U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: SPORT PARACHUTE JUMPING

Date: 1/2/91
Initiated by: AFS-340/820

AC No: 105-2C
Change:

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 prodecures. 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, opening 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 Regulations, 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, telephone (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 (ripcord). 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 integrated 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 A(4).) 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 reenforcement 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:

(i) A clear description of the alteration.

(ii) Drawings, sketches, or photographs if necessary.

(iii) Information such as thread size, stitch pattern, materials used, and location of altered components.

(iv) 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.

b. 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 and 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 a(1) 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 an 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 parachutist 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 control 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 an 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 to 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:

(i) 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.

(ii) 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.

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APPENDIX 1. TABLE OF LOCATION OF 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 or 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 airport with or without a U.S.-operated control tower	Prior Approval	Apply before jump	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 an 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

APPENDIX 1. TABLE OF LOCATION OF JUMP/AUTHORIZATION/NOTIFICATION (CONT'D)

Location of Jump	Kind of Authorization Required	When to Apply or Notify	Where to Apply or Notify	FAR Section Reference
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 D17S STC SA603SO
Beech AT-11 STC SA4WE
Beech 18 Series STC SA69CE
Beech C-45 and TC-45 Series STC SA69CE
Beech 65-90 x
Beech 65-A90 x
Beech 65-B90 x
Beech 65-C90 x
Beech 65-E90 x
Beech Model 100 (all) x
Beech Model A100 (all) x
Beech Model B100 (all)
Beech Model 200 x
Beech Model 200C (all) x
Beech Model 200T (all) x
Beech Model 200CT x
Beech Model B200 x
Beech Model B200C x
Beech Model B200T x
Beech Model B200CT x
Beech Model 99 x
Beech Model 99A x
Beech Model A99A x
Beech Model B99 x
Beech Model C99 x
Beech Model A65 x
Beech Model A65-8200 x
Beech Model A65-80 x
Beech Model A65-70 x
Beech Model A65-B80 x
Beech Model A36 x
Beech Model A36TC *
Beech Model B36TC x
Beech Model 58/58A *
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 (Ector) 305A STC SA353SW
Cessna 337A STC SA190SO
Cessna 402C STC SA1525NM
Champion (Aeronca) 7 Series STC SA33CE
Curtis Wright (Travel Air) STC SA209WE S-6000B
De Havilland DHC-6-300 STC SA132RM
Douglas DC-3 (maximum 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 Model 12A
Lockheed 18-56 STC SA892SO
Lockheed 402-2 (R/H rear door)
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.

APPENDIX 2. AIRCRAFT THAT MAY BE OPERATED WITH ONE CABIN DOOR REMOVED (CONT'D)

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.