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Flying Operations

KC-10 OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This volume implements AFPD 11-2, *Aircraft Rules and Procedures*. It establishes policy for the operation of KC-10 aircraft to safely and successfully accomplish their worldwide mobility missions. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force. This instruction applies to the Air Force Reserve Command (AFRC). This publication does not apply to the Air National Guard (ANG).

The privacy act of 1974 applies to certain information gathered pursuant to this instruction. The Privacy Act System Number F011 AF XO A, Air Force Operations Resource Management Systems (AFORMS) covers required information. The Paperwork Reduction Act of 1974 as amended in 1996 affects this instruction. Maintain and dispose of records created as a result of processes prescribed in this publication in accordance with AFMAN 37-139, *Records Disposition Schedule.*

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

Publications: AMCI 11-208, 21-101, AMCI 11-301, AMCR 76-1, AMCH 11-214 and AMCVA 36-2206.

Forms: AMC Forms 41, 43, 54, 97, 148, 181, and 196; and AF Forms 4031, 4069, 4076, 4080,

Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. This AFI provides guidelines for KC-10 operations and applies to KC-10 aircrews and all management levels concerned with operation of the KC-10. It is a compilation of information from aircraft flight manuals, FLIP publications, and other Air Force directives, as well as an original source document for many areas. Basic source directives have precedence in the case of any conflicts, revisions, and matters of interpretation. For those areas where this AFI is the source document, waiver authority will be in accordance with paragraph **1.4.1.** For those areas where this AFI repeats information contained in other source documents, waiver authority will be in accordance with these source documents.

1.1.2. All units and agencies involved in or supporting KC-10 operations will use this AFI. Copies will be current and available to planning staffs from headquarters to aircrew level. Transportation and base operations passenger manifesting agencies will also maintain a copy of this AFI.

1.2. Applicability. This AFI is applicable to all individuals/units operating KC-10 aircraft.

1.3. Key Words Explained.

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

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

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

1.3.4. **"NOTE"** indicates operating procedures, techniques, etc. that are considered essential to emphasize.

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

1.4.1. Unless otherwise directed in this AFI, waiver authority for the contents of this document is the AMC/DO (lead-command). Request for a long-term (permanent) waiver must be approved by the user's MAJCOM before AMC review. Request for short-term waiver for missions under TACC operational control; send all waiver requests directly through the TACC. See **Chapter 4**, waiver protocol for additional information.

EXCEPTION: Contingency missions. Waiver authority for contingency missions will be listed in the OPORD/Tasking ORDER, etc., or the DIRMOBFOR (or equivalent) for the agency with C2 of the aircraft. Crewmembers may request additional information or confirmation from their home units, TACC, or MAJCOM/DO.

1.5. Supplements. This AFI is a basic directive. Each MAJCOM or operational theater may supplement this AFI. These supplements will not be less restrictive than the basic document. MAJCOM/DOs initiate long-term waiver requests to the basic document. Specify long-term waiver approval authority, date, and expiration date in the appropriate MAJCOM supplement. Limit supplement information to unique requirements only.

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

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

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

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

1.7. Improvement Recommendations . Send comments and suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through channels to HQ AMC/DOV, 402 Scott Drive Unit 3A1, Scott AFB IL, 62225-5302 (DSN 576-5080 according to AFI 11-215, *Flight Manual Procedures* and MAJCOM Supplement.

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

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

Chapter 2

COMMAND AND CONTROL

2.1. General.

2.1.1. C2 of tanker and airlift forces is exercised through a network of C2 Centers. C2 Centers are executive agents for commanders exercising operational control over mobility forces. The C2 Center network consists of the AMC TACC, Theater Air Operations Centers (AOC), Air Mobility Elements (AME), Unit C2 Centers, Air Mobility Control Centers (AMCC), Tanker Airlift Control Elements (TALCE), Combat Control Teams (CCT), and the Pacific Air Force (PACAF) United States Air Forces in Europe (USAFE) Air Mobility Operation Control Centers (AMOCC).

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

2.2.1. Supplemental Training Mission (STM). Opportune airlift of cargo and mission personnel may be accomplished as a by-product of crew training missions. STMs may be authorized when minor adjustments can be made to a scheduled training mission or when a productive aircrew training mission can be generated for the airlift. The training mission will not be degraded in any manner to accomplish the STM. Use of STMs for logistical support will be authorized only when normal military or commercial transportation modes are unable to provide required support. The operations group commander with wing commander coordination may approve STMs. On STMs aircraft commanders will release maximum number of space available seats commensurate with mission requirements and safety.

2.2.2. Off Station Training Flights (OSTF). Wing Commanders are the approval authority for off station trainers. Prior to approval, commanders will carefully review each proposed trainer's itinerary to ensure it justifies and represents the best avenue for meeting training requirements. Commanders approving off station trainers will forward a copy of the planned itinerary to the appropriate NAF/DO, MAJCOM/DOT, and TACC/XOB no later than 10 days prior to departure.

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

2.3.1. In command of all persons aboard the aircraft.

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

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

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

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

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

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

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

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

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

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

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

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

2.6. Operational C2 Reporting. AMC C2 Centers will normally transmit arrival, departure, and advisory messages to the TACC as appropriate. Aircrews on AMC TACC controlled missions are responsible for transmitting these messages via L-Band SATCOM, HF, DSN, etc., when transiting stations without an AMC C2 (fixed or mobile) presence. Crews on missions not controlled by the AMC TACC will report to their appropriate controlling agency.

2.6.1. High Frequency (HF) Communications. HF is the primary means of worldwide C2 communications.

2.6.2. L-Band SATCOM. The L-Band SATCOM supplements HF communications by providing a worldwide communications capability suitable for *unclassified* C2 transmissions. Currently, messages can only be sent between aircraft and ground stations.

2.6.2.1. Employment. The L-Band SATCOM equipment aboard aircraft will be used as necessary except on local training missions and missions operating under emission control (EMCON) restrictions prohibiting its use. Limit SATCOM communications to operational traffic. The trans-

ceiver will be turned on during preflight and remain configured to receive messages at all times until aircraft power down at destination. The laptop computer will be turned off for takeoff, landing, and while operating below 10,000 feet. For missions operating through sensitive or classified locations disable GPS position reporting in the normal message software and, when available, the automatic position reporting function.

2.6.2.2. Responsibility for equipment and supplies. Aircraft laptop computers are high theft items and will not be left unsecured on the aircraft.

2.6.2.3. Home station. Operations groups will be responsible for storing, maintaining day-to-day control, and administrative accountability of computers. Laptops will be issued via hand receipt to aircrews prior to departure from home base.

2.6.2.4. En Route. When storing computers at en route locations, care must be taken to maintain original aircraft tail number and laptop computer match. Laptops may be secured aboard aircraft which have been modified with a suitable secure container (e.g. new gun box capable of holding weapons and computers), provided they will not be exposed to extreme temperatures (below -40 or above 149 degrees Fahrenheit). On aircraft lacking a suitable secure container or when temperature extremes cannot be avoided, computers will be stored in the command post or other suitable AMC C2 Center. At locations without an AMC C2 presence, crews should use their best judgment and store computers in the most secure facility or location available.

2.6.3. Staging operations. Aircrews and AMC C2 Centers will establish procedures to store and control the laptop computers. Control procedures should maintain original aircraft tail number and laptop computer match. Hand-to-hand crew transfer of the computer is the preferred method. If crew transfer is not possible, inbound crews will store the computer on the aircraft, if secure, and turn in the key to the AMC C2 Center before entering crew rest. If the aircraft lacks a secure container or if the temperature extremes (see paragraph **2.6.2.4.**) cannot be avoided, the computer will be stored by the AMC C2 Center. The AMC C2 Center will issue the key or computer, as applicable, to outbound crews ensuring the aircraft/computer match is maintained.

2.6.4. L-Band SATCOM Messages and Advisories. The aircrew can send messages by either choosing a pre-formatted template from a menu or composing a free-text message. The following L-Band SATCOM transmissions are required as indicated:

2.6.4.1. On station message. At the beginning of each crew duty day, transmit an on station message during the initial preflight to verify system operation and update TACC with estimated aircraft takeoff times and other mission data. Further on station messages during the same crew duty day are not required.

2.6.4.2. Inbound 3-hour out messages. At locations with a mobile TALCE presence, the inbound aircrew will send a 3-hour out report to the TALCE.

2.6.4.3. Advisories. Transmit (free-text messages) mission delay, in-flight refuel, off/on-load reports as required or directed.

NOTE:

The L-Band software acknowledged (A) status code indicates the message was received by the Land Earth Station (LES) and forwarded to TACC. The acknowledged code does not indicate the addressee

received the message. If a confirmation is required, specifically request a reply message in the remark field.

2.6.5. Stations Without C2 Center Agencies. Report movement information (actual time of departure [ATD], estimated time of departure [ETD], actual time of arrival [ATA], departure load data, delay information, etc.) directly to the AMC TACC (as appropriate) as soon as possible, by any means available. After takeoff, relay pertinent data to the appropriate C2 Center by any means available. L-Band SATCOM, when available, will be the preferred method for passing routine mission movement reports followed by HF, DSN, etc. The following L-Band SATCOM messages will be transmitted to fulfill mission reporting requirements:

2.6.5.1. Block out.

2.6.5.2. Departure message (Aircraft call sign, time of departure, mission status).

2.6.5.3. Arrival/Shutdown. This is currently a free text message. The arrival portion should contain arrival time and any other information the aircrew deems necessary to pass to the TACC. If the L-Band SATCOM system is to be shutdown (crew rest, refueling, mission complete, etc.), inform the TACC that the aircraft can no longer receive messages.

NOTE:

For critical C2 communications, i.e. aircraft waiver request, voice communications (HF, DSN, etc.) are still the primary method with L-Band SATCOM as a back up.

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

NOTE:

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

2.6.7. En Route Reporting. Full time connectivity between KC-10s and the TACC is desired. Adhere to the following procedures:

2.6.7.1. CONUS. C2 Center agencies may advise aircrews via the controlling ATC agency to establish contact when communication is needed. Refer to the flight information publication (FLIP) concerning global HF station procedures in contacting MAINSAIL. Periodic "ops normal" calls or continuous monitoring of L-Band SATCOM or global HF station frequencies are not normally required. TACC may specify increased reporting procedures.

2.6.7.2. OCONUS. TACC will specify increased reporting procedures (if needed) through a communications plan in the OPLAN, OPORD, FRAG, or Mission Directive. Aircrews will transmit L-Band messages or relay calls to global HF stations for relay to the controlling C2 Center as specified in the communications plan. Maintain listening watch on L-Band or US Global HF system as specified in the communications plan.

2.6.8. Tanker Air Refueling Report. On operational missions, provide the following information after completion of tanker AR. Under normal circumstances, send only one off-load message, completed

after the final AR for the mission. Under abnormal circumstances such as receiver diverts, unsuccessful AR, insufficient off-load, or anything else that impacts the over all success of the mission, a report is required as soon as practical.

2.6.8.1. Call sign.

2.6.8.2. Fuel off-loaded.

2.6.8.3. Mission status.

2.6.8.4. Next station.

2.6.8.5. ETA

2.6.9. Receiver Air Refueling Report (N/A local training missions which depart and arrive at home station). Report the air refueling information (in the standard format indicated below) to the destination AMC C2 Center (if available) after landing. If a local AMC command post is not available, contact TACC/XOC (HILDA control) via HF radio or via land line (1-800-AIR-MOBL). AMC C2 Centers will enter the information in the GDSS system for immediate retrieval. Include all scheduled air refuelings not accomplished. Use the following format:

2.6.9.1. AR Track.

2.6.9.2. Scheduled On-load.

2.6.9.3. Actual On-load.

2.6.9.4. Reason Code.

2.6.9.5. Additional Comments.

2.6.10. Reason Codes. Reason codes indicate the outcome of air refueling activity. Use Reason codes when a problem or situation affects the successful accomplishment of the air refueling. Crew should be prepared to provide a short synopsis of the factors impacting the air refueling.

2.6.10.1. RO - Receiver Operations.

2.6.10.2. RM - Receiver Maintenance.

2.6.10.3. RW - Receiver Weather.

2.6.10.4. TO - Tanker Operations.

2.6.10.5. TM - Tanker Maintenance.

2.6.10.6. TW - Tanker Weather.

2.6.10.7. AT - Air Traffic Control.

2.6.10.8. WEATHER - Air Refueling Track Adverse Weather.

2.6.10.9. AC - Air Refueling Complete

NOTE: Use reason code "AC" when air refueling was completed without delay or mission impact.

NOTE: Additional comments are mandatory for all reason codes except AT, WEATHER, and AC.

2.6.11. Arrival Advisory. Aircrews on operational missions transmit arrival advisory (via HF or L-Band SATCOM) to the destination C2 Center or, in the absence of a local C2 Center, to TACC when approximately 2-3 hours from destination. Furnish the following information:

2.6.11.1. Aircraft call sign.

2.6.11.2. Mission number.

2.6.11.3. ETB (estimated time in block).

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

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

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

2.6.12.1. Aircraft call sign.

2.6.12.2. Mission number.

2.6.12.3. ETB.

2.6.12.4. Maintenance status.

2.6.12.5. DV code and requirements.

2.6.12.6. Number of passengers.

2.6.12.7. Hazardous cargo and remote parking requirements.

2.6.12.8. Additional service required.

2.6.12.9. Number of pallets to be downloaded and number that are through manifested.

2.6.12.10. Passenger and pallet space and weight available for the next mission segment.

2.6.12.11. Fuel Requirements.

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

2.6.13. Maintenance Discrepancy Reporting. Aircrews on AMC missions transmit maintenance discrepancies (via VHF, UHF, HF, or L-Band SATCOM) to destination C2 Center or, in the absence of a local C2 Center, to the TACC as soon as possible. Crews should not wait until accomplishing the arrival message to call in this information.

2.7. Mission Commanders.

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

2.7.1.1. For AMC-tasked missions, TACC/XOO will coordinate and designate a lead planning agency when more than one tanker unit is involved in an AR operation. This planning agency is

responsible for coordinating the entire mission with all involved tanker, receiver, and planning agencies. The lead planning agency will designate the tanker mission commander. The mission commander will normally be the lead tanker aircraft commander for the entire mission.

2.7.1.2. For fighter movements, tasked units will coordinate the tanker support with the Air Combat Command (ACC) Air Operations Squadron (AOS) and provide tanker flight planning, based on the profile provided by the ACC AOS/AODX.

2.7.1.3. For all multi-ship refueling operations, tasked units will ensure an appropriate level of ground and flight supervision is provided for the entire mission. Emphasis should be placed on who is the overall airborne commander and subordinate commanders for each type aircraft in the operation.

2.7.2. For refueling missions, the agencies responsible for mission tasking will coordinate a mission commander for all phases of the mission and ensure all participating aircrews are briefed and advised of mission commander assignment.

2.7.3. During MAJCOM AOS planned movements, the tanker mission commander is the final authority responsible for ensuring tanker aircrews have properly coordinated mission details for the deployment according to AFI 11-207, *Flight Delivery of Fighter Aircraft*.

2.7.3.1. Prior to entering crew rest for the mission, the mission commander will coordinate with the lead planning agency and the appropriate MAJCOM AOS delivery control officer (DCO). During this coordination, the mission commander will review mission itinerary and receive points of contact for the receivers and tankers to include any tankers which are non-collocated.

2.7.3.2. The mission commander will ensure all collocated aircrews complete required mission and formation briefings. The mission commander and all tanker aircrew members will attend the appropriate MAJCOM AOS/DCO pre-takeoff briefing. The aircraft commander may excuse boom operators from required briefings if they are needed to upload/download cargo. Tanker specific information must be briefed in the pre-takeoff briefing to ensure all takeoff, formation, en route, AR, and recovery requirements are coordinated between tanker and receiver aircraft.

2.7.3.3. When non-collocated tankers and receivers are involved, the mission commander (in conjunction with the lead planning agency) will ensure all applicable information, to include rendezvous, formation, abort, and recovery procedures, is relayed to non-collocated aircrews. The mission commander will ensure the controlling agency and all non-collocated tankers and receivers are informed of all anticipated delays or mission changes.

2.8. DUAL ROLE Procedures.

2.8.1. DUAL ROLE missions are missions where both AR and airlift are provided to the user. Primary mission role is normally AR. Missions where cargo movement is primary require a dedicated funded special assignment airlift mission (SAAM).

2.8.2. A valid DUAL ROLE must satisfy the following:

2.8.2.1. The user must have a MAJCOM validated AR requirement. Validated requirement must be received by TACC/XOOK NLT 14 days prior to mission start date to ensure proper mission support.

2.8.2.2. The user must have a MAJCOM validated and TACC/XOB approved cargo requirement of at least six pallets of cargo, not including baggage.

2.8.3. Since the DUAL ROLE mission is primarily an AR mission, the AR requirement must be met first without regard to protecting ancillary cargo capability.

2.8.4. DUAL ROLE ancillary cargo capability is not contractual or guaranteed in any way. Additional tanker sorties or hours will not be expended to refuel the DUAL ROLE KC-10 (i.e. FORCE EXTENSION) solely for protecting ancillary cargo capability.

2.8.5. DUAL ROLE requests that require excessive KC-10 positioning or de-positioning time will not normally be supported unless effective KC-10 aircrew training can be accomplished on positioning and de-positioning legs.

NOTE. For AFRC missions, unit identified training needs should be considered in justifying positioning and de-positioning time. ***EXCEPTION***s may be granted by HQ AMC/DO, with recommendation of the TACC Commander, for missions that do not meet these criteria but reduce total fiscal cost, do not impact other tanker requirements, and present the most practical means available.

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

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

Chapter 3

CREW MANAGEMENT

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

EXCEPTION 1: Senior staff members who have completed a Senior Staff Familiarization course may occupy either pilot seat under direct IP supervision. These individuals will log "OP" for Flight Authorization Duty Code on the AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**.

EXCEPTION 2. CCTS may allow student pilots to accomplish tanker AR under instructor supervision (direct instructor supervision not required) provided the student pilot has completed a Phase 1A evaluation in the applicable training device and has been graded "qualified" in tanker AR by an Air Force evaluator. See AFI 11-2KC-10 Volume 1 for specific guidance.

NOTE:

Flight qualification training does not commence until the crew member has successfully completed both phase 1A training and an AFI 11-202 Volume 2 evaluation in the applicable aircrew training device.

3.1.1. Pilots:

3.1.1.1. Missions With Passengers. With passengers on board, takeoff, climb-out, flight under actual instrument conditions, either the pilot or the copilot may make approach, and landing. Only an pilot that is qualified (current and valid AF Form 8, **Certificate of Aircrew Qualification**) will occupy a pilot's seat with passengers onboard the aircraft. One of the following conditions must be met:

3.1.1.1.1. Two qualified (phase 1B complete) and current pilots must be at the controls.

3.1.1.1.2. A pilot regaining currency and an IP providing direct IP supervision must be at the controls.

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

3.1.1.3. Civilian employees under direct contract to the DoD and MAJCOM approved maintenance personnel engaged in official direct mission support activities are considered mission essential and may be onboard when touch-and-go landings are performed.

3.1.1.4. Left Seat Training. With squadron commander approval, current and qualified copilots may be allowed to fly in the left seat on local training missions provided they are under direct IP supervision and no passengers are carried. See AFI 11-2KC-10V1, paragraph 5.2.11. for additional guidance.

3.1.2. Flight Engineers and Boom Operators. Non-current or unqualified flight engineers or boom operators may perform in their primary crew position on any mission when supervised by a qualified instructor of like specialty (direct supervision for critical phases of flight).

3.2. Crew Complement. Minimum crew complement for basic and augmented flight duty period (FDP) are **Table 3.1.**

Table 3.1. KC-10 Crew Complement.

Crew Position	Basic	Augmented
Aircraft Commander	1	2
Copilot	1	1
Flight Engineer	1	2
Boom Operator	1 (1,2)	2 (3)

NOTES:

1. Two boom operators should be available for cargo operations.
2. When more than 31 people are onboard, an extra boom operator qualified to handle passengers, or an extra crew member knowledgeable in passenger procedures will be assigned to the mission.
3. For augmentation purposes, three boom operators will be available when the total of crew and passengers exceed 31 and multiple refuelings are anticipated.

3.2.1. Minimum crew members for local flights are the pilot, copilot, and flight engineer.

3.2.2. Augmented crews are required when a mission cannot be safely completed within a basic FDP. Augmentees must be current, qualified, and MR according to AFI 11-2KC-10, Volume 1. ***EXCEPTION***s: A NMR pilot may be used as an augmentee provided the other two pilots are fully qualified, MR instructor pilots. A NMR boom operator may be used as an augmentee if accompanied by two other fully qualified, MR boom operators (at least one must be an instructor). The NMR boom operator must be supervised by the instructor BO during all portions of the mission for which he/she is not fully qualified. In those situations requiring augmentation, the crew must be augmented from the start of the duty period. (AMC/DO approval is required for crew members to join the mission enroute for augmentation). If augmentees join the mission enroute, the crew's FDP will be computed based on the FDP of the most limited person.

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

3.3.1. When the maximum flying time limitations of AFI 11-202, Volume 3 will be exceeded.

3.3.2. After consuming alcoholic beverages within 12 hours of takeoff or when under the influence of alcohol. Do not takeoff early (prior to scheduled departure time) if the early takeoff time would violate this restriction.

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

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

3.3.5. When taking oral or injected medication unless individual medical waiver has been granted by the Command Surgeon. Crew members may not self medicate except IAW AFI 48-123, *Medical Examinations and Standards.*

3.3.6. The following is a partial list of medications, which may be used without medical consultation:

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

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

3.3.6.3. Antacids for mild isolated episodes of indigestion.

3.3.6.4. Hemorrhoidal suppositories.

3.3.6.5. Bismuth subsalicylate for mild cases of diarrhea.

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

3.3.7. Within 24 hours of compressed gas diving (including scuba), surface supplied diving, or hyperbaric (compression) chamber exposure and aircraft pressurization checks that exceed 10 minutes duration. Aircrew members who accomplish ground pressurization checks of less than 10 minutes duration are restricted from flying for 30 minutes.

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

3.4. Alerting Procedures.

3.4.1. Crew alerts will normally be 4+15 hours prior to scheduled takeoff time to allow 1 hour for reporting and 3+15 hours for mission preparation.

EXCEPTION: Crew alerts for local training sorties will normally be 3+15 prior to takeoff. Self-alert procedures may also be used for normal local training missions.

3.4.1.1. Self alerting may be requested by the aircraft commander, but is not normally recommended on operational missions to avoid potential crew duty limitations resulting from mission changes. Early alerting to provide additional reporting or mission preparation time is authorized when absolutely essential for mission accomplishment. Late alerting is also authorized; however, all requests for changes to standard alerting times must be coordinated through the appropriate C2 Center.

3.4.1.2. If no controlling C2 Center is available, crews will self-alert.

3.4.1.3. With aircraft commander approval, boom operators may be alerted early when loading requirements (i.e., outsized cargo and Dash 9 section VI cargo) dictate a need for early alerting but no more than 2 hours prior to the crew alert. If early alerting will be required, the boom operator must be notified of that intent prior to entering crew rest. In no case should the boom operator be alerted more than 1 hour prior to the commencement of actual cargo loading operations. Aircraft commander and C2 must consider that when the boom operator reports early, the available flight duty period for the crew will be limited by the boom operator's show time. The early legal for alert time also establishes the latest allowable alert time as specified in paragraph **3.4.4.2.**

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

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

3.4.4. Aircrew release policy is as follows:

3.4.4.1. On the aircrew's initial entry or reentry into crew rest, the controlling C2 Center will establish an expected alert time. The crew will not be alerted or otherwise disturbed before this time except for emergencies.

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

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

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

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

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

3.5. Stage Management.

3.5.1. Stage Posture. Stages operate on a directional basis. Alert sequence is as follows:

3.5.1.1. Crews requiring an emergency return to home station.

3.5.1.2. By the crew's SRT. Returning stage crews will be prioritized by their SRTs.

3.5.1.3. Crews in stage over 48 hours.

3.5.1.4. Crews in sequence of arrival time.

NOTE:

If a stage crew is forced to return to crew rest because of a mission delay or abort, that crew becomes first out when legal for alert.

3.5.2. Mechanical Stage. Mechanical stages may be established by the C2 Center where no crews are staged. The stage is created when a mission is delayed or aborted and the crew goes into crew rest. Mechanically staged crews become first out in the same direction when legal for alert. An inbound crew may be bumped from the mission even though they have sufficient duty time remaining to complete that mission.

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

NOTE:

CDT/FDP includes both military duty and civilian work. It begins when the individual reports for his or her first duty period (military or civilian) and ends at engine shutdown at the end of the mission or series of missions.

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

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

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

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

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

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

3.6.2. The length of FDP will be established by the mission directive or controlling C2 Center when the crew shows for duty and is briefed for the mission. FDP will not be extended to an augmented day after a basic FDP has begun regardless of crew composition. FDP will not be based on crew composition, but rather on mission requirements.

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

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

3.6.5. Basic Crew FDP:

3.6.5.1. Maximum FDP for a basic crew is 16 hours. The basic FDP is 12 hours without an operative autopilot pitch axis.

3.6.5.2. Maximum CDT for a basic crew is 18 hours.

3.6.6. Augmented Crew FDP:

3.6.6.1. Maximum FDP for an augmented crew (operational missions only) is 24+00 hours. FDP is 16 hours without an operative autopilot pitch axis. Only the pilot portion of the crew need be augmented when the autopilot is inoperative.

3.6.6.2. Basic crews will not be augmented after FDP has started. (***EXCEPTION***: See paragraph **3.2.2.**).

3.6.6.3. Maximum CDT for augmented crews is 24+45 hours.

3.6.6.4. Authorized only for a maximum of four intermediate stops and when one of the following criteria is met:

3.6.6.4.1. At least two legs of 4 hours each.

3.6.6.4.2. At least one leg of 6 hours.

NOTE:

No more than two intermediate stops are authorized past 16 hours.

3.6.7. Training FDP:

3.6.7.1. Maximum FDP for training missions is 16 hours.

3.6.7.2. Transition training must be completed within the first 12 hours. ***EXCEPTION:*** Flight evaluations and CCTS missions.

NOTE:

AFRC crews may perform transition on KC-10 training missions provided time from start duty does not exceed 16 hours and actual flight duty does not exceed 12 hours.

3.6.8. 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 the preceding limitations.

3.6.9. Deadhead Time. Duty time for crew members positioning or de-positioning for a mission or mission support function.

3.6.9.1. Crew members may perform primary crew duties after deadheading if they will not exceed a basic FDP for the mission to be flown beginning at reporting time for the deadhead flight.

3.6.9.2. Crew members may deadhead following primary crew duties if they will not exceed an augmented FDP beginning at reporting time for primary crew duties.

3.6.10. CDT/FDP Extensions. IAW AFI 11-202, Volume 3.

3.6.11. Flight examiners administering evaluations will not exceed an augmented FDP.

3.7. Crew Rest. See AFI 11-202 Volume 3 and the following: Crew members will enter crew rest a minimum of 12 hours prior to alert time or, when self alerting, 12 hours prior to reporting time. MAJCOM/DO may waive all or any part of a crew rest period. This waiver will normally accompany high priority air refueling and airlift tasks or a change in unit readiness.

3.7.1. Home-Station Pre-departure Crew Rest. All primary and deadhead crew members should enter crew rest 24 hours before planned alert time for missions scheduled away from home station for more than 16 hours. Crew members may perform limited non-flying duties, including mission planning, during the first 12 hours of this period. The OG/CC is the waiver authority for the first 12 hours. ***EXCEPTION***: AFRC in accordance with AFI 11-202, Volume 3 and appropriate supplement). Do not manifest deadhead crew members as passengers to reduce or eliminate crew rest requirements. MAJCOM/DO is waiver authority for minimum 12-hour deadhead crew member crew rest requirement.

3.7.2. En route Crew Rest and Ground Time:

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

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

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

3.7.2.4. A minimum 17-hour ground time between engine shutdown and mission takeoff should normally be planned unless extended post flight duties are anticipated. For dual role missions and en route channel mission stops with a cargo download or upload 18+15 hours should normally be planned. This allows for cargo loading operations upon arrival and 3+15 hours show for departure.

3.7.2.5. The aircraft commander may modify normal ground time (with concurrence of controlling agency):

3.7.2.5.1. In the interest of safety.

3.7.2.5.2. To no less than 12 hours from the start of crew rest until mission reporting. Before reducing normal ground time consider mission preparation time, time to load cargo, and other factors peculiar to the mission. The controlling C2 Center will not ask the aircraft commander to accept less than a normal ground time. Waivers for exercises and contingencies are according to AFI 11-202 Volume 3.

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

NOTE:

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

3.7.3. Post Mission Crew Rest (PMCR). ***NOTE:*** PMCR is not applicable AFRC crews.

3.7.3.1. Crew members returning to their home station will be given sufficient time to recover from the cumulative effects of their deployed mission and tend to personal needs. PMCR begins immediately upon mission termination.

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

3.7.3.3. The OG/CC or acting representative is the designated PMCR waiver authority and will not delegate this authority below the OG/CC level. Limit PMCR waivers to extraordinary circumstances only. Do not use for day to day operations.

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

3.7.5. Flying Crew Chief Work and Rest Plan. The crew chief is responsible to the aircraft commander. The aircraft commander, in conjunction with the en route station chief of maintenance, will determine how long the crew chief can safely perform aircraft recovery actions. The crew chief must have the opportunity to sleep 8 hours in each 24-hour period. See AFI 21-101, *Maintenance Operations and Management Policy*, for detailed guidance.

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

3.7.7. Prime Knight. An AMC program designed to minimize the time aircrews spend getting into billeting at crew rest locations. Prime Knight success depends on the accuracy of the aircrew information. The ultimate responsibility for ensuring billeting requirements are passed rest with the aircraft commander, however, the AMC C2 Center will assist the aircraft commander as much as possible. The following guidance applies to all AMC aircrews and C2 Centers:

3.7.7.1. C2 Center Notification Responsibilities. AMC command posts/AMCCs will ensure current aircrew orders are transmitted to the next crew rest station's C2 Center NLT 30 minutes after the mission departs.

3.7.7.2. Aircrew Responsibilities. If a mission is departing from a non-AMC facility, the aircrew will call the next crew rest station, when able, to pass crew count/make-up, expected arrival time, number of officers, number of enlisted, male and female, etc.

3.7.7.3. Units must ensure the fund cite is clearly indicated on the orders for reservations to be made in advance. Lack of a fund cite will require the aircrew to make their own advance reservations through use of a credit card.

3.8. Standby Force Duty.

3.8.1. Types of Standby Forces:

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

3.8.1.2. BRAVO Standby Force. An aircraft or aircrew capable of launching in 3 hours (from the time the unit is told to launch). Crew members are given 12 hours of pre-standby crew rest. Crews are legal for alert after pre-standby crew rest. Preflight duties, if required, interrupt crew rest. A crew will not stay on BRAVO standby duty for more than 48 hours. After 48 hours, the crew must be launched, released, or entered into pre-departure crew rest.

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

3.8.1.4. Wing Standby Forces. Unit commanders establish standby forces. Crew members are given normal pre-departure crew rest. Standby duty time is limited to 12 hours. Crews will receive at least 12 hours of crew rest prior to another 12 hours of standby duty.

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

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

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

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

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

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

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

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

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

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

Chapter 4

AIRCRAFT OPERATING RESTRICTIONS

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

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

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

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

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

4.2. Policy. It would be impractical to prepare a list that would anticipate all possible combinations of equipment malfunction and contingent circumstances. This chapter and the MEL (T.O. 1C-10(K)A-1-2) list the equipment and systems considered essential for routine as well as contingency operations. The list does not necessarily include all equipment or systems essential to airworthiness (e.g. rudder, ailerons, elevators, flaps, tires, etc.).

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

4.2.2. If, after exploring all options, an aircraft commander determines a safe launch is possible with an item inoperable (beyond a particular restriction) the aircraft commander may request a waiver. Use C2 channels to notify the appropriate execution agency of intentions. Plan a minimum 1-hour response to the waiver request.

4.3. Waiver Protocol. Waiver to operate with degraded equipment or waiver to USAF policy exceeding this chapter may be granted on a case-by-case basis and only in Exceptional circumstances. Waiver authority is based on "who" has operational control and execution of the aircraft performing a specific mission. The aircraft commander determines the need for a waiver. If waiver process, authority, or protocol is in doubt--contact the TACC (appropriate cell).

4.3.1. Local Training Missions (executed by unit OG/CC or equivalent). Waiver authority for active duty and AFRC units flying local missions is the active duty OG/CC or equivalent.

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

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

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

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

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

4.5. Not Used.

4.6. Two-Engine Ferry Operations. Two-engine ferry operations during peacetime will only be accomplished after exhausting all other avenues to return an aircraft with an inoperative engine to mission capable (MC) status. Each two-engine ferry sortie must be approved by MAJCOM/DO. Execution of these sorties will be provided by the TACC. The following procedures apply.

4.6.1. Only specially trained (Two-Engine Ferry Course, Q039) and designated crew members from NAF Stan/Eval or OG Stan/Eval will be used to conduct two-engine ferry flights.

4.6.2. Plan the flight to the nearest destination possessing a usable maintenance support capability (stations with DC-10 or KC-10 common maintenance facilities). Obtain clearances and alert all en route, alternate, and abort bases along the intended route of flight.

4.6.3. Ensure the aircraft is prepared for two-engine ferry according to T.O.s 1C-10(K)A-1-4 and 1C-10(K)A-2-5.

4.6.4. Observe limitations in the aircraft flight manuals T.O.s 1C-10(K)A-1, 1C-10(K)A-1-1, and 1C-10(K)A-1-5.

4.6.5. The aircraft MEL (T.O. 1C-10(K)A-1-2), does not apply. All primary aircraft systems not specifically associated with the failed engine must be fully operational.

4.6.6. Cargo, including mission support kits, will be downloaded prior to ferry operations. To further reduce operational and zero fuel weights, the onboard cargo handling system may also be removed. Return all cargo and support equipment to the main operating base (MOB) of assignment via organic support aircraft or other airlift means.

4.7. Gear Down Flight Operations. During peacetime, gear down flight operations will be limited to those sorties required to move the aircraft to a suitable repair facility. Gear down flight should only be considered and approved after all avenues to repair the aircraft have been exhausted. Each gear down sortie must be approved by the AMC/DO.

4.7.1. Standard climb-out flight path charts in T.O. 1C-10(K)A-1-1 are not applicable to gear-down flights. Takeoff will not be attempted unless there is reasonable assurance that adequate obstacle clearance can be maintained. This limitation must be considered when planning en route stops and alternates.

4.7.2. NAF/DOV or OG/OGV, time and communications capability permitting, should validate takeoff data.

4.8. Fuel System Limitations. Main fuel tanks are an integral part of the wings, and normal fuel feed is tank-to-engine. Empty main tanks are not an authorized configuration. Flight will not be accomplished with any empty main fuel tank unless waived by HQ AMC/DOV, HQ AMC/LGF and Oklahoma City Air Logistics Center (OC-ALC/LKR).

4.9. High-Speed Taxi Checks. Performed by designated FCF aircrews according to T.O. 1C-10(K)A-1 and maintenance T.O.s. To minimize brake and tire wear, configure the aircraft with the minimum fuel practical to accomplish high speed taxi checks. Ensure enough fuel is onboard in the unexpected circumstance that the aircraft becomes airborne. Aircrew will fill out a takeoff data card to indicate the highest speed expected to ensure sufficient stopping distance for existing runway conditions without exceeding normal brake energy limits. The anti-skid system will be on and operational.

4.10. Slat Profile Flights. Use the following parameters as a guide when slat profile flights are performed:

4.10.1. Approximately 150,000 lbs of fuel (takeoff).

4.10.2. No cargo.

4.10.3. Slats extended to takeoff position.

4.10.4. Approximately 12,000 feet pressure altitude.

Chapter 5

OPERATIONAL PROCEDURES

5.1. Checklists. KC-10 checklists are designed as clean up checklists, and items may be accomplished prior to the checklist being read. A checklist is not complete until all items have been accomplished. Momentary hesitations for coordination items, ATC interruptions, and deviations specified in the flight manual, etc., are authorized. Notes amplifying checklist procedures or limitations may be added to the checklists (in pencil).

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

5.2. Duty Station. A qualified pilot will be in control of the aircraft at all times during flight. ***EXCEPTION***: Unqualified pilots undergoing qualification training and senior staff members who have completed the Senior Staff Familiarization Course). The aircraft commander, copilot, and flight engineer will be at their duty stations during all critical phases of flight. The boom operator should normally be at his/her duty station during critical phases of flight unless crew duties dictate otherwise. During other phases of flight, crew members may leave their duty station to meet physiological needs and to perform normal crew duties. During cruise flight, boom operators may leave their duty station for longer periods with aircraft commander approval. Only one pilot, or the flight engineer, may be absent from their duty station at a time. Notify the aircraft commander prior to departing assigned primary duty station. Instructor/evaluator pilots performing primary duties may occupy the boom operator's forward position.

5.3. Flight Station Entry. Aircraft commanders may authorize passengers and observers access to the flight station during all phases of flight. In all cases, sufficient oxygen sources must be available to meet the requirements of AFI 11-202, Volume 3. Passengers and observers will not be permitted access to the pilot, copilot, or flight engineer position regardless of its availability.

5.4. Takeoff and Landing Policy. After thoroughly evaluating all conditions, the aircraft commander will determine who accomplishes the takeoff and landing and occupy either the left or the right seat during all takeoffs and landings.

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

5.5. Not used.

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

5.7. Seat Belts.

5.7.1. All occupants will have a designated seat with a seat belt. Use of seat belts will be as directed by the aircraft commander, the flight manual, and **Chapter 13** of this Volume. When children under the age of two are accepted as passengers, their sponsor must provide their own Infant Car Seat (ICS). These seats will be secured to a seat using the seat belt. Adults will not hold infant seats during any phase of flight.

5.7.2. Crew members occupying pilot, copilot, flight engineer, or boom operator positions will have seat belts fastened at all times in-flight, unless crew duties dictate otherwise.

5.7.3. All crew members will be seated with seat belts and shoulder harnesses fastened during taxi, takeoff, receiver AR, and landing, unless crew duties dictate otherwise (the flight engineer is exempt from wearing the shoulder harness). Additionally, anytime the seat belt advisory sign is illuminated, crew members will be seated with seat belt fastened, unless crew duties dictate otherwise. For AR, all aircrew members and passengers will be seated with seat belts fastened (unless authorized by the AC to observe tanker AR or crew duties dictate otherwise), and all equipment will be properly secured. Crew members performing instructor or flight examiner duties are exempt from seat belt requirements if not occupying a primary crew position; however, a seat with an operable seat belt will be assigned.

5.8. Aircraft Lighting. In accordance with AFI 11-202, Volume 3 and applicable T.O.s.

5.9. Portable Electronic Devices. In accordance with AFI 11-202, Volume 3.

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

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

5.11. Advisory Calls. Pilots will periodically announce their intentions when flying departures, arrivals, approaches, and when circumstances require deviating from normal procedures. See T.O. 1C-10(K)A-1 for additional required advisory calls.

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

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

5.12.2. Aircraft Interphone. Primary crew members will monitor interphone except when crew duties or physiological needs dictate otherwise. Crew members will advise the aircraft commander prior to checking off interphone.

5.12.3. Command Radios:

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

5.12.3.2. In terminal areas the pilot, copilot, flight engineer, and boom operator will monitor the command radio unless directed otherwise. The boom operator or designated crew member should monitor C2 frequencies (if applicable) on the inbound and outbound leg, unless otherwise directed.

5.12.3.3. The pilot operating the command radios will inform the crew when the primary radio is changed. One pilot should record and will acknowledge all ATC clearances. The flight engineer will ensure compliance with all clearances.

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

EXCEPTION: Only one crew member is required to monitor guard frequencies during tanker or receiver rendezvous and AR. During tanker AR, the PNF normally monitors guard.

5.12.3.5. Unauthorized UHF frequencies will not be used to conduct HAVE QUICK and SECURE VOICE training IAW the Federal Communications Commission (FCC).

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

5.12.4.1. "Time Out" is the common assertive statement for use by all crew members. The use of "Time Out" will:

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

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

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

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

5.12.4.2.1. Safety permitting, stabilize the aircraft.

5.12.4.2.2. The initiating crew member will voice his or her concerns to the crew.

5.12.4.2.3. The aircraft commander will provide all other crew members with the opportunity to voice inputs relative to the stated concerns.

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

NOTE:
The aircraft commander is the final decision authority.

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

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

5.15. Runway, Taxiway, and Airfield Requirements:

Minimum Runway Length	**Minimum Runway Width**	**Minimum Taxiway Width**
7000 ft	148 ft	75 ft (stressed)

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

5.15.2. Aircrews and planning agencies will contact HQ AMC/DOA (Airfield Analysis Branch) for all questions pertaining to airfield weight bearing capability and will review the ASRR prior to all off-station operations. HQ AMC/DOA is the waiver authority for all airfield restrictions. Waivers must be obtained prior to mission execution. Once a mission is executed the aircraft commander is responsible for determining airfield suitability based upon operational need. See the ASRR for airfield certification requirements.

5.15.3. Arresting Cables (does not include recessed cables).

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

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

5.15.4. Runway Length for Takeoff and Intersection Takeoffs. Normally, takeoffs will be initiated from the beginning of the approved usable portion of the runway. The decision to make intersection takeoffs rests solely with the aircraft commander. In no case will an intersection takeoff be made from a position where less than 7000 feet of runway remains.

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

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

5.15.4.3. During operations on runways partially covered with snow or ice, takeoff computations will be based on the reported RSC or RCR for the cleared portion of the runway. A minimum of 50 feet either side of centerline should be cleared. If 50 feet either side of centerline is not cleared, then compute data based on the uncleared portion up to 50 feet either side of centerline.

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

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

5.16.2. When taxi clearance is doubtful, use one or more wing walkers. If wing walkers are unavailable, deplane one or more crew members to maintain obstruction clearance and provide marshalling. Use AFI 11-218 signals. The aircraft commander should use marshallers and wing walkers, deplaned crew members, or a crew member on interphone positioned at a door to act as an observer while maneuvering on narrow taxiways. During night taxi operations, marshallers will have an illuminated wand in each hand. Observers should be in a position to see wing walkers at all times (through door or windows) and communicate to the pilot.

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

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

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

5.16.3.3. Minimize power settings during all taxi operations.

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

5.16.3.5. Avoid (when possible) taxi operations, which would position a wing engine over an unprepared or unswept surface. If it becomes absolutely necessary to position a wing engine over an unprepared or unswept surface, the engine should be left in idle (to the maximum extent possible) until the engine is back over an improved surface. Consider increasing power on remaining engines.

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

5.17. Fuel Requirements. (See AFI 11-202, Volume 3) This paragraph implements standard minimum fuel requirements for the KC-10. See **Chapter 12** for additional guidance.

5.17.1. Required ramp fuel will consist of all fuel required for engine start, taxi, warm-up, APU operation, takeoff, climb, cruise, planned off load, alternate/missed approach (if required), descent, approach, transition, landing, holding fuel (12,000 pounds minimum), decompression fuel (if required), and enroute reserve (if required).

5.17.2. Alternate fuel. Fuel for flight from intended destination to alternate aerodrome at optimum altitude and long range cruise speed. Compute fuel, time, and altitude from T.O. 1C-10(K)A-1-1, Section 10.

5.17.3. Holding fuel. 45 minutes or 12,000 pounds, which ever is greater. Compute holding fuel for 45 minutes using planned destination gross weight at 10,000 feet. Use the three-engine holding chart from T.O. 1C-10(K)A-1-1, Section 6, and a 25-degree bank angle. However, if the computed fuel value is less than 12,000 pounds, use 12,000 pounds as the holding fuel value. Holding fuel (12,000 lbs. minimum) is the fuel reserve IAW AFI 11-202, Volume 3. It is also the minimum planned final landing fuel at destination or alternate.

5.17.3.1. Additional Holding Fuel. When filing to a destination where the alternate is located in Alaska or at latitudes greater than 59 degrees, or when holding is required in lieu of an alternate at a remote or island destination, carry an additional 30 minutes of holding fuel. Compute additional holding fuel using the three-engine holding chart from T.O. 1C-10(K)A-1-1, Section 6, 25-degree bank angle, planned destination gross weight, FL 200. A remote or island destination is defined as any aerodrome which, due to its unique geographic location, offers no suitable (civil or military) within 2 hours flying time. The forecast weather at the remote or island destination must meet the criteria listed in **Chapter 6**.

5.17.4. Minimum planned fuel at begin descent point consists of fuel for approach/landing, alternate/missed approach (if required), and holding (12,000 lbs. minimum). Additional fuel may be added to allow crews some flexibility when dealing with unplanned contingencies (e.g. late receivers, extra receivers, increased off loads, weather avoidance, ATC delays, etc.). This "identified extra" fuel

should not normally exceed 10,000 lbs. When dealing with unplanned contingencies, crews will still plan to touchdown with holding fuel (12,000 lbs. 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 AFI.

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

5.18.1. Jettison fuel only under the following circumstances:

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

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

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

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

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

5.18.2.3. Avoid circling descents.

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

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

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

5.19. Airspeed. In accordance with applicable tech orders, aircraft may exceed 250 KIAS or in-flight minimum maneuver speed below 10,000 feet to accomplish formation departures or as operational performance dictates.

5.20. BASH Programs. BASH programs are centralized unit efforts that provide information cross-feed, hazard identification, and a consolidated course of action. All AMC units will have a BASH Reduction Plan in accordance with AFI 91-202. AMC tenant flying units will work with the host base to create a plan. As a minimum, units must implement the following procedures:

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

5.20.1.1. Bird Watch Condition Low - No operating restrictions.

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

5.20.1.3. Bird Watch Condition Severe - All takeoffs and landings are prohibited. Waiver authority is local OG/CC or equivalent. AMC/DO waiver is required to operate at airfields not controlled by the Mobility Air Force (MAF) units.

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

5.20.3. When operating at airfields where no BASH program exists, aircraft commanders have the authority to delay takeoffs and arrivals due to bird condition. Coordinate actions through appropriate C2 authority.

5.20.4. Howard AFB, Panama (until closure) has a singularly distinctive BASH considerations. Ensure AMC crews comply with AFPAM 91-212/AMC 1.

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

5.21. Functional Check Flights (FCF) and Acceptance Check Flights (ACF). FCFs and ACFs will be performed according to T.O. 1-1-300 and AMCI 21-101. Additional guidance can be found in T.O.s 00-20-6, 1C-10(K)A-6CF-1, and 1C-10(K)A-1.

5.21.1. Terms and Abbreviations:

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

5.21.1.2. ACF—ACFs specify guidelines for accepting new production aircraft and to determine compliance with contractual requirements (e.g. C checks).

5.21.2. FCF Restrictions:

5.21.2.1. Conditions requiring an FCF according to T.O. 1C-10(K)A-6CF-1, and AMCI 21-101 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 any two engines.

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

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

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

5.21.2.5. The best qualified instructor will accomplish FCFs or designated Stan/Eval aircrews.

5.21.2.6. FCF qualified to their assigned aircrew position by the OG/CC in a letter.

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

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

5.21.2.9. OG/CC and deployed mission commander may authorized temporary waivers to these FCF procedures for aircrew qualification when operationally necessary. Permanent waivers require AMC approval.

5.22. Participation in Aerial Events. (IAW AFI 11-209 and MAJCOM Supplement) Aerial events must be sanctioned and individually approved by the appropriate military authority, and dated with the FAA. AFI 11-209 clearly identifies events sanctioned for support, and specifies the approval authority for each type. AFI 11-209 also stipulates that units participating in aerial events will ensure activities are coordinated with the FAA through the regional Air Force representative.

5.23. Hand-held GPS. Carry a Hand-held GPS on every mission, including local and off-station training missions ***EXCEPTION***: A Hand-held GPS is not required for a local mission without passengers. The Hand-held GPS, when operating properly, can provide useful information; however, it must never be used as the primary navigation source. Use of any Hand-held GPS receiver that has not been EMI certified is restricted to operations above 10,000 ft AGL only. Any type of Hand-held GPS may be used unless interference is noted with any aircraft system. The actual use of the Hand-held GPS rests with the aircraft commander. Its usage must never jeopardize safety. When aircrews deploy with or without an aircraft, (stage crews) each crew will deploy with a Hand-held GPS. This would include KLX-100s, PLGR, Garmin and Magellan. This requirement does not apply to FMS-800 modified aircraft provided integrated GPS guidance is available.

5.23.1. Before using the Hand-held GPS in-flight, aircrew members must receive training and aircraft must be capable of supporting the Hand-held GPS equipment.

5.23.2. The hand-held GPS will not be used to update the INS/FMS unless the hand-held GPS position can be confirmed by another aircraft source (i.e. TACAN, VOR).

WARNING: Electrical problems have been reported on KLX-100 units. It is extremely important to insert all of the batteries in the proper orientation as shown in section 1.1.2, Figures 1-11 through 1-17 of the Operators Guide. The manufacturer confirms that if only one battery is inserted incorrectly, the unit will operate for 10-30 minutes. An increase in temperature may be noted followed by a crackling

sound as the battery expands and ruptures. Be extremely careful as battery acid may leak from the bottom of the unit. A way to double-check proper insertion is to go to the GPS Setup page and check the bar graph showing battery power. Make sure it reflects battery strength near 100%. If a problem is detected, shut down the GPS immediately and disconnect unit from any external power source. Report the incident through proper channels. Do not attempt to remove the batteries. This action could cause injury to the individual and will impair investigation for warranty claims.

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

Chapter 6

AIRCREW PROCEDURES

Section 6A—Pre-mission

6.1. Aircrew Uniform.

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

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

6.1.2.1. All crew members will have Nomex gloves in their possession.

6.1.2.2. It is recommended that primary crew members wear Nomex gloves during engine start, taxi, takeoff and landing.

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

6.1.3. Personnel will have the appropriate items of clothing in their possession when flying in Arctic and Antarctic regions.

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

6.2. Personal Requirements.

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

6.2.2. Shot Record. Ensure immunization requirements are met. Carry shot record on all missions outside the 48 conterminous states. KC-10 crew members must maintain worldwide shot requirements.

6.2.3. Corrective Lenses. See AFI 11-202, Volume 3.

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

6.2.5. Identification Tags. Two required for all flights.

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

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

6.2.7. Each crew member must carry an operable flashlight at night.

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

6.3. Pre-mission Actions.

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

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

6.3.1.2. Africa and the Middle East.

6.3.1.3. Europe, Baltic, and Russia.

6.3.1.4. Caribbean, Central America, and South America.

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

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

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

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

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

6.3.2.5. Communication and Emergency Procedures. C2, Over-water position reporting, lost communications procedures, emergency procedures, and weather information sources.

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

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

6.3.2.8. Special Military Operations. Altitude Reservations, Due Regard, and Formation/Air Refueling Limitations. Other Regulatory Requirements. General navigation procedures, Life Support equipment, hazardous cargo, crew rest/crew duty time, aircraft records/AFTO Form 781 procedures, passenger handling, etc.

6.3.2.9. Location Information. C2/reporting procedures, maintenance problems, aircraft security, social customs and taboos, billeting, transportation, etc.

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

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

6.3.5. Upon return, the aircraft commander will compile a trip report, when necessary, detailing lessons learned. The trip report will be placed in the theater indoctrination folder, closing the loop on ensuring validity of the folder.

