BY ORDER OF THE
SECRETARY OF THE AIR FORCE

AIR FORCE INSTRUCTION 11-2C-21,
VOLUME 3

1 SEPTEMBER 1999

Flying Operations

C-21 OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: HQ AMC/DOV
(Maj David H. Conn)
Supersedes MCI 11-221, 30 Nov 95

Certified by: HQ USAF/XOO
(Maj Gen Michael S. Kudlacz)
Pages: 138
Distribution: F

This volume implements AFPD 11-2, *Aircraft Rules and Procedures.* It establishes policy for the operation of the C-21 aircraft to safely and successfully accomplish their worldwide Operational Support Airlift (OSA) mission. 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 instruction applies to Air National Guard (ANG) units. This instruction does not apply to Air Force Reserve (AFRC) units.

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This document is new and must be completely reviewed. This instruction contains references to the following field (subordinate level) publications and forms which, until converted to departmental level publications and forms, may be obtained from the respective MAJCOM publication office:

Publications: AMCI 11-208 and AMCI 11-301.

Forms: AMC Forms 43, 54, 181, 196, and 423.

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Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. This AFI provides guidelines for Air Force C-21 operations and applies to C-21 aircrews and all management levels concerned with operation of the C-21. It is a compilation of information from aircraft flight manuals, FLIP publications, and other Air Force directives, as well as an original source document for many mobility areas. Basic source directives have precedence in the case of any conflicts, revisions, and matters of interpretation. For those areas where this AFI is the source document, waiver authority will be in accordance with paragraph **1.4.** For those areas where this AFI repeats information contained in other source documents, waiver authority will be in accordance with these source documents.

1.1.2. All units and agencies involved in or supporting C-21 operations will use this AFI. Copies will be current and available to planning staffs from headquarters to aircrew level. Mobility transportation and base operations passenger manifesting agencies will also maintain a copy of this AFI.

1.2. Applicability. This AFI is applicable to all individuals/units operating C-21 aircraft.

1.3. Key Words Explained.

1.3.1. “Will” and “shall” indicate a mandatory requirement.

1.3.2. “Should” is normally used to indicate a preferred, but not mandatory, method of accomplishment.

1.3.3. “May” indicates an acceptable or suggested means of accomplishment.

1.3.4. “Note” indicates operating procedures, techniques, etc., that are considered essential to emphasize.

1.4. Deviations and Waivers. Do not deviate from the policies and guidance in this AFI under normal circumstances, except for safety, or when necessary to protect the crew or aircraft from a situation not covered by this ARI and immediate action is required. The aircraft commander is the ultimate authority and is responsible for the course-of-action to be taken. Report deviations or exception without waiver through channels to MAJCOM Stan /Eval function who, in turn, should notify the OPR (lead command) for follow-up action, if necessary.

1.4.1. Unless otherwise directed in this AFI, waiver authority for the contents of this document is MAJCOM/DO. MAJCOM/DO staff should forward a copy of approved waivers to the OPR (lead command). Request for a long term (permanent) waiver must be approved by MAJCOM/DO and listed in MAJCOM supplement (See Paragraph **1.5.**).

1.4.2. Short-term waiver requests for missions under AMC/TRANSCOM operational control use **Chapter 4**, Waiver Protocol.

1.5. Supplements. This document is a basic directive. Each MAJCOM or operational theater may supplement this AFI. These supplements will not be less restrictive than the basic document. MAJCOM/DOs initiate long-term waiver requests to the basic document. Specify long-term waiver approval author-

ity, date, and expiration date in the appropriate MAJCOM supplement. Limit supplement information to unique requirements only.

1.5.1. Combined Operations. Use only the basic AFI for planning or operations involving forces from lead and user commands. Commanders may use approved MAJCOM supplement procedures with assigned and/or chopped forces provided these forces receive appropriate training and the duration is specified. Commanders should not assume or expect aircrews from another command to perform MAJCOM specific procedures from their supplements unless these provisions are met. Questions by aircrews, planners, and staff should be forwarded to the OPR.

1.5.2. Coordination Process. Forward MAJCOM approved supplements (with attached Air Force Form 673, **Request to Issue Publication**) to HQ AMC/DOV, 402 Scott Dr., Unit 3A1, Scott AFB IL, 62225-5302. AMC/DOV will provide a recommendation to HQ AMC/DO and forward to HQ AFFSA/XOF for approval.

1.5.3. Prior to publication, units will send one copy of **Chapter 10** to the parent MAJCOM OPR for validation through their appropriate NAF for coordination. Send final copies to HQ AMC/DOV, parent MAJCOM, and the appropriate NAF.

1.6. Requisition and Distribution Procedures. Order this AFI through the servicing Publications Distribution Office (PDO). Unit commanders provide copies for all aircrew members and associated support personnel. This publication is available digitally on the SAF/AAD WWW site at http://afpubs.hq.af.mil. Contact your PDO for the monthly CD-ROM or access to the bulletin board system.

1.7. Improvement Recommendations. Send comments and suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through channels to HQ AMC/DOV, 402 Scott Drive Unit 3A1, Scott AFB IL, 62225-5302 according to AFI 11-215, *Flight Manual Procedures* and MAJCOM Supplement.

1.8. Definitions. The explanation or definition of terms and abbreviations commonly used in the aviation community can be found in FAR, Part 1 and DoD *FLIP General Planning*, Chapter 2, and Joint Pub 1-02, *The* DOD *Dictionary of Military and Associated Terms*. See **Attachment 1** for common terms.

1.9. Aircrew Operational Reports. The reporting requirements in this instruction are exempt from licensing in accordance with paragraph 2.11.10 of AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

Chapter 2

COMMAND AND CONTROL

2.1. General. Command and control (C2) of tanker and airlift forces is exercised through a network of C2 Centers. C2 Centers are executive agents for commanders exercising operational control over mobility forces. The C2 Center network consists of the USTRANSCOM/JOSAC (Joint Operational Support Airlift Center), AMC TACC, theater air operations centers (AOC), air mobility elements (AME), unit C2 Centers, air mobility control centers (AMCC), tanker airlift control elements (TALCE), combat control teams (CCT), Air National Guard Readiness Center (ANGRC) Command Center, and the Pacific Air Force (PACAF) and United States Air Forces Europe (USAFE) Air Mobility Operation Control Centers (AMOCCs).

2.2. Execution Authority. Execution approval will be received through the local command post or command element. The operations group commander will be the executing authority for local training missions. The aircraft commander will execute missions operating outside communications channels.

2.2.1. Supplemental Training Mission (STM). Opportune airlift of cargo and mission personnel may be accomplished as a by-product of crew training missions. STMs may be authorized when minor adjustments can be made to a scheduled training mission or when a productive aircrew training mission can be generated for the airlift. The training mission will not be degraded in any manner to accomplish the STM. Use of STMs for logistical support will be authorized only when normal military or commercial transportation modes are unable to provide required support. CONUS AMC STMs must be scheduled with JOSAC with wing commander coordination (AETC, PACAF, and USAFE will determine approval process for their aircraft and publish it in their supplements to this AFI). On STMs, aircraft commanders will release maximum number of space available seats commensurate with mission requirements and safety.

2.2.2. Off Station Training Flights. Wing Commanders are the approval authority for off station trainers. Prior to approval, commanders will carefully review each proposed trainer's itinerary to ensure it justifies and represents the best avenue for meeting training requirements. Commanders approving off station trainers will forward a copy of the planned itinerary to the appropriate NAF/DO and MAJCOM/DOT, ANG/DOO.

2.3. Aircraft Commander Responsibility and Authority. An aircraft commander is designated for all flights on the flight authorizations in accordance with AFI 11-401, *Flight Management* and applicable MAJCOM supplement. Aircraft commanders are:

2.3.1. In command of all persons aboard the aircraft.

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

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

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

2.3.5. The final authority for requesting or accepting any waivers affecting the crew or mission.

2.3.6. Charged with keeping the applicable C2 or executing agencies informed concerning mission progress.

2.3.7. Responsible for ensuring that only activity authorized by the executing authority is accomplished, unless emergency conditions dictate otherwise (for example, unscheduled “bootleg” transition training is not authorized without the approval of the executing authority).

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

2.4.1. Rerouting or Diverting a Mission. Must be authorized by the execution authority, except in an emergency or when required by en route or terminal weather conditions.

2.4.1.1. The controlling agency directing the rerouting or diversion is responsible for ensuring the aircraft is compatible with departure, en route, and destination requirement and facilities.

2.4.1.2. The aircraft commander will notify the appropriate command center of any aircraft or aircrew limitation that may preclude diverting or rerouting the mission.

2.4.2. When directing an aircraft to an alternate airfield, the C2 Center agency will ensure the aircraft commander is provided existing and forecast weather for the alternate, NOTAMs, and appropriate airfield information from the ASRR. If the planned alternate becomes unsuitable while en route, the aircraft commander will coordinate with the C2 Center for other suitable alternates. The C2 Center will coordinate with customs and ground service agencies to prepare for arrival. The aircraft commander is final authority on selecting a suitable alternate.

2.5. Aircrew Responsibilities. The aircraft commander is the focal point for interaction between aircrew and mission support personnel. The local C2 Center is the focal point for all mission support activities. Aircraft commanders must inform C2 of any factor that may affect mission accomplishment. When transiting a stop without a C2 center, it is the responsibility of the aircraft commander to ensure necessary mission information is placed into the C2 system by the most expeditious means available. The aircraft commander will establish a point of contact with the appropriate C2 agency prior to entering crew rest.

2.6. Operational C2 Reporting. JOSAC requires reporting by exception only (CONUS C-21 should comply with JOSAC user guide or applicable documents). USAFE, PACAF, and AFSOUTH will establish C2 reporting procedures and requirements for their OSA missions.

2.6.1. High Frequency (HF) Communications. HF is the primary means of worldwide C2 communications. For critical C2 communications, i.e. aircraft waiver request, voice communications (HF, DSN, etc.) are the primary method.

2.6.2. Report movement information (departure, arrival, or diversion) and airlift mission recapitulation (recap) reports (number of passengers, amount of cargo, and special category information) to the appropriate C2 agencies via global HF stations. Provide relay instructions for global HF stations to pass reports to appropriate agencies.

NOTE:

All HF transmissions will be restricted to operational traffic, i.e., movement reporting, itinerary revisions, maintenance status, flight plan information, etc.

2.6.3. En Route Reporting. Adhere to the following procedures:

2.6.3.1. CONUS. C2 agencies may advise aircrews via the controlling ATC agency to establish contact when communication is needed. Refer to the flight information publication (FLIP) concerning global HF station procedures in contacting MAINSAIL. Periodic "ops normal" calls or global HF station frequencies are not normally required.

2.6.3.2. OCONUS. TACC is the controlling agency for CONUS assigned C-21s. PACAF and USAFE will establish reporting requirement in their supplement.

2.6.4. Arrival Advisory.

2.6.4.1. Aircrews on operational missions transmit arrival advisory to the destination C2 agency or, in the absence of a local C2 agency, to an appropriate responsible agency as soon as practical after departure. Furnish the following information:

2.6.4.1.1. Aircraft call sign.

2.6.4.1.2. Mission number.

2.6.4.1.3. ETB (estimated time in block).

2.6.4.1.4. Maintenance status (See the definitions for a list of maintenance status codes in **Attachment 1** of this AFI.).

2.6.4.1.5. Distinguished visitor (DV) status and honors codes (Transmit the DV code of each DV on board). Do not pass the name of the DV on board without the consent of the DV. Outside the continental limits of the United States, the name of the DV will not be passed over unsecure radios.

2.6.4.2. Aircrews transmit UHF or VHF arrival advisory as soon as contact can be established with the destination C2 agency. The following information should be furnished:

2.6.4.2.1. Aircraft call sign.

2.6.4.2.2. Mission number.

2.6.4.2.3. ETB.

2.6.4.2.4. Maintenance status.

2.6.4.2.5. DV code and requirements. Do not pass the name of the DV on board without the consent of the DV. Outside the continental limits of the United States, the name of the DV will not be passed over unsecure radios.

2.6.4.2.6. Number of passengers.

2.6.4.2.7. Hazardous cargo and remote parking requirements.

2.6.4.2.8. Additional service required.

2.6.4.2.9. Passengers and/or cargo capability for the next mission segment.

2.6.4.2.10. Fuel Requirements.

2.6.5. DV Messages. Airborne unclassified messages originated by DV passengers may be transmitted at the discretion of the aircraft commander.

2.6.6. Maintenance Discrepancy Reporting. Aircrews should transmit maintenance discrepancies (via VHF, UHF, or HF) to destination C2 Center or, in the absence of a local C2 Center, to the controlling agency as soon as possible. Crews should not wait until UHF/VHF contact is established with the destination to call in this information.

2.7. Mission Commanders.

2.7.1. A mission commander will be required when more than two aircraft are assembled to perform missions away from home station. With two aircraft, the tasked unit will designate an aircraft commander for overall mission responsibility, crew duties and crew rest permitting. When conflicts with crew responsibilities exist, a separate mission commander should be appointed to ensure mission coordination is accomplished.

2.7.2. The mission commander will ensure required mission briefings are completed by all collocated aircrews. The mission commander and all aircrew members will attend an appropriate unit's specified pre-deployment briefing.

2.8. C2 Agency Telephone Numbers. Units should publish a listing of telephone numbers to assist crews in coordinating mission requirements through appropriate C2 agencies. It should be made readily available to crews by publishing it in the FCB, Read File, or other appropriate publication.

2.9. Close Watch Missions. Close Watch missions are designated missions (e.g. CSAF, medevac, PHOENIX BANNERs) which receive C2 special attention. Close Watch procedures are initiated so that all possible actions are taken to ensure on-time accomplishment and notification to the user when delays occur or are anticipated. Promptly notify the appropriate C2 channels of delays, aborts, or other events that affect on-time departure and advise them of the ETIC, new ETD, and ETA. Notify the C2 within 10 minutes of event and confirm that the user and OPR have been advised.

Chapter 3

CREW MANAGEMENT

3.1. Aircrew Qualification. Primary crewmembers or those occupying a primary position during flight must be qualified or in training for qualification for that crew position. If non-current, or in training for a particular event, the crewmember must be under the supervision of an instructor while accomplishing that event (direct supervision for critical phases of flight).

EXCEPTION: Senior staff members who have completed a Senior Staff Familiarization course may occupy either pilot seat under direct IP supervision. These individuals will log "FP" for Flight Authorization Duty Code on the AFTO Form 781, **Aircrew/Mission Flight Data Document**.

3.1.1. Pilots:

3.1.1.1. Missions With Passengers. With passengers onboard, takeoff, climb-out, flight under actual instrument conditions, approach, and landing may be made by either the pilot or the copilot. Only a pilot that is qualified (current and valid AF Form 8, **Certificate of Aircrew Qualification**) will occupy a pilot's seat with passengers onboard the aircraft. If non-current, a qualified mission ready (MR) pilot regaining currency may be at the controls provided an IP is directly supervising and at a set of controls. Pilots will not regain landing currency with patients/passengers on board.

3.1.1.2. Touch-and-go landings with passengers or cargo are prohibited (N/A MAJCOM approved maintenance personnel).

3.1.1.3. Distinguished visitor (DV) operating procedures. The following applies for incumbents of general officer positions who desire to fly:

3.1.1.3.1. Approved by the MAJCOM/CV (AMC/CV for CONUS OSA).

3.1.1.3.2. Must fly under the supervision of an instructor pilot if not fully mission ready.

3.1.1.3.3. Must have a valid AF Form 8 for basic qualification on all missions with passengers.

3.1.1.3.4. Must have current IRC and instrument evaluation on all mission conducted under IFR.

3.1.1.3.5. When a supported general officer has flight authority and has indicated a desire to fly, the local unit will include the general officer on the AFORMS flight authorization according to AFI 11-401, *Flight Management*.

3.1.1.3.6. When a general officer not mission ready occupies a primary crew position on an operational mission an additional pilot will accompany the mission.

3.1.1.4. Left Seat Training. With squadron commander approval, experienced copilots will obtain left seat training as part of the Level II Pilot Training Guide, and may fly in the left seat provided they are under IP supervision (direct IP supervision for critical phases of flight and taxi operations) and no passengers are carried. After completing Level II training, copilots may fly passenger-carrying missions in the left seat under IP supervision.

3.2. Crew Complement. Minimum crew complement for basic flight duty period (FDP) is one Aircraft Commander (AC) and one Copilot (CP). There are no augmented C-21 crews.

3.3. Scheduling Restrictions. Crewmembers will not be scheduled to fly nor will they perform crew duties:

3.3.1. When the maximum flying time limitations of AFI 11-202V3, *General Flight Rules*, will be exceeded.

3.3.2. After consuming alcoholic beverages within 12 hours of takeoff or when under the influence of alcohol.

3.3.3. Do not takeoff early (prior to scheduled departure time) if the early takeoff time would violate these restrictions.

3.3.4. After consuming alcoholic beverages within the 12-hour period prior to assuming ALFA/ BRAVO standby force duty.

3.3.5. Within 72 hours of donating blood. The flying unit commander must approve the donation of blood by crewmembers in a mobility assignment or who are subject to flying duties within this 72 hour period. Crewmembers should not normally donate blood.

When taking oral or injected medication unless individual medical waiver has been granted by the Command Surgeon. Crewmembers may not self medicate except IAW AFI 48-123, *Medical Examinations and Standards.* The following is a partial list of medications which may be used without medical consultation:

3.3.5.1. Skin antiseptics, topical anti-fungal, 1 percent Hydrocortisone cream, or benzoyl peroxide for minor wounds and skin diseases which do not interfere with the performance of flying duties or wear of personal equipment.

3.3.5.2. Single doses of over-the-counter aspirin, acetaminophen or ibuprofen to provide analgesia for minor self-limiting conditions.

3.3.5.3. Antacids for mild isolated episodes of indigestion.

3.3.5.4. Hemorrhoidal suppositories.

3.3.5.5. Bismuth subsalicylate for mild cases of diarrhea.

3.3.5.6. Oxymetazoline or phenylephrine nasal sprays may be used by aircrew as “get me downs” should unexpected ear or sinus block occur during flight. These should not be used to treat symptoms of head congestion existing prior to flight.

3.3.6. Within 24 hours of compressed gas diving (including scuba); surface supplied diving, or hyperbaric (compression) chamber exposure and aircraft pressurization checks that exceed 10 minutes duration.

3.3.7. Within 12 hours after completion of a hypobaric (altitude) chamber flight above 25,000 feet. Personnel may fly as passengers in aircraft during this period, provided the planned mission will maintain a cabin altitude of 10,000 feet MSL or less. For altitude chamber flights to a maximum altitude of 25,000 feet or below, aircrew members may fly without delay as crewmembers or passengers if their cabin altitude does not exceed 15,000 feet.

3.4. Alerting Procedures. CONUS OSA crews will normally self alert en route. Units will establish home station alerting procedures.

3.4.1. Crew alerts will normally be 3+00 hours prior to scheduled takeoff time to allow 1 hour for reporting and 2+00 hours for mission preparation.

EXCEPTION: CONUS OSA crew reporting time is normally 2 hours. This time may be reduced to a minimum of 1 and 1/2 hours through coordination with the unit operation officer, the AC, and the controlling agency. The AC may establish other reporting times as required for mission accomplishment, e.g. scheduled mission departure time changes, etc.

3.4.1.1. Early alerting to provide additional reporting or mission preparation time is authorized when absolutely essential for mission accomplishment. Late alerting is also authorized; however, all requests for changes to standard alerting times must be coordinated through the appropriate C2 Center.

3.4.1.2. If no controlling C2 agency or other control agency is available, crews will self-alert. Self-alert procedures may also be used for normal local training missions.

3.4.2. A crew will not be alerted until the aircraft is in commission or there is reasonable assurance that the estimated time in commission (ETIC) will meet the proposed takeoff time.

3.4.3. ACs may request crew enhancement crew rest (CECR) when they desire a later legal for alert time to normalize the crew work-rest cycle or enhance messing options immediately prior to crew alert. To minimize adverse effects on established schedules, aircraft flow, and capability, CECR requests should be of minimum duration and normally be limited to de-positioning legs. Send requests through C2 channels for approval decision. When requests are disapproved, the controlling C2 agency will notify the AC through C2 channels of the reason for disapproval. CECR is not an alternative to a ‘safety of flight’ delay and should not be used as such. If the AC deems extra crew rest is necessary for continued safe flight and mission accomplishment, the AC has the responsibility to declare safety of flight when the situation warrants, not after a crew enhancement delay is disapproved.

3.4.4. Aircrew release policy is as follows:

3.4.4.1. On the aircrew’s initial entry or reentry into crew rest, the controlling C2 agency (or aircraft commander for self alerts) will establish an expected alert time. The crew will not be alerted or otherwise disturbed before this time except for emergencies.

3.4.4.2. The latest allowable alert time will be 6 hours after the expected alert time for all missions. If circumstances warrant, the aircraft commander may extend the window to a maximum of 8 hours. (When advised the crew will be deadheading, the aircraft commander may extend the window to 12 hours.) Air Reserve component (ARC) crewmembers may extend the window as necessary to allow deadhead return to home station within Scheduled Return Date (SRD). The controlling C2 agency will not request the aircrew accept more than a 6-hour window.

3.4.4.3. If the controlling C2 agency determines a crew will not be alerted in the allowable time span, then at the time of determination (but no earlier than the crew’s expected alert time) the controlling C2 agency will reenter the crew into crew rest of not less than 12 hours and establish a new expected alert time.

3.4.4.4. When the latest allowable alert time expires without being alerted, then:

3.4.4.4.1. The crew reenters crew rest of not less than 12 hours.

3.4.4.4.2. The aircraft commander will contact the controlling C2 agency to determine the new expected alert time and establish a new latest-allowable alert time.

3.5. Not Used.

3.6. Crew Duty Time (CDT) and Flight Duty Period (FDP). CDT is the amount of time an aircrew may perform combined flight and ground duties. FDP is the time period between mission reporting and final aircraft engine shutdown. For planning purposes, CDT normally consists of FDP plus 45 minutes, not to exceed the maximum CDT. When post flight duties exceed 45 minutes, CDT is FDP plus the time required to complete the post-flight related duties.

NOTE:

CDT and FDP include both military duty and civilian work and begin when the reporting for the first duty/work period (military or civilian).

3.6.1. CDT and FDP both begin 1 hour after alert. ***EXCEPTIONS***:

3.6.1.1. Self-alerts: CDT and FDP begin at scheduled or established mission reporting time.

3.6.1.2. ALFA standby: CDT and FDP begin when the crew is told to launch.

3.6.1.3. BRAVO standby: CDT and FDP begin when the crew shows for duty.

3.6.1.4. Crewmembers performing other duties prior to flight related duties: CDT and FDP begin when reporting for other duties.

3.6.1.5. Crewmembers alerted early to perform mission-related duties: CDT and FDP begin when reporting for these duties.

3.6.2. The length of FDP will be established by the mission directive or controlling C2 when the crew shows for duty and is briefed for the mission.

3.6.3. FDP ends at engine shut down following completion of the final mission segment.

3.6.4. Normally, CDT ends 45 minutes after engine shutdown at the end of the mission. If any crewmember must perform mission-related duties past 45 minutes, CDT does not end until that crewmember completes these duties. These duties include up or down loading, servicing, debriefing, mission planning, etc. Except when authorized by unit commanders at home station or deployed locations, crewmembers will not be used for mission related duties supporting other missions; i.e. to preflight other aircraft. Post mission duties will not be performed after the maximum CDT has expired.

3.6.5. Basic Crew FDP:

3.6.5.1. Maximum FDP for a basic crew is 14 hours. The basic FDP is 12 hours without an operative autopilot pitch axis.

3.6.5.2. Maximum CDT for a basic crew is 16 hours.

3.6.6. Augmented Crew. The C-21 does not have in-flight crew rest facilities for an augmented crew capability.

3.6.7. Training FDP:

3.6.7.1. Maximum FDP for training missions is 14 hours.

3.6.7.2. Transition duty day for training missions is 12 hours. Transition duty day begins at the start of CDT.

NOTE:

ARC crews may perform transition on C-21 training missions provided time from start duty does not exceed 14 hours and actual flight duty does not exceed 12 hours.

3.6.8. If the autopilot fails after departure, notify the C2 Center, continue to the next stop, and comply with the preceding limitations.

3.6.9. Deadhead Time. Duty time for crewmembers positioning or de-positioning for a mission or mission support function and not performing crew duties.

3.6.9.1. Deadhead crewmembers will not exceed a 24-hour FDP.

3.6.9.2. Crewmembers may perform primary crew duties after deadheading if they will not exceed a basic FDP.

3.6.9.3. FDP for the mission to be flown begins at reporting time for the deadhead flight.

3.6.9.4. Crewmembers may deadhead following primary crew duties if they will not exceed a 24-hour FDP beginning at reporting time for primary crew duties.

3.6.10. CDT/FDP Extensions. See AFI 11-202V3.

3.6.11. Flight examiners administering evaluations will not exceed basic FDP.

3.7. Crew Rest and En Route Ground Times. See AFI 11-202V3 and the following:

3.7.1. Crewmembers will enter crew rest a minimum of 12 hours prior to alert time or, when self alerting, 12 hours prior to reporting time.

3.7.1.1. Home-Station Pre-departure Crew Rest. All primary and deadhead crewmembers should enter crew rest 24 hours prior to alert time for missions scheduled away from home station for more than 14 hours. Crewmembers may perform limited non-flying duties, including mission planning, during the first 12 hours of this period. OG/CC is waiver authority for the first 12 hours of pre-departure crew rest (***EXCEPTION:*** ARC in accordance with AFI 11-202V3) Deadhead crewmembers will not be manifested as passengers to reduce or eliminate crew rest requirements.

3.7.1.2. En route Crew Rest and Ground Time:

3.7.1.2.1. Crew rest normally begins 45 minutes after final engine shutdown. The 45-minute time period provides crews with time to complete normal post-flight duties. These duties include, but are not limited to, refueling, up and down loading of cargo, performing maintenance, or completing mission debriefings.

3.7.1.2.2. If any crewmember must stay at the aircraft past the 45-minute period, crew rest does not begin until post-flight duties are completed.

3.7.1.2.3. Minimum crew rest period is 12 hours. This period provides the crew a minimum of 8 hours of uninterrupted rest plus time for transportation, free time, and meals. The crew will not normally be disturbed during this period, except during emergencies. Should the 12-hour crew rest period be infringed upon by official duties, the crew will enter crew rest for an additional 12 hours on completion of the official duties.

3.7.1.2.4. A minimum 15+45 ground time between engine shutdown and mission takeoff should normally be planned unless extended post flight duties are anticipated. This allows for 45 minutes post flight duties, 12 hours rest, one hour to show, and two hours to takeoff. The time between show and takeoff may be shortened to 1+30 for a minimum time of 15+15, when requirements dictate. The controlling agency must coordinate this with the unit.

3.7.1.2.5. The aircraft commander may modify normal ground time:

3.7.1.2.5.1. In the interest of safety.

3.7.1.2.5.2. To no less than 12 hours from the start of crew rest until mission reporting. Before reducing normal ground time consider mission preparation time, time to load cargo, and other factors peculiar to the mission. The controlling C2 agency will not ask the aircraft commander to accept less than a normal ground time. Waivers for exercises and contingencies are according to AFI 11-202V3.

3.7.1.2.5.3. To a maximum of 36 hours, when the crew has completed three consecutive near maximum FDPs.

NOTE:

Flight crews should be afforded crew rest times in excess of the minimum at en route stations, when possible, to give crews the opportunity to overcome the cumulative affects of fatigue while flying on several consecutive days or transiting several time zones.

3.7.1.3. Post-Mission Crew Rest (PMCR). Note: PMCR is not applicable to ANG crews.

3.7.1.3.1. Crewmembers, returning to their home base, will be given sufficient time to recover from the cumulative effects of their deployed mission and tend to personal needs. PMCR begins immediately on mission termination.

3.7.1.3.2. Provide one hour of PMCR time (up to a maximum of 96 hours) for each 3 hours TDY when the duty exceeds 16 hours away from home-station. This time is in addition to and will not run concurrently with pre-departure crew rest. (Not applicable to continuing missions.)

3.7.1.3.3. The OG/CC or acting representative is designated PMCR waiver authority and will not delegate this authority below the OG/CC level. Limit granting a PMCR waiver to extraordinary circumstances only and should not be used for day-to-day operations.

3.7.1.4. Crews will reenter crew rest if their aircraft or mission (training or operational) is not capable of departure within 4 hours from scheduled takeoff time. Exceptions will be granted only with the concurrence of the AC.

3.7.1.5. Crew rest waivers approved for exercises and contingencies will be published in the OPORD or OPLAN or CONOPS.

3.7.2. The minimum ground time enroute for a continuing mission will normally be 1+15. Planners should use 1+30 at heavy traffic commercial airfields and locations with known fueling delays. Shorter ground times may be scheduled before mission execution with the concurrence of the unit operations officer and the aircraft commander.

3.8. Standby Force Duty.

3.8.1. Types of Standby Forces:

3.8.1.1. ALFA Standby Force. An aircraft and aircrew capable of launching in 1 hour. Crewmembers are given 12 hours of pre-standby crew rest before or after aircraft preflight. Aircrews must complete all preflight duties within 6 hours of crew show time. An additional 12-hour pre-standby crew rest is required when preflight time exceeds 6 hours. Once an ALFA force is formed, additional pre-flights may be necessary to maintain the ALFA aircraft. Additional pre-flights done during normal waking hours do not interrupt crew rest. A crew will not stay on ALFA standby duty for more than 48 hours. After 48 hours, the crew must be launched, released, or entered into pre-departure crew rest. CDT begins when the crew is told to launch.

3.8.1.2. BRAVO Standby Force. An aircraft or aircrew capable of launching in 2 hours (from the time the unit is told to launch). Crewmembers are given 12 hours of pre-standby crew rest. Crews are legal for alert after pre-standby crew rest. Preflight duties, if required, interrupt crew rest. A crew will not stay on BRAVO standby duty for more than 48 hours. After 48 hours, the crew must be launched, released, or entered into pre-departure crew rest. CDT begins when the crew shows for duty. If a crew is pre-flighting when the unit is tasked to launch the mission, CDT will begin when the crew first reported for that duty.

3.8.1.3. CHARLIE Standby Force. An identified aircrew capable of entering crew rest within 2 hours (after their controlling unit is notified). This aircrew would become legal for alert 12 hours after entering crew rest. Charlie alert will not exceed 72 hours. If retained for a 72 hour period, crewmembers will be released for 12 hours before resuming CHARLIE Standby Force duty, entering crew rest for mission, or entering pre-standby crew rest for ALFA or BRAVO Standby Force duty.

3.8.1.4. Wing Standby Forces. Standby forces are established by unit commanders. Crewmembers are given normal pre-departure crew rest. Standby duty time is limited to 12 hours. Crews will receive at least 12 hours of crew rest prior to another 12 hours of standby duty.

3.8.2. Standby Force Crew Management. Commanders will not use a standby crew to preflight other than their standby aircraft, or to do any non-mission duties while on standby.

3.8.3. Post-Standby Missions. On completion of standby duty, aircrew members may be dispatched on a mission.

3.8.3.1. Standby duty and pre-departure crew rest may be concurrent if notification is provided at least 12 hours prior to alert.

3.8.3.2. If started, post-standby crew rest must be completed before the start of pre-departure crew rest.

3.8.3.3. If an aircrew member is dispatched on a mission, compute the post-mission crew rest time on standby time plus mission time.

3.8.4. Post-Standby Crew Rest. Aircrew members not dispatched on a mission following standby duty will receive post-mission standby crew rest as follows:

3.8.4.1. If standby duty is performed away from normal quarters, crew rest time is computed from this standby time on the same basis as for mission time.

3.8.4.2. If standby duty was performed in normal quarters, no crew rest time is authorized.

3.8.5. ALFA Standby Aircraft Security. Each unit will complete a maintenance and aircrew preflight inspection when they put an aircraft on ALFA standby status. The aircraft commander will ensure the aircraft is secured before entering crew rest. Secure all hatches and doors to show unauthorized entry. Close and lock the crew entrance door with a controllable device, which will prevent entry without damage to the door or device. The command post must grant permission prior to persons entering an aircraft once the plane is sealed. Ensure standby aircraft is resealed any time the aircraft has been opened. The aircraft commander or designated representative must be present if access to his or her assigned aircraft is required.

3.9. Orientation Flights and Incentive Flights. Refer to DoD 4515.13-R, AFI 11-401, and the appropriate MAJCOM supplement.

3.10. Interfly.

3.10.1. Interfly is the exchange and/or substitution of aircrew members and/or aircraft between mobility units to accomplish flying missions. OG/CC, or as specified in the appropriate MAJCOM supplement may authorize the interfly of assigned aircrews and/or aircraft. Normally, interfly should be limited to specific operations, exercises, or special circumstances but, may be used to relieve short-term qualified manpower shortfalls. During contingencies, exercises, or designated “interfly” missions, interfly operations will be conducted under the following conditions or as specified in the OPLAN or CONOPS.

3.10.2. When approved, interfly during normal day-to-day operations under the following conditions:

3.10.2.1. Aircraft ownership will not be transferred.

3.10.2.2. As a minimum, crews will be qualified in the MDS and model as well as systems or configuration required to fly the aircraft and/or mission.

3.10.2.3. During interfly, crew member (s) will follow "basic" operational procedures (see Combined Operations, paragraph **1.5.1.**) and must thoroughly brief MAJCOM-Specific items.

3.10.2.4. Initiate interfly approval request by the unit or agency requesting the agreement my memo or message format to the OG/CC controlling the resource. Each commander involving resources (personnel or aircraft) (or MAJCOM, if appropriate) must concur with interfly proposal. Request must include details of the deployment or mission including; aircrew name(s), duration, or special circumstances.

3.10.2.5. Flight Mishap accountability is MAJCOM designated by PEID code for mishap aircraft.

3.10.2.6. Ground Mishap accountability in accordance with AFI 91-204, *Safety Investigations and Reports*.

Chapter 4

AIRCRAFT OPERATING RESTRICTIONS

4.1. Objective. The ultimate objective of the aircraft maintenance team is to provide an aircraft for launch with all equipment operational (Fully Mission Capable, FMC). Manpower limitations, skills, and spare part availability have a negative and direct impact on accomplishment. However, some redundant systems allow safe operation with less than all equipment operational for certain missions under specific circumstances. The aircraft commander, using the following policies, determines an aircraft's overall status. Use the following maintenance identifiers to effectively communicate an aircraft's status:

4.1.1. Mission Essential (ME). An item, system, or subsystem component essential for safe aircraft operation or mission completion will be designated Mission-Essential (ME) by the aircraft commander in AFTO Form 781A, **Maintenance Discrepancy and Work Document**. Include a brief explanation of the reason for ME status in the AFTO Form 781A discrepancy block. An aircraft commander accepting an aircraft (one mission or mission segment) without an item or system does not commit that aircraft commander (or a different aircraft commander) to subsequent operations with the same item or system inoperative.

