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SECRETARY OF THE AIR FORCE

AIR FORCE MANUAL 11-2C-145AV3

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Flying Operations

C-145A OPERATIONS PROCEDURES

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This manual implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/ Evaluation, and General Operations Structure*, and AFI 11-202, Vol 3, *General Flight Rules*. This Air Force Manual (AFMAN) establishes procedures for the operation of C-145A aircraft employed by Air Force Special Operations Command (AFSOC). It provides the most acceptable policies and procedures for most circumstances, but does not replace sound judgment. This manual applies to all civilian employees and uniformed members of the Regular Air Force and Air Force Reserve. It does not apply to the Air National Guard. This manual requires the collection and or maintenance of information protected by the Privacy Act of 1974 authorized by Title 37 United States Code 301a *Incentive Pay*, Public Law 92-570, *Appropriations Act of 1973*, PL 93-294, *Aviation Career Incentive* 1974, Department of Defense Directive 7730.57, *Aviation Career Incentive Act of 1974 and Required Annual Report, February 5, 1976, with Changes 1 and 2*, and Executive Order 13478, *Amendments to Executive Order 9397 Relating to Federal Agency Use of Social Security Numbers.* The applicable System of Records Notice F011 AF XO A, Aviation Resource Management System (ARMS) is available at: **http://dpclo.defense.gov/Privacy/SORNs.aspx**. 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. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. 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. This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval. Requests for waivers must be submitted to the OPR listed above for consideration and approval. The authorities to waive wing/unit level requirement in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority. Requests for waiver of non-tiered compliance items may be submitted through the chain of command to the Publication OPR or, alternatively, Commanders may waive non-tiered compliance items, in accordance with AFI 33-360, paragraph **1.9.3.1**., after obtaining legal review through their supporting Judge Advocate. If the Commander waives a non-tiered compliance item, a copy of the approved waiver must be sent to the Publication OPR within 30 days, as required by paragraph **1.9.3.1**.

SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. Tiering definitions were removed. Crosswind limitations were revised, along with Touch and Go / Stop and Go Operations. Airdrop procedures were added for door bundles. Tactical checklists were revised to incorporated write in steps.

Chapter 1

ROLES AND RESPONSIBILITIES

1.1. General. This volume provides guidelines and restrictions for AFSOC C-145A aircraft. It is a compilation of information from aircraft flight manuals, Flight Information Publications (FLIP), and other AF directives, and is an original source document for many areas. This volume supersedes all guidance in Air Force Tactics, Techniques, and Procedures (AFTTP). It is written for normal and contingency operations to reduce procedural changes at the onset of contingencies. Training procedures are included. HQ AFSOC Standardization/Evaluation (HQ AFSOC/A3V) has overall responsibility for the administration of this volume.

1.2. Key Definitions.

1.2.1. "Must," "Will," and "Shall:" indicate a mandatory requirement.

1.2.2. "Should:" indicates a recommended procedure.

1.2.3. "May:" indicates an acceptable or suggested means of accomplishment.

1.2.4. "WARNING:" indicates operating procedures, techniques, etc., which will result in personal injury or loss of life if not carefully followed.

1.2.5. "CAUTION:" indicates operating procedures, techniques, etc., which will result in damage to equipment if not carefully followed.

1.2.6. "Note:" indicates operating procedures, techniques, etc., which are essential to emphasize.

1.2.7. See **Attachment 1**, Glossary of References and Supporting Information for additional terms, definitions, and references.

1.3. Deviations and Waivers. Waiver authority for the contents of this document is Director of Operations AF/A3O. IAW AFI, 11-202, Vol 2, *Aircrew Standardization/Evaluation Prog*ram the MAJCOM/A3 is the waiver authority for individual aircrew requirements on a case-by-case basis, but the MAJCOM/A3 may not approve blanket or group (two or more aircrew) waivers. Waiver requests should be submitted through MAJCOM Standardization and Evaluation channels to the A3. As applicable, MAJCOM/A3 will forward requests to AF/A3O, with an info copy to Director of Operations AF/A3OI. AFR crews will send copies of all waiver requests and approvals to Director of Operations AFRC/A3V.

1.4. Supplements. Supplements or Local Procedures will not duplicate or be less restrictive than the provisions of this manual or any other publication without prior authorization from the appropriate MAJCOM. Forward supplements to HQ AFSOC/A3V for approval before publication. File supplements according to Air Force Manual (AFI) 33-360, *Publications Management Program*. AFRC units will submit supplements to HQ AFRC/A3V for review. HQ AFRC/A3V will then forward to HQ AFSOC/A3V for approval.

1.5. Format. In order to adequately provide guidance for all C-145A operations without restricting the overall mission, general operating procedures and guidelines are presented in **Chapters 1** through **9**; local operating procedures or guidelines in **Chapter 10**; loadmaster (LM) procedures and guidelines in **Chapter 11**; and airland and airdrop procedures and guidelines in **Chapter 12** and **13**. There is no substitute for sound judgment and the absence of guidance in this

AFI does not constitute approval for operations that fall outside the realm of safe and sound decisions.

Chapter 2

COMMAND AND CONTROL (C2)

2.1. General. The AFSOC Command and Control (C2) system is based on the principles of centralized monitoring and decentralized command and control and execution. The result is a C2 mechanism which keeps the AFSOC/ Commander (CC) informed of the current status of AFSOC forces while enabling the Wing/CC, Group/CC, or Squadron/CC to exercise control over the day-to-day operations.

2.2. Operational Control (OPCON). AFSOC is designated as the controlling agency for United States Special Operations Command (USSOCOM)-assigned Air Force Special Operations Forces (AFSOF) aircraft, while the Theater Special Operations Commands (TSOCs) have OPCON of theater-based assets. Exception: In practice, responsibility for planning and executing AFSOC missions is routinely delegated to the Wing/CC or Group/CC. The Wing/CC or Group/CC, in turn, exercises control of non-close-hold missions through command post supporting wing or group. In the event that assigned forces undergo a change in operation control (CHOP), responsibility for mission monitoring passes from the wing or group C2 facility to the gaining command. Changeover will be accomplished IAW the pertinent operational plan (OPLAN), operational order (OPORD), deployment order (DEPORD), or execution order (EXORD). **(T-2). Note:** For certain close-hold activities, security considerations may compel the Wing or Group Commander to shift mission monitoring responsibilities from the command post to another wing, group, or theater agency. The Wing/CC or Group/CC will ensure procedures are established for the responsible agency to monitor mission progress and advise the HQ AFSOC/A3 or HQ AFSOF/CC as appropriate. **(T-2).**

2.3. Mission Monitoring. Except for selected close-hold missions, the respective wings command post monitors assigned aircraft moving to, from, or between off-station locations. The command post tracks off-station aircraft via the Air Mobility Command (AMC) C2 system and direct reporting from aircrew and command post personnel. Key components of the AMC C2 system are the Airlift Implementation and Monitoring System (AIMS), the Global Decision Support System (GDSS), and various AMC C2 facilities at theater and wing locations. Information on scheduled activity comes from the wings, which input AIMS data for all upcoming missions except local missions not scheduled to land outside the local flying area or close-hold missions that cannot be accommodated by classified in command of an alternate mission or J coded AIMS setups. When aircraft are deployed in support of operations and exercises, the command post obtains additional information from Situation Reports (SITREP) and Deployed Status Reports (DSR). The following mission monitoring procedures primarily apply to missions that are not close-hold in nature and have not been CHOP'd to another command:

2.3.1. Wing (or equivalent) command posts track continental United States (CONUS) movements of their aircraft and directly input mission information into the GDSS. These actions keep the MAJCOM/CC informed of the status and location of CONUS forces.

2.3.2. Information on outside continental United States (OCONUS) movements of AFSOC aircraft (CONUS or theater-based) comes to the AFSOC Command Center via GDSS or telephone notification from the overseas host unit command posts. The host unit command posts receive their data from the aircrews directly or via the Special Operations Command and Control Squadron or Element (SOCCS or SOCCE).

2.3.3. Unclassified Missions at Bases with an AMC C2 Facility. The Mission Commander (MC) or Pilot in Command (PIC) should ensure the following information is relayed to the AMC C2 facility at least 30 minutes prior to landing: call sign(s), mission number(s), estimated time of arrival (ETA), maintenance status, and additional service requirements. After landing, the MC or PIC should contact the C2 facility with ground handling requirements and departure information. In addition, CONUS-based crews operating within the CONUS must keep their home station command posts appraised of all actual takeoff and landing times, projected takeoff times, and other related information. **(T-3).**

2.3.4. Unclassified Missions at Bases without an AMC C2 Facility. The MC or PIC will report, as soon as possible, actual takeoff and landing times, maintenance status, projected takeoff times, and other pertinent data to the theater command post/reporting agency or AFSOC Command Center. **(T-3).** Methods of communicating this information include high frequency (HF) phone patch, Defense Switched Network (DSN), and commercial telephone. CONUS-based crews operating within the CONUS must also ensure that their home station command posts receive real-time reports on aircraft movements. **(T-3).**

2.3.5. J-coded AIMS Missions. When operating on J-coded missions, the MC or PIC will pass movement reports to the appropriate C2 facility. **(T-3).** The MC or PIC will make arrangements with the theater command post/reporting agency or AFSOC Command Center to pass pertinent flight information via secure voice or data communications. **(T-2).** If necessary, call on an unclassified line and report. For example, "Loaded and ready to go, Estimated Time of Departure (ETD) is as fragged". **Note:** For missions requiring special handling above and beyond basic J-code procedures, C2 procedures will be outlined in the tasking directive.

2.3.6. Close-Hold or Sensitive Missions. These missions may operate without AIMS setups. Reference the note in **paragraph 2.3.5**

2.3.7. Regional Reporting Agencies. The 492 Special Operations Wing and below taskings: 919 SOW Command Post, Duke Field, FL, DSN 875-6701 or (850) 883-6701.

2.4. Designation of a Commander Air Force Special Operations Forces (COMAFSOF). The USSOCOM, AFSOC, or TSOC Commander may designate a COMAFSOF. This should be done in writing, and the designation letter will include the individual by name, and the geographic area of authority. In the absence of a designated COMAFSOF, HQ AFSOC/A3 may grant COMAFSOF waiver authority to an individual in writing. Update the designation letter to reflect personnel changes due to prolonged deployments. A copy of the designation letter will be maintained by the AFSOC Command Center and the designated COMAFSOF.

2.5. Mission Commander (MC). A MC will be designated when more than one aircraft or crew are deployed away from home station for training, exercises, or other operations. **(T-3).** Designated MCs must have attended the AFSOC's Mission Commanders Course. **(T-3).** Waiver authority for this requirement is OG/CC. The MC will be a mission ready aircraft commander and should not be used as a primary crew member. **(T-3).** In cases where it is necessary for the MC to fly, ensure a senior unit member or designated representative is delegated to fulfill MC duties. The MC's responsibilities include, but are not limited to:

2.5.1. Briefing crews on local operating procedures. **(T-3).**

2.5.2. Ensuring coordination with Air Traffic Control (ATC), Combat Control Teams (CCT), Special Tactics Squadron (STS) teams, range control, users, and other agencies that may have an impact on the mission. **(T-3).**

2.5.3. Ensuring that Forward Area Refueling Point (FARP) locations, Drop Zones (DZ), or Landing Zones (LZ) have current surveys (when necessary). **(T-3).**

2.5.4. Ensuring personnel have ample and adequate billeting, eating, and transportation arrangements. **(T-3).**

2.5.5. Ensuring maintenance personnel know of aircraft and fuel requirements. **(T-3).**

2.5.6. Submitting timely reports on aircraft movements and mission situational reports (SITREP) (reference **Paragraph 2.3.4**). **(T-3).**

2.6. Pilot in Command (PIC) Responsibility and Authority. AF Form 4327A, *Crew Flight Authorization* (FA), designates a PIC for all flights. The PIC is:

2.6.1. In command of all persons aboard the aircraft.

2.6.2. Responsible for the welfare of their crew, Mission Essential Personnel (MEP), passengers, and the safe accomplishment of the mission.

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

2.6.4. The final mission authority and can make decisions not specifically assigned to a higher authority.

2.6.5. The final authority for accepting a waiver affecting the crew or mission.

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

2.6.7. Responsible for the timely reporting of aircraft movements in the absence of a MC.

2.7. Mission Clearance Decision. The final decision to delay a mission may be made either by the agency with OPCON or the PIC 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 PIC. If the PIC refuses a mission, it will not depart until the conditions have been corrected or improved so that the mission can operate safely. **(T-3).** Another PIC and aircrew will not be alerted to take the same mission under the same conditions. **(T-3).**

2.7.1. Diverting or rerouting a mission should 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 MC or PIC must notify the controlling authority as soon as possible.

2.7.2. The controlling agency directing the diversion or rerouting is responsible for ensuring destination requirements or facilities are adequate for the aircraft and aircrew.

2.7.3. The PIC will notify the controlling agency of any aircraft or aircrew limitations that may preclude diverting or rerouting the mission. **(T-3).**

2.7.4. When directing an aircraft to an alternate airfield, the controlling agency will ensure the PIC is provided existing and forecasted weather for the alternate. **(T-3).** If the planned alternate

is unsuitable upon arrival at destination, the controlling agency will advise the PIC of other suitable alternates. **(T-3).**

2.8. Civilian Law Enforcement Support. It is the policy of the Department of Defense (DoD) to cooperate with civilian law enforcement officials to the maximum extent practicable. AFI 10-801, *Defense Support of Civil Authorities* (DSCA), incorporates the appropriate directive and provides uniform policies and procedures service members must follow when supporting federal, state, and local civilian law enforcement agencies. It establishes specific limitations and restrictions on the use of Air Force personnel, equipment, facilities, and services by civilian law enforcement organizations. Report all requests for assistance and coordinate all requests from civilian law enforcement authorities through the appropriate C2 channels. **(T-3).**

Chapter 3

AIRCREW COMPLEMENT AND MANAGEMENT

3.1. Aircrew Qualification. Each person assigned as a primary crew member must be qualified or in training for qualification in that crew position, mission, and aircraft. **(T-2).**

3.1.1. Basic proficiency crew members may perform primary crew duties on any non-mission sortie and on mission sorties (including unilateral training, joint training, and exercises) when receiving mission qualification training or evaluations under the supervision of a qualified instructor or flight examiner in their respective crew position.

3.1.2. Mission capable crew members may perform primary crew duties on any unilateral training mission or operational mission. For other missions, the squadron commander must determine the readiness of each mission capable crew member to perform primary duties.

3.1.3. Noncurrent (NC) or Unqualified (UNQ) pilots may perform crew duties only on designated training, evaluation or operational missions under the supervision of a qualified instructor or flight examiner pilot.

3.1.4. Other NC or UNQ crew members may perform duties in their primary crew position on any mission when under the direct supervision of a qualified instructor or flight examiner in their respective crew position.

3.2. Crew Complement. The minimum crew complement for flight operations is specified in **Table 3.1**. The squadron commander may add crew members to enhance mission accomplishment or maximize training.

Table 3.1. Crew Complement.

Mission	Pilot(s)	Loadmasters	Additional Crew Members
Engine Ground Run	1	As Required	As Required
Qualification or Instrument 2	2	As Required	As Required
Mission Air-Land 1,3	2	As Required	As Required
Mission Airdrop 1	2	1	As Required
Mission Low-level 1	2	1	As Required

Notes:

1. Crew members noncurrent in mission events may still conduct Functional Check Flights.

2. Qualified crews may use Night Vision Goggles (NVG) as appropriate to improve general flight safety.

3. Includes tactical events such as Short Takeoff Landing (STOL) and unimproved landings. If conducting Infiltration/Exfiltration (INFIL/EXFIL) with actual personnel and/or equipment, a loadmaster is required.

3.2.1. Additional crew members. Additional aircrew members assigned not required for mission accomplishment will travel IAW 11-401, *Aviation Management*.**(T-3).** The PIC or designated representative will brief all MEPs on emergency procedures, egress, and appropriate FCIF items. **(T-3).** MEPs will possess a security clearance appropriate to the mission being performed. **(T-2).**

3.2.2. Other US Military Service Members Performing Duties on Air Force Aircraft. Reference AFI 11-401, Aviation Management.

3.2.3. Logging of Flying Time. Log flying time IAW AFI 11-401 *Aviation Management*.

3.3. Interfly. Interfly is the exchange and/or substitution of aircrew members and/or aircraft between MAJCOMs to accomplish flying missions. Normally, interfly should be limited to specific operations/tests, exercises, or special circumstances.

3.3.1. HQ AFSOC/A4RX maintains current Memorandum of Agreements (MOA) between AFSOC, AFRC, Air Force Material Command (AFMC), Air Education and Training Command (AETC), and Air Combat Command (ACC) for interfly using AFSOC-assigned aircraft. Unless specified in the MOA:

3.3.1.1. Aircraft ownership will not be transferred. **(T-1).**

3.3.1.2. The operational squadron will prepare and sign AFSOC/AFRC/AETC flight orders. **(T-1).**

3.3.1.3. Aircrews will be qualified in the respective aircraft, as well as systems or configuration required to fly the aircraft and/or mission. **(T-2).** If noncurrent, comply with **Paragraph 3.1.3** and **3.1.4**. **(T-2).**

3.3.1.4. Crew member(s) will follow operational procedures defined in this manual and the aircraft Aircraft Operating Handbook (AOH). The Aircraft Flight Manual (AFM) may be used for reference, but does not supersede the AOH.

3.3.1.5. AFSOC will retain all flight and ground mishap reporting responsibility. **(T-1).**

3.3.2. Waiver Authority.

3.3.2.1. With a valid MOA. OG/CC, COMAFSOF or equivalent is the approval authority for interfly on AFSOC aircraft under their control.

3.3.2.2. No MOA/Expired MOA. HQ AFSOC/A3 is the approval authority for interfly on AFSOC aircraft.

3.3.2.3. Contingency operations must be approved by both HQ AFSOC/A3 and respective MAJCOM/A3. **(T-1).**

3.4. Intrafly. The OG/CC or equivalent, or COMAFSOF is the approval authority for intrafly of AFSOC crew members on aircraft under OG/CC or equivalent, or COMAFSOF control.

3.4.1. In all cases, the aircrew must be current and qualified in the aircraft, systems, configuration, and mission being flown. **(T-3).** If noncurrent, comply with **Paragraphs 3.1.3** and **3.1.4**.

3.5. Scheduling Restrictions. Schedule Aircrew IAW AFI 11-202, Vol 3, *General Flight Rules*.

3.6. Flight Duty Periods (FDP). Reference AFI 11-202, Vol 3. FDP does not include post-mission administrative duties. **(T-2).**

3.6.1. C-145A aircraft are considered Transport aircraft and will comply with FDP criteria outlined in AFI 11-202, Vol 3. **(T-2).**

3.6.1.1. The basic FDP is 16 hours. No training events or FCFs (including maintenance ground runs) are permitted to be accomplished after 12 hours. **(T-2). Exception**: AFR crews may perform all mission related events on local training missions provided their time from start of Crew Duty Time/FDP does not exceed 16 hours.

3.6.1.2. Aircrews may recover to a basing location with a tactical recovery, to include the use of NVGs, after 16 hours provided the mission execution portion of the sortie terminates before exceeding 12 hours.

3.6.1.3. For unusual or unforeseen circumstances that impact the scheduled FDP, PICs may extend their FDP up to 2 hours provided no training, tactical events, pilot proficiency maneuvers, or FCF events occur within the 2 hour extension. PICs must assess the impact of the extension on the crew and weigh all available options before extending the scheduled FDP. If this option is used, the PIC must also coordinate with command and control agencies so follow-on activities or schedules are not adversely affected. **(T-2).**

3.7. Crew Rest. Reference AFI 11-202, Vol 3, AFSOC Sup.

3.8. Standby Duty. A period of time during which a crew may be required to launch on an anticipated mission for which a firm departure time cannot be established.

3.8.1. Aircrew members will be provided a 12-hour inviolate crew rest period preceding the start of standby duty. **(T-3).**

3.8.2. Aircrew not dispatched on a mission following standby duty will be re-entered into crew rest or receive post-mission crew rest (if applicable). **(T-3).**

3.9. Alert Duty. Reference AFI 11-202, Vol 3, for alert FDP guidance.

3.9.1. Give alert aircrews a general briefing at the beginning of each alert period. Update the briefing every 24 hours to include weather, local Notice to Airman (NOTAM), latest FCIF information, special instructions, and any other appropriate items. **(T-3).**

3.9.2. Alert aircrews will prepare a weight and balance for the alert aircraft and are authorized to prepare takeoff and landing data (TOLD) using the worst weather conditions expected during the alert period. **(T-3).** Use this data only for alert scrambles. If the alert aircraft is flown for other reasons, compute data for that flight using existing weather conditions.

3.9.3. When an alert crew change occurs and the same aircraft remains on alert, the oncoming alert crew will complete a face-to-face turnover and review the aircraft forms for the aircraft. **(T-3).** If unable to accomplish a face-to-face turnover, accomplish a preflight.

3.10. Crew Notification and Show Times. Publish crew notification procedures and mission show times in **Chapter 10** of this manual.

Chapter 4

AIRCRAFT OPERATING GUIDELINES

4.1. Objectives. A fully mission capable aircraft is the ultimate objective of the logistics effort. The final responsibility regarding equipment required for a mission rests with the PIC. If one crew accepts an aircraft to operate a mission or mission segment without an item or system, this acceptance does not commit that crew, or a different crew, to accept subsequent operations with the same item or system inoperative. When the PIC considers an item essential, designate the component Mission Essential (ME) on the aircraft maintenance forms, and the item will be repaired or replaced prior to departure.

4.1.1. The PIC is the approval authority for operations with degraded equipment within the guidelines of the aircraft Master Minimum Equipment List (MMEL). Operating outside of the aircraft MMEL guidelines requires Group/CC or COMAFSOF approval. For contingency operations when communication issues prevent any possibility of a waiver request, the PIC is the approval authority for operating outside the aircraft MMEL guidelines but must notify the chain of command of the situation as soon as conditions permit. Tactical and airdrop missions fall outside the scope of the MEL and the PIC will ensure that equipment necessary for the mission being flown is operational. **(T-3).**

4.1.2. 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 suitable repair facility including required fuel stops.

4.1.2.1. The squadron commander, chief of maintenance, MC, or deployed maintenance representative must authorize this release. **(T-3).**

4.1.2.2. The OG/CC or COMAFSOF must authorize the flight after maintenance has released the aircraft for flight operations.

4.1.2.3. The maintenance release, OG/CC or COMAFSOF approval, and the PIC's concurrence are all required before the aircraft can be flown to the specified repair destination.

4.2. Policy. If the PIC elects to operate with degraded equipment or aircraft systems, the PIC will coordinate mission requirements (i.e., revised departure times, fuel requirements, maintenance requirements, etc.) prior to flight with the mission control agency to ensure the decision does not adversely impact follow-on missions **(T-3).** Reference the aircraft MMEL for degraded equipment restrictions.

4.2.1. The PIC will determine the flight restrictions or operating restrictions of any equipment installed in the C-145A that is not listed in the MMEL. **(T-3).** Such items may include but are not limited to NVG lighting, airdrop equipment, secure radios, or other specific mission items.

4.2.2. Radar. If installed, regardless of MMEL restrictions, the weather mode radar must be operative for flights into areas of known or forecast thunderstorms. **(T-3).**

4.2.3. Global Positioning Satellite (GPS) Navigational Systems. Aircrews will comply with AFI 11-202, Vol 3, AFMAN 11-217, Volumes 1 and 2, *Instrument Flight Procedures and*

Visual Flight Procedures, and the GPS operations manual on the use of GPS navigational systems for flight operations. **(T-2).**

Chapter 5

AIRLAND OPERATIONS

5.1. Aircraft Maximum Operating Weight Policy. Waiver authority for operations above the maximum takeoff or landing weights listed in the aircraft or AOH is OG/CC or COMAFSOF. Waivers will be forwarded to HQ AFSOC/A3V for tracking purposes. **(T-2).**

5.2. Checklists.

5.2.1. The Pilot Flying (PF) will initiate all checklists unless the, AOH or this manual establishes an alternate procedure. **(T-2).**

5.2.2. Each aircrew member will use the HQ AFSOC/A3V approved checklist when conducting ground or flight operations. **(T-2).** Self-prepared or cheat sheet checklists are not authorized for ground or flight usage.

5.2.3. Aircrews may use approved checklists modified with notes, amplifying procedures, and limits provided the checklist and notes are current. Currency of notes is the crew member's responsibility.

5.2.4. Before Landing Checklists. Aircrew will complete the Before Landing Checklist or the Traffic Pattern Checklist no lower than 200 feet Above Ground Level (AGL). **(T-2).** Aircraft will be established on final, wings level, with a controlled rate of descent in a position to execute a safe landing no lower than 100 feet AGL. **(T-2).**

5.3. Duty Station. All crew members will be at their duty stations during all takeoffs, departures, low-levels flight below Minimum Safe Altitude [MSA], airdrops, approaches, and landings. **(T-2).** During other phases of flight, crew members may leave their duty stations to meet physiological needs and perform normal crew duties. Only one pilot may be absent from their duty station at a time. Notify the Aircraft Commander (AC) prior to departing assigned primary duty station.

5.3.1. Pilot in-flight seat swaps may be accomplished, but will only be done with a qualified pilot at the flight controls and above 1,000 feet AGL. **(T-3).**

5.4. Takeoff and Landing Guidance.

5.4.1. Any current and qualified instructor pilot (IP) or mission pilot (MP), or First Pilot (FP) may takeoff and land from either seat. During IP upgrade training, the student in IP upgrade training may takeoff and land from either seat.

5.4.2. Mission copilots (MC) will takeoff and land from the right seat only unless attending upgrade training. **(T-3).**

5.4.3. A certified short field or semiprepared surface Mission Pilot or IP may takeoff or land from either seat during short field or semiprepared surface operations.

5.4.4. The PIC or any IP should land the aircraft during:

5.4.4.1. Aircraft emergencies unless conditions prevent compliance.

5.4.4.2. Missions with patients on board the aircraft.

5.4.4.3. Missions with Distinguished Visitor (DV) 4 or higher on board the aircraft.

5.4.4.4. During missions operating in areas of hostile airspace. For units operating in defined combat zones, Sq/CC or deployed equivalent (with G-Series orders) may authorize landings from the right seat at specific airfields. **EXEPTION:** Main operating bases with an instrument approach do not require approval if the instrument approach is flown.

5.5. Flap Operation.

5.5.1. The flaps will be actuated by the pilot not flying (PNF), upon command of the pilot flying (PF).

5.6. Seat Belts.

5.6.1. Crew members occupying a pilot or mission duty position will have seat belts fastened at all times. **(T-3).** Exception: Evaluators, instructors, or crew members performing required duties not on the flight deck will have a designated seat and required restraint available. **(T-3).**

5.6.2. Provide a safety belt for all occupants over 2 years of age. Occupants will fasten seat belts securely when directed by the PIC, turbulence is encountered or anticipated, or in areas of forecast clear air turbulence. **(T-3).**

5.6.3. Floor loading is authorized to support dedicated special operations forces team members during contingencies, exercises, or training. The LM should ensure a tie-down strap is rigged for each row of personnel to provide forward restraint and body stability. Special operations forces team members should provide their own restraining devices. See **Paragraph 13.4.1.4.3** for floor loading operations during personnel airdrop.

