly. Chrome plated harness adjustment hardware may also have a smoother finish than the original and may permit slippage. The parachutist should be aware of these possible hazards.

14. PILOT RESPONSIBILITIES

The pilot in command of a jump aircraft is solely responsible for certain requirements and jointly responsible for others. The following is a partial list of these requirements:

- A. Pilot Certification and Experience Requirements. The pilot in command is solely responsible for meeting the certification, proficiency, and experience requirements of FAR Part 61.
- B. Operational Requirements. The pilot in command is solely responsible for the operational requirements of FAR Part 91 to include the special operating limitations and placards required for flight with the door open or removed.
- C. Weight and Balance Procedures. The pilot in command is solely responsible to assure that his/her aircraft is properly loaded and operated so that it stays within gross weight and center of gravity (CG) limitations. Additional aircraft station position information (loading schedule) should be obtained by the pilot in command for future weight and balance computations. In addition, pilots are solely responsible for reviewing these records and/or the flight manual to become familiar with an aircraft's weight and balance procedures and flight characteristics.
- D. When Computing Weight and Balance. The pilot in command must include the following factors. If this information is not obtained, the pilot would experience considerable difficulty in determining the actual loaded aircraft CG.

1. The maximum allowable gross weight and the CG limitations.
 2. The weight of all standard equipment which has been removed (seats and door, etc.)
 3. The new empty weight and CG location.
 4. The weight and CG location when the aircraft is fully loaded.
 5. The aircraft's weight and CG locations for variations in the number of parachutists and fuel carried on each flight.
 6. The weight and location of jumpers during each phase of the flight in order to assure that the aircraft stays within CG limits. The pilot in command should keep in mind that the shifting weight distribution of skydivers as they gather at a cabin door in preparation for exit will require a determination of any adverse effects this will have on the aircraft's weight and balance, controllability, and stability.
- E. Suitable placards should be located in the aircraft to help the pilot inform skydivers of the maximum approved loading and weight distribution. These placards should be located where they will be seen by anyone boarding the aircraft and clearly show the maximum approved seating capacity and the load distribution. However, since many parachutists are not familiar with aircraft weight and balance procedures, it becomes the pilot in command's responsibility to ensure that proper weight and balance is maintained throughout all parachute jump operations. Anyone desiring additional information concerning approval data for any specific aircraft should contact the local FSDO (see related information in paragraph 23.b).
- F. Seatbelts and Approved Loading. FAR Section 91.14 permits persons aboard an aircraft for the purpose of participating in sport parachuting activities to use the floor of the aircraft for a seat. Seatbelts must be provided for each person and their installation must be approved. The approved number of persons which can be carried is found on the aircraft's type certificate data sheet, supplemental type certificate data sheet, Form 337 (field approval), or in the FAA-approved flight manual.
- G. Parachute Landing Zone. It is good practice for the pilot to ensure that the parachute landing zone is plainly visible from the aircraft before releasing parachutists.
- H. Altitude Reporting. Report all altitudes to air traffic control (ATC) in feet above MSL.
- I. Flight Visibility and Clearance from Clouds. The pilot and jumper are jointly responsible for complying with the flight visibility and cloud clearance requirements of FAR Section 105.29. Aircraft flight under visual flight rules (VFR) conditions and persons making parachute jumps require minimum clearance from clouds and minimum visibility depending upon the altitude at which the activity is taking place.
1. For activities which are at or above 10,000 feet MSL, the required minimum distance from clouds is 1,000 feet under, 1,000 feet over, and 1 mile horizontally from clouds. Flight visibility must be at least 5 miles.
 2. For activities which are at more than 1,200 feet above the surface but less than 10,000 feet MSL, the required minimum distance from clouds is 500 feet under, 1,000 feet over, and 2,000 feet horizontally from clouds. Flight visibility must be at least 3 miles.
Note: No person may make a parachute jump into or through a cloud.
- J. Radio Equipment Requirements. FAR Section 105.14 prescribes the two-way radio communications equipment requirements for aircraft used for parachute jumps in or into controlled airspace. Unless otherwise authorized by ATC, radio communications should be established with the ATC facility or flight service station (FSS) at least 5 minutes before jumping activity begins for the purpose of receiving information on known air traffic in the vicinity of the jump area. The FAA recommends that all jump aircraft be equipped with operable transponders displaying the appropriate code as assigned by ATC when operating in an area where radar service is provided. Transponders will expedite and enhance the exchange of traffic information. Jumping activity cannot begin until radio contact is established and appropriate traffic information is issued. Additionally, an uninterrupted watch should be maintained on the appropriate frequency until jumping activity has ended. When jumping activities are completed or discontinued, ATC should be informed as soon as possible.
- K. Authorization and Notification Requirements. Whether or not oral authorization from ATC or a certificate of authorization is required for a parachute jump depends upon the type of airspace involved and the area where the parachutist intends to land. The same criteria will determine the type of prejump notification requirements. Appendix 1 is an easy reference table parachutists can use to determine what authorization or notification requirements are needed for various types of jumps. The FAA recommends that anyone establishing a permanent drop zone or a temporary jump site contact the air traffic facilities nearest the site as early as possible. ATC personnel are in the best position to provide information on arrival and departure routes, airspace classifications, and other airspace operations that may affect the efficient operation of a parachute landing zone.

