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Flying Operations

KC-10 OPERATIONS PROCEDURES

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This manual implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations* and references Air Force Manual (AFMAN) 11-202, Volume 3, *Flight Operations*, as well as Air Force Tactics Techniques and Procedures (AFTTP) 3-3.KC-10, *Combat Aircraft Fundamentals KC-10*. This is a specialized publication intended for use by Airmen who have graduated from technical training related to this publication. It establishes guidance for the operation of the KC-10 aircraft to safely and successfully accomplish worldwide mobility missions. This manual applies to all civilian employees and uniformed members of the Regular Air Force and Air Force Reserve who operate or maintain KC-10 aircraft. This publication does not apply to the Air National Guard or the United States Space Force. This manual may be supplemented at any level, but all supplements that directly implement this manual must be routed to the office of primary responsibility (OPR) for coordination prior to certification and approval. Refer recommended changes and questions about this publication to the OPR using DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command. The authorities to waive wing/unit level requirements in this manual are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See DAFMAN 90-161, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor's commander for non-tiered compliance items. Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. This manual requires the collection and

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SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed along with AFMAN 11-202V3 and AFMAN 11-202V3_Air Mobility Command (AMC) Supplement, *Flight Operations*. Major changes include addition of roles and responsibilities, revised aircrew complement, revised duty stations, addition of Electronic Flight Bag (EFB) publication guidance, revision of required aircrew publications, revised operational reports and forms, addition of constant descent final approach guidance, revised emergency passenger airlift guidance, and revised air refueling altitude restrictions.

Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. This Air Force Manual (AFMAN) provides guidance for operating the KC-10 aircraft. It is an original source document for many areas, but for utility, restates information found in aircraft flight manuals, Flight Information Publications (FLIP), and other Air Force directives. When guidance in this manual conflicts with another source document, that document takes precedence. For matters where this manual is the source document, waiver authority is in accordance with (IAW) **paragraph 1.2.2**. For matters where this manual repeats information in another document, follow waiver authority outlined in the source document. AFMAN 11-2KC-10, Volume 3, Addenda A, *KC-10 Aircraft Configuration*, is a supporting manual to this manual.

1.1.2. Unit commanders and agency directors involved with or supporting KC-10 operations shall make current electronic copies of this manual available to appropriate personnel. **(T-3)** Transportation and Base Operations passenger manifesting agencies will maintain a current copy of this manual. **(T-3)**

1.2. Deviations and Waivers. Do not deviate from policies in this manual except when the situation demands immediate action to ensure safety. The pilot in command (PIC) is vested with ultimate mission authority and is responsible for each course-of-action he or she chooses to take.

1.2.1. Deviations. The PIC shall report deviations or exceptions taken without a waiver through command channels to the Chief, Major Command (MAJCOM) Standardization and Evaluation (Stan/Eval) who in-turn shall notify the Chief, Air Mobility Command Standardization and Evaluation (AMC/A3V) (i.e., lead command), as appropriate, for follow-on action. **(T-2)**

1.2.2. Waivers. MAJCOM waiver OPRs are as follows: AMC/A3V: **AMC.A37V@us.af.mil**; Air Force Reserve Command/Mobility Operations Division (AFRC/A3M): **HQAFRC.A3M.Workflow.1@us.af.mil**.

1.3. Definitions. Find explanations or definitions of terms and abbreviations commonly used in the aviation community in Code of Federal Regulations Title 14, Part 1; *DoD FLIP General Planning*, Chapter 2; and the *DoD Dictionary of Military and Associated Terms*. See **Attachment 1** for common terms used in this manual.

1.4. Aircrew Operational Reports. The reporting requirements in this manual are exempt from licensing IAW AFI 33-324, *The Air Force Information Collections and Reports Management Program*.

1.5. Supplemental Procedures. This manual is a basic directive. Each user MAJCOM or operational theater may supplement this manual according to Air Force Policy Directive (AFPD) 11-2, and DAFMAN 90-161. MAJCOMs stipulate unique procedures and publish MAJCOM Directorate of Operations (MAJCOM/A3) approved permanent waivers in the MAJCOM supplement. **Note:** MAJCOM supplement cannot be less restrictive than this basic document

1.5.1. Combined command operations. Plan and conduct all operations that include forces from multiple MAJCOMs using provisions in this manual. Do not assume or expect aircrews

to perform MAJCOM theater unique procedures without owning MAJCOM/A3 approval and advance training.

1.5.2. Coordination process. Forward MAJCOM-proposed supplements (attach DAF Form 673, *Department of the Air Force Publication/Form Action Request*) to AMC/A3V for mandatory coordination prior to approval.

1.6. Local Supplement Coordination Process. Operations group commanders (OG/CCs) may define operating procedures to this manual in a unit supplement or locally generated guidance. OG/CCs must obtain approval from MAJCOM prior to releasing their supplement or operating guidance. **(T-2)** Send an electronic copy of the approved version to MAJCOM Stan/Eval. **(T-2)** MAJCOM Stan/Eval will send approved copies to AMC/A3V. **(T-2)**

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Major Command (MAJCOM). MAJCOMs will provide guidance and approve waivers (as required), where specified throughout this manual. **(T-2)**

2.2. Pilot in Command (PIC). The PIC is the aircrew member designated by competent authority, regardless of rank, as responsible for, and is the final authority for, the operation of the aircraft. The PIC will ensure the aircraft is not operated in a careless, reckless, or irresponsible manner that could endanger life or property. The PIC will ensure compliance with this publication and the following:

2.2.1. Headquarters Air Force, MAJCOM, and mission design series (MDS)-specific guidance. **(T-3)**

2.2.2. Flight Information Publications (FLIP) and Foreign Clearance Guide (FCG). **(T-3)**

2.2.3. Air Traffic Control (ATC) clearances. **(T-3)**

2.2.4. Notice to Airmen (NOTAMs). **(T-3)**

2.2.5. Aircraft Technical Orders (T.O.). **(T-3)**

2.2.6. Combatant commander’s instructions and other associated directives. **(T-3)**

2.3. Aircrew. Individuals designated on the flight authorization responsible to fulfill specific aeronautical tasks regarding operation of USAF aircraft as specified in this AFMAN or by other competent, supplemental authority.

Chapter 3

AIRCREW COMPLEMENT/MANAGEMENT

3.1. General. This chapter provides guiding principles to form/manage mobility aircrews. Commanders at all levels shall follow these policies to form aircrews and to develop aircrew-related work/rest schedules that optimize efficiency of mobility forces engaged in worldwide operations. **(T-3)**

3.2. Aircrew Complement. Squadron commanders (SQ/CCs) shall form aircrews based on fragmentation order/mission directive, crew duty time (CDT) and flight duty period (FDP) requirements, aircrew member qualifications, and other constraints to safely accomplish the mission tasking. **(T-3)** **Table 3.1** below summarizes crew position requirements for different crew types.

3.2.1. The minimum aircrew member complement for a local training flight is an aircraft commander (AC), pilot/copilot, flight engineer, and a boom operator. **(T-2)** When a mission requires more than one aircrew member at a position, the SQ/CC will determine whether an instructor and non-mission ready (NMR) crewmember meet mission requirements. **(T-3)**

3.2.2. SQ/CCs shall form augmented aircrews for missions planned to take longer than a basic CDT. **(T-3)** Augmenting aircrew members must be current, qualified, and mission ready (MR) IAW AFMAN 11-2KC-10, Volume 1, *KC-10 Aircrew Training*. **(T-3) Exception:** A NMR pilot may augment provided the other two pilots are MR instructor pilots (IPs).

3.2.3. The execution authority shall identify an aircrew as augmented for the full FDP. **(T-3)** The execution authority may identify aircrews as augmented during mission execution. (See **paragraph 3.6**, "Aircrew Management", for more on CDT/FDP.)

Table 3.1. Aircrew Complement (T-2 unless otherwise noted).

Crew Position	Crew Complement	
	Basic	Augmented
Aircraft Commander	1	2
Pilot	1	1
Flight Engineer	1 (Note 1)	2 (Note 2)
Boom Operator	1/2(Note 3,4)	2/3 (Note 5)

Notes:

1. A basic qualified engineer (FF) will not fly without instructor supervision on local training sorties where cargo loading is being accomplished.

2. A KC-10 Flight Engineer Initial Qualification (FIQ) graduate or Flight Engineer Basic Prequalification (FBP) program graduate that has completed Deployment Mission Planning (RA23Y) and Receiver Air-to-Air Refueling (AAR) Heavyweight (RU05Y) to a proficient level, completed at least one Airlift Deployment Operation (RA03Y) and at least one Fighter Deployment Operations (RA29Y) to a satisfactory level, and completed Rendezvous/Air Refueling Emissions Control (EMCON) 3 & 4 (RV15Y & RV17Y) may fill the second engineer

requirement for augmentation on cargo missions only, provided the other engineer is an instructor.

3. Basic crew missions with one boom operator are limited to 40 passengers. Basic crew missions with one boom operator and planned tanker air refueling are limited to 10 passengers. The passengers may be monitored by flight deck crew during tanker air refueling. The 10-passenger limit may be exceeded if an additional MR crewmember is onboard to monitor passengers during tanker air refueling.

4. Two mission qualified boom operators (MBs) are required on missions with planned cargo operations and/or more than 40 passengers. **(T-3)** On missions with any cargo operations, at least one boom operator must have the Cargo Loading Certification (CQ64YM).

5. Three MBs are required when more than 40 passengers are planned and multiple air refuelings are anticipated. **Note:** An additional qualified crew member may be utilized as a passenger monitor, or a basic qualified boom operator supervised by an instructor boom can be used to fulfill a single MB.

3.3. Aircrew Member Qualification.

3.3.1. Senior leaders who complete a senior officer course (i.e., restricted AF Form 8, *Certificate of Aircrew Qualification*) or orientation for a senior staff familiarization flight may occupy a primary crew position when under direct instructor supervision. Refer to DAFMAN 11-401, *Aviation Management*, for procedures and requirements governing senior leader flying. Senior officers who complete the senior officer course must adhere to the restrictions listed in their AF Form 8. **(T-3)**

3.3.2. Crewmembers who complete the senior officer course will log first pilot (FP) for flight authorization duty code on the Air Force technical order (AFTO) Form 781, *ARMS Aircrew/Mission Flight Data Document*. **(T-3)**

3.3.3. Crewmembers who complete a senior staff familiarization flight will log other pilot (OP) for flight authorization duty code on the AFTO Form 781. **(T-3)**

3.4. Pilots.

3.4.1. An IP must supervise non-current or unqualified pilots regaining currency or qualification. **Note:** Direct IP supervision required during critical phases of flight. **(T-3)** **Exception:** Formal Training Unit (FTU) instructors comply with AFMAN 11-2KC-10V1 and published FTU syllabi.

3.4.2. Although another AC qualified pilot may be in the seat, overall command of the mission, crew, and aircraft remains with the designated PIC (i.e., A-code). At no time should the crew have any doubt who is in command of the aircraft. To prevent confusion among the crew, a change of PIC will not occur during a FDP unless the off-going PIC is leaving the crew. **(T-3)**

3.4.3. SQ/CCs shall determine the need to augment a crew with over 16 hours of FDP and designate those additional pilots authorized to perform PIC duties. The PIC shall brief the aircrew on the plan to transfer PIC duties. **(T-3)**

3.4.4. Missions with passengers (see DAFMAN 11-401). Only current and qualified pilots (i.e., possessing an AF Form 8) will occupy pilot seats with passengers on board. **(T-2)** **Exception:** Mission essential personnel (MEP) are authorized.

3.4.4.1. A non-current but qualified pilot may fly with passengers on board if under direct IP supervision. **(T-2)**

3.4.4.2. Pilots will not fly touch-and-go landings with passengers. **(T-3) Exception:** Touch-and-go landings are authorized with MEP on board.

3.5. Boom Operators and Flight Engineers. A non-current or unqualified boom operator or flight engineer may serve as a primary aircrew member on any mission when supervised by a qualified instructor or flight examiner. **Note:** Direct supervision for critical phases of flight.

3.6. Aircrew Management.

3.6.1. Per AFMAN 11-202V3_AMCSUP:

3.6.1.1. Complete all mission-related events (i.e., functional check flight (FCF)/acceptance check flight (ACF) checks, transition events, or tactical events) during the first 12 hours of the FDP. **Exception:** FTU missions and flight evaluations.

3.6.1.2. Flight examiners administering evaluations will not exceed an augmented FDP. **(T-2)**

3.7. Crew Rest/En Route Ground Time.

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

3.7.1.1. Except during emergencies or as authorized by mission execution authority, command and control (C2) agents shall not disturb an aircrew member in crew rest. When necessary to interrupt aircrew members' crew rest period, re-enter that aircrew in a subsequent minimum 12-hour crew rest period. **(T-2)**

3.7.2. Off-station/en route ground time. Mobility planners shall provide aircrews at least 17 hours ground time between engine shutdown and subsequent takeoff. **(T-2)** Mobility planners shall provide aircrews at least 18+15 when planned cargo upload or download. **(T-2)**

3.8. Alerting Procedures. Aircrew alert time is normally 4+15 hours before scheduled takeoff time. This allows 1 hour for reporting and 3+15 hours for mission preparation. Individual locations may increase or decrease this time depending on specific capabilities. Unit commanders may establish self-alert procedures for local training missions.

3.9. Orientation Flights and Incentive Flights. Refer to DoDI 4515.13, *Air Transportation Eligibility*, DAFMAN 11-401, and the appropriate MAJCOM supplement.

Chapter 4

AIRCRAFT OPERATING RESTRICTIONS

4.1. Objective. Redundant systems may allow crews to safely perform some missions when a component/system is degraded. The PIC is the final authority in determining the overall suitability of an aircraft for the mission. The PIC will ensure a detailed explanation of the discrepancy is entered in the AFTO Form 781A, *Maintenance Discrepancy and Work Document*; include the following maintenance identifiers to effectively communicate aircraft status. **(T-2)**

4.1.1. Mission essential (ME). The PIC designates an item, system, or subsystem component essential for safe aircraft operation or mission completion as ME.

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

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

4.2. Minimum Equipment List (MEL). The MEL is a pre-launch document that lists the minimum equipment/systems to operate the aircraft. It is impractical to prepare a list that would anticipate all possible combinations of equipment malfunctions and contingent circumstances. A PIC who accepts an aircraft with degraded equipment/systems is not committed to subsequent operations with the same degraded equipment. PICs are not committed to operations with degraded equipment accepted by another PIC.

4.2.1. The PIC shall account for the possibility of additional failures during continued operation with inoperative systems or components. **(T-3)** The MEL is not intended for continued operation over an indefinite period with systems/subsystems inoperative.

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

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

4.2.4. PICs operating with waiver(s) for degraded equipment shall coordinate mission requirements (i.e., revised departure times, fuel requirements, maintenance requirements, etc.) with the controlling C2 agency and/or flight manager (FM). **(T-3)**

4.2.5. If beyond C2 communication capability, or when it is necessary to protect the crew or aircraft from a situation not covered by this chapter and immediate action is required, the PIC may deviate according to **paragraph 1.2** Report non-waivered deviations through channels to

Chief, MAJCOM Stan/Eval, who in turn shall notify Chief, AMC/A3V (i.e., lead command) as appropriate for follow-on action within 48-hours. **(T-3)**

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

4.3.1. The wing commander is the waiver authority for all missions, delegable no lower than the OG/CC.

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

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

4.3.4. PICs shall coordinate dispositions containing flight restrictions, prohibitions, additional operating limits, or modified/nonstandard operating procedures with the appropriate MEL waiver authority (see **paragraph 4.3**). **(T-3)**

4.3.5. PICs will not accept dispositions appearing incomplete, in error, or unsafe. **(T-3)** Prior to rejecting a disposition, the PIC will contact the appropriate MEL waiver authority. **(T-3)** Resolution of the issue is the responsibility of the waiver authority. **Note:** Any deviation from the flight manual requires approval IAW flight manual guidance.

4.3.6. Airworthiness directives (ADs). ADs are legally enforceable rules issued by the Federal Aviation Administration. They are issued when an unsafe condition exists in a product and that condition is likely to exist or develop in other products of the same type design. ADs apply to aircraft maintained using civil standards IAW AFPD 62-6, *USAF Airworthiness*. The aircraft's System's Group is responsible for bringing ADs to the attention of the appropriate maintenance and operations units. When an AD is released, the aircraft shall be in compliance with the directive. **(T-3)**

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

4.4. Two Engine Ferry Operations. PICs will only conduct two engine ferry operations after exhausting all other avenues to return an aircraft with an inoperative engine to mission capable status. **(T-2)** Each two engine ferry sortie must be approved by MAJCOM/A3. **(T-2)** Only highly qualified crewmembers from MAJCOM Stan/Eval, Numbered Air Force Stan/Eval, or unit Operations Group Stan/Eval (OG/OGV) will conduct two engine ferry flights. **(T-2)** Two engine ferry flights are restricted to specially trained (Two Engine Ferry Initial Training (GK75Y)) and certified (CQ53Y) crewmembers. **(T-2)** See T.O. 1C-10(K)A-1-4, *Two Engine Ferry*, for further guidance.

4.4.1. The PIC shall plan and obtain clearances to fly to the nearest destination possessing a usable maintenance support capability (i.e., stations with DC-10 or KC-10 common maintenance facilities) and alert all en route, alternate, and abort bases along the intended route of flight. **(T-3)**

4.4.2. The PIC shall comply with the aircraft flight manual and T.O. 1C-10(K)A-1-1, *Flight Manual Performance Data,* and T.O. 1C-10(K)A-5, *Basic Weight Checklist and Loading Data,* limitations. **(T-3)** Ensure the aircraft is prepared for two-engine ferry according to T.O. 1C-10(K)A-1-4 and T.O. 1C-10(K)A-2-5, *Maintenance Manual-Time Limits Maintenance Checks*. **(T-3)**

4.4.3. The aircraft MEL (T.O. 1C-10(K)A-1-2, *Minimum Equipment List and Procedures*), does not apply. All primary aircraft systems not specifically associated with the failed engine must be fully operational. **(T-3)**

4.4.4. Download cargo, including mission support kits, before ferry operations. **Note:** Crews may remove the onboard cargo handling system to further reduce operational and zero fuel weights. Return all cargo and support equipment to the main operating base (MOB) of assignment via organic support aircraft or other airlift means.

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

4.5.1. Standard climb-out flight path charts in T.O. 1C-10(K)A-1-1 do not account for a gear-down configuration. Therefore, PICs shall not takeoff until there is reasonable assurance that they will achieve/maintain adequate obstacle clearance (to include en route stops and alternates). **(T-3)**

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

4.6. Fuel System Limitations. Normal fuel flow is tank-to-engine. Since main fuel tanks are an integral part of the wings, do not fly an aircraft with an empty main tank. **(T-3)** There are no flight restrictions with a body tank or tanks empty.

4.6.1. Minimum required ramp fuel load (RRFL) for the KC-10 is 50,000 lbs. Starting engines with less than 50,000 lbs of fuel is permissible provided the crew chief or flight engineer validates the fuel levels in the outboard compartments using the dipstick method. After engines are started, the aircraft can be operated safely with fuel quantities below 50,000 lbs.

4.6.2. If fuel quantity gauge indicator errors are noted, the affected fuel quantity gauge will be treated as inoperative. **(T-3)** T.O. 1C-10(K)A-1-2 restrictions apply.

4.7. Passenger Seat Limitations. If a passenger seat is broken (i.e., cannot be locked in the full upright position) do not seat passengers in the broken seat for takeoff/landing. **(T-3)** If a seat back contains a broken tray table that will not stow/lock and cannot be secured by any other means, do not seat passengers directly behind the seat back with the broken tray table for takeoff/landing. **(T-3)** This restriction also applies to adjacent seats where evacuation could be inhibited by the broken tray table. Affected seats may be occupied during flight. Make every reasonable effort to repair the broken seat/tray table before turning away passengers. Coordinate seat release changes to the appropriate C2 agency to avoid over-booking seats.

4.8. Fall Protection. Crew members are prohibited from climbing onto the upper fuselage or wing surfaces unless there is an operational necessity. **(T-3)** When operational conditions dictate that aircrew members must climb onto upper fuselage or wing surfaces, they will do so only when conditions are dry and while wearing a maintenance safety harness and properly attached lanyard. **(T-3) Exception:** Aircraft that do not have the ability to anchor the maintenance safety harness and lanyard are exempt from the harness requirement until a suitable alternative is available. ACs will ensure no other personnel have access to or be allowed to climb onto the fuselage or wings. **(T-3) Exception:** Qualified operations/maintenance personnel performing approved duties.