4.1.2. Mission Contributing (MC). Any discrepancies that are not currently ME, but may become ME (if circumstances change), are designated as MC in the AFTO Form 781A discrepancy block. Every effort will be made to clear the MC discrepancies at the earliest opportunity to the extent that maintenance skills, ground time, and spare part availability permit. If subsequently, in the AC's judgment, mission safety would be compromised by the lack of any component, he may re-designate the said component as ME. However, do not delay a mission to correct an MC discrepancy.

4.1.3. Open Item. Discrepancies not expected to adversely impact the current mission or any subsequent mission are not designated MC or ME. These items receive low priority and are normally worked at home station. Do not accept an aircraft from factories, modification centers, or depots unless all instruments are installed and operative.

4.1.4. Aircraft attitude, vertical velocity indications, altitude, speed, and heading instruments should be operative in both pilot positions. For instruments with both analog and digital displays, either the analog or digital presentation is acceptable.

4.2. Policy. It would be impractical to prepare a list that would anticipate all possible combinations of equipment malfunction and contingent circumstances. This chapter list the equipment and systems considered essential for routine as well as contingency operations. The list does not necessarily include all equipment or systems essential to airworthiness (e.g. rudder, ailerons, elevators, flaps, tires, etc.). Those items which state a minimum requirement and have no listed exceptions are grounding items.

4.2.1. The aircraft commander is responsible for exercising the necessary judgment to ensure no aircraft is dispatched with multiple items inoperative that may result in an unsafe degradation and/or an undue increase in crew workload. The possibility of additional failures during continued operation with inoperative systems or components shall be considered. This chapter is not intended to allow for continued operation of the aircraft for an indefinite period with systems/subsystems inoperative.

4.2.2. If, after exploring all options, an aircraft commander determines a safe launch is possible with an item inoperable (beyond a particular restriction) the aircraft commander shall request a waiver.

Use C2 channels to notify the appropriate execution agency of intentions. Plan a minimum 1-hour response to the waiver request.

4.3. Waiver Protocol. Waiver to operate with degraded equipment or waiver to USAF policy exceeding this AFI may be granted on a case-by-case basis and only in exceptional circumstances. Waiver authority is based on "who" has operational control and execution of the aircraft performing a specific mission . The aircraft commander determines the need for a waiver (See C-21 **Figure 4.1.** Launch Decision Matrix). If waiver process, authority, or protocol is in doubt-contact MAJCOM/DOV.

4.3.1. Local Missions (executed by unit OG/CC or equivalent). Waiver authority for active duty units flying local missions is the active duty OG/CC or equivalent. For unit equipped (UE) ARC units, waiver authority is the OG/CC or equivalent.

4.3.2. AMC or JOSAC-Directed Missions. Waiver authority for active duty ANG, AFRC or ANG units flying AMC or AMC-directed missions controlled by the AMC/TACC (includes HQ AMC Operational Readiness Inspections) is HQ AMC/DO. HQ AMC/DOV personnel are the authorized agent and maintain 24-hour watch through the appropriate TACC cell (East or West) .

4.3.3. Other Missions (Contingencies). Waiver authority is listed in the OPORD/Tasking Order, etc., or is the DIRMOBFOR (or equivalent) for the agency with C2 of the aircraft. Crewmembers may request additional assistance or confirmation from their home units or MAJCOM/DO through the TACC, or as specified in MAJCOM supplement.

4.3.4. AFRC-Directed Missions (executed by HQ AFRC). HQ AFRC may maintain C2 and waiver authority for UE AFRC crews performing AFRC-directed mission before mobilization (associate AFRC use Paragraph **4.3.2.**); waivers must be obtained from HQ AFRC/DO.

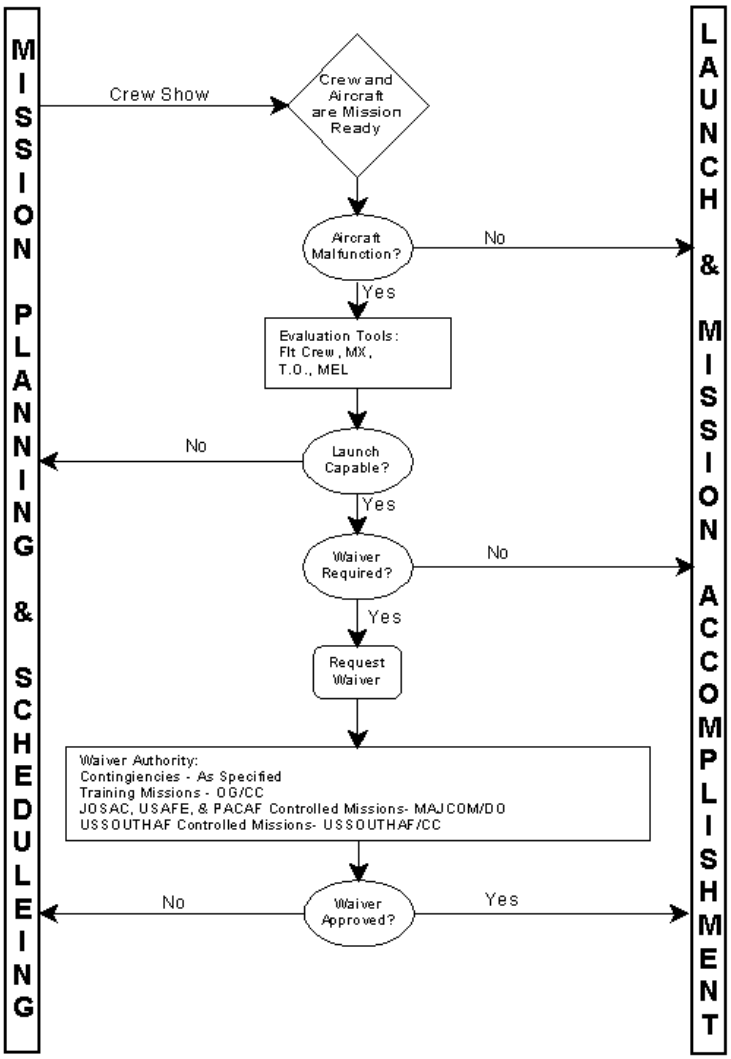
4.3.5. Non-AMC missions. For user command assigned aircraft according to Air Force Policy Directive (AFPD) 10-9 (e.g., AETC, AFRC, ANG) waiver authority is the appropriate MAJCOM/DO, or as specified in MAJCOMsupplement.

4.4. Technical Assistance Service. The aircraft commander may request (at anytime in the decision process) technical support and additional assistance from their home unit, MAJCOM staff, and maintenance representatives.

4.4.1. Aircraft commanders electing to operate with degraded equipment or aircraft systems (with appropriate waiver) must coordinate mission requirements (i.e. revised departure times, fuel requirements, maintenance requirements, etc.) with the controlling C2 agency prior to flight.

4.4.2. When it is necessary to protect the crew or aircraft from a situation not covered by this AFI and immediate action is required, the aircraft commander may deviate from the MEL and this chapter. Report deviations (without waiver) through channels to appropriate MAJCOM/DO within 48 hours. Units must be prepared to collect background information and submit a follow-up written report upon request.

Figure 4.1. C-21 Launch Decision Matrix



4.5. Minimum Equipment List (MEL). This minimum equipment list (MEL) is provided to assist C-21 aircraft commanders in determining required operational equipment for continuance of an airlift mission. Waiver authority for this MEL and for grounding conditions concerning systems/components not listed in the MEL/MPL is the MAJCOM/DOV. ***EXCEPTION:*** Waiver authority for local training missions is the OG/CC. If approval for a one-time flight is granted, an AFTO Form 781, **Aircrew/Mission Flight Data** Document entry will be made IAW TO 00-20-5, and will include any restrictions imposed (crew composition/qualifications, patient/passenger restrictions).

Table 4.1. MINIMUM EQUIPMENT LIST.

Equipment and System	#Installed	#Required En Route	*Remarks/Limitation/Exceptions*
Pitch trim systems	2	2	
Yaw damper systems	2	2	
Stall warning systems	2	2	
Control-wheel master switches (fully operational)	2	2	
Spoileron	1	0	If inop, comply with flight manual procedures.
Spoilers (Ground Mode)	1	1	
Known flight control malfunctions	N/A	N/A	
All fuel system components (except fuel counter)	N/A	N/A	Fuselage transfer pump, transfer valve, fuselage valve, fuselage float switch, and empty light not required for missions requiring no fuel in fuselage tank.
Engine hydraulic pumps	2	2	
Auxiliary hydraulic pump	1	1	
Hydraulic pressure gage	1	1	
All ice and rain protection	N/A	N/A	Can operate in areas without known or forecast icing.
Ice detection lights	2	0	To continue en route at night, recognition light must be operable.
Anti-skid system	4	3	Only the left outboard anti-skid may be inop
Pitot Heat	2	0	Required for flight in IMC.
Nose-wheel steering	1	1	
All Pressurization components	N/A	N/A	One time flight may be made below 10,000 feet to location where components may be fixed.
Emergency air system	2	2	
Anti-collision and strobe lights	2	1	Comply with AFI 11-202V3.
Landing and taxi lights	2	1	
Navigation lights	3	0	
VHF Comm Radios	2	1	
UHF Comm	1	0	Required if either VHF Comm inop.
Flight Data Recorder (FDR)	1	1	
Cockpit Voice Recorder (CVR)	1	1	

Equipment and System	#Installed	#Required En Route	*Remarks/Limitation/Exceptions*
Ground Proximity Warning Sys. (GPWS)	1	0	Required if carrying passengers.
Radio Altimeter	1	0	Required if carrying passengers.
NDB (ADF)	1	0	Required if necessary for mission accomplishment.
TACAN	1	0	Required if necessary for mission accomplishment.
VOR Receivers	2	1	
ILS	2	1	
Global Positioning System	2	1	Required if necessary for mission accomplishment.
Traffic Collision Avoidance System (TCAS)	2	1	Required if Carrying Passengers
Area Navigation Capability (UNS)	1	0	Required if necessary for mission accomplishment.
All electrical generators and batteries	N/A	N/A	
All attitude gyros (ADIs)	3	2	The standby attitude indicator and one ADI must be working to continue en route.
Weather radar	1	0	1) Required if thunderstorms or IMC conditions are forecast or reported along route of flight. 2) Required if carrying passengers.
Transponder	1	1	Locals Okay according to AFI 11-202V3.
Directional Gyros	2	1	1 HSI or RMI must be available in each position to continue en route.
Magnetic compass	1	1	
Fuel Computer (Digital Electronic Engine Control)	2	2	
RPM N1 and N2 (fan and turbine speeds)	2	2	En route or locals okay with either analog or digital readout.
ITT (inlet turbine temperature)	2	2	En route or locals okay with either analog or digital readout.
Oil pressure and temperature	N/A	N/A	
Crew oxygen system	2	2	
NOTE: Waiver authority is detailed in paragraph **4.3.**			

Chapter 5

OPERATIONAL PROCEDURES

5.1. Checklists. Accomplish all checklists with strict discipline. Normally, the pilot flying/taxiing will not read the checklist. A checklist is not complete until all items have been accomplished. Momentary hesitations for coordination items, ATC interruptions, and deviations specified in the flight manual, etc., are authorized. Notes amplifying checklist procedures or limitations may be added to the checklists (in pencil).

5.1.1. Checklist Inserts. Units may supplement T.O. guidance with HQ AMC/DOV approved checklist inserts. These inserts may be placed at the end of the appropriate checklist or in an in-flight guide. All checklist inserts must have a POC. If any crewmember has recommendations or changes they should contact the POC. The POC will consolidate inputs and submit changes to HQ AMC/DOV for approval. Local in-flight guides and inserts not affecting T.O. guidance and procedures may be locally developed and approved by OGV.

5.2. Duty Station. A qualified pilot will be in control of the aircraft at all times during flight. ***EXCEPTION:*** Unqualified pilots undergoing qualification training and senior staff members who have completed the Senior Staff Familiarization Course. The aircraft commander and copilot will be at their duty stations during all takeoffs, approaches, and landings. During other phases of flight, crewmembers may leave their duty station to meet physiological needs and to perform normal crew duties. Only one pilot may be absent from their duty station at a time. Comply with AFI 11-202V3 oxygen requirements when one pilot is out of the seat.

5.3. Flight Station Entry. Passengers are not allowed in either pilot seat at anytime. Approved contractor maintenance personnel may perform taxi operations from either pilot seat in accordance with contract specifications and the flight manual.

5.4. Takeoff and Landing Policy. After thoroughly evaluating all conditions (DV status and comfort level; weather; and type of approach to be flown, and crewmember experience), the aircraft commander will determine who accomplishes the takeoff and landing and occupy either the left or the right seat during all takeoffs and landings. Comply with the Airfield Suitability and Restrictions Report (ASRR). For flights with passengers, see paragraph **3.1.1.1.**

5.4.1. A qualified aircraft commander will accomplish all approaches and landings under actual emergency conditions unless specific conditions dictate otherwise.

5.4.2. On operational missions with passengers aboard, flying circling maneuvers as close as possible to VFR traffic pattern altitudes is preferred over practicing at circling minimums.

5.5. DV-2 Missions. All DV-2 or higher missions require an experienced aircraft commander (EAC) certified by unit commander as highly experienced, or certified as an instructor. A qualified AC or higher will make all takeoffs and landings on these missions. ***EXCEPTION:*** flying DV-2 generals. Alert launches with DV-2s may be flown with alert crew; however, comply with AC takeoff and landing requirement.

5.6. Outside Observer. When available, use a crewmember to assist in outside clearing during all taxi operations and any time the aircraft is below 10,000 feet MSL.

5.7. Seat Belts.

5.7.1. All occupants will have a designated seat with a seat belt. Use of seat belts will be as directed by the aircraft commander and the flight manual. When children under the age of two are accepted as passengers, their sponsor must provide their own approved Infant Car Seat (ICS). Passengers may hand-carry infant car seats. These seats will be secured to a seat using the seat belt. Adults will not hold infant seats during any phase of flight.

5.7.2. Crewmembers occupying pilot and copilot positions will have seat belts fastened at all times in-flight, unless crew duties dictate otherwise.

5.7.3. All crewmembers will be seated with seat belts and shoulder harnesses fastened during taxi, takeoff, and landing, unless crew duties dictate otherwise. Additionally, anytime the seat belt advisory sign is illuminated, crewmembers will be seated with seat belt fastened, unless crew duties dictate otherwise. Crewmembers performing duties in the jump seat or passenger seats are exempt from shoulder harness requirements. ***EXCEPTION:*** Crewmembers may taxi without the shoulder harnesses fastened for positioning and de-positioning the aircraft.

5.8. Aircraft Lighting. In accordance with AFI 11-202V3, AFI 11-218, and the flight manual.

5.9. Portable Electronic Devices. In accordance with AFI 11-202V3.

5.9.1. Unauthorized equipment (Walkman type radios/tape players, CD players, etc.) will not be connected to the aircraft intercom, PA, or radio systems.

5.10. Smoking Restrictions. Smoking is prohibited on board the aircraft.

5.11. Advisory Calls. Pilots will periodically announce their intentions when flying departures, arrivals, approaches, and when circumstances require deviating from normal procedures.

5.11.1. Mandatory altitude calls for the pilot not flying the aircraft:

5.11.1.1. Non-precision Approaches:

5.11.1.1.1. 100 feet above minimum descent altitude (MDA).

5.11.1.1.2. “Minimums” at MDA.

5.11.1.1.3. “Runway in sight.” Call when the runway environment is in sight.

5.11.1.1.4. “Go-around.” Call at missed approach point if the runway environment is not in sight or if the aircraft is not in a position for a safe landing.

5.11.1.2. Precision Approaches:

5.11.1.2.1. 100 feet above decision height (DH).

5.11.1.2.2. “Land.” Call at decision height if the runway environment is in sight and the aircraft is in a position for a safe landing.

5.11.1.2.3. "Go-around." Call at decision height if the runway environment is not in sight or if the aircraft is not in a position for a safe landing.

5.11.1.3. Climb Out:

5.11.1.3.1. Transition altitude.

5.11.1.3.2. 1,000 feet below assigned altitude.

5.11.1.4. Descent:

5.11.1.4.1. Transition level.

5.11.1.4.2. 1,000 feet above assigned altitude.

5.11.1.4.3. 1,000 feet above initial approach fix altitude or holding altitude.

5.11.1.4.4. 100 feet above procedure turn and final approach fix altitude.

5.11.2. Crewmembers will announce when heading or airspeed deviations are observed, or an altitude variation of 100 feet or more.

5.12. Communications Policy. The Air Force does not give a promise of confidentiality to aircrews regarding their recorded aircraft crew communications. Crewmembers are expected to maintain a high degree of cockpit professionalism and crew coordination at all times.

5.12.1. Sterile Cockpit. Limit conversation to that essential for crew coordination and mission accomplishment during taxi, takeoff, approach, landing, and any flight below 10,000 feet MSL (except cruise).

5.12.2. Command Radios:

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

5.12.2.2. In terminal areas the pilot and copilot will monitor the primary command radio unless directed otherwise. One designated crewmember should monitor C2 frequencies (if applicable) on the inbound and outbound leg, unless otherwise directed.

5.12.2.3. The pilot operating the command radios will inform the other pilot when the primary radio is changed.

5.12.2.4. One pilot should record and will acknowledge all ATC clearances.

5.12.2.5. Both pilots will monitor UHF guard (or VHF guard when appropriate) emergency frequency regardless of primary radio.

5.12.3. Crew Resource Management (CRM) Assertive Statement "Time Out":

5.12.3.1. "Time Out" is the common assertive statement for use by all crewmembers. The use of "Time Out" will:

5.12.3.1.1. Provide a clear warning sign of a deviation or loss of situational awareness.

5.12.3.1.2. Provide an opportunity to break the error chain before a mishap occurs.

5.12.3.1.3. Notify all crewmembers that someone sees the aircraft or crew departing from established guidelines, the briefed scenario, or that someone is simply uncomfortable with the developing conditions.

5.12.3.2. As soon as possible after a "Time Out" has been called, the aircrew will take the following actions:

5.12.3.2.1. Safety permitting, stabilize the aircraft.

5.12.3.2.2. The initiating crewmember will voice his or her concerns to the crew.

5.12.3.2.3. The aircraft commander will provide all other crewmembers with the opportunity to voice inputs relative to the stated concerns.

5.12.3.2.4. After considering all inputs, the aircraft commander will direct the aircrew to continue the current course of action or direct a new course of action.

NOTE:

The aircraft commander is the final decision authority.

5.13. Transportation of Pets. Transporting pets (dogs and cats) on aircraft operated by or under the control of AMC in conjunction with the sponsors permanent change of station is authorized. Other pets or animals are normally prohibited, but may be moved according to DODR 4515.13R, *Air Transportation Management*.

5.14. Alcoholic Beverages. MAJCOM/DO/XO may authorize the dispensing of alcoholic beverages.

5.15. Runway, Taxiway, and Airfield Requirements. Comply with the weather and runway limits listed below.

5.15.1. Wind Restrictions. Airfields will be considered below minimums for takeoff and landing when winds (including gusts) are greater than established below.

5.15.1.1. Wind components:

5.15.1.1.1. Maximum operating wind—50 knots.

5.15.1.1.2. Maximum tailwind component—10 knots.

5.15.1.1.3. Crosswinds—Maximum takeoff and landing crosswind component for a dry runway (runway condition reading [RCR] 23) is 25 knots. Maximum takeoff and landing crosswind components, corrected for RCR, are shown in **Table 5.1.**

5.15.2. RCR and RSC Limitations. Use RCR values as prescribed by the aircraft flight manual. If a value is not reported, use RCR 12 for wet runways and RCR 6 for icy runways. Conversions from other braking action standards to RCR should be according to applicable DoD FLIP documents.

Table 5.1. C-21 Takeoff and Landing Crosswind Components.

RCR VALUES	6	7	8	9	10	11	12 and above
Crosswind Component for Takeoff and Landing	10	12	15	17	20	22	25

5.15.2.1. For operation on wet, ungrooved runways, use RCR designated as "wet" in the aircraft flight manual for all takeoff and landing data. For operations on grooved runways, use the reported RCR.

5.15.2.2. When RCR and RSC reporting is not available, flight crews are to consider a runway surface as wet when there is sufficient water on the surface to cause a reflective glare, or when rain is falling.

5.15.2.3. Do not use runways with a reported RCR less than 6.

5.15.3. Minimum Runway Length and Width Requirements:

5.15.3.1. Minimum Runway Length (***NOTE:*** Lengths consider dry surfaces only). Minimum runway length is 5,000ft/1,525m or 6,000ft/1,830m for touch-and-goes (***EXCEPTION:*** Keesler AFB assigned C-21 instructor pilots may utilize Keesler AFB for touch and go landings provided the instructor pilot flies the maneuver and it is accomplished in daylight and VFR conditions only). If operationally necessary, you may use shorter runways provided:

5.15.3.1.1. A qualified instructor or flight examiner makes the takeoff or landing. (MPs require applicable operations group commander waiver.)

5.15.3.1.2. Operations are limited to daytime. (The applicable operations group commander is waiver authority.)

5.15.3.1.3. Takeoff distance does not exceed or landing distance is less than the paragraph **5.15.3.2.1.** and **5.15.3.2.2.** requirements.

5.15.3.1.4. Runway available will not be less than 4,500 feet.

5.15.3.2. Takeoff and Landing Data Considerations.

5.15.3.2.1. Runway Length for Takeoff. Do not attempt takeoff if runway available is less than takeoff distance adjusted for RCR.

5.15.3.2.2. Runway Length for Landing. The minimum required runway for landing, corrected for RCR in accordance with the flight manual. Compute landing distance with no reverse thrust.

5.15.3.2.3. If approach end overruns are available and stressed or authorized for normal operations, they may be used to increase the runway available for takeoff. Departure end overruns (if stressed and authorized) may also be used for landing if needed.

5.15.3.2.4. Runway Length for Takeoff and Intersection Takeoffs. Normally, takeoffs will be initiated from the beginning of the approved usable portion of the runway. The decision to make intersection takeoffs rests solely with the aircraft commander.

5.15.3.2.4.1. Intersection takeoffs may be accomplished provided the operating environment (i.e., gross weight, obstructions, climb criteria, weather, etc.) will allow a safe takeoff and departure.

5.15.3.2.4.2. When less than the entire runway is used, takeoff and landing data (TOLD) card computations will be based on the actual runway remaining from the point at which the takeoff is initiated.

5.15.3.3. Minimum runway width. Minimum runway width is 70 feet.

5.15.4. Airfield Suitability and Restrictions Report (ASRR). Aircrews and planning agencies will contact HQ AMC/DOA for all questions pertaining to airfield weight bearing capability and will review the ASRR prior to all off-station operations. HQ AMC/DOA is waiver authority for AMC and

AMC-gained aircraft (except the AMC/DO is waiver authority for Guantanamo Bay, Cuba certification requirements). Waiver authority for AMC and AMC-gained forces chopped to USSOUTHCOM is the USSOUTHAF/CC or his designated representative. Waiver authority for other aircraft is the assigned MAJCOM. Waivers must be obtained prior to mission execution. Once a mission is executed the aircraft commander is responsible for determining airfield suitability based upon operational need. See summary of airfield restrictions for airfield certification requirements. (NOTE: See Weight Bearing Capacity (WBC) Deviations, paragraph "1.n." of ASRR for policy on operations at higher than published WBC.)

5.15.5. Arresting Cables (does not include recessed cables). When conditions permit (aircraft gross weight, runway length, weather, winds, TOLD, etc.) and the aircraft commander has considered the potential for damaging the aircraft, make takeoffs and landings beyond raised cable barriers. If aircraft commanders determine they need the entire length of runway, use it. Be aware that operations over arresting gear barriers at speeds in excess of taxi speed may result in damage to the aircraft.

5.15.5.1. Do not land on approach end arresting cables. If the aircraft lands before the cable, the crew should contact the tower to have the cable inspected.

5.15.5.2. Do not takeoff or land over an approach end cable that has been reported as slack, loose, or improperly rigged by NOTAM, ATIS, or ATC.

5.15.6. During operations on runways partially covered with snow or ice, takeoff computations will be based on the reported RSC or RCR for the cleared portion of the runway. A minimum of 25 feet either side of centerline should be cleared to ensure proper takeoff performance in the event of an engine failure. If 25 feet either side of centerline is not cleared to the reported RSC, then the RSC of the uncleared portion will be used for takeoff data computations.

5.16. Aircraft Taxi Obstruction Clearance Criteria and Foreign Object Damage (FOD) Avoidance.

5.16.1. Without a marshaller and wing walkers, avoid taxi obstructions by at least 25 feet. With a marshaller and wing walkers, avoid taxi obstructions by at least 10 feet. ***EXCEPTION:*** According to AFI 11-218, *Aircraft Operations and Movement on the Ground*, aircraft may taxi without marshallers/wing walkers at home station along locally established taxi lines which have been measured to ensure a minimum of 10 feet clearance from any obstruction.

5.16.2. When taxi clearance is doubtful, use one or more wing walkers. If wing walkers are unavailable, deplane one or more crewmembers to maintain obstruction clearance and provide marshaling (***NOTE:*** Both pilot and copilot positions must be occupied for taxi). Use AFI 11-218 signals. The aircraft commander should use marshallers and wing walkers, or deplane an extra crewmember (if available) to act as an observer while maneuvering on narrow taxiways. During night taxi operations, marshallers will have an illuminated wand in each hand. Observers should be in a position to see wing walkers at all times and communicate to the pilot.

5.16.3. FOD Avoidance. Make every effort to minimize the potential for engine FOD. Crews should:

5.16.3.1. Carefully review airfield layout during mission planning. Be familiar with taxi routes, turn requirements, and areas for potential FOD.

5.16.3.2. Confirm that taxi routes have been swept. If taxi route has not been swept, consider taxiing via an alternate route.

5.16.3.3. Minimize power settings during all taxi operations.

5.16.3.4. Avoid (when possible) 180-degree turns on taxiways.

5.16.3.5. If it becomes absolutely necessary to accomplish a 180-degree turn on a narrow runway, the turn should be accomplished at an intersection of a link taxiway or at a designated turn around pad.

5.17. Fuel Requirements. See AFI 11-202V3 and note, this paragraph implements standard minimum fuel requirements.

5.17.1. Required ramp fuel will consist of all fuel required for engine start, taxi, takeoff, climb, cruise, alternate/missed approach (if required), descent, approach, transition, landing, and fuel reserve. Plan fuel load using computer flight plan or AF Form 70, **Flight Plan**, **Table 5.2.**, and the flight manual (fuel plan not required on local training missions remaining within 200 NMs).

5.17.2. Alternate fuel. Fuel for flight from intended destination to alternate aerodrome at optimum altitude and normal cruise speed. Compute fuel, time, and altitude from T.O. 1C-21A-1, section 9. When holding is required in lieu of an alternate at a remote or island destination, compute holding for 1 + 15 hours using planned destination gross weight at FL 200. A remote or island destination is defined as any aerodrome, which, due to its unique geographic location, offers no suitable alternate (civil or military). The forecast weather at the remote or island destination must meet the criteria listed in **Chapter 6**.

NOTE:

Plan initial arrival overhead destination with fuel for holding plus approach and landing or 1,000 pounds, whichever is greater. Additional fuel may be added to allow crews some flexibility when dealing with unplanned contingencies (e.g. weather avoidance, ATC delays, etc). When dealing with unplanned contingencies, crews will still plan to touchdown with fuel reserve (minimum). Units may develop standard alternate fuel requirements for local training missions; however, these fuel requirements will not be less than those specified in this chapter.

Table 5.2. C-21 Fuel Planning Chart.

Fuel Load Component	**Requirement** [4]
1. Start, taxi, takeoff	200 pounds.
2. En route [1]	Fuel for planned climb and cruise to overhead destination at cruise altitude or initial approach fix altitude.
3. En route reserve	Fuel for 10 percent of flight time over category 1 route or route segments at normal cruise.
4. Alternate, required by paragraph **6.18.**	Fuel from overhead destination to the alternate at normal speed and altitude.
	or
Alternate, based on VIS only criteria (see paragraph **6.20.**) [2]	Fuel for descent, approach, and missed approach; use 300 pounds + fuel from destination to alternate using climb and normal cruise charts.

Fuel Load Component	Requirement [4]
5. Holding [3]	0+45 fuel using holding charts at 10,000 feet. When holding in lieu of alternate is required (paragraph **6.20.**) or when the alternate is located in Alaska or at latitudes greater than 59 ^{o} N/S, use 1+15 holding fuel computed at 20,000 feet.
6. Approach and landing	200 pounds.
7. Known holding delays	Fuel for planned holding when delays are anticipated.

NOTES:

1. Include all planned off-course maneuvering for departure or en route deviations.
2. When two alternates are required, compute fuel from the destination to the most distant alternate only.
3. Minimum fuel required over destination or alternate is fuel for holding plus approach and landing or 1,000 pounds, whichever is greater.
4. Compliance with this chart ensures fuel reserve requirements in AFI11-202V3.

5.17.3. Minimum fuel is 800 pounds. Crews should plan to terminate all missions with not less than 800 pounds (when required holding is 1+15 crews should "plan" to land with approximately 1,000-1,200 lbs). When operating in FAA airspace, pilots will declare "minimum fuel" to the controlling agency when in their judgment the aircraft may land at the intended destination with less than these amounts.

5.17.4. Emergency fuel is 600 pounds. Crews will declare an emergency whenever it is determined that they will land with emergency fuel or less.

5.17.5. Fuel Computations for Cat 1 Routing. When flying along a Cat 1 routing, crews should ensure they have enough fuel to complete the flight from the equal time point (ETP). Consider worst case recovery with one-engine inoperative, and unpressurized (***NOTE:*** Crews must also ensure they have enough oxygen to continue from the ETP).

5.18. Fuel Jettison Procedures. Fuel jettison is limited to the minimum necessary for safe and effective flight operations. Except in the case of an emergency, prior to jettisoning fuel, crews will notify the appropriate ATC or flight service facility of intentions, altitude, and location. Inform the appropriate ATC or flight service facility when the operation is complete.

5.18.1. Jettison fuel only under the following circumstances:

5.18.1.1. Aircraft emergency. Immediate reduction of gross weight is critical to safe recovery of the aircraft.

5.18.1.2. Urgent operational requirements. Immediate reduction of gross weight is necessary to meet urgent operational mission tasking.

5.18.2. Units will establish jettison areas and procedures to minimize the impact of fuel jettisoning into the atmosphere.

5.18.2.1. Units will initiate AF Form 813, **Request for Environmental Impact Analysis**, and submit to the base environmental coordinator.

5.18.2.2. Designate jettison areas off published airways and avoid urban areas, agricultural regions, and water supply sources.

5.18.2.3. Avoid circling descents.

5.18.3. Use jettison altitudes above 20,000 feet AGL to the maximum extent possible.

5.18.4. Use designated jettison areas to the maximum extent possible, except when safety of flight would be compromised.

5.18.5. If jettison is accomplished, record all pertinent data to include flight conditions, altitude, airspeed, air temperature, wind direction and velocity, type and amount of fuel, aircraft type and position at time of jettison, time and duration of jettison activity, and reason jettison was accomplished. Retain this information for 6 months as documentation in the event of claim against the government resulting from the fuel jettison.

5.19. Airspeed. In accordance with applicable tech orders.

5.20. BASH Programs. BASH programs are centralized unit efforts that provide information cross-feed, hazard identification, and a consolidated course of action. As a minimum, units must implement the following procedures:

5.20.1. Ensure compliance with the following Bird Watch condition restrictions:

5.20.1.1. **Bird Watch Condition Low -- N**o operating restrictions.

5.20.1.2. **Bird Watch Condition Moderate** -- Initial takeoffs and final landings allowed only when departure and arrival routes will avoid bird activity. Local IFR/VFR traffic pattern activity is prohibited.

5.20.1.3. Bird Watch Condition Severe -- All takeoffs and landings are prohibited. Waiver authority is local OG/CC or equivalent. Parent MAJCOM/DO waiver is required to operate at airfields not controlled by the MAF.

5.20.2. Make every effort to not schedule takeoffs, landings, and low-levels from one hour before to one hour after sunrise and sunset during the phase II period. Also, significant bird hazards will be published in FLIP GP and the IFR Supplement along with the associated airfield operating hour restrictions and avoidance instruction.

5.20.2.1. When operating at airfields where no BASH program exists, aircraft commander's have the authority to delay takeoffs and arrivals due to bird condition. Coordinate actions through appropriate command and control authority.

5.20.2.2. All units will have a BASH Reduction Plan in accordance with AFI 91-202, *The US Air Force Mishap Prevention Program*, and appropriate MAJCOM supplement. All tenant units will work with the host base to create a plan.

5.20.3. When operating at airfields where no BASH program exists, aircraft commander's have the authority to delay takeoffs and arrivals due to bird condition. Coordinate actions through appropriate command and control authority.

5.20.4. Howard AFB, Panama has singularly distinctive BASH considerations. Ensure crews comply with AFPAM 91-212/MAJCOM sup.

5.20.5. Enroute. The aricrew should consider bird migratory patterns during enroute portion of the mission to minimize the potential of an in-flight bird strike. The Bird Avoidance Model (BAM) on HQ AFSC/SEF www site (http://www-afsc.saia.af.mil/AFSC/Bash/home.htm) provides BASH information including regionalized CONUS bird migration, PFPS software overlay, and latest news. See AFPAM 91-212, *Bird Aircraft Strike Hazard (BASH) Management Techniques*, for additional information.

5.21. Functional Check Flights (FCF) and Acceptance Check Flights (ACF). FCFs and ACFs will be performed according to T.O. 1-1-300 and MAJCOM 21-XXX series instructions. Additional guidance can be found in T.O.s 00-20-6, and 1C-21A-6CF-1.

5.21.1. Terms and Abbreviations:

5.21.1.1. FCF—FCFs are performed after accomplishing inspections or maintenance to assure the aircraft is airworthy and capable of mission accomplishment.

5.21.1.2. ACF—ACFs specify guidelines for accepting new production aircraft and to determine compliance with contractual requirements.

5.21.2. FCF Restrictions:

5.21.2.1. Conditions requiring an FCF according to T.O. 1C-21A-6CF-1 include (but are not limited to) major retrofit modifications, removal or replacement of moveable flight control surfaces (except repaint), major repairs that would affect the flying characteristics of the aircraft, adjustment, removal or replacement of major components of the flight control system for which airworthiness cannot be verified by maintenance operational checks, or removal or replacement of any two engines.

