DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

AFI 11-2C-21V3_AFGM 2016-01
29 June 2016

MEMORANDUM FOR DISTRIBUTION C

FROM: HQ USAF/A3

SUBJECT: AFI 11-2C-21 Volume 3, C-21 Operations Procedures, Guidance Memorandum.

1. By Order of the Secretary of the Air Force, this Guidance Memorandum immediately implements changes to AFI 11-2C-21 Volume 3, C-21 Operations Procedures, providing stabilized approach procedures for C-21 aircrew members. Compliance with this memorandum is mandatory. To the extent its directions are inconsistent with other Air Force publications, the information herein prevails IAW AFI 33-360, Publications and Forms Management.

2. Make changes to the following paragraphs:

(Change) 5.12. Stabilized Approach. Unstable approaches are primary contributors to numerous military and civilian mishaps. Stabilized approaches are essential for the safe operation of aircraft and are mandatory. The following criteria define specific parameters that mitigate risk during this critical phase of flight. This philosophy requires aircrew to take immediate corrective actions to stabilize the approach when outside designated parameters. Although tactical approaches are inherently less constrained, they must still result in the aircraft arriving at a position in space in an appropriate configuration and within acceptable parameters that will permit a safe landing consistent with aircraft flight manual restrictions as well as performance manual assumptions and limitations.

(Change) 5.12.1. The following stabilized approach criteria applies to **all** approaches and will be emphasized and briefed for every approach:

(Change) 5.12.1.1. Aircraft is in landing configuration. Final flap configuration may be delayed but will be briefed.

(Delete) 5.12.1.1.1. through 5.12.1.1.8.

(Change) 5.12.1.2. Airspeed is appropriate for the configuration and conditions.

(Change) 5.12.1.3. Sink rate is no greater than 1000 fpm. NOTE: Under certain conditions (wx, terrain, etc.) some approaches may require greater than a 1000 fpm descent rate. This increased sink rate will be briefed.

(Delete) 5.12.1.3.1 through 5.12.1.3.3.

(Add) 5.12.1.4. All briefings and checklists are complete unless contrary to T.O. guidance.

(Add) 5.12.1.5. Aircraft is on the correct track.

(Add) 5.12.1.6. Aircraft is in the correct bank angle to maintain proper approach track for instrument, circling, or visual approach.

(Add) 5.12.1.7. Power set to maintain the descent profile at approach speed.

(Add) 5.12.1.8. Momentary minor corrections or deviations are acceptable and defined as:

(Add) 5.12.1.8.1. Airspeed: +10/-5 kts from target

(Add) 5.12.1.8.2. Bank Angle: +/- 15 degrees from target

(Add) 5.12.1.8.3. Rate of Descent: +/- 300 FPM from target

(Change) 5.12.2. The following criteria apply to all approaches:

(Change) 5.12.2.1. At 1000 feet height above touchdown (HAT), the stable criteria in paragraph 5.12.1 apply.

(Add) 5.12.2.1.1. If these criteria are not met at 1000 feet HAT, the PM will announce the deviation and the PF will take immediate corrective action. PM will state “1000, xxxx,” where “xxxx” equates to a concise description of the unstable characteristic(s) which clearly relay to the PF what actions are required to return the aircraft to a stable platform. Example: “1000, 15 fast”. If criteria are met, PM will state “1000, stable.”

(Add) 5.12.2.2. Between 1000 feet and 500 feet HAT:

(Add) 5.12.2.2.1. Parameters are the same as those in paragraph 5.12.1.

(Add) 5.12.2.2.2. If these criteria are not maintained, the PM will announce the deviation using the “xxxx” format (Example: “15 fast”) and the PF will take immediate corrective action.

(Add) 5.12.2.3. At 500 feet HAT:

(Add) 5.12.2.3.1. Parameters are the same as those in paragraph 5.12.1.

(Add) 5.12.2.3.2. If criteria are met, PM will state “500, stable.”

(Add) 5.12.2.3.3. If unstable or not in final flap configuration at 500 feet HAT, the PM or any other crewmember will call “Go-Around” and the PF will execute a go-around.

(Add) 5.12.2.4. From 500 feet HAT to the runway, if these parameters are exceeded the PM or any other crewmember will announce “Go-Around” and the PF will execute a go-around.

(Change) 5.12.3. Not Used

(Change) 5.12.4. Descent Planning and Energy Management. Awareness of maneuver entry parameters and energy management is crucial to meeting the stabilized approach criteria on every approach. Aircrews will ensure the aircraft is following the planned descent profile. All non-tactical descents should follow a normal descent profile IAW AFMAN 11-217 procedures and techniques in the absence of ATC or FLIP guidance. All tactical descents should follow published tactical procedures/profiles. When unforeseen interruptions alter the planned descent, immediately correct any deviations. It may be necessary to hold, request vectors, or take alternate actions in order to comply with the planned descent profile.

(Change) 5.12.5. Visual Transition. It is imperative for aircrews to review the airfield environment. Identify key features such as approach light type, airfield lighting, geographic layout/configuration of runways, taxiways, ramps, etc. To the max extent possible, this study will take place during the crew mission briefing and reviewed again prior to descent.

(Add) 5.12.6. Missed Approach/Go-Around. Aircrews will conduct a thorough briefing for anticipated missed approach/go-around scenarios. This briefing will include a discussion of specific crewmember duties. NOTE: Execute missed approach/go-around IAW -1 and AFMAN 11-217 procedures.

3. This memorandum becomes void after one year has elapsed from the date of this memorandum, upon publication of an Interim Change or rewrite of the affected publication, whichever is earlier.

4. AMC POC for this C-21 Guidance Memorandum is Major Karl Zurbrugg, HQ AMC/A3VS, DSN 779-4054, e-mail: karl.zurbrugg@us.af.mil.

JOHN W. RAYMOND, Lt Gen, USAF
Deputy Chief of Staff, Operations

BY ORDER OF THE SECRETARY OF THE AIR FORCE

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

24 SEPTEMBER 2010

Incorporating Change 1, 27 JANUARY 2012

Flying Operations

C-21 OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive (AFPD) 11-2, *Aircraft Rules and Procedures* and references AFI 11-202, Volume 3, *General Flight Rules*, as well as Air Force Tactics Techniques and Procedures AFTTP 3-3.38A, *Combat Aircraft Fundamentals C-21*. It establishes policy for the operation of the C-21 aircraft to safely and successfully accomplish worldwide mobility missions. This instruction applies to Air Force Reserve Command (AFRC) and Air National Guard (ANG) units. 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.

Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF IMT 847, *Recommendation for Change of Publication*; route AF IMT 847s from the field through Major Command (MAJCOM) Stan/Eval.

Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, Management of Records, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm**.

This publication may be supplemented at any level, but all direct Supplements must be routed to the OPR of this publication for coordination prior to certification and approval.

The Privacy Act of 1974 applies to certain information gathered pursuant to this instruction. The Privacy Act System Number F011 AF XO A, Aviation Resource Management System (ARMS), covers required information. The authority for maintenance of the system is 37 U.S.C. 301a,

Incentive Pay; Public Law 92-204, Section 715, DoD Appropriations Act for 1972, December 18, 1971; Public Law 93-294, Aviation Career Incentives Act of 1974, May 31, 1974; Public Law 93-570, Continuing Appropriations, 1975, February 25, 1975; DoD Directive 7730.57, Aviation Career Incentive Act and Required Annual Report, February 5, 1976; and Executive Order 9397, Numbering System for Federal Accounts Relating to Individual Persons, November 22, 1943. The Paperwork Reduction Act of 1995 affects this instruction.

SUMMARY OF CHANGES

This interim change updates organizational names, changes aeromedical patient limits, clarifies minimum equipment list, clarifies deice and anti ice fluid usage, updates VFR departure procedures, clarifies fuel planning requirements, clarifies aircraft certification, changes stabilized approach procedures, and incorporates changes mandated by the HQ AMC/A3V 11-2MDSV3 standardized template. A margin bar (|) indicates newly revised material.

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Chapter 1

GENERAL INFORMATION

1.1. General. This Air Force Instruction (AFI) provides policy for operating the C-21 aircraft. It is an original source document for many areas but, for efficacy, restates information found in aircraft flight manuals, flight information publications (FLIP), and other Air Force directives. When guidance in this AFI conflicts with another basic/source document, that document takes precedence. For matters where this AFI is the source document, waiver authority is In Accordance With (IAW) paragraph 1.4. For matters where this AFI repeats information in another document, follow waiver authority outlined in the basic/source document.

1.1.1. Unit commanders and agency directors involved with or supporting C-21 operations shall make current copies of this AFI available to appropriate personnel. Transportation and Base Operations passenger manifesting agencies will maintain a current copy of this AFI.

1.2. Applicability. This AFI applies to aircrew members, support personnel, contractors, and managers involved with employing C-21 aircraft.

1.3. Key Words Explained.

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

1.3.2. "Should" indicates 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., considered essential to emphasize.

1.3.5. **"CAUTION"** indicates operating procedures, techniques, etc., which could result in damage to equipment if not carefully followed.

1.3.6. **"WARNING"** indicates operating procedures, techniques, etc., which could result in personal injury or loss of life if not carefully followed.

1.4. Deviations and Waivers. Do not deviate from policies in this AFI except when the situation demands immediate action to ensure safety. The Pilot in Command (PIC) is vested with ultimate mission authority and responsible for each course-of-action they choose to take.

1.4.1. Deviations. The PIC shall report deviations or exceptions taken without a waiver through command channels to their Chief, MAJCOM Stan/Eval who in turn shall notify Chief, AMC Stan/Eval (lead command) as appropriate for follow-on action.

1.4.2. Waivers. Unless otherwise directed, waiver authority for contents of this instruction is the MAJCOM/A3/DO with mission execution authority. For TRANSCOM/AMC operational missions under Operational Control (OPCON) of 18 Air Force, 18 AF/CC is the waiver authority. For aircrews that change Operational Control (CHOP) to a COCOM, the COMAFFOR is the waiver authority.

1.4.2.1. Permanent waivers affect theater unique circumstances and are enduring in nature. List MAJCOM/A3/DO-approved permanent waivers in the MAJCOM supplement (see para. 1.5.)

1.4.2.2. Long-term waivers affect multiple aircraft/multiple missions but are not permanent in nature (expire at a specific date/time). MAJCOM Stan/Eval shall send HQ AMC Stan/Eval (lead command) copies of MAJCOM/A3/DO-approved long-term waivers, as appropriate.

1.4.2.3. Short-notice waivers are for specific missions in execution. PICs shall use the Waiver Protocol procedure in Chapter 4 to secure MAJCOM/A3/DO approval for short-notice waivers.

1.4.2.3.1. USAFE planning/execution agencies may use the waiver protocol to secure MAJCOM/A3/DO approval for short-notice waivers.

1.5. Supplemental Procedures. This AFI is a basic directive. Each user MAJCOM or operational theater may supplement this AFI according to AFPD 11-2, *Aircraft Rules and Procedures*, and AFI 33-360, *Publications and Forms Management.* Stipulate unique MAJCOM procedures (shall not be less restrictive than this basic document) and publish MAJCOM/A3/DO-approved permanent waivers in the MAJCOM supplement.

1.5.1. Combined Command Operations**.** Plan and conduct all operations that include forces from multiple MAJCOMs using provisions in this AFI. Do not assume or expect aircrews to perform MAJCOM/Theater unique procedures without owning MAJCOM/A3/DO approval and advance training.

1.5.2. Coordination Process**.** Forward MAJCOM approved supplements (attach AF Form 673, *Request To Issue Publication*) to HQ AMC/A3V, 402 Scott Dr., Unit 3A1, Scott AFB IL, 62225-5302.

1.6. Local Supplement Coordination Process. Operations Group commanders (OG/CCs) shall define local operating procedures to this instruction in a unit supplement. OG/CCs shall obtain approval from Numbered Air Force (NAF), if applicable, and MAJCOM prior to releasing their supplement. Send an electronic copy of the approved version to MAJCOM/A3V, or NAF/DO (if applicable). MAJCOM/A3V will send approved copies to AMC/A3V.

1.7. Improvement Recommendations and Review. Send comments and suggested improvements to this instruction on an AF Form 847, *Recommendation for Change of Publication*, through channels to HQ AMC/A3V, 402 Scott Drive Unit 3A1, Scott AFB IL, 62225-5302 or post to the Air Mobility Command Change of Publication Community of Practice **https://wwwd.my.af.mil/afknprod/ASPs/CoP/EntryCoP.asp?Filter=OO-TO-AM-01** IAW procedures in AFI 11-215, *USAF Flight Manuals Program (FMP),* and MAJCOM Supplement.

1.8. Definitions. Find explanations or definitions of terms and abbreviations commonly used in the aviation community in Code of Federal Regulations (CFR) Title 14, Part 1; *DoD FLIP General Planning*, Chapter 2; and Joint Pub 102, *The DoD Dictionary of Military and Associated Terms*. See **Attachment 1** for common terms used herein.

1.9. Aircrew Operational Reports. The reporting requirements in this instruction are exempt from licensing IAW paragraph 2.11.10 of AFI 33-324, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections.*

Chapter 2

COMMAND AND CONTROL

2.1. General. The Mobility Air Forces (MAF) command and control (C2) network consists of the following C2 centers: 618 Tanker Airlift Control Center (618 TACC), Pacific Air Forces (PACAF) or United States Air Forces Europe (USAFE) Air and Space Operations Centers (AOCs), Air National Guard (ANG) Readiness Center, Air Force Reserve Command (AFRC) Command Center, theater Air and Space Operations Centers (AOC), Air Mobility Division (AMD), Joint Operational Support Airlift Center (JOSAC), Special Air Missions Division, Office of Assistant Vice Chief of Staff, USAF (CVAM), Unit Command Posts, Air Mobility Control Centers (AMCC), Contingency Response Groups (CRG), Contingency Response Elements (CRE), and Special Tactics Teams (STT). C2 centers are action agents for the MAF commander with execution authority (operational control) over mobility missions/forces.

2.2. Execution Authority. Headquarters commanders with command authority over MAF resources hold execution authority for directed missions. Commanders with execution authority formulate plans, allocate assets, and approve PICs to carry out directed or training missions through a local command post or C2 element. OG/CCs serve as execution authority for local training missions. Squadron commanders (SQ/CCs) or their designated representatives assign airlift missions to PICs. PICs hold execution authority for missions operating outside normal communication channels (use last known mission orders or best course of action).

2.2.1. Off-Station Trainers (OST). Refer to MAJCOM instruction, for procedures and requirements.

2.2.1.1. For AMC OSTs, refer to AMCI 11-208, *Tanker/Airlift Operations,* for procedures and requirements governing OSTs.

2.2.1.2. Approval authority for ANG, PACAF, and USAFE OSTs is the wing commander (WG/CC) but may be delegated to the OG/CC.

2.2.1.3. AFRC Current Operations (AFRC/DOOM) is approval authority for AFRC Unit Equipped (UE) OSTs.

2.2.1.4. DELETED

2.2.1.5. WG/CC is approval authority for AETC OSTs.

2.3. Pilot in Command Responsibility and Authority. SQ/CCs shall designate an aircraft commander (AC), instructor pilot (IP), or evaluator pilot (EP) as the PIC for all flights on a flight authorization form IAW AFI 11-401, *Aviation Management*, and applicable supplements. An unqualified or non-mission ready pilot may not be designated as PIC. PICs are:

2.3.1. In command of all persons aboard the aircraft.

2.3.2. Vested with authority to accomplish the assigned mission. The PIC shall only fly events authorized in the mission tasking unless in the PIC's judgment an emergency condition demands otherwise. Fly unscheduled training events (i.e. transition training) only after obtaining approval of the execution authority.

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

2.3.4. The final authority for requesting or accepting aircrew or mission waivers.

2.3.5. Responsible for passing mission progress reports (at least daily) to C2 agents.

2.3.6. Responsible for interaction between aircrew members and mission support personnel and will establish a point-of-contact (POC) with the appropriate C2 agent prior to entering crew rest. Local C2 agents are responsible for coordinating mission support requirements on the PICs behalf.

2.3.7. Responsible for the welfare of aircrew members, Mission Essential Ground Personnel (MEP), passengers, and the safe accomplishment of the mission.

2.3.8. Responsible for ensuring all passengers are manifested properly.

2.4. Mission Clearance Decision. The execution authority and PIC shall make the mission clearance decision. In all cases, final responsibility for the safe conduct of the mission rests with the PIC. If a PIC elects to delay a mission, that mission will not depart until the conditions that generated the decision to delay improve or are resolved. Further, no execution authority may task another PIC to take the same mission under the same conditions.

2.4.1. Only re-route or divert a mission when authorized by the execution authority, to resolve an emergency, if required due to insufficient fuel or if required by en route or terminal weather conditions.

2.4.2. The agent that directed the re-route or divert shall ensure the aircraft is capable of executing departure, en route, and destination arrival procedures.

2.4.3. The PIC will notify the appropriate C2 agent of any aircraft or aircrew limitation that may preclude re-route or divert.

2.4.4. When a C2 agent directs a PIC to fly to an alternate airfield, the agent will ensure existing and forecast weather for the alternate, Notices to Airmen (NOTAMs), and airfield information from the Global Decision Support System (GDSS)/(GDSS2)/Airfield Suitability and Restrictions Report (ASRR) is suitable. If the alternate becomes unsuitable while en route, the PIC will coordinate with the C2 agent for other suitable alternates. The PIC is final authority for accepting a suitable alternate. A C2 agent will alert customs and all appropriate ground service agencies of the PIC's impending arrival.

2.5. Operational C2 Reporting.

2.5.1. Stations With MAF C2 Agency. Local MAF C2 agents will enter mission data (arrival, departure, and advisory messages) in the MAF C2 system.

2.5.2. Stations Without MAF C2 Agency. Transmit mission data (arrival, departure, and advisory messages) to the controlling C2 agency by any means available (preference in the following order, DSN. For critical C2 communications, i.e. aircraft waiver request, maintenance delay, etc., voice communications are the primary method.

2.5.3. Enroute Reporting, 618 TACC managed missions only.

2.5.3.1. Make the following enroute calls to 618 TACC:

2.5.3.1.1. Airborne call when departing from a location without an AMC presence.

2.5.3.1.2. Maintenance call whenever aircraft alpha status changes to code 3.

2.5.3.1.3. On aeromedical evacuation missions, no later than 1 hour prior to landing, to update arrival time and provide AF Form 3858, *Aeromedical Evacuation Mission Offload Message* information.

2.5.3.1.4. Uncoordinated aircraft interceptions via the most expeditious means available, after complying with guidance in the flight information handbook. When an airborne report is not accomplished, PICs must directly notify 618 TACC upon landing. In all cases ensure local C2 and Intel agencies are informed.

2.5.3.2. **CONUS.** Periodic "ops normal" calls/transmissions are not required; however, the controlling C2 agency may increase reporting requirements.

2.5.3.3. **OCONUS.** MAJCOM C2 agencies will specify increased reporting procedures through a communications plan in the Operations Plan (OPLAN), Operations Order (OPORD), Fragmentary Order (FRAG), Mission Directive, or Flight Publications (FLIP). Aircrews will maintain listening watch in accordance with the communications plan within aircraft equipment capabilities.

2.5.4. Aircraft Status/Maintenance Discrepancy Reporting**.** PICs shall report aircraft system malfunctions that traditionally require extensive trouble shooting as soon as feasible. Contact arrival C2 agency if available, otherwise contact MAJCOM C2 for relay.

2.5.5. Not Used

2.5.6. "Thirty Minute" Out Call. Transmit a UHF or VHF arrival advisory to the destination C2 agency approximately 30 minutes prior to arrival. Provide Estimated Time in Blocks (ETB).

2.5.7. 618 TACC Integrated Flight Management (IFM) Sorties. On IFM sorties, the flight managers (FM) will be the C2 conduit for aviators. For critical C2 communications, voice communications (HF, DSN, etc.) are the primary method. ***EXCEPTION***: For AFRC/ANG missions using IFM, AFRC/ANG will provide C2.

2.5.7.1. Position Reporting on IFM Missions. IFM missions transiting oceanic flight information regions (FIRs) need to add the phrase "Pass to Hilda" to ATC position reports. Crews may also use the ARINC frequencies listed in the aircrew flimsy for C2 phone patch requirements. Use ARINC phone patch only after exhausting normal communication methods.

2.5.8. High Frequency (HF) Communications. HF is the primary means of access to the worldwide C2 network. See aircrew FIH for stations and appropriate frequency.

2.5.8.1. During transoceanic flights or at other times when directed by ATC, the HF radio shall be set to the ATC frequency.

2.5.9. Not Used

2.5.10. Not Used

2.5.11. DV Messages. Airborne unclassified messages originated by DV passengers may be transmitted at the discretion of the PIC.

2.5.12. Iridium Phone. Iridium phones may be used in-flight for communications between aircrews and command and control agencies when beyond line-of-sight communication is

required and other line of sight communications are not available. For more information, refer to AMC Iridium Satellite Phone CONOPS for Aircrews, **https://private.amc.af.mil/a3/a33/A33O/Publications%20-%20Main.htm**.

2.5.12.1. Turn off Iridium phones within 25 feet of ground refueling operations.

2.5.12.2. Turn off Iridium phones during takeoff, approach, and landing.

2.6. Mission Commander (MC).

2.6.1. Unit commanders shall designate a MC when more than two aircraft are assembled to perform missions away from home station. Unit commanders should consider appointing a MC for special, high-visibility missions (i.e. CAPSTONE, DV2, etc.). The MC has overall responsibility and is the final authority for decisions that impact mission execution. The MC shall properly coordinate mission details. For flight-managed sorties, MC shall coordinate any special mission planning requirements with the IFM mission allocator not later than 24 hours prior to mission execution

2.6.1.1. For MAJCOM-tasked missions, with more than one airlift unit involved, the theater AOC shall designate a central planning agency responsible for coordinating the entire mission with all involved agencies. The OG/CC for the lead planning agency will designate an MC. The MC will be a rated (normally field grade) officer qualified in the type mission.

2.7. Not Used.

2.8. C2 Agency Telephone Numbers. Crewmembers may use the 618 TACC toll-free number, 1-800-AIR-MOBL or DSN 312-779-0320 to contact other offices within the 618 TACC, including flight managers.

2.9. Close Watch Missions. Close Watch missions (for example, Combat Survival and Rescue (CSAR); Aeromedical Evacuation (AE), PHOENIX BANNERs) receive special C2 attention. PICs will promptly notify the appropriate C2 agency of delays, aborts, or other events that affect on-time departure. Provide the C2 agent the estimated time in commission (ETIC), planned estimated time of departure (ETD), and estimated time of arrival (ETA) within 10 minutes of the event or as soon as safety allows.

2.10. Law Enforcement Support. It is the policy of the Department of Defense (DoD) to cooperate with civilian law enforcement officials to the maximum extent practicable and as permitted by law. AFI 10-801, *Assistance to Civilian Law Enforcement Agencies*, provides the policies and procedures service members must follow when supporting federal, state, and local civilian law enforcement agencies. Coordinate all civilian law enforcement authorities' requests for assistance through appropriate C2 channels.

Chapter 3

AIRCREW COMPLEMENT/MANAGEMENT

3.1. General. This chapter provides guiding principles to form/manage mobility aircrews. Commanders at all levels shall follow these policies to form aircrews and to develop aircrew-related work/rest schedules that optimize efficiency of mobility forces engaged in worldwide operations.

3.2. Aircrew Complement. SQ/CCs shall form aircrews based on fragmentation order/mission directive, Crew Duty Time (CDT) and Flight Duty Period (FDP) requirements, aircrew member qualifications, and other constraints to safely accomplish the mission tasking. Table 3.1. below summarizes crew position requirements for different crew types.

3.2.1. The minimum aircrew member complement for a local training flight is an aircraft commander and a pilot/copilot.

Table 3.1. Aircrew Complement.

Crew Position	Crew Complement		
	Basic	**Augmented**	**Tactical**
Aircraft Commander	1	N/A	1
Pilot/Copilot	1	N/A	1

3.3. Aircrew Member Qualification. An aircrew member will be qualified, or in qualification training, to perform duties as a primary aircrew member.

3.3.1. Senior leaders who complete a Senior Staff Qualification course (restricted AF Form 8, *Certificate of Aircrew Qualification*) or orientation for a Senior Staff Familiarization flight may occupy a primary crew position when under direct instructor supervision. Refer to AFI 11-401 for procedures and requirements governing senior leader flying.

3.3.2. Crewmembers who complete the Senior Staff Course will log “FP” as the Flight Authorization Duty Code on the AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document*.

3.3.3. Crewmembers who complete the Senior Officer Familiarization flight will log “OP” as the Flight Authorization Duty Code on the AFTO Form 781.

3.4. Pilots. An IP must supervise non-current or unqualified pilots regaining currency or qualification (direct IP supervision during takeoffs, landings and emergency procedures).

3.4.1. Missions with Passengers. To occupy a pilot’s seat with passengers, pilots must have a current AF Form 8 for the C-21A aircraft. For takeoff, approach and landing one of the following conditions must be met:

3.4.1.1. Two qualified and current pilots (1 AC or higher, 1 FP or higher) must be at the controls.

3.4.1.2. A qualified pilot non-current no more than 60 days for flying currency requirements and an IP providing direct supervision (must be at the controls). AC's regaining currency may be designated PIC.

3.4.1.3. A qualified NMR pilot accomplishing phase II qualification training and an IP providing direct supervision.

3.4.1.4. A qualified AC upgrade candidate on an initial or requalification OME and a qualified pilot (FP or higher) under supervision of a qualified EP must be at the controls (AC upgrade candidates will be designated in command).

3.4.1.5. A basic qualified (valid AF Form 8 in MDS-specific aircraft) senior officer who has completed a Senior Officer Qualification course may occupy either pilot seat under direct IP supervision.

3.4.2. Qualification Training. Initial qualification, requalification, or upgrade training (AC upgrade training allowed) for pilots will not be conducted on missions with passengers onboard. Mission qualification training, OMEs, and line training/development missions may be conducted on missions with passengers onboard only if the individual in training is qualified to the applicable level.

3.4.3. Local Training and Evaluation Missions. Non-current or unqualified pilots may perform crew duties under the supervision of a qualified instructor or examiner. If passengers are carried, paragraph 3.4.1. of this AFI applies.

3.5. Not used.

3.6. Not used.

3.7. Aircrew Management. SQ/CCs and en route C2 agents shall ensure work/rest cycles permit an aircrew adequate time to safely accomplish mission duties and personal time for rest.

3.7.1. Flight Duty Period (FDP). FDP is the period of time starting at mission report time and ending immediately after the aircrew completes the final engine shutdown of the day. SQ/CCs shall form aircrews based on worst-case FDP in the mission directive. Reduce FDP when the autopilot fails after departure IAW information below. If the autopilot fails after departure, consider mission requirements and determine the best course of action to preclude further mission delays due to reduced FDP. The best course of action may include diverting to an airfield with maintenance capability. Contact C2, coordinate intentions, and comply with limitations.

3.7.1.1. Basic Crew FDP. The maximum FDP for a basic aircrew is 14 hours (12 hours when the autopilot is inoperative).

3.7.1.1.1. A PIC with a basic crew may seek MAJCOM/A3/DO (mission execution authority) approval to extend the FDP as much as 2 hours to complete a scheduled mission. Only use this provision to recover from unscheduled/unplanned en route delays. C2 agents shall not ask a PIC to exercise this option.

3.7.1.2. Not used.

3.7.1.3. Not used.

3.7.1.4. Not used.

3.7.1.5. Training, Tactical, and Functional Check Flights/Acceptance Check Flights (FCFs/ACFs) FDP:

3.7.1.5.1. Maximum FDP for training, tactical, and FCF/ACF missions is 14 hours (12 hours when the autopilot is inoperative). Conduct the mission as follows:

3.7.1.5.2. Complete all mission-related events (i.e., FCF/ACF checks, transition events, or tactical events for training) during the first 12 hours of the FDP.

3.7.1.5.2.1. Crew duty time (CDT) and FDP include both military duty and civilian work. CDT and FDP begin when an individual reports for their first duty period (military or civilian).

3.7.1.5.3. Crews may fly/deposition to home station, next location, or a deployed staging base following training (do not exceed 12 hours when the autopilot is inoperative).

3.7.2. Crew Duty Time (CDT). CDT is that period of time an aircrew may perform combined ground/flight duties. Plan the mission so aircrew members may complete post-mission duties within maximum CDT. An aircrew member may perform mission-related duties for other missions when approved by member's home station SQ/CC or equivalent. Maximum CDT for a basic aircrew is 16 hours.

3.7.3. Except as outlined below, CDT/FDP begins 1 hour after aircrew alert notification. SQ/CC or equivalent may task aircrew members to perform other duties before they begin flight-related duties or MAJCOM/A3/DO may authorize a C2 agent to alert an aircrew member early. Begin CDT/FDP when the first aircrew member reports for those duties.

3.7.3.1. For self-alerts, the PIC shall coordinate early individual/crew mission report times with C2 agents. Begin CDT/FDP when the first aircrew member reports for duty.

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

3.7.4. Mission Essential Personnel (MEP) Time. IAW AFI 11-401 MAF aircrew members may travel as additional crewmembers (not required for the mission being flown but required for follow-on missions) as MEP. MEP will not be listed on the AFTO Form 781, will not log time, and will not accrue OFDA credit. Crewmembers may travel as MEP for a maximum of 24 hours. OG/CC or equivalent may approve crewmembers to travel as MEP in excess of 24 hours.

3.7.4.1. Current/qualified aircrew members may perform primary aircrew duties after flying in deadhead status provided they do not exceed a basic FDP (FDP starts at report time for deadhead flight).

3.7.4.2. Aircrew members may travel in MEP status after performing primary crew duties, for a maximum of 24 hours from the time the crewmember's FDP began.

3.7.5. Aircrew Member Support of Aircraft Generation Activities (Pre-flight, cargo up-/off-load, start, and taxi aircraft). Crew rest is required IAW AFI 11-202V3. The duty day begins when the aircrew member reports for official duties.

3.8. Scheduling Restrictions. IAW AFI 11-202V3. In addition, SQ/CCs shall not schedule an aircrew member to fly nor will an aircrew member perform aircrew duties:

3.8.1. When the flight will exceed maximum flying time limitations of AFI 11-202V3.

3.8.2. Within 12 hours of consuming alcoholic beverages (based on scheduled takeoff, or ALFA standby force legal for alert time, or earliest show time from BRAVO alert) or while impaired by its after effects.

3.8.3. When using nasal sprays to treat symptoms of head congestion existing before flight. An aircrew member may use oxymetazoline or phenylephrine nasal sprays as "get-me-downs" following an unexpected ear or sinus block during flight. Following use, crewmember will be considered DNIF until cleared by a flight surgeon.

3.9. Fatigue Countermeasures Management Program.

3.9.1. AMC/A3 will establish policy for implementation of the Fatigue Countermeasures (CM) Management Program and ensure compliance with its provisions, and AMC/SG will provide clinical oversight, guidance and materials for fatigue CM education and mitigation.

3.9.2. OG/CCs will ensure Unit Operational Risk Management (ORM) programs include use of the basic fatigue countermeasures found in the AvORM worksheet. Both the manual and automated "MAF Mission Aviation ORM Worksheet" incorporate a fatigue CM risk assessment model. They are available on the AMC/A3V website under the "Pubs" tab, "Operational Risk Management (ORM)" section, and will be used by all three tiers of mission planners, as well as aircrew during the mission execution phase.

3.9.3. Flight surgeons will use the AMC-approved (lead command) fatigue CM training CDs and pamphlets provided by AMC/SGP to educate their operational fliers in venues such as clinic visits, flight physicals, Safety Down Days, pre-deployment briefings, readiness training, Commanders' Calls, First-Term Airmen Courses, base orientations and safety meetings.

3.9.4. The primary fatigue CM available to aircrew members is appropriate management of their sleep/rest cycles. Secondary CM include smart scheduling procedures aimed at managing those cycles, strategic inflight and/or ground napping techniques, and proper diet and exercise.

3.9.5. An additional fatigue CM tool available to aircrew is the No-Go Pill. The occasional use of a No-Go Pill by MAF aircrew to improve sleep quality and/or adjust circadian rhythm sleep/wake cycles is voluntary. Each individual aircrew member will, with the aid of their home station flight surgeon, determine how/if to implement the use of No-Go Pills as a fatigue CM.

3.9.6. The following directives concerning the use of No-Go Pills are as important and unbreakable as the "12 hour bottle to throttle" restriction for alcohol consumption:

3.9.6.1. Aircrew members on flight orders will not use No-Go Pills in flight.

3.9.6.2. Aircrew members will complete ground testing for any No-Go Pill they wish to use for operational purposes and document using MAF No-Go Pill Form 1, *Ground Testing of No-Go Pills*. In order to avoid possible drug interactions, aircrew members will inform the flight surgeon of any over-the-counter medications and/or nutritional

supplements they are taking. During ground testing, aircrew members will be DNIF on an AF Form 1042 for the minimum 'DNIF' periods prescribed in paragraph 3.9.6.4. below. After ground testing of a particular No-Go Pill, the flight surgeon will complete the bottom half of the Form 1 and a "return to fly" AF Form 1042. Successful ground testing of a particular No-Go Pill establishes clearance to use it operationally.

3.9.6.3. Aircrew members may obtain NoGo Pills from any USAF or other authorized flight surgeon while at home station or off-station while TDY/deployed. Off-station/deployed flight surgeons can verify individual aircrew ground testing results via the "MAF Aircrew Medication Ground Test Card" all MAF aircrew members are required to carry.

3.9.6.4. In no case will an individual perform aircrew duties while under the effects of No-Go Pills. Individuals will use the mission report or legal for alert time to determine the latest time to take a No-Go Pill. The following are the minimum 'DNIF' periods (no AF Form 1042 required) after consuming a No-Go Pill:

3.9.6.4.1. Sonata (Zaleplon) – 4 hours minimum 'DNIF'

3.9.6.4.2. Ambien (Zolpidem) – 6 hours minimum 'DNIF'

3.9.6.4.3. Restoril (Temazepam, Class IV Controlled Substance) – 12 hours minimum 'DNIF' **NOTE:** No-Go medications can affect individuals very differently. To comply with the "no aircrew duties while under the effects" restriction, it is the responsibility of each individual aircrew member to be aware of their own minimum 'DNIF' period for any No-Go Pill they use, based on their ground trial results and/or previous experiences.

3.9.6.5. Aircrew members will consider the following examples of missions prone to causing fatigue and/or sleep disruptions in their decision to use a No-Go Pill:

3.9.6.5.1. Home station night launch missions with 2000-0530L show times and greater than four hours' duration.

3.9.6.5.2. Crew rest facilities lacking an optimal (i.e., quiet, air-conditioned, darkened) sleeping environment.

3.9.6.5.3. Off-station missions that are four or more time zones from home station.

3.9.6.5.4. Rotating or stair-stepped flying schedules with greater than 6-hour flight time duration.

3.9.6.5.5. Missions that run consistently near a 12 to 14 hour duty day.

3.9.6.6. The MAF's worldwide mobility mission makes accountability for this program challenging; therefore, the following are aircrew member responsibilities:

3.9.6.6.1. Aircrew members will not operate heavy equipment during the minimum 'DNIF' period for each No-Go Pill outlined in paragraph 3.9.6.4. above.

3.9.6.6.2. Aircrew members will not take No-Go Pills within 12 hours of consuming alcohol, as their combined use unpredictably increases the effects of both.

3.9.6.6.3. Aircrew members will limit use of Ambien (Zolpidem) and Restoril (Temazepam) to a maximum of seven consecutive days and no more than 20 days in

a 60-day period. Flight surgeons should prescribe 60 days' worth of medication (20 pills) at a time if requested by the aircrew member, unless clinically inadvisable.

3.9.6.6.4. Aircrew members will limit use of Sonata (Zaleplon) to a maximum of 10 consecutive days and no more than 28 days in a 60-day period. Flight surgeons should prescribe 60 days' worth of medication (28 pills) if requested by the aircrew member, unless clinically inadvisable.

3.9.6.6.5. If an aircrew member uses Sonata in combination with either of the other types of No-Go Pills, the seven consecutive days and 20-days in a 60 day period restrictions apply (overrides the 10 consecutive days and 28 days in a 60-day period for Sonata).

3.9.6.6.6. Aircrew members may consume more than one No-Go Pill in a 24-hour period, if operationally necessary. A second No-Go Pill of the same or different type will not be consumed while in the minimum 'DNIF' period for the previous pill.

3.9.6.6.7. The "MAF No-Go Pill Usage/Refill Form" will be used to document No-Go Pill use and refill authorization, and placed in the aircrew member's medical record. Non-duty station flight surgeons will forward the form to the aircrew member's home station aerospace medicine clinic to be placed in their medical record. Flight surgeons will immediately discuss any concerns about an aircrew member's use of No-Go Pills with the individual's commander if any question of misuse arises.

3.9.6.6.8. Aircrew members on Personnel Reliability Program (PRP) status will follow PRP notification procedures if prescribed No-Go Pills.

3.9.7. The OG/CC shall establish a system to inform the FS when missions fall into any of the following categories (may cause sleep disruptions and are therefore candidates for no-go medications):

3.9.7.1. Home station night launch missions greater than four hours duration.

3.9.7.2. Crew rest facilities lacking an optimal sleeping environment (quiet, air-conditioned, and darkened).

3.9.7.3. Off-station missions that are 4 or more time zones from home station.

3.9.7.4. Rotating schedules (stair-stepped flying schedules) with greater then 6-hour flight time duration.

3.9.7.5. Missions that run consistently near a 14-hour (or greater) duty day.

3.9.8. SQ/CC will not schedule crewmembers to fly or perform crew duties within 12 hours of consuming no-go Pills (consider Duties Not Including Flying (DNIF)). ***EXCEPTION:*** Commanders may reduce the 12-hour timeline after consult with a flight surgeon to confirm prescribed no-go pills have short duration effect; i.e., 6 hours for Ambien® (zolpidem) and 4 hours for Sonata® (zalephon). In no case will crewmembers consume a no-go pill on a timeline where they would be under the effect of the medication while they perform aircrew duties (use mission report or legal for alert time to determine latest time to take no-go medication).

3.9.9. Aircrew member's responsibilities:

3.9.9.1. Aircrew members will complete ground testing for no-go pills and receive flight surgeon clearance prior to using no-go pills in the operational environment.

3.9.9.2. Aircrew members shall not operate equipment within 12-hours after consuming a no-go pill unless shorter times are confirmed with a flight surgeon.

3.9.9.3. Aircrew members shall not take no-go pills within 12 hours of consuming alcohol.

3.9.9.4. Aircrew will inform the FS of any other medications (including nutritional supplements and over the counter medications) they are taking so the FS can evaluate potential interactions.

3.9.9.5. Limit use of Restoril® and Ambien® to a maximum of seven consecutive days and no more than 20 days in a 60-day period.

3.9.9.6. Limit use of Sonata® to a maximum of 10 consecutive days and no more than 28 days in a 60-day period.

3.10. Crew Rest/En route Ground Time. OG/CCs shall establish procedures to place crewmembers in crew rest. MAJCOM/A3/DO may waive any portion of the crew rest period or ground time as needed to meet mission tasking.

3.10.1. Home-Station Pre-departure Crew Rest. For missions that will keep aircrew members off station 16 hours or more, unit commanders will enter primary and deadhead aircrew members into pre-departure crew rest 24 hours before the legal for alert time. Aircrew members may perform limited non-flying duties like mission planning during the first 12 hours of pre-departure crew rest. OG/CCs may waive any portion of the first 12 hours of pre-departure crew rest. Do not manifest deadhead aircrew members as passengers to deny pre-departure crew rest. ***EXCEPTION:*** ANG and AETC in accordance with AFI 11-202V3 and appropriate supplement.

3.10.2. Off-station/En route Crew Rest. The minimum en route crew rest period is 12 hours before legal for alert or scheduled report time when self-alerting.

3.10.2.1. Except during emergencies or as authorized by MAJCOM/A3/DO, C2 agents shall not disturb an aircrew member in crew rest. When necessary to interrupt aircrew members' crew rest period, re-enter that aircrew in a subsequent minimum 12 hour crew rest period after they complete official duties.

3.10.2.2. Do not enter aircrew members into crew rest until they complete official post-flight duties. Those duties may include, but are not limited to, refueling, cargo on-/off-load, aircrew arming, minor maintenance, or mission debriefing.

3.10.3. Off-station/En route Ground Time. Mobility planners and C2 agents shall provide aircrews at least 16 hours ground time between engine shutdown and subsequent takeoff.