15. JUMPS OVER OR INTO CONGESTED AREAS OR OPEN AIR ASSEMBLIES OF PERSONS

FAR Section 105.15 requires a certificate of authorization for these jumps (except for emergencies and certain Armed Forces' operations as provided in FAR Section 105.11). An application for a certificate of authorization should be submitted at least 4-working days before the intended jump.

The application must be submitted in triplicate on FAA Form 7711-2, Certificate of Waiver or Authorization Application, to the FSDO responsible for the area where the jump is to take place. Applying as early as possible will aid the FAA in processing these certificates.

- A. The determination of whether the FAA will issue FAA Form 7711-1, Certificate of Waiver or Authorization, and the special provisions will depend on the circumstances of each case. The two main considerations for issuing an authorization will be the documented skill and experience of the parachutist making the jump and the size of the landing area. Examples of these requirements are:
1. Parachutists who hold a USPA Class C or D license or a member of a Department of Defense (DOD)-sanctioned parachute demonstration team must select a landing area that will permit the jumper to land not closer than 50 feet from any spectator and will not involve passing over persons on the surface at an altitude of less than 250 feet.
 2. Parachutists who hold a USPA Class D license or a member of a steerable DOD-sanctioned parachute demonstration team, who certify that they will use a square main and reserve canopy, should be permitted to exit over or land into a congested area. Landing area restrictions as indicated in subparagraph a1. should apply. Parachutists with exhibition ratings, in addition to being allowed to exit over or land into congested areas, must not land closer than 15 feet from any spectator and will not pass over persons on the surface at an altitude of less than 50 feet.
- B. The holder of the certificate of authorization is required to brief the pilot in command of the aircraft and the jumpers on the terms of the authorization.
- C. The inspector might include a provision that requires the pilot in command to use a specific ATC facility and radio frequency.
- D. If the applicant is unable to present satisfactory evidence that he/she has the experience, skill, and knowledge required for USPA/DOD credentials, the FAA inspector may require a demonstration (not over a congested area) of comparable skill before issuing the authorization.
- E. The key to determine if an authorization is or is not necessary is the word "into." The following examples may clarify the intent of FAR Section 105.15 and help to determine when an authorization is necessary.
1. A jump will be at a town just east of a large lake. The jumper wishes to exit the aircraft over the lake and drift eastward to land in an open area. Authorization is not required.
 2. At the same town, the jumper wishes to change the landing site to a school playground in the eastern part of town. The playground is several acres in size,

completely fenced in, but surrounded by residential dwellings. Even though the landing target can be placed 500 to 600 feet from the fence, the jump is into a congested area. Authorization is required.

3. An exhibition jump is planned for a county fair. The fairgrounds are on the north edge of a town with clear, open land on three sides. The jumpers plan to exit their aircraft on one side of the fairground and land on the opposite side. This is a drift-over jump. Authorization is not required.
4. At the same fairgrounds, the target will be placed in the middle of a racetrack, enclosed by a wire mesh fence, and located near the center of the fairgrounds. The target is more than 500 feet from the fence. This would be a jump into an open air assembly of persons. Authorization is required.
5. Jumps made into large areas, even though near or within a populated area or near an open air assembly of persons, do not require written FAA authorization. This provision applies to open areas large enough to enable the parachutists to exit the aircraft over the area and remain within the area during descent and landing. Since at no time would a jumper be over a congested area, jumps of this nature would not impose a public hazard. However, parachutists should ensure that the landing area is completely clear of assembled persons other than the ground crew and other show performers.

16. JUMPS OVER OR ONTO AIRPORTS

FAR Section 105.17 requires prior approval of the airport management for jumps made over or onto an airport. However, a parachutist may drift over an airport without prior approval if the chute is fully open, he/she is at least 2,000 feet above the airport traffic pattern, and he/she avoids creating a hazard to air traffic or to persons and property on the surface.

17. JUMPS IN OR INTO CONTROL ZONES

FAR Section 105.19 requires written authorization from the control tower for jumps in or into a control zone with a functioning U.S.-operated tower. Reasonable notice is desirable so that control tower personnel can coordinate the jumps with expected traffic conditions. The authorization and instructions issued by the tower for these jumps are based on VFR and known air traffic and do not relieve the skydiver or the pilot in command of the jump aircraft from compliance with all air traffic and general operating rules. When jumps in or into control zones include jumping over or onto an airport, FAR Section 105.17 must also be complied with as explained in paragraph 16.

18. JUMPS IN OR INTO AIRPORT RADAR SERVICE AREAS

FAR Section 105.20 requires an ATC authorization for jumps in or into an airport radar service area. Each request for authorization issued under this section must be submitted to the ATC tower at the airport for which the airport radar service is designated.

19. JUMPS INTO OR WITHIN POSITIVE CONTROL AREAS AND TERMINAL CONTROL AREAS

FAR Section 105.21 prohibits any person from making a parachute jump and prohibits any pilot in command of an aircraft from allowing a parachute jump to be made from that aircraft in or into a positive control area or terminal control area without, or in violation of, an authorization issued under this section. Further, each request for an authorization issued under this section must be submitted to the nearest ATC facility or FSS.