4.9. Slat Profile Flights. Crews will use the following parameters/guide to perform slat profile flights: **(T-3)**

4.9.1. Limit fuel load to approximately 150,000 lbs of fuel for takeoff.

4.9.2. No cargo.

4.9.3. Extend slats to takeoff position.

4.9.4. Approximately 12,000 feet pressure altitude.

Chapter 5

OPERATIONAL PROCEDURES

5.1. Checklists. KC-10 checklists are designed as cleanup 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.

5.1.1. Checklist inserts. MAJCOM Stan/Eval and the Air Force Material Command (AFMC) flight manual manager are the checklist insert approval authorities. Send checklist inserts to MAJCOM Stan/Eval, who will in turn coordinate with AFMC for approval. All checklist inserts must have a point of contact (POC). **(T-2)** OGVs shall approve local in-flight guides and inserts not affecting T.O. guidance and procedures. **(T-3)** Inserts may be placed at the end of the appropriate checklist, in an in-flight guide, or electronically.

5.1.2. Currency of notes and checklist inserts are a crewmember's responsibility.

5.2. Duty Station. Both pilots and the flight engineer shall be in their respective seats during flight. **(T-0)** One of them may be out of their seat for brief periods to meet physiological needs. With both pilots in their seats, PICs may authorize rest periods for one pilot occupying a primary duty station during non-critical phases of flight. **Note:** The other pilot will be awake and alert. **(T-2)** The boom operator's forward seat is the boom operator's primary duty station. When not performing other crew duties, the boom operator shall occupy the boom operator's forward seat except for brief periods to meet physiological needs. **(T-3)** Only instructor and evaluator pilots and/or flight engineer may displace the boom operator and occupy the boom operator's forward seat while actively instructing or evaluating. **(T-3)** Instructors or evaluators occupying the boom operator's forward seat are responsible for accomplishing duties associated with that position IAW T.O. 1C-10(K)A-1, *Flight Manual*.

5.3. Flight Station Entry. PICs may authorize passengers and observers access to the flight station during all phases of flight; the total number of persons permitted is limited to the number of seats with operable seat belts and oxygen. Passengers and observers are not permitted access to either pilot or flight engineer positions.

5.4. Takeoff and Landing Policy. An AC, or above, will occupy either the left or the right seat during all takeoffs and landings. **(T-2)** The designated PIC (i.e., A-code) is not required to occupy a primary position, but still retains overall authority for conduct of the mission.

5.4.1. An AC or IP will make all landings during emergencies unless conditions prevent compliance. **(T-3)**

5.4.2. Unless the other pilot in the seat is a certified AC or higher, a PIC with less than 100 primary assigned aircraft hours since AC certification will make all takeoffs and landings under any of the following conditions: **(T-3)**

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

5.4.2.2. Runway condition reading (RCR), or equivalent, is less than that of a wet runway.

5.4.2.3. Crosswind component greater than 15 knots.

5.5. Landing Gear and Flap Operating Policy. The pilot flying (PF) will command configuration changes. **(T-3)** The pilot monitoring (PM) will verify appropriate airspeed and configuration prior to echoing the gear or flap actuation command. **(T-3)**

5.6. Observer/Jump Seat Duties. Crewmembers occupying the jump seat will assist in clearing during taxi operations, receiver, and any time the aircraft is below 10,000 feet mean sea level (MSL). **(T-3)** ACs requesting the assistance of a crewmember to monitor the taxi from a forward (i.e., 1 L/R) or mid-cabin (i.e., 2 L/R) door should not commence taxi until communications are established and cleared to taxi by the observer. If communication extension cord or headsets are inoperative, utilize an extra crewmember to relay distance calls to the PIC. Prior to opening the door, ensure surrounding area is clear of potential foreign object debris and only open the door as much as required to safely monitor taxi. **(T-3)** Taxi observer will not stand or kneel directly in front of door opening. **(T-3)** The observer will wear proper hearing protection and the PIC will ensure that the observer is secure inside the aircraft prior to the turn. **(T-3)**

5.7. Seat Belts.

5.7.1. All occupants will have a designated seat with a seat belt. **(T-3)** Crewmembers will have seat belts fastened when occupying a duty position unless crew duties dictate otherwise. **(T-3)**

5.7.2. Fasten shoulder harness for critical phases of flight. **(T-3) Exception:** Tanker AAR and formation above 10,000 feet. Crewmembers performing instructor or flight examiner duties are exempt from seat belt requirements if not occupying a primary crew position. However, they will have a seat available with an operable seat belt. **(T-3)** Shoulder harnesses are optional for flight engineers during all phases of flight.

5.7.3. Litter patients, actual or simulated, must remain secured on litters for takeoff and landing. **(T-3)**

5.7.4. Except where exempt above, all personnel will be seated with their seat belt fastened when the FASTEN SEAT BELT advisory sign is illuminated. **(T-3)**

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

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

5.9.1. The only electrical outlets authorized for personal use are the outlets located in the aircraft lavatories. They are intended for electrical shavers or other small personal electronic devices, to include EFBs and EFB peripheral devices. Approved vacuum cleaners are authorized for ground use. **(T-3)** KC-10 missions are authorized one laptop computer plugged into each aircraft power outlet for charging at any given time. **(T-3)** Power strips are not authorized. **(T-3)** Aircraft USB ports are for charging approved mission related devices only, such as EFBs and Global Positioning System (GPS) receivers. **(T-3)**

5.9.2. Only use KC-10 system program office (SPO) approved handheld GPS units.

5.10. Communication Equipment. Crews will ensure that the headset communications cord is connected through the oxygen mask communications cord during operations in all primary crew positions including the air refueling operator (ARO) compartment. Plugging the headset communications cord directly into the aircraft communications panel is not permitted. **(T-3)**

5.11. Crew Resource Management (CRM)/Threat and Error Management (TEM). CRM Enhancement. PICs will conduct a CRM/TEM exercise on the first suitable segment of each mission. **(T-3)** This will be done at level-off on a non-interference basis with other mission requirements. Take the exercise to a logical conclusion and ensure crew communications and duties are appropriate. Suggested topics are rapid decompression, oceanic contingency operation, emergency divert or other MAJCOM or locally generated special interest item.

5.12. Use of Automation.

5.12.1. Both pilots are responsible for ensuring the aircraft is following the desired flight path. At least one pilot should maintain visual outside awareness, consistent with flight conditions.

5.12.1.1. With the autopilot engaged, the PF should make flight guidance system (FGS) inputs. While the autopilot is not engaged, the PF should direct the PM to make FGS inputs.

5.12.1.2. Manual flying. Sound pilot judgment as to the use of manual flying is paramount. Manual flying, for the primary purpose of maintaining proficiency, is highly encourage in the training environment.

5.12.1.3. Pilot flying (PF)/pilot monitoring (PM) duties. The PF will announce changes to the level of automation, flight director and autopilot mode selections, and mode transitions to the maximum extent possible (e.g., "Autopilot engaged", "Altitude Hold", "Autothrottles", "Nav-Capture", etc.). The PM will acknowledge the call. **(T-3)**

5.13. Runway, Taxiway, and Airfield Requirements.

5.13.1. Minimum runway and taxiway requirements. Minimum runway length is 7,000 feet. **(T-2)** Minimum runway width is 147 feet. **(T-2)** Minimum taxiway width is 75 feet. **(T-2)**

5.13.2. Runway length for takeoff and landing. Do not takeoff if computed critical field length exceeds runway available, or if takeoff gross weight exceeds maximum allowable weight. **(T-3)** Minimum runway for a normal landing is landing distance based on a threshold crossing height of 50 feet.

5.13.2.1. Runway length for takeoff and intersection takeoffs. Normally, the PF will initiate takeoffs from the beginning of the approved usable portion of the runway. The decision to make intersection takeoffs rests solely with the PIC.

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

5.13.2.3. During operations on runways partially covered with snow or ice, base takeoff computations on the reported runway surface condition or RCR for the cleared portion of the runway. A minimum of 50 feet on both sides of centerline should be cleared. If not cleared, compute takeoff data based on the uncleared portion up to 50 feet either side of centerline.

5.13.2.4. Use of displaced thresholds (DTs). If approach end DTs are available and stressed or authorized for normal operations, they may be used to increase the runway available for takeoff. Departure end DT, if stressed and authorized, may also be used for landing if needed.

5.13.3. Arresting cables.

5.13.3.1. Do not land on (i.e., touchdown on) approach end arresting cables. **Note:** This does not include recessed cables. If the aircraft lands before the cable, the crew should contact the tower to have the cable inspected.

5.13.3.2. Do not takeoff or land over an approach end cable that has been reported as slack, loose, or improperly rigged by NOTAM, Automated Terminal Information Service, or ATC.

5.13.4. Other airfield requirements.

5.13.4.1. Consult with AMC Airfield Suitability Branch (AMC/A3AS) for suitability guidance. Airfield certification requirements are detailed in the Airfield Suitability and Restrictions Report (ASRR).

5.13.4.2. Aircrews and planning agencies will contact AMC/A3AS for all questions pertaining to airfield weight bearing capacity and will review the Global Decision Support System (GDSS)/ASRR before all off-station operations. **(T-3)** AMC Directorate of Operations, Strategic Deterrence, and Nuclear Integration (AMC/A3/10) is the waiver authority for the restrictions in GDSS Giant Report and ASRR for AMC and AMC-gained aircraft, unless specifically delegated in AFMAN 11-2MDSV3 or Air Mobility Instruction (AMCI) 11-208, *Mobility Air Forces Management*. Direct GDSS Giant Report and ASRR waiver requests to AMC/A3AS. AMC/A3V is the OPR for waivers to airfield restrictions. MAJCOM/A3 is the waiver authority for non-AMC missions. The PIC is responsible for waiver compliance. **(T-2)**

5.13.5. RCR limitations. When no RCR is available, the PIC will refer to the flight manual for standard International Civil Aviation Organization (ICAO) conversions based on general runway condition, or runway condition codes; be conservative when dealing with unknown conditions (e.g., forward operating bases). **(T-3)** Normally, RCR values are not reported for taxiways and ramps. During periods of reported low RCR, the taxiways and ramps may have an even lower RCR than reported for the runway. The runway surface should be considered wet when water on the runway causes a reflective glare.

5.14. Aircraft Taxi and Taxi Obstruction Clearance Criteria and Foreign Object Damage Avoidance.

5.14.1. Minimize power settings during all taxi operations.

5.14.1.1. Where possible, avoid 180° turns. If it becomes necessary to accomplish a 180° turn on a narrow runway, the turn should be accomplished at an intersection of a link taxiway or at a designated turn around pad.

5.14.1.2. Where possible, avoid taxi operations that position an engine over an unprepared or un-swept surface. If unavoidable, leave the engine in idle, to the maximum extent possible, until the engine is over an improved surface.

5.15. Aircraft Speed. IAW AFMAN 11-202V3 and applicable tech orders, aircraft may exceed 250 knots of indicated air speed (KIAS) or in-flight minimum maneuver speed below 10,000 feet to safely accomplish formation departure rejoins. Once rejoined, all formation members may exceed 250 KIAS below 10,000 feet only to accommodate the minimum maneuver speed of the heaviest formation member.

5.16. Functional Check Flights (FCFs), Acceptance Check Flights (ACFs) and Operational Check Flights (OCFs).

5.16.1. FCF Restrictions. See T.O. 1-1-300, *Maintenance Operational Checks and Check Flights,* and DAFI 21-101, *Aircraft and Equipment Maintenance Management*.

5.16.2. The OG/CC is responsible for the wing's FCF program. Publish any additional guidance in a local supplement to this manual.

5.17. Participation in Aerial Events. See DAFI 11-209, *Participation in Aerial Events*, AFMAN 11-246, Volume 6, *Aircraft Demonstrations (C-17, C-130, KC/NKC-135)*, and appropriate MAJCOM supplements/Aerial Demo Concept of Operations (CONOPs).

5.18. Terminal Area Navigation (RNAV) Procedures.

5.18.1. Properly trained KC-10 aircrews are authorized to perform instrument flight rules (IFR) RNAV operations to include instrument departures, arrivals, and approaches using only lateral navigation (LNAV) minima.

5.18.2. For departure and arrival procedures based on traditional ground-based navigational aids (NAVAIDs) in the National Airspace System and constructed by a US government Terminal Instrument Procedures (TERPS) authority (USAF/Federal Aviation Administration (FAA)/USN), Flight Management System (FMS) NAV mode may be used as the sole source for navigation with the following restrictions:

5.18.2.1. All terminal RNAV procedures must be retrieved from the navigation database. **(T-0)**

5.18.2.2. RNAV procedures will not be flown with an expired database. **(T-2)**

Chapter 6

AIRCREW PROCEDURES

6.1. Aircrew Uniform. Aircrew will wear the aircrew uniform, as outlined in DAFI 36-2903, *Dress and Personal Appearance of United States Air Force and United States Space Force Personnel*, and the appropriate MAJCOM supplement, on all missions, unless otherwise authorized. **(T-2)** When the FCG requires civilian attire, dress conservatively.

6.1.1. See technical order T.O. 14-1-1, *U.S. Air Force Aircrew Flight Equipment Clothing and Equipment*, for authorized aircrew clothing and aircrew flight equipment combinations as well as AFMAN 11-202V3 and DAFI 36-2903, *Dress and Personal Appearance of United States Air Force and United States Space Force Personnel*.

6.1.2. Personnel will have the appropriate items of clothing in their possession when flying in Arctic and Antarctic regions. **(T-2) Exception:** Not applicable to transoceanic flights or when staging or transiting Elmendorf AFB AK.

6.1.3. Boom operators will wear gloves during cargo loading operations. **(T-3)**

6.2. Required Publications and Airfield Review.

6.2.1. **Table 6.1** Lists minimum publications requirements for each flight, either paper or digital. Units may specify additional publications in their local unit supplement. All crewmembers will carry an EFB with current publications. **(T-2) Exception:** An EFB failure is any malfunction that prevents the user from accessing the publications specified in **Table 6.1** If a failure occurs prior to departure, attempt to resolve the malfunction prior to launch. Do not delay departure for failure(s) if sufficient EFBs are available to safely accomplish the mission. PICs may commandeer and redistribute their crew's EFBs as required for mission accomplishment. PICs will not launch with less than three EFBs capable of accessing the publications listed in **Table 6.1**. **(T-2)**

Table 6.1. Required Aircrew Publications.

PUBLICATION
T.O. 1C-10(K)A-1, *Flight Manual*
T.O. 1C-10(K)A-1-1, *Flight Manual Performance Data*
T.O. 1C-10(K)A-1-2, *Minimum Equipment List and Procedures*
T.O. 1C-10(K)A-1CL-1, *Pilot's and Flight Engineer's Emergency and Abnormal Procedures*
T.O. 1C-10(K)A-1CL-2, *Pilot's and Flight Engineer's Normal Procedures*
T.O. 1C-10(K)A-1CL-3, *Boom Operator's Normal Emergency and Abnormal Procedures*
T.O. 1C-10(K)A-1CL-3-1, *Boom Operator's Normal Procedures*
T.O. 1C-10(K)A-1CL-5, *Air Refueling Procedures*
T.O. 1C-10(K)A-1CL-5-1, *Boom Operator's Air Refueling Procedures*

T.O. 1C-10(K)A-9, *Cargo Loading*
T.O. 1C-10(K)A-9CL-1, *Boom Operator's Loading/Offloading Procedures*
AFMAN 11-2KC-10V3, *KC-10 Operations Procedures*
AFMAN 11-202V3, *Flight Operations,* and applicable MAJCOM supplements
NATO Standard ATP-3.3.4.2, *Air-To-Air Refueling, Edition D, Version 1* (Air Refueling Missions only)
AMC Aircrew Checklist Inserts

6.2.2. Airfield review. Aircrews will consult the web-based airfield database maintained by AMC Airfield Suitability Branch (AMC/A3AS) and comply with the GDSS/ASRR for updates to airfield operability and weight bearing capability. Refer to AFMAN 11-202V3 and ASRR for non-DoD published approach criteria. **(T-3)**

6.2.3. Crews will use the performance manual to verify weight bearing capacity in the AMC Giant Report for runways, taxiways, and aprons. Use manually calculated limits when discrepancies exist. **(T-3)** Discrepancies between manually calculated limits and those on the AMC Giant Report should be reported to AMC/A3AS.

6.3. Global Decision Support System Account. Pilots will obtain a GDSS account prior to operating on integrated flight management-planned sorties. **(T-3)** Download aircrew departure papers using the GDSS account at locations without an AMC C2 presence.

6.4. Mission Kits. Carry mission kits on all operational missions. **(T-3)** Publications and forms may be maintained and carried electronically provided operable in-flight viewing capability exists and or printing capability if required. Suggested items include: **Note:** * Indicates mandatory for all 618th Air Operation Center (618 AOC) or AMC missions away from home station and as directed by C2 authority.

6.4.1. Publications:

6.4.1.1. *DAFMAN 11-401, *Aviation Management*.

6.4.1.2. *DLA Energy P-8, *Fuel Card Program*.

6.4.1.3. *AFMAN 24-604, *Preparing Hazardous Materials for Military Air Shipments*.

6.4.1.4. *AMCI 11-208, *Mobility Air Forces Management*.

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

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

6.4.1.7. *AFI 24-605V2, *Air Transportation Operations*.

6.4.1.8. *AMCI 90-903, *Aviation Operational Risk Management (AVORM) Program.*

6.4.1.9. *AFMAN 11-290, *Cockpit/Crew Resource Management and Threat & Error Management Program.*

6.4.2. Forms:

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

6.4.2.2. *AF IMT 4130, *KC-10 Restraint Computation Worksheet*.

6.4.2.3. *CBP Form 6059B, *US Customs and Border Protection Declaration Form*.

6.4.2.4. **AMC Operational Risk Management Worksheet.*

6.4.2.5. *DD2131, *Passenger Manifest*.

6.4.2.6. *CBP Form 7507, *General Declaration (Outward/Inward)*.

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

6.4.2.8. *AF IMT 651, *Hazardous Air Traffic Report (HATR).*

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

6.4.2.10. *AF IMT 1297, *Temporary Issue Receipt*.

6.4.2.11. *DD Form 791, *In-Flight Issue Log*.

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

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

6.4.2.14. *KC-10 *Fuel Planning Worksheet* (*FPW*).

6.4.2.15. AF IMT 711B, *USAF Mishap Report*.

6.4.2.16. *AMC Form 4031, *CRM/TEM Skills Criteria Training/Evaluation*.

6.4.2.17. *AF IMT 4075, *Aircraft Load Data Worksheet.*

6.4.2.18. Japanese Customs Service Forms.

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

6.4.2.20. *SF44, *Purchase Order-Invoice-Voucher*.

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

6.4.2.22. *AF IMT 4080, *Load/Sequence Breakdown Worksheet*.

6.4.2.23. *AF Form 4087, *KC-10 CG Graph*.

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

6.4.2.25. *AF IMT 4089, *KC-10 TOLD Card Worksheet*.

6.4.3. Orders:

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

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

6.4.3.3. *AF IMT 4327a, *Crew Flight (FA) Authorization* (or MAJCOM prescribed according to DAFMAN 11-401, *Aviation Management*).

6.4.4. Miscellaneous:

6.4.4.1. *Box car seals.

6.4.4.2. *Masking tape.

