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Flying Operations

WC-130J OPERATIONS PROCEDURES

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to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of the Air Force Instruction (DAFI) 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor's commander for non-tiered compliance items. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. AFMAN 11-202V3, *Flight Operations*, applicable supplements, and this Air Force Manual (AFMAN) provide guidance for operating the WC-130J. It is an original source document for many areas but, for utility, it restates information found in aircraft flight manuals, flight information publications (FLIP), and other Air Force directives. When guidance in this AFMAN conflicts with another source document, the other source document takes precedence. For matters where this AFMAN is the source document, waiver authority is in accordance with **paragraph 1.4** For matters where this AFMAN repeats information in another document, follow waiver authority outlined in the source document.

1.1.2. Unit commanders and agency directors, to include transportation and base operations passenger manifesting agencies involved with or supporting WC-130J operations shall ensure appropriate personnel are familiar with the guidance within this AFMAN. **(T-3).**

1.2. Key Words Explained.

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

1.2.2. "Should" indicates a preferred, but not mandatory, method of accomplishment.

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

1.2.4. "Note" indicates operating procedures, techniques, etc., considered essential to emphasize.

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

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

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

1.3.1. Deviations. The PIC shall report deviations or exceptions taken without a waiver through command channels to the Chief, Major Command (MAJCOM) Standards and Evaluations (Stan/Eval), who in turn shall notify Chief, Air Force Reserve Command (AFRC) Air Mobility Division, AFRC/A3M, (lead command) as appropriate for follow-on action. **(T-2).**

1.3.2. Waivers affecting theater unique circumstances without an expiration date, must be approved by, or coordinated through, the MAJCOM Operations Directorate (MAJCOM/A3).

1.3.3. Long-term waivers, with specific expiration dates, affecting multiple aircraft or missions must be approved by the applicable MAJCOM/A3 and sent from the appropriate MAJCOM Stan/Eval to AFRC/A3M.

1.4. Supplemental Procedures. This AFMAN is a basic directive. Each user MAJCOM or operational theater may supplement this AFMAN according to DAFPD 11-2 and DAFI 33-360.

Stipulate unique MAJCOM procedures (shall not be less restrictive than this basic document) and publish MAJCOM/A3 approved permanent waivers in the MAJCOM supplement.

1.4.1. Combined Command Operations. Plan and conduct all operations that include forces from multiple MAJCOMs using provisions in this AFMAN. **(T-3).** Do not assume or expect aircrews to perform MAJCOM or theater unique procedures without the approval of the MAJCOM/A3 responsible for the aircraft and advance training. **(T-3).**

1.4.2. Coordination Process. Forward MAJCOM approved supplements (attach AF Form 673, *Air Force Publication/Form Action Request*) to AFRC/A3M for mandatory coordination prior to approval. **(T-2).**

1.5. Local Supplement Coordination Process. Operations Group commanders (OG/CCs) may define local operating procedures to this manual in a unit supplement or locally generated operating instruction (OI). OG/CCs must obtain approval from MAJCOM prior to releasing their supplement or Operating Instruction. **(T-2).** Send an electronic copy of the approved version to MAJCOM Standards and Evaluations (MAJCOM/A3V) or equivalent. MAJCOM/A3V will send approved copies to AFRC/A3M.

1.6. Definitions. Find explanations or definitions of terms and abbreviations commonly used in the aviation community in Title 14, Code of Federal Regulations (CFR), Part 1, *Definitions and Abbreviations*; and *Chairman of the Joint Chief of Staff Department of Defense Dictionary of Military and Associated Terms*. See **Attachment 1** for common terms used in this manual.

1.7. Roles and Responsibilities.

1.7.1. Major Command (MAJCOM). MAJCOMs will provide guidance and approve waivers (as required) where specified throughout this publication.

1.7.1.1. AFRC Mobility Division (AFRC/A3M) will field waivers for flying operations.

1.7.1.2. AFRC Current Operations Division (AFRC/A3O) will field waivers for weather reconnaissance specific mission and equipment requirements.

1.7.2. Pilot in Command (PIC). The pilot in command (PIC) is the aircrew member designated by competent authority, regardless of grade and/or rank, as being 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. **(T-3).** The PIC will ensure compliance with this publication and the following:

1.7.2.1. HAF **(T-1)**, MAJCOM, and mission design series (MDS)-specific guidance. **(T-2).**

1.7.2.2. Flight Information Publications (FLIP) and Foreign Clearance Guide (FCG). **(T-2).**

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

1.7.2.4. Notices to Airmen (NOTAMs). **(T-3).**

1.7.2.5. Aircraft Technical Orders (T.O.s). **(T-2).**

1.7.2.6. Combatant Commander's instructions and directives. **(T-3).**

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

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

Chapter 2

AIRCREW COMPLEMENT AND MANAGEMENT

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

2.2. Aircrew Complement. Squadron Commanders (SQ/CCs) shall form aircrews based on fragmentation order and/or 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 2.1 summarizes aircrew position requirements for different aircrew types.

2.2.1. The minimum aircrew complement is an Aircraft Commander, flight pilot, navigator, aerial reconnaissance weather officer (ARWO) and loadmaster. For missions tasked under the National Hurricane Operations Plan (NHOP), pilots must be NHOP certified. Navigators and ARWOs must be storm qualified. Unqualified, non-current, or non-mission ready (NMR) crewmembers may fill primary aircrew positions if under direct supervision of a mission-qualified/certified instructor. When a mission requires more than one crewmember at a position, the SQ/CC will determine whether an instructor and non-mission ready (NMR) crewmember meet mission requirements. **(T-3).** See DAFMAN 11-401, *Aviation Management*, para 11.3.1.5., for an exception to guidance, which allows non-current, nonrated crewmembers to perform duties on time-sensitive missions.

2.2.2. SQ/CCs shall form augmented aircrews for missions planned to take longer than a basic CDT. **(T-3).** Augmenting crewmembers must be current, qualified, and mission ready (MR) in accordance with AFMAN 11-2WC-130JV1, W*C-130J Aircrew Training*. **(T-3). Exception:** An NMR pilot may augment provided the other two pilots are MR Instructor Pilots (IPs). An NMR loadmaster may augment provided that there is at least one Instructor Loadmaster (IL) and one Mission Loadmaster (ML). SQ/CC shall augment an aircrew for the full flight duty period (FDP). The commander with mission execution authority (no lower than OG/CC for training missions) may augment aircrews while the mission is in execution. (See AFMAN 11-202V3 and applicable supplements for more on CDT/FDP.).

Table 2.1. Aircrew Complement.

Aircrew Position	Basic	Augmented	
Aircraft Commander (AC)	1	2[1]	
Flight Pilot	1	1	
Navigator	1[2]	2[3]	
ARWO	1	2	
Loadmaster	1[6]	2	

Notes:

(1) The ACs must be qualified in the appropriate mission to be accomplished. **(T-2).** Transfer of Pilot in Command (PIC) duties between qualified ACs will be briefed to the aircrew. **(T-2).**

(2) A current and qualified navigator is required on overwater long range oceanic routes when one or both pilots are non-current for long range oceanic routes, unless the pilot(s) are under the supervision of a current and qualified instructor. **(T-3).**

(3) One navigator may be used on a NHOP tasked mission if the aircrew will not be in the storm environment at the end of the navigator's basic FDP.

(4) One ARWO may be used if no duties are performed at the end of the ARWO's basic FDP.

(5) Two loadmasters (LMs) may be required, at the unit commander's discretion, depending on mission complexity. Combat or contingency missions with hostilities require two loadmasters. **(T-3).**

2.3. FDP/CDT. The WC-130J provides limited options for crews to rest. FDP/CDT in accordance with AFMAN 11-202V3 and applicable supplements.

2.4. Alerting Procedures.

2.4.1. Aircrew alert time is normally 3+15 hours before scheduled takeoff time (4 hours for airdrop missions). This permits 1 hour for reporting and 2+15 hours for mission preparation. Individual locations may increase or decrease this time depending on specific capabilities.

2.4.1.1. NHOP/National Winter Season Operations Plan (NWSOP) tasked missions generally show 2+15 hours before scheduled takeoff time. Deployment, redeployment, and cross country missions will adhere to times in GDSS2/Master Flying Schedule. **(T-3).**

2.4.1.2. Crewmembers for NHOP and some NWSOP tasked missions will not self-alert, but will be expected to self-alert for any deployment/redeployment missions (unless performing operational reconnaissance enroute). Crewmembers flying pre-coordinated Atmospheric River missions under the NWSOP may self-alert.

2.4.2. If the mission cannot depart within 4+00 hours of any scheduled takeoff, the PIC may continue the mission after a thorough re-evaluation of all operational risk management (ORM) factors. The controlling command and control (C2) agent will not ask the PIC to accept a takeoff outside of the 4-hour window. The PIC will coordinate with C2 to continue the mission or enter crew rest and establish a legal for alert time. **(T-3).**

Chapter 3

AIRCRAFT OPERATING RESTRICTIONS

3.1. Objective. Redundant systems may allow aircrews 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,* and will include the following maintenance identifiers to effectively communicate aircraft status. **(T-3).**

3.1.1. Mission Essential. The PIC will designate an item, system, or subsystem component essential for safe aircraft operation or mission completion as mission essential. **(T-3).**

3.1.2. Mission Contributing. The PIC will designate an item, system, or subsystem component, which is not currently essential for safe aircraft operation as mission contributing. **(T-3).** These discrepancies should be cleared at the earliest opportunity. If circumstances change or mission safety would be compromised, re-designate as mission essential. Do not delay a mission to clear a mission contributing discrepancy. **(T-3).**

3.1.3. Open Item (OI). The PIC will designate discrepancies not expected to adversely impact the current mission or any subsequent mission as an OI. **(T-3).** These items are normally cleared at home station.

3.2. Minimum Equipment List (MEL) Guidance. The MEL is a pre-launch document that lists the minimum equipment/systems necessary 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.

3.2.1. Account for the possibility of additional failures when accepting aircraft with inoperative (INOP) systems or components. The MEL is not intended for continued operation over an indefinite period with systems/subsystems inoperative.

3.2.2. All emergency equipment will be installed unless specifically exempted by mission requirements. **(T-3).**

3.2.3. Waiver Procedures. A PIC prepared to operate with a degraded MEL item shall request a waiver through C2 channels. **(T-3).** Initiate waiver requests as soon as possible and plan for waiver processing to take at least 1 hour. The PIC shall provide the C2 agent **(T-3)**:

3.2.3.1. Nature of request

3.2.3.2. Individual crewmember qualification

3.2.3.3. Mission leg(s) requiring the waiver

3.2.3.4. Weather or other adverse condition

3.2.3.5. Governing directive of waiver request to include volume, chapter, and paragraph.

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

capability, or when it is necessary to protect the aircrew or aircraft from a situation not covered by this chapter and immediate action is required, the PIC may deviate according to **paragraph 1.4** Report deviations (without waivers) through channels to the MAJCOM/A3 within 48 hours. OG/CCs shall collect background information and submit a follow-up written report upon request. **(T-3).**

3.3. 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:

3.3.1. The WG/CC or equivalent, delegated no lower than the OG/CC, is the waiver authority for all missions.

3.3.2. NHOP/NWSOP supported agencies may request a mission be flown with an aircraft that does not meet the meteorological equipment MEL.

3.3.3. Other Than MEL Waivers. Determine the governing source document (e.g., AFI, flight manual, maintenance T.O., etc.) to ascertain the waiver authority. Use C2 channels to notify the appropriate waiver authority. Waivers of this nature may require an extended response time.

3.3.4. Engineering Dispositions (EDs). Dispositions are requested when aircraft are damaged or established maintenance T.O. procedures cannot be followed or do not exist. The on-site maintenance authority is responsible for requesting Engineering Dispositions. Most EDs allow maintenance to repair the aircraft and return it to unrestricted status; dispositions of this nature do not concern aircrews. However, EDs affecting aircrew operations require MEL waiver authority approval. **(T-2).**

3.3.4.1. PICs shall coordinate dispositions containing flight restrictions, prohibitions, additional operating limits, or modified/nonstandard operating procedures with the appropriate MEL waiver authority. **(T-2).**

3.3.4.2. PICs will not accept dispositions appearing incomplete, in error, or unsafe. **(T-2).** Prior to rejecting a disposition, the PIC will contact the appropriate MEL waiver authority. **(T-3).** The waiver authority will attempt to resolve the issue. **Note:** Deviations from the flight manual require approval in accordance with the flight manual.

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

3.5. MEL Table Definitions/Column Identifiers.

3.5.1. "Installed" - Number of components or systems installed.

3.5.1.1. In some cases, a component can be controlled from either a conventional (hard) panel or from a Communication Navigation Identification (CNI) Management Unit (CNI-MU) display (soft panel). Similarly, some indications can be viewed on either a hard panel or a soft panel.

3.5.1.2. Since switch functions (or indications) may be duplicated on each of the three CNI-MU displays, the number of switches (or indications) installed may not always be clear. To clarify this condition, switches (or indications) are listed as '1' in the installed column even when they are duplicated on a soft panel.

3.5.1.3. Although the indications on each pilot's Heads Down Display (HDD) can be repeated on more than one HDD, repetitions of data in excess of one per pilot are not relevant for flight and are not counted in the MEL. In general, the flight deck is designed to provide one set of data for each (in addition to the standby instruments). Thus, for most HDD indications, the number installed is listed as '2', one for each pilot.

3.5.2. "Required" - The minimum number (quantity) of items required for operation provided the conditions specified in the remarks or exception column are met.

3.5.3. Unless otherwise noted, when the item is a switch (or indication) which is duplicated on a soft panel, the number required for dispatch may be satisfied by either the hard panel switch (or indication) or by the switch/indication on one of the associated soft panels. For HDD indications, the "number required" is '2' if both pilots must have an indication, '1' if only one pilot must have an indication and '0' if neither pilot is required to have the indication.

3.5.4. "Remarks and Exceptions." Some technical information and procedures are contained in this column. This is not all-inclusive; crewmembers shall refer to the flight manual for procedures, techniques, limitations, etc. **(T-3).**

3.5.5. "One-time Flight" Clarification: A Red X discrepancy must be downgraded through maintenance channels prior to flight. **(T-2).** An MEL waiver may still be required. This condition does not preclude carrying cargo and passengers unless stipulated otherwise by the waiver. The priority is to move the airplane to a repair capable facility. PICs must coordinate with appropriate agencies to ensure repair capability exists at the destination. **(T-2).** One-time flights may include enroute stops only when necessary to recover the airplane. Example: An airplane departs on a gear-down flight from Djibouti International Airport and requires an enroute fuel stop (Cairo) before landing at the nearest repair capable facility, Sigonella Naval Air Station.

3.5.5.1. "One-time flight to nearest repair capable facility": Flight is limited to the nearest (shortest enroute time) repair capable base.

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

3.5.6. Other Mission and Repair Clarifications:

3.5.6.1. "Shall be repaired at next repair capable facility": The PIC may continue the mission as scheduled, however, the item shall be repaired by maintenance personnel upon reaching a repair capable facility. **(T-3).** Designate item mission essential upon reaching repair facility. Once maintenance action is initiated, and it is determined repairs are not possible, the PIC will discuss possible courses of action with C2 agency to return aircraft to service. **(T-3).**

3.5.6.2. "Mission dictates" requirement: PIC shall consider the entire mission profile, not just the next leg. **(T-3).** Example: An airplane is departing an enroute station with repair capability, after engine start the Pilot Flying (PF) discovers the #1 engine anti-ice is inoperative. Icing conditions are not forecasted for the next leg. However, because the mission spans several days and repair capability does not exist at the scheduled enroute stops, the PIC elects to have the item repaired prior to departing.

3.6. Navigation Systems. T.O. 1C-130(W)J-1, *Flight Manual*, and **Chapter 8** lists authorized airspace and procedures for the WC-130J. Aircrew will utilized equipment listed in FLIP for compliance with appropriate airspace. **(T-2).** Loss of any component before airspace entry requires return to a station with maintenance capability or re-filing via routes permitting operation with degraded equipment.

3.7. Soft Panel Operations.

3.7.1. For partial or complete hard panel failures, aircrews may revert to soft panel operations. Normally, if a soft panel is selected due to hard panel failure, it should be used for the remainder of the flight. Doing so will mitigate the hazards associated with restoring hard panel functionality for an item when the mission computer (MC) commanded-state is unknown. Accomplishing the ENGINE SHUTDOWN and BEFORE LEAVING AIRPLANE checklists after the aircraft is parked will ensure the soft panel retains control of the particular item throughout shutdown. In all cases, PICs must consider the increased workload associated with using soft panels. **(T-3).**

3.7.2. Hard panel failures may be the result of a physical failure or loss of communication with the MC. An aircraft-reboot may recover hard panel functionality. To determine if hard panel functionality can be regained, the following procedures must be followed in sequential order:

3.7.2.1. Completely power down when accomplishing the BEFORE LEAVING AIRPLANE checklist.

3.7.2.2. Complete all checklist items in the POWER UP checklist. Do not proceed past the POWER UP checklist until it can be determined if the hard panel has recovered. Depending on the system affected (such as Auxiliary Power Unit (APU), bleed air, landing gear, etc.), do not apply bleed air or hydraulics until hard panel functionality can be determined.

3.7.2.3. To determine if a hard panel has recovered, ensure hard panel and soft panel selections/settings are identical. Press the line select key (LSK) to turn the soft panel OFF. If a CNI "CHK HARD PNL" or a referenced hard panel fault Advisory, Caution, and Warning System (ACAWS) message (e.g., "APU PNL FAULT", "DEF SYS PNL FAULT", etc.) does not appear, press the "VERIFY OFF" LSK. If feasible, check hard panel functionality.

3.7.2.4. If a CNI "CHK HARD PNL" or a referenced hard panel fault ACAWS message appears, the hard panel has not recovered. The "CHK HARD PNL" message indicates there is a mismatch between the soft panel and hard panel commands to the MC independent of physical switch positions. Referenced hard panel fault messages are self-explanatory.

3.7.2.5. If it is determined that the hard panel has not recovered, at the PIC's discretion, the mission may continue to a station supporting a repair capability, including enroute stops. Do not reselect the hard panel. If a flight must continue under the control of two or more soft panels, a waiver is required.

3.7.3. After returning to home station or repair facility with a hard panel malfunction, aircrews will shut down and turn the aircraft over to logistics personnel for required maintenance actions. **(T-3).**

3.8. WC-130J MEL. This MEL lists the minimum equipment and systems to launch the aircraft under routine operations to include training missions. The MEL does not include all equipment or systems essential to airworthiness. The MEL is not intended to promote continued operation of the aircraft for an indefinite period with systems/subsystems inoperative.

Table 3.1. Air Conditioning and Pressurization.

System Item	Installed	Required	Remarks or Exceptions
Air Conditioning System	2	1	One may be inoperative provided: (1) Cross-flow valve is operative (2) Associated Flow Control Valve is verified CLOSED and (3) Consideration is given to the type of mission, fuel quantity, required cruise altitude, and oxygen quantity.