20. JUMPS IN OR INTO OTHER AIRSPACE

FAR Section 105.23 prescribes the advance notification requirements for parachute jumps in controlled and uncontrolled airspace other than those previously covered in paragraphs 15 through 19. The ATC facility or FSS nearest to the proposed jump site should be notified at least 1 hour before the jump is to be made, but not more than 24 hours before the jump is to be completed.

21. NOTIFICATION OF AN EXTENDED PERIOD OF JUMPING

FAR Section 105.23(b) provides for ATC to accept a written notification from a parachute jumping operation for a scheduled series of jumps to be made over a stated period of time not exceed 12 calendar months. Notification should be filed with the ATC facility at least 15 days, but not more than 30 days, before the jumping activity is to take place.

22. INFORMATION REQUIRED AND NOTICE OF CANCELLATION OR POSTPONEMENT OF JUMP

- A. FAR Section 105.25 prescribes that applicants for an authorization under FAR Section 105.19 or FAR Section 105.21 and those submitting a notice under FAR Section 105.23 are to include the following information in that application or notice.
1. The date and time jumping will begin.
 2. The size of the parachute landing area expressed in the nautical mile radius around the target.
 3. The location of the center of the parachute landing area in relation to:
 - (a) The nearest very high frequency omnidirectional range (VOR) facility in terms of the VOR radial on which it is located, and its distance in nautical miles from the VOR facility

when that facility is 30 nautical miles or less from the parachute landing area or drop zone.

- (b) The nearest airport, town, or city depicted on the appropriate Coast and Geodetic Survey World Aeronautical Chart (WAC), or Sectional Aeronautical Chart, when the nearest VOR facility is more than 30 nautical miles from the center of the parachute landing area or drop zone.
4. The altitudes above the surface at which jumping will take place.
 5. The duration of the intended jump.
 6. The name, address, and telephone number of the person requesting the authorization or giving notice.
 7. The identification of the aircraft to be used.
 8. The radio frequencies, if any, available in the aircraft.
- B. Each person requesting an authorization under FAR Section 105.19 or FAR Section 105.21, and each person submitting a notice under FAR Section 105.23 must promptly notify the FAA ATC facility or FSS from which it requested authorization or which it notified if the proposed or scheduled jumping activity is cancelled or postponed.

23. AIRCRAFT OPERATING AND AIRWORTHINESS REQUIREMENTS

- A. Procedure. Owners or operators of aircraft listed in Appendix 2, who are interested in obtaining authorization and operating limitations for these aircraft to be flown with the door open or removed, should forward a written request to the FSDO having jurisdiction over the area in which these operations are to be conducted. The request should contain the following information:
1. Name and address of the registered owner(s) of the aircraft.
 2. Make, model, serial, and registration numbers of the aircraft.
 3. Place where the aircraft is normally based.
 4. Reason the aircraft is to be operated with a door open or removed.
- B. Installation and removal of equipment must be handled in accordance with the applicable sections of FAR Part 43. The original alteration to the jump configuration is required to be performed by an appropriately certificated person and recorded in the aircraft records. The equipment list and weight and balance data are required to be revised to show both the jump configuration and the standard configuration. Subsequent conversions may be made by the pilot in command if the work falls within the scope of preventive maintenance (see FAR Part 43, Appendix A, paragraph (c)). The installation or removal of equipment in an aircraft or the increase in passenger loads, other than that already approved for that aircraft, requires some form of FAA approval such as a type certificate data sheet, supplemental type certificate data sheet, or FAA field approval, if applicable. Anyone applying for approval to alter an aircraft for parachute jumping operations should

submit sufficient evidence to the local FSDO to permit evaluation of the following:

1. The effect of any aircraft alteration such as door removal or external protuberances on the controllability or handling qualities of the aircraft.
2. The relationship of the maximum number of persons to be carried aboard the aircraft to the emergency exit requirements of FAR Section 91.607, safety belt requirements of FAR Section 91.107, and the aircraft's published weight and balance envelope for takeoff and landing.
3. The effect of the parachute jump exit procedures to be used, and how they may affect the aircraft weight and balance and controllability during jump operations. Suitable placards will be required to define any special procedures needed to maintain controllability.

William C. Withycombe
Acting Director, Flight Standards Service

APPENDIX 1 TABLE OF LOCATION FOR JUMP/AUTHORIZATION/NOTIFICATION

Location of Jump	Kind of Authorization Required	When to Apply or Notify	Where to Apply or Notify	FAR Section Reference
Over or into a congested area or open air assembly of persons	FAA Form 7711-2, Certificate of Waiver of Authorization Application	Apply at least 4-working days before the jump	FSDO having jurisdiction over the area where jump is to be made	105.15
Over or onto an jump airport with or without a U.S.-operated control tower	Prior Approval	Apply before	Airport management	105.17
In or into a control zone with a U.S.-operated control tower	Authorization 1/	Apply before jump	ATC tower having jurisdiction over the control zone 2/	105.19
In or into a airport radar service area	Authorization 1/	Apply before jump	ATC tower at the airport for which the airport radar service area is designated	105.20
Into or within a positive control area or terminal control area 3/	Authorization 1/	Apply before jump	Nearest FAA ATC facility or FSS 2/	105.21
In or into other controlled airspace	None	1 hour before jump is made, but not more than 24 hours before jumping is to be completed	Nearest FAA ATC facility or FSS	105.23
Jump over or within restricted or prohibited areas	Authorization 1/	Apply before jump	The agency in charge of the area	105.27

Notes: 1/ Verbal authorization normally issued. 2/ Communication required with nearest FAA ATC facility or FSS 5 minutes before jump. 3/ Positive control area begins at 18,000 feet and extends upward to 60,000 feet.