3.10.3.1. Mission planners, PICs, or C2 agents may modify ground time as follows:

3.10.3.1.1. In the interest of safety.

3.10.3.1.2. To start (mission reporting time) no earlier than 12 hours from the time the aircrew entered crew rest. Before reducing ground time, PICs will consider time

to complete mission planning, cargo on-/off-load, and non-standard mission related duties. C2 agents will not ask PICs to accept less than 16 hours ground time.

3.10.3.2. Mobility planners should construct mission itineraries with en route ground times longer than 16 hours to afford aircrew members opportunities to recover from the cumulative affects of fatigue caused by flying on several consecutive days or due to transiting several time zones. If practical, make the en route ground time 36 hours (maximum) after three consecutive near maximum FDPs.

3.10.4. Crew Enhancement Crew Rest (CECR). CECR is not an alternative to a safety-of-flight delay but provides PICs a means to minimize the adverse effects of a crew alert and report period outside normal duty time. CECR periods should be of minimum duration and are normally used during de-positioning legs. Tasking authorities shall approve PIC requests to delay alert time to normalize the work-rest cycle or increase messing options when mission allows. When requests are disapproved, the C2 agent will inform the PIC of the reason for disapproval.

3.10.5. Post-Mission Crew Rest (PMCR). SQ/CCs shall give aircrew members returning to home base sufficient time to recover from cumulative effects of the mission and tend to personal needs. PMCR begins upon mission termination. (NA to ANG and AETC).

3.10.5.1. For missions that keep an aircrew off station 16 or more hours, the SQ/CC shall provide 1 hour (up to 96 hours) PMCR for each 3 hours off-station. Do not enter aircrew members in pre-departure crew rest until the PMCR period expires.

3.10.5.2. PMCR is not applicable to continuing missions and MAJCOM/A3/DO may suspend PMCR during contingency operations.

3.10.5.3. OG/CCs (or equivalents) are PMCR waiver authority.

3.10.6. Not used.

3.10.7. The lead USAF component will publish MAJCOM/A3/DO-approved crew rest criteria in the Exercise or Contingency Operation Order (OPORD), Operation Plan (OPLAN) or Concept of Operations (CONOPs).

3.10.8. The Prime Knight program streamlines the process of getting aircrews from aircraft parking ramp into lodging/crew rest. It is only successful when billeting agents receive accurate aircrew/mission information in a timely manner.

3.10.8.1. C2 Agent Responsibilities. A MAJCOM C2 agent will forward information on the departing aircrew's orders to a POC for the next crew rest location's Prime Knight function.

3.10.8.2. PIC Responsibilities. If departing from a location with a C2 agency, ensure a C2 agent has accurate aircrew/mission information to forward to the next Prime Knight POC. If departing from a facility without a C2 agency, the PIC will call the next crew rest location Prime Knight POC to pass aircrew/mission information.

3.10.8.3. SQ/CC or designated authenticating official shall ensure TDY/Flight orders clearly indicate the unit fund cite so that the PIC may make Prime Knight reservations in advance. Without a unit fund cite on the TDY/Flight orders, the PIC must make advance reservations using a government travel card to participate in the Prime Knight program.

3.11. Alerting Procedures. MAJCOM C2 agents shall establish a legal for alert time with the PIC and when appropriate, the Medical Crew Director (MCD) of Aeromedical Evacuation (AE) crews. Whenever possible, C2 agents will inform PICs and MCDs of aircraft status, expected patient up load time, and other pertinent mission details that will streamline mission launch.

3.11.1. Aircrew alert time is normally 3+00 hours before scheduled takeoff time (allows 1 hour for reporting and 2+00 hours for mission preparation). Individual locations may increase or decrease this time depending on specific capabilities. OG/CCs may establish self-alert procedures for local training missions.

3.11.1.1. For missions with more than minimum ground time, the PIC may arrange an alert time that provides additional preparation time to accomplish the mission. The PIC may also accept alerting with reduced preparation time when the mission allows. In all cases, the PIC shall coordinate changes to standard alerting times with the appropriate C2 agency.

3.11.1.2. Not used.

3.11.1.3. C2 agents shall not alert an aircrew until the aircraft is in commission or there is reasonable assurance that maintenance technicians will complete repairs that allow the aircrew time to pre-flight and load the aircraft to meet the target takeoff time.

3.11.1.4. C2 agents shall not alert outbound crews when inbound aircraft is on A-2 or A-3 status until maintenance technicians determine required parts are available and the aircraft will be repaired within the target ground time.

3.11.1.5. Self-Alerts. Crews may self-alert at locations without a C2 agency, but must coordinate with controlling C2 agency. The PIC may elect to self-alert on operational missions at locations with a C2 agency. Coordinate the alert time with local C2 agents to avoid FDP limitations that result from unexpected changes in the mission.

3.11.2. The aircrew release policy is as follows:

3.11.2.1. On the aircrew's initial entry or re-entry into crew rest, the controlling C2 agent, or PIC during self-alerts, will establish an expected alert time.

3.11.2.2. For all missions, the latest allowable alert time is 6 hours after the expected alert time. The PIC may extend that window to 8 hours when flying as primary crew or 12 hours when flying in deadhead status. The controlling C2 agent will not ask the PIC to accept more than the 6 hour window. ANG/AFRC aircrew members may extend the window as necessary to deadhead to home station to meet the Firm Scheduled Return Time (FSRT).

3.11.2.3. When a C2 agent determines circumstances will not allow for aircrew alerting during the legal for alert window, at that time but not earlier than the expected alert time, the C2 agent will contact the PIC and establish a new expected alert time at least 12 hours from the time of notification.

3.11.2.4. At the end of the legal for alert window or if the mission risk becomes elevated and the aircraft commander determines the overall risk of the mission prohibits safe continuation, he/she will contact a C2 agent and establish a new expected alert time.

3.12. Stage Management.

3.12.1. Stage Posture. Stages operate on a positive launch principle. C2 agents shall alert aircrews using the following priority/hierarchy:

3.12.1.1. Aircrews that require an emergency return to home station.

3.12.1.2. De-positioning stage crews will be prioritized by their SRTs.

3.12.1.3. Aircrews in sequence of arrival time.

3.12.1.4. If the stage manager returns an aircrew in the stage to crew rest because of a mission delay or abort, that aircrew becomes first out when legal for alert.

3.12.2. Mechanical Stage**.** A C2 agent may create a mechanical stage when a delayed or aborted mission will not resume before that aircrew's FDP expires. Aircrews in a mechanical stage will be first out when a mission in the same direction transits their location while they are legal for alert. A C2 agent may bump an inbound aircrew with FDP to complete that mission to cycle aircrews in a mechanical stage. C2 agents should not normally establish a mechanical stage for ANG and AFRC crews flying unit-equipped aircraft.

3.13. Standby Force Duty. MAJCOM C2 Agents shall task units for Standby Force Duty not later than 18 hours prior to Legal For Alert time. This allows crewmembers 12 hours of pre-standby crew rest and 6 hours for aircraft pre-flight duty. When aircrews are unable to complete all preflight duties within 6 hours of crew show time, provide an additional 12-hour pre-standby crew rest. If MAJCOM C2 agents are unable to provide 18 hours prior notification, SQ/CC shall place the pre-standby crew in 12 hour crew rest and follow aircraft generation procedures in paragraph 3.7.5 to prepare the aircraft for launch. SQ/CC may keep an aircrew in ALFA/BRAVO status up to 48 hours. MAJCOM/A3/DO may extend this period for contingencies. After completion of an alert period, launch, release, or re-enter aircrew into 12 hour pre-departure crew rest. OG/CCs may provide additional local procedures for management of Standby Force Duties.

3.13.1. ALFA Standby Aircraft Preflight Generation and Security. When tasked, SQ/CC shall posture an aircraft and aircrew as an ALFA Standby Force able to launch within 1 hour. The following procedures apply to primary aircraft as well as spare aircraft generated for ALFA alerts. A maintenance Dash -6 and aircrew Dash -1 preflight must be completed. Preflight validity will be in accordance with applicable T.O. After the preflight, the PIC will notify the controlling agency. The aircraft will remain in a sealed posture and be referred to as "cocked on alert". Documentation of when the aircraft was cocked on alert must be placed in the forms. The PIC will ensure the aircraft is secure before entering crew rest. Secure all hatches and doors to show unauthorized entry. Close and lock the crew entrance door with the key, which will prevent entry without damage to the door or lock. The aircrew preflight portion remains valid if performed by one crew, cocked on alert, and launched by another crew. Uncocking a generated aircraft is not a standard procedure but may be accomplished on a case by case basis. The PIC or a designated aircrew representative must be present if access to the aircraft is required. Ensure command and control and the controlling agency are notified when uncocking and recocking generated aircraft. Follow-on pre-flights done during normal waking hours do not interrupt crew rest. Begin CDT/FDP when C2 agent directs the aircrew to launch from crew rest or while performing pre-flight (begin CDT/FDP when the aircrew arrived at the aircraft to do the pre-flight).

3.13.2. BRAVO Standby Force. When tasked, SQ/CC shall posture an aircraft and/or aircrew in BRAVO Standby Force to permit launch within 2 hours of unit notification. Follow-on pre-flights, if required, interrupt crew rest. Begin CDT/FDP when aircrew shows for duty.

3.13.3. CHARLIE Standby Force. When tasked, SQ/CC shall posture aircrews as a CHARLIE Standby Force ready to enter crew rest within 2 hours. Tasked aircrews will be legal for alert 12 hours after entering crew rest. SQ/CC may keep aircrews in CHARLIE status up to 72 hours. After 72 hours, release aircrews from CHARLIE Standby or enter them into 12 hours crew rest for directed mission, training mission, or subsequent Standby Force duty.

3.13.4. Wing Standby Force. OG/CC may place aircrews in Wing Standby status. After a 12 hour pre-departure crew rest period, aircrews are legal for alert for 12 hours and must be able to launch within 2 hours of unit notification. After 12 hours, launch, release, or re-enter aircrews in 12 hour crew rest period before subsequent 12 hours Wing Standby duty.

3.13.5. Post-Standby Missions. On completion of standby duty, aircrew members may be dispatched on a mission. If started, post-standby crew rest must be completed before the start of pre-departure crew rest. If an aircrew member is dispatched on a mission, compute the post-mission crew rest time on standby time plus mission time.

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

3.13.6.1. 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.

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

3.14. Orientation Flights and Incentive Flights. Refer to DoD 4515.13-R, *Air Transportation Eligibility*, AFI 11-401 and the appropriate MAJCOM supplement.

3.15. Interfly. Interfly is a temporary arrangement between OG/CCs or equivalent to permit the exchange or substitution of aircrew members and/or aircraft between mobility units to accomplish flying missions. Interfly will be limited to sp0ecific operations, exercises, or special circumstances. However, it may be used for events of longer duration such as unit conversion to another model design series (MDS). AFRC/A3 has delegated interfly approval authority to unit OG/CCs for active duty/ANG interfly with AFRC and AFRC to AFRC interfly. Units utilizing this authority will inform AFRC/A3V. NGB/A3 has delegated approval authority to Wing Commanders for active duty/AFRC interfly with ANG, and OG/CC approval authority for ANG to ANG interfly. ANG units will ensure appropriate active duty General Officer support staff has notified the Air Force Directorate of Personnel General Officer Management Office (AF/DPG) prior to any active duty General Officer flying with their unit. ***EXCEPTION:*** AE crewmembers are exempt from interfly requirements. Conduct interfly operations as follows:

3.15.1. Aircrew members shall be current and qualified in the MDS, as well as unique systems or configuration required to fly the aircraft/mission.

3.15.2. Aircrew members will follow operational procedures established by the lead command for the MDS. The Mission Commander or PIC will brief MAJCOM-specific items.

3.15.3. Each affected group commander who commits resources (personnel or aircraft) must concur with interfly proposal.

3.15.4. MDS conversion training.

3.15.4.1. Units may request an interfly agreement for duration of their conversion. OG/CCs will forward interfly requests to individual OG/CCs for approval. Requests will include as a minimum a list of effected units, duration of the agreement, and purpose.

3.15.5. NGB/A3 has delegated authority for interfly agreements to the wing commanders for active duty and AFRC interfly with ANG units.

3.16. Mission Essential Personnel (MEP). Procedures and policies regarding MEP are contained in AFI 11-401 and AMCI 11-208. PICs will ensure personnel traveling in this status are properly authorized. Crewmembers qualified in mobility aircraft are authorized MEP status on any mobility aircraft to pre/de-position in support of mobility operations. MAJCOM designated crewmembers who are assigned or authorized to accompany the normal crew complement are allowed MEP status.

3.16.1. Crewmembers in MEP status are not authorized to:

3.16.1.1. Displace manifested passengers.

3.16.1.2. Maintain currency and/or log flying time.

3.16.1.3. Use for transportation while on leave. ***EXCEPTION***: ANG/AFRC Air Technicians may be in a civilian leave status while traveling en route to perform in a military duty status.

3.16.1.4. Travel on Special Air Missions/Command Support Mission (SAM/CSM) aircraft unless authorized by HQ AF/CVAM through the PIC.

3.16.1.5. Travel on Special Assignment Airlift Missions (SAAM) when specifically restricted by the mission directive.

3.16.1.6. Travel on Operational Support Airlift (OSA) aircraft unless authorized by Joint Operational Support Airlift Command (JOSAC) through the PIC.

3.16.2. All MEPs require valid travel/flight orders or supporting message authorizing MEP status. OG/CCs may authorize MEP status for their mobility aircrews.

3.16.3. Flight evaluators have priority and will not be displaced by any other MEP. The priority for evaluators is MAJCOM, NAF, group, and then squadron level.

3.16.4. MEPs normally travel in the crew compartment. If the number of MEPs desiring travel exceeds the capacity of the crew compartment, the C2 agency will notify the ATOC, who in turn will coordinate with the passenger terminal; seats not previously assigned may be used for MEPs.

3.16.5. The PIC, or designated representative, will brief MEPs on seat assignment, appropriate mission information, emergency procedures including egress, and armed

crewmembers. The PIC may assign an MEP aircrew-related duties for which the MEP is qualified.

3.16.6. MEPs will coordinate their travel with the appropriate C2 agency prior to travel. They will process through the C2 agency as early as possible but NLT 3 hours prior to planned block time.

3.17. Mission Mobility Observers (MMO). MAJCOM supplements or additional directives may establish programs authorizing senior military and civilian personnel to fly for mobility mission familiarization. For AMC MMO information reference AMCI 11-208, *Tanker Airlift Operations.*

Chapter 4

AIRCRAFT OPERATING RESTRICTIONS

4.1. Objective. Redundant systems may allow crews to safely perform some missions when a component/system is degraded. The PIC is the final authority in determining the overall suitability of an aircraft for the mission. The PIC will ensure a detailed explanation of the discrepancy is entered in the AFTO Form 781A, *Maintenance Discrepancy and Work Document*; include the following maintenance identifiers to effectively communicate aircraft status.

4.1.1. Mission Essential (ME). The PIC will designate an item, system, or subsystem component essential for safe aircraft operation as ME.

4.1.2. Mission Contributing (MC). The PIC will designate an item, system, or subsystem component, which is not currently essential for safe aircraft operation as MC. These discrepancies should be cleared at the earliest opportunity. If circumstances change or mission safety would be compromised, re-designate as ME. Do not delay a mission to clear a MC discrepancy.

4.1.3. Open Item (OI). The PIC will designate discrepancies not expected to adversely impact the current mission or any subsequent mission as an OI. These items are normally cleared at home station.

4.2. MEL Policy. The Minimum Equipment List (MEL) is a pre-launch document that lists the minimum equipment/systems to operate the aircraft. It is impractical to prepare a list that would anticipate all possible combinations of equipment malfunctions and contingent circumstances. Consider equipment/systems with no listed exceptions as grounding items. A PIC who accepted an aircraft with degraded equipment/systems is not committed to subsequent operations with the same degraded equipment. PICs are not committed to operations with degraded equipment accepted by another PIC.

4.2.1. The PIC shall account for the possibility of additional failures during continued operation with inoperative systems or components. The MEL is not intended for continued operation over an indefinite period with systems/subsystems inoperative.

4.2.2. All emergency equipment will be installed unless specifically exempted by mission requirements/directives.

4.2.3. Waiver Policy. A PIC prepared to operate with a degraded MEL item shall request a waiver through C2 channels. The PIC shall provide the C2 agent: 1) nature of request, 2) individual crew member qualification, 3) mission leg(s) requiring the waiver, and 4) weather or other adverse condition, and 5) the governing directive of waiver request to include volume, chapter, or paragraph. Initiate waiver requests as soon as possible; plan at least a 1-hour waiver process time.

4.2.4. PICs operating with waiver(s) for degraded equipment shall coordinate mission requirements (i.e., revised departure times, fuel requirements, maintenance requirements, etc.) with the controlling C2 agency and/or flight manager.

4.2.5. If beyond C2 communication capability, or when it is necessary to protect the crew or aircraft from a situation not covered by this chapter and immediate action is required, the PIC

may deviate according to paragraph 1.4. Report deviations (without waiver) through channels to MAJCOM/A3/DO within 48-hours. OG/CCs shall collect background information and submit a follow-up written report upon request.

4.3. Waiver Protocol. Waivers to operate with degraded equipment are granted on a case-by-case basis. The PIC determines the need for a waiver after coordinating with the lowest practical level of command. MEL waiver authority is as follows:

4.3.1. Training Missions. OG/CC or equivalent with mission execution authority.

4.3.2. MAJCOM Directed Missions. MAJCOM/A3/DO with mission execution authority for active duty, AFRC, or ANG units flying MAJCOM-directed missions (includes Operational Readiness Inspections). Initiate the request with MAJCOM C2 agency. For AMC-directed missions contact HQ AMC/A3VS through TACC. HQ AMC/A3VS personnel are authorized on behalf of the AMC/A3 to grant these waivers. USAFE/A3T is authorized on behalf of USAFE/A3 to grant these waivers. NGB/A3O is authorized on behalf of NGB/A3 to grant these waivers.

4.3.3. Contingency Missions. DIRMOBFOR (or equivalent) for the agency with C2, if not specified in the OPORD/Tasking Order.

4.3.4. ANG and AFRC Directed Missions. ANG and AFRC maintain C2 and waiver authority for ANG or AFRC directed missions prior to mobilization.

4.3.5. Other Than MEL Waivers. Determine governing source document (i.e. AFI, Flight Manual, Maintenance T.O., etc.) to ascertain the waiver authority. Use C2 channels to notify the appropriate waiver authority. Waivers of this nature may require an extended response time.

4.3.6. Engineering Dispositions (ED). Dispositions are requested when aircraft are damaged and/or established maintenance technical order procedures cannot be followed or do not exist. The on-site maintenance authority is responsible for requesting Engineering Dispositions. Most EDs allow maintenance to repair the aircraft and return it to unrestricted status; dispositions of this nature do not concern aircrews. However, EDs affecting aircrew operations require MEL waiver authority approval.

4.3.6.1. PICs shall coordinate dispositions containing flight restrictions, prohibitions, additional operating limits, or modified/nonstandard operating procedures with the appropriate MEL waiver authority (see paragraph 4.3).

4.3.6.2. PICs will not accept dispositions appearing incomplete, in error, or unsafe. Prior to rejecting a disposition, the PIC will contact the appropriate MEL waiver authority. The waiver authority will attempt to resolve the issue. NOTE: Deviations from the flight manual requires approval IAW the flight manual.

4.3.7. Airworthiness Directives (AD). ADs are the civil equivalent of a Time Compliance Technical Order (TCTO). ADs apply to C-21 aircraft. The aircraft's Systems Group (SG) is responsible to bring ADs to the attention of appropriate maintenance and operations units. When an AD is released the aircraft shall comply with the directive.

4.3.7.1. PICs shall coordinate new ADs containing flight restrictions, prohibitions, additional operating limits, etc. with the appropriate MEL waiver authority (see paragraph 4.3).

4.4. Technical Assistance. The PIC may request technical support and additional assistance from their home unit or MAJCOM C2 agency.

4.5. MEL Table Definitions/Column Identifiers. MEL tables are arranged by aircraft system to provide the PIC a mechanism to determine minimum system requirements. Components are listed by number installed and minimum required for flight. Requirements are defined by Home Station Departure/Main Operating Base (MOB) (Column A) and En Route (Column B). Refer to the Remarks/Limitations/Exceptions column for clarification. AMC and AMC-gained aircrews will consider Andrews AFB, Scott AFB, and Peterson AFB as MOBs. When transiting a MOB on a pre-positioning or an active leg of a mission use Column A. When transiting a MOB on a de-positioning leg use Column B. For example, an Andrews C-21 transiting Scott en route to Peterson will use Column A. However, when transiting Scott en route to Andrews (de-positioning) use Column B. ***NOTE***: Column B requirements will not normally be waived when transiting a MOB on a de-positioning leg. Local training missions, to include off-station trainers, fall under Column B.

4.5.1. Remarks/Limitations/Exceptions. Some technical information and procedures are contained in this column. This is not all-inclusive; crewmembers shall refer to the flight manual and other directives for procedures, techniques, limitations, etc.

4.5.1.1. One-time Flight Clarification: Normally a Red X discrepancy is downgraded for a one-time flight. This condition does not preclude carrying cargo and passengers, unless restricted by the authority who downgraded the Red X. The priority is to move the airplane to a repair capable facility. PICs must coordinate with appropriate agencies to ensure repair capability exists at the destination. One-time flights may include en route stops only when necessary to recover the airplane. Example: An airplane departs on a gear-down flight from Djibouti IAP and requires an en route fuel stop (Cairo) before landing at the nearest repair capable facility, Sigonella NAS.

4.5.1.1.1. One-time flight to nearest repair capable facility: Flight is limited to the nearest (shortest en route time) repair capable base.

4.5.1.1.2. One-time flight to a repair capable facility: Flight is not restricted to the nearest repair capable facility.

4.5.1.2. Other Mission and Repair Clarifications:

4.5.1.2.1. Shall be repaired at next repair capable facility: Mission may continue as scheduled, item shall be repaired upon reaching a repair capable facility. Designate item ME upon reaching repair facility. Once maintenance action is initiated, and it is determined repairs are not possible, the PIC will discuss possible courses of action with C2 agency to return aircraft to service.

4.5.1.2.2. Mission dictates requirement: PIC shall consider the entire mission profile, not just the next leg. Example: An airplane is departing an en route station with repair capability, after engine start the pilot discovers the #1 engine anti-ice is inoperative. Icing conditions are not forecasted for the next leg. However, because the mission spans several days and repair capability does not exist at the scheduled en route stops, the PIC elects to have the item repaired prior to departing.

4.5.2. Warning and Caution annunciator lights not specifically mentioned in the MEL should normally be operative; however, the PIC should use good judgment in determining if the mission can proceed with a burned out bulb.

4.5.3. A PIC may request a waiver to depart from a contract maintenance location if parts are available, but the delay would be unacceptable for mission completion.

Table 4.1. PRESSURIZATION.

Item/System	**Installed**	**Required**		**Remarks/Limitations/Exceptions**
		A	**B**	
1-1. Cabin Controller	1	1	1	**(B)** Both automatic & manual modes must be operative for flight. If one or both modes are inoperative, a one-time flight to a repair capable facility may be made at or below 10,000 ft MSL.
1-2. Cabin Altimeter	1	1	1	**(B)** May be inoperative provided: a. Cabin Differential Pressure Gauge is operative, and b. TO 1C-21A-1 Cabin to Pressure Altitude Conversion chart is used to convert cabin differential pressure to cabin altitude. OR Aircraft is operated at or below 10,000 ft MSL
Item/System	**Installed**	**Required**		**Remarks/Limitations/Exceptions**
		A	**B**	
1-3. Cabin Altitude Warning Horn	1	1	1	**(B)** May be inoperative provided aircraft is operated at or below 10,000 ft MSL
1-4. Cabin Differential Pressure Gauge	1	1	1	**(B)** May be inoperative provided: a. Cabin Altimeter is operative, and b. TO 1C-21A-1 Cabin to Pressure Altitude Conversion chart is used to convert cabin differential pressure to cabin altitude. OR Aircraft is operated at or below 10,000 ft MSL
1-5. Cabin Rate of Climb Indicator	1	1	1	**(B)** May be inoperative provided: a. Cabin altimeter is operative, and b. Cabin differential gauge is operative, and c. Pressurization operated in AUTO OR Aircraft is operated at or below 10,000 ft MSL
1-6. Cabin Auxiliary Heating System, (if installed)	1	0	0	

1-7. Freon Cooling System	1	0	0	**(A/B)** Required if mission conditions dictate
1-8. Cabin Blower	1	0	0	
1-9. Cockpit Fan	1	0	0	**(A/B)** Required if mission conditions dictate
1-10. Cabin Temperature Indicator	1	0	0	
1-11. Engine Bleed Air Shutoff Valves	2	2	1	**(B)** One time flight with one inoperative valve may be made: a. At or below 25,000 ft MSL, and b. Aircraft not operated in known or forecast icing conditions
1-12. Temperature Control Valve (H-Valve) Indicator	1	1	1	**(B)** May be inoperative provided H-Valve operation is confirmed by Automatic or Manual Temperature Control Systems.

Table 4.2. ICE PROTECTION.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
2-1. Alcohol Anti-Ice System (Windshield or Radome)	1	1	1	**(B)** May be inoperative provided aircraft is not operated in known or forecast icing conditions
2-2. Ice Detection Lights	2 2	2 2	1 0	**(B)** One may be inoperative provided operative light is on copilot side OR Two may be inoperative provided aircraft is not operated in known or forecast icing conditions at night
2-3. Nacelle heat	2	2	2	**(B)** One or both may be inoperative provided aircraft is not operated in known or forecast icing conditions AND not in an area where RAT is between 10^0 and -35^0 C in IMC
2-4. Pitot Heat (includes stall vane heat and total temp probe)	2	2	0	**(B)** Required for flight in IMC
2-5. RAT Indicator	1	1	1	
2-6. Windshield Heat	1	1	1	**(B)** May be inoperative provided aircraft is not operated in known or forecast icing conditions, not required for defog, and system has been purged of water
2-7. Windshield Defog System (Supplemental)	2	0	0	**(A/B)** May be required for defog during landing rollout at high-humidity airfields
2-8. Wing and/or Stab Anti-Ice	1	1	1	**(B)** May be inoperative provided aircraft is not operated in known or forecast icing conditions AND not in an area where RAT is between 10^0 and -35^0 C in IMC
2-9. Wing & Stab Temperature Gauge	2	2	2	**(A/B)** Required if Wing/Stab Anti-Ice use is anticipated

Table 4.3. FLIGHT INSTRUMENTS.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
3-1. Airspeed Indicators	2	2	2	
3-2. Altimeters	3*/2	3*/2	2	**(B)** Standby altimeter and one primary altimeter must be operative (*RVSM modified aircraft only). For operations in RVSM airspace with an inoperative altimeter, see Table 4.14 Non-RVSM modified aircraft must have both altimeters operational for flight.
3-3. Attitude Gyros (ADIs)	3	3	2	**(B)** Standby ADI and one primary ADI must be operative
3-4. Directional Gyros (EHSI/RMI)	4	4	2	**(B)** 1 EHSI or RMI must be operational in each position
3-5. Magnetic Compass	1	1	1	
3-6. Slip Indicator	2	2	1	**(B)** Must be operational on the side of the pilot flying
3-7. Terrain Awareness and Warning System (TAWS)	1	1	1	**(B)** Mission may continue as scheduled, item shall be repaired upon reaching a repair capable facility
3-8. Multi Function Display (MFD)	1	1	0	**(B)** Required if weather radar is needed for flight (i.e. thunderstorms forecast or reported along route of flight)
3-9. Traffic Collision Avoidance System (TCAS II)	1	1	1	**(B)** Mission may continue as scheduled, unless airspace requirements dictate otherwise; item shall be repaired upon reaching a repair capable facility. For TCAS failures, IFF Mode 3C must be operative.
3-10. Radio Altimeter	1	1	1	**(B)** For training sorties, must be operative to launch but trainer may continue if system fails enroute. Required for tactical maneuvers. Not required for AFFSA missions
3-11. Vertical Speed Indicators	2	2	1	**(B)** One may be inoperative provided aircraft is operated in day VMC only
3-12. Weather Radar	1	1	0	**(B)** Required if thunderstorm conditions are forecast or reported along route of flight. Stay VMC to the maximum extent possible.
3-13 Standby Altimeter Vibrator	1	1	0	**(B)** Pilots must apply appropriate altitude corrections from T.O. 1C-21A-1

Table 4.4. COMMUNICATIONS/NAVIGATION.

NOTE: Ensure communications/navigation equipment section of the flight plan is annotated appropriately according to FLIP GP.				
Item/System	**Installed**	**Required**		**Remarks/Limitations/Exceptions**
		A	**B**	
4-1. VHF Radios	2	2	1	**(B)** UHF radio must be operational. Aircrew will comply with single FM Immunity receiver procedures in the applicable Area Planning (AP) series.
4-2. UHF Radios	1	1	0	**(B)** Both VHF radios must be operational
4-3. HF Radio	1	0	0	**(A/B)** Required if needed for mission
4-4. Remote Audio Control Amplifier (Audio and Comm Panels)	2	2	1	**(B)** Systems required to effectively communicate must be operable
4-5. ILS Receivers	2	2	0	**(B)** Required if needed for mission
4-6. Marker Beacon System	2	0	0	**(A/B)** Required if needed for mission
4-7. NDB (ADF)	1	0	0	**(A/B)** Required if needed for mission
4-8. TACAN & VOR	3	3	1	**(B)** Additional VORs or TACAN required if needed for mission
4-9. DME Indicator (Collins)	1	0	0	**(A/B)** DME must be operative in one of the EHSIs
4-10. GPS	2	2	0	**(B)** Required if needed for mission (for UNS-1L aircraft reference table 4.12)
4-11. Navigation Database	1	1	1	**(A/B)** May be expired provided crews adhere to restrictions in AFI 11-202V3, *General Flight Rules*.
4-12. UNS	1	1	0	**(B)** Required if needed for mission (for UNS-1L aircraft reference table 4.12)
4-13. Transponder	1	1	1	**(A/B)** Mode C may be inoperative for ferry flight if not transiting airspace requiring Mode C

Table 4.5. FLIGHT CONTROLS.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
5-1. Control Wheel Master Switch	2	2	2	
5-2. Yaw Damper	2	2	2	
5-3. Spoilers	1	1	1	**(B)** May be inoperative provided: Ground spoilers are operative, and flight manual procedures are followed
5-4. Spoilerons	1	1	0	**(B)** Follow flight manual procedures
5-5. Trim Systems: Aileron Pitch Rudder	 1 2 1	 1 2 1	 1 2 1	**(A/B)** Indicators must also be operative
5-6. Autopilot	2	1	0	**(B)** Comply with AFI 11-202V3, *General Flight Rules*, Flight Duty Period restrictions. Either pilot's side may be inoperative with no restrictions provided the pilot with the operative side flies the aircraft. For RVSM see Table 4.14.
5-7. Flight Director System	2	2	0	
5-8. Mach Trim System	1	1	0	**(B)** Comply with flight manual procedures
5-9. Stall Warning System	2	2	2	
5-10. AOA Gauge	2	2	2	
5-11. Stick Puller	1	1	1	
5-12. Flap Position Indicator	1	1	1	

Table 4.6. ELECTRICAL.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
6-1. Main Batteries	2	2	2	**(A/B)** If below 23 volts but above 20.5 volts, contact mx before charging batteries (applying ground power) and comply with flight manual procedures
6-2. Battery Temperature Indicators	2	2	2	
6-3. Battery 140 and 160 Lights	2	2	2	
6-4. Emergency Battery	1	1	1	
6-5. Generators	2	2	2	
6-6. Inverters	2	2	2	
6-7. AC Voltmeter	1	1	1	
6-8. DC Voltmeter	1	1	1	
6-9. Ammeters	2	2	2	

Table 4.7. FUEL SYSTEM.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	**B**	
7-1. Components:				
Jet Pumps	4	4	4	
Stby pumps	2	2	2	
Stby pump lights	2	2	2	
Fuel jettison valves	2	2	2	
Cross flow valve	1	1	1	
Cross flow valve light	2	2	2	
Fuel Gage (indicating each position)	1	1	1	
Fuel Flow Indicator	2	2	2	
Fuel Counter	0	0	0	
Fuel Panel Lights	11	11	11	
7-2. Fuselage Tank and Transfer System	1	1	1	**(A/B)** May be inoperative provided operations do not require use of fuselage tank fuel. If fuselage fuel is required, both fuel transfer systems (pump driven and gravity flow) must be operational.

Table 4.8. LIGHTING.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
8-1. Anti-Collision Lights (4 total lights…1 red and 1 white flashtube on the top & bottom of the aircraft)	4	4	4	
8-2. Cabin Interior Lighting	1	1	1	**(B)** May be partially inoperative provided: a. Operative cabin emergency lighting, and b. Sufficient lighting for crew to perform duties
8-3. Cockpit Lighting Systems	1	1	1	**(B)** Individual lights may be inoperative provided remaining lights are sufficient to clearly illuminate all required instruments/controls
8-4. Exterior Emergency Lighting	1	1	0	**(B)** Required for night operations
8-5. Interior Emergency Lighting System	1	1	0	**(B)** Daytime operations only and without passengers
8-6. Landing Lights	2	2	1	**(B)** Ref AFI 11-202V3, *General Flight Rules*
8-7. Position Lights (wing tips & tail)	3	3	0	**(B)** All lights are required for night flights (Ref AFI 11-202V3, *General Flight Rules*)
8-8. Recognition Light	1	1	0	

Table 4.9. GEAR/HYDRAULIC.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
9-1. Landing Gear Position Lights (Green and/or Red)	6	6	See remarks	**(B)** May continue mission to maintenance facility with light(s) inoperative if gear can be verified down by alternate means IAW flight manual. Do not perform touch-and-gos.
9-2. Engine Hydraulic Pumps	2	2	2	
9-3. Auxiliary Hydraulic Pump	1	1	1	
9-4. Hydraulic Pressure Gauge	1	1	1	
9-5. Low Hydraulic Pressure Annunciator Light	1	1	0	**(B)** Hydraulic pressure indicator gauge must be operative
9-6. Emergency Air System	1	1	1	
9-7. Anti-Skid System/Lights	4	4	4	
9-8. Parking Brake Light	1	1	1	
9-9. Nose-wheel steering	1	1	1	

Table 4.10. ENGINES.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
10-1. Fuel Computers (DEECs)	2	2	2	
10-2. RPM Indicators (N1 and N2)	4	4	4	**(B)** En route or locals OK if either the digital or analog readout is available
10-3. Interstage Turbine Temperature (ITT) Indicators	2	2	2	**(B)** En route or locals OK if either the digital or analog readout is available
10-4. Oil Pressure Indicators	2	2	2	
10-5. Oil Temperature Indicators	2	2	2	
10-6. Thrust Reversers	2	0	0	**(A, B)** Maintenance must secure both thrust reversers IAW T.O. procedures.
10-7. Engine Sync	1	0	0	
10-8. Fire Extinguisher Bottle Thermal and Discharge Indicator Disks	2	2	2	
10-9. Air Ignition System and Lights	2	2	2	

Table 4.11. MISCELLANEOUS.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
11-1. Altitude Alerter	1	0	0	For RVSM operations, see Table 4.14.
11-2. Cabin Door Warning Light	1	1	1	
11-3. Crew Oxygen Masks	2	2	2	**(A/B)** Includes oxygen microphone system
11-4. Cockpit Voice Recorder	1	1	1	
11-5. Flight Data Recorder	1	1	1	
11-6. Passenger Oxygen System	1	1	1	**(B)** May be inop if no passengers are carried and the passenger oxygen mask valve is closed
11-7. Static Discharge Wicks	12	9	9	**(A/B)** Three or fewer wicks may be missing or broken in any of the following locations: a. Most inboard position on each elevator b. Directly above white navigation light

Table 4.12. UNS 1-L Equipped Aircraft Only.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
12-1. UNS1-L	2	2	0	**(B)** None required if all navigation can be accomplished using ground based NAVAIDS
12-2. TASMAN TA-12 GPS receivers	2	2	0	**(B)** Required if needed for mission
12-3. Universal GNSS-2400 receivers	2	2	0	**(B)** Required if needed for mission

Table 4.13. UNS 1-L REMOTE/OCEANIC/RNP OPERATIONS.

Item/System	Installed	Required		Remarks/Limitations/Exceptions
		A	B	
13-1. FMS	2	2	2	
13-2. TASMAN TA-12 GPS receivers	2	2	2	**(B)** May be inoperative provided the GNSS receivers are both operating and the Universal FDE software is used for prediction purposes
13-3. Universal GNSS-2400 receivers	2	2	2	**(B)** May be inoperative provided the TA-12 GPS receivers are both operating and the Trimble TA-12 FDE software is used for prediction purposes
13-4. Pilots Air Data Computer	1	1	1	**(B)** One-time flight to repair location is approved. Crossfill data from Aux ADC. In the event of Aux ADC failure, input a manual TAS based on RAT and indicated Mach using the Speed/Temperature Conversion Chart from the Flight Manual. The Aux ADC input must be available.
13-5. Compass Systems	2	2	2	**(B)** One-time flight to repair location is approved. Crossfill the heading information from the operative side. In the event of a failure of that heading system, input a manual heading based on the magnetic compass. Anytime a turn is made, the heading must be updated.
13-6. Aux (Digital) Air Data Computer	1	1	1	**(B)** One-time flight to a repair location is approved. Manually input the TAS information from the #1 FMS. In the event of Pilot's ADC failure, input a manual TAS based on the RAT and indicated Mach using the Speed/Temperature Conversion Chart from the Flight Manual. The Pilot's ADC input must be available.
13-7. EHSIs and MFD	3	3	2	**(B)** Must be able to display Navigation data from each FMS on an operable display (EHSIs or EHSI and MFD)

Table 4.14. Reduced Vertical Separation Minimums (RVSM) Operations.

NOTE: For RVSM operation only.				
Item/System	**Installed**	**Required**		**Remarks/Limitations/Exceptions**
		A	**B**	
14-1. Altimeter/ADC	2	2	2	
14-2. Standby Altimeter	1	1	1	
14-3. Standby Altimeter Vibrator	1	0	0	Apply appropriate altitude corrections from Flight Manual.
14-4. Autopilots	2	1	1	**(A/B)** Operative autopilot must be coupled to an operative ADC.
14-5. TCAS	1	1	0	
14-6. Altitude Alerter	2	2	2	

4.6. Not used.

4.7. Supplements. Each MAJCOM may supplement the MEL (see Chapter 1).

4.8. Not used.

4.9. Gear Down Flight Operations. Limit gear down flight operations to sorties required to move the aircraft to a suitable repair facility. Consider gear down flight only after the PIC exhausts all avenues to repair the aircraft in place.

4.9.1. Time and communications capability permitting, validate takeoff data with MAJCOM Stan/Eval or OG/OGV.

Chapter 5

OPERATIONAL PROCEDURES

5.1. Checklists. 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. Currency of notes is a crewmember's responsibility.

5.1.1. Checklist Inserts. MAJCOM/A3V and the AFMC Flight Manual Manager are the checklist insert approval authorities. Send checklist inserts to MAJCOM/A3V, who will in turn coordinate with AFMC for approval. All checklist inserts must have a POC. OGVs shall approve local in-flight guides and inserts not affecting T.O. guidance and procedures.

5.1.2. Abbreviated checklists items that do not apply to the unit's aircraft or mission may be lined out.

5.1.3. Fanfold Checklists. MAJCOM Stan/Eval approved fanfold checklists are authorized.

5.2. Duty Station. Both pilots shall be in their seats during flight. One of the pilots may be out of their seat for brief periods to meet physiological needs and crew duties. With both pilots in their seats, PICs may authorize rest periods for one pilot occupying a primary duty station during non-critical phases of flight (the other pilot will be awake and alert). Comply with AFI 11-202V3, oxygen requirements when one pilot is out of the seat.

5.3. Flight Station Entry. Passengers and observers will not be permitted access to primary crew positions.

5.4. Takeoff and Landing Policy. An aircraft commander, or above, will occupy either the left or the right seat during all takeoffs and landings (except for Operational Mission Evaluation (OME) conducted IAW AFI 11-2C-21V2**,** *C-21 Aircrew Evaluation Criteria).* The designated PIC (A code) is not required to occupy a primary position, but still retains overall authority for conduct of the mission.

