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AIR FORCE SPECIAL OPERATIONS  
COMMAND**

**AIR FORCE SPECIAL OPERATIONS  
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VOLUME 3**



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***Flying Operations***

**ADDITIONAL/SUPPLEMENTAL AIRCRAFT  
OPERATIONS PROCEDURES**

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This instruction implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, Air Force Instruction (AFI) 11200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and AFI 11-202, Vol 3, *General Flight Rules*. It establishes procedures for the operation of Combat Aviation Advisor (CAA) Aviation Foreign Internal Defense (AvFID) Aircraft aircrews employed by Air Force Special Operations Command (AFSOC). It provides policies and procedures for most circumstances, but should not replace sound judgment. This instruction applies to Air Force Reserve Command (AFRC) units. This publication does not apply to the Air National Guard (ANG). This publication requires the collection and or maintenance of information protected by the Privacy Act of 1974 authorized by 37 USC 301a (Incentive Pay), Public Law 92-204, Section 715 (Appropriations Act for 1973), Public Laws 93-570 (Appropriations Act for 1974) and 93-294 (Aviation Career Incentive Act of 1974), Department of Defense Directive (DODD) 7730.57 (Aviation Career Incentive Act of 1974 and Required Annual Report, February 5, 1976, with Changes 1 and 2), and Executive Order 9397 as amended by Executive Order 13478. The applicable SORN, F011 AF XO A, Aviation Resource Management Systems (ARMS), is available at: <https://dpclo.defense.gov/privacy/SORNS/SORNS.html>. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. This regulation may be supplemented by subordinate units. Units will send supplements to the OPR listed above. Unless prescribed

within this publication, requests for waivers must be submitted through chain of command to the OPR listed above for consideration and approval. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

**SUMMARY OF CHANGES**

This document is substantially revised and must be completely reviewed. All references to rotary wing operations have been removed. AFRC specific references have been added where necessary. Multiple formatting changes made to adhere to current USAF standards. Tier requirements have been annotated.

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## Chapter 1

### GENERAL INFORMATION

**1.1. General.** This is a single source command directive for CAA aircrews flying additional and supplemental aircraft. Additional and supplemental aircraft are defined in AFSOC Instruction (AFSOCI) 11219, Vol 1, *Additional/Supplemental Aircraft Training*. Use this instruction and the applicable aircraft specific addenda in conjunction with Aircraft Flight Manual (AFM) or equivalent flight manual, Flight Information Publications (FLIP), and applicable United States Air Force (USAF) directives. HQ AFSOC/A3V has overall responsibility for administration of this instruction.

**1.2. Applicability.** This publication applies to all CAA aircrew members flying additional/supplemental aircraft.

#### **1.3. Terms Explained.**

1.3.1. "Will" and "shall," indicate a mandatory requirement.

1.3.2. "Should," indicates a recommended procedure that is required if practical.

1.3.3. "May" indicates an acceptable or suggested means of accomplishment.

1.3.4. **Warning:** Operating procedures, techniques, and so forth, which may result in personal injury or loss of life if not carefully followed.

1.3.5. **Caution:** Operating procedures, techniques, and so forth, which may result in damage to equipment if not carefully followed.

1.3.6. **Note:** Operating procedures, techniques, and so forth, which are essential to emphasize.

1.3.7. An additional aircraft, for the purposes of this instruction, is defined as an AFSOC owned or leased aircraft, not part of the enduring USAF inventory, maintained and flown for the purposes of CAA aircrew qualification and/or certification.

1.3.8. A supplemental aircraft, for the purposes of this instruction, is defined as an aircraft which are not typically owned or leased by the USAF, and typically used for less than 6 months for the purpose of aviation advisory operations and training.

**1.4. Deviations and Waivers.** Do not deviate from the policies and guidance in this instruction, unless safety dictates otherwise.

1.4.1. Although this publication provides guidance for aircraft operations under most circumstances, it is not a substitute for sound judgment. When it is necessary to protect the crew and aircraft from a situation not covered by this instruction and immediate action is required, the aircraft commander (AC) has ultimate authority and responsibility for the course of action to be taken. Report deviations, without waiver, through channels to HQ AFSOC/A3 within 48 hours, followed by a written report, if requested.

1.4.2. Unless otherwise indicated, the HQ AFSOC/A3, HQ AFRC/A3 for ARC units, is the waiver authority for this instruction. For operationally assigned forces, the waiver authority is the Commander, Air Force Special Operation Forces (COMAFSOF). Request waivers through command and control channels. (T-2).

1.4.3. Tier requirements refer to waiver authority based on level of risk.

1.4.3.1. “Tier 0” (T-0) requirements are reserved for requirements that non-compliance is determined and waived by respective non-Air Force authority.

1.4.3.2. “Tier 1” (T-1) requirements are reserved for requirements that non-compliance may put airman, mission, or program strongly at risk, and may only be waived by the MAJCOM/CC or delegate with concurrence of publication approver. When multiple MAJCOMs are affected, then T-1 is appropriate.

1.4.3.3. “Tier 2” (T-2) requirements are reserved for requirements that potentially put the mission at risk or potentially degrade the mission or program, and may only be waived by the MAJCOM/CC or delegate.

1.4.3.4. “Tier 3” (T-3) requirements are reserved for requirements that non-compliance has a remote risk of mission failure, and may be waived by the Wing/CC but no lower than the OG/CC.

**1.5. Supplements.** Aircraft specific operating instructions will be published as addenda to this instruction. Additionally, units may publish local procedures as a supplement to **Chapter 10** of this volume. The purpose of the unit supplement is to document the process by which units implement the requirements of this instruction. File supplements according to AFI 33-360, *Publications and Forms Management*.

**1.6. Requisitioning Procedures.** This publication will be provided in electronic form by the OPR. Ensure each CAA crew member who is designated to fly an additional/supplemental aircraft receives the applicable chapters of this publication.

**1.7. Revisions.** Personnel at all echelons are encouraged to submit proposed changes IAW AFI 11-215, *Flight Manuals Program*, through Stan/Eval channels to HQ AFSOC/A3V. Use AF Form 847.

**1.8. Format.** In order to adequately provide guidance to all CAA operations without restricting the overall mission, general procedures are discussed first in **Chapter 1** through **Chapter 6**. **Chapter 7** through **Chapter 9** detail fixed-wing procedures. **Chapter 10** describes local operating procedures. **Chapter 11** through **Chapter 13** detail additional aircrew procedures. Addenda will be added to this instruction to address aircraft specific procedures and guidance. These addenda will remain as part of the regulation even after those aircraft are no longer flown to provide historical reference for future requirements. Again there is no substitute for sound judgment and the absence of guidance in this publication does not constitute approval for operations that fall outside the realm of safe and sound decisions.

**1.9. Use of Nonstandard Publications.** Submit all flight publications, aircraft specific addenda to this instruction, and appropriate checklists, either the manufacturer’s or unit generated, to HQ AFSOC/A3V for review and HQ AFSOC/A3 for approval prior to flight use by aircrew other than any initial cadre. Expanded checklists will be published as part of the addenda to this instruction. Abbreviated checklists (CL) will be published separately as “CLs”.

**1.10. Roles and Responsibilities.** AFI 11-202, Vol 3, outlines responsibilities for aircrew operations. The HQ AFSOC/A3 and HQ AFRC/A3 share responsibility for the management of units utilizing this regulation. Waiver authorities can be found in **Paragraph 1.4** and throughout this regulation. **Chapter 2** of this publication further defines roles and responsibilities.

## Chapter 2

### COMMAND AND CONTROL

**2.1. General.** The aircraft commander or mission commander will ensure proper military flight following through timely reporting to the appropriate command and control (C2) authority.

**2.2. Mission Commander (MC).** A MC will be designated when more than one aircraft or crew is deployed away from home station for training, exercises, or other operations. The MC should be a field grade officer. In the case of CAA Operational Aviation Detachments (OADs), follow the guidance in AFSOCI 16-101, Vol 3, *Combat Aviation Advisory Operations*. The mission commander should not be a primary crew member for exercises, but may fly as a crew member on non-exercise missions. Mission commander duties, or AC duties when mission commander not required, include, but are not limited to:

2.2.1. Briefing crews on local operating procedures.

2.2.2. Coordinating with Air Traffic Control (ATC), Special Tactics Squadron (STS), range control, users, and others that may have an impact on the mission.

2.2.3. Ensuring that drop zone (DZ) and or landing zones (LZ) have a current survey (when necessary).

2.2.4. Ensuring personnel have ample and adequate billeting, messing, and transportation arrangements.

2.2.5. Ensuring maintenance personnel know of aircraft status, configuration and fuel requirements.

2.2.6. Flight reporting IAW **Paragraph 2.1**.

**2.3. Aircraft Commander Responsibility and Authority.** An AC is designated for all flights on the AF Form 4327A, *Crew Flight (FA) Authorization*. Aircraft commanders are:

2.3.1. In command of all persons aboard the aircraft.

2.3.2. Responsible for the welfare of their crew and safe mission accomplishment.

2.3.3. Vested with the authority necessary to manage their crew and accomplish the mission.

2.3.4. The final mission authority and will make decisions not specifically assigned to a higher authority.

2.3.5. The final authority for accepting a waiver affecting their crew or mission.

2.3.6. Charged with keeping the commander informed of mission progress and difficulties.

2.3.7. Responsible for flight reporting in the absence of a mission commander.

**2.4. Mission Clearance Decision.** The final decision to delay a mission may be made either by the agency with operational control (OPCON) or the aircraft commander when, in the opinion of either, conditions are not safe to start or continue a mission. Final responsibility for the safe conduct of the mission rests with the AC. If the AC refuses a mission, it will not depart until the conditions have been corrected or improved so that the mission can operate safely. Another AC and aircrew will not be alerted to take the same mission under the same conditions.

2.4.1. Diverting or rerouting a mission must be authorized by the commander with OPCON, except in an emergency or when required by en route or terminal weather conditions or facilities. In the event of an emergency or weather related divert or reroute, the mission or aircraft commander must notify the controlling authority as soon as possible.

2.4.1.1. The controlling agency directing the rerouting or diversion is responsible for ensuring the aircraft is compatible with destination requirements and facilities.

2.4.1.2. The aircraft commander will notify the controlling agency of any aircraft or aircrew limitations that may preclude diverting or rerouting the mission.

2.4.2. When directing an aircraft to an alternate airfield, the controlling agency will ensure the aircraft commander is provided existing and forecasted weather for the alternate. If the planned alternate is unsuitable upon arrival at destination, the controlling agency will advise the AC of other suitable alternates.

## Chapter 3

### CREW COMPLEMENT AND MANAGEMENT

**3.1. Aircrew Qualification.** Personnel assigned as a primary crew member, or occupying a primary crew position during flight, must be qualified (or certified for non-USAF supplemental aircraft) or in training for qualification/certification in that crew position and mission. (T-2)

3.1.1. Basic qualified/certified crew members may perform primary crew duties on tactical missions when receiving tactical mission qualification training or evaluations from a qualified instructor or flight examiner in their respective crew position.

3.1.2. Noncurrent (NC) or unqualified (UNQ) crew members may perform crew duties only on designated training or evaluation missions under the supervision of a qualified instructor or flight examiner in their respective crew position. Current and qualified pilots will occupy pilot positions when passengers are on board IAW AFI 11-401, *Flight Management*.

**3.2. Crew Complement.** Minimum crew complement is as prescribed in the AFM or equivalent and the aircraft specific addendum to this instruction. The operations group commander (OG/CC) or equivalent is the waiver authority for all crew positions below the minimum specified by the flight manual. The unit commander (or Sq/DO for AFRC units without a full time squadron commander) may add crew members to enhance mission accomplishment or maximize training. A loadmaster (LM) is always required for any airdrop mission in which actual loads will depart the aircraft. (T-3)

**3.3. Interfly.** The wing/group commander is the approval authority for interfly on aircraft under their control. In all cases, the crew will be qualified in the aircraft mission design series (MDS). (T-3)

**3.4. Scheduling Restrictions.** IAW AFI 11-202, Vol 3, *General Flight Rules*.

**3.5. Crew Rest.** IAW AFI 11-202, Vol 3.

3.5.1. The crew chief is responsible to the AC. The AC will determine how long the crew chief can safely perform aircraft recovery actions. The crew chief must have the opportunity to sleep 8 hours of each 24-hour period.

**3.6. Flight Duty Period (FDP).** IAW AFI 11-202, Vol 3.

**3.7. Alert Procedures.** IAW AFI 11-202, Vol 3.

## Chapter 4

### COMMAND OPERATING GUIDELINES

**4.1. Objective and Policy.** The final responsibility regarding equipment required for a mission rests with the aircraft commander. If one AC accepts an aircraft to operate a mission or mission segment without an item or system, this acceptance does not commit that AC, or a different AC, to subsequent operations with the same item or system inoperative.

**4.2. Operating Guidelines.**

4.2.1. For aircraft without a minimum equipment list (MEL), comply with Federal Aviation Regulations and Aeronautical Information Manual (FAR/AIM), Part 91.205, *Instrument and Equipment Requirements*, and Part 91.213, *Inoperative Instruments and Equipment*. The aircraft commander determines whether the inoperative instrument or equipment constitutes a hazard to the aircraft or not and is the approval authority for operations with degraded equipment within the guidelines of these FAR/AIMs. Operating outside of Part 91.205 guidelines requires Group Commander approval. (T-3)

4.2.2. For aircraft with an MEL, it is the operating guideline. It lists the equipment and systems considered essential for routine operations and provides guidance on how to operate with degraded equipment. The AC is the approval authority for operations with degraded equipment within the guidelines of the MEL and needs no further approval. Operating outside of MEL guidelines requires OG/CC approval. Tactical and airdrop missions fall outside the scope of FAR/AIM compliant MELs. ACs will ensure that equipment necessary for the mission being flown is operational. (T-3)

4.2.3. For aircraft with MELs issued by multiple countries, comply with the MEL of the air worthiness certificate issuing authority.

## Chapter 5

### AIRCRAFT SECURITY

**5.1. General.** This chapter provides guidance on aircraft security, inflight and on the ground. Aircrews must make every reasonable effort to resist an aircraft hijacking. Resistance may vary from dissuasion to direct physical confrontation, including the use of weapons. Due to the sensitive nature of anti-hijacking procedures, crew members should reference AFI 13-207, *Preventing and Resisting Aircraft Piracy (FOUO)*, and the Flight Information Handbook (FIH) for specific guidance. Aircrews will not release any information concerning those procedures or hijacking attempts.

**5.2. Security.** IAW AFI 31-101, *Integrated Defense IC #2*, AFSOC aircraft are Protection Level (PL) "3" and 4 resources. This security priority designation applies to operational aircraft, wherever they are located, worldwide. Some aircraft contain equipment and documents that require protection per DOD 5200.01, *DOD Information Security Program*, Volumes 1-4, and AFI 31-401, *Information Security Program Management*.

**5.3. Procedures.** The planning agency must ensure adequate en route force protection is available. The amount of force protection required will vary, depending on location, threat, and ground time. Mission Commanders will receive an aircraft security recommendation from their local threat working group based on current intelligence reporting and local/regional threat status using the aircraft security recommendation matrix IAW AFSOCI 31-100, *Special Operations Security Forces Deployment Planning and Operations*. Tailored security measures at deployed locations must be approved by the mission commander and the respective air operations center (AOC) must be notified as soon as possible. During both emergency and unscheduled landings at unplanned airfields, the MC or AC will assess the security situation and take the following actions: (**Note:** If the aircrew is not capable of providing adequate security, the MC or AC will request/coordinate security through available channels and notify the respective AOC as soon as possible.)

5.3.1. Area Patrol/Security Response Team (SRT). Request area patrol/SRT coverage from local security forces to include backup response forces commensurate with PL 3 requirements specified in AFI 31-101. If local authorities request payment for this service, use AF Form 15, *USAF Invoice*.

5.3.2. Aircrew Surveillance. Direct armed personnel to remain with the aircraft and maintain surveillance over aircraft entrances and activities in the vicinity of the aircraft. Obtain a means to report suspicious or hostile activity to security forces (e.g., land mobile radio, etc.).

5.3.3. Departure without Crew Rest. If local security forces are unacceptable or unavailable and the crew is not augmented with security forces, the AC may waive FDP restrictions and depart as soon as possible for a destination with adequate force protection. If unable to depart the location due to system malfunction, coordinate through home station channels to acquire force protection support.

5.3.4. Unauthorized Entry. If, in the ACs judgment, the aircraft needs to be locked and sealed as a measure to detect unauthorized entry:

5.3.4.1. Use the aircraft lock. (**Note:** The aircraft will be locked during all off-station missions remaining overnight).

5.3.4.2. If the aircraft lock is unavailable, secure the hatches and doors in a manner that will indicate unauthorized entry. For example, tape inside hatch release handles to the airframe, so that entry pulls the tape loose; close and seal the doors or using a metal boxcar seal or other controllable device to identify forced entry; wipe the immediate area around the seal clean to help investigate forced entry. If the seals are damaged or have been tampered with, notify the appropriate local authorities, the controlling agency, and inspect the aircraft thoroughly.

5.3.4.3. Coordinate with the local base operations representative on procedures for servicing the aircraft while the crew is away. If a padlock is used, the key or combination will be left with base operations or the representative for servicing and maintenance personnel.

**5.4. Protective Standards for Aircraft Carrying Distinguished Visitors (DV).** This paragraph applies specifically to aircraft transporting DVs Code 4 or above. ACs are responsible for aircraft security at en route stops.

5.4.1. DOD Installations. Notify the base security forces of estimated arrival and departure times. Request continuous security surveillance during the entire ground time. If the installation is unable to comply, arrange for the best protection available.

5.4.2. Non-DOD Installations. Contact the airport manager or installation commander to arrange for force protection. If available security is inadequate, purchase additional security using AF Form 15, *USAF Invoice*.

**5.5. Arming of Crew Members.** When directed, at least one crew member each from the flight deck and cargo compartment will carry weapons. Follow arming requirements of AFI 31117, *Arming and Use of Force by Air Force Personnel*.

5.5.1. Issue. Before departing home station, authorized crew members will obtain weapons, ammunition, lock, and key. Crew members must present a current AF Form 523, *USAF Authorization to Bear Firearms*, to be issued a weapon. Crew members will be reissued the same weapon until the mission terminates at home station. If an armed crew member must leave the crew en route, transfer the weapon to another authorized crew member, using AF Form 1297, *Temporary Issue Receipt*.

5.5.2. Loading and Transfer of Weapons. AFMAN 31-229, *USAF Weapons Handling Manual*, outlines safety requirements for personnel arming and weapons handling. Load and unload weapons at approved clearing barrels if available. To transfer a loaded weapon to another crew member, place the weapon on a flat surface. Do not use a hand-to-hand transfer.

5.5.3. Wearing of Weapons. Wear weapons in a holster, concealed at all times to protect the identity of armed crew members. Do not wear weapons off the flightline, except to and from the armory, and other facilities associated with aircrew activities such as base operations, fleet service, cargo or passenger terminals, flightline cafeterias, snack bars, etc. However, local threat assessments and deployment planning factors may dictate more stringent arming requirements.

5.5.4. Weapons Storage Inflight. Crew members will be armed before beginning pre-flight or onload duties. When no passengers are on board and after a satisfactory stowaway check, weapons may be stored in a gun box (if equipped) inflight. Crew members will rearm before landing. Weapons need not be unloaded before being placed in the gun box.

5.5.5. Crew Rest. During crew rest, store weapons in the most secure facility available, normally the base armory. If a weapons storage facility is unavailable or the country prohibits or restricts the entry of weapons, secure firearms and ammunition in the gun box.

5.5.6. Aircraft without a Gun Box. If an aircraft without a gun box must remain overnight at a location where a government-owned storage facility is unavailable, use the nearest acceptable facility. Acceptable storage facilities are US or Allied military services armories US National Guard and Reserve armories, and US civil law enforcement armories. If none of these are available, or the AC believes weapons security may be compromised, crew members may secure their weapons in their quarters, but one crew member must remain with the weapons at all times. In this case, turn the ammunition over to the AC.

**5.6. General Hijacking Guidance.** The hijacking of an AFSOC aircraft could create a serious international incident and jeopardize the safety of passengers and property. An aircraft is most vulnerable when the crew is on board and the aircraft is ready for flight. Hijackers cannot be dealt with as ordinary criminals. Some are mentally disturbed, emotionally unstable individuals for whom the threat of death is not a deterrent, but a stimulus to crime. Delay tactics have been most successful in saving lives and property. Crews must resist all attempts to hijack their aircraft. Resistance may vary from simple discouragement to direct physical attack with weapons. Detection of potential hijackers before they board the aircraft is the best solution to the problem.

5.6.1. Acceptance of Passengers. The host station passenger processing and manifesting facility should conduct anti-hijacking inspections. Do not board passengers unless the AC is fully satisfied with these inspections. **Exception:** Supporting/supported forces may be anti-hijack inspected at the aircraft by the aircrew.

5.6.2. Aeromedical Procedures. Military medical facility commanders are responsible for the anti-hijacking inspection of patients. When patients are delivered to the aircraft by civilian sources, the aircrew will perform required inspections before departure.

5.6.3. Contingency and exercise movements. During contingencies in support of combat operations involving the movement of large numbers of personnel and exercises, the supported unit should manifest passengers and perform anti-hijacking inspections.

5.6.4. Arms and Ammunition. Passengers will not carry weapons or ammunition on their person or in hand-carried baggage on board an aircraft except special agents and guards of the Secret Service or State Department, and other individuals specifically authorized to carry weapons.

5.6.4.1. Take every precaution to prevent accidental discharge of weapons. If individuals must clear their weapons, ask them to:

5.6.4.1.1. Move to a safe, clear area at least 50 feet from any aircraft, equipment, or personnel before unholstering or unslinging their weapons.

5.6.4.1.2. Clear their weapons IAW standard safety procedure.

5.6.4.2. Troops and deadhead crew members will not retain custody of ammunition on an aircraft but will turn it in to the troop commander or AC. Troops may carry unloaded weapons and ammunition on board the aircraft during combat operations. When the situation dictates, weapons may be loaded at the order of the troop commander or team leader.

**5.7. Specific Hijacking Guidance.** It is imperative that all crew members are familiar with the ground and inflight resistance actions, covert communications, and forced penetration of unfriendly airspace procedures in AFI 13-207, *Preventing and Resisting Aircraft Piracy (FOUO)*, and the FIH. In the event of a hijacking, crew members must act immediately and resourcefully, without instruction, in order to counter the attacker successfully.

## Chapter 6

### GENERAL OPERATING POLICIES

#### *Section 6A—PRE-MISSION*

**6.1. Aircrew Uniforms.** Wear the aircrew uniform on all missions unless specifically authorized otherwise by the squadron commander. All aircrew members will have flight gloves readily available during all flights and should wear them for takeoffs and landings unless the wear of gloves presents a safety hazard.

**6.2. Aircrew Flight Equipment Requirements.**

6.2.1. Oxygen. Oxygen on board must be sufficient to accomplish the planned flight. On missions with passengers, carry passenger oxygen kits (POK) if flight above flight level (FL)250 is anticipated. Ensure access to POK is not blocked during flight.

6.2.1.1. Personal oxygen masks are required for all missions involving any pre-breathing.

6.2.1.2. The LM and any other personnel required to be mobile in the cargo compartment will wear helmets during aerial deliveries utilizing an overhead aircraft anchor cable.

6.2.2. Eye Protection. Use protective goggles, plastic lens glasses, or the helmet visor for eye protection if the duties require personnel to be in close proximity to an open exit.

6.2.3. Rafts. Ensure sufficient life rafts are on board to accommodate all passengers and aircrew members on overwater flights. Life rafts are not required when overwater flight occurs only for short distances, immediately after takeoff and before landing.

6.2.4. Life Preservers:

6.2.4.1. Life preservers will be sized and available at the crew member's station while overwater. Wear life preservers whenever below 2,000 feet overwater (except takeoff and landing). For overwater missions carrying children and/or infants, ensure appropriate number and type of life preservers are aboard.

6.2.5. Anti-Exposure Suits:

6.2.5.1. Anti-exposure suits will be available during overwater flights when the route of flight is beyond power-off gliding distance from land and the water temperature is 60° F or below.