Note: This table does not apply to jumps by the Armed Forces over or within restricted areas that are under the control of Armed Forces or during military operations in uncontrolled airspace.

APPENDIX 2

AIRCRAFT THAT MAY BE OPERATED WITH ONE CABIN DOOR REMOVED

Aeronca 05B
Aeronca 15AC STC SA4-1593
Beech 18 Series STC SA69CE
Beech 65-90 x
Beech 65-A90 x
Beech 65-B90 x
Beech 65-C90 x
Beech 65-E90 x
Beech AT-11 STC SA4WE
Beech C-45 and TC-45 Series STC SA 69CE
Beech D17S STC SA603SO
Beech Model 100 (all) x
Beech Model 200 x
Beech Model 200C (all) x
Beech Model 200CT x
Beech Model 200T (all) x
Beech Model 58/58A *
Beech Model 99 x
Beech Model 99A x
Beech Model A100 (all) x
Beech Model A36 x
Beech Model A36TC *
Beech Model A65 x
Beech Model A65-70 x
Beech Model A65-80 x
Beech Model A65-8200 x
Beech Model A65-B80 x
Beech Model A99A x
Beech Model B100 (all)
Beech Model B200 x
Beech Model B200C x
Beech Model B200CT x
Beech Model B200T x
Beech Model B36TC x
Beech Model B99 x
Beech Model C99 x
Centaur 101
Cessna 120 Series
Cessna 140 Series
Cessna 150 Series
Cessna 170 Series
Cessna 172 Series
Cessna 175 Series STC SA49CE
Cessna 177 STC SA466SO
Cessna 180 Series STC SA168SW
Cessna 182 Series STC SA40CE
CESSNA 185 Series STC SA33SO
CESSNA 190 Series STC SA220WE
CESSNA 195 Series STC SA1966SW
CESSNA 206 Series STC SA1255WE
(with Cessna accessory kit AK 206-1 installed)
CESSNA 207 Series
CESSNA 208 Series
CESSNA 210 STC SA199WE
CESSNA 337A STC SA190SO
CESSNA 402C STC SA1525NM
CESSNA (Ector) 305A STC SA353SW
Champion (Aeronca) 7 Series STC SA33CE
Curtis Wright (Travel Air) STC SA209WE S-6000B
De Havilland DHC-6-300 STC SA132RM
Douglas DC-3
(max. airspeed cabin passenger door removed 170 knots)
Fairchild 24 series (R/H door)
Helio 250
Helio 295
Helio 391
Helio 395
Howard DGA-15 Series
Larson (Luscombe) 8 Series
(R/H door-maximum airspeed 100 MPH)
Lockheed 18-56 STC SA892SO
Lockheed 402-2 (R/H rear door)
Lockheed Model 12A
Macchi AL 60 (R/H rear door)
Maule M4, M-4-210 STC SA258CE
Noorduyn UC-64 Series (rear door)
Piper PA-12 Series *
Piper PA-18 Series *
Piper PA-20 Series *
Piper PA-22 Series *
Piper PA-28 140-160-180-235 *
Piper PA-32 Series *
Piper PA-32R Series *
Piper PA-34 Series *
Stinson SR-7B (R/H door)
Stinson V-77
Taylorcraft BC 12-D
Temco (Luscombe) 11A (R/H door)
Universal (Stinson) 108 Series

x = Procedures contained in aircraft flight manual supplement. * = Procedures contained in aircraft pilot operating handbook.

Note: Some of the above aircraft may require installation of deflectors to reduce vibration while being operated with a door removed. Aircraft must be operated in accordance with approved procedures. For information regarding the holder of a specific supplemental type certificate or field approval, contact the local Flight Standards District Office or Manufacturing Inspection District Office. OFFICE OF MANAGEMENT AND BUDGET (OMB 2120-0027). The reporting and/or recordkeeping requirements contained in paragraph 23 of this AC and Appendix 1 have been approved by the OMB in accordance with the Paperwork Reduction Act of 1980.

GLOSSARY

A

A LICENSE: The first level or Basic USPA license which signifies that a skydiver has advanced beyond the novice phase. Persons holding a USPA A License are able to jumpmaster themselves, perform basic relative work jumps and water jumps, participate in certain USPA Collegiate competition events, and pack their own main parachute.

ACCELERATED FREEFALL CERTIFICATION COURSE AND TRAINING CAMP: A course registered with and authorized by USPA HQ to train, qualify and test candidates for Jumpmaster and Instructor ratings in the Accelerated Freefall method of student instruction.

ACCELERATED FREEFALL GRADUATE STUDENT: A novice skydiver who has successfully completed the training of the Accelerated Freefall method but has not yet obtained a USPA license.

ACCELERATED FREEFALL SEMINAR: A gathering of USPA Accelerated Freefall rating holders to exchange, discuss and introduce new ideas to develop, improve or assure the quality of techniques and instruction used in the Accelerated Freefall method of instruction.

ACCELERATED FREEFALL STUDENT: A skydiver trainee being trained by the Accelerated Freefall method who has not yet graduated from AFF Level 7.

AGL: Above ground level.