5.4.1. Not used

5.4.1.1. An IP or AC-certified pilot will make all takeoffs and landings during:

5.4.1.2. Aircraft emergencies, unless conditions prevent compliance.

5.4.2. Not used

5.4.3. Unless the other pilot in the seat is a certified AC or higher, pilots in command (PIC) with less than 100 primary assigned aircraft (PAA) hours since AC certification will make all takeoffs and landings under any of the following conditions:

5.4.3.1. Ceiling/visibility less than 300 feet and/or RVR 40 (3/4 SM visibility).

5.4.3.2. RCR less than 12.

5.4.3.3. Crosswind component greater than 15 knots.

5.4.4. DV-2 Missions. All DV-2 or higher missions require an IP or an AC-certified pilot with at least 100 hours primary assigned aircraft (PAA) since certification as an AC. An AC-certified pilot or higher will make all takeoffs and landings. The waiver authority for the 100

hour restriction is the OG/CC or equivalent with mission execution authority. ***EXCEPTION***: Alert launches with DV-2s may be flown with the alert crew; however, comply with AC takeoff and landing requirement.

5.5. Landing Gear and Flap Operating Policy. The pilot flying (PF) will command configuration changes. The pilot monitoring (PM) will verify appropriate airspeed and configuration prior to echoing the gear or flap actuation command. Normally, the pilot in the right seat will operate the landing gear. Actuate the landing gear upon command of the pilot flying the aircraft and acknowledgement by the other pilot. The PM should normally operate the flaps. Actuate the flaps upon command of the pilot flying the aircraft, acknowledge the flap setting commanded, and visually confirm the flap gauge indicates the desired setting. Instructors may operate the flaps as required on training missions.

5.6. Outside Observer/Jump Seat Duties. Available crewmembers will assist in clearing during 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 an operable seat belt. Crewmembers will have seat belts fastened when occupying a duty position, unless crew duties dictate otherwise.

5.7.2. All crewmembers will have seat belts fastened during takeoff and landing. Fasten shoulder harness unless crew duties dictate otherwise. For tactical operations, all crewmembers and passengers will have seat belts fastened (unless authorized by the PIC or crew duties dictate otherwise). Crewmembers performing instructor or flight examiner duties are exempt from seat belt requirements if not occupying a primary crew position; however, they will have a seat available with an operable seat belt.

5.7.3. Litter patients, actual or simulated, must remain secured on litters for takeoff and landing.

5.8. Aircraft Lighting. IAW AFI 11-202V3, AFI 11-218, *Aircraft Operations and Movement on the Ground*, and applicable T.O.s.

5.9. Portable Electronic Devices. IAW AFI 11-202V3.

5.9.1. Do not connect unauthorized equipment (laptop computers, video equipment, food preparation equipment, radios/tape players, CD players, etc.) to the aircraft intercom, PA, radio systems, or electrical system.

5.9.2. Aircrew members shall not use uncertified Government Furnished Equipment (GFE) or personal devices with RF transmit/receive capability on AMC aircraft carrying hazard class 1 explosive cargo at anytime. Prohibited devices include cellular phones, and laptop computers/PDAs with wireless capability enabled (i.e. Bluetooth). Aircrew will ensure passengers comply with this restriction. Aircrew members may use certified GFE such as Portable Flight Planning System (PFPS) laptops and PDAs with infrared transmitters.

5.9.2.1. Laptops are considered carry-on items for personal use. If not being used for patient care, it is permitted to plug laptops into the Spectrum unit as long as it meets the Spectrum power consumption requirements and does not interfere with ongoing patient care by medical personnel. Laptops used for patient care must be approved by appropriate medical authority. The Medical Crew Director (MCD) is the approval

authority to plug laptops into the Spectrum unit. The Spectrum has two power outlets, which provide 115 VAC at 60 Hz, 3 amps max continuous load. EMI compliance is required for all laptops IAW AFI 11-202V3.

5.9.3. Handheld GPS Units. The handheld (HH) GPS or portable GPS units (PGU) listed Carry-On Equipment Certification Letter posted on the AMC/A3V website at **https://private.amc.af.mil/a3/a3v/publications.aspx** meet the requirements of AFI 11-202V3 and may be used in flight.

5.9.3.1. The use of HH GPS for moving map display (MMD) is designed as a situational awareness tool and its use for CONUS flight is voluntary.

5.9.3.2. The use of handheld GPS units as an emergency backup for remote or oceanic flight is mandatory for UNS 1B equipped C-21 aircraft.

5.9.3.2.1. The PGU will be used to verify the present position readout of onboard navigation equipment. If the FMS position becomes uncertain, compare the PGU position to each of the FMS sensor positions. Compare these to the flight plan and oceanic plotting chart to determine which is providing the best computed position. Use the best computed position in the event an update is required to the FMS.

5.9.3.3. The PGU will be stowed for take-off and landing unless adequately secured to avoid becoming a projectile hazard.

5.9.4. EMI certification letter for common use carry-on equipment is posted on the AMC/A3V website. ASC/ENAD will issue a new letter whenever there is a change and AMC/A3V will post the new letters on the AMC/A3V web site as soon as they are released: web address is **https://private.amc.af.mil/a3/a3v/publications.aspx. Scroll** down to "Authorized Electronic Equipment" in the right column. The EMI certification letter is the first item.

5.9.4.1. This letter only applies to the listed common use equipment referenced in the EMI certification letter. Listed equipment can be used on any mobility aircraft subject to limitations contained in the letter. Other portable electronic equipment not listed in this letter must be certified IAW AFI 11-202V3 prior to use on any mobility aircraft, to include different model numbers of the same brand of equipment listed in this letter.

5.9.4.2. This letter only applies to common use carry-on equipment such as laptop computers, peripherals, PDA's, etc. Separate letters for specialized use carry-on electronic equipment remain in effect per the limitations contained in those individual letters.

5.9.4.3. This letter only addresses EMI certification. Approval to plug common use carry-on equipment into aircraft power supplies is granted by the System Program Office (SPO) for each individual mobility aircraft type.

5.10. Tobacco Use on Air Force Aircraft. Tobacco use of any type is prohibited on Air Force aircraft.

5.11. Advisory Calls. The PF will announce intentions for departures, arrivals, approaches, and when circumstances require deviating from normal procedures. The PM will make all advisory calls except those designated for other crewmembers.

5.11.1. Not used

5.11.2. Not used

5.11.3. Deviations.

5.11.3.1. Any crewmember will immediately notify the PF when deviation of heading (+/- 10 degrees), airspeed (+/-10 kts), or altitude (+/- 100 feet) is observed and no attempt is being made to correct the deviation.

5.11.3.2. Any crewmember seeing a potential terrain or obstruction problem will immediately notify the PF.

5.11.4. Advisory calls: Refer to Table 5.1 through Table 5.4 for a listing of mandatory advisory calls, responses, and aircrew actions.

Table 5.1. Climb Out.

PHASE OF FLIGHT	PM CALL	PF RESPONSE
Transition Altitude	"Transition Altitude, 29.92, Set" or "Transition Altitude, 1013, Set"	"Transition Altitude, 29.92, Set" or "Transition Altitude, 1013, Set"
1000' below assigned altitude	"(Altitude Passing) for (Altitude Assigned)"	"(Altitude Passing) for (Altitude Assigned)"

Table 5.2. Descent.

PHASE OF FLIGHT	PM CALL	PF RESPONSE
Transition Level	"Transition Level, (Local altimeter), Set"	"Transition Level, (Local altimeter), Set"
1000 above assigned altitude	"Altitude (Passing) for Altitude (Assigned)"	"Altitude (Passing) for Altitude (Assigned)"

Table 5.3. Non-precision Approaches.

PHASE OF FLIGHT	PM CALL	PF RESPONSE
100 feet above Final Approach Fix (FAF) altitude	"100 above"	
100 feet above step down altitude	"100 above"	
100 feet above Minimum Descent Altitude (MDA)	"Approaching Minimums"	Acknowledge

At MDA	"Minimums"	
Runway environment in sight and will remain in sight.	"Runway in sight"	(1)
Missed Approach Point (MAP)	"Missed Approach Point" (4)	"Landing" or "Going Around"

Table 5.4. Precision Approaches.

PHASE OF FLIGHT	PM CALL	PF RESPONSE
100 feet above glide slope intercept altitude	"100 above"	
100 feet above Decision Height (DH) / Decision Altitude (DA)	"Approaching Minimums"	Acknowledge
At DH / DA	"Minimums"	(3)
- Runway environment in sight and will remain in sight	"Runway in sight"	"Landing"
- Only Approach Lights in sight (CAT I ILS)	"Continue"	"Continuing" (2)
- Approach lights and/or Runway environment not in sight	"Go Around"	"Going Around"
- At 100' HAT (CAT I ILS)	"100 Feet" (4, 5)	"Landing" or "Going Around"

NOTES:
(1) The PF will announce his/her intentions to either land or go-around.
(2) With weather at CAT I minimums on a CAT I ILS, the pilot may not see the runway environment at DH; however, the initial portion of the approach lights may be visible. The pilot may continue to 100 HAT with reference to the approach lights only. The pilot may not descend below 100 feet above touchdown zone elevation (TDZE)/threshold elevation (THRE) using the approach lights as reference unless the red terminating bars or the red side row bars are distinctly visible and identifiable.
(3) The PF will announce his/her intentions to either land, continue (CAT I), or go-around. Respond with the intention to land if runway environment is in sight, will remain in sight throughout touchdown and the aircraft is in a position for a safe landing.
(4) If the pilot flying has stated "landing" then this call is not required.
(5) Refer to stabilized approach criteria in paragraph 5.12.

5.12. Stabilized Approach. Unstable approaches are primary contributors to numerous military and civilian mishaps. Stabilized approaches are essential for the safe operation of aircraft and are mandatory. The following criteria define specific parameters that mitigate risk during this critical phase of flight. This philosophy requires aircrew to take immediate corrective actions to stabilize the approach when outside designated parameters.

5.12.1. The following criteria applies to all non-tactical approaches:

5.12.1.1. At 1000 feet AGL:

5.12.1.1.1. Aircraft is in approach configuration. Circling configuration is acceptable for circling approaches.

5.12.1.1.2. Airspeed is at the appropriate speed for the configuration and conditions.

5.12.1.1.3. Sink rate is no greater than 1000fpm. Note: Under certain conditions (WX, Threats, Terrain, etc.) some IAPs and Tactical Approaches may require greater than a 1000 fpm descent rate.

5.12.1.1.3.1. Non-precision Approaches. Pilots should calculate a constant descent gradient profile from the FAF altitude to the VDP (IAW AFMAN 11-217). This is considered the safest profile and should be used to the max extent possible. During a go-around, ensure descent below the MDA does not occur.

5.12.1.1.4. All briefings and checklists are complete.

5.12.1.1.5. Aircraft is on the correct track.

5.12.1.1.6. Aircraft in the correct bank angle to maintain proper approach track for instrument, circling, or visual/tactical approach.

5.12.1.1.7. Power set to maintain the descent profile at approach speed.

5.12.1.1.8. If these criteria are not met by 1000 feet AGL, the PM will announce the deviation and the PF will take immediate corrective action. PM states "1000 xxxx," where "xxxx" equates to a concise description of the unstable characteristic(s) which clearly relay to the PF what actions are required to return the aircraft to a stable platform. Examples: "1000, fast," or "1000, half dot low". If criteria are met, PM will simply state "1000."

5.12.1.2. From 500 AGL to the runway, if these parameters are exceeded the PM will announce "Go-Around" and the PF will execute a go-around/missed approach. If criteria for stable approach are met, the PM will state "500." ***EXCEPTION:*** Reasonable allowance will be made to slow from circling airspeed to approach speed on a circling approach.

5.12.1.3. Momentary minor corrections or deviations are acceptable and defined as:

5.12.1.3.1. Airspeed: +10/-5 kts from target

5.12.1.3.2. Bank Angle: +/- 15 degrees from target

5.12.1.3.3. Rate of Descent: +/- 300 FPM from target

5.12.2. Descent Planning and Energy Management. Aircrews will ensure the aircraft is following the planned descent profile. All non-tactical descents should follow a normal descent profile IAW AFMAN 11-217 procedures and techniques in the absence of ATC or FLIP guidance. All tactical descents should follow published tactical procedures/profiles. When unforeseen interruptions alter the planned descent, immediately correct any deviations. It may be necessary to hold, request vectors, or take alternate actions in order to comply with the planned descent profile.

5.12.2.1. Training for tactical approaches using alternate stabilized approach criteria is permitted under direct IP supervision. This will be accomplished for realistic threats and valid training requirements only. Comply with briefing requirements above.

5.12.3. Visual Transition. It is imperative for aircrews to review the airfield environment. Identify key features such as approach light type, airfield lighting, geographic

layout/configuration of runways, taxiways, ramps, etc. To the max extent possible, this study will take place during the crew mission briefing and reviewed again prior to descent.

5.12.4. Missed Approach/Go-Around. Aircrews will conduct a thorough briefing for anticipated missed approach/go-around scenarios. This briefing will include a discussion of specific crewmember duties.

5.12.5. Tactical Approaches. It is recognized the above criteria is not always valid due to the type of tactical approach required. In these situations (either real-world or training as briefed by Intel/Tactics or attained from other valid threat sources, e.g. GCI, AWACS, Tower, etc.) the PF is required to brief the maneuver parameters prior to execution, to include when to expect the aircraft to be stable and when to go around. If the threat is known prior to departure, the crew will accomplish briefing prior to departure during mission planning. If the threat arises during the sortie, the PIC will include the stability requirements as part of the arrival briefing.

5.13. 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.

5.13.1. Aircraft Interphone. Primary crewmembers will monitor interphone during critical phases of flight. Crewmembers will advise the PIC before checking off interphone. Crewmembers will ensure personnel on headset, or within listening distance, are cleared prior to discussing classified information over interphone.

5.13.2. Command Radios.

5.13.2.1. The PM normally makes all air traffic control (ATC) radio calls.

5.13.2.2. In terminal areas, all crewmembers (if able) will monitor the command radio unless directed otherwise. The PIC shall designate a crewmember to monitor C2 frequencies on the inbound and outbound legs.

5.13.2.3. The pilot operating the radios will notify the crew which radio is primary, and update the crew when the primary radio changes.

5.13.2.4. One pilot will record and read back all ATC clearances.

5.13.2.5. Both pilots will monitor UHF and VHF guard emergency frequencies to the maximum extent possible.

5.13.2.6. The Federal Communications Commission (FCC) prohibits the use of unauthorized frequencies for interplane, HAVE QUICK, or SECURE VOICE training.

5.14. Crew Resource Management (CRM).

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

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

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

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

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

5.14.2.1. Safety permitting, stabilize the aircraft.

5.14.2.2. The initiating crewmember will voice their concerns to the crew.

5.14.2.3. The PIC will provide all other crewmembers with the opportunity to voice inputs relative to the stated concerns.

5.14.2.4. After considering all inputs, the PIC will direct the aircrew to continue the current course of action or direct a new course of action.

5.14.3. Sterile Cockpit. With the exception of cruise flight, conversation below 18,000' MSL will be limited to mission, departure, or approach essential items. Every effort will be made to accomplish briefings and appropriate checklists prior to top of descent (TOD). Sterile cockpit procedures also apply during taxi.

5.14.4. Heads-up/Heads-down. Any crewmember that observes both pilots heads-down at the same time (other than heads-down instrument flying) shall alert the PF without delay.

5.15. Use of Automation. The PF will announce changes to the level of automation, flight director and autopilot mode selections, and mode transitions to the maximum extent possible.

5.15.1. General Automation Procedures. There must be a clear understanding of the Pilot Flying (PF) and the Pilot Monitoring (PM) duties at all times. Aircrews are expected to fly the aircraft using the highest level of automation, balanced with the requirement to maintain basic flying skills. However, pilots are authorized to choose an appropriate level of automation consistent with changing flight environments. If the use of automation creates a loss of situational awareness or results in task saturation, shift to a less demanding level or disconnect the automation entirely and re-establish desired aircraft path and control. Both pilots are responsible for ensuring the aircraft is following the desired flight path.

5.15.2. Verbalize, Verify, and Monitor (VVM) is a closed-loop system of communication designed to significantly reduce typical automation selection errors between the PF and PM. VVM consists of the following three step process:

5.15.2.1. Prior to making any changes in the Control Display Unit, Altitude Alerter, or FMS the pilot making the entries will VERBALIZE the intended changes.

5.15.2.2. Both pilots will VERIFY the intended changes prior to execution.

5.15.2.3. Both pilots will MONITOR the aircraft to ensure the expected performance is achieved.

5.16. Transportation of Pets. Transporting pets (dogs and cats) in conjunction with the sponsor's permanent change of station is authorized. Other pets or animals are normally prohibited, but may be moved according to DoD 4515.13R.

5.17. Alcoholic Beverages. The MAJCOM/A3/DO or NAF/CC may authorize the dispensing of alcoholic beverages.

5.18. Runway, Taxiway, and Airfield Requirements.

5.18.1. Minimum Runway and Taxiway Requirements. Minimum runway length is 5000ft/1525m or 6000ft/1830m for touch-and-go's. Minimum runway width is 70 feet. Minimum taxiway width is 35 feet. If operationally necessary, shorter runways are permitted provided:

5.18.1.1. A qualified IP or EP performs the takeoff and landing

5.18.1.2. Operations are limited to daytime. (Applicable OG/CC is waiver authority.)

5.18.1.3. Takeoff distance does not exceed landing distance or landing distance is less than the paragraph **5.18.2** and **5.18.2.1** requirements.

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

5.18.2. Runway Length for Takeoff and Landing. Do not takeoff if takeoff distance adjusted for RCR exceeds runway available. Minimum runway for a normal landing is landing distance corrected for RCR. Minimum runway for a normal landing is landing distance based on a threshold crossing height of 50 feet.

5.18.2.1. Runway Length for Takeoff and Intersection Takeoffs. Normally, the PF will initiate takeoffs from the beginning of the approved usable portion of the runway. The decision to make intersection takeoffs rests solely with the PIC.

5.18.2.2. Pilots may accomplish intersection takeoffs provided the operating environment (i.e., gross weight, obstructions, climb criteria, weather, etc.) allows a safe takeoff and departure. Calculate takeoff performance based on the runway remaining from the point at which the takeoff is initiated.

5.18.2.3. During operations on runways partially covered with snow or ice, base takeoff computations on the reported runway surface condition (RSC) or RCR for the cleared portion of the runway. A minimum of 25 feet either side of centerline should be cleared. If 25 feet either side of centerline is not cleared, compute takeoff data based on the uncleared portion up to 25 feet either side of centerline.

5.18.2.4. Use of Overruns. 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.

5.18.3. Arresting Cables.

5.18.3.1. Do not land on (touchdown on) approach end arresting cables (does not include recessed cables). If the aircraft lands before the cable, the crew should contact the tower to have the cable inspected.

5.18.3.2. Do not takeoff or land over an approach end cable that has been reported as slack, loose, or improperly rigged by NOTAM, automated terminal information service (ATIS), or ATC.

5.18.3.3. When conditions permit (aircraft gross weight, runway length, weather, winds, TOLD, etc.) and the PIC has considered the potential for damaging the aircraft, make takeoff and landings beyond raised cable barriers. If PICs determine they need the entire

length of the 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.

5.18.4. Other Airfield Requirements.

5.18.4.1. Consult with HQ AMC/A3AS (Airfield Suitability Branch) for suitability guidance. Airfield certification requirements are detailed in the ASRR.

5.18.4.2. Aircrews and planning agencies will contact HQ AMC/A3AS for all questions pertaining to airfield weight bearing capacity and will review the GDSS/GDSS2/ASRR before all off-station operations. HQ AMC/A3 is the waiver authority for the restrictions in GDSS/GDSS2 Giant Report and ASRR for AMC and AMC-gained aircraft, unless specifically delegated in AFI 11-2MDS Vol 3 or AMCI 11-208. Direct GDSS/GDSS2 Giant Report and ASRR waiver requests to HQ AMC/A3AS. HQ AMC/A3V is the OPR for waivers to airfield restrictions. MAJCOM/A3/DO is the waiver authority for non-AMC missions. The PIC is responsible for waiver compliance. Crews will review the ASRR via GDDS2 or Air Force Portal. If the crew does not have access to the ASRR contact the C2 agency. Consult the ASRR for airfield certification requirements.

5.18.4.3. Not used.

5.18.5. RCR Limitations. Use RCR values as prescribed in 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 DoD FLIP documents. Normally, RCR values are not reported for taxiways and ramps. During periods of reported low RCR, the taxiways and ramps may have an even lower RCR than reported for the runway. The runway surface should be considered wet when water on the runway causes a reflective glare.

5.18.5.1. RCR and RSC. The performance charts used to determine braking action are based on concrete runways. The RCR value for DRY is 23, WET is 12, and ICY is 6.

5.18.5.1.1. For operations 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 reported RCR.

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

5.18.6. Wind Limitations.

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

5.18.6.1.1. Maximum operating wind – 50 knots.

5.18.6.1.2. Maximum tailwind component – 10 knots.

5.18.6.1.3. Crosswinds – Maximum takeoff and landing crosswind component for any RCR 12 or above is 25 knots. Maximum takeoff and landing crosswind components, corrected for RCR, are shown in **Table 5.5**

Table 5.5. 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

5.18.6.2. The aircraft must be hangared at wind velocities of 85 knots or greater.

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

5.19.1. Do not taxi an aircraft within 25 feet of obstructions without wing walkers monitoring the clearance between aircraft and obstruction. With wing walkers, avoid taxi obstructions by at least 10 feet. ***EXCEPTION:*** IAW AFI 11-218 aircraft may taxi without marshalers/wing walkers at home station along fixed taxi lines which have been measured to ensure a minimum of 10 feet clearance from any obstruction and the obstruction is permanent. Adjacent aircraft are also considered a permanent obstruction, provided the aircraft is parked properly in its designated spot and is not moving. Aerospace Ground Equipment (AGE) and vehicles are considered a permanent obstruction, provided it is parked entirely within a designated area. Areas will be designated by permanent markings such as painted boxes or lines on the ramp or another suitable means.

5.19.2. 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 using AFI 11-218 signals. Use wing walkers or deplaned crewmembers to act as an observer while maneuvering on narrow taxiways. During night taxi operations, marshalers will have an illuminated wand in each hand. Wing walkers are only required to have one illuminated wand. Observers should be in a position to see wing walkers at all times (through door or windows) and communicate with the pilot.

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

5.19.3.1. Carefully review airfield layout paying particular attention to taxi routes, turn requirements, and areas for potential FOD.

5.19.3.2. Minimize power settings during all taxi operations.

5.20. Fuel Jettison Procedures.

5.20.1. Aircrews should consider burning down fuel versus jettison, unless safety of flight dictates an immediate jettison (as determined by the pilot in command). Except in the case of an emergency, before jettisoning fuel, notify the appropriate ATC or flight service facility of intentions, altitude, and location. If available, the PIC will use designated jettison areas, except when safety of flight would be compromised.

5.20.2. For missions tasked by higher headquarters authority, the tasking C2 agency (TACC, AMOCC, CAOC, etc.) may authorize fuel jettison when an urgent operational requirement dictates immediate recovery/reconstitution of the aircraft and/or aircrew. The tasking C2 agency may provide fuel jettison instructions in the OPORD, mission directive, SPINS, etc.

5.20.3. For training missions, the OG/CC may approve fuel jettison when an urgent operational requirement exists to expedite recovery of the aircraft and all alternatives have been exhausted.

5.20.4. OG/CCs will establish jettison areas and procedures to minimize the impact of fuel jettisoning. Ideally, establish jettison areas at altitudes above 20,000 feet above ground level,

off published airways, avoiding urban areas, agricultural regions, and water supply sources. Avoid circling descents. Initiate **AF Form 813**, *Request for Environmental Impact Analysis*, and submit it to the base environmental coordinator.

5.20.5. All jettisons will be followed up with a detailed report filed by the pilot in command immediately after landing using a MAJCOM approved form for unusual occurrence or in flight emergency. Submit completed form through unit OGV to MAJCOM/A3V. Unit OGVs will retain forms for 6 months. Document all pertinent information, including the following items:

5.20.5.1. Scheduled Duration.

5.20.5.2. Actual Duration.

5.20.5.3. Landing Gross Weight.

5.20.5.4. Computed Stopping Distance.

5.20.5.5. Recovery Field.

5.20.5.6. Runway Available.

5.20.5.7. Jettison Altitude/Location.

5.20.5.8. Outside air temperature.

5.20.5.9. Wind direction and velocity.

5.20.5.10. Jettison Amount.

5.20.5.11. Reason for Jettison.

5.20.5.12. Approval Authority.

5.21. Aircraft Speed. IAW AFI 11-202V3.

5.22. Bird/Wildlife Aircraft Strike Hazard (BASH) Programs. BASH programs are centralized unit efforts that provide information cross-feed, hazard identification, and a consolidated course of action. As a minimum, unit commanders must implement the following procedures:

5.22.1. Ensure compliance with the following Bird Watch condition restrictions.

5.22.1.1. Bird Watch Condition Low - No operating restrictions.

5.22.1.2. 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.

5.22.1.3. Bird Watch Condition Severe - All takeoffs and landings are prohibited. Waiver authority is local OG/CC or equivalent. Parent MAJCOM/A3/DO waiver is required to operate at airfields not controlled by the MAF.

5.22.2. Commanders establish Phase II of the BASH program during increased periods of migratory bird activity. Schedulers shall make every effort to not schedule takeoffs or landings from one hour before to one hour after sunrise and sunset during the Phase II period. Publish significant bird hazards in FLIP Area Planning (AP) and the IFR Supplement along with the associated airfield operating hour restrictions and avoidance instructions.

5.22.3. When operating at airfields where no BASH program exists, PICs have the authority to delay takeoffs and arrivals due to bird condition after coordinating with the appropriate C2 authority.

5.22.4. Consider bird migratory patterns during the en route portion of the mission to help minimize the potential of an in-flight bird strike. The Bird Avoidance Model (BAM) on HQ AFSC/SEF website contains BASH information including regionalized Continental United States (CONUS) bird migration patterns, Portable Flight Planning System (PFPS) software overlay, and the latest news. The Avian Hazard Advisory system (AHAS) website is another source for real time bird hazard information. Both sites may be accessed through the AMC aircrew mission planning portal. See AFPAM 91-212, *Bird Aircraft Strike Hazard (BASH) Management Techniques*, for additional information.

5.22.5. Following a bird strike, aircrews should land as soon as conditions permit to have the aircraft inspected by qualified maintenance personnel. Bird strike damage cannot be accurately assessed in-flight, and undetected damage may result in a complex airborne emergency; only qualified maintenance personnel, on the ground, can make reliable damage assessments.

5.23. Functional Check Flights (FCFs) and Acceptance Check Flights (ACFs). Perform FCFs and ACFs IAW T.O. 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*, specific MDS FCF guidance (-6CF), AFI 21-101, *Aircraft and Equipment Maintenance Management*, and applicable MAJCOM 21-series directives. Crews should only perform tasks or functions contained in specific T. O. guidance. If requested to perform a non-standard function, PICs should contact their OG/CC to see if an FCF applies.

5.23.1. FCF Restrictions. See T.O. 1-1-300 and AFI 21-101.

5.23.2. The OG/CC, or deployed equivalent, may authorize temporary waivers to FCF procedures for aircrew qualification when operationally necessary.

5.23.3. The OG/CC is responsible for the wing FCF program. Publish additional guidance in local supplement to this instruction. The OG/CC may authorize a partial FCF to check only those systems disturbed by maintenance, an inspection or modification.

5.23.4. Conduct check flights 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. Airspace required for FCFs associated with depot maintenance should be coordinated with OGV.

5.23.5. The decision to approve a combined FCF and ferry flight is the responsibility of the MAJCOM/A3/DO.

5.23.6. The OG/CC will only certify highly experienced instructors as FCF crewmembers. The OG/CC will determine FCF crew complement after a thorough ORM assessment for that specific FCF flight.

5.23.7. Ideally, conduct FCFs in day VMC. OG/CCs may authorize a flight under a combination of VMC and IMC. Begin the flight in VMC. If the aircraft and all systems are operating properly, the crew may proceed IMC through cloud cover to “VFR on Top” for the altitude phase of the flight.

5.23.8. If a malfunction occurs during a FCF, the OG/CC may subsequently release the aircraft for flight providing the malfunction is not related to the condition generating the FCF, and the original condition operationally checked good.

5.23.9. The OG/CC or deployed MC may authorize temporary waivers to FCF procedures for aircrew qualification when operationally necessary. Permanent waivers require MAJCOM/A3/DO approval IAW Chapter 1.

5.23.10. ACFs specify guidelines for accepting depot aircraft and determine compliance with contractual requirements.

5.23.11. In accordance with T.O. 1C-21A-6CF-1, *Functional Check Flight Procedures (Learjet),* conditions requiring an FCF include (but are not limited to) major retrofit modifications, removal or replacement of moveable flight control surfaces, 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 both engines.

5.23.12. Only FCF crews shall perform high-speed taxi checks. Perform checks IAW the flight manual and maintenance T.O. Prepare the aircraft with minimum fuel necessary to accomplish the check to limit brake/tire wear, (ensure fuel on board will permit a safe return to base should the aircraft unexpectedly become airborne) and turn on the anti-skid system. The PIC will calculate takeoff data for the highest speed planned and ensure runway available allows sufficient stopping distance for existing conditions without exceeding normal brake energy limits.

5.23.13. A Learjet trained and certified test pilot (i.e. civilian manufacturer) is required to perform stall series check flights. If two contract pilots are not available, a qualified USAF instructor pilot will complete the crew, but will not perform the stall series. The Learjet test pilot will be the PIC for this flight and operations will be conducted IAW Federal Aviation Administration (FAA) directives. USAF pilots will seek waivers to applicable AF directives as required.

5.23.14. Flight authorizations for stall flights conducted at contractor locations shall be completed by the Government Flight Representative (GFR) for that location.

5.23.15. Federal Aviation Regulation (FAR) Part 12 repair facilities do not have GFRs. For stall flights conducted at these facilities, the flight authorization will be completed by the unit supplying the USAF pilot IAW AFI 11-401*;* the unit will place the civilian contractor pilot on the flight authorization, with the PIC ("A") code. Comply with documentation requirements in AFI 11-401.

5.24. Participation in Aerial Events. See AFI 11-209, *Aerial Events Policy and Procedures*, and the appropriate MAJCOM supplement.

5.25. Traffic Alert and Collision System (TCAS). It is imperative to follow resolution advisories (RAs) to obtain aircraft separation computed by TCAS. Failure to follow the computed RA may increase the probability of a midair collision. Pilots who deviate from an ATC clearance in response to an RA shall notify ATC of the deviation as soon as practical and promptly return to the ATC clearance when the traffic conflict is resolved or obtain a new clearance.

5.26. Radio Altimeter.

5.26.1. Before departure set the radio altimeter for emergency return. Normally, use the height above touchdown/height above aerodrome (HAT/HAA) for IMC, or 300 feet for VMC departures.

5.26.2. Set the radio altimeter to the HAT/HAA during instrument approaches.

5.26.3. Set the radio altimeter to 300 feet for Visual/VFR patterns.

5.27. Not used.

5.28. Not used.

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

5.30. Mode S. Aircrews will ensure flight ID is set in the transponder for every flight. Flight ID must match the flight plan exactly, cannot exceed seven characters, and can have no spaces.

5.31. Engine 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 (JOSAC for CONUS C-21s) approval is required if deviation is more than 30 minutes early. In all cases, PICs will coordinate with local C2 agency, if available, when an ERO is conducted. Ensure all participants are aware of engine danger area.

5.32. Takeoff and Landing Data (TOLD). Use the AF Form 4040, *C-21 Takeoff and Landing Data* to post takeoff and landing data. TOLD computations will be verified by another pilot. Use of computerized TOLD programs as a primary reference is limited to those approved by AMC/A3V.

5.32.1. The electronic TOLD program provided for the C-21A by CAVU Companies has been validated and approved for use by AMC/A3V.

5.33. Mobility Aircrew Fall Protection. Aircrew members are prohibited from climbing onto the upper fuselage or wing surfaces unless there is an operational necessity. When operational conditions dictate, aircrew members may climb onto wing surfaces. PICs will ensure no other personnel (excluding qualified ops/maintenance personnel) have access to, or are allowed to, climb onto the fuselage or wings. ***EXCEPTION:*** Aircraft that do not have the ability to anchor the maintenance safety harness and lanyard are exempt from the harness requirement until a suitable alternate is available.

5.34. Aviation Safety Action Program (ASAP). The Military Aviation Safety Action Program is an anonymous, self-reporting system modeled after successful FAA/Airline programs to encourage the voluntary reporting Operational issues and events. It is designed to provide a non-punitive environment for the open reporting of safety concerns and information that might be critical to identifying hazardous situations and precursors to accidents. These safety concerns may be either observed or experienced by the submitter. The goal is to prevent mishaps by addressing those unintentional errors, hazardous situations and events, or high-risk activities not identified and/or correctable by other methods or through traditional safety reporting sources.

5.34.1. The AMC ASAP website is accessible at **www.safety-masap.com**. Username and Password can be obtained from the crewmember's Wing/Group Safety office. Crewmembers can contact the AMC ASAP program manager via email at **amc.asap@scott.af.mil.**

Chapter 6

AIRCREW PROCEDURES

Section 6A—Pre-Mission

6.1. Aircrew Uniform.

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

6.1.2. OG/CCs will determine clothing and equipment to be worn or carried aboard all flights commensurate with mission, climate, and terrain involved.

6.1.2.1. See AFI 11-301V1, *Aircrew Life Support (ALS) Program*, Attachment 1 for minimum aircrew clothing requirements. All crewmembers will have Nomex gloves in their possession.

6.1.2.1.1. It is recommended that primary crewmembers wear Nomex gloves during engine start, takeoff, and landing.

6.1.2.2. Crewmembers will remove rings and scarves before 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.

6.2. Personal Requirements.

6.2.1. Refer to current Unit Deployment Manager guidance for applicable deployment requirements.

6.2.2. Passport. Crewmembers will carry a valid passport on all missions outside the CONUS (overseas units carry passports IAW local procedures). ***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.

6.2.3. Shot Record. Crewmembers must maintain worldwide shot 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. Crewmembers will contact the local airfield manager before driving on the flight line.

6.2.5. Identification Tags. Crewmembers will carry two identification tags on all flights.

6.2.6. FOD Hazards. Crewmembers will not wear wigs, hairpieces, rings, ornaments, or earrings in the aircraft or on the flight line. Hats are not normally worn in the aircraft nor on the flightline. ***EXCEPTION:*** Crewmembers may wear plain elastic hair fasteners and/or pins, clips, or barrettes providing they do not interfere with the wearing of headsets, or the donning of oxygen equipment. They will be accounted for before and after flight.

6.2.7. Not used.

6.2.8. Flashlights. Each crewmember must carry an operable flashlight for night flights.

6.2.9. A reflective belt or suitable substitute will be worn on flight lines during hours of darkness or periods of reduced visibility.

6.2.10. AF Form 1199, *Air Force Entry Control Card*.

6.3. Pre-Mission Actions.

6.3.1. Before transiting areas outside the CONUS, aircrews will review theater-specific information necessary to successfully operate there. The review, at a minimum, should include AFI 11-202V3, AFTTP 3-3.C-21, and the following:

6.3.1.1. Review tasking and itinerary requirements.

6.3.1.2. Review applicable OPORD, SPINS, Virtual Risk Assessment (VRA), Country Risk Assessment (CRA), and FLIP. Obtain and carry this information if required.

6.3.1.3. Review the FCG for areas of operation (to include classified portion). Obtain necessary diplomatic clearances where required.

6.3.1.4. Review Airspace classification, GDSS/GDSS2, ASRR, Giant Report and Airport Qualification Program (AQP) (if available).

6.3.2. Obtain required customs forms.

6.3.3. Obtain worldwide FLIP and sufficient communications security (COMSEC) materials for the duration of the mission.

6.3.4. Ensure physiological training, annual physical, immunizations, and flight evaluations will remain current for all crewmembers throughout the TDY period.

6.3.5. Ensure visas have been received, if required.

6.3.6. Obtain terrain charts for unfamiliar destinations if available.

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

6.3.8. Passenger Restrictions. Release space available seats to the maximum extent possible unless overriding safety, legal or security concerns prohibit space available travelers from flying on specific missions. The only passengers on missions transporting DVs will be those of the official party and those space available passengers authorized by the lead POC for the traveling party. Authorization must be approved 24 hours in advance.

6.3.8.1. Space Available Passengers. For other than revenue and White House missions, PICs are authorized to release space available seats on mission legs when no official passengers are aboard (positioning and de-positioning legs). Coordinate with C2 agency to release available seats to the passenger terminal. In addition PICs will coordinate with the Air Terminal representative upon arrival to convey final seat release availability. PICs are encouraged to release maximum space available seats subject to the following restrictions:

6.3.8.1.1. Revenue Missions. These are missions for which the using agency (typically a government agency other than DoD) is reimbursing DoD for use of the aircraft. Space available passengers on revenue missions must be approved 24 hours

in advance by USAF/ CVAM, theater AMD or JOSAC (as appropriate) and the using agency contact officer through unit C2 agencies. This is essential to ensure proper funding and reimbursement. Consult C2 to determine mission revenue status if in doubt. Congressional Delegations (CODEL) are not revenue missions.

6.3.8.1.2. White House Support Missions. Space available passengers will generally not be permitted aboard White House support mission aircraft without express permission of HQ USAF/CVAM. This is normally due to the security status of the aircraft, which may include positioning and de-positioning legs. When it is necessary to move aircrew members or support personnel on White House support mission aircraft, the WHMO will be advised and permission obtained through the unit C2 and CVAM. On de-positioning legs space available passengers will usually be permitted if the aircraft is no longer required to maintain an upgraded security status.

6.3.8.1.3. Billing. Space available passengers on revenue missions may be subject to being billed commercial first-class airfare by the using agency for the applicable route, depending on that agency's policy. If the DV or on-board contact officer releases seats, aircraft commander must ensure that any additional financial liability for the passengers is specified by the using agency on-board contact officer. PIC will ensure passengers understand and agree to any reimbursement conditions prior to boarding.

6.3.9. Ensure the correct aircraft navigation database is loaded or will be carried, as appropriate.

6.4. Aircrew Publications Requirements. Primary crewmembers will carry the publications specified in **Table 6.1** on all missions. Units may specify additional publications in their local unit supplement.

6.4.1. Although T.O. 1C-21A1, *C-21 Flight Manual*, is issued in electronic format, the primary inflight reference is the paper flight manual. Normally unit Stan/Eval will maintain paper flight manuals for use inflight. It is the PIC's responsibility to ensure currency and availability of paper manual for inflight use.

Table 6.1. Aircrew Publications.

PUBLICATION	AIRCREW
T.O. 1C-21A-1, *Flight Manual*	PIC
T.O. 1C-21A-1-1, *Flight Manual Performance Data*	PIC
T.O. 1C-21A-1-2, *Flight Manual Supplement (UNS-1L)*	PIC (UNS-1L Aircraft Only)
T.O. 1C-21A-1CL-1, *Pilot's Abbreviated Flight Crew Checklist*	Both pilots
AFI 11-202V3, *General Flight Rules*	PIC
AFI 11-2C-21V3, *C-21 Operations Procedures*	PIC

6.5. Airfield Review. Aircrews will consult the web-based airfield database maintained by HQ AMC/A3AS (Airfield Suitability Branch) and comply with the GDSS/GDSS2/ASRR for updates to airfield operability and weight bearing capability. Refer to AFI 11-202V3 Chapter 8 for non-DoD published approach criteria.

6.6. Aircrew Intelligence Briefing. Aircrews 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. Obtain timely intelligence updates prior to entering a specific area of operations (AOR). 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 office as soon as practical to ensure timely dissemination of mission reports (MISREPs).

Section 6B—Predeparture

6.7. Global Decision Scheduling System 2 (GDSS2) Account. Pilots will obtain a GDSS2 account prior to operating on IFM-planned sorties. Download aircrew departure papers using the GDSS2 account, at locations without an AMC C2 presence. For operational missions, ensure GDSS2 account passwords are active prior to departing home station. If there is no GDSS2 access contact the flight manager.

6.8. Flight Crew Information File (FCIF).

6.8.1. Crewmembers will review FCIF, Volume 1, before all missions or ground aircrew duties, and update the FCIF currency record with the latest FCIF item number, date, and crewmember's initials.

6.8.1.1. Electronic signatures, or PEX Sign-Off, may be used on FCIFs.

6.8.2. 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.

6.8.3. Crewmembers not assigned or attached to the unit operating a mission will certify FCIF review by entering the last FCIF number and their initials after their name on the file copy of the flight authorization or file copy of their crew orders. This applies to all crewmembers if the electronic sign-in system is not working at show time.