6.3.6. Review tasking, itinerary, and ALTRV requirements.

6.3.7. Review applicable OPORD and FLIP.

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

6.3.9. Obtain required customs forms.

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

6.3.11. Obtain computerized flight plans as appropriate.

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

6.3.13. Review anti-hijacking procedures in AFI 13-207, *Preventing and Resisting Piracy [Hijacking]*, and **Chapter 7** of this instruction.

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

6.3.15. Obtain visas, if required.

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

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

6.3.18. Release available seats to passenger terminal.

6.4. Aircrew Publications Requirements. Primary crew members will carry the publications specified in **Figure 6.1.** on all missions. Two-engine ferry crew members will carry publications indicated by "$."

Figure 6.1. Publication Requirements.

Publication	AC	CP	FE	BO
TO 1C-10(K)A-1, Flight Manual			X	
TO 1C-10(K)A-1-1, Performance Manual			X	
TO 1C-10(K)A-1-101, Structural Assessment Data			X	
TO 1C-10(K)A-1-2, Minimum Equipment List (MEL) (*maintained on aircraft*)				
1C-10(K)A-1-4, Two-Engine Ferry			$	

Publication	AC	CP	FE	BO
1C-10(K)A-1CL-1, Pilot and Flight Engineer Emergency Checklist	X	***X***	X	
1C-10(K)A-1CL-2, Pilot and Flight Engineer Normal Checklist	***X***	X	X	
1C-10(K)A-1CL-3, Boom Emergency Checklist				X
1C-10(K)A-1CL-3-1, Boom Normal Procedures Checklist				X
1-1C-1 Basic Air Refueling	X			
1-1C-1-32, Air Refueling Receiver	X			
1-1C-1-32CL-1, Air Refueling Receiver Checklist	X	X	X	
1-1C-1-33, Air Refueling Tanker	***X***			
1-1C-1-33CL-1, Air Refueling Tanker Checklist	X	X	X	
1-1C-1-33CL-2, Air Refueling Tanker Boom Operator Checklist				X
1C-10(K)A-5, Weight and Balance Handbook (*maintained on aircraft*)				
1C-10(K)A-9, Cargo Loading Manual				X
1C-10(K)A-9CL-1, Cargo Loading Checklist				X
AFI 11-202, Volume 3, *General Flight Rules*	X			
AFI 11-2KC-10, Volume 3, *KC-10 Operations Procedures*	X			

Section 6B—Pre-departure.

6.5. Airfield Certification. All crew members and staff mission planners will review airport qualification audiovisual slide tape programs as available before operating missions into unfamiliar airfields. In addition, aircrews will review the Airfield Suitability and Restrictions Report (ASRR) and should contact HQ AMC/DOA for updates to airfield operability and weight bearing capability.

6.6. Aircrew Intelligence Briefing. Prior to leaving home station on missions departing the CONUS, crews will receive an intelligence briefing that will emphasize terrorist, enemy, and friendly political and military development in the area in which they will be flying. Once in theater, aircrews should receive intelligence updates on initial arrival at a Forward Operating Location (FOL) or en route stop and thereafter when significant developments occur. Report information of possible intelligence value to the local intelligence officers at the completion of each mission.

6.7. Flight Crew Information File (FCIF) Procedures.

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

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

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

6.8. Flight Crew Bulletins (FCB).

6.8.1. FCBs are issued under provisions of AFI 11-202 Volume 2 and MAJCOM supplement. Operations group Stan/Eval are OPR for FCBs. Items in FCBs may include local procedures and policies concerning equipment and personnel generally not found in any other publications.

6.8.2. All crew members should be cognizant of FCB contents.

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

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

* Indicates mandatory for all missions away from home station.

6.10.1. Publications:

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

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

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

6.10.1.4. *AMCI 11-208, *Tanker/Airlift Operations.*

6.10.1.5. *ATP-56, *NATO Air to Air Refueling.*

6.10.1.6. *Airfield Suitability and Restrictions Report (ASRR).

6.10.1.7. *AMC Aircrew Border Clearance Guide.

6.10.1.8. *FCB (Flight Crew Bulletin).

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

6.10.2. Forms:

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

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

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

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

6.10.2.5. *Customs Form, CF 7507**, General Declaration (Outward/Inward)**.

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

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

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

6.10.2.11. *AF Form 3578, **Tanker Activity Report (TKACT).**

6.10.2.12. *AFTO Form 18, **KC-10 Structural Assessment Record.**

6.10.2.13. * AF Form 4095, **KC-10A Load Planning Worksheet.**

6.10.2.14. * AF Form 4130, **KC-10 Restraint Computation Worksheet.**

6.10.2.15. AMC Form 38, **CRM Anonymous Reporting System Air Mail** as require by MAJ-COM.

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

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

6.10.2.18. *AF Form 4091, **Mission Data Form..**

6.10.2.19. AMC Form 97, **AMC Unusual Occurrence/Bird Strike Worksheet**.

6.10.2.20. *AF Form 4031, **CRM Skills Criteria Training/Evaluation Form.**

6.10.2.21. * AF Form 4080, **Aircraft Load Data Worksheet.**

6.10.2.22. AF Form 4087, **KC-10A CG Graph**

6.10.2.23. AF Form 4088, **KC-10A Weight and Balance Fuel Vectors.**

6.10.2.24. * AF Form 4089, **KC-10A TOLD Card**

6.10.2.25. HMS Customs Declaration.

6.10.2.26. Japanese Customs Declaration.

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. *(AMC Form 41)**, Flight Authorization**.

6.10.4. Miscellaneous:

6.10.4.1. *Box car seals.

6.10.4.2. *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.

6.11.2. Minimum contents of route navigation kits include the following:

ITEM (APPLICABLE TO AREA OF OPERATION (AOR))	NUMBER
FLIP GP Planning (sections GP, AP/1, AP/1B, AP/2, AP/3)	1
FLIP IFR Supplement	2

ITEM (APPLICABLE TO AREA OF OPERATION (AOR))	NUMBER
FLIP Flight Information Handbook	1
FLIP En route (high and low)	2
FLIP Instrument Approach Procedures (high and low)	3
Standard Instrument Departures (East and West United States, Volumes 1 and 2)	3
Instrument Departures Europe and North Africa (high and low)	3
Standard Terminal Arrival Routes (STAR)	3
Topographical and Sectional Charts for AOR (GNC/OPC/TPC/JNC)	as required
FLIP VFR Supplement	1
DoD Area Arrival Charts	(2) if available

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

6.12. Briefing Requirements.

6.12.1. Agency Briefing. The current operations branch conducts this briefing as a final aircrew briefing for special unit missions. It should be held if the takeoff is more than 6 hours after the initial briefing and no earlier than 6 hours prior to takeoff. Consider the crew rest provisions of AFI 11-202 Volume. 2 and this AFI in establishing the time for this briefing. The purpose of this briefing is to advise aircrews of the latest weather information and mission changes and review specialty information in the specialized briefing. Unit staff personnel should conduct the pre-takeoff briefing. All participating crew members and designated spares must attend the briefing. The briefing should be concise and not exceed 30 minutes. A recommended sequence of presentation follows; however, it may be varied or expanded to meet mission and unit requirements. (See **Chapter 16** of this AFI for further guidance.)

6.12.1.1. Time hack.

6.12.1.2. Briefing classification and room security.

6.12.1.3. Roll call.

6.12.1.4. Purpose of mission.

6.12.1.5. Weather briefing.

6.12.1.6. Aircrew aircraft assignment, parking location, tactical call signs, aircraft special configurations and loading, fuel loads, and the configuration and location of the spare aircraft, if applicable.

6.12.1.7. Cell composition and sortie assignment.

6.12.1.8. Takeoff performance data.

6.12.1.9. Timing and control times.

6.12.1.10. Start engines.

6.12.1.11. Takeoff.

6.12.1.12. Route of flight.

6.12.1.13. AR control times.

6.12.1.14. Intended landing base.

6.12.1.15. Approaches.

6.12.1.16. Divert and abort procedures.

6.12.1.17. NOTAMs.

6.12.1.18. FCIF and FCB as appropriate.

6.12.1.19. Announcements.

6.12.1.20. Technical order changes.

6.12.1.21. Flying safety.

6.12.1.22. Transportation.

6.12.1.23. Special Briefing Items (Contact the local current operations or controlling agency [e.g. command post] to confirm mission requirements. Controlling agencies provide information necessary to complete mission planning. The aircraft commander and controlling agency jointly share responsibility to identify special briefing requirements. Briefings include, but are not limited to, buffer zone, electronic warfare activities, SAFE PASSAGE, MIJI, diplomatic clearance, hazardous cargo, airfield qualification program, anti-hijacking procedures [if different from standard], operations and safety supplements to flight manuals [if issued within last 72 hours], and specialized procedures for JCS contingency operations, ORI, etc.).

6.12.1.24. Commander's remarks.

6.12.2. Aircraft Commander Briefing. Brief crew members on the specific mission details if not previously accomplished.

6.12.2.1. Time hack.

6.12.2.2. Briefing classification for the mission profile.

6.12.2.3. Review weather.

6.12.2.4. Mission itinerary and profile.

6.12.2.5. Aircraft tail number and call sign.

6.12.2.6. Aircraft gross weight and fuel load.

6.12.2.7. Communications requirements and procedures.

6.12.2.8. Fuel Reserve.

6.12.2.9. Review departure and approach to be flown.

6.12.2.10. Airdrome restrictions and hazards.

6.12.2.11. Emergency procedures review.

6.12.2.12. Specialized briefings (formation tactics, AR, etc.).

6.12.2.13. C2 and execution procedures.

6.12.3. Specialized Briefing. Specialized briefings should be held immediately following the agency or aircraft commander's briefing as required. Specialized briefings review formation tactics and procedures, air refueling information, and technical instructions for specialized equipment operations. All crew members and appropriate staff must attend each briefing. Boom operators may be excused from specialized briefings for cargo loading, however the aircraft commander will back brief all appropriate items. Types of specialized briefings include:

6.12.3.1. Formation.

6.12.3.2. Air Refueling. As a minimum, the following should be briefed:

6.12.3.2.1. Rendezvous (RZ) and orbit time, RZ Point, altitude, heading, airspeed, end AR point, and secondary plan.

6.12.3.2.2. Equipment for primary and secondary rendezvous.

6.12.3.2.3. Color codes for anti-collision lights.

6.12.3.2.4. Scheduled fuel on-load and off-load.

6.12.3.2.5. Communications and emission control.

6.12.3.2.6. Review of emergency procedures, to include breakaway.

6.12.3.2.7. Review of operating procedures (including use of manual, override, and emergency boom latching).

6.12.3.2.8. Review spare tanker and abort procedures.

6.12.3.3. Cargo and load information.

6.12.3.4. Any special instructions.

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

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

6.12.5. Buffer Zone. Prior to operating an aircraft within or adjacent to an established buffer zone, the pilot will ensure primary crew members 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 (if applicable).

6.13. Call Signs.

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

6.13.2. Operational Missions. Aircraft will use call signs assigned by OPORD, FRAG, or diplomatic clearance. If no call sign has been assigned to the mission, use unit static call signs. When flying AMC channel missions, aircraft will 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). Complete flight plans as follows:

6.13.2.1. On the DD Form 1801, item 7, put the letters "RCH" followed by the last digit of the year the aircraft was built and the last 3 digits of the aircraft tail number.

6.13.2.2. On the DD Form 1801, item 18, remarks section, put “Rem / RCH designates Reach call sign.”

6.13.2.3. On the DD Form 175, **Military Flight Plan**, aircraft call sign block, put “RCH” followed by the last digit of the year the aircraft was built and the last 3 digits of the aircraft tail number.

6.13.2.4. On the DD Form 175, remarks block, put “RCH designates Reach call sign.”

6.13.3. During radio transmissions, crews will use "Reach" followed by the last digit of the year the aircraft was built and the last 3 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. This does not preclude VFR training to maintain proficiency in mission essential VFR operations.

6.15. Flight Plan Verification.

6.15.1. Aircrews should acquaint themselves with the mission and individual sortie requirements to ensure successful mission accomplishment. Wing and squadron staff should monitor crew activity and be available to resolve problem areas.

6.15.2. Computer Flight Plan. Contracted computer flight plans or computer flight plans available from Det 1, AMC CPSS are the official sources of performance, navigation, and climatic data, including en route wind information. If stand-alone microcomputer based plans are used, each mission segment should utilize best wind data available. Only current, command validated (HQ AMC/DOV) microcomputer programs will be used for flights involving KC-10 aircraft.

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

6.15.4. Computer flight plans will be verified by the flight crew for route definition and fuel computation accuracy prior to departure. Pass any flight plan discrepancies to the TACC. When reporting incorrect flight plans to the TACC (Flight Planning Office), include both the CFPI and the plan number.

6.15.5. All waypoint data retrieved from the FMS-800 database should be verified by one or more of the following methods:

6.15.5.1. Latitude/Longitude from current FLIP.

6.15.5.2. Bearing/Distance from a flight plan after Latitude/Longitude are verified for each waypoint.

6.15.5.3. Ground Based NAVAIDs.

6.16. Departure Planning:

6.16.1. Gross Weight. Ensure that the aircraft does not exceed the maximum gross weight, zero fuel weight, or center of gravity limitations specified in the aircraft flight manual, T.O. 1C-1O(K)A-1. Gross weight may be further restricted by operating conditions such as wind shear, icing, temperature, pressure altitude, runway length and slope, airfield weight bearing capacity, departure maneuvering, required climb gradients, and obstacles.

6.16.2. Departure Routing/Climbout Performance. Appropriate terrain charts must be reviewed prior to departure. A properly CHUM'd terrain chart will be used for all departures which require a terrain chart review or an engine out escape route. The type of chart to be used depends on what is available for that part of the world. Any chart showing prominent details is acceptable (such as TPCs, Sectionals, and JOGs). GNCs and JNCs are not acceptable. Regardless of the type of departure flown (SID, Specific ATC Departure Instructions, IFR Departure Procedure, Diverse Departure, or VFR), the aircraft must be able to achieve the published climb gradient (for the runway to be used) with ALL ENGINES operating, and be able to vertically clear all obstacles within the climbout flight path with one engine inoperative. ***EXCEPTION:*** See paragraphs **6.17.5.** through **6.17.5.2.** If no minimum climb gradient is published, use 200 ft/NM minimum with ALL ENGINES operating. If a higher required climb gradient is published (will be identified on the SID or IFR departure procedure), use that climb gradient as the minimum with ALL ENGINES operating. This only applies at fields having an instrument approach. If the field does not have an instrument approach, then no obstacle survey has been conducted. Therefore, you don't know the minimum required climb gradient. At airfields with no instrument approach, an IFR departure is not authorized. In all cases, the minimum required ENGINE OUT climb gradient used for TOLD computations for the KC-10 is dictated by the obstacle height and distance of an obstacle(s) and/or a screen height. In the absence of obstacles and/or screen heights, the minimum climb gradient used for TOLD computations will be 2.5%.

6.16.2.1. SIDs. OPRs for SIDs are identified on each individual SID. They are either Federal Aviation Administration (FAA), United States Army (USA), United States Navy (USN), United States Marine Corps (USMC), or United States Air Force (USAF). On non-DoD SIDs, the agency that wrote the SID will also be identified (in parentheses immediately to the right of the Chart Reference Number). For example:

6.16.2.1.1. SL-000.00 (USA) would indicate a DoD SID where the US Army is both the OPR and the agency that wrote the SID.

6.16.2.1.2. (USAF) SL-000.00 (RAF) would indicate a non-DoD SID where the USAF is the military department that requested publication and serves as the OPR, but the Royal Air Force is the agency that wrote the SID. Use the agency that wrote the SID to determine the required screen height.

6.16.2.2. Published IFR Departure Procedures. Published IFR Departure Procedures are available at some civil and military fields to assist in avoiding obstacles during climb to the minimum enroute altitude (MEA). Airfields with Published IFR Departure Procedures will have the

inverted triangle with a white "T" symbol printed on the approach plates and SIDs. When using Jeppesen publications, IFR Departure Procedures will be on the airfield diagram page, which is typically on the reverse side of the airport's first approach. A climb gradient (this climb gradient is linear, see paragraph **17.3.** for obstacle planning) and/or specific routing and/or alternate takeoff weather minimums will normally be specified with a Published IFR Departure Procedure. When flying a Published IFR Departure Procedure, depicted routing and climb gradients must be flown to avoid obstacles. The alternate takeoff weather minimums allow aircraft to depart with minimum ceiling and visibility. The alternate takeoff weather minimums are provided for Non-AF users in order to "see and avoid" obstacles. These minimums are not authorized for USAF KC-10s. If alternate takeoff weather minimums are listed, the words "or standard" and a required climb gradient must be included in order to depart. This means that we are allowed to use our "standard" departure RVR minimums and we avoid obstacles by flying the published climb gradient.

NOTE:

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

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

6.16.2.4. Diverse Departures. If an airfield has a published instrument approach procedure, an obstacle survey has been conducted at the airfield by TERPS personnel. The absence of any published departure procedures (SID or IFR Departure Procedures) in DoD/NOAA publications at an airfield with a published instrument approach normally indicates that no penetration of the obstacle identification surface exists. IAW AFI 11-202 Volume 3, *General Flight Rules*, an aircraft may depart the field, and climb to 400 feet above the departure end of the runway elevation and turn in any direction. A minimum climb gradient of 200 ft/NM-meets this with ALL ENGINES operating for the KC-10 (152 ft/NM ENGINE OUT)- must be maintained. A diverse departure would typically be used in a non-radar environment at an airfield without a published departure procedure (i.e. Diego Garcia).

6.16.2.4.1. For TOLD computations using diverse departure procedures, KC-10 crews should normally use a 2.5% climb gradient. However, all departure procedures and surveys are based on linear climb rates, and crews must be aware of potential obstacles that do not penetrate the OIS and may be a factor on departure since KC-10 climbout is not linear.

6.16.2.5. VFR Departures. VFR departures are authorized when required for mission accomplishment. The weather at takeoff must permit a VFR climb to an IFR MEA, an appropriate IFR cruising altitude, or an altitude where radar vectors can be provided.

NOTE:

In no case will VFR departures be flown in lieu of obstacle clearance planning.

6.16.3. Screen Heights Requirements. From a performance computation point of view, required screen heights are in essence obstacles and will be treated as such in addition to any other physical obstacles for the departure. Decrease the runway available by that distance required to reach the DER at the required screen height. This distance can be computed from the climbout flight path charts in the performance manual. Use the following as a guide to determine required screen heights.

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 required screen height requirements in some cases. 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 the appropriate authority.

6.16.3.1. SIDs. Required Screen heights depend on the agency that wrote the SID (identified in parenthesis immediately to the RIGHT of the SID Chart Reference Number).

6.16.3.1.1. USAF, USN, or USMC SID: Zero feet.

6.16.3.1.2. US Army and FAA SID: 35 feet.

6.16.3.1.3. Foreign Civil SID (must be an ICAO member nation listed in FLIP GP): 16 feet.

6.16.3.1.4. Foreign Military SID (NATO, ICAO member nation listed in FLIP GP): 35 feet.

6.16.3.1.5. Foreign Military SID (Non-NATO, ICAO member nation listed in FLIP GP): 16 feet.

6.16.3.2. Radar Vector, Published IFR Departure Procedure or VFR Departures.

6.16.3.2.1. USAF, USN, or USMC Airfield: Zero feet.

6.16.3.2.2. US Army and FAA Civil Airfield: 35 feet.

6.16.3.2.3. Joint Use Airfield with the United States: 35 feet.

6.16.3.2.4. Foreign Civil Airfield (must be an ICAO member nation listed in FLIP GP): 16 feet.

6.16.3.2.5. Foreign Military Airfield (NATO, ICAO member nation listed in FLIP GP): 35 feet.

6.16.3.2.6. Foreign Military Airfield (Non-NATO, ICAO member nation listed in FLIP GP): 16 feet.

6.16.4. Climbout Performance. KC-10 climb performance is not linear. Performance manual gradients represent a snap shot view of the aircraft's climb capability at the instant the gear is fully retracted. Since aircraft climbout is not linear, do not equate required climb gradient to aircraft climb profile. The only way to ensure obstacle clearance is to plot all significant obstacles on the climbout flight path charts contained in the performance manual. If there is any doubt about the aircraft's ability to clear all obstacles in the event of an engine failure, plan an ENGINE OUT escape route, and use it if you lose an engine.

NOTE:

Charted climb gradients assume a straight ahead flight path. If thrust and speed remain constant, climb gradient available decreases as bank angle increases.

6.17. Obstacle Clearance Planning:

6.17.1. Begin collecting obstacle information during mission planning, prior to departing home station. Obstacle Identification Surface (OIS). Obstacle identification for SID purposes (FAA Handbook 8260.3B, AFJMAN 11-226, *U.S. Standard for Terminal Instrument Procedures (TERPS*), are those objects that penetrate an OIS of 40:1 (For every 40 feet traveled in the horizontal plane, one foot is gained in altitude, thus, 6076/40 = 151.9 feet, therefore a 152 feet/NM OIS). Calculation of the OIS on a SID continues until the SID reaches a MEA or until the SID terminates. Climb gradients of 200 feet per NM will provide at least 48 feet per NM clearance above all obstacles that do not penetrate the OIS. Complying with published climb gradients found on a SID or IFR departure procedure will provide at least 48 feet per NM clearance above all obstacles that do penetrate the OIS. The aircraft commander must be aware and thoroughly brief the crew on all obstacles along the departure flight path.

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

6.17.1.2. If more information is required, aircrews may call HQ AMC/DOVS for additional airfield obstacle data after reviewing GDSS. DSN 576-3112.

6.17.2. Objects penetrating the OIS may or may not be depicted. (They definitely will not be depicted on civil procedures) Objects which do not penetrate the OIS will not normally be depicted, but may still require consideration in takeoff planning since aircraft climbout is not linear (when accomplishing the ENGINE OUT departure profile, leveling at pressure height for acceleration may result in penetration of the OIS). The only way to ensure obstacle clearance on any departure is to plot all significant obstacles.

6.17.3. SIDs or IFR Departure Procedures simplify ATC procedures while providing safe routing to the enroute structure; however, SIDs should not be used as the sole source of obstacle information for departure planning. If used as such, inadequate (ENGINE OUT) obstacle clearance may result. An asterisked climb gradient is applicable to a physical obstacle and is based on the controlling obstacle. The controlling obstacle is defined as the obstacle requiring the greatest climb gradient within the flight path. Crews must be aware that other obstacles may be present. Obstacles are not normally depicted on SIDs when climb gradients of less than 152 feet per NM are required to clear them. Use all available sources to determine other significant obstacle information. The only way to ensure obstacle clearance is to plot all significant obstacles using the climbout flight path charts contained in the performance manual. SIDs, instrument approach plates, and topical sectional charts, etc. must be used to determine the distance and height values for all significant obstacles along the flight path Crews need not consider ATC climb gradient (daggered items), however, crews must verify that the aircraft can meet these ATC restrictions with ALL ENGINES operating. If the aircraft cannot meet the ATC ALL ENGINE climb gradient restriction, an ATC waiver is required prior to takeoff.

6.17.3.1. Any published climb gradient chart, whether it is asterisked, daggered, or unmarked is a linear climb gradient. Therefore, due to the fact KC-10 climbout performance is not linear, the crew must determine obstacle height and distance by any means available (SID, IFR Departure Procedure, TERPS personnel, terrain chart review, etc.,) in order to use the performance manuals to determine the climb gradient required for TOLD computations.

6.17.3.1.1. If the climb gradient chart is unmarked circled, or asterisked (it is usually asterisked), then the climb gradient in the chart is based on a physical obstacle (controlling obstacle). The controlling obstacle is defined as the obstacle requiring the greatest climb gradient within the flight path. A climb gradient chart in this scenario indicates the need for a higher than normal climb gradient due to obstacles. These obstacles may be terrain or obstructions. If the controlling obstacle requiring the rate of climb indicated in the climb gradient charts is not published on the SID or published IFR Departure Procedure, then further investigation is required to determine the obstacle height and distance. The controlling obstacle's height and distance can be obtained by first contacting the local TERPS specialist in the USAF ATC facility for that airfield. At USN/USMC airfields, this information can be also be obtained from and ATC officer (may not be a TERPS specialist). If they can not provide the information, contact the Naval Flight Information Group (NAVFIG) in Washington, D.C. at DSN 288-3486, commercial (202) 433-3486. They are the TERPS specialists and will have the information. The Army uses the FAA to survey their airfields. The ATC facility at an Army airfield may or may not be able to provide the specifics to the crew about the controlling obstacles. If they can not help you, contact the Army's TERPS office at DSN 656-4410, commercial (703) 806-4410. For European Theater Army airfields, use DSN 314-373-8079/6426, commercial 49 622117 8079/6426 and for any other overseas location contact the FAA office in Oklahoma City, OK at commercial (405) 954-4787. This last number will also be able to direct you to the FAA office providing TERPS service for any other Army airfield. Crews must be aware that other obstacles may be present. Remember, obstacles other than the controlling obstacle may still be a factor due to the KC-10's non-linear engine out climbout profile. Obstacles are not normally depicted on SIDs when climb gradients of less that 152 feet per NM are required to clear them. SIDs, instrument approach plates, and topical sectional charts, etc., must be used to determine the distance and height values for all significant obstacles along the flight path.

6.17.3.1.2. Crews need not consider ATC climb gradient (daggered items), however, crews must verify that the aircraft can meet these ATC restrictions with ALL ENGINES operating. If the aircraft cannot meet the ATC climb gradient restrictions with ALL ENGINES operating, an ATC waiver is required prior to takeoff.

6.17.4. Before flying any departure, the aircrew will compute takeoff data in the following manner:

6.17.4.1. Using the performance manual climbout flight path charts, compute the required ENGINE OUT climb gradient to clear all obstacles(if obstacles are not a factor, use 2.5%). Review appropriate terrain charts, the ASRR, instrument approaches, sectionals, departure plates, etc. to determine obstacles.

6.17.4.2. If a screen height is required (see paragraphs **6.16.3.**, **6.16.3.1.**, and **6.16.3.2.**), compute the minimum ENGINE OUT climb gradient required to meet it. If the aircraft cannot meet the ENGINE OUT screen height requirement, ENGINE OUT, takeoff is permitted ONLY IF the crew, through a detailed examination of the proposed route of flight using current aeronautical charts,

terrain charts, and airfield diagrams, and SIDs can positively ensure that aircraft performance is sufficient to vertically clear ALL obstacles ENGINE OUT. A TERPS specialist for the airfield may also be able to help the crew by providing the obstacles that dictate the screen height. Remember, screen heights may be based on obstacles such as tree lines, fences, power lines, buildings, etc., which (since they fall below the OIS) are NOT DEPICTED anywhere. In some cases it may not be possible for the crew to positively ensure that the aircraft can vertically clear these obstacles. If unable to ensure the aircraft can vertically clear all obstacles, refer to paragraph **6.17.5.**

6.17.4.3. Verify that the aircraft can attain the minimum published climb gradient with ALL ENGINES operating by following these steps:

STEP 1. Determine the minimum published climb gradient. For SIDs, the number appearing in the "60 knots" block is the minimum published climb gradient in ft/NM. For Published IFR Departure Procedures, the published climb gradient may be depicted in a similar manner as on a SID, or some mathematical conversion may be required. If no minimum climb gradient is published, use 200 ft/NM as the minimum climb gradient with ALL ENGINES operating.

STEP 2. Convert the ENGINE OUT climb gradient required for obstacle clearance or DER screen height (2.5% minimum) to ALL ENGINE climb gradient using performance manual conversion charts (All Engine Climb Gradient Chart and Conversion From Gradient to Rate of Climb Chart).

STEP 3. Compare the aircraft's ALL ENGINE climb gradient to the minimum published (200 ft/NM if nothing higher is published) climb gradient. Takeoff is NOT PERMITTED unless the aircraft is capable of achieving the minimum published (200 ft/NM if nothing higher is published) climb gradient with ALL ENGINES operating.

6.17.5. If ENGINE OUT performance prohibits aircraft from vertically clearing all obstacles on the planned departure routing, the crew will consider the following:

6.17.5.1. Downloading cargo.

6.17.5.2. Downloading fuel.

6.17.5.3. Delaying the mission until climatological conditions allow for sufficient performance.

6.17.6. If none of the options in paragraph **6.17.5.** are feasible, the crew may depart only if ALL of the following conditions are met:

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

6.17.6.2. The aircraft is capable of achieving the minimum published (Charts on SID, Climb rate in IFR Departure procedures or 200 ft/NM if none is published) climb gradient with ALL ENGINES operating. This enables the aircraft to fly the filed/planned departure (SID, IFR Departure Procedure, Radar Vectors, Diverse Departure) and meet the published climb gradients during a normal ALL ENGINE operating departure.

6.17.6.3. The aircraft commander has determined through a review of all applicable maps and charts that, in the event of an engine failure, the transition from the planned departure to the emergency return or escape routing will allow for obstacle avoidance. These routings alleviate the original departure's obstacles and climb gradients, but at some airfields may still require a climb

gradient greater than 2.5% due to other obstructions along the emergency return or escape route for TOLD computations.

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

6.17.6.5. A full powered take-off will be accomplished.

6.17.6.6. In the event of an engine failure, aircrews will advise ATC of their inability to comply with the published climb gradient. Request radar vectors and/or avoid all obstacles visually by complying with your emergency return or escape routing.

6.17.7. The following procedures apply for all departures:

6.17.7.1. The pilot will provide the obstacle height, distance, and gradient information necessary for performance computations to the flight engineer. As a minimum, review the appropriate terrain chart or sectional chart in addition to the SID. The following guidelines should help eliminate obstacles, which are not a factor.

6.17.7.2. All obstacles on the SID will be considered. If no distance is published, use appropriate aeronautical charts and approach plates (if available) to estimate flying distance to depicted obstacles.

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

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

6.17.7.5. All performance data will be computed by the flight engineer and checked by the pilot using T.0. 1C-10(K)A-1-1 or T.O. 1C-1O(K)A-1CL-2. In lieu of the pilot checking the data, the performance data may also be checked by another qualified flight engineer.

6.18. Alternate Planning.

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

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

6.18.3. Alternates selected must meet the alternate airport weather requirements according to AFI 11-202, Volume 3.

6.19. Departure Alternates.

6.19.1. A departure alternate is required if ceiling or visibility is below landing minimums for an available approach (at departure aerodrome). Do not use category II ILS minimums to determine if a departure alternate is required.

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

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

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

6.20. Destination Requirements (*for filing purpses*). The forecast destination weather will be according to AFI 11-202, Volume 3 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 an available DoD or NOAA precision approach.

6.20.1.2. The forecast is less than VFR for any destination where an NDB is the only available approach.

6.20.1.3. The forecast ceiling OR visibility (intermittent or prevailing) is less than published for all other 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.

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

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

6.20.3. When filing to a remote or island destination, aircrews may use 1 + 15 holding fuel (in lieu of an alternate). Compute holding fuel using planned destination gross weight at FL 200. A remote or island destination is defined as any aerodrome which, due to its unique geographic location, offers no suitable alternate (civil or military) within 2 hours 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.

NOTE:

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

6.20.4. When filing to a destination where the alternate is located in Alaska or at latitudes greater than 59 degrees, carry an additional 30 minutes of holding fuel. In this case, the minimum planned fuel overhead planned destination would include fuel for approach/landing, alternate/missed approach, fuel reserve, and 30 minutes holding fuel. Compute holding fuel using planned destination gross weight, FL 200.

6.21. Adverse Weather.

6.21.1. Do not takeoff under conditions of freezing rain. Do not takeoff under conditions of freezing drizzle or light freezing rain except when using commercial type II/IV de-icing fluids. Refer to the flight manual for guidance on the use of commercial type II/IV de-icing fluids.

6.21.2. During flight, use any means available to avoid thunderstorms by at least:

6.21.2.1. 20 NMs at or above flight level (FL) 230.

6.21.2.2. 10 NMs below FL 230.

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

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

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

NOTE:

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

6.21.6. 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.

NOTE:

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

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

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

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

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

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

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

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

6.22. Fuel Conservation.

6.22.1. Conservation of fuel requires everyone's active participation. For every pound of excess fuel, 3 percent of the excess will be burned each hour. Do not carry extra fuel for convenience. Unidentified extra fuel should not exceed Required Ramp Fuel Load (RRFL) by more than 10,000 pounds.

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

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

6.22.2.2. For known holding delays in excess of standard.

6.22.2.3. For anticipated off course weather avoidance.

6.22.2.4. When escorting fighters where reliable wind data or receiver profiles are not available.

6.22.3. Planning guidelines for fuel conservation:

6.22.3.1. Use optimized computer flight plans when possible.

6.22.3.2. Airlift missions. Long Range Cruise (LRC) and optimum altitude should be flown.

6.22.3.3. Tanker Mission. Plan to and from the AR track or anchor at LRC and optimum altitude. Speed in the orbit will be determined from the performance manual.

6.22.3.4. Fighter Escort Mission. Plan airspeeds and altitudes at optimum, consistent with receiver requirements.

6.22.3.5. See AR manuals for specific KC-10 requirements.

6.22.3.6. Limit the use of the APU when possible.

6.22.3.7. Delay engine start (normal engine start is 15-20 minutes prior to takeoff). Start #2 engine 5 minutes prior to takeoff, gross weight permitting.

6.22.3.8. Cruise CG should be aft if practical.

6.22.3.9. Fly en route descents when possible.

6.22.3.10. Raise boom and close sighting window between multiple ARCTs when feasible.

6.22.4. Fuel loads:

6.22.4.1. KC-10 units may develop standard ramp loads that meet the minimum local training mission requirements or emergency evacuation requirements (whichever is less).

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

Section 6C—Preflight

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

6.24. Aircraft Servicing and Ground Operations.

6.24.1. Aircraft Refueling. Aircrew members qualified in ground refueling may perform refueling duties. Flight engineers acting as refueling supervisors and panel operators will comply with T.O. 00-25-172 and applicable T.O. 1C-10(K)A-2 series T.O.s. The APU will be used as the primary power source for refueling. Aircrews will only refuel in cases when maintenance support is not readily available and the mission would be delayed. Crew members may augment maintenance refueling teams at en route stops.

6.24.2. Concurrent Ground Operations. Concurrent ground operations (simultaneous refueling or de-fueling while cargo or maintenance operations are being performed) are authorized in accordance with T.O. 00-25-172. Aircrews performing Dash-1 preflight inspections or cargo loading concurrent with servicing must have cooperation and close coordination with the Chief Servicing Supervisor (CSS). The CSS will remain in continuous intercom contact with fuel servicing team members during the entire servicing operation. Team members include CSS, Single Point Refueling (SPR) monitor for each SPR in use, refueling panel monitor, fuel specialists, and one person to monitor the opposite side wing fuel vents. One additional person is required to monitor the passenger compartment when passengers are on board.

6.24.2.1. Movement into or within the safe area must be under control of the CSS. Individuals must properly ground themselves before boarding the aircraft or handling fuel servicing equipment. Concurrent servicing, loading, and maintenance must be conducted according to T.O. 00-25-172 and current checklists, which will be reviewed before concurrent operations. Current checklist procedures take precedence over T.O. 00-25-172 procedures.

6.24.2.2. Simultaneous fuel and oxygen servicing is not authorized.

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

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

EXCEPTION: According to **Chapter 13** of this AFI. If allowed on board passengers are prohibited in the cargo compartment during winching.

6.24.3.2. Electric and electronic equipment may be on (prior to) provided it does not radiate energy, but do not turn on or off during refueling.

NOTE:
Circuit breakers and instrument ground switches are not required to be opened during concurrent servicing operations.

6.24.3.3. Pull circuit breakers for Radar altimeters. TACAN must be turned off.

6.24.3.4. Radar may be in standby but timing permitted should be turned off.

6.24.3.5. IFF/SIF may be in standby but timing permitted should be turned off.

6.24.3.6. INS/FMS may be "on" and may be updated. Do not turn on or off during refuel operations.

6.24.3.7. Winching of rolling stock and non-spark producing pallets is authorized. Driving vehicles equipped with spark arresters is authorized during fuel servicing. When loading vehicles without spark arresters, the vehicles must be completely inside the cargo compartment or outside of the established fuel servicing safety zone before fuel servicing lines can be pressurized.

EXCEPTION: All diesel and turbo-charged (without waste gates) gasoline-powered vehicles can be on-loaded or off-loaded without having to stop fuel flow.

6.25. Aircraft Recovery Away from Main Operating Base (MOB). When an aircraft will land at a base other than the MOB, crew chiefs should accompany the aircraft. The aircraft commander is responsible for ensuring the aircraft is turned to meet subsequent mission tasking. If qualified aircraft specialists are unavailable, the aircrew is responsible for turning the aircraft to meet subsequent mission tasking.

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

6.25.1.1. Parking and receiving.

6.25.1.2. Aircraft servicing, including AGE usage.

6.25.1.3. Supervision of minor maintenance within local capability.

6.25.1.4. Minor configuration changes to meet mission tasking.

6.25.1.5. Securing the aircraft prior to entering crew rest.

6.25.1.6. Coordinating aircraft security requirements.

6.25.1.7. AFTO 781-series forms maintenance.

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

6.25.3. Aircrews are not qualified to accomplish the required ground inspections. In those instances where maintenance personnel are not available, the aircrew will enter a red dash symbol in the AFTO Form 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.

6.26. Oxygen Requirements.

6.26.1. For flights where the total number of individuals on board the aircraft does not exceed the total number of operational flight crew oxygen system stations (maximum 11), the minimum quantity of oxygen aboard an aircraft before takeoff must be sufficient to accomplish the planned flight from the equal time point (ETP) to recovery should oxygen be required. Calculate using the 100 percent oxygen chart in the flight manual.

6.26.2. For flights where the total number of individuals on board the aircraft exceeds the total number of operational flight crew oxygen system stations, the intended route of flight must be carefully examined to ensure that there is sufficient fuel on board to allow for the following:

6.26.2.1. A loss of cabin pressurization (from any position along the route).

6.26.2.2. An emergency descent to 10000 feet MSL minimum.

6.26.2.3. Continued flight at 10000 feet MSL to the nearest available emergency airfield.

6.27. Fleet Service Equipment. Ensure required fleet service items are aboard. Fleet service items must be aboard the aircraft early enough to permit inventory 60 minutes before takeoff time.

6.28. Cargo Documentation. Proper cargo documentation must accompany each cargo load. A cargo manifest is required prior to all departures with cargo aboard. If a computerized cargo manifest is not available at the manifesting station, a cargo listing will accompany the load. The cargo/mail listing may be an abbreviated manifest, but will contain all required MILSTAMP data and 463L pallet information for weight and balance purposes. a Shipper's Declaration for Dangerous Goods is required for hazardous cargo. DD Form 1387-2, **Special Handling Data Certification** is required for sensitive/classified/signature service cargo.

6.29. Procedures for Airlifting Hazardous Cargo.

6.29.1. The term "hazardous cargo" as used in conjunction with airlift operations applies to the following classes and types of materials covered by AFJMAN 24-204:

6.29.1.1. Class 1 (Explosives).

6.29.1.2. Class 2 (Compressed gas).

6.29.1.3. Class 3 (Flammable liquid).

6.29.1.4. Class 4 (Flammable solid).

6.29.1.5. Class 5 (Oxidizer and organic peroxide).

6.29.1.6. Class 6 (Poison and infectious substances).

6.29.1.7. Class 7 (Radioactive material).

6.29.1.8. Class 8 (Corrosive material).

6.29.1.9. Class 9 (Miscellaneous dangerous goods).

6.29.2. Procedures in this paragraph apply when aircraft carry any quantity of the following materials:

6.29.2.1. DoD class or division 1.1, 1.2, 1.3 (explosives).

6.29.2.2. Class or division 2.3 (poison gas).

6.29.2.3. Class or division 6.1, (poison) PG I, zone A and B.

6.29.2.4. Class 7 (radioactive yellow III label).

6.29.2.5. Class 4.3 (dangerous when wet).

6.29.2.6. Nuclear weapons, nuclear components, inert devices.

6.29.2.7. DoD hazard class or division 1.4 explosives that transit the United Kingdom, Italy, or Hawaii.

6.29.3. Procedures apply to nuclear 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.

6.29.4. The following procedures are established to satisfy the reporting requirements of AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*. (Nuclear weapons, nuclear components, and inert devices are AFI 11-299, *Nuclear Airlift Operations*:

6.29.4.1. The aircraft commander will be briefed on the following information concerning hazardous materials placed aboard the aircraft:

6.29.4.1.1. Proper shipping name (PSN).

6.29.4.1.2. Hazard class.

6.29.4.1.3. Identification numbers.

6.29.4.1.4. The total quantity of hazardous cargo in gross weight or volume (except for class 9, ORM-D, and consumer commodities).

6.29.4.1.5. The location of hazardous item(s) in the aircraft.

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

6.29.4.1.7. Net Explosives Weight (NEW) for all explosives aboard the aircraft.

6.29.4.1.8. The requirement for escorts, couriers and protective equipment.

6.29.4.1.9. The number of passengers permitted aboard the aircraft.

6.29.4.1.10. The procedures to use in an emergency.

6.29.4.1.11. All cargo being carried under the terms of a DOT exemption, a DoD certification of equivalency (COE), a CAA, or a waiver.

6.29.4.1.12. Written notification indicating "Prior Permission Required" (PPR), obtained from the next base to be transited.

6.29.4.1.13. Smoking restrictions.

6.29.4.1.14. Flight plan annotation requirements.

6.29.4.1.15. Isolated parking and taxiing requirements.

6.29.4.1.16. Security classification, if appropriate.

6.29.4.1.17. 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 paragraphs **6.29.2.** and **6.29.3.**).

6.29.4.1.18. Placard requirements.

6.29.4.1.19. Other special handling requirements.

6.29.4.2. Cargo documentation. The boom operator will ensure proper documentation, certification and identification of cargo is furnished. AFJMAN 24-204 contains detailed instructions on packaging, marking, labeling, and certification requirements associated with the airlift of hazardous materials.

6.29.4.3. Flight Planning. When briefed according to paragraph **6.29.4.1.** , the aircraft commander will:

6.29.4.3.1. Enter "Hazardous Cargo" and the mission identifier or flight number in the appropriate section of the flight plan. Refer to FCG for country specific requirements concerning over-flight when transporting HAZMAT. (Use remarks section of DD Form 175, and other information section of DD Form 1801.

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

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

6.29.4.3.3.1. Class of hazardous material aboard and the DoD class or division for explosives and NEW. Include the gross weight for the materials in paragraph **6.29.3.**

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

6.29.4.3.4. If estimated time en route (ETE) is less than 1 hour, or if other circumstances preclude timely message receipt at destination, notify the base of first intended landing by priority telephone of the ETA and information listed in paragraph **6.29.4.3.3.** Ask the C2 Center at the departure base to relay this information to base operations at the point of first intended landing when a C2 Center is available.

6.29.4.4. Before engine start. Remove placards, when used, from the aircraft. Give the controlling agency parking location, approximate engine start time, and verify the fire fighting agency has the hazardous materials information; otherwise, request the following be relayed to the fire fighting agency:

6.29.4.4.1. Class of hazardous material aboard and the DoD class or division for explosive materials aboard.

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

6.29.4.4.3. Estimated time of departure.

6.29.4.5. En route. Normal procedures apply. Comply with paragraph **6.29.4.3.2.**

6.29.4.6. Before Landing. Unless specifically prohibited by the theater commander, the FCG, or FLIP planning, 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 to announce that "hazardous materials" are aboard and to verify that the hazardous cargo message has been received. Transmit the mission number, ETA, and information in paragraph **6.29.4.3.3.** Request the information be relayed immediately to base operations or the civil airport manager, crash and fire protection agency, and other support activities. If landing at a CONUS civil airport without a tower, give the above information to the nearest FAA flight service station.

6.29.4.7. 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, aircraft commanders are responsible for ensuring cargo is correctly identified to the tower or ground control. When aircraft are not directed to an isolated area, identify the cargo again to tower or ground control. When identification is acknowledged, the host is solely responsible for selecting the parking area. Should host procedures be questionable, submit trip reports or hazard reports as appropriate, to document such occurrences.

6.29.4.8. The military host is responsible for placarding aircraft. When missions operate on non-military bases, the briefing to the aircraft commander 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.

6.29.4.9. Unscheduled Landing Due to In-Flight Emergency. Transmit unclassified information to the appropriate ATC facility as follows:

6.29.4.9.1. Nature of emergency and intent to land.

6.29.4.9.2. Aircraft position and ETA.

6.29.4.9.3. Number of personnel and location in aircraft.

6.29.4.9.4. Fuel on board.

6.29.4.9.5. Hazardous materials aboard, location of the cargo, and applicable information listed in paragraph **6.29.4.3.3.**

6.29.4.10. After Unscheduled Landing. Contact the TACC by telephone, HF radio, L-Band SATCOM, or message, giving arrival notice, hazardous materials information, and other pertinent information, as required.

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

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

6.30.1.1. Defense Courier Service (DCS) couriers coordinating with the aircraft commander are authorized to designate officer and enlisted (E-5 and above) crew members on military aircraft as couriers to escort and safeguard courier material when other qualified personnel are not available. Qualified passengers will be designated prior to designating crew members. The following restrictions apply.

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

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

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

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

6.30.2.1.1. DCS courier.

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

6.30.2.1.3. US Department of State diplomatic courier.

6.30.2.1.4. US Department of State activity.

6.30.2.1.5. US military guards.

6.30.2.1.6. US DoD civilian guards.

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

Section 6D—Departure

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

6.31.1. AR Missions. Scheduled takeoff time may be adjusted to make good the ARCT. Notify C2 agency prior to takeoff to adjust the scheduled takeoff time.

6.31.2. Early Departures:

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

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

6.32. Weather Minimums For Takeoff. See **Table 6.1.**

Table 6.1. Weather Minimums for Takeoff.

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

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

NOTE 2: When weather is below approach and landing minimums (ceiling or visibility) a takeoff alternate is required (See paragraph **6.19.**).

Section 6E—En route

6.33. Flight Progress.

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

6.33.2. Anytime waypoint data is inserted into the INS/FMS, it will be verified by two primary crew members. Check both the coordinate information and the distances between waypoints against the flight plan.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.33.6. Altitude Reservations. Aircraft commanders will ensure ALTRV approval is received prior to mission execution. Aircrews needing to check the status of their ALTRV may contact TACC (appropriate cell) (24 hours) or XOPSA (normal duty hours).

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

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

6.34. Navigational Aid Capability.

6.34.1. North Atlantic minimum navigation performance specification (MNPS) airspace and US West Coast and Hawaii route system procedures are as follows:

6.34.1.1. Minimum navigation performance specifications standards (FLIP AP/2) are mandatory.

6.34.1.2. Aircraft that lose one INS/FMS prior to airspace entry may continue.

6.34.1.3. Aircraft that lose more than one INS/FMS prior to airspace entry will return to the nearest maintenance repair facility. Refer to T.O. 1C-10(K)A-1-2.

NOTE:

With one INS/FMS inoperative, advise ATC unless within range of normal radio aids. Check the accuracy of remaining INSs using all available navigation aids.

6.34.2. Reduced Vertical Separation Minimum (RVSM) Airspace. Airspace where RVSM is applied is considered special qualification airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. The KC-10 is approved for unrestricted use in the full RVSM envelope. Refer to FLIP AP/2 and the following for RVSM requirements:

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

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

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

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

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

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

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

6.34.3. Required Navigation Performance (RNP) Airspace. Airspace where RNP is applied is considered special qualification airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. RNP airspace is being incorporated around the world to increase air traffic capacity by decreasing separation requirements between routes The KC-10 is approved for RNP, but limited to operational time restrictions based on navigation equipment.

6.34.3.1. RNP-10. Compliance includes navigation accuracy within 10NM of actual position 95% of the time. Aircraft not possessing integrated GPS with receiver autonomous integrity monitoring (RAIM), or equivalent system, are limited in how long they may operate in RNP-10 airspace. KC-10 aircraft modified with FMS-800 (integrated GPS and RAIM) may operate in RNP-10 without time limitations.

NOTE:

If the capability to update the internal navigation solution with the GPS is lost, or if RAIM is lost, the aircraft is limited to 5.9 hours of operation in RNP-10 airspace after the GPS or RAIM is degraded.

6.34.3.2. Without integrated GPS, KC-10 aircraft are certified to operate up to 6.2 hours (after going into Nav mode) in RNP-10 airspace (in the future, this time may be extended once additional data has been gathered to validate such an extension). If a TACAN update is made, they may continue 5.7 hours after the update is complete.

6.34.3.3. Until all KC-10's are modified with FMS-800, NOPAC routes will require TACAN updates to be RNP-10 complaint. Shemya TACAN must be operational to fly NOPAC routes with this restriction. Crews will confirm Shemya TACAN status prior to departure when flying NOPAC routing. When abeam Shemya, a position crosscheck will be made. If inertial position is more than 3 NM from TACAN fix position, a TACAN update must be accomplished on all inertial units exceeding this limit. Aircraft can continue in RNP-10 airspace 5.7 hours after TACAN crosscheck and update (if necessary) is complete.

6.34.3.3.1. Flight Planning. Verify aircraft is approved (certified) for RNP operation. Assess mission impact and verify the letter "R" is annotated in block 10 of the DD Form 1801.

6.34.3.3.2. Preflight Procedures. Review maintenance logs to ascertain status of RNP-10 equipment and particular attention should be paid to navigation antennas and the condition of the fuselage skin in the vicinity of these antennas.

6.34.3.3.3. Enroute. At least two long range navigation systems certified for RNP-10 must be operational at the oceanic entry point. Periodic crosschecks will be accomplished to identify

navigation errors and prevent inadvertent deviation from ATC cleared routes. Advise ATC of the deterioration or failure of navigation equipment below navigation performance requirements and coordinate appropriate actions.

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

6.34.4. Basic Area Navigation (BRNAV) Airspace. Airspace where BRNAV is applied is considered special qualifications airspace. Both the operator and the specific aircraft type must be approved for operations I these areas. BRNAV navigation accuracy criteria is RNP-5. The KC-10 is approved for BRNAV operations. Aircraft with FMS-800 installed have no BRNAV restrictions. Without FMS-800 installed, aircraft must auto update every two hours (as required) to maintain actual centerline within +/-5 NM of ATC cleared route.

6.34.4.1. Minimum equipment to operate in BRNAV airspace is one INS capable of updates or a FAA approved FMS-800 or equivalent system. Flights entering BRNAV airspace after long overwater flight must be especially aware of BRNAV tolerances and update accordingly.

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

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

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

6.35.1. In-Flight harassment or hostile action against KC-10 aircraft. Aircraft subjected to harassment or hostile action by foreign aircraft will immediately contact the nearest US Air Force air and ground voice facility and report the encounter. Include aircraft nationality, type, insignia, or any other identifying features; note position, heading, time, speed when harassed, and the type of harassment. Request relay of the report to the nearest C2 Center. Also attempt to contact the nearest command post when in UHF and VHF range (or via L-Band SATCOM).

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

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

6.37. Communications.

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

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

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

6.38. In-Flight Emergency Procedures. Report deviations from directives that may occur as a result of an emergency in accordance with AFI 11-202, Volume 3 and this directive.