5.21.2.2. The OG/CC is responsible for the wing FCF program. The OG/CC may waive a complete FCF and authorize an FCF to check only systems disturbed by maintenance, inspection or modification. Additional guidance should be published in the local chapter of these instructions.

5.21.2.3. Check flight will be conducted within the designated check flight airspace of the base from which the flight was launched except when the flight must be conducted under specific conditions, not compatible with local conditions and area restrictions.

5.21.2.4. The decision to approve a combined FCF and ferry flight is the responsibility of the MAJCOM/DO.

5.21.2.5. FCFs will be accomplished by the best qualified instructor or Stan/Eval aircrews which will be designated FCF qualified to their assigned aircrew position by the OG/CC in a letter.

5.21.2.6. FCFs will normally be conducted in daylight, VMC conditions. However, the OG/CC may authorize a flight under a combination of VFR, IFR, and “VFR on Top” conditions. The flight will begin in VFR conditions. If the aircraft and all systems are operating properly, it may proceed IFR to penetrate cloud cover to VFR on top to continue the altitude phase of the flight.

5.21.2.7. FCF aborts—If a malfunction occurs during an FCF and is not related to the condition generating the FCF, and the original condition operationally checks good, the aircraft may be released for flight.

5.21.2.8. OG/CC and deployed mission commander may authorize a temporary waiver to these FCF procedures for aircrew qualification when operationally necessary. Long-term (permanent) waiver see **Chapter 1**.

5.21.2.9. Lear trained and certified crews are required to perform stall series check flights.

5.22. Participation in Aerial Events. See AFI 11-209, *Air Force Participation in Aerial Events*, and the appropriate MAJCOM supplement and the following. Aerial events must be sanctioned and individually approved by the appropriate military authority and dated with the FAA. AFI 11-209 identifies events sanctioned for support and the approving authority for each type of event. In addition, AFI 11-209 stipulates that units participating in aerial events will ensure aerial activities are coordinated with the FAA through the regional Air Force representative.

5.23. Engines Running Offload and Onload (ERO) Procedures. An ERO may be made if it will not cause a deviation in scheduled itinerary of more than 30 minutes and all passengers are available. Controlling agency approval is required for deviations greater than 30 minutes.

5.24. Aircraft Recovery from Unprepared Surfaces. Aircrews will normally not attempt to recover an aircraft after inadvertent entry onto unprepared surfaces not suitable for taxi. Using the appropriate equipment, ground crews will accomplish aircraft recovery. Unless an emergency situation dictates otherwise, aircrews may accomplish recovery only if there is no aircraft damage, the surface will support the aircraft, and the AC has coordinated with appropriate MAJCOM headquarters maintenance authorities.

Chapter 6

AIRCREW PROCEDURES

Section 6A—Pre-mission

6.1. Aircrew Uniform.

6.1.1. Wear the aircrew uniform, as outlined in AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*, on all missions, unless otherwise authorized. When the Foreign Clearance Guide (FCG) requires civilian attire, wear conservatively styled civilian clothing.

6.1.2. Each group commander will determine clothing and equipment to be worn or carried aboard all flights commensurate with mission, climate, and terrain involved.

6.1.2.1. All crewmembers will have Nomex gloves in their possession.

6.1.2.2. Wearing Nomex gloves is required for all primary crewmembers during engine start, takeoff, and landing.

6.1.2.3. Crewmembers will remove rings and scarves prior to performing aircrew duties.

6.1.3. Personnel will have the appropriate items of clothing in their possession when flying in Arctic and Antarctic regions. ***EXCEPTION:*** Not applicable to transoceanic flights or when staging or transiting Elmendorf AFB AK.

6.1.4. See AFI 10-403, *Deployment Planning*, for mobility requirements.

6.2. Personal Requirements.

6.2.1. Passport. Carry a valid passport on all missions outside the 48 conterminous states. ***EXCEPTION:*** Unit commanders may authorize newly assigned personnel who have applied for, but not yet received, a passport to act as crewmembers on missions not scheduled to transit locations where passports are required. ***EXCEPTION:*** Passports not required for local training missions.

6.2.2. Shot Record. Ensure immunization requirements are met. Carry shot record on all missions outside the 48 conterminous states. C-21 crewmembers must maintain worldwide shot requirements. ***EXCEPTION:*** Passports not required for local training missions.

6.2.3. Corrective Lenses. Comply with AFI 11-202V3 requirements.

6.2.4. Driver's License. A valid state driver's license is required on each TDY where use of US government general purpose vehicles may be required. Contact the local airfield manager if vehicle will be operated on the flight line.

6.2.5. Identification Tags. Two required for all flights.

6.2.6. FOD Hazards. Crewmembers will not wear wigs, hair pieces, rings, ornaments, pins, clips, other hair fasteners, or earrings in the aircraft or on the flight line.

EXCEPTION: Crewmembers may wear plain elastic hair fasteners and/or barrettes. These fasteners must not interfere with the wearing of headsets or the donning of oxygen equipment and will be accounted for before and after flight.

6.2.7. Hearing protection, specifically ear plugs, should be worn at all times when personnel are working around hazardous noise producing sources, including flight station and passenger section during many portions of flight.

6.2.8. Flashlights. Each crewmember must carry an operable flashlight for night flights according to AFI 11-202V3.

6.2.9. A reflective belt or suitable substitute will be worn on unlit flight lines during hours of darkness or periods of reduced visibility according to AFOSH Standard 127-100, *Aircraft Flight Line - Ground Operations and Activities*).

6.3. Pre-mission Actions.

6.3.1. Accomplish Theater Indoctrination Training.

6.3.1.1. Accomplish Theater Indoctrination Training before transiting the following areas:

6.3.1.1.1. Asia, Pacific, Australia, and Indian Ocean.

6.3.1.1.2. Africa and the Middle East.

6.3.1.1.3. Europe, Baltic, and Russia.

6.3.1.1.4. Caribbean, Central America, and South America.

NOTE:

USAFE and PACAF crews should receive initial unit provided orientation for their AOR and require theater indoctrination only when deploying to another area.

6.3.1.2. Contents of the theater indoctrination folders should be tailored to the unit's specific mission. As a minimum, the following will be included:

6.3.1.2.1. Mission/Deployment Checklist. A locally developed checklist that includes mobility, training, and personnel requirements that should be accomplished prior to departure, and personal/professional items the aircrew must take with them.

6.3.1.2.2. Airspace/Airfield Review. Flip, fir/uir/adiz procedures.

6.3.1.2.3. Airspace classifications, ASRR, and airport qualification videos (if available).

6.3.1.2.4. Theater Instrument Procedures. Required instruments and/or procedures for Non-DoD Approaches, course reversal approaches, circling, holding, NDB approaches, Host Nation/Jeppesen Approaches, and Altimeter setting procedures.

6.3.1.2.5. Organized Track Systems. Minimum Navigation Performance Specifications (MNPS) Airspace requirements; North Atlantic and Pacific Region Track Systems.

6.3.1.2.6. Communication and Emergency Procedures. Command and Control, Over-water position reporting, lost communications procedures, emergency procedures, and weather information sources.

6.3.1.2.7. Border Clearance. Foreign Clearance Guide, Customs, Immigration, Agriculture, Insect and Pest Control, and Diplomatic Clearances.

6.3.1.2.8. Flight planning. DD Form 1801, **DoD International Flight Plan**, Jeppesen Computer Flight Plan, Jeppesen Approach Plates and Charts, Theater Weather Conditions, Fuel Reserves and Alternate Requirements, Equal Time Points/Critical Wind Factors, RVSM requirements, and International NOTAMs.

6.3.1.2.9. Special Military Operations. Altitude Reservations, Due Regard, and other specified limitations.

6.3.1.2.10. Other Regulatory Requirements. General navigation procedures, Life Support equipment, hazardous cargo, crew rest/crew duty time, aircraft records/AFTO Form 781 procedures, mission essential ground personnel/additional crewmembers, passenger handling, etc.

6.3.1.2.11. Location Information. Command and control/reporting procedures, maintenance problems, aircraft security, social customs and taboos, billeting, transportation, etc.

6.3.1.3. Units may consolidate information common to all geographic areas into one folder titled "general deployment information." The remainder of the folders would contain only theater specific information.

6.3.1.4. Aircrews will review theater indoctrination folders prior to mission/deployment. This review will be tracked in AFORMS as event G290.

6.3.1.5. Upon return, the aircraft commander will compile a trip report, when necessary, detailing lessons learned. The trip report will be placed in the theater indoctrination folder, closing the loop on ensuring validity of the folder. Provide feedback to HQ AMC/DOVS when required.

6.3.2. Review tasking, itinerary, and ALTRV requirements. For C-21 ferry flight operations, special arrangements with ARTCC may be necessary to cross the North Atlantic due to RVSM requirements.

6.3.3. Review applicable OPORD and FLIP.

6.3.4. Review the Foreign Clearance Guide for areas of operation. Obtain necessary diplomatic clearances where required.

6.3.5. Obtain required customs forms.

6.3.6. Complete TDY order request forms (if required).

6.3.7. Obtain computerized flight plans (CFP), as appropriate.

6.3.8. Coordinate with combat crew communications for worldwide FLIPs and sufficient communications security (COMSEC) materials for the duration of the mission.

6.3.9. Review anti-hijacking procedures (AFI 13-207, *Preventing and Resisting Piracy [Hijacking]*, and **Chapter 7** of this AFI).

6.3.10. Ensure physiological training, annual physical, immunizations, and standardization checks will remain current throughout the TDY period.

6.3.11. Obtain visas, if required.

6.3.12. Obtain terrain charts for unfamiliar destinations, if available.

6.3.13. Compile sufficient spare forms, flight orders, etc. to cover the TDY period.

6.3.14. Release available seats to passenger terminal.

6.4. Aircrew Publications Requirements. Primary crew members will carry the publications specified in **Table 6.1.** on all missions.

Table 6.1. Publication Requirements.

Publication	AC	CP
TO 1C-21A-1, Flight Manual	X	
TO 1C-21A-1CL-1, Pilots' Abbreviated Flight Crew Checklist	X	X
AFI 11-202V3, *General Flight Rules*	X	
AFI 11-2C-21V3, *C-21 Operations Procedures*	X	

Section 6B—Pre-departure

6.5. Airfield Certification. All crewmembers and staff mission planners will review airport qualification audiovisual slide tape programs as available before operating missions into unfamiliar airfields. In addition, aircrews will review the Airfield Suitability and Restrictions Report (ASRR) and should contact HQ AMC/DOA for updates to airfield operability. Waivers should be requested IAW paragraph **5.15.4.** The latest information is available through the world wide web or GDSS/C2IPS.

6.6. Aircrew Intelligence Briefing. Prior to leaving home station on missions departing the CONUS, crews will receive an intelligence briefing that will emphasize terrorist, enemy, and friendly political and military development in the area in which they will be flying. Once in theater, aircrews should receive intelligence updates on initial arrival at a forward operating location (FOL) 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. (***NOTE:*** Overseas units will receive aircrew intelligence briefs when they will depart the local theater of operations.)

6.7. Flight Crew Information File (FCIF) Procedures.

6.7.1. Review FCIF, volume 1, (index and safety-of-flight files, as a minimum) before all missions or ground aircrew duties. Update the FCIF currency record with the latest FCIF item number, date, and crewmember's initials or as specified.

6.7.2. Crewmembers delinquent in FCIF review or joining a mission en route will receive an FCIF update from a primary aircrew member counterpart on the mission. Instructor pilots who fly with general officers are responsible for briefing appropriate FCIF items.

6.7.3. Crewmembers not assigned or attached to the unit operating a mission will certify FCIF review by entering the last FCIF number and their initials behind their name on the file copy of the flight authorization or file copy of their crew orders.

6.8. Flight Crew Bulletins (FCB). .

6.8.1. FCBs are issued under provisions of AFI 11-202, *Aircrew Standardization/Evaluation Program* and MAJCOM supplements. Operations group Stan/Eval will be the OPR for FCBs. Items in FCBs may include local procedures and policies concerning equipment and personnel generally not found in any other publications.

6.8.2. All crewmembers should be cognizant of FCB contents.

6.9. Airfield Security. When departing on missions destined outside the CONUS, aircraft commanders should review applicable MAJCOM security publications.

6.10. Mission Kits. Carry mission kits on all operational missions. Suggested items include:

Indicates OCONUS missions only.

6.10.1. Publications:

6.10.1.1. AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station.*

6.10.1.2. AFJI 11-204, *Operating Procedures for Aircraft Carrying Hazardous Materials.*

6.10.1.3. Airfield Suitability and Restrictions Report (ASRR) (Mandatory all missions).

6.10.1.4. *AMC Aircrew Border Clearance Guide.

6.10.1.5. FCB.

6.10.2. Forms:

6.10.2.1. DD Form 1351-2, **Travel Voucher or Sub-voucher.**

6.10.2.2. DD Form 1351-2c, **Travel Voucher or Sub-voucher (Continuation Sheet).**

6.10.2.3. *DD Form 1854, **US Customs Accompanied Baggage Declaration.**

6.10.2.4. DD Form 2131, **Passenger Manifest.**

6.10.2.5. CF 7507, **General Declaration Outward/Inward.**

6.10.2.6. All applicable customs forms for countries transited (for example, Japan, Korea, Singapore, etc.).

6.10.2.7. AF Form 15, **United States Air Force Invoice.**

6.10.2.8. AF Form 315, **United States Air Force AvFuels Invoice.**

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

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

6.10.2.11. AF Form 1297, **Temporary Issue Receipt.**

6.10.2.12. AMC Form 43, **AMC Transient Aircrew Comments.**

6.10.2.13. AMC Form 54, **Aircraft Commander's Report on Services/Facilities.**

6.10.2.14. AF Form 711, **USAF Aircraft Report.**

6.10.2.15. AF Form 4031, **Cockpit/CRM Skills Training/Evaluation.**

6.10.2.16. AF Form 4040, **C-21A TOLD Card** or AF Form 4072, **Pilot TOLD Card.**

6.10.3. Orders:

6.10.3.1. AMC Form 41, **Flight Authorization.**

6.10.3.2. DD Form 1610, **Request and Authorization for TDY Travel of DoD Personnel.**

6.10.3.3. *AF Form 1631, **NATO Travel Orders** (when required).

6.10.4. Authentication and Classified Documents. Obtain and safeguard authentication and operational code documents. These documents are required for flights into an Air Defense identification zone (ADIZ), when specified by operations plans or theater directives, or when directed by the unit commander.

6.11. Route Navigation Kits.

6.11.1. A route navigation kit is issued at home station and remains with the aircraft until return. Kits contain sufficient quantities of material to cover the planned mission and global operations as required.

6.11.2. **Table 6.2.** list minimum contents of route navigation kits.

Table 6.2. Route Navigation Kit Minimum Requirement.

Item (applicable to area of operation):	Number
FLIP IFR Supplement	1
FLIP Flight Information Handbook	1
FLIP En route (high and low)	1
FLIP Instrument Approach Procedures (High and Low as appropriate for planned theater of operation)	2
Standard Instrument Departures (for planned theater of operation)	1
Standard Terminal Arrival Routes (STAR)	1
Topographical and Sectional Charts for areas of operation (GNC/OPC/TPC/JNC)	as required
FLIP VFR Supplement	1
DoD Area Arrival Charts	(1) if available

6.11.3. Local area navigation kits may be used in lieu of route navigation kits on local unit training sorties. Contents of these kits is a local unit decision.

6.12. Briefing Requirements.

6.12.1. Aircraft Commander Briefing. Brief crewmembers on the specific mission details if not previously accomplished.

6.12.1.1. Time hack.

6.12.1.2. Review weather.

6.12.1.3. Mission itinerary and profile.

6.12.1.4. Aircraft tail number and call sign.

6.12.1.5. Aircraft gross weight and fuel load.

6.12.1.6. Communications requirements and procedures.

6.12.1.7. Fuel reserve.

6.12.1.8. Airdrome restrictions and hazards.

6.12.1.9. Emergency procedures review.

6.12.2. Weather Briefings. Request a written weather briefing on DD Form 175-1, **Flight Weather Briefing**, or AMC Form 181, **Mission Weather Briefing**, (***EXCEPTION:*** Verbal weather briefings are acceptable for local training missions). Obtain a briefing on current weather, trends, and forecast for the proposed route, destination, and alternates. All primary crewmembers will attend the weather briefing unless crew duties dictate otherwise. If the flight will transit non-Air Force bases, crews must make arrangements to ensure adequate weather support facilities and services are available. If adequate services are not available crews will obtain weather support through any means available to ensure required weather data is in their possession prior to mission accomplishment. When face-to-face briefings are not possible, obtain a telephone weather briefing (precedence up to and including IMMEDIATE is authorized). The designated MAJCOM regional briefing stations provide the telephone briefing for CONUS flights.

6.12.2.1. Obtain weather information from US Military weather services, any FAA-approved weather source, or any host nation civil or military weather source.

6.12.3. Buffer Zone. Prior to operating an aircraft within or adjacent to an established buffer zone, the pilot will ensure primary crewmembers are briefed on current buffer zone procedures outlined in appropriate directives.

6.12.4. Peacetime and Wartime SAFE PASSAGE Procedures. Pilots must be familiar with peacetime and wartime safe passage of friendly military aircraft (if applicable).

6.13. Call Signs.

6.13.1. Training Missions. Aircraft will use the unit static call sign prefix followed by a 2-digit suffix assigned by the parent unit.

6.13.2. Operational Missions. CONUS OSA missions under JOSAC control will use “JOSA” followed by the last three digits of their mission number. For contingencies and overseas missions, aircraft will use call signs assigned by OPORD, FRAG, or diplomatic clearance. If no call sign has been assigned to the mission, use unit static call signs.

6.13.3. The Reach 01, 15, and 21 call signs will only be used by the AMC/CC, 15 AF/CC, and the 21 AF/CC, respectively.

6.13.4. Aeromedical Evacuation Missions. For aeromedical evacuation missions, use call sign “E” followed by the 5-digit aircraft tail number or mission designator (as required by FLIP). Use this call sign during positioning leg and evac portion of the mission. When the aeromedical evacuation portion of the mission is completed, normal call signs will then be used.

6.14. Instrument Flight Rules. Conduct flight operations under IFR to the maximum extent possible without unacceptable mission degradation. This does not preclude VFR training to maintain proficiency in mission essential VFR operations.

6.15. Flight Data Verification.

6.15.1. Aircrews should acquaint themselves with the mission and individual sortie requirements to ensure successful mission accomplishment.

6.15.2. Computer Flight Plan (CFP) Use. Contracted CFPs, CFPs available from Air Force Global Weather Central (AFGWC/DOF), or approved DoD CFPs are the official sources of performance, navigation, and climatic data, including en route wind information. If stand-alone microcomputer based plans are used, each mission segment should utilize best wind data available. Only current, command validated microcomputer programs will be used for flights involving C-21 aircraft.

6.15.3. Flight crews may manually compute flight plans, use PC based or contracted CFPs, or utilize CFPs provided by the staff. CFPs should be utilized to the maximum extent practical. The flight crew has final responsibility for accuracy of the flight plan used.

6.15.4. CFPs will be verified by the flight crew for route definition and fuel computation accuracy prior to departure.

6.15.5. Compute TOLD using TO 1C-21A-1 and/or TO 1C-21A-1CL-1. All TOLD computations should be verified by another crewmember.

6.16. Departure Planning: IAW AFI 11-202V3, AFMAN 11-217, this instruction, and MAJCOM supplements.

6.16.1. Gross Weight (GW). Ensure that the aircraft does not exceed the maximum gross weight, zero fuel weight, or center of gravity limitations specified in the aircraft flight manual. Gross weight may be further restricted by operating conditions such as icing, temperature, pressure altitude, runway length and slope, departure maneuvering, required climb gradients, and obstacles.

6.16.2. Departure Routing/Climbout Performance. Appropriate terrain charts must be reviewed prior to departure. Regardless of the type of departure flown (SID, Specific ATC Departure Instructions, IFR Departure Procedure, or VFR), the aircraft must be able to achieve the published climb gradient (for the runway to be used) with all engines operating, and be able to vertically clear all obstacles within the climbout flight path with one engine inoperative. ***(EXCEPTION:***. See paragraphs 6.17.5.5 through **6.17.6.1.**). If no minimum climb gradient is published, use 200 ft/NM minimum with all engines operating and 152 ft/NM minimum with one engine inoperative. If a higher required climb gradient is published, use that climb gradient as the minimum with all engines operating, and use that climb gradient minus 48 ft/NM as the minimum with one engine inoperative. This only works at fields having an instrument approach. If the field does not have an instrument approach, then no obstacle survey has been conducted. Therefore, you don't know if 200/152 ft/NM is sufficient. At airfields with no instrument approach, an IFR departure is not authorized. In all cases, the minimum engine out climb gradient for the C-21 is 2.5%.

6.16.2.1. SIDs. OPRs for SIDs are identified on each individual SID. They are either Federal Aviation Administration (FAA), United States Army (USA), United States Navy (USN), United States Marine Corps (USMC), or United States Air Force (USAF).

6.16.2.2. Published IFR Departure Procedures. Published IFR Departure Procedures are available at some civil and military fields to assist in avoiding obstacles during climb to the minimum en route altitude (MEA). Airfields with Published IFR Departure Procedures will have the inverted triangle with a white "T" symbol printed on the approach plates and SIDS. When using Jeppesen publications, IFR Departure Procedures will be on the airfield diagram page which is typically on the reverse side of the airport's first approach. A climb gradient and/or specific routing and/or alternate takeoff weather minimums will normally be specified with a Published IFR Departure Procedure. When flying a Published IFR Departure Procedure, depicted routing and

climb gradients must be flown to avoid obstacles. The alternate takeoff weather minimums allow aircraft to depart with minimum ceiling and visibility. The C-21 is not authorized to use these alternate takeoff weather minimums.

NOTE:

If the Published IFR Departure Procedure does not include either a routing or a minimum climb gradient (i.e., it includes only alternate takeoff weather minimums) then an IFR departure from that airfield IS NOT AUTHORIZED unless you fly a SID or depart via radar vectors.

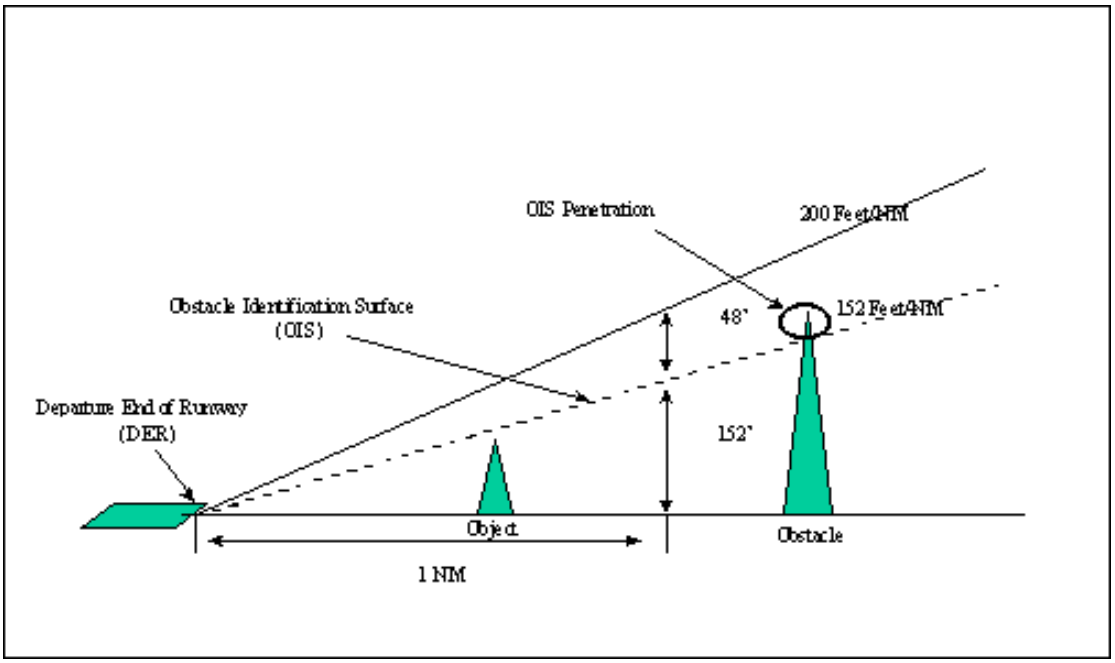
6.16.2.3. Specific ATC Departure Instructions (Specific climbout instructions or "radar vectors"). Crews may depart via specific ATC departure instructions, however, the SID prescribes a safe route of flight for a climb to the en route structure, while minimizing radio communication.. Even if you plan to depart via specific ATC departure instructions, the crew should still have the SID on board (if published).

6.16.2.4. VFR Departures. VFR departures are authorized when required for mission accomplishment. The weather at takeoff must permit a VFR climb to an IFR MEA, an appropriate IFR cruising altitude, or an altitude where radar vectors can be provided. ***NOTE:*** In no case will VFR departures be flown in lieu of obstacle clearance planning.

6.17. Obstacle Clearance Planning: IAW AFI 11-202V3, AFMAN 11-217, *Instrument Procedures*, this instruction and the appropriate MAJCOM supplements.

6.17.1. Begin collecting obstacle information during mission planning, prior to departing home station. Obstacle identification for SID purposes (FAA Handbook 8260.3B, AFM 55-9, UV *Standard for Terminal Instrument Procedures (TERPS)),* are those objects that penetrate an OIS of 40:1 (152 feet per NM). Calculation of the OIS on a SID continues until the SID reaches a MEA or until the SID terminates. Climb gradients of 200 feet per NM will provide at least 48 feet per NM clearance above all obstacles that do not penetrate the OIS. Complying with published climb gradients found on a SID or IFR departure procedure will provide at least 48 feet per NM clearance above all obstacles that do penetrate the OIS. The aircraft commander must be aware and thoroughly brief the crew on all obstacles along the departure flight path.

Figure 6.1. Obstacle Identification Surface.



6.17.1.1. The Airfield Suitability and Restrictions Report (ASRR) is an excellent source for obstacle information, however, it is not a stand alone document. It is intended to supplement published climb gradients and obstacle information found on SIDs, Published IFR Departure Procedures, and terrain charts.

6.17.1.2. Aircrews may call HQ AMC/DOVS for additional airfield obstacle data. DSN 576-3112.

6.17.2. Objects penetrating the OIS may or may not be depicted (they definitely will not be depicted on civil procedures). Objects which do not penetrate the OIS will normally not be depicted.

6.17.3. SIDs simplify ATC procedures while providing safe routing to the en route structure; however, SIDs should not be used as the sole source of obstacle information for departure planning. If used as such, inadequate (engine out) obstacle clearance may result. SIDs, instrument approach plates, and topical sectional charts, must be used to determine the distance and height values for all significant obstacles along the flight path.

6.17.4. The controlling obstacle is defined as the obstacle requiring the greatest climb gradient within the flight path. Obstacles are not normally depicted on SIDs when climb gradients of less than 152 feet per NM are required to clear them.

6.17.5. In order to fly any IFR departure, aircrews must ensure they can meet the published/required climb gradient for the planned departure with all engines operating. In addition, aircrews will accomplish the following to ensure they can vertically clear all obstacles on or reasonably near the climbout/emergency return flight path with one engine inoperative:

6.17.5.1. Use the most restrictive of the following to determine whether engine out climb performance is sufficient to provide obstacle clearance:

6.17.5.1.1. Using applicable obstacle height and distance information from available terrain charts (JOG, TPC, sectional, etc.), the ASRR, base operations, etc. ensure engine out climb performance is sufficient to vertically clear obstacles which are on or reasonably close to the planned departure and emergency return flight path.

6.17.5.1.2. If a climb rate is published for the planned departure, obtain an "engine out" climb rate by subtracting 48 feet from the published climb rate (if the climb rate is published in feet per minute, use the "60 kts" column, this is the same as feet per nautical mile). Compare this figure with actual airplane climb capability using the appropriate engine-out climbout chart. If actual capability is less than required "engine out" climb rate, comply with paragraph **6.17.5.2.**

6.17.5.2. In the event that the "engine out" climb rate is not sufficient to clear all obstacles, the crew will consider the following:

6.17.5.2.1. Downloading cargo.

6.17.5.2.2. Downloading fuel.

6.17.5.2.3. Delaying the mission until climatological conditions allow for sufficient performance to clear all obstacles.

6.17.5.2.4. Coordinating alternate departure procedures with the controlling agency that will provide obstacle clearance.

6.17.6. If none of the options in paragraph **6.17.5.2.** are feasible, the crew may depart on an IFR departure only if all the following conditions are met:

6.17.6.1. The aircraft is capable of achieving the minimum published/required climb gradient (200 FT/NM if none published/required) with all engines operating.

6.17.6.2. Day/VFR conditions exist on the entire departure and planned emergency return routing.

6.17.6.3. The aircraft commander has determined through a review of all applicable maps and charts that, in the event of an engine failure, the planned departure and emergency return routing will allow for obstacle avoidance.

6.17.6.4. The planned emergency route is briefed to the entire crew.

NOTE:

Two engine climb performance will always be more that double the engine out climb performance. This is due to 2 times the thrust and the reduced drag for two engines operating versus one engine operating and one engine windmilling. If the airplane is capable of an engine out climb gradient of 2.4%, the two engine climb gradient will always be greater than 4.8%. Therefore, the 2 engine climb will always be at least 48 feet higher per nautical mile than a single engine climb (This information provided by Learjet Engineering).

6.17.7. In the event of an engine failure, aircrews will advise ATC if they are unable to comply with the published minimum climb. Obtain radar vector or avoid all obstacles visually.

6.17.8. The following procedures apply for all departures:

6.17.8.1. The pilot will review the obstacle height, distance, and gradient information necessary for performance computations. As a minimum, review the appropriate terrain chart or sectional

chart in addition to the SID (if available). The following guidelines should help eliminate obstacles that are not a factor.

6.17.8.2. All obstacles on the SID will be considered. If no distance is published, use appropriate aeronautical chart (if available) to estimate flying distance to depicted obstacles.

6.17.8.3. When utilizing other sources for obstacle information, consider all obstacles which fall within the departure, or emergency return routing.

6.17.8.4. Escape routing must always be planned to ensure obstacle clearance and emergency recovery during engine failure.

6.18. Alternate Planning.

6.18.1. Choose alternates that best meet mission requirements and conserve fuel. Those selected should not be within the same terminal area, if terminal forecasts are marginal. Select alternates that are not restricted by FLIP, Foreign Clearance Guide, or diplomatic clearances and are compatible with the mission load and performance characteristics of the aircraft.

6.18.2. The aircraft commander retains final authority in the choice of alternates; however, selection by support agencies normally should be used if they meet the above criteria and the aircraft has already been serviced.

6.18.3. Alternates selected must meet the alternate airport weather requirements according to AFI 11-202V3.

6.19. Departure Alternates.

6.19.1. A departure alternate is required if ceiling or visibility is below landing minimums for an available approach (at departure aerodrome).

6.19.2. Suitability of Departure Alternates. When departure alternate is required, the aircraft must be capable of maintaining the MEA or MOCA, whichever is higher, to the alternate using one engine out performance criteria. To qualify as a departure alternate the airfield must meet one of the following conditions:

6.19.2.1. Existing weather at an alternate within 30 minutes flying time must be equal to or better than the published approach minimums and forecast to remain so until 1 hour after takeoff, but in no case forecast to be lower than 200-1/2 (RVR 2400), or;

6.19.2.2. The existing weather at an alternate within 1 hours flying time must be at least 500-1 above the lowest compatible published approach minimums, but in no case lower than 600-2 for a precision approach or 800-2 for a non-precision approach, and forecast to remain so for 1 hour after ETA at the alternate.

6.20. Destination Requirements. *(For filing purposes).* The forecast destination weather will be according to AFI 11-202V3 and the following:

6.20.1. File two alternates when:

6.20.1.1. The forecast weather is less than required minimums for the lowest compatible approach.

6.20.1.2. The forecast surface winds (intermittent or prevailing) exceed limits corrected for RCR.

6.20.2. File an alternate, regardless of forecast weather, when the departure or destination aerodrome is outside the 48 conterminous states.

6.20.3. When filing to a remote or island destination, aircrews may use 1 + 15 holding fuel (in lieu of an alternate). Compute holding fuel using planned destination gross weight at FL 200. A remote or island destination is defined as any aerodrome which, due to its unique geographic location, offers no suitable alternate (civil or military). The forecast weather at the remote or island destination must meet the following criteria:

6.20.3.1. The prevailing surface winds, corrected for RCR, must be within limits at ETA and forecast to remain so for 2 hours thereafter, and

6.20.3.2. The prevailing ceiling and visibility must be equal to or greater than published minimums for an available non-precision approach, for ETA plus 2 hours.

NOTE:

If a precision approach is available, the ceiling or visibility may be intermittently below non-precision approach minimums, but not below precision approach minimums (for ETA plus 2 hours).

6.20.4. When filing to a destination where the alternate is located in Alaska or at latitudes greater than 59 degrees, carry an additional 30 minutes of holding fuel. In this case, the minimum planned fuel overhead planned destination would include fuel for approach/landing, alternate/missed approach, fuel reserve, and 1 + 15 holding fuel. Compute holding fuel using planned destination gross weight at FL200.

6.21. Adverse Weather.

6.21.1. Do not takeoff under conditions of freezing rain or severe icing.

6.21.2. During flight, use any means available to avoid thunderstorms by at least 20 NMs at or above flight level (FL) 230, or 10 NMs below FL 230.

6.21.2.1. Aircrews should avoid flying in areas of recently dissipated thunderstorms and advected clouds downwind of thunderstorms. Crew actions should err on side of safety.

6.21.2.2. The use of ground-based radar as a means of thunderstorm avoidance should be used only to assist in departing an inadvertently penetrated area of significant weather. It should never be considered a normal avoidance procedure.

6.21.3. Do not fly directly above (within 2,000 feet) thunderstorms or cumulonimbus clouds. If unable to vertically clear thunderstorms or cumulonimbus clouds by at least 2000 feet, you must avoid them by using the above criteria.

NOTE:

Aircraft damage may occur 20 miles or more from any thunderstorms. Aircrews must familiarize themselves with information on thunderstorm development and hazards. Refer to AFH 11-203, *Weather for Aircrews.*

6.21.4. In order to minimize exposure to thunderstorm hazards when approaching or departing an airport in an area where thunderstorms are occurring or are forecast:

6.21.4.1. Attempt to maintain VMC.

6.21.4.2. Maintain at least 5 NMs separation from heavy rain showers.

6.21.4.3. Avoid areas of high lightning potential, i.e. clouds within plus or minus 5,000 feet of the freezing level.

NOTE:

Approaches or departures may be accomplished when thunderstorms are within 10 NMs. The thunderstorms must not be producing any hazardous conditions (such as hail, lightning, strong winds, gusts fronts, heavy rain, wind shear, or microburst) at the airport, and must not be forecast or observed to be moving in the direction of the route of flight (to include the planned missed approach corridor, if applicable).