6.9. Flight Crew Bulletins (FCB). Items in the FCB may include local procedures and policies concerning equipment and personnel generally not found in any other publications.

6.10. Mission Kits. Carry mission kits on all operational missions. Mission kits may have some items prepositioned on the aircraft. Suggested items include: ***NOTE***: * Indicates mandatory for all missions away from home station. N/A AETC.

6.10.1. Publications:

6.10.1.1. AFI 11-401, *Aviation Management*.

6.10.1.2. * DoDM 4140.25-M, Vol. II Ch 16, *Government Fuel Card Program Management Office DoD Fleet Card, AIR Card®, and SEA Card®.*

6.10.1.3. AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments.*

6.10.1.4. *AMCI 11-208, *Tanker/Airlift Operations* for AMC-tasked missions.

6.10.1.5. *Airfield Suitability and Restrictions Report (ASRR) for scheduled destinations and alternates as deemed necessary by the PIC.

6.10.1.6. *AMC Aircrew Border Clearance Guide for AMC-tasked missions departing CONUS.

6.10.1.7. AMC Handbook 11-214, *AMC Aircrew Hazardous Materials Handbook.*

6.10.1.8. *Flight Crew Bulletin (FCB)

6.10.1.9. AFI 11-289, *Phoenix Banner, Silver, Copper Operations.*

6.10.1.10. *AMCI 24-101 V11, *Transportation, Cargo and Mail Policy*

6.10.1.11. *AMCI 90-903, *Aviation Operational Risk Management*

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 1385, *Cargo Manifest*.

6.10.2.4. *CBP Form 6059B (01/04) US Customs and Border Protection Customs Declaration Form (if required for mission).

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

6.10.2.6. *CF 7507, *General Declaration Outward/Inward* (if required for mission).

6.10.2.7. *SF 44, *Purchase Order-Invoice-Voucher*

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

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

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

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

6.10.2.12. *AF Form 853, *Air Force Bird Strike Report*.

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

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

6.10.2.15. AF Form 711B, *USAF Mishap Report*.

6.10.2.16. AF Form 4031, *Crew Resource Management (CRM) Assessment Sheet*.

6.10.2.17. AMC Form 97, *AMC In-Flight Emergency and Unusual Occurrence Worksheet.*

6.10.2.18. AF Form 4040, *C-21 Takeoff and Landing Data.*

6.10.3. Orders:

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

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

6.10.3.3. *AF Form 41/AF Form 4327a, *Flight Authorization* (or MAJCOM prescribed form according to AFI 11-401, *Aviation Management).*

6.10.4. Miscellaneous:

6.10.4.1. Masking tape.

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. Only one set of enroute charts, DoD area arrival charts, and IFR supplement will be carried on the aircraft.

6.11.2. The minimum contents of route navigation kits are in **Table 6.2**.

6.11.3. Local area navigation kits may be used in lieu of route navigation kits in **Table 6.2**. on local unit training sorties. Contents of these kits will be determined by the unit.

Table 6.2. Route Navigation Kit Contents.

Item (applicable to area of operation):	Number
FLIP General Planning (sections GP, AP/1, AP/2, AP/3, AP/4)	1
FLIP IFR Supplement	1
FLIP Flight Information Handbook	1
FLIP En route (high and low)	1
FLIP Instrument Approach Procedures (high)	As Required
FLIP Instrument Approach Procedures (low)	2
Standard Terminal Arrival Routes (STAR)	1
Topographical and Sectional Charts for areas of operation (GNC/OPC/TPC/JNC/JOG/Sectionals)	Recommended for unfamiliar airfields
FLIP VFR Supplement	As Required
DoD Area Arrival Charts	(1) if available

6.12. Briefing Requirements.

6.12.1. Pre-Departure Briefing Items. The PIC will contact the local C2 agency to confirm mission requirements. The PIC and controlling agency jointly share responsibility to identify special briefing requirements.

6.12.2. Pilot in Command Pre-Departure Briefing. Cover all applicable items of the operations briefing, including MAJCOM, NAF, unit special interest items (SIIs), CRM, and ORM levels and mitigating factors. Brief crewmembers on the specific mission details if not previously accomplished. Use a MAJCOM approved briefing guide.

6.12.2.1. Pilot in Command Enroute Briefing. In the en route system, the PIC will ensure that an aircrew briefing is conducted prior to the first sortie of the day. As a minimum, brief crewmembers on specific mission details for that day's sortie(s), CRM, and the ORM level and mitigating factors for the mission. Complete this briefing prior to engine start.

6.12.3. Specialized Briefing. Use specialized briefings to detail operating procedures or SIIs peculiar to various crew positions, and to answer questions relating to those specialties.

6.12.4. Weather Briefings. The PIC will obtain a briefing on current weather, trends, and forecast for the proposed route, destination, and alternates. The PIC will brief primary crewmembers on appropriate weather conditions before departure.

6.12.4.1. Aircrews flying flight-managed sorties will use the weather briefing provided with the IFM aircrew departure papers. Local weather flights/agencies may update local takeoff weather data, but aircrews, working through their flight manager/dispatcher, will use 618 TACC weather operations (or the Operational Weather Squadron (OWS) supporting the theater C2 Agency) as the final arbiter for weather-related issues and further updates.

6.12.4.2. On sorties not planned by a flight manager, crews should obtain weather information from their local weather flight or the OWS responsible for weather support at their location.

6.12.4.3. If adequate services are not available, and the crew cannot contact their home weather flight, OWS, or TACC weather operations, obtain weather through any means available prior to mission accomplishment.

6.12.4.4. Weather information is permitted from US Military weather services, any FAA-approved weather source, or any host nation civil or military weather source.

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

6.12.6. Peacetime and Wartime SAFE PASSAGE Procedures. Pilots must be familiar with peacetime and wartime safe passage of friendly military aircraft.

6.12.7. IFM Briefing. PICs will thoroughly review the aircrew departure papers provided for IFM sorties. The PIC, or designated representative, will contact the flight manager if there are discrepancies with the departure papers or to resolve any questions before signing the flight plan.

6.12.8. Training/Evaluation Briefing. Before all training/evaluation missions, instructors/flight examiners will brief the crew on requirements and objectives for each student or examinee.

6.13. Call Signs.

6.13.1. Training Missions. Aircraft will use the unit static call sign assigned by the parent unit.

6.13.2. Operational Missions. CONUS OSA missions under JOSAC control will normally use “JOSA” followed by the last three digits of their mission number. Use call signs assigned by OPORD, FRAG, or diplomatic clearance, when required. If no call sign has been assigned, use unit static call signs. When flying AMC channel missions and no call sign has been assigned, use the “REACH” call sign followed by the last digit of the year the aircraft was built and the last 3 digits of the aircraft tail number or as required by diplomatic clearance.

6.13.3. The Reach 01 and 18 call signs are reserved for the AMC/CC and 18 AF/CC.

6.13.4. Aeromedical Evacuation (AE). For actual AE missions, use the call sign “Evac" followed by the five-digit aircraft number (example, Evac 12345) or mission designator. Refer to FLIP GP Chapter 4. When the AE portion of the mission is completed, normal call signs will be used. This does not alleviate the responsibility to use diplomatically cleared call signs when required.

6.13.5. Search and Rescue. On actual search, rescue, and recovery missions, use the call sign "Air Force Rescue" plus the last five digits of the aircraft tail number.

6.14. Instrument Flight Rules. Conduct flight operations under IFR to the maximum extent possible without unacceptable mission degradation.

6.15. Flight Plan/Data Verification.

6.15.1. Computer Flight Plan (CFP) Use. CFPs are the official sources of performance, navigation, and climatic data, including en route wind information. If stand-alone computer based plans are used, each mission segment should utilize best wind data available. Use only MAJCOM validated CFPs.

6.15.1.1. Use CFPs to the maximum extent practical. Flight crews may manually compute flight plans. The PIC has final responsibility for flight plan accuracy and diplomatic clearance compliance.

6.15.1.2. Verify CFPs for route of flight and fuel computation accuracy before departure. Pass any flight plan discrepancies to the C2 flight planning office. On flight-managed sorties, promptly notify the flight manager of any flight plan discrepancies, to ensure the correct route of flight is filed with air traffic control. Identify inaccurate CFP winds to TACC/XOCZF if the average wind for a route segment exceeds either 30° error in direction or 25 knots in speed.

6.15.2. All waypoint data retrieved from a database should be verified by one or more of the following methods:

6.15.2.1. Latitude/longitude from current FLIP.

6.15.2.2. Bearing/distance from a flight plan after latitude/longitude are verified for each waypoint.

6.15.2.3. Ground Based NAVAIDs.

6.16. Departure Planning. Use AFI 11-202V3, AFMAN 11-217V1, this chapter, and the appropriate MAJCOM supplements. Regardless of the type of departure flown (IFR/VFR), review the following (as appropriate): IFR Departure Procedure, instrument approach procedures, NOTAMS, GDSS/GDSS2/ASRR, and suitable terrain charts. Compute TOLD using T.O. 1C-21A-1, T.O. 1C-21A-1CL-1, and/or OGV-approved performance data extracts. All TOLD computations should be verified by both pilots.

6.16.1. VFR Departures. ***NOTE:*** VFR departures will not be flown in lieu of obstacle clearance planning.

6.16.1.1. VFR departures are authorized when there is no authorized IFR departure procedure for the airport, when the aircraft cannot depart using one of the IFR departure methods contained in AFI 11-202V3 and AFMAN 11-217V1, when operational requirements dictate (i.e. tactical necessity), or when most of the sortie is planned as a

VFR flight. VFR departures require detailed planning to ensure obstacles and terrain are avoided.

6.16.1.2. IAW AFI 11-202V3 and AFMAN 11-217V2 crews are specifically authorized to depart VFR without meeting IFR departure procedure restrictions along the planned departure route with one engine inoperative while adhering to the following:

6.16.1.2.1. Utilize radar advisory, monitoring, or control services when practical, and ensure flight following by any available means (ie FSS or C2).

6.16.1.2.2. Consider reducing aircraft gross weight and/or delaying the mission until environmental conditions improve.

6.16.1.2.3. Crews must be knowledgeable of and comply with guidance contained in AFMAN 11-217V2.

6.16.1.2.4. Crews are responsible for terrain and obstacle planning/avoidance and must climb to the Minimum IFR Altitude (MIA) as soon as practical.

6.16.1.2.5. Crews will use all available resources to mitigate risk. This includes (but not limited to) supervisors, ORM, aircraft flight manuals, and aircraft commander discretion.

6.16.1.2.6. Operations IAW this authorization are to be used as the last resort when the mission justifies the increased risk.

6.16.1.3. The minimum climb performance for VFR departures is determined by ensuring all the following conditions are met:

6.16.1.3.1. All-engine climb capability ensures obstacle avoidance along the departure route.

6.16.1.3.2. One Engine Inoperative (OEI) climb capability shall ensure departure or emergency return route provides obstacle avoidance.

6.16.1.4. Refer to FLIP for host nation VFR requirements before flying VFR outside of CONUS.

6.16.1.5. When departing VFR, maintain VFR cloud clearances until obtaining an IFR clearance and reaching the IFR MEA.

6.16.2. IFR Departures. Aircrews must use an approved IFR departure method as outlined in AFI 11-202V3 and AFMAN 11-217V1.

6.16.2.1. An IFR departure is not authorized at airfields without an instrument approach.

6.16.2.2. IFR departures require detailed planning to ensure obstacles and high terrain are avoided. Adhere to screen height/departure end of runway (DER) requirements for IFR departure planning (AFMAN 11-217V1). ***NOTE:*** Screen height requirements for departures depend on the agency that wrote the departure and/or the airfield where the departure is being flown. There is no standard or easy way for crews to determine screen height requirements. Therefore, when using departures other than those listed below, or when any doubt exists about which screen height to use, plan to cross the DER at 35 feet (minimum) unless you can ascertain a different screen height requirement from an appropriate authority.

6.16.2.2.1. Special Departure Procedure: Published on SDP.

6.16.2.2.2. USAF/USN produced SID or USAF/USN/USMC airfield: Zero feet.

6.16.2.2.3. US Army, FAA SID, and Joint Use Airfield within the US: 35 feet unless published.

6.16.2.2.4. NATO Countries (except US and Canada) Military Airports: 35 feet.

6.16.2.2.5. NATO Countries (except US and Canada) Civil Airports: 16 feet or as published.

6.16.2.2.6. Other ICAO nations: 16 feet or as published.

6.16.2.2.7. All others: 35 feet unless published.

6.16.2.3. Aircraft must meet the published climb gradient for the departure runway with all engines operating. If no minimum climb gradient is published, 200 ft/nm will be used. ***NOTE:*** In the event the aircraft is unable to meet the published ALL ENGINE climb gradient, download cargo/fuel or delay until more favorable conditions exist.

6.16.2.4. Use one of the following methods to ensure the aircraft can vertically clear all obstacles along the planned departure route with OEI:

6.16.2.4.1. Special Departure Procedure (SDP). SDPs are MDS-specific OEI escape procedures intended only for emergency use. They are applicable after the loss of an engine and, where available, will be used for engine-out departure planning. Retrieve current SDPs from the SDP website (contact OGV for current username password). 'Ad hoc' requests for fields not currently listed may be requested through OGV NLT 48 hrs prior to scheduled departure. HQ AMC/A3VS authorizes the use of Ad Hoc SDPs for a maximum of 7 days after the analysis date.

6.16.2.4.2. Minimum climb gradient. The TERPS standard minimum climb gradient is 200 ft/nm, which is based on the standard obstacle clearance surface (OCS) of 152 ft/nm plus the required obstacle clearance (ROC) of 48 ft/nm. If an SDP is not available, the crew must ensure compliance with any obstacle-based minimum climb gradients for the selected departure, with one-engine inoperative. Minimum climb gradients may be published as a 'Trouble T' restriction in the IFR Take-off Minimums section of FLIP or on a SID. When required for mission accomplishment, crews may subtract 48'/nm from published climb gradients before computing engine-out takeoff data. Minimum climb gradients do not take into account low, close in obstacles (obstacles or terrain 200' AGL and below) which should normally be published as a NOTE on the SID or IFR departure procedure (Trouble T).

6.16.2.4.3. Comply with all climb gradient guidance in AFI 11-202V3 and AFMAN 11-217V1 for all engines operating (AEO) and one-engine inoperative (OEI).

6.16.2.4.4. There are no AEO climb charts in T.O. 1C-21A-1, *C-21 Flight Manual*. All engine climb capability will be at least double the charted single-engine climb capability; provided flaps are in takeoff configuration, takeoff thrust is maintained and airspeed is V2+25 or less.

6.16.2.4.5. When AEO climb gradient is most restrictive for takeoff (i.e. ATC climb gradient), use the obstacle takeoff and climb procedures described in T.O. 1C-21A-1,*C-21 Flight Manual* Section 2.

6.16.2.4.6. C-21 aircrews are permitted to subtract 48 ft/nm (0.8%) from the published climb gradient to compute OEI requirements when the mission priority justifies the increased risk. ***NOTE:*** If the requirements of 6.16.2.4. cannot be met, download cargo/fuel or delay until requirements can be met.

6.17. Weather Minimums for Takeoff use Table 6. 3.

Table 6.3. Weather Minimums for Takeoff.

MISSION	VIS	REMARKS
Operational	1000 RVR	When less than RVR 1600, but equal to or greater than RVR 1000, the crew may take off if mission priority dictates, 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	1600 RVR	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.**)		

6.18. Alternate Planning. Select alternate airports meeting the requirements of AFI 11-202V3. Choose alternates that best meet mission requirements and conserve fuel; they should not be within the same terminal area, if terminal forecasts are marginal. Select alternates that are not restricted by FLIP, FCG, or diplomatic clearances, and are compatible with the mission load and performance characteristics of the aircraft. The PIC 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.

6.19. Departure Alternates.

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

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

6.19.2.1. For an alternate within 30 minutes flying time, the existing weather 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. For an alternate within 1 hour flying time, the existing weather must be at least 500-1 above the lowest compatible published approach minimums, but not less 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). Plan fuel to an alternate only when 11-202V3 and AFI 11-2C-21V3 require the filing of an alternate. 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 visibility (intermittent or prevailing) is less than published for the available DoD or National Aeronautical Charting Office (NACO) precision approach; or

6.20.1.2. The forecast ceiling OR visibility (intermittent or prevailing) is less than published for all non-DoD/NGA/NACO approaches. For approaches with no published ceiling requirement (for example Jeppesen approaches), the minimum required ceiling shall be computed by taking the published HAA or HAT and rounding it up to the nearest one hundred feet (or as determined by MAJCOM TERPs review). For example, a Jeppesen VOR approach with a published HAA of 642 feet would require a forecasted ceiling of 700 feet; or

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

6.20.1.4. IAW AFI 11-202V3 paragraph 8.7.1.1.1, AMC waives the minimum weather for an airfield requiring an alternate to a ceiling of 1000 ft and visibility of 2 statute miles when two or more suitable independent precision approaches are available and operable for the airport of intended landing at ETA (± 1 hour). This weather minimum includes TEMPO and prevailing conditions for intended landing destination within one hour of arrival.

6.20.1.4.1. Qualifying airfield requirements. Major airports with two or more separate runways, each with precision approaches operating at the same time qualify for the requirement for reduced weather minimums. Multiple precision approaches to only one end of the runway do not count. Two ILSs that use the same freq/antennas do not qualify as two independent approaches.

6.20.2. File an alternate, regardless of forecast weather, when the destination aerodrome is outside the CONUS. ***EXCEPTION***: OCONUS, intra-theater flights that do not exceed 3-hours, comply with basic AFI 11-202V3.

6.20.3. When filing to a remote or island destination, aircrews may use holding in lieu of an alternate airport. In such situations, use 2+00 hours reserve fuel (1+15 holding in lieu of an alternate and 0+45 reserve). For remote destinations, reserve and contingency fuel, will be computed using consumption rates providing maximum endurance at 20,000 feet MSL at destination gross weight. A remote or island destination is defined as any aerodrome, which due to its unique geographic location, offers no suitable alternate (civil or military) within 2

hours of flying time. 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. However, if a precision approach is available, the ceiling or visibility may be intermittently below non-precision approach minimums (excluding ASR), but not below precision approach minimums (for ETA plus 2 hours). ***NOTE:*** See Chapter 14 for fuel planning considerations to a remote or island destination.

6.21. Adverse Weather.

6.21.1. Flight into areas of forecast or reported severe turbulence is prohibited.

6.21.1.1. Crews should confirm the type of aircraft the forecast turbulence applies to, or what type of aircraft reported the encounter, to gain a more accurate picture for their route of flight. Turbulence category charts are found in Air Force Weather Agency technical note AFWA/TN 98/002, *Meteorological Techniques*.

6.21.1.2. The PIC is responsible for ensuring all passengers are seated, with seat belts fastened, when areas of moderate or greater turbulence are encountered or anticipated. ***WARNING:*** Serious injury may occur if passengers do not have their seat belts fastened and the aircraft encounters moderate or severe turbulence.

6.21.2. Flight into areas of forecast or reported severe icing is prohibited. Prolonged operation, such as cruise flight or holding, in areas of moderate icing should be avoided. ***NOTE:*** Air Force Weather Agency technical note AFWA/TN 98/002, *Meteorological Techniques*, states that icing may be severe in any type of freezing precipitation. When freezing fog, drizzle, or rain are forecast or reported, aircrews should confirm with the local weather agency what type/intensity of icing is associated with the freezing precipitation.

6.21.2.1. Do not takeoff under conditions of freezing rain. Do not takeoff under conditions of freezing drizzle except when aircraft has been properly de-iced/anti-iced IAW flight manual procedures.

6.21.2.2. Freezing precipitation, snow, freezing fog, or temperatures below 0°C, may cause ice or frost to accumulate on aircraft surface. When an aircraft requires de-icing/anti-icing prior to takeoff, refer to the following:

6.21.2.2.1. Aircrews will only use de-ice and anti-ice fluids listed in the C-21 flight manual. Aircrews will be familiar with, and follow all restrictions in the C-21 flight manual with respect to anti-ice/de-ice procedures and holdover times.

6.21.2.2.2. MIL-A-8243 Type I and Type II de-icing fluids provide little anti-icing benefit, and therefore have limited holdover times. As a guide, for approved fluids, crews may use published holdover times IAW TO 42C-1-2, *Aircraft Anti-icing Procedures*, and AFFSA holdover tables located at the AFFSA/A3OF Flight Directives Division website, **https://afkm.wpafb.af.mil/community/views/home.aspx?Filter=OO-OT-SA-03**. The holdover time begins when anti-icing fluid is first applied and the PIC shall use

time, temperature, and dilution of mixture to determine when times are exceeded and re-apply fluid if required.

6.21.2.2.3. In all cases, PICs will ensure a visual inspection of the aircraft is completed within 5 minutes of departure.

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, avoid them by at least:

6.21.3.1. 20 NMs at or above flight level (FL)230.

6.21.3.2. 10 NMs below FL230.

6.21.3.3. 5 NMs for tactical low-level operations below FL230 provided the outside air temperature is at or above 0°C at flight altitude. Avoid gust fronts and winds preceding a rapidly moving thunderstorm. ***CAUTION*:** Aircraft damage may occur 20NMs or more from any thunderstorm. Aircrews must familiarize themselves with information on thunderstorm development and hazards. Refer to AFH 11-203, Volumes 1 and 2, *Weather for Aircrews*.

6.21.4. The use of ground-based radar as a means of thunderstorm avoidance should only be used to assist in departing an inadvertently penetrated area of significant weather. It should never be considered a normal avoidance procedure. When relying exclusively on ground-based radar for weather avoidance, and the ground controller is unable to provide avoidance instructions, attempt to maintain VMC by:

6.21.4.1. Changing routing.

6.21.4.2. Diverting to alternate.

6.21.4.3. Declaring an emergency and requesting priority assistance.

6.21.5. Aircrews should avoid flying in areas of recently dissipated thunderstorms and advected clouds (horizontal movement of clouds caused by wind) downwind of thunderstorms.

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

6.21.6.1. Attempt to maintain VMC.

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

6.21.6.3. Avoid areas of high lightning potential, i.e. clouds within plus or minus 5,000 feet of the freezing level or plus or minus 8°C of the freezing level. ***NOTE***: Approaches or departures may be accomplished when thunderstorms are within 10NMs providing they are not producing any hazardous conditions (such as hail, lightning, strong winds, gusts fronts, heavy rain, wind shear, or microburst) at the airport, and are not forecast or observed to be moving in the direction of the route of flight (to include the planned missed approach corridor, if applicable).

6.21.7. When performing approaches and landings at locations where temperatures are 0°C or below, refer to the *Flight Information Handbook* (FIH) Section D, Temperature Correction

Chart, and AFI 11-202V3, Temperature Correction paragraph, to ensure adequate obstacle clearance.

6.21.8. Do not fly into an area of known or forecast moderate or greater mountain wave turbulence. Refer to AFH 11-203 for additional information on mountain wave turbulence.

6.21.9. Significant Meteorological Information (SIGMET). National Weather Service in-flight weather advisories are not limiting to Air Force aircraft. Contact the nearest military weather facility or flight service station for details, if applicable.

6.21.10. Volcanic Dust Precautions. Aircraft flight operations in areas of forecast or known volcanic activity or dust is prohibited. Plan all missions to avoid volcanic activity by at least 20 NMs.

6.21.11. Lightning Avoidance. The following conditions are most conducive to lightning strikes and prolonged flight in them should be avoided:

6.21.11.1. Within 8C of freezing.

6.21.11.2. In clouds or in any intensity of precipitation or turbulence associated with thunderstorm activity.

6.22. Operational Risk Management (ORM). ORM is a logic based, common sense approach to making calculated decisions on human, material, and environmental factors before, during, and after all operations. USAF policy on ORM is contained in AFI 90-901, *Operational Risk Management*. PICs will accomplish ORM worksheets IAW MAJCOM and local guidance as part of preflight activities.

6.22.1. Flying units will develop a local ORM program to include personal ORM assessment for all missions and accomplished by all crewmembers prior to each flight.

Section 6C—Preflight

6.23. Hazard Identification and Mitigation. After the entire crew is assembled at the aircraft, the PIC will brief primary mission hazards facing the crew during takeoff and climb-out.

6.24. AFTO Forms 781 Series.

6.24.1. Review AFTO Forms 781 series before applying power to the aircraft or operating aircraft systems. An 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 PIC may sign the exceptional release. Ensure that the DD Form 1896, *DoD Fuel Identaplate***,** and Multi-Service Corporation (MSC) card are aboard the aircraft.

6.24.2. One-Time Flights. An aircraft may be released for a one-time flight with a condition that might be hazardous for continued use, provided the aircraft is airworthy for one flight to another station. Refer to T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures,* for downgrade authority and procedures. AFRC crews also see AFI 11-202V3/AFRCSUP1, *Aircrew Training*. After the maintenance release is obtained, coordinate mission requirements with the controlling agency. The PICs concurrence is required before the aircraft can be flown.

6.24.3. For Red X clearing procedures at stations without maintenance support refer to **Chapter 12.**

6.25. Aircraft Servicing and Ground Operations. Reference **Chapter 12.**

6.26. Aircraft Recovery Away from Main Operating Base (MOB). Reference **Chapter 12**.

6.27. Aircrew Flight Equipment Requirements.

6.27.1. Oxygen. Oxygen on board for takeoff must be sufficient to accomplish the planned flight from the equal time point (ETP) to recovery should oxygen be required (minimum 1550 PSI).

6.27.1.1. All C-21 aircraft normally have two emergency escape breathing devices (EEBD) and eight emergency passenger oxygen system (EPOS) permanently pre-positioned on the aircraft. The EPOSs may be stored in the life support helmet bag when no passengers are carried.

6.27.1.2. On flights carrying passengers, take the appropriate number of EPOSs out of the helmet bag and pre-position near each passenger seat. EPOSs will be distributed and their use demonstrated before departure.

6.27.1.3. Aircrew members will comply with the oxygen requirements in AFI 11-202V3.

6.27.1.4. Crewmembers occupying a crew station will have an oxygen mask connected and readily available for use from before engine start until engine shutdown.

6.27.2. Rafts. On overwater flights, carry a life raft when the planned cruising altitude exceeds glide distance to land using a ration of approximately 2 miles per 1000 feet (12:1 glide ratio). For example, if planned cruising altitude is FL360, a life raft would be required if flying more than 72 miles from land.

6.27.3. Life preserver units (LPUs) or Personal Floatation Device. An aircrew member will ensure an LPU is within easy reach of each passenger and aircrew member before takeoff on overwater flights (outside gliding distance to land). Ensure the appropriate number and type of life preservers are aboard for overwater missions carrying children and infants.

6.27.4. Anti-exposure suit. Anti-exposure suits will no longer be pre-positioned on AMC aircraft. Any unit scheduled to conduct operations above 78 degrees North or below 60 degrees South (IAW federal Aviation Regulation (FAR) Part 135 Section 135.98, operations in the polar area and far part 121, Appendix P, requirements for ETOPS and polar operations) will configure the aircraft with the appropriate quantity of anti-exposure suits prior to mission execution.

6.28. Fleet Service. Ensure the required fleet service items are aboard the aircraft early enough to permit inventory prior to engine start.

6.29. Passenger Handling and Cargo Documentation. Reference **Chapter 13**.

6.29.1. Passenger Briefing. Use to complete passenger briefing as directed by MAJCOM. Follow MAJCOM guidance for posting briefing. This briefing may be placed in a MAJCOM approved flimsy.

6.29.1.1. Passenger briefings will emphasize proper hand placement during activation of the EPOS.

6.29.1.2. Demonstration of onboard Aircrew Life Sustaining Equipment (ALSE) is required for all missions carrying passengers. Crews will ensure a demonstration kit is available prior to departure.

6.29.1.3. The baggage runner should be used whenever baggage/cargo is being loaded or downloaded from the aft cargo compartment. Use of runner protects the passenger seats from damage during the loading process.

6.30. Airlifting Hazardous Cargo.

6.30.1. AMCH 11-214, *AMC Aircrew Hazardous Material Handbook*, contains a description of the types and classes of hazardous cargo that may be carried. AMC and AMC-gained PICs are responsible for ensuring that all procedures contained in AMCH 11-214 are complied with when airlifting hazardous cargo.

6.30.1.1. For more information regarding hazardous materials, refer to AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipment.*

6.30.2. Flight Planning. Based on the Hazardous Cargo Briefing, the PIC will:

6.30.2.1. Enter "Hazardous Cargo" and the mission identifier or flight number in the appropriate section of the flight plan. Use *Remarks* section of DD175, *Military Flight Plan***,** and *Other Information* section of DD1801, *International Flight Plan***.** Refer to the FCG for country specific requirements concerning over-flight when transporting hazardous materials cargo.

6.30.2.2. If possible, plan the flight to minimize overflying heavily populated or otherwise critical areas. Approach, landing, and takeoff tracks are excluded.

6.30.2.3. Prepare a departure message at stations when a C2 center is not available. The remarks section of the departure message will include: Class of hazardous material, DoD class or division for explosives, net explosive weight (NEW), and gross weight. If required, request special handling (e.g., isolated parking, security, technical escort teams, etc.).

6.30.2.4. If estimated time en route (ETE) is less than 1 hour, or if other circumstances preclude timely message receipt at destination, notify the next destination of the ETA and information listed in paragraph 6.30.2.3. If available, C2 will relay required information to next destination.

6.30.3. C-21 aircraft are authorized to transport the following hazardous materials prepared and packaged IAW AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipment*.

6.30.3.1. All Class/Divisions of explosives.

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

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

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

6.30.3.5. Medical support equipment and supplies.

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

6.30.3.7. Hazardous materials accompanying Hammer Ace personnel.

6.30.3.8. Hazardous materials in "Excepted Quantities".

6.30.3.9. Consumer commodities.

6.30.4. Other classes/divisions of hazardous materials are prohibited except by a waiver approved by the OG/CC or equivalent. Waiver approval must take into consideration the lack of onboard HAZMAT spill/clean-up kit and lack of cargo jettison capability.

6.30.5. Waivers are not authorized for:

6.30.5.1. Class/division 2.1 cryogenics.

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

6.30.5.3. Class/division 2.3 toxic gases.

6.30.5.4. Class 7 radioactive material (yellow III).

6.31. Handling of Classified Cargo, Registered Mail, Mission Capable (MICAP), Very, Very Important Part (VVIP), Forward Supply System (FSS) Shipments, and Courier Material.

6.31.1. MICAP, VVIP, sensitive cargo, courier materials, and registered mail moving within the normal airlift system are receipted at the on and offload stations using the air cargo manifest. For unit moves operated in accordance with Defense Transportation Regulation (DTR), Part III, Mobility, classified or sensitive cargo movement is normally manifested utilizing the DD Form 1385, *Cargo Manifest***,** or similar automated product (such as CALM or AALPS), and will normally be accompanied by a unit courier. However, if classified/sensitive unit cargo is offered without an accompanying courier, the DD Form 1907, *Signature Tally Record***,** must be used.

6.31.1.1. Defense Courier Service (DCS) couriers coordinating with the PIC 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, if carried, are designated before designating crewmembers. The following restrictions apply:

6.31.1.1.1. Primary crewmembers will not be designated couriers without the consent of the PIC.

6.31.1.1.2. Crewmembers on aircraft scheduled to make an extended en route stop at a location where DCS couriers cannot provide en route support will not be designated as couriers.

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

6.31.2.1. During unscheduled en route stops crewmembers may place courier material in temporary custody of the following agencies in descending order of priority.

6.31.2.1.1. DCS courier.

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

6.31.2.1.3. US Department of State Diplomatic Courier.

6.31.2.1.4. US Department of State activity.

6.31.2.1.5. US military guards.

6.31.2.1.6. US DOD civilian guards.

6.31.3. If unable to follow the itinerary to the destination of the courier material, or material is lost, stolen or otherwise compromised, report circumstances to the nearest Defense Courier Station and notify the local US military commander or US Government activity.

6.31.4. Life or death urgency shipments consist of biological or other medical supplies of such urgency that human life is dependent upon immediate receipt. Shipments will be manifested separately and the manifest annotated with the words LIFE OR DEATH URGENCY. All shipments will be handled on a hand-to-hand receipt basis, using either the air cargo manifest or the DD Form 1907, *Signature Tally Record*, for unit moves. The PIC will be briefed on the urgency of the shipment and be made the custodian during flight.

Section 6D—Departure

6.32. On Time Takeoffs. Mission departures are on time if the aircraft is airborne within -20/+14 minutes of scheduled takeoff time or as specified in a MAJCOM supplement.

6.32.1. Not used.

6.32.2. Early Departures. 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 channels provided the impact on local and downrange facilities and crew duty is evaluated.

6.33. Before Takeoff Briefing. Use to complete crew briefing in BEFORE TAKEOFF checklist as directed by MAJCOM. Follow MAJCOM guidance for posting briefing. This briefing guide may be placed in a MAJCOM approved flimsy.

Section 6E—En route

6.34. Flight Progress. In-flight, use all available navigational aids to monitor FMS performance. Immediately report malfunctions or any loss of navigation capability that degrades centerline accuracy to the controlling air route traffic control center (ARTCC).

6.35. In-Flight Meals. Pilots should not eat meals at the same time and their meals should consist of different menu items.

6.36. Communications Instructions Reporting Vital Intelligence Sightings and Other Reports. Report all vital intelligence sightings from aircraft as indicated in FLIP planning or FLIP En route Supplement.

6.36.1. In-flight harassment or hostile action against aircraft. Aircraft subjected to harassment or hostile action by foreign aircraft will immediately contact the nearest USAF air 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 agency. Also, attempt to contact the nearest command post when in UHF and VHF range.

6.36.2. Other incidents will be reported as indicated in AFMAN10-206, *Operational Reporting.*

6.37. Communications.

6.37.1. Crews should conduct an HF radio ground check before takeoff if use of the HF radio may be required for ATC or C2 communications. Attempt to establish HF contact before going out of UHF/VHF range. If unable to establish HF contact with the controlling HF station, and an alternate means of relay of ATC information is not available, the aircraft should return to the nearest suitable support base.

6.37.1.1. If all communications are lost with ATC, follow procedures in the FIH and AFTTP 3-3.38A *Combat Aircraft Fundamentals (C-21).*

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

6.38. In-flight Emergency Procedures. The PIC shall report deviations from directives that may occur as a result of an emergency according to AFI 11-202V3. Time and conditions permitting, inform passengers of the situation and intentions.

6.38.1. Notification of C2 Agencies. When practical after completing the aircraft emergency action checklists and associated actions, the PIC shall furnish ATC and appropriate C2 agencies with a description of the difficulty, assistance required, intentions, and any other pertinent information.

6.38.2. The PIC may initiate a CONFERENCE HOTEL/SKYHOOK when additional expertise is necessary. Communications procedures are as follow:

6.38.2.1. Local Area. Use appropriate UHF or VHF frequencies.

6.38.2.2. En route. Attempt to establish a phone patch with the nearest or controlling C2 Center using global HF network, UHF/VHF stations, SATCOM, etc. If unable, aircrews are permitted to use ARINC radio service as an additional avenue for phone patch connectivity.

6.38.2.3. Provide the following information when time permits:

6.38.2.3.1. Description of the situation to include actions taken and intentions.

6.38.2.3.2. What assistance is being requested.

6.38.2.3.3. Fuel on board and hours of endurance.

6.38.2.3.4. Position.

6.38.2.3.5. Altitude and flight conditions.

6.38.2.3.6. Number of personnel and DVs on board.

6.38.2.3.7. Qualification of PIC.

6.38.2.3.8. Planned landing destination and ETA.

6.39. Need for Medical Assistance. When a person aboard the aircraft requires medical care, the PIC will notify the station of intended landing in sufficient time so the aircraft may be met by medical personnel. Notification will include the patient's sex, approximate age, and major complaint.

6.40. Weather Forecasts. It is the pilot's responsibility to obtain destination weather prior to descent. The primary sources are 618 TACC weather operations, OWSs, and USAF weather flights via pilot-to-meteorologist service (PMSV) or through a USAF aeronautical station. For aircraft flying in EUCOM AOR (ENAME operations) contact USAFE/OWS at Sembach AB GE. SOUTHCOM AOR contact 612 SPTS/WX at Davis-Monthan AFB, AZ. The ATC system can provide weather information to en route aircraft.

Section 6F—Arrival

6.41. Descent. Prior to the top of descent (TOD), the PIC will identify and discuss mitigation of associated hazards to the penetration, approach, landing, and airfield. Before descent into unfamiliar areas, pilots will review appropriate terrain charts 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. A visual approach may be flown during night VFR conditions if an approved straight-in instrument approach to the landing runway is not available or operational missions require a tactical approach. **NOTE**: For AMC aircrews, a visual glide slope indicator, VASI, PAPI, etc., is required.

6.41.1.1. On training/evaluation flights, pilots may fly non-precision approaches or VFR traffic patterns (including Tactical Arrivals and Departures (TAAD)) to accomplish required training and evaluations. The pilot monitoring will monitor a precision approach when practical to enhance safety.

6.41.1.2. For recovery at home station, pilots may elect to fly a visual or non-precision approach, if weather minimums permit.

6.42. Instrument Approach Procedures.

6.42.1. Aircraft category. The C-21 is a Category "C" aircraft. If approach speeds exceed 140 KIAS, use Category "D" approach minimums.

6.42.2. Prior to starting an instrument approach, pilots will confirm their aircraft can comply with the missed approach climb gradient requirements established in AFI 11-202V3.

6.42.3. Weather minimums. Before starting an instrument approach, or beginning an en route descent, pilots will confirm the existing weather is reported to be:

6.42.3.1. At or above required visibility for straight-in or sidestep approaches.

6.42.3.1.1. 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.

6.42.3.2. At or above required ceiling and visibility for circling approaches.

6.42.3.2.1. For circling approaches with no published ceiling requirement, the required ceiling shall be computed by taking the published HAA plus 100 feet rounded up to the next one hundred foot value. (For example, if the HAA is 747 feet, add 100 feet to get 847 feet and then round up to the next one hundred foot value which would be 900 feet. Ceiling for the approach must be at or above 900 feet.) 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.

6.42.3.3. 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. (This applies only to the ALS itself, not to VASIs, PAPIs, and other lights that are not a component of the ALS. Reference FIH section B for more ALS information.)

6.42.3.4. If the ceiling is below the value depicted for published DoD or NACO precision approach, but visibility is at or above authorized minimums, the PIC will comply with fuel requirements before initiating en route descent, penetration, or approach.

6.42.4. Flight Instrumentation Requirements.

6.42.4.1. Full flight instrumentation for a Category I ILS, for the pilot flying the approach, consists of an attitude indicator (ADI), a course deviation indicator (CDI), a means to identify the NAVAID (either aurally or by verifying the correct station identifier on the DME indicator), complete differential pressure instruments, and heading/compass systems.

6.42.4.2. Full flight instrumentation for a precision approach radar (PAR), for the pilot flying the approach, consists of complete differential pressure instruments, heading/compass systems, and an attitude indicator.

6.42.5. Category I ILS Procedures. Decision height for precision approaches will be as published, but no lower than 200 feet height above touchdown (HAT).

6.42.5.1. ILS Precision Runway Monitor (PRM) Approaches. Both pilots must be certified to conduct an ILS/PRM approach. Refer to AFI 11-2C-21V1 for certification procedures. Comply with the following operational procedures:

6.42.5.1.1. Two operational VHF communication radios are required.

6.42.5.1.2. The approach must be briefed as an ILS/PRM approach.

6.42.5.1.3. If unable to accept an ILS PRM approach clearance, contact the FAA ATCSCC at 1-800-333-4286 prior to departure time to obtain a pre-coordinated arrival time. Pilots who arrive at a PRM airport unable to accept PRM approach clearance, which did not contact ATC prior to departure, should expect an ATC directed divert to a non-PRM airport.

6.42.5.1.4. All breakouts from the approach shall be hand flown. Autopilots shall be disengaged when a breakout is directed.

6.42.5.1.5. Should a TCAS Resolution Advisory (RA) be received, the pilot shall immediately respond to the RA. If following an RA requires deviating from an ATC clearance, the pilot shall advise ATC as soon as practical. While following an RA, comply with the turn portion of the ATC breakout instruction unless the pilot determines safety to be a factor.

6.42.6. Not used.

6.42.7. Not used.

6.42.8. NDB Procedures. NDB approaches may be flown during day, night, or IMC conditions after compliance with any airfield restrictions in GDSS/GDSS2/ASRR. Recommend backing up each approach with available NAVAIDS/GPS, PVOR, and using NAV DISPLAY "TERMINAL" mode.