5.6.3.1. Alternate restraints will be secured prior to takeoff and will not be removed until after landing unless required to meet physiological needs or perform mission related duties. **(T-3).**

5.6.3.2. Accomplish troop security by one of the following methods in descending order of preference:

5.6.3.2.1. Seatbelts or snap links attached to tie-down rings on the cabin floor. **(T-3).**

5.6.3.2.2. Five thousand (5,000) pound tie-down straps. **(T-3).**

5.6.3.2.3. Static Line Kit. **(T-3).**

5.6.4. Except for primary, additional aircrew, mission essential personnel (MEP) performing inflight duties, and special operations forces team members, all cabin occupants must be seated with seat belts fastened during taxi, takeoff, approach and landing. **(T-3).** Passengers authorized flight on tactical missions may be secured by alternate methods for takeoffs and landings provided they do not interfere with primary crew members' duties. Reference **Table 5.1** and AFI 11-401.

Table 5.1. Passenger Classification/Restraint Guidance.

Passenger Classification	Approval Authority	Restraint	Tactical Events
Space Available	OG/CC, COMAFSOF	Seat/Seat Belt	No

Aeromedical Evacuation	OG/CC, COMAFSOF	Alt Load	No
Orientation			
Incentive Flights	See AFI 11-401	Seat/Seat Belt	Yes*
Distinguished Visitor (DV)	See AFI 11-401	Seat/Seat Belt	Yes*
Familiarization Flights	See AFI 11-401	Seat/Seat Belt	Yes*
Spouse	See AFI 11-401	Seat/Seat Belt	No
Public Affairs Flights	See AFI 11-401	Seat/Seat Belt	Yes*
Space Required			
US & Foreign Military Personnel	Mission Tasking Authority	Alt Load	Yes
Additional Aircrew	PIC	Alt Load	Yes
Maintenance (MX) Personnel Supporting Deployment	Squadron CC, MC	Seat/Seat Belt	Yes
Unit Assigned/Attached personnel	Squadron CC, MC	Seat/Seat Belt	Yes
Other Military personnel, DoD civilians, and DoD contractors	OG/CC, COMAFSOF	Seat/Seat Belt	Yes
Personnel Required for 18 Flight Test Squadron (FLTS)	18 FLTS/CC	As Required	As Required
*When authorized by approving authority. Note: Alt Load refers to alternate restraint methods defined in paragraphs **5.6.3** and **8.9.2** of this publication.			

5.7. Aircraft Lighting. Operate aircraft lighting IAW AFI 11-202, Vol 3, and AFI 11-218, *Aircraft Operations and Movement on the Ground*, except when in compliance with contingency requirements or guidance. **(T-2).**

5.7.1. In approved areas, during NVG training operations, the aircrew may turn off anti-collision and strobe light(s) when on final approach for landing within two nautical miles (nm) of touchdown zone, on the landing surface, and immediately after takeoff. For all other areas of NVG operations, aircrew will comply with AFI 11-202, Vol 3. **(T-2).**

5.7.2. If Infrared (IR) covers are installed on any of the aircraft lighting systems, the PIC will verify that the other overt lighting systems are operable prior to takeoff. **(T-3).**

5.8. Advisory Calls During Instrument Flight Rules (IFR) Operations. The PNF will make the following mandatory altitude calls:

5.8.1. Non-Precision Approaches.

5.8.1.1. "100 above" when 100 feet above minimum descent altitude (MDA) or step down altitude.

5.8.1.2. "Minimums" at MDA.

5.8.1.3. "Runway in sight" when the runway environment is in sight and the aircraft is in a position to execute a safe landing.

5.8.1.4. "Go-around" at or below MDA or at the missed approach point and the runway environment is not in sight, when the aircraft is not in a position to execute a safe landing, when directed by ATC facility, or conditions on the runway will not allow a safe landing (e.g., personnel, equipment, or aircraft on the runway).

5.8.2. Precision Approaches.

5.8.2.1. "100 above" when 100 feet above final approach altitude, glideslope intercept altitude, or decision height (DH).

5.8.2.2. "Continue" at DH with approach light system visible and the aircraft is in a position to execute a safe landing. Do not continue the approach below 100 feet if usable runway visual cues are not present.

5.8.2.3. "Land" at DH with the runway environment in sight and the aircraft is in a position to execute a safe landing.

5.8.2.4. "Go-around" at or below DH and the runway environment is not in sight or if the aircraft is not in a position to execute a safe landing, when directed by ATC facility, or conditions on the runway will not allow a safe landing (e.g., personnel, equipment, or aircraft on the runway).

5.8.3. Climb/Descent.

5.8.3.1. "1,000 feet above/below" assigned altitude or flight level.

5.8.4. Altimeter Settings. Both pilots will state and set the altimeter setting as issued by ATC, weather reporting facilities or when passing a Transition Level or Altitude (e.g., Flight Level 180).

5.8.5. Deviations:

5.8.5.1. Any crew member will immediately advise the PF when observing unannounced heading deviations greater than 10°, airspeed deviations of 10 knots, altitude deviations of 100 feet during approach or 200 feet while en-route, or potential terrain or obstruction problems and no attempt is being made by the PF to correct the deviation.

5.8.5.2. Any crew member will announce deviations from prescribed procedures for the approach being flown to the PF when no attempt is being made to correct the deviation.

5.9. Communications Guidance. The PIC will determine communication requirements during mission planning. Ensure all mission frequencies, cryptological data, mission radio configuration, and mission radio monitoring responsibilities are outlined during the preflight briefing. Classified interphone or radio transmissions will be recorded on the cockpit voice recorder (CVR), if installed, and CVR is operating. Ensure any recorded classified conversations are removed. When available, all crew members will monitor the aircraft interphone.

5.10. Crosswind Limits. The C-145A has a demonstrated takeoff and landing crosswind limit of 19 kts on a dry runway and 12 kts on a paved/unpaved runway covered with snow. PICs will use good judgment and should consider the demonstrated crosswind capabilities limits unless extenuating circumstances exist. Refer to the AOH for the complete listing of demonstrated crosswind components under various conditions. Squadron CC/DO may approve one takeoff, to depart the area, and one landing, to a full stop on a wet runway, as long as crosswinds do not exceed 19 knots.

5.11. Wake Turbulence Avoidance.

5.11.1. The PIC will exercise caution when conducting taxi or flight operations within the vicinity of helicopter(s) or tilt-rotor aircraft. In a slow hover-taxi or stationary hover near the surface, helicopter main rotor(s) or tiltrotor aircraft generate downwash producing high velocity vortices to a distance approximately three times the diameter of the rotor. In forward flight, departing or landing helicopters or tilt-rotor aircraft produce a pair of strong, high-speed trailing vortices similar to wing tip vortices of larger fixed wing aircraft.

5.11.2. Refer to AFMAN 11-217, Vol 2, *FLIP General Planning (GP)*, and the Aeronautical Information Manual (AIM) for additional wake turbulence information and wake turbulence avoidance techniques. A reliable timing source will be used to ensure appropriate separation is achieved. **WARNING**: Wind can affect the path and duration of wake turbulence thereby prolonging the turbulence hazard or placing the turbulence in an unanticipated location. The PF is expected to adjust aircraft operations and flight path as necessary to preclude serious wake turbulence encounters.

5.12. LZ and LZ Markings.

5.12.1. The LZ program is a squadron tactics function. The squadron tactics office must ensure surveys are conducted and updated IAW AFI 13-217, Drop Zone and Landing Zone Procedures, and the procedures below. It is the responsibility of all aircrew and/or ground personnel to notify the point of contact (POC) for the squadron LZ survey program, in a timely manner, of any changes or discrepancies on existing surveys.

5.12.2. A thorough review of the LZ survey and accompanying photographs, computer drawings, or imagery will be accomplished by all crew members during the aircrew brief. The

PIC is responsible for ensuring that any crew member unable to attend the brief either reviews the landing zone survey or is briefed on the hazards associated with the LZ. **(T-3).**

5.12.3. Aircrews may conduct airland operations at airfields specified in AFI 13-217, *Drop Zone and Landing Zone Operations*. Aircrew members who are not mission qualified may perform landings to a paved LZ as long as the total runway length meets the requirements of **paragraph 5.14.3.1** in this publication.

5.12.4. Tactical LZ surveys may be used during exercises and operational missions when a full LZ survey is unavailable due to the situation. Requests to use tactical surveys will be forwarded to OG/CC or COMAFSOF for review and approval. **(T-2).**

5.12.5. The OG/CC or COMAFSOF may approve the use of other DoD services or host nation equivalent LZ surveys.

5.12.6. LZ markings may vary depending upon the supporting agency or airfield construction. Refer to AFI 13-217, for LZ marking descriptions. The overt and covert markings and signals to be used during LZ operations will be established during mission planning and included in the aircrew briefing.

5.12.6.1. C-145A aircrews may land at an LZ marked with any Airfield Marking Pattern (AMP) configuration IAW AFI 13-217, or this manual provided the pilots define identifiable touchdown and go-around points (e.g., visual point/location, timing past intended landing point, etc.) prior to landing. Overt or covert markings may be used to define a LZ.

5.12.6.2. AMP-3. Minimum touchdown zone dimensions are 30 feet by 200 feet, or 23 feet wide with a waiver IAW **Paragraph 5.14.2**.

5.12.6.3. Operations using AMP-4 markings. Aircrews will define an identifiable touchdown and go-around point, especially when runway required is the minimum length required by this manual.

5.13. Aircraft Rescue and Firefighting (ARFF) Requirements. ARFF requirements at non-United States Air Force (USAF) active flying bases are as follows:

5.13.1. Sq/CC or Director of Operations (DO) will establish aircraft incident procedures at local training airfields. Comply with local and MAJCOM restrictions and use the Operation Risk Management (ORM) process to mitigate risk. **(T-3).**

5.14. Runway and Taxiway Requirements. Use normal takeoff and landing procedures whenever practical. For mission accomplishment, if approach end overruns are available and stressed or authorized for normal operations, the overruns may be used to increase the runway available for takeoff. Base all aircraft performance requirements on actual or predicted environmental conditions (e.g., pressure altitude, temperature, aircraft weight, runway surface conditions, etc.).

5.14.1. Taxiway width. Minimum width for all operations is 18 feet (5.49m). **(T-3).**

5.14.2. Runway width. Minimum width for all operations is 30 feet (9.14m). Squadron commander or Joint Special Operations Aviation Component (JSOAC) commander may approve the use of runways and LZs no less than 23 feet (7.01m) (200% of wheel track) wide.

5.14.3. Normal Operations:

5.14.3.1. Takeoff and Landing. The minimum runway length for normal takeoff or landing is Critical Field Length (CFL) or Accelerate-Stop Distance, whichever is greater. **(T-2).**

5.14.3.1.1. Pilots will calculate accelerate-stop distance and CFL for all missions.

5.14.3.1.2. Normal operations where runway available is less than Accelerate-Stop Distance, but greater than CFL require squadron CC/DO approval.

5.14.3.1.3. Where runway available allows, adjust refusal speed (Vr) to be equal to or greater than engine out minimum control speed (Vmca) (83 Knots Indicated Air Speed (KIAS).

5.14.3.1.4. For operations where runway available is less than accelerate-stop distance, note that V1 is less than Vr, which will require separate "go" and "rotate" calls by the PNF. Adjust Vr to be greater than or equal to 83 KIAS.

5.14.3.2. Touch-and-go operations. Minimum runway length is 5,000 feet for all flap settings. **(T-2).**

5.14.3.3. Stop-and-go operations. Available runway distance remaining after stopping the aircraft will be at least Critical Field Length or Accelerate-Stop Distance, whichever is greater.

5.14.4. Short Field Operations:

5.14.4.1. Short field operations are defined as takeoffs or landings where runway available is less than critical field length.

5.14.4.1.1. Operations where runway available is less than CFL, but greater than Minimum Field Length for Tactical Takeoff (MFLTTO) require squadron CC/DO approval.

5.14.4.2. The minimum runway length for short field operations is 1,500 feet or MFLTTO, whichever is greater. However, crews must ensure aircraft takeoff and landing performance is sufficient for the given runway and environmental conditions as defined below. Crews will decrease the fuel and/or cargo load to meet or exceed required performance. The OG/CC or COMAFSOF is the waiver authority for runways shorter than 1,500 feet or MFLTTO for operational missions. For operational missions with runways shorter than 1,500 feet or MFLTTO, performance requirements are IAW **paragraph 5.14.4.2.1** and **5.14.4.2.2** below.

5.14.4.2.1. Takeoff. Crews will adjust aircraft weight to ensure charted Takeoff Ground Roll + 10% or MFLTTO whichever is greater is equal to or less than the usable runway length. Overruns may provide an additional safety buffer in the event of an aborted takeoff, but crews may not include the overruns as usable runway for takeoff. Waivers may be IAW AFI 13-217, Paragraph **1.3**.

5.14.4.2.2. Landing. Crews will adjust aircraft weight to ensure charted Landing Ground Roll + 200 feet (for the AMP-3 box), is equal to or less than the usable runway length. Approach end overruns may provide an additional safety buffer in the event of a short or long landing. Crews may not include the approach end overruns as usable runway for landing. Waivers may be requested IAW AFI 13-217, Paragraph **1.3**

5.14.4.3. Crews will use the heavier weight, either takeoff or landing, when calculating CFL, MFLTTO, takeoff, and landing ground roll (e.g., for a planned infiltration of passengers and/or cargo, crews will calculate the takeoff ground roll using the landing weight, not the planned takeoff weight). **(T-2).** Exceptions may be waived by the OG/CC or COMAFSOF. **CAUTION:** Landing at an airfield based on landing ground roll may not provide the aircrew with the required takeoff ground roll without offloading pax, cargo, or fuel.

5.14.4.4. Crews will ensure single engine climb gradient is sufficient to clear all obstacles along the departure routing. **(T-3). WARNING:** Aircraft performance is based upon rotating and climbing on criteria outlined in the AOH. Failure to maintain aircraft performance criteria may not allow for safe clearance of obstacles.

5.14.5. NVG Operations may be conducted using normal or short field operational procedures.

5.14.5.1. Pilots not qualified in short field operations:

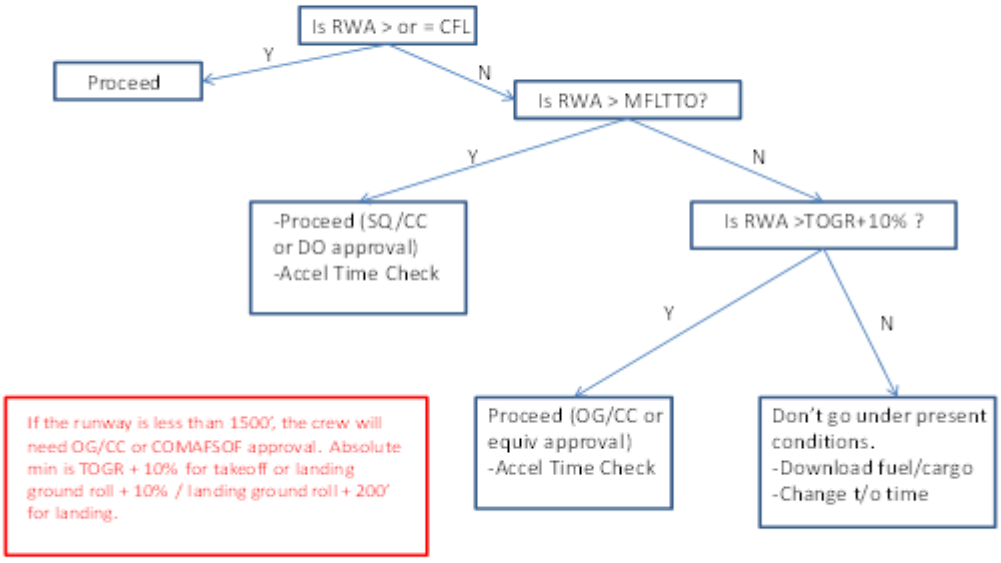
5.14.5.1.1. Night Vision Goggle (NVG) AMP-3 landings can be performed by any pilot qualified to perform NVG landings. AMP-3 landings will be IAW **5.12.6.2**. Unless using short field procedures, runway remaining for stop-and-go operations will be IAW **paragraph 5.14.3.3**. If the runway remaining is less, taxi the aircraft to achieve Critical Field Length or Accelerate-Stop Distance, whichever is greater. **(T-3).**

5.14.5.1.2. NVG AMP-4 landings can be performed by any pilot qualified to perform NVG landings. AMP-4 landings will have a clearly defined intended point of landing and runway remaining after intended point of landing. Unless using short field procedures, runway remaining for stop-and-go operations will be IAW **Paragraph 5.14.3.3**. If the runway remaining is less, taxi the aircraft to achieve Critical Field Length or Accelerate-Stop Distance, whichever is greater. **(T-3).**

5.14.5.2. Unit commanders will determine Landing Zone Control Officer (LZCO)/Landing Zone Safety Officer (LZSO) requirements when conducting NVG landings at unlit or covertly marked landing zones or airfields. **(T-3).**

5.14.5.2.1. Squadron qualified LZSOs may accomplish these duties IAW AFI 13-217. **(T-3).**

Figure 5.1. Short-Field Takeoff Decision Matrix.



5.14.6. Semiprepared surface operations:

5.14.6.1. Semiprepared surfaces are defined in AFI 13-217. Only semiprepared surface certified pilots or pilots receiving formal syllabus instruction may perform semiprepared surface operations. **(T-3).**

5.14.6.2. Pilots will only perform stop-and-go or full stop landings on semiprepared surfaces. Reference AOH for information on aircraft performance on semiprepared surfaces. **(T-3).**

5.14.7. Only NVG, semiprepared, short-field qualified pilots or pilots receiving formal syllabus instruction in these operations may perform operations to semiprepared surfaces using short field procedures on NVGs. **(T-3).**

5.14.8. Minimum criteria for STOL LZs are contained in AFI 13-217, and the AFSOC Supplement.

5.15. Aircraft Taxi Obstruction Clearance Criteria. In addition to the requirements of AFI11-218, Aircraft Operations and Movement on the Ground, comply with the following:

5.15.1. Without wing walkers, avoid taxi obstructions by at least 25 feet. With wing walkers, avoid taxi obstructions by at least 10 feet. **(T-3).** **Exception:** When operating at a civilian airport and taxiing on a Fixed Based Operator (FBO) ramp, the PIC may taxi the aircraft within 25 feet of obstacles or other aircraft without wing walkers when using marked taxi routes. The PIC will comply with marshaller instructions. Taxi routes must be used by similar types of

aircraft for which the routes were designed and in specifically designed parking spots. Support equipment shall be located in appropriately designated areas. In austere locations where wing walkers and taxi lines do not exist and obstacle distances are questionable, the PIC must use good crew coordination and sound judgment to effectively mitigate risk to the aircraft. **(T-3).**

5.15.2. Do not taxi aircraft closer than 10 feet to any obstacle. **(T-3).**

5.15.3. When taxi clearance is doubtful, use a wing walker. If wing walkers are unavailable or if provided and doubt still exists as to proper clearance, deplane a crew member to maintain obstruction clearance. **(T-3).**

5.16. Reverse Taxi. CAUTION: Using brakes to stop the aircraft while reverse taxiing may result in aircraft empennage contacting the ground.

5.16.1. The pilot performing reverse taxi operations will coordinate reverse taxi directions and signals to be used with the marshaller and loadmaster (if applicable) prior to commencing reverse taxi operations.

5.16.1.1. Mission requirements permitting, the cargo doors will be open prior to reverse taxi.

5.16.1.2. The loadmaster or another crew member will be in a position to direct reverse taxi, report any hazards and provide the pilot with timely interphone instructions on turns, distance remaining, condition of the maneuvering area, and stopping point.

5.16.2. During night reverse taxi operations, the pilot will ensure visibility in the taxi area is sufficient to conduct safe taxi operations.

5.16.3. Stop no less than 25 feet from an obstruction even if using a wing walker. **(T-3).**

5.16.4. Secure all cargo and ensure passengers are seated prior to reverse taxi operations.

5.17. Takeoff and Landing Obstruction Clearance Criteria.

5.17.1. The mission directive is confirmation that the tasking agency (e.g., MC, Operations Group or COMAFSOF staff, etc.) has reviewed the airfields of intended operation for obstructions and other hazards in accordance with AF and AFSOC directives. The mission tasking agency will advise aircrews of known obstructions and other factors that could be hazardous to flight operations. The PIC will not make an approach and landing into an airfield requiring certification by the HQ AMC Airfield Suitability and Restriction Report (ASRR), unless they have previously operated into that airfield as a pilot 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. Reference AFI 11-202, Vol 3, *General Flight Rules*, for information on ASRR waiver authority.

5.17.2. For an LZ to be suitable for operations, the LZ must meet the requirements in AFI 13-217, *Drop Zone and Landing Procedures*, and the AFSOC Supplement. **(T-2).**

5.17.3. Reference AFI 13-217, for additional information on LZ criteria for shoulders, graded areas, transitional area, clear and approach zones.

5.18. Operations Over Arresting Cables.

5.18.1. Avoid landing on non-recessed arresting cables.

5.18.2. Avoid rolling over arresting cables at high speed during taxi, takeoff, or landing to preclude damage to bottom of aircraft. Maintain appropriate backpressure on aircraft yoke to reduce nose landing gear down force if maintaining a high speed during taxi, takeoff, or landing over a raised arresting cable.

5.19. Aircraft Recovery from Unprepared Surfaces. Aircrews should not attempt to recover an aircraft after inadvertent entry onto surfaces that are not suitable for taxi. Ground crews using appropriate equipment will normally recover the aircraft. Aircrews may recover the aircraft at austere locations if, after thorough inspection, the PIC is sure there is no aircraft damage and the surface will support the aircraft.

5.20. Intersection Takeoffs. Normally, initiate takeoffs from the beginning of the runway. The decision to make intersection takeoffs rests solely with the aircraft commander. Base TOLD card computations on the runway remaining from where the takeoff is initiated.

5.21. Reduced Power Operations. To extend engine life, use reduced power procedures as much as possible during normal operations. During training when multiple touch-and-go operations are being performed, reduce takeoff as directed by the AOH.

5.22. Engines Running Onload or Offload (ERO).

5.22.1. EROs will be accomplished IAW the C-145A Engine Running Onload/Offload or INFIL/EXFIL Checklist. Aircrews will only utilize the aft cargo doors during ERO operations.

5.22.2. General Procedures:

5.22.2.1. The PIC will brief crew members on the intended ERO operation, emphasizing specific crew member duties.

5.22.2.2. 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.

5.22.2.3. The parking brake will normally be set and one pilot will monitor brakes, interphone, and primary ground communications radio.

5.22.2.4. Operate engines in ground idle power and condition lever settings. If conditions warrant, lower flaps to reduce prop blast aft of the aircraft. Consider feathering the propellers for the ERO. **Note:** Monitor engine oil temperature when props are feathered.

5.22.2.5. Aircraft commanders should consider using any overt lighting that would assist the ERO and enhance safety.

5.22.2.6. Update passenger and cargo manifests, crew lists, and weight and balance for the subsequent sortie if passengers or cargo are onloaded or offloaded.

5.22.2.7. 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.

5.22.2.8. When available, the loadmaster will direct all onloading or offloading operations using pre-briefed signals. Other qualified crew members may assist the operation; however, the PIC or loadmaster retains overall responsibility for the operation.

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

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

Chapter 6

GENERAL OPERATING PROCEDURES

Section 6A—Pre-mission

6.1. Aircrew Uniforms.

6.1.1. On all missions, wear the aircrew uniform and other flying clothing/equipment in accordance with AFI 11-301, Vol 1, *Aircrew Flight Equipment (AFE) Program*, and AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel* or as directed for mission requirements.

6.1.2. Aircrews may wear conservatively styled civilian clothing when required for mission or operational requirements (e.g. Foreign Clearance Manual and approved by the unit CC or DO. Civilian clothing worn will consist of casual slacks or cargo pants, collared shirts, shoes or hiking boots. Denim jeans, T-shirts, and clothing made from non-cotton based flammable or synthetic materials are not authorized. This approval meets the waiver requirement of AFI 11-301, Vol 1. **Note:** When approved by the squadron commander or director of operations (DO), C-145A crews are authorized to fly in civilian clothes on CONUS training and operational missions.

6.1.3. All aircrew will have flight gloves readily available during all flights. **(T-2) Exception:** When wearing functional clothing, aircrew will have equivalent gloves readily available. **(T-2)**

6.2. Personal and Professional Equipment.

6.2.1. Passports. Carry passports on missions when required by the Foreign Clearance Manual. **(T-0).**

6.2.2. Shot Record. Aircrew members will ensure they meet immunization requirements for the mission area of operations. **(T-0).**

6.2.3. Identification Tags. Identification tags should be worn around the neck or carried in a flight suit pocket. If identification tags are not carried, member will carry a military issued identification card. **(T-3).**

6.2.4. Foreign Object Damage (FOD) Hazards. Aircrew will not wear wigs, hairpieces, rings, scarves, ornaments, pins, hair clips or fasteners, or earrings in the aircraft or on the flightline. **(T-3).** Crew members will remove rings and scarves before performing aircrew duties. **(T-3). Exception:** Plain elastic hair fasteners or plastic barrettes are allowed, providing they do not interfere with the wearing of headsets or helmets, or the donning of oxygen equipment. All devices will be accounted for before and after flight. **(T-3).**

6.2.5. Restricted Area Badges. Carry the restricted area badge on all missions (except designated operational missions) and display badge only in designated restricted areas. **(T-3).**

6.2.6. Carry a headset and operable flashlight on all flights. Helmets will be included for NVG use. **(T-3).**

6.2.7. NVGs. All crew members will carry and preflight their own NVGs prior to flight for missions using NVGs. **(T-3).** The PIC or designated crew member will preflight a spare set of NVGs. **(T-3).**

6.2.7.1. The PIC or designated crew member should preflight a night tactical bag containing a minimum of:

6.2.7.1.1. Spare set of NVGs and headset.

6.2.7.1.2. Chemical illumination devices (i.e. chem sticks).

6.2.7.1.3. Spare batteries compatible with batteries used in-flight.

6.2.7.1.4. NVG compatible tape or plastic film.

6.3. Survival and Protective Equipment. All personnel will wear the survival and protective equipment provided during hostile environment operations. **(T-3).** Such equipment, if available, may include, but is not limited to the following: flak vest/body armor, survival vest and equipment, and protective headgear. The squadron will establish minimum survival and protective equipment to be worn or carried on a crew member's person for contingency or combat operations. **(T-3).**

6.3.1. When conducting overwater flights beyond power-off gliding distance from land, the squadron CC, MC, and PIC should consider the following factors:

6.3.1.1. Climate zone, water temperature, and existing weather throughout range and route of proposed flight.

6.3.1.2. Operational requirements (e.g., fuel requirements from an Equal Time Point (ETP) at an altitude not requiring oxygen, one engine inoperative range or glide procedures, number of aircrew, use supplemental oxygen, etc.).

6.3.1.3. Number, type, and communications capabilities of aircraft in nonstandard formation (if applicable).

6.3.1.4. Time of flight and range overwater beyond power-off gliding distance with engine(s) inoperative.

6.3.1.5. Location, availability, and capability of search and rescue (SAR) forces. Alert status and flying time from alert staging location of SAR aircraft (e.g., MC-130J/H/P, HC-130, US Coast Guard) to overwater route of flight for single engine aircraft.

6.3.1.6. Anticipated time in water prior to rescue by SAR or commercial systems (e.g., cargo or fishing vessels, military or SAR ships).

6.3.1.7. Winds, wave height, and their impact on SAR or commercial systems.

6.3.1.8. Aircraft and ground communications ranges and capabilities, commercial shipping lanes, and air corridors transited by military aircraft and commercial air carriers.

6.3.1.9. The PIC and MC will ensure all aircrew are briefed on and review aircraft ditching, water survival, and rescue signaling procedures.

6.3.2. After careful study and analysis of the preceding factors compared to proposed flight routing, the OG/CC or COMAFSOF may allow flight operations without additional flight support (i.e., C-130 support for duck-butt operations) for intertheater or intratheater operations.

The squadron CC may request additional flight support operations when risk factors or analysis deem necessary.