6.2.5.2. If the water temperature ranges between 51° F and 60° F, the unit or mission commander may waive or extend the anti-exposure suit requirement after carefully considering the following factors:

6.2.5.2.1. Climate zone and existing weather throughout range of flights.

6.2.5.2.2. Operational requirements.

6.2.5.2.3. Number and type of aircraft in formation.

6.2.5.2.4. Time of flight overwater.

6.2.5.2.5. Risk, based on aircraft load and mission configuration.

6.2.5.2.6. Location, availability, and capability of search and rescue (SAR) forces, (consider anticipated time in the water prior to pick-up).

6.2.5.2.7. Winds and wave height and their impact on SAR.

6.2.5.2.8. Altitude and distance from land.

6.2.5.3. Anti-exposure suits are not required when only the approach or departure is flown overwater.

6.2.6. Restraining Device. Crew members will wear a restraining device when near open doors or hatches inflight.

**6.3. Personal and Professional Equipment.** Crew members will carry or wear personal and professional equipment as follows:

6.3.1. Identification Tags. Mission requirements permitting, identification tags should be worn around the neck unless such wear creates a hazard. They may be carried in the flight suit pocket during missions requiring the wearing of a parachute or restraining harness.

6.3.2. Rings. Do not wear finger rings, earrings or other loose fitting jewelry while in, on, or around aircraft.

6.3.3. Glasses. Wear prescribed glasses or contact lenses as required by AFI 11-202.

6.3.4. Restricted Area Badges. Carry the restricted area badge when directed. Display the badge only in designated restricted areas.

6.3.5. Crew members will preflight night vision goggles (NVGs) prior to each mission if required. Log the visual acuity attained with the serial number of the NVGs. Aircraft commanders will ensure a spare set of NVGs are pre-flighted. For dual piloted aircraft, both pilots will wear the same model of NVGs.

6.3.6. Flight Kits. Carry a headset and operable flashlight on all flights. When oxygen masks are installed, flight deck crew members are not required to carry personal helmets and oxygen masks unless required for the mission.

**6.4. Tool and Airdrop Kits.** The unit will establish requirements for these kits and the crew member responsible for the kit.

**6.5. Authenticators and Classified Documents.** Obtain and safeguard current authenticators and other classified materials required for the area being transited. Carry authenticators when flying into an Air Defense Identification Zone (ADIZ), participating in exercises, on overseas missions, deployments, and when specified in operation plans. The communication security (COMSEC) material required depends on the theater of operation and user. The base COMSEC custodian has access to the AFKAG 44 and AFKAG 14 and can assist in obtaining the material required for the mission.

**6.6. Publications, Kits and Aircraft Documentation.**

6.6.1. The AC will ensure the following is carried on the aircraft:

6.6.1.1. Aircraft Manual and applicable navigation publications.

6.6.1.2. Normal and Emergency Procedures checklists.

6.6.1.3. Tactical and Airdrop checklists, when required.

6.6.1.4. Additional/supplemental aircraft should contain an appropriate and current airworthiness certificate unless certified as “experimental”, effective registration certificate, Radio Station Permit for overseas missions, and appropriate Weight and Balance information. Additionally, for large and turbine-powered multi-engine airplanes the AC will insure one-engine inoperative climb performance data and engine inoperative procedures are accessible during flight.

6.6.1.5. Electronic flight bags (EFBs) may be used IAW AFI 11-202, Vol 3, AFSOC Supplement, to satisfy some of the above requirements.

6.6.2. Mission Folder. The unit will develop a mission folder for each mission to ensure all pre-departure information is available to aircrews. This folder will include the AF Form 4327A, and other forms and information required for the mission.

6.6.3. Unit Mission Kits. Mission kits are not required for all missions. The AC will ensure a mission kit is on board, if applicable. Refer to **Table 6.1** for minimum contents.

**Table 6.1. Unit Mission Kits.**

1. DD Form 1385, <i>Cargo Manifest</i>
2. AF Form 15, <i>USAF Invoice</i>
3. DD Form 2131, <i>Passenger Manifest</i>
4. AF Form 315, <i>USAF AVFuels Invoice or Air Card</i>

6.6.4. Navigation Kits. Minimum contents of route navigation kits should be IAW **Table 6.2**. Commanders may modify the items of **Table 6.2** as necessary for local training missions.

**Table 6.2. Route Navigation Kits.**

PUBLICATION MINIMUM QUANTITY	
DOD FLIGHT INFORMATION PUBLICATIONS:	
FLIP Planning (Sections GP, AP/1)	1 Set
FLIP Flight Information Handbook	1 Set
FLIP IFR Supplement	1 Set
FLIP VFR Supplement	1 Set
FLIP En route Charts (High and Low) <sup>1</sup>	2 Sets
FLIP Area Charts (Terminal) 1 Set	1 Set
FLIP Instrument Approach Procedures (High and Low) <sup>1</sup>	2 Sets
Maps and Charts	As Required
<b>Note 1:</b> Aircraft unable to fly in high-altitude structure are not required to carry High-Altitude En Route charts or High Instrument Approach Procedures.	

**Note 2:** Refer to AFI 11-202, Vol 3, AFSOC Supplement, regarding the use of the EFB to replace paper FLIP.

**6.7. Airfield Review.** Aircraft commanders will review appropriate publications to ensure mission requirements can be met.

**6.8. Flight Crew Information File (FCIF).** Review Volume 1, Part A, of the FCIF before all missions.

6.8.1. Crew members delinquent in FCIF review and joining a mission en route will receive an FCIF update from their primary aircrew member counterpart on that mission. Instructor pilots who fly with key staff are responsible for briefing appropriate FCIF items.

6.8.2. Crew members not assigned or attached to the unit will certify FCIF review by entering the last FCIF number and their initials beside their name on the file copy of the flight authorization.

**6.9. One-Time Flights.** An aircraft may be released for a one time flight with a condition that might be hazardous for continued use provided the aircraft is airworthy for one flight to another station. A one-time flight is defined as a required flight to a final destination including required fuel stops. (T-3)

6.9.1. The owning maintenance group commander or delegated authority must authorize this release. Refer to TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, **Paragraph 4.7** for additional guidance.

6.9.2. The Operations Group Commander (OG/CC) or COMAFSOF must authorize the flight after maintenance has released the aircraft for flight operations.

6.9.3. The maintenance release, OG/CC or COMAFSOF approval, and the pilot in command (PIC) concurrence are all required before the aircraft can be flown to the specified repair destination.

**6.10. Briefings.**

6.10.1. Mission/Aircraft Commander Briefing. Give this briefing before the first flight of the mission and for subsequent flights when crew member substitutions are made or operating procedures change from the original briefing. To reduce ground time on the aircraft the departure briefing may be accomplished at this briefing with the exception of takeoff data and departure instructions. Crew members will not fly unless they attend the crew briefings for their mission. (**Exception:** If critical pre-mission duties conflict with the briefing, ACs may excuse certain crew members and will brief those personnel prior to assuming primary duties.)

6.10.2. Inflight Briefings. Conduct these briefings IAW this instruction, aircraft specific addenda, and the appropriate aircraft publications.

**6.11. Call Signs.** Use aircraft call signs as directed by the unit.

6.11.1. Aeromedical Evacuation. Preface normal call signs with "Air Evac" when patients are aboard.

6.11.2. Search and Rescue (SAR). When tasked to participate in search, rescue and recovery operations, use the call sign "Air Force Rescue" plus the last five digits of the aircraft tail number.

#### **6.12. Checklist Procedures.**

6.12.1. Accomplish all checklists with strict discipline. A checklist is not complete until all items are accomplished.

6.12.2. The pilot flying the aircraft will initiate all checklists unless another procedure is established by the aircraft manual or addendum to this instruction.

6.12.3. Make personal notes in pencil on checklists, briefing and information guides. Such notes must be current.

**6.13. Instrument Flight Rules (IFR).** All fixed wing missions will use IFR to the maximum extent possible IAW AFI 11-202, Vol 3.

#### **6.14. Flight Plans.**

6.14.1. Regardless of whether a flight plan is prepared by the aircrew or is furnished by another agency, the aircraft commander (and navigator if part of crew) will verify the routes and altitudes to ensure proper terrain clearance and fuel requirements.

6.14.2. Unscheduled changes in crew, passenger, and aero medical patient lists are authorized provided corrections to the crew list or passenger manifest are filed with the command and control center, base operations, Federal Aviation Administration (FAA) office, or airport manager's office, as appropriate to the airfield being transited.

6.14.3. Crews may use computer flight plans and HQ AFSOC/A3V approved flight plan forms in lieu of the AF Form 70, *Pilots Flight Plan and Flight Log*.

**6.15. Fuel Planning.** Use the aircraft flight manual for fuel planning. Calculate reserves IAW AFI 11-202, Vol 3.

6.15.1. When two alternates are required, flight plan to the most distant alternate.

6.15.2. Land with a minimum of 20 minutes fuel onboard.

6.15.3. When passengers or patients are aboard, allow enough fuel to recover at a suitable airfield from the Equal Time Point (ETP) at an altitude not requiring oxygen.

**6.16. Alternate Planning.** IAW AFI 11-202, Vol 3.

**6.17. Departure Planning.** IAW AFI 11-202, Vol 3 and AFMAN 11217, Vol 1, *Instrument Flight Procedures*.

6.17.1. Gross Weight. Do not exceed the certified maximum gross weight for takeoff. Waiver authority is HQ AFSOC/A3 and contract vendor (for leased aircraft).

**6.18. Operations In The Vicinity of Hazards.** IAW AFI 11-202, Vol 3. Plan all missions to avoid areas of forecast or known hazardous weather (including icing or severe turbulence), which may exceed aircraft limitations.

**6.19. Flight Deck Entry.**

6.19.1. The following personnel are authorized on the flight deck. They must be in compliance with **Paragraph 7.6.2** of this publication.

6.19.1.1. Additional crew members (if seats are not required by primary crew members or flight examiners).

6.19.1.2. Individuals approved by the mission commander. If there is no mission commander then the aircraft commander is the approval authority.

6.19.2. Passenger access to any primary crew position is prohibited.

**6.20. Passenger Policy.** DOD 4515.13-R, *Air Transportation Eligibility*, establishes criteria for passenger movement on DOD aircraft. It defines five categories of passenger travel: space-available, aeromedical evacuation, orientation, public affairs, and space-required. AFI 11401, *Flight Management*, provides further guidance on orientation and public affairs travel. Refer to these publications directly for details not addressed in this instruction. In all cases, passengers will be manifested on DD Form 2131, *Passenger Manifest*.

6.20.1. Space-Available. Aircraft covered by this instruction should not be used for space-available travel. OG/CC may authorize space-a on a case by case basis. (T-3)

6.20.2. Aeromedical Evacuation. Defined as the movement of patients by air. Specific guidance on eligibility and documentation is contained in DOD 4515.13-R. United States Transportation Command (USTRANSCOM) is the single manager for policy and procedure.

6.20.2.1. Restrictions. If tasked to conduct aeromedical evacuation, pilots must be fully qualified. All mission events and simulated emergency procedures (EPs) are prohibited.

6.20.3. Orientation Flight Restrictions.

6.20.3.1. For spouse orientation, comply with restrictions in AFI 11-401 and applicable supplements. Additionally, air refueling (when applicable) is prohibited.

6.20.3.2. For other orientation categories, pilots must be fully qualified. Simulated EPs are prohibited. All other mission events may be conducted IAW the profile approved by approval authority listed in AFI 11-401, *Flight Management*.

6.20.4. Public Affairs Travel. Defined as travel in the interest of adding to the public understanding of DOD activities. AFI 11-401 contains specific details on the Air Force Public Affairs Flight Program. Authorized participants and approval authority are contained in AFI 11-401. Document authorization by letter and manifest on DD Form 2131. Requests for approval will include the mission profile and mission events to be accomplished. Forward all requests through public affairs channels.

6.20.4.1. Restrictions. Pilots must be fully qualified. Simulated EPs are prohibited. All other mission events may be conducted as approved by approval authority. Passengers will be seated with belts fastened during threat maneuvers.

6.20.5. Space-Required. DOD 4515.13-R lists several categories of passengers, not previously mentioned, who are authorized official travel on DOD aircraft.

6.20.5.1. Supported Forces. A sub-category of space-required passenger defined by this instruction as US and foreign military personnel who are an integral part of the mission

being performed. Approval is assumed by the mission tasking. Supported forces passengers must be properly manifested.

6.20.5.1.1. Restrictions. Pilots must be fully qualified unless excepted by AFI 11-401. Simulated EPs are prohibited. There are no restrictions on mission events. ACs will ensure that supported forces are briefed on the mission profile and mission events before flight.

6.20.5.2. Supporting Forces. A sub-category of space-required passenger defined by this instruction as US and foreign military, DOD civilians, and US civilian employees under contract to the DOD, who directly support the mission or a deployment of an AFSOC unit. This may include, but is not limited to; maintenance, communications, intelligence, logistics, and flight test personnel, civilian contractors required for inflight checks or deployment support, FAA representatives, STS, and other military personnel who are on board to communicate/coordinate with other agencies. Off-station travel is documented by travel orders. Local flights will be documented by letter of authorization from the OG/CC (**Exception:** Squadron commanders may approve squadron assigned personnel). When frequent local flights are necessary, commanders may issue annual authorizations by name or Air Force Specialty Code (AFSC) as appropriate. When using this option, aircraft commanders will ensure that all restrictions in the following paragraph are complied with for each individual mission. Supporting forces must be properly manifested. (T-3)

6.20.5.2.1. Restrictions. Pilots must be fully qualified unless excepted by AFI 11-401. Simulated EPs are prohibited (**Exception:** EPs required for the purposes of a functional check flight or FAA flight evaluation are authorized. In this context, personnel on board are required for mission accomplishment. Limit personnel to absolute minimum required). Other mission events are authorized. Aircraft commanders will ensure that supporting forces are briefed on the mission profile and mission events before flight.

## ***Section 6B—PREFLIGHT***

**6.21. Flight and Maintenance Log.** Review the aircraft maintenance forms before applying power to the aircraft or operating aircraft systems. Ensure that the USAF Fuel Identaplate and/or contract fuel card is aboard the aircraft and applicable preflight is documented before flight.

### **6.22. Aircraft Servicing and Ground Operations.**

6.22.1. Aircraft Refueling. Aircrew members qualified in refueling may perform refueling duties at austere locations or at stations without maintenance support.

6.22.2. Concurrent Ground Operations. Simultaneous aircraft refueling or defueling and cargo loading or maintenance operations are authorized IAW TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bounding*. Refueling or defueling with passengers or patients aboard is authorized only for aero medical evacuation missions IAW TO 00-25-172.

6.22.3. Fire Protection. An aircraft engine fire extinguisher system or cabin fire extinguisher fulfills the minimum requirements for fire protection during engine start. However, a

portable fire extinguisher, if available, should be positioned outside of the wing tip for added fire protection.

#### 6.22.4. Towing.

6.22.4.1. At military installations, the AC will coordinate with the senior maintenance officer or superintendent to ensure the towing supervisor and crew are qualified. If aircrew members are required to participate in towing operations, any qualified crew member may perform cockpit duties. All crew members may act as wing walkers.

6.22.4.2. At non-military installations, the AC should coordinate towing requirements with the local Fixed Base Operator (FBO). The AC should ensure the tow team supervisor is qualified to tow the aircraft and all personnel involved in the operation are briefed on their specific duties. If the AC is satisfied the FBO and tow team supervisor is qualified, crew members do not have to be involved in the towing operation.

**6.23. Aircrew Flight Equipment (AFE) Documentation.** The AC or designated representative will:

6.23.1. Prior to departing home station, ensure appropriate serviceable protective clothing, aircrew flight, survival, and dash 21 equipment for the entire mission is aboard the aircraft.

6.23.2. Prior to departing home station and following en route crew changes, review the aircrew flight equipment list to ensure required equipment is on board and required inspections have been completed.

6.23.3. Aircrew members discovering AFE missing will make an entry in the aircraft maintenance records.

**6.24. Transponder Operations.** Aircraft will not depart with an inoperative transponder. Mission requirements will dictate the use of Identification Friend or Foe (IFF) (if equipped) and aircraft commanders should comply with the appropriate operational order (OPORD) or special instructions (SPINS).

**Exception:** Aircraft may takeoff if the transponder was operational on the previous leg, if the transponder is inoperative at a location where no repair capability exists, and both the unit operations officer and ATC approve the flight. Pilots will comply with all airspace limitations regarding flight without a transponder.

#### 6.25. Cargo Documentation.

6.25.1. Proper cargo documentation will accompany each load. The cargo manifest with accompanying DD Form 1384, *Transportation Control and Movement Document* (TCMD) (interpreted punch card deck or manual form), and special handling documents, as applicable, will be delivered to the aircraft before departure. The manifest will be one of the following:

6.25.2. Computer printed product.

6.25.3. The 80/80 (off-line manifest) listing.

6.25.4. DD Form 1385, *Cargo Manifest*.

6.25.5. DD Form 2133, *Joint Airlift Inspection Record*, will accompany the manifest if required.

**6.26. Dropped Object Prevention.** During aircraft exterior visual inspections, pay particular attention to surfaces, panels, and components, which potentially could be dropped objects. If a dropped object is discovered and the mission is continued, the flight crew will:

6.26.1. Ensure a write up is entered in the aircraft flight and maintenance log.

6.26.2. Notify the operations center as soon as practical. Ensure a write-up is documented in the AFTO Form 781A.

**6.27. Narcotics.** Crew members will ensure narcotics and other unauthorized items are not smuggled aboard the aircraft.

**6.28. Cockpit Congestion and Loose Objects.** The flight deck area will be kept as uncluttered and orderly as possible for all flight and ground operations. Specifically:

6.28.1. During engine start and ground operations, no items (checklist, charts, etc.) are placed to prevent inspection of aircraft instruments, engine gauges, or switches.

6.28.2. During flight, no items (checklists, charts, etc.) will be placed in a position that covers or hides any gauges.

6.28.3. Publication kits, flight kits, and personal items will not be placed where they may interfere with the flight controls or egress.

### ***Section 6C—DEPARTURE***

**6.29. Takeoff and Landing Data (TOLD).** An appropriately qualified crew member will complete TOLD IAW the aircraft Information Manual, Pilot's Operating Handbook or FAA approved Airplane Manual, or Aircraft Operations Manual. A qualified crew member, if available, will crosscheck the TOLD for accuracy using the flight manual, approved tabulated data, or approved computer TOLD application. Tabulated distance data will not be used for the first tactical/Short Takeoff and Landing (STOL) takeoff or landing.

6.29.1. Crosscheck minimum control, takeoff and landing speeds. If operating multi-engine aircraft in high density altitude, compute stall speed and compare with the minimum control speed. This will be done for the initial takeoff, landing, and for significant changes in operating conditions.

6.29.2. When performance is critical (e.g., short field operations, high density altitudes, etc.), a pilot will crosscheck distances, ground roll, engine out climb performance, and engine out cruise ceilings.

**6.30. Power Application.** To help prevent over-temperatures, crew members will monitor engine parameters (Turbine Inlet Temperature (TIT), Exhaust Gas Temperature (EGT), Inter-Turbine Temperature (ITT), etc.) as throttles are advanced or collective is applied. Crew members should announce when power or temperature limits are reached, whichever occurs first. For tactical operations, power checks should be performed prior to initial departure.

**6.31. Departure Monitoring.** Additional crew members not flying the aircraft will back up the pilot and report any deviations from the planned departure. When radar facilities are available, departures will be radar monitored to the maximum extent possible.

**Section 6D—EN ROUTE**

**6.32. Oxygen Requirements.** IAW AFI 11-202, Vol 3, *General Flight Rules*.

**6.33. Flight Progress.** Use all available navigational aids to maintain course centerline and positive fixing of the aircraft's position. Report malfunctions or loss of navigation capability, which degrades centerline accuracy to the controlling air route traffic control center (ARTCC) immediately.

**6.34. Intelligence Sightings and Other Reports.** Report all vital intelligence sightings from aircraft as indicated in the local or deployed instructions.

**6.35. Inflight Meals.** The AC and copilot will not consume inflight meals within 1 1/2 hours of each other during flight if the meals were procured from the same vendor and consist of the same menu.

**6.36. Communications.**

6.36.1. All communications will be IAW FLIP or as directed by the controlling agency. Required frequencies will be provided by the controlling authority in the Communications Element Operation Instructions (CEOI).

6.36.2. If at all possible, the number of air-to-air and air-to-ground nets should be limited to and compatible with the radios installed on the aircraft. If this is not possible the controlling authority will designate which aircraft will operate on a specific net. If it is not designated, the highest priority nets will be monitored with subsequent nets to be monitored on a time and communications system availability basis.

**6.37. Inflight Emergency Procedures.** Report deviations of directives that occur because of an emergency IAW AFI 11-202, Vol 3.

**6.38. Continued Flight with Engine Failure (Multi-Engine Aircraft).** The flight will terminate at the nearest facility, which in the judgment of the aircraft commander offers safe and favorable operating conditions. Crews should consider suitable diversion fields along their route of flight during preflight planning.

**6.39. Fuel Jettisoning.** Fuel will not be jettisoned except during combat conditions, emergency conditions, or rescue missions requiring gross weight reduction.

**6.40. Medical Assistance.** When a person aboard the aircraft requires medical care, the AC will inform the next station of intended landing (if possible) in sufficient time so medical personnel may meet the aircraft. The request will include the sex, approximate age, and the nature of the medical problem.

**6.41. Weather Forecasts.**

6.41.1. The primary contact for inflight weather assistance is the Pilot Meteorological Service (PMSV). Another source is Flight Watch on 122.0 if the en route altitude is between 5,000 MSL and 17,500. For flights conducted at FL180 and above, refer to the back page of the National Oceanic and Atmospheric Administration (NOAA) Airfield Facility Directory (AFD), (Green book) for a discrete frequency. Be advised that continental US (CONUS) En

Route Flight Advisory Service (EFAS) services are normally available between 0600L-2200L. If outside these hours contact the nearest flight service station (FSS).

6.41.2. Aircrews will make every attempt to obtain latest weather prior to descent for landing at the destination.

**6.42. Low-Level Overwater Operations.** The accumulation of salt spray on windshields and side windows is a factor, which must be considered for low-level overwater flight. Salt deposits on windows will restrict visibility, possibly jeopardizing flying safety. Weigh the above factors against mission urgency prior to descent below 500 feet, when heavy seas or high surface winds exist. In some cases, it will be preferable to fly at a higher altitude to avoid this hazard.

### ***Section 6E—ARRIVAL***

**6.43. Crew Coordination.** On two pilot aircraft, the pilot flying the approach will brief the crew on the descent, approach, and landing IAW applicable briefing guides and addendums. The nonflying pilot will monitor the approach and report any deviations from prescribed procedures. Crew members will confine their activities to appropriate aircraft operation.

**6.44. Instrument Approach Minimums.** IAW AFI 11-202, Vol 3, and AFMAN 11-217, Vol 1.

6.44.1. Flight Instrumentation. Full flight instrumentation for all approaches includes barometric altimeters, airspeed indicators, vertical velocity indicators, heading indicators, and attitude indicators, in the pilot and, if installed, copilot positions. For global positioning system (GPS) approaches, predictive receiver autonomous integrity monitoring (RAIM) must be operational and checked for the arrival airfield prior to commencing the approach.

6.44.1.1. For ILS, full flight instrumentation also includes dual flight displays if installed.

6.44.1.2. The ability to copy the flying pilot's information to the nonflying pilot's side satisfies the requirement.

6.44.1.3. If full flight instrumentation is not available and operational, base decision height (DH) or minimum descent altitude (MDA) on a minimum height above threshold (HAT) or height above airfield (HAA) of 300 feet and runway visual range (RVR) 40, or visibility 3/4 mile if RVR is not available.

6.44.2. Precision Radar. Visibility will be no lower than RVR 24 or 1/2 mile if RVR is not available. DH will be based on an HAT of no less than 200 feet.

**6.45. Weather Below Minimums.** If the reported ceiling is below the minimum for the approach, but the visibility value is at or above the authorized minimums before initiating an en route descent or penetration and approach, pilots may attempt the approach provided fuel remaining is sufficient to accomplish the en route descent or penetration, approach, missed approach, and flight to alternate with appropriate reserves.