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

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

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

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

6.38.2.3. Provide the following information when time permits.

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

6.38.2.3.2. Fuel on board and hours of endurance.

6.38.2.3.3. Position.

6.38.2.3.4. Altitude and flight conditions.

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

6.38.2.3.6. Qualification of aircraft commander.

6.38.2.3.7. Planned landing base.

6.38.2.3.8. ETA at landing base.

6.38.2.4. Passenger Briefing. The Boom Operator or passenger monitor will provide the following information to the passengers when time permits:

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

6.38.2.4.2. Planned landing base.

6.38.2.4.3. ETA at landing base.

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

6.40. Weather Forecasts.

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

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

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

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

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

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

Section 6F—Arrival

6.41. Descent. Prior to descent into unfamiliar areas, appropriate terrain charts (Operational Navigation Chart (ONC), Sectional Aeronautical Chart, Tactical Pilotage Chart (TPC), Jet Navigation Chart (JNC), or Joint Operations Graphic (JOG)) should be reviewed to increase aircrew situational awareness of obstructions. Primary crew members 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. Attempt to accomplish descent/approach briefings prior to entering the terminal area.

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. During night VFR conditions, if an approved instrument approach is not available, a visual approach may be flown (only if a visual glide slope indicator (VASI, PAPI, etc.) is available). On training and evaluation flights at familiar fields, pilots may fly non-precision approaches or VFR traffic patterns to accomplish required training and evaluations. The pilot not flying the approach will monitor a precision approach when practical to enhance safety.

6.42. Instrument Approach Procedures.

6.42.1. Prior to starting an instrument approach or beginning an en route descent, pilots will confirm that existing weather is reported to be:

6.42.1.1. At or above required visibility for a DoD or NOAA precision approach.

6.42.1.2. VFR for any airfield where the only available approach is an NDB.

6.42.1.3. At or above required ceiling and visibility for all other 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 an existing ceiling of 700 feet (plus the published visibility) prior to commencing the approach or en route descent.

NOTE:

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.

6.42.2. For a precision approach, the decision height will provide a height above touchdown of 200 ft or higher. For category (CAT) II ILS approaches, use the lowest published radar altitude. 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. Circling Approach. 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.

6.42.4. NDB Procedures. NDB approaches may be flown in daylight, VFR conditions only. Arrival at any airfield with only an NDB approach (published or available) is limited to day, VFR operations. An NDB may be used at night or in IMC for alignment to a precision final (i.e. procedure turn, holding pattern in lieu of procedure turn, or procedure track to align the aircraft on an inbound course for a precision final approach). Departure from an airfield with only an NDB approach may be accomplished at night or in IMC conditions provided a departure alternate is available which meets the requirements of paragraph **6.19.**

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

6.42.5.1. Do not continue the approach below minimums unless the aircraft is in a position to make a safe landing and the runway environment is in sight. CAT II approaches will not be continued if weather is reported below CAT II minimums.

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

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

6.42.6. CAT II Procedures (100-foot decision height [DH] minimum). Maximum crosswind limitation is 10 knots. Crosswind of 15 knots may be used for training approaches (under VMC).

6.42.6.1. The following airfield and aircraft equipment must be operational (AFMAN 11-117, *Instrument Procedures*).

6.42.6.1.1. Approach lights.

6.42.6.1.2. Runway centerline lighting.

6.42.6.1.3. High intensity runway lights or touchdown zone lights.

6.42.6.1.4. Approach end transmissometer.

6.42.6.1.5. .ILS FAR field monitor.

6.42.6.1.6. Minimum RVR of 1200.

6.42.6.1.7. HAT of 100 feet minimum.

6.42.6.1.8. Sequence flashers.

6.42.6.2. Aircrews will not execute an actual CAT II ILS to minimums unless both pilots and the flight engineer have been through phase I training, received an evaluation, been certified by the squadron commander, and are current in CAT II ILS. The aircraft commander must have logged at least 100 hours in command since the aircraft commander qualification.

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

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

6.42.7.2. Jeppesen and Host Government Instrument Approaches. May be used if HQ AMC approved IAW AFI 11-202, Volume 3. Crews will contact the controlling agency to confirm AMC approval prior to flying these approaches. If not AMC approved, these approaches may not be used.

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

6.43. Classified Equipment and Material.

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

6.43.2. Material. Ensure Communications Security (COMSEC) and other classified materials are turned in at destination and receipts are obtained for COMSEC and classified material. Combat crew communications or C2 Center will provide temporary storage for COMSEC and other classified materials during en route, turnaround, and crew rest stops. COMSEC will only be transferred to authorized DoD personnel.

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

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

6.43.5. Conduct an in-flight check of the mode 4 on all missions departing the CONUS for overseas locations. Aircrews can request the mode 4 interrogation check through NORAD on UHF frequency 364.2. Request an interrogation test through the appropriate Sector Operations Center (SOCCs) at the following locations:

CONUS SECTOR	LOCATION	CALL SIGN
Northeast	Griffiss Airport	Huntress
Southeast	Tyndall AFB	Oak Grove
Southwest	March ARB	Sierra Pete
Northwest	McChord AFB	Big Foot

NOTE:

Remote receiving stations are in place for UHF coverage along entire sectors.

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

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

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

6.44. Unscheduled Landings. When an unscheduled landing or crew rest occurs at a base without a passenger facility, the aircraft commander should immediately advise the appropriate C2 Center and request assistance in arranging substitute airlift for passengers that are aboard. The following procedures apply when obtaining support for service members, in a group travel status, who are transported on AMC organic aircraft flying a TWCF mission which incur an unscheduled delay due to weather or maintenance problems, forcing the members to be lodged at that location until the aircraft can continue its mission.

6.44.1. If the delay is at a location where DoD facilities and AMC TWCF funds are available, payment for lodging (contract or on-base) will be made by the local accounting liaison/OPLOC citing TWCF funds. The appropriate TWCF fund cite may be obtained from the local financial analysis and/or accounting liaison office. Normally, a BPA contract or AF Form 616, **Fund Cite Authorization (FCA)** is already established at these locations to charge the routine lodging costs for transient or TDY individuals who are on TWCF funded travel orders.

6.44.2. If the delay is at a location where DoD facilities are available and AMC TWCF funds are not available, the aircraft commander will utilize AF Form 15 authority to acquire the appropriate lodging accommodations. Upon return to home station, the aircraft commander will turn in the AF Form 15 to the local accounting liaison office. A copy of the service members' group travel orders along with any other pertinent supporting data must accompany the form (e.g., lodging invoice and/or receipts).

When the AF Form 15 has been validated, it will be forwarded on to the servicing OPLOC for payment, citing the funds of the unit whose aircraft was delayed.

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

NOTE:

This policy does not apply to those passengers on delayed TWCF organic aircraft who are in a per diem or space available status except for those duty passengers on TWCF funded travel orders delayed at locations where TWCF funds are available.

6.45. Maintenance. Complete the AFTO Form 781 after each flight. After landing, crew members debrief maintenance personnel on the condition of the aircraft, engines, avionics equipment, and all installed special equipment as required. At stations where there is no maintenance, and maintenance support is required, the aircraft commander will ensure that a thorough maintenance debrief is provided to the controlling C2 Center and the HQ AMC Logistics Readiness Center is notified prior to entering crew rest.

6.46. Border Clearance.

6.46.1. Normal Operations:

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

6.46.1.2. When staff support is not available, border clearance is the responsibility of the aircraft commander. Duties may be assigned to ground personnel or to the boom operator, but the aircraft commander retains ultimate responsibility. When a KC-10 aircraft is on-loaded at a base without an air traffic function, the aircraft commander is responsible for ensuring the following:

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

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

6.46.1.2.3. Cargo entry documents are in proper order.

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

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

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

6.46.1.3. When arriving at stations located in foreign countries, comply with the following guidance:

6.46.1.3.1. Unless otherwise stated in the FCG, DO NOT open any doors other than the primary entrance to the aircraft (i.e. crew entrance door).

6.46.1.3.2. Do not offload passengers, troops, or crew member unless necessary for safety or the preservation of life and property (***EXCEPTION:*** maintenance personnel or other crew member with ground safety duties).

6.46.1.3.3. Do not offload any cargo, mail, or bags until approved by the appropriate local authorities.

6.46.1.3.4. Be courteous with local officials.

6.46.2. Procedures for US Entry:

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

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

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

6.46.2.4. When an aircraft lands for a US border clearance, a US Customs representative normally will meet the aircraft to obtain the required documents. Do not deplane passengers, troops, or crew members unless necessary for safety or the preservation of life and property (scanner excepted). 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.

6.46.2.5. If the aircraft lands for emergency or temporary reasons, the aircraft commander will ensure no cargo, baggage, personal property, or equipment is removed from the aircraft. Additionally, no passengers or crew members will depart the landing place unless removal or departure is necessary for safety or preservation of life and property.

6.46.3. Inspections of US aircraft by foreign officials:

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

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

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

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

6.46.3.2.3. If foreign officials refuse to desist in their search request, pending notification to US Air Force headquarters or the appropriate embassy, the aircraft commander should indicate that he or she would prefer to fly the aircraft elsewhere (provided fuel, flying time, and mechanical considerations permit a safe flight) and request permission to do so.

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

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

6.47. Insect and Pest Control.

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

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

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

6.47.1.1.2. Spray spaces inaccessible from within the aircraft after completely loading fuel, baggage, cargo, and passengers, including 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 prior to boarding crew or passengers. Close all doors and hatches for 10 minutes after dispensing and ventilate for 15 minutes before allowing anyone on board.

6.47.1.2. .Spray for 3 minutes and 20 seconds unless longer periods are specified for the country being transited.

NOTE:

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

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

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

Section 6G—Miscellaneous

6.48. Dropped Object Prevention. 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 routing, altitude, weather, etc.

6.48.2. Notify maintenance at the first AMC station transited.

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

6.50. Life Support and Dash 21 Equipment Documentation. Aircraft commander or designated representative will:

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

6.50.2. Prior to departing home station and following en route crew changes, review, AF Form 4076, **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. Prior to departing home station and following en route crew changes, review, sign, and date the AFTO Form 46, **Pre-positioned Life Support Equipment,** to ensure all required protective clothing and life support and survival equipment have been certified as installed by aircrew life support and that configuration documents match mission requirements. Ensure appropriate number and type of life preservers are aboard for over-water missions carrying children and infants.

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

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

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

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

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

6.50.4.5. When possible, advise HQ AMC/DOTL and TACC (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 and AFTO Form 46, annotate the total quantity in the next vacant column for the item. Ensure the ICAO location designator is entered above the check number of that column.

6.51. Passenger Restrictions.

6.51.1. The cargo compartment will not be used to airlift personnel, except by specific approval of HQ AMC/DO.

6.51.2. Personnel Limitations. This chart reflects the flying hours that a number of personnel (crew and passengers) may be accommodated with only one or with both lavatories available. These figures must be considered when determining the number of personnel that may be airlifted.

Table 6.2. Personnel / Lavatory Requirements.

Total Personnel	Forward Lavatory	Z-Lavatory	Both Lavatories
80	10.3	8.5	18.8
75	11.0	9.0	20.0
70	11.8	9.7	21.5
65	12.6	10.4	23.0
60	13.7	11.3	25.0
55	15.0	12.4	27.4
50	16.5	13.6	30.1
45	18.4	15.0	33.4
40	20.6	16.9	37.5
35	22.6	19.4	42.0
30	27.5	22.6	50.1

NOTES:

1. The lavatories should be properly serviced and operational at the station requiring airlift of these maximum figures.
2. Crew members must be included in total personnel given to arrive at the maximum load.
3. Small children (up to 7 years old) should not be considered when computing load figures.

6.52. Use of Forward Entry Ladder. Use of the forward entry ladder as an alternate means of aircraft ingress/egress is restricted to operational necessity. Baggage will not be loaded/off-loaded using the ladder. The ladder's use is normally restricted to flight crew members and maintenance personnel only. Use of the forward entry ladder to load/unload passengers will be at the discretion of the aircraft commander.

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

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

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

6.54.2. Debrief the next C2 Center transited.

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

Chapter 7

AIRCRAFT SECURITY

7.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (hijacking) of KC-10 aircraft. AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, AFI 31-101, Volume 1, *Air Force Physical Security Program*, and specific MAJCOM security publications contain additional guidance. Aircrews will not release information concerning hijacking attempts or identify armed aircrew members or missions to the public.

7.2. Security. The KC-10 is a priority "C" resource. Aircraft security at non-United States military installations is the responsibility of the controlling agency.

7.3. Air Force Physical Security Program. The following security procedures will implement AFI 31-101, *The Air Force Physical Security Program*, requirements for KC-10 aircraft:

7.3.1. The aircraft will be parked in an established restricted area and afforded protection via a roving patrol and a two-person armed response capability within 5 minutes.

7.3.2. When no permanent or established restricted area parking space is available, establish a temporary restricted area consisting of a raised rope barrier, and post with restricted area signs. Provide a one-person mobile patrol, supported by a two-person security response team capable of 5 minute response. Portable security lighting will be provided during the hours of darkness if sufficient permanent lighting is not available.

7.3.3. At non-United States military installations, the aircraft commander 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.

7.3.5. Security support is a continual requirement and is not negated by the presence of aircrew or ground crew members. Security force support terminates only after the aircraft doors are closed and the aircraft taxies.

7.4. En Route Security. The planning agency must coordinate with the execution agency to ensure adequate en route security is available. Aircraft commanders 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 enroute C2 Center as required. If required, a PHOENIX RAVEN security team will be assigned to the mission.

7.4.1. PHOENIX RAVEN Security Teams support mobility operations by providing security protection for aircraft transiting high threat locations where host, or enroute security support may be marginal, unreliable, or nonexistent. PHOENIX RAVEN Security teams 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. A daily Threat Working Group (TWG) assesses security requirements for mobility missions and helps determine if an security team is required. When assigned PHOENIX RAVEN support, the aircraft commander will:

7.4.1.1. Verify PHOENIX RAVEN Security Team member's travel orders. The PHOENIX RAVEN Security Team reports directly to the aircraft commander, when assigned.

7.4.1.2. Be responsible for the PHOENIX RAVEN Security Team's welfare (transportation, lodging, etc.).

7.4.1.3. Ensure the PHOENIX RAVEN Security Team receives an aircraft mission briefing and aircraft egress/passenger briefing (as appropriate).

7.4.2. Arrival. On arrival, the aircraft commander will assess the local situation and take the following actions as required:

7.4.2.1. Area patrol. Request area security patrols from local security forces. If local authorities request payment for this service, use AF Form 15.

7.4.2.2. 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.

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

7.4.3. 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, **USAF Restricted Area Badge**, supported by an entry access list (EAL) or aircrew orders. Aircrew members and assigned crew chiefs are authorized escort authority.

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

7.4.3.2. Personnel not on the entry control list or aircrew orders must be escorted within the area.

7.5. Detecting Unauthorized Entry.

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

7.5.1.1. Use available aircraft ground security locking devices.

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

7.5.1.3. Close and lock the door 1L.

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

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

7.5.2. Security awareness is crucial to effective mission accomplishment. Aircrews must always remain vigilant to their surroundings, especially at high threat, low security locations. During preflight activities, aircrews will inspect accessible areas, to include aircraft wheel wells, CAC, forward avionics compartment, and ARO aft accessory compartment of the aircraft for unauthorized packages, personnel, or other unfamiliar devices. Report any suspicious items to host security forces. Aircrews will maintain a heightened security posture throughout all pre-takeoff activities.

7.6. Preventing and Resisting Hijacking.

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

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

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

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

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

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

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

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

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

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

7.6.11. Tanker Responsibilities. When tasked for refueling or surveillance operations, the tanker will:

7.6.11.1. Immediately after launch, establish radio contact with the C2 element via HF.

7.6.11.2. Rendezvous with interceptors for air refueling or the hijacked aircraft for surveillance as soon as possible after takeoff.

7.6.11.3. If rendezvous is with the hijacked aircraft, assume a trail position out of cockpit and cabin view. Remain in an unobserved position unless otherwise directed. Safety is paramount; therefore, tanker aircraft will maintain a 5-NM trail in United States airspace and a 10-NM trail in Canadian airspace.

7.6.12. After direction to assume surveillance mission, continue until:

7.6.12.1. Fuel state dictates aborting to arrive at alternate with fuel reserves specified in this AFI.

7.6.12.2. Recalled by the C2 agency.

7.6.12.3. The hijacked aircraft's destination is determined to be a country requiring over flight clearance for the tanker. Contact a command center or command post for further direction. Until directed to over-fly sovereign airspace, maintain a 12-NM separation as specified in the Foreign Clearance Guide.

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 KC-10 is operating away from home station, the aircraft commander will ensure provisions of this chapter and AFI 13-207, as supplemented, are complied with.

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

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

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

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

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

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

7.7.5.2. Clear weapons in accordance with standard safety procedures.

7.8. Initial Response. When an act of air piracy involves an Air Force installation or aircraft within the United States, response will be according to the following guidelines until such time as FAA assumes active direction of anti-hijacking efforts. Resist all attempts to hijack a military aircraft. Resistance may

vary from simple dissuasion, through deception and subterfuge, to direct physical confrontation, including the prudent use of weapons.

7.8.1. The following guidelines should be used to counter a hijacking, actual or threatened, while the aircraft is on the ground:

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

7.8.1.2. 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:

7.8.1.2.1. MAJCOM commander exercising operational control of the aircraft.

7.8.1.2.2. MAJCOM commanders in whose Area of Responsibility (AOR) the airfield lies.

7.8.1.2.3. Senior operational commander on scene.

7.8.1.2.4. Aircraft commander in compliance with MAJCOM directives.

7.8.2. A hijacked aircraft carrying weapons of mass destruction will not be allowed to takeoff. Refer to DoD 5210.41M, paragraph 9B(3), for additional guidance.

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

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

7.9.2. Dissuade the hijacker.

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

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

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

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

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

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

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

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

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

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

7.10.5. To report "situation still desperate, want armed intervention and aircraft immobilized", leave flaps and slats full down (50 degrees/LAND) after landing, or select flaps 50 degrees while on the ground. To facilitate message distribution, transmit "(aircraft call sign) flaps are full down."

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

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

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

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

7.11.2.1. Maintain TAS not more than 400 knots.

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

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

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

7.11.2.5. Set mode 3 code 7700 on transponder.

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

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

7.12. Arming of Crew members. When crews are directed to carry weapons, the AC will determine which crew members will be armed (two crew members will be armed unless directed otherwise). All crew members should know who is armed. The following procedures apply when arming is directed:

7.12.1. 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, **Temporary Issue Receipt**.

7.12.2. 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 Center, armories, and other facilities associated with aircrew activities.

7.12.3. 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.

7.12.4. Crew Rest.

7.12.4.1. Aircrews, including stage crews, will store weapons and ammunition in the most secure facility available, normally the base armory.

7.12.4.2. Non-stage aircrews may store weapons and ammunition in the aircraft gun box.

7.12.5. When storing weapons in the gun box:

7.12.5.1. Weapons should not normally be unloaded.

7.12.5.2. Advise C2 Center as to which crew member has the gun box key.

7.12.6. Crew members will ensure they are reissued the same weapon until mission termination at home station.

7.12.7. 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.

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

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

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

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

7.13.1.3. Do not wear clothing displaying profanity.

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

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

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

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

7.13.1.8. Avoid demonstrations for any cause.

7.13.1.9. Avoid discussion of politics.

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

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

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

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

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

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

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

7.13.2.7. Only leave the ignition key with parking attendants.

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

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

7.13.2.10. Travel with companions or in convoys when possible.

7.13.2.11. Avoid isolated roads and dark alleys.

7.13.2.12. Ride with seat belts buckled, doors locked, and windows closed.

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

7.13.2.14. Circle the block for confirmation of surveillance.

7.13.2.15. Do not stop or take other actions that could lead to a confrontation.

7.13.2.16. Recognize events that could signal the start of an attack, such as cyclist falling in front of your car, flag men or workman stopping your car, fake police or government checkpoints, disabled vehicle/accident victims on the road, unusual detours, an accident in which your car is struck, cars or pedestrian traffic that box you in, or sudden activity or gunfire.

7.13.2.17. Know what to do if you are under attack. Consider sounding the horn, putting another vehicle between you or your pursuer, executing an immediate turn and escape, jumping curbs at a 30-45 degree angle, etc. Ram a blocking vehicle only as a last resort. Go to the closest safe haven. Report the incident to security police.

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

7.13.3.1. Don’t discuss our military affiliation with strangers.

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

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

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

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

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

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

7.13.4.2. Always lock interior locks when occupying rooms.

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

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

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

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

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

Chapter 8

OPERATIONAL REPORTS AND FORMS

8.1. General. Applicable reports and forms are contained in this chapter. Specific reports and forms applicable only to the flight engineer are in **Chapter 12**.

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

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

8.2.2. Special Procedures for Hazard Reports Concerning Weather. Complete the front of an AF Form 457 and address it to the parent wing flying safety office. If a computer flight plan deficiency is involved, attach one copy of the AF Form 72, **Air Report (AIREP***)*, or AF Form 4113, **INS Flight Plan and Record** and the computer flight plan to the report. Send the report so that the parent unit receives it within 5 days.

8.3. AF Form 651, Hazardous Air Traffic Report (HATR). See AFI 91-202, Attachment 3, *Hazardous Air Traffic Report (HATR) Program* (RSC HAF-SE (AR) 7602).

8.3.1. The Air Force HATR program provides a means for personnel to report all near midair collisions (NMAC) and alleged hazardous air traffic conditions. Use information in HATR reports only for mishap prevention. AFI 91-202 list reportable incidents.

8.3.2. Procedures:

8.3.2.1. Make an airborne report of the hazardous condition to the nearest air traffic control agency (e.g. center, FSS, control tower, or aeronautical radio station), and give the following information as appropriate:

8.3.2.1.1. Identification or call sign.

8.3.2.1.2. Time and place (radial/DME of NAVAID, position relative to the airfield, incident, etc.).

8.3.2.1.3. Altitude or flight level.

8.3.2.1.4. Description of the other aircraft or vehicle.

8.3.2.1.5. Include a verbal statement as soon as possible after occurrence that a written HATR report will be filed upon landing.

NOTE Air Traffic Control agencies must know if an official report is being filed.

8.3.2.2. File the HATR as soon as possible (within 24 hours) using any means of communication available. Normally, it should be filed at the Air Force base operations office at the landing airport. If this is impractical and if communications permit, notify the safety office of the Air Force base where the condition occurred, the safety office at the home base, or as prescribed by the overseas major command. In any case, provide the base or wing safety office with all available information needed to prepare AF Form 651. Turn in a completed copy of AF Form 651 to the wing safety office.

8.3.3. Individuals submitting HATRs are granted immunity from disciplinary action provided:

8.3.3.1. Their violation was not deliberate.

8.3.3.2. They committed no criminal offense.

8.3.3.3. No mishap occurred.

8.3.3.4. They properly reported the incident using procedures above.

NOTE:

HATR reports are not privileged information and may be released outside the US Air Force.

8.4. AMC Form 97, **AMC Unusual Occurrence/Bird Strike Worksheet.**

8.4.1. Responsibilities. Notify the appropriate authorities of any mishap involving aircraft or crew.

8.4.2. Reportable Mishaps. Report damage to the aircraft or injury to the crew or passengers. Also, any damage or injury to another organization's equipment or personnel resulting from the movements or actions of an AMC aircraft or crew. Reportable mishaps include:

8.4.2.1. Physiological mishaps.

8.4.2.2. Engine flameout, failure, or required shutdown, after engine start with intent for flight, regardless of damage. Report incidents involving two or more engines immediately. Single-engine incidents may be reported upon landing.

NOTE:

Intentional shutdowns for training, FCF, or other non-emergency purposes are excluded; however, report failure to restart, using the criteria above.

8.4.2.3. Loss of thrust sufficient to preclude maintaining level flight at a safe altitude.

8.4.2.4. Engine case penetration by shrapnel from internal engine component failure.

8.4.2.5. Engine case rupture or burn-through, engine bay fire, or massive fuel leakage.

8.4.2.6. Unselected thrust reversal.

8.4.2.7. Flight control malfunction (including AFCS and trim systems) resulting in an unexpected, hazardous change of flight attitude, altitude, or heading. When making the AFTO 781A, ***Maintenance Discrepancy and Work Document***, entry, include the flag words "reportable flight control malfunction."

8.4.2.8. Malfunction of landing gear when difficulty is experienced using emergency system or procedures.

8.4.2.9. Cargo door or ramp malfunction when intent for flight exists which could affect the integrity of the system.

8.4.2.10. In-Flight loss of all pitot-static instrument indications or all gyro-stabilized attitude or directional indications.

8.4.2.11. Spillage or leakage of radioactive, toxic, corrosive, or flammable material from aircraft stores or cargo that, in the judgment of the reporting individual, is significant hazard to the crew, passengers, or aircraft.

8.4.2.12. Human factors related situation, e.g. misinterpretation of instruments; crew overload, i.e. tactile, aural, and visual input to the crew at a rate too fast to permit reasonable decisions based on the data received; or too many actions required in too short a period of time; or confusion of controls such as would be caused by adjacent switches where the actuation of the wrong switch could create a dangerous situation. Anonymous reports of such situations are acceptable.

8.4.2.13. All cases of departure from intended takeoff or landing surface onto a surface not designed to normally support takeoff or landing loads.

8.4.2.14. All in-flight fires regardless of damage.

8.4.2.15. All bird strikes regardless of damage.

8.4.2.16. Any occurrence which does not meet the established criteria for a reportable mishap but, in the judgment of the reporting individual, needs to be emphasized in the interest of safety.

8.4.3. Procedures. Report mishaps as soon as possible to the following offices using the following precedence:

8.4.3.1. MAJCOM flying safety officer (FSO).

8.4.3.2. Any FSO.

8.4.3.3. Nearest C2 Center.

8.4.3.4. Base operations.

8.4.4. In all cases, retain a copy of all relevant information, and turn it into a home station safety officer.

8.4.5. Required Information. Complete all appropriate areas of the form. Provide as much detail as possible.

8.5. Reports of Violations/Unusual Events or Circumstances. Violations identified in AFI 11-202, Volume 3, *General Flight Rules*, alleged navigation errors (including over-water position errors exceeding 24 NMs, border and air traffic control violations) will be reported.

8.5.1. Use the following format and include factual circumstances, investigation and analysis, findings and conclusions, recommendations, and actions taken.

8.5.1.1. Attachments to include notification of incident, crew orders, statement of crew members (if applicable), and documenting evidence (logs, charts, etc.).

8.5.2. In addition to the information listed, the historical flight plan will be downloaded onto a floppy disk and turned in to the C2 Center or owning standardization and evaluation office.

8.5.3. Send the original investigation report within 45 days to the appropriate MAJCOM. AFRC units receiving alleged violations will send the original investigation through channels to arrive at HQ AFRC/IGI within 35 days. HQ AFRC/IGI will send the investigation report to the MAJCOM within 45 days.

8.5.4. The following OPREP-3 reporting procedures for all aircraft notified of navigational errors exceeding 24 NMs will be reported under AFMAN 10-206, *Operational Reporting.*

8.5.4.1. On notification of a navigational position error, the aircraft commander (or agency receiving notification) documents the circumstances surrounding the incident (report content below) and ensures submission of an OPREP-3 report through C2 Center channels.

8.5.4.2. Report content: Name and location of unit submitting report, mission identification number, reference to related OPREPs-3, type of event (State "Navigation position error."), date, time (Zulu), and location (i.e. ARTCC area), description of facts and circumstances, aircraft type and tail number, unit (wing or squadron assignment of crew), home base, route of flight, point of alleged deviation, and miles off course.

8.5.5. Aircraft commanders must keep AMC C2 Centers apprised of any unusual events or circumstances impacting their missions. Examples of reportable events include meaconing, jamming, intrusion, interception, fuel dumping, loss of multiple engines, hostile fire, injury to passengers or crew members, etc. This list is not exhaustive. Some events may require the C2 Center to forward OPREP reports to higher headquarters. The old adage, “when in doubt, report it,” applies.

8.6. Petroleum, Oil, and Lubricants (POL)—Aviation Fuels Documentation. This section describes procedures for the aviation fuel program (AVPOL) for all USAF aircraft. Procedures are established for correct documentation, processing of forms and invoices, program oversight, and personnel responsibilities. Reference AFI 23-202, *Buying Petroleum Products, and Other Supplies and Services Off-Station*, AMC decentralization procedures, and AFM 67-1, Volume 1, part 3 . If you have questions or need further information regarding the DESC into-plane program or the U.S. government air card, call DESC at 1-800-avcard1, or contact the air card program manager, at (703) 767-8495, or visit the DESC web site at: http://www.DESC.dla.mil.

NOTE:

The identaplate will only be used at military installations until the bases are equipped with electronic point of sale readers. A simple way for aircrews to differentiate the cards: use the commercial card at commercial airports - use a military card at military airports!

8.6.1. Responsibilities. All aircrew and maintenance personnel will be familiar with the procedures and documentation requirements of this chapter. Purchase of aviation fuel not complying with this instruction may become the financial responsibility of the purchaser.

8.6.2. Aircraft will be refueled or de-fueled at DoD locations unless DoD-owned fuel is not available; in which case, fuel may be procured from other sources using the following priority.

8.6.2.1. Defense Fuel Supply Center (DFSC) or Canadian into-plane contracts.

8.6.2.2. Foreign government air forces.

8.6.2.3. Open market AIR card purchase, to include Shell International Trading Company (SITCO) agreement.

NOTE:

DoD FLIP en route supplements identify locations with into-plane contracts.

8.6.3. AVPOL Documentation Use and Procedures.

8.6.3.1. AF Form 664**, Aircraft Fuels Documentation Log**. Used to log and store all AVPOL transaction documentation. Log all off station transactions on front of AF Form 664 then insert the supporting documentation inside the envelope. Turn AF Form 664, with supporting documentation, in at maintenance debriefing (or IAW locally established procedures).

NOTE:

When logging in-flight on-load transactions on the AF Form 664, place the 8-digit tail number of the tanker in the block titled "Airfield Name," and the unit number and home station in the block titled "Airfield Address."

8.6.3.2. The AIR card will be used to purchase aviation fuel, fuel related supplies, and ground services at commercial airports where DoD or Canadian Into-Plane contracts do not Exist. Tickets for AIR card purchases will be recorded and placed inside the AF Form 664.

8.6.3.3. AF Form 315**, United States Air Force Avfuels Invoice**. Use this form to purchase fuel at non-DoD and Canadian Into-Plane contract locations and when the vendor will not accept the Air card. See AFI 23-202, *Buying Petroleum and Other Supplies and Services Off-Station*. Block 4 (Send Bill To) address on the AF Form 315 must reflect the following address: SA-ALC/SFR, 1014 Billy Mitchell Blvd, STE 1, Kelly AFB TX 78241-5603. When completed, log and place inside the AF Form 664.

NOTE:

Vendor must submit original copy of completed AF Form 315 with their invoice to the address indicated in Block 4 for payment. Contrary to what is printed in Block 16 of AF Form 315, the vendor will not be paid until they initiate billing to SA-ALC/SFR.

8.6.3.4. AF Form 15**, United States Air Force Invoice.** This form is used for procurement of items or services required at commercial locations where normal DoD support and supplies are not available. If the vendor will not accept the AIR card, use AF Form 15 to pay for ground fuels, oils, or services. Block 4 (Send Bill To) of the AF Form 15 must reflect the address of the home-station supporting DFAS-OPLOC. When completed, log and place inside AF Form 664. The accomplished form is returned to the aircraft's home station for payment. The responsible resource advisor must validate and certify the completed AF Form 15 and forward to the supporting DFAS-OPLOC for payment. See AFI 23-202.

8.6.3.4.1. Provide the original and one legible copy of the AF Form 315 or 15 to the vendor. The vendor must submit the original copy of the AF Form 315/15 to the address identified in Block 4 of these forms for payment. A legible copy of the AF Form 315/15 must be obtained by the aircraft commander, then logged and placed inside the AF Form 664.

8.6.3.4.2. Purchases at Canadian into-plane locations will be documented using the local vendor's invoice. AF Form 15 or 315 will not be accomplished. Hand scribe the information from the aircraft identa-plate to the vendor's invoice, and complete a separate sheet with the information listed on the Aviation Issues to DoD and Non-DoD, Aircraft Refueling Tender Sheet. See AFI 23-202. Log and place a copy inside the AF Form 664.

8.6.3.4.3. Purchases at SITCO Agreement locations require presenting the aircraft identa-plate (DD Form 1896). The invoice must include the date of transaction, grade of the product, quantity issued or de-fueled, unit of measure, and signature of the Air Force representative. If the vendor also requires completion of an AF Form 15 or 315 in addition to their invoice, annotate on the vendor's invoice "AF FORMS EXECUTED." Log and place the documentation inside the AF Form 664.

8.6.3.4.4. Purchases at non-contract (DoD/Canadian Into-Plane) commercial airports will be accomplished using the AIR card or the AF Form 315 and/or AF Form 15 when vendor does not accept the AIR card. Refer to AFI 23-202 for guidelines on completing these forms.

8.6.3.4.5. Purchases at foreign military airfields, including replacement-in-kind (RIK) locations, the host country forms are used to record the purchase. Information from the aircraft identa-plate should be hand scribed on the local form. Log and place a copy inside the AF Form 664.

8.6.3.4.6. If an embassy arranges fuel support and pays the vendor in cash, an AF Form 315 must be completed with the addition of the statement in Block 11: "paid by US Embassy". Also include in Block 11, the date, POC, and telephone number of responsible embassy employee. When completed, attach vendor ticket, then log and place inside AF Form 664.

NOTE:

In this situation, do not leave a copy of the AF Form 315 with the vendor. Base wing refueling document control officers will forward AF Form 315 to SA-ALC/SFR.

8.6.4. AF Form 791**, Aerial Tanker In-Flight Issue Log.** Used for all in-flight off-load transactions. All blocks are required to be filled out with the ***EXCEPTION*** of the gallons. Tail numbers for the tanker and receivers must be the 8-digit number. When completed, log and place inside AF Form 664 or turn in according to locally established procedures.

8.6.4.1. When on operational air refueling missions supporting priority 2 or higher missions, aircraft commanders will contact HQ AMC TACC/XOC (HILDA) and pass the following:

8.6.4.1.1. AR complete time.

8.6.4.1.2. Actual off-load.

8.6.4.1.3. Reason(s) AR not accomplished (if applicable).

NOTE:

If unable to contact HILDA in-flight, AC will pass data prior to entering crew rest at destination base.

8.6.5. AF Form 1994, **Fuel Issue/De-fuel Document**. Used for purchases at all US Air Force locations using a valid DD Form 1896, **Jet Fuel Identa-plate**. Log and place inside AF Form 664.

8.6.6. AFTO Form 781H, **Aerospace Vehicle Flight Status and Maintenance Document**. Complete form per applicable technical directives. When removed from jacket, turn in to maintenance. Maintenance will retain for 90 days after inter-fund billing to provide a secondary audit trail for fuels issue and flying hours.

8.6.7. DD Form 1896, **Jet Fuel Identa-plate**.

8.6.8. DD Form 1898, **AvFuels Into Plane Sale Slip**, fuel transaction receipt is used for purchases at other DoD locations, including DFSC into-plane contract locations. Log and place inside AF Form 664.

NOTE:

If the contractor insists on completing their own invoice in addition to the DD Form 1898, the invoice must be annotated "DUPLICATE DD FORM 1898 ACCOMPLISHED."

8.6.9. AF Form 4091. Used to record pertinent data throughout the mission planning, preflight, in-flight, and post-flight phases. Tail number must be 8-digits. Turn this in with post mission paper work.

8.6.10. Wing Scheduling. The wing scheduling office will:

8.6.10.1. Work with and provide a representative to the AVPOL advisory group.

8.6.10.2. Prepare a monthly report for the invoice control officers (ICO) by the 7th of each month stating the following:

8.6.10.2.1. Organization(by squadron).

8.6.10.2.2. Mission design and series (MDS).

8.6.10.2.3. Programmed flying hours for previous and current month.

8.6.10.2.4. Actual flying hours for the previous month.

8.6.10.3. Provide on the weekly flying schedule the receivers MDS, command of assignment, unit or squadron, and home station name for each sortie.

8.6.10.4. Prepare and transmit classified messages for classified in-flight refuelings to HQ AMC/LGSF, according to AFM 67-1, Volume 1, part 3, *Supply/Fuels Wartime Planning*, attachment 34.

8.6.10.5. Maintain a current list of receiver unit points of contact (POC) and telephone numbers.

8.6.11. Aircraft Commanders will:

8.6.11.1. For local training missions, verify that AF Forms 791 and AFTO Form 781 are completely filled out prior to maintenance debriefing. Turn in AFTO Form 781H to maintenance debriefing. Turn in AF Forms 791 IAW with local procedures.

8.6.11.2. For off station missions, verify that AIR card receipts, AF Forms 15, 315, 664, 791, 1994, AFTO Form 781H, DD Form 1898, and all associated fuels receipts are completely filled out and placed inside the AF Form 664. (All USAF aircraft must contain an 8-digit tail number). Ensure that AF Form 664, with all refueling documentation, and the AFTO Form 781H are turned in at maintenance debriefing. Ensure that all AF Forms 664 and 791 information is phoned, faxed, or sent by message back to the ICO if aircraft is to be off station past the last day of the month.

NOTE:

When situations arise that preclude the transmission of AF Form 664 data, the information will be relayed on arrival from the first available AMC command post.

8.6.12. Boom Operators will:

8.6.12.1. Ensure receiver MDS, unit of assignment, and home station are available on the flying schedule.

8.6.12.2. Prior to off-loading any fuel, ascertain the receivers eight digit tail number using inter-plane radio, if communications will not compromise tactics, clandestine or covert operations or safety of flight. Boom interphone may be used on those aircraft so equipped. The tail number may be acquired visually if the receiver has the tail number clearly visible.

NOTES

1. Training under EMCON 2 or 3 will not preclude the use of inter-plane radios for obtaining or verifying air refueling data.
2. Under NO circumstances shall inter-plane radios be used during actual EMCON 2,3, or 4 to obtain or verify air refueling data, unless specifically authorized by competent authority. Utilizing HAVE QUICK II and secure voice should be considered.

8.6.12.3. Under no circumstances will any of this data be obtained by any means, which would interfere with or threaten safety of flight.

8.6.12.4. Information not obtained prior to or in-flight shall be obtained after the flight.

NOTE:

AF Form 791s that are still incomplete after all means to obtain the required data have been exhausted shall be turned with a brief explanation. Local procedures will be developed to ensure required information is obtained prior to final processing of the form.

8.6.12.5. Utilization of "known" or "suspected" aircraft serial numbers assigned to the unit being refueled, but not necessarily the actual aircraft refueled, will not be used. Receiver unit aircraft serial numbers are compared to the fuel load reports at their home station, and if the aircraft tail number being billed was in fact in maintenance or for some other reason not able to fly, the fuel bill will be rejected and the tanker unit will be liable for the fuel.

8.6.12.6. Units will establish AF Form 791 procedures for classified in-flight refuelings.

8.6.13. Flight Engineers. Flight Engineers will accurately record all in-flight on-loads and off-loads on the AFTO Form 781H, AF Form 4091 and AF Form 664. Record, when transmitted, receiver refueling information, i.e., tail number, unit of assignment, and home station.

8.6.14. Maintenance Personnel. Maintenance Personnel will:

8.6.14.1. Local Training Missions: Ensure all in-flight refueling documentation, i.e. AF Form 791 and the AFTO Form 781H are completed and collected for each mission, if required.

8.6.14.2. Off station Missions: Ensure all ground refueling and de-fueling documents are accurately completed and placed inside AF Form 664. Prior to deployment, ensure an adequate supply of fuels transaction documents are onboard the aircraft to complete the deployment.

8.7. AMC Form 54, Aircraft Commander's Report on Services/Facilities. This is an instrument for aircrews to report that services rendered or conditions encountered were unsatisfactory or detrimental to efficient air mobility operations; services rendered or procedures used are worthy of adoption for all MAJCOM organizations; or a performance rendered by a person (or persons) was commendable and deserves recognition. Attempt to solve problems by contacting appropriate supervisors including the

senior commander if conditions and situation warrant. If further action is deemed necessary or the problem requires increased visibility, submit this form. Deliver the completed form as follows: To the command post. Locations with no C2 Center—give the form to the senior representative. Locations with no senior MAJCOM representative--give the form to next en route command post. This report is designated emergency status code C1; continue reporting during emergency conditions, priority precedence. Submit data requirements in this category as prescribed or by any means possible to ensure arrival on the established due dates. Discontinue electronic reporting during MINIMIZE.

8.8. AMC Form 43, AMC Transient Aircrew Comments. , Any crew member may submit this form. The report may be submitted whether or not an unsatisfactory item is included in the aircraft commander's trip report. Complete AMC Form 43 and send to HQ AMC/MWPS. This report is designated emergency status code C2; continue reporting during emergency conditions, normal precedence. Submit data requirements in this category as prescribed or as soon as possible after submission of priority reports. Continue electronic reporting during MINIMIZE.

8.9. AMC Form 196, Aircraft Commander's Report on Crew Members. The aircraft commander will prepare an AMC Form 196 on each crew member whose performance was outstanding, below average, or unsatisfactory during a mission. Send the report to the commander of the unit to which the crew member is assigned or attached for flying. Form should fully explain outstanding, below average, and unsatisfactory performance.

8.10. AMC Form 423, MIJI (Meaconing, Intrusion, Jamming, Interference) Incident Report Worksheet.

8.10.1. Purpose. The MIJI reporting system is a program to identify, analyze, and disseminate information concerning MIJI incidents.

8.10.2. Procedures. Comply with Air Force headquarters direction by reporting all incidents through the OPREP (operations reporting) system. Complete the MIJI Incident Report Worksheet, and turn in to base operations upon landing.

8.11. AF Form 3578, Tanker Activity Report (TKACT). Tanker activity reporting is accomplished by the pilot according to AFI 11-222, *Tanker Activity Report.*

Chapter 9

TRAINING POLICY

9.1. Qualification Training. Initial qualification, re-qualification, or upgrade training for pilots will not be conducted on missions with passengers onboard. Mission qualification training may be conducted on missions with passengers onboard only if the individual in training is qualified (completed aircraft check-ride with a valid AF Form 8).

9.2. Flight Maneuvers. The maneuvers listed are authorized for qualification and continuation training. They are applicable to all KC-10 aircraft except when prohibited or restricted by the flight manual or other current directives. The pilot or IP will alert all crew members prior to accomplishing the following:

9.2.1. Steep Turns (direct IP supervision).

9.2.2. Landing Attitude Demonstration (direct IP supervision).

9.2.3. Slow Speed Tanker Refueling Demonstration (may be performed in-flight according to applicable training instructions. Perform at a minimum altitude of 10,000 feet AGL. Initial and re-qualification students will perform "Slow Speed Tanker Refueling Demonstration" under direct IP supervision. Intentional flight at speeds less than 1.2g or initial buffet onset is prohibited. Intentional in-flight demonstration of stick shaker activation or buffet onset is prohibited).

9.3. Touch and Go Landing Limitations.

9.3.1. Touch and go landings will only be accomplished under the direct supervision of an IP or SQ/CC certified AC.

9.3.2. An in-flight evaluation and SQ/CC certification will be accomplished prior to an AC accomplishing touch and go landings without direct IP supervision. The evaluation should occur in conjunction with the initial qualification evaluation. After successful evaluation, ACs must be evaluated on recurring evaluations to maintain touch and go qualification.

9.3.3. AC touch and go certification:

9.3.3.1. ACs must have accumulated a minimum of 50 hours (not including other time) since AC qualification prior to touch and go certification.

9.3.3.2. The SQ/CC determines touch and go certification requirements for ACs.

9.3.3.3. Separate SQ/CC certifications are required for ACs to: 1) Accomplish their own touch and goes. 2) Supervise other pilots' touch and goes. SQ/CCs will document these certifications using the AF Form 1381, **USAF Certificate of Aircrew Training**, in the individual's FEF.

9.3.4. Current and qualified instructor pilots and SQ/CC certified aircraft commanders are authorized to conduct/supervise touch-and-go landings under the following conditions:

9.3.4.1. Flight manual restrictions and procedures apply.

9.3.4.2. Use a runway of sufficient width and length to permit a safe, normal, full-stop landing.

9.3.4.3. Minimum ceiling of 1000 ft and minimum visibility of 2 miles (300 ft and 3/4 miles (RVR 40) for IPs).

9.3.4.4. Wet runway or RCR must be a measured 8 or higher.

9.3.4.5. Do not accomplish touch-and-go landings on slush covered runways.

9.3.4.6. Maximum crosswind component is 15 knots (20 kts for IPs).

9.3.4.7. The center gear will be extended for touch-and-go landings.

9.3.4.8. Passengers or cargo will not be carried during touch-and-go operations or multiple practice approaches.

9.3.4.9. A minimum of 9 wheel brakes must be operational. Anti-skid on all operational wheel brakes must be functioning normally.

9.3.5. Supervision of touch-and-go landings. Review the following:

9.3.5.1. Flight manual procedures.

9.3.5.2. The importance of smooth application of power to the touch-and-go N1 setting while maintaining symmetric thrust as the throttles are advanced.

9.3.5.3. Engine failure, including recognition and corrective action.

9.3.5.4. Proper use of spoilers, flaps, and trim.

9.3.6. To provide additional training flexibility, crews may perform multiple approaches, and if qualified, touch and go landings on operational airlift (e.g., TWCF) missions provided the following requirements are met:

9.3.6.1. Normal touch and go limitations apply.

9.3.6.2. All transition training will be accomplished during the first 12 hours of the FDP only.

9.3.6.3. Pre-mission coordination requirements. As part of pre-mission planning, aircraft commanders will contact parent wing current operations and obtain training mission number(s) for use at each en route location(s) where training events are planned. In addition, aircraft commanders will coordinate with and receive approval from the airfield(s) where training is to be accomplished. They will then coordinate with the TACC 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.

9.3.6.4. 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. Not Used .

9.5. Not Used.

9.6. Operating Limitations.

9.6.1. Policy: Unless specifically authorized elsewhere in this section, do not practice emergency procedures that degrade aircraft performance or flight control capabilities (in-flight).

9.6.1.1. In an actual emergency, terminate all training and flight maneuvers practice. Training should be resumed only when the pilot in command determines it is safe.

9.6.2. Option Approach and Visual Low Approaches. Initiate a planned missed approach not later than:

9.6.2.1. Precision approach--DH (or 200-feet HAT, whichever is higher).

9.6.2.2. Non-precision approach—missed approach point (MAP).

NOTE:

Does not preclude landing attitude demonstration.

9.7. Landing Limitations. The following limitations apply to touch-and-go and full stop landings:

9.7.1. Flap setting—Do not practice landings with less than 35 flaps.

9.7.2. Multiple full stop landings—Compute brake energy prior to each subsequent takeoff.

9.8. Prohibited In-Flight Maneuvers. The following maneuvers will not be practiced or demonstrated in-flight:

9.8.1. Stalls and approach to stalls.

9.8.2. Abnormal configuration approaches.

9.8.3. Dutch roll.

9.8.4. Emergency descent.

9.8.5. Unusual attitudes.

9.8.6. Tactics maneuvers (except those specified in **Chapter 17**, or those specifically authorized by HQ AMC) as simulated emergency procedures.

9.8.7. Bank angles greater than 30 degrees except steep turn demonstration (perform according to applicable training regulation) and tactical maneuvers specified in **Chapter 17** or specifically authorized by HQ AMC.

9.9. Training / Evaluation Briefing. Before all training/evaluation missions, aircraft commanders or instructors/flight examiners will brief their crews on the following additional items:

9.9.1. Training/Evaluation requirements. Instructors/evaluators (for each crew position) will outline requirements and objectives for each student or examinee.

9.9.2. Planned training area and seat changes.

9.10. Debriefing. Review and evaluate overall training performed. Each student or aircrew member should understand thoroughly what training has been accomplished. Ensure all training is documented.

9.11. Simulated Instrument Flight. Artificial vision restricting devices are not authorized for any phase of flight. Simulated instrument flight may be flown and logged without the use of a vision restricting device.

Chapter 10

LOCAL PROCEDURES

10.1. Units define local operations procedures in this chapter.

Chapter 11

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11.1. This chapter not used for KC-10 operations.

Chapter 12

FLIGHT ENGINEER PROCEDURES AND FORMS

12.1. GENERAL: This chapter contains FE procedures not contained in the flight manual, other portions of this AFI, or other publications.

12.2. Responsibilities. The FE is responsible to the aircraft commander for all inspections and procedures required by the applicable technical orders and regulations.

12.3. Authority to Clear Red X Symbols. FEs 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 most qualified flight engineer on the scene may obtain authorization to clear the Red X from the logistics group or operations group commander or designated representative or chief of maintenance, in accordance with T.O. 00-20-1. Other crew members are not authorized to clear a Red X.

EXCEPTION: The FE may clear Red Xs for engine covers, pitot covers, gear pins, and SPR drains when qualified maintenance personnel are not available, unless prohibited by the home station logistics group or operations group commander or designated representative or chief of maintenance.

12.4. Aircraft Servicing. FEs are normally not required to refuel or de-fuel aircraft; however, the FE is qualified and authorized to accomplish these duties when maintenance personnel are not available. This policy is designed for support of the aircraft and its mission while away from home station. Without ***EXCEPTION***, the applicable refueling and de-fueling checklists will be used during all refueling and de-fueling operations. If ground support personnel are not available, the aircraft commander will designate other crew members to assist the FE. An FE 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.

12.4.1. Refueling at nonsupport stations. When crew members are required to refuel due to lack of maintenance support, the FE will act as the refueling team supervisor. Two other crew members are required to assist in the refueling, one for safety duties and the other to act as fire guard. Four total will be required when the right wing single point refueling (SPR) is inoperative and refueling must be accomplished from the FE's panel.

12.5. Engine Performance Monitoring. The KC-10 engine performance monitoring program requires that specific data be recorded on each flight of the aircraft. For operational missions, when possible, attempt to accomplish two engine coupons, one after level off and one prior to descent. This data is then given to maintenance for analysis and entry into the computer to become a permanent part of the engine's history. In order to track potential engine failure, every effort must be made to record engine performance data on every sortie. Coupons must be turned in chronologically by page number. Crew chiefs are encouraged to write in aircraft flying time and oil serviced on the next form to be filled out by the FE.

12.5.1. The primary method of KC-10 engine performance monitoring is the EGT divergence method. This is the comparison of EGT from one engine to another on the same aircraft using number 2 engine as the baseline. This method is best suited for the KC-10 because it allows data from a wide range of altitudes and flight conditions to be utilized. Crew members should be aware that data may be collected with the boom and drogue deployed as long as airspeeds remain stable, no climbs or

descents are initiated, and the receiver is no closer than pre-contact. Annotate boom and drogue deployed on back of the coupon. Receiver requirements and safety are paramount.

12.5.2. Instructions for engine performance monitoring:

12.5.2.1. Auto throttles off. If possible, allow power to stabilize for 5 minutes.

12.5.2.2. Align N-1 RPMs to within 0.3 percent of each other.

12.5.2.3. Normal pneumatic bleed conditions (air conditioning packs on, engine and wing anti-ice off).

NOTE:

If normal pneumatic bleed configuration is not possible, record actual configuration on the back side of the coupon.

12.5.2.4. Stabilized cruise, light turbulence is permissible, power stabilized.

12.5.2.5. Altitude: 10,000 feet or greater. (Above FL 270 is optimum).

12.5.2.6. Mach: 0.699 or greater.

12.5.2.7. Record at least one coupon per flight (two coupons preferred). If a coupon cannot be completed, see paragraph **5.5.** for an alternate method. As a minimum, fill in the shaded area and the reason on the back for non-completion.