6.4. Aircrew Publication Requirements.

6.4.1. Aircrew will maintain the unclassified publications specified in the Flight Crew Information Summary (FCIS). **(T-3).** This requirement may be satisfied if fully posted publications are kept on board the aircraft. Publications will include all applicable AFSOC, Wing, Group, or Squadron Supplements (imbedded in parent regulation/manual or stand-alone). **(T-3).**

6.4.2. Electronic posting and maintenance of publications is approved. The Operations Group Standardization/Evaluation (OGV) office will develop procedures for complying with the AFSOC Electronic Flight Bag (EFB) program. **(T-3).** FCIF library publications will also be maintained in hardcopy format.

6.4.2.1. EFB. Follow AFSOC Guidance on the EFB operations. Each crew member is required to carry an EFB with current publications. Charging EFB devices via power from the aircraft 115 VAC outlets is permitted. **(T-2).**

6.4.3. Paper copy publications are not required if each crew member has an EFB (minimum of 3) with updated publications and complies with AFI 11-202 Vol 3 AFSOC Sup, and section **6.4**. and **6.6**of this publication. **(T-2).** The only required hard copy publication is applicable QRH (IAW AFSOC EFB guidelines).

6.5. Aircraft Mission Kits. Units will maintain one mission kit per aircraft. **(T-3).** Prior to all missions, the PIC or a designated representative will ensure a current kit is on board the aircraft. **(T-3).** The kit will contain, but is not limited to the items listed below. Maintain sufficient quantities of directives and planning documents to allow implementation of evacuation and contingency plans.

6.5.1. AOH. Appropriate aircraft operating manual, with normal and emergency operating procedures, and aircraft performance, cargo loading, and weight and balance charts (paper copy).

6.5.2. Master Minimum Equipment List (MMEL) or Minimum Essential Subsystem List (MESL).

6.5.3. AFI 11-202, Vol 3, *General Flight Rules.*

6.5.4. AFMAN 11-2-C-145A, Vol 3, C-145A *Operations Procedures.*

6.5.5. AF Form 15, *USAF Invoice.*

6.5.6. AF Form 70, *Pilot's Flight Plan and Flight Log, or equivalent.*

6.5.7. AF Form 457, *USAF Hazard Report.*

6.5.8. AF Form 651, *Hazardous Air Traffic Report (HATR).*

6.5.9. AF Form 711, *USAF Mishap Report.*

6.5.10. AFSOC Form 97, *Incident Report.*

6.5.11. DD Form 175, *Military Flight Plan*

6.5.12. DD Form 1385, *Cargo Manifest*

6.5.13. DD Form 1801, *International Flight Plan*

6.5.14. DD Form 1854, *US Customs Accompanied Baggage Declaration or CF6059B, Customs Declaration*

6.5.15. DD Form 2131, Passenger Manifest.

6.5.16. DESC-I-31, Purchase of Aviation Fuels and Services at Commercial Locations.

6.5.17. SF 44, Purchase Order – Invoice Voucher.

6.5.18. For all non local missions: Laptop equipped with Portable Flight Planning Software (PFPS) or other approved mission planning software.

6.5.19. Foreign Nations Customs Forms (when applicable).

6.5.20. All applicable home station forms.

6.6. Route Navigation Kits.

6.6.1. The PIC or a designated representative will build a route navigation kit at the home station, which will remain with the aircraft until its return. **(T-3).** Kits will contain sufficient quantities of materials to cover the complete round trip from the issuing station and return, plus appropriate materials to cover the theater of operation. Publications, excluding navigation charts, instrument approach procedures, standard instrument departures, and standard terminal arrivals, may be in electronic form provided suitable equipment (e.g., Laptop, Personal Electronic Device (PED), etc.) is on board and easily accessible. Reference AFI 11-202, Vol 3, for restrictions regarding PED.

6.6.2. If EFBs are used to substitute paper publications, then required en-route navigation publications (excluding required navigation charts, example: Low-Level or Airdrop charts) may be contained on aircrew EFBs. EFBs will be configured IAW **paragraph 6.4**. **(T-3).**

6.6.3. The following items and applicable change updates will be included in en-route navigation kits: **(T-3).**

6.6.3.1. DoD FLIP IFR Supplement (one each). **(T-3).**

6.6.3.2. DoD FLIP Visual Flight Rules (VFR) Supplement (one each). **(T-3).**

6.6.3.3. DoD FLIP Flight Information Handbook (FIH) (one each). **(T-3).**

6.6.3.4. DoD FLIP IFR En route Charts (one set for en-route segments and area of operation). **(T-3).**

6.6.3.5. DoD or Federal Aviation Administration (FAA)/National Aeronautical Charting Office (NACO) FLIP Instrument Approach Procedures (two sets for area of operation including en-route stops and diverts). Reference AFI 11-202, Vol 3, for information on guidance for using Host Nation or commercial instrument approach procedure products.

6.6.3.6. Maps and Charts (including VFR sectional aeronautical charts as required).

6.6.3.7. FAA (NACO) Airport Facility Directories (one for each applicable region as required).

6.6.3.8. Standard Instrument Departure (SID) and Standard Terminal Arrival Route (STAR) procedures.

6.6.4. Applicable information in FLIP planning guides (e.g., General Planning (GP), Area Planning (AP)/1, AP/2, AP/3, and AP/4) may also be included in en-route navigation kits.

6.7. Airfield Review. Accomplish airfield review IAW AFI 11-202, Vol 3.

6.7.1. If a restriction applies to the same or similar type of aircraft in the ASRR, crews will comply with the applicable restriction. **(T-3).**

6.7.2. If a restriction applies to the same or similar type of aircraft in the Airfield Qualification Program (AQP), crews will comply with the applicable restriction. **(T-3).**

6.8. Intelligence Briefing. Before departing on missions outside the United States, crew will receive an intelligence briefing that will emphasize terrorist, enemy, and friendly political and military development in the area in which they will be operating. **(T-3).** In theater, aircrews should receive intelligence updates on initial arrival at a forward operating location, or en-route stop, and thereafter when significant developments occur. Report information of possible intelligence value to the local intelligence officers at the completion of each mission.

6.9. Authenticators and Classified Material. Obtain and safeguard current authenticators and other classified materials required for 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 communications security (COMSEC) material required depends on the theater of operation and user.

6.9.1. Turn in authenticators and other classified materials at destination (if applicable) and obtain receipts for classified material. Issue and turn-in of authenticators is normally a function of base operations. At locations where no storage facilities exist, the PIC will ensure classified material is properly protected. **(T-2).**

6.9.2. Remove/Zeroize any potential or classified information in the Flight Management System (FMS) and/or GPS, aircraft radios, or mission systems/software when not required for flight or continuous mission operations. The PIC is responsible for all classified materials.

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

6.10. Call Signs. Use Voice Call Sign Listing (VCSL) or as specified in mission directives for all missions except local area training missions. Use squadron or wing static call signs as directed for local area training missions. **(T-3).**

6.10.1. Aeromedical Evacuation. Preface normal call sign with “AIREVAC” when patients are on board.

6.11. International Procedures. The PIC will review the Foreign Clearance Manual and brief crew members on applicable items before flights outside the CONUS. Comply with Customs, Immigration, Agriculture, Immunization, and quarantine requirements. The unit dispatching the mission is responsible for border clearance and other special clearances when required. Entry into foreign countries by personnel and equipment is directed by military agreements, diplomatic agreements, directives of the operational control commander, International Civil Aviation Organization (ICAO) standards, and the Foreign Clearance Manual. **(T-3).**

Section 6B—Predeparture

6.12. Briefing Requirements. Briefings should be clear, concise, and designed to provide mission essential information. Use briefing guides in the in-flight guide. The PIC will ensure their crews receive a briefing, prior to each mission, covering all specific areas to be accomplished. **(T-3).**

6.12.1. If critical pre-mission duties conflict with the briefing, the PIC may excuse crew members. Prior to engine start, the PIC will give a mission brief to any excused crew members detailing all areas pertinent to their duties. **(T-3).**

6.12.2. If known, the PIC will brief the following factors:

6.12.2.1. Weather. Determine recent weather and its effect on the takeoff, mission, and landing areas. Wind will be evaluated by the aircrew for its effect.

6.12.2.2. TOLD. Compute and brief applicable TOLD and power requirements for mission, airfield, or LZ operations.

6.12.2.3. Approach and Departure. Brief the planned approach and departure routes as well as significant terrain features.

6.12.2.4. Airfield/LZ/DZ dimensions and surface conditions.

6.12.2.5. Abort criteria. Determine escape routes and brief abort considerations to include the takeoff and landing commitment points.

6.12.2.6. Other Hazards. Known personnel and equipment locations will be briefed. If other aircraft, vehicles or personnel are operating in the area, attempt to determine their effect on the LZ, taxi routes, or aircraft parking area. Brief any other special considerations such as parking locations, on/offload procedures, fueling locations, equipment and procedures, etc.

6.12.2.7. Aircraft commanders are responsible for notifying squadron leadership on planned mission/training profiles IAW squadron policies.

6.12.3. Passenger Briefings.

6.12.3.1. Prior to each flight, the PIC will ensure that all passengers are briefed. When more than one flight is accomplished by the same crew and passengers, subsequent briefings are not required, except to brief route information, mission changes, etc. When additional passengers are added, brief them completely.

6.12.3.2. The passenger briefing will include demonstration of seat belt, emergency oxygen and fire extinguishing systems, and locations of emergency exits. All overwater flights will include a briefing on personal and aircraft life support equipment.

6.13. Flight Crew Information File (FCIF). Review Volume I, Part A, of the FCIF before all missions.

6.13.1. Update FCIF Currency Record and Squadron read file, if new material has been added to the FCIF since the last review. Legibly enter the last FCIF item number, the current date, and initial the FCIF Currency Record or complete required electronic review procedures if FCIF is stored electronically (e.g. Patriot Excalibur). When unable to sign the FCIF Currency

Record or complete electronic FCIF review procedures, initialing and numbering the latest FCIF by an individual's name on the flight authorization order certifies the FCIF Currency review of all items are complete. During deployed operations or contingencies, mission planning crews will maintain hard copy of home station or MAJCOM FCIFs for aircrew review. **(T-3).**

6.13.2. PIC will ensure any crew members joining a mission en-route receive an FCIF update. Instructor pilots who fly with senior officers are responsible for briefing FCIF items. **(T-3).**

6.13.3. Crew members not assigned or attached to the squadron will certify FCIF review by entering the last FCIF number and their initials next to their name on the file copy of the flight authorization orders. **(T-3).**

6.14. Flight Planning Systems. The primary flight/mission planning system is the Special Operations Forces Planning and Rehearsal System (SOFPARS). SOFPARS is a subset of the Air Force Mission Support System (AFMSS) that includes the Portable Flight Planning Software (PFPS) and the Joint Mission Planning System (JMPS). Upgraded or new versions of SOFPARS and JMPS will be released and authorized by the HQ AFSOC/A3 for use after applicable testing has been completed.

6.14.1. Electronic Data Transfer. If the flight planning computer transfers a flight plan to the aircraft electronically, it must be an AFSOC approved system. HQ AFSOC/A3 will periodically publish a listing of approved systems. Aircrews will not use unapproved versions of any system to load aircraft avionics without approval. **(T-3).**

6.15. Coordinates. The following procedures will be used: **Note:** Aircrew will confirm a common datum with their mission users during the mission planning process. **(T-3)** Failure to plan navigation to LZ, DZ, or mission areas using a common datum may result in errors of up to several miles. Computer based mission planning systems and aircraft navigational systems generally use WGS84 as reference datum. Attempt to use WGS84 whenever possible to minimize confusion.

6.15.1. When reporting or receiving positions using coordinates derived from maps, charts, or related cartographic products, a complete reference to the source of the coordinates will be provided. This reference will include the datum map or chart producer, series, sheet number, edition and date.

6.15.2. When reporting or receiving positions using coordinates derived from non-cartographic sources such as GPS receivers, Analytical Photogrammetric Positioning Systems (APPS), or related systems, a complete reference to the source of the coordinates will be provided. This reference will include the datum, method used to derive the coordinates, agency producing the coordinates, and accuracy of the coordinates.

6.16. Flight Logs. Prepare a flight log for each off-station mission and include the following as a minimum: turn points, headings, distances, estimated time en-route (ETE), minimum safe altitude (MSA), and fuel computations. A flight log is not required if the above information is included on a flight map. **(T-3).**

6.16.1. A flight log is not required for local training flights or when mission requirements are unknown such as during an alert status. Aircrews are still responsible for complying with fuel requirements outlined in AFI 11-202, Vol 3, and this manual. **(T-3).**

6.17. Weather Planning. Comply with AFI 11-202, Vol 3, weather minimums unless local or theater specific weather minimums are more restrictive. **(T-3).**

6.18. Lunar Illumination. Any training or operational missions planned when the lunar illumination is forecast to be less than 10% during the mission will require notification of the squadron commander, DO, or designated official.

6.19. Fuel Planning. Use criteria outlined in AFI 11-202, Vol 3. Aircrews will conduct appropriate in-flight planning to ensure proper fuel management. **(T-3).** Reference **Attachment 2** for ETP discussion and calculations.

6.19.1. Plan to arrive at destination or alternate (if required) with:

6.19.1.1. 400 pounds of fuel remaining during day Visual Flight Rules (VFR) conditions.

6.19.1.2. 550 pounds of fuel remaining during night or Instrument Flight Rules conditions.

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

6.19.2. Land with no less than 300 pounds of fuel on board.

6.19.3. Plan to consume 150 pounds of fuel per instrument approach to be flown.

6.19.4. Plan an additional 15 minutes of fuel per hour at a maximum cruise power fuel consumption rate for that portion of the flight where structural icing or thunderstorms requiring off-course maneuvering are forecast or reported.

6.19.5. Cruise at the altitude that gives the best ground distance traveled for each pound of fuel consumed. As a rule of thumb, climb if ground speed is reduced less than 5 knots for each 1,000 feet of altitude increase. Descend if ground speed will increase more than 5 knots for each 1,000 feet of altitude decrease.

6.19.6. Pilots will plan fuel consumption rates IAW C-145A AOH power settings. Plan to fly transition legs at Long Range Cruise power settings in an effort to conserve fuel. If maximum cruise power setting is to be used for mission accomplishment, pilots will plan fuel consumption rates at this power setting.

6.20. Objective Area Planning.

6.20.1. Map Selection. Maps with a scale of 1:500,000 or greater detail are required for objective area operations. **(T-3).** Maps with a scale of 1:250,000 or greater are highly desired.

6.20.2. Pilots will ensure all maps used for flight have the most current hazards posted. Aircrew will also ensure appropriate civil airspace is annotated along their route of flight.

6.20.3. Emergency Safe Altitude (ESA). An ESA is an altitude that will provide positive terrain clearance should Instrument Meteorological Conditions (IMC) be encountered. Use 1,000 feet (2,000 feet in mountainous terrain) above the highest obstacle or terrain feature within 10 nm of the intended flight path/objective area. An ESA will be computed for all objective areas. **Note:** Mountainous areas are defined as having a 500 foot change in surface altitude over ½ nm. For operations outside of the CONUS, reference AFI 11-202, Vol 3.

6.20.4. Minimum Safe Altitude. An MSA is an altitude that provides Visual Meteorological Conditions (VMC) terrain clearance and limited threat avoidance during degraded aircrew

situational awareness or periods of task saturation. Use 500 feet above the highest obstacle or terrain feature within 3 nm of the intended flight path/objective area. An MSA will be computed for all objective areas. **(T-3). WARNING:** Failure to maintain an accurate altimeter setting during flight may cause lower than planned terrain clearances or impact with terrain when using the computed ESA/MSA.

6.21. Flight Plans. Use a DD Form 175, Military Flight Plan, or DD Form 1801, DoD International Flight Plan for VFR flights terminating at the base of departure. Aircrews may file with the FAA using the standard FAA flight plan when departing from a location where military support is unavailable. If aircrews file with the FAA and their destination is a military installation, aircrews must notify the destination base operations prior to departure or once airborne, via the appropriate FAA Flight Service Station, of the planned time of arrival. **(T-3).**

6.22. Aircraft Performance.

6.22.1. Weight and Balance. Weight and balance will be computed using the AOH charts, equivalent electronic program, or vector template. A copy of each mission's weight and balance will be maintained at the squadron or operations center (as applicable) and carried with the aircrew. For en-route stops, weight and balance need not be recomputed provided the zero fuel weight has not changed. The crew will compute in-flight crew and passenger equipment movement to ensure center of gravity (CG) limits are not exceeded. These computations will be briefed during the crew or mission brief or during flight, as required. **(T-3).**

6.22.2. TOLD. Compute TOLD using the AOH performance data charts or approved tabulated data. Compute TOLD for initial takeoff prior to engine start. Recompute data for pressure altitude changes of 500 feet, temperature changes of 5° Celsius (C), or gross weight changes of 500 lbs. **(T-3).**

6.22.3. Computed Engine Out Service Ceiling. The computed engine out service ceiling will not be below the published Minimum Obstruction Clearance Altitude (MOCA) on IFR flights or planned VFR cruising altitude unless both of the following requirements are met:

6.22.3.1. The forecast weather for each critical route segment, as defined in **Paragraph 6.22.3**, is day VMC allowing a VFR descent to a safe VFR altitude during an emergency.

6.22.3.2. Crews have planned emergency routes to emergency airfields on VFR charts (1:500,000 or larger) for the critical route segments.

Section 6C—Preflight

6.23. Aircraft Maintenance Forms.

6.23.1. Review the aircraft maintenance forms before applying power to the aircraft or operating aircraft systems.

6.23.2. Ensure that the USAF fuel card and/or other authorized method of payment are on board the aircraft. The Air Card is used to pay for services such as aviation fuel, aircraft oil and fluids, minor maintenance items, landing fees, aircraft de-icing, follow-me trucks and other airfield related services at commercial FBO locations. The PIC is responsible for ensuring the receipt is correct and all appropriate signatures are obtained before departing the military base, airport, or FBO. The PIC is responsible for turning in all service receipts to maintenance upon

return to home station. If services do not generate a receipt, the PIC will ensure the location and services performed are noted and relayed to maintenance. **(T-3).**

6.23.3. The aircraft preflight or exceptional release (if applicable) must be signed before flight. **(T-3).** A maintenance officer, maintenance superintendent, or authorized contract civilian will sign the preflight or exceptional release. However, it may be signed by the PIC if one of these individuals is not available.

6.23.4. Ensure that aircraft locking keys are in aircraft maintenance forms prior to takeoff.

6.23.5. Ensure the aircraft protective covers are on board aircraft prior to flight.

6.24. Aircraft Inspections.

6.24.1. Aircraft inspection should normally be accomplished by the PIC or person designated by the PIC.

6.24.2. Face-to-face turnovers between crew members are acceptable.

6.24.3. Any qualified aircrew may accomplish the preflight inspection and brief the oncoming aircrew.

6.24.4. Required Equipment. The final responsibility regarding equipment required for a mission rests with the PIC. If one PIC accepts an aircraft to operate a mission or mission segment without an item or system, this acceptance does not commit that PIC, or a different PIC, to subsequent operations with the same item or system inoperative. If the PIC elects to operate with degraded equipment or aircraft systems, coordinate mission requirements prior to flight with the mission control agency to ensure the decision does not adversely impact follow-on missions.

6.24.5. Required Forms. Aircraft will contain an appropriate and current airworthiness certificate, effective registration certificate, Radio Station Permit for overseas missions, and appropriate Weight and Balance information. The PIC will also ensure one engine inoperative procedures, climb and en-route performance data is accessible during flight operations.

6.25. Alert Aircraft Procedures. To accept an aircraft on alert, complete a normal aircraft preflight. After 72 hours on alert, allow maintenance personnel access to inspect the aircraft. **(T-3).**

6.25.1. Parking. Park the alert aircraft in a designated alert parking area to expedite taxi and takeoff.

6.25.2. Climatic Protective Facilities. During periods of extreme cold, hot, or severe weather, every effort should be made to shelter alert aircraft and essential equipment in a hangar to ensure operational readiness in the event of a mission.

6.25.3. Flying Alert Aircraft. The alert aircraft may be flown for purposes other than actual alert missions. Comply with the following conditions:

6.25.3.1. Ensure sufficient fuel remains on board to meet mission requirements. If not, upon flight completion, refuel the aircraft to required alert fuel quantity. **(T-2).**

6.25.3.2. Maintain communication contact with the primary controlling agencies. **(T-2).**

6.25.3.3. A qualified (for the alert mission) aircrew must be on board. **(T-2).**

6.25.3.4. Controlling agencies must be notified any time the alert aircraft departs the local area. **(T-2).**

6.25.4. Once accepted for alert, the alert aircrew will make an entry in the aircraft maintenance forms, stating, "Aircraft accepted on alert at (Zulu time and date)". **(T-2).** No maintenance may be performed on it without prior approval of the alert crew PIC and notification of the squadron DO or deployed MC. To ensure integrity of the aircrew preflight, an alert crew member must be present whenever maintenance is performed, or at the completion of the maintenance, the aircrew is required to check the area in which maintenance was performed. **(T-2).** The check should be performed as soon as practical after the maintenance and must be performed prior to flight.

6.26. Aircraft Servicing and Ground Operations.

6.26.1. Aircraft Refueling. Qualified aircrew may refuel, add engine oil, and hydraulic fluid if needed, at locations without maintenance support. At military bases, coordinate with local base operations representatives on procedures for servicing the aircraft while the aircrew is not present. **(T-3).**

6.26.2. Aircrew/Maintenance Engine Runs. Mixed aircrew/maintenance engine runs should not normally be accomplished. If conducted, the appropriate AOH or maintenance inspection procedures will be used. **(T-3).**

6.27. Life Support and Oxygen Requirements.

6.27.1. The PIC or designated representative will ensure sufficient quantities of appropriate serviceable life support, survival equipment, and protective clothing for the entire mission are aboard the aircraft. **(T-3).** Verify Air Force Technical Order (AFTO) Form 46, Prepositioned Life Support Equipment, prior to each flight. Life support equipment and medical kits weighing less than 200 pounds may be secured with seat belts.

6.27.2. On all overwater flights when route of flight is beyond power-off gliding distance from land, life preserver units will be sized and immediately available at the aircrew member's duty station while flying overwater. Passengers will have life preservers available and will be worn at the discretion of the PIC. Life rafts will be available to accommodate all personnel on board. **(T-3).** Life rafts and life preservers are not required when overwater flight occurs during instrument approach procedures under ATC control, immediately after takeoff, and before landing.

6.27.3. Anti-exposure suits for the aircrew and passengers will be on board during any preplanned overwater flights which are beyond power-off gliding distance from land and the water temperature is 60° Fahrenheit (F) (16°C) or less. **(T-3).**

6.27.4. Oxygen requirements are outlined in AFI 11-202, Vol 3. On missions with passengers, carry passenger oxygen systems (POS) (e.g., Passenger Oxygen Kit (POK), Emergency Portable Oxygen System (EPOS), or other approved system) if flight is planned above 13,000 feet. **(T-3).**

6.27.4.1. The loadmaster and any other personnel required to be mobile in the cargo compartment will wear helmets during airdrop operations when static lines are attached.**(T-3).**

6.27.5. Eye Protection. LMs will wear eye protection anytime the cargo doors are open in flight. **(T-3).** Personnel not involved with airdrop operations do not require eye protection.

6.27.6. Restraining Harness. Crew members will wear a restraining harness when near open doors, or hatches in-flight. **(T-3).**

6.28. In-Flight Meals. The pilots will not consume in-flight meals within 1½ hours of each other during flight if the meals were procured from the same source and consist of the same menu. **(T-3).**

6.29. Cockpit Congestion and Loose Objects.

6.29.1. The flight deck area will be kept as uncluttered and orderly as possible for all flight and ground operations. Specifically:

6.29.1.1. During engine start and ground operations, no items (checklist, charts, etc.) should be placed in a position that would prevent inspection of aircraft and engine instruments or switches.

6.29.1.2. During flight, no items (checklists, charts, etc.) will be placed in a position that covers or hides any flight or engine instruments from the view of the PF.

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

Section 6D—Departure

6.30. Departure Briefings and Procedures. Before initial takeoff, the PF will brief the aircrew on the procedures to be followed during takeoff and departure, performance data, and intentions in case of an emergency. **(T-3).**

6.30.1. Any crew member noting a safety of flight malfunction before rotate, refusal, or decision speed will state, "REJECT" and give a brief description of the malfunction. The PIC will brief abort criteria prior to takeoff roll if not accomplished in the pre-brief.

6.31. On Time Takeoffs. Mission departures are considered on time if the aircraft is airborne no later than 15 minutes after the scheduled takeoff time. Early departures are authorized provided local, down-range and aircrew impact are evaluated and no adverse effect will result.

6.32. Aircraft Control. At no time will two unqualified pilots be at the controls at the same time.

6.33. Transponder/Aircraft Identification. Aircraft will not depart with an inoperative transponder. **Exception:** Aircraft may takeoff if the transponder was operational on the previous leg. If the transponder is inoperative and no repair capability exits, the aircraft may takeoff if ATC approves the flight. Mission requirements will dictate the use of Identification Friend or Foe (IFF) and aircraft commanders should comply with the appropriate OPORD or communication plan (COMPLAN). Refer to the MMEL for other restrictions**.** Aircrew will comply with transponder guidance found in AFI 11-202 Vol 3, AFSOC SUP.

Section 6E—En Route

6.34. En Route Briefings and Procedures. Conduct in-flight briefings, as necessary, to cover any unusual circumstances and when flight safety or other conditions require the nonstandard accomplishment of any maneuver.

6.35. Flight Progress. Use available NAVAIDS to maintain course centerline and a positive fix on the aircraft‘s position. When conducting navigation using a GPS for primary navigation or autopilot flight coupling, the pilots will also use appropriate navigation aids (e.g., VHF Omnidirectional Range [VOR]) to maintain a positive fix on the aircraft’s position. **(T-3).**

6.36. Crew Duties and Responsibilities.

6.36.1. Change of Aircraft Control. The change of aircraft or flight controls will be accomplished using a positive change of controls. Use the statement “Pilot/Copilot has controls” to transfer control. The other pilot will acknowledge the change of aircraft control by stating “Pilot/Copilot has controls.”

6.36.2. The PNF should be the primary crew member responsible for executing emergency checklist procedures. Normally, the PF will manipulate the power lever, condition lever, and/or manual override lever. The PF maintains aircraft control and reacts appropriately. The PF will confirm any switches prior to being actuated and will reference the checklist for guidance during the emergency. The PNF should review the AOH as appropriate and as time permits.

6.36.3. Interphone Communications. In the terminal area or during critical phases of flight, limit interphone conversations to those essential for crew coordination. During other phases of flight, do not allow interphone conversations to interfere with the safe conduct of the flight, effective Crew Resource Management (CRM), or communication with outside agencies. In all cases, the PIC is responsible for determining when interphone conversations are appropriate. Do not discuss classified information on interphone during radio transmissions.

6.36.4. All crew members will monitor aircraft interphone. Clearance is required from the PIC prior to an aircrew member removing headset. The aircrew member will advise the PIC when they have resumed monitoring the aircraft interphone.

6.36.5. Command or Mission Radios. Normally, the PF should use and monitor only one ATC radio plus GUARD. Monitoring two ATC controlling agency‘s transmissions simultaneously is not recommended. This does not preclude establishing contact or conducting a radio check on another frequency.

6.36.6. The PIC or designated aircrew member operating the command or mission radios will inform the crew which radio is primary. All crew members will monitor the primary command radio unless specifically directed otherwise by the PIC.

6.36.7. Record and read back all ATC clearances except when ATC instructions require immediate execution and read back would interfere with the timely performance of aircrew duties.