	2	0	Both may be inoperative provided: (1) Both control valves are verified CLOSED (2) Aircraft is operated unpressurized (3) Auxiliary vent valves are operative for ventilation and (4) Consideration is given to required cruise altitude, fuel quantity, Outside Air Temperature (OAT), and oxygen quantity. **Note:** Pressurization and both air conditioning systems may be needed if passengers or patients are carried. If a system fails, flight to a destination with repair capability (including enroute stops) may be accomplished (coordinate with the Medical Crew Director (MCD) when patients are carried). Passengers and patients will be briefed on the possibility that discomfort may be encountered. **(T-3).**
Air Conditioning Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.
a. Automatic Temperature Control System	2	0	May be inoperative provided: (1) Respective Manual Temperature Control System is operative **OR** (2) Respective Air Conditioning System is considered inoperative, and (3) Temperature control is not required.
b. BA/ECS Channels	2	1	**Note:** Loss of the 2nd Channel will result in loss of all pneumatic-powered components and systems (except engine anti-ice).

a. Avionics Cooling Fans	2	1	
b. Cargo Compartment Avionics Cooling Fans	2	1	
c. Overhead Console Cooling Fans	2	1	If both fail in flight, damage to Heads Up Display (HUD) may occur. Use Primary Flight Displays (PFDs) as required. If HUDs are stowed, pull the associated Electronic Circuit Breakers (ECBs) to prevent damage from heat.
Cargo Under floor Heat System	1	0	May be inoperative provided consideration is given to OAT and the number of passengers/additional crewmembers on board.
Pressurization System			
a. Automatic Pressure Control System	1	1	While one is required, one channel may be inoperative. May be completely inoperative provided: (1) Manual pressurization system is operative, and (2) Consideration is given to the additional aircrew workload caused by using manual pressurization OR (3) Aircraft is operated unpressurized, and (4) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
a1. CONST ALT Mode	1	0	May be inoperative provided consideration is given to the type mission to be flown (e.g., Aeromedical Evacuation (AE)).
b. Emergency Depressurization Handle	1	0	May be inoperative provided: (1) Aircraft is operated unpressurized and (2) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.

c. Emergency Depressurization Switch	1	0	May be inoperative provided: (1) Control is available through the associated soft panel OR (2) Aircraft is operated unpressurized, and (3) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
d. Manual Pressurization Control System	1	0	May be inoperative provided: (1) Automatic pressurization system is operative OR (2) Aircraft is operated unpressurized (3) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
e. Outflow Valve	1	0	May be inoperative provided: (1) Valve is manually positioned to full open (2) Pressurization mode select switch is positioned to NO PRESS (3) Aircraft is operated unpressurized, and (4) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
f. Safety Valve	1	0	May be inoperative provided: (1) Outflow valve is manually positioned to full open (2) Aircraft is operated unpressurized, and (3) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT

Table 3.2. Auto Flight.

System Item	Installed	Required	Remarks or Exceptions
Autothrottle (A/T) System	2	0	
Digital Autopilot System	2	0	May be inoperative provided associated autopilot is not essential for performance of mission requirements.

Digital Autopilot/Flight Director (DA/FD) Controls			**Note:** An automatic altitude control system capable of maintaining altitude within 65 ft of that assigned is required for operation in Reduced Vertical Separation Minimum (RVSM) airspace.
a. Autopilot Disengage Switch (Control Wheel)	2	0	Both may be inoperative provided another method of disengaging the autopilot is operative (e.g., G/A Switch). **Note:** Failure of either autopilot disengage switch will disengage any autopilot function that is engaged at that time and will prevent either autopilot from reengaging until the switch function is repaired. Deselecting flight director modes on the REF/MODE panel does not disengage the autopilot. The one exception is deselecting approach (APPR) after glideslope capture. This will disengage the autopilot.
b. Autopilot Engage Lever	2	0	May be inoperative provided associated autopilot is considered inoperative.
c. Course Knob	2	0	May be inoperative provided: (1) Associated DA/FD Navigation (NAV) and APPR Modes (except INAV) are considered inoperative (2) Associated course arrow and indication is considered inoperative (except in INAV Mode) (3) Departure/route/approach to destination (and alternate, if applicable) does not require use of VOR/ILS/MB or Tactical Air Navigation System (TACAN).
d. Go-around (G/A) Switch	2	1	

e. Heading Knob	2	0	May be inoperative provided: (1) Associated DA/FD Heading (HDG) Mode is considered inoperative (2) Associated heading marker is considered inoperative.
f. Lateral Axis (LAT) OFF Switch	1	0	May be inoperative provided the autopilot lateral mode is considered inoperative.
g. Pitch Axis (PITCH) OFF Switch	1	0	May be inoperative provided the autopilot pitch mode is considered inoperative. **Note:** An automatic altitude control system is required for operation in RVSM airspace.
h. Pitch Control Wheel	1	0	May be inoperative provided: (1) Autopilot pitch attitude hold mode is operative OR (2) Autopilot pitch mode is considered inoperative, and (3) Autopilot pitch OFF switch is positioned to OFF.
i. Pitch Synchronization (SYN) Switch	2	0	
j. Reference Mode (REF/MODE) Panel	2	1	One-time flight authorized to repair facility, including enroute stops

(1) ALT SEL Switch	2	0	May be inoperative provided: (1) Associated altitude alert system is considered inoperative, and (2) Associated DA/FD Altitude Select (SEL) Mode is considered inoperative, and (3) Ground Collision Avoidance System (GCAS) is serviceable. **Note:** An altitude alerting system is required for operation in RVSM.
(2) BARO SET Switch	2	1	**Note:** Both Baro set switches must be operational for operation in RVSM.
(3) Mode Select Switch	18	0	Individual Mode Select Switch(es) may be inoperative provided associated mode(s) is considered inoperative. **Note:** For a given mode to be inoperative, both the pilot and co-pilot switches for that mode would have to be inoperative. **Note:** An automatic altitude control system is required for operation in RVSM airspace.
(4) Reference Select Switch	2	1	
(5) Reference Set Knob	2	1	

k. Turn Ring	1	0	May be inoperative provided: (1) Autopilot roll attitude hold mode is operative OR (2) Autopilot lateral mode is considered inoperative (3) Autopilot LAT OFF Switch is switched Off.
Digital Autopilot/Flight Director (DA/FD) Indications			
a. Automated Flight Control System Annunciator Panel	2	0	May be inoperative provided inoperative annunciation(s) is operative on the HUD or HDD PFD at affected location.
b. Reference Set Panel Display	2	0	May be inoperative provided: (1) Individual reference annunciations and markers (e.g., HUD, PFD cards, lines on tapes, carets) are operative OR (2) Associated reference annunciations and markers (e.g., HUD, PFD cards, lines on tapes, carets) are considered inoperative.
Flight Director System	2	0	May be inoperative provided flight director is not required for mission accomplishment or approach.

Table 3.3. Communications.

System Item	Installed	Required	Remarks or Exceptions
Control Wheel Hush Switch	2	1	

Control Wheel Microphone Switch	2	1	
Flight Station Speaker	2	1	
Get Home Radio Panel	1	0	One time flight is authorized to a repair facility.
High Frequency (HF) Radios	2	1	Required for operationally tasked missions when SATPHONE is unavailable and operating outside of VHF/UHF radio range.
Identification Friend or Foe (IFF) System	1	1	If self-test fails, you may takeoff if the IFF was operational on the previous mission. Aircraft will not depart with an IFF known to be inoperative. **(T-3).** **Exception:** Formations must have at least one operational IFF per element. **(T-2).** **Note:** An altitude reporting transponder is required for operation in RVSM airspace. **(T-2).** **Note:** Mode IV is not required for flights that originate in and will remain inside the inner boundaries of all domestic & coastal air defense identification zone's (ADIZ) surrounding the CONUS.
a. Antenna	2	1	Mode 4 and Mode S require both antennas
Public Address (PA) System	1	0	May be inoperative if passengers or troops are carried and, at the discretion of the aircrew, effective and safe communications can be conducted.
UHF/VHF Radios	4	2	May be inoperative unless essential for performance of mission, route or Air Traffic Control requirements provided: (1) UHF No. 1 or VHF No. 1 is operative, and (2) At least one additional UHF or VHF radio is operative.

SATPHONE	1	1	Required for operationally tasked missions when HF radio is unavailable and operating outside of VHF/UHF radio range.

Table 3.4. Electrical System.

System Item	Installed	Required	Remarks or Exceptions
AC Generator, Engine	4	3	May be inoperative if repair capability is not available. Flight to a destination with repair capability, including enroute stops, may be made. The generator will be removed and the generator mount padded before flight. **(T-3).**
Batteries	2	2	
DC Voltmeter	1	1	
Electrical Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.
Electronic Circuit Breaker Unit	13	13	
Indications (System Status Display)			
a. Loadmeter Indications	5	5	One engine or APU loadmeter indication may be inoperative provided the APU generator is operative.
b. Voltmeter Indication, AC	5	5	One engine or APU voltmeter indication may be inoperative provided the APU generator is operative.
c. Voltmeter Indication, DC	2	2	
Inverters			
a. Essential Avionics AC Bus	1	1	
b. Essential Avionics AC 26V Power	1	1	
c. Main Avionics AC Bus	1	1	
d. Main Avionics AC 26V Power	1	1	

Regulated Power Supply (RPS) System	8	0	May be inoperative provided the equipment normally powered through the inoperative regulated power supply system is not required OR Control is available through the associated soft panel.
Transformer Rectifiers (TR)	4	3	One TR may be inoperative for flight to a repair facility including enroute stops.

Table 3.5. Equipment.

System Item	Installed	Required	Remarks or Exceptions
Aerial Delivery System			
a. Aerial Delivery Control Panel	1	0	May be inoperative provided: (1) Control is available through associated Soft Panel OR (2) Airdrop operations will not be conducted.
Multifunction Control Display (MFCD)	1	0	May be inoperative provided heavy equipment airdrop or combat offload operations will not be conducted. **Exception:** May be inoperative for heavy equipment airdrop or combat offload during contingency operations if operational needs outweigh the risk of operating without the MFCD.

Pallet Lock Control Unit (PLCU)	10/7	0	May be inoperative provided heavy equipment airdrop or combat offload operations will not be conducted. May be inoperative provided PLCU 10(7) and PLCUs associated with a heavy equipment airdrop or combat offload operations are operational.

Table 3.6. Fire Protection.

System Item	Installed	Required	Remarks or Exceptions
APU Fire Control Handle Lights	1	1	
APU Fire Detection Loop	2	1	Flight to a station with repair capability, including enroute stops is authorized OR the APU is considered inoperative.
Bleed Air Overheat Detection Sensors	14	7	One sensor in each zone may be inoperative for flight to a station with repair capability, including enroute stops
Engine/APU Fire Extinguisher Bottle	2	2	
Engine Fire Control Handle Lights	4	4	
Engine Fire Detection Loop	8	4	The Channel B loop in each nacelle may be inoperative for flight to a station with repair capability, including enroute stops.
Nacelle Overheat Detection Loop	8	4	The Channel B loop in each nacelle may be inoperative for flight to a station with repair capability, including enroute stops.
Fire and Overheat Detector System (FODS) Controller	1	1	One time flight authorized to repair facility, including enroute stops is authorized.

Table 3.7. Flight Controls.

System Item	Installed	Required	Remarks or Exceptions

Aileron Trim Indicator	1	0	Flight to a destination with repair capability, including enroute stops, may be made. The trim tab position must be visually verified prior to flight. **(T-3).**
Aileron Trim System	1	1	
Elevator Trim Indicator	1	0	Flight to a destination with repair capability, including enroute stops, may be made. The trim tab position must be visually verified prior to flight. **(T-3).**
Elevator Trim System	1	1	
Elevator Trim Tab Control Wheel Switch	4	4	
Elevator Trim Tab Power Selector Switch	1	1	
Emergency Elevator Trim Tab Switch	1	1	
Flap Position Indicator (AMU)	1	1	
Flap Position Indicator Gauge	1	0	May be inoperative provided flap position indicator (AMU) is operative.
Rudder System Direct Reading Pressure Gauge	2	0	
Rudder Trim Indicator	1	0	Flight to a destination with repair capability, including enroute stops, may be made. The trim tab position must be visually verified prior to flight. **(T-3).**
Rudder Trim System	1	1	
Stick Pusher System	1	0	Flight to a destination with repair capability, including enroute stops, may be made provided the stall warning system is operational.
Stall Warning System	1	1	**Note:** All stall warning system aural and visual warnings must be functional. **(T-3).**
a. Angle of Attack Sensor	2	1	

Table 3.8. Fuel.

System Item	Installed	Required	Remarks or Exceptions
Boost Pump, Main Tank	4	3	One may be inoperative provided: (1) Applicable flight manual limitations and procedures are observed (2) Main tank transfer pumps are operative and (3) ECBs for inoperative main tank boost pump are strapped open.
Crossfeed Manifold Fuel Pressure Indication	1	1	
Crossfeed Valve	4	0	May be inoperative provided: (1) Associated fuel level control valve is operative (2) Affected valve is secured CLOSED, and (3) Main tank transfer pumps are operative. (4) Cross-ship separation valve is operative. **Note:** Valve must be manually closed if failed open or ECBs opened if valve is failed closed.
Cross-ship Separation Valve	1	0	May be inoperative provided valve is electrically disconnected and secured OPEN.

Fuel Control Panel	1	0	May be inoperative provided control is available through the associated soft panel. Consideration should be given to the addition to aircrew workload caused by using the soft panel.
Fuel Dump Valve	2	1	One may be inoperative provided the valve is secured CLOSED.
Fuel Management Controller	1	1	One channel may be inoperative.
Fuel Quantity Indications			**Note:** Although the fuel quantity indications can be displayed on multiple HDD system status displays as well as on the hard panel, repetitions in excess of one indication per tank are not relevant. The 'number installed' includes one indication per tank and the 'number required' specifies the number of tanks that must have an operative indication.
a. Auxiliary Tank	2	1	One may be inoperative provided: (1) All fuel flow indicators are operative, (2) Associated fuel transfer pump is operative (3) All other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, and (4) Fuel quantity in the associated tank is verified by an accepted procedure prior to takeoff and at all enroute stops when the engines are shut down (magnetic sight gauge).
	2	0	May be inoperative provided associated fuel tanks are verified EMPTY.

b. External Tank	2	1	One may be inoperative provided: (1) All fuel flow indicators are operative (2) At least one associated fuel transfer pump is operative (3) All other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, and (4) Fuel quantity in the associated tank is verified by an accepted procedure prior to takeoff and at all enroute stops when the engines are shut down (dipstick).
	2	0	May be inoperative provided associated fuel tanks are verified EMPTY.
c. Main Tank	4	3	One may be inoperative provided: (1) All fuel flow indicators are operative (2) Associated fuel boost pump is operative (3) All other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative (4) Fuel quantity is checked prior to first takeoff following fuel servicing by an accepted procedure (dipstick) (5) At enroute stops, when engines are shut down, the tank with the inoperative indicator and the symmetrically opposite tank will be checked by an accepted procedure prior to takeoff (dipstick), and (6) Engine out training using the engine corresponding to the inoperative indicator or its symmetrical opposite will not be conducted during tank to engine operations.

d. Totalizer	1	0	
Fuel Quantity Preset Switch	6/8	0	
Refuel Drain Pump	1	0	May be inoperative provided the manifold is manually drained.
Single Point Refuel Valve	1	0	May be inoperative provided alternate refueling procedures can be used.
Single Point Refueling Drain Pump	1	0	May be inoperative provided manual draining can be accomplished.
Transfer Pump			
a. Transfer Pump, Auxiliary Tank	2	0	May be inoperative provided ECBs for inoperative pump are open. If pump is inoperative, associated tank is considered unusable.
b. Transfer Pump, External Tank (if installed)	4	2	One pump in each tank may be inoperative provided ECBs for inoperative external tank transfer pump are opened.
	4	0	Both pumps in each tank may be inoperative provided: (1) ECBs for inoperative pumps are open, and (2) Both tanks are empty.
c. Transfer Pump, Main Tank	4	3	One may be inoperative provided ECBs for inoperative transfer pump are open and the respective main tank boost pump is operative.

Table 3.9. Hydraulic System.

System Item	Installed	Required	Remarks or Exceptions
Hydraulic Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.
Hydraulic Pumps			

a. Auxiliary Hydraulic Pump	1	1	
b. Engine Hydraulic Pump	4	4	
c. Hand Pump, Auxiliary	1	0	May be inoperative provided the electrical auxiliary pump is operative.
d. Suction Boost Pump	2	2	
Hydraulic System Indications (System Status Display)			
a. Auxiliary System Pressure	1	0	May be inoperative provided the direct reading gauge is serviceable.
b. Booster System Pressure	1	0	May be inoperative provided rudder boost pressure indication is operative.
c. Utility System Pressure	1	0	May be inoperative provided rudder boost pressure indication is operative.

Table 3.10. Ice and Rain Protection.

System Item	Installed	Required	Remarks or Exceptions
Angle of Attack (AOA) Sensor Anti- ice System	2	1	May be inoperative provided AOA sensor is considered inoperative.
Ice Detector	2	0	Both may be inoperative provided: (1) Wing leading edge lights are operative OR (2) Aircraft is not operated in known or forecast icing conditions.
Ice Protection Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.

Engine Anti-ice Valve	4	0	Valve may be inoperative provided the failed valve has failed OPEN; if any valve is failed CLOSED do not operate in known or forecast icing conditions.
NESA® Windshield Heat System	2	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions. Flight manual restrictions apply.
Pitot Heat System	2	1	Pilot Side may be inoperative if Air Data Computer (ADC) 1 is considered inoperative. Co-pilot side must be operative. **(T-2).**
Propeller Ice Protection System	4	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
Propeller De-icing Timer Unit	1	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
Total Air Temperature Sensor Anti-ice System	2	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
Windshield Defog	2	0	
Windshield Wiper	2	0	May be inoperative provided aircraft is not operated in precipitation on the ground.
Wing and Empennage Ice Protection System	1	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.

Table 3.11. Indicating/Recording Systems.

System Item	Installed	Required	Remarks or Exceptions
Advisory Caution and Warning System (ACAWS)	1	1	
Cockpit Voice Recorder (CVR)	1	1	**Note:** All components must be operative for the CVR to be considered operative except as listed below.

a. Underwater Acoustic Locator Beacon (on CVR)	1	1	CVR Beacon may be inoperative provided flight profile does not include extended overwater segment(s).
Digital Flight Data Recorder (DFDR)	1	1	
a. Underwater Acoustic Locator Beacon (on DFDR)	1	1	

Table 3.12. Landing Gear and Brakes.