12.5.2.8. Record the following data:

12.5.2.8.1. Total Air Temperature: To the closest degree centigrade (C).

12.5.2.8.2. Indicated Air Speed: To the closest knot.

12.5.2.8.3. Mach: All 3 Numbers (within +.001).

12.5.2.8.4. Cruise Gross Weight: To the nearest 100 pounds.

12.5.2.8.5. Aircraft time at start of flight: To the nearest hour.

12.5.2.8.6. Date-of-Flight.

12.5.2.8.7. Aircraft Tail Number.

12.5.2.8.8. Fuel Temperature: General Electric and Lockheed have agreed that this is no longer tracked or required.

12.5.2.8.9. FE's name in upper right corner.

12.5.2.8.10. N1: To closest +.1 percent.

12.5.2.8.11. EGT. To the closest degree.

12.5.2.8.12. N2: To closest +.1 percent.

12.5.2.8.13. Fuel flow: To the nearest 10 pounds per hour.

12.5.2.8.14. Vibration: To the nearest .01 units.

12.5.2.8.15. Oil added: Entered by crew chief prior to flight.

12.5.2.8.16. Oil pressure: To nearest pound per square inch (PSI).

12.5.2.9. If an indicator becomes erratic or inoperative, record the best estimate of data.

12.5.2.10. Compare EGT data with the engine baseline chart on the FE table, or in AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document.**

12.5.3. EGT is the primary indication of the CF6 engine operating condition. Since EGT will never shift downward (unless caused by an instrument error), any upward shift of more than +15 degrees C must be entered in the aircraft AF Form 781A, Maintenance Discrepancy and Work Document. For example, if the EGT comparison page in the front of the AF Form 781A indicates engine #1: +13 degrees C, engine #2: baseline, and engine #3: +6 degrees C, then the maximum EGT for the #1 engine is baseline plus 28 degrees C, and the maximum EGT for the #3 engine is baseline plus 21 degrees C. Readings above these maximum values require a AF Form 781A entry. If an upward shift of more than +15 degrees C is identified, the condition will be immediately reported to home station for guidance.

12.5.4. EGT divergence baseline letters should be maintained in each aircraft. The card is updated every 60 days by maintenance based on the engine monitoring data received.

NOTE:

The data recording procedures listed above must be followed to assure accurate monitoring of engine health and performance. Even slight errors in the flight data entered on the engine performance monitoring coupon can result in relatively large errors in the program output. The flight crew is a vital and essential part of the program.

12.5.5. Alternate Method for Engine Performance Monitoring. This method should only be used in cases were the parameters for the primary method can not be met. Crew members should be aware that data may be collected with the boom or drogue deployed as long as airspeed remains stable, no climbs or descent are initiated, and the receiver is no closer than pre contact. Annotate boom and drogue deployed on back of coupon. Discontinue coupon reading any time safety could be compromised. As a goal, this method should not be used more than 15 percent of the time. The following applies:

12.5.5.1. May be accomplished at any altitude and airspeed/Mach.

12.5.5.2. Auto throttles must be off. Allow power to stabilize for one to three minutes.

12.5.5.3. Align N1 to within 0.3 percent of each other.

12.5.5.4. Normal pneumatic bleed conditions (air conditioning packs on, engine and wing anti-ice off).

12.5.5.5. Record EGT and N1 speed.

12.5.5.6. Fill in "AFSN" block and all shaded areas.

12.5.5.7. Provide a short explanation why the alternate method was required on the reverse side of the coupon.

NOTE:

If normal pneumatic bleed configuration is not possible, record actual configuration on the back side of the coupon.

12.6. Aircraft Structural Integrity Program. The FE will complete AFTO Forms 18, **Structural Assessment Data Sheet,** on each flight according to T.O. 1C-10(K)A-101. The new form will contain WARP and UARRSI tracking data.

12.7. Not used.

12.8. Performance Data Computations. T.O. 1C-10(K)A-1-1 will be used for all performance computations. TOLD computations will be placed on the AMC Form 640 *(To be converted to* AF Form 4089). All performance data will be computed by the flight engineer and checked by the pilot. In lieu of the pilot checking the data, the performance data may also be checked by another qualified flight engineer.

12.9. General Navigation Duties.

12.9.1. General. The FE performs navigation duties using the INS/FMS. INS/FMS operations may include waypoint loading, updating navigation information for the various modes of INS/FMS operation, extraction of coordinates from maps for loading into navigation equipment (e.g. revised AR tracks), recording of latitude and longitudinal coordinates during AR emergencies, and use of computer flight plans to maintain a fuel "how goes it" log when required.

12.9.2. Mission Planning. The FE assists the pilots in extracting data from maps and charts, plotting headings or TACAN and VOR radials, determining wind factors, and mission timing. This may require using basic navigation tools (dividers, plotters, and navigation computers), calculators, and microcomputers with associated software.

12.9.3. Preflight. Flight engineers accomplish the aircraft preflight according to T.O. 1C-10(K)A-1. Time permitting, the FE should load the flight plan waypoints into the INS/FMS. This allows additional time for data verification and use of the INS/FMS remote ranging function to cross-check inputs. Loading waypoints allows cross-check by the pilots and enhances mission departure flexibility should last minute mission changes occur.

12.9.4. In-Flight. Use the INS/FMS to check flight progress and fuel status at pre-selected points along the route of flight. The FE will take an active role in maintaining awareness of aircraft location and position along the flight path. This should include assisting the PNF loading and verifying new and updated waypoints. The INS/FMS will also be used to determine time, distance, and fuel requirements for all in-flight diversions. The #3 INS/FMS may be programmed independently to monitor progress of the mission in relation to required AR start, end AR, and abort points during receiver deploy and re-deployment missions.

12.9.5. Post Flight. If any INS/FMS system error is greater than 3 NMs per hour or residual ground speed is greater than 15 knots, an AFTO Form 781A entry is required.

12.10. Mission Planning.

12.10.1. Mission planning. AF Form 4091, **Mission Data** is used to record pertinent data throughout the mission planning, preflight, in flight, and post flight phases. Most blocks are self-explanatory, and only those sections required for the mission need to be completed. Block 34, Time and Fuel Analysis, will be completed prior to takeoff. Units are encouraged to publish additional guidance in their local **Chapter 10** of this AFI. See **Attachment 2** for guidance on completing AF Form 4091, block 34, Time and Fuel Analysis.

12.10.2. Fuel planning. AF Form 4090, **KC-10 Flight Plan/Fuel Log**, is used during mission planning for fuel planning when no CFP is available. During flight planning, the pilots provide the information required by the FE to compute the fuel requirements. All pertinent AR information is entered. Fuel required is computed by using the charts in the performance manual. In some cases, the charts provide a margin of safety. However, every effort must be made to eliminate unnecessary "padding" of fuel figures.

NOTE:

Aircraft with warps installed can incur substantial fuel penalties. Drag degradation with hoses deployed and slats and flaps extended can increase fuel consumption by nearly 10 percent. These and any other external configuration changes (i.e. gear down flights), will require modifications to increase standard fuel planning numbers. Consult drag index chart and gear down data in the performance manual.

12.10.3. Fuel planning values. The following standard planning values are presented to aid in fuel planning and represent techniques and procedures, which have proven successful.

12.10.3.1. Start engines, taxi, and warm-up and APU operation (SET)—1500 pounds. When more than 15 minutes ground operation time is anticipated, add 100 pounds for each minute in excess of 15 minutes, not to exceed 3000 pounds.

12.10.3.2. Takeoff and acceleration (TOAC). This will normally be the first line entry on a flight plan and represents the amount of time and fuel used from the start of takeoff roll (brake release) to the start of climb (2000 feet). This is normally 3 minutes and 2500 pounds of fuel.

12.10.3.3. Enroute. Fuel for flight from start of climb at the departure location to begin descent point.

12.10.3.4. Climb. Initial and second segment climb will normally be shown as a separate line entry, while enroute climbs may be included as part of the cruise leg. For climbs in excess of 4000 feet, compute the additional fuel required to climb and add this value to the fuel for cruise during that leg.

12.10.3.5. Cruise. Fuel for cruise is calculated using specific range charts. Enter the chart for the proper altitude with the planned indicated air speed (IAS) or MACH and average gross weight. Nautical miles per 1000 pounds of fuel divided into the air distance for the leg equals fuel consumption for that segment. If a chart for the planned altitude is not available, the chart for the next lower altitude should be used.

12.10.3.5.1. Every effort should be made to plan cruise segments at the altitude and speeds that provide the best fuel economy. Altitudes 2000 feet above or below optimum altitude, or speeds in excess of .02 MACH above optimum, will cause a rapid degradation of fuel economy.

12.10.3.5.2. Maintaining a CG aft of 24 percent will increase range. Maintain aircraft CG as far aft as practical for the mission. Fuel savings increase substantially in the aft vs. forward range.

12.10.3.6. Descents. Descents need not be calculated.

12.10.3.7. Alternate (If required). Enter time and fuel to alternate chart (**Chapter 10**) in the performance manual with distance to planned alternate and estimated landing gross weight (nominal 260,000 pounds without cargo, 320,000 pounds with cargo) to obtain fuel burn-off to alternate.

12.10.3.8. Approach and Landing. ACFP will automatically compute required time and fuel from begin descent point to landing. Use this computed figure when using ACFP flight plans. In all other cases, use 3000 pounds.

12.10.3.9. Transition. When transition training is scheduled, use a standard fuel consumption value of 18,000 pounds per hour. This includes the fuel used for descent and initial approach.

12.10.3.10. Air Refueling. Fuel consumption during tanker refueling is normally calculated using the specific range charts. Enter the chart for the proper altitude with the planned IAS and average gross weight and determine the average nautical miles per pound/1000 (NMPP/1000). Apply the drag index values for that particular configuration. As a receiver, use the Fuel Consumption During Air Refueling charts (**Chapter 7**) in the performance manual.

12.10.3.11. Holding Fuel. 45 minutes or 12,000 pounds, which ever is greater. Compute holding fuel for 45 minutes using planned destination gross weight at 10,000 feet. Use the three-engine holding chart from T.O. 1C-10(K)A-1-1, Section 6, and a 25-degree bank angle. However, if the computed fuel value is less than 12,000 lbs., use 12,000 lbs. as the holding fuel value. (When filing to a destination where the alternate is located in Alaska or at latitudes greater than 59 degrees, or when holding is required in lieu of an alternate at a remote or island destination, carry an additional 30 minutes of holding fuel, computed at FL 200. ACFP will show 1+15 in the holding block.)

12.10.3.12. Decompression fuel. This is additional fuel, which may be needed to satisfy oxygen requirements. For flights where the total number of individuals on board the aircraft exceeds the total number of operational flight crew oxygen system stations, ensure there is sufficient fuel on board to allow for a loss of cabin pressurization (from any point along the route), an emergency descent to 10,000 feet AGL minimum, and continued flight to the nearest suitable emergency airfield. To compute required decompression fuel, examine the intended route of flight to determine the point furthest from a suitable emergency airfield. Examine the computer flight plan to determine the amount of fuel remaining on board the aircraft at that point. Compare that fuel remaining value with the amount of fuel that would be required to proceed from that furthest point, at 10,000 ft, to the suitable emergency airfield, execute an approach (3,000 lbs.), and land with 12,000 lbs. If additional fuel is required (decompression fuel), add it to identified extra.

12.10.4. Automated Mission Planning. Automated mission plans are those plans generated in whole or in part by a logic computer, either micro or main frame in size. Only command approved computer programs will be used for KC-10 mission planning. The command's commercially contracted CFP system is the preferred CFP system, since real-time weather data and route optimization are provided. There is no automated takeoff and landing performance data program authorized for use at this time.

12.10.4.1. ACFP is the command's preferred CFP. While these CFPs provide an easy and effective way to track distance, time, and fuel; it is essential that crews be familiar with system limitations and built in parameters.

12.10.4.2. The CFP flight planner has control over many CFP parameters. For example, the flight planner can determine whether or not an alternate is planned, how many alternates are planned, how much identified extra is planned, whether or not a Point of Arrival Fuel (PAF) is planned,

whether or not an actual ramp fuel is planned, and how much holding fuel is planned. Normal default holding fuel is 45 minutes. Planner should use 2 hours for remote/island destination (45 minutes holding at 10000 feet plus 1:15 holding at FL 200 in lieu of an alternate). It is the crew's responsibility to review each CFP and determine if the planned values chosen by the flight planner are sufficient for the mission. The following are additional guidelines:

12.10.4.2.1. If the CFP includes alternate fuel, but you are not required to file an alternate, do not include this fuel in your calculations.

12.10.4.2.2. The CFP does not include decompression fuel.

12.10.4.2.3. The CFP total endurance block includes all AR onloads and offloads.

12.10.5. Verification of automated mission plans. The crew must verify CFP fuel calculations using the KC-10 performance manual (T.O. 1C-10(K)A-1-1) and the following fuel computation verification procedure:

12.10.5.1. Using figures 10-6 through 10-11 in the performance manual (T.O. 1C-10(K)A-1-1), enter with "CFP" total distance to obtain enroute time and fuel required.

NOTE:

AR activities and flying at altitudes lower than figures 10-6 through 10-11 will increase fuel required.

12.10.5.2. Add 7000 pounds (4000 start engines, taxi, takeoff, and acceleration (SETTOAC), 3000 approach and landing).

12.10.5.3. If an alternate is required, enter time and fuel to alternate chart (**Chapter 10**) in the performance manual with distance to planned alternate and estimated landing gross weight (nominal 260,000 pounds without cargo, 320,000 pounds with cargo) to obtain fuel burn-off to alternate.

12.10.5.4. If the destination is remote or island, 1 + 15 holding fuel may be used in lieu of alternate fuel. Use the three-engine holding chart from T.O. 1C-10(K)A-1-1, Section 6, and a 25-degree bank angle to compute holding fuel. Use planned destination gross weight and FL 200.

12.10.5.5. Add scheduled offload fuel; subtract onload scheduled from the total.

12.10.5.6. Add fuel required for transition (18,000 pounds per hour) to the total. If transition is at the end of the flying period, reduce this amount by alternate fuel (if required) and approach and landing fuel.

12.10.5.7. Add holding fuel (12,000 pounds minimum) and enroute reserve fuel (if required) to the total.

12.10.5.8. Add decompression fuel (if required).

12.10.5.9. The total of the above steps represents the minimum mission fuel required. The aircraft fuel load may be increased to allow for unplanned contingencies, but should not normally be increased more than 10,000 pounds (identified extra). Amounts (unidentified extra) in excess of 10,000 pounds over flight plan fuel load should be tracked by unit scheduling for input into the unit fuel conservation program or de-fueled if possible.

12.10.6. In-Flight Fuel Management:

12.10.6.1. AMC Form 641 (*To be converted to* AF Form 4090) or the computer flight plan is a fuel management tool. This form should be completed for all AR missions and any flight departing the local area for duration in excess of 4 hours and when no computer flight plan is used or available.

12.10.6.2. Fuel consumption will be monitored by comparing actual to predicted fuel remaining. At a minimum, consumption comparisons will be accomplished:

12.10.6.2.1. As soon as practical after initial level off; record fuel total, compare to predicted total.

12.10.6.2.2. Prior to and after each AR.

12.10.6.2.3. During over-water cruise at intervals not to exceed 1.5 hours.

12.10.6.2.4. Any time aircraft performance is critical or marginal.

12.10.6.3. The fuel monitoring portion of the form may be discontinued at the discretion of the aircraft commander when the following conditions have been met:

12.10.6.3.1. All refuelings have been completed.

12.10.6.3.2. The equal time point has been crossed (over-water missions).

12.10.6.3.3. The fuel systems and quantity indicators are functioning normally.

12.10.6.3.4. There is obvious extra fuel and the + FUEL trend is favorable.

12.10.7. Flight Plan Changes and Diversions. When mission requirements dictate a change to the planned mission, the fuel must be recalculated to ensure safe completion of the flight. The INS/FMS can be used to quickly modify and update the fuel log. The pilot or FE will normally insert the new waypoint coordinates for the flight plan changes. The INS/FMS may then be used to find the new leg distances by using the remote range function. This distance must be converted to "air distance" by applying the wind factor from the INS/FMS. When the new leg air distance is known, calculate the new leg burn-off. When the burn-off for each leg is known, update the fuel log using the "REV FUEL" block. It is recommended that the "REQ O/H DEST" fuel be entered in the "REV FUEL" block at the destination, then work the plan backwards, applying the new leg burn-offs and any AR on-loads or off-loads. The fuel log is then used in the normal manner by comparing the actual fuel to the REV FUEL and logging the + FUEL for the new waypoint. Do not apply the "extra" fuel to the new + FUEL as the new calculations are based on the "minimum" requirements.

12.10.8. Weight and Balance. The FE is responsible for completion of DD Form 365-4, **Weight and Balance Clearance Form F-Transport/Tactical,** in the absence of a qualified boom operator. He or she assists the boom operator by positioning fuel to satisfy ballast requirements for cargo loading operations. The FE has sole responsibility for aircraft weight and balance after DD Form 365-4 is completed and the aircraft is ready for flight.

12.11. In-Flight Troubleshooting. FEs may do minor troubleshooting in-flight. However, due to interrelated systems, flight crews will not, nor will they allow maintenance personnel to perform in-flight maintenance to include indiscriminately pulling circuit breakers or swapping components.

12.12. Not Used.

12.13. Auxiliary Power Unit (APU) Usage. FEs should not start the APU in-flight merely for convenience. It should only be used for an abnormal or emergency condition requiring its use in-flight.

12.14. Slip Stick. Slip stick will not be used for performance data computations or to verify performance data.

12.15. Center of Gravity (CG) Computations. CG will be computed and tracked using the zero fuel weight (ZFW) and ZFW CG provided by the boom operator using AMC Form 638 *(To be converted to* AF Form 4087) and AMC Form 639 (*To be converted to* AF Form 4088). The flight engineer will carry these forms on all missions.

12.16. Fixed Flap Takeoffs. A fixed flap takeoff (defined as 15- or 22-degree detent) may be executed when the following have first been accomplished.

12.16.1. Compute an optimum flap takeoff setting for the given conditions.

12.16.2. If the 15- or 22-degree flap line for the actual gross weight (GW) falls below the runway available limiting weight (RALW) and climb gradient limiting weight (CGLW) lines (sheet 3 tree chart of T.O. 1C-10[K]A-1-1) and the actual GW is less than maximum takeoff gross weight (MTOGW), the crew has the option of executing a fixed flap takeoff. The same fixed flap setting will be used for the remainder of all performance computations.

12.16.3. The fixed flap option may be executed for initial or full-stop taxi back TOLD on local flights only. At fields other than home base, optimum procedures will be used.

12.17. Runway Slope Calculations. When using non-DoD/NOAA airfield diagrams and approach plates to determine runway information for takeoff and landing data calculations, the aircrew must calculate runway slope since non-DoD/NOAA charts do not do this for you. To calculate runway slope you must extract the departure end elevation and the approach end elevation from the airfield diagram and use the following formula:

12.17.1. Slope in Percent = $\frac{\text{(Departure End Elevation - Approach End Elevation)}}{\text{Runway Length}}$ X 100

Chapter 13

BOOM OPERATOR PROCEDURES

13.1. General: The primary duty of the boom operator is to conduct AR operations. Specific AR instructions and procedures are in **Chapter 17** of this AFI. Other duties include load planning, coordinating loading and unloading operations, supervising on-loading and off-loading of passengers and cargo, and providing in-flight assistance to passengers.

13.2. Responsibilities for Aircraft Loading.

13.2.1. AMC Stations.

13.2.1.1. Air freight personnel are responsible for selecting cargo and mail for airlift, promptly completing documentation, palletizing cargo, load planning, computing load distribution, and movement of cargo to and from the aircraft to meet scheduled departure. They will advise the boom operator of destination, size, weight, and type of cargo (classified, hazardous, etc.) before starting load operation to permit proper positioning. They will also coordinate traffic activities that may affect loading and off-loading and assign sufficient air freight loading personnel for cargo handling. they are responsible for safe positioning of material handling equipment and cargo when outside the aircraft cargo door. Under supervision of the boom operator, air freight personnel prepare the aircraft for loading (or stow loading equipment if the aircraft is not to be reloaded), physically load the aircraft, tie down cargo and equipment, release tie-down, and physically off-load cargo.

13.2.1.2. The boom operator is responsible for aircraft preflight, preparation of DD Form 365-4, **Weight and Balance Clearance Form F-Transport/Tactical,** certifying load plans; operating aircraft loading equipment; supervising and directing loading, off-loading, and tie down; and coordinating with loading crew supervisor for checking the cargo against manifests. He or she may be required to assist in configuring the aircraft for cargo loading and unloading (increased accommodation unit [IAU] removal and installation). When using the powered roller system, ensure no personnel are standing on a powered roller or in the line of travel of a moving pallet. Should cargo, aircraft equipment, or aircraft structure be damaged during loading or off-loading, or should loading personnel be injured, the boom operator will notify the aircraft commander, the command post, and the terminal operations officer. The boom operator will brief the aircraft commander on any hazardous cargo prior to engine start.

13.2.1.3. The Boom Operator retains the authority to adjust load plans for common sense purposes and those reasons pertaining to basic cargo principals. Departure timing must be considered when changing load plans. Otherwise, loads planned by qualified load planners will be accepted by the aircraft boom operator and loaded aboard the aircraft as planned, unless the load or any portion of it will compromise flight safety (including zero fuel weight desired CG) or does not comply with aircraft T.O.s, Air Force publications, or AMC publications. If cargo is refused or rearranged for these reasons, all applicable information, to include a copy of the load plan, will be sent to HQ AMC/DOV, attached to an AMC Form 54, through standardization channels.

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 off-loading. Boom operator responsibilities and authority are the same as described in paragraphs **13.2.1.2.** and **13.2.1.3.**

13.2.3. During JA/ATT, SAAM, contingency, and US Air Force mobility missions, the boom operator can accept DD Form 2133, ***Joint Airlift Inspection Record***, as a valid pre-inspection of equipment being offered for air shipment. This form, validated by two joint inspector signatures, may be used in lieu of the applicable portions of the Technical Order (TO) 1C-5A-9Cl-1. The DD Form 2133 will not be used to document preparation of hazardous materials. This will be accomplished using the Shipper's Declaration for Dangerous Goods.

13.3. Emergency Exits and Safety Aisles. There must be a reasonable degree of access to the rear of the aircraft, and passengers and troops must have ready access to emergency exits. Load aircraft in such a manner that allows for movement from the flight deck to the "ARO" compartment and access to cargo for fire fighting (except in the "all cargo" Code "D" configuration when access to only one side of the cargo is required).

NOTE:

All hand-carried items must be of a size to fit under the seat and must not obstruct the aisle way. Any items that do not fit under a seat or obstruct an aisle way will be placed in the cargo compartment and secured for flight.

13.4. Preflight Duties.

13.4.1. Cargo Missions.

13.4.1.1. Aerial port personnel establish loading times. Loading times that differ from the normal pre-departure sequence will be established before the boom operator enters crew rest. Loading time is governed by the type of load and complexity of loading procedures (bulk, palletized, etc.) not by port saturation or management of aerial port workload levels.

13.4.1.2. Proper cargo documentation must accompany each load. A consolidated statement (manifest) will be delivered to the aircraft prior to departure unless one is not available due to a lack or failure of the manifest processing equipment. In this case, a cargo listing or floppy disks containing manifest information must accompany the load.

13.4.1.3. Make every effort to exchange tie-down equipment on a one-for-one basis. If this is not possible, annotate the, AF Form 4069, **Tie down Equipment Checklist**. At non-AMC stations, 463L pallets will normally be exchanged on a one-for-one basis.

13.4.1.4. Fleet Service Checklist.

13.4.1.4.1. Aircrew members will make every attempt to ensure the AF Form 4049, **Aircraft Servicing Checklist**, is placed on the aircraft and signed by the fleet service representative prior to departure.

13.4.1.4.2. At en route location, annotate the form with the station ICAO or 3 letter identifier over the appropriate block in section II. Example: aircraft departs Dover arrive Ramstein AB, and terminates in Dover. In section II, column 2, enter EDAR (for Ramstein) and the number of items the aircraft arrived with in the appropriate rows. Fleet service will inventory and annotate departure information in column 2, d (departure) block. Fleet service will, write sta-

tion ICAO code, date, print and sign with grade in section I. If at a station with no fleet service, annotate the appropriate block in section I indicating fleet service was not available.

13.4.1.4.3. If inventory changes, make annotations in section III. Place item nomenclature, increase/decrease amounts, station where changes occurred, date and reason why inventory changed.

13.4.1.4.4. If crewmembers notice lost or missing equipment, make every attempt to recover. If unable to recover missing fleet service items, annotate section IV and have aircraft commander sign certification.

13.4.2. 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. Do not hesitate to contact TACC/APCC at DSN 576-1755/1758, commercial 618-256-1755/1758, or through 1-800 AIR MOBL for any questions such as, to 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.

13.4.2.1. Ensure all food items are removed from the aircraft by fleet and returned to the in-flight kitchen if an extended delay occurs. Ensure that a copy of AF Form 129, **Tally In-Out**, is received from fleet to relieve the boom operator of meal accountability.

13.4.2.2. Complimentary snacks and beverages are authorized on TWCF funded missions (including AFRC flown missions) for passenger consumption only. Complimentary snacks are not authorized on JA/ATT, JCS exercises, or SAAMs. The squadron or port operations officer will ensure snacks and beverages are placed on board when departing AMC stations. When departing from other stations and no snacks or beverages are to be placed onboard, the boom operator may obtain required snacks and beverages from the local in-flight kitchen. Direct the in-flight kitchen to bill the accounting and finance office at the aircraft's home station. Record all unused snacks and beverages on AF Form 129 and return to the in-flight kitchen for turn-in credit.

13.4.2.3. A passenger service representative or crew member will assist passengers at the bottom of the steps, and the boom operator will assist in seating passengers. Ensure that only adult, English-speaking passengers are seated next to emergency exits. Do not seat mothers with infants nor children under 15 years old in seats adjacent to emergency exits. Make every effort to seat families together.

13.4.2.4. All passengers will be assigned a seat. When children under the age of two, below the weight of 40 pounds, and under the height of 40 inches are accepted as passengers, the parent or guardian must provide their own FAA approved infant car seat (ICS). This requirement does not preclude a passenger from temporarily holding an infant during the cruise portion of a flight when safety considerations are not violated. Passenger service will ensure ICS bears one or more labels as follows: (a) seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: "This child restraint system conforms to all applicable federal motor vehicle safety standards."; (b) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels: (1) "This child restraint system conforms to all applicable federal motor vehicle safety standards"; and (2) "This restraint is certified for use in motor vehicles and aircraft" in red lettering. ICSs that do not qualify as above must bear either a label showing approval of a foreign government or a label showing that the seat was manufactured under the standards of The

United Nations. Booster-type child restraint systems (as defined in Federal Motor Vehicle Standard No. 213 (49 cfr 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft.13.4.2.4. When children under the age of two, below the weight of 40 pounds and under the height of 40 inches are accepted as passengers, the parent or guardian must provide their own FAA approved car/infant seat (ICS). This requirement does not preclude a passenger from temporarily holding an infant ***during the cruise portion of a flight when safety considerations are not violated.*** The approved car/infant seat must bear one or more labels as follows: (a) seats manufactured to u.s. standards between January 1, 1981, and February 25,1985, must bear the label: "This child restraint system conforms to all applicable federal motor vehicle safety Standards."; (b) seats manufactured to u.s. standards on or after February 26,1985,must bear two labels: (1)"This child restraint System conforms to all applicable federal motor vehicle safety Standards"; and (2) "This restraint is certified for use in motor vehicles and aircraft" in red lettering car/infant seats that do not qualify under paragraph 2 above must bear either a label showing approval of a foreign government or a Label showing that the seat was manufactured under the standards of The United Nations; Booster-type child restraint systems (as defined in Federal Motor Vehicle Standard No. 213 (49 cfr 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft.

13.4.2.5. Download the baggage of no-show passengers and those removed from a flight. In the case of SAAMs or exercise missions at non-AMC locations, coordinate with tanker airlift control elements or deploying unit commanders to decide if the downloading of baggage is necessary.

13.4.2.6. Ensure all doors without stairs are closed and armed prior to passenger boarding. To ensure safety, air stairs will be utilized to the maximum extent possible for passenger enplane and deplane. To alleviate crowding around the galley area and to expedite passenger loading, consider boarding passengers through door 1R when in the “B” configuration, and 2L/R when in the “D” configuration. Once the passengers have been loaded on the aircraft, the air stairs may be released and the B1-1 stand re-positioned at the door. Aircraft commanders are the final authority on whether to allow passengers to enplane or deplane if air stairs are not available.

13.5. Passenger Handling.

13.5.1. The boom operator is the key figure for good passenger relations. There are certain rules that should be observed. Address passengers by proper titles. Avoid arguments and controversial subjects, national or international politics, criticism of other personnel or organizations. Offer services or perform duties in a manner indicating a personal interest and willingness to help.

13.5.2. Comments by the boom operator and the manner in which they are made often determine passenger attitudes about the flight. Always remember that passengers are individuals; address them collectively only when making announcements.

13.5.3. In-Flight Procedures:

13.5.3.1. Passengers may move about the cabin; however, judgment must be exercised on the number of passengers allowed out of their seats at any one time. Encourage passengers to remain seated with their seat belts fastened.

13.5.3.2. Make frequent checks on the following: Cabin temperature, passengers with small children, and cleanliness of the cabin and lavatories.

13.5.3.3. Do not allow passengers to tamper with emergency equipment. Passengers will not be permitted access to checked baggage.

13.5.3.4. On long flights, particularly during hours of darkness, use all possible means to make passengers comfortable. Dim and extinguish unnecessary compartment lights.

13.5.3.5. Passengers may visit the flight deck or "ARO" compartment only when approved by the aircraft commander. Use good judgment when requesting this authority. Passengers must be escorted by a crewmember to and from the these areas. Primary crewmembers will be notified when passengers are in transit between the passenger compartment and the ARO compartment. Brief all passengers visiting the flight deck or ARO compartment on the use of the quick-donning oxygen system. The total number of individuals in the flight deck or ARO compartment at any one time will not exceed the number of seats with seat belts and operable oxygen regulators.

13.5.3.6. The cargo compartment is off limits to all passengers unless properly supervised.

13.5.3.7. The environmental curtain and cargo net will be properly installed according to T.O.s 1C-10(K)A-1 and 1C-10(K)A-9.

13.5.3.8. To assist in emergency evacuation of passengers when the IAU is used, extra crew members or maintenance personnel knowledgeable of emergency evacuation procedures will occupy the two seats closest to #2 R and L doors for all takeoffs and landings. They will be responsible for opening #2 L and R doors. If extra crew members or maintenance personnel are not available, English-speaking adults will be utilized. They will be briefed on emergency evacuation procedures with the Evacuation Assistance Briefing in Section II of the flight manual.

13.5.3.9. Passengers will be supervised for the entire period of flight. During AR, if an extra crew member is on board, one crew member will remain in the passenger compartment. When this is not feasible the following procedures apply: The boom operator will brief the passengers to remain seated and observe and comply with advisory signs. Boom operators may designate a passenger (preferably troop commander or equivalent) to supervise passengers and ensure compliance with passenger briefing items. Passengers may be monitored by the flight engineer from the flight deck when 31 or fewer crew members and passengers are on board. The aircraft commander will be notified if any unusual circumstance relating to the passengers occurs.

13.5.3.10. If an extra crew member knowledgeable in passenger procedures is not available, a total of 31 crew members and passengers can be carried, and they will be seated from front to back using all available seats.

13.5.3.11. When passengers are carried, a crew member, knowledgeable in passenger procedures, will be in the passenger compartment for all takeoffs and landings.

13.5.4. Meal Service:

13.5.4.1. Meals are served at normal hours when practical, based on the local time at point of departure. Avoid waking passengers to offer meals. Ask the aircraft commander about expected flight conditions prior to meal preparation.

13.5.4.2. Passengers who have boarding passes (AMC 148-series forms, **Boarding/Pass Ticket**, that shows a meal was ordered) are served meals in the following sequence: Small children requiring assistance, Distinguished Visitors (DV), then all other passengers. When the aircraft is in

the 75 seat configuration, and/or when more than 12 passengers are carried, frozen meals will not be accepted for passengers.

13.5.4.3. Use the following procedures for box lunches: After takeoff, distribute box lunches to passengers who boarded at the previous station. This action reduces confusion when flight segments are short and passengers board at subsequent stations. Ensure each passenger receives the meal ordered by verifying the passenger's AMC 148-series form.

13.5.4.4. Do not serve liquids or hot food during turbulence.

13.5.4.5. Turn in all meals unfit for consumption to the first in-flight kitchen. If in radio contact with the issuing station, relay aircraft tail number, mission identifier, number of spoiled meals (by menu), issuing organization, and in the case of frozen meals, the manufacturing agency, and manufacturer's lot number.

13.5.4.6. When prepared meals have not been furnished to passengers, the boom operator will annotate the individual's AMC Form 148, **Passenger/Boarding Ticket** to reflect reimbursement is authorized. Inform passengers they may receive refunds at the next station or the originating or destination terminal.

13.6. Over-Packed Meal Procedures.

13.6.1. Sign for over-packed in-flight meals and supplements delivered to the aircraft. These meals have been inventoried and annotated showing the total number of meals in each container. Do not open containers for inventory.

13.6.2. Obtain sufficient blank copies of receipts for transfer of cash and vouchers.

13.6.3. At the on-load station, contact the troop commander or other individual responsible for the mission. The unit or user is responsible for collecting for the meals prior to the on-load and for turning the money over to the boom operator with two separate listings. One listing will contain the names of those not on separate rations who are authorized to receive a government meal at no charge. The other list will contain names of those on separate rations and who pay for their meals. Both listings must be certified by the troop commander or individual responsible for the mission. The boom operator will count the money to ensure the total is correct and issue a receipt to the user.

13.6.4. At en route, remain overnight, or terminating stations, turn in the money and both listings to the in-flight kitchen. If an in-flight kitchen refuses to accept the money or meals, have the aircraft commander report the incident on AMC Form 54, **Aircraft Commander's Report on Services/ Facilities** (see **Chapter 8** for instructions). Retain the money or meals and turn them in to the next available AMC in-flight kitchen. When a crew change occurs and the money or meals are transferred to the outbound boom operator, the inbound boom operator will retain the signed receipt as proof of money or meals transfer.

13.7. En Route and Post Flight Duties.

13.7.1. At stations where a crew change is made and loading or off-loading is required, the inbound boom operator is responsible for off-loading the aircraft. The outbound boom operator is responsible for planning and loading the outbound load. When no change occurs, the inbound boom operator is responsible for on-loading or off-loading cargo.

13.7.2. At crew stage points, brief relief personnel about passenger and aircraft equipment, any missing items, the location of through cargo, mail and baggage, and any information pertinent to through passengers. Point out cargo requiring special consideration (hazardous material, perishables, etc.).

13.7.3. Assist passengers to deplane. If BLUE BARKS, DVs, or couriers are aboard, the boom operator will inform the traffic or protocol representative.

13.8. Emergency Airlift of Personnel. The following procedures will apply to ensure a safe, efficient loading method for the emergency airlift of personnel from areas faced with enemy siege, hostile fire, for humanitarian reasons, or when directed by the TACC.

13.8.1. Emergency airlift normally will be accomplished without the use of individual seats or safety belts. The maximum number of personnel who may be airlifted by seating them on a pallet sub-floor in the cargo compartment will vary. Seat personnel in rows facing forward and load in small groups of 8 to 10 per pallet so they may be positioned and restrained by connecting the pre-positioned tie-down straps from the left and right outboard pallet rings to inboard pallet rings. Load personal effects or baggage in the aircraft in any safe available pallet position.

13.8.2. The maximum altitude for emergency airlift will not exceed FL 250.

13.8.3. For airlift of patients, see **Chapter 20** of this instruction.

13.9. Rucksacks. Rucksacks may not be floor loaded. Rucksacks will not normally fit under the seats without obstructing the aisle way, therefore space must be allocated on the aircraft load plan for palletizing. An unobstructed exit path must be maintained to evacuate the aircraft during emergencies.

13.10. 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.

13.10.1. Personnel who will engage an enemy force immediately on arrival (actual combat) may carry basic combat loads on their person. Weapons will remain clear with magazines or clips removed, and all rifles will be stored on a pallet until immediately prior to exiting the aircraft.

13.10.2. Personnel who will not immediately engage an enemy force will store basic ammunition loads in a centralized location for redistribution on arrival at the objective. Magazines or clips will not be inserted into weapons.

13.11. Cargo Validation On-loading and Off-loading Procedures. In order to assist in the cargo validation process, use the cargo validation on-loading and off-loading format in **Attachment 1**. Use this format when tasked to validate a new loading procedure or when encountering any cargo that you feel requires special or specific on-loading, off-loading or tie-down procedures that are not currently listed in T.O. 1C-10(K)A-9. After completion, send through channels to HQ AMC/DOV.

13.12. Border Clearance. Certain forms for border clearance are required by Customs, Immigration, and Agriculture. The boom operator is the custodian of these forms and for other forms that may be required during the flight or while on the ground. Ensure all required forms are aboard the aircraft before takeoff. Also, distribute the forms to the crew to ensure completion prior to landing and deliver to the proper persons at en route and terminating stations. On aeromedical evacuation flights, the 3 AET will coordinate with the boom operator to ensure forms are completed for patients.

NOTE:

Ensure sufficient customs forms are available for each passenger. They should be provided by passenger service personnel prior to departure.

13.13. Operational Forms for Boom Operators. Detailed instructions on the preparation, distribution, and use of the following forms will be found in the governing regulations.

13.13.1. AF From 96, **Passenger Manifest** (AFR 76-21).

13.13.2. AF Form 791, **Aerial Tanker In-Flight Issue Log** (AFI 23-202).

13.13.3. DD Form 1854, **US Customs Accompanied Baggage Declaration** (DoD 5030.49R).

13.13.4. CF 7507, **General Declaration (Outward/Inward)** (AFI 24-401,402,403,404, and AFR 161-71).

13.13.5. I-94, **Immigration Form, Arrival/Departure Record** (AFI 24-401,402,403,404).

13.13.6. AF Form 4069, **Tie Down Equipment Checklist**.

13.13.7. AF Form 4080. This form can be used for each leg of a cargo mission to keep track of the load and to aid when calling in load information to the off-load base.

13.13.8. AF Form 4095, **KC-10 Load planning Worksheet**. Instructions are in (**Attachment 2**). This form may be used to consolidate the pertinent information for the assigned cargo mission.

13.13.9. AF Form 4130, **KC-10 Restraint Computation Worksheet**.. Instructions are in (**Attachment 3**). This form may be used to determine required and applied restraint.

13.14. Joint Task Force/C2 Module. The C2 module (CCM) is a 36-foot long Airstream-type trailer built in 3 sections commonly referred to as "the silver bullet." Each section is permanently mounted on 12-foot long airdrop pallets. The trailer is not FAA certified for occupancy for takeoff and landing, therefore the trailer will not be occupied during takeoff or landing. Procedures for installing the module are in Section 5 of T.O. 1C-10(K)A-9 and **Chapter 25** of this instruction.

13.14.1. The module has the capability to carry up to 10 personnel, four in seats with seat belts. The communications suite operator will proceed to the module after take-off when cleared by the aircraft commander, establish power application, and establish interphone contact with the cockpit. Once interphone contact has been established additional personnel will be cleared to the module. The right side section of the environmental curtain and cargo barrier net should be stowed to allow easy access to the module after passing 10,000 feet and reinstalled after the module has been cleared prior to final landing. Interphone contact will be established and maintained with the module operator anytime the module is occupied.

13.14.2. In the event of a loss of cabin pressurization all occupants of the module will don the emergency oxygen provided and proceed to the forward cabin after interphone contact with the cockpit or when notified by a uniformed flight crew member.

13.14.3. The aircraft commander remains responsible for the safety of all occupants of the module, and all additional individuals associated with the mission. Emergency duties remain the responsibility of KC-10 qualified personnel.

Chapter 14

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14.1. This chapter not used for KC-10 operations.

Chapter 15

AIR REFUELING

15.1. AR Limitations. This chapter establishes guidelines applicable to KC-10 aircraft and aircrews and is supplemental to those prescribed by the flight manual and other applicable directives.

15.1.1. Refueling During Training Missions. AR should not be accomplished during training missions when:

15.1.1.1. Conditions are encountered that, in the opinion of either the aircraft commander or boom operator, result in marginal control of either aircraft or the boom.

15.1.1.2. Either the tanker or the receiver (except B-52) has less than the full number of engines operating.

15.1.1.3. Tanker aircraft is unable to retract the landing gear.

15.1.2. Tanker Autopilot. Tanker pilots must notify receiver pilots when any axis of the autopilot is not used. If the tanker copilot is required to fly autopilot-off for training, unqualified receiver pilots will not fly the aircraft (N/A CCTS). Tanker pilots must notify the receiver when copilot autopilot-off training is conducted and receive confirmation that the receiver pilot flying the aircraft is qualified.

15.1.3. AR Without Tanker Disconnect Capability. Without tanker disconnect capability means the boom operator cannot trigger an immediate disconnect using either the normal disconnect system or the independent disconnect system (IDS). AR (tanker or receiver) will not be conducted after a known loss of tanker disconnect capability.

EXCEPTIONS: Fuel emergency situations, SIOP, conventional, contingency missions, airborne alert, GIANT LANCE, ORI or CORI, PACCS, receiver over water deployment or re-deployment, operational reconnaissance missions, and prime nuclear airlift force (PNAF) support missions under normal conditions when the refueling is essential for home base recovery.

NOTE:

When conducting AR without tanker disconnect capability, limit contacts to the minimum number necessary to complete mission requirements. Do not accomplish boom limit demonstrations, or practice emergency separations while in the contact position.

15.1.4. Manual boom latching (MBL), emergency boom latching (EBL), and override boom latching (OBL) without IDS. To complete training or evaluation in MBL, EBL, and OBL procedures, the following conditions must be met: Direct instructor pilot (IP) supervision is required on board receiver aircraft (if other than fighter type). Contacts must be limited to the minimum required. Receiver AR system must be fully operable.

NOTES:

MBL, EBL, and OBL with IDS system operative may be accomplished without restrictions.

Boom operator and receiver pilot must coordinate all actions as required by applicable directives and checklists when making AR contacts during the situations listed above.

15.1.5. Reverse AR procedures can be accomplished for operational necessity. Also, reverse AR can be accomplished for training purposes provided there is prior coordination and review of procedures among the crews involved in the training.

EXCEPTION: Reverse AR into the KC-135 may be accomplished only in an emergency.

15.1.6. The normal method of boom control during refueling operations is with the automatic load alleviation system (ALAS) "ON." However, AR operations may be conducted with an ALAS malfunction or ALAS inoperative under the following conditions: Fuel emergency situations, SIOP, contingency missions, airborne alert, GIANT LANCE, ORI or CORI, PACCS, receiver over water deployment or re-deployment, operational reconnaissance missions, and prime nuclear airlift force (PNAF) support missions under normal conditions when the refueling is essential for home base recovery.

15.1.7. Practice Emergency Separations. Prior to the actual accomplishment of a practice emergency separation, coordination between the tanker pilot, boom operator, and receiver pilot is mandatory. Coordination must include when the separation will occur and who will give the command of execution. Tanker pilot coordination may be accomplished over interphone with the boom operator. Practice emergency separations may be accomplished with passengers on board. Ensure all passengers are seated with seat belts fastened.

15.1.8. Receiver AR Training for Unqualified Receiver Pilots. (This includes copilots and dual seat qualified aircraft commanders refueling from the right seat.) Certification requirements for 1) ACs to supervise AR conducted by a copilot or a dual seat qualified aircraft commander in the right seat and 2) Copilots and dual seat qualified ACs in the right seat to accomplish AR will be determined by the squadron commander. Both pilots must receive academic and in-flight training prior to certification. In-flight training for certification will be accomplished under direct IP supervision. When the training is complete, the SQ/CC will document the certification in the individual's FEF. Only copilots and dual seat qualified aircraft commanders designated by the squadron commander may attempt right seat contacts without direct IP supervision. The following procedures apply: The receiver pilot must inform and receive acknowledgment from the tanker. The boom operator operating the boom controls must be qualified for the applicable category receiver. (This restriction does not apply during CCTS training provided the student boom operator is under direct instructor supervision.). If the tanker autopilot is off, the tanker copilot will not fly the aircraft. (This restriction does not apply during CCTS training provided the student receiver pilot and the student tanker copilot are under direct IP supervision.)

15.1.9. Boom operator qualification or training. Unqualified and non-current boom operators must be under direct instructor supervision to conduct air refueling operations.

15.1.10. When conducting receiver AR behind a KC-135, tanker disconnect capability must be demonstrated by a boom operator initiated disconnect prior to conducting a limit demonstration or a practice emergency separation from the contact position.

15.1.11. Crew members must be certified by the squadron commander prior to accomplishing EMCON 3 or 4.

15.2. Low Altitude AR (LAAR). Training restrictions and limitations are as follows:

15.2.1. AR operations are normally conducted above 12,000 feet MSL, or 10,000 AGL, whichever is higher.

15.2.2. AR operations below 10,000 feet AGL are considered low altitude air refueling (LAAR) and will not be conducted in the KC-10 except in an emergency or when urgent operational mission requirements dictate.

15.2.3. If refueling must be accomplished below 10,000 feet AGL, limit refueling time to the minimum required to meet operational requirements and then immediately recover to normal refueling altitudes. Crews must ensure thorough knowledge of terrain features when operating below 10,000 feet AGL and will limit operations to flat or rolling terrain, or over water. In no event will refueling be conducted below 3,000 feet AGL.

NOTES:

1. AR operations based at or above 12,000 feet MSL which momentarily fall below 10,000 feet AGL, but not lower than 5,000 feet AGL, due to over flight of mountain ridges, peaks, etc., is not considered LAAR.
2. Due to C-130 performance limitations, LAAR restrictions do not apply. Units providing refueling support to C-130 receivers are authorized to refuel at the receiver's optimum refueling altitude, but no lower than 5,000 feet AGL.

15.3. Emergency AR. When an emergency AR requirement arises, units tasked will attempt to fill the requirement from available unit resources. Use unit training sorties as first priority. The following applies:

15.3.1. Units will not routinely preposition additional aircraft to satisfy potential emergency AR requirements.

15.3.2. Time permitting, coordinate emergency AR requirements with receiver parent MAJCOM or NAF.

15.3.3. The unit command post should coordinate or direct unit actions.

15.3.4. Identify unit sortie when notified of emergency air refueling requirement.

15.3.5. Coordinate with the OG/CC.

15.3.6. Notify NAF of requirement and proposed actions.

15.3.7. Notify squadron or aircrew of requirement. Provide ARCT, rendezvous information, altitude, receiver call sign, and communication plan.

15.3.8. Advise receiver of planned actions.

15.3.9. Notify the ARTCC liaison of requirement.

15.4. Tanker Aircraft Commander Responsibilities. Tanker aircraft commanders shall be responsible for:

15.4.1. Remaining within the protected lateral, longitudinal, and vertical airspace of the refueling track or anchor including orbit patterns.

15.4.2. Notifying the appropriate ATC facility of all altitudes vacated and not anticipated for further use by refueling aircraft. Such altitudes shall not be reoccupied without further ATC clearance.

15.4.3. Receiver navigation, regardless of the number of tankers or receivers, from the ARIP after rendezvous voice contact on air refueling frequency through completion of refueling operations except when under control responsibility of a military radar facility while in an anchor area.

15.4.4. Maintaining communications with the appropriate ATC facility. All communications during refueling operations, including those concerning the receivers, shall be between the ATC facility or military radar unit and tanker. To the extent practical, receivers shall establish communications with the tanker prior to or when departing the ARIP on the specified AR frequency. After establishing voice contact with receivers, the tanker shall assume position reporting responsibility for the receivers.

15.4.5. Coordinating altitude and route clearance:

15.4.5.1. From the ATC facility for both the receiver and tanker at least 5 minutes prior to refueling completion except when both aircraft are operating on an ALTRV.

15.4.5.2. Through the radar controller when operating in refueling anchors with military ground radar. At least 5 minutes prior to completing refueling operations, the military radar facility shall forward requests to the assigned ATC facility and subsequently relay ATC clearances for the tanker and receiver aircraft from the ATC facility.

15.4.6. Vertically positioning aircraft to the maximum extent practical prior to reaching the planning exit point. Vertically separating receivers and tankers shall be accomplished within the assigned altitudes, and is intended to beneficially contribute to the safe and efficient transfer of separation responsibility from the military, under the provisions of MARSA, to the ATC facility on completion of refueling operations.

15.4.7. Providing each receiver, upon request, with the aircraft's position at the completion of refueling operations. Additional information concerning amendments or changes to the receiver's ATC clearance shall also be provided as appropriate.

15.4.8. Accomplishing Search and Rescue (SAR) procedures IAW AFI 11-207, *Flight Delivery of Fighter Aircraft*. In an emergency, the flight leader immediately notifies the tanker commander. The tanker aircrew notifies ATC. In the event of a downed or ditched receiver, ATC notifies the Rescue Coordination Center, which in turn alerts the nearest SAR assets. The tanker provides cover as long as fuel reserves allow. Remaining receivers proceed unescorted to the nearest abort base or continue the mission with remaining tankers.

15.5. Receiver Aircraft Commander Responsibilities.

15.5.1. Receiver aircraft shall squawk normal when separation from the tanker is greater than 3 miles.

15.5.2. Receiver aircraft will maintain two-way radio contact with ATC until cleared to the aerial refueling block altitude, established in that block, and cleared to the AR frequency by ATC.

15.6. ATC Clearance. The tanker commander shall receive specific ATC clearance from the appropriate ATC facility for the following:

15.6.1. Altitude blocks to conduct AR operation (except on an approved ALTRV).

15.6.2. Routings for each aircraft or formation flight if different than the flight plan routing.

15.6.3. Extending the refueling operations beyond the defined track or anchor exit point due to adverse winds, mission requirements, etc.

15.6.4. Additional altitudes in excess of those for which specific clearance has been granted (e.g. tobogganing).

15.7. Communications Failure. Aircraft experiencing two-way communications failure during the conduct of AR shall continue flight in accordance with the following procedures:

15.7.1. Squawk code 7600 for at least 2 minutes prior to exiting the track or anchor.

15.7.2. Tanker aircraft that have not received altitude instructions beyond the exit point shall exit the track or anchor at the highest altitude specified in the clearance for the refueling portion of the flight and proceed in accordance with "Procedures for Two Way Radio Failure IFR-VFR" set forth in DoD Flight Information Handbook.

15.7.3. Receiver aircraft that have not received altitude instructions beyond the exit point shall exit the track or anchor at the lowest altitude specified in the clearance for the refueling portion of the of the flight and proceed in accordance with "Procedures for Two Way Radio Failure IFR-VFR" as set forth in DoD Flight Information Handbook.

15.8. MARSA Applicability for Aerial Refueling. MARSA begins between the tanker and receiver when the tanker advises ATC that it is accepting MARSA. MARSA is not an ICAO recognized term. If in doubt as to what separation is provided by ATC, or what separation the aircrew is responsible for, query the controlling agency.

15.8.1. After MARSA has been declared, controller-assigned course or altitude changes prior to rendezvous completion will automatically void MARSA and are to be avoided.

15.8.2. Once the rendezvous is completed, headings and altitude assignments may be made with the tanker concurrence with MARSA remaining in effect.

15.8.3. On rendezvous completion, each tanker shall keep receiver aircraft within 3 miles of the tanker until MARSA is terminated.