6.36.8. During emergencies, monitor simultaneous ultrahigh frequency (UHF) and very high frequency (VHF) transmissions, if able, when operating in a terminal area under radar control.

6.37. Radar Advisories. Participate to the maximum extent possible while operating in VFR or simulated IFR conditions. **(T-3).**

6.38. Communication Instructions for Reporting Vital Intelligence Sightings (CIRVIS) and Other Reports. Refer to AFI 10-206, *Operational Reporting*. Report all vital intelligence sightings from aircraft as indicated in FLIP Planning or FIH.

6.38.1. In-flight harassment or hostile action against aircraft. Aircraft subjected to harassment or hostile action by foreign aircraft will immediately contact the nearest USAF air-to-ground voice facility and report the encounter. Include aircraft nationality, type, insignia, or any other identifying features; note position, heading, time, speed when harassed, and type of harassment. Request a relay of the report to the nearest C2 agency. Also, attempt to contact the nearest command post when in UHF and VHF range.

6.38.2. Other incidents will be reported as indicated in Joint Chiefs of Staff (JCS) Publication 60, *Joint Communication System* and AFI 10-206, *Operational Reporting*.

6.39. In-Flight Emergency (IFE) Procedures. Report deviations from directives that occur as a result of an emergency IAW AFI 11-202, Vol 3, and this manual. **(T-3).**

6.39.1. Notification of Controlling Agencies. As soon as practical after completing the aircraft emergency procedure checklist or critical action procedures, furnish the controlling agency a description and extent of the difficulty, assistance required, intentions, and any further pertinent information.

6.39.2. Turnaround Procedures. When a turnaround is necessary, use procedures in FLIP. Maintain VFR, reverse course, climb or descend to a VFR altitude or flight level and request ATC clearance. If unable to maintain VFR, obtain an ATC clearance before reversing course. A turnaround under IFR conditions, without ATC approval, will be made only after a thorough evaluation of the seriousness of the emergency, general traffic density, and known traffic operating in the immediate area. Normally, a climb or descent (with minimum change in altitude) to a VFR altitude or flight level will result in minimum exposure to other aircraft, if a turnaround is required.

6.39.3. Need for Medical Assistance. When a person on board the aircraft requires medical care, the PIC will inform the station of next intended landing in sufficient time so medical personnel may meet the aircraft. The request will include the individual's gender, approximate age, and the nature of the medical problem.

Section 6F—Arrival

6.40. Approach Lighting System (ALS) Inoperative. Increase the published visibility minimums of an instrument approach by stated criteria in NOTAMs, Automatic Terminal Information System (ATIS) information, or as depicted on the approach procedure, when the runway ALS is inoperative. This applies only to the ALS itself, not other lights which are not a component of the ALS (e.g., Visual Approach Slope Indicator (VASI), Precision Approach Path Indicator (PAPI). If no other guidance is provided, increase the published visibility by 1/2 mile. **(T-3).**

6.41. Arrival. Before starting each approach, the PF will brief the procedures to be followed during approach, landing, and go-around/missed approach, as necessary. **(T-3).** Performance data will be reviewed.

6.41.1. Minimum Fuel is 400 pounds and Emergency Fuel is 300 pounds. Pilots will declare "Minimum Fuel" or "Emergency Fuel" to Air Traffic Control when they expect to land with less than the respective value and the pilot has not been given an approach or landing clearance. **(T-3).**

6.42. Radar Altimeter Procedures.

6.42.1. During VFR operations, the recommended low-altitude warning setting is 90 percent of intended or flown cruise altitude.

6.42.2. For instrument approaches, set the radar altimeter low-altitude warning to the appropriate height above touchdown (HAT) or height above aerodrome (HAA) prior to the final approach fix (FAF). **(T-3).**

6.43. Holding Exception for Remote or Island Destinations. IAW AFI 11-202, Vol 3, aircrew are authorized to hold for one hour in lieu of an alternate for remote or island destinations. Aircrew will comply with additional requirements listed in AFI 11-202, Vol 3. **(T-2).**

6.44. Instrument Approach Procedures.

6.44.1. 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 and approach, ensure fuel remaining is sufficient to accomplish the en-route descent and approach, missed approach, and flight to alternate with appropriate reserves.

6.44.2. Circling Minimums. The C-145A is considered a Category B aircraft. The PF may fly circling approaches at higher speeds raising the circling minimums to the category for the speed to be flown. The PF is responsible for briefing speeds and flying the approach according to the correct minimums.

Section 6G—After Landing

6.45. Maintenance. Complete aircraft maintenance forms after each flight.

6.45.1. Immediately after arrival, the PIC and any aircrew member documenting a maintenance discrepancy will debrief maintenance personnel on the status of the aircraft and subsystems. The PIC or aircrew member noting a discrepancy will document the problem in the aircraft maintenance forms. At locations where there is no maintenance personnel and maintenance support is required, the PIC will ensure a thorough debrief is provided to the MC or command post prior to entering crew rest. **(T-3).**

6.46. Impoundment. If an aircraft is involved in a ground or in-flight incident, the PIC should impound the aircraft immediately and contact the squadron CC, DO, MC or appropriate controlling agency for further instructions. **(T-3).**

6.47. Clearwater Rinse Facility (Birdbath). Aircrews will notify maintenance anytime the aircraft is flown below 1,000 AGL overwater for extended periods of time, not including takeoffs and landings. For airfields that have birdbath facilities, consult with maintenance prior to use. **(T-3).**

6.48. Customs, Immigration, and Agriculture Inspections.

6.48.1. Complete customs, agriculture, and public health clearance forms, as required, prior to opening any doors other than the crew door or enplaning and deplaning personnel.

6.48.2. Proceed directly from the aircraft to customs, immigration, or agricultural inspection for processing at those stations where federal or local inspections are required. The PIC or designated representative should complete the necessary forms before reporting to inspectors.

6.48.3. After clearing with border clearance agencies, the PIC or designated representative will return to the aircraft for offloading and other post-flight procedures.

6.48.4. A US military aircraft is a sovereign instrument. When cleared to over-fly or land in foreign territory, it is US policy to assert that military aircraft are entitled to the privileges and immunities which customarily are accorded warships. These privileges and immunities include, in the absence of stipulations to the contrary, exemption from duties and taxation; immunity from search, seizure, and inspections (including customs and safety inspections); or other exercise of jurisdiction by the host nation over the aircraft, personnel, equipment, or cargo on board. The PIC will not authorize search, seizure, inspection, or similar exercises of jurisdiction enumerated above by foreign authorities except by direction of HQ USAF or the American Embassy in the country concerned. **(T-0).**

6.48.5. PIC will not permit the inspection of their aircraft by officials of any foreign government. If requested to do so, the PIC and crew will deny access and seek aid from the senior AFSOC or USAF representative or US Embassy or consulate within the host nation. Inform customs or other officials of the above policy and request that they confirm their request through their own government and with US Department of State representatives. If necessary, the aircrew will seal the aircraft and enter into crew rest, and relay departure intentions, until resolution of the matter by appropriate authority. Use communications by the fastest means available to inform command and control facilities should this situation occur **(T-0).**

6.48.6. When confronted with a search request by foreign authorities, aircrews should consider the following procedures.

6.48.6.1. In most cases, search attempts may be stopped by a statement of the PIC to the foreign officials that the aircraft is a sovereign instrument not subject to search without consent of HQ USAF or the chief of mission in the country concerned. This should be clearly conveyed in a polite manner so as not to offend foreign authorities that may honestly, but mistakenly, believe they have authority to search USAF aircraft.

6.48.6.2. If foreign authorities insist on conducting a search, the PIC must negotiate to delay the search until contact is made with AF/A3OOA or the appropriate embassy (US or other friendly nation). The PIC should unequivocally state, the aircrew has no authority to consent to the search and that they must relay the foreign request to these agencies for decision. The PIC should then notify these agencies of the foreign request by the most expeditious means available. Thereafter, the PIC should follow instructions provided by the appropriate embassy and HQ USAF.

6.48.6.3. If foreign officials refuse to desist in their search request, the PIC should indicate that they would prefer to fly the aircraft elsewhere (provided fuel and mechanical considerations permit a safe departure) and request permission for immediate departure.

6.48.6.4. If permission is refused and the foreign authorities insist on forcing their way on board an aircraft, the PIC should state that he protests the course of action being pursued and that he intends to notify both HQ USAF and the US Embassy of the foreign action. The PIC should then allow the foreign agents on board the aircraft, without physical resistance, and thereafter report the incident to HQ USAF and the US Embassy as soon as possible.

6.48.7. In all instances, specific instructions may be briefed because of sensitive cargo or equipment. These instructions and applicable provisions of classified supplements to the foreign clearance manual should be followed where applicable.

6.49. Crew Debriefing/Post-Mission Actions.

6.49.1. Training Missions. The PIC is responsible for the mission debrief and completion of the appropriate documentation. The PIC will ensure all applicable information is passed to controlling agencies. **(T-3).**

6.49.2. Combat Operations. Each aircrew participating in combat operations will participate in a mission and intelligence debrief. **(T-3).**

6.49.3. The squadron CC or MC will ensure that all aircrews are debriefed immediately following any mission during which any enemy tactics or procedures were observed that may affect other operations.

6.49.4. Aircrew encountering hostile fire will immediately notify the controlling agency followed by a hostile fire incident report to intelligence immediately after landing. **(T-3).**

6.49.5. Other Missions. The PIC has the responsibility of affording each crew member the opportunity to discuss unusual aspects of the mission. Debriefings may be formal or informal, as the situation requires.

6.49.6. When transiting installations, the PIC will establish a point of contact with the base operations or FBO for overnight billeting. The PIC will be immediately notified in the case of incident or emergency affecting the safety or security of the aircraft.

Section 6H—Miscellaneous

6.50. Electronic Devices. The use of electronic devices is specified in AFI 11-202, Vol 3. For electronic devices not listed, the user will provide the aircrew a letter from the Aeronautical Systems Division, Deputy for Engineering certifying the device is approved for airborne use. If the aircrew detects any interference from an electronic device used aboard the aircraft, discontinue the use of this device for the duration of the flight. **(T-2).**

6.51. Jamming and Interference. All aircrews and other radio users must be familiar with the procedures for reporting incidents of meaconing, intrusion, jamming, and interference (MIJI) or Spectrum Interference (SI). Info copy HQ AFSOC/A3TW on all MIJI/SI reports.

6.52. Passenger Guidance. DoDI 4515.13, *Air Transportation Eligibility*, establishes criteria for passenger movement on DoD aircraft. AFI 11-401, provides further guidance on orientation and public affairs travel. Refer to these publications directly. In all cases, passengers will be manifested on DD Form 96, Passenger Manifest. **(T-3).**

6.52.1. During spouse orientation flights, threat reaction maneuvers are prohibited and spouses will not fly together on the same aircraft. **(T-2).**

6.52.2. For other orientation categories, passengers will be seated with seatbelts fastened during threat maneuvers. **(T-3).**

6.52.3. Space-required. DoDI 4515.13 lists several categories of passengers, not previously mentioned, who are authorized official travel on DoD aircraft. The OG/CC or COMAFSOF will determine and approve eligibility for all space required categories. Reference **Table 5.1** and AFI 11-401 for more information. **(T-3).**

6.53. Utilization of Civilian Law Enforcement or Medical Personnel. Generally, before transporting civilian law enforcement officials or civilian medical personnel, obtain proper authorization through OG/CC or COMAFSOF. Civilian law enforcement or medical personnel may be required to perform duties at an accident site. These duties may include death determination or human remains removal. Local and international laws may affect mission prosecution and should be reviewed prior to deployment or pickup of civilian personnel. **(T-2).**

6.53.1. Commanders will not transport civilian law enforcement personnel into areas of imminent danger or where confrontation with civilian criminal targets is likely, will not use military force against civilian criminal targets unless in self-defense, and will not direct the action of civilian authorities in enforcing the law or making arrests. **(T-2).**

6.54. 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/Division 1.1, 1.2, or 1.3 explosives, Department of Transportation (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/Division 1.4 explosives, oxidizers, compressed gases, flammable solids and liquids, and corrosive liquids listed in AFMAN 24-204(I), *Preparing Hazardous Materials for Military Air Shipment.*

6.54.1. Briefing. Reference AFMAN 24-204(I), *Preparing Hazardous Materials for Military Air Shipment.*

6.54.2. Cargo Documentation. Do not accept hazardous materials unless proper documentation, certification, and identification of cargo are provided. This includes transportation control number entered correctly on both the cargo manifest and the Shipper's Declaration for Dangerous Goods. **(T-3).**

6.54.3. Flight Planning. The PIC (unless specifically briefed otherwise):

6.54.3.1. Enters Hazardous Cargo and the mission number in the appropriate section of the flight plan. Use remarks section of DD Form 175, Military Flight Plan, information section of DD Form 1801, DoD International Flight Plan, or ICAO Flight Plan Form.

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

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

6.54.3.3.1. 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 of Class A or B explosives).

6.54.3.3.2. Request for special support (e.g., isolated parking, security, technical escort teams, etc.).

6.54.3.3.3. Inert devices (when applicable).

6.54.3.4. If ETE is less than 1 hour, or if other circumstances preclude timely receipt at destination, notify base operations at the first intended landing, by priority telephone.

6.54.4. Before Engine Start. Ensure placards are removed. Give the controlling agency parking location, approximate engine start time, and verify that the firefighting agency has the hazardous materials information. If not, request the following be relayed to the firefighting agency:

6.54.4.1. DoT class of hazardous material on board and the DoD hazard class or division for explosive material on board.

6.54.4.2. Net Explosive Weight.

6.54.4.3. Request for isolated parking (if necessary).

6.54.4.4. Estimated time of departure.

6.54.5. En Route. Normal procedures apply. Avoid flying over heavily populated or otherwise critical areas.

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

6.54.6.1. 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 on board and to verify that the appropriate base support agencies have received the departure message. If not, transmit the mission number, ETA, and information.

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

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

6.54.7. Parking:

6.54.7.1. DoD requires aircraft carrying DoD Hazard Class or Division 1.1, 1.2, 1.3 explosives, DoT Class A poisons, and certain biological agents and munitions be parked in areas isolated from personnel. PIC's 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 selecting the parking area. Should host procedures be questionable, submit trip reports, as appropriate, to document such occurrences.

6.54.7.2. The military host is responsible for ensuring aircraft are properly placarded. For non-military installations, the briefing to the PIC will include placard 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 placards. The shipper is responsible for cargo identification, firefighting procedures, and isolated parking requirements.

6.54.8. Unscheduled Landing Due to IFE. Transmit unclassified information to the appropriate air traffic control facility as follows:

6.54.8.1. Nature of emergency and intent to land.

6.54.8.2. Aircraft position and ETA.

6.54.8.3. Number of personnel and location in aircraft.

6.54.8.4. Fuel on board.

6.54.8.5. That hazardous materials are on board, location of the cargo, and applicable information.

6.54.8.6. After Unscheduled Landing. Contact the AFSOC Command Center or theater CC by telephone, HF radio, or message, giving arrival notice, hazardous materials information, and other pertinent information as required. **(T-3).**

6.55. Hazardous Medical Equipment.

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

6.55.1.1. Electronic medical equipment produces electromagnetic interference which is commonly beyond the limits specified by Military Standard (MIL STD) 461A and 462, and therefore can interfere with aircraft communication and navigational equipment.

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

6.55.2. For nonstandard electronic medical equipment, take the following precautions **(T-3).**

6.55.2.1. Pararescue or aeromedical evacuation personnel must inform the PIC when nonstandard electronic medical equipment is brought on board the aircraft.

6.55.2.2. The PIC must be informed of the anticipated period of use of the equipment during the mission.

6.55.2.3. The PIC must be alert for any interference with aircraft communications or navigation equipment during periods of use of this equipment.

6.55.2.4. 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.

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

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

6.55.3.2. Pararescue or aeromedical evacuation personnel must continually monitor the operation of the equipment to detect possible malfunction during exposure to altitude.

6.56. Narcotics. Aircrew members will ensure narcotics and other unauthorized items are not smuggled onboard the aircraft. Maintain narcotics that are part of official medical kits in accordance with appropriate directives. **(T-2).**

6.57. Dropped Objects. During aircraft exterior visual inspections, pay particular attention to surfaces, panels, and components, which could potentially be dropped objects. If a dropped object is discovered and the mission is continued, the PIC will:

6.57.1. Ensure documentation is entered into the aircraft maintenance forms.

6.57.2. Notify the controlling agency as soon as practical. Include route of flight, altitude, and weather conditions encountered.

Chapter 7

AIRCRAFT SECURITY

7.1. General. This chapter provides guidance for aircraft security on the ground and in-flight. C-145A aircraft are Protection Level (PL) 4 resources in CONUS and PL3 while OCONUS. This security priority designation applies to operational aircraft, wherever they are located, worldwide. Some aircraft contain equipment and documents that require protection per DoDM 5200.1,Vol 1-4 Information Security Program and AFI 16-404, *Arming and Use of Force by Air Force Personnel.*

7.2. Procedures. The PIC is ultimately responsible for the security of their aircraft when located away from US military installations. Air Force Joint Instruction (AFJI) 31-102, *Physical Security*, covers security arrangements when US Air Force aircraft are located on other US military installations. Arrangements must be made to protect the aircraft during crew rest status at non-US protected locations. If US military security forces are not available, the US embassy assigned to that country must be consulted to ensure security arrangements are made. For missions involving a planning agency, the agency must coordinate with the PIC to ensure the planned security measures conform to mission requirements. The amount of security required will vary, depending on location and ground time.

7.2.1. For nonpermissive or uncertain environments, airfield and LZ security is the responsibility of the agency requesting support. Crews will work with the agency requesting support to insure security meets the requirement for the mission.

7.2.2. For permissive environments, the PIC will receive a threat assessment and force protection capability evaluation briefing at home station prior to departure and receive updates en-route, if required. **(T-3).** When landing at DoD component installations, the installation commander is responsible for providing adequate security for the aircraft. The PIC will determine if security is adequate. Planning agencies and the PIC will use **Table 7.1** to help assess the risk to parked aircraft for planned overnight stops located at overseas non-US military installations and civilian airfields. **(T-2). Note:** Aircrews possess the training to provide the appropriate security when present at the aircraft. For unscheduled or emergency landings at non-USAF installations, the PIC will assess the aircraft security situation and take the following actions, if force protection capability appears insufficient **(T-2).**

7.2.2.1. Aircrew surveillance. If the aircraft is not remaining overnight, aircrews are capable of maintaining appropriate aircraft security. The PIC will direct armed crew members to remain with the aircraft and maintain surveillance of aircraft entrances and activities in the aircraft vicinity. **(T-2).**

7.2.2.2. Area Patrol. Request area patrol coverage from local security forces to include back-up response forces. If local authorities request payment for this service, use AF Form 15, USAF Invoice.

7.2.2.3. Departure without Crew Rest. If local security forces are unacceptable or unavailable, the PIC 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, the aircrew must secure the aircraft to the best of their ability. **(T-2).** In no case, will the entire crew leave the aircraft unattended. **(T-2).** Crew rest requirements will

be subordinate to aircraft security when the aircraft may be at risk. **(T-2).**The PIC should rotate a security detail among the crew to provide for both aircraft protection and crew rest until relief is available. The PIC will coordinate through appropriate C2 channels to acquire additional security. **(T-2).**

7.2.2.4. Tailored Security Measures. Standard physical security measures may be impractical at times due to mission, terrain, climate, sociopolitical sensitivities, or other factors. For example, some countries don't allow armed security personnel. On other deployments, the mission may rely on maintaining a low profile and attracting as little attention as possible. At such locations, tailor security measures to meet unique requirements when necessary. As a minimum, lock aircraft entry points and hatches. If it is not possible to lock aircraft, secure aircraft entry points and hatches in a manner to indicate unauthorized entry (i.e., taping hatch release handles or using seals). The PIC is the final authority for determining tailored security measures. Contact with US Embassy personnel is required at locations where security agreements are not in existence.

7.2.3. Ground security teams. Ground security teams may be considered to guard the aircraft for planned overnight stops. Teams may travel in MEP status and are responsible to the PIC at all times. The PIC will ensure security team members receive a mission briefing, aircraft egress, and passenger briefings, as appropriate. **(T-2).** The flying squadron commander is the final approval authority for the need of ground security teams for their aircraft and authority may be delegated no lower than the PIC.

7.2.3.1. Ground security teams will comply with AFMAN 24-204(I), *Preparing Hazardous Materials for Military Air Shipments*, at all times when carrying weapons, ammunition, and equipment onboard the aircraft.

7.2.3.2. Due to the sensitivity of weapons in foreign countries, ground security teams will keep their weapons inside the aircraft and out-of-sight of foreign nationals, even if the Foreign Clearance Manual allows them to be carried outside the aircraft. If a destination requires weapons be carried outside the aircraft, the controlling Major Command (MAJCOM) must approve such action prior to deployment.

7.2.4. Unauthorized Entry. At the discretion of the PIC, the aircraft should be locked and sealed as a measure to detect unauthorized entry. **(T-3).**

7.2.4.1. 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 doors using a metal boxcar seal or other controllable device to identify forced entry. Wipe the immediate area around the seal 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.

7.2.4.2. 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 may be left with base operations or the representative for servicing and maintenance personnel if required.

7.2.5. Security awareness is crucial to effective mission accomplishment. Aircrews must always remain vigilant to their surroundings, especially at high threat, low security locations.

During preflight activities, aircrews will inspect accessible areas to include aircraft wheel-wells, air-conditioning compartments, and cargo compartment for unauthorized packages, personnel, or other unfamiliar devices. Report any suspicious items to host security forces. Aircrews will maintain a heightened security posture throughout all pre-takeoff activities.

7.3. Aircraft Security Risk Assessment Matrix. Planning agencies and the PIC will use this matrix to help assess the risk to parked aircraft in a permissive environment. **(T-2).** This matrix will be used for planned overnight stops at overseas non-US military installations and civilian airfields. **(T-2).** A cumulative score of less than 55 implies that normal unmanned aircraft security measures are adequate. A score of 55 to 90 implies moderate security risk. The squadron or mission commander may consider additional security measures. If the cumulative score is greater than 90, commanders should consider deploying or contracting security personnel. The squadron or mission commander is the final approval authority for aircraft security issues. Authority may be delegated no lower than the PIC. **(T-3). Exception:** During unscheduled or emergency landings, the PIC is the final approval authority for aircraft security. The PIC should contact the US Embassy or US Defense Attaché Office (USDAO) for security assistance. **Note:** Normally, additional security for the aircraft is not required at military installations within a North Atlantic Treaty Organization (NATO) country or US civilian airfields approved by the FAA/Transportation Security Administration (TSA).

Table 7.1. Aircraft Security Risk Assessment Matrix.

Factors	0 POINTS	5 POINTS	10 POINTS	15 POINTS
Local terrorist threat is currently: 1	Negligible	Low	Medium 3	High 3
Installation/airport security services are:	Provided by host military forces only	Provided by host military and contract security forces	Contract security forces only	Not available 3
Host security forces control entry:	The flightline and installation/airport	To the flightline only	To the installation/ airport only	To neither flightline nor the installation/ airport 3
There is perimeter fencing or barriers around:	The flightline and installation or airport	The flightline only	The installation or airport only	Neither the flightline nor the installation or airport 3
Host security forces will provide _____ to guard the aircraft	An armed sentry	An unarmed sentry	Random security patrol coverage only	No sentry or random patrol coverage 3

Host security forces will _____ security incidents involving the aircraft	Provide armed response to	Provide unarmed response to	Notify civilian authorities of	Notify the PIC of 3
The aircraft will be parked:	Among civilian Aircraft	Separate from host military and civilian aircraft	Among other host military aircraft only	
The aircraft will _____illuminated during the hours of darkness. 2		Be adequately	Be marginally	Not be 3
TOTAL POINTS:				
Notes:				
1. Derive the local threat from valid intelligence sources only.				
2. Adequate lighting is equal to the illumination provided by one standard USAF light cart.				
3. If a security response team and security patrols are not present, commanders should consider deploying or contracting security personnel.				

7.4. Protective Standards for Aircraft Carrying Distinguished Visitors (DV). This paragraph applies specifically to aircraft transporting DV Code 4 or above. The PIC is responsible for aircraft security at en-route stops. **(T-2).**

7.4.1. 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. **(T-2).**

7.4.2. 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. **(T-2).**

7.5. Arming of Crew members. The squadron CC, DO, or MC may direct arming of crew members as deemed necessary by mission threat analysis. Protect all weapons IAW AFI 31-117, Arming and Use of Force by Air Force Personnel and AFMAN 31-129, *USAF Small Arms and Light Weapons Handling Procedures.*

7.5.1. Weapons Issue. Before departing home station, authorized crew members will obtain weapons, ammunition, lock, and key. **(T-3).** 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. **(T-3).** 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. **(T-3).**

7.5.2. Loading and Transfer of Weapons. Load and unload weapons at approved clearing barrels/facilities 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. **(T-3).**

7.5.3. Wearing of Weapons. Unless in combat operations, 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 command post, armories, and other facilities associated with aircrew activities such as base operations, fleet service, cargo or passenger terminals, flightline cafeterias, snack bars, etc.

7.5.4. Weapons Storage. Crew members will be armed before beginning preflight or onload duties. **(T-3).** When no passengers are on board and after a satisfactory stowaway check, weapons may be stored in the gun box in-flight. If no gun box is available retain weapon for the duration of the flight. Crew members will rearm before landing. Weapons need not be unloaded before being placed in the gun box.

7.5.5. 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.

7.5.5.1. 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, US civil law enforcement armories, and US Embassies. If none of these are available, or the PIC believes weapons security may be compromised, crew members may secure their weapons in their quarters. One crew member will remain with the weapons at all times. **(T-3).** In this case, turn the ammunition over to the PIC.

7.6. General Antihijacking Guidance. Aircrews must make every reasonable effort to resist an aircraft hijacking attempt. **(T-2).** Resistance may vary from dissuasion, to direct physical confrontation, including the use of deadly force IAW Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3121.01B, *Standing Rules of Engagement/Standing Rules for the Use of Force for US Forces*, and all applicable ROE/Rules for the Use of Force (RUF). Due to the sensitive nature of anti-hijacking procedures, crew members should reference AFI 13-207, *Preventing and Resisting Aircraft Piracy* (Hijacking), and the FIH for specific guidance. Aircrews will not release any information concerning those procedures or hijacking attempts. Antihijacking is a crew duty performed exclusively by aircrew personnel. 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. Detection of potential hijackers before they board the aircraft is the best solution to the problem.

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

7.6.1.1. 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. **(T-3).**

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

7.6.2. Arms and Ammunition. Passengers (including MEP) will not carry weapons and/or ammunition on their person or in hand-carried baggage on board an aircraft. **(T-3). Exception:** Special agents/guards of the Secret Service or State Department, and other individuals specifically authorized to carry weapons in coordination with the PIC. In all cases, the crew will be aware of the location of weapons and ammunition.

7.6.2.1. If individuals must clear their weapons before boarding the aircraft, and access to clearing barrel/facilities is limited, as a minimum, direct them to **(T-3).**

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

7.6.2.1.2. Clear their weapons IAW AFMAN 31-129.

7.6.3. Troops and deadhead crew members will not retain custody of ammunition on the aircraft but will turn it in to the troop commander or PIC. **(T-3). Exception:** During combat operations, troops may carry unloaded weapons and ammunition on board the aircraft. When the tactical situation dictates, personnel who will engage an enemy force immediately upon deplaning at the objective may carry loaded weapons on board the aircraft at the discretion of the troop commander/team leader with the PIC‘s concurrence. Weapons will not be breached until clear of the aircraft. **(T-3).**

7.7. Specific Antihijacking Guidance. It is imperative that all crew members are familiar with the ground and in-flight resistance actions and forced penetration of unfriendly airspace procedures in AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, 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 8

MISSION EMPLOYMENT

8.1. Terminal Operations.

8.1.1. Takeoff Procedures. If time and conditions allow, compute aircraft performance data prior to departure if personnel, equipment, or fuel have been onloaded/offloaded. If time and conditions do not allow, use the preplanned worst case TOLD data that was computed during mission planning.