AIRCRAFT: Any machine or device, including airplanes, helicopters, gliders, balloons, etc. capable of atmospheric flight. Parachutes are not considered aircraft.

ALTERATIONS: Changes to the original configuration, such as removal of a gore, installation of an AAD or the addition of a deployment device. Any change or modification to any part of the parachute assembly from its original manufacturer's specifications.

APPROVED: An item for which the FAA has issued approval documents. 1. Approval may be in the form of a TSO, which is stamped on the article, by a military designation such as NAF, AAF or AN contract number, which is also stamped on the article, or by an STC or a Field Approval (Form 337). 2. Any alteration to an approved item will void the approval unless it is done in accordance with a specific alteration approval issued by the FAA.

AS 8015A: Aerospace Standard 8015A defines the tests and minimum safety and performance standards which must be met for a parachute to receive approval under TSO C-23c. Adopted in 1984 to supersede NAS 804.

AUXILIARY PARACHUTE: Another term for the reserve or emergency parachute used on intentional jumps.

AUTOMATIC ACTIVATION DEVICE (AAD): A self-contained device attached to the parachute which automatically activates the parachute container opening sequence at a preset altitude, time, percentage of terminal velocity or combination thereof.

B

B LICENSE: The second level or Intermediate USPA license. Persons holding a USPA B License are able to jumpmaster themselves, pack their own main parachute, participate in the USPA Collegiate 4-way formation skydiving event, and perform night jumps.

BASIC SAFETY REQUIREMENTS: Minimum standards generally agreed upon as the accepted standard for safe skydiving activities. Published by USPA.

BREAK AWAY: See CUT AWAY.

BREAKAWAY HANDLE: See CUTAWAY HANDLE.

BREAK OFF: 1. RW—A predetermined altitude at which all jumpers turn 180° from the center of the formation and track in order to have enough airspace to safely open their parachutes. 2. CRW—The altitude after which no more incoming canopies are allowed to dock.

C

C LICENSE: The third level or Advanced USPA license. Persons holding a USPA C License are able to jumpmaster other licensed skydivers, pack their own main parachute, participate in certain USPA competitions, perform relative work, night, and water jumps and are eligible for the USPA Jumpmaster rating.

CANOPY: The umbrella-like surface or drag surface of a parachute which includes the suspension lines from which the load or person is suspended.

CANOPY RELATIVE WORK (CRW): The intentional maneuvering of two or more open parachute canopies in proximity to or contact with one another during descent.

CANOPY RELEASE: A device which allows immediate separation of the parachute canopy and risers from the harness.

CASCADE: The point where two or more suspension lines of a canopy join into one.

CERTIFICATED: Refers to FAA-approved parachutes such as commercially manufactured parachutes and government surplus

models which were manufactured under military contract. The FAA uses this term to describe any product it has approved as airworthy and to describe persons it has approved for various functions such as pilot, rigger, etc.

CONTAINER: The portion of the assembly that is used to store the folded parachute canopy. Not to be confused with the term pack. See **PACK**.

CROSS CONNECTORS: Straps attached to the risers. For CRW they should be from front to rear only, to prevent the docked jumper from sliding back up the lines. Especially important for plane formations. Also used with some RSL systems and attached from side to side to prevent premature reserve deployment if only one riser is released.

CROSSPORTING: Vents cut in ram-air canopy ribs to ensure even pressurization of the canopy.

CRW BASE-PIN: The initial docking of two canopies on which the rest of a CRW formation is built.

CUTAWAY: Separating or releasing of the main canopy and risers from the harness by activating riser releases. A procedure for handling a malfunctioned main canopy that must be followed by deployment of the reserve. Also called **BREAKAWAY**.

CUTAWAY HANDLE: A handle, usually mounted on the harness, used to release both main risers. Sometimes referred to as a single point release.

D

D LICENSE: The fourth and highest Master USPA license. Persons holding a USPA D License are able to jumpmaster other licensed skydivers, pack their own main parachute, participate in all USPA competitions and record attempts, perform relative work, night, water and certain demonstration jumps, are eligible for all USPA ratings and for appointment as a Safety & Training Advisor.

DELAYED OPENING: Obsolete, See **FREEFALL**.

DELTA POSITION: A modified stable freefall position made by a skydiver drawing his arms back near his sides, which results in a head-low attitude. This position increases rate of descent and horizontal movement.

DEMONSTRATION JUMP: A demonstration jump, also called a display or exhibition jump, is a jump at a location other than an existing drop zone done for the purpose of reward, remuneration, or promotion and principally for the benefit of spectators.

DEPLOYMENT: That portion of a parachute's operation occurring from the moment of container opening (or pilot chute release when using a hand-deployed pilot chute) to the instant the suspension lines are fully stretched out but prior to the inflation of the canopy.

DEPLOYMENT BAG: A device which contains (holds) a parachute canopy until the suspension lines have deployed. Bag may or may not provide a place to stow suspension lines. A pilot chute lifts a deployment bag away from a parachute container,

causing the suspension lines to be extended before the canopy emerges from the deployment bag.

DEPLOYMENT DEVICE: A sleeve, bag or other device used to control the opening sequence of a parachute.

DIAPER: A type of deployment device consisting of a fabric panel attached near the lower part of a canopy which prevents canopy inflation until full line stretch. Used frequently with round parachutes to reduce opening shock and malfunctions.