15.8.4. After air refueling clearance is received and until rendezvous is completed, aerial refueling airspace from the ARIP to the ARCP is sterilized. After rendezvous is completed and the tankers or receivers proceed down track, other non-participating aircraft may be cleared through the refueling block airspace with proper separation.

15.8.5. MARSA ends between the tanker and receiver when the tanker advises ATC that the tanker and receiver aircraft are vertically positioned within the air refueling airspace and ATC advises MARSA is terminated.

15.9. Coronet East Mission Over Flights in France. Aircrews must explicitly follow pre-coordinated mission profiles on missions that transit French airspace. Although ALTRVs are not formally recognized in the French ATC system, pre-coordinated Coronet East Missions are afforded a certain degree of additional protection while in French airspace. In exchange for this special handling, it is absolutely essential that aircrews adhere to pre-coordinated routes and altitudes to avoid problems (including the portion of the flight to/from the ALTRV). Failure to do so creates difficult diplomatic situations and jeopardizes future authorization for US Military over flights of France. Aircrews will not request any maneuvers that

have not been coordinated in advance with French ATC. Examples of these maneuvers include formation split up and rejoin (unless pre-coordinated). During the portion of the flight to/from the ALTRV, tanker and receivers must remain in formation at a single altitude while in French airspace. If a request (even if pre-coordinated) is denied by the controller, follow their instructions.

15.10. Refueling with Foreign Aircraft. When conducting exercises or contingency operations with tankers or receivers of foreign nations crews will review ATP-56, Air to Air Refueling manual and ensure compliance. This manual serves as the source document for air refueling information among participating countries and is no longer limited to NATO countries only.

15.10.1. Air-to-Air Refueling of Foreign Aircraft.

15.10.1.1. Air-to-Air Refueling Requirements Exclusively for USAF Receiver Aircraft (No US Requirement to Refuel Foreign Receiver Aircraft). Where there is no approved US requirement to refuel foreign receiver aircraft, air refueling of foreign aircraft must be on an opportune, non-interference basis. Tankers must be scheduled based on USAF mission requirements only, in accordance with normal USAF procedures. When a schedule is built to meet these mission requirements, it may result in some loiter time that foreign receivers can use under the criteria set forth in this directive. However, schedulers may not create excess loiter time simply to accommodate foreign receivers. If non-opportune refueling is required for foreign aircraft outside the "envelope" for meeting USAF mission requirements, the foreign government must pay for the additional loiter and boom/drogue time required, as well as for the fuel offloaded. This is because the costs of such support would not have been incurred but for the foreign government (non-US) requirement. The foreign government will not be charged for the transit time of the tanker aircraft as transit time was required for the USAF mission.

15.10.1.2. Foreign pilots must be qualified and current in USAF air-to-air refueling procedures. Exercise refueling will not be used as an instrument for foreign pilots to obtain initial qualifications, requalification, or to maintain currency. Provision of air refueling training requires a Foreign Military Sales (FMS) case (see DODD 5105.38, Section 100201.B., *Defense Security Assistance Agency (DSAA)).*

15.10.1.3. Receiver aircraft not previously certified for refueling operations must be certified for technical and operational compatibility in accordance with USAF regulations.

15.10.1.4. Foreign governments must pay for the fuel offloaded in accordance with USAF regulations and procedures (for example, pursuant to the terms of a reciprocal fuels agreement, cross-servicing agreement, or FMS case).

15.10.1.5. Status of Forces Agreement (SOFA) claims provisions, applicable to the nations involved, should cover liability. If a SOFA does not exist or is otherwise not applicable, a liability agreement must be established prior to the exercise. Such an agreement must be negotiated and concluded in accordance with DODD 5530.3, *International Agreements,* these types of agreements must be submitted to SAF/IA in accordance with paragraph 2.4. of AFI 51-701, *Negotiating, Concluding, Reporting, and Maintaining International Agreements.*

15.10.1.6. Valid US Requirements to Refuel Foreign Receiver Aircraft. It may be appropriate for the foreign government to pay only for the fuel offloaded when the purpose of a combined exercise is to employ coalition force concepts of operations that require USAF air refueling of foreign aircraft in support of DOD mission requirements and the criteria in paragraphs 8.8.1.2, 8.8.1.3,

8.8.1.4, and 8.8.1.5 of AFI 10-204 are met. In such cases, a command coordinated request should be forwarded to AF/XO for approval to conduct the refueling operation on less than full cost reimbursement basis. The request should contain: (1) a description of the operation, including objectives; (2) the US mission requirements to be satisfied; (3) a list of expenses to be assumed by the DOD and the funding source; and (4) a list of expenses to be assumed by the foreign government, including method of payment to DOD for required reimbursements.

15.10.1.7. If the air-to-air refueling does not meet the criteria set forth above, air-to-air refueling must be conducted on a reimbursement basis. The foreign government must pay for the fuel, boom/drogue time, tanker transit time and loiter time, and all other costs as appropriate.

Chapter 16

MISSION PLANNING

16.1. General. This chapter standardizes procedures for planning, briefing, and reviewing all missions. Mission planning is normally conducted the day prior to the mission. OG/CC may elect to use a “Same Day Mission Plan” option. The AC is ultimately responsible for the accuracy of the mission materials. Unit mission planning facilities should possess essential mission planning material.

16.2. Mission Planning.

16.2.1. Operational Missions. Staff planners should prepare detailed master flight plans to meet the requirements of the OPORD/Tasking. Flight plans based on a "planning forecast" should be reviewed before the mission is flown, using an "operational forecast."

16.2.1.1. As a minimum, prepare the following items as they apply to the mission:

16.2.1.1.1. Flight Plans, Maps, Charts, and Applicable Forms.

16.2.1.1.2. Copies of OPORD/Tasking.

16.2.1.1.3. Communication and EMCON requirements.

16.2.1.1.4. Air refueling data.

16.2.1.1.5. Tactics and procedures to be employed.

16.2.1.2. The preparing staff agency should provide complete and accurate data. Packages should be annotated to include who prepared the package.

16.2.2. Training Missions. Unit staff will determine who plans the mission.

16.3. Agency Briefing (if applicable). The mission briefing presented by the mission planners will normally be conducted no earlier than three days before the mission. The purpose of the mission briefing is to acquaint all crew members with the general aspects of the mission. The group or squadron commander, combat support group staff specialists, all crew members of each participating crew, and other personnel concerned with the mission should attend. The mission briefing may include all information pertinent to the mission and eliminate the need for later specialized briefings. In cases where highly specialized information or techniques require additional explanation or review (such as formation procedures), schedule a specialized briefing. During the briefing, indicate what preparation has been accomplished and what is yet to be accomplished. Use the following as a guide in conducting a briefing:

16.3.1. Security classification and roll call for the briefing and mission.

16.3.2. Purpose of the mission, forces required (to include number of aircraft) and a statement of mission requirements in sufficient detail to ensure all crew members understand all the information.

16.3.3. Mission Requirements:

16.3.3.1. Crew composition.

16.3.3.2. Crew alerting and reporting.

16.3.3.3. Minimum ground times.

16.3.3.4. Crew duty times.

16.3.3.5. Command waivers.

16.3.3.6. Rules of engagement (ROE).

16.3.3.7. EMCON level directed for each phase of flight.

16.3.4. Intelligence information.

16.3.5. Weather information.

16.3.6. Timing and control times to include:

16.3.6.1. Start times, taxi, and takeoff.

16.3.6.2. ARCT to include area and point for all refueling.

16.3.6.3. Landing time.

16.3.7. Review taxi, takeoff, and departure plans to include communications requirements and frequencies.

16.3.8. Navigation and altitude reservation flight plan.

16.3.9. Air refueling information and procedures.

16.3.10. Threat, special mission tactics.

16.3.11. Cargo load information.

16.3.12. Recall and diversion procedures.

16.3.13. Recovery and alternate base.

16.3.14. Announcements to include technical order status and changes, flying safety, specialized briefing times and locations, debriefing and interrogation location and procedures, messing, transportation, personal equipment, radio, and communications procedures and crew questions.

16.4. Crew Mission Study and Detailed Flight Planning. Intended to acquaint aircrews with the mission and individual sortie requirements to ensure successful mission accomplishment. Wing and squadron staff should monitor crew activity and be able to resolve problem areas. Unit staff should allocate a minimum of 4 hours to accomplish mission planing and mission briefing. This period may be reduced in proportion to the amount of staff and computer prepared mission data available to the crew. However, in no case will mission planning be reduced to less than 1.5 hours. Mission planning should be accomplished as a crew. Unit staff should ensure that other activities do not interfere with mission planning and aircrew mission briefing. In cases where crews plan to brief and fly several missions, from various bases, in a short period of time, the AC will ensure the crew has sufficient time for mission planning.

16.5. Aircraft Commander Briefing. (See **Chapter 6** of this AFI) Conduct after each individual crew member has completed their mission preparation. All crew members will be present unless excused by the aircraft commander. Crew members not present must be briefed by the aircraft commander prior to takeoff. The AC must re-brief the mission when the time interval from initial aircrew briefing to mission takeoff exceeds 72 hours.

16.6. Specialized Briefing. (See **Chapter 6** of this AFI).

16.7. Weather Briefing. (See **Chapter 6** of this AFI).

16.8. Post Mission Debriefing. Held immediately after the mission if practical. ACs should contact the intelligence branch representative when hostile or suspect activity is encountered. Aircrews should attend the operations and maintenance de-briefings as directed by unit commander. Maintenance de-brief should be conducted ASAP after flight. A crew critique should be conducted by the AC with the entire crew present. For formation flights, a post mission critique should be conducted by the formation leader.

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 the manual to become classified.

17.1. General. Each unit will have a tactics ground training program tailored to the unit's wartime taskings. Tactics and intelligence staff should join forces in this area to ensure success. Using a building block approach, the ground tactical training program forms the base of the unit's tactics program. Each unit's tactics ground training program may be different because of the differences between unit mission taskings; however the overall objectives should be the same.

17.2. Responsibilities. The tactics ground training program will be a coordinated effort between the unit's IN, Wing Tactics, DOT, DOV, and DOX (or their equivalent) in order to ensure continuity and the unit's specific mission tasking is addressed. The program is the responsibility of the squadron commander and is run by the unit tactics program manager.

17.2.1. Unit Tactics Program Manager. Responsible for the development, maintenance, and currency of the instructional materials used in the tactical training of crews. He/she is also responsible to find motivated, informed, and credible instructors to administer these materials. The program manager ensures the tactics training syllabus is comprehensive and covers all the aforementioned topics. More importantly, it is his/her responsibility to infuse tactics throughout the unit's operations, through classes, tactics simulator and flight profiles and other proactive aircrew members with tactics mission planning and initiatives.

17.2.2. Threat reference library/tactics read file/tactics newsletter. The unit tactics officer, with IN assistance, is responsible for developing procedures for timely dissemination of tactical and intelligence information to unit aircrew members.

17.2.2.1. Tactics Reference Library should be maintained by the unit tactics officer. This library provides study material at the unit level.

17.2.2.2. A by-subject Tactics Guide should also be developed and maintained by Wing Tactics and updated as materials are received.

17.2.2.3. The Tactics Read File should contain classified materials of timely interest to the aircrews. Read file may include messages, magazine articles, sections out of MCM 3-1, Tactical Analysis Bulletins, etc.

17.3. Tactics Simulator Training.

17.3.1. Scope. Aircrews should practice all applicable tactical maneuvers in the simulator prior to attempting the maneuvers in-flight. Units may attempt any maneuver in the simulator.

NOTE:

Use the simulator for tactics reinforcement. The simulator provides an inexpensive reinforcement and safe means of practicing tactics. Units should tailor the simulator to their specific taskings.

17.3.2. Responsibilities. The tactics simulator training is run by the unit tactics program manager with the help of the squadron training flight. The tactics program manager is responsible to forward simulator profiles to DET 1, AMCAOS, prior to incorporating profile into the simulator period. Because no threat specific information is required for this training, the simulator training is unclassified. Classified tactics simulator profiles are under development at various units and are encouraged. Tactics training should be incorporated into refresher training profiles to ensure all crew members accomplish the training. However, this does not preclude using Additional Training Time (ATT) simulators for tactics training. The following are suggestions for tactics profiles to be practiced in the simulator:

17.3.2.1. Extension maneuvers. Retrograde maneuvers accomplished from orbit speeds and refueling speeds.

17.3.2.2. Overshoot producing maneuvers. IR missile defense and GUN JINK maneuvers accomplished at altitude (3000 feet above ground level).

17.3.2.3. Full crew simulators. The boom operator rides in the simulator with the pilot team and flight engineer to enhance crew coordination, aircrew survival and overcome system degrades.

17.3.2.4. Tactical Arrival/Departure Training.

17.3.2.5. Toboggan descent to low-altitude AR.

17.4. Tactics Flight Training.

17.4.1. Scope. The tactics flight training program is designed to provide KC-10 crew members with the training necessary to confidently and successfully survive the wartime threat environment without endangering aircrews or aircraft in peacetime. This chapter attempts to point those maneuvers out to the tanker community; however, do not attempt any maneuver that is not specifically mentioned in this publication without HQ AMC/DO approval.

17.4.1.1. Threat Avoidance Arrival/Departure Procedures (TAA/D). VFR Overhead Pattern, Random Steep Approach, Curvilinear Approach, and Spiral-Up Departure. SQ/CC certified aircraft commanders and above may accomplish TAA/D maneuvers. Accomplish TAA/D maneuver initial certification training on any sortie without passengers aboard. Once certified, TAA/D maneuvers may be flown on continuation training and operational missions with passengers aboard.

17.4.2. Objectives. Flight training is the final phase of the tactics program. Its goal is to combine the information presented from the ground and simulator phases and provides actual application of the tactics training concepts. Accomplish all flight maneuvers with strict adherence to aircraft limitations as defined in KC-10 tech orders and this AFI. The flight phase also involves a “walk before you run” philosophy and is broken into three phases:

17.4.2.1. Phase One - Maneuver Familiarization: Does not require a memorandum of agreement (MOA). Does not require fighter or aggressor aircraft. Demonstrates retrograde. Timing of maneuvers is based upon Bullseye/range information as provided by on-board tactics instructors.

17.4.2.2. Phase Two - Bullseye/retrograde training: Can be accomplished as part/addition to a Joint Exercise. Accomplished Between pre- and post-A/R. Use air combat maneuvering instrumentation (ACMI) as a debriefing tool, where available. Debrief with Vertical Situation Display (VSD) video, when possible.

17.4.2.3. Phase Three - Composite Exercises. Tanker aircrews should operate out of the same base as the rest of the exercise players. Also, the crews will be active participants in the pre-brief and post-mission debriefs. The purpose id to participate in composite force exercises, educate receiver and tanker aircrews, develop combat support mind set, and real-time kill removal places emphasis on integrating tanker assets into the overall picture.

17.4.3. Flight Training Limitations And Restrictions:

17.4.3.1. Limitations. Use the following table to determine which maneuvers are approved for flight and which require waivers:

ITEM	AIRCRAFT	SIMULATOR
TAA/D	YES	YES
Quick Flow Air Refueling	YES/NOTE 1	UNABLE
Low Altitude Air Refueling	YES/NOTE 2	YES
Retrograde Tactics	YES/NOTE 3	YES
Formation Breakups	YES/NOTE 4	YES
Gun Jink	NO	YES

NOTES:

1. Do not conduct Quick Flow Air Refueling until formal incorporation into refueling manuals.
2. Tasked by the HQ AMC/DO in response to a valid support requirement.
3. In response to a simulated fighter attack, single tanker maneuvers will be limited by air work parameters specified in applicable training instructions and this AFI. Tanker formation limit maneuvering to a normal formation turn described in **Chapter 18**. HQ AMC/DOV approves requests to conduct actual fighter intercepts/attacks against AMC tanker aircraft. Limitations from AFI 11-214 and approval waivers apply.
4. Pending completion of tanker formation breakup, tactics development and evaluation, formation breakup procedures should be limited to procedures described in **Chapter 18**.

17.4.3.2. Restrictions/Procedures.

17.4.3.2.1. Intercept Training.

17.4.3.2.1.1. All participants conduct face-to-face coordination on specific aircraft maneuvering categories, range safety requirements, and fighter engagement parameters prior to flight if possible.

17.4.3.2.1.2. If tankers are engaged during the mission, face-to-face debriefings with the intercepting fighter pilot will be accomplished if collocated.

17.4.3.2.1.3. Accomplish training within a designated MOA. In addition to safety, the primary responsibility of the aircrew is avoiding spill-outs.

17.4.3.2.1.4. Tanker aircrews check-in with the appropriate controlling agency (AWACS/GCI), including missions using EMCON 3. All participating aircraft monitor UHF guard (243.0 MHz).

17.4.3.2.1.5. Jamming should not be conducted on guard or any other pre-designated frequency.

17.4.3.2.1.6. Tanker aircraft should be in the unlimited maneuver category for air-to-air training, which is described as no restrictions except those stated in the flight manual and this AFI. Tanker aircrews must be aware of their own personal flying skills and limitations when determining the level of tactical maneuvers employed. The limiting factor is not always aircraft limits.

17.4.3.2.1.7. Pending completion and resolution of the tactics development and evaluation on tanker retrograde maneuvers, tanker aircraft will limit evasive maneuvering when in formation to a normal formation turn as defined in **Chapter 18**. Limit extension, separation, and retrograde maneuver accomplished by a 180-degree or less level turn, to 30 degrees of bank when in formation.

17.4.3.2.1.8. Fighters intercepting without an operative radar should make day VMC stern attacks only.

17.4.3.2.1.9. Tankers may terminate an intercept with a radio call of "knock-it-off, knock-it-off, knock-it-off" or "terminate, terminate, terminate." Use the phrase "knock-it-off" only when safety of flight is a factor. It directs all aircraft to cease maneuvering. The "terminate" call will end the local engagement and a "knock-it-off" call will end the entire exercise. Tanker crews should follow the "terminate" call with their tactical call sign and aircraft type to preclude mistaken identities from impacting the whole exercise. (i.e. Terminate, Terminate, Terminate, Exxon 41, KC-10).

17.4.3.2.1.10. Fighter aircraft maintains at least 1,000 feet vertical separation from tankers unless at least one of the following applies: (1) Separation from tanker is greater than 10 miles. (2) Tanker is closer than 10 miles but not a factor (i.e. collision potential) based on situation awareness. (3) Visual contact is established.

17.4.3.2.1.11. Minimum range during intercepts of AMC tanker aircraft is 1000 feet or the MAJCOM or service minimums of the attacking fighter, whichever is greater.

17.4.3.2.2. Low-Altitude Air Refueling (LAAR). LAAR training restrictions and limitations in **Chapter 15** apply. Units should not complete LAAR unless specifically tasked by AMC in response to a valid support requirement.

17.4.3.2.3. VFR Overhead Pattern (See **Figure 17.1.**).

17.4.3.2.3.1. Limitations: Maximum bank angle-30 degrees, minimum weather VFR (maintain VMC), minimum altitude 1500 AGL for the lowest aircraft in the formation, and maximum speed 250 KIAS.

17.4.3.2.3.2. Procedures:

STEP 1: Enter initial for landing runway (3 NM minimum) at overhead pattern altitude (1500 AGL minimum) / 250 KIAS max.

STEP 2: Break at approach end of runway for lead. Subsequent aircraft break 1 mile past the break point of the previous aircraft (#2 break approximately 30 seconds after lead; #3 break approximately 1 minute after lead; #4 STEP 3: Break approximately 1 minute and 30 seconds after lead).

STEP 4: Deploy slats as break point passes under the glareshield (approx 10 seconds prior to the break).

STEP 5: At break point begin level turn using 30 degrees bank maximum.

STEP 6: Begin slowing by retarding throttles to idle (use speed brakes or flaps as necessary).

STEP 7: Deploy flaps to 22 degrees after slowing below 220 KIAS.

STEP 8: Lower landing gear after rolling out on downwind.

STEP 9: Deploy flaps to landing configuration as speed permits.

STEP 10: Descend to and maintain overhead pattern altitude (1500 AGL minimum) on downwind until starting final turn.

STEP 11: Lead begin final turn at normal point; Subsequent aircraft extend downwind as necessary to ensure adequate spacing behind the preceding aircraft.

STEP 12: Roll out on final not less than 300 AGL and 1 NM from threshold.

STEP 13: Perform normal landing.

STEP 14: Aircraft must exit the runway safely, but expeditiously, to allow subsequent aircraft to land.

17.4.3.2.4. Random Steep Approach (See **Figure 17.2.**).

17.4.3.2.4.1. Limitations: May be performed single ship only, maximum bank angle 30 degrees, minimum weather VFR (maintain VMC), and maximum speed 220 KIAS.

17.4.3.2.4.2. Procedures:

STEP 1: Establish position directly overhead the airfield, approximately 5000 AGL or as directed by ATC.

(Position may be modified as necessary for winds)

STEP 2: Deploy slats, flaps 22, and gear and begin right or left spiral turn using maximum 30 degrees of bank.

STEP 3: Maintain 180-220 KIAS.

STEP 4: Use constant descent rate (approximately 2000 ft/min) and spiral to roll out entering a normal VFR downwind at 1000 AGL minimum.

STEP 5: Slow and configure normally.

STEP 6: Perform normal landing.

NOTE:

Tactical application of this maneuver may require an entry altitude greater than 5000 feet AGL. When planning multiple 360 degree turns, set a constant descent rate (approximately 2000 ft/minimum) to arrive at 5000 feet AGL, then configure accordingly (see above).

17.4.3.2.5. Curvilinear Approach (See **Figure 17.3.**).

17.4.3.2.5.1. Limitations: May be performed single ship only, maximum bank angle is 30 degrees, and minimum weather VFR (maintain VMC).

17.4.3.2.5.2. Procedures:

STEP 1: From a position other than a straight-in final or normal VFR traffic pattern, initiate a descending, turning track from a random altitude, distance, and location from the airfield.

STEP 2: Maneuver to roll out (configured) on final not less than 300 AGL and 1 NM from threshold.

STEP 3: Perform normal landing.

17.4.3.2.6. Spiral-Up Departure (See **Figure 17.4.**).

17.4.3.2.6.1. Limitations: May be performed single ship only, and maximum bank angle is 15 degrees until reaching Vmm for Existing configuration.

17.4.3.2.6.2. Procedures:

STEP 1: On departure, begin a 15 degree bank turn after passing 400 AGL minimum.

STEP 2: Lower the nose slightly and allow the aircraft to accelerate to slat retract speed.

STEP 3: Retract flaps on speed, but do not retract slats.

STEP 4: After reaching slat retract speed (do not retract the slats) increase bank to 30 degrees maximum.

STEP 5: Select climb/cruise power after passing 1500 AGL.

STEP 6: Continue spiraling climb at slat retract speed (with slats still extended).

STEP 7: When above 5000 AGL or when clear of threat, lower the nose, clean up, accelerate, and resume normal climb schedule.

17.5. Exercises.

17.5.1. Scope. Exercises provide realistic combat-scenario training. This training is representative of the unit mission tasking. Unit planner ensures exercises are planned and flown to maximize tanker training objectives.

17.5.2. Objectives. Tanker tactics training will be built into each exercise during the planning stage. Training objectives include but are not limited to, large formation refueling, AWACS interface, HVAA, tactical deception, threat advisories, and defensive tactics. Consider the following elements during exercise planing: Utilize warning, alerting, deployment and execution orders. Theater ATO's should be sent secure by STU III and FAX at least one day during the exercise. A sortie rate of no less than 1.0 is the goal for Combat Reach Deployments. Employ minimum communications deployment package or consider requesting combat communications element. Conventional exercises should stress the "ability to survive and operate" (ATSO) in a chemical environment as much as possible within the constraints of equipment, budget, and supplies.

17.5.3. Red/Green/Maple Flag. Through a joint effort to enhance tanker training at Flag exercises, selected crews attend the mass mission briefings and debriefings at Nellis AFB NV. The tanker task force (TTF) commander will ensure a tanker staff or aircrew member attends the PACKAGE COM-

MANDER meetings to ensure specific tanker ATO requirements are addressed. To do this, the "Casino Tanker" concept is included in all Flag exercises on a space available basis.

17.5.3.1. Casino Tanker Concept. A minimum of one KC-10 should remain overnight at Nellis AFB, Monday through Thursday. The crews participate in the mass package debrief after landing, spend the night, then attend the mass briefing in support of the next day's mission. Tanker rotation should be every other day and scheduled through the 414th Combat Training Squadron (CTS), Operating Location B, Air Mobility Warfare Center (AMWC), at Nellis AFB. Final departure is Thursday in support of P.M. flight scheduling.

17.5.3.2. Casino Tanker Aircraft Condition. Aircraft recovering at Nellis AFB, are maintenance code "one" and accompanied by a minimum of two crew chiefs per aircraft. Transient maintenance provides tanker parking and recovery. There is no support or supply parts for KC-10 aircraft at Nellis AFB. RED/GREEN FLAG Tanker Task Force staff at the deployed location makes the determination of maintenance status. The aircraft crew chiefs accomplish Refueling/Servicing and minor maintenance.

17.5.3.3. Casino Tanker Utilization. Tankers support the exercise from Nellis AFB and remain under control of the Tanker Task Force at the deployed location.

17.5.4. USAF Weapons School, Mission Employment (ME) Phase. Tanker participation at ME is managed by the AMWC/WCOX. A superior working knowledge of tactics concepts significantly enhances aircrew performance during the intense training of the ME phase.

17.5.4.1. ME Phase Tanker Objectives: Develop an understanding of the capabilities of other composite force aircraft in order to effectively integrate tanker support into a sound tactical game plan. Apply knowledge of the threat to maximize survivability of friendly aircraft. Demonstrate proficiency in operating Have Quick and KY-58 secure radios. Exercise contingency tactical game plans to avoid threats. Tanker retrograde is the primary contingency plan. Stress situational awareness. Exercise EMCON game plans to deny information to the enemy. Exercise de-confliction plans to ensure safe marshaling of aircraft.

17.5.4.2. Unit Requirements. The ME phase represents graduate-level training. The crews selected to participate in this exercise should be prepared for a challenging, dynamic tactics environment. Units will:

17.5.4.2.1. Deploy crews with at least one member a Tactics School Graduate. This provides the crew with a knowledgeable point of contact and helps facilitate greater involvement in the tactics arena.

17.5.4.2.2. Deploy a tactics officer as staff personnel with the crews selected to participate in the exercise. The tactics officer will augment the AMWC staff supporting ME phase. The tactics officer acquires practical experience in composite force operations.

17.5.4.2.3.

17.5.5. COPE THUNDER Exercises. COPE THUNDER is a PACAF composite force exercise flown from Eielson AFB. The AMWC may provide tactics instructors to deploy along with the tanker unit supporting COPE THUNDER. The tanker unit provides a detachment commander (DETCO) and senior maintenance supervisor. Tanker training objectives are identical to employment phase tanker objectives.

17.5.6. Exercise After-Action Reports. Units prepare exercise after action reports for RED, GREEN, and MAPLE Flags; COMBAT REACH; Fighter Weapons School (FWS) employment phase; COPE THUNDER; and other deployments. Submit this report to HQ AMC/DOK and AMWC/WCOX in message form not later than 10 working days after mission completion. Message should be written in Joint Universal Lessons Learned System (JULLS) format and address applicable items below.

17.5.6.1. Deployments supported by multiple units. The lead unit will submit the report for the exercise.

17.5.6.2. JULLS Reports contain the following: General synopsis of exercise to include number of personnel, aircraft and duration of deployment. Extent of support provided by host base. Extent of support provided by exercise managers and staff. Adequacy of billeting and transportation. Number of sorties. Were retrograde maneuvers utilized? How many? How was situational awareness (SA) developed for the tankers? Did they have Bullseye calls from AWACs, GCI, other? Close control or broadcast? Any special equipment or techniques used? For RED and GREEN Flag: Casino Tanker responses should re-address items above. Was Casino Tanker available? Did crews participate in mass briefings? Was Casino Tanker program effective? Where did fighters intercept tankers? Problems associated with exercise. Suggestions to improve exercise.

Figure 17.1. VFR Overhead Pattern.

VFR OVERHEAD PATTERN

NOTE: Airspeeds, altitudes, and distances are approximate and may be adjusted to fit the tactical situation.

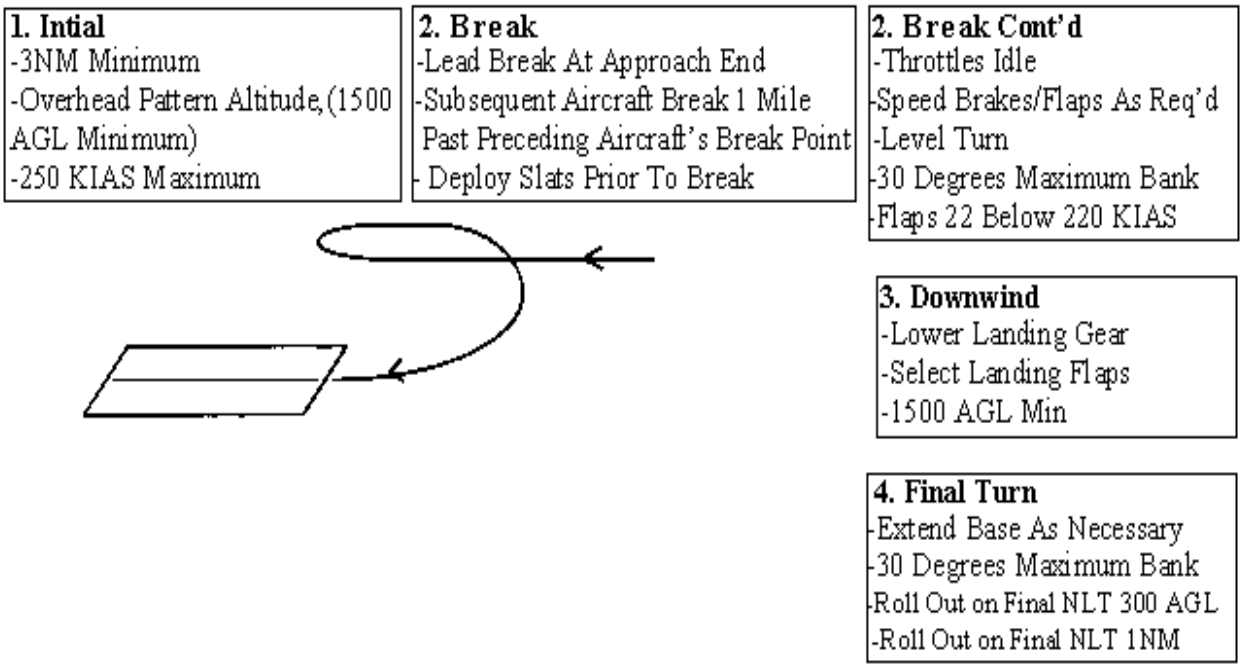
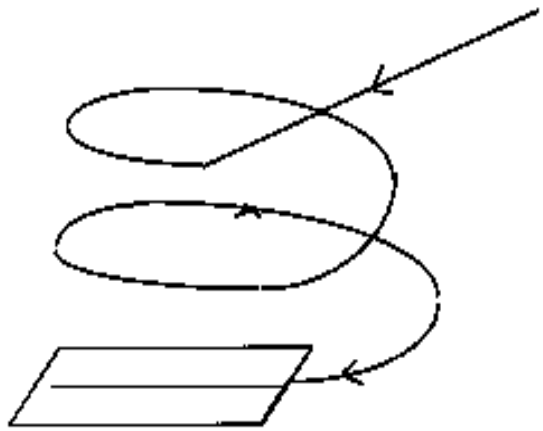


Figure 17.2. Random Steep Approach.

RANDOM STEEP APPROACH

NOTE:

Airspeeds, altitudes, and distances are approximate and may be adjusted to fit the tactical situation.



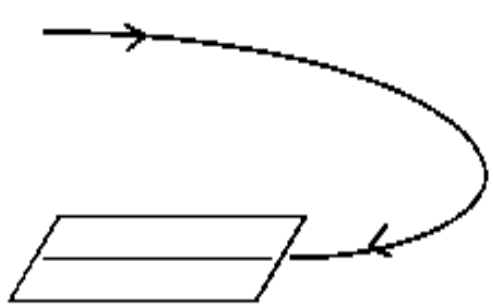
Procedures
-Establish Position Overhead
-Flaps/Slats 22/Ext
-Speed 180-220 KIAS
-Accomplish Spiral Descent
-Constant Rate (Approx.2000 Ft/Min)
-30 Degrees Maximum Bank
-Enter Normal VFR Downwind (1000 AGL Min)
-Slow & Configure Normally
-Accomplish Normal Final Turn

Figure 17.3. Curvilinear Approach.

CURVILINEAR APPROACH

NOTE:

Airspeeds, altitudes, and distances are approximate and may be adjusted to fit the tactical situation.



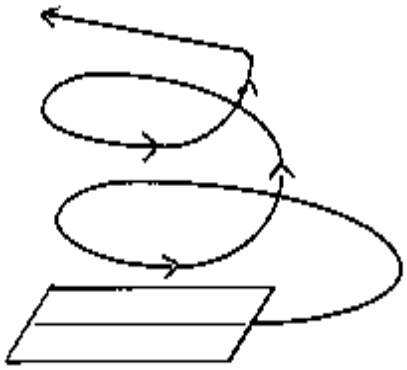
Procedures
-From Random Position, Altitude, Distances, Initiate Descending, Turning Track
-30 Degrees Maximum Bank
-Configure Normally
-Roll Out on Final NLT 300 AGL
-Roll Out on Final NLT 1 NM

Figure 17.4. Spiral-Up Departure.

SPIRAL-UP DEPARTURE

NOTE:

Airspeeds, altitudes, and distances are approximate and may be adjusted to fit the tactical situation.



Procedures

-Passing 400 AGL, Begin 15 Degree Bank Turn
-Lower Nose & Accelerate to Slat Retract Speed
-Do Not Retract Slats
-Continue Climb at Slat Retract Speed (Slats Extended)
-Increase Bank Angle to 30 Degrees
-Select Climb/Cruise Power After Passing 1500 AGL
- Passing 5000 AGL (or Clear of Threat), Clean Up
-Resume Normal Climb

Chapter 18

AIRCRAFT FORMATION

Section 18A—General

18.1. Scope. This chapter covers basic formation procedures and operations. All procedures described are general and apply to all KC-135 and KC-10 aircraft.

18.1.1. Use procedures in this chapter in conjunction with applicable A/R manual.

18.1.2. These procedures are standardized with KC-135 formation operations.

18.2. Concept. The formation procedures described in this chapter are designed to enhance the efficiency, effectiveness, and safe operations of the KC-10. The broad term "formation" as used does not differentiate between specific tactics of en route formation or visual formation. Specific references to each tactic must be made to ensure complete understanding. Failure of any crew member to comply with these procedures jeopardizes the safety of aircraft and aircrews. A major factor in formation design is to provide mutual support. Once formations are formed, they should be maintained to provide this mutual support provided they do not unduly interfere with formation operations.

18.3. Safety. Formation is a potentially hazardous operation. Compliance with the specified guidelines is essential to the safe conduct of any training or combat mission. These procedures, however, cannot substitute for proper aircrew judgment during fluid formation operations.

18.4. Key Definitions.

18.4.1. Formation Flight. By FAA definition, flight with more than one aircraft that, by prior arrangement between pilots, operates as a single aircraft with regard to navigation and position reporting. Aircraft maintain station-keeping operations by visual or electronic means. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control or during join-up or break-up.

18.4.1.1. A standard formation is one in which a proximity of no more than 1-mile laterally or longitudinally and 100 feet vertically from the flight leader is maintained by each wingman.

18.4.1.2. Nonstandard formations are those operating under any of the following conditions:

18.4.1.2.1. When the flight leader has requested and ARTCC has approved other than standard formation dimensions.

18.4.1.2.2. When operating within an authorized ALTRV or under the provisions of a letter of agreement.

18.4.1.2.3. When operations are conducted in airspace specifically designed for special activity.

18.4.1.3. Most formations are nonstandard and should be so indicated in the remarks section of the filed flight plan. Flight leaders are required to advise ARTCC on initial contact, and each sub-

sequent controller or controlling agency, of separation being used. Advisories are not required when operating within an ALTRV or airspace specifically designed for formation flight activity.

18.4.1.4. When flying a nonstandard formation, ARTCC must be advised of the longitudinal, lateral, or vertical separation between the flight lead and the last aircraft in the formation, so appropriate separation may be provided from non-participating aircraft.

18.4.1.5. Should separation between the flight leader and any other aircraft in the formation exceed ARTCC separation limitations or vary significantly from that reported to the ARTCC for the nonstandard formation, the aircraft outside the formation limits will no longer be considered part of the formation. The pilot will inform the formation leader of his or her position and request the ARTCC to provide individual control until the aircraft is re-established in formation.

18.4.2. Formation Departure. The departure of multiple aircraft at intervals of one minute or less which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. The departure portion of the flight ends at the planned level-off at cruise altitude, but may terminate earlier at a pre-planned break-up point.

18.5. Responsibilities.

18.5.1. Formation Mission Planning, Briefing, and Debriefing. Formation flights will be planned, briefed, and critiqued in accordance with this chapter. The formation leader should use the Formation Briefing Guide (**Attachment 1**) to conduct the flight crew briefings. This briefing guide may be supplemented as required.

18.5.2. Lead Responsibilities:

18.5.2.1. Proper formation is an extremely demanding task, especially for the leader who is responsible for the C2 of the formation. In formation, all pilots and crews qualified according to command procedures may be designated as formation leaders. However, the most qualified pilots and crews should be designated formation leader for operational missions.

18.5.2.2. Formation integrity and discipline begin with formation briefing. Leader must ensure all aspects of the mission are understood. When deviations from the briefed mission are necessary, they will be directed by the leader. No actions will be taken until they have been coordinated with and are understood by all formation members.

18.5.2.3. Formations comprised of non-collocated units must be thoroughly coordinated to ensure safe operations when a single formation briefing cannot be attended by all participants. Coordination of these formations will include designation of mission commander responsibilities for all phases of the formation operation.

18.5.2.4. Leaders must remember aircraft control is a basic element of good formation. Smooth aircraft control when accomplishing turns or changing altitude enhances formation integrity.

18.5.2.5. Each formation member must be aware of the position, performance, and capabilities of all flight members at all times and ensure appropriate station-keeping is maintained to provide positive aircraft separation.

18.5.2.6. Differing performance capabilities of other aircraft require additional considerations, particularly when dissimilar aircraft are mixed in a single formation.

18.5.3. Wingman Responsibilities:

18.5.3.1. Keep the leader in visual or electronic contact at all times and remain situationally aware of the position of other formation members.

18.5.3.2. Maintain briefed position.

18.5.3.3. Anticipate corrections and plan ahead.

18.5.3.4. Monitor all aspects of formation operations and advise the leader if an unsafe condition is noted.

18.5.3.5. Be prepared to assume the lead.

18.5.3.6. Execute lost wingman procedures when appropriate.

18.5.4. Crew Coordination. Maintaining formation integrity requires each crew member to assist the pilot in monitoring the position of all flight aircraft. In order to properly maintain position in formation, the pilot not flying the aircraft or other crew members, designated by the aircraft commander, must keep the pilot advised of the distance from other aircraft and trends, e.g. "one mile and steady," "one mile, closing slightly or dropping back," etc. Pass trend information at a rate concurrent with movement or closure. Particular attention is essential during join-ups, lead or position changes, lost wingman procedures, AR, and formation break-up.

18.5.5. Unit Responsibilities. All units will comply with formation takeoff and departure procedures in this chapter and should develop local procedures for the areas not covered herein. These procedures should include provisions for items such as aborts, lost communications, EMCON, and the recovery of formation aircraft.

18.6. Communications and Radio Procedures.

18.6.1. General. This paragraph describes radio procedures and phraseology to be used in the conduct of formation missions. Radio terminology should be standardized to the maximum extent; however, it is impractical to prescribe specific radio calls for all situations. A radio monitoring plan should be developed and briefed to ensure complete understanding by all formation participants.

18.6.1.1. Radio and interphone discipline are critical factors in maintaining formation integrity. Strict radio and interphone discipline must be enforced to ensure flight safety and mission effectiveness. geographical points, times, etc., may be used to aid or direct frequency changes. Use secure voice or HAVE QUICK when practical. Flight members will transmit only information essential to the safe conduct of the mission. Radio calls will be clear and concise.

18.6.1.2. UHF and VHF radios as available will normally be designated the primary means of communication between aircraft. Formation will not be flown on training sorties without inter-plane communications capability, except in an emergency. The same ARTCC frequency should be monitored by all aircraft.

18.6.1.3. Visual signals may be used as an alternate or secondary means of communication between aircraft.

18.6.2. Use of Radio:

18.6.2.1. One radio in each aircraft will be designated as the "primary" radio, which will be used for ARTCC reporting and formation control. As available, other radios will be designated for communications other than ARTCC; such as inter-plane and C2 communications. If it is neces-

sary to use the ARTCC radio for formation inter-plane communications, the flight member initiating the radio call will identify which radio is being used, e.g. "Tanker 66, this is tanker 56 on primary."

18.6.2.2. UHF or VHF guard channels (if available) will be monitored by all aircraft.

18.6.2.3. Flight lead will initiate all frequency changes. Wingmen should acknowledge in order and wait for every flight member to acknowledge before changing frequencies. Lead will allow enough time for frequency change to be accomplished before initiating check-in. Lead must ensure all flight members are on frequency before initiating any action or making any radio calls to ARTCC, etc. If a flight member does not respond, a secondary radio or guard may be used to direct the wingman to the proper frequency. Specific procedures should be pre-briefed by the flight lead. Crews should maintain non-primary radios during silent operations; however, planned frequency changes may be performed on briefed timing or visual signals. All flight members must be on a common frequency.

18.6.2.4. Call Signs:

18.6.2.4.1. Unless otherwise directed by a specific operations or communication plan, the flight call sign for ARTCC reporting will be the flight leader's tactical call sign. For inter-plane communications, flight members may use a pre-briefed call sign, e.g. RED FLIGHT, etc.

18.6.2.4.2. Formation aircraft will retain and use individual call signs for all rendezvous and AR operations, unless directed otherwise in the OPLAN. For large formation AR operations, aircraft may use assigned AR position for communication with their AR mate. For any abnormal or emergency situations use call sign.

18.6.2.4.3. Individual call signs will be used for single-ship operations on formation break-up.

18.6.3. EMCON. The importance of EMCON in a threat environment cannot be overemphasized; it must be practiced to the greatest extent possible. The following list of EMCON options provides standardized terminology and procedures for formation requirements.

NOTE:

Do not sacrifice safety for strict adhere to EMCON procedures.

18.6.3.1. Emission Option 1. Any and all emitters are authorized to ensure timely training or feedback and maximum safety. This option is normally used for initial qualification, category qualification, and difference training for tanker or receiver units.

18.6.3.2. Emission Option 2 (Restricted Communications). Radio silent formation except for rendezvous and AR con-ducted with only two radio exchanges. 15 minutes prior to the rendezvous or ARCT, receivers will advise tankers of call signs, altitude, changes in timing (if applicable), e.g. "Oscar 25 flight, FL 250, on time." Tankers will verify altitude and timing, e.g. "Felix 57, FL 260, on time." Tankers and receivers will use the adjusted rendezvous control time established during 15-minute call. Use minimum radio transmissions required to coordinate AR. All other emitters are authorized. Essential radio communications for safety of flight may be made. An abbreviated pre-contact radio check is required when the receiver reaches pre-contact. Boom operator will transmit numerical call signs only, e.g. "25, 57" and the receiver will respond "25." If this check cannot be completed, AR will not be accomplished unless mission priority or receiver

emergency fuel status dictates. Receivers will not close from pre-contact until either this radio check is accomplished or visual signals direct approach to contact. This option is the desired standard for day-to-day AR operations.

18.6.3.3. Emission Option 3 (Communication Out). Radio silent formation, including rendezvous and refueling. The use of other emitters is authorized unless prohibited. Essential radio communications for safety of flight may be made.

18.6.3.4. Emission Option 4 (Emission Out). Emitters (radios, Doppler, beacons, radar, radar altimeters, IFF exterior lighting, etc.) will not be used unless specifically authorized by the ATO, rules of engagement (ROE), OPLANs, SAFE PASSAGE procedures, or other mission directives. Essential radio communications for safety of flight may be made.

18.6.3.5. Emission Options 2 through 4. When using these options, boom interphone should be used when compatible. Tanker and receiver planners will coordinate and crews will be thoroughly briefed on formation procedures, type rendezvous, rendezvous point and time, tanker and receiver altitudes, formation break-up procedures, and missed rendezvous procedures (including refueling area departure time and back-up communications procedures). If different emission options are to be used during different phases of the route, this should be included in the briefing.

18.6.4. Standard Radio Calls. **Figure 18.1.** lists standardized radio calls and phraseology that may be used as appropriate on formation flights (except those conducted under options 2 through 4 above). Timely communication or required information must take precedence over the specific wording shown.

Figure 18.1. Standardized Radio Calls.

Action	**Example**
1. All calls initiated by lead will be prefaced by flight call sign.	FUZZY 04 flight go 345.1. FUZZY 04 flight check-in.
2. All calls initiated by wingmen will be prefaced by flight call sign and position.	FUZZY 04 bogey 10 o'clock low. FUZZY 04 "two"...on secondary.
3. All acknowledgment calls by wingmen will be by position and in order.	FUZZY 04 flight lead change...."two," "three."
4. Takeoff abort call.	*(Call sign)* abort, *(call sign)* abort,*(call sign)* abort.
5. Aircraft will check in as pre-briefed on inter-plane or departure. Lead will make all calls to ARTCC once formation is joined as appropriate.	"FUZZY 05—airborne" or "departure control, FUZZY 05." "Departure control, FUZZY 04 flight, climbing to FL 240 block 260."
6. In formation, lead will announce heading, altitude, and airspeed changes. (depending on EMCON level).	FUZZY 04 flight—right or left turn...050, level 9000... start accelerate or decelerate to .70 mach.

Action	Example
7. Lead may call for flight equipment checks at the appropriate time. Wingmen will acknowledge and report any abnormalities.	FUZZY 04 flight—climb check...level off check—altimeter 29.92...station check.
8. Lead may coordinate, as applicable, any change of aircraft configuration. When simultaneous action by other flight members is required, the preface will be followed by the command of execution "NOW."	FUZZY 04 flight—speed brakes...NOW.
9. If a wingman desires a power change.	FUZZY 04 lead—push it up ___. FUZZY 04 lead—pull it back
10. Lead or position change during formation.	FUZZY 04 flight—lead or position change; two move forward to lead position. FUZZY 04—two, you have lead, Roger, I have the lead.
11. Action Cells Radar contact established Visual contact established Established in position Lost visual or radar contact Join-up overshoot Breaking out Traffic calls Lost wingman	FUZZY 04, two... Radar contact Visual contact In position Lost visual or radar Overshooting Breaking out Bogey, 9 o-clock Lost wingman
NOTE: When assured no other formation will be in range or using the same frequency or a discrete frequency has been assigned to the formation, call signs may be abbreviated for clarity and brevity, e.g. "FUZZY flight...climb check" (acknowledged) "two," "three." When checking in a flight after a frequency change, lead's transmission should be shortened, e.g. "FUZZY 04" and acknowledged by "two," "three" before lead proceeds to talk.	

18.7. Supplementary Information. AR formation tactics are located in AR manuals for each aircraft.

Section 18B—Formation

18.8. General.

18.8.1. This section describes tactics, techniques, and procedures used to join and maintain formation and applies to all aircraft. Formation will be flown as dictated by mission requirements, weather, degraded equipment, communications plans, or other tactical considerations. This section is not all encompassing and can in no way substitute for good judgment or common sense during conditions of reduced visibility or other circumstances.

18.8.2. Each unit will develop post takeoff separation procedures and departure separation plans with the local controlling agency. The training departure should closely parallel the unit's wartime departure plan (if applicable) while conforming to peacetime safety of flight restrictions. Each plan must

consider emergency aspects, aircraft performance capabilities, terrain features, penetration of weather after takeoff, and local ATC restrictions.

18.8.3. Formation leaders are responsible for the entire formation during flight. They must ensure coordination with ARTCC facilities, tanker, or receiver aircraft, and other members of the formation is accomplished prior to taking any actions. Because of following aircraft, the additional airspace, time, mission requirements, etc., the formation leader must think and plan further ahead than when flying as a single-ship aircraft. Additionally, the formation leader must be prepared to make timely decisions and direct actions should any unplanned or emergency situations arise.

18.8.4. Formation members must be thoroughly familiar with the tactics, procedures, flying and clearing techniques, and formation duties required during the mission. In-flight, they must maintain proper formation position and be prepared to assist the formation leader and to assume formation lead responsibilities if called on to do so.

18.8.5. Performance capabilities of other aircraft (KC-135E/R, F-16, B-1B, etc.) require additional considerations; particularly when dissimilar aircraft are mixed in a single formation. It is incumbent on the formation leader to understand the performance capabilities and limitations of all aircraft in the formation.

18.8.6. Hazards associated with wake turbulence and wing tip vortices in multiple heavy aircraft formation should be thoroughly understood by all formation members. Pre-mission formation briefings will include emphasis on proper lateral or vertical positioning to avoid encountering these hazards.

18.9. Launch, Departure, and Level-Off.

18.9.1. Formation Briefing. The formation leader will conduct a detailed briefing for all crew members covering the planned activities, procedures, techniques, specific EMCON procedures, and division of formation responsibilities. Boom operators may be excused from the formation briefing for cargo loading, however the aircraft commander will back brief all appropriate items. If lead changes are planned, each formation lead will brief their portion of the mission. The recommended formation briefing guide (**Attachment 1**) should be used to conduct the briefing. As a minimum, the briefing must include all applicable items listed in the guide. The formation leader must ensure all crew members thoroughly understand their responsibilities, to include assumption of formation leadership. Any questions during the briefing must be adequately resolved. If aircraft depart from separate bases and then rendezvous for formation activity, the formation leader should ensure a telephone briefing is conducted with joining tanker and receiver formation leaders; however, if this is not possible, after detailed sortie study, the coordination and briefing between the appropriate lead planning agencies or mission commanders will satisfy formation briefing requirements.

18.9.2. Taxi Procedures (Parking to Runway). Units may establish taxi plans from the normal parking area to each runway. Follow the taxi sequence established in the briefing. The formation leader should accomplish radio checks and copy ATC clearance in the chocks. All participating crews will accomplish as much of the pre-takeoff checklists as possible prior to taxi. Lead will obtain taxi and takeoff clearance.

18.9.3. Takeoff Timing Interval. Defined as the time between initiation of takeoff power for each successive aircraft in the formation. Hold-line timing should be used only as back-up. Use of takeoff power radio calls is not recommended. The takeoff interval must ensure adequate separation exists

until aircraft normal procedures allow turns for track separation. Due to turbulence caused by jet blast, following aircraft should maintain a minimum safe distance behind preceding aircraft.

18.9.3.1. Use **Figure 18.2.** to determine the minimum allowable takeoff interval. The takeoff interval may be increased at the discretion of the formation lead based on several factors, including takeoff conditions and aircraft performance.

18.9.3.2. If it is not possible to determine power application of the preceding aircraft, following aircraft should base their timing on the preceding aircraft aligning with the runway and in a position to commence takeoff.

Figure 18.2. Minimum Formation Interval Chart.