6.45.1. An AC may hold at a destination with weather below landing minimums, but forecast to improve to or above minimums, provided:

6.45.1.1. Fuel remaining is more than required to hold for the appropriate holding time and fly to the alternate with appropriate reserves, and weather for the alternate is forecast to remain at or above alternate minimums for the period, including holding time.

6.45.1.2. Destination weather is forecast to be at or above minimums before the excess fuel will be consumed.

6.45.2. If advised that the weather is below landing minimums after starting an en route descent or approach, aircrews may elect to either continue the approach and land or execute a divert/missed approach.

#### **6.46. Instrument Approach Procedures.**

6.46.1. Fly instrument approaches to maintain proficiency and to positively identify arrival airports. Aircraft equipped with TSO C-129a or TSO C-146 (WAAS) GPS equipment approved for IFR navigation and approaches are authorized to fly GPS approaches IAW AFI 11-202, Vol 3, and AFMAN11-217, Vol 1. Contact/visual approaches are authorized to maintain visual landing proficiency. Use radar monitoring when feasible.

6.46.2. Pilots will fly a precision approach, if available, at night or during marginal weather in order to positively identify arrival airfields. On training or evaluation flights, pilots may fly non-precision approaches or VFR traffic patterns at night. Use radar monitoring when feasible. NVGs may be worn during both operational and training instrument approaches during night.

6.46.3. When flying a coupled approach, assume manual control at or above published MDA/DH or IAW aircraft AFM/POH, if higher.

**6.47. Advisory Calls.** Mandatory advisory calls for the pilot not flying the aircraft are as follows:

6.47.1. Non-precision approaches:

6.47.1.1. One hundred feet above minimum altitudes.

6.47.1.2. "Minimums" at MDA.

6.47.1.3. "Runway in sight." Called when sufficient visual reference with the runway environment (IAW AFMAN 11-217, Vol 1) is established and the aircraft is in a safe position to land.

6.47.1.4. "Go-around." Called at the missed approach point when visual reference with the runway environment is insufficient to continue the approach or any time the approach becomes unsafe.

6.47.2. Precision approaches:

6.47.2.1. One hundred feet above DH.

6.47.2.2. "Continue." Call at DH if only the approach light system is in sight and a determination cannot yet be made that the aircraft is in a position for a safe landing. If an approach is continued below DH based on seeing the approach lights only (an approach to visibility minimums), "go-around" must be called by 100 feet if a determination to land cannot be made.

6.47.2.3. "Land." Call at DH or later if runway environment is in sight and the aircraft is in a position for a normal landing.

6.47.2.4. "Go-around." Call at DH or later if the runway environment is not in sight or if the aircraft is not in a position for a safe landing. If an approach is continued below DH based on seeing the approach lights only (an approach to visibility minimums), "go-around" must be called by 100 feet if a determination to land cannot be made.

6.47.3. Climb out:

6.47.3.1. Transition altitude.

6.47.3.2. One thousand feet below assigned altitude.

6.47.4. Descent:

6.47.4.1. Transition level.

6.47.4.2. One thousand feet above assigned altitude.

6.47.4.3. One thousand feet above initial approach fix altitude or holding altitude.

6.47.4.4. One hundred feet above procedure turn and final approach fix altitude.

**6.48. Radar Altimeter Procedures.** If equipped, set the radar altimeters IAW the flight manual or to an altitude that provides the most appropriate altitude warning for the approach being flown. Pilots will crosscheck radar altimeters during descent to ensure adequate terrain clearance is provided throughout the descent and maneuvering portion of the approach. Once established in a VFR traffic pattern, the radar altimeter may be set at pilot's discretion.

**6.49. Wake Turbulence Avoidance.** Pilots must exercise the discipline necessary to ensure wake turbulence avoidance criteria are observed during flight operations. Acceptance of a visual or contact approach clearance or instructions to follow an aircraft is acknowledgment that the pilot will maintain a safe interval for wake turbulence avoidance. The following instructions expand wake turbulence avoidance criteria, but do not replace guidance in FLIP, *General Planning* and the FAR/AIM.

6.49.1. AFSOC light fixed wing aircraft will maintain two minute spacing behind small aircraft and three minutes behind large and heavy aircraft. This requirement does not apply between like or smaller aircraft.

## ***Section 6F—POSTFLIGHT***

### **6.50. Classified Material.**

6.50.1. Turn in authenticators and other classified materials at destination, and obtain receipts for classified material. Command posts will provide temporary storage for authenticators and classified materials during ground time at en route stops. Issue and turn-in of authenticators normally is a function of base operations. At locations where no storage facilities exist, the AC will ensure classified material is properly protected.

6.50.2. Remove any classified information in the Flight Management System (FMS), Internal Navigation System (INS), Area Navigation (R-NAV), or GPS.

6.50.3. In an emergency destroy or damage classified material and equipment prior to crash landing or bailout if possible.

**6.51. Impoundment.** If an aircraft is involved in a serious incident, which in the judgment of the AC places the airworthiness of the aircraft into question, the AC will impound the aircraft immediately after landing and contact the controlling agency for further instructions.

### ***Section 6G—DEBRIEFING***

**6.52. Maintenance.** The AC is responsible for ensuring aircraft maintenance forms are correct. He may designate another crew member to accomplish maintenance form completion.

6.52.1. Fixed-wing only: Enter "aircraft subjected to salt spray" on the aircraft maintenance forms any time the aircraft is flown under 1,000 feet above water level (AWL) over salt water, excluding takeoffs and landings.

6.52.2. The AC and other pertinent crew members will debrief maintenance personnel on the conditions of the aircraft, engines, avionics equipment, and installed special equipment immediately after arrival. At stations where no maintenance support is available, provide a thorough debrief to the appropriate command and control agency prior to entering crew rest.

6.52.3. When the aircraft will remain overnight (RON) off station, if the aircraft lands less than A-1, ACs should additionally report the status to home station maintenance, to include faxing a debrief sheet and copy of AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document*, if requested.

**6.53. Weather.** The AC or a representative will pass significant information to the appropriate weather unit.

**6.54. Intelligence.** Debrief intelligence when applicable.

**6.55. Crew Debriefing.** The AC will allow each crew member the opportunity to discuss unusual aspects of the mission. Debriefings may be formal or informal. The appropriate forms will be completed and available for review by the commander or operations officer as soon as practical after mission completion.

**6.56. Aircrew Notification Procedures.** When transiting installations, the AC will establish a point of contact with base operations or local airport manager when crew-resting off base. The AC will be notified immediately in case of incident or emergency affecting the safety or security of the aircraft.

### ***Section 6H—MISCELLANEOUS PROCEDURES***

**6.57. Hazardous Material Procedures.** The term "hazardous material" includes any material, which, because of its quantity, properties, or packaging, may endanger human life or property. Procedures in this paragraph apply whenever aircraft carry DOD Hazard Class or Division 1.1, 1.2, 1.3 explosives, DOT Class A and B poisons, etiological or biological research materials, radioactive materials requiring yellow III labels, and inert devices. Also included are DOD Hazard Class or Division 1.4 explosives, oxidizers, compressed gases, flammable solids and liquids, and corrosive liquids listed in Air Force Manual (AFMAN) 24-204, *Preparing*

*Hazardous Material for Military Air Shipment* when any of these are shipped in quantities of 1,000 pounds or more (gross weight).

6.57.1. Briefing. Ensure the entire crew is briefed completely on the type and quantity of hazardous material, and complete a risk assessment.

6.57.2. Cargo Documentation. Do not accept hazardous materials unless proper documentation, certification, and identification of cargo are provided. This includes Transportation Control Number (TCN) entered correctly on both the cargo manifest and the DD Form 1387-2, *Special Handling Data/Certification*.

6.57.3. Flight Planning. The AC (unless specifically briefed otherwise):

6.57.3.1. Enters "Hazardous Cargo" and the mission number in the appropriate section of the flight plan. (Use remarks section of DD Form 175, *Flight Plan, Military*).

6.57.3.2. Plans the flight to minimize over flying heavily populated or otherwise critical areas.

6.57.3.3. Prepares a departure message. The remarks section of the departure message should include the following information:

6.57.3.3.1. DOT class and DOD Hazard class or division, if applicable, of hazardous material on board. (Include net weight of DOT Class A or B poisons and net explosive weight (NEW) of Class A or B explosives).

6.57.3.3.2. Request for special support; e.g., isolated parking, security, technical escort teams, etc.

6.57.3.3.3. Inert devices (when applicable).

6.57.3.3.4. If Estimated Time En route (ETE) is less than 1 hour, or if other circumstances preclude timely receipt at destination, notify the base operations of first intended landing, by priority telephone, of the Estimated Time Arrival (ETA) and information listed in **Paragraph 6.57.3.3**.

6.57.4. Before Engine Start. Ensure placards are removed. Give the controlling agency parking location, approximate engine start time, and verify that the fire-fighting agency has the hazardous materials information; otherwise, request the following be relayed to the fire-fighting agency:

6.57.4.1. Department of Transportation (DOT) class of hazardous material aboard and the DOD hazard class or division for explosive material aboard.

6.57.4.2. Net Explosive Weight (NEW).

6.57.4.3. Request for isolated taxiing (if necessary).

6.57.4.4. Estimated time of departure (ETD).

6.57.5. En Route. Normal procedures apply. Avoid flying over metropolitan or otherwise critical areas.

6.57.6. Before Landing. Accomplish the following unless specifically prohibited by the theater commander or FLIP planning.

6.57.6.1. Contact the base operations dispatcher, control tower, approach control, or other agency specified in FLIP at least 30 minutes (or as soon as practical) before ETA to announce that "hazardous materials" are aboard and to verify that the appropriate base support agencies have received the departure message; otherwise, transmit the mission number, ETA, and information listed in **Paragraph 6.57.3.3**.

6.57.6.2. If landing at a CONUS civil airport without a tower, give the above information to the nearest FAA flight service station.

6.57.6.3. Request the information is relayed immediately to base operations or the civil airport manager, crash or fire protection agency, and other support activities.

6.57.7. Parking:

6.57.7.1. DOD requires aircraft carrying DOD Hazard Class or Division 1.1, 1.2, explosives, DOT Class A poisons, and certain biological agents and munitions are parked in areas isolated from personnel. ACs are responsible for ensuring cargo is correctly identified to the tower and ground control. When aircraft are not directed to an isolated area, identify the cargo again to tower or ground control. When identification is acknowledged, the host is solely responsible for selection the parking area. Should host procedures be questionable, submit trip reports or hazard reports, as appropriate, to document such occurrences.

6.57.7.2. The military host is responsible for placarding aircraft. When missions operate on nonmilitary installations, the briefing to the AC will include placarding requirements and, if required, placards will be furnished at the onload base. The shipper must make prior arrangements with the airport manager for shipments of hazardous materials requiring placarding. The shipper is responsible for cargo identification, fire-fighting procedures, and isolated parking requirements.

6.57.8. **Unscheduled Landing Due to Inflight Emergency With Hazardous Materials.** Transmit unclassified information to the appropriate air traffic control facility as follows:

6.57.8.1. Nature of emergency and intent to land.

6.57.8.2. Aircraft position and ETA.

6.57.8.3. Number of personnel and location in aircraft.

6.57.8.4. Fuel on board.

6.57.8.5. That hazardous materials are aboard, location of the cargo, and applicable information listed in **Paragraph 6.57.3.3**.

6.57.9. **After Unscheduled Landing.** Contact the appropriate C2 agency, giving arrival notice, hazardous materials information and other pertinent information as required.

**6.58. Hazardous Medical Equipment.**

6.58.1. Nonstandard equipment possessed by medical facilities that use AFSOC air evacuation services should be viewed as potentially hazardous. Two types of equipment are of major concern:

6.58.1.1. Electronic medical equipment produces Electromagnetic Interference (EMI), which is commonly beyond the limits specified by MILSTD 461A and 462, and therefore can interfere with aircraft communication and navigation equipment.

6.58.1.2. Therapeutic oxygen systems present an increased hazard of fire or explosion. A potential but real hazard is the inadvertent disruption of the cylinder neck, manifold, or regulator resulting in explosion and propulsion of the container or accessories.

6.58.2. Nonstandard electronic and oxygen equipment must be listed by manufacturer and model number in the current "Status Report on Medical Material Items Tested and Evaluated for use in the USAF Aeromedical Evacuation System, USAF School of Aerospace Medicine (USAFSAM), Wright-Patterson AFB".

6.58.3. For nonstandard electronic medical equipment, take the following precautions:

6.58.3.1. Pararescue personnel must inform the aircraft commander when nonstandard electronic equipment is brought on board the aircraft.

6.58.3.2. The AC must be informed of the anticipated period of use of the equipment during the mission.

6.58.3.3. The AC must be alert for any interference with aircraft communication or navigation equipment during periods of use of this equipment.

6.58.3.4. When continuous use of the equipment is required throughout the duration of the mission, flight must be restricted to VFR conditions. Furthermore, exercise additional caution on night VFR missions to ensure there are no adverse effects on navigational equipment.

6.58.4. For nonstandard oxygen equipment, take the following precautions:

6.58.4.1. All compressed oxygen equipment with exposed, unprotected cylinder neck, manifold, or regulators must be completely secured from all movement in its longitudinal and lateral axis.

6.58.4.2. Pararescue personnel must continually monitor the operation of the equipment to detect possible malfunction during exposure to altitude.

**6.59. Electronic Devices.** The use of electronic devices is as specified in AFI 11-202, Vol 3. If the aircrew detects any electronic interference from an electronic device used aboard the aircraft, discontinue use of device for the duration of the flight.

## Chapter 7

### FIXED WING OPERATIONS

#### *Section 7A—GENERAL OPERATING POLICIES*

**7.1. Adherence to Rules.** Comply with AFI 11-401, AFI 11-202 (all volumes) and supplements, AFMAN 11-217 (all volumes), this instruction, and applicable portions of the Foreign Clearance Guide and FLIP. Further aircraft specific addenda to this instruction must be complied with.

**7.2. Duty Station.** A qualified pilot will be in control of the aircraft at all times during flight. (**Exception:** Unqualified pilots undergoing qualification training and senior staff members with an instructor pilot in the other seat). All crew members will be at their duty stations during all takeoffs, departures, low-levels (below minimum safe altitude [MSA]), airdrops, approaches, and landings. During other phases of flight, crew members may leave their duty stations to meet physiological needs and perform normal crew duties. On aircraft with a flight engineer station on the flight deck, do not allow both a pilot and the flight engineer to be absent from their duty station at the same time. Notify the AC prior to departing assigned primary duty station.

#### **7.3. Takeoff and Landing Policy.**

7.3.1. Except as provided in **Paragraph 7.3.2**, the pilot in command will occupy the seat designated by the AFM or equivalent.

7.3.1.1. If no seat is designated in the above manuals, the pilot in command can occupy either seat provided he has access to a functioning set of flight controls and required flight instrumentation.

7.3.2. Instructor and flight examiner pilots may perform takeoffs and landings from either seat under any condition providing that the aircraft is appropriately equipped.

7.3.3. An AC qualified pilot will land from the AC designated seat during:

7.3.3.1. Aircraft emergencies, unless conditions prevent compliance.

7.3.3.2. Tactical operations except for required instructor upgrade training, evaluations, currency, or proficiency.

7.3.3.3. Missions operating in areas of hostile activity.

7.3.3.4. Missions when patients are on board.

7.3.3.5. Missions where a distinguished visitor (DV) 4 or higher is on board.

**7.4. Landing Gear and Flap Operation Inflight.** If stated, the crew member designated by the AFM or equivalent will operate the flaps and gear. Otherwise the AC will designate who will operate the gear and flaps during the crew briefing. Actuate the flaps and gear only on command of the pilot flying the aircraft. For tactical events, the crew member designated by the tactical checklist should operate the flaps on command of the pilot flying.

**7.5. Clearing.** Crew members should pay extra attention to clearing outside the aircraft during all taxi operations and inflight during arrivals and departures.

**7.6. Seat Belts.**

7.6.1. Crew members occupying either the pilot, copilot, or jump seats will have seat belts fastened at all times.

7.6.2. All crew members will be seated with seat belts and shoulder harness fastened during taxi, takeoffs, and landings. Flight examiners, instructors, flight engineers, and LMs performing required out-of-seat duties are exempted; however, they will have a designated seat and required restraint available.

7.6.3. Provide a safety belt for all occupants over 2 years old. All occupants will fasten seat belts securely when turbulence is encountered or anticipated, or when flying through areas of forecast clear air turbulence.

7.6.4. Floor loading is authorized to support dedicated US Special Operations Forces (SOF) and foreign counterparts during operations, exercises, and training. Standard seating configurations are recommended, if practical.

**7.7. Aircraft Lighting.** Use aircraft lighting IAW AFM, and AFI 11-202, Vol 3.

**7.8. Smoking Restrictions.** Smoking on aircraft is prohibited.

**7.9. Communications Policy.**

7.9.1. Aircraft Interphone:

7.9.1.1. When available, all crew members will monitor interphone.

7.9.1.2. Any crew member seeing a deviation of more than 200 feet from planned altitude, or deviations in heading, airspeed, or potential terrain or obstruction clearance problems will tell the pilot immediately.

7.9.1.3. Do not discuss classified information on interphone during radio transmissions.

7.9.1.4. Classified interphone or radio transmissions will be recorded on the cockpit voice recorder (CVR) if it is operating. Ensure any recorded classified conversations are removed.

7.9.1.5. Non-aircrew members will monitor interphone or radio transmissions only when specifically approved by the AC. The AC will brief communications policy to these personnel prior to flight. The AC must ensure no one monitors classified information they are not cleared for, or transmits classified information over the radios.

7.9.2. Command Radios:

7.9.2.1. The pilot operating the radios will tell the crew which radio is primary. All crew members will monitor the primary radio unless specifically directed to do otherwise by the aircraft commander or other chapters of this instruction.

7.9.2.2. One of the pilots or a designated crew member will monitor UHF or VHF "Guard" regardless of primary radio.

7.9.2.3. The pilot not flying the aircraft normally makes all radio calls.

**Section 7B—GENERAL AIRLAND PROCEDURES**

**7.10. Runway and Taxiway Requirements.** In the absence of aircraft specific guidance published as addenda to this regulation, minimum criteria for normal, contingency, and tactical training operations are listed below. Multiple aircraft operations or other unusual circumstances may dictate increased runway and taxiway requirements. Performance data must be computed for all takeoffs and landings. All distances must be adjusted for unpaved, wet, soft, slushy, or icy runways and runway slope.

7.10.1. Normal Operations:

7.10.1.1. Minimum runway length for takeoff is critical field length or balanced field length as appropriate for multi-engine aircraft. For single-engine aircraft, minimum runway length for takeoff is Accelerate/Stop distance if available or takeoff distance to 50 feet. (T-3)

7.10.1.2. Minimum runway length for landing is Normal Landing Distance from 50 feet, corrected for environmental conditions. If the aircraft manual does not contain this distance, then use landing ground roll distance plus 50% unless a distance is specified in the aircraft specific attachment. (T-3).

7.10.2. Tactical Operations:

7.10.2.1. Minimum runway length for takeoff is charted takeoff ground run plus 500 feet. (T-3).

7.10.2.2. Minimum runway length for landing is charted landing ground roll plus 500 feet. (T-3).

**WARNING:** Do not use tabulated data for initial tactical takeoff and landing. Performance is too critical for the approximations in tabulated data.

7.10.2.3. LZs with minimum runway length may be simulated if a short LZ is not available. Coordinate with Combat Control Team/Landing Zone Safety Observer (CCT/LZSO) for desired markings.

7.10.3. Minimum runway width for all operations is 200% of the distance from left main tire to right main tire unless specified otherwise in the aircraft specific addendum. (T-3)

7.10.4. Minimum taxiway width for all operations is 150% of the distance from the left main tire to the right main tire. (T-3)

7.10.5. Upon landing when runway remaining is not adequate for straight-ahead takeoff, assure a turnaround area is available.

**7.11. Aircraft Taxi Obstruction Clearance Criteria.**

7.11.1. Without wing walkers, avoid taxi obstructions by at least 25 feet, with wing walkers, by at least 10 feet.

7.11.2. When taxi clearance is doubtful, use a wing walker. If wing walkers are unavailable, deplane a crew member to ensure obstruction clearance.

7.11.3. When using reverse taxi (if equipped), avoid all obstructions by 25 feet. The aircraft should have a window or opening to allow a crew member to verbally direct the pilot and clear the rear of the aircraft. If visibility is not sufficient, the pilot will direct a crew member to exit the aircraft and direct the pilot from outside, using standard marshalling signals.

## 7.12. Takeoff and Landing Obstruction Criteria.

7.12.1. The mission directive is confirmation that AFSOC has reviewed the airfields of intended operation for obstructions and other hazards IAW Air Force and AFSOC directives. AFSOC will advise crews of known obstructions and other factors that could be hazardous to air-land operations. ACs will not make an approach and landing into an airfield requiring certification by the HQ Air Mobility Command (AMC) Airfield Suitability Report, unless they have previously operated into that airfield as a pilot, copilot, or observer and have reviewed the airfield certification briefing and audiovisual program within the last 14 days or before departing home station, whichever is closer to the date of intended use.

7.12.2. An LZ is suitable for operations when it meets the following obstacle clearance criteria in [Table 7.1](#) and [Table 7.2](#). The runway width requirements can be reduced in the aircraft specific attachments.

**Table 7.1. LZ Lateral Obstruction Clearance.**

Runway Width	Twice the distance of the wheel base
Shoulders and Clear Area/Zone (IAW AFI 13-217, <i>Drop Zone and Landing Zone Operations</i> )	N/A
Zone A (measured from runway edge)	<u>(Wing Span + Wheel Track)</u> 2
Zone B (measured from runway edge)	<u>(Wing Span + Wheel Track) + (20% Wing Span)</u> 2

**Table 7.2. Maximum Obstacle Height.**

<u>Single Engine High Wing</u>	<u>Single Engine Low Wing</u>
Zone A - 36"	Zone A - 12"
Zone B - 60"	Zone B - 60"
<u>Multi-Engine High Wing</u>	<u>Multi-Engine Low Wing</u>
Zone A - 36"	Zone A - 4"
Zone B - 60"	Zone B - 60"

7.12.2.1. Approach Zone. No obstructions higher than 1 foot for every 35 feet (35:1 or as appropriate for a specific aircraft) in the inner and outer zones as defined in AFI 13-217. See [Table 7.2](#).

7.12.2.2. Departure Zone. Base obstruction clearance requirements on predicted aircraft performance IAW the AFM and this instruction. For multi-engine aircraft, pilots will ensure the aircraft can clear obstacles and maintain the appropriate climb gradient with one engine inoperative.

**7.13. Reverse Taxi (If Applicable).** Exercise extreme caution while backing an aircraft because of the inherent hazards.

7.13.1. The aircraft should have a window or opening to allow a crew member to verbally direct the pilot and clear the rear of the aircraft. In the absence of a ground handler, or if crew member visibility is not sufficient, the pilot will direct a crew member to exit the aircraft and direct the pilot from outside, using pre-briefed marshalling signals.

7.13.2. Secure all cargo and ensure all passengers are seated.

7.13.3. Stop no less than 25 feet from an obstruction even if using a wing walker.

**7.14. Inter.** Normally, initiate takeoffs from the beginning of the runway. The decision to make intersection takeoffs rests solely with the aircraft commander. Runway remaining must meet the same length considerations as a normal takeoff.

**7.15. Reduced Power Operations.** To extend engine life, use reduced power procedures IAW the AFM as much as possible during normal operations. During training when multiple touch-and-go's are being performed, takeoff power may be reduced IAW AFM or equivalent.

**7.16. Engines Running Onload or Offload (ERO).**

7.16.1. The ERO procedures in this paragraph may be used for any mix of personnel or cargo.

7.16.2. General Procedures:

7.16.2.1. ACs will brief crew members on the intended ERO operation, emphasizing specific crew member duties.

7.16.2.2. If applicable, cargo doors may be opened prior to parking to prepare for cargo offload or onload, provided all equipment, cargo, and passengers remain secured in the cargo compartment.

7.16.2.3. The parking brake will normally be set, and one pilot will monitor brakes, interphone, and radio.

7.16.2.4. Operate engines in ground idle/zero thrust. If conditions warrant, lower flaps to reduce prop blast aft of the aircraft. When operating free turbine propeller engines, pilots should consider feathering the propellers for the ERO.