System Item	Installed	Required	Remarks or Exceptions
Anti-Skid System	1	0	May be inoperative provided: (1) Anti-Skid system ECBs are opened (2) Flight manual performance limitations are applied, and (3) Shall be repaired at first capable repair facility. **(T-3).** Maximum effort operations not allowed.
Brake Pressure Indication			
a. Emergency Brake Pressure Indication	1	0	May be inoperative provided the auxiliary system pressure is operative.
b. Normal Brake Pressure Indication	1	0	May be inoperative provided utility system pressure indication is operative.
Landing Gear Lever Lock	1	0	May be inoperative provided landing gear control panel is considered inoperative. **Note:** On associated soft panel the lock function is satisfied by the verify switch.

Landing Gear Position Indicator	3	3	
Landing Gear Warning Light	2	0	May be inoperative provided GCAS is operational

Table 3.13. Lights.

System Item	Installed	Required	Remarks or Exceptions
Exterior Lighting			
a. Landing Light, Vis/IR	2	1	One landing light may be inoperative provided taxi light on that side is operative. **Note:** Both landing lights may be inoperative if only flown during daylight hours.
b. Navigation Light	6	3	For night operations, the left and right wingtip Nav lights must be operational in addition to one of the white lights on the tail cone. **(T-3).**
c. Anti-collision (Strobe) Light	2	0	May continue to first stop where repairs can be made.
d. Taxi Light	2	0	Both may be inoperative provided landing lights are operative.
e. Wing Leading Edge Lights	2	0	May be inoperative at night provided: (1) Ice detectors are operative OR (2) Aircraft is not operated in known/forecast icing.
f. Wing Tip Taxi Lights	2	0	May be inoperative provided aircraft is not taxied in congested areas at night without adequate lighting for obstacle clearance.

g. Formation Lights	9	4	Formation lights are not required for daylight ops. Two lights per wing are required for night formation flying.
Flight Station Lighting			**Note:** May be inoperative provided sufficient lighting is operative to make each instrument, control and other device for which it is provided easily readable.
a. Copilot Displays Light Circuit	1	1	
b. Lamp Test Circuit	1	1	

Table 3.14. Navigation.

System Item	Installed	Required	Remarks or Exceptions
Air Data Computers (ADC)	2	1	See flight instrument requirements, Chapter 5 of this AFMAN for CAT I restrictions with shared sources. **Note:** Both required for operation in RVSM airspace and CAT II ILS approaches.
Automatic Direction Finding (ADF) System	2	0	Both may be inoperative provided departure/route/approach to destination (and alternate, if applicable) does not require use of ADF. **Note:** All components must be operative for the ADF to be considered operative.
Cursor System	1	0	May be inoperative unless required to accomplish mission objectives.
Digital Mapping System	1	0	May be inoperative unless required to accomplish mission objectives. Consideration should be given to the terrain, required altitudes, route peculiarities, visibility, the aircrew's experience with the route and whether the mission is conducted during daylight or at night.

Terrain Awareness and Warning System (TAWS)	1	0	May be inoperative unless required to accomplish mission objectives. Consideration should be given to the terrain, required altitudes, route peculiarities, visibility, the aircrew's experience with the route and whether the mission is conducted during daylight hours or at night.
Doppler Velocity Sensor	1	0	
Embedded Global Positioning/Inertial Navigation System (EGI)	2	1	May be inoperative provided overwater (out of NAVAID range) or Basic Area Navigation Airspace (BRNAV) flight will not be conducted. Consult FLIP for airspace restrictions.
Global Positioning System (GPS)	2	0	**Note:** With GPS inoperative, the inflight alignment capability will not be available.
Ground Collision Avoidance System (GCAS)	1	0	May be inoperative provided passengers/troops will not be carried.
Radar, Low Power Color	1	0	Required if thunderstorms or hazardous conditions that can be detected by airborne radar are forecast or exist along route of flight. Required for all weather reconnaissance (WR) missions.
a. Control Panel	1	0	May be inoperative provided: (1) Control is available through the associated Soft Panel, and (2) Modes other than the map or weather (WX) modes are not essential to accomplish mission objectives.
Radar Altimeter (RA)	2	1	One may be inoperative provided CAT II ILS approaches will not be flown.
Standby Flight Instruments			

a. Inclinometer (Slip ball)	2	0	May be inoperative provided HUD slip/skid indicator at affected position is operative.
b. Magnetic Compass	1	1	
c. Standby Airspeed/Altimeter	1	1	
d. Standby Attitude	1	1	
Tactical Air Navigation (TACAN)	2	0	All components must be operative for the TACAN to be considered operative. If both TACANs are inoperative, Distance Measuring Equipment (DME) is not available. **Note:** 2 TACANs are required when performing RNAV procedures.
Total Air Temperature Sensor	2	2	
Traffic Alert Collision Avoidance System (TCAS)	1	0	* Shall be repaired at the next repair capable facility. Required for flight during Night Vision Goggles (NVG) operations. May be inoperative provided: (1) TCAS is deactivated and secured, and (2) TCAS is not necessary for compliance with Air Traffic Control (ATC) requirements. Passengers/troops will not be carried.
UHF Direction Finder System	1	0	May be inoperative unless essential for performance of mission objectives.
VHF Navigation System (VOR/ILS/MB)	2	1	The No. 1 system must be operative. **Note:** All components must be operative for the VHF navigation system to be considered operative. **(T-3).**

Table 3.15. Oxygen.

System Item	Installed	Required	Remarks or Exceptions
Crew Oxygen System	1	1	
Oxygen Regulators	10	5	May be inoperative provided one is available for each primary crewmember. Loadmaster's position must meet mission needs.

Table 3.16. Pneumatic.

System Item	Installed	Required	Remarks or Exceptions
Bleed Air Augmenter Valve	4	3	One may be inoperative provided: (1) Affected valve is CLOSED (2) All nacelle shut off valves are operative.
		Less than 3	May conduct a one-time flight to repair facility. Fly unpressurized (manual / open) and with no icing forecast.
Bleed Air Divider Valve	1	0	May be inoperative provided: (1) Affected valve is OPEN, and (2) Both wing isolation valves are operative
Bleed Air Pressure Indication	1	1	
Bleed Air Environmental Control System Electronic Controller	1	1	One channel may be inoperative.
Nacelle Shutoff Valve	4	4	

Wing Isolation Valve	2	1	One may be inoperative provided: (1) Affected valve is OPEN, and (2) Divider valve is operative.

Table 3.17. System Integration and Display.

System Item	Installed	Required	Remarks or Exceptions
Avionics Management Unit (AMU)	2	1	**Note:** All displays and data fields must be operative for the associated AMU to be considered operative.
Bus Adapter Unit (BAU) Type I	6	4	BAU 3 (daytime only) and/or 6 will be used as replacements or can be failed (swap modules). 1, 2, 4, & 5 must be operational.
Bus Adapter Unit (BAU) Type II	4	4	
Bus Interface Unit (BIU)	2	2	
Communication/ Navigation/Breaker Panel (CNBP)	1	1	**Note:** All displays and data fields must be operative for the CNBP to be considered operative. However, when an input is not present and the correct 'data not available' or 'fail' indication is displayed, the CNBP may still be considered operative provided the failed indication is not required for the current mission or flight.
Communication/ Navigation/ Identification Management Unit (CNI-MU)	3	2	One may be inoperative at the navigator position. For WR missions the navigator CNI-MUs must be operative. **(T-3).** One pilot CNI-MU may be inoperative. **Note:** All components must be operative for the CNI- MU to be considered operative except as listed below. **(T-3).**

Communication/ Navigation/ Identification System Processor (CNI-SP)	2	1	One may be inoperative for one time flight to repair facility.
Data Bus (1553B)			
a. Avionics Bus	2	2	
b. Communication/ Navigation Bus	2	2	
c. Display Bus	2	2	
d. Electronic Warfare Bus	1	0	Unless required for mission accomplishment.
e. Interprocessor Communication Bus	1	1	
f. Panel Bus	2	2	
Heads Down Display (HDD)	6	5	One may be inoperative provided the HUD on the affected side is fully operational. **Note:** All data fields and displays must be operative for the associated HDD to be considered operative. However, when an input is not present and the correct 'data not available' or 'fail' indication (which may be a blank or removal of the indication) is displayed, the affected HDD may still be considered operative provided the failed indication is not required for the current mission.
HUD	2	1	One may be inoperative provided both HDDs on the affected side are fully operational.

	2	0	Both may be inoperative provided: (1) All four HDDs are operative (including operative independent PFDs in the pilot and copilot positions), and (2) Forecast weather at destination is at or above Category I (CAT I) approach minimums.
a. HUD Control Panel	2	0	May be inoperative provided the associated HUD is considered inoperative.
b. HUD Declutter Switch, (Control Wheel)	2	0	
Mission Computer	2	2	

Table 3.18. Auxiliary Power Unit (APU).

System Item	Installed	Required	Remarks or Exceptions
Aircraft Generator, APU	1	0	May be inoperative provided APU electrical power is not required. External electrical power or aircraft battery power must be available for starting engines. **(T-3).**
Auxiliary Power Unit (APU)	1	0	May be inoperative provided APU bleed air or electrical power is not required. An alternate air source and external electrical power or aircraft battery power must be available for starting engines. **(T-3).**
Bleed Air System, APU	1	0	May be inoperative provided APU bleed air is not required. An alternate air source must be available for starting engines. **(T-3).**

Inlet Door, APU	1	0	May be inoperative provided: (1) Inlet Door can be operated manually, and (2) Inlet Door is secured CLOSED prior to departure OR (3) Inlet Door is secured CLOSED, and (4) APU is considered inoperative.

Table 3.19. Doors.

System Item	Installed	Required	Remarks or Exceptions
Cargo Ramp and Door System	1	0	Warning light, latching mechanisms, and locking systems will be operative for pressurized flight. **(T-3).** **Note:** Aircraft will not takeoff with a malfunctioning ramp lock system, with cargo on the ramp. **(T-3).** Aircraft may continue to destination if ramp locks malfunction inflight. Repair lock malfunction or remove cargo from ramp prior to continuing flight operations. **(T-3).** Do not pressurize the airplane if the ramp locks fail to lock. Unpressurized flight, with no cargo on the ramp, may be performed with a cargo ramp lock malfunction when mission requirements dictate.

a. Ramp Latches	10	9	One may be inoperative provided: (1) All remaining latches are operative (2) Latch warning system is operative (3) No cargo is carried on the ramp (4) Ramp is verified CLOSED and LATCHED before each departure, and (5) Cabin differential pressure is limited to 5 in. HG.
Cargo Door and Ramp Indicators			
a. Ramp/Door FULL Light	1	0	May be inoperative provided: (1) MFCD "RAMP & DOOR FULL OPEN" ACAWS message can be used, OR (2) Ramp position airdrop light (aft cargo comp.) is operative.
b. Ramp Position Airdrop Light	1	0	May be inoperative provided: (1) MFCD "RAMP & DOOR FULL OPEN" ACAWS message can be used OR (2) Ramp/Door FULL light (flight station) is operative.

c. Ramp Warning Light	1	0	May be inoperative provided: (1) ACAWS RAMP OPEN PRESSURIZED and RAMP OPEN 250 messages are operative OR (2) Ramp is verified CLOSED and LATCHED before each departure OR (3) Aircraft is operated unpressurized.
Cargo Door and Ramp Sensors			
a. Aerial Delivery System Arm Position Switches	2	0	May be inoperative provided the aerial delivery system is considered inoperative.
Crew Entrance Door	1	1	
a. Door Warning Light	1	0	May be inoperative provided the ACAWS CREW DOOR OPEN messages are operative.
Paratroop Door	2	0	May be inoperative provided affected door is secured CLOSED and latched, and the exit is not required to meet minimum emergency exits per number of passengers carried.
a. Door Warning Light	2	0	May be inoperative provided the associated ACAWS L TROOP DOOR OPEN 250 or R TROOP DOOR OPEN 250 message is operative.

Table 3.20. Propellers.

System Item	Installed	Required	Remarks or Exceptions

Propeller	4	4	
Propeller Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.
a. Propeller Control Switch	4	0	May be inoperative provided control is available through the associated soft panel.
b. Prop Sync Switch	1	0	
Propeller Synchrophasing	1	0	

Table 3.21. Powerplant.

System Item	Installed	Required	Remarks or Exceptions
Automatic Thrust Control System (ATCS)	1	1	If ATCS is degraded, a component/sensor has potentially failed. If maintenance is not available and takeoff is necessary, flight with ATCS DEGRADED (Caution) must be authorized by the OG/CC. Operation with ATCS inoperative procedures will be followed.
Engine Assembly	4	4	
Engine Controls			
a. Engine Start Panel	1	0	May be inoperative provided control is available through the associated soft panel.
b. Full Authority Digital Electronic Controls (FADECs) Panel	1	1	
c. Low Speed Ground Idle Switch	4	0	
d. Oil Cooler Flap Indications	4	0	May be inoperative provided control is available through the associated soft panel and oil temp indication(s) is/are operational for affected oil cooler flap(s).
Engine Indicating System			
a. Fuel Flow Indication	4	4	

b. Gas Generator Speed (NG) Indication	4	4	
c. Horse Power Indication	4	4	
d. Measured Gas Temperature (MGT) Indication	4	4	
e. Oil Pressure Indication, Engine	4	4	
f. Oil Pressure Indication, Gearbox	4	4	
g. Oil Quantity Indication	4	0	May be inoperative provided the oil quantity is verified before flight and the OIL QTY 1 (2, 3, or 4) LO caution is operational.
h. Oil Temperature Indication	4	4	
i. Power Turbine Speed (NP) Indication	4	4	
Engine Oil System			
a. Oil Cooler Flap Automatic Control	4	0	May be inoperative provided oil cooler flap manual control is operative.
b. Oil Cooler Flap Manual Control	4	4	
FADEC	8	7	One may be inoperative provided all dedicated sensor input and control logic is serviceable to/from the operative FADEC on the engine with lost redundancy. If the loss of redundancy is on an outboard engine, carry out ATCS inoperative takeoff procedures. ATCS will be DEGRADED. Flight with ATCS DEGRADED (CAUTION) must be authorized by the OG/CC. Operation with ATCS inoperative procedures will be followed. Two FADECs per engine must be serviceable for auto shutdown to be operative on that engine.

Nacelle Interface Unit (NIU)	4	4	

Table 3.22. Meteorological Equipment.

System Item	Installed	Required	Remarks or Exceptions
ARWO Pallet	1	1	
a. ARWO Computer	1	1	
b. Dewpoint Hygrometer Remote Control Unit (RCU)	1	1	
c. ARC-210	1	1	
d. VDC-300	1	1	
e. SFMR Processor	1	1	Unless mission objectives direct otherwise, not required for missions over land or operations above Flight Level (FL) 190.
f. HDD Monitor	1	1	May be partially mission capable if one channel can display radar imagery. Not required for training missions unless dictated by training objectives.
g. Interphone Radio Controller	1	1	
Dropsonde Operator (DSO) Pallet	1	1	
a. Airborne Vertical Atmospheric Profiling System (AVAPS) Computer	1	1	Not required for missions over land.
b. GPS Telemetry Chassis	1	1	Not required for missions over land.
c. Dropsonde Launch Tube	1	1	Not required for missions over land.
d. HDD Monitor	1	1	May be partially mission capable if one channel can display radar imagery. Not required for training missions unless dictated by training objectives.
Other Meteorological Equipment			

Satellite Communications (SATCOM) Antenna	1	1	
Stepped Frequency Microwave Radiometer (SFMR) Pod	1	1	Not required for missions over land or operations above FL 190. If installed, power must be able to be applied on all flights. **(T-3).**
Dewpoint Hygrometer Probe	1	1	
Airborne Expendable Bathythermograph (AXBT) Launch Tube	1	1	Installed as required to meet mission objectives.

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

Chapter 4

OPERATIONAL PROCEDURES

4.1. Checklists. A checklist is not complete until all items have been accomplished. Momentary hesitations for coordination items, ATC interruptions, and deviations specified in the flight manual, etc. are authorized. Notes amplifying checklist procedures or limitations may be added to the checklists (in pencil). Currency of notes is a crewmember's responsibility. Checklist pages may be carried in separate binders provided checklist integrity is not compromised. MAJCOM/A3V and the Air Force Materiel Command Flight Manual Manager are the checklist insert approval authorities. Send checklist inserts to MAJCOM/A3V, who will in turn coordinate with Air Force Materiel Command for approval. All checklist inserts must have a point of contact. Operations Group Stan/Eval shall approve local in-flight guides and inserts not affecting T.O. guidance and procedures. **(T-3). Note:** For AFRC aircrews, route Pilot, Navigator and flying specific Loadmaster checklist inserts to AFRC/A3M. For ARWO and weather specific Loadmaster checklist inserts, route through AFRC/A3O.

4.2. Duty Station. PICs may authorize rest periods for one pilot occupying a primary duty station during non-critical phases of flight in accordance with AFMAN 11-202V3.

4.2.1. Augmented Crew Station. If there is no Navigator on the aircrew, loadmasters should occupy the augmented crew station to the maximum extent possible, especially in times of increased aircrew workload (e.g., critical phases of flight) to assist in scanning, promote effective Crew Resource Management/Threat and Error Management (CRM/TEM), and perform other tasks as determined by the PIC. The PIC may allow other individuals to occupy the augmented crew station as long as their presence will not hinder the performance of the aircrew. Qualified crewmembers, or unqualified crewmembers under the supervision of an instructor, may perform tasks assigned by the PIC.

4.2.2. For pilot seat swaps on the ground only, the PIC may allow a qualified loadmaster to occupy a pilot position to monitor brakes. The aircraft shall be completely stopped with the parking brake set and the loadmaster will be briefed on the actions required to stop the aircraft in the event of brake failure. **(T-2).**

4.2.3. Loadmasters stationed in the cargo compartment during takeoffs and landings or while performing scanner duties will occupy a crashworthy seat on aircraft modified by TCTO 1C-130-2010. **(T-3).** If there are more than two loadmasters in the cargo compartment, e.g., traveling to a combatant command area of operations, the seats are for the primary loadmasters. See also **Table 2.1**.

4.3. 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 in the flight station is limited to the number of seats with operable seat belts and a sufficient oxygen source. Passengers and observers will not be permitted access to either pilot position. **(T-2).** See **paragraph 4.20** for further guidance on cockpit congestion.