LEAD AIRCRAFT	**FOLLOWING AIRCRAFT**		
Aircraft	KC-135R/T	KC-135E	KC-10A
B-1B(2)	30	30	60
B-52	40	40	60
E-4	60	60	60
KC-135E	40	30	60
KC-135R/T	30	30	60
KC-10A	60	60	60

NOTES:

1. Above intervals are in seconds.

2. B-1B causes extreme turbulence or heat up to 200 feet aft of the aircraft when in maximum afterburner (300 knots and 375 degrees F). Following aircraft are especially susceptible to engine damage during rapid power changes if following too closely to a B-1B. As a guide, dissimilar aircraft should maintain at least 200-feet nose-tail clearance behind B-1B at the beginning of takeoff roll.

18.9.4. Formation Takeoff Procedure (Hold-Line Through Takeoff): Receivers should takeoff first. Takeoff intervals or sequence may be varied as necessary depending on aircraft acceleration and performance, training requirements, weather, airfield conditions, and mission requirements. An abort call will be made any time takeoff is aborted.

18.9.4.1. Maintain proper takeoff interval and a safe speed during taxi. Use lead-in lines to align aircraft for takeoff. Adherence to timing and spacing intervals is essential to ensure safety. If less than the above timing or spacing is used, any degradation of the preceding aircraft's performance, such as loss of an engine, afterburner, etc., will result in a progressively dangerous reduction in aircraft spacing as lift off is approached.

18.9.4.2. All takeoffs are accomplished using runway centerline.

18.9.4.3. Effective crew coordination is extremely important in all takeoffs. Crew procedures must be well briefed and maximum alertness maintained. Strict radio and interphone discipline must be maintained and transmissions minimized so all aircraft are able to immediately recognize an abort call during takeoff.

18.9.4.4. The effects of turbulence and vortex generation increase as the takeoff roll progresses, reaching a maximum at unstick and may require large, impulse type control deflections. One-half control wheel or stick deflections just prior to takeoff may be encountered. These forces are comparable to takeoff with gusty wind conditions. The effects of turbulence may be decreased after takeoff by turning slightly left or right as soon as possible after airborne to place the aircraft upwind (if possible) and out of the vortex of the preceding aircraft.

18.9.4.5. When the decision to abort a takeoff is made, use the following procedures: An abort call will be made when a takeoff is aborted. At bases with dual runway operations, aborting aircraft should identify the runway in use.

NOTE:

Control tower operators observing an aircraft abort will echo the abort call over guard (243.0 or 121.5 MHz) and the frequency being used to control the launch.

18.9.5. Filing Procedures. Flight plans for all formation members will reflect the same route of flight for the portion of the flight the aircraft will be in formation. The following recommended remarks may be included on the DD Form 175 for the appropriate flight segments. Local procedures for filing may be used provided they are coordinated and documented in writing by the unit and local FAA (or ICAO) representatives.

18.9.5.1. Departure: "MARSA Non Std Frmn Dep w/ Pawn 71 & 72 to LIN 149/051"

18.9.5.2. En Route: "MARSA Non Std Frmn w/ Pawn 81 & 82 from CZQ 040/030 to OED 191/079, FL250B260"

18.9.5.3. AR: AR FL240B270 w/Bosco 11"

NOTE:

Remarks should be in the same chronological order as the flight plan. 21 characters may print out on the controller's flight strip; the remainder must be manually retrieved by the controller. To minimize any confusion between controller and aircrew, abbreviate to the shortest recognizable form.

18.9.6. Departure. For KC-10/KC-10 or KC-10/KC-135 cell formation departures, the normal planned climb speed is 285 KIAS for formations with KC-10s less than 500,000 pounds gross weight and 310 KIAS for formations with KC-10s equal to or greater than 500,000 pounds gross weight (see **5.19.**). Planned climb speeds apply to the lead aircraft only. Following aircraft may exceed/lag these speeds as necessary to accomplish the rejoin and maintain proper formation position. In all cases, formation leaders may adjust the climb speed schedule as mission requirements and aircraft performance dictate. (Planned climb speed will not be less than Vmm of the heaviest aircraft.) Climb speed schedules, which result in KC-10s climbing with slats extended, will be avoided. Maintain-flight path upwind (if possible) of preceding aircraft to minimize wake turbulence effects. During the departure and climb, fly the briefed routing, climb speed, and vertical velocity. If radar, A/A TACAN, visual, and radio contact are all lost, and altitude separation cannot be ensured, lost wingman and locally developed abort procedures will be accomplished. All available means both electronic and visual, should be used to maintain safe aircraft separation and effect formation join-up after takeoff. During climb-out, if an intermediate level-off is necessary, avoid climbing through the wake turbulence of preceding aircraft. Wingmen may attempt to gain spacing during climb-out, provided radar, A/A

TACAN, or visual contact is maintained, safety and weather conditions permit, and procedures were briefed during the formation briefing.

18.9.6.1. Join-Up Techniques. The following techniques may be employed to effect join-up during a climb. Visual cutoff in departure turns (requires either prior coordination with or approval from ARTCC facilities), differential airspeed, power management, and effective use of the radar, both on-board and ground based. Regardless of the techniques employed, altitude separation must be carefully monitored during closure to enroute spacing. Pilots must be constantly aware of their closure rate as formation position is approached. Under other than VMC or when visual contact cannot be maintained with all formation members, altitude separation will be accomplished by periodically having each aircraft in the formation report its altitude or flight level. Formation integrity and formation position will be maintained during any cutoff maneuver. Lead aircraft's relative position will be monitored by the closing aircraft. Lead must monitor the formation using all available means during departure and join-up. Lead must be prepared to assist wingmen if they have trouble locating lead.

18.9.6.2. Cutoff (Day/VMC). To close formation during turns, closing aircraft may turn inside the preceding aircraft's turn track, within tech order limits, and then return to preceding aircraft's turn track when desired spacing is established. Clearance to deviate from departure routing must be obtained either by prior agreement with ARTCC or from the controlling agency prior to initiating the turn. Altitude spacing is not guaranteed and extreme caution must be exercised to prevent an overshoot. Airspeed differential and cutoff during large departure turns should be used conservatively. Too much overtake results when too large of a cutoff angle and differential airspeed are combined. During visual cutoff maneuvers, be aware of inadvertent over banking and pitch control. Unusual attitudes can develop. If bank angle becomes excessive, or misjudgment in closure occurs, take necessary corrective action and inform the trailing aircraft of intentions. All crew members will assist in providing range and position on following aircraft throughout cutoff maneuvers.

18.9.6.3. Night or Instrument Conditions. During night or instrument flight conditions, aircraft should turn at the same geographic points as the preceding aircraft.

18.9.6.4. Differential Airspeeds. Differential airspeeds may be used on climbout to close to en route spacing. The number and performance capability of aircraft in the formation will determine the maximum amount of overtake between aircraft that is possible. Caution must be exercised to avoid excessive overtake situations. If an overshoot appears imminent, pilots must take immediate corrective action (i.e. increase drag) and notify other formation members of intentions.

18.9.7. Airborne Aborts. Any aborting aircraft will clear the planned launch stream and take appropriate actions dictated by the reason for abort. The formation leader should be advised of any abort and attempt to assist the aborting aircraft in any way possible. If the mission allows, lead may designate an escort. Aborting aircraft will obtain ATC clearance prior to altering their route or declare an emergency and deviate as necessary.

18.9.8. Level Off. Lead must initially maintain a briefed airspeed at level off to allow formation closure. Adjust to cruise airspeed at the briefed action point or when directed by lead. An altitude block will be obtained for all intermediate and final level-off altitudes. Block altitudes must provide a minimum of 500-foot separation between aircraft. All aircraft will call reaching intermediate level-off altitudes (normally stack down from lead) and close to en route formation spacing. Final level-off will

be adjusted as necessary to close the formation. If ARTCC will not approve a block altitude, then request IFR separation or hard IFR altitudes for each aircraft in formation.

NOTE:

The technique of maintaining 250 feet above or below a single altitude assigned to two aircraft in formation is a direct violation of Federal Aviation Regulations. This technique is NOT acceptable and will not be practiced or used.

18.10. En Route Formation.

18.10.1. En route formation consists of multiple tanker aircraft, in trail, stacked up at 500-foot intervals with 1 NM separation (2 NMs may be used for contingency operations). The primary means of maintaining proper formation position are radar under instrument conditions and visual or radar under visual conditions. Secondary means include TACAN/DME, UHF/DME, UHF/DF, A/A TACAN, etc. In instrument conditions, the apparent movement of a return on the radar scope is the best aid in maintaining formation position. Because of allowable equipment tolerances and limitations, A/A TACAN and ARTCC radar are not recommended for use in maintaining precise formation. Weather, tactical considerations, and mission objectives dictate the degree electronic emissions are used. When visual conditions permit, minimize radio transmissions. Heading and airspeed changes need not be announced.

18.10.2. The lead aircraft should ensure the formation is aware of any change in heading, airspeed, altitude, or formation duties through precise pre-briefing and inter-plane communication. Any deviation from announced altitude, airspeed, or heading will be magnified with each succeeding aircraft. Once the formation is established, following aircraft should maintain their position with reference to the lead aircraft; however, be aware of the position of other aircraft in the formation. Following aircraft must attempt to fly the same ground track. The following techniques help maintain en route formation:

18.10.2.1. Turns. One of the most common turn techniques is when formation lead pre-briefs specific bank angles for turns. For example, lead may brief aircraft to use the same number of degrees of bank angle as the heading change up to 10-degree and use 25-degree bank angles for turns greater than 10 degrees. This also will help reduce inter-plane communications. To maintain formation position during turns, all aircraft must initiate the turn over the same geographic point. This requires each succeeding aircraft to delay the turn for a set amount of time after lead has initiated their turn. For example, at 450 KTAS, the time to travel 1 NM is approximately 8 seconds; therefore, the number two aircraft will not begin its turn until approximately 8 seconds after the lead to ensure the aircraft turns over the same geographic point.

18.10.2.2. Airspeed and Altitude. Airspeed and altitude must be closely monitored and controlled throughout formation flight. Power settings and rates of climb, descents, airspeed increases and decreases must be pre-briefed or announced on inter-plane frequency to allow formation members to maintain position. With mixed formations, one technique is to use a constant vertical velocity and constant indicated airspeed for climbs or descents. The mission must be planned to consider the airspeed requirements of the highest or heaviest aircraft, whichever is more restrictive. As a general rule, a 3-KIAS reduction in airspeed per 500-foot increase in altitude will maintain proper in trail spacing. For example, if lead is flying 270 KIAS, then #2 would fly 267 KIAS and #3

would fly 264 KIAS, and so on. Lead must ensure the target airspeed is compatible with the most restrictive aircraft in the formation.

18.10.2.3. Power and Heading Corrections. If the formation leader and formation aircraft make small power and heading corrections, formation aircraft should never be out of position more than one-quarter mile. Over correcting with power and airspeed usually results in larger deviations. A heading and airspeed tolerance for lead to shoot for is +/- 2 degrees and +/- 2 KIAS. If a leader deviates from these tolerances for a significant time, he or she should notify the formation and correct back immediately.

18.10.2.4. Autopilot Operations. The autopilot should be used to reduce fatigue and aid in altitude separation. Consideration should be given to placing an aircraft with an inoperative or malfunctioning autopilot in last position in the formation for missions with extended duration in formation.

18.10.3. Aircrews will monitor the position of all other aircraft and, on inter-plane, notify any aircraft excessively out of position (i.e. inside 1/4 NM or outside 3 NMs). It is possible they are having equipment or performance difficulties.

18.10.4. Visual station-keeping techniques are described in **Figure 18.3.**. During operational situations with EMCON 3 or 4 implemented and marginal visibility prohibits normal formation spacing, a compressed trail formation may be required to avoid unnecessary emissions. Formations may be compressed, but should not be less than 1/2-NM spacing between aircraft. (Altitude separation may be compressed, but should not be less than 250 feet stacked up between aircraft during visual station-keeping.)

18.10.5. Visual formation is authorized for B1B bombers and fighter aircraft. During AR, if a breakaway is initiated by any airplane, aircraft flying visual formation will remain with the tanker and remain clear of the descending receiver.

18.11. Mid-Mission Join-Ups. The following generalized procedures will be used for scheduled or unscheduled mid-mission join-ups. If any discrepancies exist with aircraft specific AR manuals, the AR manual takes precedence.

18.11.1. Join-Up. A mid-mission join-up should provide a sufficient straight leg beyond the planned rendezvous point to effect join-up.

18.11.2. En route. The preferred method of join-up of aircraft is arrival over a common point with a minimum of 1000 feet of altitude separation, then departing on a common leg as described in applicable AR manuals. This should allow join-up into formation before any other activity is accomplished. For join-ups of four or more tankers, the formation leader may direct wingmen to cross the common point at 30 second intervals behind the formation leader. Once radar or visual contact is established and verified, the formation leader will clear wingmen to en route formation and effect altitude changes as required. ARTCC radar assistance may be used, if necessary, to provide initial positioning.

18.11.3. Point Parallel. A second method of effecting mid-mission join-ups is a point parallel rendezvous as described in applicable AR manuals. Aircraft utilizing this procedure will maintain a minimum of a 1000-foot altitude separation between aircraft and formations during the rendezvous. One aircraft will maintain centerline and the other must establish the offset and be the maneuvering aircraft.

18.12. Formation Position Changes (see Figure 18.4. and Figure 18.5.). Changes in formation may be required for the purpose of changing lead or moving wingmen to a more opportune position for the purpose of mission accomplishment (such as moving an aircraft with an inoperative radar to a position where following aircraft can monitor their position). **Figure 18.4.** and **Figure 18.5.** provide examples of 3-ship formation position changes. These procedures are also applicable for 2- through 6-ship formation position changes. Prior to executing any position change, the formation leader must ensure all formation members understand the procedures to be followed for intra-formation position changes. Formation position change procedures will be covered in the formation leader's briefing. ARTCC coordination is required prior to deviations from the approved flight path.

18.12.1. Formation position changes should only be accomplished in straight and level flight. Once initiated they will take priority over all other activities. Do not attempt to refuel receiver aircraft or obtain individual ARTCC clearances during formation maneuver and position changes. Crews must plan ahead to allow sufficient time and airspeed to accomplish the position change.

18.12.2. Positive separation must be monitored and maintained during formation maneuvering and position changes.

18.12.2.1. Altitude separation is the most critical element during position changes. Changes in altitude will be made only when lateral spacing is assured and coordinated on inter-plane frequency. Complete formation maneuvers and changes prior to initiation of other required mission activities. Particular care in maintaining separation must be exercised when transferring receiver aircraft from one tanker to another or when elements are joining and departing the formation.

18.12.2.2. Transferring receivers from one tanker to another during formation join-up and break-up must be coordinated with all participants and will be directed by the mission commander designated with responsibility for that phase of mission accomplishment.

18.12.2.3. Prior to initiating a formation position change, the formation leader will ensure sufficient straight and level time and airspace is available to complete the change. Radar or visual contact must be maintained throughout the position change. If radar and visual contact are lost during a position change, maintain altitude, advise formation lead contact has been lost. Ensure positive separation by any means available and do not attempt to rejoin the formation until positive radar or visual contact is established. The last aircraft in the formation with operable radar will monitor the position of other aircraft to ensure proper separation.

18.12.3. Aircraft changing positions will assume the call sign of their new intra-formation position (RED 1, RED 2, etc.) and formation leadership, if appropriate, when all aircraft are level at their new altitude and established in their new position. All aircraft will then acknowledge with their new intra-formation call sign. Aircraft will not change their individual call sign that is filed on the DD Form 175. Call sign of the flight will be the call sign of the lead aircraft or as directed by ARTCC. The new lead aircraft will squawk the assigned mode 3 or as directed by ARTCC.

18.12.4. The following procedures may be used to effect an aircraft lead or position change with other aircraft during VMC. All changes in heading, position, and altitude will be pre-briefed and coordinated on inter-plane frequency. When VMC cannot be maintained, use the procedures in **Figure 18.4.** and **Figure 18.5.**

18.12.4.1. Wingmen will maintain a minimum 1/2 mile in trail and descend or maintain 500-foot altitude separation. The aircraft to assume the lead will move laterally (normally to the right) 1/2 mile. Use 15 degrees of bank to turn 15 degrees from heading then turn back to heading using 15

degrees of bank. The wingman will accelerate and pass the leader. (Maintain 1/2 mile lateral separation.)

18.12.4.2. As the wingman passes the leader, he or she will assume lead responsibilities and climb, descend, or maintain altitude as required after positive visual separation is confirmed.

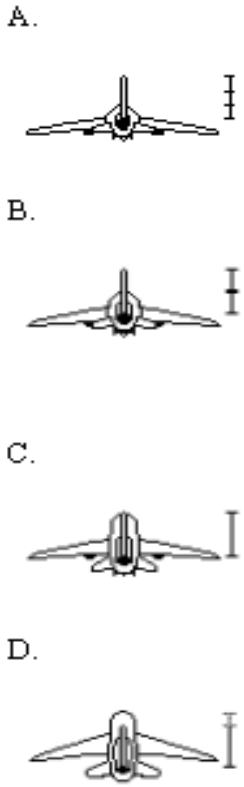
18.12.4.3. The new wingman (old lead) will obtain or maintain a 500-foot altitude separation as required, place IFF to standby, notify the new lead when approaching position in-trail, and confirm his or her altitude. At this time, the new leader will decelerate to briefed airspeed.

18.12.4.4. The wingman will assume trail position behind the leader and make a normal closure to proper position.

NOTE:

Mixed formation with KC-135. KC-10 visual station-keeping picture is similar during en route formation.

Figure 18.3. Visual Station-Keeping Techniques.



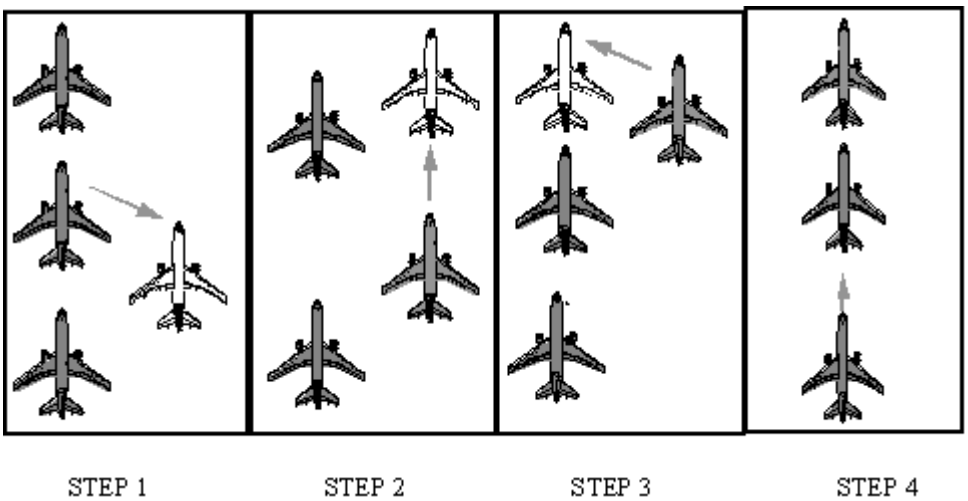
A. At 2 NMs and stacked up 500 feet, the top of the fuselage appears to be one third the way up the vertical stabilizer and the engines are easy to see as small circles under the wing.

B. At 1 NM, the fuselage appears to be half way up the vertical stabilizer and the engines area still visible as circles but are tangent with the trailing edge of the wing. The trailing edge of the main wing appears to meet the leading edge of the horizontal stabilizer.

C. At 1/2 NM, the fuselage is even with the top of the vertical stabilizer and the engines appear as half circles under the trailing edge of the wing. You will be able to see a slight amount of space between the trailing edge of the main wing and the horizontal stabilizer.

D. At 1/4 NM, the top of the vertical stabilizer is well back on the fuselage, just forward of the leading edge wing roots and the engines are out of view. There is clear definition between the trailing edge of the main wing and the horizontal stabilizer.

Figure 18.4. Formation Position Change—Any Aircraft Moves to Lead.



NOTES:

The white aircraft indicates the position the maneuvering aircraft is assuming.

(STEP 1) Lead determines the aircraft or element to move forward (maneuvering aircraft). The maneuvering aircraft or element will echelon (normally right) using approximately 30 degrees of bank and turning 30 degrees from formation heading. When 30 degrees off heading, reverse the turn using approximately 30 degrees of bank and return to formation heading. This will provide an offset of approximately 2 NMs.

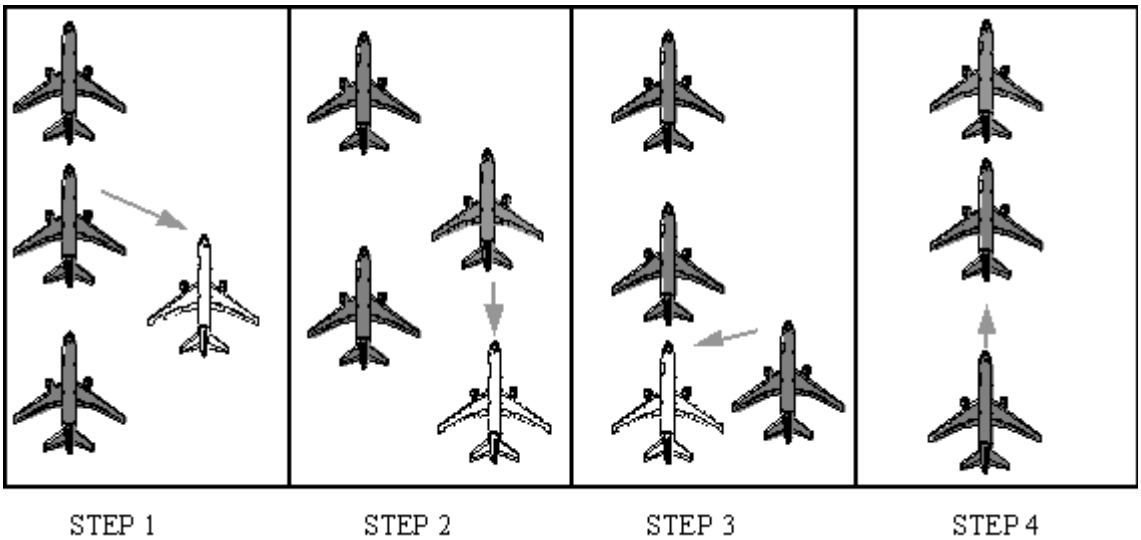
(STEP 2) After established in echelon, the maneuvering aircraft or element will accelerate forward, increasing airspeed a recommended 15 KIAS. The maneuvering aircraft or element should then resume formation airspeed and stabilize approximately 1 1/4 NMs forward range from the original lead. When the maneuvering aircraft or element is in the forward echelon position and positive visual or electronic contact is established, conduct the required altitude changes.

For two NM in-trail formations, the maneuvering aircraft or element will accelerate forward, increasing airspeed a recommended 30 KIAS. The maneuvering aircraft or element should then resume formation airspeed and stabilize approximately 2 1/4 NMs forward range from the original lead.

(STEP 3) The maneuvering aircraft or element will then move into lead position using no more than 15-degree heading corrections.

(STEP 4) If applicable, the formation will then establish proper aircraft spacing. The formation lead should be advised by the last aircraft after the formation is reformed. Assume new intra-formation call signs (RED 1, RED 2, etc.) and reset rotating beacon or strobe and navigation lights.

Figure 18.5. Formation Position Change—Any Aircraft Moves to Trail.



NOTES:

The white aircraft indicates the position the maneuvering aircraft is assuming.

(STEP 1) Lead determines the aircraft or element to move aft (maneuvering aircraft). The maneuvering aircraft or element will echelon (normally right) using approximately 30 degrees of bank and turning 30 degrees from the formation heading. When 30 degrees off heading, reverse the turn using approximately 30 degrees of bank and return to formation heading. This will provide an offset of approximately 2 NMs.

(STEP 2) After established in echelon, the maneuvering aircraft or element will decelerate toward the end of the formation, decreasing airspeed a recommended 15 KIAS. The maneuvering aircraft or element should then resume formation airspeed and stabilize approximately 3/4 NM aft of the last aircraft or element. When the maneuvering aircraft or element is in the aft echelon position and positive visual or electronic contact is established, formation lead directs required altitude changes.

For 2-NM in-trail formations, the maneuvering aircraft or element will decelerate toward the end of the formation, decreasing airspeed a recommended 30 KIAS. The maneuvering aircraft or element should then resume formation airspeed and stabilize approximately 1 3/4 NMs aft of the last aircraft.

(STEP 3) The maneuvering aircraft or element will then move into position using no more than 15-degree heading corrections.

(STEP 4) If applicable, the formation will then establish proper aircraft spacing. The formation lead should be advised by the last aircraft after the formation is reformed. Assume new intra-formation signs (RED 1, RED 2, etc.) and reset rotating beacon and strobe and navigation lights.

18.13. Echelon Formation.

18.13.1. Echelon formation procedures are contained in applicable AR manuals. Proper echelon spacing and angle should be maintained using radar or visual means. Echelon formation is normally flown on lead's right wing. Formation lead may direct a different angle or spacing when weather or EMCON conditions dictate.

18.13.1.1. Assumption of echelon in a turn. Aircraft normally will assume echelon halfway through the rendezvous turn unless briefed or directed otherwise by formation lead. Following aircraft should maintain the same bank angle as lead and execute any airspeed changes simultaneously with lead. To move out in echelon, succeeding aircraft stop the turn at some heading short of lead's roll out heading. As an example, two may roll out 5 degrees short of heading, three 10 degrees, and so on. Aircraft will return to lead's heading as the proper echelon position is approached.

18.13.1.2. Assumption of echelon in straight and level flight. Assumption of echelon formation in straight and level flight should be accomplished by succeeding aircraft turning from formation heading in increments of 5 to 10 degrees. As an example, two may turn 5 degrees, three turn 10 degrees, four turn 15 degrees, etc.; aircraft will return to lead's heading as proper echelon position is approached.

18.13.2. Turns greater than 30 degrees into the echelon are permitted only in an emergency. Turns into an echelon are limited to 15 degrees of bank. All aircraft must execute the turn at the same time, or when time permits, start with the last aircraft, then the next to last aircraft, etc. If turns greater than 30 degrees are necessary for mission requirements, the formation leader should direct all aircraft to assume normal en route trail formation.

18.14. Air Refueling. During AR, formation lead must fly precise airspeeds, altitudes and headings in order to maintain a stable platform for aircraft in the formation. Any deviation from these parameters requires corrections, which increase in magnitude with each succeeding aircraft. Therefore, formation aircraft should maintain their position relative to the lead aircraft. This prevents the "accordion" effect during AR and possible conflict with other aircraft in the formation.

NOTE:

Receivers with large on-loads at high gross weights may require airspeeds to build as on-load increases. Maintaining formation position in this scenario may be extremely difficult. If a precise airspeed platform cannot be achieved due to receiver mission requirements, crews must be especially diligent to monitor aircraft formation position relative to other formation aircraft and ensure adequate lateral separation is maintained. Formation leaders should plan for this eventuality and brief or coordinate actions to maintain formation integrity to the maximum extent possible. These procedures are in addition to procedures in the AR manual.

18.14.1. Communication. The total number of aircraft on one frequency during formation and AR may be quite high. This situation demands strict radio and interphone discipline. Proper management of essential transmissions will be demanded by the formation leader. Cockpit interphone and radio communications will be brief, if possible, and be made when the receiver is not closing to or in the contact position. Boom operator transmissions on refueling frequencies will be brief but adequate and include the entire call sign identification. If pre-briefed, call signs may be abbreviated, e.g. "Receiver one, this is tanker one," etc.

18.14.2. Anchor Air Refueling. Anchor AR tracks or tracks requiring frequent turns should be flown in trail or offset trail (approximately 20 degrees echelon) rather than standard echelon formation. When flying in trail position, fly slightly outside of the proceeding aircraft's flight path. This will prevent the receiver from descending into the preceding airplane's wake turbulence during a breakaway. Tankers should not climb in conjunction with a breakaway in a multi-aircraft, tactical rendezvous AR environment, unless deemed necessary by the tanker pilot or boom operator.

18.14.3. Echelon Position. Tanker AR echelon formation will vary depending on the ratio, number, and type of receivers. See AR manual for specific procedures.

18.14.3.1. When the tanker to large receiver ratio is one to one or greater (i.e. 4 tankers and 2 receivers), a 60-degree right echelon with 2 NMs spacing stacked up at 500-foot interval formation normally will be used.

18.14.3.2. When the tanker to large receiver ratio is less than one to one (i.e. 2 tankers and 4 receivers), a 60 degree right echelon with 2 NMs spacing stacked up at 1000 foot interval formation normally will be used.

18.14.3.3. For all fighter type aircraft on a AR track, 60-degree right echelon with 1 NM stacked up at 500-foot interval formation normally will be used.

18.14.4. End Air Refueling (EAR). Tanker lead must ensure receiver aircraft arrive at EAR with their required offload, on time, with an ARTCC clearance, and in a safe position to leave the AR formation. To accomplish this, tanker lead must thoroughly plan, brief, and monitor EAR mission requirements.

18.14.4.1. Tanker aircraft will not transit the receivers altitude during EAR unless lateral separation and positive radar or visual contact can be maintained. This helps ensure tanker aircraft do not pose a wake turbulence or collision hazard to receiver aircraft.

18.14.4.2. If the procedures above cannot be accomplished, the tanker will verbally coordinate with the receivers to ensure lateral separation prior to transiting the receivers' altitude.

18.14.5. Join-up. Receiver aircraft may join an existing refueling formation while AR is being conducted at the authorization of the tanker formation leader. Receiver aircraft should use the following procedures:

18.14.5.1. Contact the tanker on AR frequency to obtain permission to join the formation. Obtain heading, airspeed, and altitude information.

18.14.5.2. Contact the controlling ARTCC stating intentions and obtain clearance.

18.14.5.3. Joining aircraft should have positive radar contact by 5 NMs and must have positive visual contact by 1 NM.

18.14.5.4. Maintain an altitude 2000 feet below the base refueling altitude until within 1 NM of the formation.

18.14.5.5. At 1 NM, notify the formation, climb, and control airspeed (maximum overtake within 1 NM is 50 KIAS) to arrive in position (observation or echelon as coordinated or on the wing) on speed.

18.15. Radar Failure. The formation leader will provide guidance should an aircraft experience radar failure which results in difficulty in navigation, weather avoidance, or maintaining formation position.

18.15.1. During visual conditions, maintain formation position by visual means and notify the formation leader if instrument conditions are anticipated.

18.15.2. During instrument conditions, maintain formation position using the trailing aircraft radar to assist in spacing. If conditions warrant, make a formation position change to place the aircraft with radar failure in front of an aircraft with operating radar. Formation position two is optimum for radar-out aircraft in a three ship or greater formation. Upon notification from a wingman of radar failure, the formation leader should immediately announce formation heading, airspeed, and altitude. The formation leader will maintain a stable platform on the announced heading, airspeed, and altitude until the situation is determined to be under control.

18.16. Complete Radio Failure. In the unlikely event of complete radio failure, maintain formation position by radar or visual means and attempt to restore radio communications. The emergency radios contained in the aircraft's survival kits may be used for emergency communications.

18.17. Lost Wingman Procedures. These procedures are to be used when visual, A/A TACAN, radar, or radio contact cannot be maintained and altitude separation can not be ensured. In any lost wingman situation, immediate separation of aircraft is essential to safety. Upon losing all contact with the leader, or if unable to maintain formation due to disorientation, the wingman will simultaneously execute the applicable lost wingman procedure while transitioning to instruments. The bank angle used to achieve separation should equal the number of degrees to be turned. Smooth application of control inputs is imperative to minimize the effects of spatial disorientation. Any aircraft, which can maintain contact with an aircraft executing a lost wingman maneuver will remain in formation with that aircraft until otherwise, directed by the leader. When lead is notified of a lost wingman, lead will take appropriate action, as the situation dictates, until positive separation is assured. Lead will establish a reference heading and altitude after initial separation is assured. During recovery, if the flight has a block altitude clearance, wingmen should establish appropriate altitude separation.

18.17.1. Two Aircraft Flights:

18.17.1.1. In wings-level flight (climbing, descending, or level) simultaneously transition to instruments, inform lead, turn 15 degrees away and maintain new heading for 15 seconds, then resume course. Adjust to formation or obtain separate clearance if required.

18.17.1.2. In turns (climbing, descending, or level):

18.17.1.2.1. On the outside of the turn, transition to instruments, roll to wings level and inform the leader. Continue straight ahead to ensure separation prior to resuming turn. Adjust to formation or obtain separate clearance as required.

18.17.1.2.2. On the inside of the turn, simultaneously transition to instruments to maintain established bank angle, reduce airspeed by 10 KIAS to ensure clearance, and inform lead. Lead will simultaneously roll wings level, maintain airspeed, and acknowledge wingman's call. If lead has acknowledged the lost wingman call and confirms he or she has rolled wings level, the wingman will, after 15 seconds, roll wings level, establish 500 feet altitude separation, turn to lead's referenced heading and attempt to acquire lead on radar. If loss of visual contact is not acknowledged by lead, maintain established bank angle, establish 500 feet altitude separation, roll out on new heading, attempt to acquire lead on radar, and form into en route formation position. If radar contact cannot be re-established, obtain separate clearance from the controlling agency.

18.17.2. Three Aircraft Flights. If only one aircraft in the flight becomes separated, the procedures above would provide safe separation. However, as it is impossible for number three to immediately ascertain that number two still has visual contact with the leader, it is imperative number three's initial action be based on the assumption number two has also become separated. If number two is still in visual or radar contact, he or she will maintain position. If number two goes lost wingman, he or she will follow the procedures outlined above. Number three will follow the procedures listed below:

18.17.2.1. In wings level flight (climbing, descending, or level) simultaneously transition to instruments, inform lead, turn 30 degrees away, and maintain new heading for 30 seconds, then resume course. Adjust to formation or obtain separate clearances as required.

18.17.2.2. In Turns (climbing, descending, level):

18.17.2.2.1. On the outside of the turn, simultaneously transition to instruments, inform lead and reverse direction of turn for 15 seconds to ensure separation from lead and number two. Adjust to formation or obtain separate clearance as required.

18.17.2.2.2. On the inside of the turn, simultaneously transition to instruments to maintain established bank angle, reduce airspeed by 20 KIAS to ensure clearance, and inform lead. Lead will simultaneously roll wings level, maintain airspeed and acknowledge the wingman's call. If lead has acknowledged the lost wingman call and confirms he or she has rolled wings level, number three will, after 30 seconds, roll wings level, establish 1000 feet altitude separation, turn to lead's referenced heading, and attempt to acquire lead and number two on radar. If loss of visual contact is not acknowledged by lead, maintain established bank angle, establish 1000 feet altitude separation, roll out on new heading, attempt to acquire lead on radar, and form into en route formation position. If radar contact is not re-established, obtain separate clearance from the controlling agency.

18.17.2.3. Lost Wingman Procedures During Receiver AR. Depending on the makeup of the AR formation, it is possible that in the event of a breakaway, receiver aircraft may find themselves

co-altitude with another aircraft in the formation. If, during a breakaway, the receiver aircraft loses sight of the tanker aircraft, T.O. 1-1C-1-32 requires the receiver aircraft to descend to an altitude 1000 feet below the tanker. In the event this places the receiver aircraft co-altitude with another aircraft in the formation and visual, A/A TACAN, or radar contact with the co-altitude aircraft cannot be maintained, descend to an altitude that will provide positive separation from other aircraft and decrease airspeed to ensure lateral separation.

18.18. Formation Break-Up and Recovery. Thoroughly plan and brief formation separation procedures in advance. Formations must be able to achieve spacing of 5 NMs or 3000 feet vertically before they may expect ARTCC to assume responsibility for aircraft separation. Do not initiate formation separation procedures without ARTCC approval. Several techniques may be used to accomplish this.

18.18.1. Altitude. Aircraft planning on using the same published high altitude penetration may take altitude separation prior to the holding fix and then start the penetration in succession. Lead aircraft will not transit a trailing aircraft's altitude during formation break-up unless lateral separation and positive radar or visual contact can be maintained. This helps ensure leading aircraft do not pose a wake turbulence or collision hazard to trailing aircraft.

18.18.2. Separation Routing. Aircraft routing may be designed to provide formation spacing. This may be mission planned and filed as routing following the break-up point or be provided as ATC vectors. When planning a break-up for filing purposes, sufficient spacing can be provided by planning a turn between the break-up point and the initial approach fix. The spacing provided by the turn may be effectively increased by also providing differential airspeed during the maneuver. ATC may provide the same service during vectoring, but planning the mission properly can reduce ARTCC communications and preclude delay if ARTCC radar capability is lost.

18.18.3. Cruise Differential Airspeed: Differential airspeed may be effectively used to gain lateral separation if large distances are available. If each aircraft used 10 KIAS differential airspeed (at normal en route airspeed), a 7-10 NM spacing over a 200-NM distance will result.

18.18.4. Penetration Differential Airspeed. During penetration, the lead aircraft should maintain the highest airspeed, and if possible, delay configuration. Following aircraft should maintain lower airspeeds to further help increase separation. All aircraft must allow sufficient time to complete descent and before landing checklists.

18.18.5. If formation descent and arrival is desired, detailed descent profile, airspeed reduction, and configuration procedures will be thoroughly briefed.

18.19. Mixed Formations. Although standard formation procedures normally apply during mixed formations, consideration must be given to performance differences between participating aircraft. All formation members must know the performance characteristics of their aircraft. Mission profiles should be planned to minimize altitude conflicts during departure, en route, and formation breakup.

18.19.1. Launch, Departure, and Level-Off: Formation lead must determine the optimum sequence for launch of mixed aircraft formations based on performance, weather, airfield conditions, wake turbulence, and mission requirements. Normally, the fastest accelerating or highest climb speed aircraft should lead. However, wake turbulence considerations may require the lighter aircraft to launch first. In no case will the interval be less than those outlined in **Figure 18.2.** Formation leaders may increase the takeoff interval for adverse weather conditions or wake turbulence factors. If conditions

require substantial increases in takeoff interval to ensure positive formation separation, formation takeoffs should not be accomplished and FLIP separation criteria apply. An en route or point parallel rendezvous should be planned. Fighter or fighter-type aircraft should normally takeoff before tankers. For planning purposes, if operational considerations necessitate fighters takeoff after the tankers, a 5-minute interval should be used and an en route rendezvous should be planned to effect join-up. With fighters launching first, aircraft may begin takeoff roll once fighters are airborne and past the departure end of the runway, as determined by formation lead. Departure airspeed and rate of climb will be pre-coordinated at the formation briefing. If during departure an intermediate level-off is necessary, avoid climbing through the wake turbulence of preceding aircraft. Altitude separation must be carefully monitored during closure to formation position. When safety and weather conditions permit, and, if briefed by formation lead, formation members may attempt to obtain formation spacing during climbout.

18.19.2. Climbs and Descents. Due to performance differentials, caution must be exercised if climbs or descents become necessary with mixed formations. One technique is to use a constant vertical velocity and constant indicated airspeed for climbs and descents. Procedures must be thoroughly briefed prior to flight.

18.19.3. Cruise:

18.19.3.1. Tradeoffs between optimum altitudes and airspeeds for aircraft type may be required to achieve maximum overall formation efficiency. Formation leaders will determine and brief the best cruise parameters consistent with mission requirements.

18.19.3.2. Wingman consideration is paramount during altitude or airspeed changes. Formation leaders must consider the most performance limited aircraft when making these changes.

18.19.4. Buddy Departures. Buddy departures may be used by collocated tanker and fighter or bomber units. The intent of this type departure is to facilitate the join-up of receivers with their mated tankers. It is especially useful for EMCON or restricted radio operations but must be coordinated with ATC prior to launch.

18.19.4.1. VMC procedures may be used when weather (ceiling and visibility) is 3000/5 or greater. These procedures are generalized and require modification based on aircraft and airspace limitations. Receivers will normally launch first and intercept an arc to place themselves on extended (approximately 10 NMs) final to the departure runway. When the receiver calls 10 NMs final or the last receiver turns cross wind, the tanker will launch, or the tanker will launch on predetermined timing. (For each additional tanker, add the distance flown by receivers in one minute to initiate tanker launch.) This will allow 4-NM separation between receivers and the last tanker in the launch stream. Continue with a straight ahead rejoin or according to briefed departure routing. The entire formation should be rejoined within approximately 20 NMs of the departure field.

18.19.4.2. Under IMC or when weather is less than 3000/5, plan to rendezvous the formation at an orbit point along the route of flight. Tankers will normally launch first unless mission fuel load and performance considerations dictate otherwise with receivers following. Receivers should be rejoined prior to rendezvous with the tankers.

18.20. Mission Debriefing and Critique. A complete mission debriefing and critique should be conducted by the formation leader following the mission.

Chapter 19

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19.1. This chapter is not used for KC-10 operations.

Chapter 20

AEROMEDICAL EVACUATION (AE)

Section 20A—General Information

20.1. Mission:

20.1.1. The primary function of the KC-10 aircraft for AE is transport of ill or injured DoD members and their dependents requiring medical support. These AE missions may be directed at any time. The KC-10 aircraft will be used with the concurrence of the appropriate medical validating authority.

20.2. Not Used.

20.3. Waivers and Revisions:

20.3.1. Waivers. Use **Chapter 4** waiver protocol for AE related questions or waivers.

20.3.2. Revisions. Use **Chapter 1** protocol for improvement recommendations.

Section 20B—Aeromedical Evacuation Command and Control

20.4. Operational Control and Reporting of Aeromedical Evacuation Forces:

20.4.1. HQ AMC is the lead command for AE. The aircraft commander is responsible for ensuring the safety of the flight crew, AE crew, and all patients and passengers. The MCD is responsible for providing medical care to the patients. In matters concerning flight safety, decisions of the aircraft commander are final; in matters of patient care, decisions of the MCD are final.

20.4.2. Operational control of AE missions is the same as for other airlift missions.

20.4.3. The AMC Command Surgeon (HQ AMC/SG) is responsible for providing standards and procedures concerning the treatment of patients in-flight, and for approval of any medical equipment used on AE missions.

20.4.4. The MCD will advise the aircraft commander when a patient's condition or use of medical equipment may affect aircraft operations.

20.4.5. The AEOO, if available, is responsible for supervising flight line execution of AE missions. The MCD is directly responsible for the safety and medical well being of patients on the aircraft and coordinates enplaning and deplaning procedures with the AEOO and supporting agencies.

20.5. Aircraft Commander Responsibilities:

20.5.1. Assist the MCD in obtaining patient support requirements based on local availability. The MCD will coordinate with the aircraft commander for integration of the flight and Aeromedical Evacuation Crew Members (AECM) for continuing missions in which no crew changes take place including en route transportation, dining, billeting, etc.

20.5.2. Brief the AE crew on the mission, flight plan, flight profile, and current threat (if applicable).

20.5.3. Maintain cabin altitude at the level requested by the GPMRC/TPMRC, tasking AE command element, or MCD.

20.5.4. Coordinate with the MCD to determine if any flight restrictions are necessary due to patient conditions and if passengers and cargo may be carried.

20.5.5. Coordinate with the MCD to insure mission required equipment is available/installed as necessary.

20.5.6. Advise the AECMs of intentions to start engines, taxi, itinerary changes, in-flight difficulties, etc.

20.5.7. Brief the MCD on additional responsibilities of the flight crew.

20.5.8. During Aeromedical Readiness Missions (ARM), coordinate with the Mission Clinical Coordinator (MCC) on planned simulated emergencies and training activities.

20.5.9. Patients or passengers may visit the flight crew compartment per **Chapter 5** of this instruction. The control of patients rests with the MCD, while control of the passengers is the responsibility of the flight crew, in conjunction with the MCD.

20.5.10. Transmit load messages and radio transmissions to GPMRC/TPMRC or tasking AE command element/ground personnel as requested by the MCD.

20.5.11. Coordinate Crash/Fire/Rescue (CFR) vehicle requirements when transiting airfields that are unfamiliar with AE requirements. CFR vehicle will stand by per AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*, and T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*.

20.6. Flight Crew Responsibilities:

20.6.1. Assist the AE crew with aircraft systems.

20.6.2. Provide AECMs who are not certified in the KC-10 with information identified in paragraph **20.10.1.**

20.6.3. Coordinate an emergency evacuation plan with the MCD.

20.6.4. Operate aircraft systems, i.e., doors, ramps, emergency exits, etc.

20.6.5. Assist the AE crew as necessary, providing such assistance does not interfere with primary duties.

20.6.6. Operate galley and prepare food and beverages for food service provided to patients by AECMs.

20.6.7. Assist with aircraft configuration for AE operations.

20.6.8. Complete pre-flight/emergency briefings.

20.7. Aeromedical Evacuation Crew Responsibilities:

20.7.1. Primarily responsible for patient activities.

20.7.2. Assist flight crew/maintenance with aircraft configuration for AE operations.

20.7.3. Install and remove medical equipment/supplies.

20.7.4. Assist the flight crew with observation and care of passengers when it doesn't interfere with primary duties.

20.7.5. If KC-10 certified, provide AECMs who are not certified in the KC-10 with information identified in 20.10.1.

20.8. Patient Death In-Flight. When a suspected death occurs in-flight, the planned itinerary will not be interrupted if the next scheduled stop is a US military airfield. If the next stop is a civilian airfield that does not service a US military medical facility, or a foreign military airfield, that stop will be over flown (mission requirements allowing). Coordination with command and control agencies is essential. The GPMRC/TPMRC or tasking AE command element must ensure that the MTF anticipating the aircraft's arrival at the civilian/foreign military airfield is informed of the cancellation.

Section 20C—Aeromedical Evacuation Crew Complement and Management

20.9. Aeromedical Evacuation Crew Complement:

20.9.1. Aircrew Qualification. AECMs must be fully qualified on at least one of the following aircraft; the C-9, C-17, C-130, or C-141, and are authorized to log primary flight time while performing duties on AE missions. Prior to being utilized as a certified AECM on KC-10 aircraft, AECMs must receive training as directed in AFI 11-2AE, Volume 1. A flight crewmember is ultimately responsible for emergency egress and cabin safety.

20.9.2. Crew Complement. A basic AE crew consists of two FNs and three AETs. An alert crew consists of one FN and two AETs. An augmented AE crew consists of one additional FN and AET. The group/squadron chief nurse can adjust the crew complement. The group/squadron chief nurse is the final authority for increasing or decreasing the number of AECMs assigned to AE missions. Physicians, nurses, medical technicians, or other personnel designated as medical attendants (i.e., Critical Care Air Transport Team (CCATT) members) to specific patients does not constitute an augmented crew and does not extend crew duty time. Basic crews will not be augmented after crew duty has started.

20.9.3. The appropriate GPMRC/TPMRC or tasking AE command element will notify the command and control agencies or flying organization operations officer of the AE crew complement for each AE mission on KC-10 aircraft.

20.10. Aeromedical Evacuation Crew Management. AECMs will be managed per **Chapter 3** of this instruction.

Section 20D—- Aeromedical Evacuation Aircrew Procedures

20.11. Checklists:

20.11.1. General. This instruction and AFI 11-215, set policy and provide guidance for the standardization of contents and maintenance of flight crew checklists. Checklists will be maintained per AFI 11-215 and applicable MAJCOM supplement.

20.11.2. Applicability. This instruction applies to all AECMs assigned to AMC and AMC-gained AE units. It also applies to theater assigned AECMs performing AE duties on the KC-10 aircraft.

20.11.3. During all aircraft operations, AECMs will carry and use the guidance contained in their current abbreviated flight crew checklist.

20.11.4. Only MAJCOM/DO and SG approved inserts/briefings pertaining to crew positions will be kept in the abbreviated flight crew checklist binders.

20.11.5. Information in the AECM checklists will not be changed except by published revisions or changes.

Section 20E— Aeromedical Evacuation Airlift Operations

20.12. General:

20.12.1. Determining Factors. Consider the following factors when transporting patients on the KC-10 aircraft; patient's diagnosis, condition, equipment, oxygen requirements, in-flight time, in-flight patient care requirements, and the number of medical personnel required. Emphasis must always be on providing quality and appropriate care while minimizing potential risks during transport.

20.12.2. Patient Load Planning Factors. The GPMRC/TPMRC or tasking AE command element determines the size/composition of the patient load on AE missions. AE mission planning factors will be per applicable AFI/H 11-XXX and 41-XXX series publications.

20.12.3. Patient Preparation. A flight surgeon, if available, will determine the patient's suitability for AE on the KC-10 aircraft. Medical authorities requesting the patient's evacuation must be informed of the in-flight physical stress on the patient. If the MCD determines the patient's medical condition is beyond the capability of the AE crew or aircraft, they will contact the GPMRC/TPMRC or tasking AE command element for further guidance. The MCD, in coordination with the appropriate theater medical validating authority, may refuse to accept any patient whose medical condition is beyond their capability. The MCD will advise the aircraft commander when a patient's condition or use of medical equipment may affect aircraft operation.

20.12.4. Equipment for AE Missions. Prior to use onboard AE missions, all medical equipment must be tested and deemed air worthy, and then approved for use by HQ AMC/SGX. All AE equipment currently approved by HQ AMC/SGX for use in the AE system has been reviewed by the KC-135 System Program Office (OC-ALC/LCM) at Tinker AFB, OK and has been found acceptable for use in Fuel Vapor Bearing Area (FVBA). All future equipment approved for use within the AE system will be required to meet FVBA test requirements as part of the AE equipment air worthiness certification process. For those unique patient moves requiring equipment that has not met the above criteria, contact GPMRC/TPMRC or tasking AE command element. GPMRC/TPMRC or tasking AE command element will obtain approval prior to use onboard the aircraft (applies to that specific mission only). AECMs are responsible for all medical supplies and equipment.

20.12.5. Aircraft Security. See **Chapter 7** of this instruction.

20.13. En Route Diversions:

20.13.1. The MCD is the medical authority onboard all AE missions and has the responsibility to determine what is beneficial or detrimental to the patient(s). If a physician is onboard, as an attendant to a patient, they will make decisions involving that specific patient's care and may be consulted for advice as appropriate. Specific procedures are contained in applicable AFI/H 41-XXX series.

20.13.2. Should a diversion become necessary due to a change in patient's condition, the aircraft commander will make every effort to comply with the requests of the MCD. Establish communications with the responsible command and control agencies, who will relay the information to the appropriate GPMRC/TPMRC or tasking AE command element.

20.13.3. Should an en route diversion become necessary for reasons other than a change in patient's condition, the aircraft commander will coordinate with the MCD before deciding the point of landing. The welfare of the patients is a prime consideration in all such decisions; however, safety is the final determinant. The aircraft commander notifies the responsible command and control agencies of the diversion and requests the appropriate medical agencies be notified.

20.13.4. Normally, patients will be advised of changes in itinerary and reasons for the diversion.

20.13.5. If the MCD determines the diversion will be detrimental to a patient, or the aircraft commander determines the diversion to be unsafe, the command and control agencies will be advised and guidance requested.

20.13.6. ARMs are the primary means of preparing for AE airlift. These missions can be diverted to fulfill "real" versus "simulated" patient airlift requirements. All medical equipment/kits will be kept operationally ready at all times.

20.13.7. Opportune Airlift. Opportune airlift is preferred to launching a special airlift aircraft. The appropriate GPMRC/TPMRC or tasking AE command element and airlift agency should direct the move. Use of opportune airlift is considered an unscheduled AE mission, and managed/reported in the same manner as any other AE mission, to include the change of the mission number when patient(s) is/are onboard. AECMs on these missions will either be certified or under supervision while gaining certification in the affected aircraft.