6.21.5. Aircrews performing approaches and landings at locations where temperatures are 0 degrees Celsius or below will refer to the Flight Information Handbook, section D, Temperature Correction Chart, to correct minimum descent altitude (MDA), decision height (DH), and other altitudes inside the final approach fix (FAF) if required.

6.21.6. Do not fly into an area of known or forecast moderate or greater mountain wave turbulence. Crews should use good judgment when flying into any area conducive to mountain wave turbulence, and avoid these areas of potential turbulence when possible.

6.21.6.1. Mountain wave turbulence is normally a predictable condition. Forecasters at base weather stations, using guidance products from weather centers, can advise crews of the potential for encountering mountain wave turbulence along planned routes of flight.

6.21.6.2. Weather data availability in mountainous regions and forecast model limitations prevent the prediction of all events.

6.21.6.3. Crews must be familiar with the causes of mountain wave turbulence and the characteristic clouds that generally forewarn its presence.

6.21.7. Flight into areas of forecast or reported freezing rain, severe icing, or severe turbulence is prohibited.

6.21.8. SIGMETS. National Weather Service in-flight weather advisories are not limiting to Air Force aircraft, but may indicate a need for the aircrew to contact a military weather facility. Crews will consider all SIGMETs valid for their aircraft until verified as not applicable with a military METRO service.

6.21.9. Volcanic Dust Precautions. See Aeronautical Information Manual. Plan all missions to avoid general vicinity of volcanic activity. Aircraft operation in area of forecast or known volcanic activity or dust is prohibited.

6.22. Fuel Conservation.

6.22.1. Conservation of fuel requires everyone's active participation. For every pound of excess fuel, 3 percent of the excess will be burned each hour.

6.22.2. Extra fuel (identified extra) may be added to required ramp fuel load (RRFL):

6.22.2.1. When fuel availability is limited or not available at en route stops.

6.22.2.2. For known holding delays in excess of standard.

6.22.2.3. For anticipated off-course weather avoidance.

6.22.3. Planning guidelines for fuel conservation:

6.22.3.1. Use optimized CFPs when possible.

6.22.3.2. Fly en route descents when possible.

6.22.4. Fuel loads:

6.22.4.1. Units may develop standard ramp loads that meet the minimum local training mission requirements or emergency evacuation requirements (whichever is less).

6.22.4.2. De-fuel will not be required if RRFL is less than the standard ramp fuel load.

Section 6C—Preflight

6.23. AFTO Form 781, AFORM Aircrew/Mission Flight Data Document. Review AFTO Form 781 before applying power to the aircraft or operating aircraft systems. The exceptional release must be signed before flight. A maintenance officer, maintenance superintendent, or authorized civilian normally signs the exceptional release. If one of these individuals is not available, the aircraft commander may sign the exceptional release. Ensure that the DD Form 1896, ***Jet Fuel Identa-plate*** and AIR card is aboard the aircraft.

6.24. Aircraft Servicing and Ground Operations.

6.24.1. Aircraft Refueling. Aircrew members qualified in ground refueling may perform refueling duties. Crewmembers acting as refueling supervisors and panel operators will comply with T.O. 00-25-172 and applicable T.O. 1C-21A-1 series T.O.s. Aircrews will only refuel in cases when maintenance support is not readily available and the mission would be delayed. Crewmembers may augment maintenance refueling teams at en route stops.

6.24.2. Concurrent Ground Operations. Not authorized for C-21s.

6.24.3. The following guidance will be used for fuel servicing (refuel) operations only:

6.24.3.1. Passengers are not allowed on board unless expressly directed by AMC headquarters or in combat.

6.24.3.2. Electric and electronic equipment should normally be turned off during refueling operations. To fill fuselage tank, comply with T.O. 1C-21A-1 procedures.

6.25. Aircraft Recovery Away from Main Operating Base (MOB). When an aircraft will land at a base other than the MOB, the aircraft commander is responsible for ensuring the aircraft is turned to meet subsequent mission tasking.

6.25.1. Recovery items the aircrew may be responsible for include, but are not limited to, the following:

6.25.1.1. Parking.

6.25.1.2. Aircraft servicing, including AGE usage.

6.25.1.3. Minor configuration changes to meet mission tasking.

6.25.1.4. Securing the aircraft prior to entering crew rest.

6.25.1.5. Coordinating aircraft security requirements.

6.25.1.6. AFTO 781-series forms maintenance.

6.25.2. In all cases where aircrews turn aircraft without qualified maintenance specialist assistance, comply with the appropriate maintenance tech order.

6.25.3. Aircrews are not qualified to accomplish the required ground inspections. In those instances where maintenance personnel are not available, the aircrew will enter a red dash symbol in the AFTO Form 781, updating current status and enter a red dash symbol and a discrepancy that reflects that the applicable maintenance inspection (i.e. preflight, thru-flight, basic post-flight) is overdue.

6.26. Oxygen Requirements. The minimum quantity of oxygen aboard an aircraft before takeoff must be sufficient to accomplish the planned flight from the equal time point (ETP) to recovery should oxygen be required. Calculate using the 100 percent oxygen chart in the flight manual.

6.27. Fleet Service Equipment. Ensure required fleet service items are aboard.

6.28. Passenger Handling and Cargo Documentation.

6.28.1. Passenger Handling. ACs are responsible for required passenger handling duties.

6.28.1.1. Passengers are limited to 30 pounds of baggage unless specific allowance for excess baggage is authorized and planned by the controlling agency. Passengers (duty and standby) with excess baggage may be transported after the AC determines that aircraft weight limitations and mission requirements are satisfied.

6.28.1.2. Ensure passengers are manifested and the required anti-hijacking inspections are performed. When passenger service is not available, leave a passenger manifest with a responsible ground agency prior to takeoff.

6.28.1.3. After security and anti-hijacking inspection, passengers should be under the constant supervision of a passenger service representative or a crewmember. Ensure the security and anti-hijacking inspection is re-accomplished prior to boarding passengers when unable to provide constant supervision.

6.28.1.4. Make every effort to enhance passenger comfort.

6.28.1.5. Accomplish passenger briefings according to aircraft checklist or approved briefing guides, and printed passenger information guides IAW AFI 11-202V3. Use of seat belts, shoulder harnesses, and emergency equipment will be briefed or demonstrated as required. Additionally, passengers should be notified prior to takeoffs and landings to ensure seat belts and harnesses are fastened, loose articles stowed, seat backs upright, etc.

6.28.1.6. Ensure the highest ranking DV is afforded the seat of preference, and other passengers are aware of DV status of passengers.

6.28.1.7. Release space available seats to the maximum extent possible, unless restricted by the controlling agency.

6.28.1.8. When children under the age of two, below the weight of 40 pounds and under the height of 40 inches are accepted as passengers, the parent or guardian must provide their own FAA approved car/infant seat (ICS). This requirement does not preclude a passenger from temporarily holding an infant ***during the cruise portion of a flight when safety considerations are not violated.*** The approved car/infant seat must bear one or more labels as follows: (a) seats manufactured to u.s. standards between January 1, 1981, and February 25,1985, must bear the label: "This child restraint system conforms to all applicable federal motor vehicle safety Standards."; (b) seats manufactured to u.s. standards on or after February 26,1985,must bear two labels: (1)"This child restraint System conforms to all applicable federal motor vehicle safety Standards"; and (2) "This restraint is certified for use in motor vehicles and aircraft" in red lettering car/infant seats that do not qualify under paragraph 2 above must bear either a label showing approval of a foreign government or a Label showing that the seat was manufactured under the standards of The United Nations; booster-type child restraint systems (as defined in federal motor vehicle standard no. 213 (49 cfr 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft.

6.28.1.9. Passenger Restrictions. On missions directed by the Special Air Missions Office, USAF/CVAM, consult the controlling agency prior to releasing seats on nonrevenue, revenue, or White House missions. This includes positioning and depositioning legs.

6.28.1.10. Manifesting. Aircraft commanders are responsible to ensure that all passengers are properly manifested.

6.28.1.10.1. At locations with an AMC Passenger Processing Activity, passengers are manifested by air terminal or base operations personnel.

6.28.1.10.2. At locations without an AMC Passenger Processing Activity, aircrew personnel will manifest all passengers (use DD Form 2131, **Passenger Manifest**) and leave a copy of the manifest with the flight plan. If not filed with the flight plan, annotate the location of the manifest on the flight plan according to AFI 11-202V3.

6.28.1.10.3. When manifesting is accomplished by the aircrew, anti-hijack-process IAW AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking).*

6.28.2. Cargo Documentation. When cargo is placed aboard OSA aircraft, proper cargo documentation must accompany each cargo load. A cargo manifest is required prior to all departures with cargo aboard. If a computerized cargo manifest is not available at the manifesting station, a cargo listing will accompany the load. The cargo/mail listing may be an abbreviated manifest, but will contain all required MILSTAMP data. A Shipper's Declaration for Dangerous Goods is required for hazardous cargo, and DD Form 1387-2, **Special Handling Data Certification,** is required for sensitive/classified cargo.

6.29. Procedures for Airlifting Hazardous Cargo. The following procedures implement AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*.

6.29.1. The term "hazardous materials" as used in conjunction with airlift operations applies to the following classes and types of materials covered by AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*:

6.29.1.1. Class 1 (Explosives.)

6.29.1.2. Class 2 (Compressed Gas.)

6.29.1.3. Class 3 (Flammable Liquid.)

6.29.1.4. Class 4 (Flammable Solid.)

6.29.1.5. Class 5 (Oxidizer and Organic Peroxide.)

6.29.1.6. Class 6 (Poison and Infectious Substances.)

6.29.1.7. Class 7 (Radioactive Material.)

6.29.1.8. Class 8 (Corrosive Material.)

6.29.1.9. Class 9 (Miscellaneous Dangerous Goods.)

6.29.2. C-21 aircraft are authorized to transport the following hazardous materials prepared and packaged IAW AFJMAN 24-204:

6.29.2.1. All Class/Divisions of explosives.

6.29.2.2. Class/Division 2.2 nonflammable aerosols and compressed gases limited quantities.

6.29.2.3. Class/Division 2.2 nonflammable high pressure spheres and canisters authorized in support of the United States Air Force and DoD atmosphere research program.

6.29.2.4. Class 9 material (except magnetic material which may affect flight instruments).

6.29.2.5. Medical support equipment and supplies.

6.29.2.6. Class 8 aircraft batteries required for maintenance support or mobility requirements.

6.29.2.7. Hazardous materials accompanying Hammer Ace personnel.

6.29.2.8. Hazardous materials in “Excepted Quantities.”

6.29.2.9. Consumer commodities.

6.29.3. Other classes/divisions of hazardous materials are prohibited except by a waiver approved by the operations group commander or equivalent. Items must be prepared and packaged IAW AFJMAN 24-204. Waiver approval must take in consideration the lack of onboard HAZMAT spill/clean-up kit and aircraft jettisoning capability.

6.29.3.1. Waiver are not authorized for:

6.29.3.1.1. Class/division 2.1 cryogenics.

6.29.3.1.2. Class/division 6.1 poisons with an inhalation hazard.

6.29.3.1.3. Class/division 2.3 toxic gases.

6.29.3.1.4. Class 7 radioactive material (yellow III).

6.29.3.2. Request for passenger deviations are granted by the aerial port/AMSS for items coded “P4” IAW AFJMAN 24-204. Passenger deviations for items coded “P3” must be granted by MAJCOM Aerial Port Control Center.

6.29.4. The aircraft commander will be briefed by C2 Center, air terminal operations center (ATOC), or aerial port control center (APCC) on the following information concerning hazardous materials being carried:

6.29.4.1. Hazard class.

6.29.4.2. Proper shipping name.

6.29.4.3. DoD class or division when any type explosives are involved.

6.29.4.4. Net explosives weight (NEW) for all DoD class or division 1.1, 1.2, and 1.3 explosives.

6.29.4.5. Gross weight of hazardous materials other than the explosives above.

6.29.4.6. Passenger restrictions (Written authority must be furnished to cover movement of passengers with passenger prohibited cargo identified in AFJMAN 24-204).

6.29.4.7. Written notification indicating "prior permission required" (PPR), obtained from the next base to be transited.

6.29.4.8. Isolated parking and taxiing requirements.

6.29.4.9. Security classification, if appropriate.

6.29.4.10. Placard requirements.

6.29.4.11. Other special handling requirements.

6.29.5. Cargo documentation: The aircraft commander will not accept hazardous materials which are not manifested and/or not certified by use of a **Shipper's Declaration for Dangerous Goods** prepared IAW AFJMAN 24-204 (***EXCEPTION:*** An "Excepted Quantity" label will be used for items meeting the definition). It is the responsibility of the transportation function to ensure the hazardous materials are properly packaged, marked, and labeled. The aircraft commander will contact the C2 Center or air terminal operations center (ATOC) concerning any question on cargo suitability for air transportation.

6.29.6. Flight planning. When briefed IAW paragraph **6.29.4.**, the aircraft commander will:

6.29.6.1. Enter "Hazardous Cargo" and the mission identifier or flight number in the appropriate section of the flight plan. Refer to FCG for country specific requirements concerning over-flight when transporting HAZMAT. (Use remarks section of DD Form 175, **Military Flight Plan,** and other information section of DD Form 1801, **DoD International Flight Plan**) as appropriate for:

6.29.6.2. Any quantity of:

6.29.6.2.1. Class/Division 1.1, 1.2, or 1.3 explosives.

6.29.6.2.2. Class/Division 1.4 explosives (regardless of weight) that transit the United Kingdom, Italy, or Hawaii.

6.29.6.3. All other class/divisions of hazardous materials (except class 9 or ORM-D/consumer commodities) when shipped in quantities of 1,000 pounds or more aggregate weight.

6.29.7. If possible, plan the flight to minimize over-flying heavily populated or otherwise critical areas. Approach landing, and takeoff tracks are excluded.

6.29.8. Prepare a departure message at stations when a C2 Center is not available. The remarks section of the departure message should include the following information:

6.29.8.1. Class/division of hazardous material aboard, include NEW for explosives and gross weight for other hazardous.

6.29.8.2. Request for special handling; for example, isolated parking, security, technical escort teams, etc.

6.29.9. If estimated time en route (ETE) is less than 1 hour, or if other circumstances preclude timely message receipt at destination, notify the base of first intended landing by priority telephone of the ETA and information listed in paragraph **6.29.4.** Ask the C2 Center at the departure base to relay this information to base operations at the point of first intended landing when a C2 Center is available.

6.29.10. Before engine start, notify the controlling agency parking location, approximate engine start time, and verify the firefighting agency has the hazardous materials information; otherwise, request the following be relayed to the firefighting agency:

6.29.10.1. Class/division of hazardous material aboard.

6.29.10.2. NEW for DoD class or division 1.1., 1.2, and 1.3 explosives.

6.29.10.3. Estimated time of departure.

6.29.11. En route. Normal procedures apply.

6.29.12. Before landing. Unless specifically prohibited by the theater commander of FLIP planning, contact the agency specified in FLIP, base operations dispatcher, control tower or approach control at least 30 minutes (or as soon as practical) before ETA to announce the "hazardous materials" are aboard. Transmit the mission number, ETA, and information in paragraph **6.29.4.** Request the information be relayed immediately to base operations or the civil airport manager, crash and fire protection agency and other support activities. If landing at a CONUS civil airport without a tower, give the above information to the nearest FAA flight service station.

6.29.13. Aircraft parking. DoD requires aircraft carrying DoD class or division 1.1 or 1.2 explosives be parked in areas isolated from non-associated personnel and facilities. When such cargo is aboard, aircraft commanders are responsible for ensuring cargo is correctly identified to the tower or 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 or hazard reports as appropriate, to document such occurrences. Host base may direct isolated parking for other hazardous materials IAW local procedures.

6.29.14. The military host is responsible for placarding aircraft. When missions operate on nonmilitary bases, the briefing to the aircraft commander will include placarding requirements and, if required, placards will be furnished at the onload base. The shipper and receiver must make prior arrangements with the airport manage of shipments of hazardous materials requiring placarding. The shipper and receiver are responsible for cargo identification, firefighting procedures, and isolated parking requirements.

6.30. Handling of Classified Cargo, Registered Mail, NMCS/VVIP/FSS Shipments, and Courier Material.

6.30.1. Receipts will be obtained for classified cargo, NMCS/VVIP/FSS shipments, and registered mail at the on-load and off-load station using the cargo manifest.

6.30.1.1. Defense Courier Service (DCS) couriers coordinating with the aircraft commander are authorized to designate officer or enlisted, (E-5 and above) crewmembers on military aircraft as

couriers to escort and safeguard courier material when other qualified personnel are not available. Qualified passengers, will be designated prior to designating crewmembers. The following restrictions apply:

6.30.1.1.1. Primary crewmembers will not be designated without the consent of the aircraft commander.

6.30.1.1.2. Crewmembers on aircraft scheduled to stop at locations where DCS couriers cannot provide en route support will not be designated as couriers. This does not relieve the aircraft commander of the responsibility for life and death urgent shipments.

6.30.2. During stops at en route locations supported by DCS stations, DCS couriers are required to meet designated couriers to protect the material.

6.30.2.1. During unscheduled stops, crewmembers may place courier material in temporary custody of the following agencies listed in descending order of priority:

6.30.2.1.1. DCS courier.

6.30.2.1.2. TOP SECRET control officer of the US armed forces.

6.30.2.1.3. US Department of State diplomatic courier.

6.30.2.1.4. US Department of State activity.

6.30.2.1.5. US military guards.

6.30.2.1.6. US DoD civilian guards.

6.30.3. If unable to follow the itinerary to the destination of the courier material, or if material is lost, stolen, or otherwise compromised, report circumstances to the nearest armed forces courier station and notify the local US military commander or US government activity.

Section 6D—Departure

6.31. On Time Takeoffs. Mission departures are on time if the aircraft is airborne within -20/+14 minutes of scheduled takeoff time. The following applies for early departures:

6.31.1. Home Station. Early departures are authorized to prevent a delay due to weather, ATC restrictions, airfield or aircraft operational limitations, to adjust mission flow during a large scale operation, or if approved through C2 Center.

6.31.2. En route Stations. Early departures at en route stations may be authorized through C2 Center, provided the impact on local and downrange facilities and crew duty is evaluated.

6.32. Weather Minimums For Takeoff. See **Table 6.3.**

Table 6.3. Weather Minimums for Takeoff

Mission	Visibility	Remarks
Operational	RVR 1000	When less than RVR 1600, but equal to or greater than RVR 1000, the crew may take off provided the runway has dual RVR readouts and displays (minimum RVR 1000 on both) and runway centerline lighting is operational. For any takeoff below 1600 RVR, the crew must be fully qualified.
All others	RVR 1600	For runways with more than one operating RVR readout, RVR must read 1600 minimum on all.

NOTES:

If no RVR readout is available for the departure runway, visibility must be reported to be 1/2 mile (800 meters).

When weather is below approach and landing minimums (ceiling or visibility) a takeoff alternate is required (See paragraph **6.19.**).

Section 6E—En route

6.33. Flight Progress.

6.33.1. Prior to flight on overwater missions, plot the oceanic portion of the flight on an appropriate chart. Annotate the chart with the mission number, aircraft commander's name, preparer's name, and date. If practical, chart may be reused.

6.33.2. Anytime the UNS NAVAID/waypoint database is not current or a pilot-defined waypoint will be used for navigation, two pilots will verify the NAVAID/waypoint information prior to selection as the active waypoint. Check both the coordinate information and the distances between waypoints against the flight plan.

6.33.3. In-Flight, use all available NAVAIDs to monitor UNS performance. Immediately report malfunctions or any loss of navigation capability which degrades centerline accuracy to the controlling ARTCC. Use the following procedures for flight progress:

6.33.3.1. Obtain a coast out fix prior to, or immediately on entering the Category I Route or over-water segment. Perform a gross error check using available NAVAIDs and annotate the position and time on the chart.

6.33.3.2. When approaching each waypoint, recheck coordinates for the next waypoint.

6.33.3.3. Approximately 10 minutes after passing each oceanic waypoint, record and plot the aircraft position and time on the chart, and ensure compliance with courses and ETA tolerances.

6.33.3.4. If a revised clearance is received, record and plot the new route of flight on the chart.

6.33.4. Upon return to home station, turn in the charts (copies if reused) and applicable CFPs to the squadron. Squadrons will retain the charts, CFPs, and associated materials for a minimum of 3 months.

6.33.5. Operations in International/Territorial Airspace. (See FLIP, FCG, AP, and MDS series instruction for further guidance) US military aircraft and DoD personnel entering another nation to conduct US government business therein must have the approval of the foreign government concerned to enter their airspace. Foreign clearances for US international air operations are obtained through US officials known as Defense Attaché Officers (DAOs). Refer to FLIP GP for discussion of international strait passage, archipelagic sea lane passage, procedures to follow if intercepted, and other foreign sovereignty issues.

6.33.5.1. There are essentially two types of airspace: international airspace and territorial airspace. International airspace includes all airspace seaward of coastal states' territorial seas. Military aircraft operate in such areas free of interference or control by the coastal state. Territorial airspace includes airspace above territorial seas, archipelagic waters, inland waters, and land territory and is sovereign airspace. Overflight may be conducted in such areas only with the consent of the sovereign country.

6.33.5.2. Consistent with international law, the US recognizes sea claims up to 12 nautical miles. Diplomatic constraints and/or a lack of diplomatic clearances usually result in missions operating in international airspace. Because of this, it is imperative sufficient information be provided far enough in advance to allow compliance with FCG requirements established by the countries concerned. The US does not normally recognize territorial claims beyond 12 nautical miles; however, specific guidance from certain US authorities may establish limits which differ from the standard.

6.33.5.3. Flight Information Region (FIR). An FIR is defined as an area of airspace within which flight information and related services are provided. An FIR does not reflect international borders or sovereign airspace. Aircraft may operate within an established FIR without approval of the adjacent country, provided the aircraft commander avoids flight in sovereign airspace.

6.33.5.4. Aircrews on a flight plan route which takes them from international airspace into territorial airspace for which approved aircraft clearances were obtained should not amend entry point(s).

6.33.5.5. Violations of foreign sovereignty result from unauthorized or improper entry or departure of aircraft. Aircrews should not enter into territorial airspace for which a clearance has not been duly requested and granted through diplomatic channels.

6.33.5.6. Air traffic control agencies are not vested with authority to grant diplomatic clearances for penetration of sovereign airspace where prior clearance is required from the respective country. Aircraft clearances are obtained through diplomatic channels only.

6.33.5.7. In the event air traffic control agencies challenge the validity of a flight routing or attempt to negate existing clearances, pilots must evaluate the circumstances. The normal response will be to attempt to advise the air traffic control agency that the aircraft will continue to planned destination as cleared in international airspace. The key phrase is “in international airspace.” Safety of flight is paramount in determining mission continuation. Under no circumstances should aircrews construe a clearance which routes their mission over sovereign airspace which was not approved through diplomatic channels prior to mission departure, as being valid authorization.

6.33.5.8. Aircrews operating missions requiring unique or specially developed routing will normally be briefed at home station, onload station, and/or by the last C2 facility transited prior to performing the critical portion of the mission.

6.33.5.9. Aircrews (except on weather reconnaissance missions) normally are not tasked to and should not fly “due regard” routing unless specifically directed in the mission frag or for AMC directed mission, coordinated with proper authorities through the TACC. The “due regard” or “operational” option obligates the military aircraft commander to be his or her own air traffic control agency and separate his or her aircraft from all other air traffic. If operational requirements dictate, aircraft commanders may exercise the “due regard” option to protect their aircraft. When the threat has terminated, the aircraft will return to normal Air Traffic Services. Refer to FLIP GP for guidance on “due regard.”

6.33.6. Altitude Reservations. Aircraft commanders will ensure ALTRV approval is received prior to mission execution.

6.33.6.1. ALTRVs usually include a 1 hour AVANA (ALTRV Approval Void if Aircraft Not Airborne) to account for delays. If a mission delays more than 1 hour, coordination with the appropriate central altitude reservation facility will be required. It may be possible to extend the AVANA time. If not, a new ALTRV will be required. Begin coordination as soon as the delay is known.

6.33.6.2. Requests for ALTRVs do not eliminate the responsibility to obtain diplomatic clearance or file flight plans. The complete route of flight must be included in DD Form 1801, DD Form 175, or other equivalent host nation flight plan.

6.34. Navigational Aid Capability.

6.34.1. North Atlantic minimum navigation performance specification (MNPS) standards (FLIP AP/2) and procedures for aircraft not in compliance are mandatory.

6.34.2. Reduced Vertical Separation Minimum (RVSM) Airspace. Airspace where RVSM is applied is considered special qualification airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. The C-21 is not yet approved for unrestricted use in the full RVSM envelope. Once the aircraft and aircrew are in compliance, refer to FLIP AP/2 and the following for RVSM requirements:

6.34.2.1. Both primary altimeters, at least one autopilot, the altitude advisory system, and the transponder must be fully operational prior to entry into RVSM airspace. Should any of this equipment fail prior to entering RVSM airspace, request a new clearance so as to avoid this airspace.

6.34.2.2. The autopilot should be engaged during level cruise, except when circumstances such as the need to re-trim the aircraft or turbulence require disengagement.

6.34.2.3. Crosscheck the altimeters prior to or immediately upon coast out. Record readings of both altimeters and retain for use in contingency situations.

6.34.2.4. Continuously cross check the primary altimeters to ensure they agree ± 200 ft.

6.34.2.5. Aircrews should limit climb and descent rates to 1,000 feet per minute when operating in the vicinity of other aircraft to reduce potential effects on TCAS operations.

6.34.2.6. Should any of the required equipment fail after entry into RVSM airspace, immediately notify ATC and coordinate a plan of action.

6.34.2.7. Document (in the aircraft forms) malfunctions or failures of RVSM required equipment, including the failure of this equipment to meet RVSM tolerances.

6.34.3. Required Navigation Performance (RNP) Airspace. Airspace where RNP is applied is considered special qualification airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. RNP airspace is being incorporated around the world to increase air traffic capacity by decreasing separation requirements between routes. Aircraft must be certified by each MAJCOM to be RNP compliance.

6.34.3.1. RNP-10. Compliance includes navigation accuracy within 10NM of actual position 95% of the time. Aircraft not possessing integrated GPS with receiver autonomous integrity monitoring (RAIM), or equivalent system, are limited in how long they may operate in RNP-10 airspace. Aircraft may operate up to 6.2 hours (after entering nav mode) of flight in RNP-10 airspace without update. If an automatic update is made, the aircraft may continue for an additional 5.7 hours after update is complete. The following are RNP-10 requirements:

6.34.3.1.1. To increase the 6.2-hour baseline, data collection on long overwater legs must still be accomplished. Contact HQ AMC/XPY for additional information (e.g., the KC-135 was extended to 8.0 hours of RNP-10 operation after a data collection survey).

6.34.3.1.2. Without integrated GPS or extend their baseline, NOPAC will require TACAN updates to be RNP-10 compliant. Shemya TACAN must be operational. When abeam Shemya a position crosscheck will be made. If inertial position is more than 3 NM from TACAN fix position, a TACAN mix must be accomplished on all inertial units exceeding this limit.

6.34.3.1.3. Flight Planning. Verify aircraft is approved for RNP operation, access mission impact and verify the letter "R" is annotated in block 10 of the DD Form 1801, **International Flight Plan**.

6.34.3.1.4. Enroute. At least two long range navigation systems certified for RNP-10 must be operational at the oceanic entry point. Periodic crosschecks will be accomplished to identify navigation errors and prevent inadvertent deviation from ATC cleared routes. Advise ATC of the deterioration or failure of navigation equipment below navigation performance requirements and coordinate appropriate actions.

6.34.3.1.5. Document (in the aircraft forms) malfunctions or failures of RNP required equipment, including the failure of this equipment to meet RNP tolerances.

6.34.4. Basic Area Navigation (BRNAV) Airspace. Airspace where BRNAV is applied is considered special qualification airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. BRNAV navigation accuracy criteria is RNP-5. The C-21 is approved for BRNAV operations. Aircraft with integrated GPS have no BRNAV restrictions. Without integrated GPS, aircraft must auto update every two hours to maintain actual centerline within +/- 5 NM of ATC cleared route.

6.34.4.1. Minimum equipment to operate in BRNAV airspace is one INS capable of updates or an approved GPS with RAIM or equivalent system. Flights entering BRNAV airspace after long overwater flight must be especially aware of BRNAV tolerances and update accordingly.

6.34.4.2. Aircraft unable to maintain BRNAV tolerances must advise ATC immediately and take appropriate coordinated action.

6.34.4.3. Document (in the aircraft forms) malfunctions or failures of BRNAV required equipment, including the failure of this equipment to meet BRNAV tolerances.

6.35. CIRVIS and Other Reports. Report all vital intelligence sightings from aircraft as indicated in FLIP planning or FLIP En route Supplement.

6.35.1. In-Flight harassment or hostile action against C-21 aircraft. Aircraft subjected to harassment or hostile action by foreign aircraft will immediately contact the nearest US Air Force air and 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 the type of harassment. Request relay of the report to the nearest C2 Center. Also attempt to contact the nearest command post when in UHF and VHF range.

6.35.2. Other incidents will be reported as indicated in JCS Pub 6, volume V and AFM 10-206, *Operational Reporting.*

6.36. In-Flight Meals. The AC and the copilot should not eat meals at the same time, and their meals should consist of different menu items.

6.37. Communications.

6.37.1. HF Communications. Confine message traffic to essential operational matters. Perform an HF radio ground check prior to takeoff when the use of HF radio may be required for ATC or C2 communications. Establish HF contact before going out of UHF and VHF range. If unable to establish HF contact with the controlling HF station and an alternate means of relay of ATC information in oceanic areas is not available, return to the nearest suitable support base.

6.37.2. General. Provide ARTCC position and weather observations when required. If unable to contact an ATC agency, attempt relay through the GLOBAL HF stations.

6.37.3. AF Form 72, **Air Report (AIREP)**. When directed by departing weather facility, take and record an AIREP at each position report over a Category I Route. Identify inaccurate CFP winds by special report if the average wind for a route segment exceeds either 30 degrees error in wind direction or 25 knots in wind speed. Turn in completed AF Form 72 to the destination USAF weather facility.

6.38. In-Flight Emergency Procedures. Report deviations from directives that may occur as a result of an emergency in accordance with AFI 11-202V3 and this directive.

6.38.1. Notification of Controlling Agencies. When practical after completing the aircraft emergency action checklists and associated actions crews should furnish the controlling agency and appropriate C2 Center a description of the difficulty, assistance required, intentions, and any other pertinent information.

6.38.2. A CONFERENCE SKYHOOK may be initiated when additional expertise is necessary to cope with emergencies or other conditions. Communications procedures are as follow:

6.38.2.1. Local Area. When in UHF or VHF range, initiate the conference over appropriate frequencies.

6.38.2.2. En route. When out of UHF range, use HF radios to establish a phone patch with the nearest or controlling C2 center as appropriate.

6.38.2.3. Provide the following information when time permits.

6.38.2.3.1. Narrative description of the situation to include actions taken by the crew and the intentions of the aircraft commander.

6.38.2.3.2. Fuel on board and hours of endurance.

6.38.2.3.3. Position.

6.38.2.3.4. Altitude and flight conditions.

6.38.2.3.5. Number of personnel and distinguished visitors (DV) on board.

6.38.2.3.6. Qualification of aircraft commander.

6.38.2.3.7. Planned landing base.

6.38.2.3.8. ETA at landing base.

6.39. Need for Medical Assistance. When a person aboard the aircraft requires medical care, inform the station of intended landing in sufficient time so the aircraft may be met by medical personnel. Include the sex, approximate age, and the major complaint in the request.

6.40. Weather Forecasts.

6.40.1. It is the pilot's responsibility to obtain destination weather prior to descent.

6.40.2. The primary means is any US Air Force base weather station via pilot-to-meteorologist service (PMSV) or through a US Air Force aeronautical station.

6.40.3. For aircraft flying in EUCOM AOR (ENAME operations) contact USAFE/OWS at Sembach AB GE (DSN 314-496-6145). SOUTHCOM AOR contact 25 OWS at Davis-Monthan AFB, AZ (DSN 228-1977).

6.40.4. The ATC system can provide weather information to en route aircraft.

6.40.4.1. The ARTCCs have a limited capability to provide weather information to en route aircraft within CONUS.

6.40.4.2. SIGMET (Significant Meteorological Information) advisories will be transmitted from the servicing ATC unit. Crews will consider all SIGMETs valid for their aircraft until verified as not applicable with a military METRO service.

Section 6F—Arrival

6.41. Descent. Prior to descent into unfamiliar areas, appropriate terrain charts (Operational Navigation Chart (ONC), Sectional Aeronautical Chart, Tactical Pilotage Chart (TPC), or Joint Operations Graphic (JOG)) should be reviewed to increase aircrew situational awareness of obstructions. Primary crewmembers will not be involved in duties other than aircraft operations, descent and approach monitoring, and required checklist items from the initial descent point to landing.

6.41.1. Night and Marginal Weather Operations. Fly a precision approach, if available, at night or during marginal weather. If a precision approach is not available, fly any available approved instrument approach. For training or evaluations at familiar fields, pilots may fly non-precision approaches

or VFR traffic patterns. The pilot not flying the approach will monitor a precision approach, when available, to enhance safety.

6.42. Instrument Approach Procedures.

6.42.1. Prior to starting an instrument approach or beginning an en route descent, pilots will confirm that existing weather is reported to be at or above required minimums for the lowest compatible approach. Pilots shall increase the published visibility minimums of an instrument approach by ½ SM or as noted in NOTAMs, on ATIS, or on the approach plate, when the runway approach lighting system (ALS) is inoperative. ***NOTE:*** This applies only to the ALS itself, not to VASIs, PAPIs, and other lights that are not a component of the ALS.

6.42.1.1. For a precision approach, the decision height will provide a height above touchdown of 200 ft or higher. For PAR approaches, visibility will be no lower than RVR 2400 (730 meters) or 1/2 mile visibility (800 meters) with no RVR readout available.

6.42.1.2. When circling minimums are published, but not by category, circling approach minimums will be as published, but in no case lower than 600 feet and 2 miles visibility.