4.4. Takeoff and Landing. An Aircraft Commander, or above, will occupy either the left or the right seat during all takeoffs and landings. **(T-3).** The designated PIC (A-code) is not required to occupy a primary position, but still retains overall authority for conduct of the mission. **(T-3).**

4.4.1. An AC or IP will make all takeoffs and landings during:

4.4.1.1. Airlift of nuclear weapons. **(T-3).**

4.4.1.2. Aircraft emergencies, unless conditions prevent compliance. **(T-3).**

4.4.2. PICs with less than 100 primary assigned aircraft (PAA) hours since AC certification. **(T-3).** Unless the pilot in the other seat is an AC or above, Aircraft Commanders with less than 100 PAA hours since certification (not applicable to IPs) will make all takeoffs and landings under any of the following conditions:

4.4.2.1. Ceiling and/or visibility less than 300 ft. and/or runway visual range (RVR) 4000 (3/4 statute miles [SM] visibility). **(T-3).**

4.4.2.2. Runway Condition Reading (RCR) less than 12. **(T-3).**

4.4.2.3. Crosswind component greater than 15 knots. **(T-3).**

4.5. Landing Gear and Flap Operating Guidance. The PF will command configuration changes. **(T-2).** The pilot monitoring (PM) will verify appropriate airspeed and configuration prior to echoing the gear or flap actuation command. **(T-2).** The PM will operate the landing gear and flaps. **(T-2).**

4.6. Outside Observer/Additional Crew Member Duties. Available crewmembers will assist in clearing during taxi operations, and any time the aircraft is below 10,000 ft. mean sea level (MSL) as crewmember duties permit. **(T-3).**

4.7. Seat Belts.

4.7.1. 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 aircrew duties dictate otherwise. **(T-3).** LMs (or other crewmembers) required to be in the paratroop door at the scanning position will have a designated seat (other than the scanning seat) with a seat belt. **(T-3). Exception:** When Loadmaster Crashworthy Seat installed, an additional designated seat is not required. **(T-3).**

4.7.2. Loadmasters or authorized scanners will only use the permanently installed paratroop door seats when crashworthy seats are not installed during combat or contingency missions with hostilities, or while participating in training missions that enable aircrews to improve their visual threat scanning techniques and procedures. **(T-3).** Loadmasters will always have an assigned seat, even if using the paratroop door seat for scanning. **(T-3).** When scanning duties are completed the loadmaster must use their assigned seat for subsequent takeoffs and landings in non-threat environments. **(T-3).** When the paratroop door seat is used, the following conditions must be met:

4.7.2.1. The flight helmet will be worn. **(T-3).**

4.7.2.2. Paratroop door armor will be in place (if required). **(T-3).**

4.7.2.3. When the crashworthy seat is not installed, loadmasters/scanners will restrain themselves by either the primary or secondary method **(T-3):**

4.7.2.3.1. Primary Method. Use the restraint harness depicted in T.O. 13A1-1-1, *Repair, Cleaning, Insp And Test,* (NSN 1680-01-314- 3184) as the primary means of loadmaster/scanner restraint. Route the harness straps through the support braces forward and aft of the paratroop doors with a girth hitch and attach to the restraint

harness riser quick disconnect fittings. Ensure the leg and chest straps are connected. Attach the harness lifeline to a floor/Enhanced Cargo Handling System (ECHS) rail tiedown ring and adjust to limit vertical movement.

4.7.2.3.2. Secondary Method. A secondary method is the use of 5,000 pound straps routed around each of the supports located forward and aft of the paratroop door. Attach the hook end of the strap to the riser clip of the restraint harness and attach the ratchet end to a tiedown ring on top of the ECHS rails. Wrap the hook of the ratchet with cloth backed tape to ensure it does not separate from the tiedown ring. Attach the lifeline to a floor/ECHS tiedown ring and adjust to limit vertical movement.

4.7.3. All crewmembers will have seat belts fastened during takeoff and landing. **(T-3).** Fasten shoulder harness unless aircrew duties dictate otherwise. Crewmembers performing instructor or flight examiner duties or in upgrade training to instructor or flight examiner are exempt from seat belt requirements if not occupying a primary aircrew position; however, they will have a seat available with an operable seat belt. **(T-3).**

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

4.8. Aircraft Lighting. Aircraft lighting procedures are in accordance with AFMAN 11-202V3, AFMAN 11-218, *Aircraft Operations and Movement on the Ground*, and applicable T.O.s.

4.8.1. NVG Lighting. Follow the exterior lighting guide in AFTTP 3-3.C-130J, *(U) Combat Aircraft Fundamentals C-130J,* for all NVG training situations. Lights-out operations during peacetime will be conducted in accordance with AFMAN 11-202V3. Total lights out operations are authorized with concurrence of the controlling agency in restricted airspace and warning areas, or locally designated airfields documented in a letter of agreement.

4.8.2. Cargo compartment lighting will be dictated by the tactical situation and will be coordinated between the mission commander/PIC and loadmaster(s). Cargo compartment emergencies may require overt lighting on full bright. The nature of the emergency and the tactical situation will dictate what level of lights is used, and whether the loadmaster continues the use of NVGs.

4.8.3. Strobe Lights. For tactical operations refer to AFTTP 3-3.C-130J. For non-tactical operations, the aircraft strobe lights will be operated as follows:

4.8.3.1. BEFORE STARTING ENGINES Checklist. Set the top strobe to RED. **(T-3). Note:** When operating the APU, set the top strobe to RED. **(T-3).**

4.8.3.2. LINEUP Checklist. Set both strobes to WHT for day and night single-ship and day formation. Set both strobes to RED for night formation. PICs may select most appropriate lighting configuration for conditions (e.g., instrument meteorological conditions [IMC]).

4.8.3.3. AFTER LANDING Checklist. Set the top strobe to RED. The top strobe shall remain in RED until APU shutdown. **(T-3).**

4.9. Portable Electronic Devices. Portable procedures are in accordance with AFMAN 11-202V3.

4.9.1. Do not connect unauthorized equipment (laptop computers, video equipment, food preparation equipment, audio players, etc.) to the aircraft intercom, PA, radio, or electrical systems. **(T-3).**

4.9.2. The user must provide the certification letter for any device(s) to be used to the aircrew prior to the appropriate PIC preflight briefing. **(T-3).**

4.9.3. Iridium phones will be turned off within 25 ft. of ground refueling operations and during takeoff, approach and landing. **(T-3).**

4.10. Advisory Calls. Refer to AFMAN 11-202V3 for a listing of mandatory advisory calls, responses, and aircrew actions. The PF will announce changes to the level of automation, flight director and autopilot mode selections, and mode transitions (e.g., "Autopilot engaged", "Altitude Hold", "Autothrottle", "Nav-Capture", etc.), and/or when circumstances require deviating from normal procedures. **(T-3).** The PM will make all advisory calls except those designated for other crewmembers. **(T-3).** Mandatory calls are as follows:

4.10.1. Takeoff. State "V-ONE" at V1 (Refusal Speed). State "ROTATE" at VR (Rotation Speed). If V1 is adjusted to = VR, state "ROTATE" at VR. **(T-3).**

4.10.2. Takeoff Aborts and Landings. The PM will advise the PF which power levers to bring to reverse ("All 4", "Inboards", "Outboards"). **(T-3).**

4.10.3. Deviations. Any crewmember seeing a deviation of heading (+/- 10 degrees), airspeed (+/-10 knots), or altitude (+/- 100 ft.), where no attempt is being made to correct the deviation will immediately notify the PF. **(T-3).**

4.10.4. Any crewmember seeing a potential terrain or obstruction problem will immediately notify the PF. **(T-3).**

4.11. Stabilized Approach. Stabilized approach procedures are in accordance with AFMAN 11-202V3 and applicable supplements.

4.11.1. Visual Transition. It is imperative for aircrews to review the airfield environment. Identify key features such as approach light type, airfield lighting, geographic layout/configuration of runways, taxiways, ramps, etc. To the maximum extent possible, this study will take place during the aircrew mission briefing and reviewed again prior to descent. **(T-3).**

4.11.2. Missed Approach/Go-Around. Aircrews will conduct a thorough briefing for anticipated missed approach/go-around scenarios. **(T-3).** This briefing will include a discussion of specific crewmember duties. **(T-3). Note:** Execute missed approach/go-around in accordance with T.O. 1C-130(W)J-1 and AFMAN 11-202V3 procedures. **(T-3).**

4.11.3. Formal Training Units (FTUs) only. FTUs will train students to ensure they understand and are capable of complying with all aspects of stabilized approach criterion. FTU instructors must use their expertise and experience to only deviate from the guidelines of stabilized approach criteria as required during appropriate instructional scenarios. **(T-3).**

4.12. Crew Resource Management/Threat and Error Management (CRM/TEM). CRM/TEM procedures are in accordance with AFMAN 11-202V3. **Note:** The fuel panel is considered a "verification" panel. The PM/LM will advise the PF before operating the panel (e.g., priming, cross-feeding, tank-to-engine, transferring, non-standard configurations,

and dumping). **(T-3).** After completing the task, the PF/PM will verify the panel is set correctly. **(T-3).** To facilitate this coordination, pilots should plan to make changes to the fuel panel during periods of low workload such as before taxi and during cruise segments.

4.13. Automation. Automation procedures are in accordance with AFMAN 11-202V3.

4.13.1. Aircrews will follow the guidance below, except for cruise flight (above 10,000 ft.): **(T- 3).** The PF will fly the aircraft and maintain a dedicated heads-up lookout. **(T-3).** If the PF intends to be heads-down, aircraft control shall be transferred to the PM, who will remain heads-up. **(T-3).** Heads-down time does not include momentary scanning of the CNI-MU, HDDs, and panels.

4.13.2. **Table 4.1** and **Table 4.2** provide standard actions for both pilots during Automated and Manual flight.

4.13.2.1. Automated Flight is defined as the autopilot fully engaged and coupled to the Flight Director. Use autothrottles as desired. CAUTION: If the autothrottles are disengaged for sustained descents during automatic flight, it is possible that Altitude Capture may occur with the power levers at or near Flight Idle and result in an approach to stall condition.

4.13.2.2. Manual Flight is defined as the PF providing manual input to the flight controls. Use autothrottles as desired.

Table 4.1. Automated Flight.

	PF	**PM**
REF/MODE PANEL		
Reference Settings (1)	- Set as required	- Verify settings
Mode Selections (ALT, NAV, HDG, APPR, IAS, VS, CAPS)	- Select desired mode - Announce mode status	- Verify and acknowledge
LATERAL FLIGHT		
Direct To/Intercept Course To/ Route Modification	- Verify route modification - Direct the PM to execute	- Modify route as directed - Execute when directed
Radar Vector/Heading Change	- Set the heading reference	- Verify and acknowledge
VERTICAL FLIGHT		
Climb/Descent clearance	- Verify and acknowledge	- Set new FL/altitude reference

Note:

1. For arrival/approach planning, the PF may transfer aircraft control to the PM and set all reference settings as required for the planned approach.

Table 4.2. Manual Flight.

	PF	**PM**
REF/MODE PANEL		
Reference Settings (1) (HP, RAD ALT, IAS, FPA, MINS)	- Direct PM to set if required	- Set as directed by PF
Mode Selections (2) (ALT, NAV, HDG, APPR, IAS, VS, CAPS)	- Select desired mode - Announce mode status	- Verify and acknowledge
LATERAL FLIGHT		
Direct To/Intercept Course To/ Route Modification	- Verify route modification - Direct the PM to execute	- Modify route as directed - Execute when directed
Radar Vector/Heading Change	- Verify and acknowledge	- Set heading reference - State setting
VERTICAL FLIGHT		
Climb/Descent clearance	- Verify and acknowledge setting	- Set new FL/altitude reference

Notes:

1. For arrival/approach planning, the PF may transfer aircraft control to the PM and set all reference settings as required for the planned approach.

2. The PF may direct the PM to select desired modes. In this case, the PM will make the necessary announcements and the PF will verify and acknowledge. **(T-3).**

4.14. Transportation of Pets. Transporting pets (dogs and cats only) in conjunction with the sponsor's permanent change of station is authorized. Other animals such as horses, fish, birds, and rodents are excluded as pets under this authority because of their size, exotic nature, shipping restrictions, host nation restrictions, and special handling difficulties. Other animals owned by the DoD, such as military working dogs, will be moved aboard DoD aircraft as cargo. See DOD Instruction (DoDI) 45.15.13, *Air Transportation Eligibility* for additional guidance.

4.15. Alcoholic Beverages. MAJCOM/A3 or Numbered Air Force Commanders may authorize the dispensing of alcoholic beverages consistent with applicable state and local laws as well as AFI 34-219, *Alcoholic Beverage Program*. **(T-3).**

4.16. Runway, Taxiway and Airfield Requirements.

4.16.1. Minimum Runway and Taxiway Requirements. For peace-time do not use runways less than 3,000 ft. Minimum runway width is 80 ft. (60 ft. for maximum effort). Minimum taxiway width is 30 ft. **(T-3).**

4.16.2. Runway Length for Takeoff and Landing. The minimum runway required for a normal takeoff is the charted Critical Field Length (CFL). The minimum runway required for normal landings is the charted landing distance over 50 foot obstacle with outboard engines in high speed ground idle and inboard engines in maximum reverse.

4.16.2.1. Normal takeoffs shall not be made when Refusal Speed is less than Ground Minimum Control Speed (Vmcg). **(T-3).** In this condition the PIC will either:

4.16.2.1.1. Download cargo or fuel. **(T-3).**

4.16.2.1.2. Wait until weather conditions improve. **(T-3).**

4.16.2.1.3. Utilize maximum effort procedures (see **paragraph 4.16.2.4** and **paragraph 4.16.2.5**). **(T-3).**

4.16.2.2. Runway Length for Intersection Takeoffs. Normally, takeoffs will be initiated from the beginning of the approved usable portion of the runway. Intersection takeoffs may be made at the discretion of the AC provided the operating environment (i.e., gross weight, obstructions, climb criteria, weather, etc.) allows for a safe takeoff and departure. CNI takeoff and landing data (TOLD) computations must be based on the runway remaining from the point at which the takeoff is initiated. **(T-3).**

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

4.16.2.4. Maximum Effort Operations. Use maximum effort procedures when conditions (runway dimensions and/or obstacles) or directives require their use. Runway widths less than 80 ft. require a maximum effort qualified aircrew (maximum effort procedures are not required if normal CFL or normal landing distance over a 50 foot obstacles is available). **(T-3).** All maximum effort operations must fall in the "Recommended" area of the Performance Manual Crosswind Chart unless otherwise approved by the OG/CC. **(T-3).**

4.16.2.5. Maximum Effort Takeoff. Use maximum effort takeoff procedures if available runway length is less than CFL.

4.16.2.5.1. Minimum runway length is the charted ADJUSTED minimum field length for maximum effort take off (MFLMETO). **Exception:** WG/CC may approve the use of MFLMETO not corrected for velocity minimum control air (VMCA) or VMU3 if mission necessity dictates.

4.16.2.5.2. Minimum rotation speed is Adjusted Maximum Effort Rotation Speed (VRAMAX). **Exception:** WG/CC may approve the use of VRAMAX if mission necessity dictates.

4.16.2.5.3. Acceleration Check. An acceleration check is required when refusal speed is less than rotation speed. An acceleration check should also be completed when, in the opinion of the PIC, a critical condition exists (heavy Gross Weight (GW), high pressure altitude, obstacles, Runway Surface Condition (RSC), etc.).

4.16.2.6. Maximum Effort Landing. Use maximum effort landing procedures whenever the runway length available for landing is less than that required for a normal landing. **(T-2).** Plan the touchdown within the first 500 ft. of usable runway. **(T-3).**

4.16.2.6.1. The minimum runway required for a maximum effort landing is equal to the charted Maximum Effort landing ground roll plus 500 ft. **(T-2).**

4.16.2.6.2. Compute landing performance using two outboard engines in ground idle, two inboard engines in reverse, ("2OB HGI; 2IB REV" in the Performance Manual) and maximum anti-skid braking. **(T-2).**

4.16.3. Arresting Cables.

4.16.3.1. Do not land on (touchdown on) approach end arresting cables (does not include recessed cables). **(T-3).** If the aircraft lands before the cable, the aircrew should contact the tower to have the cable inspected.

4.16.3.2. Do not takeoff or land over an approach end cable that has been reported as slack, loose, or improperly rigged by Notice To Airmen (NOTAM), automatic terminal information service (ATIS), or ATC. **(T-3).**

4.16.3.3. Operations are authorized on runways where BAK-12 systems are installed, with an eight point cable tie-down system. When operating from runways equipped with other types of systems, or if it is unknown if the BAK-12 system includes eight point tiedowns, aircrews should recognize the increased risk of damage to the aircraft.

4.16.4. Other Airfield Requirements. Runways designated as capable in the GDSS/Airfield Suitability and Restrictions Report (ASRR) do not require an Landing Zone (LZ) survey. See Air Mobility Command (AMC) Instruction 11-211, *Destination Airfield Suitability Analysis,* for runway designations.

4.16.5. RCR and RSC Limitations. In accordance with AFMAN 11-202V3 and Flight Information Handbook (FIH).

4.16.5.1. The performance charts used to determine braking action are based on concrete runways. When RCR values are not reported, the following runway surfaces in **Table 4.3** are estimates based on operational experience and should be used only as a guide.

Table 4.3. LZ RCR Values.

SURFACE TYPE	RCR (DRY)	RCR (WET)
Asphalt	23	12
Aluminum Matting	20	10

M8A1/with Anti-Skid (Pierced Steel Planking [PSP])	20	8
M8A1/without Anti-Skid PSP	13	3
Clay	16	5
Crushed Rock	16	5

4.16.5.2. Limit operations on snow, slush and water covered runways to an RSC of 10. This equates to a covering of one inch of slush/water and up to three inches of loose, blowing snow. Performance data does not exist for coverings in excess of these amounts.

4.16.5.3. On runways partially covered with snow or ice, takeoff computations will be based on the reported RSC or RCR for the cleared portion of the runway. **(T-3).** A minimum of 40 ft. either side of centerline should be cleared (30 ft. for maximum effort operations). If 40 ft. either side of centerline is not cleared (30 ft. for maximum effort ops), computations will be based on the non-cleared portion. **(T-3).**

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

4.17.1. Aircraft Taxi and Taxi Obstruction Clearance Criteria in accordance with AFMAN 11-218.

4.17.2. FOD Avoidance. Make every effort to minimize the potential for engine FOD. Aircrews should:

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

4.17.2.2. Minimize power settings during all taxi operations.

4.17.3. Reverse Taxi. The PIC shall coordinate reverse taxi directions and signals with the loadmaster and marshaller (when available). **(T-3).** Before reverse taxiing, the loadmaster will:

4.17.3.1. Secure all cargo and ensure all passengers are seated. **(T-3).**

4.17.3.2. Open the aft cargo door and lower the ramp to approximately 12 inches above horizontal. **(T-3).**

4.17.3.3. Position himself/herself on the aircraft ramp to direct reverse taxi, report any hazards, and provide the PIC with timely interphone instructions on turns, distance remaining, conditions of the maneuvering area, and stopping point. **(T-3).**

4.17.3.4. Stop no less than 25 ft. from an obstruction. **(T-3).**

4.17.3.5. Work with the PIC to ensure the taxi area is sufficiently illuminated during night reverse taxi operations without NVGs. **(T-3).**

4.17.4. After landing and clearing the runway, and with approval of the PIC, the loadmaster may open the aft cargo door and lower the ramp to no lower than the horizontal position to prepare for cargo off/onload provided equipment, cargo, and passengers remain secure in the cargo compartment. Careful attention must be given to the ramp position when taxiing on rough or unprepared surfaces.

4.17.5. During taxi operations, at least one aircrew member on the flight deck will have an airport diagram or airfield depiction (if published) readily available for reference and should be visible at unfamiliar airfields. **(T-3).**

4.18. Aircraft Speed. Aircraft speed will be in accordance with AFMAN 11-202V3, this AFMAN, and the applicable flight manual.