20.14. Ground Operations.

20.14.1. Engines should be shut down during enplaning and deplaning of patients.

20.14.2. Enplaning and Deplaning Considerations. A Wilson or Cochran loader or a high-rise lift truck may be used to enplane or deplane litter or ambulatory patients via the cargo door or passenger doors. Ensure one AECM accompanies patients. If available, a stair truck or other stairs may be used to enplane or deplane ambulatory patients or if necessary, litter patients. If, in the opinion of the MCD it can be done safely, litter patients may be enplaned or deplaned using stairs utilizing a minimum of a four person carry.

20.15. Refueling Operations.

20.15.1. Refueling normally begins after deplaning patients are off the aircraft and prior to enplaning that station's patients. This minimizes the number of souls on board in case of an emergency. Servicing will be per AFI 32-2001 and T.O. 00-25-172.

20.15.2. Concurrent servicing may be accomplished with patients onboard provided:

20.15.2.1. The Chief Servicing Supervisor (CSS) coordinates with all personnel involved prior to beginning concurrent operations.

20.15.2.2. Prior to starting concurrent servicing, the total number of patients, passengers, and crew on board the aircraft will be given to the fire department.

20.15.2.3. Loading ramps/stairs are in place for immediate use and exits are opened for egress.

20.15.2.4. The aircraft is thoroughly ventilated.

20.15.2.5. At least two AECMs (one must be a FN) remain onboard to observe patients and assist patients in the event of an egress.

20.15.3. If cabin lights, lavatories, electrical power to operate medical equipment and aircraft inter-phone(s) are operating prior to refueling, use may be continued during servicing operations. Only those systems, switches or electrical circuits needed to operate equipment to sustain life, may be turned on and used during refueling.

20.15.4. Patients and passengers 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.

20.15.5. A member of the flight crew must be positioned in the passenger compartment and have intercom contact with the CSS during refueling operations.

20.15.6. 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.

20.16. Aircraft Pressurization. Normally altitude restrictions are passed from the GPMRC/TPMRC or tasking AE command element to command and control agencies for flight planning purposes. The MCD will advise the aircraft commander of any new cabin altitude or rate of cabin altitude change restrictions during the pre-flight briefing update.

20.17. Aircraft Configuration:

20.17.1. On opportune AE missions, configure the aircraft during pre-flight. When the KC-10 is in the “B” configuration (16 seats), the number of seats available for AE personnel will be limited. If seats need to be removed to provide space for more than one litter, seating becomes critical. In this case, the aircraft commander and MCD, with coordination with the appropriate command and control agencies, must make the decision of who is required on the mission, based on the needs of the patient and the mission.

20.17.2. Litter Support Provisions: None available on aircraft.

20.17.2.1. Floor Loading Procedures.

20.17.2.1.1. Floor loading procedures are outlined in AFH 41-312, Volume 1. Floor loading procedures for loading patients are authorized in the KC-10 for all AE missions. Floor loading procedures can be practiced/trained during ARMs, joint training operations, exercises, etc. Two crew members are required to work simultaneously in securing the opposite sides of the litters to the floor. See AFH 41-312, Volume 1, for enplaning sequence.

20.17.2.1.2. Litter Patients: Position litters longitudinally, on the cargo area floor. Normally, if the aircraft is in the “B” configuration (16 seats) only one litter can be carried without removing seats. A single litter will be placed on the centerline behind the second row of seats. The second row of centerline seats may be turned 180 degrees to give AE personnel easy access to the litter patient. The litter will extend into the net stretch area. Use ORM practices to determine the risk to the patient considering the patient’s condition, the cargo load, and the

chance that net stretch could be a factor. If additional litters must be carried, seats will normally have to be removed. If in the "D" configuration, remove whatever seats are required to put the litter(s) longitudinally on the cargo floor.

20.17.2.1.3. Secure the litters to the aircraft floor using the following procedures:

20.17.2.1.4. Patients may be floor-loaded in the forward passenger area. Use A-7000 tiedown fittings in the seat tracks and 5000 lb tiedown devices. Shoring is not required, however, you should either place the litter stirrups on the seat tracks, or put protective material under the litter stirrups to protect the cargo floor from damage. If necessary, seats will be removed. In no case will seats be broken over and used to secure litter patients. Use one tiedown device at each end of the litter. Connect clamp end of device to a tiedown ring, and run strap webbing over the litter handles, wrapping once around each handle. Attach the hook on the ratchet end of the tiedown device to the tiedown ring on the other side of the litter. Remove slack from strap webbing, and ratchet the tightening device. Repeat process at other end of litter.

20.17.2.2. If necessary to carry more litter patients, the aircraft may be configured in a modified "CODE G" configuration. Move the bunks and barrier curtain to the normal "D" configuration locations, and secure litters to empty pallets placed in pallet positions 2 and 3 Left and Right. If the aircraft is in the "D" configuration, remove the seat pallets, and replace them with normal 463L pallets. Use tiedown straps between pallets to prevent pallets from rattling during flight and when personnel walk on them.

20.17.2.2.1. Pallet Loading Procedures:

20.17.2.2.1.1. One litter: Center the litter on the pallet longitudinally (parallel to the 108 inch side). Use one tiedown device at each end of the litter. Connect the clamp end of the device to the second tiedown ring from the corner of the pallet. Run strap webbing over the litter handles, wrapping once around each handle. Looking from the center of the litter, between the handles, the strap should go over the handles, then the ends should wrap around the handles, then up underneath the handle between the strap and the litter canvas. Then route the ends of the straps to the second tiedown rings from each corner. Pull out any slack, and tighten the ratchet. You may utilize the litter stirrups for additional restraint if required.

20.17.2.2.1.2. Two litters: Place the litters on the pallet centered on the second tiedown ring from the corner of the pallet. The litters should be approximately 20 inches apart. Tie down the litters individually using the one litter procedures, except use the corner ring and center pallet ring for each litter.

20.17.2.2.1.3. Three litters: This is not recommended except for emergency or contingency situations. Place litters side-by-side, centered on the pallet. Connect the clamp end of the tiedown device on the second ring from the corner on the 108 inch side of the pallet. Wrap strap around each individual litter handle, and the applicable paired litter handles. Attach hook on the ratchet end of the tiedown device on the corresponding second ring from the corner on the opposite 108 inch side. Remove slack and ratchet the tightening device. Take a second strap, and wrap around the center pairs of handles, and tie down to the second tiedown rings on the 88 inch side of the pallet utilizing the one litter tiedown procedures. Repeat process at other end of litter.

20.17.2.2.1.4. In an emergency evacuation situation, the cargo barrier net and curtain may be raised or removed, and a pallet subfloor may be placed in the cargo compartment. Use procedures in paragraphs **20.18.2.2.** and **20.18.2.2.1.** to secure litters. All patients and AE crew must have supplemental oxygen available.

20.17.3. Available litter spaces and ambulatory seating will depend on the aircraft cabin's mission configuration.

20.17.4. Electrical Power. The electrical cable assembly set (ECAS) does not provide an adapter (pigtail) for use on KC-10, 110VAC/400Hz electrical outlets. Do not operate the electrical frequency converter from this aircraft. Use only battery-operated medical equipment.

20.17.5. Therapeutic Oxygen. Therapeutic oxygen is not available on the aircraft and must be brought on board for patient use. Use the portable therapeutic liquid oxygen (PTLOX) system.

20.17.6. Patient and passenger emergency oxygen is available on the aircraft. Patients and passengers will use the applicable passenger emergency oxygen system or EPOS. Litter patients should have portable oxygen available or EPOS.

20.17.7. AECMs will have portable oxygen available. AECMs will use an MA-1 portable oxygen bottle, or equivalent, which will be secured near their assigned seat.

20.17.7.1. AE units will not maintain MA-1 portable oxygen bottles. MA-1 portable oxygen bottles must be functionally located to ensure proper maintenance, servicing, and storage. Dash 21/ Alternate Mission Equipment (AME) shops ensure MA-1 portable oxygen bottles are serviceable and properly maintained, tested, and stored. Dash 21/AME personnel ensure additional MA-1 portable oxygen bottles are available for each AE crew member flying in a primary crew position on AE missions.

20.17.8. Do not secure aircraft or medical equipment adjacent to an emergency exit in a manner that will prevent or impede egress.

20.17.9. Life Preservers. MB-1 flotation devices should be used for litter patients. If unavailable, use the Adult/Child life preserver for litter patients.

20.17.10. Patients not normally transported on the KC-10 aircraft:

20.17.10.1. Critical prognosis requiring extensive patient care/medical equipment, i.e.; burns or multiple trauma.

20.17.10.2. Respiratory problems requiring large amounts of therapeutic oxygen, ventilator support and/or frequent suctioning.

20.17.10.3. Patients with contagious illness.

20.17.10.4. Floor loaded patients with external devices dependent on gravity, i.e.; foley catheters or chest drainage systems.

20.17.10.5. High risk neonates without special medical supervision from a neonatal team.

20.18. Passengers and Cargo:

20.18.1. The aircraft commander, with the concurrence of the MCD, will ensure maximum aircraft utilization for passengers and cargo. Passenger restrictions based upon patient considerations will be identified when seats are released. At stations with an GPMRC/TPMRC or tasking AE command ele-

ment, the AEOO/GPMRC/TPMRC or tasking AE command element will advise the appropriate command and control agencies on the number of seats available for passengers.

20.18.2. 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. Conflicts will be referred to the respective GPMRC/TPMRC or tasking AE command element for a decision.

20.18.3. Cargo will not be bumped except in unusual/abnormal cases, and only after the MCD has coordinated with the aircraft commander and notified the local GPMRC/TPMRC or tasking AE command element.

20.18.4. Do not move ambulatory patients to litters in order to provide seating for additional patients or passengers.

20.18.5. Hazardous cargo will not normally be transported aboard AE missions except in extreme circumstances.

20.19. Crash/Fire/Rescue:

20.19.1. Aircraft carrying patient(s) will be provided CFR protection per T.O. 00-25-172. Stand-by CFR vehicle is not necessary during normal operations. A CFR vehicle can be available upon request. The flight crew will coordinate CFR requirements.

20.19.2. 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.

20.20. AE Call Sign and Use of Priority Clearance:

20.20.1. For AE missions, use the call sign “Air Evac” followed by the five digit aircraft number (i.e., Air Evac 12345) or mission designator (as required by FLIP). Revert to standard call sign when the AE portion of the mission is completed.

20.20.2. The AE “priority clearance” will be used when carrying patients classified as “urgent” or “priority,” who require urgent medical attention. AE priority will only be used for that portion of the flight requiring expedited handling. Aircraft commanders will request priority handling if AE missions are experiencing long delays during takeoff or landing phases, that will affect a patient’s condition.

20.20.3. This does not allow use of AE priority status simply to avoid Air Traffic Control (ATC) delays, make block/departure times, or avoid inconveniences. ATC agencies do not question the motive when an AE priority is declared. Use this status judiciously.

20.21. Load Message:

20.21.1. At military bases, the flight crew will pass inbound load messages to the proper command and control personnel. At civilian airfields, ground control will be notified.

20.21.2. The MCD will complete an AF Form 3858, **C-130/C-141 Aeromedical Evacuation Mission Offload Message**, per procedures in applicable AFI/H 41-XXX series.

20.22. Change in Patient Status. Change in patient status will be managed per applicable AFI/H 41-XXX series.

20.23. Aerial Refueling (AR). Aerial refueling is an option, which should be considered when planning urgent, or priority patient airlift missions. AR is not desirable in all medical situations, and in some cases may be detrimental to patient(s). Approval of AR must be obtained from HQ AMC/SG prior to mission set up.

Chapter 21

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Chapter 22

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22.1. This chapter not used for KC-10 operations.

Chapter 23

AIRCREW CHEMICAL OPERATIONS AND PROCEDURES

23.1. Wear of Aircrew Chemical Defense Ensemble (ACDE). Wearing the ACDE will constrain normal aircraft operations. The ACDE includes the newer Aircrew Eye-Respiratory Protection System (AERPS) above the shoulder system and the CWU-66/P or -77/P Integrated Aircrew Chemical Coverall (IACC). Procedures and equipment have been tested under restricted conditions, and "business as usual" will not be possible. Individual situations dictates what can and cannot be done. To properly adapt, aircrews must understand hazards involved and the limitations of their chemical defense equipment.

23.1.1. This volume is intended to enhance other aircrew chemical defense training and provides the crew member a basic understanding of utilizing ACDE in a chemical-biological threat area (CBTA). It combines information from technical orders and unit inputs to form a single source document.

23.1.2. This volume briefly describes the nature of the chemical threat and agents that may be faced. Secondly, it discusses some of the situations and problems the aircrew may encounter in a CBTA. Preparatory actions and countermeasures are examined so the crew member can make optimal use of the ACDE and fly the mission safely. While the information presented may need to be modified, the specific objectives of this volume will help prepare the aircrew member for the unique challenges imposed by chemical weapons.

23.2. Factors Influencing the Chemical Warfare (CW) Agent Hazard:

23.2.1. The major instances in which a crew may be exposed to chemicals is through inhalation, absorption through the skin, eyes, and ingestion. Contaminated drink and food are considered harmful, but immediate concerns must be contamination avoidance to the maximum extent, limit exposure of the skin and eyes, as well as avoid breathing the contaminants. Factors affecting persistence are weather, agent physical characteristics, method of dissemination, droplet size, and the terrain.

23.2.2. Weather. Factors include temperature, wind, humidity, precipitation and atmospheric stability. For example, high winds and heavy rains reduce the contamination hazard. Conversely, lack of wind, overcast-skies, and moderate temperatures favor persistence.

23.2.3. Agent Dissemination. Disseminated as vapors, aerosols, or liquids. Solids seem unlikely, but agents may become solids at lower temperatures.

23.2.4. Agent Droplet Size. Persistence factor is determined by droplet size. Agents may be mixed with other chemicals ("thickeners"), and form large drops making removal more difficult.

23.2.5. Surface and Terrain. CW agent clouds tend to follow the terrain, flowing over countryside and down valleys. Chemicals persist in hollows, depressions, and other low areas. Rough terrain retards cloud movement. Flat countryside allows a uniform, unbroken cloud movement. Vegetated areas are more contaminated than barren terrain. Liquid agents soak into porous surfaces, making evaporation much slower than for non-porous surfaces.

23.3. Categories of Chemical Warfare Agents. CW agents having military significance may be categorized as nerve, blister, choking, and blood. Because they are produced biologically, toxins technically are not chemical agents. However, they are considered a potential CW threat.

23.4. Nerve Agents:

23.4.1. Military Significance. Nerve agents are the most lethal and fastest acting of the standard CW agents. These agents affect the nervous system and are highly toxic whether inhaled, ingested, or absorbed through the skin. Persistency ranges from hours to many days.

23.4.2. Symptoms of Exposure. Nerve agent exposure is difficult to distinguish. Normally, symptoms of nerve agent exposure appear in the following order. Initial exposure includes a runny nose, tightness of the chest, dimness of vision, and pinpointing of the pupils. These symptoms are usually followed by difficulty in breathing, drooling, involuntary defecation and urination. Finally, exposure will lead to confusion, drowsiness, convulsions, coma and death.

23.4.3. Onset of Symptoms. Lethal respiratory dosages will cause death in 1 to 10 minutes and liquid exposure to the eyes will kill almost as rapidly. Depending on factors such as the amount and type of nerve agent, absorption through the skin may cause death anywhere from 1 to 2 minutes to 1 to 2 hours. Nerve agents are retained by the body for an extended period; thus intermittent, cumulative exposure to low amounts can lead to the same ultimate effect as a single exposure to a higher amount.

23.4.4. Protection. The full protective ensemble is effective against nerve agents. When properly worn, the various chemical protective masks prevents inhalation of nerve agents. Both the aircrew coveralls and ground crew ensemble provide limited protection to the skin. All layers of the outer garment must be protected against saturation of liquids, chemical agents, water, or petroleum.

23.4.5. Antidotes/Prophylaxis. Antidotes are effective in combating effects of nerve agent exposure. These antidotes may be effective if given to a victim having advanced symptoms, and as long as the victim is made to continue breathing. People who use the antidotes must be seen by medical personnel and may not be combat-ready for several days. Currently, nerve agents are the only agents there is an available field antidote. This antidote can be self-administered by the exposed individual or through self-aid buddy care. In addition, medical personnel have more specialized treatments available.

23.5. Blister Agents:

23.5.1. Military Significance. Blister agents are dispensed as vapors or liquids, and may be encountered as solids. These agents primarily affect the eyes, respiratory tract, and the skin.

23.5.2. Symptoms of Exposure. Placed on the skin, a drop the size of a pinhead can produce a blister one inch in diameter. This action is accentuated by moisture; hence, a more severe danger is present during periods of sweating. The groin and armpits, which tend to be sweaty, are especially susceptible to blister agents. Blister agents, which come in contact with the eyes lead to redness, watering of the eyes, blurring of vision, sensitivity to light, and frequently, blindness. Inhalation causes serious damage due to burns and blisters to the mouth, nose, throat, and lungs. Incapacitation may last for days or weeks; aircrews will probably be unable to fly for indefinite periods. After hospitalization, complications from blister agent exposure can arise and may be fatal.

23.5.3. Onset of Symptoms. Blister agents are quickly absorbed through the skin. However, it usually takes several minutes (up to five minutes and as long as several hours) for the symptoms to appear. They act most rapidly in liquid form, but are also effective in vapor form.

23.5.4. Protection. The full protective ensemble is effective against blister agents. Exposed areas must be cleaned thoroughly immediately after exposure. Blister agents are easily transferred from contaminated surfaces, thus great care must be taken to avoid contact with any contamination.

23.6. Choking Agents:

23.6.1. Military Significance. These agents are disseminated as vapors and when inhaled affect the respiratory system by damaging the lungs. Persistence is very brief, and dissipate rapidly (within minutes) under most field conditions.

23.6.2. Symptoms of Exposure. Choking agents cause coughing, choking, tightness of the chest, nausea, headache, and watering of the eyes. Choking agents can be lethal, with death normally from the lungs filling with fluids, making breathing difficult or impossible.

23.6.3. Onset of Symptoms. Exposure to choking agents has an immediate effect. Victims experience slightly delayed effects, such as painful cough, breathing discomfort, and fatigue.

23.6.4. Protection. Both the aircrew and ground crew protective mask is extremely essential to protect against exposure; the entire protective ensemble should be used as directed.

23.7. Blood Agents:

23.7.1. Military Significance. Blood agents are usually dispensed as vapor or aerosol and inhaled. Under most field conditions they may briefly persist on target (up to 10 minutes).

23.7.2. Symptoms of Exposure. Exposure to a single breath of blood agent causes giddiness, headaches, confusion, and nausea. As dose increases, breathing becomes more difficult. The victim will have deep, uncontrollable breathing and cramps, then loss of consciousness. Death is certain if the victim receives no medical aid.

23.7.3. Protection. Blood agents are breathing hazards. The full ensemble is most effective because the mask provides the breathing protection needed.

23.7.4. Additional Threats. Blood agents will damage mask filters. All personnel must change mask filters at the earliest possible opportunity after a blood agent attack.

EXCEPTION: Filters installed in aircrew CRU-80/P filter packs will be removed and replaced by aircrew life support (ALS) personnel (AFSC 1T1X1).

23.8. Aircrew Operations. Performance of duties while wearing chemical defense equipment can be extremely physically and mentally demanding. Special preparation and crew coordination are required to operate under chemical conditions. The information presented here will enable the aircrew to successfully operate in a chemical environment by recognizing limits and exploiting the capabilities of the chemical defensive equipment.

23.8.1. Planning:

23.8.1.1. Non-flying Ground Operations. Ground operations can represent the highest threat to aircrew safety. Protection from enemy attacks and exposure to liquid chemical agents is paramount. Aircrew should be advised to limit activities to essential duties only, and to separate ground duties from air duties. The ground ensemble is designed for quick donning and heavier levels of concentrations that can be more evident during ground operations. The aircrew ensemble

is designed for the unlikely event of light concentration levels, that could be found during flying operations and transmitted to and from the aircraft. Also, ACDE requires care during donning using "buddy dressing" procedures and ALS expertise during aircrew contamination control area (ACCA) processing.

23.8.1.2. Equipment Limitations. Due to thermal stress and the degraded performance associated with wearing of the ACDE, it is highly desirable to minimize the time and number of personnel exposed to chemical agents. Aircrew members must be familiar with the limitations of the ACDE and properly plan their duties. ACDE is designed to protect against vapor agents only and the mask and hood assembly can not be donned quickly in time of attack.

23.8.1.3. Body Temperature/Fluids Control. Heat stress and dehydration are serious hazards while wearing the ACDE. Aircrew members need to control perspiration rates and limit activities to essential duties only. The need to consciously slow the work pace while performing physical labor, share workloads and monitor each other's physiological condition is essential.

23.8.1.4. Breathing Restrictions. One of the inherent characteristics of the filter assembly is moderate breathing resistance. Normally, this is most noticeable during high flow rates. For example during physical exertion, users should be aware of the possibility of hyperventilation. During flying operations resistance can be reduced by using the EMERGENCY position on the oxygen regulator. The valsalva maneuver cannot be performed while wearing the MBU-13/P mask, therefore alternate means such as yawning or chewing can be used. If these are unsuccessful, attempt to clear ears by holding the oxygen regulator in the TEST MASK position and forcefully exhale or yell against the regulator pressure. The new AERP mask/hood assembly incorporates a blower system that presents less-than-moderate breathing resistance. However, in the event of a blower system failure, aircrews will experience an increase in breathing resistance.

23.8.1.5. Limited Dexterity. Wearing three pairs of gloves restricts dexterity, therefore visual confirmation of switch selection/positioning becomes very important.

23.8.1.6. Restricted Communications. Normal communications are limited while wearing the chemical defense mask. Communications can be enhanced by using the mini-amplifier/speaker with the AERP and some of the newer ground masks may be issued with a built-in amplifier. Otherwise, visual signals and the aircraft's public address system can be used to compensate.

23.8.1.7. Peripheral Visions Limits. The aircrew chemical defense mask may reduce peripheral vision as much as 15 percent.

23.9. Limitations. Aircrews must be mentally prepared to face the dangers of chemical weapons. Flight planning must be thorough and aircraft commanders should emphasize chemical defensive operations during mission planning, hazards and countermeasures, plans for onload/offload in the event of a ground attack, and plans for the return leg in the event of a contaminated aircraft. Alternate scenario plans should also be considered in the event conditions change.

23.9.1. Fuel Requirements. Extra fuel may be needed to compensate for altitude restrictions as the result of chemical agent exposure. If the aircraft has contamination, follow procedures outlined in paragraph 16. During purge periods, the aircraft will be unpressurized. Although the aircrew can use the aircraft oxygen systems, passengers wearing the ground crew ensemble (GCE) cannot. This restricts the aircraft cruise altitude and increases fuel requirements.

23.9.2. Oxygen Requirements. Operating into a CBTA will increase oxygen requirements. The aircrew may be required to rely on the aircrew chemical defense mask and aircraft oxygen system to counter actual/suspected chemical contamination. Using the 100 percent oxygen setting offers the greatest protection in a contaminated environment. Appropriate oxygen reservoir levels must be planned to meet higher consumption rates. Use the aircraft -1 charts to calculate the required reservoir levels.

23.9.3. Mask/Filter Assembly Limitations. Wearing any of the chemical defense masks/filter assemblies imposes the following limitations:

23.9.3.1. The mask/filter assembly prevents the detection of fumes from fuel, hydraulic fluid and oil.

23.9.3.2. The filter assembly will not protect the user against ammonia fumes and carbon monoxide gas.

23.9.3.3. The filter/mask assembly should not be used without an oxygen source in an oxygen deficient atmosphere.

23.10. ACDE Issue. Aircrews will be issued sized ACDE and GCE at home station. Aircrews will ensure their ACDE and GCE is available at all times while in a CBTA. During deployments, at least one ACDE and one GCE will be issued to each crew member as directed by the unit commander or HQ AMC/TACC. ALS technicians will prepare and issue mobility ACDE "D" bags for aircrew members (Reference AMCI 11-301, *Aircrew Life Support (ALS) Program* (chapters 4 and 6). Mobility processing personnel will issue GCE "C" bags. Aircrew members will confirm the mobility bag contents and correct sizes.

23.11. Operations in a Chemical-Biological Threat Area (CBTA):

23.11.1. Establishing Threat Level. Aircrews should monitor C2 channels to ensure they receive the latest information concerning the destination's alert condition. Diversion of AMC aircraft to alternate "clean" locations may be required, unless operational necessity dictates. The local AMC C2 Center will direct aircrews to undergo medical pre-treatment for chemical exposure.

23.11.2. Protective Equipment Postures. Standardized USAF alert conditions and recommended ACDE requirements are listed below based on a chemical-biological threat. ***NOTE*:** These alarms may be different based on the host country requirements.

23.11.2.1. "ALL CLEAR" Attack is not probable, nor is chemical-biological contamination present. Notification--Verbal; removal of warning flags/placards. ACDE requirements--equipment is issued, prepared for flying, and kept readily available. GCE requirements--equipment is issued, prepared, and readily available.

23.11.2.2. "ALARM YELLOW" Attack is probable. Notification--Verbal; posting of yellow warning flags/placards. ACDE requirements--if en route to fly or during flying operations, all components will be worn except mask and hood, gloves, over cape, and over boots. GCE requirements--appropriate components should be worn with the mask/hood immediately available commensurate with ground duties.

23.11.2.3. "ALARM RED" Attack is imminent or in progress. Notification--Verbal; posting of red warning flags/placards; one minute warbling tone on siren (3 seconds on-1 second off).

ACDE requirements--full ACDE will be worn for flying duties. GCE requirements--full ensemble should be worn commensurate with ground duties. Personnel will take immediate cover.

23.11.2.4. "ALARM BLACK" Contamination is suspected or present. Notification--Verbal; “Gas - Gas - Gas”; posting of black warning flags/placards; warbling tone on siren (1 second on-1 second_off). ACDE requirements--full ensemble will be worn. GCE requirements--full ensemble will be worn commensurate with ground duties. Personnel will remain indoors or under liquid agent cover.

23.12. Donning Equipment. Aircrew will don ACDE based on the alarm condition. Use the "buddy dressing" procedures, and refer to AMCVA 36-2206, *ACDE Donning Checklist* (projected to be AMCVA 11-303), to ensure proper wear. When wearing the ACDE, Atropine and 2 PAM Chloride auto injectors will be kept in the upper left flight suit pocket. This standardized location will allow personnel to locate the medication should an individual be overcome by nerve agent poisoning. M-9 paper on the flight suit will facilitate detection of liquid chemical agents and ACCA processing. M-9 paper should be placed on the flight suit prior to entering a CBTA when an alarm “yellow” or higher has been declared. When inbound to CBTA, prior to descent, the aircraft commander will ensure crew and passengers don appropriate protective equipment IAW arrival destination's mission oriented protective posture (MOPP) level and brief aircrew operations in the CBTA. As a minimum, this briefing will include: flight deck isolation, oxygen requirements, air conditioning system requirements, CW clothing requirements, ground operations and MOPP levels.

23.13. Ground Operations:

23.13.1. Off/On Considerations. Extreme care must be exercised to prevent contamination of aircraft interiors during ground operations, particularly to the flight deck area. Reduce the number of personnel entering the aircraft. Contaminated engine covers, safety pins and chocks will not be placed in the aircraft unless sealed in clean plastic bags. Onload cargo will be protected prior to and while being transported to the aircraft. Protective covers will be removed just prior to placing the cargo on the aircraft. It is the user's responsibility to determine and decontaminate equipment in his/her charge. Aircrew members entering the aircraft will remove plastic over boots and over cape portions of the aircrew ensemble and ensure flight/mobility bags are free of contaminants and placed in clean plastic bags. Aircrew exiting aircraft into a chemically contaminated environment will don plastic over boots and over cape prior to leaving the aircraft.

23.13.2. Physiological Factors. Aircraft commanders must be very sensitive to the problems resulting from physical exertion while wearing ACDE. The aircraft commander should consider factors such as ground time, temperature and remaining mission requirements when determining on/offload requirements. Individuals involved should be closely monitored for adverse physiological effects.

23.13.3. Communications. Conducting on/offloading operations while wearing the complete ACDE complicates communications capability. Use the mini-amplifier/speaker or the aircraft public address system and augment with flashlight and hand signals as required.

23.13.4. Passenger/Patients. A path should be decontaminated between the aircraft and the ground transportation vehicle to reduce interior decontamination when loading/unloading passengers/patients.

23.14. Chemical Attack During Ground Operations. If an attack (Alarm Red) occurs during on/off-loading operations or transport to and from aircraft, take immediate cover away from the aircraft/vehicle. Follow "buddy dressing" procedures to ensure proper donning of ACDE prior to flight.

NOTE:

Aircrews should don the ground crew protective chemical mask and protective helmet, consistent with circumstances and duties. Aircrews could be expected to forward information concerning medical aid, damage estimates, unexploded ordinance. Appropriate information may be forwarded via the aircraft radios to the controlling agencies.

23.15. Crew Rest Procedures. Operational necessity may require the aircrew to rest/fly in a contaminated CBTA. If the mission is not being staged by another aircrew or preflight crews are not available, the aircrew will normally preflight, load, and secure the aircraft prior to entering crew rest. The departing aircrew will perform necessary crew preparations and preflight briefings, then report to the ACCA for processing with assistance from ALS personnel who will assist aircrews donning ACDE prior to reassuming flying duties. If possible, aircrew transport should be provided in a covered vehicle. Aircrews should avoid aircraft pre-flight duties to prevent contamination to themselves and the aircraft. As aircrews proceed to fly they will require assistance from ground support personnel in removing their aircrew protective over cape and over boots prior to entering the aircraft.

23.16. Outbound with Actual/Suspected Chemical Contamination. Venting Aircraft/Removing ACDE Components: With actual/suspected vapor contamination, the aircraft must be purged for 2 hours using Smoke and Fume Elimination procedures. To ensure no liquid contamination exists, a close inspection of aircrew, passenger ensembles, and cargo will be conducted using M-8 and M-9 detection paper. M-8 and M-9 detection paper only detects certain liquid agents and will not detect vapor hazards. Above the shoulder ACDE may be removed only if the presence of vapor/liquid agents are not detected or suspected. The aircrew must take every precaution to prevent spreading of liquid contaminants, especially on the flight deck area. The best course is to identify actual/suspected contamination and physically avoid those areas for the remainder of the flight and keep cargo compartments cool. If an 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).

23.17. Communicating Down-line Support. Pass chemical contamination information through C2 channels when inbound. This information will be used to determine if a diversion flight is required or decontamination teams are needed. Report the physical condition of any crew/passengers who are showing chemical agent symptoms and whether they are wearing chemical defense ensembles.

23.18. Contamination Control Areas (CCA) Procedures. Aircrews will proceed to the ACCA for processing. Ground personnel will report to the ground crew contamination control area (GCCA) for processing. All personnel will remove protective clothing IAW established procedures located in respective CCA's.

NOTE:

Because of the technical characteristics of life support/flying equipment and mission essential aircrew resources, an ACCA is required to ensure minimum exposure to contaminates. GCCA's are generally

used to process ground crew personnel and typically are subject to potentially higher concentration levels. The ACCA is equipped and manned by trained ALS personnel to process aircrews and decontaminate their equipment.

23.19. Work Degradation Factors. Work timetables need to be adjusted to minimize thermal stress caused by wearing the ACDE. Aircrews must weigh all factors when performing in-flight and ground duties. **Table 23.1.** provides average degradation factors for wearing full GCE, and may also be used to represent the Task Time Multipliers for the ACDE. To estimate how much time it takes to perform a task or operation, (1) take the Task Time Multiplier for the appropriate Work Rate and ambient air temperature and (2) multiply it by the time it normally takes to perform the task. For example, given a heavy work rate and an air temperature of 70F, the crew member should expect a normal one hour task to take 2.1 hours while wearing ACDE. A more extensive discussion of this subject is found in AFMAN 32-4005, *Personnel Protection and Attack Actions.*

Table 23.1. Task Time Multipliers.

Work Rate	**Temperature**		
	20-49F	50-84F	85-100F
Light	1.2	1.4	1.5
Moderate	1.3	1.4	3.0
Heavy	1.7	2.1	5.0

Chapter 24

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24.1. This chapter not used for KC-10 operations.

Chapter 25

KC-10 CONFIGURATION

25.1. General.

25.1.1. This chapter establishes basic planning factors to be used by planners at all levels of command and directs KC-10 aircraft configuration for local or training missions, worldwide and contingency operations, and commanders distinguished visitor program operations.

25.1.2. This chapter will be used by all units/agencies involved in preparing the KC-10 aircraft for deployment in support of contingency and other operations.

25.2. Applicability. This chapter is applicable to all individuals operating and/or supporting KC-10 aircraft.

25.3. Concept. KC-10A deployments may be of short duration with immediate return to home station, or be to a specific location for an extended period of time to provide air refueling and airlift support for general purpose forces and strategic conventional forces. Subordinate commanders must be prepared to deploy associated equipment, personnel, and materials.

25.4. Key Terms Explained.

25.4.1. Assembly Staging Base. Base where tanker aircraft composing the force assemble.

25.4.2. Contractor-Operated and Maintained Base Supply (COMBS). Contractor supply facility for KC-10 aircraft parts. It is also focal point for all contractor operations.

25.4.3. En Route Support Kit (ESK). An air transportable package of aircraft spares or support equipment to support KC-10 aircraft at en-route stops on missions of limited duration.

25.4.4. Forward Operating Location (FOL). Base or area in a forward location from which the aircraft is operated.

25.4.5. Increased Accommodation Unit (IAU). Equipment package which increases KC-10 passenger capability.

25.4.6. Logistics Support Contractor (LSC). Contractor responsible for providing logistics support to an Air Force aircraft.

25.4.7. Main Operating Base (MOB). A permanent operating location, where all operational and logistics support is available.

25.4.8. Mission Support Kit (MSK). Transportable package of spares and support equipment to support KC-10 operations at a FOL.

25.4.9. Unit Type Code (UTC). A 5-letter or -digit combination code used to identify deployable forces. It describes personnel, associated equipment, and requirements for operation plan tasking and identification.

25.5. Aircraft Configuration. Unit level operations, maintenance and support functions must ensure KC-10 aircraft are properly configured in accordance with this chapter and applicable aircraft T.O.s. Con-

figuration codes designate the setup of the aircraft. Options for each configuration determine the available space for cargo and passengers.

25.5.1. Normal configuration for local or training missions will be code “B”.

25.5.2. All aircraft will be configured for deployment as required by implementing fragmentation (FRAG) or operations order (OPORD).

25.5.3. The unit will use the configuration checklists approved by HQ AMC/LGFB. Checklist distribution will be made to all agencies involved with the actual aircraft configuration.

25.5.4. After configuration has been determined, the Production Superintendent will be the single point of contact to ensure required configuration actions are completed and verified by tasked agency.

25.5.5. Aircraft configuration at all en route stops is the responsibility of the aircraft commander.

25.5.6. One 463L pallet, to be used for baggage, and aircraft support equipment, will be kept onboard each aircraft at pallet position 13L. This pallet may be removed if space is required for cargo. This pallet will not be added as a Chart C entry, the boom operator will make a Form F entry.

25.5.7. ESKs or MSKs will be carried when required, as outlined in each aircraft configuration.

25.5.8. On a temporary basis, additional equipment may be required to satisfy mission requirements. When required, the tasked unit must assure that coordination includes appropriate functional areas and that additional equipment is onboard.

25.6. Configuration Procedures and Responsibilities. Unit will determine the most suitable aircraft for deployment based on implementing operation or FRAG order. Maintenance scheduling or Special Mission’s Airlift will initiate work orders that require configuration and weight/balance checks. Unit supervisors are responsible for ensuring that required items are carried onboard aircraft as required. Excess quantities of these items will not be carried without the Production Superintendents approval, unless specifically directed by deployment orders or required for the deployment by unit supervisors.

25.6.1. Weight and Balance. Unit weight and balance personnel will ensure accuracy and currency of Chart “C.” When aircraft are changed from daily configuration code “B” to another standard configuration, the change will be reflected in Form “F” by the boom operator. If a nonstandard configuration is required, the weight and balance data will be provided by the local configuration checklist.

25.6.2. In the remarks section of an airlift request, users will supply cargo loading equipment information (i.e. pallet sub-floor requirements).

25.6.3. Aerial Port personnel will deliver and load cargo handling equipment in excess of that required to be maintained onboard aircraft daily. This includes all 463L equipment.

25.6.4. Cargo missions originating at the main operating base (MOB) will be load planned by the transportation unit in coordination with the wing current operations. Re-deployment load planning will be the responsibility of the unit movement officer.

25.6.5. Maintenance personnel will ensure the aircraft is returned to daily configuration on return to home station.

25.7. Aircraft Configuration Waivers. Units will request a waiver from HQ AMC/LGF routed through HQ AMC/DOV for any departure from the standard configurations. Approved distinguished visitor (DV)

configurations will not require special waivers, nor does the simple removal or addition of normal KC-10 aircraft equipment unless it affects safety.

25.7.1. The unit will provide the following information: Aircraft serial number, originating station, departure date and time, justification for waiver, and effect on cargo, passenger, and air refueling capability.

25.7.2. If waiver is granted, HQ AMC/DOV will provide unit with waiver ID number for specific mission and items approved. (Information copy to the AMC TACC/LGRC.)

25.7.3. If an IAU or extra IAU is to be carried from one point to another, it may be carried as aircraft equipment. The left side outboard restraint rails can be moved to their outboard positions, and the IAU positioned down the left side of the aircraft. The seats will not be occupied during takeoff, landing, or flight. No waiver is required.

25.8. Permanent Aircraft Configuration Waivers. The following is a list of permanent KC-10A Non Standard Configuration Waivers. A nonstandard configuration exists after removal, relocation, or addition of aircraft equipment referenced on DD Form 365-1, ***Chart " A" Basic Weight Checklist Record***.

25.8.1. Joint Task Force/C2 Module. Includes: JTF C2 Module, JTF C2 Communications Suite, 7 Pallets (not including the Module or Communications Suite), and 75 seats. Pallets 10L, 10R, 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equip, special equip, galley pallet, and baggage. 4 seats are for crew chiefs, support personnel, or extra crew members. Seat availability will be dictated by mission requirements.

25.8.2. DV 1 Configuration. The weight and balance information for this configurations is provided to enable the Boom Operator to make a one line entry on the DD Form 365 - 4 Form F to account for the equipment. Each affected agency involved in the configuration change is responsible for ensuring correct installation of equipment. The aircraft crew chief will be the single point of contact to ensure required configuration change actions are completed. Install two executive tables. The first one is installed between seat row 1 and 2 center. Seat row 1C is turned 180 degrees and seat row 2C is relocated aft at station 528. The second table is located at station 563 after removal of seat row 3 R. The following restrictions apply:

NOTE 1: Aft facing seats (row 1C) will not be occupied for takeoffs and landings.

NOTE 2: Drop down oxygen must be readily available.

NOTE 3: Install a tabletop on the bunks. Nothing will be placed on the table for takeoff or landing.

NOTE 4: Install a carpeted plywood walkway from pallet position 4 through 9 right.

25.8.2.1. Maintenance, Dash 21, and Special Mission's Airlift, will configure the aircraft in the following manner for DV Configurations: Add item C- 163 DV Buffet Table on top of lower bunks at station # 869. Add item C- 82.1 Forward Double Center Seat to a new position at station 462. Add item C- 83.1 Aft Double Center Seat to a new position at station # 528. Add item C-83.2 DV Table, center aisle at station # 494. Add item C- 87.1 DV Table right side of fuselage at station #563. Add item C -202.1 Plywood Walkway right side of fuselage station 1194. Remove item C-87 Right side double seat for DV table at station #551. Remove item C- 0 Conveyors and walkway, right side of fuselage.

25.8.2.2. Boom Operators will add (+) 121 Pounds at a moment of (+) 4.3 to the Form F.

25.8.3. DV 2 Configuration. DV 2 Configuration is the same as DV 1 Configuration without the removal of the conveyors and walkway, and without the installation of the plywood walkway. Boom Operators will add (+) 221 Pounds at a moment of (+) 16.2 to the Form F.

25.8.4. DV 3 Configuration. DV 3 Configuration is the same as DV 1 Configuration without the removal of the conveyors and walkway, and without the installation of the plywood walkway and Buffet table. Boom Operators will add (+) 81 Pounds at a moment of (+) 4.1 to the Form F.

25.9. Responsibilities. This section describes responsibilities and requirements (by functional area) and provides specific guidance necessary for mission accomplishment. ***EXCEPTION***s will be specified in operations or FRAG order. Planning responsibilities will be in accordance with current directives.

25.9.1. Logistics Plans. The unit logistics plans function will be the single focal point for all logistics support planning for deployment operations. They will maintain close coordination with the unit operations plans function and all logistics functions to ensure all logistics support requirements are met. Obtain specific support capabilities available at deployment location and relay this information to maintenance and operations plans to be used during mission support planning. Monitor all deployments to ensure adequate support is provided or drawn from the functional areas tasked.

25.9.1.1. The operations group will provide the logistics plans function with information pertaining to aircraft configuration.

25.9.2. Supply. KC-10 supply support is provided primarily by civilian contractor logistics support system represented at base level by the COMBS. The COMBS manager must be made aware of the following information for all deployments away from the MOB to ensure appropriate range and quantity of items are included in the onboard support kit: Date and length of deployment, number of aircraft involved, number of sorties and flying hours planned, location of FOL, and peculiar support equipment requirements.

NOTE:

If security considerations preclude the COMBS manager from access to any of the above information, he or she must be made aware of appropriate supply levels and military port where material is to be shipped.

25.9.3. Logistics Support Contractor (LSC). LSC is responsible for assembly of ESKs and MSKs. Quantities in kits may vary based on mission requirements. Maintenance will provide information required and work with COMBS manager to determine spares requirements.

25.9.4. Senior Maintenance Supervisor. The senior maintenance supervisor is responsible for the deployed support kit and deployed support equipment. If required, contractor personnel may be deployed to manage the support kit at the FOL. These personnel must have valid security clearances and passports as required by KC-10 logistics support contracts. The designated kit manager will accept accountability prior to deployment.

25.9.4.1. Items not available in the deployed kit. Contractor-Furnished items generated by not mission-capable supply (NMCS) status and partially mission-capable supply (PMCS) status will be relayed through AMC TACC/LGRC to the MOB maintenance aircraft control center (MACC). The MOB MACC will relay requirements to production supervisors who will coordinate the requirements with the COMBS. Coordination is the responsibility of the senior maintenance team chief at the deployed location. Air Force supply items will be handled through the Air Force supply system. Re-supply of ESKs and MSKs will be handled through AMC TACC/LGRM.

25.9.4.2. Accountability for deployed aircrew life support equipment will be in accordance with AFM 67-1, Volume 2.

25.10. Aircraft Maintenance. The maintenance concept is based on providing an organizational level maintenance capability. It provides preflight, launch, post-flight, recovery capability, and limited specialist support for line replaceable unit (LRU) removal and replacement. Deployed forces will use maintenance support at the deployed location if compatible with aircraft systems. The KC-10 deployment maintenance supervisor will supervise and control aircraft maintenance. Maintenance requirements beyond the capability of the deployed personnel will be referred to AMC TACC/LGRC for coordination with MOB unless specified in operations order.

25.10.1. Status reporting will be in accordance with AFI 21-103. Aircraft possession will not normally be transferred to an operating location.

25.10.2. Aircraft selected for deployment should be identified as early as possible. Selection should be based on present and past performance and known scheduled maintenance and depot requirements.

25.10.3. C-Check and paint (depot) schedules are planned and accomplished by the logistic support contractor. Aircraft deployed will be replaced in order to make scheduled depot input. If aircraft cannot be replaced it must be returned for depot. Operational requirements will not interrupt the depot schedule.

25.10.4. Aircraft will not deploy with an engine that requires removal for expiration of maximum operating time or reconditioning interval during deployment tasking.

25.10.5. Spare engines will not be deployed unless specified in the implementing FRAG order.

25.10.6. An operational APU is required for all deploying aircraft unless waived by HQ AMC/DOV.

25.10.7. Units will send an adequate supply of engine conditioning coupons per aircraft to cover entire deployment.

25.10.8. One complete set of technical orders for the aircraft will be deployed to support FOL operations. Technical order requirements for other than FOL operations will be determined by the MOB.

25.11. Deployed Personnel. Personnel will be deployed based on the KC-10 UTC. UTCs may be tailored to meet operational requirements.

25.11.1. For a local training mission, maintenance personnel are not normally required.

25.11.2. All deploying personnel who require access to the flight line will possess AF Form 1199, **USAF Restricted Area Badge.**

25.11.3. Deploying maintenance personnel will deploy with the required tool kits.

25.11.4. Personnel departing as part of a Tanker Task Force (TTF) must comply with AFR 28-4 prior to departure.

25.11.5. Deploying personnel must be qualified in accordance with AMCI 21-101 or appropriate MAJCOM guidance.

25.11.6. When deemed necessary by the LG commander, LSC personnel may be deployed. Deployment onboard United States Air Force aircraft is authorized.

25.12. Support Equipment. Support equipment not in the ESK or MSK will be deployed in accordance with the UTC. Requirements may be tailored to meet mission requirements. Maximum utilization of equipment already at the FOL is required.

25.13. Maintenance IAU Responsibilities. Maintenance will store, control, repair and be accountable for all IAU equipment. They will prepare, load, unload, arrange, and secure IAU equipment onboard aircraft as required by designated configuration.

25.14. Aircrew Life Support Equipment. Aircrew life support equipment management will be in accordance with this AFI and AFM 67-1, Volume 2.

25.15. Transportation. Mission support cargo and passengers for KC-10 missions not directed or controlled by AMC will be arranged by operating wing. All passenger and cargo movement will be referred to the base aerial port squadron transportation office (or airlift support squadron on non-AMC bases) for required action or support.

25.15.1. TACC staff will contact the aerial port squadron transportation function with long range (30 days when available) mission schedule configuration requirements to facilitate coordination for manpower and equipment support.

25.15.2. Base transportation squadrons or aerial port squadrons (where assigned) are responsible for installation or removal of pallet sub-floors without restriction, and storage or accountability for operational system 463L cargo pallets, nets, and tie-down devices.

25.15.2.1. Transportation and aerial port load team personnel may conduct loading and unloading of aircraft support equipment (i.e. tow bars, ESK, etc.) without supervision after coordinating with the KC-10 boom operator. The types of KC-10 support equipment that will be loaded or unloaded without supervision will be fully coordinated between transportation, the aerial port, and operations, and a resulting list will be provided. To preclude problems with aircraft tip-over as a result of exceeding station arm 1430, no cargo will be loaded aft of pallet position 8 or station 1393.

25.15.3. Passenger processing (which includes booking, check-in, anti-theft and anti-hijacking procedures, baggage weighing, tagging and loading, and manifesting and boarding passengers) will be accordance with AMCR 76-1, Chapter 14, and this instruction. Mobility deployments will be in accordance with base mobility plan.

25.15.4. The base air freight section is responsible for receipt, manifesting of cargo, and compliance with the procedures in Paragraphs 25.14.5 and 25.14.6.

25.15.5. TACC staff will manage cargo loaders assigned to AMC in support of KC-10 operations. The TACC will determine need for and coordinate movement of equipment and personnel to assemble or disassemble and operate cargo loaders in support of KC-10 operations at other than home station. Units will contact the TACC if operations dictate the need for deployed wide-body loader support. The KC-10 on-board loader will be operated and assembled by Aerial Port personnel.

25.15.6. AF Form 4049, **Aircraft Servicing Checklist**, will be utilized by the transportation function to control support equipment placed onboard aircraft. Add any items peculiar to the station or flight in the blank space provided (i.e. KC-10 pallet couplers, chains, straps, devices, and passenger comfort items.) AF Form 4049 will be completed in accordance with AMCR 76-1, Chapter 10.

25.16. KC-10A Configuration Codes.

25.16.1. Code A: Pallets - 23, Seats - 14, Maximum cargo load - 175,000 lb.

25.16.1.1. Code A-1: Pallets - 23, Seats - 14, Maximum cargo - 175,000 lb. Pallet 13L is reserved for aircraft equipment, support equipment, and baggage. 3 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.1.2. Code A-2: Pallets - 23, Seats - 14, Maximum cargo - 175,000 lb. Pallets 12L and 13L are reserved for aircraft equipment, support equipment, and baggage. 4 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.1.3. Code A-3: Pallets - 23, Seats - 14, Maximum cargo - 175,000 lb. Pallets 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 14 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.2. Code B: Pallets - 23, Seats - 16, Maximum cargo - 100,000 lb.

25.16.2.1. Code B-1: Pallets - 23, Seats - 16, Maximum cargo - 100,000 lb. Pallet 13L is reserved for aircraft equipment, support equipment, and baggage. 3 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.2.2. Code B-2: Pallets - 23, Seats - 16, Maximum cargo - 100,000 lb. Pallets 13L and 12L are reserved for aircraft equipment, support equipment, and baggage. 4 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.2.3. Code B-3: Pallets - 23, Seats - 16, Maximum cargo - 100,000 lb. Pallets 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 16 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.3. Code C: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds.

25.16.3.1. Code C-1: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds. Pallet 13L is reserved for aircraft equipment, support equipment, and baggage. 4 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.3.2. Code C-2: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds. Pallets 13L and 12L are reserved for aircraft equipment, support equipment, and baggage. 4 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.3.3. Code C-3: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds. Pallets 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 6 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.3.4. Code C-4: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds. Pallets 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 8 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.3.5. Code C-5: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds. Pallets 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 10 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.3.6. Code C-6: Pallets - 23, Seats - 20, Maximum cargo weight on each pallet - 2,100 pounds. Pallets 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 20 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.4. Code D: Pallets - 17, Seats - 75, Maximum cargo load - 145,500 lb.

25.16.4.1. Code D-1: Pallets - 17, Seats - 75, Maximum cargo load - 145,500 lb. Pallet 13L is for reserved aircraft equipment, support equipment, and baggage. 3 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.4.2. Code D-2: pallets - 17, Seats - 75, Maximum cargo load - 145,500 lb. Pallets 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 3 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.4.3. Code D-3: Pallets - 17, Seats - 75, Maximum cargo load - 145,500 lb. Pallets 11L, 12L, 12R, and 13L are reserved for aircraft equipment, support equipment, and baggage. 4 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.4.4. Code D-4: Pallets - 17, Seats - 75, Maximum cargo load - 145,500 lb. Pallets 10L, 10R, 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equip, support equip, and baggage. 6 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.4.5. Code D-5: Pallets - 17, Seats - 75, Maximum cargo load - 145,500 lb. Pallets 10L, 10R, 11L, 11R, 12L, 12R, and 13L are reserved for aircraft equip, support equip, and baggage. 8 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.5. Code E: Pallets - 25 or 27 (All cargo configuration), Seats - 0, Maximum cargo load - 175,000 lb. Additional time is required to configure for code E, 27-pallet load.

25.16.5.1. Code E-1: Pallets - 25, Seats - 0, Maximum cargo load is 175,000 pounds. Pallet 13L is reserved for aircraft equipment, support equipment, and baggage.

25.16.6. Code F: Pallets - 25, Seats - 6, Maximum cargo load - 175,000 lb. Additional time is required to configure for code F load.

25.16.6.1. Code F-1: Pallets - 25, Seats - 6, Maximum cargo load - 175,000 lb. Pallet 15L is reserved for aircraft equipment, support equipment, and baggage. 2 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.6.2. Code F-2: Pallets - 25, Seats - 6, Maximum cargo load - 175,000 lb. Pallet 15L is reserved for aircraft equipment, support equipment, and baggage. 4 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.6.3. Code F-3: Pallets - 25, Seats - 6, Maximum cargo load - 175,000 lb. Pallets 14L, and 15L are reserved for aircraft equipment, support equipment, and baggage. 6 seats are reserved for crew chiefs, support personnel, or extra crew members.