DIRECT SUPERVISION: The person providing direct supervision must be physically present during instruction, packing, or other activity being supervised, standing by to assist if necessary. The supervisor must take responsibility for the actions of those being supervised.

DOOR EXIT: Leaving an aircraft by diving out of the aircraft door; made without positioning or bracing to achieve a stable position.

DROP ZONE: A specified area into which skydivers intend to land. Also refers to a commercial parachute center.

DUAL ASSEMBLY: Refers to a two-canopy parachute system, includes the main and reserve canopies and all other components.

DUMMY RIPCORD PULL (DRCP): See **PRACTICE RIPCORD PULL**.

E

EMERGENCY PARACHUTE: A certificated parachute which is intended for emergency use.

EXHIBITION JUMP: See **DEMONSTRATION JUMP**.

EXIT POINT: That point on the ground over which the skydiver jumps from the aircraft.

F

FEDERAL AVIATION ADMINISTRATION (FAA): An agency of the U.S. Department of Transportation whose primary function and responsibility is to control the nation's air traffic, including the certification of all civil aircraft and accessories, licensing of all civil pilots, mechanics and riggers and administration of the Federal Aid to Airports Program.

FEDERATION AERONAUTIQUE INTERNATIONALE (FAI): An international organization which governs all aviation sports, certifies all official aviation and space records and governs official international competitions. Operates through a non-profit National Aero Club in each country.

FIELD PACKING: The temporary stowing of a parachute in the container after a jump, so that it is more easily transported.

FREEFALL: A skydive on which the parachute is activated manually at the discretion of the jumper. The portion of the jump between exit and parachute deployment.

G

GLIDE: The horizontal movement of a descending canopy.

GO TOGGLES: A non-locking front riser pulley system for mechanical advantage used during CRW.

H

HAND-DEPLOYED PILOT CHUTE: The springless pilot chute used in hand-deployed systems. See **THROW OUT**.

HARNESS: An arrangement of nylon webbing which is designed to conform to the shape of the load to be carried in order to secure it properly, so that the opening force and the weight of the load during descent are evenly distributed. The harness connects the wearer to the canopy through the risers.

HOOK KNIFE: A knife with a blade shaped like a hook. Sometimes used to cut lines in an entanglement.

HOUSING CLAMP STIFFENER: A metal plate sewn to the top flap of a parachute container used to hold the ripcord cable housing in place and give rigidity to the housing.

I

INSTRUCTOR: The holder of a USPA Instructor rating who may be qualified in the static line and/or Accelerated Freefall method of instruction. Instructor is the second level of instructional rating and identifies the person who demonstrated the ability to instruct students in both the theoretical and practical skydiving skills required to attain the USPA A License and to supervise jumpmasters.

INSTRUCTOR CERTIFICATION COURSE: A course registered with and authorized by USPA Headquarters to train, qualify and test applicants for the USPA Instructor rating. May be conducted by an Instructor/Examiner or an S&TA with an Instructor rating.

INSTRUCTOR/EXAMINER: The third level of the instructional rating program. An I/E is an experienced Instructor who has met additional proficiency requirements and passed a series of written examinations on a wide variety of skydiving related subjects. An I/E has all of the privileges of an S&TA and may receive authorization to conduct Instructor and Jumpmaster Certification Courses.

J

JUDGE: The official who evaluates a competitor's performance. USPA issues judge ratings at both the conference and national levels. The FAI issues a rating for internationally recognized judges.

JUMP ALTITUDE: Actual altitude of an aircraft above the ground at the time a skydiver exits.

JUMP RUN: The flight of the aircraft prior to exit, usually flown from the target to the exit point.

JUMPMASTER: 1. Jumpmaster is the entry level instructional rating and identifies the person who has demonstrated the ability to provide practical instruction for and direct supervision of students in the aircraft. 2. The skydiver who supervises the other skydivers from the time they enter until the time they exit the aircraft. Also called the spotter.

JUMPMASTER CERTIFICATION COURSE: A course registered with and authorized by USPA Headquarters to train, qualify and test applicants for the USPA Jumpmaster rating. May be conducted by an Instructor rating holder.

L

LINE DOCK: The docking of two canopies with the canopy above the head of the person receiving the dock; an advanced CRW technique useful for plane formations.

M

MAIN PARACHUTE: The primary canopy of a dual (two-canopy) assembly.

MAINTENANCE: Inspection, overhaul, repair, preservation and replacement of parts.

MAJOR ALTERATION: An alteration not listed in the manufacturer's specifications: 1. that might appreciably affect weight, structural strength, performance, flight characteristics or other qualities affecting airworthiness; or 2. that cannot be done by elementary operations.

MAJOR REPAIR: A repair that if improperly accomplished may affect weight, structural strength, performance, flight characteristics or other qualities which determine airworthiness.

MALFUNCTION: The complete or partial failure of a parachute canopy to accomplish proper opening, descent or flight characteristics.

MILITARY SPECIFICATION: A procurement specification promulgated by a military agency and used for the procurement of military supplies and equipment.

MINOR ALTERATION: An alteration other than a major alteration.

MINOR REPAIR: A repair other than a major repair.

MODIFICATION: 1. An alteration. 2. Often refers to the removal of an area of a round canopy to achieve steerability and forward glide.

MSL: Mean sea level.