4.19. Functional Check Flights (FCFs) and Acceptance Check Flights. Guidance on FCFs and Acceptance Check Flights is provided in T.O. 1-1-300, *Maintenance Operational Checks and Check Flights,* T.O. 1C-130J-6CF-1, *Acceptance or Functional Check Flight Procedures,* and AFI 21-101, *Aircraft and Equipment Maintenance Management*. Aircrews should only perform tasks or functions contained in specific technical order guidance. If requested to perform a non-standard function, PICs should contact their OG/CC to see if an FCF applies.

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

4.19.2. Temporary waivers or permanent waivers to FCF procedures for aircrew qualification when operationally necessary may be authorized.

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

4.19.4. Conduct check flights within the designated check flight airspace of the base from which the flight was launched except when the flight must be conducted under specific conditions, not compatible with local conditions and area restrictions. **(T-3).**

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

4.19.6. The OG/CC will only certify highly experienced instructors as FCF crewmembers. The OG/CC will determine FCF aircrew complement after a thorough ORM assessment for that specific FCF flight. **(T-3).**

4.19.7. Ideally, conduct FCFs in daylight, visual meteorological conditions (VMC). OG/CCs may authorize a flight under a combination of VMC and IMC. Begin the flight in VMC. **(T-3).** If the aircraft and all systems are operating properly, the aircrew may proceed IFR through IMC to "Visual Flight Rules (VFR) on Top" for the altitude phase of the flight.

4.19.8. If a malfunction occurs during a FCF, the Maintenance Group Commander (MXG/CC) may subsequently release the aircraft for flight providing the malfunction is not related to the condition generating the FCF, and the original condition operationally checked good.

4.19.9. Only FCF aircrews shall perform high-speed taxi checks. **(T-3).** Perform checks in accordance with the flight manual and maintenance technical orders. Prepare the aircraft with minimum fuel necessary to accomplish the check to limit brake/tire wear, (ensure fuel on board will permit a safe return to base should the aircraft unexpectedly become airborne) and turn on the anti-skid system. The PIC will calculate takeoff data for the highest speed planned and ensure runway available allows sufficient stopping distance for existing conditions without exceeding normal brake energy limits. **(T-2).**

4.20. Ground Collision Avoidance System (GCAS)/Terrain Awareness and Warning System (TAWS).

4.20.1. When a GCAS TERRAIN or TAWS TERRAIN / OBSTACLE AHEAD alert occurs and terrain/obstacle clearance cannot be assured visually, immediately change the flight path (within 3 to 5 seconds) by initiating a takeoff power climb. Continue the climb until a safe altitude is reached or until exiting the alert envelope. With terrain and obstacles clearly in sight, the PF will call terrain/obstacle in sight, state intentions and visually remain clear of terrain/obstacles. **(T-2).** If the situation degrades and a GCAS PULL UP or TAWS TERRAIN/ OBSTACLE PULL UP alert occurs, immediately execute the appropriate recovery in the flight manual. WARNING: Do not delay pull-up for diagnosis of the low altitude warning.

4.20.2. In TACTICAL mode, several GCAS alert envelopes are modified to allow for maneuvering in close proximity to terrain. Normally, this mode is most suitable for modified contour flight and VFR low-altitude arrivals but, at the AC's discretion, may be used for any tactical operation.

4.21. Traffic Alerting and Collision Avoidance System (TCAS). Pilots will address RAs in accordance with AFMAN 11-202V3 and T.O. 1C-130(W)J-1. **(T-2).**

4.22. Radar Altimeter.

4.22.1. Instrument Approaches.

4.22.1.1. Precision Approaches.

4.22.1.1.1. Set the radar altimeter reference to height above touchdown elevation (HAT) minus 50 ft. **(T-2).**

4.22.1.1.2. CAT II ILS. Set published radar altimeter minimums. **(T-2).**

4.22.1.2. Non-Precision Approaches. Setting the RAD ALT as prescribed below is meant to adequately alert the aircrew to an unsafe terrain clearance condition ("Altitude-Altitude") in the absence of a "Minimums-Minimums" alert. Setting the RAD ALT to a higher setting than prescribed may result in premature/unexpected "Altitude-Altitude" advisories and prevent the GCAS "Minimums" alert.

4.22.1.2.1. Straight-In Approaches. Normally set RAD ALT reference to 250 ft. (minimum setting).

4.22.1.2.2. Circling Approaches. Normally set RAD ALT reference to 300 ft. (minimum setting).

4.22.1.3. When established on a published approach in IMC, or at night when terrain clearance cannot be assured, and an "Altitude-Altitude" special alert is heard, initiate an immediate go-around. Once terrain clearance is confirmed, resume normal operations. In day VMC, the aircrew will verbally acknowledge and evaluate the alert and determine the appropriate course of action (continue the approach or go-around). **(T-3).**

4.22.2. Tactical Operations. For modified contour flight, the RAD ALT should be set no lower than 80% of the planned contour (e.g., for 500 ft. Above Ground Level (AGL) contours, set the RAD ALT no lower than 400 ft.). Other settings may be briefed and used based on terrain and mission needs.

Chapter 5

AIRCREW PROCEDURES

Section 5A—Pre-Mission

5.1. Aircrew Uniform. Aircrew flight duty uniforms will be in accordance with AFMAN 11-202V3.

5.2. Personal Requirements.

5.2.1. Helmets and Oxygen Masks. Crewmembers may carry a personal helmet for NHOP/NWSOP tasked missions, however, crewmembers must carry a personal helmet under the following conditions:

5.2.1.1. Anytime parachutes are required to be carried by the mission directive. **(T-3).**

5.2.1.2. Whenever the aircrew requires Night Vision Goggles (NVG). **(T-3).**

5.2.1.3. When required for wear of the aircrew chemical, biological, nuclear, or radiological protective equipment. **(T-3).**

5.2.1.4. For unpressurized flight operations in accordance with AFMAN 11-202V3. **(T-3).**

5.2.1.5. Loadmasters will wear helmets for all airdrop operations. **(T-3). Exception:** Personnel seated with seat belts fastened are not required to don helmets.

5.2.2. Tool and Airdrop Kits. At least one loadmaster tool kit will be on board for all missions. **(T-3).** One airdrop kit will also be aboard the aircraft for aerial delivery missions. **(T-3).** Units will identify tool kit contents and inventory procedures in local supplements**. (T-3).** As a minimum, the tool kit will contain one C-5 clevis, part number MS70087-1 and the tools necessary to perform the emergency actions in section 3 of the flight manual. **(T-3).**

5.2.3. Night-Vision Operations. For night-vision operations, the PIC will preflight and carry a spare set of NVGs onboard the aircraft. **(T-3).** For local training, OG/CCs will determine spare NVG requirements. If a spare set is not available, NVG operations should cease if either pilot's NVGs fail or visual acuity deteriorates. Both pilots will wear the same model NVGs. **(T-3).** Each crewmember will preflight their own NVGs before flight and carry a spare set of batteries. **(T-3).** Each crewmember will also carry an NVG-compatible light source. **(T-3).** See T.O. 12S10-2AVS9-2, *Technical Manual Image Intensifier Set, Night Vision Type AN/AVS-9* for full NVG preflight procedures.

5.3. Aircrew Publications Requirements. All crewmembers will carry (or have in-flight access to) the publications specified in **Table 5.1** and paper checklists on all flights. **(T-3).** Fanfolds are optional for loadmasters. Electronic aircrew publications are maintained at the AMC/A3V Publications webpage. Units may specify additional publications in their unit supplement. Units may establish a process to provide paper publications onboard the aircraft, but this does not change the electronic flight bag (EFB) requirement for all crewmembers. The process will be described in the unit supplement. **(T-3).** Reference AFI 11-215, *Flight Manuals Program* for additional guidance on electronic publications.

Table 5.1. Aircrew Publications (as per EFB).

PUBLICATION
ALL GLOBAL folder (EFB)
C-130J folder
DTR folder
FCG folder
FLIP folder
Tactics folder
Local folder(s)

Section 5B—Pre-Departure

5.4. Mission Kits. Carry mission kits on all operational missions. Publications should be maintained on the EFB. Forms may be maintained and carried electronically provided operable in-flight viewing and printing capability exists. If no such capability exists, paper copies must be available. **(T-3).** Suggested items include: **Note:** Asterisks (*) below indicates mandatory references for all Tanker and Airlift Control Center (TACC) or AMC missions away from home station and as directed by C2 authority.

5.4.1. Publications:

5.4.1.1. *DAFMAN 11-401.

5.4.1.2. *DoDM 4140.25, Volume 3, *DoD Management of Energy Commodities: Records Retention and Forms Management,* Section 7.

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

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

5.4.1.5. *AMCI 11-211, *Destination Airfield Suitability Analysis*, 8 June 2020

5.4.1.6. *AMC Aircrew Border Clearance Guide.

5.4.1.7. *Air Force Joint Instruction (AFJI) 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials.*

5.4.1.8. *Flight Crew Bulletin.

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

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

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

5.4.1.12. AMC Special Mission Briefing Guide, or MAJCOM equivalent.

5.4.2. Forms:

5.4.2.1. DD Form 1351-2, *Travel Voucher or Subvoucher*.

5.4.2.2. DD Form 1351-2C, *Travel Voucher or Subvoucher (Continuation Sheet).*

5.4.2.3. *Customs and Border Patrol (CBP) Form 6059B, *Customs Declaration.*

5.4.2.4. DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo).*

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

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

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

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

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

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

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

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

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

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

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

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

5.4.3. Orders:

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

5.4.3.2. AF Form 1631, *NATO Travel Order* (when required).

5.4.3.3. *AF Form 4327a, *Crew Flight (FA) Authorization* (or MAJCOM prescribed according to DAFMAN 11-401).

5.4.4. Miscellaneous:

5.4.4.1. *Boxcar seals/padlock.

5.4.4.2. *Masking tape.

5.5. Route Navigation Kits.

5.5.1. A route navigation kit consists of all National Geospatial-Intelligence Agency FLIP products listed in **Table 5.2** All crewmembers that require FLIP products for operations will have current data to cover the planned mission and global operations. Approved EFB carried by all crewmembers will be the primary source of FLIP. **(T-3).** If required, topographical and sectional charts for areas of operation and DoD Area Arrival Charts will be used. **(T-3).**

5.5.2. On local unit training sorties, local area navigation kits may be used in lieu of route navigation kits in **Table 5.2** Contents of these kits will be determined by the unit.

Table 5.2. Route Navigation Kit Contents.

Item (applicable to area of operation):
FLIP General Planning (GP) Planning (sections GP, AP/1, AP/1B, AP/2, AP/3)
FLIP IFR Supplement
FLIP Flight Information Handbook
FLIP Enroute (high and low)
FLIP Instrument Approach Procedures (high and low)
Standard Terminal Arrival Routes (STAR)
FLIP VFR Supplement
DOD Area Arrival Charts
Topographical and Sectional Charts for areas of operation

5.6. Briefing Requirements.

5.6.1. Pre-Departure Briefing Items. The PIC will contact the local C2 agency to confirm mission requirements. **(T-3).** The PIC and controlling agency jointly share responsibility to identify special briefing requirements. Briefings may include buffer zone, electronic warfare activities, SAFE PASSAGE, electromagnetic interference, diplomatic clearance, hazardous cargo, anti-hijacking procedures, operations and safety supplements to flight manuals, and OPORD procedure.

5.6.2. The PIC is responsible for necessary coordination with ground crew on taxi operations and marshalling plan prior to outbound taxi. Ensure all aircrew are briefed the taxi plan prior to outbound taxi, and inbound enroute descent. **(T-3).**

5.6.3. NVG Briefing Requirements. For missions conducting NVG operations, aircrews will review and coordinate NVG failure procedures for all phases of the mission. **(T-3).** Any crewmember who experiences NVG problems will inform the rest of the aircrew. **(T-3).** If unable to regain the use of NVGs, the PIC will consider aircrew experience, mission priority, and intel, tactics, and threat briefings in determining if the mission can be completed safely. **(T-3).** During cargo compartment emergencies, return to normal lighting until the emergency is resolved. Discuss actions for smoke and fumes in the aircraft. **(T-3).**

5.7. Flight Plan/Data Verification.

5.7.1. Computer Flight Plan (CFP) Use. The CFP is the official source of performance, navigation, and climatic data, including enroute wind information. If stand-alone, computer-based plans are used, each mission segment should utilize the best wind data available. Only use a MAJCOM-validated CFP. **(T-3).**

5.7.1.1. Use the CFP to the maximum extent practical. Aircrews may manually compute flight plans. The PIC has final responsibility for flight plan accuracy and diplomatic clearance compliance.

5.7.1.2. Verify the CFP for route of flight and fuel computation accuracy before departure. Pass any flight plan discrepancies to the C2 flight planning office. On AMC tasked missions, promptly notify the flight manager of any flight plan discrepancies to ensure the correct route of flight is filed with air traffic control. Identify inaccurate CFP winds to the 618th Air Operations Center (AOC), 618 AOC/MODZF at **TACC.XOCZF@us.af.mil** if the average wind for a route segment exceeds either 30° error in direction or 25 knots in speed. **(T-3).**

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

5.7.2.1. Latitude/longitude from current FLIP.

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

5.7.2.3. Ground Based Navigational Aids (NAVAIDs).

5.7.3. When conducting Drop Zone (DZ)/LZ operations, both pilots will verify CNI-MU Computed Air Release Point (CARP)/LZ information with a valid DZ/LZ survey. **(T-3).** Pilots will verify all combat flight planning system (CFPS)-generated DZ/LZ information before entering data into the CNI-MU. **(T-3).** Refer to AFI 13-217, *Drop Zone and Landing Zone Operations,* for DZ/LZ survey information/requirements/applicability.

5.8. Departure Planning. Use AFMAN 11-202V3, this chapter, and appropriate MAJCOM supplements. Regardless of the type of departure flown (IFR/VFR), review the following (as appropriate): IFR departure procedure, instrument approach plate, NOTAMS, GDSS Giant Report, and suitable terrain charts. To verify CNI TOLD, both pilots will cross-check CNI TOLD INIT entries and the PM will compare CNI TOLD outputs (if required by flight manual) to the data obtained from the performance manual, tab data, or MAJCOM approved Flight Performance Module. **(T-3).** The minimum outputs that must be checked and the allowable tolerances for those outputs are outlined in the performance manual. **(T-3).**

5.8.1. VFR Departures**. Note:** One engine inoperative climb capability shall ensure departure or emergency return route provides obstacle avoidance and at no time will be less than 152 ft./nautical miles (NM) for 3 ENG MAX GWT NORMAL. **(T-3).**

5.8.2. IFR Departures. **Note:** TOLD. Enter the required climb gradient, altitude(s), screen height, and obstruction distance. Aircraft weight must be less than or equal to the calculated maximum aircraft weight for the type of three-engine departure listed (normal or 50-flap at obstacle clearance speed). **(T-3).**

5.9. Adverse Weather.

5.9.1. Adverse weather procedures for weather reconnaissance missions is outlined in **Chapter 17**.

5.9.2. Turbulence. Turbulence categories are defined in AFH 11-203V2, *Weather for Aircrews-Products and Services*.

5.9.2.1. Flight into areas of forecast or reported severe turbulence is prohibited, except when operating on a MAJCOM-approved mission specifically requiring thunderstorm penetration. **(T-2).**

5.9.2.2. Anytime windshear may be encountered on departure or approach, aircrews should select weather mode on one NAV RADAR display and windshear mode on another NAV RADAR display.

Section 5C—Preflight

5.10. Aircraft Servicing and Ground Operations.

5.10.1. Aircraft Refueling. Refer to **Chapter 9** for procedures.

5.10.2. Aircrew Dash One Preflight Inspection Requirements.

5.10.2.1. The aircrew dash one preflight inspection will remain valid until either:

5.10.2.1.1. Aircraft ground time exceeds 12 hours (72 hours provided the aircraft is sealed, not flown, and documented entry control is maintained), or

5.10.2.1.2. Another maintenance dash six preflight is performed.

5.10.2.2. When an aircrew assumes a preflighted spare or quick turn, a thorough visual inspection will be performed. **(T-3).**

5.10.3. Fire Protection and Crash Rescue. See AFI 13-217 and any MAJCOM-specific guidance (e.g., AMCI 11-208) for specific fire fighting and rescue requirements. When required, the user will preposition suitable equipment at the LZ prior to conducting operations**. (T-3).**

5.10.3.1. The aircraft engine fire extinguisher system fulfills the minimum requirements for fire protection during engine start.

5.10.3.2. A fire guard should be used for all engine starts except normal APU starts**.** A crewmember or ground controller may act as fire guard.

5.10.4. Aircrew and Maintenance Engine Runs. Refer to **Chapter 9** for procedures.

5.10.5. Towing. Refer to **Chapter 9** for procedures.

5.10.6. Aircrew members are prohibited from climbing onto the upper fuselage or wing surfaces unless duties dictate otherwise (e.g., preflight checks, etc.). When required, aircrews will climb on these surfaces only when conditions are dry, wind speed below 20 knots, and no observable lightning within 10 NMs. **(T-3).** Consider use of additional ground crew, if available, to assist in identifying hazardous conditions (e.g., approaching inclement weather).

5.11. Aircraft Recovery Away from Main Operating Base. Refer to **Chapter 9** for procedures.

5.12. Aircrew Flight Equipment And Dash-21 Requirements.

5.12.1. Oxygen. Oxygen on board for takeoff must be sufficient to accomplish the planned flight from the equal time point (ETP) to a suitable recovery base, should oxygen be required (minimum 5 liters for all flights). **(T-3).** Calculate aircrew requirements using the 100 percent Oxygen Duration Chart in the flight manual at 10,000 ft.

5.12.1.1. Aircrew oxygen and pressurization requirements are in accordance with AFMAN 11-202V3.

5.12.1.2. Crewmembers occupying a duty station will have an oxygen mask connected and readily available for use from before engine start until engine shutdown. **(T-3).**

5.12.1.3. On missions carrying passengers, distribute Emergency Passenger Oxygen System (EPOS) to each passenger regardless of planned flight altitude. EPOS will be distributed and their use demonstrated before departure. **(T-3).**

5.12.1.4. Flight deck crewmembers will not use the loadmaster's emergency equipment (e.g., cargo compartment quick dons). **(T-3).**

5.12.2. Rafts. On overwater flights do not carry more passengers and crewmembers than wing well life rafts will accommodate.