6.5. Departure Planning. For departure planning see AFMAN 11-202V3 and AMCSUP.

6.6. Standard Departure Procedures (SDPs). SDPs, when available, will be used to the maximum extent possible. **(T-3)** Vertically clear all obstacles, using a visual flight rules (VFR) departure as described in AFMAN 11-202V3. When departing locations where neither an SDP nor a minimum climb restriction exists (i.e., VFR departure), and when operational requirements dictate, crews may use obstacle height and distance to obstacle and/or screen height to determine the minimum gross climb gradient (GCG), IAW T.O. 1C-10(K)A-1-1. The PIC must provide all significant obstacle height/distance and screen height information to the flight engineer. **(T-3)** A significant obstacle is defined as any obstacle along the planned departure route which penetrates the 2.5 GCG on the performance manual climbout flight path charts. In the absence of significant obstacles or screen heights, compute takeoff and landing data (TOLD) using a minimum 2.5 GCG IAW T.O. 1C-10(K)A-1-1. **Warning:** 2.5 GCG does not equate to a 2.5% climb gradient. Because KC-10 climbout is not linear, obstacles which fall below the 40:1 obstacle identification surface (OIS) may penetrate the 2.5 GCG line and are therefore limiting for engine out takeoff planning. Detailed information about obstacles below the OIS is not published and is generally not available. When using this procedure, the PIC must thoroughly review all available resources to include properly updated terrain charts (i.e., tactical pilotage chart, sectional, joint operations graphics), FLIP, base operations, local TERPS specialist for USAF base, or other TERPS authorities (i.e., Naval Flight Information Group (NAVFIG) in Washington, D.C., DSN 288-3486, commercial (202) 433-3486; Army's TERPS office, DSN 656-4410, commercial (703) 806-4410; FAA office in Oklahoma City, OK, commercial (405) 954-4787.). **(T-2) Note:** Use of the provisions of this paragraph requires prior approval from OG/CC, or deployed equivalent.

6.7. Turbulence Category. The KC-10 is a category III aircraft for turbulence per Air Force Handbook (AFH) 11-203, Volume 2, *Weather for Aircrews – Products and Services*. Crews should confirm the type of aircraft the forecast turbulence applies to, or what type of aircraft reported the encounter, to gain a more accurate picture for their route of flight.

6.8. Hazard Identification and Mitigation. After the entire crew is assembled at the aircraft, the PIC will brief primary mission hazards facing the crew during takeoff and climb-out. **(T-3)**

6.9. Oxygen. 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 (i.e., 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 to recovery. Calculate using the 100 percent oxygen chart in the flight manual. **(T-2)** When the crew bunks are occupied in flight, crewmembers will have a portable oxygen walk-around bottle with quick-don mask, or Emergency Passenger Oxygen System (EPOS) readily available for use in the event of an emergency. **(T-2) Exception:** EPOS may be used as the primary oxygen source when using the Joint Task Force/C2 module, senior leader in-transit pallet, senior leader in-transit conference capsule, or detainee movement configuration.

6.10. Fleet Service. The crew bunks will not be used to store bags of pillows and blankets when the aircraft is in a delta configuration. **(T-3)**

6.11. Instrument Approach Procedures.

6.11.1. Aircraft category. The KC-10 is a category "D" aircraft. Category E criteria will be used when true airspeed is 166 knots or greater. **(T-0)**

6.11.2. Prior to starting an instrument approach, pilots will confirm their aircraft can comply with the missed approach climb gradient requirements established in AFMAN 11-202V3. **(T-0)**

6.11.3. Category I instrument landing system (ILS) procedures. Decision altitude for CAT I ILS will be as published, but no lower than 200 feet decision altitude (DA). **(T-0)**

6.11.4. Non-Directional Beacon (NDB) procedures. Aircrew will back up each NDB approach with available NAVAIDs/GPS to include loading the NDB coordinates in the FMS. **(T-2)**

6.11.5. RNAV procedures. RNAV approach (APCH) will be flown only to LNAV minima. **(T-2)**

6.11.5.1. Due to changing naming conventions, use the following approach listings as a guide:

6.11.5.1.1. RNAV (GNSS) RWY 23 (ICAO legacy) - Authorized for use, using LNAV.

6.11.5.1.2. RNAV (GPS) RWY 23 (FAA) - Authorized for use, using LNAV.

6.11.5.1.3. Required Navigation Performance (RNP) RWY 23 (ICAO New) - Authorized for use, using LNAV.

6.11.5.1.4. RNAV (RNP) RWY 23 - NOT AUTHORIZED.

6.11.5.1.5. RNP RWY 23 (AR) - NOT AUTHORIZED.

6.11.5.2. RNP AR APCH procedures are not authorized. **(T-1)** The term RNP AR APCH includes “RNP AR RWY 23” (ICAO) and “RNAV (RNP) RWY 23” (FAA) approaches.

6.11.5.3. Per T.O. 1C-10(K)A-1, the KC-10 FMS supports the advanced RNP function of Radius-to-Fix (RF) legs, however these procedures are not available in the FMS database as they are not supported by Digital Aeronautical Flight Information File (DAFIF). This capability is anticipated for a future version of DAFIF, however KC-10 pilots will require training in RF leg procedures prior to flying them. **(T-2)**

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

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

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

6.11.7. Continuous descent final approach (CDFA):

6.11.7.1. KC-10 pilots should use the CDFA technique when practicable using guidance from AFMAN 11-202V3. Compute the derived decision altitude (DDA) by adding a minimum of 50 feet to the published minimum descent altitude (MDA).

6.11.7.2. When flying the CDFA technique with a DDA, the following avionics setup is recommended:

6.11.7.2.1. Missed approach altitude set in the altitude preselect readout after beginning descent. If the pilot elects to set stepdown altitudes and/or MDA in the altitude preselect readout, "Arming" is not recommended to prevent premature autopilot level off.

6.11.7.2.2. DDA should be set on altitude reference bug of the barometric altimeter.

6.11.7.2.3. Height above touchdown (HAT) + DDA additive should be set in the radio altimeter.

6.11.7.3. Any delay in initiating the missed approach at the DDA may result in unacceptable descent below MDA.

6.11.7.4. Per T.O. 1C-10(K)A-1 two engine missed approaches are flown autopilot off. Individual pilot technique varies. The speed with which the pilot disconnects the autopilot and begins the missed approach maneuver may necessitate a higher DDA or disconnecting the autopilot prior to the DDA.

6.12. Passenger Restrictions.

6.12.1. The cargo compartment will not be used to airlift personnel, except by specific approval of AMC/A3/10. **(T-2)**

6.12.2. Personnel limitations. **Table 6.2** reflects the flying hours that a number of total personnel (i.e., 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. **(T-2)**

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:

The lavatories should be properly serviced and operational at the station requiring airlift of these maximum figures.

Crew members must be included in total personnel given to arrive at the maximum load. Small children (e.g., up to 7 years old) should not be considered when computing load figures.

* - On aircraft in the expanded Code D and Code J configuration and is installed on the left side of the cabin just forward of the cargo door.

6.13. Cockpit Congestion and Loose Objects. No items (e.g., checklists, charts, etc.) will be on the throttle quadrant during critical phases of flight. **(T-3)**

6.14. 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. **(T-3)** The ladder's use is normally restricted to flight crew members and maintenance personnel only. On rare instances passengers may be loaded/unloaded at the discretion of the PIC.

6.15. Engine Runs. KC-10 crews may assist with engine runs and engine motoring when qualified maintenance personnel are not readily available and/or when mission requirements or operational necessity dictates. OG/CC and maintenance group commander (MXG/CC) or designated representative approval is required. Notification and coordination with the appropriate mission execution authority is highly recommended. **Note:** Engine runs will at no time interfere with accomplishment of primary crew duties, crew rest requirements, CDT/FDP limitations or ground/flight safety. **(T-3)** Scheduling restrictions and crew rest requirements will be observed. **(T-3)** In addition, the following procedures apply:

6.15.1. Special consideration should be accorded throttle settings above idle, as injury to personnel or damage to equipment could occur if in the engine inlet or blast pattern areas. See T.O. 1C-10(K)A-1 Section I for engine danger areas.

6.15.2. Ensure engine runs must be accomplished only in designated areas suitable for typical KC-10 engine blast, which can dislodge thin asphalt/ramp surfaces and cause damage to aircraft, equipment, building structures or personnel. **(T-3)**

6.15.3. Crewmembers will only occupy the flight station positions in which they are qualified. A full crew in-place is recommended. **(T-3)**

6.15.4. The aircrew or engine run qualified maintenance personnel will be in communication with ground personnel during engine run operations. **(T-3)**

6.15.5. KC-10 crewmembers and maintenance personnel will comply with engine run procedures in job guide T.O. 1C-10(K)A-2-71CL-1, *Power Plant Ground Operations*. **(T-2)** **Note:** For the purposes of this job guide, KC-10 crewmembers are considered "run qualified". Additionally, KC-10 crewmembers will comply with the applicable checklist steps in T.O. 1C-10(K)A-1 Section IV, Normal Procedures, prior to and after engine start, and/or engine motoring. **(T-2)**

6.15.6. Observe all starter duty and engine operating limits in T.O. 1C-10(K)A-1 Section III. **(T-2)**

6.15.7. Operate engine at ground idle for 5 minutes before advancing throttle to higher thrust levels. **(T-2)**

6.15.8. Verify main gear wheels are chocked, and parking brake is set and monitored prior to and during ground engine run operations. **(T-2)**

Chapter 7

AIRCRAFT SECURITY

7.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (i.e., hijacking) of the KC-10 aircraft. AFI 13-207-O, *Preventing and Resisting Aircraft Piracy (Hijacking)* (FOUO), DAFI 31-101, *Integrated Defense (ID)*, 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. **(T-2)**

7.2. Security. The KC-10 is a "Protection Level 3" resource. Aircraft security at non-United States military installations is the responsibility of the controlling agency.

7.3. Air Force Installation Security Program. The following security procedures implement DAFI 31-101 requirements for KC-10 aircraft:

7.3.1. The aircraft will be parked in an established restricted area and afforded protection IAW DAFI 31-101.

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. Portable security lighting will be provided during the hours of darkness if sufficient permanent lighting is not available. Post security forces IAW DAFI 31-101.

7.3.3. Inadequate security. See AFMAN 11-202V3_AMCSUP, Chapter 23, Aircraft Security for PIC authority and responsibilities.

7.3.4. The security force must be made aware of all visits to the aircraft. The security force POC must be identified to the PIC. **(T-3)**

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

7.3.6. Locking and sealing. Lock or seal the aircraft during a "remain overnight" on non-secure ramps.

Chapter 8

OPERATIONAL REPORTS AND FORMS

8.1. Boom Operator Aviation Fuel Documentation Requirements.

8.1.1. Use DD Form 791, *In-Flight Issue Log*, as the document of record for offloaded fuel. **(T-3)** Accurate entries are required to ensure proper reimbursement for fuel transferred by the tanker unit. boom operators obtain receiver information from the flying schedule prior to flight, verbally/visually during flight, or by any means following the flight. **(T-3)** All pertinent information, to include receiver aircraft MDS, unit of assignment, and home station will be collected prior to submitting a DD Form 791. **(T-3)** The Reliability and Maintainability Information System (REMIS) table of US aircraft and FMS aircraft will be used to source the required information. **(T-3)** File the DD Form 791 with post mission documentation. **Note:** Boom operators may submit an incomplete DD Form 791 only after exhausting all means to obtain the required data. In those cases, boom operators must include a brief explanation as to why the data is missing. **(T-3)** Unit commanders will develop a local procedure to collect required information prior to the form's final processing. **(T-3)**

8.1.2. Prior to end of AAR, get receiver aircraft's tail number via inter-plane radio, boom interphone, or visually if open communication would compromise the mission during clandestine or covert operations or threaten safety of flight. When refueling the same receiver multiple times on a single mission, enter a separate line on the DD Form 791 for each AAR. **Note:** EMCON 2 or 3 training does not disqualify inter-plane radio to obtain or verify AAR data. DO NOT use inter-plane radios during actual EMCON 2, 3, or 4 to obtain or verify AAR data unless specifically authorized by the mission directive. Consider HAVE QUICK II, secure voice, data link, or other secure means if visual conditions make the tail number too difficult to read.

8.1.3. Do not use "known/suspected" aircraft serial number that belongs to unit being fueled, but not necessarily the actual aircraft getting fuel. Auditors compare receiver unit aircraft serial numbers with fuel load reports at home station. If "known/suspected" aircraft tail number billed is incorrect (i.e., down for maintenance/unable to fly), the auditor will reject the fuel bill and the tanker unit is liable for the cost of the fuel transferred. **(T-2)**

8.1.4. Comply with locally established procedures to complete DD Form 791 for classified in-flight refueling.

8.2. Flight Engineers. Flight engineers will accurately record fueling actions on the AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance, KC-10 Fuel Planning Worksheet*, and AF IMT 664, *Aircraft Fuels Documentation Log*. When available, record tanker/receiver refueling information (i.e., tail number, unit of assignment, and home station). **(T-2)**

8.3. KC-10 Fuel Planning Worksheet (FPW). The KC-10 FPW is a tool to record pertinent facts during mission planning, preflight, in-flight, and post-flight operations. Submit this form with post mission paperwork.

8.4. Operation Forms for Boom Operators. Detailed instructions for the preparation, distribution, and use of the following forms may be found in the governing directive.

8.4.1. DD Form 2131, *Passenger Manifest* (AFI 24-605V2).

8.4.2. DD Form 1385, *Cargo Manifest* (DoD 4500.9R (DTR Part II)).

8.4.3. DD Form 1907, *Signature and Tally Record* (DoD 4500.9R (DTR Part II)).

8.4.4. CBP 6059B, *US Customs and Border Protection Declaration Form* (DOD 4500.9-R (DTR Part V)).

8.4.5. CBP Form 7507, *General Declaration (Outbound/ Inward).*

8.4.6. AF Form 4075, *Aircraft Load Data Worksheet.*

8.4.7. AMC Form 148, *Boarding Pass/Ticket/Receipt.*

Chapter 9

TRAINING AND OPERATING LIMITATIONS

9.1. Passengers on Training Missions.

9.1.1. Initial qualification or re-qualification for pilots will not be conducted with passengers onboard **Exception:** N/A with MEP. **(T-2)**

9.1.2. Mission certification training, evaluations, off station trainers, and Joint Airborne/Air Transportability Trainings (JA/ATT) may carry passengers only if the aircrew in training is qualified. Tanker and receiver AAR is authorized if the PF is qualified (i.e., AF Form 8 on file documenting successful completion of an aircraft checkride including AAR).

9.1.3. Touch-and-go landings and multiple practice approaches are prohibited with passengers onboard. **(T-3) Exception:** N/A with MEP

9.1.4. When approved by the MAJCOM, maintenance and civilian employees, under direct contract to the DoD and engaged in official direct mission support activities, considered "mission essential" may be onboard when touch-and-go or stop and-go landings are performed providing the mission is a designated training flight and a touch and go qualified AC, IP or evaluator pilot (EP) is in command. This includes aircrew training system contractor instructors flying in an official capacity under the requirements of the current aircrew training system contract.

9.2. Touch-and-Go Landing Limitations.

9.2.1. Touch-and-go landings will only be accomplished under the direct supervision of an IP/EP or SQ/CC certified AC. **(T-2)** Refer to AFMAN 11-2KC-10V1 for certification requirements.

9.2.2. Limitations.

9.2.2.1. Comply with all flight manual restrictions and procedures.

9.2.2.2. Minimum runway length: 7000 ft with an IP, 10,000 ft for touch-and-go certified ACs. **(T-2)** Minimum runway width: 147 ft. **(T-2)**

9.2.2.3. Minimum ceiling/visibility: 300 ft and RVR 40 (3/4 SM visibility) with an IP, 600 ft ceiling and 2 miles visibility for touch-and-go certified ACs. **(T-2)**

9.2.2.4. RCR shall be 8 or higher. **(T-2)**

9.2.2.5. Do not accomplish touch-and-go landings on slush covered runways. **(T-2)**

9.2.2.6. Maximum crosswind component: 20 knots with an IP, 15 knots for ACs. **(T-2)**

9.2.2.7. Cargo will not be carried during touch-and-go operations/multiple practice approaches. **(T-2) Note:** Static display box, tow bar, tie-down equipment box, engine covers, crew baggage, and empty pallet sub-flooring are not considered cargo.

9.2.2.8. The center gear will be extended for touch-and-go landings. **(T-2)**

9.2.2.9. A minimum of 9-wheel brakes must be operational. **(T-2)** Anti-skid on all operational wheel brakes must be functioning normally. **(T-2)**

9.2.3. Supervision of touch-and-go landings. Review the following:

9.2.3.1. Flight manual procedures.

9.2.3.2. Importance of smooth application of power to the touch-and-go N1 setting while maintaining symmetric thrust as the throttles are advanced.

9.2.3.3. Engine failure, including recognition and corrective action.

9.2.3.4. Proper use of spoilers, flaps, and trim.

9.3. Training on Operational Missions.

9.3.1. Crews may perform multiple approaches and touch-and-go landings on operational airlift (i.e., Transportation Working Capital Fund (TWCF)) and 618 AOC directed missions provided the following requirements are met:

9.3.1.1. Normal touch-and-go limitations apply, and MEPs are briefed of the activity.

9.3.1.2. All transition training will be accomplished during the first 12 hours of the FDP. **(T-2)**

9.3.1.3. Pre-mission coordination requirements. Activity shall be approved by TWCF/618 AOC tasking authority and unit training is charged to unit. As part of pre-mission planning, ACs 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, ACs will coordinate with and receive approval from unit OG/CC and the airfield(s) where training is to be accomplished. They will then coordinate with the 618 AOC 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 618 AOC to re-cut the mission and add the training mission number(s) in GDSS. **(T-2)**

9.3.1.4. Upon initial arrival at the training location, close out the current line on the AFTO Form 781 and log the training time on the next line using the appropriate training mission symbol and number.

9.3.2. Crews may accomplish AAR training on operational missions provided applicable items of **paragraph 9.3.1.3** and the following requirements are met:

9.3.2.1. All mission-required fuel will be on-loaded prior to commencing any training. **(T-2)**

9.3.2.2. Passengers and MEPs are briefed on the activity.

9.4. Simulated Emergency Flight Procedures.

9.4.1. Unless specifically authorized elsewhere in this section, do not practice emergency procedures in-flight that degrade aircraft performance or flight control capabilities. **(T-2)**

9.4.2. In an actual emergency, terminate all training and flight maneuvers practice. Training should be resumed only when the PIC determines it is safe.

9.5. Flight Maneuvers.

9.5.1. Practice of the following maneuvers are prohibited in flight:

9.5.1.1. Stall and approach to stalls including initial buffet. **(T-1)**

9.5.1.2. Dutch roll. **(T-1)**

9.5.1.3. Emergency descent. **(T-1)**

9.5.1.4. Unusual attitudes. **(T-1)**

9.5.1.5. Practice receiver AAR emergency separations at GW 556,000 and above. **(T-1)**

9.5.1.6. Bank angles greater than 30 degrees except practice single-ship retrograde maneuvers and steep turn demonstration. **Note:** Perform according to applicable training regulation. Minimum altitude for bank angles greater than 30 degrees is 10,000 feet above ground level (AGL). **(T-1)**

9.5.1.7. Abnormal configuration approaches. **(T-1)**

9.5.2. The following maneuvers are authorized for qualification and continuation training. They are applicable to all KC-10 aircraft except when prohibited by or restricted by the flight manual or other current directives. The pilot/IP will alert all crew members prior to accomplishing the following: **(T-2)**

9.5.2.1. Landing attitude demonstrations: **Note:** Direct IP supervision required.

9.5.2.2. Steep turns and practice retrograde maneuvers. **Note:** IP supervision is required when performing steep turns and practice retrograde maneuvers in the aircraft. **(T-2)** ACs will ensure the maximum aircraft gross weight is 450,000 pounds. **(T-2)**

9.5.2.3. Slow speed 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. **(T-2)** Intentional flights 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.

9.5.2.4. Air refueling boom envelope limits demonstration: **Note:** Direct IP supervision required.

9.6. Briefing Requirements.

9.6.1. Training/evaluation briefing. Before all training/evaluation missions, instructors/flight examiners will brief the crew on requirements and objectives for each student or examinee. **(T-3)**

9.6.2. 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. **(T-3)**

9.7. Simulated Instrument Flight. Artificial vision restricting devices are not authorized for any phase of flight. Simulated instrument flight may be flown and logged without the use of a vision-restricting device.

9.8. Operating Limitations.

9.8.1. Planned go-arounds and visual low approaches. Initiate a planned go-around or missed approach not later than:

9.8.1.1. Precision approach—Decision height or 200-feet HAT, whichever is higher. **(T-2)**

9.8.1.2. Non-precision approach--missed approach point (MAP). **(T-2)**

9.8.1.3. Visual approach or VFR pattern--100 feet AGL. **(T-2)**

9.8.2. Landings. The following limitations apply to touch-and-go and full-stop landings:

9.8.2.1. Flap setting - Do not practice landings with less than 35 flaps. **(T-2)**

9.8.2.2. Multiple full-stop landings - Compute brake energy prior to each subsequent takeoff. **(T-2)**

Chapter 10

NAVIGATION PROCEDURES

10.1. General. This chapter establishes procedures and requirements for worldwide en route KC-10 navigation. It is to be used in conjunction with procedures and requirements set forth in AFMAN 11-202V3, T.O. 1C-10(K)A-1, T.O. 1C-10(K)A-1-2, and FLIP. Since airspace and associated navigational aid equipment capability are rapidly evolving, pilots should maintain an in-depth knowledge of current requirements/policies.