6.42.9. RNAV Procedures. Properly trained C-21 aircrews are permitted to fly RNAV and RNAV (GPS) approaches. DME/DME is not authorized for stand-alone RNAV departures or arrivals (SIDs/STARs). DME/DME is not authorized for RNAV or RNAV(GPS) approaches.

6.42.9.1. See Table 6.4 for complete listing of C-21 Communication, Navigation System (CNS)/Air Traffic Management (ATM) approved operations.

Table 6.4. C-21 CNS/ATM Operational Approvals.

Airspace/Equipment Type	Certified	Operational Approval	Pilot Training Required	Notes
FM Immunity	Yes	Yes	No	
8.33 Radios	Yes	Yes	No	
Elementary Mode S	Yes	Yes	No	
Enhanced Mode S	No*	No*	NA*	*Aircraft equipped with APX-119 transponder with appropriate software upgrades are approved for Enhanced Mode S and local pilot training is required.
TCAS Version 7	Yes	Yes	Yes	Training incorporated into initial qualification
RNAV/GPS Approaches	Yes	Yes	Yes	Approved to RNP 0.3. Not certified or approved for RNP 0.1 approaches. DME/DME RNP 0.3 not certified or approved.
RNAV (RNP) Approaches	No	No	NA	
LNAV/VNAV	Yes	Yes	Yes	Training incorporated into RNAV/GPS Approach training.
LPV	No	No	NA	

Airspace/Equipment Type	Certified	Operational Approval	Pilot Training Required	Notes
RVSM	Yes	Yes	Yes	Modified A/C only Training incorporated into initial qualification
RNAV 1/ RNAV 2/ GPS Enroute	Yes*	Yes*	Yes	Training incorporated into initial qualification. *UNS-1B equipped aircraft are only certified and approved on Category II routings (non remote/oceanic). UNS-1L equipped aircraft are certified and approved on Category I and II routings.
RNP 10	No*	No*	NA*	*UNS-1L equipped aircraft are certified and approved for operations in RNP 10 airspace. Pilot training is incorporated into UNS-1L training.
RNP 5	No*	No*	NA	*UNS-1L equipped aircraft are certified and approved for operations in RNP 5 airspace. Pilot training is incorporated into UNS-1L training.
BRNAV	Yes	Yes	No	
MNPS (UNS-1B)	Yes*	Yes*	Yes*	*UNS-1B equipped aircraft are certified for MNPS airspace on special routes requiring only one long range navigation system (LRNS). This restricted operations approval is issued IAW FAA Flight Standards Information System 8900.1. UNS-1B aircraft are authorized operations in MNPS airspace when following a special route designed specifically for one LRNS; do not accept a clearance off the special route. Pilot training for operations on special routes is incorporated into oceanic training.
MNPS (UNS-1L)	Yes	Yes	Yes	Pilot training is incorporated into oceanic training.
Remote Oceanic (UNS-1B)	No	No	NA	Operations on Special Routes are approved (ex. Blue Spruce).

Airspace/Equipment Type	Certified	Operational Approval	Pilot Training Required	Notes
Remote Oceanic (UNS-1L)	Yes	Yes	Yes	Pilot training is incorporated into UNS-1L training.

6.42.10. After Beginning Descent or Approach. IAW AFI 11-202 Volume 3 Chapter 8, after beginning an enroute descent or published approach, and the weather is reported or observed to be below approach minimums, the PIC has the option of continuing the approach to the missed approach point (MAP)/DH. Comply with the last assigned clearance until a new or amended clearance is received.

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

6.42.10.2. If the approach is continued, sufficient fuel must be available to complete the approach and missed approach, and proceed to a suitable alternate with normal fuel reserve.

6.42.10.3. The PIC has final responsibility for determining when the destination is below designated minimums, and for initiating proper clearance request.

6.42.11. Holding. An aircraft may hold at a destination that is below landing minimums, but forecast to improve to or above minimums provided:

6.42.11.1. The aircraft has more fuel remaining than that required to fly to the alternate and hold for the appropriate holding time, and the weather at the alternate is forecast to remain at or above alternate filing minimums for the period, including the holding time.

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

6.43. Not used.

6.44. Unscheduled Landings. (Not applicable for USAFE & PACAF) When an unscheduled landing or crew rest occurs at a base without a passenger facility, the PIC should immediately advise the appropriate C2 agency and request assistance in arranging substitute airlift for passengers onboard.

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 without maintenance support, when a maintenance requirement exists, the PIC will ensure a thorough debrief is provided to the C2 agency.

6.45.1. An entry will be placed in AFTO 781A, "Aircraft Subjected to Salt Spray" (state lowest altitude and duration) anytime the aircraft is flown under 1000 feet above sea except for takeoffs and landings.

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 its aircraft.

6.46.1.2. When support is not available, border clearance is the responsibility of the PIC. Duties may be assigned to ground personnel, but the PIC retains ultimate responsibility. When a C-21 aircraft is onloaded at a base without an air traffic function, the PIC 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 a location 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 (see the FCG and Paragraph **6.47**).

6.46.2. Procedures for US Entry.

6.46.2.1. En route, the PIC will distribute personal customs declarations (when not accomplished by passenger services) to all passengers, troops, and crewmembers. A pilot will also brief passengers and crewmembers on customs regulations, and prepare and compile necessary border clearance forms for the PIC'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, to 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 offload station, and saves intermediate offloading 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 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 U.S. Aircraft by Foreign Officials.

6.46.3.1. Follow USAF policy on status of military aircraft as stated in the FCG. 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, PICs must be aware of, and adhere to, any specific FCG 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 PIC to the foreign official that the aircraft is a sovereign instrumentality not subject to search without consent of USAF 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 that may honestly, but mistakenly, believe they have authority to search USAF aircraft.

6.46.3.2.2. If foreign authorities insist on conducting a search, the PIC should make every effort to delay the search until he or she can contact USAF headquarters (through MAJCOM C2) or the appropriate embassy officials. The PIC 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 USAF headquarters or the appropriate embassy, the PIC 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 PIC should state that he protests the course of action being pursued and that he intends to notify both USAF headquarters and the appropriate American embassy of the foreign action. The PIC should not attempt physical resistance, and should thereafter report the incident to USAF headquarters and appropriate embassy as soon as possible. The PIC 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 FCG supplements.

6.46.4. Exercises and Contingency Operations.

6.46.4.1. General. Certain airlift missions, which do not transit normal ports of entry or exit, require special procedures to expedite compliance with customs, public health, immunization, and agricultural requirements. A joint memorandum of understanding, between these agencies and MAJCOM establishes certain procedures and waivers.

6.46.4.2. Implementation. Implementation of the agreement is not automatic. Traffic and border clearing agencies implement all or part of the agreement as necessary for each operation. Inspection and clearance may be accomplished at the US onload or offload base, or at the foreign onload or offload base.

6.46.4.3. Customs Procedures.

6.46.4.3.1. Outbound: No requirement. Filing of Customs Form 7507, *General Declaration (Outward/Inward)*, is not required unless directed.

6.46.4.3.2. Inbound. Prepare one copy of the following documents before arrival:

6.46.4.3.2.1. Customs Form 7507 (Passenger list not required).

6.46.4.3.2.2. Cargo manifest.

6.46.4.3.2.3. For troops out of country less than 140 days:

6.46.4.3.2.3.1. Troop commander's certificate for examination of troop baggage.

6.46.4.3.2.3.2. One copy of the US Customs Baggage Declaration Form for each passenger not under command of the troop commander, to include observers, support personnel, civilians, news reporters, and crewmembers.

6.46.4.3.2.3.3. Upon arrival at a CONUS offload base, a customs representative will meet the aircraft and accept the troop commander's certificate with respect to troop baggage. Individual baggage declarations are not required. The troop commander should have inspected troop baggage.

6.46.4.3.2.3.4. Troops will debark under the observation of the customs representative with only a spot check of articles and baggage. The customs officer may elect to make a more extensive inspection.

6.46.4.3.2.4. For troops who are out of the country 140 days or more:

6.46.4.3.2.4.1. One copy of the U.S. Customs Baggage Declaration Form for each passenger. This includes observers, support personnel, civilians, news media personnel, and crewmembers. Personnel may use DD Form 1854, *Customs Accompanied Baggage, U.S.*, or Customs Form 6059B, Customs Declaration.

6.46.4.3.2.4.2. Upon arrival at a CONUS offload base, a customs representative will meet the aircraft and collect all declarations. Troops will debark under the observation of the customs representative who may make discretionary examination of the baggage.

6.46.4.4. Public Health Procedures.

6.46.4.4.1. When operating from a base without a traffic officer, the PIC will ensure all crewmembers and passengers are properly immunized.

6.46.4.4.2. Spray the aircraft if required.

6.46.4.5. Immigration Procedures.

6.46.4.5.1. Outbound: No requirements.

6.46.4.5.2. Inbound: Submit the following to the immigration inspector if carrying civilian passengers.

6.46.4.5.2.1. One copy of Customs Form 7507 (found at

http://www.customs.gov).

6.46.4.6. Agriculture Procedures:

6.46.4.6.1. Outbound: No requirement.

6.46.4.6.2. Inbound: Consult AMC Border Clearance Guide.

6.46.4.6.2.1. The command being airlifted will instruct troops that no fresh fruit, milk, milk products, vegetables, plants, plant pests, soil samples, animals, meat, and animal products can be brought into the United States. All items of troop personal gear/cargo are to be cleaned of mud, dirt, sand, and other foreign material before being brought aboard the aircraft. Personal gear and equipment must be examined for snails and other plant pests to prevent their accidental entry into the U.S.

6.46.4.6.2.2. Before loading, the command responsible for cargo being airlifted will clear vehicles and cargo of snails or other plant pests and of all mud and soil.

6.46.4.6.2.3. When required by agricultural quarantine regulations, the FCG, or higher headquarters, the aircraft will receive an aerosol treatment 30 minutes before landing.

6.46.4.6.2.4. On arrival, agricultural inspectors will inspect the aircraft after troops have disembarked. Crewmembers will assemble remains of in-flight lunches for prompt removal by fleet service personnel.

6.46.4.6.2.5. Inspectors examine baggage, equipment, vehicles, and cargo as offloaded. Any items, vehicles, or cargo found to be contaminated will be held for such treatment as the inspector may direct (washing, steam cleaning, physical cleaning, or fumigation).

6.46.5. Military Customs Pre-clearance Inspection Program. All crewmembers will ensure compliance with Military Customs Pre-clearance requirements.

6.47. Insect and Pest Control.

6.47.1. Responsibility. PICs will ensure required spraying is accomplished according to AFJI 48-104, *Quarantine Regulations of the Armed Forces*, Department of Defense FCG, or as directed by higher headquarters. Certify the spraying on Customs Form 7507, or on forms provided by the country transited. Aircraft should never be sprayed with passengers on board. The only exception is when mandated by the FCG.

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. Wear leather or Nomex gloves while spraying.

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 baggage compartments, wheel wells, 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 before 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 105 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 PIC In-flight. When seeing any insect or rodent infestation of the aircraft in-flight, notify the destination C2 center, airfield management 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 cargo doors or hatches except to enplane officials required to inspect the aircraft for insect or rodent infestation. Do not onload or offload 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 Objects. If an externally dropped object is discovered, the flight crew will:

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

6.48.2. Notify maintenance at the first military station transited.

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

6.50. Aircrew Flight Equipment and Dash 21 Equipment Documentation. The PIC or designated representative will:

6.50.1. Before 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. Before departing home station and following en route crew changes, review AF Form 4076, *Aircraft Dash 21 Equipment Inventory*, 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. Before departing home station and following en route crew changes, review, sign, and date the AFTO Form 46, *Prepositioned Life Support Equipment*, to ensure all required protective clothing and life support and survival equipment have been certified as installed by aircrew flight equipment 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.

6.50.3.1. Anti-Exposure Suits. Any mission conducting operations North of 78 degrees and South of 60 degrees is required to carry anti-exposure suits.

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

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

6.50.4.2. Annotate AF Form 4076, *Aircraft Dash 21 Equipment Inventory***.** 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 PIC 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/A3TL (or MAJCOM Aircrew Flight Equipment office) and appropriate C2 agency (or airport management) before mission continuation.

6.50.5. Additional Equipment. If more equipment is discovered during the preflight than is annotated on the AF Form 4076 or 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. Passenger Restrictions.

6.51.1. No-show passenger baggage or baggage of passengers removed from flight will be downloaded prior to departure.

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

6.52.1. 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. and previously unknown obstacles, airfield markings, or other safety critical items to HQ AMC/A3AS (Airfield Suitability Branch).

6.52.2. Debrief the next C2 center transited.

6.53. Impoundment of Aircraft. If an aircraft is involved in a serious in-flight incident, the PIC should impound the aircraft immediately after landing IAW AFI 21-10, and contact the controlling C2 agency for further instructions.

6.54. Wake Turbulence Avoidance. Comply with wake turbulence avoidance criteria. Acceptance of traffic information, instructions to follow an aircraft, or a visual approach clearance is acknowledgment that the PIC will ensure takeoff and landing intervals and accepts

responsibility of providing wake turbulence separation. Refer to FLIP General Planning (GP) for more information concerning wake turbulence separation.

6.55. Overflying En Route Stops. The C2 agency may approve a request to overfly a scheduled en route stop (ANG/A3O for ANG-directed missions).

6.56. Classified Equipment and Material. Comply with the following or as directed in MAJCOM supplement.

6.56.1. 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 31-401, *Information Security Program Management*, provides specific guidance concerning the security of various levels of classified equipment aboard aircraft. For classified aircraft components which cannot be removed and stored, lock the aircraft. If available, use Ravens to guard the aircraft; otherwise, use guards employed by the host country for flightline/airport area control. Do not leave unguarded classified information stored in navigation or radio equipment.

6.56.2. Material. Ensure Communication 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.

6.56.2.1. Remain overnight (RON) COMSEC Storage – Refer to AFI 33-201, *Communications Security (COMSEC),* for additional guidance. Every effort should be made to store classified material in a secure facility (i.e. Base Ops/Command Post) if that facility exists. If remaining overnight at a location that does not or cannot provide this storage capability, then the following procedures should be used:

6.56.2.1.1. If carrying a CYZ-10, the key for the CYZ-10 will be removed and carried at all times with one of the pilots. Place the CYZ-10 somewhere on the jet not in plain view (i.e. under a seat, in a closet, in the baggage compartment.

6.56.2.1.2. If using a KOI-18 or KYK-13, the entire device may be placed in its sealable/tamper resistant pouch and placed in the gun box. The pouch will be locked and the key will be kept on the aircrew member. Place the pouch in the gun box.

6.56.2.1.3. All classified documents (authenticators, SPINS extracts, etc) will be folded and locked in the gun box. There should be room on the top shelf of the gun box above the location for the gun and ammo clip. The key to the gun box will also be carried at all times with one of the pilots. The aircraft will then be locked, including the emergency exit. Upon return to the aircraft, crews must inspect the aircraft and documents for tampering and report any suspected or possible compromise immediately, even if it delays the mission. This guidance is in agreement with AFI 31-401 and AFI 33-201,*Communication Security (COMSEC)*.

6.56.3. 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) before deployment overseas, or as specified in the OPORD or contingency/exercise tasking.

6.56.4. Attempt to fix an inoperable Mode 4 before 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.

6.56.5. 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 North American Aerospace Defense Command (NORAD) on UHF frequency 364.2.

6.56.6. 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 (ACO).

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

6.56.8. Aircrews will carry COMSEC equipment and documents required to operate the Mode 4 on missions when required for mission accomplishment. Before departing for any destination without COMSEC storage facilities, crews will contact their local COMSEC managers for guidance.

6.57. High Altitude Airfield Operations. ***NOTE:*** The following procedure is for operations at airfields from approximately 8,000 feet pressure altitude up to 10,000 feet pressure altitude. Reference the Pressurization System description in Section I, and Emergency Procedures in Section III, of T.O. 1C-21A-1 for further information.

6.57.1. Passengers. Passengers should be given a thorough briefing on the pressurization abnormalities to expect on arrival and departure. With these procedures, rapid changes in the cabin pressure will be experienced. Passengers should be briefed on how to clear their ears and warned of problems that may be encountered if they have sinus congestion. They should also expect a large volume of noise and hot air if the pressure altitude at the field is greater than 9,250 feet.

6.57.2. Engine Start and Taxi. Engine start should be accomplished with the Pressurization Automatic-Manual Switch in MAN. Engine start should be normal at pressure altitudes below 9,250 feet. For engine starts above 9,250 feet pressure altitude, start the engines with the Bleed Air Switches OFF to prevent emergency airflow into the cabin. N1 and N2 idle RPM indications will be higher. Cabin air should be turned ON normally during the Taxi Checklist.

6.57.3. Takeoff.

6.57.3.1. Pressure altitude less than 9,250 feet: Takeoff with the pressurization system in the manual mode, cabin air ON, and the Bleed Air Switches ON. The Cabin Altitude light will be on above approximately 8,500 feet pressure altitude. After liftoff, the copilot should raise the gear upon command of the pilot. Simultaneously, with the other hand, the copilot should use the Up/Dn Manual Control Switch to decrease the cabin

altitude to below 7,200 feet and return the pressurization system to automatic mode by placing the Automatic-Manual Switch to AUTO.

6.57.3.2. Pressure altitude greater than 9,250 feet: Takeoff with the pressurization system in the manual mode, cabin air ON, and the Bleed Air Switches OFF. The Cabin Altitude light will be on. Pressurization will have to be reestablished after airborne. After liftoff, the copilot should raise the gear upon command of the pilot. Simultaneously, with the other hand, the copilot should turn the Right Bleed Air Switch ON and use the Up/Dn Manual Control Switch to decrease the cabin altitude to below 9,500 feet. Recycle the Right Bleed Air Switch from ON to OFF and then back to ON to reset the Emergency Pressurization Valves. Continue to decrease the cabin altitude to below 7,200 feet and return the pressurization system to automatic mode by placing the Automatic-Manual Switch to AUTO. Turn the Left Bleed Air Switch ON.

6.57.4. Approach. Set the Cabin Controller to its maximum and place the Pressurization Auto-Manual Switch to manual prior to landing. Use the Up/Dn Manual Control Switch to raise the cabin altitude to field elevation. If landing at or above 9,500 feet pressure altitude, turn OFF the Bleed Air Switches to prevent emergency airflow.

6.57.5. Landing. Follow normal landing procedures. At touchdown, expect the primary outflow valve to fully open and dump any remaining pressure. During the After Landing Checklist, turn the Cabin Air Switch OFF in the normal sequence. The Cabin Safety Valve will open and further ensure that the cabin is unpressurized before opening the door.

Chapter 7

AIRCRAFT SECURITY

7.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (hijacking) of the C-21 aircraft. AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, AFI 31-101, *Integrated Defense (FOUO)*, FAA Notice (FAAN) 7110.422, *Aircraft Hijack and Suspicious Inflight Activities - Response and Notification Procedures*, 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 C-21 is a "Protection Level 4" resource. Aircraft security at non-United States military installations is the responsibility of the controlling agency.

7.3. Integrated Defense. The following security procedures will implement AFI 31-101, requirements for C-21 aircraft:

7.3.1. The aircraft will be parked in an established restricted area and afforded protection IAW AFI 31-101. When the DV is a Code 4 (3-star general or civilian equivalent) or above, follow these procedures.

7.3.1.1. Parking Locations**.** Park DV aircraft in a prominent area so maintenance personnel and security forces patrols can closely monitor them.

7.3.1.2. Notification Procedures**.** Establish procedures to inform security forces of the arrival, parking arrangements, and departure of all DV aircraft.

7.3.2. Not used.

7.3.3. At non-United States military installations, the PIC determines the adequacy of local security capabilities to provide aircraft security commensurate with this chapter. If he or she determines security to be inadequate, the aircraft will depart to a station where adequate security is available.

7.3.4. The security force must be made aware of all visits to the aircraft. The security force POC must be identified to the PIC.

7.3.5. Locking and Sealing. Lock the aircraft, including the tailcone access door, during a "Remain over night" (RON) on non-secure ramps (see paragraph **7.5.1**.).

7.4. Not used.

7.5. En Route Security. The planning agency must coordinate with the execution agency to ensure adequate en route security is available. PIC will receive a threat assessment and en route security capability evaluation briefing for areas of intended operation prior to home station departure and should request updates from en route C2 as required. If required, a PHOENIX RAVEN team will be assigned to the mission.

7.5.1. The PHOENIX RAVEN team will consist of two US Air Force security force members, but may include more depending on security requirements. The team's travel status is determined by MAJCOM. The team travels in MEP status and is responsible to the PIC at all times. In turn, the PIC is responsible for its welfare (transportation, lodging, etc.).

Ensure security team members receive a mission briefing, aircraft egress/passenger briefing (as appropriate).

7.5.2. Arrival. On arrival, the PIC will assess the local situation and take the following actions as required:

7.5.2.1. Area patrol. Request area security patrols from local security forces. If local authorities request payment for this service, use SF 44.

7.5.2.2. Aircrew surveillance. During short ground times, direct armed crew members to remain with the aircraft and maintain surveillance of aircraft entrances and activities in the aircraft vicinity.

7.5.2.3. Inadequate Security. If, in the opinion of the PIC, airfield security is inadequate and the PIC determines the safety of the aircraft is in question, the PIC may waive the FDP 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 a 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 PIC 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.

7.5.3. Entry Control Procedures. Unescorted entry is granted to aircrew members and support personnel assigned to the mission who possess their home station AF Form 1199, *Air Force Entry Control Card*, supported by an Entry Access List (EAL) or aircrew orders. Aircrew members are authorized escort authority.

7.5.3.1. Normally, non-United States nationals, such as cargo handlers, can perform their duties under escort and should not be placed on the EAL.

7.5.3.2. Personnel not on the EAL or aircrew orders must be escorted within the area.

7.6. Detecting Unauthorized Entry.

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

7.6.1.1. Use available aircraft ground security locking devices.

7.6.1.2. 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).

7.6.1.3. Close and lock the door.

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

7.6.1.5. Report any unauthorized entry or tampering to the Office of Special Investigation (OSI), security forces or local authorities, and the C2 agency. Have aircraft thoroughly inspected prior to flight.

7.6.2. Security awareness is crucial to effective mission accomplishment. Aircrews must always remain vigilant to their surroundings, especially at high threat, low security locations. In addition to normal preflight activities, aircrews must inspect areas of the aircraft not covered by normal preflight duties, to include inside inboard main landing gear doors, nose wheel compartment, and the aft avionics bay for unfamiliar devices. Report any suspicious items to host security forces. Aircrews will maintain a heightened security posture throughout all pre-takeoff activities.

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 PIC will comply with this chapter and AFI 13-207, as supplemented.

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 PIC is fully satisfied with inspection results. In the absence of qualified passenger service representatives, the PIC 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. ***EXECPTION:*** Special agents, guards of the Secret Service or State Department, RAVEN Team Members, and other individuals specifically authorized to carry weapons.

7.7.4.1. Troops or deadhead crewmembers will not retain custody of ammunition on an aircraft. They will turn it in to the troop commander or PIC. Troops may carry unloaded weapons and ammunition aboard the aircraft during combat operations. When the tactical situation dictates (in coordination with the aircrew), weapons may be loaded at the order of the troop commander or team leader.

7.7.4.2. Dummy clips that can be easily identified may be loaded for training at the order of the team leader in coordination with the aircrew.

7.7.4.3. RAVENs will only be armed in-flight on specifically designated missions identified on the mission “frag” as “RAVEN in-flight arming required”.

7.7.5. If weapons must be cleared, instruct the individual(s) to:

7.7.5.1. Move to a safe, clear area at least 50 feet from any aircraft, equipment, or personnel before un-holstering or un-slinging their weapons.

7.7.5.2. Clear weapons in accordance with standard safety procedures. Ensure troop/PIC retains ammunition IAW paragraph 7.7.4.1.

7.8. Preventing and Resisting Hijacking.

7.8.1. The Administrator, Federal Aviation Administration (FAA), has exclusive responsibility to direct law enforcement activity related to actual or attempted aircraft piracy (hijacking) in the United States. See CJCSI 3610.01A, dated 20 Jun 06.

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

7.8.3. 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 Federal Bureau of Investigation (FBI) with all pertinent information. Where possible, the FAA will consult and cooperate with DoD prior to directing any law enforcement activity.

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

7.8.5. 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.

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

7.8.7. 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.

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

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

7.8.10. 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.

7.9. 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 dissuasion, through deception and subterfuge, to direct physical confrontation, including the prudent use of weapons.

7.9.1. The following guidelines should be used to counter a hijacking, actual or threatened, while the aircraft is on the ground:

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

7.9.1.2. 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:

7.9.1.2.1. MAJCOM commander exercising operational control of the aircraft.

7.9.1.2.2. MAJCOM commanders in whose AOR the airfield lies.

7.9.1.2.3. Senior operational commander on scene.

7.9.1.2.4. PIC in compliance with MAJCOM directives.

7.9.2. A hijacked aircraft carrying weapons of mass destruction will not be allowed to takeoff. Refer to DoD 5210.41M, *Nuclear Weapon Security Manual*, paragraph 9B(3), for additional guidance.

7.10. 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:

7.10.1. Engage the hijacker(s) in conversation in an attempt to calm them and to evaluate what course of action might be effective.

7.10.2. Dissuade the hijacker.

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

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

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

7.11. Communications Between Aircrew and Ground Agencies. Crews facing a hijacking threat will transmit an in-the-clear notification of hijacking to ATC. If an in-the-clear transmission is not possible, set transponder to 7500. If unable to set transponder, or if not under radar control, transmit a radio message indicating transponder change to 7500. Notify ground agencies by any means available as soon as practical and follow-up with situation reports as circumstances permit. Covert signals are no longer to be used per FAA guidance.

7.12. Forced Penetration of Unfriendly Airspace. Refer to FIH for international signals for air intercept.

7.13. Arming of Crew Members. When crews are directed to carry weapons, one pilot will normally be armed. All crew members should know who is armed. The following procedures apply when arming is directed:

7.13.1. Weapons Issue. Before departing home station, obtain weapons, ammunition, box, lock and key. Crew members will be armed according to AFI 31-207, *Arming and Use of Force by Air Force Personnel* and MAJCOM publications. If an armed crew member must leave the crew en route, transfer the weapon to another authorized crew member using AF Form 1297.

7.13.2. Wearing of Weapons. Wear weapons in a holster, concealed at all times to prevent identifying armed crew members. Do not wear weapons off the flight line except to and from the C2, armories, and other facilities associated with aircrew activities. In general, at

overseas locations, weapons are not to be brought off the aircraft. In countries where FCG/Status of Forces Agreement (SOFA) authorizes such action, every effort should be made to keep all firearms onboard the Sovereign US vessel unless appropriately responding to a hostile event or being moved to/from storage at an armory. RAVEN weapons are not to be brought off the aircraft unless responding to hostile action or being moved to/from storage at an armory.

7.13.2.1. AMC Passenger Terminal Procedures. Armed crewmembers must discreetly identify themselves to AMC passenger service personnel upon arrival at security checkpoints. One crewmember will present a valid set of crew orders, military identification card, and AF Form 523, *USAF Authorization to Bear Firearms,* authorizing the carrying of concealed weapons. Once terminal personnel verify this, they will allow the crewmember to vouch for the remaining crewmembers. The entire crew will then proceed through the magnetometer without removing objects from their pockets. This will prevent passengers from determining which crewmembers are armed.

7.13.3. Weapons Storage In-Flight. Crew members will be armed before beginning preflight, on-load or off-load duties and until completion of all post-flight duties. When no passengers are aboard, weapons may be stored in the gun box in-flight after a satisfactory stowaway check. Crew members will rearm before landing. Weapons need not be unloaded before placing them in a gun box.

7.13.4. Weapons Storage on the Ground.

7.13.4.1. Aircrews, including stage crews, will store weapons and ammunition in the most secure facility available, normally the base armory.

7.13.4.2. In the event a secure facility is unavailable:

7.13.4.2.1. Non-stage aircrews may store weapons and ammunition in the aircraft gun box.

7.13.4.2.2. Stage aircrews should contact C2 for guidance.

7.13.5. When storing weapons in the gun box:

7.13.5.1. Weapons should normally not be unloaded.

7.13.5.2. Inform C2 which crew member has the gun box key.

7.13.6. Crew members will ensure they are reissued the same weapon until mission termination at home station.

7.13.7. Loading and Transfer of Weapons. Load and unload weapons at approved clearing barrels if available. Do not use a hand-to-hand transfer of loaded weapons to another crew member; place the weapon on a flat surface.

7.14. Force Protection. Crews must be alert to possibility of terrorist activities at all times. Reference AFPAM 10-100, *Airman's Manual,* Joint Service Guide 5260, *Service Member's Personal Protection Guide: Combat Terrorism While Overseas,* and AFI 10-245, *Air Force Antiterrorism Standards,* for Force Protection measures.

Chapter 8

OPERATIONAL REPORTS AND FORMS

8.1. General. This chapter provides guidelines for worksheets, reports, and forms associated with MAJCOM operational activities. Consult governing instruction or contact wing, unit, or local flight safety officers for assistance with safety forms.

8.2. AF Form 457, *USAF Hazard Report*. The AF Form 457 is a tool to notify supervisors and commanders of a hazardous condition that requires prompt corrective action. For hazardous weather, complete the front side of an AF Form 457 and send it to the parent wing flying safety office. If addressing a computer flight plan deficiency, attach a copy of the AF Form 72, *Air Report (AIREP)*. Ensure the parent unit receives it within 5 days of the event. For more information, see AFI 91-202, *The US Air Force Mishap Prevention Program.*

8.3. AF Form 651, *Hazardous Air Traffic Report (HATR).* The AF Form 651 is a tool to report near midair collisions and alleged hazardous air traffic conditions. See Attachment 3 of AFI 91-202 for more information concerning the HATR program.

8.3.1. AFI 91-204, *Safety Investigations and Reports*, and AFMAN 91-223, *Aviation Safety Investigations and Reports*, list HATR reportable incidents.

8.3.2. The PIC shall report the hazardous condition to the nearest ATC agency (e.g. center, Flight Service Station (FSS), control tower, or aeronautical radio station) as quickly as safety allows. Include the following information in the radio call (as appropriate):

8.3.2.1. Aircraft identification or call sign.

8.3.2.2. Time and place (radial/DME of NAVAID, position relative to the airfield, incident, etc).

8.3.2.3. Altitude or flight level.

8.3.2.4. Description of the other aircraft or vehicle.

8.3.2.5. Advise controlling ATC agency that the PIC will file a HATR upon landing.

8.3.3. Deadline to file a HATR is 24 hours after event via any communication mode available. If landing airport has a USAF airfield management function, submit completed AF Form 651 to the airfield management officer for forwarding to wing safety office. If landing airport does not have an airfield management office, notify the safety office of the Air Force base nearest to location where the condition occurred, PIC's home base safety office, or as prescribed by overseas MAJCOM. In that case, provide contact sufficient information to prepare AF Form 651.

8.3.4. Grant individuals who submit a HATR immunity from disciplinary action provided:

8.3.4.1. If they were the offending party, their violation was not deliberate.

8.3.4.2. They committed no criminal offense.

8.3.4.3. Their actions did not result in a mishap.

8.3.4.4. They properly reported the incident using procedures above.

8.4. AMC Form 97, AMC *In-Flight Emergency and Unusual Occurrence Worksheet.* Applies to AMC and AMC-gained aircrews only. The AMC Form 97 is a tool to notify appropriate authorities of any mishap involving crewmembers or aircraft. PICs shall complete all appropriate areas of the form in as much detail as possible. When notified, AMC C2 agents will inform their supervisor/commander to start investigation and reporting activities IAW AFI 91-204 and Operation Report 3 (OPREP-3) procedures.

8.4.1. PICs will report crewmember or passenger injury, aircraft damage, or injury/damage to another organization's people or equipment caused by PIC's aircraft/crewmember. At a minimum, report the following:

8.4.1.1. Any physiological episode (physiological reaction, near accident, or hazard in-flight due to medical or physiological reasons). These include:

8.4.1.1.1. Proven or suspected case(s) of hypoxia.

8.4.1.1.2. Carbon monoxide poisoning or other toxic exposure.

8.4.1.1.3. Decompression sickness due to evolved gas (bends, chokes, neurocirculatory collapse), or severe reaction to trapped gas that results in incapacitation.

8.4.1.1.4. Hyperventilation.

8.4.1.1.5. Spatial disorientation or distraction that results in an unusual attitude.

8.4.1.1.6. Loss of consciousness regardless of cause.

8.4.1.1.7. Death by natural causes of any crewmember during flight.

8.4.1.1.8. Unintentional loss of pressurization if cabin altitude is above FL180, regardless of effects on people on board.

8.4.1.1.9. Inappropriate use of alcohol and effects of hangover that affect in-flight duties (crewmembers only).

8.4.1.1.10. Illness (both acute and preexisting), including food poisoning, dehydration, myocardial infarction, seizure, and so forth.

8.4.1.1.11. Exposure to toxic, noxious, or irritating materials such as smoke, fumes, or liquids. ***NOTE:*** Crewmembers and passengers involved in a physiological episode will see a flight surgeon as soon as practical.

8.4.1.2. A human factors related situation, e.g. misinterpretation of instruments; information overload (i.e. tactile, aural, and visual input too fast to permit reasonable analysis/decision); aircrew task saturation (i.e. too many responses/actions required in a short period of time); or confused switchology (i.e. adjacent switches where actuation of wrong switch creates dangerous situation). Anonymous reports are acceptable.

8.4.1.3. A condition that required engine shutdown, in-flight flameout, engine failure, suspected engine power loss, or loss of thrust that required descent below MEA. Engine failures include, but are not limited to, shrapnel from a failed internal engine component penetrating the engine case, engine case rupture/burn-through, engine nacelle fire, substantial fuel leak, or unselected thrust reversal. Consistent with safety, immediately report incidents that involve multiple engines (may report single-engine incidents upon

landing). ***NOTE:*** Exclude intentional shutdowns for FCF unless the engine fails to restart.

8.4.1.4. A flight control malfunction (including the autopilot and trim systems) that results in an unexpected hazardous change of flight attitude, altitude, or heading. Enter the flag words, "Reportable Flight Control Malfunction" in the AFTO 781A.

8.4.1.5. A landing gear malfunction aggravated by failed emergency system or procedures.

8.4.1.6. A cargo door, ramp or other door malfunction when intent for flight exists which could affect system integrity.

8.4.1.7. An in-flight loss of all pitot-static or gyro-stabilized attitude/directional instrument indications.

8.4.1.8. Any spillage/leakage of radioactive, toxic, corrosive, or flammable material from aircraft stores or cargo.

8.4.1.9. Conditions that required pilot to depart takeoff or landing surface.

8.4.1.10. All in-flight fires regardless of damage.

8.4.1.11. All bird strikes regardless of damage.

8.4.1.12. Incidents that, in the PIC's judgment, are in the interest of flight safety.

8.4.2. Always provide your home station safety officer a copy of relevant information. Make every effort to preserve all mission and flight related documents, such as flight plans, weather briefings, NOTAMS, Weight and Balance form, etc., for collection by appropriate safety officials. PICs shall use the following precedence to report mishaps (as soon as feasible after event):

8.4.2.1. MAJCOM flight safety officer (FSO).

8.4.2.2. Any FSO.

8.4.2.3. The nearest USAF C2 center.

8.4.2.4. Any USAF Airfield Management Operations.

8.5. Report Violations, Unusual Events, or Circumstances. PICs shall document events that require them to deviate from AFI 11-202V3 (unless waived by appropriate authority) or alleged navigation errors (include over-water position errors over 24NMs, border, or ATC violations).

8.5.1. Describe deviation(s) using the following report format:

8.5.1.1. Facts. Report pertinent details of the event.

8.5.1.2. Investigation and analysis. Report circumstances which required/drove deviation(s).

8.5.1.3. Findings and conclusions.

8.5.1.4. Recommendations to prevent recurrence.

8.5.1.5. Corrective actions taken.

8.5.2. Include the following attachments with the report:

8.5.2.1. Formal notification of incident.

8.5.2.2. AMC Form 41, *Flight Authorization*, or approved crew orders.

8.5.2.3. Crewmembers' official statements (if applicable).

8.5.2.4. Other pertinent documents submitted in evidence (logs, charts, etc.).

8.5.3. In addition to above (when aircraft is equipped), PIC shall download original flight plan to a floppy disk and turn it in to the C2 center or parent standardization and evaluation office.

8.5.4. OG/CC shall send the original investigation report to the appropriate MAJCOM within 45 days of the event/notification. ANG/AFRC OG/CCs shall send original investigation report through channels to HQ AFRC/IGI within 35 days of the event/notification. HQ AFRC/IGI will send the investigation report to MAJCOM within 45 days of event/notification.

8.5.5. Use OPREP-3 reporting procedures contained in AFI 10-206, *Operational Reporting*, for navigation errors over 24 NMs.

8.5.5.1. When notified of a navigation position error, the PIC (or agency that receives initial notification) shall document the circumstances surrounding the incident (using report format below) and ensure C2 agents submit an OPREP-3.

8.5.5.2. Include the following information in the report:

8.5.5.3. The name and location of agency/unit submitting report.

8.5.5.4. Affected mission identification number.

8.5.5.5. Reference OPREPs-3 to determine type of event (i.e., state "navigation position error.").

8.5.5.6. The date, time (Zulu), and location (e.g., ARTCC area) of alleged infraction.

8.5.5.7. Describe facts and circumstances. Include aircraft type and tail number, unit (aircrew's wing or squadron), home base, route of flight, point of alleged deviation, and miles off course.

8.5.6. PICs shall expeditiously report unusual events/circumstances that impact their mission to appropriate MAJCOM agencies. Reportable events include, but are not limited to, spectrum interference, interception, fuel dumping, multiple engine failure, hostile fire, injury to passenger or aircrew member, etc. This list is not all exhaustive. Most events require C2 agents to forward OPREP reports to higher headquarters. In all cases, pass the "who, what, when, where, why, and how" of the incident to a C2 agency.

8.5.6.1. The Spectrum Interference Resolution Program, covered in AFI 10-707, *Spectrum Interference Resolution Program*, establishes procedures to combat the effect of meaconing, intrusion, jamming, and interference. PICs who encounter electromagnetic interference (EMI) will report the event to the nearest C2 agency as soon as practical.

8.5.6.1.1. Address EMI reports to: HQ AMC SCOTT AFB IL//A6O// and addressees listed in AFI 10-707. Send reports via electronic message format with the following information in plain text:

8.5.6.1.1.1. Frequency selected when EMI occurred.

8.5.6.1.1.2. Equipment affected by EMI. Location of the system, system function, name, nomenclature, manufacturer with model number, or other system description. The operating mode of the system, if applicable (frequency agile, pulse doppler, search, etc.).

8.5.6.1.1.3. Description of EMI (noise, pulsed, continuous, intermittent, on so forth).

8.5.6.1.1.4. Effect EMI had on system performance (reduced range, false targets, reduced intelligibility, data errors, etc.).

8.5.6.1.1.5. Date(s) and time(s) of EMI.

8.5.6.1.1.6. Location where EMI occurred (coordinates or line of bearing, if known, otherwise state as unknown.)

8.5.6.1.1.7. Source of the EMI if known.

8.5.6.1.1.8. List other units that received interference (if known) and their location or distance and bearing from your location.

8.5.6.1.1.9. A clear, concise narrative summary on what you know about the EMI, with any actions taken to resolve the problem.

8.5.6.1.1.10. Whether or not PIC wants expert/technical assistance (include level of security clearance expert requires).

8.5.6.1.1.11. Specify impact the EMI had on your mission.

8.5.6.1.1.12. Provide a POC (Name, Rank, DSN/Commercial Phone Number, and Duty hours).

8.5.6.1.2. C2 agents must prepare an OPREP-3 if EMI is suspected meaconing, intrusion, or jamming, interference sufficient to cause a hazard, or if, in the PIC's judgment, the situation warrants such a report.

8.5.6.1.3. PICs shall serve as classification authority for EMI reports. Evaluate an adversary's ability to exploit certain systems using EMI and protect information accordingly. PICs on a non-sensitive mission or who judge the EMI to be interference from a non-hostile source need not classify EMI reports unless that report would reveal system vulnerability. Classify interference report(s) at stations located in combat areas or during sensitive military missions.