5.12.3. Life preserver units (LPU). The loadmaster will place an LPU within easy reach of each passenger and aircrew member before takeoff on overwater flights. **(T-3).** Crewmembers will fit and adjust LPUs for overwater flights and will wear them on overwater missions below 2,000 ft. **(T-3). Exception:** LPUs need not be worn for takeoffs, landings, or approaches. Ensure the appropriate number and type of life preservers are aboard for overwater missions carrying children and infants. **(T-3).**

5.12.4. Parachutes:

5.12.4.1. Personnel performing duties near an open (or suspected open) door/hatch/ramp in-flight will be restrained by a safety harness, or wear a parachute. **(T-3).**

5.12.4.2. Either wear, or have prefit and prepositioned, parachutes and helmets during specified combat conditions. Loadmasters will wear a restraining harness instead of a parachute during airdrops below 800 ft. AGL or when performing duties near an open exit above 25,000 MSL. **(T-3).**

5.12.5. MA-1 Portable Oxygen Bottles.

5.12.5.1. There are three types of A-21 regulators on MA-1 portable oxygen bottles: unmodified, modified and modified-2. Except for fill times, operation of the bottles are identical. Refill valve type is determined by viewing the inside of the fill nozzle and/or identaplate as specified below:

5.12.5.1.1. Unmodified: Refill valves have a push valve inside the nozzle resembling a standard tire valve stem.

5.12.5.1.2. Modified: Refill valves have a brass plate or filter covering inside of the nozzle and no valve stem is visible.

5.12.5.1.3. Modified-2 (Fast Fill): Refill valves have a brass plate or filter with a small hole in the middle covering inside the nozzle and no valve stem is visible. Part number on the identaplate is one of the following: 9010A4, 9010A5, 3260007-0201, 3260007-0103.

5.12.5.2. Ensure a minimum of two unmodified and modified-2 bottles are installed on the aircraft, one in the cargo compartment and the other in the pilot position. Additional unmodified/modified-2 bottles should be installed in the cargo compartment first.

5.12.5.2.1. Home Station Departures. A waiver to the minimum number of required unmodified and modified-2 bottles may be granted on a case-by-case basis in accordance with **paragraph 4.3**.

5.12.5.2.2. Enroute Departures. Maintain minimum number of unmodified and modified- 2 bottles. If unable, continue until reaching a location with replacement bottle(s). **(T-3).**

Section 5D—Departure

5.13. NVG Departures.

5.13.1. NVG Departure Weather Minimums. Weather minimums for NVG departures for pilots who are non-current and/or unqualified is 1500/3. Current and qualified pilots, to include FTU instructor pilots conducting NVG departures with student pilots enrolled in an FTU syllabus, use takeoff weather minimum in accordance with AFMAN 11-202V3. Aircrews must give careful consideration to potential hazards during the critical phase of flight. Other weather limitations are in accordance with this AFMAN and AFMAN 11-202V3. NVGs have inherent limitations which can further be reduced by poor weather conditions. Aircrews will consider weather conditions, moon illumination and position, sky glow at dawn and dusk, cultural lighting, and weapon/expendable effects when planning NVG operations. **(T-3).**

5.13.2. NVG Malfunctions During Takeoff. During an NVG takeoff, if the PF experiences NVG failure takeoff may be continued at the discretion of the PIC. If NVG malfunctions occur after the PM states "rotate," aircrews should consider either continuing the takeoff as the PF transitions to an IMC takeoff or transferring control of the aircraft as the situation dictates. If either pilot's NVGs fail after takeoff, continue the climb out and follow the appropriate procedures for loss of NVGs. The PM will be ready to immediately assume aircraft control if the PF experiences spatial disorientation or an NVG malfunction. **(T-3).** Pilots must exercise sound and conservative judgment to continue NVG operations with aircraft malfunctions. See AFTTP 3-3.C-130J for additional NVG emergency information.

Section 5E—Enroute

5.14. Flight Progress. In-flight, use all available navigational aids to monitor MC performance. Immediately report malfunctions or any loss of navigation capability that degrades centerline accuracy to the controlling Air Route Traffic Control Center (ARTCC). **(T-3).**

5.14.1. Another pilot or navigator will verify waypoint data inserted into the Flight Management System (FMS). **(T-3).** Check both the coordinate information and the distances between waypoints against the flight plan. **(T-3).**

5.14.2. Operations in International/Territorial Airspace. See **Chapter 8**.

5.14.3. Oceanic Flight. See **Chapter 8**.

Section 5F—Arrival

5.15. Instrument Approach Procedures. Instrument approach procedures will be in accordance with AFMAN 11-202V3.

5.15.1. Aircraft category. The WC-130J is a category "C" aircraft. If approach speed exceeds 140 knots, use category "D".

5.15.2. Flight Instrumentation Requirements.

5.15.2.1. Full flight instrumentation for a CAT I ILS and precision approach radar (PAR) includes a HUD or PFD at each station, and no shared Central Air Data Computer or inertial navigational unit (INU) attitude reference. **(T-2).**

5.15.2.2. Full flight instrumentation for a CAT II ILS includes an operational HUD in the PF position, a HUD or PFD at the PM position, and meeting the flight manual CAT II ILS criteria. **(T-2).**

5.15.2.3. Aircraft are limited to a Decision Height (DH)/Minimum Descent Altitude (MDA) based on a HAT of 300 ft. and RVR 4000 or 3/4 SM visibility (1220 meters) with no RVR if full flight instrumentation is not operational. **(T-2).**

5.15.3. ILS Precision Runway Monitor (PRM) Approaches. Both pilots must be certified to conduct an ILS PRM approach. **(T-2).** Comply with the following operational procedures:

5.15.3.1. Two operational VHF communication radios are required. **(T-2).**

5.15.3.2. The approach must be briefed as an ILS/PRM approach. **(T-3).**

5.15.3.3. Guidance on procedures if unable to accept an ILS PRM approach clearance is provided in AFMAN 11-202V3.

5.15.3.4. All breakouts from the approach shall be hand flown. **(T-3).** Autopilots shall be disengaged when a breakout is directed. **(T-3).**

5.15.3.5. Should a TCAS resolution advisory be received, the pilot shall immediately respond to the advisory. **(T-2).** If following a resolution advisory requires deviating from an ATC clearance, the pilot shall advise ATC as soon as practical. **(T-2).** While following a resolution advisory, comply with the turn portion of the ATC breakout instruction unless the pilot determines safety to be a factor.

5.15.4. CAT II ILS Procedures. DH is based on radar altitude. Minimum HAT is 100 ft. Minimum RVR is 1200. Maximum crosswind component limitation is 10 knots. A crosswind component of up to 15 knots may be used for training approaches (requires weather of 200–½ or greater).

5.15.4.1. The following airfield and aircraft equipment must be operational (AFMAN 11-230, *Instrument Procedures*):

5.15.4.1.1. Approach lights. **(T-2).**

5.15.4.1.2. Runway centerline lighting. **(T-2).**

5.15.4.1.3. High intensity runway lights or touchdown zone lights. **(T-2).**

5.15.4.1.4. Approach end transmissometer. **(T-2).**

5.15.4.1.5. ILS far field monitor. **(T-2).**

5.15.4.1.6. Sequenced flashers. **(T-2).**

5.15.4.2. Aircrews will not execute an IMC CAT II ILS below CAT I minimums unless both pilots are qualified and current in CAT II ILS. **(T-2).**

5.15.4.3. When performing CAT II ILS procedures on a CAT I ILS for training/evaluations, the DH is the HAT for the CAT I ILS. **(T-2).**

5.15.4.4. If an Approach Warning special alert is received prior to 300 ft. AGL, the approach can be continued if the failure can be corrected prior to 300 ft. AGL.

5.15.4.5. If an Approach Warning advisory is received below 300 ft. AGL the pilot will execute an immediate missed approach unless visual cues are sufficient to complete the approach and landing. **(T-3).**

5.15.5. Non directional beacon (NDB) Procedures. The HUD alone is not sufficient for NDB approaches. A head-down display, which depicts a bearing pointer tuned to the NDB, must be used in conjunction with the HUD throughout the approach. **(T-2).** NDB approaches may be flown during day, night, or IMC conditions after compliance with any airfield restrictions in GDSS/ASRR. Pilots should consider backing up each approach with available NAVAID/GPS to include loading the NDB coordinates in the FMS.

5.15.6. Self-Contained Approaches (SCA) (Independent Precision Radar Approach (IPRA) and LZ approaches). See AFMAN 11-202V3. Regarding IMC conditions, approaches may only be accomplished from a published SCA developed in accordance with AFMAN 11-202V3. **(T-2).** Units must submit SCA to MAJCOM Terminal Instrument Procedures (TERPS) office for review and receive MAJCOM/A3 approval. **(T-2).** Weather minimums for the SCA will be determined in the TERPS review based upon required navigation performance (RNP) criteria. **(T-2).** Ceiling will be no lower than 300 ft. and visibility will be no lower than RVR 4800 ft. or 1 SM (1600 meters). **(T-2).**

5.15.6.1. Figure of Merit (FOM) of 4 or less on both Navigation Solutions. **(T-2).**

5.15.6.2. Both Pilots must verify reference path indicator (RPI) or LZ coordinates. **(T-2).**

5.15.6.3. Pos Alert 1 and Alert 2 must be set to 0.03 and 0.05 respectively. **(T-2).**

5.15.6.4. No INAV POS MISCOMPARE / DIFFERENCE ACAWS. **(T-2).**

5.15.6.5. SHIP SOLN INAV 2 must be selected for IPRA Approaches. **(T-2).**

5.15.7. If the aircraft has already begun an Enroute Descent or Approach, the PIC will follow procedures in accordance with AFMAN 11-202V3 for changes to weather.

5.15.7.1. If the approach is continued, sufficient fuel must be available to complete the approach and missed approach, and proceed to a suitable alternate with normal fuel reserve. **(T-2).**

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

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

5.15.8.1. 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.

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

5.16. NVG Approach and Landing.

5.16.1. NVG Approach Weather Minimums. Weather minimums for NVG visual approaches, NVG visual pattern work, and pilots who are non-current and/or unqualified is 1500/3. **(T-3).** Current and qualified NVG aircrews, to include FTU instructor pilots conducting NVG approaches with student pilots enrolled in an FTU syllabus, may fly IFR approaches with weather at approach minimums. Aircrews must give careful consideration to the potential hazards during these critical phases of flight. Other weather limitations are in accordance with this AFMAN and AFMAN 11-202V3.

5.16.2. NVG Malfunction during Approach and Landing. If one of the pilots experiences NVG failure on short final, it will be at the discretion of the PIC whether or not to transition to normal lights or perform a go-around. The PM will be ready to immediately assume aircraft control if the PF experiences spatial disorientation or an NVG malfunction. **(T-3).** Pilots must exercise sound and conservative judgment to continue NVG operations with aircraft malfunctions. Tactical and safety considerations will dictate the final course of action. See AFTTP 3-3.C-130J for additional NVG emergency information.

5.17. Insect and Pest Control. Insect and pest control mitigation will in accordance with AFMAN 11-202V3 and the procedures below.

5.17.1. When spraying is required, use insecticide, aerosol d-phenothrin-2 percent, National Stock Number (NSN) 6840-01-067-6674 (or equivalent), to spray the aircraft. Wear leather or Nomex® gloves while spraying. **(T-3).**

5.17.1.1. Direct the nozzle toward the ceiling of the compartment or space being sprayed. **(T-3).**

5.17.1.2. Spray spaces inaccessible from within the aircraft after completely loading fuel, baggage, cargo, and passengers, including baggage compartments, wheel wells, and other similar spaces. **(T-3).**

5.17.1.3. Spray the cabin, cockpit, and other spaces accessible from within the aircraft after the aircrew is aboard and after closing all doors, windows, hatches, and ventilation openings. **(T-3).** CAUTION: If the insecticide label directs disembarkation after use, spray before boarding aircrew or passengers. Close all doors and hatches for 10 minutes after dispensing and ventilate for 15 minutes before allowing anyone on board. **(T-3).**

5.17.2. Spray for 105 seconds unless longer periods are specified for the country being transited. **Note:** Keep used aerosol cans separate from other trash so they may be disposed of safely.

5.17.3. Procedure at Aerial Port of Disembarkation. On arrival at an aerial port of disembarkation, do not open cargo doors or hatches except to enplane officials required to inspect the aircraft for insect or rodent infestation. **(T-1).** Do not onload or offload cargo or passengers until the inspection is satisfactorily completed. **(T-1).** This procedure may be modified as necessary to satisfy mission or local requirements, as arranged by the base air terminal manager or the local C2 organization**.**

Section 5G—Miscellaneous

5.18. Cockpit Voice Recorder (CVR). If involved in a mishap or incident, after landing and terminating the emergency, pull the CVR power circuit breaker (ECB #464). **(T-3).**

5.19. Passenger Restrictions. No-show passenger baggage or baggage of passengers removed from flight will be downloaded prior to departure. **(T-2).** Exceptions are provided in AFMAN 11-202V3 and applicable supplements.

5.20. Cockpit Congestion and Loose Objects.

5.20.1. The maximum number of persons on the flight deck should be the minimum commensurate with the mission requirements. At no time should this exceed six. **(T-3).**

5.20.2. No items (checklists, charts, etc.) will be placed on the power lever quadrant during critical phases of flight. **(T-3).**

5.20.3. Ensure no items impede flight control movement. **(T-3).**

5.20.4. Place only soft items on the top bunk. **(T-3).**

5.20.5. Store only the minimum amount of professional gear required to accomplish the mission on the flight deck. Additional items will be secured in the cargo compartment. **(T-3).** All items will be secured before passing the combat entry point through the combat exit point**. (T-3).**

5.21. Hung Ordnance Procedures. Conduct the following procedures after the live firing of chaff/flares or the aircrew suspects aircraft battle damage:

5.21.1. After landing, taxi to the de-arm area or another suitable safe location to check for hung ordnance. **(T-3).**

5.21.2. The loadmaster or another qualified crewmember will deplane the aircraft and check all chaff/flare dispensers for hung ordnance or damage. **(T-3). Note:** ALE-47 flare squibs that fail to fire are not considered hung ordnance.

5.21.3. If hung ordnance is found, identified by a protruding or partially ejected flare cartridge, the aircraft will remain in a de-arm area until explosive ordnance disposal personnel meet the aircraft. **(T-3).** The aircraft must remain in the designated safe area until explosive ordinance disposal personnel can clear all hung ordnance. **(T-3).**

5.21.4. If hung ordnance is not found, the aircraft can proceed to the parking location.

Chapter 6

AIRCRAFT SECURITY

6.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (hijacking). AFI 13-207-O, *Preventing and Resisting Aircraft Piracy (Hijacking) (FOUO)*, AFI 31-101, *Integrated Defense (ID) (FOUO)*, 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).**

6.2. Security. The WC-130J is a "Protection Level 3" resource. Aircraft security at non-United States military installations is the responsibility of the controlling agency.

6.3. Integrated Defense. The following security procedures for WC-130J aircraft were developed in accordance with AFI 31-101.

6.3.1. The aircraft will be parked in an established restricted area and afforded protection via a roving patrol, a two-person Internal Security Response Team, with immediate response not to exceed 3 minutes, and a two-person External Security Response Team, with response capability within 5 minutes in accordance with AFI 31-101. **(T-3).**

6.3.2. 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 in accordance with AFI 31-101. **(T-3).**

6.3.3. At non-United States military installations, the PIC determines the adequacy of local security capabilities to provide aircraft security commensurate with this chapter. If he or she determines security to be inadequate, the aircraft will depart to a station where adequate security is available. **(T-3).**

6.3.3.1. Conducting WR operations at non-United States military installations. Wing commanders will be responsible for maintaining a list of primary forward operating locations. **(T-2).** The wing commander will determine the adequacy of local security capabilities to provide aircraft security at these locations commensurate with this chapter. **(T-2).** If he or she determines security to be inadequate, the wing commander will work with MAJCOM security forces staff to develop a solution to ensure security of the aircraft at these locations. **(T-2).**

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

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

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

6.4. Arming of Crewmembers. Aircrews will arm in accordance with mission directives (Mission Detail, SPINS, OPORD, etc.). **(T-3).** Aircrews armed for anti-hijacking will normally

arm with hollow-point ammunition. **(T-3).** Aircrews armed for force protection will arm with ball-type ammunition. **(T-3).** If a crewmember leaves the aircraft, they must use only ammunition approved and/or directed per regional guidance (SPINS, OPORD, FCG, etc.). **(T-3).**

Chapter 7

TRAINING AND OPERATING LIMITATIONS

7.1. Passengers on Training Missions. Passengers on training missions will be in accordance with DAFMAN 11- 401.

7.1.1. Passengers are not authorized during initial qualification or re-qualification training. **(T- 2).**

7.1.2. Mission qualification training, evaluations, off station trainers, and Joint Airborne/Air Transportability Training (JA/ATT) may carry passengers only if the aircrew in training is qualified (AF Form 8, *Certificate of Aircrew Qualification* on file documenting successful completion of an aircraft checkride).

7.1.3. Multiple practice approaches, touch-and-go landings, stop-and-go landings, simulated emergency training, and airdrops are prohibited with passengers on board. **Exception:** Personnel scheduled to jump following a heavy/container delivery system airdrop, safeties, Mission Essential Personnel (MEP) (defined in DAFMAN 11-401), exercise participants that will be offloaded by "airland" procedures following the airdrop, or any personnel authorized by the JA/ATT tasking order may be transported on airdrop training missions. Nonparticipants in the exercise, OST, or JA/ATT are prohibited. **(T-3).**

7.2. Touch-and-Go Landing Limitations.

7.2.1. Touch-and-go landings will only be accomplished under the direct supervision of an IP or AC certified to perform touch-and-go landings. **(T-3).** Any pilot from either seat may perform ground idle touch-and-go landings only if a flight examiner pilot, instructor pilot, or an instructor pilot candidate during upgrade training or evaluation occupies a pilot's seat.

7.2.2. Limitations:

7.2.2.1. Minimum runway length for 50% flap flight idle touch-and-go landings is 5,000 ft. Minimum runway length for all other touch-and-go landings is 6,000 ft. **(T-3).**

7.2.2.2. Minimum ceiling/visibility: 300 ft. and RVR 4000 (3/4 SM visibility) with an IP, 600 ft. ceiling and 2 miles visibility for touch-and-go certified ACs. **(T-3).**

7.2.2.3. Authorized when crosswind component corrected for RCR is within the recommended zone of the Performance Manual Crosswind Chart for takeoff and landing.

7.2.2.4. Do not accomplish touch-and-go landings on slush-covered runways. **(T-3).**

7.2.2.5. Authorized when normal wake turbulence criterion are met.

7.2.2.6. Do not perform no-flap ground-idle touch-and-go landings. **(T-3).**

7.2.2.7. Touch-and-go landings may be performed with cargo onboard provided the PIC and LM determine suitability of cargo. Touch-and-go landings with hazardous cargo on board are prohibited. **(T-3).**

7.2.3. Include type of touch-and-go as part of the briefing (e.g., ground-idle or flight idle). **(T-3).**

7.3. Simulated Emergency Flight Procedures. Simulated emergency flight procedures will be conducted in accordance with AFMAN 11-202V3 and this AFMAN.