10.2. Navigation Databases. Separate navigational databases are used for flight planning and in-flight navigation in the KC-10. Navigation databases are updated on a 28-day cycle.

10.2.1. Flight planning navigation database. Flight plans created using AMC approved flight planning software (i.e., Joint Mission Planning System (JMPS) or MAF Advanced Flight Planning Service (MAFPS)) use navigation data from the DAFIF. Pilots are responsible for ensuring the accuracy of flight plan waypoints against current aeronautical charts, terminal instrument procedures, or FLIP documents (i.e., AP/1B). **(T-3)** These flight plans may be saved to a Personal Computer Memory Card International Association (PCMCIA) card and loaded directly into the FMS using the FMS data loader.

10.2.2. Aircraft navigation database. The FMS uses a DAFIF navigation database. The database is stored in FMS memory. When a terminal area procedure (i.e., departure procedure, standard terminal arrival, instrument approach procedure) will be flown using FMS as the sole source of navigation information, the procedure to be flown must be retrieved in its entirety from the aircraft database and the database must be current. **(T-2)**

10.2.2.1. All waypoint data retrieved from the aircraft navigation database and refueling database will be verified. **(T-3)**

10.2.2.2. Variation between charted final approach course in the instrument approach procedure and the final approach course computed by the aircraft should be no more than 5 degrees. If the two differ by more than 5 degrees, the procedure is not authorized.

10.2.2.3. Record and report any errors in aircraft navigation database, to include incorrect presentations on the Multi-Function Displays, to **quality@nga.mil**, the local system support representative, or AMC Directorate of Strategic Plans, Requirements and Programs, Tanker Branch (AMC/A5QT) (**amc.a5.8.a5q-03@us.af.mil**).

10.3. Navigation Capability.

10.3.1. Required navigation performance (RNP) airspace. Airspace where RNP is applied is considered special qualification airspace and can be determined by referencing the applicable theater AP publication. The PIC is responsible for a thorough review of the aircraft forms and maintenance logs to ascertain the status of RNP equipment. During flight, immediately notify ATC if any of the required equipment fails after entry into RNP airspace and coordinate a plan of action. Document in the aircraft forms malfunctions or failures of RNP required equipment, including the failure of this equipment to meet RNP tolerances.

10.3.1.1. RNP-10. Compliance includes navigation accuracy within 10 nautical miles (NM) of actual position 95% of the time. KC-10 aircraft may operate in RNP-10 without time limitations. If the capability to update the internal navigation solution with the GPS is

lost, or if receiver autonomous integrity monitoring (RAIM) is lost, the aircraft is limited to 6.2 hours of planned operation in North Atlantic High Level Airspace, RNP-10 airspace, or 5 hours of planned operation in any other RNP-10 airspace after the GPS or RAIM is degraded.

10.3.1.2. RNP-4. Compliance includes navigation accuracy within 4 NM of actual position 95% of the time. KC-10 aircraft may operate in RNP-4 without time limitations. If the capability to update the internal navigation solution with the GPS is lost, or if RAIM is lost, the aircraft is limited to 2 hours of planned operation in RNP-4 airspace after the GPS or RAIM is degraded.

10.3.1.3. At least two long range navigation systems certified for RNP-10 (or RNP-4) must be operational at the oceanic entry point. **(T-2)** 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. **(T-2)**

10.3.2. Area navigation (RNAV). The KC-10 is approved for RNAV operations. When operating in RNAV airspace, pilots will immediately notify ATC if any of the required equipment fails, or if unable to meet RNAV tolerances. **(T-2)** Document in the aircraft forms malfunctions or failures of RNP required equipment, including the failure of this equipment to meet RNAV tolerances.

10.3.3. Minimum equipment to operate in Basic Area Navigation (BRNAV) airspace is one Inertial Reference System capable of updates with an approved FMS system. If the capability to update the internal navigation solution with the GPS is lost, or if RAIM is lost, the aircraft is limited to 2 hours of planned operation in BRNAV airspace after the GPS or RAIM is degraded. Flights entering BRNAV airspace after long overwater flight must be especially aware of BRNAV tolerances and update accordingly. Refer to FLIP AP/2 for additional requirements.

10.3.4. Precision area navigation (PRNAV). Although the KC-10 is approved for PRNAV operations, there is currently no training program in effect for KC-10 aircrews. KC-10 crews are not approved to file or fly any procedure requiring PRNAV.

10.3.5. RNAV 1/RNAV 2. KC-10 aircraft may operate unrestricted on RNAV 1 and RNAV 2 routings.

10.3.6. The KC-10 is FANS/1A+ certified.

10.3.7. Frequency modulation immunity. The KC-10 is equipped with dual frequency modulation immunity very high frequency (VHF) navigation receivers, is considered fully compliant and follows normal procedures. Refer to the applicable area planning series for more information concerning frequency modulation immunity operations.

Chapter 11

FLIGHT ENGINEER / AIRCREW MAINTENANCE SUPPORT PROCEDURES

11.1. General. This chapter contains flight engineer procedures not contained in the flight manual, other portions of this manual, or other publications.

11.2. Responsibilities. The flight engineer is responsible to the PIC for all inspections and procedures required by the applicable technical orders and regulations.

11.3. Authority to Clear a Red X. See AFMAN 11-202V3_AMCSUP.

11.4. Aircraft Servicing and Ground Operations. The flight engineer 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. The applicable refueling and defueling checklists will be used during all refueling and defueling operations. **(T-2)** If ground support personnel are not available, the AC will designate other crewmembers to assist the flight engineer. **(T-3)** A flight engineer may assist the normal maintenance function when critical taskings dictate their use, provided this action does not impact crew duty and crew rest limits specified in AFMAN 11-202V3.

11.4.1. Fuel servicing operations. Unless servicing JP-4, simultaneous servicing of fuel while loading passengers, cargo, performing maintenance, aircrew members performing inspections, or operating aircraft systems is considered to be a normal fuel servicing operation. **Warning:** Do not load/off-load cargo containing explosives, oxygen, flammable gases or liquids during fuel servicing operations.

11.4.1.1. When aircrew members are required to refuel, the flight engineer will act as the refueling team supervisor. **(T-3)** Flight engineers will comply with T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*, and applicable T.O. 1C-10(K)A-2 series guidance. **(T-3)** Two other aircrew members are required to assist in the refueling, one for safety duties and the other to act as fire guard. **(T-3)** Four total will be required when the right wing single point refueling is inoperative and refueling must be accomplished from the flight engineer's panel. **(T-3)**

11.4.1.2. A current and qualified aircrew member will be designated to remain on the flight deck to monitor interphone and be prepared to broadcast a request for emergency assistance on a radio tuned to the appropriate agency with ready access to an emergency response team anytime aircrew members are in the aircraft and fuel servicing is being conducted. **(T-3)** The passenger address may be used to direct passenger evacuation in an emergency.

11.4.1.3. Unless environmental conditions dictate, the primary emergency exit will remain open and stairs in place. Close and arm all doors except the open entry door. If entry door is closed due to inclement weather, do not arm. Stairs shall remain in place. **(T-3)**

11.4.1.4. With passengers on board a current and qualified aircrew member will be designated the passenger compartment monitor (PCM) and shall continuously monitor passengers during fuel servicing operations. **(T-3)** PCMs will not perform other duties during fuel servicing. **(T-3)**

11.4.1.5. The PCM shall brief passengers on emergency egress, exits, prohibitions, and hazards. **(T-3)** Passengers will remain seated except for brief physiological needs but will

not wear seat belts. **(T-3)** When possible, conduct this briefing prior to fuel servicing. If fuel servicing is in progress, the briefing will be given immediately after boarding. **(T-3)**

11.4.1.6. When authorized, passengers may board or exit the aircraft for the express purpose of loading for departure or off-loading upon arrival. Boarding or exiting must be opposite of fuel servicing operations. **(T-3)** Once onboard, except for emergencies, passengers shall not deplane once fuel servicing commences.

11.4.1.7. Passengers are not required to ground themselves.

11.4.1.8. The PIC, or designated maintenance/aircrew representative will advise PCMs when to evacuate passengers. **(T-3)**

11.4.1.9. The PCM shall set the interior lighting as bright as possible to suit the combat environment. **(T-3)**

11.4.1.10. The following guidance will be used for fuel servicing operations: **(T-3)**

11.4.1.10.1. If using the auxiliary power unit (APU) during refueling/defueling operations, it must be started and running in a stable condition prior to pressurizing the refueling hose or pantograph.

11.4.1.10.2. Electric and electronic equipment may be on and operated to include operations performed by aircrew members during required inspections with the following exceptions:

11.4.1.10.2.1. Pull circuit breakers for radar altimeters. Tactical air navigation (TACANs) must be turned off.

11.4.1.10.2.2. Radar may be in standby but, if time permits, should be turned off.

11.4.1.10.2.3. Identification Friend or Foe (IFF) may be in standby but, if time permits, should be turned off.

11.4.1.10.2.4. Radio operations are authorized. **Exception:** Use of high frequency (HF) radios is prohibited.

11.4.1.10.2.5. Do not pull or reset circuit breakers during fuel servicing operations.

11.4.1.10.2.6. Maintain interphone contact between the flight deck and refueling team for duration of fuel servicing operations regardless if performing crew duties. This allows for communication in the event of an emergency or evacuation, as required. **Note:** Interphone cable connections shall be completed prior to starting fuel transfer operation. Do not disconnect this equipment while fuel servicing is in progress.

11.4.1.10.2.7. Establish a meeting point, take a head count and brief all personnel on the egress plan in case of emergency. Meeting point should be upwind and out of the path of responding emergency vehicles.

11.4.1.10.2.8. Tune ultra high frequency (UHF)1 or VHF1 to ground, tower, or emergency (guard) frequency.

11.4.1.11. Avoid refueling with JP-8+100 or Jet A++100 while transiting airfields with these fuels. AMC aircraft are not allowed to operate on JP-8+100, except in emergency

conditions. All JP-8+100 locations are required to maintain a clean JP-8 capability to support transient aircraft. If inadvertent refueling with JP-8+100 or Jet A++100 occurs comply with the following: (**T-3)**

11.4.1.11.1. Defuel the aircraft prior to flight.

11.4.1.11.2. Make an AFTO Form 781 entry stating "Caution: Aircraft refueled using JP-8+100 [Jet A++100], preventative measures must be taken when defueling.".

11.5. Aircraft Recovery Away from Main Operating Base (MOB). The PIC is responsible for ensuring the aircraft is turned to meet subsequent mission taskings. If qualified maintenance specialists are unavailable, the aircrew is responsible for turning the aircraft to meet subsequent mission taskings.

11.5.1. The PIC is responsible for the recovery items including: **(T-3)**

11.5.1.1. Parking and receiving.

11.5.1.2. Aircraft servicing, including Aerospace Ground Equipment (AGE) usage.

11.5.1.3. Supervision of minor maintenance within local capability.

11.5.1.4. Minor configuration changes to meet mission tasking.

11.5.1.5. Securing the aircraft before entering crew rest.

11.5.1.6. Coordinating aircraft security requirements.

11.5.1.7. Documenting AFTO 781-series forms.

11.5.2. In all cases where aircrews must service the aircraft without qualified maintenance specialist assistance, comply with the appropriate maintenance T.O. **(T-3)**

11.5.3. Aircrews are not qualified to accomplish the required ground inspections. In those instances where maintenance personnel are not available, the aircrew will enter a red dash symbol in the AFTO Form 781H updating current status and indicating a discrepancy that reflects that the applicable maintenance inspection (i.e., preflight, thru-flight, basic post-flight) is overdue. **(T-3)**

11.6. Aircraft Structural Integrity Program. The flight engineer will complete AFTO Form 18 on every flight. **(T-3)** The AFTO Form 18 documents usage data for the KC-10A Individual Airplane Tracking Program. Individual Airplane Tracking Program determines the current and projected structural status of each individual KC-10A and provides information for fleet management; Time Compliance Technical Order modifications, inspections, structural maintenance actions and structural condition.

11.6.1. Use the following guidance and the abbreviated instructions on the form. This is a machine-readable document utilizing an optical mark reading system. Do not use reproductions of the form to record flight information. Use a number 2 or softer pencil, darkening responses completely. Do not use ink or make stray marks outside of the REMARKS section. Do not staple or punch holes. The 1C-10(K)A-101 is obsolete, disregard reference to this technical order on the AFTO Form 18.

11.6.1.1. Segment types:

11.6.1.1.1. CL (CLIMB) - Takeoff climb, and in-flight climb into another altitude band.

11.6.1.1.2. CR (CRUISE) - In-flight cruise en route to destination or in-flight refueling station.

11.6.1.1.3. D (DESCENT) - Penetration descent, and inflight descent into another altitude band.

11.6.1.1.4. ON135 & ON10 (FUEL ONLOAD) - Fuel onload from a KC-46 tanker. AFTO Form 18 (Aug 95) does not specify ON46. When onloading fuel from KC-46 darken selection for ON135 & ON10 and include a notation in the remarks section on the applicable form (e.g., Flight Segment 4 = KC-46). Receiver type and number of contacts made ARE NOT recorded.

11.6.1.1.5. ON135 (FUEL ONLOAD) - Fuel onload from a KC-135 tanker. Receiver type and number of contacts made ARE NOT recorded.

11.6.1.1.6. ON10 (FUEL ONLOAD) - Fuel onload from a KC-10A tanker. Receiver types and number of contacts made ARE NOT recorded.

11.6.1.1.7. OFFB (FUEL OFFLOAD VIA BOOM) - KC-10A operating as a tanker. Receiver types and number of contacts made ARE recorded.

11.6.1.1.8. OFFD (FUEL OFFLOAD VIA CENTER LINE DROGUE/WING PODS) - KC-10A operating as a tanker. Receiver types and number of contacts made ARE recorded.

11.6.1.1.9. P (PATTERN/PRACTICE) - This segment includes touch & go practice (T&G), fullstop-taxi-back and engine-running-crew change landings (FS), missed approach practice and aborted approaches (A). The total number of T&G's, FS's, and/or A's are recorded in this segment type. Low altitude-cruise and traffic-holding-pattern operations are recorded in this segment; however, NO ENTRIES are made in T&G, FS, or A.

11.6.1.2. Segment guidelines:

11.6.1.2.1. The first segment starts at brake release and will be a climb (CL) or pattern/practice (P). Speed and altitude are not required for the initial climb.

11.6.1.2.2. The last segment will be a descent (D) or pattern/practice (P).

11.6.1.2.3. Time spent in a traffic/holding pattern is a pattern/practice (P).

11.6.1.2.4. In-flight change-of-altitude (i.e., climb or descent) beyond an adjacent altitude band, as well as takeoff climb and penetration descent, should be entered as CL or D.

11.6.1.2.5. A fuel on-load segment begins when the KC10A is stabilized in the astern position and ends when the KC-10A departs from the tanker aircraft.

11.6.1.2.6. The off-load segment begins when the first receiver is stabilized in the astern position and ends when the last receiver departs from the KC-10A.

11.6.1.2.7. A pattern/practice segment begins when the KC-10A enters the traffic-pattern for planned practice, unplanned traffic-pattern circumstances, reaches the altitude for a low altitude-cruise, or is halted in a traffic-holding pattern.

11.6.1.2.8. A flight consisting of more than eight segments is continued on another form.

11.6.1.2.9. On continuation pages, blocks 1, 3, 4, and 5 are filled out along with segment blocks as required. Blocks 3, 4, and 5 should be the same on all forms for a given flight.

11.6.1.2.10. A new flight is defined, and a new form must be completed when cargo/fuel are on or off-loaded on the ground, more than one-hour elapses between landing and subsequent takeoff, or anytime engines are shut down. **(T-3)**

11.6.1.3. Block 15. Receiver type and total number of contacts, wet or dry, made with each type. Record method as LP (left pod), B (boom), C (centerline drogue) or RP (right pod). Use Block 15 on any or every form as required. Do not enter the modified mission symbol (e.g., the "R" in RF-4), except for cases shown below. For AV-8, enter A-008. Enter receiver type only as follows. If the receiver is not listed, select a boom or drogue example, and include actual type in REMARKS. See **Table 11.1**.

11.6.1.4. REMARKS. Enter name & rank, duty AF base, duty phone, and mission number on each form. Enter receiver type if not listed. Track Wing Air Refueling Pod (WARP) cycles for the left and right pods separately and report at maintenance debriefing. The definition of a cycle is: fully extending and fully retracting the pod hose. Multiple contacts may be made in the interim period between extending and retracting the hose without logging additional cycles.

11.6.2. Complete any open items after landing. Turn in completed forms after each flight or upon return to the home station. The chief flight engineer or designated representative will review completed forms. **(T-3)** Each Monday, forward the past week’s completed forms to aircraft structural integrity management information systems office Air Force Life Cycle Management Center/Product Support Engineering Division (AFLCMC/EZPRA), ATTN: KC-10, 7851 Arnold St. Bldg 3 Rm 107, Tinker AFB, OK 73145-9145.

Table 11.1. AFTO Form 18 Receiver Types.

Boom Offloads		**Drogue Offloads**
A-007	E-004	A-004
A-010	E-006	A-007
B-001	E-008	A-008
B-002	F-004	A-037
B-052	F-015	EA-006
C-005	F-016	F-004

C-017	F-022	F-014
C-130	F-035	F-018
C-135	KC-046	F-035
E-003	KC-010	

11.7. Engine Performance Monitoring. Engine performance monitoring program data become a permanent part of the engine's history. To track potential engine failure, make every effort to record engine performance data on every sortie. Deliver engine coupons to debriefing as soon as possible, not to exceed 7 days, or faxed in the case of extended missions. Ensure coupons are hand-carried to home station when returning from depot modifications or maintenance input.

11.7.1. The primary method of KC-10 engine performance monitoring is the Exhaust Gas Temperature (EGT) divergence method. This compares EGT from one engine to another on the same aircraft using number 2 engine as the baseline. Data may be collected with the boom and drogue deployed if airspeed remains stable, no climbs or descents are initiated, and the receiver is no closer than pre-contact. Discontinue procedure any time safety would be compromised.

11.7.2. Instructions for engine performance monitoring:

11.7.2.1. Auto throttles off. Allow power to stabilize for 5 minutes. **Note:** N/A if power was stable prior to disconnecting auto throttles.

11.7.2.2. N1 setting aligned to within 0.3% of each other, at not less than 89%.

11.7.2.3. Stabilized cruise, power stabilized; light turbulence is permissible.

11.7.2.4. Altitude: 20,000 feet or greater. Above flight level (FL) 270 is optimum.

11.7.2.5. Mach: 0.70 or greater.

11.7.2.6. Record at least one coupon per flight. Two is preferred on long flights.

11.7.3. Record the following data:

11.7.3.1. Air Force serial number, not tail number.

11.7.3.2. Zulu date readings are taken.

11.7.3.3. Zulu time readings are taken.

11.7.3.4. Flight engineer's name.

11.7.3.5. Altitude / 1000.

11.7.3.6. Total air temperature to the closest °C. Ensure positive or negative sign is recorded.

11.7.3.7. Mach: All 3 numbers, within +.001.

11.7.3.8. Flight engineer's flying squadron.

11.7.3.9. N1 to closest +0.1%.

11.7.3.10. EGT to the closest degree.

11.7.3.11. N2 to closest +0.1%.

11.7.3.12. Fuel flow to nearest 10pph.

11.7.3.13. Oil pressure to nearest psi.

11.7.3.14. Bleed configuration. **Note:** Normal is packs on.

11.7.3.15. Anti-ice configuration. **Note:** Normal is engine and wing anti-ice off.

11.7.3.16. Remarks/abnormal configuration: Record non-standard configurations, boom and drogue deployed, slats extended, turbulence, alternate method, etc.

11.7.4. If an indicator becomes erratic or inoperative, record the best estimate of data. Circle the estimate and document discrepancy on the form and AFTO Form 781A.