8.1.2. If any degradation in onboard systems is discovered which could result in loss of situational awareness during approach, the PIC will inform the crew. The decision to proceed rests with the PIC.

8.1.3. Go-Around Calls. If any crew member calls "Go-around" the PF will immediately apply power to establish a climb that clears all obstacles. Minimum altitude for overflight of aircraft, equipment, or personnel on the runway is 500 feet AGL.

8.2. Tactical Operations. Execute the proper tactical procedure based upon threat analysis and aircraft performance. For all tactical operations, follow theater specific ATC procedures to avoid potential conflicts.

8.2.1. Radio Communication. The PIC will plan and brief individual responsibilities for secure communication loading, voice radio configuration and communication during the mission. Coordination between all crew members is essential for safe and effective mission accomplishment. All crew members that have the capability to monitor radios must be alert to back up the assigned crew members when duties allow. The PIC will assign radio monitoring and transmission duties after examining each phase of flight for mission requirements and individual workload. **(T-3).**

8.2.2. Preparation for NVG Operations. Cockpit and cabin lights may be taped or covered with NVG compatible film if they will interfere with NVG operations and cannot be otherwise disabled without removing aircraft power (e.g. pulling circuit breakers).

8.2.3. Tactical Departures.

8.2.3.1. Spiral Departure. Using Maximum Climb Power settings and aircraft configuration IAW the AOH, climb at best rate of climb speed (Vy) while turning the aircraft to remain inside the secure area above or around the airfield. It is recommended to use no more than 30° of bank. If the aircraft cannot be kept in the secure area or obstacles are a factor, climb at best angle of climb speed (Vx) while still attempting to use no more than 30° of bank. If able, climb to cruise altitude or an altitude above the threat before departing the secure area. **Note**: If 30° of bank is exceeded, crews should pay particular attention to increased stall speeds at high angles of attack.

8.2.3.2. Low Departure. Use the entire runway available in order to depart the secure perimeter of the airfield at the highest possible speed and at the highest altitude the threat will allow. Place the aircraft in a clean configuration as soon as possible after liftoff. Set maximum continuous climb power settings (IAW AOH) after the aircraft is in a clean configuration. Once clear of the threat, immediately climb to cruise altitude.

8.2.4. Tactical Arrivals.

8.2.4.1. Reference the C-145A handbook for recommended techniques on tactical arrivals.

8.3. Aircraft Navigation Systems.

8.3.1. GPS approaches. The C-145A is certified to fly GPS or Area Navigation (RNAV) approaches to Lateral Navigation (LNAV) MDA minimums. Pilots will confirm Random Asynchronous Integrity Monitor (RAIM) prior to commencing any GPS or RNAV approach or flying any portion of a GPS and/or missed approach segment. **(T-3).** Accomplishing the RAIM check during pre-mission planning meets this intent.

8.3.2. Self-Contained Approaches. Although some GPS or FMS navigation systems enable approaches and pseudo approaches to be constructed and flown, these type approaches may only be used as a situational awareness aid and may not be used as the sole means of navigating to a runway or LZ in IMC. Unless GPS Overlay requirements in AFI 11-202, Vol 3 are met, aircrews must fly under normal VFR or theater specific VFR guidance, whichever is more restrictive. **(T-3). WARNING:** Self-constructed approaches and pseudo approaches do not guarantee obstacle or terrain clearance.

8.4. Combat Entry/Exit Criteria.

8.4.1. The Combat Entry/Combat Exit checklists will be used for all combat and combat related missions. Although not necessary for training missions, crews should familiarize themselves with these checklists on local training sorties. In addition, the "FENCE" acronym can be used to help aircrew prepare the aircraft prior to entry into and exit from combat operations. The FENCE acronym stands for Fuel, Engines/Electrics, Navigation, Communications, Emitters. These procedures may be modified as the situation and aircraft requires. Use the FENCE acronym after passing the combat exit point to aid in configuring the aircraft for normal flight operations.

8.4.1.1. F – Fuel. Check fuel balance and quantity. The PIC will establish a BINGO fuel to ensure the aircraft arrives at destination or alternate with required fuel reserves IAW AFI 11-202, Vol 3, and this manual.

8.4.1.2. E – Engine(s)/Electrics. Check electrical system for normal operation, to include all generators, battery, and inverters as applicable. Check all engine gauges for normal indications. Confirm TOLD and aircraft performance will allow for safe aircraft and mission operations.

8.4.1.3. N – Navigation. Set-up required navigational equipment (navigational and aircraft performance instruments, GPS, traffic collision avoidance systems (TCAS), Enhanced Ground Proximity Warning System (EGPWS), radar altimeters, etc.) as required to increase situational and positional awareness for mission. If altimeter setting below transition altitude or level is unknown for mission/objective area, set the highest altimeter setting reported for the area until obtaining an accurate altimeter setting.

8.4.1.4. C – Communications. Set the communication radios and systems as required. The PIC will outline aircrew radio responsibilities and configurations for the mission requirements.

8.4.1.5. E – Emitters. Consider emission devices that are not essential to navigation or safety, but may pose a threat to the detection of the aircraft. Consider minimal operational

settings for systems like the transponder, weather radar, VORs, distance measuring equipment (DME), etc. Turn off interior and exterior lights that are not needed for safety or distracting under NVGs. Although a passive detection system, set the aircraft defensive systems, if applicable, to comply with theater directives while providing aircrew with the greatest amount of threat detection and protection.

8.4.2. Complete combat exit criteria using the FENCE acronym in reverse order once the aircraft has departed the combat environment or upon mission completion to aid in-flight safety when not in the combat (simulated or actual) environment.

8.5. Austere Landing Zone Operations. Only fully mission qualified aircrews or those receiving instruction are authorized to operate IAW this section. Use normal takeoff and landing procedures whenever practical.

8.5.1. Landing Zone Assessment. Landing Zone assessment is crucial to safe mission accomplishment. Crews should use all available sources for mission planning. Carefully evaluate aircraft capabilities and the mission environment before the operation. At a minimum, consider the following:

8.5.1.1. Security of the operating area.

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

8.5.1.3. Runway surface conditions (e.g., dirt, grass, dust, small holes, damaged Pierced Steel Plank (PSP), smooth, rough, etc.).

8.5.1.4. Surface temperature and density altitude.

8.5.1.5. Usable runway length and width.

8.5.1.6. Surface acceleration and deceleration factors (e.g., soft, dry, wet, ice, and slope).

8.5.1.7. Actual and predicted gross weight of aircraft.

8.5.1.8. Surface winds (e.g., headwind, tailwind, crosswinds, gusty, turbulence).

8.5.1.9. Number of takeoffs and landings required.

8.5.1.10. Ground Plan (e.g., ERO, vehicles, marshaling, on/offload locations, etc.).

8.6. Arrival. Plan arrival altitudes to minimize conflict with terrain or other airborne traffic.

8.7. Traffic Pattern. When practical, fly normal traffic patterns.

8.8. Specific Aircrew Procedures. The following procedures are recommended in addition to the normal procedures in the AOH:

8.8.1. 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.

8.8.2. Brief the ground party and subsequent aircrews on any unexpected hazards encountered during takeoff or landing.

8.9. Combat Loading. Combat loading is comprised of three types of operations: combat offload, passenger combat loading, and rapid infiltration.

8.9.1. Combat Offload Training. No special authorization is required for combat offload training using unilateral training loads.

8.9.2. Passenger Combat Loading. 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.

8.9.2.1. When airlifting litter patients, consult medical personnel for their requirements. It is recommended to position the litters longitudinally with patients' heads aft. The PIC will ensure litters and patients are secured prior to aircraft movement. **(T-3).**

8.9.2.2. 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.

8.9.2.3. For two litters side by side: use two tie-down straps for each end hooked into tie-down rings, run the straps laterally, one left and one right, over each outboard litter handle to the nearest tie-down ring, and tighten.

8.9.3. Rapid Infiltration Procedures. These procedures are only authorized when conducting infiltration and/or exfiltration operations with Special Operations Forces. 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 troops do not provide personal restraining devices, secure personnel using passenger combat loading procedures.

8.9.3.1. The loadmaster may use IR chemical lights taped to illuminate inside of a blacked out cargo compartment if required.

8.9.3.2. The loadmaster or additional crew member will notify personnel at 20 minutes, 10 minutes, 6 minutes, 1 minute, and immediately prior to landing by stating XX minute(s). Give a Prepare to Land advisory when minimums have been called. **(T-3).**

8.9.3.3. Loadmasters may wear NVGs during blacked out operations. Loadmasters should wear NVGs on aircraft with NVG-compatible lighting; however, the NVGs may be raised when NVG lighting is operational and provides sufficient illumination for task accomplishment.

8.9.3.4. Procedures after Touchdown. These procedures should be performed by a qualified loadmaster but may be performed by a trained crew member.

8.9.3.4.1. Open the cargo door when the pilot states, "CLEAR TO OPEN" or as briefed. Offload personnel and cargo once the aircraft has stopped and the pilot states "CLEAR TO OFFLOAD". **Note:** If a time delay before onloading is anticipated be prepared to taxi in the event of an emergency.

8.9.3.4.2. Complete on/offload.

8.9.3.4.3. Notify the pilot, "CLEAR TO TAXI".

8.9.3.4.4. Close the door.

8.9.3.4.5. Set the cargo compartment lighting intensity to not interfere with cockpit operations.

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

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

8.10. Casualty Evacuation (CASEVAC) or Medical Evacuation (MEDEVAC). C-145A aircraft are not normally used for MEDEVAC missions due to weight and equipment constraints. If a CASEVAC is required, a prehospital Paramedic or higher trained medical provider should be onboard.

8.10.1. Aircraft configuration. If required the aircraft will be reconfigured IAW the AOH. For Block 5 aircraft, consider removing carpets and covering the floor with some type of barrier to contain body fluids and medical waste. For Block 10 aircraft, the ruggedized floor is designed for easy cleanup and/or removal if required. Consideration should be given to using towels or other material to catch fluid leaks to minimize clean-up. The crew will accomplish weight and balance for the new configuration.

8.10.2. Medical hazards. Take all necessary precautions to keep the crew and aircraft isolated from medical hazards.

Chapter 9

TRAINING

9.1. General. See AFI 11-2C-145A, Vol 1, Aircrew Training, for additional information.

9.2. Training Aircraft Not Capable of Flight. If an aircraft is not capable of departure within 4 hours after scheduled departure time, cancel the training mission unless waived by the PIC**.** Departure consists of actual takeoffs for assigned or planned training missions and does not include maintenance ops checks.

9.3. Threat Maneuver Training. The PIC will brief the crew during the pre-mission brief when threat maneuvering is expected to be accomplished. **(T-3).** The PF will make advisory calls to the aircrew prior to beginning the evasive maneuver. Crew members will clear the aircraft of obstacles throughout the maneuvering.

9.4. Not Used.

9.5. Simulated Instrument Flight.

9.5.1. The use of a hood or other artificial vision-restricting device is not authorized for any phase of flight. **(T-2).**

9.5.2. Initiate practice instrument missed approaches no lower than the minimum altitude for the approach being flown. **(T-2).**

9.6. Confidence Maneuvers. All confidence maneuvers will be accomplished in VMC conditions under VFR with a discernible horizon. Ensure the airspace around the aircraft is clear of traffic by visually clearing the area prior to the maneuver. An IP at a set of flight controls is required to perform any stall. Do not exceed AOH limitations.

9.6.1. Stall Series. Begin stall series at least 5,000 feet AGL or 5,000 feet above the clouds if operating VFR on top. For stall series training, recover from the stall at the first definite indication (e.g., stick shaker, actual stall of aircraft, decay of control effectiveness). An IP at a set of flight controls is required to perform this maneuver. **(T-2).**

9.6.1.1. Power-Off Stalls. Determine actual stall speeds prior to maneuver. The stall may be entered from either straight or turning flight in the approach and landing configuration. Initiate recovery at the pre-briefed point, if engine revolutions per minute (RPM) decay is detected, or any abnormal engine indication is discovered. **(T-2).**

9.6.1.2. Power-On Stalls. Determine actual stall speeds prior to maneuver. 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 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 an airspeed no lower than reference speed (Vref) for the aircraft configuration. Initiate recovery at the pre-briefed point, if engine RPM decay is detected, or any abnormal engine indication is discovered. **(T-2).**

9.6.1.2.1. Simulated or actual engine-out, power-on stalls are prohibited. **(T-1). CAUTION:** There is a density altitude above which the stall speed is higher than the engine inoperative minimum control speed.

9.6.2. Steep Turns. Accomplish steep turns at least 1,500 feet AGL, 1,500 feet above the clouds if operating VFR on top, or the manufacturer's recommended altitude, whichever is higher. Accomplish both 45° and 60° bank steep turns. Do not exceed 60° of bank. **(T-2).**

9.6.3. Spins. Intentional spins in C-145A aircraft are prohibited.

9.6.4. Slow Flight. Fly 5 Knots Indicated Airspeed (KIAS) below Vref for aircraft configuration. Do not exceed 15° of bank. Authorized in day VMC only, at a minimum of 1,500 feet AGL or 1,500 feet above a clouds if operating VFR on top. **(T-2).**

9.6.5. Aerobatics. Acrobatics are prohibited.

9.6.6. Minimum Control Airspeed (Vmca) Demonstration. Stall speed and engine inoperative minimum control airspeed should be determined prior to flight. Authorized in day VMC only, at a minimum altitude so that recovery is completed by 5,000 feet AGL, 5,000 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. An IP at a set of flight controls is required to perform this maneuver. **(T-1). CAUTION:** There is a density altitude above which the stall speed is higher than the engine inoperative Vmca. When this density altitude exists below 5,000 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 Vmca, this flight demonstration is impracticable.

9.7. Simulated Emergency Procedures (EPs).

9.7.1. Practice simulated EPs which require placing switches in other than their normal position or the aircraft in an abnormal configuration as specified in the aircraft manual only during training, evaluation, or currency flights when an instructor or flight examiner pilot is at a set of functional aircraft controls. **(T-2).**

9.7.1.1. IP candidates who occupy a pilot seat and are under the supervision of a flight examiner pilot, not in the seat, may practice simulated EPs during upgrade evaluations to IP.

9.7.1.2. Preface all simulated EPs with the word "simulated" and terminate simulated emergencies if an actual emergency occurs.

9.7.1.3. Use a realistic approach and do not compound emergencies. Limit simulated EPs to appropriate phases of flight. Instructors should consider student proficiency when choosing the appropriate phase of flight to initiate a simulated emergency. Notify the controlling agency if a nonstandard traffic pattern or pattern requiring special sequencing is anticipated.

9.7.1.4. Do not perform simulated EPs when passengers are on board. Mission Essential Personnel, who are approved IAW AFI 11-401 AFSOC SUP, and who are included on the orders are not considered passengers.

9.7.2. Simulated Engine Failure. Simulated engine failures will only be accomplished with an IP at a set of functional aircraft controls. **(T-2).** Minimum weather for simulated EPs during the day will be circling minimums or greater and have a 1000’ ceiling and 2SM visibility or circling minimums, whichever is greater.

9.7.2.1. Initiate simulated engine failure no lower than 200 feet AGL or approach minimums if during an instrument approach. The IP will initiate the emergency. The IP will set 10-15% torque on the simulated failed engine to simulate a feathered propeller once the flying pilot correctly executes/applies the proper critical action procedure. **(T-2).**

9.7.2.1.1. Do not initiate simulated single-engine procedures below 92 KIAS.

9.7.2.2. A go-around will be directed by the IP if a safe landing is not ensured.

9.7.2.2.1. Simulated Engine Out Go-Around or Missed Approach. Initiate simulated engine out go-around or missed approach no lower than 200 feet AGL or minimum altitude for the approach. **(T-2).**

9.7.2.3. Aircrew will initiate simulated engine failure after takeoff (straight-ahead) no lower than 300 feet AGL. **(T-2).**

9.7.3. The following guidance will be considered during all engine-out training:

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

9.7.3.2. 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.

9.7.4. Aborted Takeoff. Authorized during day or night Visual Meteorological Conditions (VMC), with or without NVGs. The runway must be dry, a minimum width of 45 feet, and long enough to meet normal takeoff distance requirements. Initiate the abort by stating "REJECT" before 70 KIAS. **(T-2).**

9.7.5. Actual Engine Shutdown and Air Start. One engine may be shut down in day VMC only at a minimum of 5,000 feet above the ground or 5,000 feet above the clouds if operating VFR on top. Do not shut down the engine unless the aircraft can remain clear of clouds and recover and land under visual flight rules. **(T-2).**

9.8. Traffic Pattern/Touch-And-Go/Stop-And-Go Operations.

9.8.1. Conduct traffic pattern and touch-and-go/stop-and-go IAW the AOH or this manual's checklists. Touch-and-go operations require two qualified pilots or an IP if the other pilot is unqualified or noncurrent. **(T-2).**

9.8.1.1. The Traffic Pattern checklist may be used when performing multiple instrument approaches or VFR pattern practice at the same airport or transitioning to another airport within 25 nm. Pilots will complete all normal checklists after the initial takeoff or when transiting to another airport greater than 25 nm from the airport where the instrument approach or VFR pattern practice was accomplished. **(T-2).**

9.8.1.2. When conducting touch-and-go operations, the PF initiates the "On The Runway" portion of the checklist by calling for the flaps to be set to 15°. The Pilot Not Flying (PNF) will then set the flaps to 15°, neutralize the elevator trim, and retract the spoilers (if applicable). The PNF will state, "Flaps 15, trim set, spoilers retracted, throttles." The PF will simultaneously advance the PCLs towards the takeoff setting and state, "Set Power."

The PNF will refine the power setting to achieve the briefed torque setting and call "Power Set."

9.8.1.3. Based on Takeoff and Landing Data (TOLD), the PF will clearly identify a decision point to continue a touch-and-go versus full stop to ensure adequate runway length remaining.

9.8.2. Wet Runways. Touch-and-go operations are prohibited when crosswinds exceed 75% of the crosswind limitations listed in the AOH.

9.8.3. Icy Runways. Stop-and-go or touch-and-go operations are prohibited on icy runways.

9.8.4. Ceiling and visibility must be at least 300 feet and ¾ mile (Runway Visibility Range (RVR) 40). **(T-2).**

9.9. NVG Operations. NVG training illumination requirements are the same as outlined in **Chapter 5**. NVG instrument approach weather minimums are the minimums for the approach. **(T-1).**

Chapter 10

LOCAL OPERATING PROCEDURES

10.1. General.

10.1.1. Units will publish local and unique unit operating procedures.

10.1.2. These procedures will not be less restrictive than items contained in this or extracted from other AFIs.

10.1.3. Copies of this Standard Operating Procedures (SOP) will be distributed to all affected aircrew members. Forward these SOPs to HQ MAJCOM/A3V.

Chapter 11

LOADMASTER SPECIFIC OPERATIONAL GUIDELINES

11.1. General. In addition to the duties established in the AOH and Aircraft Flight Manual (AFM), the loadmaster will comply with the procedures and duties in this manual. **(T-2).** These items need not be briefed and will be performed as normal procedures. The PIC may assign other duties as necessary. When required as part of the crew, the loadmaster will:

11.1.1. Plan loads, handle troops and passengers, prepare equipment for airdrop, and supervise loading, tie-down, and offloading of cargo, baggage, and mission equipment. **(T-2).**

11.1.2. Participate in the aerial delivery of equipment, supplies, and personnel. **(T-2).**

11.1.3. Be assigned to the crew on tactical missions and support missions carrying cargo or passengers as indicated by the AF Form 4327A. **(T-2).**

11.1.4. Perform checklists initiated by the PF or PNF. **(T-2).**

11.1.5. Assist the pilot in obstacle and terrain clearance during flight and ground operations. **(T-2).**

11.1.6. Refuel the aircraft if maintenance personnel are not available. **(T-2).**

11.1.7. Perform any other ground or in-flight duties as briefed by the PIC. **(T-2).**

11.1.8. Perform scanner duties during flight in high threat environments. **(T-2).**

11.2. Responsibilities of Aircraft Loading:

11.2.1. Normally all airfreight, 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 air freight loading personnel for cargo handling. Airfreight personnel are responsible for safe positioning of material handling equipment and cargo to or from the aircraft. Air freight 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. **(T-2).**

11.2.2. As part of the crew and when directed by the PIC, the loadmaster 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 loadmaster supervises loading and is responsible for safe movement of cargo into and out of the aircraft.

11.2.3. At locations with no air terminal or traffic personnel, the shipper assumes responsibilities listed in **Paragraph 11.2.1**.

11.2.4. Mission requirements will dictate the configuration of the aircraft. The PIC or loadmaster is the authority in determining seat requirements.

11.2.4.1. The loadmaster will verify proper aircraft configuration required for mission purposes. **(T-2).** The loadmaster will coordinate configuration during pre-mission planning. **(T-2).** Ensure the following equipment, as required, is aboard the aircraft when deploying from home station: airsickness bags, earplugs, and piddle packs.

11.2.5. Refer to the C-145A AOH for the weights of all aircraft equipment (i.e., seats/supporting jack).

11.2.6. AFSOC aircraft do not routinely airlift channel cargo; however, if so tasked, contact the Air Terminal Operations Center (ATOC), Airlift Control Element (ALCE), or air freight/passenger service to obtain the cargo and passenger breakdown and assist in planning of proposed load. Security requirements for ammunition and weapons will be briefed to the loadmaster during the initial load briefing at ATOC. At stations where aircraft tie-down equipment is exchanged, make every effort to ensure that a one-for-one exchange occurs. If this is not possible, the loadmaster will inform the AC of lost or missing equipment and replace equipment upon returning to home station. **(T-3).**

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

11.3.1. At least one cabin emergency exit is unobstructed. **(T-2).**

11.3.2. At least one unobstructed emergency exit is available for each 10 passengers or troops. Seats erected across an emergency exit are not considered an obstruction. **(T-2).**

11.3.3. Access to the rear of the aircraft, entry into cargo or baggage areas, or emergency exits must be maintained without exception. **(T-2).**

11.4. Air Cargo Restraint Criteria. Cargo will be restrained IAW the AOH and this manual during infil/exfil operations. **(T-2).**

11.5. Preflight Duties. When designated, the loadmaster will normally report to the aircraft immediately after the crew briefing or as directed by the aircraft commander to begin preflight and/or loading duties.

11.6. Passenger Handling. Loadmasters will ensure all passengers are manifested. **(T-3).** Give one copy to the PIC for filing and retain sufficient copies for border clearance. The loadmaster will complete antihijacking requirements for personnel IAW this manual. **(T-3).** Ensure all classified equipment is not visible prior to passenger boarding. When part of the crew, the loadmaster is the key figure for good passenger relations. Be aware of the concerns that may arise in the minds of passengers and anticipate their questions and actions.

11.6.1. 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.

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

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

11.7. Troop Movements. Every effort should be made to advise troops of mission progress or deviations. The troop commander will be identified prior to boarding. **(T-3).**

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

11.7.2. Determine if specific communications requirements exist and coordinate these requirements with the PIC.

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

11.7.4. 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 PIC prior to the mission.

11.8. Border Clearance. Customs, Immigration, and Agriculture require certain forms for border clearance. If part of the crew, the loadmaster will ensure that required forms are contained in the aircraft mission kit. **(T-3).** Distribute the forms to the crew, ensure their completion prior to landing, and deliver them to the proper persons. **(T-3).**

11.9. Weight and Balance. Weight and balance for the aircraft is accomplished IAW TO 1-1B-50, Weight and Balance, and the AOH, FAA approved aircraft loading instructions or this manual.

11.9.1. 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 loadmaster will carry any additional weight and balance documentation necessary for the planned mission. **(T-3).**

11.9.2. Compute weight and balance by using the moments method or the approved spreadsheet.

11.9.3. 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.

11.10. Fuel Weight Computation. Use the most accurate method available to compute total fuel weight.

11.11. Loadmaster Forms: DD Form 2131, Passenger Manifest, AF Form 463, Cargo Manifest, DD Form 1854, US Customs Accompanied Baggage Declaration, CF 7507, General Declaration (Outward/Inward), I-94, Immigration Form, Immigration and Naturalization Service Arrival/Departure Record, (accountable form), AF Form 127, Traffic Transfer Receipt, DD Form 365-4, Weight and Balance Clearance Form F (or the AOH approved form).

11.12. TOLD Cards and Computation. Loadmasters will not compute TOLD for the C-145A. **(T-3).**

Chapter 12

AIRLAND TACTICAL PROCEDURES

Section 12A—Mission Planning

12.1. General. Missions may be long-range with the low-level portion commencing before reaching the target area, or short to medium range with the entire mission being flown at low-level. This chapter deals with mission en-route procedures prior to reaching the target/objective area.

12.2. Weather Requirements. Weather must be VFR in compliance with AFI 11-202, Vol 3 for all tactical operations except for NVG Instrument Approaches. **(T-1).**

12.3. 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.

12.4. 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 PIC and jumpmaster must coordinate an en-route time that meets mission objectives.

12.5. Route Planning En Route Airspeeds:

12.5.1. Route Planning. Low-level flight will be planned using tactical corridors. **(T-3).** The standard width for a tactical corridor is 3 NM. Tactical corridor width can vary from 1 NM minimum either side of centerline, to as wide as desired. Corridors do not have to be symmetrical, but must be annotated on the chart. FLIP/ICAO procedures, training considerations, terrain, or operational directives may dictate higher altitudes.

12.5.2. There is no standard en-route airspeed for tactical operations. En route airspeeds must be planned to provide the crew with the flexibility necessary to compensate for in-flight factors such as weather deviations, avoidance of reported and unreported ground or air threats, and unexpected head or tail winds.

12.5.3. Gaining or losing significant amounts of time in the C-145A at low-level has proven to be difficult because of it's limited maximum operating speed. The gain or loss of time should be accomplished prior to low-level so that planned low-level entry time and TOT can be achieved.

12.6. Low- Level En Route Altitudes:

12.6.1. Fly the highest altitude commensurate with training objectives, detection and briefed threats using the following criteria:

12.6.1.1. Day VMC/Night VMC with NVGs. Maintain a minimum of 300 feet (500 feet in mountainous terrain) AGL modified contour altitude above the terrain by reference to the terrain and radar altimeter. In mountainous terrain or periods of low visibility, crews may want to consider segmenting MSL altitudes along the route of flight to insure terrain clearance. **(T-1).**

12.6.1.2. Night VMC (Non-NVG). Minimum altitude is MSA. When the altitude for the next leg or segment is higher that the altitude currently being flown, complete the climb prior to the turn point or segment. When the altitude for the next leg or segment is lower

than the current altitude, do not initiate descent until established on the new leg or segment. **(T-1).**

12.6.1.3. Minimum Safe Altitude (MSA). MSA is an initial VFR altitude that provides additional terrain clearance while the aircrew analyzes situations that require interruption of low-level operations (route disorientation and equipment malfunctions or when either pilot must leave the seat during low-level operations, etc). Plan MSA at an indicated altitude of 500 feet above the highest obstruction to flight (man-made obstacle, terrain feature, or spot elevation), or 400 feet plus one chart contour interval above the highest depicted terrain contour, whichever is highest, within 3 NM of route centerline to include the aircraft turn radius. If the tactical corridor is > 3 NM of centerline, the MSA will be calculated for the tactical corridor width. An MSA will be computed for each leg, route segment, or entire low-level route. **(T-1).**

12.6.1.4. Emergency Safe Altitude (ESA). ESA is designed to provide positive IMC terrain clearance during emergency situations that require leaving the low level structure. Several ESAs may be computed for route segments transiting significant terrain differentials or a single ESA may be computed for the entire low level route. To compute ESA, add 1,000 feet (2,000 feet in mountainous terrain) to the elevation of the highest obstruction to flight within 10 NMs of planned route centerline. An ESA will be computed for the route and conspicuously annotated on the chart. **(T-1).**

12.7. Mission Planning. The day prior to a flight is designated for mission planning. Crews should be exempted from other duties to focus their full attention on the mission. 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.).