7.3.1. Simulated Engine Failure. Direct IP supervision required except for IP candidates under the supervision of flight examiner during initial or requalification upgrade evaluations to IP. One power lever may be retarded to FLIGHT IDLE at not less than VMCA (one-engine inoperative, out of ground effect) nor less than 300 ft. AGL. **(T-3).**

7.3.2. Weather. Simulated engine failure is authorized in daylight IMC if the weather is at or above circling minimums. Simulated engine failure is authorized at night with weather at or above 1,000 foot ceiling and 2 SM visibility or circling minimums whichever is higher. Crosswind component must be within the recommended zone of the Performance Manual Crosswind Chart for landing. **(T-3).**

7.3.3. Restrictions:

7.3.3.1. Engine out no-flap landings are restricted to AC candidates and above. **(T-3).**

7.3.3.2. Planned go-arounds from simulated engine-out no-flap approaches are not authorized. Required go-arounds from engine out no-flap approaches require setting the flaps to 50% and using all four engines. **(T-3).**

7.3.3.3. Do not compound engine out circling approaches with any other simulated malfunctions. **(T-3).**

7.4. Flight Maneuvers.

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

7.4.1.1. Full stalls. **(T-2).**

7.4.1.2. Rudder force reversals. **(T-2).**

7.4.1.3. Spins. **(T-2).**

7.4.1.4. Simulated runaway trim malfunctions. **(T-2).**

7.4.1.5. Simulated hydraulic system loss by turning engine driven hydraulic pumps off. **(T-2).**

7.4.1.6. Simulated two-engine approaches or landings. **(T-2).**

7.4.1.7. Simulated engine-out takeoffs. **(T-2).**

7.4.2. Permissible inflight maneuvers. The maneuvers listed below are authorized for qualification and continuation training. They are applicable to all C-130J aircraft except when prohibited or restricted by the flight manual. The pilot or IP will alert all crewmembers prior to accomplishing the following:

7.4.2.1. Approach to Stalls: Direct IP supervision required, authorized during day VMC. Follow restrictions in T.O. 1C-130(W)J-1 for practice stalls. Additionally, the maneuver will be accomplished at a minimum of 5,000 ft. above any cloud deck. Apply the Stall Recovery Procedure at the first indication of stall. **(T-3).**

7.4.2.2. Instrument Steep Turns: Authorized during daylight VMC with up to 60 degrees bank. Restricted to above 5,000 ft. AGL (or 5,000 ft. above a cloud deck) for bank angles in excess of 45 degrees. **(T-3).**

7.4.2.3. Slow Flight: Direct IP supervision required. Authorized at or above 5,000 ft. AGL. Fly at approach and threshold speed with gear down and flaps 0%, 50%, or 100%. Do not exceed 15 degrees of bank. **(T-3).**

7.5. Operating Limitations.

7.5.1. Unless specifically authorized elsewhere, do not practice emergency procedures that degrade aircraft performance or flight control capabilities. **(T-3).** In an actual emergency, terminate all training and flight maneuvers practice**. (T-3).**

7.5.2. Low/Missed Approaches. Initiate a planned missed approach no lower than:

7.5.2.1. Precision approach - DH (or 200 ft. HAT, whichever is higher for practice emergency involving a simulated engine shutdown). **(T-3).**

7.5.2.2. Non-precision approach - Minimum altitude depicted on approach plate. **(T-3).**

7.5.2.3. Visual Approach - 200 ft. AGL for simulated emergencies (no minimum for non-emergency). **(T-3).**

7.5.2.4. Restricted Low Approach (aircraft, equipment, or personnel are on the runway) - 500 ft. AGL. **(T-3).**

7.6. Night Vision Goggle Training.

7.6.1. Aircrews will accomplish aircrew training according to AFMAN 11-2WC-130JV1 and MAJCOM-approved training guides before performing NVG operations. **(T-3).**

7.6.2. Pilots who are both Touch-and-Go certified and NVG Airland Certified may perform NVG Touch-and-Go landings in accordance with **paragraph 7.2** to include FTU instructor pilots conducting NVG departures with student pilots enrolled in an FTU syllabus. WARNING: Aircrews must be thoroughly familiar with the visual cues required to identify the amount of runway remaining when performing Touch-and-Go operations. **(T-3).**

7.7. Landing Limitations.

7.7.1. No-Flap Approach Limitations:

7.7.1.1. Direct IP supervision required. **(T-3).**

7.7.1.2. Do not combine no-flap circling approaches with any other simulated emergencies. **(T-3).**

7.7.1.3. Maximum gross weight is 120,000 lbs. **(T-3).**

7.7.1.4. Authorized in daylight IMC if the weather is at or above circling minimums, and at night with weather at or above 1,000 foot ceiling and 2 SM visibility or circling minimums whichever is higher. **(T-3).**

7.7.1.5. Use 50% flaps for a go-around. **(T-3). Note:** Check no-flap landing distance with runway available. **(T-3).**

7.7.2. No-Flap Landing Limitations:

7.7.2.1. Authorized in short-body aircraft only. **(T-3).**

7.7.2.2. Crosswind component must be within the recommended range on the crosswind chart. **(T-3).**

7.7.3. Stop-and-Go Landing Criteria:

7.7.3.1. Authorized only on designated training, evaluation, or currency missions. **(T-3).**

7.7.3.2. Authorized to be performed by any WC-130J qualified pilot.

7.7.3.3. Runway remaining for takeoff must be sufficient to allow rotation and refusal speeds to be equal. **(T-3).**

7.7.3.4. Crosswind component corrected for RCR must be in the recommended zone of the landing crosswind chart. **(T-3).**

7.7.3.5. Ceiling and visibility must be at least 300 ft. and 3/4 mile (RVR 4000 ft.). **(T-3).**

7.7.4. Do not perform Stop-and-Go landings:

7.7.4.1. In conjunction with no-flap landings. **(T-3).**

7.7.4.2. When normal wake turbulence criterion are not met. **(T-3).**

7.7.4.3. When intercepting or crossing the flight path of a wide-bodied aircraft while performing an approach or landing. **(T-3).**

7.8. Actual Engine Shutdown and Airstart. Direct IP supervision required. One engine may be shutdown at not lower than 2500 ft. AGL in daylight VMC. **(T-3).**

7.9. Aborted Normal Takeoff. Aircrews will execute aborted normal takeoffs under direct IP supervision and only with OG/CC approval. **(T-3).** Authorized during formal upgrade training in daylight. Crosswind component must be within the recommended zone of the takeoff crosswind chart. **(T-3).** Runway must be dry, hard-surfaced, and long enough to allow refusal and takeoff speeds to be equal. **(T-3).** Initiate the abort by stating "REJECT" before refusal speed. Do not practice aborts from touch-and-go or stop-and-go landings. **(T-3).** The PF will prebrief all actual engine shutdowns due to a simulated malfunction.

7.10. Aborted Maximum Effort Takeoff. Aircrews will execute aborted maximum effort takeoffs under direct IP supervision and only with OG/CC approval. **(T-3).** Authorized for AC upgrades and above during formal upgrade training. Restricted to the main runway during daylight. **(T-3).** Crosswind component must be within the recommended zone of the takeoff crosswind chart. **(T-3).** Runway must be dry, hard-surfaced and long enough to allow refusal and takeoff speeds to be equal. **(T-3).** Simulate a runway length less than CFL. Initiate the abort by stating "REJECT" at or below a refusal speed based on simulated runway length. Compare distance traveled to runway length and point out the ramifications of operating with less than critical field length. Subsequent aborted takeoffs can lead to excessive brake heating. Brakes must be allowed to cool between aborted takeoffs. **(T-3).** Do not shut down an engine due to simulated malfunctions. **(T-3).** Aircrews will not practice aborted maximum effort takeoffs from stop-and-go landings.

Table 7.1. Training Restriction Summary.

Simulated Engine Failure	Prohibited during tactical operations. **(T-3).** Retard one throttle to flight idle at not less than VMCA (one-engine inoperative, out of ground effect) nor less than 300 ft. AGL. **(T-3).** Authorized day IMC if WX at or above circling minimums or night if weather is at or above 1,000 foot ceiling and 2 SM visibility or circling minimums, whichever is higher. **(T-3).** Crosswind component must be in the recommended zone. **(T-3).** Engine out no-flap landings are restricted to mobility pilot development pilots and above, and planned go-arounds are not authorized. **(T-3).** Engine out circling approaches will not be compounded with any other simulated malfunctions. **(T-3).**
No-Flap Landing (Short-body aircraft only)	Prohibited during tactical operations. **(T-3).** No-flap circling approaches are authorized for mobility pilot development pilots and above, and will not be combined with any other simulated emergencies. **(T-3).** Maximum gross weight is 120,000 lbs. and crosswind component must be within the recommended range. **(T-3).** Authorized day IMC if WX at or above circling minimums or night if weather is at or above 1,000 foot ceiling and 2 SM visibility or circling minimums, whichever is higher. **(T-3).**
Touch-and-Go Landings	Requires certification. **(T-3).** MPs restricted to flight idle touch-and-go landings. **(T-3).** Ground-idle performed by any pilot from any seat when a flight evaluator, IP, or IP candidate during upgrade/evaluation occupies a pilot's seat. **(T-3).** No-flap ground-idle touch-and-go landings not authorized. **(T-3).** Minimum runway length: flaps 50 percent, 5,000 ft. - for all other, 6,000 ft. **(T-3).**

	Crosswind component corrected for RCR is within recommended zone. **(T-3).** Minimum ceiling of 600 ft. and minimum visibility of 2 SM (300 ft and RVR 4000 (3/4 SM visibility) if an IP is in either seat). **(T-3).**
Go-around, Missed Approaches	Minimum altitude is 500 ft. AGL when aircraft, equipment, or personnel are on the runway. **(T-3).** VFR - No lower than 200 ft. AGL when practicing simulated emergencies. **(T-3).** Practice instrument approaches - no lower than minimum altitude for the approach. **(T-3).**
Slow Flight	At or above 5,000 ft. AGL. **(T-3).** Fly at approach, threshold, and 1.2 times stall speed with gear down and flaps 0, 50, or 100 percent. **(T-3).** Do not exceed 15 degrees of bank. **(T-3).**
Approach to Stalls	Requires day VMC at a minimum of 10,000 ft. AGL or 5,000 ft. above cloud deck. **(T-3).**
Instrument Steep Turns **(N/A for Tactical maneuvers)**	Authorized during day VMC with up to 60 degrees bank. **(T-3).** Restricted to at or above 5,000 ft. AGL or 5,000 ft. above a cloud deck for bank angles in excess of 45 degrees. **(T-3).** Review stall speeds before performing turns **(T-3).**

Chapter 8

NAVIGATION PROCEDURES

8.1. General. Navigation procedures will be in accordance with AFMAN 11-202V3, FLIP area planning documents, and applicable MAJCOM guidance.

8.2. Long Range Navigation and Oceanic Planning. For general planning and oceanic flight information, aircrews should reference AFMAN 11-202V3, specific region procedures, and applicable NOTAMS for unique or temporary applications and resources.

8.2.1. First Suitable Airfield (FSAF) and Last Suitable Airfield (LSAF). Utilized in the equal time point (ETP) calculation. These are represented as the "First Nearest" and the "Last Nearest" airports in the ETP calculation in the PROGRESS pages of the CNI. They are airports closest to the coast-out and coast-in waypoints that meet applicable criteria for WC-130J operations.

8.2.2. Refer to **Chapter 11** to accomplish fuel planning.

8.2.3. Equal Time Point (ETP). Point along a route at which an aircraft may either proceed to FSAF or return to LSAF in the same amount of time based on all engines operating. FSAF/LSAF are the airports closest to the coast-out and coast-in route of flight that meet applicable destination alternate requirements except weather. Forecast weather conditions for LSAF/FSAF (Estimated Time of Arrival (ETA) +/- 1 Hour) will meet or exceed minimums for the lowest compatible approach or 500/1, whichever is greater.

8.2.3.1. ETPs must be annotated and plotted on the Military Planning Controller (MPC) and Master Flight Plan (MFP) prior to the coast-out waypoint. **(T-3).** Enter ETP information into the CNI PROGRESS page during preflight. CNI-computed ETPs only become accurate upon reaching the PERF CRUISE altitude. CNI-computed ETPs can be obtained for different airspeeds (e.g., 260 Knots True Airspeed (KTAS) for a 3-engine scenario).

8.2.3.2. The blocks provided on top of the C130JHI09 Portable Flight Planning System (PFPS) CFP should be used to record information needed by the CNI to compute an ETP. These blocks and provided formulas also serve as a worksheet for aircrews to do manual ETP computations. The Advanced Computer Flight Plan (ACFP) has information on the bottom of the flight plan for manual ETP calculations. If using the computer programs or the CNI, annotate applicable information on the MFP. If the CNI is used, annotate "CNI" in the master flight plan blocks for which the CNI does not present a number.

8.2.3.3. To compute a manual ETP and verify ACFP/Mobility Air Forces Flight Planning System (MAFPS) calculations refer to AFMAN 11-202V3.

8.2.3.4. The INDEX FROM/TO and PROGRESS pages may also be utilized in flight to update times and distances to diversion bases along the route of flight. An accurate Ground Speed (GS) must be entered in order to obtain correct Estimated Time Enroute (ETE) calculations.

8.3. Long Range Navigation and Oceanic Procedures. Aircrews will use the Long Range Navigation checklist in **Figure 8.1** when operating in RNAV-10 (RNP-10), North Atlantic Region, or Remote Continental (no reliable fix at least once each hour from International Civil Aviation

Organization [ICAO] ground-based NAVAIDs) airspace, in addition to current guidance for the operating airspace. **(T-3).** For North Atlantic Region operations, requirements are annotated as North Atlantic High Level Airspace (NAT HLA) in **Figure 8.1** For unique mission requirements, units may augment the Long Range Navigation checklist with local supplements such as altitude reservation, formation, but in no case will they substitute for this checklist. **(T-3).**

8.4. Aircraft Specific Procedures. This section and **Figure 8.1** provide WC-130J specific guidance for applying long range navigation or oceanic procedures. Additionally, it addresses operations in the North Atlantic Region and other oceanic airspace. Specific aircraft procedures for required navigation performance (RNP) required area navigation (RNAV) airspace are addressed in subsequent sections.

8.4.1. For long range navigation operations in oceanic airspace, aircrews should refer to T.O. 1C- 130(W)J-1 **Chapter 18**B. Refer to **Chapter 3** for the navigation Minimum Equipment List (MEL) for specific airspace requirements.

8.4.2. One CFP and one plotting chart will be used as master copies for each flight utilizing long range navigation or oceanic procedures. **(T-3).** Both will be labeled "MASTER COPY" and will be referred to as Master Flight Plan (MFP) and Master Plotting Chart (MPC). **(T-3).** Both will be retained in accordance with AFMAN 11-202V3 and applicable supplements. **(T-3).**

8.4.3. Route Programming.

8.4.3.1. The navigator or one pilot will load the route of flight directly from the filed flight plan, MFP or data transfer card into the CNI and verify both the magnetic course and the leg distance for each waypoint with the MFP. **(T-3).** Loading the route directly from the filed flight plan may minimize pilot/controller clearance loop (misinterpretation) errors. Label waypoints so they can be readily identified for subsequent position reporting. If the courses differ by more than 2° or the distances differ by more than 2 NM, the navigator or pilot will resolve the discrepancy prior to flight. **(T-3).** Completion of this step will be annotated with a check- mark (√) next to the waypoint. **(T-3).** Verify the total distance to the destination on the CNI PROGRESS page. **(T-3).** Any significant disparity (more than 25 NM) in the total distance between the CNI and MFP should require a recheck of the ramp position and waypoint coordinates.

8.4.3.2. The other pilot will verify the waypoint coordinates and course and distance information from the opposite side CNI to the MFP. **(T-3).** Completion of this step will be annotated with the check-mark being circled on the MFP. **(T-3).** If the planned route of flight is a stored route or one loaded during a data transfer, the navigator and/or both pilots must verify the waypoint coordinates. **(T-3).**

8.4.3.3. Using the LEGS pages, insert the forecast winds (if available) at each waypoint. **(T-3).**

8.4.4. Ground Speed Check. Before taxiing the aircraft, check inertial navigation system (INS)/INAV ground speed by checking each pilot's ground speed on the CNI-MUs or HDDs/HUDs. Ground speeds in excess of 0 knots while the aircraft is stationary may indicate a faulty INS. While taxiing, check ground speed for reasonable indication.

8.4.5. Communication/Navigation/Identification Management System (CNI-MS). In addition to **Chapter 5** requirements, when configuring for long range navigation operations, a navigator and both pilots will verify INAV Position Alert 1 and INAV Position Alert 2 are set appropriately for the airspace in which the aircraft is operating and in accordance with T.O. 1-C-130(W)J-1 **Chapter 18**B. For operations in RNAV-10 (RNP-10), North Atlantic Region, or Remote Continental airspace it is recommended to set INAV Position Alert 1 to 5.0 NM on the CNI PROGRESS page to give early indication of the EGI/GPS position being questionable.

8.4.6. Navigation Accuracy Check. Before oceanic entry, check accuracy of EGI/GPS position and INS position, versus a ground-based NAVAID (e.g., the chosen NAVAID checkpoint reference position (REF POS)). If discrepancies greater than 5 NM exist, immediate action may be required. It is not advisable for aircrews to attempt to correct an error by doing an in- flight alignment or manually updating the INS since this has often contributed to a Gross Navigation Error. If cause of the discrepancy cannot be detected, aircrews should not enter oceanic airspace.

8.4.7. Oceanic Clearance. The PIC will designate the duties of flying the aircraft and copying and monitoring clearances so that they are clearly understood by all crewmembers. **(T-3).** The navigator will normally receive and record the oceanic clearance on the MFP. **(T-3).** Both pilots will monitor and crosscheck to ensure that it has been copied correctly and clearly understood. **(T-3).** If the oceanic clearance received is different from the planned clearance, or if the aircrew receives a re-clearance, use the following procedures:

8.4.7.1. Enter the new waypoints into the CNI in accordance with the NAT HLA/Minimum Navigation Performance Specification (MNPS) checklist. **(T-3).**

8.4.7.2. Record the new route on the MFP to include applicable updates to ETP data. **(T-3).**

8.4.7.3. Ensure fuel will be sufficient to arrive at destination waypoint with required reserves. **(T-3).**

8.4.7.4. Mark out the old plotted track and draw the revised plot on the MPC. **(T-3).**

8.4.7.5. Ensure both pilots do not simultaneously engage attention to this process during flight. **(T-3).**

8.4.8. Compass Deviation Check. Perform a compass deviation check using both INSs and the standby compass prior to oceanic entry. Record the deviation in the appropriate block of the MFP. Apply this correction to headings to be flown whenever it is necessary to use the standby compass as the sole source for navigation.

8.4.9. Strategic Lateral Offset Procedures (SLOP). The WC-130J is considered to have automatic offset capability and should apply SLOP in accordance with airspace requirements.

8.4.10. BIU Backup. Ensure that one pilot places their transmission switch to an HF radio so that the aircrew can transmit on HF in case of BIU Backup. The other pilot should select VHF 2 for the same reason. VHF 1 will be available on the Get Home Control and aircrew can attempt to relay transmissions to other aircraft on 121.5 until within VHF range of ATC.