11.7.5. Alternate method. If the primary conditions cannot be met, use this alternate method.

11.7.5.1. May be accomplished at any altitude and airspeed/Mach.

11.7.5.2. Auto throttles off. Allow power to stabilize for 1 - 3 minutes.

11.7.5.3. Align N1 settings to within 0.3% of each other.

11.7.5.4. Record only N1 and EGT.

11.7.5.5. Fill in all heading information.

11.7.5.6. Compare EGT data with the engine EGT comparison sheet.

11.7.6. EGT comparison. EGT is the primary indication of CF-6 engine operating condition. Since EGT will never shift downward, unless caused by an instrument error, enter any upward shift of more than +10°C in the AFTO Form 781A. For example, if the EGT comparison page in the aircraft forms indicates engine #1: +13°C, engine #2: baseline, and engine #3: +6°C, then the maximum EGT for the #1 engine is baseline plus 23°C, and the maximum EGT for the #3 engine is baseline plus 16°C. Readings above these maximum values require an AFTO Form 781A entry. If a shift of more than +10°C is identified confirm by another reading taken at a different power setting & altitude. If confirmed, immediately report the condition to home station for guidance. **Note:** A downward shift of both wing engines may indicate a problem with engine #2. EGT comparison sheets are maintained in each aircraft. Maintenance updates this sheet every 60 days based on the engine monitoring data received.

11.8. Performance Data Computations. T.O. 1C-10(K)A-1-1 is the source for all performance computations. Use AF Form 4089 or an approved electronic TOLD worksheet. Compute TOLD using T.O. 1C-10(K)A-1-1 or electronically using an HQ AMC approved KC-10 TOLD program. Data is computed either manually or electronically by the flight engineer and checked by another current and qualified pilot or flight engineer. Check data using T.O. 1C-10(K)A-1-1, T.O. 1C-10(K)A-1CL-2 tab data or KC-10A Performance Data Computer (i.e., Slip Stick). If electronic data is found to be out of limits, not due to a data entry error, complete a manual TOLD card.

11.8.1. TOLD check limits. TOLD verification limits are: speeds +/- 3 KIAS; N1 settings +/- 0.3%; distances +/- 500 feet. Critical field length must be equal to or less than runway available. Landing distance must be equal to or less than runway length.

11.8.2. KC-10A Performance Data Computer (i.e., Slip Stick). KC-10 Slip Stick tabulated data is authorized for use to verify takeoff performance calculations and to compute landing speeds, minimum air refueling speeds and other inflight data.

11.8.3. Fixed flap takeoffs. Fixed flap takeoffs, at 15 or 22 degrees, may be executed for initial or full-stop taxi backs from a MOB. Use optimum flap procedures at all other fields.

11.8.3.1. Compute an optimum flap takeoff setting for the given conditions.

11.8.3.2. A fixed flap takeoff may be executed if the 15- or 22-degree flap line for the takeoff gross weight falls below the runway available limiting weight and climb gradient limiting weight lines using sheet 3 tree chart of T.O. 1C-10(K)A-1-1, and the takeoff gross weight is less than maximum takeoff gross weight. Use fixed flap setting for all performance computations.

11.9. In-Flight Fuel Management/Monitoring. Fuel consumption will be monitored by comparing actual to predicted fuel remaining on the flight plan. **(T-3)**

11.9.1. At a minimum, consumption comparisons will be accomplished: **(T-3)**

11.9.1.1. As soon as practical after initial level-off; record fuel total, compare to predicted total.

11.9.1.2. Prior to and after each AAR.

11.9.1.3. During over-water cruise at intervals not to exceed 1.5 hours.

11.9.1.4. Any time aircraft performance is critical or marginal.

11.9.2. Fuel monitoring may be discontinued at the discretion of the AC when all the following conditions have been met:

11.9.2.1. All AARs have been completed.

11.9.2.2. The equal time point has been crossed on over-water missions.

11.9.2.3. The fuel systems and quantity indicators are functioning normally.

11.9.2.4. There is obvious extra fuel and the + FUEL trend is favorable.

11.10. General Navigation Duties. The flight engineer performs navigation duties using the FMS. FMS operations may include waypoint loading, updating navigation information for the various modes of FMS operation, extraction of coordinates from maps for loading into navigation equipment (e.g., revised air refueling (AR) tracks), recording of latitude and longitudinal coordinates during AR or emergencies, and use of computer flight plans to maintain a fuel "how goes it" log when required.

11.10.1. Mission planning. The flight engineer assists the pilots in extracting data from maps and charts, plotting headings or TACAN and very high frequency omni-directional range (VOR) radials, determining wind factors, and mission timing.

11.10.2. Preflight. Time permitting; the flight engineer may load the flight plan into the FMS.

11.10.3. In-flight. Use the FMS to check flight progress and fuel status at pre-selected points along the route of flight. The flight engineer will take an active role in maintaining awareness of aircraft location and position along the flight path. **(T-2)** This includes assisting pilots in loading and verifying new or updated waypoints. Use the FMS to determine time, distance,

and fuel requirements for all in-flight diversions. Use the FMS to monitor mission progress in relation to required AR start, end AR, and abort points during receiver deploy and re-deployment missions.

11.11. Weight and Balance. The flight engineer assists the boom operator by positioning fuel to satisfy ballast requirements for cargo loading operations. The flight engineer has sole responsibility for aircraft weight and balance after DD Form 365-4, *Weight and Balance Clearance Form F-Transport/Tactical*, is completed and the aircraft is ready for flight. The flight engineer is responsible for completion of DD Form 365-4, in the absence of a qualified boom operator. **(T-2)**

11.11.1. 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 AF Form 4087 and AF Form 4088. **(T-3)**

11.12. In-Flight Troubleshooting. Flight engineers may accomplish minor troubleshooting in-flight. However, flight crews will not, nor will they allow maintenance personnel to perform in-flight maintenance to include indiscriminately pulling circuit breakers or de-powering aircraft systems, swapping components, or any other actions that could jeopardize safety of flight. **(T-2)**

Chapter 12

CARGO AND PASSENGER PROCEDURES

12.1. General. The boom operator coordinates loading or offloading with air terminal operations or the shipping agency; plans cargo loads; provides in-flight services to passengers; and supervises onloading or off-loading operations.

12.2. Responsibilities for Aircraft Loading. These procedures are found in AFMAN 11-202V3_AMCSUP.

12.3. Emergency Exits and Safety Aisles.

12.3.1. There must be a reasonable degree of access to the rear of the aircraft, and passengers must have ready access to emergency exits. **(T-2)** Load aircraft in such a manner that allows for movement from the flight deck to the ARO compartment and access to cargo for firefighting. For ease of access to the cargo compartment/walkway in flight, some of the cargo barrier net wall attachment fittings may be disconnected. Cargo barrier net wall attachment fittings will be re-connected prior to landing if required. **(T-2)**

12.3.2. To assist in emergency evacuation of passengers, extra crew members or maintenance personnel knowledgeable of emergency evacuation procedures will occupy a seat in the row adjacent to doors 1 R/L and 2 R/L (with Increased Accommodation Unit (IAU) installed), which provide immediate access to door controls, for all takeoffs and landings. Passengers who meet the criteria in **paragraph 12.4.2.4** may be used if extra crewmembers or maintenance personnel are not available. They will be briefed on emergency evacuation procedures/duties IAW T.O. 1C-10(K)A-1. **(T-3) Note:** All passenger hand carried items must be of a size to fit under the seat and must not obstruct any aisles, including the space between IAU seats and fuselage. **(T-3)**

12.4. Pre-Mission Duties.

12.4.1. Cargo missions: Aerial port expediter on/off load operations are not authorized for KC-10 aircraft.

12.4.2. Passenger missions: Maximize seat availability on all missions. The fold-down observer seat on the flight deck is not normally considered an available seat; the PIC is the final authority when releasing this seat for crew or passenger use. **(T-3)**

12.4.2.1. Whenever the aircraft is configured with an IAU, ensure that all latch pawls, anti-rattle handles, ramps, and electrical connections are serviceable and in their proper configurations. **(T-3)**

12.4.2.2. When planning any KC-10 mission that includes ten or more passengers, a dedicated baggage pallet is required. **(T-2)** Cargo Loading Certification (CQ64YM) is not required for loading of baggage pallets. Floor loading of passenger baggage is not authorized. Floor loading of small amounts of crew baggage, professional gear, meals, water jug or medical litters, etc., as detailed in T.O. 1C-10(K)A-9 is authorized. **(T-2)**

12.4.2.3. Seat belt extensions are approved for use in the KC-10. Tie-down straps will not be used to restrain passengers in aircraft seats. **(T-3)** If a passenger is unable to secure his/her seatbelt, notify passenger service immediately to determine if a seat belt extension

is available. The aircraft will not move unless all passengers are secured. **(T-3)** PICs will not allow passengers who cannot be seated in the seat with seat cushions installed and seat belts securely fastened. **(T-3)**

12.4.2.4. A passenger service representative or crewmember will assist passengers at the bottom of the steps/stairs, and the boom operator will assist in seating passengers. Distinguished visitors, passengers requiring assistance, and families should be boarded first to minimize separation. Make every effort to seat families together. Ensure that only adult, English speaking, physically capable, and willing passengers are seated next to emergency exits. **(T-3)** Do not seat mothers with infants or children under 15 years old in seats adjacent to emergency exits. Passengers occupying these seats will be briefed on emergency evacuation procedures/duties IAW T.O. 1C-10(K)A-1 Section II. **(T-3)**

12.4.2.5. Air stairs will be utilized to the maximum extent possible for passenger and troop on/offloading. **(T-3)** Once passengers have been on-loaded the air stairs may be released and a maintenance stand re-positioned at the door only after PIC coordination/approval.

12.4.2.5.1. Use caution when on/offloading passenger without air stairs. The PIC is the final authority on whether passengers/troops will be on/offloaded when air stairs are unavailable.

12.5. In-Flight Passenger Handling Procedures.

12.5.1. Passengers may visit the flight deck or ARO compartment only when approved by the PIC. Use good judgment when requesting this authority. Passengers must be escorted by a crewmember to and from these areas. **(T-3)** Primary crewmembers will be notified when passengers are in transit between the passenger compartment and the ARO compartment. **(T-3)** Brief all passengers visiting the flight deck or ARO compartment on the use of the quick-donning mask/oxygen system. The total number of individuals on the flight deck or in the ARO compartment at any one time will not exceed the number of seats with seat belts and operable oxygen regulators. **(T-3)**

12.5.2. Passengers will be supervised for the entire period of flight. **(T-3)** Missions with one boom operator and planned tanker air refueling are limited to 10 passengers and may be monitored by flight deck crew during air refueling. **(T-3)** Cargo Loading Certification (CQ64YM) is not required for passenger handling/supervision duties.

12.5.3. Notify the PIC of any unusual circumstance relating to the passengers.

12.5.4. When passengers are carried, a boom operator will be in the passenger compartment for all takeoffs and landings. **(T-3)**

12.6. Weight and Balance. Accomplish weight and balance for this aircraft according to T.O. 1-1B-50, *Aircraft Weight and Balance*, and Addenda A of this manual. The unit possessing the aircraft maintains the primary weight and balance handbook containing the current aircraft status and provides a supplemental weight and balance handbook for each aircraft. The supplemental handbook should be enclosed in a wear-resistant binder (e.g., metal), stenciled “Weight and Balance” with the airplane model and complete serial number on the cover or a spine.

12.6.1. The supplemental handbook will include the AFMAN 11-2KC-10V3, Addenda A sufficient copies of DD Form 365-4 and a certified copy of the current DD Form 365-3, *Chart*

C, Basic Weight and Balance Record. **(T-2)** The Chart C includes the aircraft's basic weight, basic moment, and center of gravity.

12.6.2. The weight and balance section of the unit possessing the aircraft will provide the information required to maintain current and accurate documents to the appropriate agency. **(T-2)**

12.6.3. The AF Form 4095, *KC-10A Load Planning Worksheet*, is used to manually calculate a cargo load. See **Attachment 2** for information on completing AF Form 4095.

12.6.4. The AF IMT 4130, *KC-10 Restraint Computation Worksheet*, is used to record and compute restraint computations. See **Attachment 3** for information on completing AF IMT 4130.

12.7. Emergency Airlift of Personnel. Use these procedures for noncombatant evacuation and combat loading of personnel when directed by the controlling combatant commander, MAJCOM/A3, or director of mobility forces. Emergency airlift normally is accomplished without the use of individual seats, safety belts, and emergency oxygen sources.

12.7.1. The maximum number of personnel who may be airlifted by seating them on a pallet sub-floor in the cargo compartment varies depending on their size, amount of baggage/equipment carried, and the number of tiedown straps onboard the aircraft. Seat personnel in rows facing forward and load in small groups up to 10 personnel 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. **(T-2)** Load personal effects/baggage in any safe available pallet position. **(T-2)**

12.7.2. The maximum altitude for emergency airlift will not exceed FL250. **(T-2)**

12.7.3. Environmental curtain, cargo net, and/or crew bunks may be removed at the direction of the controlling agency if necessary to maximize passenger loading and facilitate passenger monitoring. Consider the impact to follow on missions when removing equipment as the aircraft must be returned to a normal configuration after the emergency airlift. **(T-2)** Coordinate with unit stan/eval and maintenance to determine weight and moment adjustments for removed equipment. Without bunks, aircrew is limited to a basic FDP. **(T-2)**

12.7.4. Additional supplies such as plastic sheeting, plastic trash bags, cleaning supplies, and improvised lavatory facilities may be necessary depending on the number of floor loaded passengers and duration of flight. Additional ground time after the flight may be required to properly clean and disinfect the aircraft.

12.8. Rucksacks. Rucksacks will not be floor loaded. **(T-2)**

12.9. Cargo and Material Handling Equipment (MHE) Issues.

12.9.1. Lithium batteries:

12.9.1.1. Metal lithium batteries are non-rechargeable batteries also known as primary lithium batteries. When these batteries are packed IAW requirements of UN3090 and UN3091 (i.e., contained in equipment or packed with equipment) they will only be transported aboard KC-10 aircraft missions IAW AFMAN 24-604, Chapter 3 authorization.

12.9.1.2. Lithium ion/polymer batteries are rechargeable batteries also known as secondary lithium batteries. When packed IAW requirements of UN3480 and UN3481 (i.e., contained in equipment or packed with equipment) these batteries may be transported IAW AFMAN 24-604 without restriction. The cells are limited to 20 wattage hours and batteries are limited to 100 wattage hours.

12.9.1.3. In all cases, aircraft halon fire extinguishers are suitable for lithium battery transport. However, these extinguishers will only act to contain the fire, not extinguish it. This will be briefed to the PIC. **(T-3)**

12.9.2. Hazardous materials in ISU-90 containers. Load plans must allow in-flight access in event of an emergency, or hazardous materials will be removed from the container. **(T-3)** Some containers have built-in "HAZMAT" access panels; however, when these containers are utilized, any hazardous materials must be positioned to permit access through the panel. **(T-3)** **Exception:** See AFMAN 24-604 for hazardous cargo not required to be accessible in-flight. Hazardous materials in the upper compartment of the container are inaccessible unless the adjacent pallet position is left empty to facilitate opening the doors. If the person responsible for the container is not on board, the key or combination for locks on containers must be on the container adjacent to the lock. **(T-3)** AMC inspectors and aircrew are authorized access on all cargo containers placed on AMC aircraft except when waived by AMC/A3/10 for security reasons.

12.9.3. Weissenfel MB-1 chain and 1998 Davis MB-1 devices. The Weissenfel MB-1 chain will not be used. **(T-3)** The Weissenfel MB-1 chain can be identified by the word W-ITALY stamped on the chain hook. The 1998 Davis MB-1 tiedown device will not be used. **(T-3)** These devices can be identified by a stamp reading contract number SPO470-98-C-5103. Remove any Weissenfel MB-1 chain or 1998 Davis MB-1 device from the aircraft. Examine chained palletized cargo for these chains and devices. If they are found, replace them with other chains and devices. Return the chains and devices to maintenance or the aerial port activity.

12.9.4. Davis aircraft products MB-1 and CGU-4/E cargo aircraft tiedowns. Do not fully extend any Davis aircraft tiedown devices at any time. Davis devices modified by the previously authorized repair kit must be adjusted so there is a minimum of 3 threads visible between the white spacer contacting the anti-rotation bar and the adjusting nut located on the inside of the tiedown main body frame. **(T-3)** Unmodified Davis devices must be adjusted so there is a minimum of 3 threads visible between the anti-rotation bar and the adjusting nut located on the inside of the tiedown main body. **(T-3)**

12.9.4.1. Davis CGU-4/E and MB-1 10,000 lb device reported operational defect: Chain can be pulled out of the pocket when significant slack is present. This can be accomplished by pulling the loaded end of the chain away from the device, while locked into the chain pocket. The defect is amplified when the chain pocket/quick release lever is facing down. Based on a risk analysis by Warner Robins Air Logistics Complex (WR-ALC) 642d Combat Sustainment Group (642 CBSG) the chance of failure is minimal when the device is under tension and the chain pocket/quick release lever is not oriented in a downward position.

12.9.4.2. Davis CGU-4/E and MB-1 10,000 lb device inspection: Inspect for the following condition after applying tension on the device: ensure chain is properly locked into the

chain pocket and quick release lever is not oriented in a downward position; pull on the loaded end of the chain. If chain comes out of the pocket, remove the device from service. **(T-3)**

12.9.4.3. CGU-4/E and MB-1 10,000 lb devices will not be secured with the chain pocket/quick release lever oriented in a downward position. **(T-3)**

12.9.5. Peck & Hale CGU-4/E and MB-1 10,000 lb device reported operational defect: chain can be pulled out of clasp on device once locked. This can be accomplished by pulling on the excess chain (i.e., free end) while locked into the chain pocket of the device.

12.9.5.1. Peck & Hale CGU-4/E and MB-1 10,000 lb device inspection: Inspect for the following condition after applying tension on the device: ensure chain is properly locked into the chain pocket and quick release lever is not oriented in a downward position; pull on excess chain (i.e., free end). If chain comes out of the pocket, remove the device from service. **(T-3)**

12.9.5.2. Any device found to be defective will be removed from service and turned into the maintenance or aerial port function. **(T-3)** Report all mishaps and safety incidents resulting from defective MB-1(10K), CGU-4/E(10K), CGU-3/E(25K), and MB-2(25K) devices utilizing AMC Form 97 or MAJCOM equivalent through normal channels.

12.9.5.3. Removal/addition of aircraft equipment. Missing or removed items that are considered part of the normal aircraft configuration, such as cargo loading rails or pieces of the walkway, do not constitute a non-standard configuration. If these items are onboard but strapped to a pallet or are completely removed from the aircraft, make an adjustment to the aircraft weight and balance computation. Carrying more than the normal (4) IAU pallets does not constitute a non-standard configuration. When the additional pallets are onboard and there is other cargo manifested as hazardous, check its compatibility with regard to the oxygen generating units on the IAU. The oxygen generators installed in the IAU seats are classified as Hazard Class 5.1, with a UN Identification Number of UN3356. Additional IAU pallets are still considered aircraft equipment and do not need to be manifested as cargo, nor do they require Shipper's Declarations for Dangerous Goods.

12.9.5.4. Flight test data acquisition system pallet. The KC-10 palletized flight test data acquisition system does not require a configuration wavier when loaded using T.O. 1C-10(K)A-9 criteria. Use the empty placarded weight of 1700 lbs.

Chapter 13

FUEL PLANNING AND CONSERVATION

13.1. General. This chapter is designed to assist pilots, flight engineers, and planners in fuel planning for KC-10 missions. JMPS, MAFPS and T.O. 1C-10(K)A-1-1 are the primary preflight reference. The planning procedures in this chapter apply to all AMC-tasked and 618 AOC flight managed missions in addition to local missions. Missions should be planned at altitudes, routes, and airspeeds to minimize fuel usage.

13.2. Fuel Conservation. It is Air Force policy to conserve aviation fuel when it does not adversely affect training, flight safety, or operational readiness. Aircrew and mission planners will manage aviation fuel as a limited commodity and precious resource. **(T-3)** Fuel optimization will be considered throughout all phases of mission planning and execution. Comply with the following whenever consistent with tech order guidance and safety:

13.2.1. Fuel loads. Excessive ramp and recovery fuel adds to aircraft gross weight and increases fuel consumption. Do not ferry extra fuel beyond optimum requirements for safe mission accomplishment and training objectives.