6.42.2. Prior to starting an instrument approach, pilots will confirm their aircraft can meet or exceed all climb gradients specified in the missed approach procedure, based on the number of engines operating when the approach is begun. If missed approach climb charts are not available, use the takeoff obstacle clearance charts. If unable to meet required climb gradients, pilots must coordinate alternate missed approach procedures with ATC which will ensure terrain clearance, prior to commencing the approach. If this is not possible, do not attempt the approach.

6.42.3. Established on a Segment of the Approach. If established on a segment of the approach or being radar vectored to final approach and the weather is reported or observed to be below approach minimums, the aircraft commander has the option of continuing the approach to the MAP/DH. If deciding to abandon the approach, level off (or descend if a lower altitude is required for the missed approach procedure). Comply with the last assigned clearance until a new or amended clearance is received.

6.42.3.1. Do not continue the approach below minimums unless the aircraft is in a position to make a safe landing and the runway environment is in sight.

6.42.3.2. If the approach is continued, aircraft commanders must plan to have sufficient fuel available to complete the approach and missed approach and proceed to a suitable alternate with normal fuel reserve.

6.42.3.3. The aircraft commander has final responsibility for determining when the destination is below designated minimums and for initiating proper clearance request.

6.42.4. Alternate Flight Publications. The following publications are authorized if acceptable DoD FLIP products are not available:

6.42.4.1. United States Department of Commerce National Oceanic and Atmospheric Administration (NOAA).

6.42.4.2. Jeppesen and Host Government Instrument Approaches. May be used if MAJCOM approved IAW AFI 11-202V3. Crews will contact the controlling agency to confirm MAJCOM

approval prior to flying these approaches. If not MAJCOM approved, these approaches may not be used.

6.42.5. Aircrews performing approaches and landings at locations where temperatures are 0 ^{o} Celsius or below will refer to the Flight Information Handbook, section D, Temperature Correction Chart, to correct minimum descent altitude (MDA), decision height (DH), and other altitudes inside the final approach fix (FAF) if required.

6.43. Classified Equipment and Material.

6.43.1. Equipment. When classified equipment is onboard, ensure the C2 Center or base operations office is aware of the requirement for aircraft security according to **Chapter 7** of this AFI. At bases not under jurisdiction of the Air Force, ensure the aircraft and equipment are protected. AFI 13-401, *Managing the Information Security Program*, provides specific guidance concerning the security of various levels of classified equipment aboard aircraft.

6.43.2. Material. Ensure Communications Security (COMSEC) and other classified materials are turned in at destination and receipts are obtained for COMSEC and classified material. The On-site C2 center will provide temporary storage for COMSEC and other classified materials during en route, turnaround, and crew rest stops. If a storage facility is not available, the aircraft gun storage box may be used for material classified up to and including SECRET. Encrypted COMSEC will only be transferred to authorized DoD personnel.

6.43.3. Aircrews will ensure that they have an operable mode 4 when required for mission accomplishment. Aircrews will conduct an operational ground test of the mode 4 (ground test assets permitting) prior to deployment overseas, or as specified in the OPORD or contingency/exercise tasking.

6.43.4. Attempt to fix an inoperable mode 4 prior to takeoff. Do not delay takeoff nor cancel a mission for an inoperable mode 4, except when the aircraft will transit an area where safe passage procedures are implemented.

6.43.5. Conduct an in-flight check of the mode 4 on all missions departing the CONUS for overseas locations. Aircrews can request the mode 4 interrogation check through NORAD on UHF frequency 364.2.

6.43.6. Aircraft with inoperable mode 4 will continue to their intended destinations. Repairs will be accomplished at the first destination where equipment, parts, and maintenance technicians are available. In theaters where safe passage is implemented, aircraft will follow procedures for inoperable mode 4 as directed in the applicable airspace control order or ATO.

6.43.7. Ground and in-flight checks of the mode 4, when conducted, are a mandatory maintenance debrief items. Crews will annotate successful and unsuccessful interrogation of the mode 4 on all aircraft forms (AFTO Form 781A).

6.43.8. Aircrews will carry COMSEC equipment and documents required to operate the mode 4 on missions when required per paragraph **6.43.3.** Prior to departing for any destination without COMSEC storage facilities, crews will contact their local COMSEC managers for guidance.

6.44. Unscheduled Landings. When an unscheduled landing or crew rest occurs at a base without a passenger facility, the aircraft commander should immediately advise the appropriate C2 Center and request assistance in arranging substitute airlift for passengers that are aboard.

6.44.1. The aircraft commander may utilize AF Form 15, **United States Air Force Invoice,** authority to acquire the appropriate lodging accommodations. Upon return to home station, the aircraft commander will turn in the AF Form 15 to the local accounting liaison office. A copy of the service members' group travel orders along with any other pertinent supporting data must accompany the form (e.g., lodging invoice and/or receipts). When the AF Form 15 has been validated, it will be forwarded on to the servicing OPLOC for payment, citing the funds of the unit whose aircraft was delayed.

6.44.2. The aircraft commander may utilize AF Form 15 authority to acquire the appropriate meals, quarters, and transportation to support the service members. Upon return to home station, the aircraft commander will turn in the AF Form 15 to the local accounting liaison office. A copy of the service members' group travel orders along with any other pertinent supporting data must accompany the form (e.g., lodging invoice and/or receipts). When the AF Form 15 has been validated, it will be forwarded on to the servicing OPLOC for payment, citing the funds of the unit whose aircraft was delayed.

6.45. Maintenance. Complete the AFTO Form 781 after each flight. After landing, crewmembers debrief maintenance personnel on the condition of the aircraft, engines, avionics equipment, and all installed special equipment as required. At stations where there is no maintenance, and maintenance support is required, crews should contact the contractor's 1-800 number to coordinate for required maintenance. Once the impact on the mission is determined, crew should inform the controlling C2 Center and home station prior to entering crew rest.

6.46. Border Clearance.

6.46.1. Normal Operations:

6.46.1.1. The unit dispatching the mission is normally responsible for the border clearance of all aircraft.

6.46.1.2. When staff support is not available, border clearance is the responsibility of the aircraft commander. Duties may be assigned to ground personnel, but the aircraft commander retains ultimate responsibility. When a C-21 aircraft is on-loaded at a base without an air traffic function, the aircraft commander is responsible for ensuring the following:

6.46.1.2.1. Crewmembers, troops, and passengers possess current passports and valid visas, when required.

6.46.1.2.2. Crewmembers, troops, and passengers have current certificates of immunization (shot record).

6.46.1.2.3. Cargo entry documents are in proper order.

6.46.1.2.4. Departing or entering the United States through an air base where border clearance can be obtained.

6.46.1.2.5. Obtaining border clearance for aircraft cargo, passengers, crew and baggage, if required, before takeoff to a foreign area or after arrival from a foreign area.

6.46.1.2.6. Spraying the aircraft (Foreign Clearance Guide and paragraph 47 of this chapter).

6.46.2. Procedures for US Entry:

6.46.2.1. En route, one crewmember will distribute personal customs declarations (when not accomplished by passenger services) to all passengers, troops, and crewmembers. A crewmember will also brief passengers and other crewmembers on customs regulations, and prepare and compile necessary border clearance forms for the aircraft commander's signature.

6.46.2.2. En route, notify the C2 agency at the base of intended landing of any change in ETA to ensure that border clearance is accomplished as soon as possible after landing.

6.46.2.3. Obtain a permit to proceed when military necessities require that an aircraft (which has landed in the United States for customs clearance) proceed to another base in the US to obtain border clearance. The permit to proceed delays customs inspection of cargo, passengers, and crew until arrival at the off-load station and saves intermediate off-loading and reloading normally required for customs inspection. The permit to proceed is valid only to the airport of next landing where the border clearance must be completed or a new permit to proceed issued by a customs official. Do not make intermediate stops between the issue point of the permit to proceed and destination of manifested cargo unless required by an emergency situation or directed by the controlling C2 Center.

6.46.2.4. When an aircraft lands for a US border clearance, a US Customs representative normally will meet the aircraft to obtain the required documents. Do not deplane passengers, troops, or crewmembers unless necessary for safety or the preservation of life and property. Do not unload until approved by customs and agriculture personnel or their designated representatives. This procedure applies to the initial landing in the US and all landings required when operating on a permit to proceed or until all crew, passengers, and cargo complete final border clearance.

6.46.3. Inspections of US aircraft by foreign officials:

6.46.3.1. AMC follows US Air Force policy on status of military aircraft as stated in the Foreign Clearance Guide, *General Information*, Chapter 3. In substance, this policy holds that US military aircraft are immune from searches, seizures, and inspections (including customs and safety inspections) by foreign officials. In addition, aircraft commanders must be aware of and adhere to any specific Foreign Clearance Guide provisions for individual countries.

6.46.3.2. If confronted with a search request by foreign authorities, aircrews should use the following procedures:

6.46.3.2.1. In most cases, search attempts may be halted simply by a statement of the aircraft commander to the foreign official that the aircraft is a sovereign instrumentality not subject to search without consent of US Air Force headquarters or the US Department of State officials in the country concerned. This should be clearly conveyed in a polite manner so as not to offend foreign authorities who may honestly, but mistakenly, believe they have authority to search US Air Force aircraft.

6.46.3.2.2. If foreign authorities insist on conducting a search, the aircraft commander should make every effort to delay the search until he or she can contact US Air Force headquarters (through AMC C2) or the appropriate embassy officials. The aircraft commander should then notify these agencies of foreign request by the most expeditious means available and follow their instructions.

6.46.3.2.3. If foreign officials refuse to desist in their search request, pending notification to US Air Force headquarters or the appropriate embassy, the aircraft commander should indicate

that he or she would prefer to fly the aircraft elsewhere (provided fuel, flying time, and mechanical considerations permit a safe flight) and request permission to do so.

6.46.3.2.4. If permission is refused and the foreign authorities insist on forcing their way on board an aircraft, the aircraft commander should state that he protests the course of action being pursued and that he intends to notify both US Air Force headquarters and the appropriate American embassy of the foreign action. The aircraft commander should not attempt physical resistance, and should thereafter report the incident to US Air Force headquarters and appropriate embassy as soon as possible. The aircraft commander should escort foreign authorities if the inspection cannot be avoided.

6.46.3.3. Other procedures may apply when carrying sensitive cargo or equipment. Follow these procedures and applicable portions of classified Foreign Clearance Guide supplements.

6.47. Insect and Pest Control.

6.47.1. Responsibility. Aircraft commanders will ensure required spraying is accomplished according to AFI 48-104, *Medical and Agricultural Foreign and Domestic Quarantine Regulations for Vessels, Aircraft, and Other Transports of the Armed Forces (Joint)*, Department of Defense Foreign Clearance Guide, or as directed by higher headquarters. Certify the spraying on Customs Form 7507, **General Declaration (Outward/Inward)** or on forms provided by the country transited. Aircraft should never be sprayed with passengers on-board. The only exception is when the Foreign Clearance Guide mandates it.

6.47.1.1. When spraying is required, use insecticide, aerosol d-phenothrin-2 percent, National Stock Number (NSN) 6840-01-067-6674 (or equivalent), to spray the aircraft.

6.47.1.1.1. Direct the nozzle toward the ceiling of the compartment or space being sprayed.

6.47.1.1.2. Spray spaces inaccessible from within the aircraft after completely loading fuel, baggage, cargo, and passengers, including tailcone equipment compartments, and other similar spaces.

6.47.1.1.3. Spray the cabin, cockpit, and other spaces accessible from within the aircraft after the crew is aboard and after closing all doors, windows, hatches, and ventilation openings.

CAUTION

If the insecticide label directs disembarkation after use, spray prior to boarding crew or passengers. Close all doors and hatches for 10 minutes after dispensing and ventilate for 15 minutes before allowing anyone on board.

6.47.1.2. Spray for 4 seconds unless longer periods are specified for the country being transited.

NOTE:

Keep used aerosol cans separate from other trash so they may be disposed of safely.

6.47.2. Responsibility of Aircraft Commander in-flight. When seeing any insect or rodent infestation of the aircraft in-flight, notify the destination C2 Center, base operations, or airport manager of the situation before landing so the proper authorities can meet the aircraft.

6.47.3. Procedure at Aerial Port of Disembarkation (APOD). On arrival at an APOD, do not open door or hatch except to enplane officials required to inspect the aircraft for insect or rodent infestation or to deplane the minimum number of crewmembers required for block-in duties. Do not on-load or off-load cargo or passengers until the inspection is satisfactorily completed. This procedure may be altered to satisfy mission or local requirements, as arranged by the base air terminal manager or the local C2 organization.

Section 6G—Miscellaneous

6.48. Dropped Object Prevention. If an externally dropped object is discovered, the flight crew will:

6.48.1. Notify the controlling agency as soon as practical; include routing, altitude, weather, etc.

6.48.2. Notify maintenance at the first AMC station transited.

6.49. Cockpit Voice Recorder (CVR). If involved in a mishap or incident, after landing and terminating the emergency, open the CVR power circuit breaker.

6.50. AF Form 4076, **Life Support and Dash 21 Equipment Inventory.** The aircraft commander or designated representative will:

6.50.1. Prior to departing home station or en route stations, ensure appropriate serviceable protective clothing, life support, survival, and dash 21 equipment for the entire or remainder of the mission are aboard the aircraft.

6.50.2. Prior to departing home station and following en route crew changes, review AF Form 4076 , to ensure all required dash 21 equipment has been certified as installed by maintenance, the initial check has been signed by maintenance, and configuration documents match mission requirements.

6.50.3. Prior to departing home station and following en route crew changes, review, sign, and date the AFTO Form 46, **Pre-positioned Life Support Equipment**, to ensure all required protective clothing and life support and survival equipment have been certified as installed by aircrew life support and that configuration documents match mission requirements. Ensure appropriate number and type of life preservers are aboard for over-water missions carrying children and infants.

6.50.4. Missing Equipment. Aircrew members discovering equipment missing will accomplish the following:

6.50.4.1. Make an AFTO Form 781 entry for equipment found missing. Additionally, ensure equipment removed from the aircraft at an en route station is documented in the AFTO Form 781.

6.50.4.2. Annotate AF Form 4076 and AFTO Form 46 in the next vacant column indicating the quantity remaining for the item. Ensure the ICAO location designator is entered above the check number of that column. Leave AF Form 4076 and AFTO Form 46 on board the aircraft in the event of an en route crew change.

6.50.4.3. Advise the aircraft commander and determine whether the missing equipment should be recovered or replaced before mission continuation.

6.50.4.4. Assist, as required, in preparing reports of survey for missing equipment.

6.50.4.5. When possible, advise HQ AMC/DOTL before mission continuation.

6.50.5. Additional Equipment. If more equipment is discovered during the preflight than is annotated on the AF Form 4076 and AFTO Form 46 annotate the total quantity in the next vacant column for the item. Ensure the ICAO location designator is entered above the check number of that column.

6.51. Not Used.

6.52. Not Used.

6.53. No Show Passenger Baggage. No-show passenger baggage or baggage of passengers removed from flight will be downloaded prior to departure.

6.54. Airfield Data Reports. Aircrews transiting strange airfields or airfields where conditions may adversely affect subsequent flight will:

6.54.1. Report airfield characteristics that produce illusions, such as runway length, width, slope, and lighting, as compared to standard runways, sloping approach terrain, runway contrast against surrounding terrain, haze, glare, etc.

6.54.2. Debrief the next C2 Center transited.

6.55. Impoundment of Aircraft. If an aircraft is involved in a serious in-flight incident, the aircraft commander should impound the aircraft immediately after landing and contact the controlling C2 Center for further instructions.

Chapter 7

AIRCRAFT SECURITY

7.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (hijacking) of C-21 aircraft. AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, AFI 31-101, V1, *Air Force Physical Security Program*, and specific MAJCOM security publications contain additional guidance. Aircrews will not release information concerning hijacking attempts or identify armed aircrew members or missions to the public.

7.2. Security. The AC will ensure that adequate security of the aircraft is provided at all times. This will include determining that aircraft is properly chocked and responsible personnel on both military and civilian airfields are advised as to the length of stay and where the crew may be contacted.

7.3. Security Procedures:

7.3.1. Briefings. When required, ACs will receive a threat assessment and security capability evaluation briefing at home station and receive updates at en route command and control facilities.

7.3.2. Unauthorized Entry. The AC will have the aircraft locked with security system employed during all RONs and at other times when a crewmember is not at the aircraft:

7.3.2.1. If forced entry is apparent, notify the local authorities and nearest command and control. Inspect the aircraft thoroughly.

7.3.2.2. Coordinate with the local base operations or transient alert representatives on procedures for servicing the aircraft while the crew is away.

7.3.3. PHOENIX RAVEN SECURITY TEAM (RST) support mobility operations by providing security protection for aircraft transiting locations where a high threat, host, or en route security support may be marginal, unreliable, or nonexistent. A daily Threat Working Group (TWG) assesses security requirements for mobility missions and helps determine if a RST is required. When assigned PHOENIX RAVEN support, aircraft commander will:

7.3.3.1. Verify MAJCOM travel status on each RSTs travel orders. The RST reports directly to the aircraft commander, when assigned.

7.3.3.2. Add RST members to the aircrews flight orders.

7.3.3.3. Is responsible for the RSTs welfare (transportation, lodging, etc.).

7.3.3.4. Ensure the RST receives an aircraft mission briefing, aircraft egress/passenger briefing (as appropriate).

7.4. Protective Standards for Aircraft Carrying Distinguished Visitors (DV):

7.4.1. Applicability. This paragraph applies specifically to aircraft transporting DVs, code 4 or above.

7.4.2. AMC Bases. Special crew procedures are not required at AMC bases. Security will be provided.

7.4.3. Non-AMC Bases. ACs are responsible for aircraft security at en route stops:

7.4.3.1. DoD Installation—Notify the base security 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.

7.4.3.2. Foreign or Civilian Installations—Notify the airport manager, commander, or defense attache' to arrange for aircraft security. If available security is inadequate, purchase additional security using AF Form 15, **USAF Invoice**.

7.4.3.3. Inadequate Security. If in the aircraft commander's opinion airfield security is inadequate and the safety of the aircraft is in question, he/she may waive the may waive the flight duty period limits and crew rest requirements and depart as soon as possible for a base considered reliable. Report movement and intentions to the controlling agency as soon as practical. If departure is not possible, the aircrew must secure the aircraft to the best of their ability. In no case, will the entire crew leave the aircraft unattended. Crew rest requirements will be subordinate to aircraft security when the airframe may be at risk. The aircraft commander should rotate a security detail among the crew to provide for both aircraft protection and crew rest until relief is available. Request security assistance from the nearest DoD installation, US Embassy, local military or law enforcement agencies as appropriate.

7.5. Detecting Unauthorized Entry.

7.5.1. When parking on a secure ramp, the aircraft will normally be left unlocked/unsealed to allow ground personnel immediate access. If, in the aircraft commander's judgment, the aircraft needs to be locked and sealed in order to detect unauthorized entry, then:

7.5.1.1. Use available aircraft ground security locking devices.

7.5.1.2. Secure the doors in a manner that will indicate unauthorized entry (e.g. tape inside of doors to airframe so that entry pulls tape loose).

7.5.1.3. Close and lock the door.

7.5.1.4. Wipe the immediate area around lock and latches clean to aid in investigation of a forced entry.

7.5.1.5. Report any unauthorized entry or tampering to the OSI, security police or local authorities, and the C2 Center agency. Have aircraft thoroughly inspected prior to flight.

7.5.2. 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, and tail cone compartment for unfamiliar devices. Report any suspicious items to host security forces. Aircrews will maintain a heightened security posture throughout all pre-takeoff activities.

7.6. Preventing and Resisting Hijacking.

7.6.1. The Air Transportation Act of 1974 and the Federal Aviation Act of 1958, as amended, vest the FAA Administrator with exclusive responsibility for the direction of law enforcement activity in aircraft hijacking situations involving all aircraft (civil and military) in-flight in the United States.

7.6.2. In taking action during an aircraft hijacking situation, military forces will act under military command within the scope of their duties.

7.6.3. In the event an aircraft involved in an aircraft hijacking situation is carrying documents, equipment, or material that DoD has determined to be highly sensitive, or weapons of mass destruction, DoD will provide FAA, and where appropriate, the FBI, with all pertinent information. Where possible, the FAA will consult and cooperate with DoD prior to directing any law enforcement activity.

7.6.4. An aircraft is most vulnerable to hijacking when the aircrew is aboard and the aircraft is operationally ready for flight.

7.6.5. A concerted effort must be made to prevent the hijacking of military or military contract aircraft by detecting potential hijackers before they board the aircraft.

7.6.6. Should preventive efforts fail, any actual attempt to hijack a military aircraft must be resisted in a manner appropriate to the situation.

7.6.7. Since air piracy may be committed by political terrorists or by individuals to whom the threat of death is not a deterrent but a stimulus, ordinary law enforcement procedures may be ineffective. Thus, successful conclusion of a hijacking situation and apprehension of the hijackers may require use of specialized law enforcement techniques and procedures.

7.6.8. Delaying actions have been most successful in overcoming hijackings without loss of life or property.

7.6.9. In the case of an aircraft carrying passengers, the primary concern is the safety of the passengers.

7.6.10. Assistance to hijacked civil or military contract aircraft will be rendered as requested by the pilot in command of the aircraft and the authority exercising operational control of the anti-hijacking effort.

7.7. Preventive Measures. Commanders at all levels must ensure preventive measures are taken to minimize access to the aircraft by potential hijackers. When a C-21 is operating away from home station, the aircraft commander will ensure provisions of this chapter and AFI 13-207, as supplemented, are complied with.

7.7.1. Preventive measures include the following: The host station passenger processing or manifesting facility should conduct anti-hijacking inspections. Do not board passengers until the aircraft commander is fully satisfied with inspection results. In the absence of qualified passenger service representatives, the aircraft commander will ensure the anti-hijacking inspection of passengers and baggage is accomplished.

7.7.2. Medical facility commanders are responsible for anti-hijacking inspection of patients. When patients are delivered to the aircraft by civilian sources, the aircrew will perform required inspections prior to loading.

7.7.3. During exercises or contingencies in support of combat operations involving the movement of large groups of personnel, the unit being supported should manifest passengers and perform anti-hijacking inspections.

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

7.7.5. If weapons must be cleared, ask the individual to:

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

7.7.5.2. Clear weapons in accordance with standard safety procedures.

7.8. Initial Response. When an act of air piracy involves an Air Force installation or aircraft within the United States, response will be according to the following guidelines until such time as FAA assumes active direction of anti-hijacking efforts. Resist all attempts to hijack a military aircraft. Resistance may vary from simple discussion through deception and subterfuge, to direct physical confrontation, including the prudent use of weapons. The following guidelines should be used to counter a hijacking, actual or threatened, while the aircraft is on the ground:

7.8.1. Delay movement of the aircraft to provide time for ground personnel and the aircrew to establish communication and execute coordinated resistance actions.

7.8.2. The authority for determining when ground resistance will be discontinued is vested in the highest available level of command. When adequate communication cannot be established, or when time does not permit, this authority is delegated in the following order:

7.8.2.1. MAJCOM commander exercising operational control of the aircraft.

7.8.2.2. MAJCOM commanders in whose area of responsibility (AOR) the airfield lies.

7.8.2.3. Senior operational commander on scene.

7.8.2.4. Aircraft commander in compliance with MAJCOM directives.

7.9. In-Flight Resistance. After airborne, success in thwarting a hijacking depends on the resourcefulness of the aircrew. Many variables of a hijacking preclude use of any specific counter-hijacking procedure. Some key factors should be evaluated before deciding a course of action to be taken, including the nature of the threat, danger to life or crippling damage to the aircraft in-flight, destination indicated by the hijacker, and the presence of sensitive material onboard. Some counter-hijacking actions the aircrew may consider are:

7.9.1. Engage the hijackers in conversation to calm him or her and to evaluate what course of action might be effective.

7.9.2. Dissuade the hijacker.

7.9.3. Use facts or subterfuge to convince the hijacker intermediate stops are necessary.

7.9.4. Propose more favorable alternatives, such as landing in a neutral, rather than a hostile, country.

7.9.5. Exploit any reasonable opportunity to incapacitate or overcome the hijacker physically, including the prudent use of firearms.

7.10. Communications Between Aircrew and Ground Agencies. Crews facing a hijacking threat will notify ground agencies by any means available as soon as practical and follow-up with situation reports as circumstances permit.

7.10.1. If possible, transmit an in-the-clear notification of hijacking to ATC. Controllers will assign IFF code 7500 (does not preclude subsequent selection of code 7700).

7.10.2. If in-the-clear transmissions are not possible, report “am being hijacked” by setting transponder to code 7500. If unable to change transponder code, or when not under radar control, transmit a radio message to include the phrase “(call sign) transponder seven five zero zero.”

7.10.3. Controllers will acknowledge receipt and understanding of transponder code 7500 by transmitting “(call sign) (facility name) verify squawking 7500.” An affirmative reply or lack of reply from the pilot indicates confirmation and proper authorities are notified.

7.10.4. To report “situation appears desperate; want armed intervention,” after code 7500 is used, change to code 7700. If unable to change transponder code to 7700, or when not under radar control, transmit “(aircraft call sign) transponder seven seven zero zero.”

7.10.4.1. Before changing from code 7500 to code 7700, remain on 7500 for at least 3 minutes or until a confirmation of code 7500 is received from ATC, whichever is sooner. ATC acknowledges code 7700 by transmitting “(call sign) (facility name) now reading you on transponder seven seven zero zero.”

7.10.4.2. Aircraft squawking 7700 after squawking 7500, which are not in radio contact with ATC, are considered by ATC to have an in-flight emergency (in addition to hijacking), and the appropriate emergency procedures are followed. Notification of authorities in this case includes information that the aircraft displayed the hijack code as well as the emergency code.

7.10.5. To report “situation still desperate, want armed intervention and aircraft immobilized”, leave flaps full down after landing, or select flaps full down while on the ground. To facilitate message distribution, transmit “(aircraft call sign) flaps are full down.”

7.10.6. To report “leave alone, do not intervene,” retract the flaps after landing. Pilots who retract flaps after squawking 7700 should return to code 7500 and remain on code 7500 for the next leg of the hijacked flight unless the situation changes. Transmit “(call sign) back on seven five zero zero” to emphasize the fact intervention is no longer desired.

7.11. Forced Penetration of Unfriendly Airspace. These procedures are designed to deter possible hostile action against the hijacked aircraft that has been forced to penetrate airspace of a nation unfriendly to the United States.

7.11.1. If instructions from the unfriendly nation are received either by radio contact or by air intercept before boundary crossing, comply with instructions received.

7.11.2. If no contact with unfriendly nation is made before approaching a boundary:

7.11.2.1. Maintain TAS not more than 400 knots.

7.11.2.2. Maintain an altitude between 10,000 and 25,000 feet if possible.

7.11.2.3. Fly a direct course toward destination announced by the hijacker, if no course is specified.

7.11.2.4. Transmit the international distress signal, MAYDAY, on any of the international distress frequencies (121.5 MHz, 243.0 MHz, or 2182 KHz) in an effort to establish communications.

7.11.2.5. Set IFF mode 3 code 7700 on transponder.

7.11.2.6. If radio contact cannot be established, follow procedures set forth in FLIP.

7.11.3. Consider the presence of classified documents and equipment aboard the aircraft. When a landing in an unfriendly nation is imminent, attempt to dispose of or destroy the equipment or material.

7.12. Arming of Crewmembers. When crewmembers are directed to carry weapons, 1 pilot will normally be armed.

7.12.1. Issue. Before departing home station, obtain weapons, ammunition, gun box lock and key (if applicable). Crewmembers will be armed according to AFI 31-207, *Arming and Use of Force by Air Force Personnel* and MAJCOM publications. If an armed crewmember must leave the crew en route, transfer the weapon to another authorized crewmember using AF Form 1297, **Temporary Issue Receipt**.

7.12.2. Load and unload weapons at approved clearing barrels. To transfer loaded weapons to another crewmember, place the weapon on a flat surface. Do not use hand-to-hand transfer.

7.12.3. Wear weapons in a concealed holster at all times to prevent identifying armed crewmembers. Do not wear weapons off the flightline except to and from the armory and other facilities associated with aircrew activities, i.e. base operations, fleet service, cargo or passenger terminal, flightline cafeteria or snack bar, etc.

7.12.4. Crewmembers will be armed prior to preflight duties and until completion of all offload duties.

7.12.5. During crew rest, store weapons in the most secure facility available, normally a base armory. If a weapons storage facility is not available, secure firearms and ammunition in the aircraft. If aircraft is not equipped with a gun box, leave weapons in the most secure and least visible location on the aircraft. Lock aircraft during all RONs.

7.13. Force Protection. Crews must be alert to possibility of terrorist activities at all times. The following considerations may help crewmembers avoid becoming victims of terrorism when operating in overseas locations:

7.13.1. Personal conduct. Crews must realize their conduct can make them a target for individuals dissatisfied with US foreign involvement in their national affairs. Local foreign nationals may or may not condone a military presence - crew conduct will be watched and judged. Therefore, utilize the following:

7.13.1.1. Maintain good military bearing both on and off duty.

7.13.1.2. Avoid dressing in clothes that highlight the fact you are an American, i.e., cowboy hats, wide belt buckles, shirts with pro-American slogans, etc.

7.13.1.3. Do not wear clothing displaying profanity.

7.13.1.4. Know where “off-limits” areas are and avoid them.

7.13.1.5. Beware of personnel offering to take you on a “personal” sightseeing tour.

7.13.1.6. Do not get involved with anyone trying to involve you in games of chance.

7.13.1.7. When possible, always travel in groups of two or more.

7.13.1.8. Avoid demonstrations for any cause.

7.13.1.9. Avoid discussion of politics.

7.13.2. Ground transportation security. When traveling to and from billeting, messing facilities, etc. consider the following to minimize drawing attention to yourself as a potential target:

7.13.2.1. Select a plain car; minimize the “rich American” look.

7.13.2.2. If possible, consider not using a car that announces Government ownership.

7.13.2.3. Keep the gas tank at least half full at all times.

7.13.2.4. Do a thorough check of the car to look for signs of tampering - look at undercarriage and wheel-wells.

7.13.2.5. Park in well-lighted areas, preferably under US control.

7.13.2.6. Always lock your car. If possible, do not leave it on the street overnight.

7.13.2.7. Only leave the ignition key with parking attendants.

7.13.2.8. Before entering vehicles, check for suspicious objects. Look underneath vehicle seats.

7.13.2.9. Guard against establishing a routine. Vary times, routes, and modes of travel. Avoid late night travel.

7.13.2.10. Travel with companions or in convoys when possible.

7.13.2.11. Avoid isolated roads and dark alleys. Ride with seat belts buckled, doors locked, and windows closed.

7.13.2.12. Do not allow the vehicle to be boxed in. Maintain enough interval between you and the vehicle in front so that you can pass.

7.13.2.13. Circle the block for confirmation of surveillance.

7.13.2.14. Do not stop or take other actions which could lead to a confrontation.

7.13.2.15. Recognize events that could signal the start of an attack, such as:

7.13.2.15.1. Cyclist falling in front of your car.

7.13.2.15.2. Flagman or workman stopping your car.

7.13.2.15.3. Fake police or government checkpoints.

7.13.2.15.4. Disabled vehicle/accident victims on the road.

7.13.2.15.5. Unusual detours.

7.13.2.15.6. An accident in which your car is struck.

7.13.2.15.7. Cars or pedestrian traffic that box you in.

7.13.2.15.8. Sudden activity or gunfire.

7.13.2.16. Know what to do if you are under attack:

7.13.2.16.1. Consider sounding the horn.

7.13.2.16.2. Put another vehicle between you or your pursuer.

7.13.2.16.3. Execute an immediate turn and escape, jump curbs at a 30-45 degree angle, 35 mph minimum.

7.13.2.16.4. Ram a blocking vehicle only as a last resort.

7.13.2.16.5. Go to the closest safe haven. Report the incident to security police.

7.13.3. Personal identification. Consider the following actions to avoid advertising the fact you are an American:

7.13.3.1. Don't discuss your military affiliation with strangers.

7.13.3.2. Avoid military style luggage such as B-4 bags & duffel bags with military logos, etc.

7.13.3.3. Consider placing your official passport and related documents such as military ID, flight orders, club card, dog tags, billeting receipts in your hand-carried luggage and not in your wallet or purse.

7.13.3.4. Wear conservative styled civilian clothing when using commercial transportation.

7.13.3.5. Remember, the key is to maintain a low profile.

7.13.4. Hotel security. When billeted in commercial hotels, crews need to be aware of the following:

7.13.4.1. If possible, obtain rooms between the second and sixth floors. These rooms are high enough to be less vulnerable to unauthorized entry from the outside and low enough to simplify evacuation if necessary.

7.13.4.2. Always lock interior locks when occupying rooms.

7.13.4.3. Always assume your room is monitored and avoid viewing or discussing classified material.

7.13.4.4. Avoid establishing a predictable routine i.e., vary eating times and locations.

7.13.4.5. Avoid traveling on foot--use a vehicle (hotel shuttle, commercial taxi, etc).

7.13.4.6. In high threat areas, stay off the streets (use hotel dining facilities if available).

7.14. Protecting Classified Material on Aircraft. The aircraft commander is responsible for protection of classified materials aboard their aircraft. Se requirements in AFI 31-401 *Information Security Program Management.* As a minimum, ensure the IFF equipment is set to zero before leaving the aircraft.

Chapter 8

OPERATIONAL REPORTS AND FORMS

8.1. General. Applicable reports and forms are contained in this chapter.

8.2. AF Form 457, USAF Hazard Report. (AFI 91-202, *The US Air Force Mishap Prevention Program).*

8.2.1. The Air Force hazard reporting system provides a means for Air Force personnel to alert supervisors and commanders to hazardous conditions requiring prompt corrective action.

8.2.2. Special Procedures for Hazard Reports Concerning Weather. Complete the front of an AF Form 457 and address it to the parent wing flying safety office. If a computer flight plan deficiency is involved, attach one copy of the AF Form 72, **Air Report (AIREP)**, (e.g. AF Form 70, **Flight Plan and Record**), and the computer flight plan (CFP) to the report. Send the report so that the parent unit receives it within 5 days.

8.3. AF Form 651, RCS: 11AF-SE(AR)760, Hazardous Air Traffic Report (HATR) (AFI 91-202)

8.3.1. The Air Force HATR program provides a means for personnel to report all near midair collisions and alleged hazardous air traffic conditions.

8.3.2. Procedures:

8.3.2.1. Make an airborne report of the hazardous condition to the nearest air traffic control agency (e.g. center, FSS, control tower, or aeronautical radio station), and give the following information as appropriate:

8.3.2.1.1. Call sign.

8.3.2.1.2. Time and place (radial/DME of NAVAID, position relative to the airfield, etc.) of the occurrence.

8.3.2.1.3. Altitude or flight level.

8.3.2.1.4. Description of the other aircraft.

8.3.2.1.5. Statement that a written HATR report will be filed upon landing.

NOTE:

FAA must know if an official report is being filed.