12.7.1. Mission Feasibility. Prior to conducting comprehensive tactical mission planning, a planning staff determines if the mission can be completed. This must be accomplished rapidly, as this mission feasibility outcome will determine the go/no-go decision from the tasking agency.

12.7.2. Mission Preparation. In preparation for mission planning, attempt to obtain as much as possible of the following:

12.7.2.1. High quality imagery of target area and landing zone. This facilitates final approach/departure planning, LZ recognition, and single engine escape routes.

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

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

12.7.2.4. Threats. Use terrain delimited intelligence products to plan threat avoidance and compliance with the Air Order of Battle (AOB), Ground Order of Battle (GOB), or other mission related information.

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

12.7.2.5.1. VFR Sectional or Tactical Pilotage Chart (TPC) 1:500,000. The VFR sectional is consulted because it is updated more frequently than the Joint Operations Graphic (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 low-level flying as its scale does not allow sufficient detail for accurate pilotage, and is relatively cluttered, unless JOGs are not available.

12.7.2.5.2. Joint Operations Graphic (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 compatible with night flight.

12.7.2.5.3. 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 Points (IPs) 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.

12.7.2.6. Because charts rapidly become outdated, aerial photos (especially low-altitude oblique shots) should be requested for the entire route.

12.7.2.7. 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.

12.8. 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. 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.). Although pilots may share the same chart, it is a good technique to print out a second chart for the loadmaster. Annotate the chart IAW **Table 12.1**.

Table 12.1. Chart Annotations.

Chart Series (date included)	Time Warnings (as required for TOT/TOA)
Chart Update Manual (CHUM)/ECHUM/DAFIF (date included)	Reattack Paths/Options (Airland/Airdrop)
Emergency Airfields	Applicable Local Draw Files/ACO Items
Course line/Turn points w/ID's/Mag Course	Combat Entry/Exit Point

MSAs/ESAs	FEBA/FLOT (as required)
Distance or Timing Ticks	Threat Rings
Terrain Avoidance/Deviation Plan	Known Threats
Start Climb/Descent Points	LOCs/Population Centers (as required)
Reference Altitudes/Controlling Terrain	
Waypoints Circled and Courses Drawn	
Initial Point (IP)/Slowdown Point	
DZ/LZ Points	

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

12.8.2. A blue circle with a diagonal line will depict emergency airfields.

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

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

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

12.8.6. ESA for the route/route segment and MSA for each leg/leg segment, as applicable. ESA will be conspicuously annotated on the chart. Draw a box around the obstruction that each MSA is based upon.

12.8.7. When the Chart Update Manual (CHUM) information is available, low-level charts will be annotated with any added, deleted, or changed information as contained in the most recent 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.

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

12.8.9. Visual navigational checkpoints between turn points.

12.8.10. Threat locations and order of battle (OB) information as applicable to the mission. If this information is classified, the chart will be properly marked.

12.8.11. Location of in-flight warnings.

12.8.12. Compute a single climb point and single engine service ceiling to determine if single engine capability exists along the route of flight.

12.9. Low-Level Log. Use a low-level log to plan all low-level missions. **(T-3).**

12.9.1. Crews will print 2 low-level logs during all low-level missions. **(T-3).** 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. **(T-3).**

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

12.10. 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.

12.10.1. Route Selection.

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

12.10.1.2. Avoid planning the route near navigational aids or airports. Hazards include other aviation operations and detection by radar oriented on these facilities.

12.10.1.3. 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.

12.10.1.4. 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.

12.10.1.5. To the maximum extent possible, 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 alternatives.

12.10.1.6. To the maximum extent possible, select intermediate reference points (e.g., 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.

12.10.1.7. If possible, plan to cross major roads, railroads, and rivers at large angles (90°) in order to reduce exposure time. Avoid flying an en-route segment, which follows lines of communication.

12.10.1.8. If it is impossible to avoid flight near population centers or major roads, and the area is hostile or compromising, consider flying that leg at a higher airspeed in order to reduce exposure time.

12.10.1.9. 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.

12.10.1.10. Plan alternate routes and cut-offs in the event the primary route is unusable due to weather, enemy compromise, mission TOA changes, late departures, etc. It is especially important to plan alternate run-ins in case of runway change or enemy compromise at the original IPs. 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 or known threats. These adjustments should be made during mission planning, if possible. Aircrews may

deviate from planned route in-flight due to unforeseen factors. Keep deviations to the minimum required. Maintain position awareness at all times.

12.10.2. 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 general rules for turn point selection.

12.10.2.1. 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 (e.g., a small bridge in heavy vegetation or a small road crossing in the forest).

12.10.2.2. 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.

12.10.2.3. Avoid selecting turn points near towns as the town will invariably grow and may make detection of the turn point difficult. Additionally, overflying towns may compromise the security of the mission.

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

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

12.10.2.6. Consider the moon angle and illumination. The turn point should not fall within the shadow cast by nearby terrain features. A moon in front of the aircraft will make turn point identification difficult.

12.10.2.7. 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.

12.10.2.8. 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 or enemy compromise become limiting factors.

12.10.2.9. 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 threat 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.

12.10.2.10. 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.

12.11. 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 navigating pilot, and covers as a minimum the following items:

12.11.1. ESA and the determining obstacle.

12.11.2. Alternate airfields.

12.11.3. Combat entry point.

12.11.4. The location of in-flight warnings.

12.11.5. For each leg, the course, distance, time, MSA and significant terrain or threats.

12.11.6. The objective area. Review the survey and any aerial photography or tactical charts (1:50,000) available and brief the following items:

12.11.6.1. 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, emergency procedures, and compare LZ length to performance data for landing and for takeoff.

12.11.6.2. For a DZ, brief the DZ orientation, its dimensions, significant obstacles, expected markings, point of impact 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.

12.11.7. Action to follow (i.e., combat exit point, subsequent low-level route).

12.11.8. Pilots will brief emergency actions for loss of NVGs during critical phases of flight (takeoffs, landings, airdrops, etc.). Specific procedures are at the PIC‘s discretion.

12.12. In-Flight Aircrew Procedures.

12.12.1. When setting the radar altimeter, set the altitude clearance markers to 90% of the desired route altitude. Activation of the low-altitude warning system indicates the aircraft is too low and an immediate correction is necessary. Any crew member noting a low-altitude warning light will announce “low”. **(T-1).** The PF will acknowledge the “low” call and begin a climb to the correct altitude. **(T-1).**

12.12.2. Updating the aircraft’s navigation system. Updating the Garmin GPS is not normally needed in-flight. If loss of the GPS signal occurs, consider using nearby NAVAIDS to verify position.

12.12.3. 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:

12.12.4. At the preplanned linear boundary, the leg time elapsed, or the aircraft navigation system distance-to-go stops decreasing.

12.12.5. GPS Procedures. C-145A aircrews may use the GPS/FMS for situational awareness and as a backup to visual navigation while flying low-level missions. The GPS will normally have the DZ/LZ coordinates input in the system. Due to the time consuming nature of manually entering user waypoints, the PIC may elect to not input any or all turn points. Aircrews may also use portable GPS units (PGUs) IAW AFI 11-202, Vol 3. PGUs should be connected to aircraft power and properly grounded. Ensure system use and operation does not interfere with navigation or aircraft control.

12.12.6. Emergency Procedures.

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

12.12.6.1.1. Climb to the ESA during IMC or MSA if in VMC. Maintain this altitude until positively fixing your position. While higher altitudes will increase the field of view and reduce the terrain hazard, it also exposes the aircraft to threats.

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

12.12.6.1.3. Terrain, threat, weather, controlled airspace, and mission are factors to consider when executing an emergency climb. The aircraft commander must consider each of these factors prior to his decision to make an emergency climb. To execute an emergency climb, set power towards 85%, props toward 1700 RPM, and climb at 100 KIAS to a safe altitude.

12.12.6.2. Engine-Out Operations:

12.12.6.2.1. Discontinue low-level if feasible.

12.12.6.2.2. If low-level flying is necessary, fly the appropriate minimum safe altitude. If in a threat environment, fly as high as the threat will allow. Ensure aircraft is capable of clearing terrain along route of flight with engine out. **(T-1).**

12.12.7. Overwater Low-Level Procedures. When descending into an overwater low-level environment, the water may not be visible until approximately 100 feet above water level (AWL). To decrease the chance of impacting the water, match the descending vertical speed (i.e., vertical speed or velocity indicator – VSI or VVI) to the height above the water. The PNF will backup the PF by monitoring VVI and altimeters.

12.12.8. 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 (not applicable to contingencies):

12.12.8.1. Normal en-route airspeed is planned at 150 kts ground speed, but should be adjusted as the situation requires. This number equates to a ground speed of 2.5 nm/min. The Garmin 530/430 will display ground speed and ground track making it easier for navigating pilots to provide timely airspeed and course corrections to the PF.

12.12.8.2. Minimum airspeed is best rate of climb airspeed (Vy), or best rate of climb single engine (Vyse) if applicable, with flaps up, and best angle of climb speed (Vx), or best angle of climb speed single engine (Vxse) if applicable, with flaps set at approach or take-off settings.

12.12.8.3. When minimum airspeeds results in excessive groundspeed, use offset maneuvering or orbits around the turn point to control en-route time.

12.13. Aircrew Duties. Specific duties are:

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

12.13.2. Pilot Not Flying. Primarily responsible for navigation and time control. Obstruction avoidance area of responsibility is immediately ahead and to their side of the aircraft. Provide the turn point brief to include new magnetic course, distance, MSA, description of turn point, and significant terrain description. The PF will acknowledge the new magnetic course and MSA. 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. Both pilots should reset their heading markers to the new course when able. Monitor the pilot's airspeed, heading and bank angle as a back-up. Primarily responsible for all radio calls after the CEP. **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. **Exception:** If a qualified IP is at a set of controls, the aircraft may maintain low-level altitudes.

12.13.3. Loadmaster. Primarily responsible for cargo compartment operations and equipment contained in cargo compartment. Duties include but are not limited to operation of assigned radios, laptop systems and scanner duties. Mission radios/laptop may be assigned to the PNF by exception (i.e., during phases of flight when the loadmaster cannot operate equipment), as long as the PNF can perform duties from their assigned crew position.

12.13.3.1. During INFIL/EXFIL operations, the loadmaster will provide mandatory egress training to all personnel carried on the mission. Training will normally occur in conjunction with static load training. When able, conduct egress drills during both daylight and blacked out conditions. The following areas will be covered **(T-2).**

12.13.3.2. Location and use of emergency exits and hatches. All personnel will practice the use of emergency exits.

12.13.3.3. Location of crash axe/chopping locations, fire extinguishers, first aid kit, and life rafts.

12.13.3.4. Location of egress assembly areas.

12.13.3.5. Emergency warning signals.

12.13.3.6. Danger areas to include engines, propellers, ALE-40 flare dispensers, radar, pitot tubes, hot brakes, etc.

12.14. Navigating to Landing Zones/Drop Zones. Some missions may require operations into unmarked and uncontrolled LZ/DZs. Mission effectiveness depends upon detailed intelligence, extensive aircrew planning and study, precision en-route navigation, time control, accurate and timely LZ/DZ recognition, and positive aircrew coordination.

12.14.1. Markings. LZ/DZs are marked IAW the guidance provided in this manual and AFI 13-217, *Drop Zone and Landing Zone Operations AFSOC Supplement.*

12.14.2. Training. Aircrews will normally use AMP-3 with covert lighting or AMP-4 markings for training.

12.14.3. Fuel Planning. The chance of a successful navigation to an unmarked LZ/DZ decreases when equivalent moon illumination is less than 10% or there is little or no contrast between the LZ/DZ and surrounding area. When navigating to an unmarked LZ/DZ and the illumination is less than 10%, TOT is prior to moonrise, or TOT is after moonset, plan 20 minutes of additional fuel at max continuous power to account for potential difficulties in acquiring the DZ/LZ.

12.15. Landing Zone Surveys.

12.15.1. All LZs must be surveyed IAW AFI 13-217. **(T-1).**

12.15.2. HQ AFSOC/A3, or designated representative, is the approval authority for all unpublished surveys. HQ AFSOC/A3 or designated representative is also the waiver authority for LZ criteria and survey requirements.

12.16. Terminal Area Landing Procedures:

12.16.1. Initial Approach. When pre-mission intelligence requirements are not satisfied for LZs, or if human or animal traffic is expected near or on the LZ, additional maneuvering and reconnaissance may be required in the target area. Perform reconnaissance maneuvering with approach flaps. **Note:** During operational training, aircraft must be stabilized, aligned with the runway from 100 feet AGL on final to touchdown or a go-around must be accomplished. **(T-2).** **Note:** If the PF determines that the actual touchdown point is going to be different than what was briefed, the PF must verbalize the updated touchdown point.

12.16.2. 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 LZ.

12.17. Aircraft Preparation.

12.17.1. General. Aircraft are normally configured for tactical operations prior to departure. The aircraft may be configured while airborne by exception to meet operational needs. When configuring the aircraft for tactical operation while airborne, the crew will determine a minimum safe altitude dictated by terrain and threat.

12.17.2. Emission Control (EMCON). Effective EMCON requires a basic understanding of the capabilities, limitations, deployment patterns, and Integrated Air Defense System (IADS) interface of the principle enemy systems. All aircraft emissions must be considered to include radar, communications, and flares. Aircraft lighting (both internal and external) and acoustical signature can be passively detected. Aircrews must make EMCON an integral part of overall operational plans and tactical operations.

12.17.3. The LM will attach chemical lights near each exit when performing infil/exfil training or during contingencies with a user on board. **(T-3).** During all other flights, they may be attached at the LM's discretion. Chemical sticks should be taped to allow a small amount of light to shine through. **WARNING:** Chemical lights attached to exit doors and emergency escape hatch handles will remain in place until mission completion.

Chapter 13

AIRDROP PROCEDURES

13.1. General. This chapter establishes procedures, regulatory guidance and limitations for airdrop for the C-145A. This guidance should be used in conjunction with other directives. Sound judgment should be used to resolve conflicts that may arise between this and other guidance.

13.1.1. Airdrop Communications. After calling the 10-minute warning, the LM may clear off interphone, with PIC approval, to don appropriate equipment and inspect the airdrop load. After completing the 10-minute checklist, the primary LM will remain on interphone throughout the remainder of the airdrop. **(T-2).**

13.1.1.1. Training Operations. Radio transmissions with the DZ are required for safety of flight considerations or factors effecting airborne force employment. This includes ATC directions, range clearance, unsafe surface conditions or mission changes. When practicing radio silence procedures, transmission of wind information and range or drop clearance is not required. Radio silence procedures will be coordinated prior to mission execution. **(T-2).**

13.1.1.2. Drop clearance is normally inherent with mission clearance to unmanned DZs. The aircrew observing the proper briefed authentication confirms drop clearance in VMC. A no-drop or mission cancellation is communicated by the absence of pre-briefed markings (visual or electronic), jumbled block letter, observation of the block letter X, or red smoke, light, or flare.

13.1.1.3. In general, outside the one minute advisory, any crew member seeing a deviation or dangerous condition developing shall report the situation to the PIC. Inside the one minute advisory, any crew member seeing an unsafe deviation or dangerous situation developing will call "no-drop." The PF, the PNF, and the LM will all acknowledge the "no-drop" call. The PIC will determine the feasibility of continuing or ceasing airdrop operations. If the PIC chooses to use different criteria, these criteria will be briefed during the pre-mission briefing. **(T-2).**

13.2. Low Cost Low-Altitude (LCLA) Airdrop.

13.2.1. The LCLA, or equivalent sized bundle, is the primary resupply bundle type dropped by the C-145A.

13.2.2. Each LCLA bundle can weigh up to 800 pounds total rigged weight.

13.2.3. The maximum skid board size for an LCLA bundle is 1 inch thick, grade AC plywood cut 48 inches long by 36 inches wide by 47 inches high. Items placed on the skid board will not protrude over or outside the maximum width or length of the skid board. The load must meet 28 pounds per square foot (PSF) as a minimum. **Note:** At maximum size and weight, the C-145A can only airdrop 3 LCLA bundles at any one time.

13.2.4. Minimum LCLA size for the C-145A is 24 inches long by 24 inches wide. This will ensure that the skid board will be in contact with 6 rollers and will prevent the load from tipping over. Must still meet the other requirements in **Paragraph 13.2.3**. **Note:** LCLA bundles can be built to custom dimensions and configurations for different type of aircraft. Technical Order 13C7-1-11, *Airdrop of Supplies and Equipment: Rigging Containers,* is used by

qualified/authorized riggers as a basic guide for the construction of LCLA bundles; however, qualified/authorized riggers, in conjunction with the aircraft primary loadmaster, should determine specific bundle dimensions based on user requirements and aircraft limitations. Bundles may vary, during contingency operations depending on user requirements, mission necessity and bundle construction material supply availability.

13.2.5. LCLA Procedures.

13.2.5.1. LCLA bundles are limited to a drop altitude of 120'- 300' AGL. These limits are LCLA limits, and do not reflect aircraft limitations. **(T-2).**

13.2.5.2. The normal drop altitude for LCLA is 200 feet AGL. This gives the parachute enough time to open and stabilize the load prior to impact. Considering potential aircraft altitude deviations, do not drop lower than 120 feet AGL, which is the minimum altitude for the parachute to be effective. **(T-2).**

13.2.5.2.1. The terrain and the threat environment may drive a higher drop altitude; however, higher altitudes negatively affect the accuracy of the LCLA system.

13.2.5.3. The normal drop speed for LCLA is 100 KIAS. At slower airspeeds, generally less than 100 KIAS, LCLA parachutes have failed to deploy properly. At airspeeds of 130 KIAS or greater, there is a greatly increased possibility of parachute failure. **Note:** The aircraft loadmaster will use sound judgment to determine if LCLA bundles can be loaded, rigged and dropped. The loadmaster will take into account aircraft safety, aircrew safety, aircraft weight and balance and bundle construction.

13.2.5.4. For LCLA bundles use Type VIII nylon webbing as the primary release gate. As a minimum, ensure the nylon webbing has at least 1 1/2 turns on the Van Zelm ratchet. The gate may be installed utilizing a Van Zelm ratchet on both ends of the gate, utilizing a Van Zelm ratchet on one end of the gate and three alternating half hitches with a knot in the running end on the other, or by utilizing a tie on both ends of the gate to a tie-down ring with one side using a truckers hitch and three alternating half hitches with a knot in the running end to provide tension and three alternating half hitches with a knot in the running end on the other.

13.2.5.4.1. If the height of the LCLA bundle is less than 24" (excluding the parachute) from the cargo floor, route the release gate under the load straps to preclude the release gate from slipping over the top of the bundle.

13.2.5.5. One 5,000 pound strap will be used for forward restraint (providing tension for the release gate), and additional 5,000 pound straps will be used for vertical restraint as necessary. When airdropping more than one LCLA bundle, each bundle will have its own 5,000 pound strap for vertical restraint. When airdropping a mass of bundles (more than one bundle on the same pass), only one 5,000 pound strap is required for vertical restraint.

13.2.5.5.1. All 5,000 pound ratchets will be attached to the aircraft left. **CAUTION:** Do not route 5,000 pound straps (acting as the forward restraint) through the LCLA bundle webbing. It is to provide tension for the release gate during the cut at "Green Light". Routing the strap through the webbing may cause failure of the bundle to leave the aircraft.

13.2.5.6. During preflight, the loadmaster will measure their restraint harness to preclude exiting the aircraft. When dropping LCLAs, the static lines will be attached to the aircraft right side and harness will be connected to the aircraft left.

13.2.5.7. The loadmaster will don their restraint harness and HGU-55/P (lightweight flyers helmet) or authorized alternate helmet prior to calling the "10 Minute" checklist complete. **(T-2). WARNING:** The loadmaster will be connected to the aircraft prior to opening the cargo doors and when the door manual operation handle is in the "Open" position, unless aircraft safety is threatened.

13.2.5.8. Non-essential mission equipment (go bags, life rafts, etc.) should be moved clear of the load during preflight. **Note:** The loadmaster will remain cognizant of aircraft CG. The aircraft may be extremely nose heavy, but still within CG limits, post drop. It may be necessary to relocate weight to the aft end of the aircraft, after all checklists have been completed, to help manage aircraft CG.

13.2.5.9. Static lines will be attached to independent 5,000 pound tie-down rings on aircraft right sidewall at Frame 15. For multiple bundles, use rings at Frame 15 ± six inches. A carabineer should be used to connect bundle static lines (with or without a clevis) to sidewall tie-down rings.

13.2.5.10. At the "One Minute" time advisory, the loadmaster will be positioned to cut the release gate. WARNING: The loadmaster will be positioned to preclude their gear or any portion of their body from becoming entangled or struck by the exiting airdrop load.

13.2.5.11. Upon hearing the "Green Light" call from the pilot/copilot, the loadmaster will perform a manual gate cut and call "Load Clear" once all bundles have exited the aircraft, or "Malfunction" if the gate fails to cut or the load fails to exit. The primary method of a manual gate cut will utilize a suitable J-knife/hook knife unless extraordinary circumstances exist where a J-knife/hook knife is not available.

13.2.5.11.1. If the load is rolling slowly, the loadmaster should request an increase of deck angle from the pilot.

13.2.5.12. Upon hearing "Load Clear" or "Malfunction", the PNF will state "Red Light" and turn on the red light if equipped.

13.2.5.13. The airdrop sequence is complete once the airdrop malfunction checklist (if required) and the post-drop checklist have been completed. **Note:** During training missions, the loadmaster should make every attempt to retrieve deployment bags post drop. During operational missions, cutting the static lines and releasing the D-bags is authorized. An operational mission is any mission in support of combat operations.

13.2.5.13.1. Doors will normally be closed by the LM using the aft door switch (if configured). If the LM is not able to close the doors, close doors from the flight deck. If the doors cannot be closed by the flight deck crew, the loadmaster will manually close from the back.

13.2.6. LCLA Malfunction Procedures.

13.2.6.1. Gate fails to cut or load fails to exit aircraft:

13.2.6.1.1. The loadmaster will call "Malfunction" and give a brief description of the problem.

13.2.6.1.2. The pilot should make every attempt to sustain a level deck angle and avoid turning the aircraft if at all possible, depending on the terrain and threat situation.

13.2.6.1.3. The pilot should extend flaps, as required, to maintain desired deck angle.

13.2.6.1.4. Due to the small CG envelope of the C-145A, the loadmaster should make every attempt to free the bundle.

13.2.6.1.5. If the loadmaster cannot free the bundle, it should be restrained in place and the aircraft CG should be recomputed.

13.2.6.1.6. If possible, the cargo doors should be closed.

13.2.6.1.7. The loadmaster will call "Malfunction Checks Complete" and perform completion of drop checklist. **Note:** The loadmaster should give the pilot a situation report about the load (whether it was released or remains on the aircraft) and its effects on the aircraft CG.

13.3. Free Drop.

13.3.1. Free drop is used to drop non-fragile items, using no parachute to retard decent or stabilize the load.

13.3.2. Drop Altitude. Normally, free drop is accomplished at much lower altitudes than those required for other paradrops. When possible, free drops should be made at 200 feet AGL or less, but not below 50 feet AGL.

13.3.3. 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 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. **(T-2).**

13.3.4. Free drop bundles weighing more than 200 pounds should be rigged similar to LCLA loads. Free drop bundles rigged in this manner will use Type VIII nylon webbing as the primary release gate.

13.3.5. One 5,000 pound strap will be used for forward restraint (providing tension for the release gate), and additional 5,000 pound straps will be used for vertical restraint as necessary. When airdropping more than one free drop item, each item will have its own 5,000 pound strap for vertical restraint. When airdropping a mass of items (more than one bundle on the same pass), only one 5,000 pound strap is required for vertical restraint.

13.3.5.1. All 5,000 pound ratchets will be attached to the aircraft left.

13.3.6. At the "One Minute" time advisory, the loadmaster will be positioned to cut the release gate.

13.3.7. Upon hearing the "Green Light" call from the pilot/copilot, the loadmaster will perform a manual gate cut and call "Load Clear" once all free drop items have exited the aircraft.

13.3.7.1. If the load is rolling slowly, the loadmaster should request an increase of deck angle from the pilot. **WARNING:** The loadmaster will be connected to the aircraft prior to opening the cargo doors and when the cargo door manual operation handle is in the "Open" position, unless aircraft safety is threatened. **Note:** The user takes responsibility for damaged items.

13.3.8. Free Drop Malfunctions.

13.3.8.1. Load fails to exit aircraft:

13.3.8.1.1. The loadmaster will call "Malfunction" and give a brief description of the problem.

13.3.8.1.2. The pilot should make every attempt to sustain a level deck angle and avoid turning the aircraft if at all possible, depending on the terrain and threat situation.

13.3.8.1.3. The pilot will roll flaps, as required, to maintain desired deck angle.

13.3.8.1.4. The bundle should be restrained in place and the aircraft CG should be recomputed.

13.3.8.1.5. The primary method of closure of the cargo doors is from the flight deck. If not able, the loadmaster will manually close from the back.

13.3.8.1.6. The loadmaster will call "Malfunction Checks Complete" and prepare for the next phase of flight. **Note:** The loadmaster should give the pilot a situation report about the load (whether it was released or remains on the aircraft) and its effects on the aircraft CG.

13.4. Personnel Airdrop.

13.4.1. High-Altitude Low-Opening (HALO)/High-Altitude High-Opening (HAHO) Procedures.

13.4.1.1. 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:

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

13.4.1.3. 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.

13.4.1.4. High-Altitude Oxygen:

13.4.1.4.1. Parachutists may operate without supplemental oxygen during unpressurized flight up to 13,000 feet MSL provided the elapsed time above 10,000 feet MSL does not exceed 30 minutes per sortie. Under circumstances other than these, jumpers will use supplemental oxygen. Aircrew members will use supplemental oxygen as directed by AFI 11-202 , Vol 3 AFSOC Supplement. When dropping from 20,000 feet MSL and higher, the pre-breathing procedures described in **Paragraph 13.4.1.4.2** below will be used. When supplemental oxygen will be required due to flight profile, an oxygen console will be installed in the aircraft for crew and

parachutists. The console will provide sufficient oxygen regulators for all parachutists and crew members.

13.4.1.4.2. Pre-breathing. All personnel will pre-breathe 100% oxygen at a cabin altitude as close to sea level as possible, but not greater than 16,000 feet cabin altitude on any mission scheduled for a drop at or above 20,000 feet MSL. Pre-breathing will be started so as to have the required pre-breathing time in **Table 13.1** completed before the cabin altitude ascends through 16,000 feet MSL. A break in pre-breathing requires the pre-breathing period to be restarted or the individual whose pre-breathing was interrupted be removed from the flight. Airdrop above 25,000 feet require a waiver to AFI 11-202, Vol 3. Submit waivers through HQ/AFSOC/DOV. **(T-1).**

13.4.1.4.3. Floor Loading. It is preferred to floor load jumpers facing aft due to confined space in the cargo compartment. Jumpers will be restrained by one of the following methods: 1) Attaching a 5,000 lb. strap to the side floor tiedown rings, 2) Attaching a 5,000 lb. strap to the sidewall seat tracks and connecting the jumpers to it with a personal restraint lanyard, 3) Attaching each personal restraint lanyard to tie down rings positioned in the sidewall seat tracks next to each jumper.