7.16.2.5. ACs should consider using any overt lighting that would assist the ERO and enhance safety.

7.16.2.6. Complete passenger and cargo manifests, crew lists, and weight and balance for the subsequent sortie if passengers or cargo are unloaded or downloaded (unless to an empty aircraft).

7.16.2.7. After the aircraft is slowed to taxi speed, the crew may remove all tie-downs except one forward and one aft restraint. Remove remaining restraints only after the aircraft is stopped and vehicle drivers are in place. Brief drivers not to release vehicle parking brakes until all restraint is removed and cleared by the crew. After clearance from the pilot is received (aircraft with a ramp and door), open the aft cargo door, lower the ramp to ground level, and clear off headset to direct onload or offload operations.

7.16.2.8. The LM will direct all onloading or offloading operations using pre-briefed signals. Other qualified crew members may assist the operation; however, the crew LM retains overall responsibility for the operation.

7.16.2.9. Passengers will be escorted by a crew member, if available, when enplaning or deplaning.

7.16.2.10. Resume taxi when all crew members have verbally acknowledged that the aircraft is ready for taxiing.

### ***Section 7C—AUSTERE LANDING ZONE OPERATIONS***

**7.17. General.** Only fully mission qualified aircrews or those receiving instruction are authorized to operate IAW this section. This section also applies to STOL operations. Use normal takeoff and landing procedures whenever practical. If the AFM does not specifically describe STOL procedures and operating limits, then use normal procedures modified by an aircraft specific addendum. Do not violate AFM operating limitations on airspeeds or flap configurations in order to increase aircraft performance.

### **7.18. Landing Zone Requirements.**

7.18.1. Coordinate for local Crash Fire Rescue (CFR) support. If local services are not available or practical, the Sq/CC (or Sq/DO for AFRC units without a full-time squadron commander) is responsible for determining if CFR support is necessary.

7.18.2. In the absence of specific runway length criteria in the aircraft specific addendum:

7.18.2.1. STOL Takeoff: Charted STOL accelerate-stop distance (+ 20% safety for training). (T-3)

7.18.2.2. STOL Landing: STOL Landing Ground Roll + 20% (+ 40% safety for training). (T-3)

7.18.2.3. In all cases, runway width is limited to 150% of the wheel base (200% for training). (T-3)

7.18.3. Runway width, length and surface type should be verified by an official source of airfield information, i.e. IFR Sup, VFR Sup, any FAA published airfield listing, sectional chart, en route chart, etc. In the absence of published data, a verbal confirmation with a person recently familiar with the airfield (eyes on the runway less than 30 days previously) may be a suitable substitute with unit operations officer approval.

**7.19. Landing Zone Assessment.** Mission operations may necessitate changes. Carefully evaluate aircraft capabilities and the mission environment before the operation. ACs will ensure that the runway surface type is compatible with the aircraft equipment (high flotation tires, soft struts, etc.). Consider the following:

7.19.1. Security of the operating area.

7.19.2. Terrain and obstacle features along the approach or departure path.

7.19.3. Runway surface conditions (dust, small holes, damaged Pierced Steel Plank (PSP), smooth).

7.19.4. Surface temperature and density altitude.

- 7.19.5. Usable runway length and width.
- 7.19.6. Surface acceleration and deceleration factors (soft, dry, wet, ice, slope).
- 7.19.7. Gross weight of aircraft.
- 7.19.8. Surface winds (head, tail, cross, gusty).
- 7.19.9. Number of takeoffs and landings required.
- 7.19.10. Ground Plan.

**7.20. Arrival.** Plan arrival altitudes to minimize conflict with terrain.

**7.21. Traffic Pattern.** When the environment permits, fly normal traffic patterns. Terrain may require significant modifications to normal traffic patterns. Options are to enter the traffic pattern via an initial, downwind, base, straight-in, or perpendicular to the runway.

**7.22. Specific Aircrew Procedures.** The following procedures are recommended in addition to the normal procedures in the AFM:

- 7.22.1. Close the engine bleed valves (if equipped) as required.
- 7.22.2. During the final stage of landing roll, reduce reverse thrust, if conditions permit, to prevent debris from causing a restriction to visibility or engine damage.
- 7.22.3. Do not land if the LZ is not properly identified or an abort signal is given.
- 7.22.4. Brief the ground party and subsequent aircrews on any unexpected hazards encountered during takeoff or landing.

### ***Section 7D—COMBAT LOADING***

**7.23. General.** Combat loading is comprised of three types of operations: combat offload, passenger combat loading, and rapid infiltration.

**7.24. Combat Offload Training.** No special authorization is required for combat offload training using unilateral training loads. Specific procedures for combat offload in aircraft capable of that operation will be stated in the aircraft addenda.

#### **7.25. Passenger Combat Loading:**

- 7.25.1. All personnel in the cargo compartment will be seated and secured except those crew members having valid duties to perform. Use either personal restraining devices or aircraft tie down straps.
- 7.25.2. When airlifting litter patients, position the litters longitudinally and secure each of the litters with a tie down strap.
  - 7.25.2.1. For one litter, hook the tie down strap into a floor ring, run laterally, wrapping the strap around each litter handle once, hook the ratchet end to the nearest tie down ring, and tighten.
  - 7.25.2.2. For two litters side by side, use two tie down straps for each end hooked into “D” row rings, run the straps laterally, one left and one right, over each outboard litter handle to the nearest tie down ring, and tighten.

7.25.2.3. For three litters side by side, wrap the straps around adjacent handles.

## 7.26. Rapid Infiltration Procedures.

7.26.1. General. These procedures are only authorized when conducting infiltration/exfiltration (infil/exfil) operations with SOF. In addition to the guidance provided here, crews will follow the guidance in aircraft addenda. All personnel in the cargo compartment will be seated and secured except those crew members having valid duties to perform. Troops will provide their own restraining devices. If they do not provide their own restraining devices, secure personnel using passenger combat loading procedures.

7.26.2. The LM may use Infrared (IR) chemical lights taped to the side of the cargo compartment to illuminate inside of a blacked out cargo compartment if required.

7.26.3. The LM will notify personnel at 60, 30, 20, 10, 6, "1 Minute", and immediately prior to landing. Give a "Prepare to Land" advisory when minimums have been called.

7.26.4. LMs will wear NVGs during blacked out operations. LMs will wear NVGs on aircraft with NVG-compatible lighting; however, they may be raised when NVG lighting is on.

7.26.5. Procedures after Touchdown:

7.26.5.1. Aircraft equipped with a rear cargo ramp and door:

7.26.5.1.1. Open the cargo ramp and door to horizontal when the pilot states, "Clear to open," or as prebriefed. Lower the ramp to the ground once the aircraft has stopped and the pilot states, "Clear to offload." **CAUTION:** Maintain positive control of ground loading ramps.

7.26.5.1.2. Position ground loading ramps. **Note:** If a time delay before onloading is anticipated, raise the ramp enough to allow the aircraft to taxi in the event of an emergency.

7.26.5.1.3. Complete offload/onload.

7.26.5.1.4. Raise canary slides/ground loading ramps.

7.26.5.1.5. Raise the ramp to horizontal.

7.26.5.1.6. Notify the pilot, "Clear to taxi."

7.26.5.1.7. Secure canary slides/ground loading ramps.

7.26.5.1.8. Close the ramp and door.

7.26.5.1.9. Turn on the red or NVG-compatible lights.

7.26.5.1.10. Prior to takeoff, ensure vehicles/equipment and exits are secure, and warning lights are extinguished.

7.26.5.1.11. If the aircraft is equipped, connect/engage Aerial Delivery System (ADS) arms after takeoff as soon as mission requirements allow.

7.26.5.1.12. Check vehicle tie downs and secure cargo compartment after takeoff as soon as mission requirements allow.

7.26.5.2. Aircraft not equipped with a rear cargo ramp and door:

7.26.5.2.1. Open and secure the side door when the pilot states, "Clear to open."

**WARNING:** The pilot will not clear any side exits to be opened until the aircraft is slowed to a safe taxi speed. Side exits forward of any landing gear or propellers will not be opened until the aircraft is stopped.

7.26.5.2.2. When aircraft is stopped and the pilot states "Clear to Offload/Onload" the LM will complete offload/onload:

7.26.5.2.3. Notify the pilot, "Clear to taxi."

7.26.5.2.4. Close the side door.

7.26.5.2.5. Prior to takeoff, ensure vehicles/equipment and exits are secure, and warning lights are extinguished.

7.26.5.2.6. Secure cargo compartment after takeoff as soon as mission requirements allow.

## Chapter 8

### FIXED WING TRAINING POLICY

**8.1. General.** This chapter outlines procedures, requirements, and restrictions for training and evaluation missions. See AFI 11-202, Vol 1 and Vol 3, and AFSOCI 11-219, Vol 1, *Additional/Supplemental Aircraft Training*, for additional information. **Note:** The following guidance is in addition to manufacturer restrictions or limitations. Manufacturer guidance will always be followed unless the following guidance is more restrictive (higher altitudes, higher airspeeds, etc.).

**8.2. Instructor or Flight Examiner Briefings.** Before all training and evaluation missions, instructors or flight examiners will brief the crew on the mission profile, training requirements, and objectives or evaluation requirements.

**8.3. Debriefing.** After all training flights, instructors will:

8.3.1. Review and critique student performance.

8.3.2. Review training requirements fulfilled for each student and aircrew member (all aircrew members should understand thoroughly what training was accomplished).

8.3.3. Answer technical questions.

8.3.4. Preview the objectives of the next mission.

8.3.5. Complete training paperwork.

**8.4. Simulated Emergency Flight Procedures:** Simulated landing emergencies are authorized in day or night visual meteorological conditions (VMC) and day instrument meteorological conditions (IMC) if the weather is at or above circling minimums. Simulated emergencies are authorized in night IMC if the weather is at or above circling minimums or above 1,000 foot ceiling and 2 miles visibility, whichever is higher.

8.4.1. Practice emergencies which require simulating an engine shutdown, placing switches in other than their normal position, or an abnormal configuration as specified in the aircraft manual, only during training, evaluation, or currency flights when an instructor or flight examiner pilot is in one of the pilot seats.

8.4.1.1. Instructor pilot candidates who occupy a pilot seat and are under the supervision of a flight examiner pilot, not in the seat, may practice simulated emergency procedures during initial upgrade or requalification upgrade evaluations to instructor pilot.

8.4.1.2. Preface all simulated emergencies with the word "simulated" and terminate simulated emergencies when an actual emergency arises.

8.4.1.3. The following guidance will be adhered to during all engine-out training.

8.4.1.3.1. Normally turns should be planned to be in the direction of the operating engine(s).

8.4.1.3.2. Turns into the simulated failed engine should be minimized. Turns into the simulated failed engine are permissible but require a higher degree of pilot skill than with actual failed engines and must be smooth and coordinated.

**WARNING:** Improper application of rudder or power can lead to an immediate out-of-control situation where recovery might not be possible.

8.4.1.3.3. Set zero thrust IAW the aircraft manual or the aircraft specific addendum.

8.4.2. Do not perform simulated emergencies when passengers or medical crew members (except flight surgeons performing required flight duties) are aboard.

8.4.3. Conduct simulated emergency flight procedures IAW AFI 11-202, Vol 3, and this directive. Use a realistic approach and do not compound emergencies. Limit simulated emergencies to non-critical phases of flight when possible. Notify the controlling agency if a nonstandard traffic pattern or pattern requiring special sequencing is anticipated.

8.4.4. Training restrictions for specific flight maneuvers are listed in **Paragraph 8.8**.

**8.5. Touch-and-Go Landings.** Touch-and-go landings are authorized on designated training, evaluation, or currency missions by any current and qualified pilot IAW the following stipulations:

8.5.1. The crosswind component must not exceed the AFM or equivalent demonstrated crosswind limitation.

8.5.2. Touch-and-go landings are prohibited on icy runways. Pilots must use caution when performing touch-and-go's on other than dry, hard-surfaced runways.

8.5.3. Ceiling and visibility (RVR) must be at least 300 feet and 3/4 mile (RVR 40).

8.5.4. Touch-and-go landings are not authorized when normal wake turbulence criteria are not met, or when intercepting or crossing the flight path of a heavy jet while performing an approach or landing.

8.5.5. Minimum runway for touch-and-go landings: Not authorized for other than initial cadre until an appropriate distance is added to the appropriate aircraft addendum.

8.5.6. Do not perform ground-idle touch-and-go landings (turbine aircraft).

**8.6. Stop-and-Go Landings.** Stop-and-go landings are authorized on designated training, evaluation, or currency missions. Any current and qualified pilot may perform stop-and-go landings IAW the following stipulations:

8.6.1. The crosswind component must not exceed the AFM demonstrated crosswind limitation.

8.6.2. Stop-and-go landings are prohibited on icy runways. Pilots must use caution when performing stop-and-go landings on other than dry, hard-surfaced runways.

8.6.3. Ceiling and visibility (RVR) must be at least 300 feet and 3/4 mile (RVR 40).

8.6.4. Stop-and-go landings are not authorized when normal wake turbulence criteria are not met, or when intercepting or crossing the flight path of a heavy jet while performing an approach or landing.

8.6.5. Runway remaining for takeoff must meet the requirements of **Paragraph 7.10.1.1** of this instruction.

**8.7. Simulated Instrument Flight.** Do not use a hood or other artificial vision-restricting device for any phase of flight. Simulated instrument flight may be flown and logged without use of a vision-restricting device.

**8.8. Training Maneuver Restrictions.**

8.8.1. Aborted Takeoff. Authorized during day or night VMC. Crosswind component must not exceed 75% of the AFM demonstrated crosswind limitation. The runway must be dry, hard-surface and long enough to meet normal takeoff distance requirements. Runway width must be the greater of 400% of the wheel track or equal to the wingspan. Initiate the abort by stating, "REJECT" before refusal speed. Do not practice aborts from touch-and-go or stop-and-go landings. If actual engine shutdown due to a simulated malfunction is to be practiced, it must be pre-briefed.

8.8.2. Actual Engine Shutdown/Propeller Feathering and Air Start. One engine may be shut down in day VMC only at a minimum of 5,000 feet above the ground or cloud deck, whichever is higher. Do not shut down the engine unless the aircraft can remain clear of clouds and recover and land under visual flight rules.

8.8.3. Steep Turns. Determine stall speeds prior to making turns. Authorized in day VMC only at a minimum of 3,000 feet AGL, 3,000 feet above the cloud deck, or the manufacturer's recommended altitude, whichever is higher. Do not exceed 60° of bank. (Instructor not required.)

8.8.4. Air Minimum Control Speed (Vmca) Demonstration. Stall speed and engine inoperative minimum control should be determined prior to flight. Authorized in day VMC only, at a minimum altitude so that recovery is completed by 3,000 feet AGL, 3,000 feet above the cloud deck, or the manufacturer's recommended altitude, whichever is higher. Initiate recovery at the first recognition of loss of directional control by simultaneously reducing the power on the operating engine and/or reducing the angle of attack as necessary to regain directional control and airspeed.

**CAUTION:** There is a density altitude above which the stall speed is higher than the engine inoperative minimum control speed. When this density altitude exists below 3,000 AGL because of high elevations, high temperatures, or both, an effective flight demonstration of loss of directional control may be hazardous and should not be attempted. If it is determined prior to flight that the stall speed is above or equal to VMC, this flight demonstration is impracticable.

8.8.5. Stalls:

8.8.5.1. Power-Off Stalls. Determine actual stall speeds prior to maneuver. Authorized in day VMC only, at a minimum altitude so that recovery is completed by 3,000 feet AGL, 3,000 feet above the cloud deck, or the manufacturer's recommended altitude, whichever is higher. The stall may be entered from either straight or turning flight in the approach and landing configuration. Initiate recovery at the prebriefed point (when buffet or decay of control effectiveness is encountered or actual stall is reached) or if engine RPM decay is detected, or any abnormal engine indication is discovered.

8.8.5.2. Power-On Stall. Determine actual stall speeds prior to maneuver. Authorized in day VMC only at a minimum of 3,000 feet AGL, 3,000 feet above the cloud deck, or the manufacturer's recommendation altitude, whichever is higher. In some high performance

aircraft, the power setting for power-on stalls may have to be reduced below takeoff power to prevent excessive high pitch attitudes (greater than 30° nose up). In the absence of a manufacturer or addendum recommended power setting, use no more than approximately 55-60 percent of full power as a guideline. The stall should be entered in the takeoff or departure configuration and at V<sub>2</sub>. Initiate recovery when buffet or decay of control effectiveness is encountered, actual stall speed is reached, engine RPM decay is detected, or any abnormal engine indication is discovered, whichever occurs first.

**CAUTION:** There is a density altitude above which the stall speed is higher than the engine inoperative minimum control speed. Simulated or actual engine-out, power-on stalls are prohibited.

8.8.6. Slow Flight. Fly at 1.2 stall speed clean (V<sub>s</sub>) with corresponding flap settings. Do not exceed half standard rate or 15° of bank. Authorized in day VMC only at a minimum of 3,000 feet AGL, 3,000 feet above the cloud deck, or manufacturer's recommended altitude, whichever is higher.

8.8.7. Go-Around or Missed Approach. Minimum altitude is 500 feet AGL when aircraft, equipment, or personnel are on the runway. Initiate VFR go-around no lower than 100 feet AGL when practicing simulated emergencies other than engine failure. Initiate practice instrument missed approaches no lower than the minimum altitude for the approach. (Instructor not required.)

8.8.8. Simulated Engine Failure Engine-Out Landing.

8.8.8.1. Simulate engine failure no lower than 300 feet AGL.

8.8.8.2. The simulated failed engine should be set at zero-thrust at an airspeed greater than best climb speed single engine (V<sub>xse</sub>) or minimum control speed (V<sub>mc</sub>) +5, whichever is greater.

8.8.8.3. Use all engines for touch-and-go takeoffs.

8.8.9. Simulated Engine-Out Go-Around or Missed Approach. Initiate simulated engine-out go-around no lower than 200 feet AGL. Initiate simulated engine-out missed approach no lower than the minimum altitude for the approach.

## Chapter 9

### FIXED WING TACTICAL PROCEDURES

#### *Section 9A—PLANNING*

**9.1. General.** If a specific down range mission requires training of tactical procedures not described in this instruction or aircraft addenda:

9.1.1. HQ AFSOC/A3 must approve the specific tactical training to be accomplished prior to deployment.

9.1.2. Prior to the commencement of tactical training, a training plan must first be approved by HQ AFSOC/A3T, HQ AFSOC/A3V, and HQ AFRC/A3T and HQ AFRC/A3V if AFRC units are affected.

**9.2. Weather Requirements.** Weather must be VFR IAW AFI 11-202, Vol 3, for all tactical operations.

**9.3. Altimeter Settings.** Use the best available altimeter setting. If the current altimeter setting is not known, set altimeters to the minimum setting briefed for the mission.

**9.4. Minimum En Route Time.** En route flight time from takeoff to time over target (TOT) will be sufficient to safely accomplish all required checklists. For airdrops involving personnel, the AC and jumpmaster must approve en route time of less than 20 minutes.

#### **9.5. En Route Airspeeds.**

9.5.1. High-Altitude. Some missions include a high-altitude portion of flight prior to and after penetration from target area. Missions must be planned to provide the crew with the flexibility necessary to compensate for such inflight factors as weather deviations, avoidance of reported and unreported ground or air threats, and unexpected head or tail winds.

9.5.2. Low-Altitude. Arrival of the aircraft over the specific target at a designated time will be within  $\pm$  one minute. Gaining or losing significant amounts of time at low-level is highly undesirable. The gain or loss of time should be accomplished prior to low-level so that planned low-level entry time is achieved.

#### **9.6. En Route Altitudes.**

9.6.1. High-Level. The selected altitude will depend upon factors such as fuel consumption, traffic control separation, radar capabilities, and meteorological data.

9.6.2. Low-Level. The selected altitude depends upon factors such as threats, moon illumination, equipment limitations, weather, and terrain/cultural features. Fly the highest altitude using the following criteria:

9.6.2.1. Day VMC/Night VMC with NVGs. Maintain 300 feet AGL modified contour or as specified in addendum.

9.6.2.1.1. Night VMC without NVGs. Maintain a minimum of 500 feet above the highest obstacle within 3 nm of route centerline for each route segment.

9.6.2.2. Minimum Safe Altitude (MSA). MSA is a moderately low-altitude, which will provide positive terrain clearance when flight conditions are unacceptable for normal operations. To compute the MSA for day, add the MSL elevation of the highest obstruction or terrain feature within 3 nm of route centerline to the AGL flight altitude for that leg. For night visual operations, MSA will be computed by adding 500 feet to the MSL altitude of the highest obstacle or terrain feature within 3 nm (nautical miles) of route centerline. Round all MSAs to the next higher 100-foot increment.

9.6.2.3. Emergency Safe Altitude (ESA). ESA is an altitude, which will provide positive terrain clearance in IMC, during situations that require leaving the low-level structure. To compute the ESA, add 1,000 feet to the MSL elevation of the highest obstacle/terrain feature within 10 nm of course centerline for that route/route segment. For mountainous terrain, use 2,000 feet. Round to the next higher 100 foot increment.

**9.7. Mission Planning.** One day will normally be allocated for mission planning (not applicable to AFRC units). Designate the crew members required to participate. They should be exempted from other duties so their full attention will be on the mission. Identify individual responsibilities to efficiently use the time available. Unit training missions and exercises should involve real world scenarios from planning to debrief. Plan for the current mission requirements and then plan for the "worst case" situation (i.e., max gross weight, adverse winds, abnormal fuel consumption, enemy compromise, downed aircraft, etc.).

9.7.1. Mission Planning Software. Mission planning should be accomplished using Portable Flight Planning System (PFPS) if possible. Other mission planning programs such as Direct User Access Terminal System (DUATS), Jeppesen can be used but must be verified through manual calculations.

9.7.2. In preparation for mission planning, attempt to obtain, as much as possible, the following:

9.7.2.1. High quality imagery of target area and landing zone. This facilitates final approach planning and LZ recognition.

9.7.2.2. Landing surface dimensions, obstacles, and surface conditions.

9.7.2.3. Moisture at the LZ or any other meteorological element that might affect landing surface weight bearing capability.

9.7.2.4. Assemble as many different charts and photographs of the area of operations as possible. As a minimum the following three charts are required, when available.

9.7.2.4.1. Joint Operations Graph (JOG) 1:250,000. The JOG or equivalent is the primary chart for planning and flying the en route portion of the mission. The scale provides for a relatively small chart, uncluttered with extraneous information. It has latitude/longitude and Universal Transverse Mercator (UTM) coordinates, and when properly prepared, is very "night" compatible.

9.7.2.4.2. VFR Sectional or Tactical Pilotage Chart (TPC) 1:500,000. The VFR sectional is consulted because it is updated more frequently than the JOG. It also provides accurate information on controlled airspace, major towers, airports, beacons, and power lines as well as current magnetic variation. The sectional should normally

not be used for 500 foot contour flying as its scale does not allow sufficient detail for accurate pilotage, and is relatively cluttered, unless JOGs are not available.

9.7.2.4.3. Tactical 1:50,000 or larger. The tactical chart (1:50,000) is used to accurately locate and confirm unique map features and to transfer them to the JOG. It displays more detail in those areas, which may be difficult to interpret on the JOG. It should be used for the run in from Initial Point (IP) to LZ/DZ. Consider using geological survey charts if 1:50,000 charts are not available. Relief charts are also very helpful, when available. **Note:** Use caution when transitioning to 1:50,000 charts from the JOG. The aircraft is traveling at a relatively faster rate over this chart and pilotage pacing will increase.

9.7.2.5. Use demographics and cultural features to facilitate identifying tactics and operating window. **Note:** If these requirements are not satisfied, additional maneuvering and reconnaissance may be required in the target area.

**9.8. Chart Preparation.** Draw the route of flight on a topographic chart of 1:250,000 scale or larger. Center symbols depicting checkpoints, IPs, objectives, and so forth on the point. Course lines will not be drawn through these symbols. It is absolutely imperative that the navigation chart be prepared accurately with extreme care and attention to detail. Use one chart per mission. The entire route of flight from departure point to recovery point should be included on a chart. Since chart scale and route length may create large charts unsuitable for the flight deck it may be necessary to strip charts into workable sizes. When stripped charts are used, a larger scale chart such as a sectional should be prepared with the route and turn points to allow for major unplanned deviations during critical mission phases and emergency egress. Do not use the same chart for a different mission in the same area. Avoid cluttering the chart. Outline only those features that you expect to see (significant terrain contours, railroads, power lines, towers, etc.). Annotate the chart with the following items:

9.8.1. Circled and labeled turn points/check points connected by course lines. Course-lines may be plotted either point-to-point or radius of turn.