8.3.2.2. File the HATR as soon as possible (within 24 hours) using any available means of communication. Normally, it should be filed at the Air Force 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 base, or as prescribed by the overseas major command. In any case, provide the base or wing safety office with all available information needed to prepare AF Form 651. Turn in a completed copy of AF Form 651 to the wing safety office.

8.3.3. Individuals who submit HATRs on incidents are granted immunity from disciplinary action provided:

8.3.3.1. Violation was inadvertent, i.e. not deliberate.

8.3.3.2. No mishap occurred.

8.3.3.3. No criminal offense was intended or committed.

8.3.3.4. The individual reported the incident according to paragraph **8.3.2.**

8.4. AF Form 711, USAF Mishap Report:

8.4.1. Responsibilities. Notify the appropriate authorities of any mishap involving aircraft or crew.

8.4.2. Reportable Mishaps. Report damage to the aircraft or injury to the crew or passengers. Also, any damage or injury to another organization's equipment or personnel resulting from the movements or actions of an AMC aircraft or crew. Reportable mishaps include:

8.4.2.1. Physiological Mishaps.

8.4.2.2. Engine flameout, failure, or required shutdown, after engine start with intent for flight, regardless of damage. Incidents may be reported upon landing. ***NOTE:*** Intentional shutdowns for FCF or other non-emergency purposes are excluded; however, report failure to restart, using the criteria above.

8.4.2.3. Loss of thrust sufficient to preclude maintaining level flight at a safe altitude.

8.4.2.4. Engine case penetration by shrapnel from internal engine component failure.

8.4.2.5. Engine case rupture or burn-through, engine bay fire, or massive fuel leakage.

8.4.2.6. Unselected thrust reversal.

8.4.2.7. Flight control malfunction (including AFCS and trim systems) resulting in an unexpected, hazardous change of flight attitude, altitude, or heading. When making the AFTO 781A, **Maintenance Discrepancy and Work Document**, entry, include the flag words "reportable flight control malfunction."

8.4.2.8. Malfunction of landing gear when difficulty is experienced using emergency system or procedures.

8.4.2.9. In-Flight loss of all pitot-static instrument indications or all gyro-stabilized attitude or directional indications.

8.4.2.10. Spillage or leakage of radioactive, toxic, corrosive, or flammable material from aircraft stores or cargo that, in the judgment of the reporting individual, is significant hazard to the crew, passengers, or aircraft.

8.4.2.11. Human factors related situation, e.g. misinterpretation of instruments; crew overload, i.e. tactile, aural, and visual input to the crew at a rate too fast to permit reasonable decisions based on the data received; or too many actions required in too short a period of time; or confusion of controls such as would be caused by adjacent switches where the actuation of the wrong switch could create a dangerous situation. Anonymous reports of such situations are acceptable.

8.4.2.12. All cases of departure from intended takeoff or landing surface onto a surface not designed to normally support takeoff or landing loads.

8.4.2.13. All in-flight fires regardless of damage.

8.4.2.14. All bird strikes regardless of damage.

8.4.2.15. Any occurrence which does not meet the established criteria for a reportable mishap but, in the judgment of the reporting individual, needs to be emphasized in the interest of safety.

8.4.3. Procedures. Report mishaps as soon as possible to the following offices using the following precedence (In all cases, retain a copy of all relevant information, and turn it into a home station safety officer.):

8.4.3.1. MAJCOM flying safety officer (FSO).

8.4.3.2. Any FSO.

8.4.3.3. Nearest C2 Center.

8.4.3.4. Base operations.

8.4.4. Required Information. Complete all appropriate areas of the form. Provide as much detail as possible.

8.5. Reports of Violations/Unusual Events or Circumstances. Violations identified in AFI 11-202V3 alleged navigation errors (including over-water position errors exceeding 24 NMs, border and air traffic control violations) will be reported.

8.5.1. Use the following format and include:

8.5.1.1. Factual circumstances.

8.5.1.2. Investigation and analysis.

8.5.1.3. Findings and conclusions.

8.5.1.4. Recommendations.

8.5.1.5. Actions taken.

8.5.2. Attachments to include:

8.5.2.1. Notification of incident.

8.5.2.2. Crew orders.

8.5.2.3. Statement of crewmembers (if applicable).

8.5.2.4. Documenting evidence (logs, charts, etc.).

8.5.3. In addition to the information listed, the historical flight plan will be downloaded onto a floppy disk and turned in to the command and control facility or owning standardization and evaluation office.

8.5.4. Send the original investigation report within 45 days to the appropriate MAJCOM. ARC units receiving alleged violations will send the original investigation through channels to arrive at HQ AFRC/IGI within 35 days. HQ AFRC/IGI will send the investigation report to the MAJCOM within 45 days.

8.5.5. The following OPREP-3 reporting procedures for all aircraft notified of navigational errors exceeding 24 NMs will be reported under AFMAN 10-206, *Operational Reporting*.

8.5.5.1. On notification of a navigational position error, the aircraft commander (or agency receiving notification) documents the circumstances surrounding the incident (report content below) and ensures submission of an OPREP-3 report through C2 channels.

8.5.5.2. Report content:

8.5.5.2.1. Name and location of unit submitting report.

8.5.5.2.2. Mission identification number.

8.5.5.2.3. Reference to related OPREPs-3.

8.5.5.2.4. Type of event. (State "Navigation position error.").

8.5.5.2.5. Date, time (zulu), and location (i.e. ARTCC area).

8.5.5.2.6. Description of facts and circumstances. Include aircraft type and tail number, unit (wing or squadron assignment of crew), home base, route of flight, point of alleged deviation, and miles off course.

8.5.6. Aircraft commanders must keep MAJCOM C2 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 crewmembers, 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.

8.6. Petroleum, Oil, and Lubricants (POL) Aviation Fuels Documentation. This section describes procedures for the aviation fuel program (AVPOL) for all USAF aircraft. Procedures are established for correct documentation, processing of forms and invoices, program oversight, and personnel responsibilities. Reference AFI 23-202, *Buying Petroleum Products, and Other Supplies and Services Off-Station*, AMC decentralization procedures, and AFM 67-1, V1, Pt3.

8.6.1. Responsibilities. All aircrew and maintenance personnel will be familiar with the procedures and documentation requirements of this chapter. Purchase of aviation fuel not complying with this instruction may become the financial responsibility of the purchaser.

8.6.2. Aircraft will be refueled or de-fueled at DoD locations unless DoD-owned fuel is not available; in which case, fuel may be procured from other sources using the following priority.

8.6.2.1. Defense Fuel Supply Center (DFSC) or Canadian into-plane contracts.

8.6.2.2. Foreign government air forces.

8.6.2.3. Open market purchase to include Shell International Trading Company (SITCO) agreement.

NOTE:

DoD FLIP en route supplements identify locations with into-plane contracts.

8.6.3. AVPOL Documentation Use and Procedures.

8.6.3.1. AF Form 664, **Aircraft Fuels Documentation Log—**Used to log and store all AVPOL transaction documentation. Log all off station transactions on front of AF Form 664 then insert the supporting documentation inside the envelope. Turn AF Form 664, with supporting documentation, in at maintenance debriefing.

8.6.3.2. AF Form 315, **United States Air Force Avfuels Invoice—**Used to purchase aviation fuel at non-DoD activities. See AFI 23-202, *Buying Petroleum and Other Supplies and Services Off-Station*. When completed, log and place inside the AF Form 664.

8.6.3.3. AF Form 15, **United States Air Force Invoice**. This form is used for procurement of items or services required at commercial locations where normal DoD support and supplies are not available. If the vendor will not accept the aircraft identaplate, use AF Form 15 to pay for ground fuels, oils, or services. The accomplished form is returned to the aircraft's home station for payment. See AFI 23-202. When completed, log and place inside AF Form 664.

8.6.3.3.1. If the vendor wants to be paid payment without submitting an invoice, the aircraft commander retains the original AF Form 315 to return to home station for accounting and finance processing. Provide two legible copies of the form to the vendor. If the vendor wants to submit an invoice for payment, give the vendor the original AF Form 315 to attach to the invoice.

8.6.3.3.2. Purchases at Canadian into-plane locations will be documented using the local vendor's invoice. AF Form 15 or 315 will not be accomplished. Hand scribe the information from the aircraft identaplate to the vendor's invoice, and complete a separate sheet with the information listed on the Aviation Issues to DoD and Non-DoD, Aircraft Refueling Tender Sheet. See AFI 23-202. Log and place a copy inside the AF Form 664.

8.6.3.3.3. Purchases at SITCO Agreement locations require presenting the aircraft identaplate. The invoice must include the date of transaction, grade of the product, quantity issued or de-fueled, unit of measure, and signature of the Air Force representative. If the vendor also requires completion of an AF Form 15 or 315 in addition to their invoice, annotate on the vendor's invoice "AF FORMS EXECUTED." Log and place the documentation inside the AF Form 664.

8.6.3.3.4. Purchases at non-contract commercial airfields are accomplished using the AF Form 15 or 315. Refer to AFI 23-202, and figures 4, 5, and 6 for guidelines on completing these forms.

8.6.3.3.5. Purchases at foreign military airfields, including replacement-in-kind (RIK) locations, the host country forms are used to record the purchase. Information from the aircraft identaplate should be hand scribed on the local form. Log and place a copy inside the AF Form 664.

NOTE:

Aviation Into-Plane Reimbursement (AIR) Card. The AIRcard is a commercial credit card which allows aircrews to purchase aviation fuel, fuel related supplies, and/or ground services at commercial airports where no DoD/Canadian into-plane contracts exist. Accepted at over 4200 locations, it is intended to replace the AF Form 315 and AF Form 15 at locations that accept the AIRcard. All Air Force aircraft are issued an AIRcard. Additional information at SF WEB page: (WWW.KELLY.AF.MIL/SFWEB/AIRCARD.HTM).

8.6.4. AF Form 1994, **Fuel Issue/De-fuel Document—**Used for purchases at all US Air Force locations using a valid DD Form 1896, ***Jet Fuel Identa-plate***. Log and place inside AF Form 664.

8.6.5. AFTO Form 781H, **Aerospace Vehicle Flight Report and Maintenance Document**. Complete form per applicable technical directives. When removed from jacket, turn in to maintenance. Maintenance will retain for 90 days after inter-fund billing to provide a secondary audit trail for fuels issue and flying hours.

8.6.6. DD Form 1896, ***Jet Fuel Identa-plate***, aircraft fuel and oil charge card.

8.6.7. DD Form 1898, **Av Fuels Into Plane Sale Slip**, fuel transaction receipt is used for purchases at other DoD locations, including DFSC into-plane contract locations. Log and place inside AF Form 664.

NOTE:

If the contractor insists on completing their own invoice in addition to the DD Form 1898, the invoice must be annotated "DUPLICATE DD FORM 1898 ACCOMPLISHED."

8.6.8. Wing Scheduling. The wing scheduling office will:

8.6.8.1. Work with and provide a representative to the AVPOL advisory group.

8.6.8.2. Prepare a monthly report for the invoice control officers (ICO) by the 7th of each month stating the following:

8.6.8.2.1. Organization (by squadron).

8.6.8.2.2. Mission design and series (MDS).

8.6.8.2.3. Programmed flying hours for previous and current month.

8.6.8.2.4. Actual flying hours for the previous month.

8.6.8.3. Provide on the weekly flying schedule the receivers MDS, command of assignment, unit or squadron, and home station name for each sortie.

8.6.9. Aircraft Commanders. Aircraft commanders will:

8.6.9.1. For local training missions:

8.6.9.1.1. Verify that AFTO Form 781H are completely filled out prior to maintenance debriefing.

8.6.9.1.2. Turn in AFTO Form 781H to maintenance debriefing.

8.6.9.2. For off station missions:

8.6.9.2.1. Verify that AF Forms 15, 315, 664, 1994, AFTO Form 781H, DD Form 1898, and all associated fuels receipts are completely filled out and placed inside the AF Form 664. (All USAF aircraft must contain an 8-digit tail number).

8.6.9.2.2. Ensure that AF Form 664, with all refueling documentation, and the AFTO Form 781H are turned in at maintenance debriefing.

8.6.9.2.3. Ensure that all AF Forms 664 information is phoned, faxed, or sent by message back to the ICO if aircraft is to be off station past the last day of the month.

NOTE:

When situations arise that preclude the transmission of AF Form 664 data, the information will be relayed on arrival from the first available AMC command post.

8.6.10. Maintenance Personnel. Maintenance Personnel will:

8.6.10.1. Ensure that all ground refueling and de-fueling documents are accurately completed and placed inside AF Form 664.

8.6.10.2. Prior to deployment, ensure an adequate supply of fuels transaction documents are onboard the aircraft to complete the deployment.

8.7. AMC Form 54, Aircraft Commanders Report on Services/Facilities. This is an instrument for aircrews to report that services rendered or conditions encountered were unsatisfactory or detrimental to efficient air mobility operations; services rendered or procedures used are worthy of adoption for all MAJCOM organizations; or a performance rendered by a person (or persons) was commendable and deserves recognition. Attempt to solve problems by contacting appropriate supervisors including the senior commander if conditions and situations warrant. If further action is deemed necessary or the problem requires increased visibility, submit this form.

8.7.1. Submit the form to the originator's squadron commander. Time permitting, leave an information copy with the CP or senior AMC representative on station. Forward an information copy to HQ AMC/DOV and AMC NAF/DO. See AMCI 11-208 *Tanker/Airlift Operations* for processing information.

8.8. AMC Form 43, AMC Transient Aircrew Comments. Any crewmember may submit this form. The report may be submitted whether or not an unsatisfactory item is included in the aircraft commander's trip report. Complete AMC Form 43 and send to HQ AMC/MWPS.

8.9. AMC Form 196, Aircraft Commander's Report on Crewmember. The aircraft commander will prepare an AMC Form 196 on each crewmember whose performance was outstanding, below average, or unsatisfactory during a mission. Send the report to the commander of the unit to which the crewmember is assigned or attached for flying. Form should fully explain outstanding, below average, and unsatisfactory performance.

8.10. AMC Form 423, MIJI (Meaconing, Intrusion, Jamming, Interference) Incident Report Worksheet.

8.10.1. Purpose. The MIJI reporting system is a program to identify, analyze, and disseminate information concerning MIJI incidents.

8.10.2. Procedures. Comply with Air Force headquarters direction by reporting all incidents through the OPREP (operations reporting) system. Complete the MIJI Incident Report Worksheet, and turn in to base operations upon landing.

Chapter 9

TRAINING POLICY

9.1. Qualification Training. Initial qualification, re-qualification, or upgrade training for pilots will not be conducted on missions with passengers onboard. Mission qualification training and evaluations may be conducted on missions with passengers onboard only if the individual in training is qualified (completed aircraft checkride with a valid AF Form 8).

9.1.1. Touch-and-go landings with passengers or cargo are prohibited.

9.1.2. Maintenance and civilian employees under direct contract to the DoD, engaged in official direct mission support activities, are considered mission essential and may be onboard when touch-and-go landings are performed.

9.2. Simulated Emergency Flight Procedures.

9.2.1. Simulated emergency flight procedures will be conducted according to AFI 11-2023 and this instruction. Use a realistic approach and do not compound emergencies.

9.2.2. Use radar flight following to the maximum possible, consistent with training objectives.

9.2.3. Conduct simulated emergencies only during training and evaluation or currency flights when an instructor or flight examiner pilot is occupying one of the pilot seats. Instructor or flight examiner pilot candidates who occupy a pilot seat and are under the direct supervision of a flight examiner pilot not in a pilot seat may conduct simulated emergencies during initial and requalification upgrade evaluations.

9.2.4. Passengers are prohibited on training and evaluation or currency flights when simulated emergencies are practiced.

9.2.5. Notify the controlling agency when initiating an approach, landing, or missed approach in conjunction with a simulated emergency only when flying a nonstandard pattern requiring special sequencing.

9.2.6. Simulated Engine Out Landing. Landings may be performed with one thrust lever in idle. For the C-21, simulated engine failure will not be initiated below 1,000-foot AGL or after beginning gear and flap extension.

9.3. Touch and Go Landing Limitations.

9.3.1. Touch and go landings will only be accomplished under the direct supervision of an IP.

9.3.2. Current and qualified instructor pilots are authorized to conduct/supervise touch-and-go landings under the following conditions:

9.3.2.1. Flight manual restrictions and procedures apply.

9.3.2.2. Runway length and width meet paragraph **5.15.3.** restrictions.

9.3.2.3. Reported ceiling or visibility values are at least 300-3/4 (RVR 40).

9.3.2.4. Wet runway or RCR must be a measured 12 or higher.

9.3.2.5. Do not accomplish touch-and-go landings on slush covered runways.

9.3.2.6. Passengers or cargo will not be carried during touch-and-go operations or multiple practice approaches.

9.3.2.7. IPs, instructor candidates, or evaluator pilot candidates on initial or requalification instructor or evaluator pilot evaluations, and evaluator pilots in either seat.

9.3.2.8. Any pilot from either seat provided that an instructor pilot, instructor pilot candidate on initial or requalification instructor evaluation, or flight examiner pilot is in the other seat.

9.3.3. Supervision of touch-and-go landings. Review the following:

9.3.3.1. Flight manual procedures.

9.3.3.2. The importance of smooth application of power to the touch-and-go N1 setting while maintaining symmetric thrust as the throttles are advanced.

9.3.3.3. Engine failure, including recognition and corrective action.

9.3.3.4. Proper use of spoilers, flaps, trim.

9.3.4. To provide additional training flexibility, crews may perform multiple approaches, and if the aircraft commander is an instructor, touch and go landings on operational airlift missions provided the following requirements are met:

9.3.4.1. Normal touch and go limitations apply.

9.3.4.2. All transition training will be accomplished during the first 12 hours of the FDP only.

9.3.4.3. Pre-mission coordination requirements. As part of pre-mission planning, aircraft commanders will contact parent wing current operations and obtain training mission number(s) for use at each en route location(s) where training events are planned. In addition, aircraft commanders will coordinate with and receive approval from the airfield(s) where training is to be accomplished. They will then coordinate with the controlling agency to ensure adequate ground time is available at planned training locations to allow for planned training events, clearing customs, required crew rest, etc. Once complete, wing current operations will coordinate with controlling agency.

9.3.4.4. Upon initial arrival at the training location, close out the current line on the AFTO Form 781 and log the training time on the next line using the appropriate training mission symbol and number.

9.3.5. Touch-and-go landings may be performed with MAJCOM approved maintenance personnel on board provided the mission is a designated training flight and an instructor or evaluator pilot is in command, and the personnel are necessary for maintenance evaluations or inspections. Touch-and-go landings are not authorized with other passengers onboard.

9.4. Engine Out Limitations.

9.4.1. Simulated engine failure is not authorized at less than engine-out minimum control speed as published in the flight manual, when actual emergency condition exists, or during no-flap approach and landing. Landings may be performed with one thrust lever in idle. Simulated engine failure will not be initiated below 1,000-foot AGL or after beginning gear and flap extension.

9.4.2. Copilots will not practice simulated engine out maneuvers in the aircraft until entered into aircraft commander upgrade program and approved by the unit commander.

9.5. Training Maneuver Limitations. Adhere to the restrictions in **Table 9.1.** on all training flights and FCFs.

Table 9.1. Training Maneuver Restrictions.

Maneuver	Altitude Restriction	Other Restriction
Actual engine shutdown	5,000-foot AGL (min)	Perform only for FCF (Actual or Training)
Simulated Engine failure	Initiate above 1,000-foot AGL in clean configuration	
Any simulated emergency (except engine failure) On takeoff On approach	 Initiate above 500-foot AGL Initiate above 500-foot AGL	
Low approaches with personnel and equipment on runway	Initiate at or above 500-foot AGL	
Instrument missed approach	Initiate at or above minimums for the approach flown	
Simulated single engine missed approach or go around	Initiate at or above 300-foot AGL	
Planned VFR go-arounds with simulated emergencies other than engine-out	Initiate at or above 100-foot AGL	

9.6. Operating Limitations.

9.6.1. Policy: Unless specifically authorized elsewhere in this section, do not practice emergency procedures that degrade aircraft performance or flight control capabilities (in-flight). In an actual emergency, terminate all training and flight maneuvers practice. Training should be resumed only when the pilot in command determines it is safe.

9.6.2. Option Approach and Visual Low Approaches. Initiate a planned missed approach according to limitations in **Table 9.1.**

9.6.3. Aircraft will not perform engine-out approaches and landings at night or in IMC conditions.

9.6.4. Other simulated emergency procedures will be limited to non-critical phases of flight and will be kept to a minimum when IMC or at night.

9.7. Not Used

9.8. Prohibited In-Flight Maneuvers. Practice the following maneuvers in the simulator only, unless specified in IP upgrade syllabus. Maneuvers required for Functional Check Flights (FCF) or FCF training are authorized in flight.

9.8.1. Simulated engine-out takeoffs.

9.8.2. Full stalls (Stall Series FCFs must be flown by Learjet certified stall series pilot).

9.8.3. Approach to stalls, slow flight, and flight on the backside of the power curve.

9.8.4. Dutch rolls.

9.8.5. Jammed stabilizer approach and landing.

9.8.6. Split flap landings.

9.8.7. Landing with anti-skid off.

9.8.8. Landing with inoperative hydraulic system.

9.8.9. Aborted takeoffs.

9.8.10. Unusual attitudes.

9.8.11. Emergency descents.

9.8.12. Runaway pitch or roll trim, yaw demonstrations.

9.8.13. Emergency brake landing.

9.8.14. Simulated dual engine failure.

9.8.15. Actual engine shutdown.

9.8.16. Engine-out circling approach.

9.9. Instructor Pilot Briefing. Before all training/evaluation missions, aircraft commanders or instructors/flight examiners will brief their crews on the following additional items:

9.9.1. Training/Evaluation requirements. Instructors/evaluators will outline requirements and objectives for each student or examinee.

9.9.2. Planned training area and seat changes.

9.10. Debriefing. Review and evaluate overall training performed. Each student or aircrew member should understand thoroughly what training has been accomplished. Ensure all training is documented.

9.11. Simulated Instrument Flight. Artificial vision restricting devices are not authorized for any phase of flight. Simulated instrument flight may be flown and logged without the use of a vision restricting device.

Chapter 10

LOCAL OPERATING PROCEDURES

10.1. Units define local operations procedures in this chapter.

Chapter 11

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11.1. This chapter is not used for C-21 operations (Navigational Procedures).

Chapter 12

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12.1. This chapter is not used for C-21 operations (Aircrew Maintenance Support Tasks).

Chapter 13

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13.1. This chapter is not used for C-21 operations (Loadmaster Procedures).

Chapter 14

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14.1. This chapter is not used for C-21 operations (Fuel Planning).

Chapter 15

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15.1. This chapter is not used for C-21 operations (Air Refueling).

Chapter 16

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16.1. This chapter is not used for C-21 operations (Combat Mission Planning).

Chapter 17

EMPLOYMENT TRAINING

NOTE: Certain technical information was intentionally omitted or generalized to keep this chapter unclassified. Users should be aware that written additions to any portion of this document could cause the manual to become classified.

17.1. General. Each unit will have a tactics ground training program tailored to the unit's wartime taskings. Tactics and intelligence staff should join forces in this area to ensure success. Using a building block approach, the ground tactical training program forms the base of the unit's tactics program. Each unit's tactics ground training program may be different because of the differences between unit mission taskings; however the overall objectives should be the same.

17.2. Responsibilities. The tactics ground training program will be a coordinated effort between the unit's IN, Wing Tactics, DOT, DOV, and DOX (or their equivalent) in order to ensure continuity and the unit's specific mission tasking is addressed. The program is the responsibility of the squadron commander and is run by the unit tactics program manager.

17.2.1. Unit Tactics Program Manager. Responsible for the development, maintenance, and currency of the instructional materials used in the tactical training of crews. He/she is also responsible to find motivated, informed, and credible instructors to administer these materials. The program manager ensures the tactics training syllabus is comprehensive and covers all the aforementioned topics. More importantly, it is his/her responsibility to infuse tactics throughout the unit's operations, through classes, and flight profiles and other proactive aircrew members with tactics mission planning and initiatives.

17.2.2. Threat reference library/tactics read file/tactics newsletter. The unit tactics officer, with IN assistance, is responsible for developing procedures for timely dissemination of tactical and intelligence information to unit aircrew members.

17.2.2.1. Tactics Reference Library should be maintained by the unit tactics officer. This library provides study material at the unit level.

17.2.2.2. A by-subject Tactics Guide should also be developed and maintained by Wing Tactics and updated as materials are received.

17.2.2.3. The Tactics Read File should contain classified materials of timely interest to the aircrews. Read file may include messages, magazine articles, section out of MCM 3-1, Tactical Analysis Bulletins, etc.

17.3. Combat Entry and Exit Checklist. Combat entry and exit checklists included as checklist 1 (CL-1) of this volume will be used on training and operational missions into simulated or actual low threat environments. These checklists may be duplicated and inserted in hand held checklist.

17.4. Tactics Flight Training.

17.4.1. Scope. The tactics flight training program is designed to provide C-21 crewmembers with the training necessary to confidently and successfully survive the wartime threat environment without

endangering aircrews or aircraft in peacetime. This volume attempts to point those maneuvers out; however, do not attempt any maneuver that is not specifically mentioned in this publication without MAJCOM/DO approval.

17.4.2. Objectives. Flight training is the final phase of the tactics program. Its goal is to provide actual application of the tactics training concepts. Accomplish all flight maneuvers with strict adherence to aircraft limitations as defined in TO 1C-21A-1 and this volume. The flight phase also involves a "walk before you run" philosophy.

17.4.3. Tactical Maneuvers. The maneuvers described below are basic tactical maneuvers. Do not practice maneuvers other than these without MAJCOM/DO approval. HQ AMC/DO approves the following maneuvers for AMC AD crews.

17.4.3.1. VFR Overhead. Fly in accordance with flight manual procedures.

17.4.3.2. Random Steep Approach (**Figure 17.1.**).

17.4.3.2.1. Limitations:

17.4.3.2.1.1. Plan the maneuver not to exceed 30 degrees bank (if greater bank angles are planned, do not exceed 45 degrees bank, and compute stall speed for weight, configurations, and bank angle to be flown and fly no slower than 1.3 times that stall speed).

17.4.3.2.1.2. Minimum Weather VMC.

17.4.3.2.1.3. Maximum Speed 250 KIAS.

17.4.3.2.2. Procedures:

17.4.3.2.2.1. From any planned direction, fly towards airfield at 5000ft AGL, 250 KIAS.

17.4.3.2.2.2. Two-three miles prior to arriving overhead, begin slowing to 200 KIAS.

17.4.3.2.2.3. At 200KIAS or slower, configure with gear and flaps 20×.

17.4.3.2.2.4. Overhead field, 150KIAS maximum, Vref + 10 minimum, deploy flaps down, begin spiraling descent, complete before landing checklist. (Plan to lose approximately 1250 ft for every 90 ^{o} of turn).

17.4.3.2.2.5. Plan spirals to arrive at a normal glidepath picture at 1/2 mile final to the landing runway, approximately 150ft AGL.

17.4.3.2.2.6. Transition to normal visual approach and landing procedures.

17.4.3.3. Curvilinear Approach (**Figure 17.2.**). A curvilinear approach is a curving visual approach flown from any position other than a normal straight-in or downwind. Altitude, configuration and sequence of events will vary. However, in all cases, plan descent and flight path to arrive at a 1/2 mile final on a normal glidepath (approximately 150ft AGL) with the aircraft configured for landing and the before landing checklist completed.

17.4.3.4. Spiral-Up Departure (**Figure 17.3.**).

17.4.3.4.1. Limitations:

17.4.3.4.1.1. Maximum Bank Angle 30 Degrees.

17.4.3.4.1.2. Minimum Weather VMC.

17.4.3.4.1.3. If the threat avoidance altitude not yet reached after 5 minutes, reduce thrust to maximum continuous power setting.

17.4.3.4.2. Procedures:

17.4.3.4.2.1. Set full power prior to brake release and follow normal takeoff procedures through rotation and liftoff.

17.4.3.4.2.2. Retract gear, engage yaw damper, turn thrust reverser control switches off, climb out at V2 + 20, 20× pitch maximum, until above threat.

17.4.3.4.2.3. Passing 400 feet, a turn may be initiated towards planned escape route. Do not exceed 30× of bank while maneuvering.

17.4.3.4.2.4. When above threat altitude, lower pitch attitude slightly, accelerate to V2 + 30 KIAS (V2 + 40 if maneuvering), and then retract flaps.

17.4.3.4.2.5. Resume normal climb schedule and complete after takeoff checklist.

17.4.4. Coordination with Air Traffic Control (ATC). In all cases, units should coordinate these procedures with local ATC at any location where these maneuvers will be flown. Do not fly these procedures at uncontrolled fields unless called for in actual operations.

17.5. Exercises.

17.5.1. Scope. Exercises provide realistic combat-scenario training. This training is representative of the unit mission tasking. Unit planner ensures exercises are planned and flown to maximize training objectives.

17.5.2. Objectives. Tactics training will be built into each exercise during the planning stage. Training objectives include but are not limited to, tactical deception, threat advisories, and defensive tactics. Consider the following elements during exercise planing:

17.5.2.1. Utilize warning, alerting, deployment and execution orders.

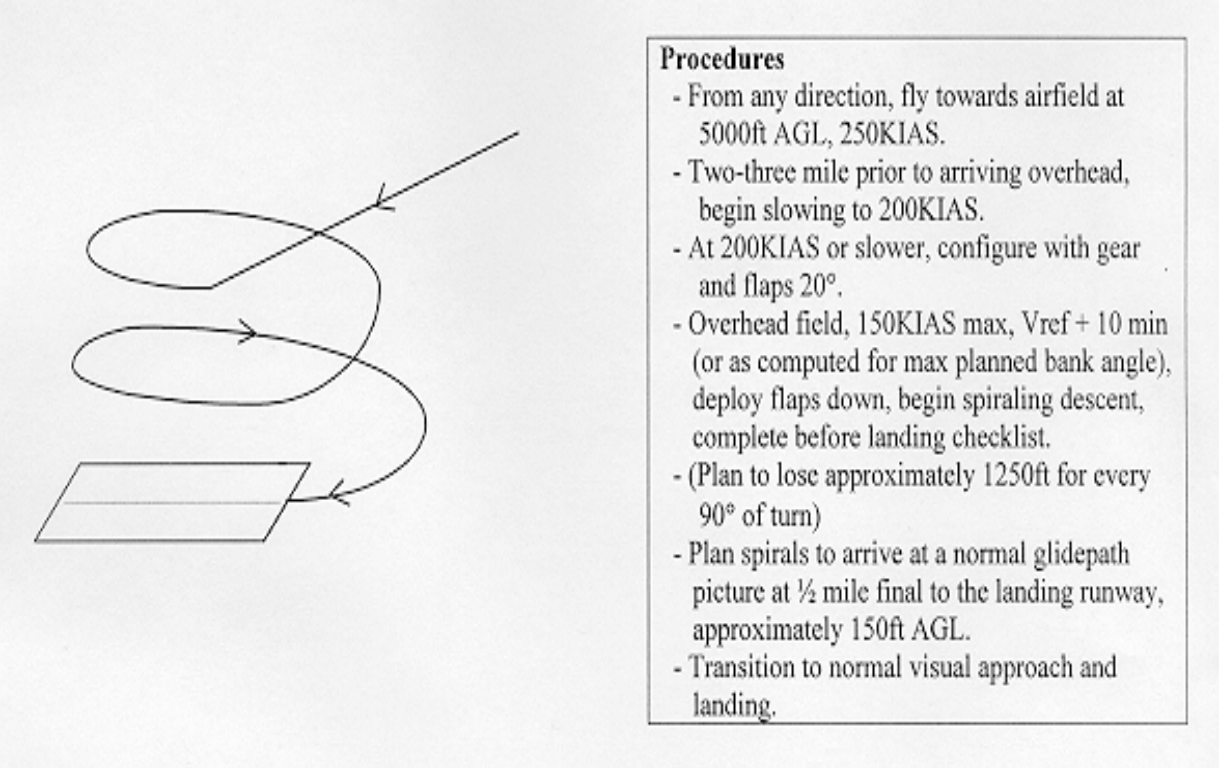
17.5.2.2. Theater ATO's should be sent secure by STU III and FAX at least one day during the exercise.

17.5.2.3. Conventional exercises should stress the "ability to survive and operate" (ATSO) in a chemical environment as much as possible within the constraints of equipment, budget, and supplies.

Figure 17.1. Random Steep Approach.

NOTE:

Altitudes and distances are approximate and may be adjusted to fit the tactical situation.



NOTE:

Plan the maneuver not to exceed 30 degrees bank (if greater bank angles are planned, do not exceed 45 degrees bank, and compute stall speed for weight, configurations, and bank angle to be flown and fly no slower than 1.3 times that stall speed). Can be planned so as to make one turn to final.

Figure 17.2. Curvilinear Approach.

NOTE:
Airspeeds, altitudes, and distances are approximate and may be adjusted to fit the tactical situation.