N

NAS 804: National Aircraft Standard 804 defines the tests and minimum performance and safety standards which must be met for a parachute to receive approval under TSO C-23b. Adopted in 1949 and superseded in 1984 by AS 8015A.

NATIONAL AERONAUTIC ASSOCIATION: The National Aero Club of the USA which represents the FAI. USPA is a division of the NAA.

NATIONAL COLLEGIATE PARACHUTING COMMITTEE (NCPC): Supports and encourages skydiving as a collegiate sport; conducts an annual national collegiate parachuting championships.

NATIONAL DIRECTOR: Those Directors elected at large by the general membership.

NIGHT JUMP: A skydive made from one hour after official sunset to one hour before official sunrise. The FAA considers any jump made after sunset and before sunrise a night jump.

NOTAM: Notice to Airmen. An air traffic advisory or notice filed with an ATC facility by an airspace user.

NOVICE: A skydiver who has been cleared to self-jumpmaster, but who has not yet obtained a USPA license.

O

OPEN BODY OF WATER: A body of water in which a skydiver might drown upon landing.

OPENING FORCE: The decelerating force exerted on the load as the parachute deploys and inflates. Caused by the resistance of the canopy and items associated with it. Also called opening shock.

OPENING POINT: The ground point of reference over which the skydiver should open the parachute in order to most easily fly to the center of the target area.

OSCILLATION: 1. The swinging or pendulum motion of the suspended load under a canopy. 2. In CRW, the swaying or swinging of a CRW formation caused by poor docking, turbulent air or too much movement of the people in the formation.

OUTBOARD: Facing to the outside, such as a ripcord facing to the side of the jumper rather than toward the breast bone.

P

PACK (or PARACHUTE PACK): An FAA term for the parachute assembly less the harness. It means the container, canopy, suspension lines, pilot chute, risers and connector links. The terms pack and container are not synonymous.

PARACHUTE ASSEMBLY or PARACHUTE: Consists of these seven component parts: harness, container, ripcord, risers, canopy, pilot chute and deployment device.

PARACHUTE: A fabric device that slows the descent of a falling object; derived from the French words “para”, to shield, and “chute,” to fall. Thus, parachute literally means “to shield from a fall.”

PARACHUTE LANDING FALL (PLF): A method of falling or rolling upon landing whereby the force of landing is distributed over several portions of the body.

PARACHUTIST: A person engaging in intentional parachuting such as a skydiver, member of a military airborne unit or smoke jumper.

PARTIAL INVERSION: A type of round canopy malfunction. It occurs when one or more sections of the canopy become inverted during inflation and form a small pocket which inflates, causing the canopy to be divided into two sections. The condition may or may not work out or may become a total inversion (where the canopy turns completely inside out). Also called a Mae West.

PERMEABILITY: The amount or volume of air which can pass through the fabric.

PILOT CHUTE: A small parachute used to aid or accelerate canopy deployment by acting as an anchor.

PILOT CHUTE ASSIST: A connection of breakcord, velcro, etc., between the static line and the pilot chute which pulls the pilot chute out of the pack and then separates from it.

PLANE: A vertical CRW formation with the grip being feet of one jumper in the risers of another. See **CROSS CONNECTORS**.

PLANING: In CRW, the transition from a stack to a plane, accomplished by the lower jumper adding brakes while the person planing pulls evenly with both hands on the lower jumper's lines until his feet are at the risers. It is important for the person planing to keep his feet in the lines until reaching the risers to avoid deforming lower person's canopy. See **CASCADE**.

POISED EXIT: A departure from an aircraft wherein the jumper uses an external structure to brace himself and to assist in gaining a stable position immediately upon leaving the aircraft.

POROSITY: The ratio of open area to closed area in a fabric. Graded as high, low or zero. Tightly woven material has a lower porosity than loosely woven material.

PRACTICE RIPCORD PULL (PRCP): An exercise used to learn how to properly locate, reach and pull a ripcord handle. It may consist of pulling a practice or dummy handle or touching an actual or live handle. See **DUMMY RIPCORD PULL**.

PREMATURE OPENING: Opening of a parachute before the user is clear of the aircraft; any accidental opening of a parachute.

PULL OUT: A hand deployment method of initiating parachute opening, where the springless pilot chute is packed into the main container. Pulling a handle first withdraws a container closing pin and then extracts the pilot chute.

R

RATING RENEWAL SEMINAR: A meeting of USPA Jumpmasters and Instructors to exchange, discuss and introduce new ideas to develop, improve or assure the quality of techniques of skydiving instruction.

RECOMMENDATIONS: Principles, policies and concepts applicable to skydiving or a related subject which are derived from experience or theory, compiled by USPA and offered for guidance.

REGIONAL DIRECTOR: Those Directors of a specified geographical area, elected by and responsible for representing the interests of the skydivers in a Regional area.

RELATIVE WORK (RW): Aerial maneuvers by two or more freefalling skydivers with each other, usually to form geometric formations.

RESERVE PARACHUTE: The second or auxiliary parachute worn by a person making an intentional jump.

RESERVE STATIC LINE (RSL): A line or lanyard attached to a main parachute riser and to a reserve ripcord handle, cable or housing to effect automatic activation of the reserve ripcord pin following a breakaway. Also called a Stevens system.