9.8.2. A circle with a diagonal line will depict emergency airfields.

9.8.3. A line across the course line will depict the combat entry point (CEP).

9.8.4. Annotate time marks, or distance marks, or both on the low-level course line.

9.8.5. Magnetic course, leg distance, leg time, and MSA will be annotated in a course arrow box along each leg of the route. Optional course arrow boxes can be used as long as they contain, as a minimum, the above listed information.

9.8.6. ESA for the route/route segment and MSA for each leg/leg segment, as applicable. ESA will be conspicuously annotated on the chart. Circle the obstruction that each MSA is based upon.

9.8.7. Low-level charts will be annotated with any added, deleted, or changed information as contained in the most recent Chart Update Manual (CHUM) or supplement. Charts will be chummed at least 10 nm either side of the planned route of flight. On the chart, individuals will annotate current CHUM, chart edition, date chart completed and ground speed chart was drawn for.

9.8.8. Special use airspace, military training routes, and other airspace boundaries that may affect the mission within 3 nm of course centerline.

9.8.9. Visual navigational checkpoints between turn points.

9.8.10. Location of inflight warnings.

9.8.11. For multi-engine aircraft, compute a single engine maximum altitude to determine if single engine capability exists along the route of flight.

**9.9. Low-Level Log.** Use a low-level log to plan all low-level missions.

9.9.1. The flying pilot will use an inflight low-level log during all low-level missions. The log may be computer generated or manually prepared. As a minimum, the log will contain the following information: ESA for the route or route segment, name of each turn point and coordinates, and for each leg, magnetic course, distance, time, and MSA.

9.9.2. The navigating pilot is encouraged to use a low-level log inflight; however, it is not a substitute for an individually prepared route chart.

9.9.3. The navigator, if part of the crew complement, will prepare and use both a chart and a low-level log.

**9.10. Route and Turn Point Selection.** The route to and from the target area must be tactically sound but not so difficult as to inhibit successful navigation. Each mission will differ and involve numerous variables. Listed below are general rules for proper route selection.

9.10.1. Route Selection.

9.10.1.1. Avoid brightly-lit areas, roads, and population centers.

9.10.1.2. Avoid planning the route near navaids or airports. Hazards include other aviation operations oriented on these facilities.

9.10.1.3. Plan to negotiate large north-south valleys on the upwind side, and if able, also on the moonlit side. This helps avoid turbulence and shadows cast by the moon, and permits silhouetting of terrain features for navigation.

9.10.1.4. Plan to negotiate narrow valleys and passes in an east-west or west-east direction (depending on where the moon is) so the terrain will be visible and shadows avoided.

9.10.1.5. Avoid planning a route that heads directly into a low angle rising or setting moon. Alter the course, as necessary, to fly a zigzag course when left with no other choice.

9.10.1.6. Consider selecting intermediate reference points (power lines, towers, roads, rivers, ponds, railroads, etc.) along each leg of the route for course confirmation and timing. Computing hard times for each of these points is time consuming but valuable. This provides rapid feedback on time status, which enables the crew to more easily recover in case of a late departure or mission time of arrival (TOA) changes.

9.10.1.7. Anticipate power lines/wires being located near roads, towers, and buildings in open fields. Warn the pilot of upcoming power lines, towers, and other obstructions.

9.10.1.8. Plan alternate routes and cut-offs in the event the primary route is unusable due to weather, mission TOA changes, late departures, etc. It is especially important to plan alternate run-ins in case of runway change. Mission planning and adherence to the planned route of flight is critical to the success of low-level operations. Flying off centerline may be necessary for more effective terrain masking or to avoid populated areas. These adjustments should be made during mission planning, if possible. Aircrews may deviate from planned route inflight due to unforeseen factors. Keep deviations to the minimum required. Maintain position awareness at all times.

9.10.2. Turn Point Selection. After a general route has been determined, select turn points to control movement and time along the route. Study the turn points carefully using all available charts and photos. Listed below are some considerations for turn-point selection.

9.10.2.1. Turn points should be unique natural or man-made features, which are detectable at a distance. Avoid features that are only visible when directly overhead. (Example: A small bridge in heavy vegetation or a small road X in the forest.)

9.10.2.2. Turn points should contrast with the surrounding terrain. Small paved roads are poor features to use in terrain with heavy vegetation, but provide excellent contrast in a desert environment. Small bodies of water provide very little contrast in terrain with vegetation, but contrast well in the desert.

9.10.2.3. Avoid selecting turn points near towns as the town will invariably grow and may make detection of the turn point difficult.

9.10.2.4. Turn points should not be in the vicinity of bright lights.

9.10.2.5. Turn points should be confirmed by using a prominent feature along the route and close to the turn point.

9.10.2.6. Consider the moon angle and illumination. The turn point should never fall within the shadow cast by nearby terrain features. A moon in front of the aircraft will make turn point identification difficult.

9.10.2.7. Try to select prominent barriers near turn points. It is often better to discard a good turn point with no barrier in favor of a more difficult turn point with an excellent barrier.

9.10.2.8. The first and last turn points of the route are the most important. An easily identifiable feature should be used even if the flight route must be altered slightly. This helps ensure positive location and timing. When planning an IP, allow enough time to get the aircraft configured and stable for the approach, but not so much time that drift becomes a limiting factor.

9.10.2.9. If possible, LZs should have an IP that aligns the run-in with the runway axis. However, a good IP is more important than an exact alignment with the runway heading. If the environment allows, consider conducting a "270" maneuver. This maneuver allows for IPs 90° off runway axis, and for an "unaided" LZ, easier identification of the landing area. Allow ample time to complete the maneuver in planning.

9.10.2.10. In varying terrain, make note of the MSL altitude at each turn point to aid in turn point identification. This technique is especially valuable in mountainous terrain.

**9.11. Crew Briefing.** It is imperative that a complete and detailed crew briefing is conducted prior to low-level flight. This briefing is normally conducted by the navigator or the navigating pilot, and covers as a minimum the following items:

- 9.11.1. ESA and the determining obstacle.
- 9.11.2. Alternate airfields.
- 9.11.3. Combat entry point.
- 9.11.4. The location of inflight warnings.
- 9.11.5. For each leg, the course, distance, time, MSA and significant terrain or threats.
- 9.11.6. The objective area. Review the survey and any aerial photography or tactical charts (1:50,000) available and brief the following items:
  - 9.11.6.1. For an LZ, brief the runway orientation, the run-in orientation, the LZ dimensions, significant obstacles, expected markings, planned point of touchdown and its coordinates, go-around point, escape route in the event of a balked landing, and compare LZ length to performance data for landing and for takeoff.
  - 9.11.6.2. For a DZ, brief the DZ orientation, its dimensions, significant obstacles, expected markings, point of impact (PI) and its coordinates, escape route, type of drop, altitude, green light time, Computed Air Release Point (CARP) or High-Altitude Release Point (HARP), and emergency procedures.
- 9.11.7. Action to follow (i.e., combat exit point, subsequent low-level route).
- 9.11.8. Pilots will brief emergency actions for loss of NVGs during critical phases of flight (takeoffs, landings, airdrops, etc.) during the mission briefing. Specific procedures are aircraft commanders' discretion.

### ***Section 9B—EN ROUTE***

**9.12. Inflight Aircrew Procedures. WARNING:** It is recognized that 3 to 3 1/2 seconds are needed from the time a stimulus (perceived closure rate, crew member input, etc.) is received and recognized until the reaction (control input, crew member action, etc.) to the stimulus is complete. All crew members need to be cognizant of this relationship, especially during critical phases of flight.

- 9.12.1. For aircraft equipped with a radar/radio altimeter, set the altitude clearance markers to 90% (if equipped) of the desired route altitude. Activation of the low-altitude warning system indicates the aircraft is too low and an immediate correction is necessary.
- 9.12.2. For aircraft not equipped with an operable radar/radio altimeter, do not fly below MSA at night.
- 9.12.3. Updating the computer navigation system. Computer navigation system updates help maintain course and assist the visual acquisition of route checkpoints. Updates may be made at intermediate visual checkpoints as well as turn points.
- 9.12.4. Turns are normally made at the turn point. However, terrain masking may require turning at an offset turn point. When the turn point cannot be located visually, the turn will

be initiated when at the preplanned linear boundary, the leg time has elapsed, or the computer navigation system distance-to-go stops decreasing.

9.12.5. GPS/FMS Procedures. When operating aircraft with GPS/FMS systems installed, aircrews may use the FMS for situational awareness and as a backup to visual navigation. Aircrews operating aircraft without GPS/FMS installed may use portable GPS units (PGUs) IAW AFI 11-202, Vol 3. PGUs may be connected to aircraft power if properly grounded. Ensure system use and operation does not interfere with navigation or aircraft control.

9.12.6. Emergency Procedures.

9.12.6.1. Disorientation. When a crew becomes disoriented, immediately establish your position by identifying a prominent terrain feature or landmark.

9.12.6.1.1. Start a climb to the ESA. Continue the climb until the ESA is reached or a positive fix obtained.

9.12.6.1.2. After obtaining a positive fix, descend and resume low-level operations. Crosscheck the timing and make any necessary adjustments.

9.12.6.1.3. Terrain, weather, controlled airspace, and mission are factors to consider when executing an emergency climb. The AC must consider each of these factors prior to his decision to make an emergency climb.

9.12.6.2. Engine-Out (Multi-Engine Aircraft):

9.12.6.2.1. Discontinue low-level if feasible.

9.12.6.2.2. If low-level flying is necessary, fly the appropriate minimum safe altitude.

9.12.7. Overwater Low-Level Procedures. When descending into an overwater low-level environment, the water may not be visible until approximately 100 feet AWL. To decrease the chance of impacting the water, match the descending Vertical Velocity Indicator (VVI) to the height above the water. Additional crew member(s) will backup the pilots by monitoring VVI and altimeters.

9.12.8. En Route Airspeed. During night low-level operations, the crew must remain alert and be prepared to react properly in the event of an emergency, particularly engine failure. To help provide a margin of safety, fly the low-level route IAW the following procedures:

9.12.8.1. Minimum airspeed is best rate of climb airspeed ( $V_y$ ,  $V_{y_{se}}$ , or  $V_{fto}$ ) with flaps up, and best angle of climb speed ( $V_x$ ,  $V_{co}$ ,  $V_2$ ) with flaps set at approach/takeoff.

9.12.8.2. When minimum airspeeds result in excessive groundspeed, use offset maneuvering, orbits, etc., to control en route time.

**9.13. Aircrew Duties.** Specific duties are:

9.13.1. Flying Pilot. Primarily responsible for terrain clearance, heading, and airspeed. Obstruction avoidance area of responsibility is immediately ahead and to their side of the aircraft.

9.13.2. Nonflying Pilot. Obstruction avoidance area of responsibility is immediately ahead and to their side of the aircraft. Perform navigational duties to back up the navigator, if

applicable, to include pilotage and checking the accuracy of the turn point brief. After the turn brief, both pilots should reset their heading markers to the new course when able. Monitor the pilot's airspeed, heading and bank angle as a backup. If flying an aircraft not requiring a navigator, the nonflying pilot assumes those duties as outlined in **Paragraph 9.13.4. Note:** During low-level operations, the pilots must be in their seats at all times. If either pilot must leave the seat, climb to the appropriate MSA prior to leaving the seat.

9.13.3. Flight Engineer (FE) (if applicable). Primarily responsible for aircraft systems management and cockpit equipment operation, unless briefed otherwise. Backs up pilots on airspeeds, altitudes, headings, and terrain avoidance. Since the pilots are focusing their outside attention close to the aircraft, the FE clears farther ahead for obstructions and other aircraft.

9.13.4. Navigator (if applicable). Primarily responsible for navigation and time control. Back up the navigating pilot on timing calls. Provide the turn point information to include new magnetic course, distance, MSA, description of turn point, and significant terrain description. The other pilot will acknowledge the new magnetic course. The turn point briefing and course acknowledgment must be completed prior to the turn point so as not to distract the crew from positively identifying the turn point. Accomplishes other duties as briefed.

9.13.5. Loadmaster (LM) (if applicable). Back up pilots on airspeeds, altitudes, headings, and terrain avoidance. Since the pilots are focusing their outside attention close to the aircraft, the LM clears farther ahead for obstructions and other aircraft. The LM performs other duties as directed by the PIC or as contained in the aircraft specific addendum.

9.13.6. Safety Observer (SO) (if applicable). An SO may be added to the crew at the discretion of the PIC. The SO will be assigned duties as directed by the PIC after coordination with primary crew members or as contained in the aircraft specific addendum.

### ***Section 9C—ARRIVAL***

**9.14. Navigating to Covert Landing Zones.** Some missions may require operations into unmarked and uncontrolled LZs. Mission effectiveness depends upon detailed intelligence, extensive aircrew planning and study, precision en route navigation and time control, accurate and timely LZ recognition, and positive aircrew coordination.

9.14.1. Markings. LZs are marked in one of the following Airfield Marking Patterns (AMP) as defined in AFI 13-217.

9.14.2. Training. Aircrews will normally use AMP-3 with covert lighting or AMP-4.

9.14.3. Fuel Planning. The chance of a successful landing to an unmarked LZ decreases when equivalent moon illumination is less than 5% or there is little or no contrast between the LZ and surrounding area. Plan 20 minutes additional fuel for operations involving unmarked LZs. Strong consideration should be given to AMP-3 configurations in this case.

**9.15. Landing Zone (LZ) Surveys.** All LZs must be surveyed IAW AFI 13-217 and/or airfield information is available in official publications.

**9.16. Terminal Area Landing Procedures.**

9.16.1. Initial Approach. When pre-mission intelligence requirements are not satisfied for surveyed LZs, additional maneuvering and reconnaissance may be required in the target area. **Note:** During operational training, aircraft must be stabilized and aligned with the runway from 100 feet AGL on final to touchdown or a go-around must be accomplished. If the flying pilot determines that the actual touch down point is going to be different than what was briefed he must verbalize this.

9.16.2. Communications. If landing clearance or go-around signals are to be given via radio, two-way communications with the reception committee must be established prior to landing. If comm-out procedures are used, presence of a pre-briefed signal constitutes clearance to land. A signal must be pre-briefed to direct a go-around. Radio clearance to land is the primary method when more than one aircraft is using the landing zone.

### ***Section 9D—NAVIGATING TO THE RELEASE POINT***

#### **9.17. General.**

9.17.1. Positioning. Accurately positioning the aircraft at the release point is the most critical phase of the airdrop mission. Crew coordination is of the utmost importance to ensure that all warnings and checklists are completed, proper DZ line up is maintained, and TOT is within established tolerances. For visual airdrops at night the flight crew will wear NVGs to accomplish drops on covertly marked or unmarked drop zones.

9.17.2. The navigator (or pilot if no navigator position) is responsible for computing a release point for all drops. Actual release is made by, but not limited to, the following methods:

9.17.2.1. CARP/HARP.

9.17.2.2. Ground Marked Release System (GMRS).

9.17.2.3. Jumpmaster directed. (The pilots will compare their CARP/HARP with that of the jumpmaster and resolve any significant differences prior to the drop).

9.17.2.4. Voice Initiated Release System (VIRS)

9.17.3. Aircrew Procedures. These are basic procedures used to arrive at the release point.

9.17.3.1. The navigator (or pilot if no navigator position) will brief the crew on the release method, the CARP/HARP location, the expected drift, release point location, desired magnetic heading (MH), drop altitude, drop airspeed, minimum safe altitude between IP and DZ, ground hazards/terrain in the drop area, escape heading, and altitude to be flown after drop.

9.17.3.2. Airspeed adjustments for TOT control should be completed prior to reaching the IP.

9.17.3.3. Use course corrections that will position the aircraft upwind the required distance from centerline track so that large corrections will not be required on the final approach to the release point.

9.17.3.4. Steer to the release point as applicable for the type release.

9.17.3.5. Fly the AGL/MSL altitude and airspeed. When MSL altitudes are flown, the pressure altimeter is the primary reference, with the radar/radio altimeter set 50 feet below drop altitude. The pilots are responsible for maintaining altitude, airspeed, and terrain separation.

9.17.3.6. Ten seconds prior to the release point, the navigating pilot or navigator will call, "Ten seconds."

9.17.3.7. At the release point (or at the prebriefed point for jumpmaster directed [JMD] drops ) the green light (if so equipped) will be turned on at the command of the navigating pilot or navigator. If not equipped with airdrop lights, a prebriefed signal will be used.

9.17.3.8. During the Drop:

9.17.3.8.1. Maintain the desired track, making small corrections as necessary.

9.17.3.8.2. The navigating pilot or navigator will call "Red Light" at the end of the programmed/computed time delay. If not equipped with airdrop lights, use a prebriefed signal.

9.17.3.8.3. If the LM observes any delay or malfunction of equipment, or delay of a parachutist to jump, advise the pilot.

9.17.3.9. Drop Zone Escape. After the aircraft has been reconfigured and the static lines have been retrieved/cut, the remainder of the completion of drop checklist should be completed in a timely manner so that crew duties pertaining to continued low-level are not diverted.

**9.18. Visual Airdrop Procedures.** As soon as the DZ is visible and identified by the pilots, they jointly confirm the release point location, lateral offset, and track required. The pilot flying the aircraft then assumes the responsibility for maintaining the desired track.

**9.19. Ground Marked Release System (GMRS).** Airdrops may be made using the GMRS. In this system, supported ground forces are responsible for computing a release point and providing ground markings (panels or lights). The DZ markings will be coordinated prior to the mission during joint planning. Aircrew procedures are the same as those employed during a manual CARP drop. There are several DZ marking patterns. The DZ marking most commonly used is the inverted "L". The inverted "L" utilizes a standard four marker pattern placed 100 meters left of the desired release point. The corner marker panel (release point marker) may be used for authentication through the use of a code light or special panel signal. Execute the drop when the aircraft arrives directly opposite and 100 meters to the right of the corner marker panel on the pre-briefed inbound heading. Refer to AFI 13-217 for GMRS markings depictions.

**9.20. Verbally Initiated Release System.** VIRS is an airdrop method by which ground personnel provide verbal steering guidance to an aircraft and call the release when the aircraft arrives over a predetermined point on the ground. VIRS will only be performed by qualified CCT, Tactical Air Liaison Officer (TALO), Drop Zone Control Officer (DZCO), Pararescue, or other properly trained personnel.

9.20.1. This option may be selected under the following conditions:

9.20.1.1. CARP procedures cannot be used.

9.20.1.2. The DZ release point is located in an area where the normal GMRS markings would not be visible from the aircraft.

9.20.1.3. It is tactically impractical to mark the DZ.

9.20.2. When this option is selected:

9.20.2.1. The ground party will compute the release point.

9.20.2.2. The ground party will position on the intended release point, provide the aircrew with verbal steering guidance and call the release when the aircraft reaches the release point.

9.20.2.3. The ground party should use the following terminology:

9.20.2.3.1. "Turn Left or Right" directs approximately a half standard rate turn unless specified otherwise.

9.20.2.3.2. "Stop Turn".

9.20.2.3.3. "Standby" indicates approximately five seconds prior to the release point.

9.20.2.3.4. "Execute, Execute, Execute" directs the release of the drop.

9.20.2.4. Upon hearing "Standby", the pilot will notify the LM. The load will be released on the first "Execute".

9.20.2.5. The authentication procedures to be employed will be briefed prior to the mission. The procedure should be as simple and short as possible so as not to interfere with the approach to the DZ. Based on the limitations of radio equipment and terrain, a point will be identified as far out on the approach as possible where contact should be first attempted for authentication.

9.20.2.6. The ground party must maintain positive visual contact with the aircraft at all times during the inbound approach. If, in a training situation, doubt exists that the airdrop can be safely executed, or if the DZ cannot be positively identified by the aircrew, a no drop will be called by either the ground party or the aircrew. In a combat situation, the ground party will direct the aircraft to the release point and call the release. In this situation, the lack of visual acquisition of the DZ by the aircrew will not, by itself, constitute grounds for calling a no drop. During VIRS airdrops the ground party providing the verbal steers accepts responsibility for the point of impact of the airdrop.

**9.21. Jumpmaster Directed (JMD) Airdrops.** When JMD airdrops are utilized, the following restrictions and procedures apply:

9.21.1. Prior to takeoff, a CARP or HARP will be calculated for each airdrop. The aircrew and the jumpmaster will compare predicted release points, resolve significant differences, and agree to a planned run-in and slow-down point. The pilot, LM, and jumpmaster will coordinate interphone procedures, verbal and visual signals.

9.21.2. At completion of the slowdown, the LM will allow the jumpmaster to begin "spotting procedures". The jumpmaster may spot from the aircraft ramp/side door or a window.

9.21.3. The aircrew may turn on the “green light” once the drop zone has been positively identified and drop clearance has been obtained, but no earlier than 1 minute prior to the aircrew-jumpmaster agreed upon HARP for free fall operations, or 30 seconds prior to the agreed upon CARP for static line drops. Personnel will not exit unless the green light is illuminated. Any time exit of the jumpers becomes unsafe, the aircrew will turn on the “red light” and the LM will direct the jumpmaster to stop the remaining jumpers.

9.21.4. JMD airdrops will be accomplished VMC. The jumpmaster’s unit accepts responsibility for accuracy or injury.

**Note:** Consult AFD 62-6, *USAF Airworthiness*, Joint Service Specification Guide (JSSG)-2001B, JSSG-2009, *Airworthiness Certification Criteria*, MIL-HDBK-516B, *Airworthiness Certification Criteria*, for guidance on certification of additional aircraft for airdrop.

### **Section 9E—AIRDROP**

**9.22. Airdrop.** Static Line airdrops will be conducted in VMC. High altitude low opening/high altitude high opening (HALO/HAHO) airdrops may be accomplished "VFR on top" with AFI 11-202 Vol 3 cloud clearances, within active restricted airspace and a minimum of 1,000 foot ceiling on the DZ. To accomplish HALO/HAHO while “VFR on top” the aircraft must be appropriately equipped with suitable navigation equipment. Procedures will be specified in the aircraft specific addendum. Pre-breathing, airspeed, altitudes and wind limits are as indicated in **Table 9.1**, **Table 9.2**, **Table 9.3**, and **Table 9.4**. A manual or PFPS generated CARP/HARP will be computed for all airdrops. (Reference AFI 11-231, *Computed Air Release Point Procedures*).

9.22.1. Floor Loading of Personnel. Floor loading is only authorized in support of SOF and foreign counterparts during SOF operations, exercises and training, or during bilateral training in support of SOF. Floor loading of SOF will only be employed when the mission cannot be accomplished by using standard seating configurations.

9.22.2. Ramp and Door Operations (Aircraft with Ramp and Door)/Side Door Operations:

9.22.2.1. Clearance to Open. Depending on the tactical situation, it may be desirable to open the ramp and door or side door prior to the slow-down checklist. The pilot may direct ramp and door/side door(s) opening any time after the six-minute advisory has been completed and clearance from the LM is received. After the ramp and door/side door(s) is/are open, the LM is cleared to complete the slow-down checklist. Consider aircraft position and the possibility of dropped objects when the door is opened.

9.22.2.2. Loadmaster-Jumpmaster Control. During the slow-down portion of the airdrop, the LM will relinquish control of the door/ramp to the jumpmaster. The LM will then take a position in such a manner as to provide maximum maneuverability for jumpmasters and safety personnel to perform their duties. Upon seeing the red jump lights illuminate, the LM will notify the jumpmaster or safety personnel of the red light condition. The LM will take no further action to stop any of the remaining parachutists. The LM will count (if possible) any parachutists that exit the aircraft after the red light has illuminated. Control of the door will revert back to the LM after all parachutists have exited or remaining parachutists have been stopped by the

jumpmaster or safety and cleared from the door area. For multiple passes (i.e., racetracks), after assuming control of the door/ramp from the jumpmaster, the LM will maintain control of the door/ramp until completion of the slow-down checklist.