Table 13.1. Pre-Breathing Times.

DROP ALTITUDE	AIRCREW	PARACHUTISTS
At or above 20,000’ to 25,000’	30 Minutes	30 Minutes HALO/HAHO

13.4.1.4.4. Aerospace Physiologist and Technician (AsPO) Requirements. An AsPO (AFSC 43A3, 4M0X1) will accompany all missions operating above 20,000 feet MSL regardless of the type of airdrop. The AsPO's duties will be to monitor in-flight personnel, aircraft and supplemental oxygen equipment and life support equipment. Preflight, as is practical, all aircraft and supplemental oxygen equipment and life support equipment. The AsPO will advise and aid the loadmaster in positioning and securing the supplemental equipment used on the mission. The AsPO will brief all aircrew and jumpers prior to the first mission on the duties and responsibilities of the AsPO, physiological problems that may be encountered in-flight, the importance of proper pre-breathing, the effects of wind blast and cold air on exposed tissue, and any special circumstances for a given mission. The AsPO will be on interphone and will normally be positioned forward of the oxygen console (when used). **(T-1).**

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

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

13.4.1.6.1. Abort the mission.

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

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

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

13.5. High-Altitude Personnel Drop (HALO/HAHO) Procedures. HALO/HAHO operations will be jumpmaster directed unless approved by the JSOAC/CC or OG/CC. A HARP solution will be computed for all high-altitude personnel drops unless specific mission directives dictate otherwise.

13.5.1. High-Altitude Low-Opening (HALO). A clandestine method of inserting military parachutists into an objective area. Using military free fall skills, jumpers exit the aircraft from 3,000 to 25,000 feet above ground level and free fall to low-altitudes prior to manually activating their parachutes. This technique minimizes exposure time under canopy for the jumpers and is a very accurate means of inserting special operations forces.

13.5.2. High-Altitude High-Opening (HAHO). A clandestine method of inserting military parachutists into an objective area. This tactic provides the ability to offset; that is, exit the aircraft miles from an objective area at high-altitude, activate a high glide ratio parachute immediately, and glide to the intended landing point. This technique permits minimum exposure of the aircraft and crew to enemy surface-to-air countermeasures.

13.5.3. 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.

13.5.3.1. Detailed instructions for computing the HARP, including parachute ballistic data, are contained in AFI 11-231, *Computed Air Release Point Procedures.*

13.5.3.2. 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 in-flight HARP. This should receive special consideration when performing HAHO airdrop operations.

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

13.5.4. Conduct Of Operations:

13.5.4.1. 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.

13.5.4.2. 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, if necessary, and position the aircraft on the correct inbound course.

13.5.4.3. HARP Release. The following methods may be used to navigate to the HARP.

13.5.4.3.1. 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.

13.5.4.3.2. 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. Both pilots must confirm proper IP and HARP coordinates are entered into the system. Comply with **Paragraph 13.5.3.2** of this manual 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 these procedures, visual identification of the DZ is not required.

13.5.4.4. Launch Acceptability Region (LAR) MFF Airdrop. Aircrew may utilize LAR procedures when conducting MFF airdrops of US SOF personnel.

13.5.4.4.1. Revised green and red light procedures for LAR airdrops:

13.5.4.4.1.1. During crew-directed drops: turn on the green light at the computed release point or at a point coordinated with the jumpmaster, provided it falls within the LAR.

13.5.4.4.1.2. During jumpmaster-directed drops: turn on the green light upon entering the leading edge of the updated LAR, or as coordinated with the jumpmaster.

13.5.4.4.1.3. During all MFF drops: once the green light is on, it is permissible to delay turning on the red light until reaching the trailing edge of the updated LAR, minus an appropriate safety percentage, if applicable.

13.5.4.4.1.4. Turn on the red light if at any point during the airdrop sequence it appears the drop may occur outside safe parameters.

13.5.4.5. Multiple Passes (i.e. racetracks). When performing multiple personnel drops across the same DZ, checklists may resume at the 6-minute warning assuming no airdrop parameters or aircraft configuration changes are made from the previous drop. Ensure the loadmaster has adequate time to complete all checklist items before the drop. Exception: During pilot directed airdrops, the checklist may be initiated at a point commensurate with the available time and type of drop. This will be coordinated at the briefing between the crew and jumpmaster. When airdrop parameters or aircraft configuration changes are made between drops, all checklists will be accomplished. Airdrop time advisories and checklists may be compressed, except for the one minute warning. Doors may remain open at the discretion of the PIC.

13.5.5. Drop Configuration:

13.5.5.1. Flaps. As required. Flaps up is the normal configuration.

13.5.5.2. Airspeed. Brief the jumpmaster on the airspeed used.

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

13.5.5.4. Exits:

13.5.5.4.1. All parachutists, with the exception of the jumpmaster, will stand forward of the aft cargo door until green light.

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

13.5.5.5. Aircraft preparation. Prior to operations, all roller conveyors will be removed, unless required for combination drops. The overhead cargo hoist will be removed for all military free fall operations.

13.5.6. Communications and Signals:

13.5.6.1. Hand Signals. For aircraft without jump lights, or inoperable jump lights, emphasis and coordination with jumpmaster will be placed on hand signals for red/green light and aircraft course corrections for jumpmaster directed drops. The pilot or loadmaster will coordinate the following hand signals with the jumpmaster:

13.5.6.1.1. Time warnings (20, 10, 6, 2, and 1 minute) will be given to the parachutists by the loadmaster pointing at a watch and indicating with fingers the correct warning.

13.5.6.1.2. 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.

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

13.5.6.2. Written Messages. The loadmaster will write out messages that cannot be passed by hand signals. Messages for the pilot from the parachutists will be written out.

13.5.6.3. In-flight changes to the HARP location or significant wind changes will be relayed to the jumpmaster as soon as possible.

13.5.7. Briefing. Insist on positive feedback when discussing HARP location and wind data as well as resolving what items will be passed to the jumpmaster during flight. Terminology should be clear and unambiguous. The following items will be discussed during the pilot-jumpmaster briefing:

13.5.7.1. Weather. Include forecast altimeter setting at planned drop zone.

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

13.5.7.3. HARP and prominent terrain features.

13.5.7.4. DZ markings.

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

13.5.7.6. Location and duration of the green light.

13.5.7.7. En route flying time from takeoff to planned airdrop.

13.5.7.8. Location and flying time to the nearest hypobaric chamber.

13.5.7.9. Confirm parachute type with jumpmaster.

13.5.7.10. Discuss the jumpmaster's plan to calculate and set the Cybernetic Parachute Release System (CYPRES) Automatic Actuation Device (AAD), if used.

13.5.7.11. Jumpmaster will be advised that parachutists must rehearse aircraft emergency ground evacuation and in-flight exit procedures at least twice before loading with parachutes and equipment.

13.6. Static Line Procedures. Reserved for future use.

13.7. Standard Airdrop Training Bundle (SATB).

13.7.1. The SATB is a unilateral airdrop training sandbag built in accordance with TO 13C7-1-11, *Airdrop of Supplies and Equipment: Rigging Containers*.

13.7.2. SATB Procedures.

13.7.2.1. The loadmaster should preflight the bundle to ensure:

13.7.2.1.1. The four parachute restraint ties in the four corners of the deployment bag are two-turns single 5 cord and not broken.

13.7.2.1.2. The parachute bag closing tie is two-turns single 5 cord and is routed properly through the upper and lower bag closing loops.

13.7.2.1.3. The U-bolt connector is connected to the load and the parachute.

13.7.2.1.4. If dropping at night, a chemical illumination stick is attached to a point on the load.

13.7.2.1.5. The static line is attached to an aircraft tie-down ring at frame 15, configuration and cargo permitting.

13.7.2.2. During preflight, the loadmaster will measure their restraint harness to preclude falling out of the aircraft.

13.7.2.3. The loadmaster will don their restraint harness prior to calling the "10 minute" checklist complete. **WARNING:** The loadmaster will be connected to the aircraft prior to opening the cargo doors and when the cargo door manual operation handle is in the "Open" position, unless aircraft safety is threatened. **(T-2).**

13.7.2.4. Upon hearing the "Green Light" call from the pilot/copilot, the loadmaster will throw the bundle out of the aircraft.

13.7.2.5. Once the SATB is clear of the aircraft, the LM will call "Load Clear". If the SATB malfunctions, the LM will state "Malfunction", and proceed with the airdrop malfunction checklist.

13.7.2.6. Upon hearing "Load Clear" or "Malfunction", the PNF will state "Red Light" and turn on the red light if equipped.

13.7.2.7. The airdrop sequence is complete once the airdrop malfunction checklist (if required) and the post-drop checklist have been completed.

13.7.3. SATB Malfunction Procedures.

13.7.3.1. Towed SATB:

13.7.3.1.1. The loadmaster will call “Malfunction” and give a brief description of the problem.

13.7.3.1.2. The loadmaster will cut the bundle free on command of the pilot, and notify the pilot “Bundle Released”. If the bundle is causing damage to the aircraft or becoming entangled in the flight control surfaces, the loadmaster will notify the pilot of the condition and cut the bundle free immediately and notify the pilot “Bundle Released”. **CAUTION:** The loadmaster will not attempt to retrieve the bundle. **Note:** It should be noted (time and location) where the bundle was released.

13.7.3.1.3. After releasing the bundle, make every attempt to close the cargo doors (if required the loadmaster can manually close the doors), call “Malfunction Checks Complete” and perform the completion of drop checklist. **Note:** All simulated airdrops will be conducted with the cargo doors open unless otherwise specified by the aircraft commander.

13.8. DOOR BUNDLE AIRDROPS.

13.8.1. General. LCLA, A-7A or A-21 containers weighing up to 500 pounds (excluding weight of the parachutes) are referred to as “door bundles” and are dropped from the aircraft through the aft cargo door. Bundles in excess of 100 pounds will utilize the LCLA bundle restrictions and airdrop procedures in **paragraph 13.2**.

13.8.2. Standard door bundles weighing less than 100 pounds (total rigged weight), rigged IAW T.O. 13C7-1-11 may be airdropped with or without utilizing the aircraft roller system. A skidboard is required for airdrops utilizing aircraft rollers. When not using aircraft rollers, a skidboard is desired but not required. When dropping door bundles without the use of rollers, only one bundle may be released per pass. Non-standard door bundles, such as heliboxes and field expedient bundles not addressed in T.O. 13C7-1-11 will be limited to 65 pounds (total rigged weight), and dropped IAW free drop procedures (**para 13.3**), or static lines (**para 13.8.8**).

13.8.3. Mission Description. Mission requirements vary widely depending on the size of the door bundle(s), the number of door bundles, and the altitude of the airdrop. Modification to these procedures to meet specific requirements will be approved through the Mission/CC. Door bundle airdrop planning should receive the same level of planning afforded to LCLA airdrop operations whenever possible.

13.8.4. Aircraft configuration. Normal configuration of the C-145A for door bundle airdrops is with the rollers removed.

13.8.5. Door bundles will be secured individually using aircraft tiedown equipment.

13.8.6. During pre-flight, the loadmaster will measure their restraint harness to preclude exiting the aircraft. When dropping door bundles, the static lines will be attached to the aircraft right side and harness will be connected to the aircraft left.

13.8.7. Preparation for Loading. Use the LCLA airdrop loading checklist for door bundle airdrop. **EXCEPTION:** Install rollers as required.

13.8.8. Static lines. Static lines will be attached to independent 5,000 pound tie-down rings on aircraft right sidewall at Frame 15 +/- six inches. A carabineer should be used to connect bundle static lines (with or without a clevis) to sidewall tie- down rings.

13.8.9. Bundle inspection.

13.8.9.1. Ensure data tag reflects information briefed during airdrop crew briefing.

13.8.9.2. Check for serviceability of webbing, straps and covers.

13.8.9.3. Ensure parachute is correct for the load to be airdropped and that it is attached to the load.

13.8.9.4. Ensure skid board (if utilized) is serviceable with smooth side down.

13.8.10. **Aircrew Procedures** . Under normal circumstances, the crew required for the door bundle operation consists of a standard tactical crew. Additional crewmembers may be needed for multiple door bundles.

13.8.10.1. Flaps: As required. Flaps up is the normal configuration for C-145A airdrop.

13.8.10.2. Airspeed. Base airspeed on desired groundspeed but no slower than 100 KIAS.

13.8.10.3. At "30 Seconds to Slowdown" call, the Loadmaster will remove the vertical restraint and position the bundle as necessary. At "Green Light", the Loadmaster will push the bundle from the aircraft and call "Load Clear" or "Malfunction" as required.

13.8.10.4. Upon hearing "Load Clear" or "Malfunction," the PNF will state "Red Light" and turn on the red light if equipped.

13.8.10.5. The airdrop sequence is complete once the airdrop malfunction checklist (if required) and the post-drop checklist have been completed

13.8.11. **Towed Door Bundle Procedures**

13.8.11.1. The Loadmaster will call "Malfunction" and give a brief description of the problem.

13.8.11.2. The Loadmaster will cut the bundle free and notify the Pilot "Bundle Released."

CAUTION: The Loadmaster shall not attempt to retrieve the bundle. **NOTE:** Time and location should be noted when the bundle is released.

13.8.11.3. After releasing the bundle, close the cargo door, call "Malfunction Checks Complete" and perform the completion of drops checklist.

13.9. Identification of Airdrop Items.

13.9.1. 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. PICs 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:

13.9.1.1. CLASS I – Subsistence (food), water (bottle), gratuitous, health, comfort items.

13.9.1.2. CLASS II – Clothing, individual equipment, tentage, organizational tool sets and kits, hand tools, unclassified maps, administrative and housekeeping supplies and equipment.

13.9.1.3. CLASS III – Petroleum, oil, lubricants (POL) (package and bulk); petroleum, fuel, lubricants, hydraulic and insulating oils, preservatives, liquids and gases, bulk chemical products, coolants, deicer and antifreeze compounds, components, and additives of petroleum and chemical products, and coal.

13.9.1.4. CLASS IV – Construction materials, including installed equipment and all fortification and barrier materials.

13.9.1.5. CLASS V – Ammunition of all types, bombs, explosives, mines, fuzzes, detonators, pyrotechnics, missiles, rockets, propellants, and associated items.

13.9.1.6. CLASS VI – Personal demand items (such as health and hygiene products, soap and toothpaste, writing material, snack food, beverages, cigarettes, batteries, and cameras – non-military sales items).

13.9.1.7. CLASS VII – Major end items such as launchers, tanks, mobile machine shops, and vehicles.

13.9.1.8. CLASS VIII – Medical material including repair parts peculiar to medical equipment.

13.9.1.9. CLASS IX – Repair parts and components to include kits, assemblies, and subassemblies (repairable and non-repairable).

13.9.1.10. CLASS X – Material to support non-military programs such as agriculture and economic development (not included in class I through IX)

13.9.1.11. Miscellaneous – Water, salvage, and capture material.

Chapter 14

OPERATIONAL REPORTS AND FORMS

14.1. General. This chapter contains a description of applicable reports and forms. For assistance in completing safety forms contact the wing/group, squadron, or local flight safety officer.

14.2. AFSOC Form 97, Aircraft Incident Worksheet. Refer to AFI 91-204, *Safety Investigations and Reports*, and the AFSOC Supplement. The Safety Office (HQ AFSOC/SE) will be notified of the following high interest items: Off drop zone (DZ) drops, insertion injuries, IFR incidents, dropped objects, or any other incident which, in the judgment of the Flight Safety Officer (FSO), needs to be reported. Use the AFSOC Form 97, Aircraft Incident Worksheet, when reporting these incidents to HQ AFSOC/SE. AFI 91-204, *Safety Investigations and Reports*, and the AFSOC Sup provide policy guidance that is common to investigating and reporting all US Air Force mishaps and instructions for using AFSOC Form 97, Aircraft Incident Worksheet. Safety investigations and reports are conducted and written solely to prevent future mishaps. Safety investigations take priority over any corresponding legal investigations, except friendly fire mishaps. **(T-2).**

14.3. AF Form 457, USAF Hazard Report. Refer to AFI 91-202, The US Air Force Mishap Prevention Program. The USAF hazard reporting system provides a means for Air Force personnel to alert supervisors and commanders to hazardous conditions requiring prompt corrective action. A hazard is any condition, act, or circumstance that jeopardizes or may jeopardize the health and well-being of personnel or which may result in loss, damage, or destruction of any weapons system, equipment, facility, or material resource.

14.4. AF Form 651, Hazardous Air Traffic Report (HATR). Refer to AFI 91-202.

14.4.1. The Air Force HATR program provides a means for personnel to report all near midair collisions and alleged hazardous air traffic conditions. Use information in HATR reports only for mishap prevention. AFI 91-202, lists reportable incidents.

14.4.2. Procedures:

14.4.2.1. Make an airborne report of the hazardous condition to the nearest ATC agency (e.g., center, Flight Service Station (FSS), control tower, or aeronautical radio station), and give the following information as appropriate:

14.4.2.1.1. Identification or call sign.

14.4.2.1.2. Time and place (radial/DME, position relative to the airfield, etc.).

14.4.2.1.3. Altitude or flight level.

14.4.2.1.4. Description of the other aircraft or vehicle.

14.4.2.1.5. Include a verbal statement as soon as possible after occurrence that a written HATR report will be filed upon landing. **Note:** ATC agencies (e.g., FAA, etc.) must know if an official report is being filed.

14.4.2.2. File the HATR as soon as possible (within 24 hours) using any available means of communication. Normally, it should be filed at the base operations office at the landing

airport. If this is impractical and if communications permit, notify the safety office of the Air Force base where the condition occurred, the safety office at the home station, or as prescribed by the overseas MAJCOM. In any case, provide the safety office with all available information needed to prepare AF Form 651, Hazardous Air Traffic Report (HATR). Turn in a completed copy of AF Form 651 to the wing/group safety office. **Note:** HATR reports are not privileged information and may be released outside the USAF.

14.4.3. Individuals submitting a HATR are granted immunity from disciplinary action provided:

14.4.3.1. Their violation was not deliberate.

14.4.3.2. They committed no criminal offense.

14.4.3.3. No mishap occurred.

14.4.3.4. They properly reported the incident using the above procedures.

14.5. AF Form 711, USAF Aircraft Mishap Report Worksheet. Refer to AFI 91-204, *Safety Investigations and Reports.*

14.5.1. Responsibilities. Notify the appropriate authorities of any mishap involving aircraft or crew. When notified, AFSOC units will initiate investigative and reporting actions IAW AFI 91-204, Safety Investigations and Reports. **Note:** Do not attempt to classify a mishap.

14.5.2. Reportable Mishaps:

14.5.2.1. Report damage to the aircraft, injury to the crew or passengers, and any damage or injury to another organization‘s equipment or personnel resulting from the movement or actions of an aircraft or crew.

14.5.2.2. Report the following occurrences:

14.5.2.2.1. A physiological episode, a physiological reaction, near accident, or hazard in-flight due to medical or physiological reasons. This includes:

14.5.2.2.1.1. Proven or suspected case of hypoxia.

14.5.2.2.1.2. Carbon monoxide poisoning or other toxic exposure.

14.5.2.2.1.3. Decompression sickness due to evolved gas (bends, chokes, neurocirculatory collapse), or severe reaction to trapped gas resulting in incapacitation.

14.5.2.2.1.4. Hyperventilation.

14.5.2.2.1.5. Spatial disorientation or distraction resulting in an unusual attitude.

14.5.2.2.1.6. Loss of consciousness for any cause.

14.5.2.2.1.7. Death by natural causes of any crew member in-flight.

14.5.2.2.1.8. Alcohol intoxication and hangover (crew only).

14.5.2.2.1.9. Illness (both acute and pre-existing), including food poisoning, dehydration, myocardial infarction, seizure, and so forth.

14.5.2.2.1.10. Exposure to toxic, noxious, or irritating materials such as smoke,

fumes, or liquids. **Note:** In the event of a physiological episode, all crew members and passengers involved will report to a flight surgeon as soon as practical. The flight surgeon will coordinate with the safety office to generate a Class E Physiological Event in the Air Force Safety Automated System.

14.5.2.2.2. In-flight flameout, engine failure, required engine shutdown, suspected engine power loss, or loss of thrust sufficient to preclude maintaining level flight above minimum en route altitude. **Note:** Intentional shutdowns for training and FCF are excluded; however, report failure to restart, using the criteria above.

14.5.2.2.3. Flight control malfunction resulting in an unexpected or hazardous change of flight attitude, altitude, or heading.

14.5.2.2.4. Malfunction of landing gear when difficulty is experienced using emergency system or procedures.

14.5.2.2.5. In-flight loss of all pitot-static instrument indications or all attitude or directional indications.

14.5.2.2.6. Spillage or leakage of radioactive, toxic, corrosive, or flammable material from aircraft stores or cargo.

14.5.2.2.7. All cases of departure from intended takeoff or landing surface onto adjacent surfaces.

14.5.2.2.8. Any incident which does not meet the established criteria for a reportable mishap but, in the judgment of the PIC, needs to be emphasized in the interest of flight safety.

14.6. Reports of Violations/Unusual Events or Circumstances. Violations identified in AFI11-202, Vol 3, and navigation errors (including overwater position errors exceeding 24 nm, border and ATC violations) will be reported IAW AFI 11-202, V3.

14.6.1. Include the following: factual circumstances, investigation and analysis, findings and conclusions, recommendations, and actions taken.

14.6.1.1. Attachments should include: notification of incident, crew orders, statement of crew members (if applicable), and documenting evidence (logs, charts, etc.).

14.6.2. In addition to the information listed, the historical flight plan will be turned in to the C2 center or owning standardization and evaluation office.

14.6.3. Send the original investigation report within 45 days to the Inspector General (HQ AFSOC/IG).

14.6.4. The following operational report (OPREP)-3, Event or Incident Report, reporting procedures for all aircraft notified of navigational errors exceeding 24 nm will be reported under AFI 10-206, Operational Reporting **(T-2).**

14.6.4.1. On notification of a navigational position error, the PIC (or agency receiving notification) documents the circumstances surrounding the incident (report content below) and ensures submission of an OPREP-3 report through C2 channels.

14.6.4.2. Include the following:

14.6.4.2.1. Name and location of unit submitting report, mission identification number, reference to related OPREPs-3, type of event (e.g., state navigation position error), date, time (Zulu), and location (e.g., ATC Sector).

14.6.4.2.2. Description of facts and circumstances. Include aircraft type and tail number, unit (wing/group or squadron assignment of crew), home base, route of flight, point of alleged deviation, and miles off course.

14.6.5. PICs must keep the appropriate agencies apprised of any unusual events or circumstances impacting their missions. Examples of reportable events include meaconing, jamming, intrusion, interception, fuel dumping, loss of multiple engines, hostile fire, injury to passengers or crew members, etc. This list is not exhaustive. Some events may require the C2 agency to forward OPREP reports to higher headquarters. The old adage, when in doubt, report it, applies.

Chapter 15

C-145A AMPLIFIED TACTICAL OPERATIONS CHECKLISTS

15.1. General. This Chapter establishes amplified checklist policies and procedures for C-145A aircrews within AFSOC. See **Figure 15.1** through **15.6**. **Note:** The pilot in the left seat will respond to all checklist response items that direct a pilot (P) response, and the pilot in the right seat will respond to all checklist response items that direct a Copilot (CP) response. If there is "P/CP" for a response then the pilot executing that item will respond to the challenge and response checklist. Tactical checklists may be run by the LM at the discretion of the AC.

Figure 15.1. Combat Entry Checklist (Page 1 of 2).

COMBAT ENTRY CHECKLIST **NOTE:** This checklist will be used in conjunction with all low-level missions. **NOTE:** The checklist will be initiated by the pilot stating, **"CREW, COMBAT ENTRY CHECKLIST."**		
1. Combat Entry Checklist	"**ACKNOWLEDGED**"	(CP, LM)
2. Altimeters a. Set current altimeter setting. b. If the current altimeter setting is unknown, set altimeters to the minimum altimeter setting briefed for the mission.	"**SET, (STATE SETTING)**"	(P, CP)
3. Radar Altimeters	"**SET, (STATE SETTING)**"	(P, CP)
4. Lights a. Exterior Lights	**"SET"**	(P, CP, LM)

Figure 15.2. Combat Entry Checklist (Page 2 of 2).

(1) Position/Nav – ON		
(2) Anti-Collision – ON (As Required)		
(3) Landing Lights – As Required (Normally Off)		
b. Interior Lights		
(1) Cockpit Lights – As Required		
(2) Cargo Compartment – As Required		
5. Transponder	**"SET"**	(P)
6. COMM/NAV	**"SET"**	(PNF)
7. Survival Equipment	ON	(P, CP, LM)
a. The LM will visually ensure all crewmembers are wearing the appropriate equipment.		
b. The following equipment will be worn (when required)		
(1) Body Armor		
(2) Survival Vest		
(3) Life Preserver		
(4) Helmet		
8. MSN Equipment	**"SET"**	(P, CP, LM)
9. Loose Equipment	SECURED	(P, CP, LM)
a. Loose Equipment – Stowed		
b. Load Restraint – Checked		
c. Window Covers – As Required		
10. Combat Entry Checks	**"COMPLETE"**	(P, CP, LM)

Figure 15.3. Combat Exit Checklist.

COMBAT EXIT CHECKLIST ***NOTE:*** The Combat Exit Checklist will return the aircraft to a normal configuration. The checklist will be initiated by the pilot by stating, **"CREW, COMBAT EXIT CHECKLIST."**		
1. Combat Exit Checklist	**"ACKNOWLEDGED"**	**(CP, LM)**
2. Altimeters	**"SET, (STATE SETTING)"**	**(P, CP)**
a. Set current altimeter setting.		
b. If current altimeter setting is unknown, set altimeter to the minimum setting briefed for the mission.		
3. Radar altimeter	**"SET, (STATE SETTING)"**	**(P, CP)**
4. Lights	SET	(P, CP, LM)
a. Exterior Lights		
(1) Position/Nav – ON		
(2) Anti-Collision – ON		
(3) Landing Lights – As Required (Normally Off)		
b. Interior Lights		
(1) Cockpit Lights – As Required		

(2) Cargo Compartment – As Required		
5. Transponder	**"SET"**	**(P)**
6. COMM/NAV	**"SET"**	**(PNF)**
7. MSN Equipment	**"SET"**	**(P, CP, LM)**
8. Survival Equipment	**"STOWED"**	**(P, CP, LM)**
9. Combat Exit Checks	**"COMPLETE"**	**(P, CP, LM)**

Figure 15.4. Infil/Exfil Checklist.