8.6. Petroleum, Oil, and Lubricants (POL) - Aviation Fuels Documentation. This section prescribes aviation POL (AVPOL) procedures that ensure correct documentation, form and invoice processing, and program supervision. Use the Multi Service Corporation (MSC) Air Card for the purchase of aviation fuel and ancillary ground services at commercial airports (and some military installations) worldwide. The Air Card is authorized for use by all U.S. government aircraft, state, and local law enforcement aircraft, and some foreign government

aircraft. All PICs should plan to use the "platinum" MSC card. In most cases, there will be no changes when refueling at non-Defense Energy Support Center (DESC) contract locations. The MSC card is accepted at approximately 4,800 locations worldwide. A list of all MSC-accepting merchants can be found at **https://www.airseacard.com**. It replaces the SF 44 at locations that accept the MSC card.

8.6.1. Responsibilities. Aircrew and maintenance personnel will be familiar with AVPOL procedures and documentation requirements of this chapter. Improper use of the MSC card could create financial liability for the purchaser.

8.6.2. Refuel/defuel USAF aircraft at DoD locations whenever possible. If DoD service is not available, purchase fuel from other source(s) in the following priority:

8.6.2.1. Defense Energy Support Center (DESC) or Canadian into-plane contracts.

8.6.2.2. Foreign government air forces. ***NOTE:*** DoD FLIP en route supplements identify locations with into-plane contracts.

8.6.3. AVPOL Forms Documentation and Procedures.

8.6.3.1. The DD1898, *Fuel Sale Slip*, is the fuel transaction receipt used for purchases at other DoD locations, including DESC into-plane contract locations. Log and place the DD1898 inside the AF Form 664, *Aircraft Fuels Documenting Log*. The PIC or designated representative shall complete this form. **NOTE:** If the contractor insists on a unique invoice along with the DD1898, annotate the vendor's invoice with "DUPLICATE DD1898 ACCOMPLISHED."

8.6.3.2. The AF Form 664, *Aircraft Fuels Documenting Log* is a tool to log and store all AVPOL transaction forms. Record all off station transactions on the front of the form and insert the original form inside the envelope. Turn in the AF Form 664, with supporting forms, to maintenance debriefing or as directed by local procedures. The PIC or designated representative shall complete this form when appropriate.

8.6.3.3. The SF 44 may be used to purchase fuel, ground services and/or other authorized products when no MSC card contract is in place.

8.6.3.3.1. SF 44 fuel purchases where FBO agrees to invoice DESC for payment:

8.6.3.3.1.1. The aircrew shall present the SF 44 as the purchase invoice when an FBO refuses to accept the MSC card. The aircrew shall complete the SF 44 and attach it to the FBO vendor ticket/invoice when the FBO also declines use of the SF 44 and uses its own invoice/receipt. Fuel purchases shall be documented on a separate SF 44 from ground services and other authorized products since the FBO must invoice DESC for the fuel and the customer for non-fuel product and services.

8.6.3.3.1.2. Copies 1 and 2 of the SF 44 shall be provided to the FBO. Copy 1 of the SF 44 and one copy of the FBO commercial invoice, if applicable, shall be forwarded to the following address by the FBO to bill/invoice DESC: DESC-RRF, Building 1621-K, 2261 Hughes Avenue, Suite 128, Lackland AFB, Texas 78236.

8.6.3.3.1.3. Copy 3 of the SF 44 and one copy of the FBO commercial invoice, if

applicable, shall be provided to the aircrew. Log and place a copy inside the AF Form 664. Aircrews shall present all fuel purchase receipts to the designated aviation squadron Certifying Official and/or Accountable Official upon return to home station to enable timely validation and financial obligation processing into the Fuels Automated System (FAS).

8.6.3.3.2. SF 44 fuel purchases where the FBO requires cash payment.

8.6.3.3.2.1. Cash fuel purchases are only authorized when either the DoD 4500.54G, *DoD Foreign Clearance Guide*, requires cash payment or when FBO locations outside the United States and U. S. Territories refuse MSC card and/or SF 44 invoicing processes. Aircrews required to pay cash for aviation fuel purchases shall employ the following procedures. These procedures do not apply to non-fuel products or services.

8.6.3.3.2.2. The aircrew shall obtain cash from a local DoD Finance source that is charged to an approved Treasury suspense account prior to home station departure.

8.6.3.3.2.3. Aircrews shall complete the SF 44 and obtain the FBO fuel vendor annotation in block 11 of the SF 44 to confirm total cash amount and also sign and date the SF 44 blocks 20 and 21. Log and place a copy inside the AF Form 664. Aircrew shall return unused cash to their local DoD Finance source upon return to home station. Present the completed SF 44 (for non-fuel charges only) to the appropriate home station administrative personnel for processing (e.g., Wing Refueling Document Control Officer, Finance Office, etc.)

8.6.3.3.3. SF 44 purchases of ground services and other approved products (not fuel).

8.6.3.3.3.1. Complete a separate SF 44 for non-fuel purchases. Provide the FBO copies 1 and 2 of the SF 44. The FBO shall use copy 1 and one copy of the FBO commercial invoice, if applicable, to directly bill/invoice the purchasing organization. Block 9 of the SF 44 shall reflect the organization name and address of the finance office responsible for payment to the FBO. The purchasing organization shall make payment to the FBO upon receipt of the invoice from the FBO. Log and place a copy inside the AF Form 664.

8.6.3.3.4. If the vendor presents their own form for signature and accepts the SF 44, write the statement "SF 44 Executed" on the vendor’s form.

8.6.3.3.5. Turn in two copies of the SF 44 to the operations officer at home station.

8.6.3.3.6. Present the aircraft identaplate for purchases at SITCO Agreement locations. Make certain the invoice includes date of transaction, grade of product, quantity issued/defueled, unit of measure, and signature of Air Force member who accepted product. If vendor also requires completed SF 44 write statement, "AF FORMS EXECUTED” on vendor’s invoice. Log and place a copy inside the AF Form 664.

8.6.3.4. Purchasing Aviation Fuel in Canada. The DoD and Canadian Department of National Defense have signed a memorandum of understanding allowing DoD aircraft to use the DD1896, *DoD Fuel Identaplate*, when refueling at Canadian airfields with a

Canadian National Defense Contract (CNDC). Use the MSC card for fuel purchases at Canadian airports without a CNDC, and for ground handling services at all Canadian airports.

8.6.3.5. Use host country forms to effect purchases at foreign military airfields, including "replacement-in-kind" locations. Hand scribe information from aircraft identaplate on the local form. Log and place a copy inside the AF Form 664.

8.6.3.6. Not used.

8.6.3.7. AF Form 1994**,** *Fuels Issue/Defuel Document***,** records fuel purchases at USAF bases using a valid DD1896**,** *DoD Fuel Identaplate*. The PIC or designated representative shall complete the form then log and place a copy inside the AF Form 664.

8.6.3.8. AFTO Form 781H**,** *Aerospace Vehicle Flight Status and Maintenance Document***,** records POL actions for particular airframe IAW applicable directives. The PIC or designated representative shall complete the form and turn it in to the maintenance debrief.

8.6.3.9. DD1896, *DoD Fuel Identaplate*, is the aircraft fuel and oil charge card.

8.6.3.10. The PIC will verify the AFTO Form 781H is completed and turned in to maintenance debriefing following the mission.

8.6.3.11. For off-station missions, the PIC will complete or verify accuracy of the AF Form 664, SF 44, AFTO Form 781H, DD1898, and associated fuels receipts then place them in the AF Form 664 (use eight digits for all USAF aircraft tail number entries). The PIC will transmit all AF Form 664 information via phone, fax, or message if mission causes him/her to be off-station past the last day of the month.

8.7. Not used.

8.8. AMC Form 54, ***Aircraft Commander's Report on Services/Facilities*****.** The AMC Form 54 is a tool to report 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. Be quick to identify outstanding performers and attempt to resolve problems at lowest level practical. PICs should advise affected agency on their intent to submit an AMC Form 54. Provide a copy of the completed form to local station AMC C2 agency. Upon return to home station, PICs will coordinate form with SQ/CC and OG/CC. For Form 54s that require AMC coordination, OG/CCs shall review and submit AMC Form 54 to 18AF/CC.

8.9. AMC Form 196, ***Aircraft Commander's Report on Crew Member*****.** The AMC Form 196 is a tool to document an aircrew member or mission essential ground personnel's outstanding, below average, or unsatisfactory performance during a mobility mission. Be quick to identify outstanding performers and attempt to solve problems at lowest level practical (provide local senior leaders opportunity to resolve problems as they occur). Send the report to subject's unit commander.

8.10. AMC Form 43, ***Transient Aircrew Facilities Report*****.** The AMC form 43 is a tool to report level of excellence for transient facilities. Any crewmember may submit this report

whether or not the PIC includes an unsatisfactory item in the trip report. Send completed AMC Form 43 to HQ AMC/MWPS, or MAJCOM equivalent.

Chapter 9

TRAINING AND OPERATING LIMITATIONS

9.1. Passengers on Training Missions.

9.1.1. Initial qualification or re-qualification for pilots will not be conducted with passengers onboard (N/A MEP).

9.1.2. Mission qualification training, evaluations, and off station trainers may carry passengers only if the aircrew in training is qualified (completed aircraft check ride with a valid AF Form 8).

9.1.3. Touch-and-go landings and multiple approaches are prohibited with passengers onboard. (This does not apply to MEPs).

9.1.3.1. Touch-and-go landings are prohibited with cargo onboard. ***EXCEPTION***: When approved by the MAJCOM, maintenance and civilian employees, under direct contract to the DoD and engaged in official direct mission support activities, considered "mission essential" may be onboard when touch-and-go or stop-and-go landings are performed providing the mission is a designated training flight and an IP or EP is in command.

9.2. Touch-and-Go Landing Limitations.

9.2.1. Touch-and-go landings will only be accomplished under the direct supervision of an IP. Not applicable to 375 OG Detachment 1. 375 OG Detachment 1 aircraft commanders certified IAW 375 OG policy may perform touch and go landings without an IP onboard.

9.2.2. Not used.

9.2.3. Limitations.

9.2.3.1. Comply with all flight manual restrictions and procedures to include performance degradation with fuel, cargo limits, etc.

9.2.3.2. Minimum runway length: 6000 ft. Minimum runway width: 70 ft.

9.2.3.3. Minimum ceiling/visibility: 300 ft and RVR 40 (3/4 SM visibility or 1200 meters).

9.2.3.4. RCR shall be 12 or higher.

9.2.3.5. Do not accomplish touch-and-go landings on slush covered runways.

9.2.3.6. Maximum crosswind component: 25 knots.

9.3. Training on Operational Missions.

9.3.1. Crews may perform multiple approaches and touch-and-go landings on operational missions provided the following requirements are met:

9.3.1.1. Normal touch-and-go limitations apply and MEPs are briefed of the activity.

9.3.1.2. All transition training will be accomplished during the first 12 hours of the FDP only.

9.3.1.3. Pre-mission coordination requirements. Activity shall be approved by C2 tasking authority (TACC for AMC missions) and unit training is charged to unit. As part of pre-mission planning, PICs 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, PICs will coordinate with and receive approval from unit OG/CC and the airfield(s) where training is to be accomplished. They will then coordinate with the C2 tasking authority 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 TACC to re-cut the mission and add the training mission number(s) in GDSS/C2IPS.

9.3.1.4. 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.

9.4. Simulated Emergency Flight Procedures.

9.4.1. Simulated emergency flight procedures will be conducted IAW AFI 11-202V3 and this instruction. Use a realistic approach and do not compound emergencies.

9.4.1.1. The PIC or IP will alert all crewmembers prior to practicing emergency procedures.

9.4.1.2. In an actual emergency, terminate all training and flight maneuvers practice. Training should be resumed only when the PIC determines it is safe.

9.4.1.3. Unless specifically authorized elsewhere in this chapter, do not practice emergency procedures that degrade aircraft performance or flight control capabilities in flight.

9.4.2. Engine-out Limitations (Simulated). Do not practice actual engine shutdown.

9.4.2.1. Performance. Table 9.1 requirements apply.

9.4.2.2. FPs may practice engine-out maneuvers under direct IP supervision.

9.4.2.3. If necessary, notify ATC when flying a non-standard pattern requiring special sequencing.

9.4.3. Simulated Engine-out Operations. Conduct simulated engine-out operations in the simulator or the aircraft (simulator is preferred method). For AMC units, OG/CC approval is required to conduct simulated engine-out operations in the aircraft; this includes to complete Qual Evaluations, Aircraft Requalification, in-house Upgrades, or continuation training.

9.4.3.1. Landings may be performed with one thrust lever in idle. Simulated engine failure will not be initiated below 1,000 AGL or after beginning gear and flap extension. Simulated engine failure is not authorized at less than engine-out minimum control speed as published in the flight manual, when actual emergency conditions exist, during circling or no-flap approach and landings.

9.4.3.2. When flying a simulated engine-out approach or landing, use both engines for all unplanned go-arounds.

9.4.3.3. When flying a simulated engine-out approach or landing, do not allow airspeed to go below the minimum speed for configuration from TO 1C-21A-1.

9.4.4. Simulated Emergency Flight Procedures may be accomplished on operational missions provided paragraph 9.3. is complied with, and no passengers or MEPs are onboard.

9.4.5. Although the FLAPS UP/PARTIAL FLAP LANDING checklist is in the emergency procedures pages of T.O. 1C-21A-1, *C-21 Flight Manual* and T.O. 1C-21A-1CL-1, *Pilot's Abbreviated Flight Crew Checklist*, it is not considered an emergency to fly a partial or no flap landing for tactical or other (i.e. wind shear, etc.) non-emergency operational considerations. This includes flying a partial or no flap landing for training.

9.4.5.1. When performing a partial or no flap landing for training, tactical, or other non-emergency operational considerations, ensure the FLAPS UP/PARTIAL FLAP LANDING checklist is accomplished prior to beginning the BEFORE LANDING checklist.

9.5. Flight Maneuvers. Practice the following maneuvers in the simulator only. Maneuvers required for Functional Check Flight (FCF) or FCF training are authorized in flight.

9.5.1. Simulated engine-out takeoffs.

9.5.2. Full stalls (Stall series FCFs must be flown by Learjet certified stall series pilot. See paragraph 5.23).

9.5.3. Approach to stalls, slow flight, and flight on the backside of the power curve.

9.5.4. Dutch rolls.

9.5.5. Jammed stabilizer approach and landing.

9.5.6. Split flap landings.

9.5.7. Landing with anti-skid off.

9.5.8. Landing with inoperative hydraulic system.

9.5.9. Aborted takeoffs.

9.5.10. Unusual attitudes.

9.5.11. Emergency descents.

9.5.12. Runaway pitch or roll trim, yaw demonstrations.

9.5.13. Emergency brake landing.

9.5.14. Simulated dual engine failure.

9.5.15. Actual engine shutdown.

9.5.16. Engine-out circling approach.

9.6. 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.

9.7. 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.

9.8. Operating Limitations.

9.8.1. 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 maneuver practicing. Training should only be resumed when the PIC determines it is safe.

9.8.2. Option Approach and Visual Low Approaches. Initiate a planned missed approach according to the limitations in **Table 9.1**

9.8.3. Aircraft will only perform engine-out approaches and landings during daytime and clear of clouds with a discernable horizon present.

9.8.4. Other simulated emergency approaches will be limited to non-critical phases of flight and will be kept to a minimum when IMC or at night.

Table 9.1. Training Flight Restrictions.

Maneuver	Altitude	Remarks
Actual engine shutdown	5,000 ft AGL (min)	Perform only for FCF (Actual or Training)
Simulated engine failure	Initiate above 1,000 ft AGL in clean configuration, daytime, and clear of clouds	
Any simulated emergency (except engine failure) On takeoff On landing	 Initiate above 500 ft AGL Initiate above 500 ft AGL	
Men and equipment on runway	Initiate above 500 ft AGL	
Instrument Missed/low approaches	MDA/DH	Initiate practice instrument missed approaches no lower than the minimum altitude for the type of approach executed.
Simulated single engine missed approach (MA) or go-around	Initiate at or above 300 ft AGL	For all unplanned go-arounds from simulated single-engine approaches and if single engine missed approach occurs below 300 ft AGL, use BOTH throttles during MA/GA maneuver
Planned VFR go-arounds with simulated emergencies other than	Initiate no lower than 100 ft AGL	Practice balked landings may be initiated below 100 ft AGL

engine-out		

9.9. Not Used.

9.10. Instructor Pilot Briefing. Before all training/evaluation missions, instructors/flight examiners should brief their crew on the following additional items:

9.10.1. Training/Evaluation requirements. Instructors/evaluators (for each crew position) will outline requirements and objectives for each student or examinee.

9.10.2. Planned training area and seat changes.

9.10.3. Importance of both pilots to actively monitor the fuel balance.

9.10.4. Importance of maintaining at least minimum charted speeds for configuration.

Chapter 10

AIRCREW OPERATIONS IN CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR THREAT ENVIRONMENT

10.1. Overview. The proliferation of Chemical, Biological, Radiological, and Nuclear (CBRN) weapons and the means to deliver them present serious security threats to the global operations of air mobility forces. It is reasonable that C-21 crews could find themselves in a CBRN threat environment in their logistics role of delivering critical cargo/personnel into or out of a contaminated base; as a primary target due to its role of transporting distinguished visitors (DV); or simply as part of collateral damage from a CBRN attack. This chapter describes the CBRN threat, passive defense measures to mitigate that threat, and guidance for ground and flight operations in a contaminated environment.

10.2. Understanding the CBRN Threat.

10.2.1. Chemical Weapons. Militarily significant chemical weapons include nerve, blister, choking, and blood agents. A key point for aircrew members to remember is that time is on your side. The ultra-violet (UV) rays of the sun, high temperatures, and high absorption rates of chemicals all decrease their lethality. Most chemical agents will either evaporate or absorb into surfaces. For decontamination, cleaning with hot soap and water and/or a 5 percent bleach solution currently appears to be the best and most practical method of removing chemical agents that may remain as a contact hazard on glass, and unpainted metal. Currently, the only decontaminate authorized for use on aircraft is soap and water. NOTE: Recent tests indicate that as a decontaminated aircraft dries, the absorbed chemical warfare agent (CWA) may resurface from painted surfaces causing contact and vapor hazards.

10.2.2. Biological Weapons. Biological warfare agents (BWA) are normally divided into three areas: bacteria (i.e., Anthrax) that live outside the cell, reproduce, and are normally susceptible to antibiotics; toxins (i.e., Ricin), that are poisons produced by living organisms or plants; and viruses (i.e., Smallpox) that normally require the host of a living cell to survive and reproduce. Viruses and toxins do not respond to antibiotics. It is probable that the medical community would be the first to recognize that an upsurge in “flu-like symptoms” is actually a biological attack. Although BWA are degraded by UV rays, humidity and high/low temperatures, some BWA (i.e., Anthrax spores) may have a long life, lasting decades under the right conditions. Current immunizations and good personal hygiene help prevent infection.

10.2.3. Radiological Weapons. The radiation dispersal device (RDD), or so-called “dirty bomb,” is the typical radiological weapon. RDD is any device that disseminates radioactive material without using a nuclear detonation. Key points to remember are that shielding and distance are the best defenses against radiation exposure.

10.2.4. Nuclear Weapons. The threat from a nuclear device is from the initial blast, heat, and radiation. In addition, the Electromagnetic Pulse (EMP) from a nuclear detonation can damage electronic equipment. The best protection is a combination of shielding, distance from the blast, and limited time of exposure.

10.3. CBRN Passive Defense Measures. Passive defense measures are those activities conducted to negate, contain, and manage the effects of a CBRN attack. Passive defense

measures include pre, trans, and post-attack actions designed to mitigate the CBRN threat through contamination avoidance, protection, and contamination control.

10.3.1. Contamination Avoidance. Contamination avoidance is the most important passive defense measure. Techniques for contamination avoidance include: inflight diversion, survival launch, and minimizing exposure to contaminated cargo, aerospace ground equipment (AGE), and material handling equipment (MHE).

10.3.1.1. Inflight Diversion. When advised that a destination airfield is under CBRN attack or has been contaminated, the aircrew will divert to an uncontaminated airfield, if at all possible. Authority to land at a contaminated airfield will be specified in the controlling OPORD.

10.3.1.2. Survival Launch. If caught on the ground during attack warning, every reasonable effort will be made to launch to avoid the attack. Upon proper clearances, aircrew may launch to survive if they have sufficient fuel and unrestricted, safe access to the runway. In practice, this option may only be practical for aircraft that have just landed or aircraft at or near the end of the runway. If launch is not possible, shut down engines and avoid running environmental control systems. Close aircraft doors/hatches/ramps, don Individual Protective Equipment (IPE), and seek personal protective cover on the base. If time does not permit using base facilities, remain in the sealed aircraft for a minimum of one-hour after the attack and/or follow host-base guidance.

10.3.1.3. Avoiding Cross Contamination from AGE, MHE, and Cargo. All formerly contaminated equipment and cargo must be marked to facilitate contamination avoidance and the use of protective measures. Additionally, the air shipment of formerly contaminated cargo requires special precautions and must be specifically authorized by the senior transportation commander.

10.3.2. Protection. When exposure to chemical and/or biological agents cannot be avoided, protection provides the force with the ability to survive and operate in a CBRN environment. Protection is afforded by individual protective equipment, collective protection, and hardening of facilities.

10.3.2.1. Individual Protective Equipment. The current in-flight protective gear for aircrew members is the Aircrew Chemical Defense Ensemble (ACDE). The ACDE includes the newer Aircrew Eye-Respiratory Protection System (AERPS) above the shoulders and the CWU-66/P or CWU-77/P Integrated Aircrew Chemical Coverall (IACC). The Ground Crew Ensemble (GCE) consists of the protective mask, C2 series canister (or filter element for MCU-2A/P protective mask), and over garment, boots, and gloves. The ACDE and GCE provide protection against chemical and biological agents. They do not provide blast or radiation protection from an RDD or nuclear detonation. The ACDE requires care during donning using "buddy dressing" procedures and Aircrew Flight Equipment (AFE) expertise during processing through the Aircrew Contamination Control Area (ACCA). ***NOTE:*** Aeromedical Evacuation Crew Members (AECM) will utilize the MCU-2A series mask.

10.3.2.1.1. ACDE/GCE Issue. Aircrews will be issued sized ACDE and GCE at home station. Aircrews will ensure their ACDE and GCE are available at all times

while in a CBRN threat area. Aircrew members will confirm the mobility bag contents and correct sizes.

10.3.2.1.2. ACDE Wear During Ground Operations. Because aircraft contamination is unlikely to occur during flight, ground operations can represent the highest threat to aircrew safety. Protection from enemy attacks and exposure to liquid chemical agents is paramount. Aircrew should limit activities to essential duties only, and separate ground duties from air duties.

10.3.2.2. Collective Protection. Collective protection provides a temperature-controlled, contamination-free environment to allow personnel relief from continuous wear of IPE such as the ACDE. The basic concept for most facility collective protective solutions is to employ overpressure, filtration, and controlled entry/exit. The intent is to provide rest and relief accommodations, as well as provide medical treatment in contamination free zone. Crewmembers should avail themselves of facilities, if provided, on the airfield.

10.3.2.3. Hardening. Permanent and expedient hardening measures are used to strengthen buildings and utility systems or provide barriers to resist blast effects. To reduce the potential of vapor exposure, personnel should consider the use of facilities above the first floor.

10.3.3. Contamination Control. In the post-attack environment, contamination control measures limit the spread of chemical, biological, and radiological contamination through disease prevention measures, decontamination, and use of Exchange Zone (EZ) operations. Effective contamination control helps sustain air mobility operations by minimizing performance degradation, casualties, or loss of material.

10.3.3.1. Disease Prevention. Up-to-date immunizations, standard personal hygiene practices, and the use of chemoprophylaxis are effective biological warfare defensive measures.

10.3.3.2. Decontamination.

10.3.3.2.1. Inflight Decontamination. Air washing is a useful inflight decontamination technique for removing most of the liquid agent from aircraft metal surfaces. However, vapor hazards may remain in areas where the airflow characteristics prevent complete off-gassing (i.e., wheel wells, flap wells, rivet and screw heads, joints, etc.). Flights of at least 2 to 4 hours are recommended, and lower altitudes are more effective than higher altitudes. Fly with the aircraft configured (gear, flaps, and slats extended) as long as possible to maximize the airflow in and around as many places as possible. Be advised that exterior contamination may seep into the aircraft interior creating a vapor hazard for aircrews. Use of ACDE is recommended.

10.3.3.2.2. Limits of Decontamination. Complete decontamination of aircraft and equipment may be difficult, if not impossible, to achieve. Formerly contaminated assets will be restricted to DOD-controlled airfields and not released from US government control.

10.3.3.3. Exchange Zone (EZ) Operations**.** The AMC Counter-Chemical, Biological, Radiological, and Nuclear Concept of Operations (C-CBRN CONOPS) Concept for Air

Mobility Operations in a Chemical and Biological Environment (CB CONOPS) describes a method for continuing the vital flow of personnel into a contaminated airfield while limiting the number of air mobility aircraft and personnel exposed to the contaminated environment. The purpose of the EZ is to minimize the spread of contamination within the air mobility fleet, preserving as many aircraft as possible for unrestricted international flight. The EZ is an area (located at uncontaminated airfield) set aside to facilitate the exchange of uncontaminated (clean) cargo/passengers to a contaminated (dirty) airframe, or visa versa, without cross-contamination. Additional information on the EZ is available through HQ AMC/A3X.

10.4. Flight Operations.

10.4.1. Mission Planning. Aircrews must be mentally prepared to face the dangers of CBRN weapons. Flight/mission planning must be thorough. Aircraft commanders should emphasize ACDE wear, crew coordination, CBRN hazards and countermeasures, inflight diversion, plans for onload/offload in the event of a ground attack, and plans for the return leg in the event of aircraft contamination. Alternative scenario plans should also be considered in the event MOPP conditions change.

10.4.2. Establishing the Threat Level. Aircrews should monitor command and control channels to ensure they receive the latest information concerning the destination's alert condition. Diversion of aircraft to alternate "clean" locations may be required, unless operational necessity otherwise dictates. The TACC or theater C2 agency (normally through the controlling OPORD) will direct aircrew pre-exposure activities such as medical pre-treatment for chemical/biological exposure or issue of dosimetry for potential radiological hazards.

10.4.3. Fuel Requirements. Extra fuel may be needed to compensate for altitude restrictions as the result of CB agent exposure. During purge periods, the aircraft will be unpressurized. Although the aircrew can use the aircraft oxygen systems, passengers wearing GCE cannot, thus restricting the aircraft cruise altitude and increasing fuel requirements accordingly.

10.4.4. Oxygen Requirements. Operating a contaminated aircraft will increase oxygen requirements. Aircrew wear of ACDE will require use of the aircraft oxygen system to counter actual/suspected contamination. Using the 100 percent oxygen setting offers the greatest protection in a contaminated environment. Appropriate oxygen quantity must be on board to meet higher consumption rates. Use the aircraft flight manual charts to calculate the required quantity.

10.4.5. Donning Equipment. Aircrew will don ACDE based on the alarm condition (See Airman’s Manual (AFPAM 10-100)). Use the "buddy dressing" procedures. AMC crews refer to AMCVA 11-303, *AERP Donning Checklist* and AMCVA 11-304, *ACDE Donning Checklist*, to ensure proper wear. Crews from other MAJCOMs use MAJCOM approved publications. When wearing the ACDE, Atropine and 2 PAM Chloride auto injectors will be kept in the upper left ACDE pocket. If the integrated survival vest/body armor is worn, the Atropine and 2 PAM Chloride auto injectors may be kept in the lower right flight suit pocket. This standardized location will enable personnel to locate the medication should an individual be overcome by CWA 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 the CBRN threat area or when an alarm “yellow” or higher

has been declared. When inbound to a CBRN threat area, prior to descent, the aircraft commander will ensure crew and passengers don appropriate protective equipment IAW arrival destination's MOPP level and brief aircrew operations in the CBRN threat area. As a minimum, this briefing will include: flight deck isolation, oxygen requirements, air conditioning system requirements, IPE requirements, ground operations, and MOPP levels. Aircrew members must determine if the wear of the integrated survival vest/body armor and LPUs will restrict dexterity and mobility to the point that it becomes a safety issue. If the aircrew deems the equipment to create a safety of flight concern, then the items may be pre-positioned (instead of worn) on the aircraft to be readily available to the aircrew.

10.4.6. Communicating Down-line Support. Pass aircraft and cargo contamination information through command and control 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 agent symptoms and whether they are wearing chemical defense ensembles.

10.5. Ground Operations.

10.5.1. Crew Rest Procedures. Operational necessity may require the aircrew to rest/fly in a contaminated environment. If the mission is not being staged by another aircrew or pre-flight crews are not available, the aircrew may pre-flight, load, and secure the aircraft prior to entering crew rest. The departing aircrew will perform necessary crew preparations and pre-flight briefings. Then, they will report to the ACCA for processing and ACDE donning with assistance from ALS personnel. If possible, aircrew transport should be provided in a covered vehicle. Aircrews should avoid pre-flighting the aircraft prior to departure to prevent contamination spread to them and/or 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.

10.5.2. Onload and Offload Considerations. Extreme care must be exercised to prevent contamination spread to the aircraft interior 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. Aircrew members 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. Prior to entering the aircraft all personnel should implement boot wash/decontamination procedures. Aircrew exiting aircraft into a contaminated environment will don plastic overboots and overcape prior to leaving the aircraft.

10.5.3. 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.

10.5.4. Airlift of Retrograde Cargo. Only CRITICAL retrograde cargo will be moved from a contaminated to an uncontaminated airbase. Critical requirements are pre-designated in theater war plans. Onload cargo will be protected prior to and while being transported to the aircraft. If contaminated, protective cover(s) will be removed/replaced just prior to placing the cargo on the aircraft. It is the user's responsibility to decontaminate cargo for air shipment. The airlift of contaminated or formerly contaminated cargo requires the approval of the senior transportation commander.

10.5.5. Passenger/Patients. A path should be decontaminated between the aircraft and the ground transportation vehicle to reduce interior contamination when loading/unloading passengers/patients. Normally, externally contaminated patients and those infected with contagious biological agents will not be transported onboard AMC or AMC-procured aircraft. The AMC/CC is the waiver authority to this policy. Other MAJCOMs will establish their own policies for transportation of externally contaminated patients and those infected with contagious biological agents. ***NOTE:*** An altitude below 10,000 feet is recommended due to AECM use of the ground chemical mask.

10.5.6. 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 capabilities. Individuals involved should be closely monitored for adverse physiological effects.

10.5.7. 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. A more extensive discussion of this subject is found in AFMAN 10-2602, *Nuclear, Biological, Chemical, and Conventional (NBCC) Defense Operations and Standards*.

Table 10.1. Task Time Multipliers.

Heat Category	WBGT[1] Index (ºF)	Light (Easy) Work		Moderate Work		Hard (Heavy) Work	
		Work/ Rest[2]	Water Intake[3] (Quart/Hour)	Work/ Rest[2]	Water Intake[3] (Quart/Hour)	Work/ Rest[2]	Water Intake[3] (Quart/Hour)
1	78-81.9	NL[4]	1/2	NL	3/4	40/20 min	3/4
2	82-84.9	NL	1/2	50/10 min	3/4	30/30 min	1
3	85-87.9	NL	3/4	40/20 min	3/4	30/30	1
4	88-89.9	NL	3/4	30/30 min	3/4	20/40 min	1
5	≥90	50/10 min	1	20/40 min	1	10/50 min	1

NOTES:

1. If wearing MOPP 4, add 10ºF to Wet Bulb Globe Temperature (WBGT). If wearing personal body armor in humid climates, add 5ºF to WBGT.
2. Rest means minimal physical activity (sitting or standing), accomplished in shade if possible.
3. ***Caution:*** Daily fluid intake should not exceed 12 quarts. Hourly fluid intake should not exceed 1 quart. The work/rest time and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified work category. Individual water needs will vary ±¼ quart/ hour.
4. NL=no limit to work time per hour.

10.5.8. Outbound with Actual/Suspected Chemical Contamination. Once airborne 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. Detection paper only detects certain liquid agents and will not detect vapor hazards. Above the shoulder ACDE should only be removed if there is absolutely no vapor hazard. Be advised that residual contamination (below the detectable levels of currently fielded detection equipment) may be harmful in an enclosed space. 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, avoid those areas for the remainder of the flight, and keep the cargo compartments cool. If an aircrew member 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). Upon arrival, the contaminated aircraft will be parked in an isolated area and cordoned to protect unsuspecting ground personnel.

10.5.9. Documenting Aircraft Contamination. When it is suspected or known that an aerospace vehicle or piece of equipment has been contaminated with a radiological, biological or chemical contaminant, a Red X will be entered and an annotation will be made in historical records for the lifecycle of the equipment.

10.5.10. 10-Foot Rule. The 10-foot rule was developed in order to provide guidance for protecting personnel using or handling contaminated resources (such as pallets) or working in locations with materials that might retain a residual chemical. The 10-foot rule embodies a safety factor that goes beyond current OSD guidance (which allows removal of IPE whenever detectors no longer detect a chemical agent vapor hazard). There are two phases associated with the 10-foot rule.

10.5.10.1. Initial Phase. During the initial phase, personnel will remain in MOPP 4 whenever they stay within 10 feet of the contaminated equipment for more than a few seconds. This MOPP level provides personnel the maximum protection from the chemical agent as it transitions from a contact and vapor hazard to a vapor hazard only.

10.5.10.2. Follow-on Phase. In the follow-on phase, personnel will use gloves of a sort (i.e. leather, rubber, cloth, etc.) when operating on or handling the contaminated equipment. Although a contact hazard is unlikely, relatively small amounts of the agent may still be present. The use of gloves will ensure that unnecessary bare skin contact with agent residue is avoided.

10.5.10.3. **Table 10. 2** shows times associated with initial and follow-on phases of the 10-foot rule. To simplify response processes, commanders may choose to use the worst case scenario as the foundation for all 10-foot rule actions, i.e., 24 hours for the initial phase and all periods of time greater than 24 hours for the follow-on phase.

Table 10.2. Ten-Foot Rule Time Standards. (Source: AFMAN 10-2602).

"10 Foot Rule" Time Standards*		
Agent	**Initial Phase**	**Follow-on Phase**
HD	0-12 HRS	Greater than 12 hrs
GB	0-12 HRS	Greater than 12 hrs

GD, GF, GA	0-18 HRS	Greater than 12 hrs
VX, R33	0-24 HRS	Greater than 24 hrs
* Rule is based on expected contamination on an airbase following a chemical attack. Adjust times if agent concentration is higher than expected.		

Chapter 11

NAVIGATION PROCEDURES

11.1. General. This chapter establishes procedures and requirements for worldwide enroute C-21 navigation. It is to be used in conjunction with procedures and requirements set forth in AFI 11-202, Volume 3, AFMAN 11-217, and FLIP. Since airspace and associated navigational aid equipment capability are rapidly evolving, pilots must maintain an in depth knowledge of current requirements/policies.

11.1.1. Prolonged Loss of Contact. Aircrews must ensure they are following proper navigation crosscheck procedures to maintain airspace situational awareness.

11.1.1.1. Aircrews will use navigation charts to identify radio frequency changeover points to minimize the likelihood of prolonged loss of communication with ATC/radio operators. Additionally, crews must monitor both VHF and UHF Guard to the maximum extent possible.

11.1.1.2. In the event of known or suspected loss of two-way radio capability, follow the communications failure procedures published in the FIH.

11.1.1.3. In cases of suspected loss of contact with ATC, attempt to reestablish contact using other aircraft to relay messages to ATC controllers.

11.2. Operations in International/Territorial Airspace. (See FLIP, FCG, and AP, for further guidance). US Military aircraft and DoD personnel entering another nation to conduct US government business 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 Attache Officers (DAOs).

11.2.1. 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.

11.2.2. Consistent with international law, the US recognizes sea claims up to 12NMs. Diplomatic constraints and/or a lack of diplomatic clearances usually result in missions operating in international airspace. Therefore, 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 12NMs; however, specific guidance from certain US authorities may establish limits, which differ from the standard.

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

11.2.4. 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).

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

11.2.6. ATC 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.

11.2.7. In the event an ATC agency challenges the validity of a flight routing or attempts to negate existing clearances, PICs must evaluate the circumstances. The normal response will be to attempt to advise the ATC 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 before mission departure, as being valid authorization.

11.2.8. 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 before performing the critical portion of the mission.

11.2.9. Aircrews (except on weather reconnaissance missions) normally are not tasked to and will not fly "due regard" routings unless coordinated with the appropriate MAJCOM C2 and specifically directed in the mission FRAG. The "due regard" or "operational" option obligates the military PIC to be their own ATC agency to separate their aircraft from all other air traffic. If operational requirements dictate, PICs may exercise the "due regard" option to protect their aircraft. Aircraft will return to normal air traffic services as soon as practical. Refer to FLIP GP for additional guidance on due regard.

11.3. Mission Planning.

11.3.1. Flight Plan. Cross-check the advanced computer flight plan (ACFP) planned route against the route of flight entered on the DD Form 175, *Military Flight Plan* or DD Form 1801, *DoD International Flight Plan*, and the approved diplomatic clearance.

11.3.2. The C-21 is capable of displaying only magnetic heading information and is prohibited from operating in the Area of Magnetic Unreliability (AMU) IAW AFI 11-202 V3.

11.3.2.1. There are areas of Canada outside the AMU where NAVAIDS are oriented to true or grid north and true tracks apply, even on airways. The C-21 is authorized to operate in areas outside the AMU with NAVAIDS oriented to true or grid north, provided all aircraft navigation systems are operating properly. A thorough review of navigation procedures in higher latitudes in AFMAN 11-217 V1 *Instrument Flight Procedures*, is required prior to flight in these areas.

11.3.2.2. OG/CC approval is required to operate in areas outside the AMU but above 73° North or below 60° South due to limitations of the magnetic variation database in the FMS.

11.3.3. True or grid instrument approach procedures (except RNAV (GPS)) are limited to day, VFR only for the C-21.

11.3.4. RNAV(GPS) approaches based on true or grid are allowed during night or IMC provided the printed RNAV(GPS) procedure includes all required magnetic heading information, the procedure is in the aircraft database and all other normal RNAV(GPS) requirements are met (RAIM, current database, etc.).

11.4. Flight Progress. Use the following procedures for flight progress:

11.4.1. Remote or Oceanic Flight. All aircrews transiting remote or oceanic areas in UNS-1B equipped C-21s will use the procedure outlined below. Accomplish prior to the first sortie of the day that will transit an area where GPS is the only means of navigation. UNS-1B equipped C-21s are not capable of doing enroute predictive RAIM as required for compliance with remote/oceanic navigation requirements. The procedure, while not a true predictive RAIM prediction as required by FAA/ICAO regulations, does provide a capability to determine satellite coverage, enhancing safety prior to flight in remote/oceanic areas.

11.4.1.1. Aircrews will download the "Request for GPS RAIM Predictions" form from the AMC A3V web site at **https://private.AMC.af.mil/a3/A3V**/, select "Pubs" link, then select "UNS-1B GPS RAIM Predictions" from under "C-21 Publications". Follow the directions on the form to contact the Joint Space Operations Center (JSPOC). Accomplish this prior to the first flight of the day for all remote/oceanic sorties for that day. Allow 30 minutes to process the request. Requests can be made up to 24 hours prior to the first flight. Predictions are valid for the times requested on the form. Crews should add a ±2 hour buffer to allow for early departures and unplanned delays. Predictions are valid only for the requested route. The JSPOC reply will indicate whether or not suitable satellite coverage is available for the requested time/location(s). JSPOC has been provided with criteria for this determination by AMC/A3VS. More specific information will classify the reply. If suitable satellite coverage will not be available during the planned time(s), delay the mission until suitable satellite coverage will be available or change routing.

11.4.1.2. This procedure will enhance safety by informing an aircrew in advance if sufficient satellite coverage for RAIM will not be available over a planned route of flight. As RAIM and adequate satellite navigation capabilities are dependent upon many factors (antenna integrity, terrain, atmospheric conditions, etc), this is not a guarantee of satellite reception sufficient for navigation. This prediction only informs the aircrew that sufficient satellites are/are not available.

11.4.1.3. All crews planning to operate in Atlantic Oceanic Airspace will reference AP2 and conduct a detailed review of the North Atlantic Minimum Navigation Performance Specification (MNPS) Airspace Operations Manual and review the associated FIR Oceanic NOTAMS. The MNPS manual is published on behalf of the North Atlantic Systems Planning Group (NAT SPG) by the European and North Atlantic Office of ICAO. It summarizes regulatory guidance contained in relevant ICAO annexes, such as

PANS/ATM Air Traffic Management (doc. 4444) and NAT Regional Supplementary Procedures (doc. 7030) pertaining to operations over the North Atlantic. It is used by the majority of worldwide operators in the North Atlantic region and is endorsed by the FAA.