13.2.2. Flight planning. Aircrew and mission planners will optimize flight plans and flight routing for fuel efficiency. **(T-2)**

13.2.3. APU usage. Minimize the APU usage to the maximum extent possible. Environmental conditions should be taken into consideration. When cockpit instrument(s) are powered on the ground, the avionics compartment cooling fan and the appropriate equipment associated fan(s) must be operating. **(T-3)** In addition, if cockpit temperature is above 85 degrees F, air conditioning (i.e., AGE/APU) must be used. **(T-3)**

13.2.4. Engine start. Delay engine start on all departures whenever practical to minimize fuel consumption. Starting the number two engine should be delayed as long as practical prior to takeoff unless aircraft gross weight is 500,000 lbs or more.

13.2.5. Taxi. Consider engine-out taxi when permitted by flight manual.

13.2.6. Departure planning. Consider use of opposite direction runway to reduce taxi and/or expedite departure routing if winds allow.

13.2.7. Takeoff. Consider a rolling takeoff as well as reduced power when able. This saves fuel and engine wear. Clean up on schedule and don’t delay gear and flap retraction.

13.2.8. Climb/descent. In-flight procedures such as climb/descent profiles and power settings should also be considered for efficient fuel usage.

13.2.9. Weather deviations. Attempt to coordinate for off-course deviation early so gross maneuvering is not required.

13.2.10. Cruise techniques. Attempt to trim the aircraft and match throttle settings whenever possible. Fly fuel efficient speeds and altitudes to the maximum extent possible. When time between air refueling exceeds 10 minutes, the boom/hose will be stowed.

13.2.11. Approach. Fly most direct routing to arrival approach consistent with mission requirements.

13.2.12. Holding. If holding is required, hold clean at the most fuel-efficient altitude, and request a large holding pattern. Hold at endurance or performance manual recommended holding speeds, conditions permitting.

13.2.13. Parking. Consider using shortest taxi route and avoid double blocking when able.

13.3. Fuel Planning Procedures. Aircrew should employ the following aviation fuel optimization measures without compromising flight safety or jeopardizing mission/training accomplishment:

13.3.1. Plan a 45-minute fuel reserve at destination or alternate, when an alternate is required.

13.3.2. Plan fuel to an alternate only when AFMAN 11-202V3, and/or AFMAN 11-202V3_AMCSUP require the filing of an alternate.

13.3.2.1. When only one alternate is required, use the closest suitable airfield meeting mission requirements (e.g., special requirements for hazmat or patients) and AFMAN 11-202V3 criteria.

13.3.2.2. If two alternates are required, use the two closest suitable airfields meeting AFMAN 11-202V3 criteria and fuel plan to the more distant of the two.

13.3.2.3. Primary alternate routing. A route of flight to the primary alternate is only for providing an accurate fuel plan and is not part of the route of flight filed with ATC. For flight managed missions planned with advanced computer flight plan (ACFP), FMs will provide a route of flight to the primary alternate if greater than 75 miles from the planned destination. MAFPS planned missions will always provide a routing to the primary alternate. **(T-2)**

13.3.3. For all missions other than local training missions, calculate 15 minutes of contingency fuel using destination gross weights. **Note:** Up to one hour of additional contingency fuel may be calculated for active air refueling legs on coronet/dual role missions. Local training missions are not required to carry contingency fuel. If contingency fuel is carried on local training missions, it will not exceed 15 minutes. Contingency fuel is not considered reserve fuel since it can be consumed at any point during the mission. Contingency fuel will be included in the initial RRFL calculation. **(T-2)** Reserve and contingency fuel will be computed using consumption rates providing maximum endurance at 10,000 feet MSL at destination gross weight. If an alternate is required, compute using weight at alternate destination. When computing reserve and contingency fuel for remote destinations, use consumption rates providing maximum endurance at 20,000 feet MSL.

13.3.4. Using all available planning tools, including MAFPS and JMPS, and guidance in this chapter, PICs will determine the RRFL. **(T-3)** When actual fuel load exceeds the RRFL by more than 5,000 lbs., defuel the aircraft to the RRFL. PICs will defuel when mission sequence of events (SOEs) permit or the cost and risk of departing with additional fuel outweigh the benefit of an on-time departure.

13.3.4.1. Identified extra fuel may be added to RRFL:

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

13.3.4.1.2. For known holding delays in excess of standard.

13.3.4.1.3. For anticipated off course weather avoidance.

13.3.4.1.4. When reliable wind data or receiver profiles are not available.

13.3.4.2. Airlift missions. Plan long range cruise (LRC) and optimum altitude.

13.3.4.3. Tanker mission. Plan to and from the AAR track or anchor at LRC and optimum altitude.

13.3.4.4. ACs will not add any additional fuel without first discussing the reason with their FM and receiving their agreement that additional fuel is justified. **(T-3)** When an AC believes the fuel load is insufficient to execute the mission, they will call the appropriate FM to identify and resolve differences. **(T-3)** When the AC and the FM do not reach agreement, the AC is the final authority for adding additional fuel.

13.3.5. Tankering fuel for convenience is prohibited. **(T-2)** MAJCOM C2 or 618 AOC-sanctioned tankered fuel is deemed operationally necessary and will be included in the RRFL.

13.3.6. When there is a conflict between an on-time departure and defueling, the 618 AOC, Deputy Director of Operations or MAJCOM C2 equivalent determines which takes precedence. The OG/CC makes this determination when serving as mission execution authority.

13.4. Fuel Requirements. This section augments AFMAN 11-202V3 fuel requirements.

13.4.1. Required ramp fuel load (RRFL). Minimum fuel required at engine start to complete tasked mission. RRFL will consist of all fuel required for engine start, taxi, APU operation, takeoff, hold down, en route, en route reserve, contingency, air refueling, decompression (i.e., depressurization), early descent, descent, approach and landing, alternate, transition, holding/minimum landing. **Note:** The minimum RRFL is 50,000 lbs. Additional fuel required to achieve the 50,000 lb RRFL will be placed in the Identified Extra block.

13.4.2. Start engines, taxi, and APU operation. Normally 1500 pounds. When anticipating more than 15 minutes ground operation time, add 100 pounds for each minute in excess of 15 minutes, not to exceed 3000 pounds. If extended APU operations are anticipated, plan 350 pph.

13.4.3. Takeoff. Fuel used from the start of takeoff roll (i.e., brake release) to the start of climb (i.e., 2000 feet). Normally 2.5 minutes and 2500 pounds.

13.4.4. En route. Fuel from start of climb segment at the departure location to Begin Descent Point at destination.

13.4.5. Air-to-air refueling (AAR). Scheduled offload minus scheduled onload. If scheduled onloads are not completed it may be impossible to complete the mission.

13.4.6. Identified extra. Fuel which may be added for unplanned contingencies such as late receivers, increased offloads, ATC delays, unplanned holding, weather avoidance, hold down, early descent etc. Additionally, this block may include transition fuel at destination minus alternate and landing fuel, unusable fuel, or tankered fuel for subsequent sorties. If subsequent sortie is a non-engine running crew change, the first sortie's forecasted thunderstorms, hold down, early descent, alternate, holding, and contingency fuel will all be subtracted from the tankered fuel.

13.4.6.1. Consider 4,500 pounds of main tank fuel, 1,500 pounds in each main tank, as unusable. Minimum planned final landing fuel at destination or alternate will consist of 4,500 pounds unusable plus 45 minutes holding fuel.

13.4.6.2. Use 4,500 pounds if forecasted thunderstorms are scattered or numerous along the route of flight, 2,300 pounds if forecast thunderstorms are few along the route of flight, and 1,200 pounds if forecast thunderstorms are isolated along the route of flight. Thunderstorm forecasts will be based on the DD Form 175-1, *Flight Weather Briefing*, or equivalent.

13.4.6.3. Transition. Plan fuel for transition training at the destination or authorized en route locations for training sorties. Use 18,000 pounds per hour in computer flight plan fuel calculations. This includes fuel for the initial approach.

13.4.7. Alternate. Fuel for missed approach and flight from intended destination to alternate aerodrome. Use Time and Fuel to Alternate, ACFP, or Specific Range charts.

13.4.8. Minimum planned fuel at begin descent point. Consists of fuel required for descent, approach and landing, alternate/missed approach, and holding/minimum landing fuel. 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.). When dealing with unplanned contingencies, crews will still plan to touchdown with minimum landing fuel. Units may develop standard alternate fuel requirements for local training missions; however, these fuel requirements will not be less than those specified in this manual. Local supplements will not dictate a standard "IAF" or "Top of Descent Fuel".

13.5. KC-10 Fuel Planning Worksheet (FPW) Procedures. Refer to AMC Standardization and Evaluation, Tanker Division (AMC/A3VK) guidance for form completion.

13.6. Computer Flight Plan (CFP). The CFP normally serves as the fuel log. It is the crew's responsibility to review each CFP and determine if the planned values chosen by the flight planner are sufficient and correct for the mission (e.g., drag, hold-down, weather, etc.).

13.6.1. When mission requirements dictate a change to the planned mission, the fuel must be recalculated to ensure safe completion of the flight. **(T-3)** A pilot or flight engineer may insert the new FMS waypoints for flight plan changes and determine new leg distances. This distance must be converted to air distance by applying the FMS wind factor. When the new leg air distance is known, calculate the new leg burn-off and update the flight plan. It is recommended that the fuel difference be applied at the destination, then work the plan backwards, applying the new leg burn-offs and any air refueling on-loads or off-loads.

13.6.2. Drag degradation with WARP hoses deployed and slats and flaps extended can increase fuel consumption by nearly 10 percent. These and any other external configuration changes (e.g., gear down flights), will require modifications to increase standard fuel planning numbers. Consult drag index chart and gear down data in the performance manual.

13.6.3. **Table 3.1** provides drag index guidance when using JMPS to produce CFPs. Refer to T.O. 1C-10(K)A-1-1 for additional drag index information. MAFPS uses T.O. 1C-10(K)A-1-1 drag indexes.

Table 13.1. JMPS Drag Index Values.

CONDITION	JMPS DRAG INDEX
Tanker Boom Air Refueling	18.5
Tanker Centerline Drogue Air Refueling	10.0
WARP (clean wing, hose and drogue retracted)	10.0
WARP (clean wing, hose and drogue extended)	29.0
Receiver Air Refueling	44.0
UHF SATCOM ant	0.4
Slow Speed Air Refueling (Flaps/Slats Extended)	28.0

Chapter 14

AIR-TO-AIR REFUELING

14.1. General. This chapter establishes air refueling guidelines applicable to KC-10 aircraft and aircrews and is supplemental to those prescribed by the flight manual and other applicable directives.

14.2. Air-to-Air Refueling (AAR) Limitations. The following limitations apply.

14.2.1. AAR altitudes. AAR operations will be conducted above 12,000 feet MSL, or 10,000 feet AGL, whichever is higher. **(T-2) Exceptions:** (1) AAR operations based at or above 12,000 feet MSL, which momentarily fall below 10,000 feet AGL, but no lower than 5,000 feet AGL, due to over flight of mountain ridges, peaks, etc., are permissible; and (2) C-130, V-22, and A-10 receivers may be refueled as low as 5,000 feet AGL, if mission requirements dictate, subject to the below paragraphs.

14.2.1.1. 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. **(T-2)**

14.2.1.2. Pilots will fly no lower than an altitude that provides at least 5,000 feet of clearance above the highest obstruction or terrain within 5 nautical miles either side of the planned course centerline. **(T-2)**

14.2.2. Refueling during training missions. AAR should not be accomplished during training missions when:

14.2.2.1. In the opinion of either the pilot or boom operator, conditions result in marginal control of either aircraft or the boom.

14.2.2.2. Either the tanker or the receiver has less than the full number of engines operating. **Exception:** B-52 aircraft.

14.2.2.3. Tanker aircraft is unable to retract the landing gear.

14.2.3. Tanker autopilot. Tanker pilots will notify receiver pilots when any axis of the autopilot is not used. **(T-3)**

14.2.4. With autopilot off, boom operators should provide distance calls to tanker pilots before and after contacts.

14.2.5. AAR 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). AAR (i.e., tanker or receiver) will not be conducted after a known loss of tanker disconnect capability. **(T-3) Exception:** Fuel emergency situations, contingency missions, JCS alert, receiver over water deployment or re-deployment, operational reconnaissance missions, Prime Nuclear Airlift Force (PNAF) support missions under normal conditions when the refueling is essential for home base recovery, or when authorized in the mission directive.

14.2.6. Manual boom latching (MBL). MBL is also referred to as emergency boom latching, override boom latching, and amplifier override. Normal tanker disconnect capability and automatic disconnect limits are inoperative. MBL with IDS system operative may be accomplished without restrictions. Without operable IDS, training and evaluation in MBL procedures may only be accomplished under the following conditions:

14.2.6.1. Direct IP supervision is required on board receiver aircraft, if other than fighter type. **(T-3)**

14.2.6.2. Limit contacts to the minimum required.

14.2.6.3. Receiver and tanker AAR systems must be fully operable. **(T-3)**

14.2.6.4. Do not accomplish boom limit demonstrations, or practice emergency separations while in contact. **Note:** The 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. **(T-3)**

14.2.7. Reverse air refueling. See T.O. 1C-10(K)A-1.

14.2.7.1. Reverse AAR into a KC-135 is only permitted in an emergency, for operational necessity, or IAW FTU syllabus training requirements.

14.2.7.2. There are no restrictions for reverse AAR into another KC-10.

14.2.8. Practice emergency separations:

14.2.8.1. 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 information on when the separation will occur and who will give the command of execution. **(T-3)** Tanker pilot coordination may be accomplished over interphone with the boom operator.

14.2.8.2. Unless an actual breakaway is required, prior to calling for a practice emergency separation, make certain the boom nozzle is separated from the receiver's receptacle. In this instance, the tanker boom operator will call the breakaway.

14.2.8.3. Practice emergency separations may be accomplished with passengers on board. Ensure all passengers are seated with seat belts fastened. **(T-3)**

14.2.9. Limits demonstration. KC-135 tanker disconnect capability must be verified by a boom operator initiated disconnect prior to receivers conducting limits demonstrations. **(T-3)**

14.2.10. For receiver pilot initial qualification or requalification, the receiver instructor/examiner pilot will be in one of the pilot seats with immediate access to the controls through all phases of the refueling from astern until post air refueling. **(T-3)**

14.2.11. If a change of receiver pilot control is made, the receiver aircraft will move back to at least the astern position except for immediate assumption of control by the IP. **(T-3)**

14.2.12. If a tanker or receiver seat change takes place, the receiver will move back to at least 100 feet in trail of the tanker and to a point where the receiver pilot can maintain visual contact with the tanker until the seat change is complete. **(T-3)**

14.2.13. Receiver AR training for unqualified receiver pilots. In-flight training will be accomplished under direct IP supervision. **(T-3)** The following procedures apply:

14.2.13.1. The receiver pilot must inform and receive acknowledgment from the tanker. **(T-3)**

14.2.13.2. A qualified pilot will fly the aircraft if the tanker autopilot is off. **(T-3) Note:** This restriction does not apply during FTU training provided syllabus requirements are met.

14.2.14. Boom operator qualification or training. Unqualified and non-current boom operators must be under direct instructor supervision to conduct AAR operations. **(T-3)**

14.2.15. Weather limitations.

14.2.15.1. Discontinue refueling if moderate turbulence is encountered.

14.2.15.2. Discontinue refueling if in-flight visibility is insufficient to continue safe refueling operations.

14.2.16. The normal method of boom control during refueling operations is with the automatic load alleviation system (ALAS) "ON". AAR will not be conducted with an ALAS malfunction or ALAS inoperative. **(T-3) Exception:** Fuel emergency situations, contingency missions, JCS alert, receiver over water deployment or re-deployment, operational reconnaissance missions, PNAF support missions under normal conditions when the refueling is essential for home base recovery, or when authorized in the mission directive.

14.2.17. AAR with single rudder failure. AAR will not be conducted with a single rudder failure. **(T-3) Exception:** Fuel emergency situations, contingency missions, JCS alert, receiver over water deployment or re-deployment, operational reconnaissance missions, PNAF support missions under normal conditions when the refueling is essential for home base recovery, or when authorized in the mission directive. **Note:** When conducting AAR with a single rudder failure, limit contacts to the minimum number necessary to complete the mission. AAR training will not be conducted during single rudder operations. **(T-3)**

14.2.18. Boom operators will inform the receiver/receiver unit of any contacts made outside the receptacle. **(T-3)** This should be accomplished as soon as practical during the air refueling, if operational necessity dictates, contact the receiver unit after the sortie.

14.3. Altitude Reservation (ALTRV).

14.3.1. ALTRV procedures. Prior to accomplishing a mission requiring an ALTRV, crews will review their respective AFTTP 3-3.KC-10, Flip General Planning, and Area Planning to ensure compliance. **(T-3)** These publications are the main source of information for aircrews, but other pertinent information regarding ALTRVs may exist for the specific country or countries in which the ALTRV is established.

14.3.2. ICAO airspace. Fundamentally, ICAO acknowledges ALTRVs, but they do not recognize them in official publications. An ICAO ALTRV may or may not be an actual ATC clearance depending on the region. For instance, the United Kingdom requires aircraft to obtain ATC approval for all altitude changes. Furthermore, aircraft transiting multiple countries need to be aware that ALTRV procedures may change when crossing flight information region boundaries. In Europe, letters of agreement maintained at EUCARF explain ALTRV

procedures and routings for individual countries. Letters of agreement are coordinated on a one-to-one basis between EUCARF and each controlling agency/nation, not for the whole region. Crews will consult paragraph of the ALTRV message for country-specific information and explicitly follow all paragraph instructions. **(T-2)** If further clarification is required, contact the ALTRV planner first, followed by the appropriate altitude reservation facility.

14.3.3. In a non-radar environment, the aircraft shall advise ATC if actual fix timing will be more than plus or minus 5 minutes from the planned ALTRV enroute fix estimate. **(T-3)**

14.3.4. Country-specific Aeronautical Information Publications (AIP) contains useful information for operating within their airspace boundaries. Flip area planning documents incorporate the procedures in the AIP and remain the primary source of worldwide aeronautical information for MAF crews. AIPs can be found on Eurocontrol's website for the countries that have chosen to provide guidance. EUCARF's website also provides country-specific guidance. At a minimum, crews should make every attempt to become familiar with the specific ALTRV procedures for countries they will land at and overfly.

14.4. Emergency AAR. When an emergency AAR requirement arises, units tasked will attempt to fill the requirement from available unit resources. Use unit training sorties as first priority and generated alert sorties as second priority. If no capability exists, notify the controlling agency of the requirement and unit shortfall. **(T-2)**

14.5. AAR with Commercial or Non-USA Military Aircraft. All tanker and receiver aircraft must be technically compatible and have operational authority prior to conducting AAR. **(T-2)** The authority to undertake AAR with commercial or non-USA military aircraft (i.e., tanker or receiver) is provided through formal agreements between the participants such as a foreign military sales case, theater air tasking order and/or special instructions, an exercise/operations order (OPORD) or an implementing arrangement. Opportune AAR with foreign or commercial aircraft is prohibited.

14.6. Coronet East Mission Over Flights in France. Aircrews must explicitly follow pre-coordinated mission profiles on missions that transit French airspace. **(T-2)** 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. **(T-2)** 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. **(T-2)** If a request, even if pre-coordinated, is denied by the controller, follow their instructions.

Chapter 15

MISSION PLANNING

15.1. General. This chapter standardizes procedures for planning, briefing, and reviewing all missions. The PIC is ultimately responsible for the accuracy of the mission materials. Unit mission planning facilities should possess essential mission planning material.

15.1.1. Mission planning is normally conducted the day before the mission. Operations group commanders may elect to use a "same day mission plan" option.

15.1.2. Theater indoctrination folders (i.e., Part IV of Flight Crew Information File) should provide additional information for aircrew and planning staff review. **Note:** N/A for AFRC.

15.2. Briefings.

15.2.1. Pre-deployment briefing. Prior to deployments, the operations officer, mission commander, or designated representative should assemble the crew and brief description and purpose of the mission, tentative itinerary, aircraft configuration, special equipment, fuel load, clothing required, anticipated housing and messing facilities, sufficient money to defray individual’s anticipated expenses, personal equipment/field equipment requirements, special clearance requirements, and flying safety.