25.16.7. Code G: Pallets - 17, Seats - 20, Maximum cargo load - 145,500 lb. Cargo barrier net at position 3 (station 948). Environmental curtain and bunk at position 2 (station 576).

25.17. KC-10 Aircraft Equipment, Technical Data, Forms, and Miscellaneous Requirments. Use the following table to determine aircraft equipment, technical data, forms, and miscellaneous requirements for "Daily" (local) and "Deployed" operations.

Table 25.1. KC-10 Aircraft Equipment, Technical Data, Forms, and Miscellaneous Requirements.

Line	Quantity/ Number Nomenclature	Daily	Deploy	Notes
1.	AFTO Form 781, AFORMS Aircrew/Mission Flight Data Document	1	1	
2.	ECMP coupon book	1	1	
3.	Appropriate debriefing form	as req.	as req.	
4.	AFTO Form 349, Maintenance Data Collection Record	20	20	
5.	AF Form 1297, Temporary Issue Receipt	as req.	6	
6.	Spare AFTO 781 series forms	as req.	as req.	
7.	AF Form 315, United States Air Force Avfuels Invoice	as req.	1	
8.	DD Form 1896, Jet Fuel Identa-plate	1	1	
9.	Manual of Weight and Balance (1-1B-40/1C-10(K)A-5)	1	1	
10.	T.O. 1C-10(K)A-06, Work Unit Code Manual	1	1	
11.	T.O. 1C-10(K)A-2-7CL-1, Jacking Checklist	1	1	
12.	T.O. 1C-10(K)A-2-9CL-1, Towing Checklist	1	1	
13.	T.O. 1C-10(K)A-2-12, Servicing	1	1	
14.	T.O. 1C-10(K)A-2-12-1, Potable Water Service	1	1	
15.	T.O. 1C-10(K)A-2-12-2, Hydraulic Service	1	1	
16.	T.O. 1C-10(K)A-2-12-3, Waste Water Service	1	1	
17.	T.O. 1C-10(K)A-2-12-4, Constant Speed Drive Service	1	1	
18.	T.O. 1C-10(K)A-2-12-5, Engine Oil Service	1	1	
19.	T.O. 1C-10(K)A-2-12CL-1, Refuel/De-fuel Checklist	1	1	
20.	T.O. 1C-10(K)A-2-12CL-2, Oxygen Service	1	1	
21.	T.O. 1C-10(K)A-2-25-1, External Electrical Power	1	1	
22.	T.O. 1C-10(K)A-2-25, Equipment/Furnishings	1	1	
23.	T.O. 1C-10(K)A-2-25CL-1, IAU Installation/Removal	1	1	
24.	T.O. 1C-10(K)A-2-32, Landing Gear	1	1	
25.	T.O. 1C-10(K)A-2-28CL-1, Boom/Drogue Ground Operations	1	1	
26.	T.O. 1C-10(K)A-2-36-1, External Pneumatic Power	1	1	
27.	T.O. 1C-10(K)A-2-49CL-1, Airborne Auxiliary Power Unit	1	1	
28.	T.O. 1C-10(K)A-2-71CL-1, Power Plant Ground Operations	1	1	
29.	T.O. 1C-10(K)A-6WC-1, Pre-flt, Basic Post-flt and Thru-flt Inspection Work cards	1	1	

Line	Quantity/ Number Nomenclature	Daily	Deploy	Notes
30.	T.O. 1C-10(K)A-6WC-2, “A” Check Inspection Work cards	1	1	
31.	T.O. 1C-10(K)A-6WC-6, Special Inspection Work cards	1	1	
32.	T.O. 1C-10(K)A-1-2, Minimum Equipment List	1	1	
33.	T.O. 1C-10(K)A-1-3, Fault Reporting	1	1	
34.	Cover assembly, pitot tube	3	3	
35.	Lock assembly, main landing gear, AXG7012-501	2	2	
36.	Lock assembly, centerline landing gear, PN53719, “L”	1	1	
37.	Lock assembly, nose landing gear, 700-501	1	1	
38.	Lock assembly, main landing gear door open, DZZ7044-1	2	2	
39.	Lock assembly, main landing gear door closed, AXG7012-501	2	2	
40.	Ground wires (50 ft.), 4010-00-268-2681	2	2	
41.	Sill Protector, Cargo door, A227475-503	1	1	
42.	Chocks (30 inches long),	4	4	
43.	Cover assembly, engine inlet, TS-1079W	3	3	
44.	Cover assembly, engine exhaust,	3	3	
45.	Insecticide, 6840-01-140-7930	4	4	
46.	Bags, plastic (garbage), 8105-00-655-8286	20	20	
47.	Step ladder (6 foot), 5440-P183-6Y14	as req.	as req.	
48.	Ladder, Little Giant, 5410-01-092-1894	as req.	as req.	
49.	Oil, Mobile Jet II (case), 9150-00-913-9717	1	1	
50.	Skydrol (case), 9150-00-485-0075	1	1	
51.	Hydraulic Fluid, (MIL-H-5606) (quart), 9150-00-252-6383	6	6	
52.	Oil, general purpose (can), 9150-00-485-0075	1	1	
53.	Hydraulic spray (can), 9150-00-159-4472	1	1	
54.	Spray lacquer (can), 8010-00-067-5436	1	1	
55.	Bucket, 7240-00-943-4472	1	1	
56.	Scotch Brite Pad	1	1	
57.	Wire brush	1	1	
58.	Mop	1	1	
59.	Squeegee heads, 7920-00-577-4747	2	2	
60.	Squeegee handles, 7920-00-141-5452	2	2	
61.	Broom, push, 7920-00-292-2367	1	1	
62.	Broom, swish, 7920-00-178-8315	1	1	
63.	Dust pan, 7920-00-224-8308	1	1	
64.	Snow shovel	1	1	

Line	Quantity/ Number Nomenclature	Daily	Deploy	Notes
65.	Rope (1 inch thick by 150 foot long)	1	1	
66.	Rags, 7979-00-205-1711	as req.	as req.	
67.	Headset, 1212G-12	as req.	1	
68.	Extension cord, 031-50	as req.	1	
69.	Plumb bob	1	1	
70.	Tire gauge, 4581L	as req.	1	
71.	Sump drain tool, V-800	as req.	1	
72.	Boom cable, DZZ720-501	as req.	1	
73.	Eye goggles	1	1	
74.	Oil service unit, 53361-7	as req.	1	
75.	Strut gage, 6605-926-4331	as req.	1	
76.	Wands, 6230-00-926-4331	4	4	
77.	Window wash (bottle), 7930-00-644-6910	as req.	as req.	
78.	Paper towels (package), 8540-00-262-7178	as req.	as req.	
79.	Toilet paper, 8540-00-530-3770	as req.	as req.	
80.	Speed tape (roll)	1	1	
81.	Cheese cloth, 8305-00-205-3496	as req.	as req.	
82.	Spray and wipe (bottle), 7930-00-068-1669	as req.	as req.	
83.	Soap (hand), 8520-00-527-0042	as req.	as req.	
84.	Chemical disinfectant (box), 6840-00-011-4601	1	1	
85.	Barrier cream, 9930-P, cream 107	1	1	
86.	Eye saline eyewash (bottle), 4630-3b	6	6	
87.	CGU-1/B or MC-1 nylon strap, 5000 pound capacity	30	30	(2,3)
88.	MB-1 tie down chain, MIL-T-25959, 1670-00-516-8406	30	30	(2,3)
89.	MB-1 tension device, MIL-T-25959, 1670-00-212-1149	30	30	(2,3)
90.	SPR refuel assembly, ground to ground, 4930-01-150-8087	as req.	as req.	
91.	Tool box	as req.	1	
92.	External power cable adapter, P/N 701B-20B-004S	as req.	1	
93.	Pallet coupler, 1-inch	6	6	
94.	Anti-freeze (gallons)	as req.	4	
94.	Barrier assembly, cargo door, local manufacture	1	1	
96.	Fitting, cargo, A7000, 1760-00-463-7478	12	12	
97.	Hazardous cargo kit	as req.	1	
98.	Harness, safety and lanyard, P/N 502525, 8-foot	as req.	as req.	
99.	Vacuum cleaner	as req.	as req.	

Line	Quantity/ Number Nomenclature	Daily	Deploy	Notes
100.	Barrier net pad	1	1	
101.	Crew chief onboard parts kit (**Attachment 2**)	as req.	as req.	
102.	T.O. 1C-10(K)A-2-12FI-1, Servicing	1	1	
103.	T.O. 1C-10(K)A-2-21FI-1, Air Conditioning	1	1	
104.	T.O. 1C-10(K)A-2-22FI-1, Auto Flight	1	1	
105.	T.O. 1C-10(K)A-2-23FI-1 Communications	1	1	
106.	T.O. 1C-10(K)A-2-24FI-1, Electrical Power	1	1	
107.	T.O. 1C-10(K)A-2-25FI-1, Equipment/Furnishings	1	1	
108.	T.O. 1C-10(K)A-2-26FI-1, Fire Protection	1	1	
109.	T.O. 1C-10(K)A-2-27FI-1, Flight Controls	1	1	
110.	T.O. 1C-10(K)A-2-28FI-1, Fuel	1	1	
111.	T.O. 1C-10(K)A-2-29FI-1, Hydraulic Power	1	1	
112.	T.O. 1C-10(K)A-2-30FI-1, Ice and Rain Protection	1	1	
113.	T.O. 1C-10(K)A-2-31FI-1, Instrumentation	1	1	
114.	T.O. 1C-10(K)A-2-32FI-1, Landing Gear	1	1	
115.	T.O. 1C-10(K)A-2-33FI-1, Lights	1	1	
116.	T.O. 1C-10(K)A-2-34FI-1, Navigation	1	1	
117.	T.O. 1C-10(K)A-2-35FI-1, Oxygen	1	1	
118.	T.O. 1C-10(K)A-2-36FI-1, Pneumatic	1	1	
119.	T.O. 1C-10(K)A-2-38FI-1, Water/Waste	1	1	
120.	T.O. 1C-10(K)A-2-49FI-1, Airborne Auxiliary Power	1	1	
121.	T.O. 1C-10(K)A-2-52FI-1, Doors	1	1	
122.	T.O. 1C-10(K)A-2-71FI-1, Power Plant	1	1	
123.	T.O. 1C-10(K)A-2-73FI-1, Engine Fuel and Control	1	1	
124.	T.O. 1C-10(K)A-2-74FI-1, Ignition	1	1	
125.	T.O. 1C-10(K)A-2-75FI-1, Air	1	1	
126.	T.O. 1C-10(K)A-2-76FI-1, Engine Control	1	1	
127.	T.O. 1C-10(K)A-2-77FI-1, Engine Indicating	1	1	
128.	T.O. 1C-10(K)A-2-78FI-1, Exhaust	1	1	
129.	T.O. 1C-10(K)A-2-79FI-1, Oil	1	1	

NOTE 1: This information may be tailored to meet mission requirements. Daily quantities are required to be onboard at all times.

NOTE 2: Quantity for cargo mission is 60.

NOTE 3: If specific mission requirements dictate, quantities may be increased for straps-up to 100, chains-150, and tension devices-150.

NOTE 4: Kit will be stowed on one 463L pallet.

25.18. KC-10 Cargo Door Safety Net. The following materials are required to construct a KC-10 Cargo Door Safety Net.

Table 25.2. KC-10 Cargo Door Safety Net.

Nomenclature	National Stock Number	Part Number	Quantity
Webbing, textile	8305-00-811-1617 (Red)(Primary) 8305-00-753-6528 (Yellow)(Alternate) MIL-W-4088	N/A N/A	27 yards
1 3/4-inch slide, assembly tension	1670-00-502-2818	67B46276	3 ea.
1 3/4-inch hook, assembly eye	1670-00-925-0683	67B46270	6 ea.
Fitting, cargo	1670-00-463-7478	A 7000	2 ea.

25.18.1. Instructions for constructing the KC-10 Cargo Door Safety Net.

STEP 1: Overall dimensions of the cargo net are 156 inches (13 feet) long by 44 inches (3 feet-8 inches) tall, measured from outside edge to outside edge.

STEP 2: Top and third horizontal webbing's are measured 156 inches (13 feet) long. The second and bottom horizontal webbing are 110 inches (9 feet and 2 inches) long.

STEP 3: All vertical webbing's are measured 44 inches (3 feet-8 inches) long. All webbing's are spaced 14 inches apart horizontally, using middle-to-middle measurements.

STEP 4: The first vertical webbing is sewn to the first and third horizontal webbing's at 11 inches plus 3 inches from the left-hand side. All other vertical webbing's are spaced 18 inches apart, using middle-to-middle measurements.

STEP 5: Hook assembly and slide assembly tension are attached with a 3-inch overlap (detail D), requiring 9 inches of webbing.

STEP 6: Adjustment webbing is placed through the tension slide assembly, folded, and sewn to act as a stop.

STEP 7: All sewing is done using size "FF" nylon thread and secured with a box X pattern. All webbing ends must be finished to prevent fraying.

STEP 8: Aircraft serial number may be inked in the upper forward net area 1 1/2-inch stencil.

25.19. Crew Chief On Board Parts Kit. Use the following table to determine the requirements of the Crew Chief On Board Parts Kit.

Table 25.3. Crew Chief On Board Parts Kit.

NOMENCLATURE	PART NUMBER	QUANTITY
Radio Altimeter Indicator	2067635-0703	1
AT/SC Computer	2593342-975	1
Beacon Light Assembly	31-4814-3	1
Taxi Light	4557	1
Beacon Light Power Supply	60-3281-3	1
Fly-Away jack	6010-50F	1
#1 UHF R/T	707650-801	1
ADI	787-6892-003	1
EGT Indicator	8DJ175LXP2	1
N1 Indicator	8DJ176WAP2	1
N2 Indicator	8DJ176WAR2	1
Fuel Flow Indicator	9-118-15	1
Voice Recorder	93A100-10	1
FE Clock	A15802	1
Eng. Fuel Vapor Vent Line	AE1000100H0072	1
Boom Signal Coil	AQL7094-501	1
Emergency Light Battery	EMBS139-2	1
IAU Cannon Plug Pins	LRM20W5	1
Landing Light	Q4559X	1
Windshield Wiper Blade	XW23143-1	1
Boom Control Unit	4035981-906	1
MLG Tire	5000757-8	2
NLG Tire	5000919-1	1
Standby Attitude Indicator	705-7V9	1

25.20. Forms Prescribed. The following Air Force forms are prescribed by this instruction: AF Forms 3862, 4053, 4069, 4076, 4080, 4087, 4088, 4089, 4090, 4095, and 4130.

MARVIN R. ESMOND, Lt General, USAF
DCS, Air and Space Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoD 4515.13R, *Air Transportation Management*

AFPD 10-9, *Lead Operating Command Weapon Systems Management*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 10-21, *Air Mobility Lead Command Roles and Responsibilities*

AFI 10-403, *Deployment Planning*

AFI 11-202V1, *Aircrew Training*

AFI 11-202V2, *Aircrew Standardization/Evaluation Program*

AFI 11-202V3, *General Flight Rules*

AFI 11-221, *Air Refueling Management (KC-10 and KC-135)*

AFI 11-222, *Tanker Activity Report*

AFI 11-215, *Flight Manual Procedures*

AFI 11-207, *Flight Delivery of Fighter Aircraft*

AFI 11-209, *Air Force Participation in Aerial Events*

AFI 11-218, *Aircraft Operations and Movement on the Ground*

AFI 11-401, *Flight Management*

AFI 11-2KC-10V1, *KC-10 Aircrew Training*

AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*

AFI 11-299, *Nuclear Airlift Operations*

AFI 13-207, *Preventing and Resisting Piracy [Hijacking]*

AFI 13-401, *Managing the Information Security Program*

AFI 21-101, *Maintenance Operations and Management Policy*

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

AFI 31-101, Volume 1, *Air Force Physical Security Program*

AFI 31-401, *Information Security Program Management*

AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*

AFI 48-104, *Medical and Agricultural Foreign and Domestic Quarantine Regulations for Vessels, Aircraft, and Other Transports of the Armed Forces (Joint)*

AFI 48-123, *Medical Examinations and Standards*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*

AFMAN 10-206, *Operational Reporting*

AFMAN 11-117, *Instrument Procedures*

AFM 67-1V1, *Supply/Fuels Wartime Planning*

AFOSH Standard 127-100, *Aircraft Flight Line - Ground Operations and Activities*

Abbreviations and Acronyms.

ACDE—Aircrew Chemical Operations and Procedures

ACF—Acceptance Check Flight

AGE—Aircraft Ground Equipment

AOR—Area of Responsibility

APU—Auxiliary Power Unit

AR—Air Refueling

ARCT—Air Refueling Control Time

ASRR—Airfield Suitability and Restriction Report

ATC—Air Traffic Control

BRNAV—Basic Area Navigation Airspace

C2—Command and Control

CDT—Crew Duty Time

CG—Center of Gravity

CW—Chemical Warfare

CCA—Contamination Control Area

CECR—Crew Enhancement Crew Rest

CFP—Computer Flight Plan

COE—Certification of Equivalency

CSS—Chief Servicing Supervisor

CVR—Cockpit Voice Recorder

DCS—Defense Courier Service

DH—Decision Height

EAL—Entry Access List

EAR—End Air Refueling

EMCON—Emission Option

ETA—Estimated Time of Arrival

ETE—Estimated Time En route

ETIC—Estimated Time in Commission

ETP—Equal Time Point

FCB—Flight Crew Bulletin

FAF—Final Approach Fix

FCF—Functional Check Flight

FCIF—Flight Crew Information File

FDP—Flight Duty Period

FIR—Flight Information Region

FMC—Fully Mission Capable

FMS—Flight Management System

FOD—Foreign Object Damage

FOL—Forward Operating Location

FSO—Flying Safety Officer

GPS—Global Positioning System

HATR—Hazardous Air Traffic Report

ICS—Infant Car Seat

IFF—Identification Friend or Foe

INS—Inertial Navigation System

LAAR—Low Altitude Air Refueling

LRC—Long Range Cruise

MAF—Mobility Air Forces

MARSA—Military Assumes Responsibility for Safe Altitude

MC—Mission Capable

MCD—Medical Crew Director

MDS—Mission Design Series (e.g., KC-10)

ME—Mission Essential

MEL – Minimum Equipment List

MOB—Main Operating Base

MNPS—Minimum Navigation Performance Specifications

MSL—Mean Sea Level

NDB—Non Directional Beacon

NEW—Net Explosives Weight

NM—Nautical Mile

NOTAM—Notice to Airmen

OIS—Obstacle Identification Surface

PDO—Publication Distribution Office

PNF—Pilot Not Flying

PMCR—Post Mission Crew Rest

PPR—Prior Permission Required

PMSV—Pilot to Meteorologist Service

PSN—Proper Shipping Name

RNP—Required Navigation Performance

ROE—Rules of Engagement

RRFL—Required Ramp Fuel Load

RVSM—Reduced Vertical Separation Minimum

SAAM—Special Assignment Airlift Mission

SID—Standard Instrument Departure

SIGMET—Significant Metrorological Information

SPR—Single Point Refueling

STM—Supplemental Training Mission

TKACT—Tanker Activity Report

TOLD—Take off and Landing Data

Terms

Terms—The following is a list of common mobility terms and associated abbreviation. Additional terms common to the aviation community may also be found in FAR, Part 1 and DoD FLIP *General Flight Planning*, Chapter 2.

Advanced Computer Flight Plan (ACFP)—An Air Force-level system that is the follow on replacement for the Optimized AMC Flight Plan. The system brings an improved user interface to the customer, runs in Microsoft Windows, and communicates with a mainframe located at Scott AFB IL. Once the optimized flight plans are produced on the mainframe, they are transmitted back to the Window's PC.

Aeromedical Evacuation (AE)—Movement of patients under medical supervision between medical treatment facilities (MTFs) by air transportation.

Aeromedical Evacuation Coordination Center (AECC)—Medical element established to operate in conjunction with C2 Centers. AECC, through Global or Theater Patient Movement Requirement Centers, coordinates overall medical requirements with airlift capabilities and monitors patient movement.

Aeromedical Evacuation Crew Member (AECM)—Qualified Flight Nurse (FN) and Aeromedical Evacuation Technician (AET) performing AE crew duties.

Aeromedical Evacuation Operations Officer (AEOO)—Medical Service Corps (MSC) officer or medical administrative specialist or technician (AFSC 4A0X1) assigned to the AE system to perform duties outlined in applicable Air Force policy directives, instructions, 41-series handbooks, and this AFI.

Air Force Mission Support System (AFMSS)—Provides the Air Force with common interoperable automated flight mission planning hardware and software. Consists of a ground and portable (laptop) system. Interfaces with theater, MAJCOM, and joint data bases from fixed or deployed locations worldwide. Automates previously manually accomplished tasks. Passes Air Tasking order through C2IPS or CTAPS. Threats are provided via the Combat Intel System. AFMSS is multimedia capable with modem provided on ground and portable systems. The portable has a 1553B interface bus for uploading data to the aircraft. AFMSS displays and prints full color charts, NITF imagery, perspective views, mission rehearsals, 3-D fly through, flight planning forms and logs, and Digital Aeronautical Flight Information File information. Uses industry standardized data bases and complies with open-system architecture and multilevel security requirements. Built with Commercial Off-The-Shelf (COTS) hardware, and implements nonproprietary software.

Air Force Component Commander (AFCC)—In a unified, sub-unified, or joint task force command, the Air Force commander charged with the overall conduct of Air Force air operations.

Air Refueling Control Point (ARCP)—The planned geographic point over which the receiver(s) arrive in the observation/pre-contact position with respect to the assigned tanker.

Air Refueling Exit Point (AR EXIT PT)—The designated geographic point at which the refueling track terminates. In a refueling anchor it is a designated point where tanker and receiver may depart the anchor area after refueling is complete.

Air Refueling Initial Point (ARIP)—A point located upstream from the ARCP at which the receiver aircraft initiates a rendezvous with the tanker.

Aircrew Chemical Defense Ensemble (ACDE)—Individually fitted aircrew unique chemical protective equipment for the sole purpose of protecting aircrew while flying into and out of a chemically contaminated environment.

Aircrew Eye/Respiratory Protective System (AERPS)—New generation individually sized aircrew chemical defense protective equipment system designed to protect aircrew from toxic chemical exposure to the head, neck, face, eyes, and respiratory tract.

Airlift—Aircraft is considered to be performing airlift when manifested passengers or cargo are carried.

Air Mobility Control Center (AMCC)—Provides global coordination of tanker and airlift for AMC and operationally reports to the AMC TACC. Functions as the AMC agency that manages and directs ground support activities and controls aircraft and aircrews operating AMC strategic missions through overseas locations.

Air Mobility Element (AME)—An extension of the AMC TACC deployed to a theater when requested by the geographic combatant commander. It coordinates strategic airlift operations with the theater airlift

management system and collocates with the air operations center whenever possible.

Air Mobility Operations Control Center (AMOCC)—Operations center which controls movement of theater assigned air mobility assets.

Air Reserve Component (ARC)—Refers to Air National Guard and AFRC forces, both Associate and Unit Equipped.

Air Route Traffic Control Center (ARTCC)—The principal facility exercising enroute 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 communications 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.

Airfield Suitability and Restrictions Report (ASRR)—A quarterly publication, published by HQ AMC/DOVS, 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. Others use as information only, or as directed by the assigned MAJCOM.

Allowable Cabin Load (ACL)—The maximum payload which can be carried on an individual sortie.

AMC History System (AHS)—Database that compiles and stores tanker activity input by line units.

Augmented Crew—Basic aircrew supplemented by additional qualified aircrew members to permit in-flight rest periods.

Automatic Link Establishment (ALE)—Automated process of setting up a communications link between two operating stations. Process involves periodic scanning of frequency spectrum and over-the-air "handshaking" to select and maintain highest quality and most reliable radio channels. Primarily used in the HF band.

Aviation Into-Plane Reimbursement (AIR) Card—A credit card that can be used to purchase aviation fuels, related fuel supplies and ground services at commercial airports where no DoD or Canadian Into-Plane contract exists.

Bird Aircraft Strike Hazard (BASH)—An Air Force program designed to reduce the risk of bird strikes.

Bird Watch Condition Low—Normal bird activity [as a guide, fewer than 5 large birds (waterfowl, raptors, gulls, etc.) or fewer than 15 small birds (terns, swallows, etc.)] on and above the airfield with a low probability of hazard. Keep in mind a single bird in a critical location may elevate the Bird Watch Condition (BWC) to moderate or severe.

Bird Watch Condition Moderate—Increased bird population (approximately 5 to 15 large birds or 15 to 30 small birds) in locations that represent an increased potential for strike. Keep in mind a single bird in a critical location may elevate the BWC to moderate or severe.

Bird Watch Condition Severe—High bird population (as a guide, more than 15 large birds or 30 small birds) in locations that represent an increased potential for strike. Keep in mind a single bird in a critical location may cause a severe BWC.

Block Time—Time determined by the scheduling agency responsible for mission accomplishment for the aircraft to arrive at (block in) or depart from (block out) the parking spot.

BLUE BARK—US military personnel, US citizen civilian employees of the Department of Defense (DoD), and the dependents of both categories who travel in connection with the death of an immediate family member. It also applies to 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 that does not meet the requirements of a category II route, including tactical navigation and over water routes.

Category II Route—Any route on which the position of the aircraft can be accurately determined by the overhead crossing of a radio aid (NDB, VOR, TACAN) at least once each hour with positive course guidance between such radio aids.

Chalk Number—Number given to a complete load and to the transporting carrier.

Charge Medical Technician (CMT)—A qualified AET who supervises other AETs in aircrew positions on AE missions.

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.

Combat Control Team (CCT)—A small task organized team of Air Force parachute and combat diver qualified personnel trained and equipped to rapidly establish and control drop, landing, and extraction zone air traffic in austere or hostile conditions. They survey and establish terminal airheads as well as provide guidance to aircraft for airlift operations. They provide command and control, and conduct reconnaissance, surveillance, and survey assessments of potential objective airfields or assault zones. They also can perform limited weather observations and removal of obstacles or unexploded ordinance with demolitions.

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.

Command and Control (C2) Center—Each C2 Center provides supervision, guidance, and control within its assigned area of responsibility. For the purpose of this AFI, C2 Centers include operations centers, command posts, air mobility elements, tanker airlift control elements (TALCE), air mobility control centers, and tanker task forces.

Command and Control Information Processing System (C2IPS)—Computer-based information transmission and information handling for C2 functions associated with the Director of Mobility Forces (DIRMOBFOR), AME fixed units, and TALCE. Interfaces to and automatically updates the Global Decision Support System (GDSS).

CONFERENCE SKYHOOK—Communication conference available to help aircrews solve in-flight problems that require additional expertise.

Contingency Mission—Mission operated in direct support of an OPORD, OPLAN, disaster, or

emergency.

Critical Phase Of Flight—Takeoff, air refueling, approach, and landing.

Deadhead Time—Duty time for crew members positioning or de-positioning for a mission or mission support function.

Department of Defense Activity Address Code (DoDAAC)—A six-position, alpha-numeric code assigned to identify the unit, activity, or organization within DoD that owns the aircraft.

Designated Courier—Officer or enlisted member in the grade of E-5 or above of the US Armed Forces, or a Department of State diplomatic courier, selected by the Defense Courier Service (DCS) to accept, safeguard, and deliver DCS material as directed. A primary aircrew member should be used as a courier only as a last resort.

Desolate Terrain Missions—Any mission in excess of one hour over desert, tropical, or jungle terrain (not to include flights conducted over the CONUS.

Deviation—A deviation occurs when takeoff time is not within -20/+14 minutes of scheduled takeoff time. Scheduled takeoff time may be adjusted to make good an ARCT. Notify controlling agency prior to 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; for boom operators conducting air refueling, the instructor must occupy the instructor seat).

Director, Mobility Forces (DIRMOBFOR)—Individual responsible for theater mobility force management. The Air Force component commander exercises operational control of assigned or attached mobility forces through the DIRMOBFOR. The DIRMOBFOR monitors and manages assigned mobility forces operating in theater. The DIRMOBFOR provides direction to the Air Mobility Division in the AOC to execute the air mobility mission and will normally be a senior officer familiar with the AOR.

Distinguished Visitor (DV)—Passengers, including those of friendly nations, of star or flag rank or equivalent status, to include diplomats, cabinet members, members of Congress, and other individuals designated by the DoD due to their mission or position (includes BLUE BARK and COIN ASSIST).

Diverse Departures—The airfield has been assessed for departure by TERPS personnel and no penetration of the obstacle surfaces exists. An aircraft may depart the field, climb to 400 feet above the departure end of the runway elevation, turn in any direction, and if a minimum climb gradient of 200’/NM is maintained be assured of obstacle clearance. This normally indicated on DoD/NOAA publications by the absence of any published departure procedures.

Double Blocking—When an aircraft is required to block-in at one parking spot, then move to normal parking for final block-in. The extra time required for double blocking will be taken into account during mission planning/scheduling. To compensate for double blocking on departure, the aircrew "legal for alert time" may be adjusted to provide additional time from aircrew "show time" to departure. When double blocking is required on arrival, the aircrews entry into crew rest will be delayed until post flight duties are complete.

Dual Role—Any mission where both air refueling and airlift are provided to the user. Primary mission role is normally air refueling. Missions where cargo movement is primary require a dedicated funded special assignment airlift mission (SAAM) designation.

Due Regard—Operational situations that do not lend themselves to International Civil Aviation Organization (ICAO) flight procedures, such as military contingencies, classified missions, politically sensitive missions, or training activities. Flight under "Due Regard" obligates the military aircraft commander to be his or her own air traffic control (ATC) agency and to separate his or her aircraft from all other air traffic. (See FLIP General Planning, section 7.)

Equal Time Point (ETP)—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—Estimated time required to complete required maintenance.

Execution—Command-level approval for initiation of a mission or portion thereof after due consideration of all pertinent factors. Execution authority is restricted to designated command authority.

Experienced Copilot (ECP)—Copilot with 500 total flying hours (not including "other" time) of which a minimum of 200 hours are in the primary assigned aircraft (PAA). Individual must also be designated an "experienced copilot" by the squadron commander. Designation indicates the squadron commander certifies the individual is progressing normally toward upgrade to aircraft commander.

Familiar Field—An airport 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.

Scheduled Return Time (SRT)—Scheduling tool used by air mobility units to predict when crews will return to home station. SRT for active duty, ANG, and AFRC is defined as SRT plus 24 hours.

Force Rendezvous Point (FRP)—A checkpoint at which formations of aircraft join and become part of the main force. Also called group rendezvous point.

Fuel Reserve—Amount of usable fuel that must be carried beyond that required to complete the flight as planned.

Global Decision Support System (GDSS)—AMC's primary execution command and control system. GDSS is used to manage the execution of AMC airlift and tanker missions.

Global Patient Movement Requirements Center (GPMRC)—A joint activity reporting directly to the Commander in Chief, USTRANSCOM, the DoD single manager for the regulation of movement of uniformed services patients. The GPMRC authorizes transfers to medical treatment facilities of the Military Departments of the Department of Veterans Affairs and coordinates intertheater and CONUS patient movement requirements with the appropriate transportation component commands of USTRANSCOM.

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 (HAZMAT)—Articles or substances that are capable of posing significant risk to health, safety, or property when transported by air and classified as explosive (class 1), compressed gas (class 2), flammable liquid (class 3), flammable solid (class 4), oxidizer and organic peroxide (class 5), poison and infectious substances (class 6), radioactive material (class 7), corrosive material (class 8), or miscellaneous dangerous goods (class 9). Classes may be subdivided into divisions to further identify hazard, i.e., 1.1, 2.3, 6.1, etc.

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.

In-Place Time (IPT)—Time when an aircraft and crew are at an operating base and prepared to load for the mission.

Interfly—The exchange and/or substitution of aircrews and aircraft between Mobility Air Forces (MAF) including crew members and/or aircraft from AETC, ACC, PACAF, and AMC-gained ANG and AFRC forces.

International Maritime Satellite (INMARSAT)—United Nations-sponsored organization with controlling authority over a commercial satellite constellation. The constellation provides near global voice/data communications coverage for land-based, maritime and aeronautical radio operations. Users of the system are required to register with the organization, abide by the charter, and pay "by the minute" usage fees.

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. AMC headquarters publishes JA/ATT tasking in AMC OPORD 17-76, annex C, appendix 1.

Joint Task Force/C2 Module (CCM)—36-foot long Airstream C2 Module (trailer) built in 3 sections.

L-Band SATCOM—600 BPS satellite communications (SATCOM) system contracted through the International Maritime Satellite Organization (INMARSAT), used primarily for command and control. The system consists of a satellite transceiver, a laptop computer, and a printer.

Loading Time—A specific time, established jointly by the airlift and airborne commanders concerned, when aircraft and loads are available and loading is to begin.

Local Training Mission—A mission scheduled to originate and terminate at home station (or an off-station training mission), generated for training or evaluation, and executed at the local level.

Maintenance Status:—

A-1; No maintenance required.

A-2 (Plus Noun); Minor maintenance required, but not serious enough to cause delay. Add nouns that identify the affected units or systems, i.e. hydraulic, ultra high frequency (UHF) radio, radar, engine, fuel control, generator, 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—A qualified FN responsible for supervising patient care and AECMs assigned to AE missions. On missions where an FN is not onboard, the senior AET will function as MCD.

Mission Contributing—Any discrepancies that is not currently designated Mission Essential (ME).

Mission Essential.—An item, system, or subsystem component essential for safe aircraft operation or mission completion.

Mission—Movement of aircraft from a designated point of origin to a designated destination as defined by assigned mission identifier, mission nickname, or both in the schedule, mission directive, OPORD, OPLAN, or FRAG order.

Mission Advisory—Message dispatched by C2 agencies, liaison officers, or aircraft commanders advising all interested agencies of any changes in status affecting the mission.

Mobility Air Force—Forces assigned to mobility aircraft or MAJCOMs with operational or tactical control of mobility aircraft.

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 normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish the assigned missions. Operational control does not, in and of itself, include authoritative direction for logistical matters of administration, discipline, internal organization, or unit training.

Operational Missions—Missions executed at or above TACC level. Operational missions termed "CLOSE WATCH" include CORONET missions and AFI 11-221, *Air Refueling Management (KC-10 and KC-135)*, priority 1, 2, and 3 missions tasked by the TACC. Other operational missions such as deployment, re-deployment, reconnaissance operations, operational readiness inspections (ORI), AMC channel or SAAM, and JA/ATT missions may be designated "CLOSE WATCH" as necessary.

Operational Risk Management (ORM)—A logic based, common sense approach to making calculated decisions on human, materiel, and environmental factors before, during, and after Air Force operations. It enables commanders, functional managers, and supervisors to maximize operational capabilities while minimizing risks by applying a simple, systematic process appropriate for all personnel and Air Force functions.

Opportune Airlift—Transportation of personnel, cargo, or both aboard aircraft with no expenditure of additional flying hours to support the airlift.

Originating Station—Base from which an aircraft starts on an assigned mission. May or may not be the home station of the aircraft.

Over-water Flight—Any flight that exceeds power off gliding distance from land.

Patient Movement Categories—

Urgent—Patients who must be moved immediately to save life, limb, or eyesight, or to prevent complication of a serious illness.

Priority—Patients requiring prompt medical care that must be moved within 24 hours.

Routine—Patients who should be picked up within 72 hours and moved on routine/scheduled flights.

Permit to Proceed—Aircraft not cleared at the first US port of entry may move to another US airport on a permit to proceed issued by customs officials at the first port of entry. This permit lists the requirements to be met at the next point of landing, i.e. number of crew and passengers, cargo not yet cleared. Aircraft commanders are responsible to deliver the permit to proceed to the customs inspector at the base where final clearance is performed. (Heavy monetary fines can be imposed on the aircraft commander for not complying with permit to proceed procedures.)

PHOENIX RAVEN Security Teams—Supports mobility operations by providing security protection for aircraft transiting high threat locations where host, or enroute security support may be marginal, unreliable, or nonexistent. PHOENIX RAVEN Security teams consist of two US Air Force security force members, but may include more depending on security requirements.

Point Of No Return—Most distant point along the planned route from which an aircraft may safely return to its point of departure or alternate airport with approach and landing fuel.

Point of Safe Return—Most distant point along the planned route from which an aircraft may safely return to its point of departure or alternate airport with required fuel reserve.

Positioning and De-positioning Missions—Positioning missions are performed to relocate aircraft for the purpose of conducting a mission. De-positioning missions are made to return aircraft from bases at which missions have terminated.

Quick Stop—Set of procedures designed to expedite the movement of selected missions by reducing ground times at en route or turnaround stations.

Ramp Coordinator—Designated representative of the C2 Center whose primary duty is the coordination of ground handling activities on the ramp during large scale operations.

Scheduled Return Time—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.

Scheduled Takeoff Time—Takeoff time is established in the schedule or OPORD. For air aborts and diversions, this will be engine shut down time (or arrival in the blocks if engine shutdown is not scheduled) plus authorized ground time. Early deviation does not apply to aborts or diversions unless the mission is formally rescheduled by current operations.

Significant Meteorological Information (SIGMET)—Area weather advisory issued by an ICAO meteorological office relayed to and broadcast by the applicable ATC agency. SIGMET advisories are issued for tornadoes, lines of thunderstorms, embedded thunderstorms, large hail, severe and extreme turbulence, severe icing, and widespread dust or sand storms. A SIGMET frequently covers a large geographical area and vertical thickness. They are prepared for general aviation and may not consider aircraft type or capability.

Special Assignment Airlift Mission—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.

Stations Time (Air Force)—The time at which the crew, passengers, and cargo are to be on board and ready for the flight. Normally, 30 minutes prior to takeoff time for the KC-10, KC-135, C-130, C-141, and OSA aircraft (45 minutes for C-5 and C-17). Aircrews will have completed their pre-flight duties and be at their crew positions. Passengers will be seated and cargo will be secured.

Tanker Airlift Control Center (TACC)—AMC direct reporting unit responsible for tasking and controlling operational missions for all activities involving forces supporting USTRANSCOM's global air mobility mission. The TACC is organized into geographic cells consisting of East, West, and Emergency Action Cells. The 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.

Tactical Event—Threat Avoidance Approaches/Departures (TAA/D).

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 Center at a base where normal AMC C2 Centers 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.

Theater Patient Movement Requirements Center (TPMRC)—The TPMRC is responsible for theater wide patient movement (e.g., medical regulating and AE scheduling), and coordinates with theater MTFs to allocate the proper treatment assets required to support its role. The primary role of the TPMRC is to devise theater plans and schedules and then monitor their execution in concert with the GPMRC. The TPMRC is responsible to the Combatant Commander through the Combatant Command Surgeon. The TPMRC is also responsible for all aspect of intratheater patient movement management. A TPMRC provides command and control for patient movement management operations in its theater of operations, as directed by its Combatant Commander's operational policy, and in coordination with USTRANSCOM, acting as a supporting combatant command, responsible for intertheater and CONUS

Time Out—Common assertive statement used to voice crew member concern when safety may be jeopardized.

Training Mission—Mission executed at the unit level for the sole purpose of aircrew training for upgrade or proficiency. Does not include operational missions as defined in this AFI.

Transportation Working Capital Fund (TWCF)—Formerly known as Defense Business Operations Fund-Transportation (DBOF-T). Part of the Air Force Working Capital Fund (AFWCF). Normally used to cover costs that can be recovered from an air mobility customer. Examples include TDY costs, site surveys of TALCE or airlift unit deployment bed down locations, airlift unit level mission planning expenses, and support or contract costs for deployed TWCF units/personnel.

Unilateral—Operations confined to a single service.

Unit Move—Unit relocation in support of a contingency or exercise deployment/re-deployment. These moves are made to desired areas of operation or to designated locations, and are made IAW a troop movement schedule.

Zero Fuel Weight—Weight, expressed in pounds, of a loaded aircraft not including wing and body tank fuel. All weight in excess of the maximum zero fuel weight will consist of usable fuel.

Attachment 2

AF FORM 4091, MISSION DATA

A2.1. Instructions for completing Block 34, Time and Fuel Analysis.

NOTE: AF Form 4091 blocks parallel the fuel summary section of a standard computer flight plan.

Block 1—En route—En route time and fuel burn-off from point of departure to begin descent point.

Block 2—Enroute Reserve—10% of the flight time fuel over the Category 1 route/route segment, not to exceed 1+00 fuel at normal cruise.

Block 3—En route and Reserve—Add blocks 1 and 2.

Block 4—Alternate—If an alternate is required, this block will contain fuel for flight from the missed approach point at intended destination to alternate aerodrome at optimum altitude and long-range cruise speed.

Block 5—Holding—45 minutes or 12,000 pounds, which ever is greater. When filing to a destination where the alternate is located in Alaska or at latitudes greater than 59 degrees, or when holding is required in lieu of an alternate at a remote or island destination, add an additional 30 minutes of holding fuel.

Block 6—Approach & Landing—ACFP will automatically compute required time and fuel from begin descent point to landing. Use this computed figure when using ACFP flight plans. In all other cases, use 3000 pounds.

Block 7—AR On-load/Off-load—Enter the amount from Section 33, block 3.

Block 8—Identified Extra—Fuel which may be added for unplanned contingencies such as late receivers, increased offloads, ATC delays, unplanned holding, weather avoidance, etc. This value should not normally exceed 10,000 pounds. Additionally, this block will include tankered fuel for subsequent mission legs (e.g. Non-Engine Running Crew Change [NERCC] sortie fuel), transition fuel (end of sortie) minus alternate and approach and landing fuel, and decompression fuel (if required).

Block 9—Subtotal—Add blocks 3 through 8.

Block 10—Taxi—1500 pounds. When more than 15 minutes of ground operations are anticipated, 100 pounds may be added for each minute in excess of 15 minutes, not to exceed 3000 pounds.

Block 11—Required Ramp Fuel Load—Add blocks 9 and 10.

Block 12—Actual Ramp Load—Self explanatory.

Block 13 - Unidentified Extra—Subtract block 11 from block 12. If this value exceeds 10,000 pounds, a de-fuel should be requested.

Block 14—Required Overhead Destination—Add blocks 4, 5, and 6.

Block 15—Endurance at Destination—Planned fuel at begin descent point (this fuel total includes the AR on-load), divided by nominal endurance fuel flow (15,000 pounds per hour).

NOTE: If scheduled on-loads are not completed, it may be impossible to complete the mission.

Block 16—Total Endurance—Add blocks 1 and 15.

Block 17—AR On-load Endurance—Planned on-load divided by 15,000 pph.

Attachment 3

FORMAT FOR VALIDATION OF CARGO ON-LOADING/OFF-LOADING PROCEDURES

A3.1. Use the following format when tasked to validate a new piece of equipment or when encountering any cargo that may require special or specific on-loading and off-loading procedures.

A3.1.1. General Loading Data:

A3.2. Nomenclature of item. Give military or civilian name, national stock number (NSN), and a brief description of the item, i.e. dump truck, medical van, etc.

A3.3. Dimensions (in inches): Length, width, and height. Rough drawing or picture of the unit, pointing out critical dimensions, projections, overhangs, etc.

A3.4. Weight (in pounds): Gross weight, individual axle weight, dand ata plate weight, if possible.

A3.5. Crew—number of loading crew personnel and boom operators required to on-load or off-load cargo and their required position to observe clearance, if required.

A3.6. Equipment and Material Requirements—special equipment and material required to on-load and off-load cargo, i.e. cargo winch, prime mover, shoring requirements.

A3.7. Aircraft Configuration Required.

A3.8. Preparation of Cargo for Loading—helicopter struts, components that must be removed, etc.

A3.9. Loading Procedures.

A3.10. Tie Down Points.

A3.11. Off-loading Procedures.

A3.12. Comments.

Attachment 4

AF FORM 4095, KC-10 LOAD PLAN WORKSHEET INSTRUCTIONS

A4.1. AF Form 4095 is an easy to use optional form designed as a worksheet for KC-10 load planners. When completed, it provides all the necessary computational data for KC-10 cargo operations. Variations in completing the form are allowed; however, the load planner is responsible for the accuracy of the computations. The following simplified instructions are a guide for completion of the form.

A4.2. AFT BODY/FWD BODY FUEL. Enter the applicable fuel quantities from your planned fuel load, T.O. 1C-10(K)A-5, Figure 3-19.

A4.3. ZONE LOAD. Enter allowable weights from T.O. 1C-10(K)A-9, Zone Chart, based on the fuel quantities (Item 1).

A4.4. PALLET BLOCKS; RIGHT, LEFT. Enter the desired information (identifiers, weights, axle locations, coupled pallets, etc.) to depict load arrangement and weight distribution. The INCH scale on each side of the pallet blocks may be used to record the CB of an item (i.e. engine trailer).

NOTE:

The weights 10,000 and 6,500 depict the pallet limits for uniform loads only. Skid or axle loads may be more restrictive.

A4.5. RIGHT MOMENT; LEFT MOMENT. Record computed moment for the weight distribution as depicted in item 3.

A4.6. TOTALS: MOMENT RIGHT; WEIGHT RIGHT; WEIGHT LEFT; MOMENT LEFT. Compute the totals of the applicable columns and enter the results. Enter the combined totals of the Right and Left side in the TOTAL CARGO blocks, lower left side of the form, Weight and Moment columns. "TOTAL CARGO ARM" is computed based on the combined totals entered in the lower left blocks. For "LATERAL DIF", enter the computed difference between the right and left sides of the aircraft cargo distribution.

A4.7. WEIGHT AND BALANCE DATA BLOCKS. These blocks provide an area to record and compute the aircraft overall status. The SUB-TOTAL and TOTAL ZFW entries are transcribed to the right side of the form and used for TIPPING ON-LOAD and TIPPING OFF-LOAD computations.

NOTE:

If crew baggage has been included in the distribution of the load, (Item 3) recommended, do not include here.

A4.8. TIPPING ON-LOAD. Record and compute the applicable data. The actual fuel load on the aircraft during the ON-LOAD is recorded on the right side of the form, FUEL ACTUAL, the total weight

and computed moment is then entered as ACTUAL FUEL (+). The results, ON-LOAD START data, is used to compute On-load Tipping Analysis (Item 8).

A4.9. ON-LOAD TIPPING ANALYSIS. Record the computed ARM or % MAC. A running total of weights and moments may also be entered.

A4.10. TIPPING OFF-LOAD. Record and compute the applicable data. TOTAL ZFW is transcribed from the Weight and Balance Data blocks (Item 6). The parking fuel load on the aircraft during the OFF-LOAD is recorded on the right side of the form, PARKING. The total weight and computed moment is then entered as PARKING FUEL (+). The results: OFF-LOAD START data is used to compute Off-load Tipping Analysis (Item 10).

A4.11. OFF-LOAD TIPPING ANALYSIS. Record the computed ARM or % MAC. A running total of weights and moments may also be entered.

A4.12. ZONE LOAD MAX FUEL; AFT; FWD. When the actual zone load (Item 2) is less than allowed, the body tank fuel may be increased.

A4.13. LOADING SEQUENCE. Enter the sequence of loading. On-load Tipping Analysis information may dictate a specific load sequence. The remaining blocks are self explanatory.

Attachment 5

AF FORM 4130, KC-10 RESTRAINT COMPUTATION WORKSHEET INSTRUCTIONS

A5.1. AF Form 4130 is an easy to use form to record and compute restraint computations. The form contains all the necessary formulas. Simplified instructions follow.

The pallet diagram may be used to sketch out an item and draw the tie-down arrangement. When used, label each tie-down device numerically.

A5.2. Enter the item weight.

A5.3. Compute vertical restraint requirement and enter its value.

A5.4. Compute FWD, AFT, LEFT, RIGHT, (all others), and enter the value.

A5.5. Take the applicable measurements and record in the appropriate columns. The column labels correspond to the diagram above the columns.

A5.5.1. When recording (D) FWD/AFT Effective Length, enter an A or F showing the direction of restraint provided.

A5.5.2. When recording (E) Lateral Effective Length, enter an L or R showing the direction of restraint provided.

A5.6. Compute the VERTICAL restraint FIRST. If it is 2,500 pounds or GREATER, enter 2,500. If it is LESS THAN 2,500 pounds, enter the computed value.

A5.7. Based on the results of the Vertical computation, select the applicable formula, 7A or 7B, and compute the Longitudinal and Lateral restraint.

A5.8. Record the applicable values in the blocks provided.

A5.9. Add the values of each column and enter the totals, TOTAL APPLIED RESTRAINT. If the applied is LESS THAN the required, additional devices, or a different arrangement of devices, is required.

Attachment 6

FORMATION BRIEFING GUIDE

A6.1. This briefing guide is provided as an example to stress mission events and objectives rather than reinforce technical manual procedures. A standardized briefing format is especially important when flying with other units. Brief actions required to meet mission and EMCON objectives.

1. Roll Call and Time Hack:
    - Aircraft Commander
    - Call sign
    - Aircraft number
    - Parking locations
2. Weather:
    - Takeoff
    - En route
    - AR
    - Destinations
    - Alternaties
3. Mission Overview:
    - Objectives
    - Tactical considerations
    - Takeoff time
    - Rendezvous control time or point and AR control time (ARCT)
    - Formation break-up
    - Landing
4. Communications and Plan:
    - Ground operations:
    - EMCON plan or allowable emitters
    - Radio check-in times and secure radio checks
    - Authentication, launch, or execution as required
    - ARTCC clearances
    - Takeoff:
    - EMCON plan or allowable emitters
    - Inter-plane frequency
    - Airborne calls
    - En route:
    - EMCON plan or allowable emitters
    - Lost wingman
    - Weather update
    - Communications log requirements
    - SATCOM/HF
    - Air refueling:
    - EMCON plan or allowable emitters
    - Radio frequencies
    - A/A TACAN channel and band
    - HF
    - Formation break-up and recovery:
    - EMCON plan and allowable emitters
    - Radio frequencies
    - Weather update
    - SATCOM/HF procedures
    - Special frequencies

5. Taxi
    - Engine start time
    - Taxi time
    - Sequence (including spare)
    - Performance data
    - Takeoff Clearance
6. Takeoff:
    - Interval and sequence
    - Abort
    - Emergencies
7. Departure (Visual Versus Instrument):
    - Airspeeds
    - Routing
    - Climb rates or power settings
    - Intermediate level-offs
    - Turns and bank angles
    - Visual cut-off
8. Level-Off:
    - Join-up
    - Altitude block
    - Airspeed (indicated, true, or mach)
    - Minimum maneuvering airspeed
    - Performance ceilings
9. En route (Visual Versus Instrument):
    - Airspeed changes or mission timing
    - Turns and bank angles
    - Climb and descent rates
    - Position changes
10. Air Refueling (AR)(Visual Versus Instrument):
    - Call signs
    - Off-loads, on-loads, and sequence
    - Base altitude
    - Track
    - Type rendezvous
    - AR formation
    - AR airspeeds
    - Bingo fuel
    - Abort bases
    - EAR requests
    - Break-up
11. Formation Break-Up:
    - Altitudes
    - Separation routing and procedures
    - Cruise differential airspeeds
12. Recovery
    - Penetration sequence
    - Airspeeds
13. Special subjects:
    - Wake turbulence avoidance
    - Mission commander designation (as applicable)
    - Aircraft separation and monitoring plan
    - Tactics (as required)
14. Formation Debrief
    - As Required