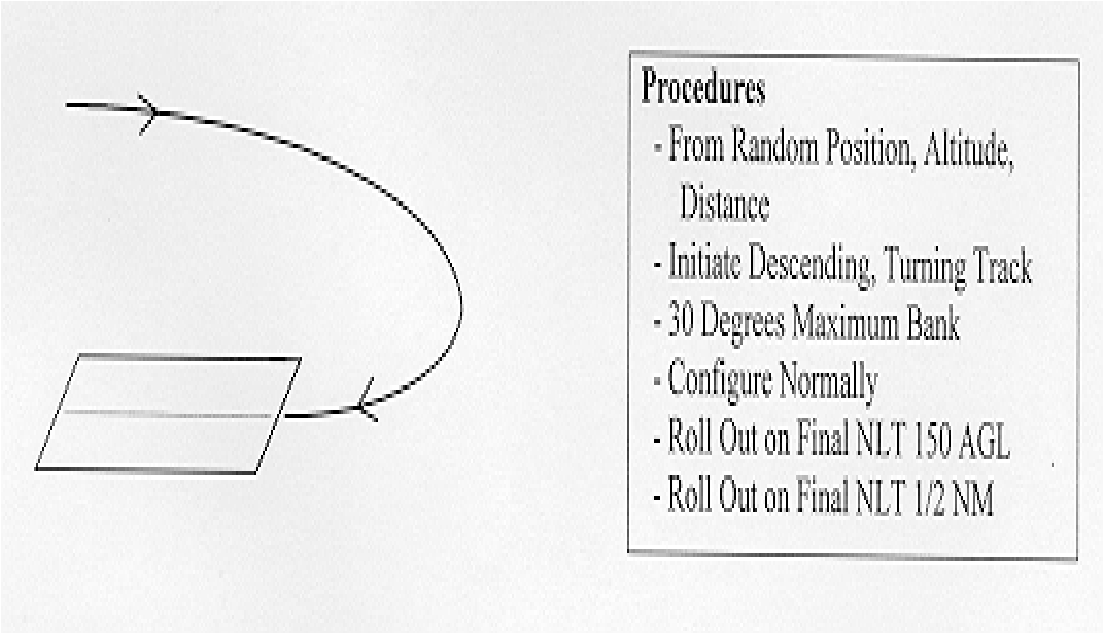
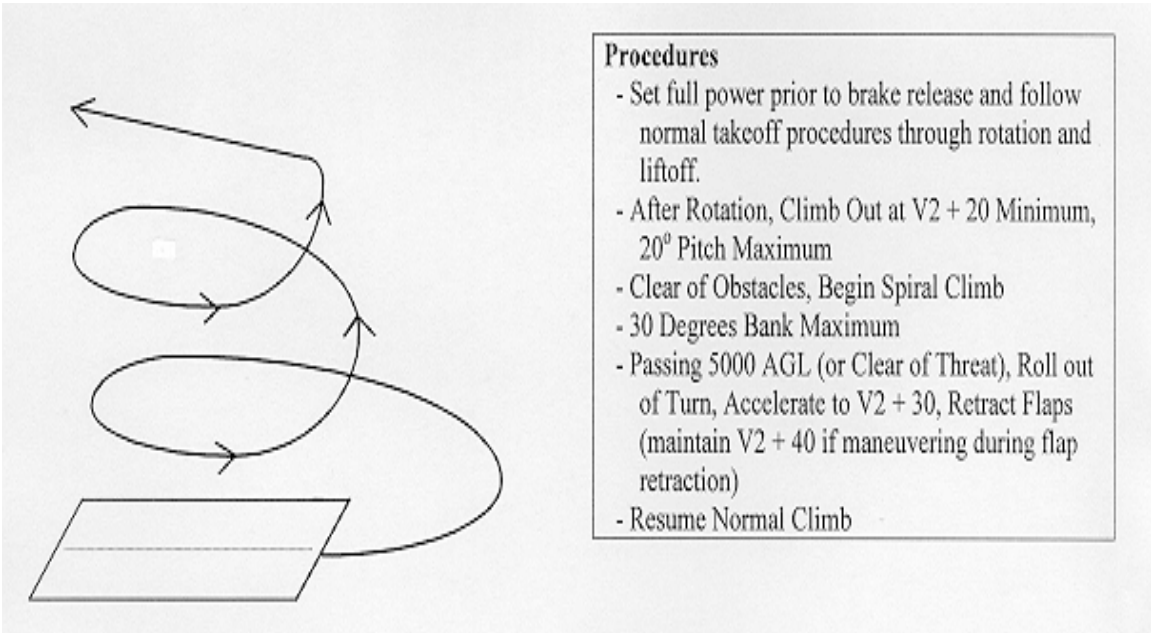


Figure 17.3. Spiral-Up Departure.

NOTE:
Airspeeds, altitudes, and distances are approximate and may be adjusted to fit the tactical situation.



Chapter 18

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18.1. This chapter is not used for C-21 operations (Aircraft Formation).

Chapter 19

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19.1. This chapter is not used for C-21 operations (Airdrop).

Chapter 20

AEROMEDICAL EVACUATION (AE)

Section 20A—General Information

20.1. Mission:

20.1.1. The primary function of the C-21 aircraft for AE is opportune transport of ill or injured DoD members and their dependents requiring medical support. These AE missions may be directed at any time. The C-21 aircraft will be used with the concurrence of the appropriate medical validating authority.

20.1.2. AE personnel will utilize the procedures in applicable AFI/H 11-XXX and 41-XXX series, in conjunction with this publication, to accomplish the AE mission.

20.2. Not Used.

20.3. Waivers and Revisions:

20.3.1. Waivers. Use **Chapter 4** waiver protocol for AE related questions or waivers.

20.3.2. Revisions. Use **Chapter 1** protocol for improvement recommendations.

20.4. Aeromedical Evacuation Forms. Forms required will be per applicable AFI/H 11-XXX and 41-XXX series publications.

Section 20B— Aeromedical Evacuation Command and Control

20.5. Operational Control and Reporting of Aeromedical Evacuation Forces:

20.5.1. HQ AMC is the lead command for AE. The aircraft commander is responsible for ensuring the safety of the flight crew, AE crew, and all patients and passengers. The MCD is responsible for providing medical care to the patients. In matters concerning flight safety, decisions of the aircraft commander are final; in matters of patient care, decisions of the MCD are final. ***NOTE:*** The term MCD will be used throughout this chapter, however on missions where a flight nurse is not on board the senior Aeromedical Evacuation Technician (AET) will function as MCD.

20.5.2. Operational control of AE missions is the same as for other airlift missions.

20.5.3. The AMC Command Surgeon (HQ AMC/SG) is responsible for providing standards and procedures concerning the treatment of patients in-flight, and for approval of any medical equipment used on AE missions.

20.5.4. The MCD will advise the aircraft commander when a patient's condition or use of medical equipment may affect aircraft operations.

20.5.5. The AEOO, if available, is responsible for supervising flight line execution of AE missions. The MCD is directly responsible for the safety and medical well being of patients on the aircraft and coordinates enplaning and deplaning procedures with the AEOO and supporting agencies.

20.6. Aircraft Commander Responsibilities:

20.6.1. Assist the MCD in obtaining patient support requirements based on local availability. The MCD will coordinate with the aircraft commander for integration of the flight and Aeromedical Evacuation Crew Members (AECM) for continuing missions in which no crew changes take place including en route transportation, dining, billeting, etc.

20.6.2. Brief the AE crew on the mission, flight plan, flight profile, and current threat (if applicable).

20.6.3. Maintain cabin altitude at the level requested by the GPMRC/TPMRC, tasking AE command element, or MCD.

20.6.4. Coordinate with the MCD to determine if any flight restrictions are necessary due to patient conditions and if passengers and cargo may be carried.

20.6.5. Coordinate with the MCD to insure mission required equipment is available/installed as necessary.

20.6.6. Advise the AECMs of intentions to start engines, taxi, itinerary changes, in-flight difficulties, etc.

20.6.7. Brief the MCD on additional responsibilities of the flight crew.

20.6.8. During Aeromedical Readiness Missions (ARM), coordinate with the Mission Clinical Coordinator (MCC) on planned simulated emergencies and training activities.

20.6.9. Patients or passengers may visit the flight crew compartment per **Chapter 5** of this instruction. The control of patients rests with the MCD, while control of the passengers is the responsibility of the flight crew, in conjunction with the MCD.

20.6.10. Transmit load messages and radio transmissions to GPMRC/TPMRC or tasking AE command element/ground personnel as requested by the MCD.

20.6.11. Coordinate Crash/Fire/Rescue (CFR) vehicle requirements when transiting airfields that are unfamiliar with AE requirements. CFR vehicle will stand by per AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*, and T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*.

20.7. Flight Crew Responsibilities:

20.7.1. Assist the AE crew with aircraft systems.

20.7.2. Provide AECMs who are not qualified in the C-21 with information identified in paragraph **20.10.1.**

20.7.3. Coordinate an emergency evacuation plan with the MCD.

20.7.4. Operate aircraft systems, i.e., doors, emergency exits, etc.

20.7.5. Assist the AE crew as necessary, providing such assistance does not interfere with primary duties.

20.7.6. Assist with aircraft configuration for AE operations.

20.7.7. Complete pre-flight/emergency briefings.

20.8. Aeromedical Evacuation Crew Responsibilities:

20.8.1. Primarily responsible for patient activities.

20.8.2. Assist flight crew/maintenance with aircraft configuration for AE operations.

20.8.3. Install and remove medical equipment/supplies.

20.8.4. Assist the flight crew with observation and care of passengers when it doesn't interfere with primary duties.

20.8.5. If C-21 qualified/certified, provide AECMs who are not qualified/certified in the C-21 with information identified in paragraph **20.10.1.**

20.9. Patient Death In-Flight. When a suspected death of a patient occurs in-flight, the planned itinerary will not be interrupted if the next scheduled stop is a US military airfield. If the next stop is a civilian airfield that does not service a US military medical facility, or a foreign military airfield, that stop will be over flown (mission requirements allowing). Coordination with command and control agencies is essential. The GPMRC/TPMRC or tasking AE command element must ensure that the MTF anticipating the aircraft's arrival at the civilian/foreign military airfield is informed of the cancellation.

Section 20C— Aeromedical Evacuation Crew Complement and Management

20.10. Aeromedical Evacuation Crew Complement:

20.10.1. Aircrew Qualification. AECMs must be fully qualified on at least one of the following aircraft; the C-9, C-17, C-130, or C-141, and are authorized to log primary flight time while performing duties on AE missions. Prior to being utilized as a certified AECM on C-21 aircraft, AECMs must receive training as directed in AFI 11-2AE, V1. A flight crewmember is ultimately responsible for emergency egress and cabin safety.

20.10.2. Crew Complement. A basic AE crew on a C-21 aircraft consists of one FN and at least one but no more than two AETs. An alert crew consists of either one FN or one AET or both. An augmented AE crew consists of one additional FN and AET. The group/squadron chief nurse can adjust the crew complement. The group/squadron chief nurse is the final authority for increasing or decreasing the number of AECMs assigned to AE missions. Physicians, nurses, medical technicians, or other personnel designated as medical attendants (i.e., Critical Care Air Transport Team (CCATT) members) to specific patients does not constitute an augmented AE crew and does not extend crew duty time. Basic crews will not be augmented after crew duty has started.

20.10.3. The appropriate GPMRC/TPMRC or tasking AE command element will notify the command and control agencies or flying organization operations officer of the AE crew complement for each AE mission on C-21 aircraft.

20.11. Aeromedical Evacuation Crew Management. AECMs will be managed per **Chapter 3** of this instruction.

Section 20D— Aeromedical Evacuation Aircrew Procedures

20.12. Checklists:

20.12.1. General. This instruction and AFI 11-215, set policy and provide guidance for the standardization of contents and maintenance of flight crew checklists. Maintain Checklists according to AFI 11-215 and applicable MAJCOM supplement.

20.12.2. Applicability. This instruction applies to all AECMs assigned to AMC and AMC-gained AE units. It also applies to theater assigned AECMs performing AE duties on the C-21 aircraft.

20.12.3. During all aircraft operations, AECMs will carry and use the guidance contained in their current abbreviated flight crew checklist.

20.12.4. Only MAJCOM/DO and SG approved inserts/briefings pertaining to crew positions will be kept in the abbreviated flight crew checklist binders.

20.12.5. Information in the AECM checklists will not be changed except by published revisions or changes.

Section 20E—Aeromedical Evacuation Airlift Operations

20.13. General:

20.13.1. Determining Factors. Consider the following factors when transporting patients on the C-21 aircraft; patient's diagnosis, condition, equipment, oxygen requirements, in-flight time, in-flight patient care requirements, and the number of medical personnel required. Emphasis must always be on providing quality and appropriate care while minimizing potential risks during transport.

20.13.2. Patient Load Planning Factors. The GPMRC/TPMRC or tasking AE command element determines the size/composition of the patient load on AE missions. AE mission planning factors will be per applicable AFI/H 11-XXX and 41-XXX series publications.

20.13.3. Patient Preparation. A flight surgeon, if available, will determine the patient's suitability for AE on the C-21 aircraft. Medical authorities requesting the patient's evacuation must be informed of the in-flight physical stress on the patient. If the MCD determines the patient's medical condition is beyond the capability of the AE crew or aircraft, they will contact the GPMRC/TPMRC or tasking AE command element for further guidance. The MCD, in coordination with the appropriate theater medical validating authority, may refuse to accept any patient whose medical condition is beyond their capability. The MCD will advise the aircraft commander when a patient's condition or use of medical equipment may affect aircraft operation.

20.13.4. Equipment for AE Missions. Prior to use onboard AE missions, all medical equipment must be tested and deemed air worthy, and then approved for use by HQ AMC/SGX. For those unique patient moves requiring equipment that has not met the above criteria, contact GPMRC/TPMRC or tasking AE command element. GPMRC/TPMRC or tasking AE command element will obtain approval prior to use onboard the aircraft (applies to that specific mission only). AECMs are responsible for all medical supplies and equipment.

20.13.5. Aircraft Security. See **Chapter 7** of this instruction.

20.14. En Route Diversions:

20.14.1. The MCD is the medical authority onboard all AE missions and has the responsibility to determine what is beneficial or detrimental to the patient(s). If a physician is onboard, as an attendant

to a patient, they will make decisions involving that specific patient's care and may be consulted for advice as appropriate. Specific guidelines are contained in applicable AFI/H 41-XXX series.

20.14.2. Should a diversion become necessary due to a change in patient's condition, the aircraft commander will make every effort to comply with the requests of the MCD. Establish communications with the responsible command and control agencies, who will relay the information to the appropriate GPMRC/TPMRC or tasking AE command element.

20.14.3. Should an en route diversion become necessary for reasons other than a change in patient's condition, the aircraft commander will coordinate with the MCD before deciding the point of landing. The welfare of the patients is a prime consideration in all such decisions; however, safety is the final determinant. The aircraft commander notifies the responsible command and control agencies of the diversion and requests the appropriate medical agencies be notified.

20.14.4. Normally, patients will be advised of changes in itinerary and reasons for the diversion.

20.14.5. If the MCD determines the diversion will be detrimental to the patient, or the aircraft commander determines the diversion to be unsafe, the command and control agencies will be advised and guidance requested.

20.14.6. ARMS are the primary means of preparing for AE airlift. These missions can be diverted to fulfill "real" versus "simulated" patient airlift requirements. All medical equipment/kits will be kept operationally ready at all times. The Portable Therapeutic Liquid Oxygen (PTLOX) system, when mission ready, will be filled with LOX. **EXCEPTION:** The PTLOX system, when mission capable, will be maintained with nitrogen IAW T.O. 15X-2-8-1, *Liquid Oxygen Converter Type CRU-87/U.*

20.14.7. Opportune Airlift. Opportune airlift is preferred to launching a special airlift aircraft. The appropriate GPMRC/TPMRC or tasking AE command element and airlift agency should direct the move. Use of opportune airlift is considered an unscheduled AE mission, and managed/reported in the same manner as any other AE mission, to include the change of the mission number when patients are onboard. AECMs on these missions will either be qualified/certified or under supervision while gaining qualification/certification in the affected aircraft.

20.15. Ground Operations. Engines should be shut down during enplaning and deplaning of patients.

20.16. Refueling Operations:

20.16.1. The aircraft will be refueled prior to enplaning patients. Servicing will be per AFI 32-2001 and T.O. 00-25-172.

20.16.2. Concurrent servicing will not be accomplished.

20.17. Aircraft Pressurization. Normally altitude restrictions are passed from the GPMRC/TPMRC or tasking AE command element to command and control agencies for flight planning purposes. The MCD will advise the aircraft commander of any new cabin altitude or rate of cabin altitude change restrictions during the pre-flight briefing update.

20.18. Aircraft Configuration:

20.18.1. On dedicated AE missions, configure the aircraft during pre-flight.

20.18.2. Litter Support Provisions.

20.18.2.1. Load planning will be according to theater guidelines for C-21 aircraft.

20.18.2.2. There are provisions for two litter patients on C-21 aircraft.

20.18.3. Available litter spaces and ambulatory seating will depend on the aircraft cabin's mission configuration.

20.18.4. Therapeutic Oxygen. Unless the aircraft has the Spectrum or other approved system installed, therapeutic oxygen is not available and must be brought onboard for patient use. If needed, use the PTLOX system or compressed oxygen cylinder.

20.18.5. Patient and passenger emergency oxygen is available on the aircraft. Patients and passengers will use the applicable passenger emergency oxygen system.

20.18.6. AECMs will have portable oxygen available. AECMs will use an MA-1 portable oxygen bottle, or equivalent, which will be secured near their assigned seat.

20.18.6.1. AE units will not maintain MA-1 portable oxygen bottles. MA-1 portable oxygen bottles must be functionally located to ensure proper maintenance, servicing, and storage. Dash 21/ Alternate Mission Equipment (AME) shops ensure MA-1 portable oxygen bottles are serviceable and properly maintained, tested, and stored. Dash 21/AME personnel ensure MA-1 portable oxygen bottles are available for each AE crew member flying in a primary crew position on AE missions.

20.18.7. Do not secure aircraft or medical equipment adjacent to an emergency exit in a manner that will prevent or impede egress.

20.18.8. Life Preservers. MB-1 flotation devices should be used for litter patients. If unavailable, use the Adult/Child life preserver for litter patients.

20.18.9. Patients not normally transported on the C-21 aircraft:

20.18.9.1. Critical prognosis requiring extensive patient care or medical equipment, i.e., burns, cardiac problems, or multiple trauma.

20.18.9.2. Respiratory problems requiring large amounts of therapeutic oxygen, ventilator support and/or frequent suctioning.

20.18.9.3. Patients with contagious illness.

20.18.9.4. High risk neonates without special medical supervision from a neonatal team.

20.18.9.5. Patients on "Stryker" type turning frames.

20.19. Passengers and Cargo:

20.19.1. The aircraft commander, with the concurrence of the MCD, will ensure maximum aircraft utilization for passengers and cargo. Passenger restrictions based upon patient considerations will be identified when seats are released. At stations with a GPMRC/TPMRC or tasking AE command element, the AEOO/GPMRC/TPMRC or tasking AE command element will advise the appropriate command and control agencies on the number of seats available for passengers.

20.19.2. Cargo and passengers may be carried with patients unless a clear detriment to the health and well being of the patient can be demonstrated. The decision will be made by the MCD, considering

the need for maximum utilization of the aircraft. Conflicts will be referred to the respective GPMRC/TPMRC or tasking AE command element for a decision.

20.19.3. Cargo will not be bumped except in unusual/abnormal cases, and only after the MCD has coordinated with the aircraft commander and notified the local GPMRC/TPMRC or tasking AE command element.

20.19.4. Do not move ambulatory patients to litters in order to provide seating for additional patients or passengers.

20.19.5. Hazardous cargo will not normally be transported aboard AE missions except in extreme circumstances.

20.20. Crash/Fire/Rescue (CFR):

20.20.1. Aircraft carrying patient(s) will be provided CFR protection per T.O. 00-25-172. Stand-by CFR vehicle is not necessary during normal operations. A CFR vehicle can be available upon request. The flight crew will coordinate CFR requirements.

20.20.2. At non-AMC bases, non-U.S. military bases, and civilian airfields, the controlling agency will coordinate the CFR coverage, as necessary. The request for CFR vehicle coverage may be denied. This will not prevent refueling operations from occurring.

20.21. AE Call Sign and Use of Priority Clearance:

20.21.1. For AE missions, use the call sign "Air Evac" followed by the five digit aircraft number (i.e., Air Evac 12345) or mission designator (as required by FLIP). Revert to standard call sign when the AE portion of the mission is completed.

20.21.2. The AE "priority clearance" will be used when carrying patients classified as "urgent" or "priority," who require urgent medical attention. AE priority will only be used for that portion of the flight requiring expedited handling. Aircraft commanders should request priority handling if AE missions are experiencing long delays during takeoff or landing phases, that will affect a patient's condition.

20.21.3. This does not allow use of AE priority status simply to avoid Air Traffic Control (ATC) delays, make block/departure times, or avoid inconveniences. ATC agencies do not question the motive when an AE priority is declared. Use this status judiciously.

20.22. Load Message:

20.22.1. At military bases, the flight crew will pass inbound load messages to the proper command and control personnel. At civilian airfields, ground control will be notified.

20.22.2. When required, the MCD will complete AF Form 3858, **C-130/C-141 Aeromedical Evacuation Mission Offload** Message, or applicable offload message per procedures in applicable AFI/H 41-XXX series.

20.23. Change in Patient Status. Change in patient status will be managed per applicable AFI/H 41-XXX series.

Chapter 21

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21.1. This chapter is not used for C-21 operations (Search and Rescue).

Chapter 22

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22.1. This chapter is not used for C-21 operations (Emergency Nuclear Airlift).

Chapter 23

AIRCREW CHEMICAL OPERATIONS AND PROCEDURES

23.1. Wear of Aircrew Chemical Defense Ensemble (ACDE). Wearing the ACDE will constrain normal aircraft operations. The ACDE includes the newer Aircrew Eye-Respiratory Protection System (AERPS) above the shoulder system and the CWU-66/P or -77/P Integrated Aircrew Chemical Coverall (IACC). Procedures and equipment have been tested under restricted conditions, and "business as usual" will not be possible. Individual situations dictates what can and cannot be done. To properly adapt, aircrews must understand hazards involved and the limitations of their chemical defense equipment.

23.1.1. This volume is intended to enhance other aircrew chemical defense training and provides the crewmember a basic understanding of utilizing ACDE in a chemical-biological threat area (CBTA). It combines information from technical orders and unit inputs to form a single source document.

23.1.2. This volume briefly describes the nature of the chemical threat and agents that may be faced. Secondly, it discusses some of the situations and problems the aircrew may encounter in a CBTA. Preparatory actions and countermeasures are examined so the crewmember can make optimal use of the ACDE and fly the mission safely. While the information presented may need to be modified, the specific objectives of this volume will help prepare the crewmember for the unique challenges imposed by chemical weapons.

23.2. Factors Influencing the Chemical Warfare (CW) Agent Hazard:

23.2.1. Major instances in which a crew may be exposed to chemicals is through inhalation, absorption through the skin, eyes, and ingestion. Contaminated drink and food are considered harmful, but immediate concerns must be contamination avoidance to the maximum extent, limit exposure of the skin and eyes, as well as avoid breathing the contaminants. Factors affecting persistence are weather, agent physical characteristics, method of dissemination, droplet size, and the terrain.

23.2.2. Weather. Factors include temperature, wind, humidity, precipitation and atmospheric stability. For example, high winds and heavy rains reduce the contamination hazard. Conversely, lack of wind, overcast-skies, and moderate temperatures favor persistence.

23.2.3. Agent Dissemination. Disseminated as vapors, aerosols, or liquids. Solids seem unlikely, but agents may become solids at lower temperatures.

23.2.4. Agent Droplet Size. Persistence factor is determined by droplet size. Agents may be mixed with other chemicals ("thickeners"), and form large drops making removal more difficult.

23.2.5. Surface and Terrain. CW agent clouds tend to follow the terrain, flowing over countryside and down valleys. Chemicals persist in hollows, depressions, and other low areas. Rough terrain retards cloud movement. Flat countryside allows a uniform, unbroken cloud movement. Vegetated areas are more contaminated than barren terrain. Liquid agents soak into porous surfaces, making evaporation much slower than for non-porous surfaces.

23.3. Categories of Chemical Warfare Agents. CW agents having military significance may be categorized as nerve, blister, choking, and blood. Because they are produced biologically, toxins technically are not chemical agents. However, they are considered a potential CW threat.

23.4. Nerve Agents:

23.4.1. Military Significance. Nerve agents are the most lethal and fastest acting of the standard CW agents. These agents affect the nervous system and are highly toxic whether inhaled, ingested, or absorbed through the skin. Persistency ranges from hours to many days.

23.4.2. Symptoms of Exposure. Nerve agent exposure is difficult to distinguish. Normally, symptoms of nerve agent exposure appear in the following order. Initial exposure includes a runny nose, tightness of the chest, dimness of vision, and pinpointing of the pupils. These symptoms are usually followed by difficulty in breathing, drooling, involuntary defecation and urination. Finally, exposure will lead to confusion, drowsiness, convulsions, coma and death.

23.4.3. Onset of Symptoms. Lethal respiratory dosages will cause death in 1 to 10 minutes and liquid exposure to the eyes will kill almost as rapidly. Depending on factors such as the amount and type of nerve agent, absorption through the skin may cause death anywhere from 1 to 2 minutes to 1 to 2 hours. Nerve agents are retained by the body for an extended period; thus intermittent, cumulative exposure to low amounts can lead to the same ultimate effect as a single exposure to a higher amount.

23.4.4. Protection. The full protective ensemble is effective against nerve agents. When properly worn, the various chemical protective masks prevents inhalation of nerve agents. Both the aircrew coveralls and ground crew ensemble provide limited protection to the skin. All layers of the outer garment must be protected against saturation of liquids, chemical agents, water, or petroleum.

23.4.5. Antidotes/Prophylaxis. Antidotes are effective in combating effects of nerve agent exposure. These antidotes may be effective if given to a victim having advanced symptoms, and as long as the victim is made to continue breathing. People who use the antidotes must be seen by medical personnel and may not be combat-ready for several days. Currently, nerve agents are the only agents where there is an available field antidote. This antidote can be self-administered by the exposed individual or through self-aid buddy care. In addition, medical personnel have more specialized treatments available.

23.5. Blister Agents:

23.5.1. Military Significance. Blister agents are dispensed as vapors or liquids, and may be encountered as solids. These agents primarily affect the eyes, respiratory tract, and the skin.

23.5.2. Symptoms of Exposure. Placed on the skin, a drop the size of a pinhead can produce a blister one inch in diameter. This action is accentuated by moisture; hence, a more severe danger is present during periods of sweating. The groin and armpits, which tend to be sweaty, are especially susceptible to blister agents. Blister agents which come in contact with the eyes lead to redness, watering of the eyes, blurring of vision, sensitivity to light, and frequently, blindness. Inhalation causes serious damage due to burns and blisters to the mouth, nose, throat, and lungs. Incapacitation may last for days or weeks; aircrews will probably be unable to fly for indefinite periods. After hospitalization, complications from blister agent exposure can arise and may be fatal.

23.5.3. Onset of Symptoms. Blister agents are quickly absorbed through the skin. However, it usually takes several minutes (up to five minutes and as long as several hours) for the symptoms to appear. They act most rapidly in liquid form, but are also effective in vapor form.

23.5.4. Protection. The full protective ensemble is effective against blister agents. Exposed areas must be cleaned thoroughly immediately after exposure. Blister agents are easily transferred from contaminated surfaces, thus great care must be taken to avoid contact with any contamination.

23.6. Choking Agents:

23.6.1. Military Significance. These agents are disseminated as vapors and when inhaled affect the respiratory system by damaging the lungs. Persistence is very brief, and dissipate rapidly (within minutes) under most field conditions.

23.6.2. Symptoms of Exposure. Choking agents cause coughing, choking, tightness of the chest, nausea, headache, and watering of the eyes. Choking agents can be lethal, with death normally from the lungs filling with fluids, making breathing difficult or impossible.

23.6.3. Onset of Symptoms. Exposure to choking agents has an immediate effect. Victims experience slightly delayed effects, such as painful cough, breathing discomfort, and fatigue.

23.6.4. Protection. Both the aircrew and ground crew protective mask is extremely essential to protect against exposure; the entire protective ensemble should be used as directed.

23.7. Blood Agents:

23.7.1. Military Significance. Blood agents are usually dispensed as vapor or aerosol and inhaled. Under most field conditions they may briefly persist on target (up to 10 minutes).

23.7.2. Symptoms of Exposure. Exposure to a single breath of blood agent causes giddiness, headaches, confusion, and nausea. As dose increases, breathing becomes more difficult. The victim will have deep, uncontrollable breathing and cramps, then loss of consciousness. Death is certain if the victim receives no medical aid.

23.7.3. Protection. Blood agents are breathing hazards. The full ensemble is most effective because the mask provides the breathing protection needed.

23.7.4. Additional Threats. Blood agents will damage mask filters. All personnel must change mask filters at the earliest possible opportunity after a blood agent attack.

EXCEPTION: Filters installed in aircrew CRU-80/P filter packs will be removed and replaced by aircrew life support (ALS) personnel (AFSC 1T1X1).

23.8. Aircrew Operations. Performance of duties while wearing chemical defense equipment can be extremely physically and mentally demanding. Special preparation and crew coordination are required to operate under chemical conditions. The information presented here will enable the aircrew to successfully operate in a chemical environment by recognizing limits and exploiting the capabilities of the chemical defensive equipment.

23.8.1. Planning:

23.8.1.1. Non-flying Ground Operations. Ground operations can represent the highest threat to aircrew safety. Protection from enemy attacks and exposure to liquid chemical agents is paramount. Aircrew should be advised to limit activities to essential duties only, and to separate ground duties from air duties. The ground ensemble is designed for quick donning and heavier levels of concentrations that can be more evident during ground operations. The aircrew ensemble

is designed for the unlikely event of light concentration levels, that could be found during flying operations and transmitted to and from the aircraft. Also, ACDE requires care during donning using "buddy dressing" procedures and ALS expertise during aircrew contamination control area (ACCA) processing.

23.8.1.2. Equipment Limitations. Due to thermal stress and the degraded performance associated with wearing of the ACDE, it is highly desirable to minimize the time and number of personnel exposed to chemical agents. Crewmembers must be familiar with the limitations of the ACDE and properly plan their duties. ACDE is designed to protect against vapor agents only and the mask and hood assembly can not be donned quickly in time of attack.

23.8.1.3. Body Temperature/Fluids Control. Heat stress and dehydration are serious hazards while wearing the ACDE. Crewmembers need to control perspiration rates and limit activities to essential duties only. The need to consciously slow the work pace while performing physical labor, share workloads and monitor each other's physiological condition is essential.

23.8.1.4. Breathing Restrictions. One of the inherent characteristics of the filter assembly is moderate breathing resistance. Normally, this is most noticeable during high flow rates. For example during physical exertion, users should be aware of the possibility of hyperventilation. During flying operations resistance can be reduced by using the EMERGENCY position on the oxygen regulator. The valsalva maneuver cannot be performed while wearing the MBU-13/P mask, therefore alternate means such as yawning or chewing can be used. If these are unsuccessful, attempt to clear ears by holding the oxygen regulator in the TEST MASK position and forcefully exhale or yell against the regulator pressure. The new AERP mask/hood assembly incorporates a blower system that presents less-than-moderate breathing resistance. However, in the event of a blower system failure, aircrews will experience an increase in breathing resistance.

23.8.1.5. Limited Dexterity. Wearing three pairs of gloves restricts dexterity, therefore visual confirmation of switch selection/positioning becomes very important.

23.8.1.6. Restricted Communications. Normal communications are limited while wearing the chemical defense mask. Communications can be enhanced by using the mini-amplifier/speaker with the AERP and some of the newer ground masks may be issued with a built-in amplifier. Otherwise, visual signals and the aircraft's public address system can be used to compensate.

23.8.1.7. Peripheral Visions Limits. The aircrew chemical defense mask may reduce peripheral vision as much as 15 percent.

23.9. Limitations. Aircrews must be mentally prepared to face the dangers of chemical weapons. Flight planning must be thorough and aircraft commanders should emphasize chemical defensive operations during mission planning, hazards and countermeasures, plans for onload/offload in the event of a ground attack, and plans for the return leg in the event of a contaminated aircraft. Alternate scenario plans should also be considered in the event conditions change.

23.9.1. Fuel Requirements. Extra fuel may be needed to compensate for altitude restrictions as the result of chemical agent exposure. If the aircraft has contamination, follow procedures outlined in paragraph 16. During purge periods, the aircraft will be unpressurized. Although the aircrew can use the aircraft oxygen systems, passengers wearing the ground crew ensemble (GCE) cannot. This restricts the aircraft cruise altitude and increases fuel requirements.

23.9.2. Oxygen Requirements. Operating into a CBTA will increase oxygen requirements. The aircrew may be required to rely on the aircrew chemical defense mask and aircraft oxygen system to counter actual/suspected chemical contamination. Using the 100 percent oxygen setting offers the greatest protection in a contaminated environment. Appropriate oxygen reservoir levels must be planned to meet higher consumption rates. Use the aircraft -1 charts to calculate the required reservoir levels.

23.9.3. Mask/Filter Assembly Limitations. Wearing any of the chemical defense masks/filter assemblies imposes the following limitations:

23.9.3.1. The mask/filter assembly prevents the detection of fumes from fuel, hydraulic fluid and oil.

23.9.3.2. The filter assembly will not protect the user against ammonia fumes and carbon monoxide gas.

23.9.3.3. The filter/mask assembly should not be used without an oxygen source in an oxygen deficient atmosphere.

23.10. ACDE Issue. Aircrews will be issued sized ACDE and GCE at home station. Aircrews will ensure their ACDE and GCE is available at all times while in a CBTA. During deployments, at least one ACDE and one GCE will be issued to each crewmember as directed by the unit commander or HQ AMC/TACC. ALS technicians will prepare and issue mobility ACDE "D" bags for crewmembers (Reference AMCI 11-301, *Aircrew Life Support (ALS) Program* (chapters 4 and 6). Mobility processing personnel will issue GCE "C" bags. Crewmembers will confirm the mobility bag contents and correct sizes.

23.11. Operations in a Chemical-Biological Threat Area (CBTA):

23.11.1. Establishing Threat Level. Aircrews should monitor C2 channels to ensure they receive the latest information concerning the destination's alert condition. Diversion of AMC aircraft to alternate "clean" locations may be required, unless operational necessity dictates. The local AMC C2 Center will direct aircrews to undergo medical pre-treatment for chemical exposure.

23.11.2. Protective Equipment Postures. Standardized USAF alert conditions and recommended ACDE requirements are listed below based on a chemical-biological threat. ***NOTE*:** These alarms may be different based on the host country requirements.

23.11.2.1. "ALL CLEAR" Attack is not probable, nor is chemical-biological contamination present. Notification--Verbal; removal of warning flags/placards. ACDE requirements--equipment is issued, prepared for flying, and kept readily available. GCE requirements--equipment is issued, prepared, and readily available.

23.11.2.2. "ALARM YELLOW" Attack is probable. Notification--Verbal; posting of yellow warning flags/placards. ACDE requirements--if en route to fly or during flying operations, all components will be worn except mask and hood, gloves, overcape, and overboots. GCE requirements--appropriate components should be worn with the mask/hood immediately available commensurate with ground duties.

23.11.2.3. "ALARM RED" (ALARM BLUE for Korean Theater) Attack is imminent or in progress. Notification--Verbal; posting of red warning flags/placards; one minute warbling tone on siren (3 seconds on-1 second off). ACDE requirements--full ACDE will be worn for flying

duties. GCE requirements--full ensemble should be worn commensurate with ground duties. Personnel will take immediate cover.

23.11.2.4. "ALARM BLACK" Contamination is suspected or present. Notification--Verbal; “Gas - Gas - Gas”; posting of black warning flags/placards; warbling tone on siren (1 second on-1 second_off). ACDE requirements--full ensemble will be worn. GCE requirements--full ensemble will be worn commensurate with ground duties. Personnel will remain indoors or under liquid agent cover.