15.2.2. Other briefings. In addition to the briefings prescribed in AFMAN 11-202V3_AMCSUP, mission participants will also conduct any applicable briefings as required for mission accomplishment. **(T-3)**

15.3. Mission Debriefing. Hold immediately after the mission if practical. Include the following:

15.3.1. Aircrews will attend the operations and maintenance debriefings as directed by unit or mission commander. **(T-3)** Maintenance debrief should be conducted as soon as possible after flight.

15.3.2. Intelligence debriefings will be accomplished as soon as practical after mission recovery. **(T-3)**

15.3.3. Aircrew debrief. Mission critiques and debriefings are perhaps the most important learning tool available to aircrews and will be done after each mission. **(T-3)** All crewmembers will attend. **(T-3)** Use this time to review the entire mission.

Chapter 16

EMPLOYMENT TRAINING

16.1. General. Refer to AFTTP 3-3.KC-10 and AFMAN 11-2KC-10V1 for guidance on tactics training, specific maneuver descriptions, and tactical maneuver procedures.

16.2. Responsibilities. The tactics training program is a coordinated effort between the unit intelligence office, wing/group training office, and wing/group weapons and tactics flight, in order to ensure continuity and the unit's specific mission tasking is addressed. The unit tactics officer is responsible for developing procedures for timely dissemination of tactical information to unit aircrew members through tactics reference library and tactics read file. See AMCI 11-207, *Weapons and Tactics Program*, for the tactics reference library.

16.3. Tactics Simulator Training.

16.3.1. 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.

16.3.2. Responsibilities. The tactics simulator training is directed by the wing/group weapons and tactics flight. Suggestions for tactics simulator profiles must be forwarded for approval to AMC Air Operations Squadron, Detachment 1, prior to incorporating the profile into refresher simulator periods. **(T-2)** Because no threat specific information is required for this training, the simulator training is unclassified.

16.3.3. Tactical maneuvers. Spiral Up Departure and Random Steep (i.e., Spiral) Arrival are no longer continuity training events and will not be flown to satisfy continuation training requirements. Tactics training will be primarily accomplished in the simulator. **(T-2)** For continuation training, aircrew members will practice maneuvers as part of Tactical Aircraft Training Events IAW AFMAN 11-2KC-10V1. **(T-2)**

16.4. Tactics Flight Training.

16.4.1. Scope. The tactics flight training program is designed to provide KC-10 crew members with the training necessary to survive the wartime threat environment confidently and successfully without endangering aircrews or aircraft in peacetime. AFTTP 3-3.KC-10 details the approved maneuvers applicable to the KC-10 community; however, do not attempt any maneuver that is not specifically approved by AMC/A3/10.

16.4.1.1. Maneuvers identified under the Aircraft column in **Table 16.1** below may be accomplished in the aircraft on a non-interference basis during operational or continuation training missions.

16.4.1.2. All maneuvers and tactical events may be flown in the aircraft when operationally directed or required.

16.4.2. Tactical maneuvers. Accomplish tactical maneuvers IAW procedures provided in AFTTP 3-3.KC-10. Once certified, tactical maneuvers may be flown on continuation training and operational missions with passengers on board. Notify passengers prior to conducting tactics maneuvers training.

16.4.3. Flight training limitations and restrictions:

16.4.3.1. Limitations. The following limitations apply to all in-flight tactics training. Events accomplished in the simulator may be accomplished IAW AFTTP 3-3.KC-10 without restriction. Refer to **Table 16.1** to determine which maneuvers are permitted in the aircraft.

16.4.3.1.1. Aircraft tactical arrival and departure training is limited to single ship, visual meteorological conditions (VMC), 30-degree angle of bank maximum, and 1000 feet AGL minimum ingress/egress altitudes. **Note:** Approach-VFR Overhead (AP53YM) is limited to no more than 4-ship formations. Waiver authority for this restriction is the mission execution authority and may be delegated no lower than the OG/CC. **(T-3)**

16.4.3.1.2. Aircraft scram training is limited to VMC, 45-degree angle of bank maximum, 10,000 feet AGL minimum altitude, and 450,000 pound maximum gross weight. Scatter turns are limited to two-ship formations. **(T-3)**

16.4.3.1.3. Limit formation in-place turns to a maximum of 30 degrees of bank and 90 degrees of turn. **(T-3)**

16.4.3.1.4. Use a maximum of CLIMB power on the thrust rating computer when accomplishing scram training in the aircraft. **(T-3)**

16.4.4. Before accomplishing Tactical Arrival (TW50YM) in the aircraft, pilots will review the following items: chum, apply vector vertical obstruction data study, and carry a chart (i.e., minimum tactical pilot chart scale) covering the VFR route of flight; civilian sectional or host nation equivalent chart before accomplishing VFR training; VFR weather requirements; airspace and VFR pattern entry requirements; Class B, C, and D airspace ATC services; VFR cruising and minimum altitudes and flight following. **(T-2)**

Table 16.1. Simulator/Aircraft Tactical Maneuver Limitations. (T-2)

Simulator **(Note 1)**		Aircraft **(Note 2)**	
Event ID	Maneuver	Event ID	Maneuver
TW01YM	Tactical Departure (High-Speed/Low Altitude Departure Option)	TW01YM	VFR Overhead
TW50YM	Tactical Arrival	TW50YM	Tactical Arrival (options other than High-Speed/Low Altitude Arrival and Spiral)
TW40YM	Combat Descent	RA51YM	Slide Exercise
RA21YM	Defending Climb	RA47YM	Single Ship Scram

		AV79Y	Maneuver-Steep Turns
		RA17YM	Contingency Rejoin

Notes:

1. These maneuvers are restricted to the simulator, except for operational necessity.

2. These maneuvers should be performed in the simulator during continuation refresher training but may be accomplished in the aircraft during operational or continuation training missions on a non-interference basis.

Chapter 17

AIRCRAFT FORMATION

17.1. General. This chapter covers basic formation procedures and operations. All procedures described apply to all KC-10 and KC-135 aircraft. 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. **(T-3)**

17.1.1. All formation flights will be planned, briefed, and critiqued IAW the applicable T.O., this chapter, NATO Standard ATP-3.3.4.2, and AFTTP 3-3. KC-10. **(T-3)**

17.1.2. These procedures are standardized with KC-135 formation operations.

17.2. Specified Times. The formation leader determines the SOEs and mission times based on mission requirements. Local SOEs for formation training missions may be established for use at home station. Changes in briefing or mission timing will be relayed to all formation members at the earliest opportunity.

17.3. Weather Minimums. Comply with weather minimums for takeoff and landing established in AFMAN 11-202V3 and **Chapter 6** of this manual.

17.4. Ground Operations. The formation leader should accomplish radio checks and copy ATC clearance in the chocks. All formation members should make every effort to accomplish HAVE QUICK and SECURE VOICE radio operations on all local formation training missions. All participating crews will accomplish as much of the pre-takeoff checklists as possible prior to taxi. Lead will obtain taxi and takeoff clearance. **(T-3)**

17.5. Communications and Radio Procedures. Radio and interphone discipline are critical factors in maintaining formation integrity. The formation leader will ensure all formation members have a complete understanding of the radio monitoring plan. **(T-3)**

17.5.1. When radio silent operations are required, the formation leader will pre-brief all formation members on specific procedures for frequency changes (e.g., timing, visual signals, etc.). **(T-3)**

17.5.2. Visual signals may be used as an alternate or secondary means of communication between aircraft.

17.6. Launch, Departure, and Level-Off.

17.6.1. 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. **(T-3)** PICs may excuse crew members from the formation briefing to perform preflight duties, however the PIC will back brief all appropriate items. **(T-3)** If lead changes are planned, each formation lead will brief their portion of the mission. **(T-3)** Example formation briefing emphasis items are provided in **Attachment 4**. AFTTP 3-3.KC-10 contains formation standards and the recommended formation briefing guide.

17.6.1.1. When deviations from the briefed mission are necessary, they will be directed by the leader. **(T-3)** No actions will be taken until they have been coordinated with and are understood by all formation members. **(T-3)**

17.6.1.2. Non-collocated units. If aircraft depart from separate bases and then rendezvous for formation activity, the formation leader should make every effort to conduct a telephone briefing with joining tanker and receiver formation leaders. If this is not possible, after detailed sortie study, the coordination and briefing between the appropriate lead planning agencies or mission commanders may be used to satisfy formation briefing requirements. Coordination of these formations will include designation of mission commander responsibilities for all phases of the formation operation. **(T-3)**

17.6.1.3. Unit responsibilities. Each unit will develop post takeoff separation procedures and departure separation plans with the local controlling agency. **(T-3)** Each plan must consider emergency aspects, aircraft performance capabilities, terrain features, penetration of weather after takeoff, and local ATC restrictions. **(T-3)** Procedures should also be developed for items such as aborts, lost communications, EMCON, and the recovery of formation aircraft.

17.6.2. Filing procedures. Flight plans for all formation members will reflect the same route of flight for the portion of flight the aircraft will be in formation. **(T-3)** Local procedures for filing may be used provided they are coordinated and documented in writing by the unit and local FAA, or ICAO, representatives.

17.6.3. Taxi procedures. Follow the taxi sequence established in the briefing. Maintain safe interval and a safe speed during taxi. **(T-3)**

17.6.4. Takeoff timing interval. Defined as the time between initiation of takeoff power for each successive aircraft in the formation. Use of takeoff power radio calls is not recommended. Minimum takeoff timing interval is 60 seconds between KC-10s and other aircraft in the formation. Takeoff intervals may be increased, or sequence may be varied as necessary, depending on aircraft acceleration and performance, training requirements, weather, airfield conditions, and mission requirements. See AFTTP 3-3.KC-10, Chapter 5 for more guidance.

17.6.5. Formation takeoff procedure (i.e., hold-line through takeoff). Receivers should takeoff first. Any time a takeoff is aborted, an abort call will be made by the aborting aircraft over the ATC radio frequency being used by the formation. **(T-3)** At bases with dual runway operations, aborting aircraft should identify the runway in use. An additional radio call announcing an abort is recommended over the formation inter-plane frequency.

17.6.6. Departure. Normal planned climb speed below 10,000 feet MSL is 250 KIAS, unless a higher speed is required to accommodate the Vmm of the heaviest aircraft in the formation. Above 10,000 feet MSL, for KC-10/KC-10 or KC-10/KC-135 cell formation departures, the normal planned climb speed is 290 knots (**Note:** This equates to 295 KIAS in the KC-135) for formations with KC-10s less than 500,000 pounds gross weight and 310 knots (**Note:** This equates to 315 KIAS in the KC-135) for formations with KC-10s equal to or greater than 500,000 pounds gross weight. 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 in the formation. **(T-2)** If visual, radar, A/A TACAN, traffic collision avoidance system (TCAS), and radio contact are all lost, and altitude separation cannot be ensured, lost wingman and locally developed abort procedures will be accomplished. **(T-2)**

17.6.6.1. Formation join-up. Differential airspeed and/or visual cut-off in departure turns are the approved methods for formation join-up. The use of visual cut-off is restricted to day/VMC operations only. **(T-2)** Altitude separation will be carefully monitored during closure to en route spacing. **(T-2)** Under other than VMC or when visual contact cannot be maintained with all formation members, altitude separation should be accomplished using TCAS or by periodically having each aircraft in the formation report its altitude or flight level. During night or instrument flight conditions, aircraft should turn at the same geographic points as the preceding aircraft.

17.6.6.2. Buddy departures. Buddy departures may be used by collocated tanker and fighter or bomber units. The intent of this type of departure is to facilitate the join-up of receivers with their mated tankers. The procedures below are generalized and may require modification based on aircraft and airspace limitations.

17.6.6.2.1. VMC procedures. VMC procedures may be used when weather (i.e., ceiling and visibility) is 3000/5 or greater. Receivers normally launch first and intercept an arc to place themselves on extended (i.e., approximately 10 NM) final to the departure runway. When the receiver calls 10 NM final, or the last receiver turns cross wind, or on predetermined timing, the tanker should launch. Continue with a straight ahead rejoin or according to briefed departure routing.

17.6.6.2.2. Instrument meteorological conditions (IMC) procedures. 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 normally launch first unless mission fuel load and performance considerations dictate otherwise. Receivers should be rejoined prior to rendezvous with the tankers.

17.6.7. Level-off. An altitude block will be requested for all intermediate and final level-off altitudes providing a minimum of 500-foot separation between aircraft. **(T-3)** If ARTCC will not approve a block altitude, then request IFR separation or hard IFR altitudes for each aircraft in formation. **(T-3)**

17.6.8. Airborne aborts. Any aborting aircraft should clear the planned launch stream and take appropriate actions dictated by the reason for abort. Aborting aircraft will obtain ATC clearance prior to altering their route or declare an emergency and deviate as necessary. **(T-3)** The formation leader and other formation members should be ready to assist the aborting aircraft in any way possible.

17.7. En Route Formation. En route formation consists of multiple tanker aircraft in trail, stacked up at 500-foot intervals with 1 NM separation. **Note:** 2 NM 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. Under both conditions, A/A TACAN and TCAS should be used. When visual conditions permit, minimize radio transmissions. Heading and airspeed changes need not be announced. In IMC, the formation leader should ensure all formation members are aware of heading and airspeed changes, either through thorough pre-briefing, or use of inter-plane communications. Aircrews will monitor the position of all other aircraft and, on inter-plane, notify any aircraft excessively out of position. **(T-3)**

17.7.1. Turns. The formation leader should pre-brief specific bank angles for turns. This will help reduce inter-plane communications and aid in maintaining formation position. To

maintain formation position during turns, all aircraft must initiate the turn over the same geographic point, unless executing a formation retrograde training maneuver as described in AFTTP 3-3.KC-10. **(T-3)** Echelon formation 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. **(T-3)** 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.

17.7.2. Airspeed and altitude. Formation climbs and descents will be accomplished using a constant airspeed and vertical velocity. The formation leader will ensure en route airspeed is compatible with the most restrictive aircraft in the formation. **(T-3)** Pre-brief, or announce on inter-plane frequency, rates of climb/descent and airspeed increases/decreases.

17.7.3. 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.

17.7.4. Visual station-keeping. Refer to AFTTP 3-3.KC-10 for visual station-keeping techniques. During operational situations requiring EMCON 3 or 4, and marginal visibility prohibits normal formation spacing, a compressed trail formation may be used. Formations may be compressed but should not be less than 1/2NM laterally and 500 feet vertical spacing between aircraft.

17.7.5. Domestic reduced vertical separation minimum (DRVSM). Reduced vertical separation minimum (RVSM) separation standards may be applied to formation flights consisting of all RVSM-compliant aircraft operating in DRVSM airspace. **Note:** DRVSM airspace includes the airspace of the lower 48 states of the United States, Alaska, Atlantic and Gulf of Mexico high offshore airspace, and the San Juan flight information region between flight level (FL) 290-410, inclusive.

17.7.5.1. RVSM formation flights with fighter aircraft may file for a single altitude if all formation aircraft fly the assigned altitude, either offset laterally from each other or in trail.

17.7.5.2. RVSM formation flights requiring multiple altitudes should request an altitude block. ATC may then apply RVSM separation standards between this altitude block and other RVSM aircraft (e.g., an RVSM formation flight is assigned FL320-330; ATC assigns other RVSM aircraft at FL310 and FL340).

17.7.5.3. RVSM formation aircraft must use their automatic altitude control system to maintain the assigned altitude. **(T-2)** Aircraft maneuvering within an altitude block must ensure they do not exceed the vertical boundaries of the block by utilizing the aircraft altitude alerting system, altitude capture function, if installed, and automatic altitude control system. **(T-2)** If unable to maintain autopilot in vertical axis notify ATC of non-compliance with RVSM.

17.7.5.4. Formation flights which do not consist of all RVSM aircraft will continue to be considered non-RVSM compliant and will have 2,000-ft vertical separation standards applied in DRVSM airspace. **(T-2)** In addition, aircraft formations conducting aerial

refueling will continue to be considered non-RVSM compliant; regardless of the participating aircraft's single-ship status.

17.8. Lost Wingman Procedures. See AFTTP 3.3.KC-10.

17.9. 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. **(T-3)** Formation position change procedures will be covered in the formation leader's briefing. **(T-3)** Formation position changes should normally be accomplished in straight and level flight, and once initiated, they will take priority over all other activities. Formation position change techniques are described in AFTTP 3-3.KC-10, Chapter 5.

17.10. Formation Break-Up and Recovery. Formation separation procedures will be thoroughly planned and briefed by the formation leader. **(T-3)** Do not initiate formation separation procedures without ATC approval. If formation descent and arrival is desired, detailed descent profile, airspeed reduction, and configuration procedures will be thoroughly briefed. **(T-3)**

17.11. Mission Debriefing and Critique. A complete mission debriefing and critique should be conducted by the formation leader following the mission.

Chapter 18

AEROMEDICAL EVACUATION

18.1. Mission.

18.1.1. This chapter applies to all Air Force aircrews, aeromedical evacuation (AE) aircrews and all management levels concerned with operations of the KC-10 aircraft. All operators involved in AE missions on KC-10 aircraft will use this manual.

18.1.2. KC-10 aircraft may be used for AE transport of ill or injured DoD members and their dependents. These AE missions may be directed at any time by C2 agencies. AE personnel, in conjunction with this publication, will utilize the procedures in AFMAN 11-2AE, Volume 3, *Aeromedical Evacuation (AE) Operations Procedures*, and DAFI 48-107 series to accomplish the AE mission.

18.2. Boom Operator Responsibilities.

18.2.1. The boom operator will provide the medical crew director (MCD) with an interphone cord when mission requirements allow. Ensure MCDs are provided instruction regarding the use of aircraft communication equipment and location of cargo/passenger compartment interphone jacks. **(T-3)**

18.3. Aircraft Configuration.

18.3.1. On operational AE missions, configure the aircraft during pre-flight per T.O. 1C-10(K)A-9 and AFMAN 11-2KC-10V3, Addenda A.

18.3.2. Litter support provisions. Without the patient support pallet: one litter space is available in a B configuration; two litter spaces are possible in a D configuration. These are depicted in floor loading procedures outlined in **paragraph 18.5** and **Figure 18.1**.

18.3.3. Available litter spaces and ambulatory seating depends on the aircraft cabin's mission configuration. Seat ambulatory patients and attendants in KC-10 airline seats.

18.3.4. Therapeutic oxygen. Therapeutic oxygen is not an integral system on the KC-10 aircraft. Use the patient therapeutic liquid oxygen system or the next-generation patient therapeutic liquid oxygen.

18.3.5. Integral patient/passenger emergency oxygen is not available on the aircraft. In the event of an emergency, patients and passengers will use the aircraft drop down/seat back or wall mounted emergency oxygen system, or EPOS. **(T-2)**

18.3.6. Aeromedical evacuation crew members (AECMs) will have portable oxygen available. **(T-3)** The four portable oxygen cylinders located in the crew bunks and one portable oxygen cylinder from the ARO compartment will be made available for AE crew use. **(T-3)** Bunk occupants will use EPOS in place of portable oxygen cylinders. **(T-3)** Maximum number of personnel in ARO will be two. If portable oxygen cylinders are not available, protective breathing devices may be used as portable oxygen.