9.22.3. Multiple Passes (Racetracks). Multiple passes will not be made unless directed or previously agreed upon by all units involved. In the event multiple passes are performed, regardless of the time interval involved, all airdrop checklists will be accomplished. In the event like drops are accomplished during multiple passes, the checklist may be initiated at a point commensurate with the available time and type of drop, at the discretion of the aircraft commander.

9.22.4. Static Line Retrieval. To facilitate manual static line retrieval, airspeed will not be increased above 150 knots indicated air speed (KIAS) until static lines are retrieved. Loadmasters should allow static lines to wrap together before retrieving static lines. The LM will retrieve static lines as soon as possible after parachutist and/or para-bundle exit is completed or exiting is suspended.

9.22.5. Tailgate Drops. Tailgate drops are those during which parachutists exit from the aircraft ramp. The following restrictions apply:

9.22.5.1. Retrieve static lines and deployment bags prior to each additional pass to prevent fouling.

9.22.6. Combination Drops. Combination drops are those during which parachutists exit from the aircraft ramp and door or side door(s) after the gravity release of an airdrop load. The drop altitude will be determined by the item requiring the highest drop altitude as listed in **Table 9.3**.

9.22.6.1. Restrictions. Static lines will be retrieved after each pass to minimize fouling risk. For gravity ejected loads, for additional passes, close the cargo ramp and door or side door, if required, and rig IAW appropriate rigging procedures.

9.22.6.2. Procedures. In addition to the equipment CARP, the aircrew will compute a personnel CARP down track from the equipment release point using the computed exit time for the equipment drop as the time interval between the equipment and personnel CARP. Use the same KIAS and altitude as for the equipment for this computation. If the computed point of impact falls within 150 yards of any boundary of the drop zone, inform the jumpmaster.

9.22.7. Parachute Ballistics. Crews will not make airdrops using parachutes for which AFI 11231 does not list ballistics unless the user provides approved ballistic data or K factor. The ballistics or K factor should be approved by HQ AFSOC/A3V. This does not apply to formal/user test missions where the purpose of the test is to derive ballistic data for a specific load.

9.22.8. Side Door Drops. Side door drops are those during which parachutists exit from the aircraft side door(s). The same restrictions in **Paragraph 9.22.5.1** thru **Paragraph 9.22.7** apply.

### 9.23. No-Drop Decisions.

9.23.1. Prior to one minute warning, when any condition exists that would make a safe drop doubtful, notify the aircraft commander.

9.23.2. After the 1 minute warning, any crew member observing a condition that would jeopardize a safe drop will transmit "No-Drop" on the interphone. The primary LM, nonflying pilot, and navigator (if on board) will acknowledge the no-drop. The aircraft commander will immediately instruct the crew to follow the appropriate procedures.

9.23.3. On personnel airdrops where surface winds are unknown, e.g. blind drops to unmanned DZs, the jumpmaster and/or Army airborne mission commander (if designated) will be advised when drop altitude winds exceed 30 knots. In this instance, the decision to drop will be at their discretion.

9.23.4. If a no-drop is called after the load restraint is removed and a racetrack is not planned, reapply the load restraint.

9.23.5. When only Air Force (AF) personnel are involved, STS determines if surface conditions are hazardous to airdrop operations. For joint missions, the user makes the decision. If drops are suspended or canceled, STS or the user, as applicable, will inform the drop aircraft as soon as possible and ensure red smoke/lights/flares are displayed on the DZ.

**9.24. Airdrop Emergencies.** If a malfunction occurs during an airdrop, the LM will immediately notify the pilot and take appropriate action. Specific emergency procedures for each type airdrop are located in aircraft specific addendum to this regulation and in the airdrop checklist. After all appropriate emergency actions are complete accomplish the completion of drop checklist. **Note:** Prior to stations time, the pilot will ensure that all crewmembers have reviewed the emergency procedures for the proposed airdrop. Detailed emergency briefings will be conducted between the crew members.

#### **9.25. Airdrop Communications Procedures.**

9.25.1. General. Airdrops should be performed with minimum radio transmissions. Predetermined markings and authentication procedures, along with precise timing by the aircrew, are the basic ingredients for successful mission accomplishment. The using forces are trained to operate with minimum communications. Drop clearance is confirmed by the aircrew observing or receiving proper authentication.

9.25.2. Training Operations. Radio transmissions with the DZ are limited to those required for safety of flight considerations or factors affecting airborne force employment. This includes ATC directions, range clearance, unsafe surface conditions or mission changes. When the mission dictates radio silence, transmission of wind information and range/drop clearance is not required. Radio silence procedures will be coordinated prior to mission execution.

9.25.2.1. Drop clearance in VMC is confirmed by the aircrew observing the proper authentication, that is, the pre-briefed block letter identifier, correctly colored smoke/flare or other pre-briefed drop zone acquisition aid or markings.

9.25.2.2. For unmarked or blind drops to manned DZs, radio clearance is required to drop.

9.25.2.3. No-Drop or Mission Cancellation. A no drop or mission cancellation is communicated by the absence of pre-briefed markings (visual or electronic), observation of the block letter X, or red smoke/flare.

#### **9.26. Types of Drop Zones.**

9.26.1. Point DZ. This DZ has a specified location versus an area DZ that does not have a specific location. The majority of drop zones are point DZs. The location, size, and marking of point DZs are determined prior to mission execution. The point of impact will be established a minimum of 100 yards from all boundaries of the DZ. The PI may be moved within the confines of the drop zone as long as the 100 yard buffer is maintained and both the user and supporter mutually agree upon its placement. When the PI is moved, the user assumes responsibility for injury to personnel and damage to equipment.

9.26.2. Area DZ. An area DZ consists of a prearranged flight path over a series of acceptable drop sites located not more than 1/2 nm (one km) on either side of track. A line of flight is established between two points (A and B). The distance between the two points will not exceed 15 nm (28 km) and should have changes in ground elevation less than 300 feet (90 m). The reception committee is free to receive the drop at any location along the line of flight.

9.26.2.1. Timing. The aircraft arrives at point "A" at the scheduled time and proceeds toward point "B." Once the DZ markings are located, the drop is conducted in the normal manner. All airdrop warnings (except the one minute warning) are based on TOA at point "A". The DZ will be marked for a total of 10 minutes, starting 2 minutes prior to ETA over point "A". Markings are removed at the end of the 10 minute period or when the first parachute is sighted.

9.26.2.2. DZ Altitude. Because a specific point is not used, use the average elevation of a flat terrain area DZ or the highest elevation of a rolling terrain area DZ for the terrain elevation when completing the CARP. Fly this MSL altitude for the drop.

## **9.27. Drop Zone Survey and Safety of Flight Requirements.**

9.27.1. Drop Zone Survey. A DZ survey is required by the user during peacetime training for all aerial deliveries IAW AFI 13-217. The survey will be accomplished and signed by the user, (i.e., CCT, STS Army Special Forces (SF), or Navy SEALs). See AFI 13-217 and appropriate supplements for additional information. The Assault Zone Availability Report (AZAR) is an AMC source document for available surveyed DZs.

9.27.2. Safety of Flight Review. A safety of flight review is required by AFSOC for all DZs. The review will be accomplished in conjunction with a DZ survey and will be signed by the appropriate approval authority IAW AFI 13-217. The airborne unit assumes all responsibility for personnel injury and damage on the DZ.

## **9.28. Drop Zone Markings.**

9.28.1. Marked Drop Zones. The drop zone is marked with a coordinated visual signal (e.g., block letter, flares, smoke, mirror, etc.). No other markings are required. The PI is marked for CARP drops. The release point is marked for GMRS drops.

9.28.2. Blind Drop Zones. The drop zone is unmarked. The aircrew confirms the DZ location and determines the release point by onboard navigational equipment or visual offset points. **Note:** The chance of a successful drop decreases if equivalent moon illumination is less than 5% and/or there is little or no contrast between the DZ and the surrounding area. Plan 20 minutes additional fuel for operations involving unmarked drop zones.

**9.29. Minimum Drop Zone Sizes.** The minimum size DZ is mutually agreed upon by the Air Force and using unit commanders having control of the operation. The size should be based on mission requirements, aircraft or aircrew capabilities, and the items to be dropped. When conducting drops on blind DZs, consider terrain, and chart/equipment accuracy. The minimum DZ sizes in **Table 9.5** can be used for planning. These tables are based on optimum conditions. Safety zones have not been added to these tables. GMRS/VIRS and military free fall (MFF) DZ sizes are the responsibility of the using agency. See AFI 13-217 for further guidance.

### ***Section 9F—LOW-ALTITUDE AIRDROPS***

#### **9.30. Personnel Airdrops.**

9.30.1. Aircraft Configuration. The LM will ensure the configuration of the aircraft is consistent with the number of personnel to be airdropped. Troop seats will be raised or lowered, as required, by airborne personnel under the supervision and instruction of the aircrew LM.

9.30.2. Aircrew Procedures. Refer to the aircraft specific expanded checklist for normal and emergency airdrop procedures contained in the aircraft specific attachments to this regulation.

**WARNING:** During personnel airdrops insure all personnel are secured to the aircraft or have a static line connected prior to opening any doors. HALO/HAHO personnel will be configured and ready to jump.

#### 9.30.3. Aircraft Emergency during Personnel Airdrop:

9.30.3.1. When an aircraft emergency occurs during or after the time the parachutists stand up and hookup, the following procedures will apply:

##### 9.30.3.1.1. Under Acceptable Conditions:

9.30.3.1.1.1. Maintain an acceptable altitude and attitude for the parachutists to evacuate the aircraft. The minimum acceptable altitude is 400 feet AGL. If the jump must be made at airspeed in excess of 150 KIAS, the parachutists will be advised of the airspeed and altitude.

9.30.3.1.1.2. Order evacuation of the aircraft by giving the pre-briefed signals for preparation and bailout.

9.30.3.1.2. Under Unacceptable Conditions. When conditions are not acceptable for aircraft evacuation and/or drop is aborted for other reasons, the following procedures apply:

9.30.3.1.2.1. The red light will be turned "ON" (or prebriefed signal) and will remain on until all doors are closed, if applicable.

9.30.3.1.2.2. The pilot will advise the LM, who in turn will advise the jumpmaster to have the parachutists unhook, take their seats, and fasten their safety belts.

9.30.3.2. When an aircraft emergency occurs before the time the parachutist's hookup, the crew will notify the jumpers to fasten their seat belts and prepare for an emergency landing.

### **9.31. Door Bundle.**

9.31.1. General. A7 or A21 containers weighing up to 500 pounds are referred to as door bundles and will be dropped from the aircraft using the personnel airdrop checklist. Door bundles may be dropped independently or in conjunction with personnel. When dropped with personnel, the bundle will be the first object to exit the aircraft.

9.31.1.1. When followed by parachutist, door bundles dropped off the ramp and door or side door will be equipped with breakaway static lines IAW TO 13C7-1-11, *Airdrop of Supplies and Equipment Rigging Containers*, or with parachutes packed in T-10 bags.

9.31.1.2. Bundles that exceed 500 pounds will be airdropped using Container Delivery System (CDS) procedures IAW the aircraft specific addendum.

9.31.2. Release Point. When door bundles are dropped with personnel, compute the CARP for the first paratrooper exiting after the bundle. Compute an additional CARP for the door bundle to ensure that it will impact within the DZ boundaries. Release the bundle at the personnel CARP, followed by the parachutists when the door is clear. When a door bundle is the only object being dropped, base the release on the CARP for the bundle.

**9.32. Container Delivery System (CDS).** CDS is a method of airdropping supplies using gravity to extract the load from the aircraft. The type containers used are A-22, double A-22 or Combat Rubber Raiding Craft (CRRC). The bundles may be dropped with or without parachutists. When performing combination drops, the parachutists will exit after the container. For specific CDS/CRRC procedures refer to the aircraft specific attachment.

**9.33. Free-Fall Delivery System.** The delivery of certain types of supplies, such as bulk food products or clothing, can be accomplished without the use of parachutes. For free drop, wind drift need not be considered. Use the appropriate personnel airdrop checklist.

9.33.1. Drop Altitude. Normally, free-drop is accomplished at much lower altitudes than those required for paradrops. When possible, free-drops will be made at 200 feet AGL or less, but not below 50 feet AGL (see [Table 9.3](#)).

9.33.2. Drop Zone Size. The trajectory of the items being dropped will determine the DZ size requirements. As a rule, the DZ length required equals the altitude of the aircraft over the release point plus a safety margin of 100 feet added to each end. Applying this rule, when dropping from 200 feet AGL, the required length will be 200 feet (altitude) plus 200 feet (safety margin) or 400 feet total.

### **9.34. Standard Airdrop Training Bundle (SATB).**

9.34.1. General. The 15-pound training bundle is designated the standard airdrop training bundle and may be dropped to simulate personnel or equipment airdrops. Conduct SATB missions at the altitude and airspeed specified for the type of drop being simulated and use the applicable tactical airdrop checklist. Training bundles will be assembled and have an identification tag attached IAW TO13C7-1-11, Appendix D. Training bundles will not be rigged with a breakaway static line.

9.34.2. Emergency Procedures: If a training bundle is outside the aircraft and fails to separate, make no attempt to retrieve it. Cut the bundle loose over the pre-briefed salvo area or DZ on clearance from the aircraft commander.

### **Section 9G—HIGH-ALTITUDE AIRDROPS**

**9.35. High-Altitude Mission Requirements.** Airdrops conducted above 3,000 feet AGL are considered to be high-altitude drops. In addition to the normal mission planning requirements, the following are unique to high-altitude operations:

9.35.1. Prominent terrain features within the drop area should be selected to position the aircraft on the inbound course and to determine the release point.

9.35.2. Preflight weather and winds must be analyzed to determine the most advantageous inbound course. Whenever possible, the inbound course should be into the average wind vector.

9.35.3. High-Altitude Oxygen: IAW AFI 11-202, Vol 3. Airdrop above 25,000 feet require a waiver to AFI 11-202, Vol 3. Submit waivers through HQ AFSOC/A3V. (T-2)

**Table 9.1. Pre-Breathing Times.**

DROP ALTITUDE	AIRCREW	PARACHUTISTS
At or above 18,000 to 25,000'	30 Min	30 Min HALO/HAHO

9.35.3.1. Aerospace and Operational Physiologist (AOP) and Physiology Technician (PT) Requirements. An AOP and/or PT (AFSC 43A and 4M0X1) will accompany all missions operating above 20,000 feet MSL regardless of the type of airdrop. AOPs/PTs will brief aircrew and jumpers prior to first mission on physiological problems that may be encountered, the importance of proper pre-breathing, and any special requirements using the approved briefing guide. They will advise the aircraft commander and crew on use of oxygen equipment and depressurization schedule, preflight supplemental oxygen equipment, and advise/aid loadmasters in loading, positioning, and securing parachutists oxygen equipment. At least one AOP/PT will be on interphone at all times. AOP/PT flight duty station will be as required to monitor crewmembers, jumpers, and oxygen equipment. They will monitor and record pre-breathing times and exposure times at and/or above 10,000 ft, 20,000 ft MSL, and peak altitude to advise aircraft commander and direct the disposition of any physiological incidents until relieved by Flight Surgeon or appropriate medical personnel.

9.35.3.2. HQ USAF/SGPA and HQ AFSOC/SG will be notified by the most expeditious manner of any physiological incident.

9.35.3.3. Emergency Procedures. If any person experiences decompression sickness or unusual pain, the pilot will:

9.35.3.3.1. Abort the mission.

9.35.3.3.2. Begin a descent. The type and degree of sickness or pain will determine the descent.

9.35.3.3.3. Proceed to the nearest base at which qualified medical assistance is available.

9.35.3.3.4. Advise the control tower of the emergency and request a doctor and an ambulance to meet the aircraft.

**9.36. High-Altitude Personnel Drop (HALO/HAHO) Procedures.** A HARP solution will be computed for all high-altitude personnel drops unless specific mission directives dictate otherwise.

9.36.1. Flight Planning. In addition to the normal flight planning requirements to position the aircraft over the target area, the following are unique to HALO/HAHO operations using the HARP.

9.36.1.1. Detailed instructions for computing the HARP are contained in AFI 11-231.

9.36.1.2. Plot the preflight HARP and ensure the distance from the IP to the preflight HARP allows sufficient time for the aircrew to verify the run in, accomplish airdrop checklists, and if required, recompute and plot the inflight HARP. This should receive special consideration when performing HAHO airdrop operations.

9.36.1.3. A large-scale chart prepared for inflight use is highly desirable. This allows the aircrew to update the inflight HARP for a visual release.

9.36.2. Conduct Of Operations:

9.36.2.1. If mission requirements dictate, crews may employ low-level flight to the target area with a climb for HALO/HAHO operations. This may enable the aircrew to obtain current winds for updating the preflight HARP during the climb. High-level flights are also possible but the HARP will have to be based on preflight winds. Positive identification of the drop zone area must be confirmed visually when conducting a visual HARP.

9.36.2.2. Initial Lineup. It is desirable that the aircraft is at drop altitude, inbound to the HARP not later than six minutes prior to the HARP. This amount of time is necessary to update the HARP and position the aircraft on the correct inbound course.

9.36.2.3. HARP Release. The following methods may be used in determining the HARP.

9.36.2.3.1. A visual drop may be accomplished whereby the pilot flies over the HARP. Positive identification of the drop zone area and/or HARP must be confirmed visually prior to calling the release. Verify an offset from the point of impact, which will ensure the aircraft will track over the HARP. Once proper alignment is obtained, pick a geographic point on the horizon and fly a drift killed heading toward this point. Choose a reference point far enough from the DZ to ensure the point remains in constant view. Selection of timing points will assist in calling the release point (green light) since the DZ will disappear under the nose of the aircraft. Timing points should be abeam the drop zone, prior to the HARP and identified prior to the 1 minute warning. Cultural features such as long straight roads or railroads make excellent timing points.

9.36.2.3.2. An onboard navigation system release may be accomplished when pre-briefed and coordinated with the parachutists. When this procedure is used, enter the IP and preflight HARP coordinates into the system. Comply with **Paragraph 9.36.3.2** of this instruction when selecting an IP. Update the HARP as necessary to compensate for winds that are different than those forecasted. Fly FMS or GPS steering to the release point (green light). When airdropping IAW this procedure, visual identification of the DZ is not required.

9.36.3. Drop Configuration:

9.36.3.1. Flaps. IAW the aircraft specific addendum.

9.36.3.2. Airspeed. Brief the jumpmaster on the airspeed used IAW **Table 9.2**.

9.36.3.3. Altitude. Pressure altitude will be used as the airdrop altitude reference.

9.36.3.4. Exits:

9.36.3.4.1. Parachutists will normally exit from the ramp, if so equipped. All parachutists, with the exception of the jumpmaster, will stand forward of the ramp hinge/door opening until the one minute warning.

9.36.3.4.2. All parachutists, including the jumpmaster, will exit the aircraft during the green light time.

9.36.4. Communications and Signals:

9.36.4.1. Hand Signals. The pilot or LM will coordinate the following hand signals with the jumpmaster:

9.36.4.1.1. Time warnings (20, 10, 6, 3, and 1 minute) will be given to the parachutists by the LM pointing at a watch and indicating with fingers the correct warning.

9.36.4.1.2. Wind velocity on the DZ will be given an open hand, palm up, moved horizontally and blowing into it and indicating with upturned fingers the speed of the wind.

9.36.4.1.3. Passing the forefinger across the throat indicates a no-drop.

9.36.4.2. Written Messages. The LM will carry pencil and paper and write out messages that cannot be passed by hand signals. Messages for the pilot from the parachutists will be written out.

9.36.5. Briefing. The following items will be added to the pilot-jumpmaster briefing:

9.36.5.1. Weather.

9.36.5.2. Emergency descent procedures and time to descend to 10,000 feet MSL.

9.36.5.3. HARP and prominent terrain features.

9.36.5.4. DZ markings.

9.36.5.5. Time at which all mission personnel will commence pre-breathing.

9.36.5.6. Location and duration of the green light.

### ***Section 9H—AIRDROP RELATED INFORMATION***

**9.37. Joint Airdrop Inspection Records.** DD Form 1748, *Joint Airdrop Inspection Record*, will be accomplished IAW AFJI 13-210, *Joint Airdrop Inspection Records, Malfunction Investigation, and Activity Reporting*, prior to all equipment airdrops. Retention and disposition of the form will be IAW AFJI 13-210, as supplemented. **Exception:** Door bundles and free drop bundles.

**9.38. Identification of Airdrop Items.** Immediate identification of aerial delivery items that land off the drop zone in unsecured areas may be necessary. The following procedures will aid in denying the enemy usable items and in minimizing the risk of loss of life over items that may be expendable. Aircraft commanders will be familiar with airdrop contents and the order in which it leaves the aircraft for radio transmission to the combat control team, if requested. Identify supplies or equipment by the following class numbering system:

- 9.38.1. Class I - Food and daily expendables.
- 9.38.2. Class II - Hardware, guns.
- 9.38.3. Class III - POL.
- 9.38.4. Class IV - Fortification materials (sandbags, etc.).
- 9.38.5. Class V - Ammunition (include the type):
  - 9.38.5.1. Type "A" - Small arms.
  - 9.38.5.2. Type "B" - Mortars.
  - 9.38.5.3. Type "C" - Artillery.
- 9.38.6. Class VI - Civil relief supplies.

**9.39. Inflight Rigging Procedures.** During joint operations, and unilateral training, inflight rigging may be necessary. Inflight rigging is a safe procedure if accomplished under a controlled situation. Accomplish inflight rigging only when the safety of the personnel required to be mobile in the cargo compartment is not jeopardized. The aircraft may have to change altitude. Use the DD Form 1748 to complete inflight rigging.

#### **9.40. Protective Headgear.**

9.40.1. The LM and any other personnel required to be mobile in the cargo compartment will wear helmets during aerial deliveries utilizing the aircraft overhead anchor cable. The flight helmet will be worn with the chinstrap fastened from the first warning until the aerial delivery is complete and the cargo compartment is secure. Lower helmet visors if possible.

**WARNING:** Loadmasters will not position themselves directly under the anchor cable supports during personnel/equipment airdrops requiring the use of the anchor cable.

9.40.2. After acknowledgment of the twenty-minute warning, the LM may clear off interphone, with aircraft commander approval, to facilitate movement.

9.40.3. Personnel in the cargo compartment not actively participating in the aerial delivery are not required to wear helmets. However, they will remain seated with seat belts fastened from the first warning until the aerial delivery is complete and the cargo compartment is secure.

### 9.41. Safety Device.

9.41.1. Crew members will wear a restraint device when performing duties near an open exit inflight. Fit the restraint device and adjust the lifeline prior to flight. Connect the hook to a point that will preclude the wearer exiting the aircraft. The strap will not be connected to an anchor cable that has static lines attached to it for an airdrop.

9.41.2. Disconnect the hook, roll, and secure the lifeline to the restraint device after the lifeline has been adjusted.

9.41.3. Connect the lifeline when anticipating movement near an open exit.

9.41.4. Other personnel required to be mobile in the cargo compartment, as determined by the mission/aircraft commander, will normally provide their own restraint device/parachute.

**9.42. Aerial Delivery Airspeeds.** Recommended aerial delivery airspeeds are a function of the force required to inflate the parachute to minimize damage to the airdropped object. When the mission requires other than the recommended airspeed, ensure airspeed falls within the parachute range listed below.

**Table 9.2. Aerial Delivery Airspeeds.**

TYPE	RECOMMENDED AERIAL DELIVERY SPEED	AIRSPPEED DELIVERY SPEED RANGE
Personnel Door Bundle SATB	120 KIAS	90- 150 KIAS  (or as certified for the specific aircraft)
CRRC/CDS/LCLA/LCADS-LV/LCADS-HV	See Aircraft Specific Attachment	Refer to AFI 11-231 and applicable FCIFs.

**9.43. Aerial Delivery Altitudes.** Altitudes listed in [Table 9.3](#) are the minimum altitudes above the highest point on the drop zone AGL. Commanders may agree to higher altitudes. For combination drops, the load requiring the highest drop altitude determines the drop altitude. Airdrops at or above 3,000 feet AGL will be conducted with high-altitude parachutes, either high velocity ring slot or high-altitude high/low-opening (HAHO/HALO). Minimum altitudes shown are intended to provide guidance and not restrict the Army/Air Force commanders in their planning of combat airdrop missions. Altitudes are based on the technical design characteristics of the parachutes and represent the minimum at which the parachutes may be expected to perform their intended function with acceptable reliability. Use of lower altitudes than shown may result in the parachute(s) failing to achieve their design performance/reliability and introduce safety hazards to jump personnel or result in unacceptable damage to loads.