INFIL/EXFIL CHECKLIST		
20-MINUTE CHECKLIST **NOTE:** The "20 minute advisory" call will initiate this checklist.		
1. 20 Minutes	**"CREW, 20 MINUTE ADVISORY"**	**(PNF)**
	"ACKNOWLEDGED"	(LM)
2. Notify Troop Commander	AS REQ	(LM)

10-MINUTE CHECKLIST		
NOTE: The "10 minute advisory" call will initiate this checklist.	"**CREW, 10-MINUTE ADVISORY"**	**(PNF)**
1. 10 Minutes		
2. "INFIL/EXFIL CHECKLIST" (PNF)	**"ACKNOWLEDGED"**	**(LM)**
3. Crew Briefing	**"COMPLETE"**	
a. TOLD		**(P, CP)**
b. Weather		
c. Arrival/approach to be used		
d. Minimums		
e. Missed approach/ go-around		
f. NAVAIDs/radios		
g. Terrain and arrival restrictions		
h. Type landing and flap setting		
i. Backup approach		
j. Crewmember responsibilities		
k. Onload/ offload plan		
l. Taxi restrictions		
m. Takeoff and departure procedures	STOWED	(P, CP, LM)
4. Loose Equipment	NOTIFIED	(LM)
5. Troop Commander	**"SET, STATE SETTING"**	**(P, CP)**
6. Flight Instruments, CDI	**"CHECKED"**	**(PNF)**
7. Fuel Quantity & Balance	**"SET, STATE SETTING"**	**(P, CP)**
8. Altimeters	**"SET, STATE SETTING"**	**(P, CP)**
9. Radar Altimeters	**"SET, STATE SETTING"**	**(P)**
10. Anti-Skid **NOTE:** Anti-skid is normally turned off when landing on semi-prepared surfaces.	**"ON"**	**(P)**
11. Nose-wheel Steering	**"COMPLETE"**	**(P, CP, LM)**
12. 10-Minute Checks		

6-MINUTE ADVISORY **NOTE:** The "6 minute advisory" call will initiate this checklist.		
1. "**CREW, 6-MINUTE ADVISORY" (PNF)**	**"ACKNOWLEDGED"**	**(LM)**
2. Notify Troop Commander	AS REQ	(LM)
BEFORE LANDING CHEKLIST **NOTE:** The PF will call for this checklist as time, distance and tactical situation permits. **NOTE:** On aircraft equipped with the cargo door disable/enable switch in the cockpit, crews will consider putting the switch in the "enable" position to allow the LM to open/close the doors as required upon touchdown.		
1. Bypass Valves	**"OPEN"**	**(CP)**
2. Hydraulic & Brake Pressures	**"CHECKED"**	**(P)**
3. Prop RPM Levers	**"MAX"**	**(PNF)**
4. Flaps	**"SET, STATE SETTING"**	**(PNF)**
5. Heating	**"OFF"**	**(CP)**
6. Lights	AS REQ	(P, CP, LM)
7. Autopilot, Yaw Damper	**"OFF"**	**(PF)**
8. Before Landing Checks	**"COMPLETE"**	**(P, CP, LM)**
ON THE RUNWAY CHECKLIST		
1. Cargo Doors	**"CLEARED TO OPEN"**	**(P)**
2. Parking Brake	AS REQUIRED	(P)
3. Prop RPM Levers	AS REQUIRED	(PNF)
4. On/Offload	**"CLEARED TO ON/ OFFLOAD"**	**(P)**
5. Flaps	**"FLAPS, SET 15"**	**(PNF)**
6. Trim Tabs	**"SET"**	**(PNF)**
7. Spoilers	**"RETRACTED"**	**(PNF)**

8. Cargo Doors	**"CLOSED & LOCKED, CLEAR TO TAXI"**	**(LM)**
9. Prop RPM Levers	**"MAX"**	**(PNF)**
10. Weight and Balance	REVIEWED	(P, CP, LM)
11. TOLD	REVIEWED	(P, CP)
12. Cargo/Personnel	**"SECURED"**	**(LM/PNF)**
13. Transponder	**"SET"**	**(P)**
14. Condition Levers	**"FLIGHT"**	**(PF)**
15.	**"THROTTLES"**	**(PNF)**
AFTER TAKEOFF CHECKLIST		
1. Flaps	**"UP"**	**(PNF)**
2. Prop RPM Levers	"**SET, STATE SETTING"**	**(PNF)**
3. Bypass Valves	"**SET, STATE SETTING"**	**(CP)**
4. Lights	**"SET"**	**(P, CP, LM)**
6. Interior/Exterior Scan	COMPLETE	(LM/PNF)
7. Radar Altimeters	**"SET, STATE SETTING"**	**(P, CP)**
8. After Takeoff Checks	**"COMPLETE"**	**(P, CP, LM)**

Figure 15.5. LCLA Airdrop Checklist.

AIRDROP CHECKLIST

20-MINUTE ADVISORY **NOTE:** The "20 minute advisory" call will initiate this checklist. 1. 20 Minutes	**"CREW, 20 MINUTE ADVISORY"** **"ACKNOWLEDGED"**	**(PNF)** **(LM)**
10-MINUTE CHECKLIST **NOTE:** The "10 minute advisory" call will initiate this checklist. 1. 10 Minutes 2. **"AIRDROP CHECKLIST, (Type)" (PNF)** **3. Slowdown, Drop Zone, & Escape** a. Review visual recognition signals. b. Review CARP c. Review green light time d. Review escape heading and altitude **4. Altimeters** **5. Radar Altimeters** **6. Flight Instruments, CDI** 7. Helmet 8. Personnel 9. Load Restraint 10. Load Inspection	**"CREW, 10 MINUTE ADVISORY"** **"ACKNOWLEDGED"** **"REVIEWED"** **"SET, STATE SETTING"** **"SET, STATE SETTING"** **"SET, (STATE SETTING)"** ON SECURED CHECKED CHECKED	**(PNF)** **(LM)** **(P, CP)** **(P, CP)** **(P, CP)** **(P, CP)** (LM) (LM) (LM) (LM)

11. Load Marker Lights	ON (AS REQ)	(LM)
12. Internal Lights	SET	(P, CP)
13. Restraint Harness/Lifelines	ON/ADJUSTED/ ATTACHED	(LM)
14. External Lights	**"SET"**	**(CP)**
15. Static Lines	**"CONNECTED"**	**(LM)**
16. Transportation Ties	**"REMOVED"**	**(LM)**
17. 10-Minute Checks	**"COMPLETE"**	**(P, CP, LM)**
SLOWDOWN CHECKLIST **NOTE:** The "30seconds to slowdown" advisory call will initiate this checklist.		
1. 30 Seconds	**"30 SECONDS TO SLOWDOWN"**	(PNF)
2. Vertical Restraint	REMOVED	(LM)
3. Emergency Restraint Straps	POSITIONED	(LM)
4. Slowdown	**"SLOWDOWN NOW"**	**(PNF)**
5. Prop RPM Levers	**"MAX"**	**(PNF)**
6. Cargo Doors **NOTE:** Cargo doors may be opened prior to initiating the slowdown checklist	**"CLEARED TO OPEN"**	**(LM)**
7.	**"OPEN AND SECURE"**	**(LM)**
8. Slowdown Checks	**"COMPLETE"**	**(P, CP, LM)**

RELEASE POINT CHECKLIST **NOTE:** The "1 minute advisory" call will initiate this checklist.		
1. 1-Minute	**"CREW, 1 MINUTE ADVISORY"**	**(PNF)**
2.	**"ACKNOWLEDGED"**	(LM)
3. 10 Seconds	**"10 SECONDS"**	**(PNF)**
4.	**"GREEN LIGHT, GREEN LIGHT, GREEN LIGHT"**	**(PNF)**
5. Release Gate	CUT	(LM)
6. Status of Load	**"LOAD CLEAR (OR CONDITION)"**	**(LM)**
7.	**"RED LIGHT"**	**(PNF)**
NOTE: If a malfunction occurs, execute the **Gate Fails to Cut/Load Fails to Exit Checklist**		
POST-DROP CHECKLIST **NOTE:** This checklist is initiated when the "Red Light" call is made or the "Malfunction" checklist is complete.		
1. Static Lines	RETRIEVED	(LM)
2. Flaps	**"UP"**	**(PNF)**
3. Cargo Doors	**"CARGO DOORS CLEAR TO CLOSE"**	**(LM)**
4.	**"CLOSED AND LOCKED"**	**(LM)**
5. Radar Altimeters	**"SET, STATE SETTING"**	**(P, CP)**
6. Flight Instruments, CDI	**"SET, STATE SETTING"**	**(P,CP)**
7. Post-Drop Checks	**"COMPLETE"**	

		(P, CP, LM)
AIRDROP MALFUNCTION CHECKLIST		
GATE FAILS TO CUT OR LOAD FAILS TO EXIT **1. Notify Pilot** **2. Flaps** **NOTE:** Additional flaps may be required to keep the LCLA from exiting the aircraft. **3. Cargo Doors** 4. Load **5. Malfunction Checks** 6. Post-Drop Checklist	 **"MALFUNCTION, (BRIEF DESCRIPTION)"** **"SET, STATE SETTING"** **"CLEAR TO CLOSE"** SECURED **"COMPLETE"** EXCUTE	 **(LM)** (PNF) (LM) (LM) (LM) (ALL)
TOWED STANDARD AIRDROP TRAINING BUNDLE (SATB) **1. Notify Pilot** 2. Cut Bundle (on pilots command) **3. Cargo Doors**	 **"MALFUNCTION, (BRIEF DESCRIPTION)"** **"CLEARED TO CLOSE"**	 (LM) (LM) (LM)

4. Malfunction Checks	**"COMPLETE"**	
5. Post-Drop Checklist	EXECUTE	(LM) (ALL)

Figure 15.6. High-Altitude Personnel Airdrop (HALO/HAHO) Checklist.

HIGH ALTITUDE PERSONNEL (HALO/HAHO) AIRDROP		
PREFLIGHT		
1. Overhead Loading Hoist	REMOVED	(LM)
20-MINUTE CHECKLIST **NOTE:** The "20 minute advisory" call will initiate this checklist.		
1. 20 Minutes	**"CREW, 20 MINUTE ADVISORY"**	**(PNF)**
2. "High Altitude Personnel Checklist" (PNF)	**"ACKNOWLEDGED"**	**(LM)**
3. Jumpmaster	ALERTED	(LM)
4. Slowdown, Drop Zone & Escape a. Review visual recognition signals. b. Review high altitude release point (HARP) c. Review green light time d. Review escape heading and altitude	**"REVIEWED"**	**(P, CP)**

5. Aft Cargo Door Control	**"DEARMED"**	**(P)**
6. Helmet & Oxygen Mask	**"ON"(AS REQ)**	**(P, CP, LM)**
7. 20-Minute Checks	**"COMPLETE"**	**(P, CP, LM)**

10-MINUTE CHECKLIST **NOTE:** The "10 minute advisory" call will initiate this checklist.		
1. 10 Minutes	"**CREW, 10-MINUTE ADVISORY"** **"ACKNOWLEDGED"**	**(PNF)** **(LM)**
2. Jumpmaster	ALERTED	(LM)
3. Altimeters a. Set current altimeter setting. The PNF will state how it was derived—ATC, ATIS, altitude calibration. b. If current altimeter setting is unknown, set altimeter to the minimum setting briefed for the mission. c. Pass updated altimeter setting to the jumpmaster.	**"SET, STATE SETTING"**	**(P, CP)**
4. Red Light	**"ON"**	**(CP)**
5. High Altitude Checks **NOTE:** When supplemental oxygen is required for the jumpers, the LM will check the oxygen console connections, pressure, and quantity. The LM will confirm that all jumpers have completed this action by receiving thumbs up from each jumper. **NOTE:** This check will be accomplished every 5,000' above 10,000' MSL. Once stabilized at	**"COMPLETE"**	**(P, CP, LM)**

drop altitude, and the aircraft remains above 10,000' MSL, this check will be accomplished every 15 minutes		
6. Flight Instruments, CDI	**"SET, (STATE SETING)"**	**(P, CP)**
7. Internal Lights	SET	(P,CP)
8. Restraint Harness	ON/SECURED	(LM)
WARNING: Ensure all personnel not involved in the airdrop are informed to remain seated forward of all parachutists, with seat belts fastened, until completion of the drop.		
9. 10 Minute Checks		
	"COMPLETE"	**(P, CP, LM)**
6-MINUTE ADVISORY		
NOTE: The "6 minute advisory" call will initiate this checklist.		
1. 6 Minutes	"**CREW, 6-MINUTE ADVISORY"**	**(PNF)**
	"ACKNOWLEDGED"	**(LM)**
2. Jumpmaster	ALERTED	(LM)
SLOWDOWN		
NOTE: The "Slowdown" call will initiate this checklist.		
1. 30 Seconds	**"30 SECONDS TO SLOWDOWN"**	**(PNF)**
2. Slowdown	**"SLOWDOWN NOW"**	**(PNF)**
3. PCLs	AS REQ	(PF)
4. Cargo Doors	**"CLEARED TO OPEN"**	**(LM)**
NOTE: The LM will visually confirm that the doors are fully opened	**"OPENED AND SECURED"**	**(LM)**
5. Slowdown Checks	**"COMPLETE"**	**(P, CP, LM)**

2-MINUTE ADVISORY **NOTE:** The "2 minute advisory" call will initiate this checklist.		
1. 2 Minutes	"**CREW, 2-MINUTE ADVISORY"** **"ACKNOWLEDGED"**	**(PNF)** **(LM)**
2. Jumpmaster	ALERTED	(LM)
3. Jumpers	POSITIONED	(LM)
NOTE: The jumpers will disconnect from the oxygen console and move into position immediately forward of the cargo door until cleared by the safety/jumpmaster to proceed. **NOTE:** With side facing seats installed, ensure jumpers stow or fold seats prior to the initiation of the RELEASE POINT CHECKLIST.		
RELEASE POINT CHECKLIST **NOTE:** The "1 minute advisory" call will initiate this checklist.		
1. 1 Minutes	"**CREW, 1-MINUTE ADVISORY"** **"ACKNOWLEDGED"**	**(PNF)** **(LM)**
2. Jumpmaster	ALERTED	(LM)
3. 10 Seconds	**"10 SECONDS"**	**(PNF)**
4. At HARP (for CREW directed airdrop) or at LAR (for JM directed airdrop)	**"GREEN LIGHT"**	**(PNF)**
5. Status of Load	**"LOAD CLEAR (OR CONDITION)"**	**(LM)**

COMPLETION OF DROP CHECKLIST **NOTE:** This checklist is initiated when the "Load Clear" call is made, the "Malfunction"		

checklist is complete, or the aircraft reached the end of the LAR.	**"ON"**	**(CP)**
1. Red Light	**"UP"**	**(PNF)**
2. Flaps		
3. Cargo Doors	**"CLOSED AND LOCKED"**	**(LM)**
NOTE: Secure all loose equipment in the cargo compartment. Ensure all parachutes are de-armed prior to descent.		
4. Red Light	**"OFF"**	**(CP)**
5. Flight Instruments, CDI	**"SET,(STATE SETTING)"**	**(P, CP)**
6. Drop Checks	**"COMPLETE"**	**(P, CP, LM)**
AIRDROP CLEANUP CHECKLIST		
1. Multiple Rigging	COMPLETED	(LM)
2. Forward Stops/Barrier	REMOVED	(LM)
3. Loose Equipment	SECURED	(LM)
3. Cargo Compartment	SECURED	(LM)

HIGH ALTITUDE AIRDROP EMERGENCY PROCEURES

1. If any person experiences decompression sickness or unusual pain, the pilot will abort the mission and begin descent determined by the type and degree of sickness or pain.

2. Proceed to the nearest base at which qualified medical assistance is available. Advise the control tower of the emergency and request a flight surgeon and an ambulance to meet the aircraft.

3. If a parachute prematurely deploys or becomes unsealed, immediately move affected personnel to the front of the cargo bay and ensure the cargo doors are closed. Consider ceasing airdrop operations while personnel onboard have unserviceable parachutes.

MARK D. KELLY, Lt Gen, USAF
Deputy Chief of Staff, Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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AF Form 457, *USAF Hazard Report*

AF Form 651, *Hazard Air Traffic Report*

AF Form 711, *USAF Aircraft Mishap Report*

AF Form 847, *Recommendation for Change of Publication*

AF Form 4110, *Comments SOF/CSAR Training Record*

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AFSOC Form 97, *Aircraft Incident Worksheet*

AFTO Form 46, *Prepositioned Life Support Equipment*

CF 6059B, *Customs Declaration*

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

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Abbreviations and Acronyms

AAD—Automatic Actuation Device

AC—Aircraft Commander

ACC—Air Combat Command

ADIZ—Air Defense Identification Zone

AETC—Air Education and Training Command

AF—Air Force

AFE—Aircrew Flight Equipment

AFI—Air Force Instruction

AFJI—Air Force Joint Instruction

AFM—Aircraft Flight Manual

AFMAN—Air Force Manual

AFMC—Air Force Material Command

AFMSS—Air Force Mission Support System

AFPAM—Air Force Pamphlet

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFR—Air Force Reserve

AFRIMS—Air Force Records Information Management System

AFSOC—Air Force Special Operations Command

AFSOF—Air Force Special Operations Forces

AFTO—Air Force Technical Order

AFTTP—Air Force Tactics, Techniques, and Procedures

AGL—Above Ground Level

AIM—Airman‘s Information Manual

AIMS—Airlift Implementation and Monitoring System

ALCE—Airlift Control Element

ALS—Approach Lighting System

AMC—Air Mobility Command

AMP—Airfield Marking Pattern

ANG—Air National Guard

AOB—Air Order of Battle

AP—Area Planning

APPS—Analytical Photogrammetric Positioning Systems

AQP—Airfield Qualification Program

ARFF—Aircraft Rescue and Firefighting

AsPO—Aerospace Physiologist and Technician

ASRR—Airfield Suitability and Restriction Report

ATC—Air Traffic Control

ATIS—Automatic Terminal Information System

ATOC—Air Terminal Operations Center

C—Celsius

C2—Command and Control

CARP—Computed Air Release Point

CASEVAC—Casualty Evacuation

CC—Commander

CCT—–Combat Control Team

CDRUSSOCOM—Commander, United States Special Operations Command

CFL—Critical Field Length

CG—Center of Gravity

CHOP—Change in Operational Control

CHUM—Chart Update Manual

CJCSI—Chairman of the Joint Chiefs of Staff Instruction

COMAFSOF—Commander Air Force Special Operations Forces

COMPLAN—Communications Plan

COMSEC—Communications Security

CONUS—Continental United States

CP—Copilot

CRM—Crew Resource Management

CVR—Cockpit Voice Recorder

DH—Decision Height

DME—Distance Measuring Equipment

DO—Director of Operations

DoD—Department of Defense

DoT—Department of Transportation

DSN—Defense Switched Network

DSR—Deployed Status Reports

DV—Distinguished Visitors

DZ—Drop Zone

EFB—Electronic Flight Bag

EGPWS—Enhanced Ground Proximity Warning System

EMCON—Emission Control

EP—Emergency Procedure

EPOS—Emergency Portable Oxygen System

ERO—Engine(s) Running On or Offload

ESA—Emergency Safe Altitude

ETA—Estimated Time of Arrival

ETD—Estimated Time of Departure

ETE—Estimated Time En route

ETP—Equal Time Point

F—Fahrenheit

FA—Flight Authorization

FAA—Federal Aviation Administration

FAF—Final Approach Fix

FARP—Forward Area Refueling Point

FBO—Fixed Base Operator

FCF—Functional Check Flight

FCIF—Flight Crew Information File

FCIS—Flight Crew Information Summary

FDP—Flight Duty Period

FENCE—Fuel, Engines/Electrics, Navigation, Communications, Emitters

FIH—Flight Information Handbook

FLIP—Flight Information Publication

FMS—Flight Management System

FOD—Foreign Object Damage

FOUO—For Official Use Only

FSO—Flight Safety Officer

FSS—Flight Service Station

GDSS—Global Decision Support System

GOB—Ground Order of Battle

GP—General Planning

GPS—Global Positioning System

HAA—Height Above Aerodrome

HAHO—High-Altitude High-Opening

HALO—High-Altitude Low-Opening

HARP—High-Altitude Release Point

HAT—Height Above Touchdown

HATR—Hazardous Air Traffic Report

HF—High Frequency

HQ—Headquarters

IADS—Integrated Air Defense System

IAW—In Accordance With

ICAO—International Civil Aviation Organization

IFE—In-flight Emergency

IFF—Identification Friend or Foe

IFR—Instrument Flight Rules

IMC—Instrument Meteorological Conditions

IMT—Information Management Tool

INFIL/EXFIL—Infiltration/Exfiltration

IP—Initial Point or Instructor Pilot

IR—Infrared

JCS—Joint Chiefs of Staff

JMPS—Joint Mission Planning System

JOG—Joint Operations Graphic

KIAS—Knots Indicated Air Speed

LAR—Launch Acceptability Region

LCLA—Low Cost Low-Altitude

LM—Loadmaster

LNAV—Lateral Navigation

LZ—Landing Zone

LZCO—Landing Zone Control Officer

LZSO—Landing Zone Safety Officer

MAJCOM—Major Command

MC—Mission Commander or Mission Copilot

MDA—Minimum Descent Altitude

ME—Mission Essential

MEDEVAC—Medical Evacuation

MEP—Mission Essential Personnel

MEL—Minimum Equipment List

MESL—Minimum Essential Subsystem List

MFLTTO—Minimum Field Length for Tactical Takeoff

MIJI—Meaconing, Intrusion, Jamming, and Interference

MIL STD—Military Standard

MMEL—Master Minimum Equipment List

MOA—Memorandum of Agreement

MOCA—Minimum Obstruction Clearance Altitude

MP—Mission Pilot

MSA—Minimum Safe Altitude

MSL—Mean Sea Level

NACO—National Aeronautical Charting Office

NATO—North Atlantic Treaty Organization

NAVAID—Navigational Aid

NC—Noncurrent

NM—Nautical Miles

NOTAM—Notice to Airmen

NVG—Night Vision Goggle

OB—Order of Battle

OCONUS——Outside Continental United States

OG/CC—Operations Group Commander

OGV—Operations Group Standardization/Evaluation

OPCON—Operational Control

OPLAN—Operational Plan

OPORD—Operational Order

OPR—Office of Primary Responsibility

OPREP—Operational Report

ORM—Operational Risk Management

OTC—Over the Counter

P—Pilot

PAPI—Precision Approach Path Indicator

PDO—Publications Distribution Office

PED—Portable Electronic Device

PF—Pilot Flying

PFPS—Portable Flight Planning System

PGU—Portable GPS Unit

PIC—Pilot In Command

PL—Protection Level

PNF—Pilot Not Flying

POC—Point of Contact

POH—Pilots Operating Handbook

POK—Passenger Oxygen Kit

POL—Petroleum Oil Lubricants

POS—Passenger Oxygen System

PSF—Pounds per Square Foot

PSP—Pierced Steel Plank

RAIM—Random Asynchronous Integrity Monitor

RDS—Records Disposition Schedule

RNAV—Area Navigation

ROE—Rules of Engagement

RPM—Revolutions Per Minute

RUF—Rules for the Use of Force

RVR—Runway Visibility Range

SAR—Search and Rescue

SATB—Standard Airdrop Training Bundle

SI—Spectrum Interference

SID—Standard Instrument Departure

SITREP—Situation Reports

SOCCS—Special Operations Command and Control Squadron

SOCCE—Special Operations Command and Control Element

SOF—Special Operations Forces

SOFPARS—Special Operations Forces Planning and Rehearsal Systems

SOP—Standard Operating Procedures

SOW—Special Operations Wing

STAR—Standard Terminal Arrival

STOL—Short Takeoff Landing

STS—Special Tactics Squadron

TCAS—Traffic Collision Avoidance System

TOA—Time Of Arrival

TOLD—Takeoff and Landing Data

TOT—Time Over Target

TPC—Tactical Pilotage Chart

TSA—Transportation Security Administration

TSO—Technical Standard Order

TSOC—Theater Special Operations Command

UHF—Ultrahigh Frequency

UNQ—Unqualified

USAF—United States Air Force

USDAO—US Defense Attaché Office

USSOCOM—United States Special Operations Command

UTM—Universal Transverse Mercator

VASI—Visual Approach Slope Indicator

VCSL—Voice Call Sign Listing

VSI—Vertical Speed Indicator

VVI—Vertical Velocity Indicator

VFR—Visual Flight Rules

VHF—Very High Frequency

VMC—Visual Meteorological Conditions

Vmca—One Engine Inoperative Air Minimum Control Speed

VOR—VHF Omnidirectional Range

Vr—Refusal Speed

Vref—Reference Speed

Vx—Best Angle of Climb Speed

Vxse—Best Angle of Climb Speed (Single Engine)

Vy—Best Rate of Climb Speed

Vyse—Best Rate of Climb Speed (Single Engine)

Terms

ABORT—To turn back from or cut short a mission before its successful completion for reasons other than enemy action. This may occur after an aircraft is airborne or on the ground before takeoff.

ACCELERATE–STOP DISTANCE—The runway required to accelerate the aircraft to rotate speed, experience engine failure, and stop using the brakes IN ACCORDANCE WITH the POH.

ADDITIONAL CREW MEMBER—An additional crew member is one assigned in addition to the normal aircrew complement required for a mission for purposes of supervising or monitoring in-flight procedures.

ALERT AIRCRAFT—An operationally ready aircraft specifically designated to be launched IN ACCORDANCE WITH timing factors established for the assigned missions with a ready crew available.

BINGO FUEL—A prebriefed amount of fuel that would allow a safe return to the base of intended landing.

BORDER CLEARANCE—Those clearances and inspections required to comply with federal, state, Agricultural, Customs, Immigration, and Immunization requirements.

COMMANDER, AIR FORCE SPECIAL OPERATIONS FORCES (COMAFSOF)—The commander designated by Commander, United States Special Operations Command (CDRUSSOCOM) for CONUS deployments or by Theater SOC/CCs for overseas deployments, who is responsible for management of Air Force Special Operations Forces (AFSOF) within a theater, a geographic area, or a designated operation. The COMAFSOF is responsible to CDRUSSOCOM for management of CONUS-deployed AFSOF or to the respective SOC/CC for management of theater assigned AFSOF and is responsible to COMAFSOC for monitoring and management of AFSOF operating within the specific area of responsibility.

COMMAND AND CONTROL—An arrangement of personnel and facilities, plus the means of acquisition, processing, and dissemination of information, used by a command in planning, directing, and controlling operations.

CREW COMPLEMENT—The number of crew personnel used for a specific mission.

DESIGNATED REPRESENTATIVE—Individuals authorized in writing by the appropriate command level as having decision-making authority.

EXERCISE—A military maneuver or simulated wartime operation involving planning, preparation, and execution. It is carried out for the purpose of training or evaluation. It may be combined, joint, or single-service, depending on participating organizations.

FORWARD AREA REFUELING POINT (FARP)—A ground site designated for quick refueling and/or rearming of the aircraft.

MANIFEST—Movement record of traffic airlifted on aircraft operated by, for, or under the control of the Air Force.

MISSION FOLLOWING—Monitoring the location and status of aircraft and crews through the use of departure, arrival, and advisory messages.

MISSION READY AIRCRAFT—An aircraft which is capable of flight with all required equipment operable to carry out the primary assigned mission.

Attachment 2

EQUAL TIME POINT CALCULATIONS

A2.1. Equal Time Point (ETP). The equal time point is an airborne decision point. It is the point along the route of flight (usually overwater) from which it takes the same amount of time to return to the point of departure (or to the last suitable airfield) as it would to continue to the destination (or the first suitable airfield). In no wind conditions, the ETP is simply the halfway point between the two airfields. However, when flying into a headwind, the ETP moves closer to the destination aerodrome. Conversely, when flying into a tailwind, the ETP moves closer to the departure aerodrome. These calculations will also be impacted by the decision to fly at lower altitudes. The distance and time to the ETP from the departure aerodrome (or last suitable airfield) may be calculated using the following formulas: (reference **Figure A2.1** and **A2.2**).

Figure A2.1. Equal Time Point Formula, Problem, and Solution.

$$\text{Distance to ETP} = \frac{(\text{Total Distance}) \times (\text{Ground Speed Home})}{(\text{Ground Speed Out}) + (\text{Ground Speed Home})}$$

$$\text{Time to ETP} = \frac{\text{Distance to ETP}}{\text{Ground Speed Out}}$$

Problem:

Distance from A to B=800 nm

Wind: 50 kts headwind

TAS: 250 kts

Solution:

$$\text{Distance to ETP} \quad \frac{800 \times 300}{200 + 300} = \frac{240{,}000}{500} = 480 \text{ nm}$$

GS Out: 200 kts (250 kts - 50 kt headwind)

$$\text{Time to ETP} = \frac{480 \text{ nm}}{200 \text{ kts}} = 2.4 \text{ hrs}$$

Figure A2.2. Example.