18.3.7. Do not secure aircraft or medical equipment adjacent to an emergency exit in a manner that will prevent or impede egress. **(T-3)**

18.3.8. Life preservers. Use the adult/child life preserver or infant cots for patients.

18.3.9. The electrical cable assembly system provides an approved alternating current adapter (i.e., pigtail) for use on KC-10, 110 VAC/400 Hz electrical outlets. The adapter allows the portable avionics or unitron frequency converter to be connected to aircraft power. AE equipment is then plugged into the frequency converter with a 115 VAC 50-400 Hz electrical cord assembly. AE personnel are required to coordinate with the boom operator prior to electrical outlet and converter use. **(T-3)**

18.4. Passengers and Cargo. The PIC, with the concurrence of the MCD, will ensure maximum aircraft utilization for passengers and cargo. Passenger restrictions based upon patient considerations will be identified prior to seat released. **(T-3)** The PIC will advise the appropriate C2 agency of the number seats available for passengers. **(T-3)**

18.5. Floor Loading Procedures.

18.5.1. Floor loading of litter patients is authorized for all contingency operations when a time critical environment exists (e.g., non-secure landing zones, areas faced with enemy siege/hostile fire, humanitarian reasons, etc.), and minimum ground time is essential. Maximum altitude for floor loaded litter patients is FL350. Patients will have an EPOS prepositioned on their litter when floor loaded. **(T-3)** When floor loading litter patients is required, comply with the following. **(T-3)**

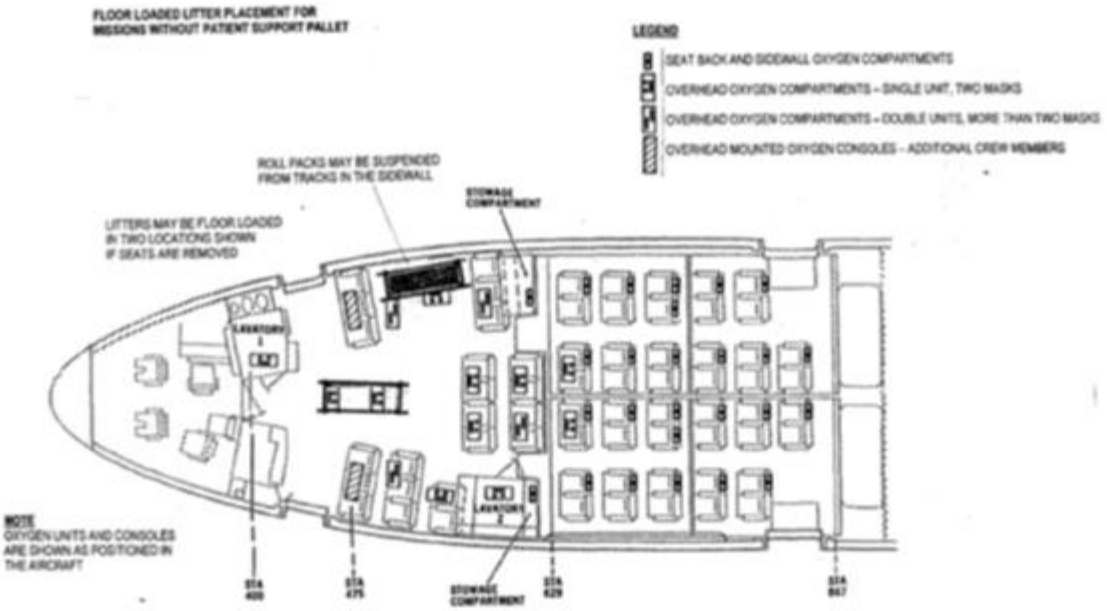
18.5.1.1. Patients will be floor loaded in the forward passenger area only. Patients are positioned with feet toward the flight deck, longitudinally on the aircraft floor. Seats will need to be removed. **Note:** critical care air transport team patients may be positioned with their head towards the flight deck if the critical care air transport team physician determines patient condition warrants headfirst placement. **(T-3)**

18.5.1.2. In the B or D configuration, a single litter may be placed on the aircraft centerline, replacing the first two rows of center seats. Refer to **Figure 18.1**.

18.5.1.3. Alternatively, when in the D configuration, remove the two rows of seats immediately aft of the first row of outboard right seats. Refer to **Figure 18.1** some medical equipment may be placed in the seats aft of the litter.

18.5.1.4. Use A-7000 tie-down fittings in the seat tracks and 5000 lb tie-down devices. Shoring is not required; however, the litters should be placed with metal stirrups in the seat tracks or put protective material under the litter stirrups to protect the aircraft floor. Use one tie down device at the end of each litter.

Figure 18.1. Floor Loading.



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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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DD Form 1385, *Cargo Manifest*

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

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

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AMC Operational Risk Management Worksheet

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KC-10 *Fuel Planning Worksheet (FPW)*

Abbreviations and Acronyms

618 AOC—618th Air Operation Center

A3—Director of Operations

AAR—Air-to-Air Refueling

ARO—Air Refueling Operator

AC—Aircraft Commander

AD—Airworthiness Directives

ACF—Acceptance Check Flight

ACFP—Advanced Computer Flight Plan

AE—Aeromedical Evacuation

AECM—Aeromedical Evacuation Crew Member

AFH—Air Force Handbook

AFI—Air Force Instruction

AFTO—Air Force Technical Order

AFTTP—Air Force Tactics Techniques and Procedures

AFMAN—Air Force Manual

AFMC—Air Force Material Command

AFRC—Air Force Reserve Command

AFPD—Air Force Policy Directive

AGE—Aerospace Ground Equipment

AGL—Above Ground Level

AIP—Aeronautical Information Publications

ALAS—Automatic Load Alleviation System

ALTRV—Altitude Reservation

AMC—Air Mobility Command

AMCI—Air Mobility Command Instruction

APCH—Approach

APU—Auxiliary Power Unit

AR—Air Refueling

ASRR—Airfield Suitability and Restrictions Report

ATC—Air Traffic Control

BRNAV—Basic Area Navigation

C2—Command and Control

CDFA—Continuous Descent Final Approach

CDT—Crew Duty Time

CFP—Computer Flight Plan

CG—Center of Gravity

CONOP—Concept of Operations

CRM—Crew Resource Management

DAFIF—Digital Aeronautical Flight Information File

DDA—Derived Decision Altitude

DRVSM—Domestic Reduced Vertical Separation Minimum

DT—Displaced Threshold

ED—Engineering Disposition

EFB—Electronic Flight Bag

EGT—Exhaust Gas Temperature

EMCON—Emission Control

EP—Evaluator Pilot

EPOS—Emergency Passenger Oxygen System

FAA—Federal Aviation Administration

FCF—Functional Check Flight

FCG—Foreign Clearance Guide

FBP—Flight Engineer Basic Prequalification

FDP—Flight Duty Period

FF—Basic Qualified Engineer

FGS—Flight Guidance System

FIQ—Flight Engineer Initial Qualification

FL—Flight Level

FLIP—Flight Information Publication

FM—Flight Manager

FMS—Flight Management System

FP—First Pilot

FPW—Fuel Planning Worksheet

FTU—Formal Training Unit

GCG—Gross Climb Gradient

GDSS—Global Decision Support System

GNSS—Global Navigation Satellite System

GPS—Global Positioning System

HAT—Height Above Touchdown

HATR—Hazardous Air Traffic Report

HF—High Frequency

IAU—Increased Accommodation Unit

IAW—In Accordance With

ICAO—International Civil Aviation Organization

IDS—Independent Disconnect System

IFF—Identification Friend or Foe

IFR—Instrument Flight Rules

ILS—Instrument Landing System

IMC—Instrument Meteorological Conditions

IP—Instructor Pilot

JMPS—Joint Mission Planning System

KIAS—Knots Indicated Airspeed

LNAV—Lateral Navigation

LRC—Long Range Cruise

MAF—Mobility Air Forces

MAFPS—MAF Advanced Flight Planning Service

MAJCOM—Major Command

MB—Mission Qualified Boom Operator

MBL—Manual Boom Latching

MC—Mission Contributing

MCD—Medical Crew Director

MDA—Minimum Descent Altitude

MDS—Mission Design Series

ME—Mission Essential

MEL—Minimum Equipment List

MEP—Mission Essential Personnel

MOB—Main Operating Base

MSL—Mean Sea Level

NDB—Non-Directional Beacon

NM—Nautical Mile

MR—Mission Ready

NAVAID—Navigation Aid

NMR—Non-Mission Ready

NOTAM—Notice to Airmen

OCF—Operational Check Flight

OG/CC—Operations Group Commander

OI—Open Item

OIS—Obstacle Identification Surface

OPORD—Operations Order

OP—Other Pilot

OPR—Office of Primary Responsibility

ORM—Operational Risk Management

PCM—Passenger Compartment Monitor

PCMCIA—Personal Computer Memory Card International Association

PF—Pilot Flying

PIC—Pilot In Command

PM—Pilot Monitoring

PNAF—Prime Nuclear Airlift Force

POC—Point of Contact

PRNAV—Precision Area Navigation

RAIM—Receiver Autonomous Integrity Monitoring

RCR—Runway Condition Reading

REMIS—Reliability and Maintainability Information System

RF—Radius-to-Fix

RNAV—Area Navigation

RNP—Required Navigation Performance

RRFL—Required Ramp Fuel Load

RVSM—Reduced Vertical Separation Minimum

SAAM—Special Assignment Airlift Mission

SATCOM—Satellite Communication

SDP—Standard Departure Procedures

SM—Statute Mile

SOE—Sequence of Events

SPO—System Program Office

SQ/CC—Squadron Commander

STAN/EVAL—Standardization and Evaluation

TACAN—Tactical Air Navigation

TCAS—Traffic Collision Avoidance System

TEM—Threat and Error Management

TERPS—Terminal Instrument Procedures

T.O.—Technical Orders

TOLD—Takeoff and Landing Data

TWCF—Transportation Working Capital Fund

UHF—Ultra High Frequency

VFR—Visual Flight Rules

VHF—Very High Frequency

VMC—Visual Meteorological Conditions

VOR—Very High Frequency Omni-Directional

WARP—Wing Air Refueling Pod

ZFW—Zero Fuel Weight

Office Symbols

AFLCMC/EZPRA—Air Force Life Cycle Management Center Product Support Engineering Division

AFRC/A3M—Air Force Reserve Command Mobility Operations Division

AMC/A3AS—AMC Airfield Suitability Branch

AMC/A3V—AMC Standardization and Evaluation

AMC/A3VK—AMC Standardization and Evaluation, Tanker Division

AMC/A3/10—AMC Directorate of Operations, Strategic Deterrence, and Nuclear Integration

AMC/A5QT—AMC Directorate of Strategic Plans, Requirements and Programs, Tanker Branch

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 by air transportation.

Aeromedical Evacuation Crew Member (AECM)—Qualified flight nurse and aeromedical evacuation technician performing AE crew duties.

Air Force Mission Support System—Provides the Air Force with common interoperable automated flight mission planning hardware and software. Consists of a ground and portable (i.e., 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 GDSS or Contingency Theater Automated Planning System. Threats are provided via the Combat Intel System. AF Mission Support System is multimedia capable with modem provided on ground and portable systems. The portable has a 1553B interface bus for uploading data to the aircraft. AF Mission Support System displays and prints full color charts, National Imagery Transmission Format 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 hardware and implements nonproprietary software.

Aircraft Commander (AC)—A qualified pilot graduate of an aircraft commander upgrade course or aircraft commander initial qualification training, certified by the squadron commander to act as pilot in command of an aircraft. Capable of holding the A-code.

Airlift—Aircraft is considered to be performing airlift when manifested passengers or cargo are carried.

Air Reserve Component—Refers to Air National Guard and Air Force Reserve Command forces, both Associate and Unit Equipped.

Air Route Traffic Control Center—The principal facility exercising en route control of aircraft operating under instrument flight rules within its area of jurisdiction. Approximately 26 such centers cover the United States and its possessions. Each has a 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 AMC/A36AS, to establish airfield suitability and restrictions for AMC and AMC-gained C-5, KC-10, C-17, C-21, C-130, and KC-135, aircraft operations. GDSS provides the most up to date information available. Others use as information only, or as directed by the assigned MAJCOM.

Augmented Crew—Basic aircrew supplemented by additional qualified aircrew members to permit in-flight rest periods.

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 manual, C2 Centers include operations centers, command posts, air mobility elements, contingency response groups, air mobility control centers, and tanker task forces.

Contingency Fuel—Contingency fuel is an identified extra to compensate for unforeseen circumstances during any phase of flight (e.g., unforecasted weather, launch delay, etc.).

Contingency Mission—Mission operated in direct support of an OPORD, OPLAN, disaster, or emergency.

Critical Phase of Flight—Terminal Area operations (i.e., taxi, takeoff, approach and landing), Low-level flight, Air Refueling, tactical/air combat and formation operations (other than cruise) and all portions of any test or functional check flight, or aerial demonstration.

Decompression (Depressurization) Fuel—The additional fuel required to protect the aircraft and occupants in the event of a cabin depressurization followed by an extended diversion to an alternate airport at low altitude where fuel consumption is increased.

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 AR control time. 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.

Double Blocking—When an aircraft is required to block-in at one parking spot, then move to normal parking for final block-in. The extra time required for double blocking will be taken into account during mission planning/scheduling. To compensate for double blocking on departure, the aircrew "legal for alert time" may be adjusted to provide additional time from aircrew "show time" to departure. When double blocking is required on arrival, the aircrew’s entry into crew rest is 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) number.

Equal Time Point—Point along a route at which an aircraft may either proceed to destination or first suitable airport or return to departure base or last suitable airport in the same amount of time based on all engines operating.

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.

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.

Ground Time—Interval between engine shut down (or arrival in the blocks if engine shutdown is not scheduled) and next takeoff time.

Hazardous Cargo or Materials—Articles or substances that are capable of posing significant risk to health, safety, or property when transported by air and classified as explosive (class 1), compressed gas (class 2), flammable liquid (class 3), flammable solid (class 4), oxidizer and organic peroxide (class 5), poison and infectious substances (class 6), radioactive material (class 7), corrosive material (class 8), or miscellaneous dangerous goods (class 9). Classes may be subdivided into divisions to further identify hazard (e.g., 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.

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.

Local Training Mission—A mission scheduled to originate and terminate at home station, to include an off-station training mission, generated for training or evaluation, and executed at the local level.

MAF Advanced Flight Planning Service (MAFPS)—An Air Force-level system that is the follow-on replacement for ACFP. The system optimizes flight plans based on sortie requirements, aircraft capabilities, airspace restrictions, and ETOPS restrictions, if required.

Medical Crew Director (MCD)—A qualified flight nurse responsible for supervising patient care and AECMs assigned to AE missions. On missions where a flight nurse is not onboard, the senior aeromedical evacuation technician functions as MCD.

Mission Contributing—Any discrepancies that are 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.

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 Missions—Missions executed at or above 618 AOC level. Operational missions termed "CLOSE WATCH" include CORONET missions and AFI 11-221 priority 1, 2, and 3 missions tasked by the 618 AOC. 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.

Overwater Flight—Any flight that exceeds power off gliding distance from land.

Pilot In Command (PIC)—The aircraft commander, instructor pilot, or evaluator pilot designated on the flight authorization to act in command of a particular flight, or flights. Normally denoted by the A-code remark on the applicable flight authorization.

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.

Required Ramp Fuel Load (RRFL)—Minimum fuel required at engine start to complete tasked mission.

Secure Communications—**-**Voice and/or data communications, encrypted for exchange of up to SECRET information between the aircraft and external entities, via both line of sight and beyond line-of-sight radio frequencies. Secure communications are distinct from communications security, in that communications security is associated with the process of protecting voice and data links, to include obtaining and handling crypto devices and keying materials.

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.

Special Assignment Airlift Mission (SAAM)—Funded airlift that cannot be supported by channel missions because of the unusual nature, sensitivity, or urgency of the cargo or that requires operations to points other than the established channel structure.

618th Tanker Airlift Control Center (618 AOC)—Operations center that controls tanker and airlift forces worldwide through a network of computer systems. The 618 AOC contains the

following functions: Airlift Allocation Directorate, Airlift Planning Directorate, Air Refueling Planning Directorate, Global Air Mobility Support System Directorate, Mobility Operations Directorate, Intelligence, Surveillance, and Reconnaissance Directorate, Strategy Directorate, Weather Directorate, and an Air Communications Squadron.

Tankered Fuel—Additional fuel carried through a primary destination for use on a subsequent leg.

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 manual.

Transportation Working Capital Fund (TWCF)—Formerly known as Defense Business Operations Fund-Transportation. Part of the Air Force Working Capital Fund. Normally used to cover costs that can be recovered from an air mobility customer. Examples include TDY costs, site surveys of contingency response groups or airlift unit deployment bed down locations, airlift unit level mission planning expenses, and support or contract costs for deployed TWCF units/personnel.

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 4095, KC-10A LOAD PLANNING WORKSHEET INSTRUCTIONS

A2.1. General. The 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.

A2.2. 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..

A2.3. ZONE LOAD. Enter allowable weights from T.O. 1C-10(K)A-9, Zone Chart, based on the fuel quantities (Item 1).

A2.4. PALLET BLOCKS; RIGHT, LEFT. Enter the desired information (i.e., 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 (e.g., engine trailer).

A2.5. RIGHT MOMENT; LEFT MOMENT. Record computed moment for the weight distribution as depicted in item 3.

A2.6. 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.

A2.7. 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.

A2.8. 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).

A2.9. ON-LOAD TIPPING ANALYSIS. Record the computed ARM or % MAC. A running total of weights and moments may also be entered.

A2.10. 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 are then entered as PARKING FUEL (+). The results: OFF-LOAD START data is used to compute Off-load Tipping Analysis (Item 10).

A2.11. OFF-LOAD TIPPING ANALYSIS. Record the computed ARM or % MAC. A running total of weights and moments may also be entered.

A2.12. ZONE LOAD MAX FUEL; AFT; FWD. When the actual zone load (Item 2) is less than allowed, the body tank fuel may be increased.

A2.13. 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 3

AF IMT 4130, KC-10 RESTRAINT COMPUTATION WORKSHEET INSTRUCTIONS

A3.1. General. The AF IMT 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.

A3.2. Enter the item weight.

A3.3. Compute vertical restraint requirement and enter its value.

A3.4. Compute FWD, AFT, LEFT, RIGHT, (all others), and enter the value.

A3.5. Take the applicable measurements and record in the appropriate columns. The column labels correspond to the diagram above the columns.

A3.5.1. When recording (D) FWD/AFT Effective Length, enter an A or F showing the direction of restraint provided.

A3.5.2. When recording (E) Lateral Effective Length, enter an L or R showing the direction of restraint provided.

A3.6. 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.

A3.7. Based on the results of the Vertical computation, select the applicable formula, 7A or 7B, and compute the Longitudinal and Lateral restraint.

A3.8. Record the applicable values in the blocks provided.

A3.9. 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 4

FORMATION BRIEFING GUIDE

A4.1. General. This briefing guide is provided as an example to stress mission events and objectives rather than reinforce technical order procedures. A standardized briefing format is especially important when flying with other units. Brief actions required to meet mission and EMCON objectives. AFTTP 3-3.KC-10 contains formation standards and a formation briefing guide.

A4.1.1. Roll Call and Time Hack. Pilot in Command, call sign, aircraft tail numbers, parking locations.

A4.1.2. Weather. Takeoff, en route, AR, destinations, alternates.

A4.1.3. Mission Overview. Objectives, tactical considerations, takeoff time, rendezvous control time or point and AR control time, formation break-up, landing.

A4.1.4. Communications Plan. Ground operations, EMCON plan or allowable emitters, radio check-in times and secure radio checks, authentication, launch, or execution as required, ARTCC clearances.

A4.1.4.1. Takeoff. EMCON plan or allowable emitters, inter-plane frequency, airborne calls.

A4.1.4.2. En route. EMCON plan or allowable emitters, lost wingman, weather update, communications log requirements, SATCOM/HF.

A4.1.4.3. Air refueling. EMCON plan or allowable emitters, radio frequencies, A/A TACAN channel and band, HF.

A4.1.4.4. Formation break-up and recovery. EMCON plan and allowable emitters, radio frequencies, weather update, SATCOM/HF procedures, special frequencies.

A4.1.5. Taxi. Engine start time, taxi time, sequence (including spare), performance data, takeoff clearance.

A4.1.6. Takeoff. Interval and sequence, abort, emergencies.

A4.1.7. Departure (i.e., VMC or IMC). Airspeeds, routing, climb rates or power settings, intermediate level-offs, turns and bank angles, visual cut-off.

A4.1.8. Level-Off. Join-up, altitude block, airspeed (i.e., indicated, true, or mach), minimum maneuvering airspeed, performance ceilings.

A4.1.9. En route (i.e., VMC or IMC). Airspeed changes or mission timing, turns and bank angles, climb and descent rates, position changes.

A4.1.10. Air Refueling (AR) (i.e., VMC or IMC). Call signs, off-loads, on-loads, and sequence, base altitude, track, type rendezvous, AR formation, AR airspeeds, bingo fuel, abort bases, end AR requests, break-up.

A4.1.11. Formation Break-Up. Altitudes, separation routing and procedures, cruise differential airspeeds.

A4.1.12. Recovery. Penetration sequence, airspeeds.

A4.1.13. Special Subjects. Wake turbulence avoidance, mission commander designation (as applicable), aircraft separation and monitoring plan, tactics (as required), and human factors (e.g., channelized attention, task saturation/prioritization, ORM, and complacency).

A4.1.14. Formation Debrief (as required).