**Table 9.3. Aerial Delivery Altitudes.**

<b>TYPE</b>	<b>MINIMUM DROP ALTITUDE (FT AGL)</b>
Personnel <sup>1</sup> Tactical Training Combat Operations HALO (minimum opening) SATB – P	800 feet <sup>2</sup> Determined by tactical situation 3,000 feet 500 feet
Door Bundle G-13/14 T-10B T-7A	300 feet 400 feet 300 feet
CDS G-12 D G-12 E,G - 13/14	500 feet 400 feet
CRRC G-12 D/E	600 feet (boat only) Otherwise determined by personnel drop altitude.
LCLA Day or night using NVGs Night without NVGs	200 feet day – 300 feet night (Non TF capable) 50 feet (min), 200 feet (max) No lower than 500 feet.
<b>Notes:</b>	
1. Adhere to US Special Operations Command (USSOCOM) Manual 350 series publications for all training, unilateral or joint. If USSOCOM publications conflict with service publications, USSOCOM publications will take precedence.	
2. If the following criteria are not met, the minimum altitude is 1,000 feet AGL:	
(1) Static lines are used.	
(2) Parachutes are equipped with anti-inversion devices.	

**9.44. Aerial Delivery Winds.** IAW AFI 13-217. **Exception:** surface wind limits for LCLA drops are 18 KTS. Surface wind above this limit is at the discretion of supported unit commander.

**9.45. Drop Zone.** IAW AFI 13-217. **Exception:** air dropping to drop zones less than that described by AFI 13-217 is at the discretion of the supported unit Commander.

## Chapter 10

### LOCAL OPERATING PROCEDURES

#### 10.1. General.

10.1.1. The unit may publish any local or unique unit operating procedures as a supplement to this chapter, commencing with **Paragraph 10.2**. The title of this paragraph will be “**10.2. Unit Local Operating Procedures**”.

10.1.2. Such procedures will not duplicate, alter, or amend the provisions of this instruction.

10.1.3. After validation, send two hard copies or a single electronic copy to HQ AFSOC/A3V through appropriate channels.

## Chapter 11

### NAVIGATOR PROCEDURES

#### 11.1. General.

11.1.1. Flight Operations. If augmented by a navigator, use navigation procedures prescribed by this instruction. This chapter details navigator procedures during non-tactical flight.

#### 11.2. General Mission Planning.

11.2.1. Regardless of whether a flight plan is prepared by the aircrew or is furnished by another agency, the aircraft commander and navigator will jointly verify routing, altitudes, and fuel load prior to departure. On overseas flights, verify the flight planned routing against the diplomatic clearance, if applicable. Navigator crew changes (engine running offload or augmented crews) will include, as a minimum, a briefing on equipment status.

11.2.2. Category I Routes. Accomplish flight planning manually or an approved computer flight plan (CFP). Compute fuel requirements using aircraft fuel analysis procedures, as applicable.

11.2.3. Category II Routes. Use the AF Form 70, *Pilots Flight Plan and Flight Log*, or a computer flight plan (CFP). Compute required fuel using the approved CFP fuel analysis procedures, or IAW aircraft flight manual (not required in the local area).

**11.3. Computer Flight Planning (CFP).** As with any computer generated mission-planning product, the aircrew is always responsible for accuracy of data used inflight. Computer flight plans will be verified for correctness prior to flight.

11.3.1. HIGHEST ACC FL. The highest cruise altitude or ceiling achieved using the planned climb profile based on planned takeoff gross weight, and without regard to ATC requirements for direction of flight. When passengers are carried and oxygen is not available to them, the HIGHEST ACC FL will not exceed FL250. Enter the flight level to the nearest 100 feet.

11.3.2. ENDURANCE. Flying time based on fuel available at takeoff. It is extracted from the appropriate fuel planning document or performance manual for the planned constant altitude, forecast temperature deviation, and the aircraft gross weight at takeoff.

**11.4. Flight Charts.** Maintain a plotting chart showing flight progress on all Category I routes.

11.4.1. Show the following items on the chart:

11.4.1.1. Navigator's name and coordinated universal date. Chart number, and chart edition will be annotated on a stripped chart. Check the CHUM on all charts. For low-level flight charts, annotate current CHUM date on the chart. It is not required to annotate CHUM information on high-level charts.

11.4.1.2. Flight plan course line and waypoints (if not pre-labeled) will be annotated with waypoint number, identifier, radial and Distance Measuring Equipment (DME), or latitude and longitude.

11.4.1.3. Annotate suitable emergency airfields. Consider the following factors when selecting emergency airfields: type aircraft, weather conditions, runway length, runway weight-bearing capacity, runway lighting, radio navigational aids, and proximity to planned flight path.

11.4.1.4. Portions of ADIZ/Flight Information Regions (FIR) boundaries (if not depicted accurately) pertinent to the route. Place the applicable portion of the "No Fly" line on all charts used for missions flown in the vicinity of unfriendly territory. Prominently mark warning and restricted areas within 25 nm of planned course and 3,000 feet of planned altitude on the chart (not required if a FLIP en route chart with this information is immediately available and used).

11.4.2. Plot each fix or position along with the time at that position. Fixes or positions may be numbered and the corresponding numbers entered in the position column of the log instead of the geographical coordinates or descriptive position.

11.4.3. In the interest of conservation, reuse flight charts for high-level missions whenever this would not affect plotting accuracy of fixes or position determination.

## 11.5. Inflight Procedures.

11.5.1. Monitor the primary command radio unless otherwise directed by the aircraft commander. Record ATC clearances and monitor the read back. This includes all ATC instructions during departure, en route, and approach. This procedure is not required when ATC instructions require immediate execution by the pilot, or when such action interferes with the timely performance of other time-sensitive navigator duties.

11.5.2. Departure and Approach Monitoring. Immediately after takeoff, crosscheck available flight instruments with the airborne radar to ensure the aircraft remains clear of obstructions. During departure and arrival in IMC with airborne radar inoperative, use all available navigation aids to accurately position the aircraft. On all departures and arrivals, have the appropriate approach plate open to monitor course, timing, and altitude. Backup the pilots and assist as necessary. Report any deviations immediately. Assist in clearing for other aircraft when possible. Confine activities to these critical duties during all departures and arrivals.

11.5.3. Flight Following. For Category I routes, use suitable plotting charts (JNC, or GNC). On flights along airways or Category II routes, use applicable charts or sectionals for radar flight following. Use a CHUM'ed terrain chart (ONC, TPC, or JOG) depicting all terrain in the departure/arrival terminal area (within 25 nm of the airfield).

11.5.4. On all flights, except tactical or pilot proficiency flights, compute a true air speed (TAS) check within 1 hour after reaching the initial cruise altitude.

11.5.5. On Category I routes or route segments, time between recorded fixes/positions will not exceed 1 hour. **Note:** Immediately report malfunctions or loss of navigational capability that will degrade course centerline accuracy to ATC.

11.5.6. On Category I routes, when the time between the last suitable airfield (LSAF) and first suitable airfield (FSAF) is considerable, the following procedures are recommended: wind factors, ETP calculations, and inflight fuel management.

11.5.7. Heading deviation checks are not required on Category II routes or tactical routes. **Exception:** A deviation check is not required on flights transiting Category I routes of less than three hours if the aircraft is equipped with two or more operable heading systems (the standby compass is not considered a system for this requirement). Accomplish IAW aircraft flight manual.

**11.6. Flight Records Completion (AF Form 4116, *Computer Flight Plan*).** Flight progress will be recorded for Category I route segments of three hours or longer. This form will consist of planning and inflight progress/proposed data, and will be completed in sufficient detail to fully evaluate or reconstruct the flight. The procedures below are general in nature and designed to accommodate a wide range of aircraft navigation equipment configurations. **Note:** When flying designated Category II portions of the route, no log is required. ETA/ATA blocks on the flight plan portion satisfy log requirements.

11.6.1. **REMARKS.** Use the REMARKS column to record pertinent information and events along with times of the events. Remarks will include, but not be limited to, clearances, equipment malfunctions, computer updates, navigator changeovers, and alter headings. Alter headings may be individually plotted or averaged to obtain dead reckoning (DR) positions.

11.6.2. **CLEARANCES/REMARKS.** When practical, record assigned ATC frequencies on departure and approach in this section. Use this section to record other pertinent flight information as required.

11.6.3. **NAV AID DATA.** Use this section to record actual and corrected readings, if applicable. Compare Doppler, INS, Mission Computer (MC), and GPS positions (latitude and longitude, or distance-to-go and cross track) for each position fix. At a minimum, record the integrated navigation solution. If a navigation solution is updated, record its incorrect position and show that it was updated (in the remarks section). Fix data substantiated by International Civil Aviation Organization (ICAO) identifier or coordinates in the position block on the actual side of the AF Form 4116 need not be duplicated in this section.

## Chapter 12

### FLIGHT ENGINEER PROCEDURES AND FORMS

**12.1. General.** If augmented by a flight engineer, comply with the procedures and duties specified in this regulation, specific aircraft performance manuals, and any and all duties assigned by the aircraft commander.

#### **12.2. Authority to Clear Red X.**

12.2.1. Flight engineers are not normally authorized to clear a Red X.

12.2.2. In a situation where the aircraft is on a Red X and qualified maintenance personnel are unavailable, refer to **Paragraph 6.9.1** of this regulation for additional guidance. (T-3)

12.2.3. Individual units may qualify the flight engineer on the necessary skills to properly secure, bed down, and preflight the aircraft in the event the aircraft is diverted and maintenance personnel are unavailable.

#### **12.3. Aircraft Servicing.**

12.3.1. The flight engineer, if qualified, may refuel and defuel when maintenance personnel are unavailable.

12.3.2. Use the appropriate checklist and TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding (ATOS)*, for all refueling and defueling operations.

12.3.3. If ground support personnel are not available, the aircraft commander will designate other crew members to assist the flight engineer.

**12.4. Forms Management.** The flight engineer is responsible to the AC for the proper documentation of all aircraft forms.

12.4.1. Verify the exceptional release is signed before starting engines and resigned, if necessary, at en route stops.

12.4.2. After each flight, ensure all forms are correctly documented, to include flight times, number of landings, sorties, and clear descriptions of all discrepancies IAW TO 00-20-5, *Aerospace Vehicle Inspection*, and AFI 11-401.

**12.5. Flight Monitoring.** The flight engineer will monitor aircraft systems during all phases of flight and ground operations.

12.5.1. Notify the pilot of all abnormal indications and take action as required. The flight engineer is responsible to be extremely familiar with all aircraft emergency procedures.

12.5.2. Additionally Flight Engineers will:

12.5.2.1. Maintain outside vigilance when flight deck duties allow.

12.5.2.2. Monitor interphone, interplane radio, primary radio, and any others assigned by the aircraft commander. Make radio calls when assigned those duties.

12.5.2.3. Advise and assist the pilot in maintaining required climb and cruise power.

12.5.2.4. Ensure all altimeters; radar and barometric, are properly set.

12.5.2.5. Notify the pilot when any of the following is noted:

12.5.2.5.1. Deviation of more than 200 feet from assigned altitude.

12.5.2.5.2. The aircraft configuration is incorrect for the maneuver being performed.

12.5.2.5.3. Any aircraft or system malfunction.

**12.6. Tactical Checklists.** When the pilot initiates a tactical checklist, the flight engineer will read and ensure timely and safe completion of all checklist items.

**12.7. Takeoff and Landing Data (TOLD).** The flight engineer is responsible for the correct and accurate computation of all TOLD data.

12.7.1. Refer to the aircraft specific attachment for specific TOLD requirements such as posting of Vmca speeds, Vmcg, etc.

12.7.2. TOLD data will be checked by an additional qualified crew member prior to its use.

## Chapter 13

### LOADMASTER PROCEDURES AND FORMS

**13.1. General.** In addition to the duties established in applicable TOs and other directives, the LM will comply with the procedures and duties in this instruction. These items need not be briefed and will be performed as normal procedures. The AC may assign other duties as necessary. The LM will:

- 13.1.1. Plan loads; handle troops and passengers; prepare equipment for airdrop; and supervise loading, tie-down, and offloading of cargo, baggage, and mission equipment.
- 13.1.2. Participate in the aerial delivery of equipment, supplies, and personnel.
- 13.1.3. Be assigned to the crew on tactical missions and support missions carrying cargo or passengers as indicated by the AF Form 4327A.
- 13.1.4. Perform checklists initiated by the pilot or copilot.
- 13.1.5. Perform hot refueling supervisor duties during hot refueling operations.
- 13.1.6. Monitor all aircraft systems for normal operation and immediately notify the pilot of any system that is not operating normally and take action as required.
- 13.1.7. Perform any other inflight duties as briefed by the AC.
- 13.1.8. Individual units may qualify the LM on the necessary skills to properly secure, bed down, and preflight the aircraft in the event the aircraft is diverted and maintenance personnel are unavailable.

**13.2. Aircraft Servicing.** The LM, if qualified, may refuel when maintenance personnel are unavailable.

- 13.2.1. Use the appropriate checklist and TO 00-25-172 for all refueling operations.
- 13.2.2. If ground support personnel are not available, the AC will designate other crew members to assist the LM.

**13.3. Flight Monitoring.** The LM will monitor aircraft systems during all phases of flight and ground operations.

- 13.3.1. Notify the pilot of all abnormal indications and take action as required. The LM is responsible to be extremely familiar with all aircraft emergency procedures.
- 13.3.2. Additionally Loadmasters will:
  - 13.3.2.1. Maintain outside vigilance when flight deck duties allow.
  - 13.3.2.2. Monitor interphone, interplane radio, primary radio, and any others assigned by the aircraft commander. Make radio calls when assigned those duties.
  - 13.3.2.3. Advise and assist the pilot in maintaining required climb and cruise power.
  - 13.3.2.4. Ensure all altimeters; radar and barometric, are properly set.
  - 13.3.2.5. Notify the pilot when any of the following is noted:

13.3.2.5.1. Deviation of more than 200 feet from assigned altitude.

13.3.2.5.2. The aircraft configuration is incorrect for the maneuver being performed.

13.3.2.5.3. Any aircraft or system malfunction.

**13.4. Tactical Checklists.** When the pilot initiates a tactical checklist, the LM will read and ensure timely and safe completion of all checklist items.

**13.5. Responsibilities of Aircraft Loading.**

13.5.1. Normally all air freight, fleet service, and servicing personnel are authorized to perform assigned duties in all AFSOC aircraft when escorted by an authorized individual. Airfreight personnel are responsible for completion of cargo documentation, palletizing, and movement of cargo to and from the aircraft. They will advise the crew of destination, size, weight, and type of cargo (classified, hazardous, etc.); coordinate traffic activities that may affect loading and offloading; and assign sufficient airfreight loading personnel for cargo handling. Airfreight personnel are responsible for safe positioning of material handling equipment and cargo to or from the aircraft. Airfreight personnel, under the direction of the crew, load, tie-down, and offload the cargo. They also assist in stowing the loading equipment. If cargo, aircraft equipment, or aircraft structure is damaged during loading or offloading, or loading personnel are injured, the crew will assure the aircraft commander, command post, or terminal operations officer is notified.

13.5.2. As part of the crew and when directed by the AC, the LM is responsible for aircraft preflight, load planning, preparation of weight and balance form, operation of aircraft equipment, supervision and direction of loading, offloading, tie-down, and coordination with loading crew supervisor for checking the cargo against manifests. The LM supervises loading and is responsible for safe movement of cargo into and out of the aircraft.

13.5.3. At locations with no air terminal or traffic personnel, the shipper assumes responsibilities listed in **Paragraph 13.5.1.**

**13.6. Emergency Exits and Safety Aisles.** Load aircraft in such a manner that emergency exits are available as follows:

13.6.1. At least one cabin emergency exit is unobstructed.

13.6.2. At least one unobstructed emergency exit is available for each 10 passengers or troops if possible given the aircraft limitations. Seats erected across an emergency exit are not considered an obstruction.

13.6.3. Access to the rear of the aircraft must be maintained without exception.

**13.7. Air Cargo Restraint Criteria.** Cargo will be restrained IAW the AFM loading instructions or reference AFTTP 3-3.MC-130, *Combat Aircraft Fundamentals*, if available during Infil/Exfil operations.

**13.8. Preflight Duties.** When designated, the LM will normally report to the aircraft immediately after the crew briefing or as directed by the AC to begin preflight and/or loading duties.

**13.9. Passenger Handling.** Loadmasters will ensure all passengers are manifested. Give one copy to the aircraft commander for filing and retain sufficient copies for border clearance. The

LM will complete anti-hijacking requirements for personnel IAW **Chapter 5** of this instruction. Ensure all classified equipment is out of sight prior to passenger boarding. The LM is the key figure concerning good passenger relations. Be aware of the concerns that may arise in the minds of passengers and anticipate their questions and actions.

13.9.1. Passengers may move about the cargo compartment. Good judgment must be exercised on the number of passengers allowed out of their seats at one time. Encourage passengers to keep seat belts fastened when seated.

13.9.2. Do not allow passengers to lounge on or tamper with equipment, cargo, or baggage.

13.9.3. Ensure classified equipment remains covered during the entire mission when passengers are on board and ensure passengers are denied access to this equipment.

**13.10. Troop Movements.** Every effort should be made to advise troops of mission progress or deviations. The troop commander should be identified prior to boarding.

13.10.1. Determine if the troop commander has any special requirements prior to departure, and advise the AC of these requirements if appropriate.

13.10.2. Determine if specific communications requirements exist and coordinate these requirements with the aircraft commander.

13.10.3. Determine if there is a need for the troops to perform any type of inflight rigging. Ensure the aircraft is loaded to accommodate inflight rigging if required. Inform the AC prior to inflight rigging. If turbulence is anticipated, the aircraft commander should inform the passengers in advance if possible.

13.10.4. Ensure troops do not have access to classified equipment during the mission. If troops require access to classified equipment, the requirement should be made known to the aircraft commander prior to the mission.

**13.11. Weight and Balance.** Weight and balance for the aircraft is accomplished IAW TO 11B50, *Basic TO for USAF Aircraft Weight and Balance*, and the AFM loading instructions.

13.11.1. A basic handbook of weight and balance containing current aircraft status is maintained by the unit possessing the aircraft which provides a supplemental weight and balance handbook for each aircraft. The LM will carry any additional weight and balance documentation necessary for the planned mission.

13.11.2. Compute weight and balance by using the Chart E mathematical (moments) method, approved spreadsheet or electronic weight and balance program.

13.11.3. The weight and balance section of the unit possessing the aircraft is responsible for providing the appropriate agency with information required to keep documents current and accurate.

**13.12. Fuel Weight Computation.** Use the most accurate method available to compute wing fuel when calculating total fuel weight.

**13.13. Loadmaster Forms:** DD Form 96, *Passenger Manifest*, DD Form 1385, *Cargo Manifest*, DD Form 1854, *US Customs Accompanied Baggage Declaration*, CBP 7507, *General Declaration (Outward/Inward)*, I-94, *Immigration Form, Immigration and Naturalization Service Arrival/Departure Record (accountable form)*, DD Form 365-4, *Weight and Balance Clearance Form F* (or approved computerized equivalent).

J. MARCUS HICKS, Brig Gen, USAF  
Director of Operations

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

- AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 January 2012
- AFI 11-202, Vol 1, *Aircrew Training*, 20 November 2010
- AFI 11-202, Vol 3, *General Flight Rules*, 22 October 2010
- AFI 11-215, *Flight Manuals Program*, 22 December 2008
- AFI 11-231, *Computed Air Release Point Procedures*, 31 August 2005
- AFI 11-401, *Aviation Management*, 10 December 2010
- AFI 13-207, *Preventing and Resisting Aircraft Piracy (FOUO)*, 21 June 2010
- AFI 13-217, *Drop Zone and Landing Zone Operations*, 10 May 2007
- AFI 31-101, *Integrated Defense IC #2*, 07 March 13
- AFI 31-117, *Arming and Use of Force by Air Force Personnel*, 19 June 2012
- AFI 31-401, *Information Security Program Management*, 01 November 2005
- AFI 33-360, *Publications and Forms Management*, 07 February 2013
- AFJI 13-210, *Joint Airdrop Inspection Records, Malfunction Investigations, and Activity Reporting*, 23 June 2009
- AFMAN 24-204, *Preparing Hazardous Material for Military Air Shipment*, 03 December 2012
- AFMAN 11-217, Vol 1, *Instrument Flight Procedures*, 22 October 2010
- AFMAN 31-229, *USAF Weapons Handling Manual*, 12 May 2004
- AFMAN 33-363, *Management of Records*, 01 March 2008
- AFPD 11-2, *Aircrew Operations*, 19 January 2012
- AFPD 62-6, *USAF Airworthiness*, 11 June 2010
- AFSOCI 11-219, Vol 1, *Additional/Supplemental Aircraft Training*, 01 September 2003
- AFSOCI 16-101, Vol 3, *Combat Aviation Advisory Operations*, 01 October 1998
- AFSOCI 31-100, *Special Operations Security Forces Deployment Planning and Operations*, 28 March 2013
- AFTTP 3-3.MC-130, *Combat Aircraft Fundamentals*, 29 February 2012
- DOD FLIP, *General Planning*, 18 December 2008
- DOD FIH, *Flight Information Handbook*
- DOD 5200.01, Vol 1, *DOD Information Security Program: Overview, Classification, and Declassification*, 24 February 2012

DOD 5200.01, Vol 2, *DOD Information Security Program: Marking of Classified Information*, 24 February 2012

DOD 5200.01, Vol 3, *DOD Information Security Program: Protection of Classified Information*, 24 February 2012

DOD 5200.01, Vol 4, *DOD Information Security Program: Controlled Unclassified Information*, 24 February 2012

DOD 4515.13-R, *Air Transportation Eligibility*, November 1994

FAR/AIM Part 91.205, *Instrument and Equipment Requirements*, 06 June 2013

FAR/AIM Part 91.213, *Inoperative Instruments and Equipment*, 06 June 2013

MILHDBK516B, *Airworthiness Certification Criteria*, 26 September 2005

TO 00-20-5, *Aerospace Vehicle Inspection*, 01 May 2000

TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding (ATOS)*, 21 December 2012

TO 1-1B-50, *Basic TO for USAF Aircraft Weight and Balance*, 01 April 2008

TO 13C7-1-11, *Airdrop of Supplies and Equipment Rigging Containers*, 02 September 2005

USSOCOM Manual 350-3, *Airborne Operations (Parachuting)*, 20 September 2005

### ***Prescribed Forms***

There are no prescribed forms in this AFSOCI.