11.4.1.3.1. The MNPS manual also contains many basic principles for good CRM, plotting and guidelines for handling contingencies which are common to all regions of the world. However, crews must be aware that the manual is specific to the North Atlantic and is not the source of information for procedures in every oceanic region. Crews will conduct a thorough study of the procedures for the region in which they are planned to operate.

11.4.1.3.2. The ICAO does not publish a separate manual for Pacific or Indian Ocean operations. However, the FAA website contains operational procedures & information for other oceanic regions of the world which shall be reviewed prior to operating in that airspace. The information can be accessed on the FAA website indicated below.

11.4.1.3.3. In the event that conflicting information is discovered between FLIP and the MNPS manual, the MNPS manual takes precedence. Furthermore, the manual is amended by FAA NOTAMS which contain the most up to date information and these take precedence over all other guidance. Aircrews will review FAA Oceanic NOTAMS; specifically section 2 of part 3, "International Oceanic Airspace Notices" in the notices to airmen found on the FAA website.

11.4.1.3.4. Relevant documents can be found at: FAA NOTAMS: **http://www.faa.gov/airports_airtraffic/air_traffic/publications/notices** (refer to part 3. International oceanic airspace notices) and MNPS Operations Manual: **http://www.nat-pco.org/mnpsa.htm**. Oceanic and Offshore operations: **http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/oceanic**/

11.4.1.3.5. Aircrews and mission planners are reminded that area planning documents (AP) are not all inclusive and should not be the sole source for flight planning, especially for North Atlantic missions. Aircrews identifying erroneous FLIP information will comply with general planning, Chapter 11, for submitting revisions, changes, or corrections by notifying AFFSA/A3OFA at: **hqaffsa.a3oia@tinker.af.mil.** Crews may also submit an NGA quality feedback card (available inside the IFR supplement) or send the information via email to: **quality@nga.mil.**

11.4.1.3.6. Review T.O. 1C-21A-1 procedures for both normal and abnormal operations of the UNS-1B. Areas of emphasis include:

11.4.1.3.6.1. **(1)** Use of the "Inflight Initialization" procedure on page 1-462.

11.4.1.3.6.2. **(2)** "Position Uncertain" annunciation on page 1-466.

11.4.1.3.6.3. **(3)** "NAV Sensor Accuracy Messages" on page 1-546.

11.4.1.3.6.4. **(4)** Do not bump the GPS anti-spoofing switch when entering or exiting the flight deck. This will cause a loss of usable navigation data and aircraft position information. The switch should normally be in the "OFF A/S" position.

11.4.1.3.7. Report all FMS navigation anomalies to unit OGV regardless of location or airspace type including CONUS locations. Unit OGVs forward reports to MAJCOM Stan/Eval who will forward to AMC/A3VS as lead command.

11.4.1.4. Prior to flight on oceanic flights, plot the oceanic portion on an appropriate chart and compute an Equal Time Point (ETP). PICs shall annotate the chart with the mission number, PIC's name, and date. If practical, chart may be reused. ACFP is currently incapable of calculating ETPS. Guidance on calculating an ETP can be found on the Aircrew Standardization/Evaluation AF Portal web page in the flight planning section at HTTPS://WWW.MY.AF.MIL/GCSS-AF/USAF/EP/GLOBALTAB.DO?COMMAND=ORG&CHANNELPAGEID=-1325640&PAGEID=0

11.4.1.4.1. Calculating an ETP (PACAF crews will follow PACAF ETP calculation guidance).

11.4.1.4.1.1. Calculating an ETP on an overwater leg is critical to knowing when you have reached a point where the time to either turn around and return to a suitable emergency airfield or to press ahead to the next suitable landing field is the same. Use the data from your CFP to determine distances and wind factors. The wind factors shown are the average (AWF) for the entire route and the first (WF1) and second (WF2) halves of the flight. Keep in mind the portion of the flight between suitable landing fields may not coincide with the first and second halves of the flight or your CAT I routing (an alternate may be closer to the side of your route). ***NOTE*:** The differences in the two-engine normal and single-engine LRC profiles are significant. Therefore, special attention during mission planning should be given to determining turnaround point if required due to engine loss. Initial estimates show the single-engine LRC ETP moves upwind of the two-engine ETP by as much as 30%. See **Table 11.1** to calculate a two-engine ETP.

Table 11.1. Two-Engine ETP Calculations.

ETP = Total Time Between Airfields (expressed in decimal points) - (minus) Total Distance Between Airfields / (WF2-WF1) + 2 (AVG TAS)

EXAMPLE:

```
OPTIMIZED FUEL PLAN
 WP LOCID          ID  TC MC ALT  GS   ZD   ZT   BO  ETA  ATA
   LAT          CHNL   MH TD TAS      TT  FLRM
   LON          FREQ   WIND      TDR TTR          OW
-------------------------------------------------------------
 1 GOOSE BAY
   N53192                          61
   W060256                   1318 0259
-------------------------------------------------------------
 0 TOC/LEVEL OFF  &     41 066 270 ...  48   8    3  ... ...
                 065 -02 ...       8   58
               233/043       1270 0251
-------------------------------------------------------------
--------- WAYPOINTS 2 THRU 10 DELETED FOR SPACE ----------------
-------------------------------------------------------------
 0 BEGIN DESCENT  &     74 095 270 504  47   6    2  ... ...
                 103 -02 440      239   17
               211/093        73 0020
-------------------------------------------------------------
 11 KEFLAVIK        KEF 76 095 ... ...  73   10    1  ... ...
   N63592        57/    097 ... ...     249   16
   W022369       112.0                0 0010
-------------------------------------------------------------
 12 KEFLAVIK NAS        111 130 ... ...   0   10    2  ... ...
   N63591              132 ... ...     259   14
   W022363                           0000
-------------------------------------------------------------
   /0024 BGGL/0105 CZQX/0137 BIRD/0207
 CFP ALT AWF   36 WF1   52 WF2   20 ENDURANCE 0346 TOGWT   18   -02
```

Dist and time between suitable airfields (in this case)

Indicates start & end of Cat I route (not necessarily between the airfields)

Find average of TAS

Wind factors:

+ or no sign is a tailwind.

- is a headwind.

From this example: Total time between airfields = 02+59 or 3.0 hrs; Total distance between airfields = 1318 NM; WF2 = 20; WF1 = 52; AVG TAS = 440
ETP = 3.0 – [1318 / ((20 - 52) + (2 X 440))] = 3.0 – 1.6 = 1.4 hrs (1+24) from start of flight.

11.4.1.4.1.2. You should always perform a "common sense" check after your calculations. In the example above, both WFs show a tailwind. Therefore, your ETP should be prior to half of the total flight time (i.e. prior to 1.5 hrs in this example). This example checks because 1.4 hrs is less then 1.5 hrs.

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

11.4.3. Obtain a coast out fix prior to, or immediately upon entering the Category (CAT) I Route (see Atch 1 for definition) or over-water segment. Perform a gross navigational error check using available NAVAIDS and annotate the position and time on the chart.

11.4.4. When approaching each waypoint on a CAT I route, recheck coordinates for the next waypoint.

11.4.5. 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.

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

11.4.7. Upon return to home station, turn in the charts (copies if reused) and applicable computer flight plans to the squadron. Squadrons will retain the charts, computer flight plans, and associated materials for a minimum of 90 days.

11.4.8. Aircrews (except on weather reconnaissance missions) normally are not tasked to and should not fly "due regard" routings unless coordinated with the appropriate MAJCOM C2 and specifically directed in the mission FRAG. The "due regard" or "operational" option obligates the military PIC to be their own ATC agency to separate their aircraft from all other air traffic. If operational requirements dictate, PICs may exercise the "due regard" option to protect their aircraft. Aircraft will return to normal air traffic services as soon as practical.

11.5. Navigational Aid Capability.

11.5.1. Comply with AFMAN 11-217V1 and Table 6.3 of this AFI for operations in various types of airspace. ***NOTE***: Airspace and associated navigational aid equipment capability are rapidly evolving. Pilots must maintain an in depth knowledge of current FLIP requirements/policies.

11.5.2. Reduced Vertical Separation Minimum (RVSM) Airspace. Airspace where RVSM is applied is considered special qualification airspace (FL290-FL410). Both the operator and the specific aircraft type must be approved for operations in these areas. Refer to FLIP AP 1/2/3 for theater unique information and the following for RVSM requirements:

11.5.2.1. Both primary altimeters, at least one autopilot, the altitude advisory system, and the transponder, must be fully operational. The PIC will request a new clearance to avoid this airspace should any of this equipment fail.

11.5.2.2. Engage the autopilot during level cruise, except when circumstances such as the need to re-trim the aircraft or turbulence require disengagement.

11.5.2.3. Crosscheck the altimeters before or immediately upon coast out. Record readings of both altimeters.

11.5.2.4. Continuously crosscheck the primary altimeters to ensure they agree ± 200 feet.

11.5.2.5. Limit climb and descent rates to 1,000 feet per minute when operating near other aircraft to reduce potential TCAS advisories.

11.5.2.6. Immediately notify ATC if any of the required equipment fails after entry into RVSM airspace and coordinate a plan of action.

11.5.2.7. Document malfunctions or failures of RVSM required equipment in the aircraft forms.

11.5.3. Not Used.

11.5.4. Required Navigation Performance (RNP) Airspace. Airspace where RNP is applied is considered special qualification airspace. RNP airspace is being incorporated around the world to increase air traffic capacity by decreasing separation requirements between routes. Pilots will immediately notify ATC if any of the required equipment fails after entry into RNP-10 airspace and coordinate a plan of action. Document in the aircraft forms malfunctions or failures of RNP required equipment.

11.5.4.1. RNP-10. Navigation accuracy is within 10 nm of track 95% of the time. Only C-21 aircraft modified with the Universal UNS-1L Flight Management System are RNP-10 certified. Remote/Oceanic operation in RNP-10 airspace is authorized provided that all required equipment is operational and adequate GPS coverage is available. The GPS coverage must be checked using the Fault Detection and Exclusion (FDE) software prior to departure. If the FDE software verifies satellite availability and the predicted Horizontal Integrity Limit (HIL) is within tolerances for the airspace (e.g. less than 10 NM for RNP-10 airspace), then the flight is authorized. If sufficient satellite coverage for FDE is not available or the HIL is greater than airspace tolerances, then the flight is not authorized. The flight must be delayed until time when FDE is available and the HIL is within parameters. C-21 aircraft with the UNS-1B, although capable, are not certified for RNP-10. This is due to the lack of FDE capability.

11.5.5. Basic Area Navigation (BRNAV) Airspace. The C-21 is approved for BRNAV operations and has no BRNAV restrictions. Airspace where BRNAV is applied is considered special qualification airspace. BRNAV meets a track keeping accuracy equal or better than +/- 5 NM for 95% of the flight time. Minimum equipment to operate in BRNAV airspace is an approved GPS with Receiver Autonomous Integrity Monitoring (RAIM) provided that the system is monitored by the flight crew and that in the event of a system failure, the aircraft retains the capability to navigate relative to ground based NAVAIDs (i.e. VOR, DME, and NDB). Pilots will immediately notify ATC if any of the required equipment fails after entry into BRNAV airspace and coordinate a plan of action; however, with sufficient NAVAID reception, the C-21A may still operate in the BRNAV airspace. Document in the aircraft forms malfunctions or failures of RNP required equipment.

11.5.6. FM Immunity (FMI). The C-21 is equipped with dual FMI VHF navigation receivers and is considered fully compliant with no restrictions. Refer to the applicable area planning (AP) series for more information concerning FMI operations.

11.5.7. Precision Positioning Service (PPS). Currently no operational approval exists for the use of encrypted PPS for IFR navigation in civil controlled airspace. Crews will use GPS standard positioning service (SPS) unless specifically authorized by HQ AMC/A3V.

Chapter 12

AIRCREW MAINTENANCE SUPPORT PROCEDURES

12.1. General. This chapter contains aircrew procedures not contained in the flight manual, other portions of this AFI, or other publications.

12.2. Responsibilities. Aircrew may assist the normal maintenance function when critical contingency tasking dictate their use, provided this action does not impact crew duty and crew rest limits specified in Chapter 3 of this AFI.

12.3. Authority to Clear a Red X. Pilots are not normally authorized to clear a Red X. If a situation is encountered where the aircraft is on a Red X and qualified maintenance personnel are not available to clear it, the PIC may obtain authorization to clear the Red X from the owning MXG/CC or OG/CC. Other crew members are not authorized to clear a Red X.

12.4. Aircraft Servicing. Aircrew are normally not required to service the aircraft; however, they are qualified and authorized to perform those aircrew maintenance support tasks found in this volume. The aircrew performs these tasks only in the absence of qualified maintenance personnel and is designed for support of the aircraft and its mission while away from home station. Without exception, the applicable checklists will be used during all refueling and de-fueling operations.

12.4.1. Aircraft Refueling. Aircrew members qualified in ground refueling may perform refueling duties. Aircrews will only refuel in cases when maintenance support is not readily available and the mission would be delayed.

12.4.1.1. Avoid refueling with JP-8+100 while transiting airfields with JP-8+100 capabilities. AMC aircraft are not allowed to operate on JP-8+100, except in emergency conditions. All JP-8+100 locations are required to maintain a clean JP-8 capability to support transient aircraft. If inadvertent refueling with JP-8+100 occurs comply with the following:

12.4.1.1.1. De-fuel the aircraft prior to flight.

12.4.1.1.2. Make an AFTO Form 781 entry stating “Caution: Aircraft refueled using JP-8+100, preventative measures must be taken when de-fueling.”

12.4.1.2. When crewmembers are required to refuel, a pilot will act as the refueling team supervisor. Pilots acting as refueling supervisors and panel operators will comply with T.O. 00-25-172, *Ground Servicing Of Aircraft And Static Grounding/Bonding (ATOS)*, and applicable C-21 series T.O.s.

12.4.2. Concurrent Ground Operations. IAW T.O. 00-25-172, *Ground Servicing Of Aircraft And Static Grounding/Bonding (ATOS)*, C-21 aircraft are authorized to conduct concurrent servicing using a deplaned aircrew member as the Chief Servicing Supervisor (CSS). The CSS shall ensure aircrew members and servicing personnel accomplish concurrent servicing (CS) in accordance with T.O. 00-25-172, *Ground Servicing Of Aircraft And Static Grounding/Bonding (ATOS),*and servicing technical orders. Aircrews performing Dash-1 preflight inspections or cargo loading concurrent with servicing must have cooperation and close coordination with the CSS. The CSS will remain in continuous contact (either hand

signals or voice communication) with fuel servicing team members during the entire servicing operation. When the aircrew is at the aircraft, the PIC is responsible for all aspects of aircraft operations and shall inform the CSS how aircrew members will participate in passenger evacuation/safety. In keeping with the guidelines in T.O. 00-25-172, *Ground Servicing Of Aircraft And Static Grounding/Bonding (ATOS)* ,CSS has authority over all phases of CS operations to include personnel participating in the refuel.

12.4.2.1. Use the following guidelines when CS operations are conducted with passengers on board:

12.4.2.1.1. A current and qualified crew member will be designated the passenger compartment monitor (PCM) and shall continuously monitor passengers during CS. PCMs will not perform other duties during servicing.

12.4.2.1.2. Not used.

12.4.2.1.3. The PCM shall brief passengers on emergency egress, exits, prohibitions, and hazards. Passengers will remain seated but will not wear seat belts during CS. When possible, conduct this briefing prior to servicing. If servicing is in progress, the briefing will be given immediately after boarding.

12.4.2.1.4. When authorized, passengers may board or exit the aircraft for the express purpose of loading for departure or offloading upon arrival. Boarding or exiting must be opposite of servicing operations. Once onboard, except for emergencies, passengers shall not deplane once servicing commences.

12.4.2.1.5. Passengers are not required to ground themselves.

12.4.2.1.6. Passenger representatives will assist the PCM when passengers board and exit. Passengers must remain outside the vapor hazard area, the fuel servicing safety zone (FSSZ) by 50 feet, oxygen servicing area, and 25 feet from fuel vents during servicing. Movement into or within the FSSZ during concurrent servicing must be under control of the CSS.

12.4.2.1.7. The PIC, or designated aircrew representative, or CSS will advise PCMs when to evacuate passengers.

12.4.2.1.8. Unless environmental conditions dictate, the primary emergency exit will remain open and stairs in place.

12.4.2.1.9. The PCM shall set the interior lighting as bright as possible to suit the combat environment.

12.4.2.1.10. The pilot shall ensure cargo loading or unloading does not jeopardize passenger safety. Do not load/unload cargo containing explosives, oxygen, flammable gases or liquids during CS.

12.4.2.2. Simultaneous fuel and oxygen servicing is not authorized.

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

12.4.3.1. Electric and electronic equipment may be left on provided it does not radiate energy; but it must not be turned on or off during refueling. Laptops and cellular phones are only allowed when outside the FSSZ.

12.4.3.2. TACANs and radar altimeter must be turned off.

12.4.3.3. Radar may be in standby but, if time permits, should be turned off.

12.4.3.4. IFF may be in standby but, if time permits, should be turned off.

12.4.3.5. FMS may be "on" and may be updated. Do not turn on or off during refuel operations.

12.4.3.6. A ground power unit (GPU) may be used to supply aircraft electrical power.

12.4.4. Aircrew Dash One Preflight Inspection Requirements.

12.4.4.1. The aircrew dash one preflight inspection will remain valid until either:

12.4.4.1.1. 72 hours from the time of inspection, or

12.4.4.1.2. Another maintenance dash six preflight inspection is performed.

12.4.5. Fire Protection and Crash Rescue.

12.4.5.1. A fire bottle, if available, should be positioned near the front of the aircraft prior to starting engines.

12.4.6. Aircrew and Maintenance Engine Runs.

12.4.6.1. A mixture of aircrew and maintenance personnel will not normally accomplish engine runs. When an aircrew member is required to start or run up engines for maintenance purposes, the following procedures apply:

12.4.6.1.1. Maintenance personnel will accomplish all necessary inspections and preparations for the engine run. These actions include but are not limited to: intake/exhaust inspections, access panel security servicing, and AFTO Form 781 documentation.

12.5. Aircraft Recovery Away from Main Operating Base (MOB). The PIC is responsible for ensuring the aircraft is turned to meet subsequent mission taskings. If qualified maintenance specialists are unavailable, the aircrew is responsible for turning the aircraft to meet subsequent mission taskings.

12.5.1. The PIC is responsible for the recovery items including:

12.5.1.1. Parking and receiving.

12.5.1.2. Aircraft servicing, including Aircraft Ground Equipment (AGE) usage.

12.5.1.3. Supervision of minor maintenance within local capability.

12.5.1.4. Minor configuration changes to meet mission tasking.

12.5.1.5. Securing the aircraft before entering crew rest.

12.5.1.6. Coordinating aircraft security requirements.

12.5.1.7. Documenting AFTO 781-series forms.

12.5.2. In all cases where aircrews must service the aircraft without qualified maintenance specialist assistance, comply with the appropriate maintenance T.O.

12.5.3. 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 781H, *Aerospace Vehicle Flight Status and Maintenance Document*, 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.

Chapter 13

CARGO AND PASSENGER PROCEDURES

13.1. General. A pilot coordinates loading or offloading with air terminal operations or the shipping agency; plans loads; provides in-flight services to passengers; and supervises onloading or offloading operations.

13.2. Responsibilities for Aircraft Loading.

13.2.1. AMC Designated Stations:

13.2.1.1. Aerial port personnel are responsible for selecting cargo and mail for airlift, completion of documentation, preparation of cargo for air shipment, and moving cargo to and from the aircraft to meet scheduled departure. They will advise the pilot of destination, size, weight, and types of cargo (classified, hazardous, etc.) to permit proper positioning, coordinate the traffic activities affecting loading and offloading, and assign sufficient airfreight loading personnel for cargo loading. Aerial port personnel are responsible for safe positioning of material handling equipment and cargo to or from the aircraft cargo door, ramp or auxiliary ground loading ramps.

13.2.1.2. The pilot is responsible for aircraft preflight, load planning (as required) of all cargo, preparing weight and balance documentation; operating aircraft equipment; tiedown, and checking the cargo against manifests. The pilot supervises and directs on/offloading and is responsible for safe movement of cargo into and out of the aircraft.

13.2.2. At locations without AMC air terminal or traffic personnel, the shipper assumes responsibilities in paragraph 13.2.1.1. and provides sufficient qualified personnel and handling equipment for loading or offloading. Pilot responsibilities and authority are the same as described in paragraphs 13.2.1.2.

13.3. Emergency Exits and Safety Aisles. No part of the cargo load will extend over the aisle. ***NOTE:*** All passenger hand carried items must fit under the seat and not obstruct the aisle. Any item that does not meet this requirement will be secured so as not to obstruct the aisle.

13.4. Not used.

13.5. Passenger Handling.

13.5.1. Not used.

13.5.2. Passenger Missions:

13.5.2.1. Passenger Missions. Maximize seat availability on AMC aircraft. It may be necessary for crews to perform passenger service functions at stations that do not have this capability. These functions include manifesting, anti-hijacking processing, and ensuring visa/passport requirements are met. Contact TACC at DSN 779-0355 or 779-0350 if any questions arise such as who may travel to specific locations or passport/visa requirements. File a copy of the passenger manifest with the most responsible on-scene agency if there is no base operations or other agency responsible for filing the manifest.

13.5.2.2. A passenger service representative or crew member will assist passengers at the bottom of the steps. Make every effort to seat families together.

13.5.2.3. All passengers will be assigned a seat. Passenger may hand carry a Department of Transportation approved Infant Car Seat (ICS) aboard the aircraft to use in assigned seats. The Infant Car Seat (ICS) will be secured to the seat using seat belts. The pilot in command is the final authority in determining if the ICS is adequately secured. ***NOTE:*** Vest and harness type child restraint systems, and lap held child restraints are not approved for use in the aircraft. Adults may hold infants under the age of two in lap for any critical phase of flight. In the event of turbulence or an emergency landing, it is highly recommended for infants to be secured in an ICS. Sponsors will decide where infants will be positioned during these instances.

13.5.2.4. Every effort shall be made to transport passengers with disabilities who are eligible to travel. Passenger service personnel and crewmembers will assist in loading, seating, and unloading disabled passengers. Travel may be disapproved by the chief of travel at the passenger travel section or the PIC if there is an unacceptable risk to the safety of the disabled passenger, other passengers, crew, or if operational necessity/equipment or manpower limitations preclude accepting disabled passengers.

13.5.2.5. Download the baggage of no-show passengers and those removed from a flight. In the case of SAAMs or exercise missions at a non-AMC location, coordinate with CRE or CRG or deploying unit commanders to decide if the downloading of baggage is necessary.

13.5.2.6. Passenger Operation of Emergency Exits. Prior to each flight, a pilot will formulate a passenger emergency egress plan. Only English-speaking, physically able adults (defined here as age 15 and older) will be seated next to the emergency exit. The intent of this is to ensure those passengers seated next to the emergency exit are aware of their duties and responsibilities in assisting the crew during emergency egress.

13.5.3. Passenger Handling. PICs are responsible for required passenger handling duties. Passengers are limited to 30 pounds of baggage unless specific allowance for excess baggage is authorized and planned by the controlling agency. Passengers with excess baggage may be transported after the PIC determines the aircraft weight limitations and mission requirements are satisfied.

13.5.3.1. Make every effort to enhance passenger comfort.

13.5.3.2. Accomplish passenger briefings according to aircraft checklist or approved briefing guides, and printed passenger information guides IAW AFI 11-202V3. Use Passenger briefing checklist insert.

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

13.5.3.4. Release space available IAW paragraph 6.3.8.

13.5.3.5. All passengers, regardless of age, are required to be assigned their own seat.

13.5.4. Body Fluid/Bio-Hazard Clean-Up:

13.5.4.1. Aircrew personnel are the first line of defense when human fluids/waste contaminate aircraft. Because of the potential health risk to passengers and crew, crewmembers will immediately clean-up, to the best of their ability, all body fluids/waste when it does not detract from their primary duties. Crews will request troop

commanders, team leaders, or traveling companions assist with the in-flight clean-up whenever possible. The clean-up will be accomplished using kits provided by fleet service and the procedures listed below.

13.5.4.1.1. Cordon of the contaminated area if possible.

13.5.4.1.2. Use non-sterile vinyl or nitrile gloves that cover part of the arm.

13.5.4.1.3. Wear safety goggles or glasses and an N-95 disposable respirator or equivalent surgical mask to protect the mucous membranes and inhalation of blood-borne pathogens that may exist.

13.5.4.1.4. Wear disposable coveralls and footwear covers to protect skin, clothing and footwear if available.

13.5.4.1.5. Apply paper towels or other absorbent material to the fluid to absorb the fluids and minimize the spill area.

13.5.4.1.6. Use fluid from clean-up kit.

13.5.4.1.7. Place all material into bag.

13.5.4.1.8. Avoid touching the mouth or face area with soiled hands or gloves. Wash hands thoroughly with soap and water after cleaning or clean hands with a alcohol-based hand gel (at least 60% alcohol) when soap and water is not available.

13.5.4.1.9. Annotate type of body fluid/bio-hazard cleaned-up and location in AFTO Form 781A.

13.5.4.1.10. When it is not possible for aircrew personnel or passengers to clean-up during flight, fleet service will be notified prior to landing.

13.6. Not used.

13.7. Loaded Weapons. Weapons are considered loaded if a magazine or clip is installed in the weapon. This applies even though the clip or magazine is empty.

13.7.1. Personnel who will engage an enemy force immediately upon arrival (actual combat) may carry basic combat loads on their person. Weapons will remain clear with magazines or clips removed until immediately before exiting the aircraft.

13.7.2. Personnel who will not immediately engage an enemy force will store basic ammunition loads in a centralized location, as directed by the PIC, for redistribution upon arrival at the objective.

13.8. Weight and Balance. Accomplish weight and balance for this aircraft according to T.O.1-1B-50, *Weight and Balance*, and T.O. 1C-21A-1 procedures. The unit possessing the aircraft maintains the primary weight and balance handbook containing the current aircraft status and provides a supplemental weight and balance handbook for each aircraft. ABSS is the only approved software program for automated C-21 weight and balance computations.

13.9. Cargo Validation On/Offloading Procedures. Proper cargo or mail documentation will accompany each load.

13.10. Procedures for Airlifting Hazardous Cargo.

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

13.10.1.1. Class 1 (Explosives)

13.10.1.2. Class 2 (Compressed gas)

13.10.1.3. Class 3 (Flammable liquid)

13.10.1.4. Class 4 (Flammable solid)

13.10.1.5. Class 5 (Oxidizer and organic peroxide)

13.10.1.6. Class 6 (Poison and infectious substances)

13.10.1.7. Class 7 (Radioactive material)

13.10.1.8. Class 8 (Corrosive material)

13.10.1.9. Class 9 (Miscellaneous dangerous goods)

13.10.2. Procedures in paragraph 13.10.4. apply when aircraft carry any quantity of the following materials:

13.10.2.1. DoD class or division 1.1, 1.2, 1.3 (explosives)

13.10.2.2. Class or division 2.3 (poison gas)

13.10.2.3. Class or division 6.1, (poison) PG I, zone A and B

13.10.2.4. Class 7 (radioactive yellow III label.)

13.10.2.5. Class 4.3 (dangerous when wet)

13.10.2.6. Nuclear weapons, nuclear components, inert devices

13.10.2.7. DoD hazard class or division 1.4 explosives that transit the United Kingdom, Italy, or Hawaii.

13.10.3. Procedures in paragraph 13.10.4. also apply to nuclear related cargo, toxic chemical ammunition, highly toxic substances, hazard division 1.1 through 1.3 explosives, and infectious substances (including biological and etiological materials). In addition, it applies to Class 7 (Radioactive materials), which require a yellow III Label, and all other hazard classes or divisions, (except class 9 and other regulated material (ORM-D)) when shipped in quantities of 1,000 pounds (455 Kgs) or more aggregate gross weight. ***NOTE:*** Quantities not covered in paragraphs 13.10.2. and 13.10.3. are exempt from the procedures in paragraph 13.10.4.

13.10.4. The following procedures are established to satisfy the reporting requirements of AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*:

13.10.4.1. The PIC will be briefed when the quantities specified in paragraph 13.10.2. and paragraph 13.10.3. are involved. The briefing will cover the following points:

13.10.4.1.1. Hazard class.

13.10.4.1.2. Proper shipping name.

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

13.10.4.1.4. Net explosives weight (NEW) for all DoD class or division 1.1, 1.2, and 1.3 explosives and gross weight of blasting agent aboard the aircraft.

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

13.10.4.1.6. Passenger restrictions.

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

13.10.4.1.8. Smoking restrictions.

13.10.4.1.9. Flight plan annotation requirements.

13.10.4.1.10. Isolated parking and taxiing requirements.

13.10.4.1.11. Security classification, if appropriate.

13.10.4.1.12. Notification of the requirement to contact the next base to be transited at least 30 minutes prior to landing. (Such contact is not required for quantities other than those in paragraph 13.10.2. and paragraph 13.10.3.).

13.10.4.1.13. Placard requirements.

13.10.4.1.14. Escort team requirement, if applicable.

13.10.4.1.15. Other special handling requirements.

13.10.4.2. Cargo documentation and loading procedures.

13.10.4.2.1. The PIC will ensure proper documentation, certification and identification of cargo is furnished. AFMAN 24-204(I*), Preparing Hazardous Materials For Military Air Shipments*, contains detailed instructions on packaging, marking, labeling, and certification requirements associated with the airlift of hazardous materials. Hazardous materials/cargo not properly packaged and documented in accordance with AFMAN 24-204(I), *Preparing Hazardous Materials For Military Air Shipments*, will be rejected for air shipment by the pilot.

13.10.4.2.2. Hazardous materials/cargo falls into many categories and the utmost precautions must be observed when handling or transporting these items. Load all hazardous material to permit easy access in-flight without moving other cargo. Adhere to the following appropriate safety precautions when loading hazardous cargo as appropriate:

13.10.4.2.2.1. Ventilate the aircraft.

13.10.4.2.2.2. Placard the aircraft.

13.10.4.2.2.3. No smoking.

13.10.4.2.2.4. Fire extinguishers must be available.

13.10.4.2.2.5. Thoroughly inspect the cargo.

13.10.4.2.2.6. Stow cargo away from heater outlets.

13.10.4.2.2.7. Notify medical personnel in case of damage to radioactive

materials.

13.10.4.2.2.8. Use protective clothing and equipment.

13.10.4.3. Flight Planning. Refer to paragraph 6.29.2. for flight planning requirements.

13.10.4.4. Before engine start. Remove all placards from the aircraft. Provide controlling C2 agency parking location, approximate engine start time. Verify fire-fighting agency has the following hazardous materials information:

13.10.4.4.1. Class of hazardous material aboard and the DoD class or division for explosive materials aboard.

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

13.10.4.4.3. ETD.

13.10.4.5. Before landing. Unless specifically prohibited by the theater commander, FLIP, or FCG, contact the agency specified in FLIP/FCG, base operations dispatcher, control tower or approach control at least 30 minutes (or as soon as practical) before ETA. Inform the agency that “hazardous materials" are onboard and verify hazardous materials/cargo message has been received. Request information is relayed immediately to base operations or the civil airport manager, crash and fire protection agency, and other support activities. If landing at a United States civil airport without a tower, provide information to the nearest FAA flight service station. Transmit the following information:

13.10.4.5.1. Mission number, ETA, class of hazardous material, DoD class or division for explosives, net explosive weight (NEW), gross weight, and special handling requirements (e.g. isolated parking, security, technical escort teams, etc.).

13.10.4.6. DoD requires aircraft carrying DoD class or division 1.1, 1.2, and 1.3 explosives, hazardous class or division 2.3 or 6.1 zone A materials, and munitions to be parked in areas isolated from non-associated personnel and facilities. When such cargo is aboard, the PIC is responsible for ensuring the cargo is correctly identified to the tower or ground control. If the aircraft is 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.

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

13.10.4.8. Unscheduled Landing Due to In-flight Emergency. Transmit unclassified information to the appropriate ATC facility as follows:

13.10.4.8.1. Nature of emergency and intent to land.

13.10.4.8.2. Aircraft position and ETA.

13.10.4.8.3. Number of personnel and location in aircraft.

13.10.4.8.4. Fuel on board.

13.10.4.8.5. Hazardous materials aboard, location of the cargo, and information listed in paragraph 13.10.4.5.1.

13.10.4.9. After Unscheduled Landing. Contact the appropriate C2 center by telephone, HF radio, or message, giving arrival notice, hazardous materials information, and other pertinent information, as required.

Chapter 14

FUEL PLANNING

14.1. General. This chapter provides general C-21 fuel planning considerations and procedures. The planning procedures in this chapter apply to AMC, ANG, and USAFE units on AMC-tasked, 618 TACC flight managed and 603 or 617 AMD flight managed missions in addition to local missions flown by AMC units. Missions should be planned at altitudes, routes, and airspeeds to minimize fuel usage. Publish local procedures in unit supplements to this AFI. Do not use standard ramp fuel loads except for AE missions.

14.2. Fuel Conservation. It is Air Force policy to conserve aviation fuel when it does not adversely affect training, flight safety, or operational readiness. Aircrew and mission planners will manage aviation fuel as a limited commodity and precious resource. Fuel optimization will be considered throughout all phases of mission planning and execution. Comply with the following whenever consistent with technical order guidance and safety:

14.2.1. Fuel Loads. Excessive ramp and recovery fuel adds to aircraft gross weight and increases fuel consumption. Do not ferry extra fuel beyond optimum requirements for safe mission accomplishment and training objectives.

14.2.2. Flight Planning. Aircrew and mission planners will optimize flight plans and flight routing for fuel efficiency.

14.2.3. Not used.

14.2.4. Center-of-Gravity (CG). Load and maintain aircraft at an aft CG whenever possible consistent with mission requirements and Flight Manual restrictions.

14.2.5. Taxi. Consider engine-out taxi when permitted by Flight Manual.

14.2.6. Departure Planning. Consider use of opposite direction runway to reduce taxi and/or expedite departure routing if winds allow.

14.2.7. Takeoff. Consider a rolling takeoff as well as reduced power when able. This saves fuel and engine wear. Clean up on schedule and don’t delay gear and flap retraction.

14.2.8. Climb/Descent. In-flight procedures such as climb/descent profiles and power settings should also be considered for efficient fuel usage.

14.2.9. Weather Deviations. Attempt to coordinate for off-course deviation early so gross maneuvering is not required.

14.2.10. Cruise techniques. Attempt to trim the aircraft and match throttle settings whenever possible. Fly fuel efficient speeds and altitudes to the maximum extent possible.

14.2.11. Approach. Fly most direct routing to arrival approach consistent with mission requirements.

14.2.12. Holding. If holding is required, hold clean at the most fuel efficient altitude and request a large holding pattern. Hold at endurance or performance manual recommended holding speeds, conditions permitting.

14.2.13. Parking. Consider using shortest taxi route and avoid double blocking when able.

14.3. Fuel Planning Procedures. Aircrew should employ the following aviation fuel optimization measures without compromising flight safety or jeopardizing mission/training accomplishment:

14.3.1. Plan a 45-minute fuel reserve at destination or alternate (when an alternate is required).

14.3.2. Plan fuel to an alternate only when AFI 11-202V3 or AFI 11-2C-21V3 require the filing of an alternate.

14.3.2.1. When only one alternate is required, use the closest suitable airfield meeting mission requirements (such as special requirements for hazmat or patients) and 11-202V3 weather criteria.

14.3.2.2. If two alternates are required, use the two closest suitable airfields meeting 11-202V3 weather criteria and fuel plan to the more distant of the two.

14.3.2.3. When selecting an alternate, suitable military airfields are preferred if within 75 nautical miles of destination. (For 618 TACC provided fuel plans, the ACFP default distance to an alternate is 75 nautical miles. Consequently, where the alternate is less than 75 nautical miles from the primary destination, ACFP will assume that the airfield is 75 nautical miles away.)

14.3.2.4. The practice of selecting an alternate in another weather system or selecting an alternate based on maintenance capability will not be used.

14.3.2.5. ACFP will provide a route of flight to the primary alternate if greater than 75 miles from the destination.

14.3.2.6. For remote destinations, holding is authorized in lieu of an alternate airport. In such situations, use 2+15 hrs reserve fuel (1+15 holding in lieu of an alternate, 0+45 reserve, and 0+15 contingency fuel).

14.3.2.7. Alternate selection is ultimately the Aircraft Commander's responsibility and should include multiple factors including landing fees, diplomatic relationships and availability of contract gas. Fuel savings should not compromise mission effectiveness.

14.3.3. For all missions calculate an additional 15 minutes of contingency fuel to compensate for unforeseen circumstances during any phase of flight (i.e. unforecasted weather, launch delay, etc). Contingency fuel will not be considered reserve fuel since crews may burn some or all of their contingency fuel at any time during the mission. Compute using planned destination gross weight at 10,000 feet.

14.3.3.1. AMC's ACFP will calculate reserves and contingency fuel as holding fuel. Computer flight plans will have 1+15 holding when combining 0+45 reserve and 0+15 contingency fuel (for remote destinations ACFP will plan 2+00 holding plus 15 minutes contingency).

14.3.3.2. Reserve and contingency fuel will be computed using consumption rates providing maximum endurance at 10,000 feet MSL at destination gross weight. If an alternate is required, compute using weight at alternate destination. When computing reserve and contingency fuel for remote destinations, use consumption rates providing

maximum endurance at 20,000 feet MSL. If an alternate is required, compute using weight at the alternate destination.

14.3.4. Using all available planning tools (including ACFP) and guidance in this chapter, PICs will determine the RRFL.

14.3.5. Tankering fuel for convenience is prohibited. MAJCOM C2 or TACC-sanctioned tankered fuel is deemed operationally necessary, and will be included in the RRFL.

14.3.6. When there is a conflict between an on-time departure and defueling, the TACC or AMD deputy director of operations (DDO) or MAJCOM C2 equivalent will determine which takes precedence. The OG/CC will make this determination when serving as execution authority for the mission.

14.4. Fuel Requirements. See AFI 11-202V3 and NOTE below. This paragraph implements standard minimum fuel requirements.

14.4.1. 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 (holding fuel). Plan fuel load using computer flight plan or AF Form 70, *Flight Plan***, Table 14.1**, and the flight manual (fuel plan not required on local training missions remaining within 200 NMs).

14.4.2. 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. When holding is required in lieu of an alternate at a remote or island destination, compute holding for 2+00 hours using planned destination gross weight at FL200. This provides 1+15 minutes holding fuel in addition to the 45 minute reserve requirement. 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 14.1. 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
5. Holding [3]	0+45 fuel using holding charts at 10,000 feet. When holding in lieu of alternate is required (paragraph **6.20.**) 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.	

14.4.3. 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.

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

14.4.5. 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 or two-engine unpressurized. Calculate CAT I fuel reserve as 10% of flight time fuel over the CAT I route/route segment, not to exceed 1+00 fuel at normal cruise. ***NOTE:*** Crews must also ensure they have enough oxygen to continue from the ETP.

14.4.6. Ballast fuel may be required under certain aircraft configurations to keep the center-of-gravity within flight limits. Unless the PIC can accurately determine when it is safe to transfer the ballast fuel forward, do not plan on utilizing this fuel during normal operations.

14.4.6.1. Aircraft commanders will make every effort to work with their flight manager to resolve flight plan issues, RRFL.

14.4.6.2. Aircraft commanders will not add any additional fuel without first discussing the reason with their flight manager (FM) and receiving the FM's agreement that additional fuel is justified.

14.4.6.3. When an aircraft commander believes the fuel load is insufficient to execute the mission they will call the FM to identify and resolve differences. When the aircraft commander and FM do not reach agreement, the aircraft commander is the final authority for adding additional fuel.

14.4.7. Local supplements will not dictate "IAF" or "Top of Descent Fuel".

14.4.8. Where weather forecast conditions dictate, add only one of the following fuel corrections. Thunderstorm corrections are not cumulative. Use the highest applicable correction for the forecast of conditions.

14.4.8.1. Fifteen minutes of fuel at enroute fuel burn rate (approximately 200lbs) if forecast thunderstorms are scattered or numerous along the route of flight.

14.4.8.2. Eight minutes of fuel at enroute fuel burn rate (approximately 100lbs) if forecast thunderstorms are few along the route of flight.

14.4.8.3. Five minutes of fuel at enroute fuel burn rate (approximately 50lbs) if forecast thunderstorms are isolated along the route of flight.