23.12. Donning Equipment. Aircrew will don ACDE based on the alarm condition. Use the "buddy dressing" procedures, and refer to AMCVA 36-2206, *ACDE Donning Checklist* (projected to be AMCVA 11-303), to ensure proper wear. When wearing the ACDE, Atropine and 2 PAM Chloride auto injectors will be kept in the upper left flight suit pocket. This standardized location will allow personnel to locate the medication should an individual be overcome by nerve agent poisoning. M-9 paper on the flight suit will facilitate detection of liquid chemical agents and ACCA processing. M-9 paper should be placed on the flight suit prior to entering a CBTA when an alarm “yellow” or higher has been declared. When inbound to CBTA, prior to descent, the aircraft commander will ensure crew and passengers don appropriate protective equipment IAW arrival destination's mission oriented protective posture (MOPP) level and brief aircrew operations in the CBTA. As a minimum, this briefing will include: flight deck isolation, oxygen requirements, air conditioning system requirements, CW clothing requirements, ground operations and MOPP levels.

23.13. Ground Operations:

23.13.1. Off/On Considerations. Extreme care must be exercised to prevent contamination of aircraft interiors during ground operations, particularly to the flight deck area. Reduce the number of personnel entering the aircraft. Contaminated engine covers, safety pins and chocks will not be placed in the aircraft unless sealed in clean plastic bags. Onload cargo will be protected prior to and while being transported to the aircraft. Protective covers will be removed just prior to placing the cargo on the aircraft. It is the user's responsibility to determine and decontaminate equipment in his/her charge. Crewmembers entering the aircraft will remove plastic overboots and overcape portions of the aircrew ensemble and ensure flight/mobility bags are free of contaminants and placed in clean plastic bags. Aircrew exiting aircraft into a chemically contaminated environment will don plastic overboots and overcape prior to leaving the aircraft.

23.13.2. Physiological Factors. Aircraft commanders must be very sensitive to the problems resulting from physical exertion while wearing ACDE. The aircraft commander should consider factors such as ground time, temperature and remaining mission requirements when determining on/offload requirements. Individuals involved should be closely monitored for adverse physiological effects.

23.13.3. Communications. Conducting on/offloading operations while wearing the complete ACDE complicates communications capability. Use the mini-amplifier/speaker or the aircraft public address system and augment with flashlight and hand signals as required.

23.13.4. Passenger/Patients. A path should be decontaminated between the aircraft and the ground transportation vehicle to reduce interior decontamination when loading/unloading passengers/patients.

23.14. Chemical Attack During Ground Operations. If an attack (Alarm Red) occurs during on/off-loading operations or transport to and from aircraft, take immediate cover away from the aircraft/vehicle. Follow "buddy dressing" procedures to ensure proper donning of ACDE prior to flight.

NOTE:

Aircrews should don the ground crew protective chemical mask and protective helmet, consistent with circumstances and duties. Aircrews could be expected to forward information concerning medical aid, damage estimates, unexploded ordinance. Appropriate information may be forwarded via the aircraft radios to the controlling agencies.

23.15. Crew Rest Procedures. Operational necessity may require the aircrew to rest/fly in a contaminated CBTA. If the mission is not being staged by another aircrew or preflight crews are not available, the aircrew will normally preflight, load, and secure the aircraft prior to entering crew rest. The departing aircrew will perform necessary crew preparations and preflight briefings, then report to the ACCA for processing with assistance from ALS personnel who will assist aircrews donning ACDE prior to reassuming flying duties. If possible, aircrew transport should be provided in a covered vehicle. Aircrews should avoid pre-flighting aircraft prior to departure to prevent contamination to themselves and the aircraft. As aircrews proceed to fly they will require assistance from ground support personnel in removing their aircrew protective overcape and overboots prior to entering the aircraft.

23.16. Outbound with Actual/Suspected Chemical Contamination. Venting Aircraft/Removing ACDE Components: With actual/suspected vapor contamination, the aircraft must be purged for 2 hours using Smoke and Fume Elimination procedures. To ensure no liquid contamination exists, a close inspection of aircrew, passenger ensembles, and cargo will be conducted using M-8 and M-9 detection paper. M-8 and M-9 detection paper only detects certain liquid agents and will not detect vapor hazards. Above the shoulder ACDE may be removed only if the presence of vapor/liquid agents are not detected or suspected. The aircrew must take every precaution to prevent spreading of liquid contaminants, especially on the flight deck area. The best course is to identify actual/suspected contamination and physically avoid those areas for the remainder of the flight and keep cargo compartments cool. If an crewmember or passenger has been in contact with liquid contaminants, all personnel aboard the aircraft will stay in full ACDE/GCE until processed through their respective contamination control area (CCA).

23.17. Communicating Down-line Support. Pass chemical contamination information through C2 channels when inbound. This information will be used to determine if a diversion flight is required or decontamination teams are needed. Report the physical condition of any crew/passengers who are showing chemical agent symptoms and whether they are wearing chemical defense ensembles.

23.18. Contamination Control Areas (CCA) Procedures. Aircrews will proceed to the ACCA for processing. Ground personnel will report to the ground crew contamination control area (GCCA) for processing. All personnel will remove protective clothing IAW established procedures located in respective CCA's.

NOTE:

Because of the technical characteristics of life support/flying equipment and mission essential aircrew resources, an ACCA is required to ensure minimum exposure to contaminates. GCCA's are generally

used to process ground crew personnel and typically are subject to potentially higher concentration levels. The ACCA is equipped and manned by trained ALS personnel to process aircrews and decontaminate their equipment.

23.19. Work Degradation Factors. Work timetables need to be adjusted to minimize thermal stress caused by wearing the ACDE. Aircrews must weigh all factors when performing in-flight and ground duties. The following are degradation factors for wearing full GCE, and may also be used to represent the Task Time Multipliers for the ACDE. To estimate how much time it takes to perform a task or operation, (1) take the Task Time Multiplier for the appropriate Work Rate and ambient air temperature and (2) multiply it by the time it normally takes to perform the task. For example, given a heavy work rate and an air temperature of 70F, the crewmember should expect a normal one hour task to take 2.1 hours while wearing ACDE. A more extensive discussion of this subject is found in AFMAN 32-4005, *Personnel Protection and Attack Actions.*

Table 23.1. Task Time Multipliers

Work Rate	Temperature		
	20-49F	**50-84F**	**85-100F**
Light	1.2	1.4	1.5
Moderate	1.3	1.4	3.0
Heavy	1.7	2.1	5.0

23.20. Forms Prescribed. AF Form 4040, **Takeoff/Landing Data.**

MARVIN R. ESMOND, Lt General, USAF
DCS, Air and Space Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoD 4515.13R, *Air Transportation Management*

AFPD 10-9, *Lead Operating Command Weapon Systems Management*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 10-21, *Air Mobility Lead Command Roles and Responsibilities*

AFI 10-403, *Deployment Planning*

AFI 11-202V1, *Aircrew Training*

AFI 11-202V2, *Aircrew Standardization/Evaluation Program*

AFI 11-202V3, *General Flight Rules*

AFI 11-215, *Flight Manual Procedures*

AFI 11-209, *Air Force Participation in Aerial Events*

AFI 11-218, *Aircraft Operations and Movement on the Ground*

AFI 11-401, *Flight Management*

AFI 11-2C-21V1, *C-21 Aircrew Training*

AFI 11-2C-21V2, *C-21 Aircrew Evaluation Criteria*

AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*

AFI 11-299, *Nuclear Airlift Operations*

AFI 13-207, *Preventing and Resisting Piracy [Hijacking]*

AFI 13-401, *Managing the Information Security Program*

AFI 21-101, *Maintenance Operations and Management Policy*

AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*

AFI 31-101, Volume 1, *Air Force Physical Security Program*

AFI 31-401, *Information Security Program Management*

AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*

AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*

AFI 48-104, *Medical and Agricultural Foreign and Domestic Quarantine Regulations for Vessels, Aircraft, and Other Transports of the Armed Forces (Joint)*

AFI 48-123, *Medical Examinations and Standards*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

AFMAN 10-206, *Operational Reporting*

AFM 67-1V1, *Supply/Fuels Wartime Planning*

AFOSH Standard 127-100, *Aircraft Flight Line - Ground Operations and Activities*

AFMAN 11-117, *Instrument Procedures*

AFPAM 91-212, *Bird Strike Hazard (BASH) Management Techniques*

Abbreviations and Acronyms

AC—Aircraft Commander

ACDE—Aircrew Chemical Operations and Procedures

ACF—Acceptance Check Flight

AGE—Aircraft Ground Equipment

AOR—Area of Responsibility

APU—Auxiliary Power Unit

ASRR—Airfield Suitability and Restriction Report

ATC—Air Traffic Control

BRNAV—Basic Area Navigation Airspace

C2—Command and Control

CDT—Crew Duty Time

CG—Center of Gravity

CW—Chemical Warfare

CCA—Contamination Control Area

CECR—Crew Enhancement Crew Rest

CFP—Computer Flight Plan

COE—Certification of Equivalency

CSS—Chief Servicing Supervisor

CVR—Cockpit Voice Recorder

DCS—Defense Courier Service

DH—Decision Height

EAL—Entry Access List

ETA—Estimated Time of Arrival

ETE—Estimated Time En route

ETIC—Estimated Time in Commission

ETP—Equal Time Point

FCB—Flight Crew Bulletin

FAF—Final Approach Fix

FCF—Functional Check Flight

FCIF—Flight Crew Information File

FDP—Flight Duty Period

FIR—Flight Information Region

FMC—Fully Mission Capable

FMS—Flight Management System

FOD—Foreign Object Damage

FOL—Forward Operating Location

FSO—Flying Safety Officer

GPS—Global Positioning System

HATR—Hazardous Air Traffic Report

ICS—Infant Car Seat

IFF—Identification Friend or Foe

INS—Inertial Navigation System

LRC—Long Range Cruise

MAF—Mobility Air Forces

MARSA—Military Assumes Responsibility for Safe Altitude

MC—Mission Capable

MCD—Medical Crew Director

MDS—Mission Design Series (e.g., C-21)

ME—Mission Essential

MEL—Minimum Equipment List

MOB—Main Operating Base

MNPS—Minimum Navigation Performance Specifications

MSL—Mean Sea Level

NDB—Non Directional Beacon

NEW—Net Explosives Weight

NM—Nautical Mile

NOTAM—Notice to Airmen

OIS—Obstacle Identification Surface

PDO—Publication Distribution Office

PNF—Pilot Not Flying

PMCR—Post Mission Crew Rest

PPR—Prior Permission Required

PMSV—Pilot to Meteorologist Service

RNP—Required Navigation Performance

ROE—Rules of Engagement

RRFL—Required Ramp Fuel Load

RVSM—Reduced Vertical Separation Minimum

SAAM—Special Assignment Airlift Mission

SID—Standard Instrument Departure

SIGMET—Significant Metrorological Information

STM—Supplemental Training Mission

TOLD—Take off and Landing Data

Terms The following is a list of common mobility terms and associated abbreviation. Additional terms common to the aviation community may also be found in FAR, Part 1 and DoD FLIP ***General Flight Planning***, Chapter 2.

Advanced Computer Flight Plan (ACFP)—An Air Force level system which is the follow on replacement for the Optimized AMC Flight Plan (formerly Jeppesen). The system brings an improved user interface to the customer, runs in Microsoft Windows, and communicates with a mainframe located at Scott AFB IL. Once the optimized flight plans are produced on the mainframe, they are transmitted back to the Window's PC.

Aeromedical Evacuation (AE)—Movement of patients under medical supervision between medical treatment facilities (MTFs) by air transportation.

Aeromedical Evacuation Coordination Center (AECC)—A coordination center, within the Joint Air Operations Center, which monitors all activities related to aeromedical evacuation (AE) operations execution. It manages the medical aspects of the AE mission and serves as the net control station for AE communications. It coordinates medical requirements with airlift capability, assigns medical missions to the appropriate AE elements, and monitors patient movement activities.

Aeromedical Evacuation Crewmember (AECM)—Qualified Flight Nurse (FN) and Aeromedical Evacuation Technician (AET) performing AE crew duties.

Aeromedical Evacuation Operations Officer (AEOO)—Medical Service Corps (MSC) officer or medical administrative specialist or technician (AFSC 4A0X1) assigned to the AE system to perform duties outlined in applicable Air Force policy directives, instructions, 41-series handbooks, and this AFI.

Aircrew Chemical Defense Ensemble (ACDE)—Individually fitted aircrew unique chemical protective equipment for the sole purpose of protecting aircrew while flying into and out of a chemically contaminated environment.

Aircrew Eye/Respiratory Protective System (AERPS)—New generation individually sized aircrew chemical defense protective equipment system designed to protect aircrew from toxic chemical exposure to the head, neck, face, eyes, and respiratory tract.

Air Force Component Commander (AFCC)—In a unified, sub-unified, or joint task force command, the Air Force commander charged with the overall conduct of Air Force air operations.

Air Force Mission Support System (AFMSS)—Provides the Air Force with common interoperable automated flight mission planning hardware and software. Consists of a ground and portable (laptop) system. Interfaces with theater, MAJCOM, and joint data bases from fixed or deployed locations worldwide. Automates previously manually accomplished tasks. Passes Air Tasking order through C2IPS or CTAPS. Threats are provided via the Combat Intel System. AFMSS is multimedia capable with modem provided on ground and portable systems. The portable has a 1553B interface bus for uploading data to the aircraft. AFMSS displays and prints full color charts, NITF imagery, perspective views, mission rehearsals, 3-D fly through, flight planning forms and logs, and Digital Aeronautical Flight Information File information. Uses industry standardized data bases and complies with open-system architecture and multilevel security requirements. Built with Commercial Off-The-Shelf (COTS) hardware, and implements nonproprietary software.

Air Force Satellite Communication (AFSATCOM)— Satellite communications system capable of 75 bits per second (BPS) record message traffic.

Airlift—Aircraft is considered to be performing airlift when manifested passengers or cargo are carried.

Air Mobility Control Center (AMCC)—Provides global coordination of tanker and airlift for AMC and operationally reports to the AMC TACC. Functions as the AMC agency that manages and directs ground support activities and controls aircraft and aircrews operating AMC strategic missions through overseas locations.

Air Mobility Element (AME)—The air mobility element is an extension of the Air Mobility Command Tanker Airlift Control Center deployed to a theater when requested by the geographic combatant commander. It coordinates strategic airlift operations with the theater airlift management system and collocates with the air operations center whenever possible. Also called AME. See also air operations center; Tanker Airlift Control Center.

Air Mobility Operations Control Center (AMOCC)—Operations center which controls movement of theater assigned air mobility assets.

Air Reserve Component (ARC)—Refers to Air National Guard (ANG) and Air Force Reserve Command (AFRC) forces, both Associate and Unit Equipped.

Air Route Traffic Control Center (ARTCC)—The principal facility exercising en route control of aircraft operating under instrument flight rules within its area of jurisdiction. Approximately 26 such centers cover the United States and its possessions. Each has a communication capability to adjacent centers.

Air Traffic Control (ATC)— A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

Allowable Cabin Load (ACL)— Maximum payload that can be carried on a mission. It may be limited by the maximum takeoff gross weight, maximum landing gross weight, maximum zero fuel weight, or aircraft configuration. Maximum through load is limited to that which can be carried on the most restrictive leg of the mission.

Augmented Crew— Basic aircrew supplemented by additional qualified aircrewmembers to permit in-flight rest periods. The C-21 has no crew rest facility and is therefore not able to have augmented crews.

Bird Aircraft Strike Hazard (BASH)—An Air Force program designed to reduce the risk of bird strikes.

Bird Watch Condition Low—Normal bird activity [as a guide, fewer than 5 large birds (waterfowl, raptors, gulls, etc.) or fewer than 15 small birds (terns, swallows, etc)] on and above the airfield with a low probability of hazard. Keep in mind a single bird in a critical location may elevate the Bird Watch Condition (BWC) to moderate or severe.

Bird Watch Condition Moderate—Increased bird population (approximately 5 to 15 large birds or 15 to 30 small birds) in locations that represent an increased potential for strike. Keep in mind a single bird in a critical location may elevate the BWC to moderate or severe.

Bird Watch Condition Severe—High bird population (as a guide, more than 15 large birds or 30 small birds) in locations that represent an increased potential for strike. Keep in mind a single bird in a critical location may cause a severe BWC.

Block Time—Time determined by the scheduling agency responsible for mission accomplishment for the aircraft to arrive at (block in) or depart from (block out) the parking spot.

BLUE BARK—US military personnel, US citizen civilian employees of the Department of Defense (DoD), and the dependents of both categories who travel in connection with the death of an immediate family member. It also applies to escorts for dependents of military members traveling under competent orders.

Border Clearance—Those clearances and inspections required to comply with federal, state, and local agricultural, customs, immigration, and immunizations requirements.

Category I Route—Any route that does not meet the requirements of a category II route, including tactical navigation and over water routes.

Category II Route—Any route on which the position of the aircraft can be accurately determined by the overhead crossing of a radio aid (NDB, VOR, TACAN) at least once each hour with positive course guidance between such radio aids.

Chalk Number—Number given to a complete load and to the transporting carrier.

Charge Medical Technician (CMT) —AET responsible for ensuring completion of enlisted aeromedical crew duties.

COIN ASSIST—Nickname used to designate dependent spouses accompanying dependent children and dependent parents of military personnel reported missing or captured who may travel space available on military aircraft for humanitarian purposes on approval of the Chief of Staff, United States Army; Chief of Staff, United States Air Force; Chief of Naval Operations; or the Commandant of the Marine Corps.

Command and Control (C2)—Exercise of direction and authority over assigned forces by a properly

designated command echelon in the accomplishment of the mission.

Command and Control (C2) Center—Each C2 Center provides supervision, guidance, and control within its assigned area of responsibility. For the purpose of this AFI, C2 Centers include operations centers, command posts, air mobility elements, tanker airlift control elements (TALCE), air mobility control centers, and tanker task forces.

Command and Control Information Processing System (C2IPS)—Computer-based information transmission and information handling for command and control functions associated with the Director of Mobility Forces (DIRMOBFOR), AME fixed units, and TALCE. Interfaces to and automatically updates the Global Decision Support System (GDSS).

CONFERENCE SKYHOOK—Communication conference available to help aircrews solve in-flight problems that require additional expertise.

Contingency Mission—Mission operated in direct support of an OPORD, OPLAN, disaster, or emergency.

Controlling Agency—Joint Operational Support Airlift Center (JOSAC) is responsible for central management of all continental United States (CONUS) based C-21 aircraft during airlift missions. For other OSA aircraft, controlling agencies will be defined in each MAJCOM supplement.

Critical Phase Of Flight—Takeoff, low level routes (below MSA), approach, and landing.

Deadhead Time—Duty time for crewmembers positioning or de-positioning for a mission or mission support function and not performing crew duties.

Designated Courier—Officer or enlisted member in the grade of E-5 or above of the US Armed Forces, or a Department of State diplomatic courier, selected by the Defense Courier Service (DCS) to accept, safeguard, and deliver DCS material as directed. A primary aircrew member should be used as a courier only as a last resort.

Desolate Terrain Missions—Any mission in excess of one hour over desert, tropical, or jungle terrain (not to include flights conducted over the CONUS).

Deviation—A deviation occurs when takeoff time is not within -20/+14 minutes of scheduled takeoff time.

Direct Instructor Supervision— Supervision by an instructor of like specialty with immediate access to controls (for pilots, the instructor must occupy either the pilot or copilot seat).

Director, Mobility Forces (DIRMOBFOR)—Individual responsible for theater mobility force management. The Air Force component commander exercises operational control of assigned or attached mobility forces through the DIRMOBFOR. The DIRMOBFOR monitors and manages assigned mobility forces operating in theater. The DIRMOBFOR provides direction to the Air Mobility Division in the AOC to execute the air mobility mission and will normally be a senior officer familiar with the AOR.

Distinguished Visitor (DV)—Passengers, including those of friendly nations, of star or flag rank or equivalent status, to include diplomats, cabinet members, members of Congress, and other individuals designated by the DoD due to their mission or position (includes BLUE BARK and COIN ASSIST).

Double Blocking—When an aircraft is required to block-in at one parking spot, then move to normal parking for final block-in. The extra time required for double blocking will be taken into account during mission planning/scheduling. To compensate for double blocking on departure, the aircrew “legal for alert

time" may be adjusted to provide additional time from aircrew "show time" to departure. When double blocking is required on arrival, the aircrews entry into crew rest will be delayed until postflight duties are complete.

Due Regard—Operational situations that do not lend themselves to International Civil Aviation Organization (ICAO) flight procedures, such as military contingencies, classified missions, politically sensitive missions, or training activities. Flight under "Due Regard" obligates the military aircraft commander to be his or her own air traffic control (ATC) agency and to separate his or her aircraft from all other air traffic. (See FLIP General Planning, section 7.)

Equal Time Point—Point along a route at which an aircraft may either proceed to destination or first suitable airport or return to departure base or last suitable airport in the same amount of time based on all engines operating.

Estimated Time In Commission (ETIC)— Estimated time required to complete required maintenance.

Execution—Command-level approval for initiation of a mission or portion thereof after due consideration of all pertinent factors. Execution authority is restricted to designated command authority.

Experienced Aircraft Commander (EAC)—Aircraft commander with 200 hours primary assigned aircraft (PAA) since certification as an AC.

Experienced Copilot (ECP)— Copilot with 350 total flying hours (not including "other" time) of which a minimum of 150 hours are in the primary assigned aircraft (PAA). Individual must also be designated an "experienced copilot" by the squadron commander. Designation indicates the squadron commander certifies the individual is progressing normally toward upgrade to aircraft commander.

Familiar Field—An airport at which unit assigned aircraft routinely frequent. Each unit commander will designate familiar fields for their aircraft. One pilot must have flown into the field for it to be considered a familiar field, regardless of unit commander designation.

Fuel Reserve—Amount of usable fuel that must be carried beyond that required to complete the flight as planned.

Global Decision Support System (GDSS)—AMC's primary execution command and control system. GDSS is used to manage the execution of AMC airlift and tanker missions.

Global Patient Movement Requirements Center (GPMRC)—A joint activity reporting directly to the Commander in Chief, US Transportation Command, the Department of Defense single manager for the regulation of movement of uniformed services patients. The Global Patient Movement Requirements center authorizes transfers to medical treatment facilities of the Military Departments or the Department of Veterans Affairs and coordinates intertheater and inside continental United States patient movement requirements with the appropriate transportation component commands of US Transportation Command.

Ground Time—Interval between engine shut down (or arrival in the blocks if engine shutdown is not scheduled) and next takeoff time.

HAMMER ACE—Air Force Command, Control, Communications and Computer Agency (AFC4A) assigned personnel performing essential communication missions carried by OSA aircraft for accident investigations.

Hazardous Cargo or Materials (HAZMAT)—Articles or substances that are capable of posing significant risk to health, safety, or property when transported by air and classified as explosive (class 1),

compressed gas (class 2), flammable liquid (class 3), flammable solid (class 4), oxidizer and organic peroxide (class 5), poison and infectious substances (class 6), radioactive material (class 7), corrosive material (class 8), or miscellaneous dangerous goods (class 9). Classes may be subdivided into divisions to further identify hazard, i.e., 1.1, 2.3, 6.1, etc.

In-Place Time (IPT)—Time when an aircraft and crew are at an operating base and prepared to load for the mission.

Instructor Supervision—Supervision by an instructor of like specialty. For critical phases of flight, the instructor must occupy one of the seats with immediate access to the controls.

Interfly—The exchange and/or substitution of aircrews and aircraft between Mobility Air Forces (MAF) including crewmembers and/or aircraft from AETC, ACC, PACAF, USAFE, and AMC-gained ANG and AFRC forces.

Joint Operational Support Airlift Center (JOSAC)—USTRANSCOM agency charged with scheduling all CONUS OSA assets.

L-Band SATCOM—600 BPS satellite communications (SATCOM) system contracted through the International Maritime Satellite Organization (INMARSAT), used primarily for command and control. The system consists of a satellite transceiver, a laptop computer, and a printer.

Loading Time—Specific time established jointly by the commanders concerned when aircraft loading will begin.

Local Training Mission—A mission scheduled to originate and terminate at home station (or an off-station training mission), generated for training or evaluation, and executed at the local level.

Maintenance Status:—

A.1.—No maintenance required.

A.2.—(Plus Noun). Minor maintenance required, but not serious enough to cause delay. Add nouns that identify the affected units or systems, i.e. hydraulic, ultra high frequency (UHF) radio, radar, engine, fuel control, generator, etc. Attempt to describe the nature of the system malfunction to the extent that appropriate maintenance personnel will be available to meet the aircraft. When possible, identify system as mission essential (ME) or mission contributing (MC).

A.3.—(Plus Noun). Major maintenance. Delay is anticipated. Affected units or systems are to be identified as in A-2 status above.

A.4.—Aircraft or system has suspected or known biological, chemical, or radiological contamination.

Medical Crew Director (MCD)—FN responsible for supervising patient care and AECMs assigned to AE missions. On missions where an FN is not onboard, the senior AET will function as MCD.

Mission—Movement of aircraft from a designated point of origin to a designated destination as defined by assigned mission identifier, mission nickname, or both in the schedule, mission directive, OPORD, OPLAN, or Frag order.

Mission Advisory—Message dispatched by command and control agencies, liaison officers, or aircraft commanders advising all interested agencies of any changes in status affecting the mission.

Mobility Air Force (MAF)—Forces assigned to mobility aircraft or MAJCOMs with operational or

tactical control of mobility aircraft.

Mobility Crewmember—Airlift or tanker crewmembers.

Modified Contour— Flight in reference to base altitude above the terrain with momentary deviations above and below the base altitude for terrain depressions and obstructions to permit a smooth flight profile.

Off Station Training Flight—A training flight that originates or terminates at other than home station that is specifically generated to provide the aircrew experience in operating away from home station. Off station trainers will not be generated solely to transport passengers, cargo, or position/deposition crewmembers.

Operational Control (OPCON)—Functions of command and control involving composition of subordinate forces, authority to approve allocation of assets to specific missions, assignment of tasks, designation of objectives, and authoritative direction necessary to accomplish the mission. This is a higher authority than the command that performs specific mission functions.

Operational Missions—Non-training missions executed at or above the controlling agency level. Operational missions termed "CLOSE WATCH" include priority 1, 2, and 3 missions tasked by the controlling agency. Other operational missions such as deployment, re-deployment, and operational readiness inspections (ORI) missions may be designated "CLOSE WATCH" as necessary.

Operational Risk Management (ORM)—ORM is a logic-based, common sense approach to making calculated decisions on human, materiel, and environmental factors before, during, and after Air Force operations. It enables commanders, functional managers and supervisors to maximize operational capabilities while minimizing risks by applying a simple, systematic process appropriate for all personnel and Air Force functions.

Opportune Airlift—Transportation of personnel, cargo, or both aboard aircraft with no expenditure of additional flying hours to support the airlift.

Originating Station—Base from which an aircraft starts on an assigned mission. May or may not be the home station of the aircraft.

Over water Flight—Any flight that exceeds power off gliding distance from land.

Patient Movement Categories—

Urgent—Patients who must be moved immediately to save life, limb, or eyesight, or to prevent complication of a serious illness.

Priority—Patients requiring prompt medical care that must be moved within 24 hours.

Routine —Patients who should be picked up within 72 hours and moved on routine/scheduled flights.

Permit to Proceed—Aircraft not cleared at the first US port of entry may move to another US airport on a permit to proceed issued by customs officials at the first port of entry. This permit lists the requirements to be met at the next point of landing, i.e. number of crew and passengers, cargo not yet cleared. Aircraft commanders are responsible to deliver the permit to proceed to the customs inspector at the base where final clearance is performed. (Heavy monetary fines can be imposed on the aircraft commander for not complying with permit to proceed procedures.)

Point Of No Return— Most distant point along the planned route from which an aircraft may safely return to its point of departure or alternate airport with approach and landing fuel.

Point of Safe Return—Most distant point along the planned route from which an aircraft may safely return to its point of departure or alternate airport with required fuel reserve.

Positioning and De-positioning Missions—Positioning missions are performed to relocate aircraft for the purpose of conducting a mission. De-positioning missions are made to return aircraft from bases at which missions have terminated.

Quick Stop—Set of procedures designed to expedite the movement of selected missions by reducing ground times at en route or turnaround stations.

Ramp Coordinator—Designated representative of the C2 whose primary duty is the coordination of ground handling activities on the ramp during large scale operations.

Scheduled Return Date (SRD)—Scheduling tool used by air mobility units to predict when crews will return to home station. It allows force managers to plan aircrew availability and provide crews visibility over monthly flying activities. AMC and AMC-gained aircrews on extended missions (longer than 4 days) will normally have an SRD established on their flight orders.

Scheduled Takeoff Time—Takeoff time is established in the schedule or OPORD. For air aborts and diversions, this will be engine shut down time (or arrival in the blocks if engine shutdown is not scheduled) plus authorized ground time. Early deviation does not apply to aborts or diversions unless the mission is formally rescheduled by current operations.

Significant Meteorological Information (SIGMET)—Area weather advisory issued by an ICAO meteorological office relayed to and broadcast by the applicable ATC agency. SIGMET advisories are issued for tornadoes, lines of thunderstorms, embedded thunderstorms, large hail, severe and extreme turbulence, severe icing, and widespread dust or sand storms. SIGMETs frequently cover a large geographical area and vertical thickness. They are prepared for general aviation and may not consider aircraft type or capability.

Special Assignment Airlift Mission (SAAM)—Funded airlift that cannot be supported by channel missions because of the unusual nature, sensitivity, or urgency of the cargo or that requires operations to points other than the established channel structure.

Special Tactics Team (STT)—Team of Air Force personnel organized, trained, and equipped to establish and operate navigational or terminal guidance aids, communications, and aircraft control facilities in support of combat aerial delivery operations.

Stations Time (Air Force)—Normally, 30 minutes prior to takeoff time for the KC-10, KC-135, C-130, C-141, and OSA aircraft (45 minutes for C-5 and C-17). Aircrews will have completed their pre-flight duties and be at their crew positions or ready to onload passengers (one pilot in seat).

Tactical Event—Threat avoidance approaches/departures.

Tanker Airlift Control Center (TACC)—The Air Mobility Command direct reporting unit responsible for tasking and controlling operational missions for all activities involving forces supporting US Transportation Command's global air mobility mission. The Tanker Airlift Control Center is comprised of the following functions: current operations, command and control, logistics operations, aerial port operations, aeromedical evacuation, flight planning, diplomatic clearances, weather, and intelligence. Also called TACC. See also Tanker Airlift Control Element.

Tanker Airlift Control Element (TALCE)—Team of qualified Air Force personnel established to control, coordinate, and function as an Air Force tanker and airlift C2 facility at a base where normal

AMC C2 facilities are not established or require augmentation. TALCEs support and control contingency operations on both a planned and no-notice basis.

Theater Patient Movement Requirements Center (TPMRC)—The TPMRC is responsible for theater wide patient movement (e.g., medical regulating and AE scheduling), and coordinates with theater MTFs to allocate the proper treatment assets required to support its role. The primary role of the TPMRC is to devise theater plans and schedules and then monitor their execution in concert with the GPMRC. The TPMRC is responsible to the Combatant Commander through the Combatant Command Surgeon. The TPMRC is also responsible for all aspect of intratheater patient movement management. A TPMRC provides command and control for patient movement management operations in its theater of operations, as directed by its Combatant Commander's operational policy, and in coordination with USTRANSCOM, acting as a supporting combatant command, responsible for intertheater and CONUS patient movement.

Time Out—Common assertive statement used to voice crewmember concern when safety may be jeopardized.

Training Mission—Mission executed at the unit level for the sole purpose of aircrew training for upgrade or proficiency. Does not include operational missions as defined in this AFI.

Unit Commanders—For purposes of this AFI, unit commanders are operations group commanders or equivalent. ***NOTE:*** The 201st AS/CC (DCANG), is considered OG/CC equivalent.

Zero Fuel Weight—Weight, expressed in pounds, of a loaded aircraft not including wing and body tank fuel. All weight in excess of the maximum zero fuel weight will consist of usable fuel.

Attachment 2

COMBAT OPERATIONS CHECKLISTS

Functional Statement: The Hostile Fire Entry and Exit checklists will be used by crew members during flight into low threat environments. Copy this checklist and inserted into pilots handheld checklist (behind TO 1C-21A-1CL-1 checklist) according to AFI 11-215 and MAJCOM supplement.

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HOSTILE FIRE ENTRY CHECKLIST

Complete this checklist not later than 30 minutes prior to entering the threat environment.

1. CREW BRIEFING—"COMPLETED" (P-CP)
   Review intentions (airspeeds & altitudes), threat locations, aircraft configuration, and approach requirements.
2. SURVIVAL EQUIPMENT-"SECURED" (P-CP)
   Ensure the following equipment is immediately available (As Required).
   - Flight Gloves
   - Flak Vest / Body Armor
   - Chemical Defense Ensemble
   - Oxygen Mask

WARNING
If protective equipment is to be worn, don at this time.

3. AIR IGNITION - ON
4. INTERNAL AND EXTERNAL LIGHTS - AS REQUIRED
   Set interior lighting to the minimum required (night only). Turn all non-essential exterior lights off.
5. IFF - SET (AS REQUIRED)
6. NAV AND COMM RADIOS - AS REQUIRED
   Brief essential radios. To reduce emissions, turn off all non-essential radios and equipment.
7. RADAR - AS REQUIRED
   If threat dictates or if not required for flight, turn radar off to reduce emissions.
8. RADIO ALTIMETER - SET
9. LOOSE ITEMS - SECURED
   Ensure cabin is secure.
10. OBSERVERS – IN POSITION
    All aircrew members not performing crew duties will scan outside the aircraft for threats, as briefed by the aircraft commander.
11. HOSTILE FIRE ENTRY CHECKLIST-"COMPLETE" (P, CP)

HOSTILE FIRE EXIT CHECKLIST

Note: This checklist returns the aircraft to normal cruise configuration upon departing the threat environment.

1. OBSERVERS-"CLEARED TO REPOSITION" (P)

2. BATTLE DAMAGE ASSESSMENT - COMPLETE

   If available aircrew members will make a sweep of the aircraft looking for any damage.

3. SURVIVAL EQUIPMENT - AS REQ'D (P-CP)

4. IFF - SET

5. NAV AND COMM RADIOS - SET

6. RADAR - AS REQUIRED

7. INTERNAL AND EXTERNAL LIGHTS - SET

8. AIR IGNITION - OFF

9. HOSTILE FIRE EXIT CHECKLIST -"COMPLETE" (P,CP)

OPR: HQ AMC/DOV