### ***Adopted Forms***

AF Form 15, *USAF Invoice*

AF Form 70, *Pilots Flight Plan and Flight Log*

AF Form 315, *USAF AVFuels Invoice or Air Card*

AF Form 523, *USAF Authorization to Bear Firearms*

AF Form 847, *Recommendation of Change of Publication*

AF Form 1297, *Temporary Issue Receipt*

AF Form 4116, *Computer Flight Plan*

AF Form 4327A, *Crew Flight (FA) Authorization*

AFSOC Form 97, *Aircraft Incident Worksheet*

AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document*

CBP 7507, *General Declaration (Outward/Inward)*

DD Form 96, *Passenger Manifest*

DD Form 175, *Flight Plan, Military*

DD Form 1384, *Transportation Control and Movement Document*

DD Form 1385, *Cargo Manifest*

DD Form 1387-2, *Special Handling Data/Certification*

DD Form 1748, *Joint Airdrop Inspection Record*

DD Form 1854, *US Customs Accompanied Baggage Declaration*

DD Form 2131, *Passenger Manifest*

DD Form 2133, *Joint Airlift Inspection Record*

DD Form 365-4, *Weight and Balance Clearance Form F*

I-94, *Immigration Form, Immigration and Naturalization Service Arrival/Departure Record (accountable form)*

### ***Abbreviations and Acronyms***

**A3V**—Headquarters Standardization/Evaluation Division

**AC**—Aircraft Commander

**ACM**—Additional Crew Member

**ADIZ**—Air Defense Identification Zone

**ADS**—Aerial Delivery System

**AF**—Air Force

**AFD**—Airfield Facility Directory

**AFE**—Aircrew Flight Equipment

**AFI**—Air Force Instruction

**AFJMAN**—Air Force Joint Manual

**AFM**—Aircraft Flight Manual

**AFMAN**—Air Force Manual

**AFPD**—Air Force Policy Directive

**AFRC**—Air Force Reserve Command

**AFRIMS**—Air Force Records Information Management System

**AFSC**—Air Force Specialty Code

**AFSOC**—Air Force Special Operations Command

**AFSOCI**—AFSOC Instruction

**AFSOC/SG**—Air Force Special Operations Surgeon General

**AGL**—Above Ground level

**AIM**—Aeronautical Information Manual

**AMC**—Air Mobility Command

**AMP**—Airfield Marking Patterns

**ANG**—Air National Guard  
**AOP**—Aerospace and Operational Physiologist  
**ALCE**—Airlift Control Element  
**AOC**—Air Operations Center  
**ARMS**—Aircrew Resource Management System  
**ARTCC**—Air Route Traffic Control Center  
**ATC**—Air Traffic Control  
**AvFID**—Aviation Foreign Internal Defense  
**AWL**—Above Water Level  
**AZAR**—Assault Zone Availability Report  
**C2**—Command and Control  
**CAA**—Combat Aviation Advisor  
**CARP**—Computed Air Release Point  
**CCC**—Command and Control Center  
**CCT**—Combat Control Team  
**CDS**—Container Delivery System  
**CEOI**—Communications Element Operating Instructions  
**CEP**—Combat Entry Point  
**CARP**—Computed Air Release Point  
**CDS**—Container Delivery System  
**CFP**—Computer Flight Plan  
**CFR**—Crash Fire Rescue  
**CHUM**—Chart Update Manual  
**CL**—Checklist  
**COMAFSOF**—Commander Air Force Special Operations Forces  
**COMSEC**—Communications Security  
**CONUS**—Continental United States  
**CRRC**—Combat Rubber Raiding Craft  
**CVR**—Cockpit Voice Recorder  
**DH**—Decision Height  
**DME**—Distance Measuring Equipment  
**DOD**—Department of Defense

**DODD**—DOD Directive  
**DOT**—Department of Transportation  
**DR**—Dead Reckoning  
**DUATS**—Direct User Access Terminal System  
**DZ**—Drop Zone  
**DZCO**—Drop Zone Control Officer  
**DV**—Distinguished Visitors  
**EFAS**—En route Flight Advisory Service  
**EGT**—Exhaust Gas Temperature  
**EMI**—Electromagnetic Interference  
**EPs**—Emergency Procedures  
**ERO**—Engines Running Onload/Offload  
**ESA**—Emergency Safe Altitude  
**ETA**—Estimated Time Arrival  
**ETE**—Estimated Time En route  
**ETD**—Estimated Time of Departure  
**ETP**—Equal Time Point  
**F**—Fahrenheit  
**FA**—Flight Authorization  
**FAA**—Federal Aviation Administration  
**FAR/AIM**—Federal Aviation Regulations and Aeronautical Information Manual  
**FARP**—Forward Area Refueling Point  
**FBO**—Fixed Base Operator  
**FCIF**—Flight Crew Information File  
**FDP**—Flight Duty Period  
**FE**—Flight Engineer  
**FIH**—Flight Information Handbook  
**FIR**—Flight Information Regions  
**FL**—Flight Level  
**FLIP**—Flight Information Publications  
**FMS**—Flight Management System  
**FSAF**—First Suitable Air Field

**FSS**—Flight Service Station

**GMRS**—Ground Marked Release System

**GNC**—Global Navigation Chart

**GPS**—Global Positioning System

**HAA**—Height Above Airfield

**HAHO**—High-altitude High-opening

**HALO**—High-altitude Low-opening

**HARP**—High-altitude Release Point

**HAT**—Height Above Touchdown

**HQ**—Headquarters

**IAW**—In Accordance With

**ICAO**—International Civil Aviation Organization

**IFF/SIF**—Identification Friend or Foe/Selective Identification Feature

**IFR**—Instrument Flight Rules

**ILS**—Instrument Landing System

**IMC**—Instrument Meteorological Conditions

**INFIL/EXFIL**—Infiltration/Exfiltration

**INS**—Internal Navigation System

**IP**—Initial Point or Instructor Pilot

**IR**—Infrared

**ITT**—Inter-Turbine Temperature

**JMD**—Jumpmaster Directed

**JNC**—Jet Navigation Chart

**JOG**—Joint Operations Graph

**JSSG**—Joint Service Specification Guide

**KIAS**—Knots Indicated Air Speed

**km**—Kilometers

**LCADS**—Low Cost Aerial Delivery System

**LCLA**—Low Cost Low Altitude

**LM**—Loadmaster

**LV**—Low Velocity

**LZ**—Landing Zone

**LZSO**—Landing Zone Safety Officer  
**LSAF**—Last Suitable Airfield  
**MAJCOM**—Major Command  
**MC**—Mission Computer  
**MCTOW**—Maximum Certificated Takeoff Weight  
**MDA**—Minimum Descent Altitude  
**MDS**—Mission Design Series  
**MEL**—Minimum Equipment List  
**MFF**—Military Free Fall  
**MH**—Magnetic Heading  
**MILSTD**—Military Standard  
**MSA**—Minimum Safe Altitude  
**MSL**—Mean Sea Level  
**NC**—Noncurrent  
**NEW**—Net Explosive Weight  
**NM**—Nautical Mile  
**NOAA**—National Oceanic and Atmospheric Administration  
**NVG**—Night Vision Goggle  
**OAD**—Operational Aviation Detachments  
**OG/CC**—Operations Group Commander  
**ONC**—Operation Navigation Chart  
**OPCON**—Operational Control  
**OPORD**—Operation Order  
**OPR**—Office of Primary Responsibility  
**PFPS**—Portable Flight Planning System  
**PGUs**—Portable GPS Units  
**PIC**—Pilot In Command  
**PI**—Point of Impact  
**PL**—Protection Level  
**PMSV**—Pilot Meteorological Service  
**POH**—Pilots Operating Handbook  
**POK**—Passenger Oxygen Kit

**POL**—Petroleum Oil Lubricants  
**PSP**—Pierced Steel Plank  
**PT**—Physiology Technician  
**RAIM**—Receiver Autonomous Integrity Monitoring  
**RDS**—Records Disposition Schedule  
**RNAV**—Area Navigation  
**RON**—Remain Overnight  
**RPM**—Revolutions per Minute  
**RVR**—Runway Visual Range  
**SATB**—Standard Airdrop Training Bundle  
**SAR**—Search and Rescue  
**SF**—Special Forces  
**SO**—Safety Observer  
**SOF**—Special Operations Forces  
**SPINS**—Special Instructions  
**SRT**—Security Response Team  
**Stan/Eval**—Standardization and Evaluation  
**STOL**—Short Takeoff and Landing  
**STS**—Special Tactics Squadron  
**TALO**—Tactical Air Liaison Officer  
**TAS**—True Air Speed  
**TCMD**—Transportation Control and Movement Document  
**TCN**—Transportation Control Number  
**TIT**—Turbine Inlet Temperature  
**TOA**—Time of Arrival  
**TOLD**—Takeoff and Landing Data  
**TOT**—Time Over Target  
**TO**—Technical Order  
**TPC**—Tactical Pilotage Chart  
**UNQ**—Unqualified  
**UTM**—Universal Transverse Mercator  
**USAF**—United States Air Force

**USAFSAM**—USAF School of Aerospace Medicine

**USSOCOM**—United States Special Operations Command

**USTRANSCOM**—United States Transportation Command

**V1**—Takeoff Decision Speed

**V2**—Takeoff Safety Speed

**Vco**—Climb Out Speed

**VFR**—Visual Flight Rules

**Vfto**—Final Takeoff Speed

**Conversion Check (1 Issue)**—Air Minimum Control Speed

**Vmcg**—Ground Minimum Control Speed

**Vmc**—Minimum Control Speed With the Critical Engine Inoperative

**Vs**—Stall Speed, Clean

**Vx**—Best Climb Angle

**Vxse**—Best Climb Angle Single Engine

**Vy**—Best Rate of Climb Speed

**Vyse**—Best Rate of Climb Speed Single Engine

**Vxse**—Single-engine best angle of climb speed

**VIRS**—Voice Initiated Release System

**VFR**—Visual Flight Rule

**VMC**—Visual Meteorological Conditions

**VVI**—Vertical Velocity Indicator

### *Terms*

**Accelerate/Stop Distance**—The distance required to accelerate from a standing start to V1, and then, assuming a failure of the critical engine, come to a full stop.

**Additional Crew member (ACM)**—An individual possessing valid aeronautical orders IAW AFI 11-401 who is required to perform in-flight duties and is assigned in addition to the normal aircrew complement required for a mission.

**Airdrop**—Aerial delivery of personnel, supplies, or equipment from an aircraft inflight.

**Basic Aircraft Qualified Crew members**—Crew member's qualified and current IAW AFSOCI 11-219, Vol 1, *Additional/Supplemental Aircraft Training*, to fly the unit aircraft only on non-tactical missions.

**Basic Mission Capable Crew members**—An aircrew member who has satisfactorily completed mission qualification and is maintaining 50% of the applicable mission qualification currency requirements of this instruction.

**Caution:**—Operating procedures, techniques, and so forth, which may result in damage to equipment if not carefully followed.

**Combat Control Team (CCT)**—A team of AF personnel organized, trained, and equipped to establish and operate navigational or terminal guidance aids, communications, and aircraft control facilities in support of tactical operations.

**Combat Entry Point (CEP)**—A geographical point inbound to the objective area where the hostile environment is penetrated.

**Commander Air Force Special Operations Forces (COMAFSOF)**—The commander designated by COMAFSOF who is responsible for management of Special Operations Forces (SOF) within a theater, a geographic area, or for a designated operation. The COMAFSOF is responsible to the SOC/CC for management of theater assigned SOF forces and is responsible to COMAFSOF for monitoring and management of SOF forces operating within the specific area of responsibility.

**Computed Air Release Point (CARP)**—A computed air position at which the release of personnel, equipment, containers, or bundles is initiated to land on a specific point of impact (PI). A CARP is normally computed for all airdrops that do not have a free-fall vector other than vertical distance.

**Contingency Mission**—A mission operated in direct support of an operation plan, operation order, disaster, or emergency.

**Deadhead Time**—Duty time accrued by crew members in a passenger or additional crew member (ACM) status.

**Deployment**—The relocation of forces to desired areas of operation.

**Deviation**—Performing an action not in sequence with current procedures, directives, or instructions. Performing action(s) out of sequence due to unusual or extenuating circumstances is not considered a deviation. In some cases, momentary deviations may be acceptable; however, cumulative momentary deviations will be considered in determining the overall qualification level.

**Drop Zone (DZ)**—A specified area where airborne personnel, equipment, or supplies are airdropped.

**Drop Zone Control Officer (DZCO)**—An individual on a DZ required to monitor all airdrop operations except airdrop of Army Special Forces.

**Employment**—The tactical use of aircraft in a desired area of operation.

**Equal Time Point (ETP)**—The point along a route at which an aircraft may either proceed to destination or first suitable airport, or return to departure base or last suitable airport in the same amount of time based on all engines operating.

**Forward Area Refueling Point (FARP)**—Hot refueling that is normally conducted at night in an austere environment with aircraft engines running.

**Forward Operating Base (FOB)**—An airfield without full support facilities used during tactical operations for an undetermined and sometimes extended period of time.

**Hazardous Cargo or Materials**—Explosive, toxic, caustic, nuclear, combustible, flammable, biologically infectious or poisonous materials that may directly endanger human life or property, particularly if misused, mishandled or involved in accidents.

**Heavy Aircraft**—For the purposes of Wake Turbulence Separation Minima, aircraft capable of takeoff weights of 255,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.

**High—Altitude High-Opening (HAHO)**—A high-altitude airdrop in which personnel deploy their parachutes immediately on exiting the aircraft (no programmed free fall).

**High—Altitude Low-Opening (HALO)**—Airdrop of personnel or containers using a programmed free fall (parachutist) or a staged parachute delivery.

**High—Altitude Release Point (HARP)**—A computed air position at which parachutists, equipment, containers, or bundles are released to land on a specific point of impact. A HARP is computed for all HALO and HAHO drops.

**High—Level**—Tactical operations conducted at or above 3,000 feet AGL.

**Initial Point (IP)**—A point near drop zones or landing zones over which final course alterations are made to arrive at the specified zone.

**Joint Special Operations Task Force (JSOTF)**—A task force composed of Army, Air Force, and Navy special operation assets.

**Low—Level**—Tactical operations conducted below 3,000 feet AGL.

**Maximum Certificated Takeoff Weight (MCTOW)**—Maximum certificated takeoff weight allowable just before brake release.

**May**—Indicates an acceptable or suggested means of accomplishment.

**Minimum Safe Altitude (MSA)**—An intermediate altitude, which will provide terrain clearance in VMC or IMC.

**Minor**—Did not detract from mission completion.

**Mission Ready Crew members**—Crew member's current and fully qualified to perform the unit mission.

**Mission Sortie**—A mission sortie includes pre-mission planning, (if applicable), all appropriate mission checklists for an NVG route and either and NVG airdrop or an NVG takeoff, approach and landing.

**Modified Contour**—Flight in reference to base altitude above the terrain with momentary deviations above and below the base altitude for terrain depressions and obstructions to permit a smooth flight profile.

**Night Vision Goggles (NVG)**—An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing. Night vision goggles are battery operated and can be either hand-held or helmet-mounted.

**Note**—Operating procedures, techniques, and so forth, which are essential to emphasize.

**Operational Control (OPCON)**—Authority to direct accomplishment of a mission.

**Overwater Flight**—Any flight, which exceeds power-off gliding distance from land.

**Shall**—A mandatory requirement.

**Should**—Indicates a recommended procedure that is required if practical.

**Small Aircraft**—For the purposes of Wake Turbulence Separation Minima, aircraft of 41,000 pounds or less maximum certificated takeoff weight (MCTOW).

**Station Time (Air Force)**—A specified time at which aircrew, passengers, and material are to be in the aircraft and prepared for flight. Passengers will be seated and loads tied down. Aircrews will have completed briefing and aircraft preflight inspection prior to station time. Normally, station time will be 30 minutes prior to takeoff time.

**Station Time (Airborne)**—A specified time when parachutists will be seated in the aircraft with seat belts fastened. This time normally will be 5 minutes prior to Air Force station time.

**Time Over Target (TOT)**—The actual time an aircraft is at a geographic point or area carrying out an assigned mission.

**Unilateral Air Force Training**—AFSOC Aircrew training conducted to achieve and maintain mission ready or mission capable status. Types of missions include aircraft commander upgrade training, standardization and evaluation, and continuation training.

**Warning**—Operating procedures, techniques, and so forth, which may result in personal injury or loss of life if not carefully followed.

**Will**—A mandatory requirement.

## Attachment 2

### BRIEFING GUIDES

#### A2.1. Policies.

A2.1.1. The following are general guides to ensure that all members of the crew are armed with all the pertinent information to complete the mission at hand successfully and safely. These are guides however and do not constitute mandatory items to be briefed nor should briefings be limited to the subject matter contained here within if the mission warrants additional topics.

A2.1.2. ACs with the help of the Mission Commander will ensure that all members involved with the mission at hand, including the users, are thoroughly briefed prior to executing each phase of an operation. Based on the mission, these briefings may be formal affairs or "table top" or even over interphone inflight prior to executing the next phase of the operation. The intent should be the dissemination of information and content. Format is secondary.

A2.1.3. Briefings will be conducted prior to all missions when practical and be divided into phases. Sequence and content will be based on mission requirements.

A2.1.3.1. Pre-mission planning briefing.

A2.1.3.2. Aircraft Commanders/Mission briefing.

A2.1.3.3. ACM/Passenger briefing.

#### A2.2. Briefing Guides

A2.2.1. **Pre-Mission Planning Briefing.** This briefing is not required if the mission is planned by a mission planning staff. However, when an aircrew is required to plan the mission, they must be briefed by a member of the operations staff.

A2.2.1.1. Roll Call.

A2.2.1.2. Mission Classification.

A2.2.1.3. Weather.

A2.2.1.3.1. Existing and Forecast.

A2.2.1.3.2. Atmospheric Condition.

A2.2.1.3.3. Winds.

A2.2.1.3.4. Altimeter setting.

A2.2.1.3.5. Illumination.

A2.2.1.3.5.1. Sunset/Sunrise and EENT/BMNT.

A2.2.1.3.5.2. Moonrise/Moonset.

A2.2.1.3.5.3. Moon elevation/Illumination.

A2.2.1.4. Operations.

A2.2.1.4.1. Mission Purpose.

- A2.2.1.4.2. Mission Description.
- A2.2.1.4.3. Participating Units.
- A2.2.1.4.4. Each Units Specific Role.
- A2.2.1.4.5. Aircraft Parking.
- A2.2.1.4.6. Forms.
- A2.2.1.4.7. Times for Other Briefings.
- A2.2.1.4.8. Ground Plans.
- A2.2.1.4.9. Use of Lights (External/Internal).
- A2.2.1.4.10. Aborts.
  - A2.2.1.4.10.1. Engine Start.
  - A2.2.1.4.10.2. Takeoff.
  - A2.2.1.4.10.3. Inflight.
  - A2.2.1.4.10.4. LZ and DZ.
- A2.2.1.4.11. Multiple Passes.
- A2.2.1.4.12. Recovery Procedures.
- A2.2.1.4.13. Emergency Procedures.
- A2.2.1.4.14. Use of STS.
- A2.2.1.5. Communications.
  - A2.2.1.5.1. Frequencies and Call Signs.
  - A2.2.1.5.2. IFF/SIF.
- A2.2.1.6. Load Information.
  - A2.2.1.6.1. Aircraft Configuration.
  - A2.2.1.6.2. Load Time.
  - A2.2.1.6.3. Type of Offload.
- A2.2.1.7. Exfil Procedures.
  - A2.2.1.7.1. Takeoff Direction.
  - A2.2.1.7.2. Takeoff Time.
  - A2.2.1.7.3. Takeoff Clearance.
- A2.2.1.8. Navigation.
  - A2.2.1.8.1. Takeoff Time.
  - A2.2.1.8.2. Departure.
  - A2.2.1.8.3. Route.

- A2.2.1.8.3.1. Altitude Profile.
- A2.2.1.8.3.2. Speeds.
- A2.2.1.8.3.3. Turn Points.
- A2.2.1.8.3.4. Highest Terrain/Obstacles.
- A2.2.1.8.3.5. Special Use Airspace.
- A2.2.1.8.3.6. Warning Time and Locations.
- A2.2.1.8.3.7. Latest Takeoff Time and Make up Plan.
- A2.2.1.8.4. Drop Zone, Landing Zone.
  - A2.2.1.8.4.1. Recognition Markings.
  - A2.2.1.8.4.2. Dimensions and Elevation.
  - A2.2.1.8.4.3. Inbound Course and Zone Axis.
  - A2.2.1.8.4.4. Drop Altitude and Airspeed.
  - A2.2.1.8.4.5. Green light time.
  - A2.2.1.8.4.6. Forecast Winds.
  - A2.2.1.8.4.7. CARP/HARP.
  - A2.2.1.8.4.8. Obstructions/Surrounding Terrain.
- A2.2.1.8.5. Landing.
  - A2.2.1.8.5.1. IP.
  - A2.2.1.8.5.2. Glide slope.
  - A2.2.1.8.5.3. Go-Around Procedures.
- A2.2.1.8.6. Deconfliction of Route.
- A2.2.1.8.7. Emergency Procedures/Emergency Landing Fields.
- A2.2.1.8.8. Total Flying Time.
- A2.2.1.8.9. Time Hack.
- A2.2.1.9. Intelligence Briefing.
  - A2.2.1.9.1. General Situation.
  - A2.2.1.9.2. Imagery.
- A2.2.1.10. Operations.
  - A2.2.1.10.1. Risk Analysis.
  - A2.2.1.10.2. Schedule for further Briefings.
  - A2.2.1.10.3. Safety.
  - A2.2.1.10.4. Questions.

**A2.2.2. Aircraft Commander Briefing.**

- A2.2.2.1. Not Used.
- A2.2.2.2. Crew Check In/Verify Orders.
- A2.2.2.3. FCIF Cards.
- A2.2.2.4. Time Hack.
- A2.2.2.5. Mission Itinerary.
  - A2.2.2.5.1. Stations Time.
  - A2.2.2.5.2. Departure Time.
  - A2.2.2.5.3. TOA/TOT.
  - A2.2.2.5.4. Land Time.
- A2.2.2.6. Mission Equipment for Flight.
  - A2.2.2.6.1. NVGs (Preflight, Spares, Storage).
  - A2.2.2.6.2. Survival Vests/Armor.
  - A2.2.2.6.3. Helmets/Nets.
  - A2.2.2.6.4. Weapons.
  - A2.2.2.6.5. Airdrop Gear.
  - A2.2.2.6.6. FARP Gear.
  - A2.2.2.6.7. Radio Equipment/CEOI.
  - A2.2.2.6.8. Nav Kit/Flight Plan.
- A2.2.2.7. Sequence of Events.
- A2.2.2.8. Weather.
  - A2.2.2.8.1. Ceiling/Vis (Dep, Dest, Alt).
  - A2.2.2.8.2. Winds (Sfc, Alt).
  - A2.2.2.8.3. Hazards (Turb, Icing, Thunderstorms).
  - A2.2.2.8.4. Solar/Lunar Data.
  - A2.2.2.8.5. Inadvertent WX Penetration.
- A2.2.2.9. Call Sign/Tail Number.
- A2.2.2.10. MX Status/ETIC.
- A2.2.2.11. Intel Update/NOTAMS.
- A2.2.2.12. Pax/Cargo Load/Configuration.
- A2.2.2.13. Fuel Required (Dept., Bingo).
- A2.2.2.14. Simulated Emergencies.

A2.2.2.15. Takeoff/Landing.

A2.2.2.15.1. Normal/Emergency.

A2.2.2.15.2. Stop-and-Go/Touch-and-Go.

A2.2.2.15.3. Transfer of Control Air/Ground.

A2.2.2.16. ACM/Passenger Responsibilities.

A2.2.2.16.1. Egress.

A2.2.2.16.2. Interphone/Radio Hookups.

A2.2.2.16.3. Scanner Duties.

A2.2.2.17. Crew Procedures.

A2.2.2.17.1. FMS/GPS Operation.

A2.2.2.17.2. Turn Briefs.

A2.2.2.17.3. Pax/Equipment On/Offload Procedures.

A2.2.2.17.4. En Route Altitudes/Radar Altitude Settings.

A2.2.2.17.5. Radio Handling/ATC/Verify Freqs/Idents.

A2.2.2.17.6. Aircraft Lighting.

A2.2.2.17.7. NVG Procedures/Failure.

A2.2.2.17.8. Airdrop Malfunctions.

A2.2.2.17.9. Ground Egress.

A2.2.2.18. Remove Rings and Scarves.

A2.2.2.19. Infil/Exfil Brief if required.

A2.2.2.20. FARP Brief if required.

A2.2.2.21. Debrief Time/Location.

A2.2.2.22. Special Emphasis Items.

A2.2.2.22.1. Risk Management.

A2.2.2.22.2. Instruction/Eval.

A2.2.2.23. Route Brief.

**A2.2.3. ACM / Passenger Briefing Guide.**

A2.2.3.1. The AC will ensure that all ACMs/Passengers are briefed commensurate with the qualification of the individual in that design aircraft. Additional items may be briefed as deemed necessary (meals, service, coffee, water, etc.).

A2.2.3.2. Flight time, weather, cargo restrictions.

A2.2.3.3. Seat assignments, use of seat belts and oxygen system.

A2.2.3.4. Smoking restrictions.

A2.2.3.5. Utilization of crew rest facilities (if applicable).

A2.2.3.6. Galley and toilet facilities (use and location).

A2.2.3.7. Emergency equipment and procedures;

A2.2.3.7.1. Signals

A2.2.3.7.2. Exits (ground/ditching).

A2.2.3.7.2.1. Life preservers, life rafts, EEBDs, etc.

A2.2.3.7.3. Rapid depressurization.