14.4.9. Flight managers will include, in the ACFP, 15 minutes (appr. 200lbs) of East Coast hold down fuel for departures from Andrews, Dover, Martinsburg, McGuire, Stewart, and Westover. Hold down fuel is added as a departure bias and will be burned at the top of climb. Hold down fuel will be annotated on the ACFP as “Fuel D” at the beginning of the ACFP and accounted for in the top of climb fuel block on the ACFP.

14.4.10. Flight managers will include, in the ACFP, 15 minutes (appr. 200lbs) of early descent fuel for Andrews, Dover, Martinsburg, McGuire, Stewart, and Westover arrivals from the west.

14.4.11. Early descent fuel is added as an arrival bias and will be burned on the last leg. Early descent fuel will be annotated on the ACFP as “Fuel D” at the beginning of the ACFP and accounted for in the last leg fuel block on the ACFP.

14.4.12. Depressurization Fuel: ACFP is currently incapable of calculating depressurization fuel. During all flight portions crews will discuss exercising depressurization procedures. Crews will calculate the fuel required to a recovery airfield in the event of depressurization at the ETP, to determine if additional fuel must be added to the ACFP RRFL. Plan to arrive at the recovery airfield with 0+30 minutes reserve fuel at optimal cruise speed for the depressurization transit altitude. Transit should be planned at 25,000 Feet MSL when passenger supplemental oxygen is available or 10,000 Feet MSL when passenger supplemental oxygen is not available.

Chapter 15

AIR REFUELING

15.1. Not used.

Chapter 16

COMBAT MISSION PLANNING

16.1. Not used. Refer to AFTTP 3-3.38A, *Combat Aircraft Fundamentals C-21*, and appropriate chapters of this regulation.

Chapter 17

EMPLOYMENT

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 it to become classified.**

17.1. General. Planners and aircrews should reference AFTTP 3-3.38A and AFTTP 3-1.38, *Tactical Employment of OSA/SAM/CSM/DVG (C-21, C-20, C-37, C-32, C-40)*, for additional mission planning guidance.

17.2. Not used.

17.3. Tactical Airland Checklists. Amplified checklists applicable to airland operations are posted on the AMC/A3V web site. In the absence of specific directives, the Combat Entry Checklist is initiated prior to entering the threat environment. The Combat Entry Point is determined by theater guidance or known/suspected weapons engagement zone (WEZ). In the absence of more specific directives, initiate this checklist no later than 30 minutes prior to entering the threat environment. If the aircraft will depart an airfield within a threat environment, or will enter the threat environment within 1 hour after takeoff, the checklist should be run prior to the line-up checklist. The Combat Exit Point is determined by theater OPORD/SPINS guidance or known/suspected WEZ. Follow MAJCOM guidance for posting checklist. This checklist may be placed in a MAJCOM approved flimsy.

17.4. Not used.

17.5. Not Used.

17.6. Not Used.

17.7. Approaches. Refer to AFTTP 3-3.38A for tactical approach techniques. Where multiple options are available, select the approach which best minimizes exposure to the threat while still allowing a high probability of landing on the first approach. Remain unpredictable.

17.7.1. The tactical procedures and restrictions described below are detailed in AFTTP 3-3.38A and AFTTP 3-1.38. Accomplish all flight maneuvers with strict adherence to aircraft limitations as defined in T.O. 1C-21A-1 and this volume. Do not attempt any tactical maneuver that is not specifically mentioned in this publication without MAJCOM/A3/DO approval.

17.7.1.1. Plan on intercepting the normal glide path no later than 1/2 mile prior to the landing runway, approximately 150 ft AGL. Normally, plan not to exceed 30° of bank when configured with flaps and/or gear. If greater bank angles are planned, do not exceed 45° of bank and compute stall speed for weight, configuration, and bank angle to be flown. Fly no slower than 1.3 times the stall speed for a given configuration.

17.7.1.2. Although the FLAPS UP/PARTIAL FLAP LANDING checklist is in the emergency procedures pages of T.O. 1C-21A-1 and T.O. 1C-21A-1CL-1, *Pilot's*

Abbreviated Flight Crew Checklist, it is not considered an emergency to fly a partial or no flap landing for tactical or other (i.e. wind shear, etc.) non-emergency operational considerations. This includes flying a partial or no flap landing for training.

17.7.1.2.1. When performing a partial or no flap landing for training, tactical or other non-emergency operational considerations, ensure the FLAPS UP/PARTIAL FLAP LANDING checklist is accomplished prior to beginning the BEFORE LANDING checklist.

17.7.1.3. The normal overhead pattern is not considered a tactical approach and may be flown at night and/or with passengers onboard.

17.8. Arrival Procedures. Consult AFTTP 3-3.38A and AFTTP 3-1.38 for specific descriptions of the maneuvers listed in Table 17.1 below.

17.8.1. Flight testing shows the best tactic for the C-21 is to fly at night. A night approach with no exterior lights illuminated and all passenger cabin shades closed renders the C-21 virtually undetectable, even when flying a normal instrument approach.

17.8.1.1. Not Used.

17.8.1.2. Night tactics training is permitted with the landing lights turned off. All other exterior lights, including the Recognition Light, must be on during night tactics training IAW AFI 11-202V3.

17.8.1.2.1. When flying a tactical approach with the landing lights turned off, the landing lights must be turned on when landing is assured. This applies to both training and operational missions.

17.8.2. Passengers are not permitted when performing tactical maneuvers for training or currency. This restriction does not preclude performing tactical training maneuvers for currency or semi-annual training requirements on operational missions when no passengers are onboard (i.e. position/deposition legs).

17.8.2.1. When performing tactical maneuvers for currency or semi-annual training on operational missions, both pilots must be certified and current in tactical maneuvers.

Table 17.1. Tactical Arrival Procedures and Restrictions.

Approach Type	Training Restrictions	Operational Restrictions
Tactical Slowdown Maneuver	VMC Day or Night	VMC Day or Night
Low Altitude Tactical Straight-In Approach	VMC Day Only	VMC Day Only
Random Steep Approach	VMC Day or Night	VMC Day or Night
Tactical Downwind and Tactical Base Approach	VMC Day or Night	VMC Day or Night

High Altitude Tactical Straight-In Approach	VMC Day or Night	VMC Day or Night
Tactical Instrument Approach	Same as normal IFR instrument procedures training	Same as normal IFR operations

17.9. Not Used.

17.10. Departures. Consult AFTTP 3-3.38A and AFTTP 3-1.38 for specific descriptions of the maneuvers listed in Table 17.2 below.

17.10.1. Flight testing shows the best tactic for the C-21 is to fly at night. A night departure with no exterior lights illuminated and all passenger cabin shades closed renders the C-21 virtually undetectable, even when flying a normal instrument departure.

17.10.2. The landing lights must be turned on for all takeoffs, for both training and operational missions.

17.10.3. Passengers are not permitted when performing tactical maneuvers for training or currency. This restriction does not preclude performing tactical training maneuvers for currency or semi-annual training requirements on operational missions when no passengers are onboard (i.e. position/deposition legs).

17.10.3.1. When performing tactical maneuvers for currency or semi-annual training on operational missions, both pilots must be certified and current in tactical maneuvers.

Table 17.2. Tactical Departure Procedures and Restrictions.

Departure Type	**Training Restrictions**	**Operational Restrictions**
Tactical Random Departure	VMC Day Only	VMC Day Only
Spiral-Up Departure	VMC Day or Night	VMC Day or Night

Chapter 18

AIRCRAFT FORMATION

18.1. Not used.

Chapter 19

AIRDROP

19.1. Not used.

Chapter 20

AEROMEDICAL EVACUATION

20.1. Not Used.

20.1.1. This chapter applies to Air Force C-21 Aircrews, AE Aircrews and all management levels concerned with operations of the C-21 aircraft. All operators involved in AE missions on C-21 aircraft will use this AFI.

20.1.2. C-21 aircraft may be used for AE transport of ill or injured DOD members and their dependents. These AE missions may be directed at any time by C2 agencies. AE personnel will utilize the procedures in applicable AFI 11-2AE-V3 series and 41-307, in conjunction with this publication, to accomplish the AE mission.

20.2. Operational Control and Reporting of Aeromedical Evacuation Forces.

20.2.1. HQ AMC is lead command for AE. HQ AMC Directorate of Operations (AMC/A3) is the executive agent for operational AE missions.

20.2.2. Command and control of AE missions is the same as other airlift missions.

20.2.3. The PIC is a qualified pilot responsible for command and control of all persons aboard the aircraft during an AE mission. In matters of flight safety, crew duty waivers, or operational considerations, his/her decisions are final. In matters of patient care, decisions of the Medical Crew Director (MCD) are final.

20.2.4. Medical Crew Director. The MCD is a qualified flight nurse responsible for the overall supervision of patient care and management of AECMs assigned to AE missions. He/she advises the PIC on patients' conditions and the use of medical equipment that may affect aircraft operations. The MCD is directly responsible for the safety and medical well-being of patients on the aircraft and coordinates enplaning and deplaning procedures with supporting agencies. In matters of patient care, the decisions of the MCD are final.

20.3. Alerting Procedures.

20.3.1. At all locations AMC C2 agency will alert the PIC/MCD. The MCD will alert the medical crew. The goal is to link the primary PIC, local AMC C2 agency and MCD before mission execution.

20.3.2. When the AE crew is staged separate from the front-end crew, the MCD will contact AMC local C2 agency and establish alert, showtime, etc. with the C2 agency. The MCD will make every effort to communicate with the front-end crew any mission irregularities prior to crew rest. Utilize local AMC C2 agency to leave messages for non-emergency. Crew rest will be based on scheduled launch time. Do not violate crew rest.

20.3.3. The local AMC C2 agency will provide PIC/MCD AE mission information when he/she checks on mission status. Local C2 agency will be the link between the AE crews and the PIC, thus permitting mission status updates to both parties without interruption of crew rest.

20.3.4. AE mission requirements can change depending on clinical status of patient(s) and aircraft availability. There will be occasions when aircraft cannot depart (i.e. MX problems)

or emergency patient movement that may separate an AE crew from the front-end crew. The MCD is responsible for communicating these changes with the PIC and local AMC C2 agency to de-conflict problems.

20.4. Pilot in Command Responsibilities.

20.4.1. Establish communication link with the MCD during pre-mission planning and throughout the mission.

20.4.2. Brief the AE crew on the mission, flight plan, flight profile, and current threat (as applicable).

20.4.3. The PIC will fully integrate front-end and Aeromedical Evacuation Crew Members (AECM) into single crew through the entire mission to include en route transportation, dining, billeting, etc.

20.4.4. Coordinate with MCD and C2 agencies for cabin altitude/flight restrictions based on patient requirements.

20.4.5. For missions with combined cargo and patients, coordinate with the MCD for loading, positioning, and egress considerations.

20.4.6. Comply with hazardous cargo/passenger restrictions in AFI 24-101, *Passenger Movement.*

20.4.7. Advise AECMs of intentions to start engines, taxi, itinerary changes, in-flight difficulties, and additional responsibilities of the flight crew.

20.4.8. Transmit load messages and radio transmissions to tasking AE C2 agency as requested by the MCD.

20.4.9. Brief the MCD on additional responsibilities of the flight crew.

20.5. Flight Crew Responsibilities:

20.5.1. Assist the AE crew with aircraft systems.

20.5.2. Coordinate emergency evacuation plan with the MCD.

20.5.3. Operate aircraft systems, (i.e. doors, ramps, emergency exits, etc).

20.5.4. Assist the AE crew as necessary, providing such assistance does not interfere with primary duties.

20.5.5. Operate galley and prepare food and beverages for food service provided to patients by AECMs.

20.5.6. Assist with aircraft configuration for AE operations.

20.5.7. The CMT is responsible for medical vehicle movement/positioning around the aircraft. Coordinate vehicle movement/enplaning/deplaning/ERO requirements with the Charge Medical Technician (CMT).

20.6. Aeromedical Evacuation Crew Responsibilities:

20.6.1. Responsible for patient clinical care activities including loading, positioning, and offloading.

20.6.2. Assist loadmaster/maintenance crew with aircraft configuration for AE operations.

20.6.3. Install and remove medical equipment/supplies.

20.6.4. The MCD or designated AECM should monitor interphone (headset) during flight. The MCD will be on headset with the PIC during critical phases of flight and during in-flight emergencies.

20.6.5. The CMT is responsible for all ground operations involved with patients. The CMT, in coordination with the loadmaster, is responsible for vehicle movement/positioning around the aircraft.

20.7. Ground Operations.

20.7.1. Engines should be shut down during enplaning and deplaning of patients.

20.8. Refueling Operations.

20.8.1. Refueling normally begins after deplaning patients are off the aircraft and prior to enplaning that station's patients.

20.8.1.1. Simultaneous fuel and oxygen servicing is not authorized.

20.8.2. Concurrent Ground Operations. Concurrent servicing (CS) is the simultaneous servicing of fuel or oxygen with or without patients on board while cargo loading/unloading or maintenance operations are being performed.

20.8.2.1. The PIC and Chief Servicing Supervisor (CSS) shall ensure aircrew members and servicing personnel accomplish Concurrent Servicing (CS) per AFI 32-2001 The Fire Protection Operations and Fire Prevention Program and TO 00-25-172. The CSS will coordinate with all personnel involved prior to beginning concurrent operations.

20.8.2.2. Prior to starting concurrent servicing, the total number of patients, passengers, and crew on board the aircraft will be given to the fire department.

20.8.2.3. A current and qualified crewmember for the type of aircraft being serviced will be appointed as a Passenger Compartment Monitor (PCM) and shall continuously monitor patients/passengers during CS. PCMs will not perform other duties during servicing.

20.8.2.4. The PCM will brief patients on emergency egress, exit prohibitions, and hazards. Ambulatory patients will remain seated but will not wear seatbelts during CS. When possible, the PCM should conduct the briefing prior to servicing.

20.8.2.5. Loading ramps/stairs are in place for immediate use and exits (excluding the overhead escape hatches) are opened for egress.

20.8.2.6. At least two qualified AECMs (one must be a FN) will remain onboard to observe patients and assist patients in the event of an egress.

20.8.2.7. The PIC, designated aircrew representative, or CSS will advise PCMs and AECMs when to evacuate patients.

20.8.2.8. Patients will not enter or exit the aircraft during servicing. Crewmembers may enter or exit the aircraft only when performing essential duties associated with the

concurrent servicing operation. Individuals must properly ground themselves before boarding the aircraft.

20.8.2.9. If cabin lights, electrical power to operate medical equipment and aircraft interphone are operating prior to refueling, use may be continued during servicing operations provided it does not radiate energy. (Do not turn electronic equipment on or off during refueling.) ***EXCEPTION*:** Only those systems, switches or electrical circuits needed to operate equipment to sustain life, may be turned on and used during refueling.

20.8.2.10. Activities around the aircraft will be kept to a minimum during the refueling process. Onload/Offload patient and passenger baggage prior to or after refueling.

20.8.2.11. The PCM will set the interior lighting as bright as possible to suit the combat environment.

20.8.2.12. Do not use the on board toilet facilities during servicing.

20.8.3. CS on the C-21 is only recommended:

20.8.3.1. If moving a critical patient would increase risk by an additional move off and back on the aircraft, or

20.8.3.2. If there is no suitable location on the airfield to house the patient during the refueling, or

20.8.3.3. If no suitable transportation (ambulance) is available to move the patient from the aircraft, or

20.8.3.4. If the patient would be exposed to inclement weather.

20.8.4. The aircraft door will be open during all phases of the refueling operation if patients remain onboard. External power may be applied and cockpit aeromed switches may be placed to the ON position prior to the start of refueling operations. However, medical life support equipment can still operate with all aircraft power removed during refueling operations.

20.8.5. As an additional safety measure, the PIC will ensure a fire truck is near the aircraft before commencing concurrent refueling and one C-21 pilot must remain at the aircraft at all times during the refueling. Stable, ambulatory patients will routinely be deplaned prior to refueling if there is a suitable area to provide them shelter.

20.9. Aircraft Configuration.

20.9.1. On dedicated AE missions, configure the aircraft during pre-flight.

20.9.2. Litter Support Provisions.

20.9.2.1. Load planning will be according to theater guidelines for C-21 aircraft.

20.9.2.2. For patient transportation procedures refer to AFI 11-2AE V3 Addenda A.

20.9.3. Available litter spaces and ambulatory seating will depend on the aircraft cabin's mission configuration.

20.9.4. 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 Patient Therapeutic Liquid Oxygen (PTLOX) system or compressed oxygen cylinder.

20.9.5. Integral patient/passenger emergency oxygen is not available on the aircraft. In the event of an emergency, patients and passengers will use the Emergency Passenger Oxygen System (EPOS).

20.9.6. AECMs will have portable oxygen available. A MA-1 walk-around bottle satisfies the AECM oxygen requirement for pre-planned flights above FL350. The EPOS or EEBD can be used for preplanned flights below FL350 as a primary oxygen source.

20.9.7. Do not secure aircraft or medical equipment adjacent to an emergency exit in a manner that will prevent or impede egress.

20.9.8. Life Preservers. Use the Adult/Child life preserver for litter patients.

20.10. Passengers and Cargo.

20.10.1. The PIC, 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. The PIC will advise the appropriate C2 agency of the number seats available for passengers.

20.10.2. Cargo and passengers may be carried with patients unless a clear detriment to the health and well being of the patient or passengers can be demonstrated. The decision will be made by the MCD, considering the need for maximum utilization of the aircraft. Refer to AFMAN 24-204, *Preparing Hazardous Materials for Air Shipments* for hazardous product special provisions rating. P4 and P5 rated hazardous material have no AE restrictions. Conflicts will be referred to the respective tasking AE command element for decision. Litter patients will be positioned forward of cargo pallets. ***EXCEPTION:*** If cargo is in place, and the PIC and MCD agree, patients may be transported aft of the cargo. The MCD will ensure patient egress is not affected by mixed cargo/patient loads.

20.10.3. Cargo will not be bumped except in unusual/abnormal cases, and only after the MCD has coordinated with the PIC and notified the tasking AE command element.

20.10.4. Do not move ambulatory patients to litters in order to provide seating for additional patients or passengers.

20.10.5. Patient Therapeutic Liquid Oxygen (PT LOX) may be transported for positioning and de-positioning AE Crews. A maximum of 25 PTLOX serviced units may be transported simultaneously without Hazmat certification. Processing through aerial port is not required. If shipping more than six PTLOX containers as cargo, do not cover with plastic. This will prevent potential high concentration of oxygen levels. ***WARNING*:** Ensure the cargo floor is free from any oil or petroleum products.

20.10.6. AE Movement of Contaminated/Contagious Personnel. It is United States Transportation Command (USTRANSCOM) policy that patients personnel, or casualties with known or suspected contamination from chemical, biological, or nuclear warfare agents will not be transported within the aeromedical patient movement system. Decontamination must be performed prior to transport to prevent the potential spread of contamination. In rare cases, transport may be essential to preserve life or continue critical missions. If such transport is deemed essential, all efforts must be made to prevent the spread of

contamination. In these cases, prior approval must be given by the involved geographic combatant commanders, Commander USTRANSCOM, and the Secretary of Defense (SECDEF) in consultation with Department of Defense medical authorities.

20.10.6.1. Patients with known or suspected or highly contagious disease will not be transported within the patient movement system. These include infections with any agent that may pose a potential threat to national security, require special public health actions, and/or have the potential to cause public panic and social disruption. Patients known or suspected to be infected with a highly contagious disease should be treated "in place" or with minimal transportation to medical authorities. In extreme circumstances there may be a requirement to move index cases (approximately two) for evaluation or critical medical care. If patient movement is required, prior approval must be given by the involved geographic combatant commanders, Commander USTRANSCOM, and SECDEF in consultation with medical authorities.

20.10.6.2. AMC will train and equip AE crews and stage required equipment at key hubs to carry out these limited missions for movement of contaminated and contagious patients. ***NOTE:*** If AECMs are utilizing the MCU-2A ground chemical mask, a FL below 10,000 feet is recommended due to reported valve failure during rapid decompression.

20.11. Crash/Fire/Rescue.

20.11.1. Aircraft carrying patient(s) will be provided CFR protection per TO 00-25-172. When concurrent fuel servicing with patients/passengers on board a major aircraft rescue and fire vehicle will be available to respond within three minutes or as determined by the base Fire Chief. ***NOTE***: When servicing with JP-4 or Jet B Fuel, a major aircraft rescue and fire vehicle will be positioned at the aircraft. The flight crew will coordinate CFR requirements.

20.11.2. 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.

20.12. AE Call Sign/Use of Priority Clearance. If a medical emergency occurs during flight, and is determined by the MCD to be an urgent situation, a request for AIR EVAC Priority will be requested. The PIC may request "AIR EVAC priority" for preferential ATC handling if a delay will affect a patient's well being. AIR EVAC priority will only be used for that portion of the flight requiring expedited handling. Do not request priority for routine air evacuations to avoid ATC delays or inconveniences. It is the PIC's responsibility to use this option only for bona fide medical situations that demand priority handling. Use this status judiciously.

20.13. Load Message.

20.13.1. The MCD will complete an AF Form 3858, C-130/C-141 Aeromedical Evacuation Mission Offload Message and coordinate for transmission of patient information to C2 a minimum of 30 minutes prior to estimated time of arrival.

20.14. Patient Death In-Flight.

20.14.1. If 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 overflown (mission requirements allowing). Coordination with command and control is essential.

20.15. SPECTRUM 500-LP (Military Version) Model 2500 US. The Spectrum 500 LP is the current unit approved for use on C-21 aeromedical evacuation missions. The litter system has self-contained oxygen, vacuum, compressed air, electrical power and an overhead light. This unit plugs directly into aircraft power. The aircraft manufacturer will normally install the SPECTRUM on the right side of the aircraft with the closet removed.

20.15.1. Specifications.

20.15.1.1. Bench Length: 75" (190.5cm) [including end mounts]

20.15.1.2. Width: 17" (43.25cm)

20.15.1.3. Height: 10.5" (26.67cm) to top of bench

20.15.1.4. Standard Unit Weight: 150 lbs. (68.04kgs)

20.15.1.5. Air Pump Capacity: 11.89 Lpm @ 42 psi [4.0Amps 4.3 lbs (1.95kgs)]

20.15.1.6. Vacuum Pump: 10.47 Lpm @ 15 in. hg. [2.5Amps 4.3lbs (1.95kgs)]

20.15.1.7. Power Required: 28VDC Aircraft electrical power (45.5 Total Amps.)

20.15.1.8. Electrical Supply: (2) 115 volt AC duplex receptacles, (1) 7.5Amp 28 volt DC receptacle

20.15.1.9. Dual 350 watt, 115 volt 15.6 Amp AC Inverters 4.8lbs. (2.177kgs)

20.15.1.10. Oxygen Supply: 3,500 L.

20.15.1.11. Dual Pneumatics

20.15.1.12. Mobile Overhead Pneumatics

20.15.1.13. Supply Outlets: Oxygen, Air, Vacuum

20.15.1.14. IV mounts (4)

20.15.1.15. IV Pole

20.16. Loading Instructions for Neonatal Transport System (NTS) onto SPECTRUM.

20.16.1. Ensure all loading crew members, including pilot, are briefed and fully understand loading procedures and individual responsibilities.

20.16.2. NTS must be the sled unit. Ensure NTS sled unit is strapped in place, on support gurney.

20.16.3. Loading may require five individuals: one aircrew member to guide unit from inside the aircraft, and four individuals to slowly slide unit up ramp from outside aircraft (three will usually be the NCCAT team, plus an ambulance or flight crew member). The aircraft will be prepared with the SPECTRUM-specific loading ramp placed into the appropriate location with bolt in front of ramp inserted into hole at head of the SPECTRUM base unit. Ensure the ramp is angled such that it does not touch the sides of the doorway, and does not contact the toilet in front of the SPECTRUM unit.

20.16.4. If available, the triangular ramp extension should be secured to SPECTRUM unit and ramp, extending toward the seat directly across from SPECTRUM unit.

20.16.5. Remove seat cushions from forward left passenger seat.

20.16.6. The legs of the ramp must be placed into the steel support stand. The ramp should be in the high position (the height is adjustable), such that it is similar in height to the gurney at full-up position. The gurney is wheeled into place, with the monitors of the NTS facing toward the rear of the plane (the rubber wheel will be at the front left when the gurney is pulled up to the ramp).

20.16.7. Release the support straps of the sled to the gurney.

20.16.8. The four members of the team will slowly advance the sled up the ramp. The gurney may be pulled away when the sled is completely on the ramp. The two members closest to the cabin door will exercise caution not to damage the doorframe and left, forward seat armrest when loading. The flight crewmember on-board must be obeyed for changes in tempo of loading (this will minimize chance of damaging the far inside wall).

20.16.9. Once stabilized on the ramp, the aft left loading crew member will follow the aft end of the NTS into the aircraft to help guide the unit in and lock into the base.

20.16.10. The flight crewmember will ensure that the sled angles onto the base unit as it advances.

20.16.11. The remaining outside member and loading crew member mentioned in step 9 will remove the ramp and supplement lateral support after the NTS sled is securely on the base unit.

20.16.12. The sled should now be secured to the base unit by the spring loaded metal plate mechanism on each end.

20.16.13. The power cord should be inserted into the spectrum power outlet.

20.16.14. When entire team is loaded, have ramp and lateral stabilizer supplement up and placed on board for use at next stop.

20.16.15. For deplaning NTS, reverse the steps as appropriate.

20.17. DELETED

20.18. DELETED

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DCS, Operations, Plans and Requirements

Attachment 1

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Abbreviations and Acronyms

A/C—Aircraft

ACDE—Aircrew Chemical Operations and Procedures

ACF—Acceptance Check Flight

ACM—Additional Crew Member

AE—Aeromedical Evacuation

AECM—Aeromedical Evacuation Crew Member

AFCS—Automatic Flight Control System

AFRC—Air Force Reserve Component

AFVA—Air Force Visual Aid

AGL—Above Ground Level

AMC—Air Mobility Command

AMCC—Air Mobility Control Center

ANG—Air National Guard

AOA—Angle of Attack

ASRR—Airfield Suitability and Restrictions Report

ATC—Air Traffic Control

AUX—Auxiliary

BARO—Barometric

BASH—Bird Aircraft Strike Hazard

BCN—Beacon

BDHI—Bearing Distance Heading Indicator

BRNAV— Basic Area Navigation

C2—Command and Control

C2IPS—Command and Control Information Processing System

CAT I—Category I Approach

CAT II—Category II Approach

CB—Circuit Breaker

CCA—Contamination Control Area

CDT—Crew Duty Time

CECR—Crew Enhancement Crew Rest

CFL—Critical Field Length

CFP—Computer Flight Plan

CG—Center of Gravity

COMSEC—Communications Security

CGR—Contingency Response Group

CVR—Cockpit Voice Recorder

CW—Chemical Warfare

DH—Decision Height

DME—Distance Measuring Equipment

DTD—Data Transfer Device

EMCON—Emission Control

ERO—Engine Running On/Offload

ETA—Estimated Time of Arrival

ETD—Estimated Time of Departure

ETE—Estimated Time En route

ETIC—Estimated Time in Commission

ETP—Equal Time Point

FAF—Final Approach Fix

FCB—Flight Crew Bulletin

FCC—Flight Control Computer

FCF—Functional Check Flight

FDP—Flight Duty Period

FIR—Flight Information Region

FMC—Full Mission Capable

FMS—Flight Management System

FOD—Foreign Object Damage

G/S—Glide Slope

GDSS—Global Decision Support System

GMT—Greenwich Mean Time

GPS—Global Positioning System

GPWS—Ground Proximity Warning System

GS—Ground Speed

HATR—Hazardous Air Traffic Report

HDG—Heading

HF—High Frequency

HFGCS— High Frequency Global Communications System

HQ—Have Quick

IAS—Indicated Airspeed

IAW—In Accordance With

ICAO—International Civil Aviation Organization

ICS—Infant Car Seat

IFF—Identification Friend or Foe

IFR—Instrument Flight Rules

ILS—Instrument Landing System

IMC—Instrument Meteorological Condition

INOP—Inoperative

JOSAC—Joint Operational Support Airlift Center

KCAS—Knots Calibrated Airspeed

KIAS—Knots Indicated Airspeed

KTS—Knots

LNAV—Lateral Navigation

LOC—Localizer

LRC—Long Range Cruise

MACH—Mach Number

MAF—Mobility Air Forces

MAX—Maximum Thrust

MC—Mission Capable

MCD—Medical Crew Director

MCT—Maximum Continuous Thrust

MDA—Minimum Descent Altitude

ME—Mission Essential

MEL—Minimum Equipment List

MFC—Multifunction Control

MFD—Multifunction Display

MNPS—Minimum Navigation Performance Specification

MDS—Mission Design Series (e.g., C−21)

MSL—Mean Sea Level

NAF—Numbered Air Force

NDB—Non Directional Beacon

NM—Nautical Mile

NMR—Non-Mission Ready

NOTAMS—Notice to Airmen

OAT—Outside Air Temperature

OEI—One Engine Inoperative

ORM—Operational Risk Management

OST—Off-Station Trainer

PF—Pilot Flying

PFD—Primary Flight Display

PIC—Pilot in Command

PM—Pilot Monitoring

PMCR—Post Mission Crew Rest

PPR—Prior Permission Required

RA/BA—Radar Altitude/Barometric Altitude

RAT—Ram Air Turbine

RCR—Runway Condition Reading

RNAV—Area Navigation

RNP—Required Navigation Performance

RRFL—Required Ramp Fuel Load

RSC—Runway Surface Condition

RVSM—Reduced Vertical Separation Minimums

SAAM—Special Assignment Airlift Mission

SATCOM—Satellite Communications

SID—Standard Instrument Departure

SIGMET—Significant Meteorological Information

TAWS—Terrain Awareness Warning System

TCAS—Traffic Collision Avoidance System

TOLD—Take off and Landing Data

VMC—Visual Meteorological Conditions

VNAV—Vertical Navigation

WAP—Warning and Caution Annunciation Panel

X−FEED—Crossfeed

XFER—Transfer

XMIT—Transmit

ZFW—Zero Fuel Weight

Terms

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 Crew member (AECM)—Qualified Flight Nurse (FN) and Aeromedical Evacuation Technician 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.

Air Force Component Commander—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 Reserve Component (AFRC)—Refers to Air National Guard and Air Force Reserve Command forces, both Associate and Unit Equipped.

Airfield Suitability and Restrictions report (ASRR)—A quarterly publication published by HQ AMC/A36AS, to establish airfield suitability and restrictions for AMC and AMC-gained C-5, C-9, KC-10, C-17, C-21, C-130, KC-135, and C-141 aircraft operations. GDSS/GDSS2

provides the most up to date information available. Others use as information only, or as directed by assigned MAJCOM.

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 Division (AMD)—One of five divisions of the AOC, the AMD integrates and supports air mobility missions. They coordinate with the JFC, theater AMOCC (if established) and TACC in planning, tasking, and executing theater air mobility missions.

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 provided by an appropriate authority to promote the safe, orderly and expeditious use of the air transportation system and to maximize airspace utility.

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.

Allowable Cabin Load—The maximum payload which can be carried on an individual sortie. Also called ACL.

Base Station—A functional AFMSS station with one or more work stations normally located in a tactics office or base operations facility. The base station is air transportable to forward operating environments. The most common configuration is a dual station unit.

Basic RNAV (BRNAV)—BRNAV is defined as RNAV that meets a track keeping accuracy equal to or better than +/- 5 NM for 95% of the flight time. This value includes signal source error, airborne receiver error, display system error, and flight technical error. This navigation performance assumes the necessary coverage provided by satellite or ground based navigation aids are available for the intended route to be flown.

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, and the dependents of both categories who travel in connection with the death of an immediate family member. It also applies to designated escorts for dependents of deceased military members. Furthermore, the term is used to designate the personal property shipment of a deceased member.

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 segment on which the position of the aircraft cannot be accurately determined by the overhead crossing of a radio aid at least once each hour with positive course guidance between such radio aids. This is designated on the ACFP by the plus (+) or ampersand (&) symbol.

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.

Charge Medical Technician—AET responsible for ensuring completion of enlisted aeromedical crew duties.

Chart Update Manual (CHUM)—Manual issued each March and September (with monthly supplements) to update maps/charts with new information. It may reflect temporary or permanent information pending the next chart/map release. Manual issued each March and September (with monthly supplements) to update maps/charts with new information. It may reflect temporary or permanent information pending the next chart/map release.

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)—The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called C2.

Command and Control Center—Each C2 Agency provides supervision, guidance, and control within its assigned area of responsibility. For the purpose of this AFI, C^2 Agencies 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), Air Mobility Division (AMD), Wing Operations Center (WOC), and TALCE. Interfaces to and automatically updates the Global Decision Support System (GDSS).

Commander Support Mission (CSM)—DV mission supporting combatant, Unified and Sub-unified commanders in four star positions**.** CSMO are authorized HQ AF/CVAM support**.**

CONFERENCE SKYHOOK—Communication conference available to help aircrews solve inflight problems that require additional expertise.

Contingency Fuel—Identified extra to compensate for unforeseen circumstances during any phase of flight (i.e. unforecasted weather, launch delay, etc).

Contingency Mission—Mission operated in direct support of an OPORD, OPLAN, disaster, or emergency.

Critical Phase Of Flight—Takeoff, approach, and landing.

CVAM (Special Air Mission Office)—Agency within the office of the USAF Vice Chief of Staff responsible for scheduling and committing all Air Force airlift requirements to support the White House or any other executive branch of the government. This office is the single coordinating agent for the SAM/CSM/DVG aircraft fleet and schedules SAM/CSM

DCS Courier—Members of the U.S. Armed Forces or civilian employees assigned to the DCS, who have completed the DCS Training School and are qualified as couriers by the Commander, DCS. DCS couriers are identified by DCS Form 9 credential sets issued by the DCS.

Deadhead Time—Duty time for crew members positioning or depositioning for a mission or mission support function.

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 and can be designated only with the pilot in command's concurrence.

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. Notify controlling agency before takeoff to adjust the 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).

Digital Aeronautical Flight Information File (DAFIF)—Digitized FLIP data containing airport, runway, navigation aid, and enroute data. Contains both low and high altitude structures.

Digital Features Analysis Data (DFAD)—Selected natural and man-made features collected from photographic and cartographic sources.

Digital Terrain Elevation Data (DTED)—A matrix of terrain elevation values that provides landform, slope, elevation, and/or terrain roughness information.

Director, Mobility Forces (DIRMOBFOR)—COMAFFOR's and/or JFACC's designated coordinating authority for air mobility with all commands and agencies internal and external to the joint force. The DIRMOBFOR is normally a senior officer with an extensive background in air mobility operations and is familiar with the area of responsibility (AOR). The DIRMOBFOR provides mobility direction and guidance to the Air Mobility Division in the theater air and space operations center (AOC)

Distinguished Visitor (DV)—Passengers, including those of friendly nations, of 0-6 rank or equivalent status (or above), 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 aircrew 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 pilot in command 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.

Familiar Field—An airport in the local flying area at which unit assigned aircraft routinely perform transition training. Each operations group commander will designate familiar fields within their local flying area.

Firm Scheduled Return Time (FSRT)—Scheduling tool used by air mobility units to predict when crews will return to home station. FSRT for active duty and AFRC is defined as SRT plus 24 hours.

First Pilots—First pilots are highly experienced copilots who are qualified IAW volumes 1 and 2 of this instruction to taxi, takeoff, and land the aircraft from the left seat under the supervision of an aircraft commander-certified pilot.

Fuel Reserve—Amount of usable fuel that must be carried beyond that required to complete the flight as planned.

Geographic and Geodetic Coordinates—These numbers indicate locations on the surface of the earth. Technically, these two types of coordinates are the same. However, for mission

planners, Geographic has come to mean map−derived coordinates while Geodetic refers to mensurated or photo/survey−derived coordinates. Geodetic and geographic data must not be mixed during calculations.

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. See also medical treatment facility.

Global Positioning System (GPS)—This is a U.S. space-based positioning, velocity, and time system composed of space, control, and user elements. The space element, nominally is composed of 24 satellites in six orbital planes. The control element consists of five monitor stations, three ground antennas and a master control station. The user element consists of antennas and receiver processors that provide positioning, velocity, and precise timing to the user.

Ground Time—Interval between engine shut down (or arrival in the blocks if engine shutdown is not scheduled) and next takeoff time.

Hazardous Cargo or Materials—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.

High Frequency Global Communications System (HFGCS)—14 worldwide high power high frequency stations. Primary mission is to provide command and control voice and data support to aircraft. Aircraft can establish connect with use of callsign "Mainsail". JCS NOTAM ICAO is KGCS.

Home Station Departure—For the purposes of Chapter 4 of this instruction, home station departure refers to a flight duty period which begins at the unit’s home base and is planned to terminate at another location.

Instructor Supervision—Supervision by an instructor of like specialty. For critical phases of flight, the instructor must occupy one of the seats or stations, with immediate access to the controls.

Interfly—The exchange and/or substitution of aircrews and aircraft between Mobility Air Forces (MAF) including crew members and/or C-21 aircraft from ANG.

Joint Airborne/Air Transportability Training (JA/ATT)—Continuation and proficiency combat airlift training conducted in support of DoD agencies. Includes aircraft load training and

service school support. HQ AMC publishes JA/ATT taskings in AMC OPORD 17−76, annex C, appendix 1.

Joint Operational Support Airlift Center (JOSAC)—The single manager for scheduling all DoD's CONUS Operational Support Airlift (OSA) requirements. As part of USTRANSCOM's Operations and Logistics (J3) directorate, JOSAC performs consolidated scheduling of CONUS OSA aircraft. During peacetime, OSA missions provide support to DoD command, installation, and management functions while improving readiness and providing cost-effective training of aircrews. Wartime OSA missions move high priority passengers and cargo in direct support of combat or contingency operations.

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, boom or drogue, 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 a FN is not onboard, the senior AET will function as MCD.

Mission—1. The task, together with the purpose, that clearly indicates the action to be taken. 2. In common usage, especially when applied to lower military units, a duty assigned to an individual or unit; a task. 3. The dispatching of one or more aircraft to accomplish one particular task.

Mission Advisory—Message dispatched by command and control agencies, liaison officers, or pilots in command 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.

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 or cargo.

Operational Control (OPCON)—Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON.

Operational Missions—Missions executed at or above TACC level. Operational missions priority 1, 2, and 3 missions tasked by the TACC.

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.

Operational Support Airlift (OSA)—Movement of high priority passengers and cargo with time, place, or mission sensitive requirements.

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. Pilots in command 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 pilot in command for not complying with permit to proceed procedures.)

Point Of No Return—A point along an aircraft track beyond which its endurance will not permit return to its own or some other associated base on its own fuel supply.

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.

Pseudorange—The distance from the user to a satellite plus an unknown user clock offset distance. With four satellite signals it is possible to compute position and offset distance. If the user clock offset is known, three satellite signals would suffice to compute a position.

Receiver Autonomous Integrity Monitoring (RAIM)—A technique whereby a GPS receiver/processor monitors the GPS. This integrity determination is achieved by a consistency check among redundant measurements.

Required Ramp Fuel Load (RRFL)—Minimum fuel required at engine start to complete the mission.

Scheduled Return Time (SRT)—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 (except those on standby at home station) will have an SRT established on their flight orders.

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 Air Mission (SAM)—Presidential directed special missions. SAM missions are only accomplished by aircrews assigned to the 89th AW at Andrews AFB, MD. Also referred to as VIPSAM (Very Important Person Special Air Mission).

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.

Tactical Event—Threat avoidance approaches/departures.

Tanker Airlift Control Center (618 TACC)—Operations center that controls tanker and airlift forces worldwide through a network of computer systems. The 618 TACC is organized into geographic cells consisting of East, West, and Emergency Action Cells. The 618 TACC contains the following functions: Mobility Management, Global Channel Operations, Operations

Management, Current Operations, Global Readiness, Weather, Logistics Readiness Center, Aerial Port Control Center, International Clearances, and Flight Plans.

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.

Tanker Task Force (TTF)—Force of tanker aircraft assembled and tasked to perform a specific function.

Tankered Fuel—Additional fuel carried through a primary destination for use on a subsequent leg.

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 of 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 crew member concern when safety may be jeopardized.

Topographical Line Map (TLM)—A map scaled at 1 inch = 50,000 feet.

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.

Unilateral—Operations confined to a single service.

Unit Move—A mission airlifting military passengers or troops who originate from the same unit and onload point, are under the control of a designated troop commander, and offload at the same destination.

World Vector Shoreline (WVS)—A chart that displays shorelines, political boundaries, and country names only.

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.