RISER DOCK: In CRW, a momentum dock that puts the risers into the hands of the receiver. A very advanced technique.

S

SAFETY & TRAINING ADVISOR (S&TA): A local person appointed by the Regional Director as his representative who is available to provide advice and administrative assistance as the USPA representative at an individual drop zone.

SINGLE OPERATION SYSTEM (SOS): The term refers to any system which combines a single-point riser release and a reserve ripcord so that pulling one handle will both release the risers and pull the reserve. Also called a combination system.

SKYDIVE: The descent of a person to the surface from an aircraft in flight when he or she uses or intends to use a parachute during all or part of that descent.

SKYDIVER: A person who engages in skydiving.

SLIDER: A device which controls a canopy's inflation by progressively sliding down the suspension lines during deployment. Found on most ram-air canopies.

SPORT PARACHUTIST: One who engages in skydiving. A skydiver.

SPOT: The EXIT POINT.

SPOTTING: Selecting the course for the aircraft to fly, directing the pilot and selecting the correct ground reference point over which to leave the aircraft.

STABLE FREEFALL POSITION: A position attained by a freefalling skydiver in which only controlled, planned movements are made; usually face to earth.

STABILITY: That property of a body which causes it, when its equilibrium is disturbed, to develop forces or movements tending to restore the original condition. In skydiving, having control of body position during freefall.

STACK: A vertical CRW formation with the jumpers gripping the canopy or lines just below the canopy.

STATIC LINE: A line, cable or webbing, one end of which is fastened to the pack, the other to some part of the aircraft; used to open a container or deploy a canopy as the load falls away from the aircraft.

STATIC LINE JUMP: A parachute jump during which deployment of the parachute is initiated by a static line attached to the aircraft, used primarily in student training.

STUDENT: A skydiver trainee who has not been cleared to self-jumpmaster.

SUSPENSION LINE: Cords that connect the parachute to the harness. They are the means by which the wearer or weight is suspended from the inflated canopy.

T

TANDEM JUMP: A skydive during which two people use the same parachute system, each wearing a harness with one attached to the other and featuring a single piggyback container system with an extra-large main and reserve canopy.

TARGET: The landing area on a drop zone. For competition, a five centimeter disk.

TECHNICAL STANDARD ORDER (TSO): Issued by the FAA, requires compliance with minimum performance standards and specifications for material and products. Parachutes are covered by TSO-C23.

TERMINAL VELOCITY: The equilibrium velocity that a freefalling body can attain against the resistance of the air. The greatest speed at which a human body falls through the atmosphere. Resistance of the air overcoming the pull of gravity establishes the approximate figure of 150 to 176 feet per second or 102 to 120 mph for the stable, face-to-earth position.

3-RING RELEASE: A patented canopy release system based on three interlocking rings. In its common configuration, pulling one breakaway handle simultaneously releases both main risers. Also called a single point release. See CUTAWAY HANDLE.

THROW OUT: A hand deployment method of initiating a parachute opening where the skydiver grasps a springless pilot chute and tosses it into the airstream. See HAND-DEPLOY PILOT CHUTE.

TRACKING: A freefall action achieved by a skydiver to attain maximum horizontal movement.

TRIM TABS: A front riser pulley system for adjusting a canopy's angle of attack or flight attitude.

TSO-C23: The Technical Standard Order assigned to parachutes. See TECHNICAL STANDARD ORDER.

U

UNITED STATES PARACHUTE ASSOCIATION (USPA): A not-for-profit, voluntary membership association of skydivers whose purpose is promoting and representing skydiving. As a division of the NAA, it is the official representative of the FAI for skydiving in the U.S.

USPA BOARD OF DIRECTORS (BOD): Those representatives elected by the general members of USPA every two years as set forth in the USPA By-Laws; authorized by the By-Laws to have general charge and control of the affairs, funds and property of the organization and to carry out the objectives of the organization and its By-Laws; elects officers from among current Board members. The USPA Board of Directors consists of: 1. National Directors—those Directors elected at large by the general membership; and 2. Regional Directors—those Directors of a specified geographical area, elected by and responsible for representing the interests of the skydivers in a Regional area.

USPA LICENSE: Formal recognition that a skydiver has met a specified level of experience, skill and knowledge. There are four classes of USPA licenses: A, B, C and D. USPA licenses are recognized internationally through the FAI and exceed the minimum requirements established for each level by the FAI.

W

WAIVERS: Exceptions to the BSRs filed by those so indicated in USPA Section 2-2.

WATER JUMP: A skydive which includes landing in an open body of water.

WIND DRIFT INDICATOR (WDI): A device used to determine the wind drift which a descending parachute will experience, so constructed as to descend at a rate comparable to a skydiver of average weight descending under a fully deployed main canopy of average specifications. Usually a weighted strip of crepe paper 10 inches wide and 20 feet long.

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APPENDIX

APPLICATIONS AND FORMS

Membership Application and Rating Renewal Form
Group Membership Application (21-1)
USPA License Application
Professional Demonstration (PRO) Rating Application
Sequential RW Awards Application
Large Formation Awards Application
Canopy Relative Work Awards Application

Additional applications and forms may be obtained from USPA Headquarters.

Additional copies of this manual may be ordered for \$ 21.50.

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USPA
1440 Duke Street
Alexandria, VA 22314
Telephone: (703) 836-3495
Fax: (703) 836-2843

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