8.4.11. When flying in RVSM airspace, hourly altimeter checks are required. **(T-2).**

8.4.12. Overhead Waypoint. In addition to NAT HLA/MNPS procedures, record the actual fuel remaining above the flight-planned continuation fuel and write the difference between continuation fuel and actual fuel remaining in the EXCESS block of the MFP (See **Chapter 11** for additional guidance).

8.4.12.1. Record actual in-flight conditions (altitude, wind, and static air temperature) above the forecast conditions on the next line of the MFP. Update these conditions as well as fuel flow as needed on the PERF CRUISE and LEGS pages in the CNI-MU.

8.4.12.2. Use FIH standard position report format. The layout of the CNI PROGRESS page supports this format. Ensure ETAs passed to ATC match ETAs on the MFP. This will enable the pilots to determine if an ETA has changed from what was previously reported. An example of a proper position report would be:

"Gander, Position, Reach 1234 on 8864."

"Gander, Reach 1234 on 8864, 56 North 030 West at 1308, FL 250, Estimating 56 North 030 West at 1340, 56 North 040 West Next. Request FL 290."

"Gander, Revised Estimate, Reach 1234 on 8864, 57 North 040 West at 0305."

8.4.13. Ten Minute Plot. MARK the aircraft position using the offside INS solution and plot the position on the MPC.

8.4.14. Coast-In. Use the radar to help identify the coast-in position. If coast-in is made at a radial/DME fix, the appropriate radial should be selected on the non-active CDI as a further check that the navigation system is tracking according to the current clearance. Remove SLOP automatic offset, if entered, prior to oceanic exit. Reset navigation system and IFF Mode 3 as appropriate.

8.5. Special Certification Airspace Requirements and Procedures.

8.5.1. The GPS currently installed in the WC-130J navigation suite meets Federal Aviation Administration (FAA) certification requirements for IFR navigation using Aircraft Autonomous Integrity Monitoring as defined in FAA AC 90-108. The MAJCOM has approved the GPS with Aircraft Autonomous Integrity Monitoring to be used as the primary means of navigation for enroute instrument navigation using procedures outlined in T.O. 1-C-130(W)J-1.

8.5.2. North Atlantic High Level Airspace (NAT HLA) formerly know as Minimum Navigation Performance Specifications (MNPS) Airspace. The WC -130J is approved for NAT HLA airspace with a 10.3 hour time limit after the INSn/RAD DEGRADED CNI message is received. The WC-130J must comply with all NAT HLA equipment requirements when flying within the lateral dimensions of this airspace. **(T-0).** Both INSs must be fully operational to meet the NAT HLA requirement of having two fully serviceable Long Range Navigation Systems. **(T-0).**

8.5.2.1. The WC-130J navigation system is certified to meet the requirements of RNP-10 airspace for up to 10.3 hours from the time the INSn/RAD DEGRADED CNI message is received.

8.5.2.2. The WC-130J is approved for RNAV5/BRNAV with no time limits as long as one INS is receiving radio updates.

8.5.3. For flight plan purposes, the WC-130J is performance based navigation approved with RNAV specification RNAV 10, RNAV 5 GNSS, RNAV 5 INS, RNAV 2 GNSS, RNAV 2 DME/DME/IRU, RNAV 1 GNSS, and RNAV 1 DME/DME/IRU. Annotate in appropriate blocks of the DD Form 1801, *International Flight Plan, DoD,* per the GP.

8.5.4. RVSM Airspace.

8.5.4.1. Both primary altimeters, at least one autopilot, the altitude advisory system, and the transponder, must be fully operational. **(T-3).** The AC will request a new clearance to avoid this airspace should any of this equipment fail. **(T-3).**

8.5.4.2. Have the autopilot engaged during level cruise, except when circumstances such as the need to re-trim the aircraft or turbulence require disengagement.

8.5.4.3. Crosscheck altimeters before or immediately upon coast-out. Record readings of both altimeters.

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

8.5.4.5. Limit climb and descent rates to 1,000 ft. per minute when operating near other aircraft to reduce potential TCAS advisories.

8.5.4.6. Immediately notify ATC if any of the required equipment fails after entry into RVSM airspace and coordinate a plan of action.

8.5.4.7. Document malfunctions or failures of RVSM required equipment in the AFTO Forms 781A.

8.6. Navigation Malfunctions and Failures. Should INAV solutions noticeably separate and exceed the limit for the operating airspace, aircrews will follow procedures outlined in T.O. 1-C-130(W)J-1. If unable to identify the navigation malfunction, determine and use the INS solution considered most accurate by evaluating both INSs using available radio aids, ground mapping radar, and GPS. Highest validity should be given to positions referenced via radar. Next highest validity should be given to positions derived via radio aid fixing. When left to determine most probable position (MPP) via navigation solution comparisons, two agreeing INS positions are more valid than two agreeing GPSs. Two agreeing GPSs and one agreeing INS indicate probable INS problem. Consider INS-radar/NAVAID, INS-INS, and INS-GPS position comparisons that are less than 4 NM difference to be valid and in agreement. Once the most accurate INS is determined, select it as the controlling solution. Update ETAs to ATC if required.

8.6.1. Situations may arise when aircrews cannot identify the faulty navigation system by simple comparison of positions between navigation solutions. Fly the aircraft halfway between the disagreeing INS solutions. Plot both CNI-SP solutions at least once every 30 minutes on MPC, labeling the pilot CNI-SP navigation solution MPP1 and co-pilot's MPP2. Continue to evaluate outputs from each INS and try to use plotted position information to identify adverse trends.

Figure 8.1. Long Range Navigation Checklist.

WC-130J LONG RANGE NAVIGATION (Oceanic) GUIDE

Bold items denote NAT HLA Requirements, (*) items denote WC-130J procedures

FLIGHT PLANNING

- **Comm/Nav/Surveillance (CNS) Flight Plan Codes and Planning Documents**
  - *Flight Plan - verify route of flight
  - *Identify coast out, coast in, mid-point & ETP
  - *Verify waypoint transition is curved path
  - *Insert enroute winds & temps
  - *Complete Fuel Plan and ETP calculations
  - *Annotate Controlling and Offside INAV SOLNs
  - *Annotate "MASTER COPY" at top
- **Plotting Chart - plot route coast out to coast in**
  - **Equal Time Point (ETP) - plot**
  - *Identify last/first suitable & emerg airfields
  - *Annotate prepareer's name, msn #, date, call sign, and PIC signature
  - *Annotate "MASTER COPY" at top
- **Track msg (Advanced NOTAMs)**
  - **Current copy avail for all crossings**
  - **Note nearest tracks on plotting chart**
- **Weather Analysis - Note enroute temp / turb. ETP airport forecasts**
- **Review possible navigation aids for accuracy check prior to coast out**
- *Enter SDFGHIRTUWXYZ/H on DDForm 1801, Item 10
- *Enter PBN/A1B2B5C2C4D2D4, NAV/RNVD1E2A1, OPR/DOD, & PER/C at Item 18

PREFLIGHT

- **Wind shear or turbulence forecast - checked**
- **Computer Flight Plan (CFP) vs ICAO Flight Plan (check routing, fuel load, times, groundspeeds)**
- **AF Form 781 - check for communication, navigation, surveillance, or RVSM issues**
- **RVSM** - *verify Req'd equip: CADC 1&2, CNI-SP1&2, P/CP PFD, 1 autopilot, alt alert sys, & IFF
- *Power Up checklist and Cockpit Set-up
  - **Dual INS for oceanic ops** - aligned
    - *Note time when INS enters "NAV" mode (basis for INS-only RNAV time limits)
- **Confirm Present Position coords (ref published ramp coords or detemrine via airfield diagram)**
  - *Record parking coordinates on MFP
- **Master Clock for all ETAs/ATAs** - Identify & check
- **CNIMU programming & Independent Verification**
  - **Check NavDB currency and software version**
  - **Using the MFP, the navigator or one pilot will**
    - **Load the route of flight**
    - **Track & distance chk (+/- 2° and +/-2 NM)**
    - *Verify total route distance (+/-25 NM)
    - *Resolve discrepancies
    - *Annotate waypoint with " "
  - **Using the MFP, the navigator or one pilot will**
    - **Check expanded coordinates of waypoints**
    - **Track & distance chk (+/- 2° and +/-2 NM)**
    - *Annotate waypoint with "O" around " "
  - **Input winds** (*input winds on LEGS pgs)
  - *Input applicable LEGS constraints
  - *Verify PERF fuel & GW
  - *Enter MFP Recovery Fuel as FIXED fuel
  - *Program ETP on PROGRESS 3/4 page
  - *Crosscheck CNI computed ETP vs MPC plotted ETP (set PERF CRZ ALT to fld elev for accuracy - reset planned CRZ ALT)
  - *Program Divert fields on PROGRESS 4/4 page
  - **Groundspeed check** (GS>0 may indicate INS malf)
- *Obtain departure clearance
  - *Update CNI re-verify entries as required
- **Altimeter checks (+/-75' from field elevation)**
- **HF check - on ground if possible**
- **Master CFP (symbols: " ", O, \, /)** (*annotated as req'd)
- *Crew Briefing - completed
- *Before Starting Engines Chklist - Setup RNAV

TAXI AND PRIOR TO TAKE-OFF

- **Groundspeed check (check for reasonable GS)**
- **Present Position check (after blocking out, check for gross diff btwn current pos and last pos check)**
- *Altimeter checks +/-40' from known checkpoint (per TO)

CLIMB OUT

- **Transition altitude - briefed, set 29.92" *(1013 hPa)**
- **Manually compute *RETAs (above sterile altitude and time permitting)**

*LEVEL OFF

- *Fuel Management / X-Feed as required
- *Update CNI PERF data (Alt, Speed, Temp, Winds), LEGS waypoint wind Constraints (as necessary)

PRIOR TO OCEANIC ENTRY

- **HF check, if not done during pre-flight**
- **Navigation Accuracy check**
- *Select CNI-MU NAV CTRL, UPDATE
- *Enter NAVAID checkpoint as REF POS (PB or LL)
- *Select FREEZE when overhead checkpoint (do not select ACCEPT)
- *Cross-check INAV1, INAV2 and the REF POS (Compare EGI 1 and EGI 2 delta position offsets)
- *If both INAV position offsets are ≤ 5nm - continue
- *If ≥ 5nm, refer to AFMAN 11-2WC-130JV3 Ch 11 for guidance. **(NAT HLA states IFA not advisable)**
- Record time, position, *and deltas on MFP
- *Verify controlling INAV Soln set to EGI or GPS, Offside INAV Soln ste ot INS/RAD
- **Obtain oceanic clnc from appropriate clnc delivery (≤ 40 mins prior to entry)**
- **State requested flight level on init clr req**

- **Confirm Flight Level at oceanic boundary**
- **Confirm Flight Level, TAS and Route for crossing**
- **Ensure aircraft performance capabilities for maintaining assigned altitude/assigned TAS**
- **Advise ATC When Able Higher (WAH) (*if req'd)**
- **Re-clearance – If different from route filed – Both pilots receive and confirm**
  - **Update CNI, CFP & plotting chart**
  - **Check track & distance for new route (Ref AMC Course & Distance Tables)**
- *Update CNI PERF data (Alt, Speed, Temp, Winds), LEGS waypoint wind constraints (as necessary)
- *Check CNI inflight ETP
- **Altimeter checks (w/in +/- 200' of 2 primary altimeters) – record readings**
- **Compass deviation check – record** (*3 hrs/30°)
  - *Record Mag Compass hdg & INS 1&2 HDG from CNI-MU INS STATUS pages
  - *Compute DEV using Offside INS: (Offside INS +/- DEV = Mag Hdg)
- *Set POS ALERT1/ALERT2 (per -1 Ch 3/ Ch 18) Recommend set POS ALERT1 to 5nm
- *Clear MARK LIST
- **Enter at Oceanic clearance altitude (may require coordination if different than last ATC-assigned)**

AFTER OCEANIC ENTRY

- **Maintain assigned TAS (if applicable)**
- **VHF radios-set to interplane and guard frequency**
  - *Set/monitor VHF1 to 123.45 MHz (oceanic interplane) and VHF2 to 121.5 MHz (guard)
  - *Set UHF2 to 243.0 MHz (guard)
  - *PM select HF1 or 2 (as appropriate), PF selects VHF2 (provides for BIU BU situation)
- **Strategic Lateral Offset Procedures (SLOP)**
  - 1 or 2nm right *(INDEX, ROUTE, ACT RTE 1/3)
- **30 min after entry – Squawk 2000 (or last assigned per airspace requirements)**
- **Hourly altimeter checks (record primary & standby)**

APPROACHING WAYPOINTS

- A few minutes prior, crosscheck upcoming waypoint and next waypoint
  - Compare lat/long w/CFP (consider SLOP)
  - *Check Track & distance chk (+/-2° and +/-2nm)
  - *Update ETAs to next 2 waypoints (RETAs)

OVERHEAD WAYPOINTS

- Confirm aircraft transitions to next waypoint
  - Check track and distance against Master CFP
- Confirm time to next waypoint
  - Notify ATC if ETA changed by 3-min or more (5 min or more w/in ADIZ off-airways)
- *Complete MFP entries
  - *Record controlling INAV DELTA bearing/range (NAV CTRL 1/3 page)
    - *Delta > POS ALERT 1 (ACAWS advisory): determine most accurate INS
    - *Delta > 10nm (ACAWS caution): notify ATC, refer to Loss of RNAV Capability (-1 Ch 3)
  - *Record ATA, compute ahd/bhd time (PROG 1/4)
  - *Record ACTUAL fuel (lower of PERF INIT or Totalizer), compute EXCESS (PROG 1/4)
  - *Record IN FLT WX (alt, winds, SAT) (PROG 2/4)
  - *HF oceanic **Position Report** IAW FIH
    - Callsign, Pos(LL), Time, FL, Estimating Pos(LL) & time, POs (LL) Next (INDX-PROGRESS 1/4)
  - *Annotate waypoint with "\" over circuled checkmark
- *Update CNI PERF data (Alt, Speed, Temp Dev, Wind constraints) as necessary

10-MIN PLOT

- **Approx 10 mins afer waypoint (~2° Longitude)**
- *MPC position plot (plot offside INAV SOLN position).
  - *Center the heading bug, select HDG mode
  - *Select offside INAV SOLN (AMU, NAV SELECT)
  - *Select MARK
  - *Re-select controlling INAV SOLN
  - *Re-engage NAV mode
  - *Offside INAV SOLN position is on MARK LIST pg
- **Record time and latitude/longitude on plotting chart – non steering LRNS** (*Offside INAV SOLN)
  - *If >2nm off course; check AFCS/Flt Director setup, CNI flt plan, MARKed data, & position plot (consider SLOP)
- *Annotate waypoint with "/" over circled checkmark

MIDPOINT

- **Midway btwn waypoints compare winds from CFP, *CNI (INDX PROG 2/4), & upper millibar wind charts**
- **Confirm time to next waypoint**
  - **Notify ATC if changed by 3-min or more**

***EQUAL TIME POINT**

- *Review fuel status
- *Update CNI-MU PROGRESS-DIVR & FROM/TO pg

COAST IN

- **Confirm routing after oceanic exit**
- **Remove SLOP prior to oceanic exit point** *(INDX/ROUTE/ACT RTE 1/3)
- *Reset POS ALERT1/ALERT2 as req'd for airspace
- **Navigation Accuracy Check (compare to NAVAID)**

DESCENT

- **Transition level – set altimeters to QNH**

DESTINATION/BLOCK IN

- **Navigation Accuracy Check**
- **RVSM write-ups**

***Other Considerations**

- In-flight contingencies (ref GP Ch 6)
- Weather Deviation Procedures (GP Ch 6)
- Weather – Destination/Alternate Airport(s)
- INS only ops (ref WC-J Vol 3) Use compass dev calcs

Chapter 9

AIRCREW MAINTENANCE SUPPORT PROCEDURES

9.1. General. This chapter contains aircrew procedures not contained in the flight manual or other publications.

9.2. Responsibilities. Aircrew may assist the normal maintenance function when critical contingency taskings dictate their use, provided this action does not impact crew duty and crew rest limits specified in AFMAN 11-202V3 and applicable supplements.

9.3. Authority to Clear a Red X. In accordance with AFI 21-101 and T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*.

9.4. Aircraft Servicing. Aircrews are authorized to perform aircrew maintenance support tasks found in this publication. The aircrew performs these tasks only in the absence of qualified maintenance personnel. Without exception, the applicable checklists will be used during all refueling and de-fueling operations.

9.4.1. Crewmembers acting as refueling supervisors and panel operators refer to T.O. 00-25-172, *Ground Servicing Aircraft and Static Grounding/Bonding* and refueling job guide. Aircrews should only refuel in cases when maintenance support is not readily available and the mission would be delayed. Aircrew may also conduct ground refueling at home station to satisfy training requirements. Crewmembers may augment maintenance refueling teams at enroute stops.

9.4.2. Concurrent Ground Operations. The PIC and chief servicing supervisor (CSS) shall ensure aircrew members and servicing personnel accomplish concurrent servicing (CS) in accordance with T.O. 00-25-172 and servicing technical orders. **(T-3).** Aircrews performing Dash-1 preflight inspections or cargo loading concurrent with servicing must have cooperation and close coordination with the CSS. **(T-3).** The CSS will remain in continuous intercom contact with fuel servicing team members during the entire servicing operation. **(T-3).** When the aircrew is at the aircraft, the PIC is responsible for all aspects of aircraft operations and shall inform the CSS how aircrew members will participate in passenger evacuation and safety. **(T-3).** In keeping with the guidelines in T.O. 00-25-172, CSS has authority over all phases of CS operations to include personnel participating in the refuel. **(T-3).**

9.4.2.1. Use the following guidelines when CS operations are conducted with passengers on board:

9.4.2.1.1. A current and qualified crewmember will be designated the passenger compartment monitor (PCM) and shall continuously monitor passengers during CS. **(T-3).** PCMs will not perform other duties during servicing. **(T-3).**

9.4.2.1.2. The AC shall designate a current and qualified crewmember to remain on the flight deck to monitor the 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. **(T-3).** The PA may be used to direct passenger evacuation in an emergency.

9.4.2.1.3. The PCM shall brief passengers on emergency egress, exits, prohibitions, and hazards. **(T-3).** Passengers will remain seated but will not wear seat belts during

CS. **(T-3).** Passengers shall turn off all portable electronic devices, except medically required devices, prior to servicing. **(T-3).**

9.4.2.1.4. When authorized by the PIC, passengers may board or exit the aircraft when loading for departure or offloading upon arrival. Boarding or exiting must be opposite of servicing operations. **(T-3).** Once onboard, except for emergencies, passengers shall not deplane once servicing commences. **(T-3).**

9.4.2.1.5. Passengers are not required to ground themselves. **(T-3).**

9.4.2.1.6. Passenger representatives will assist the PCM when passengers board and exit. **(T-3).** Passengers must remain outside the vapor hazard area, the fuel servicing safety zone, oxygen servicing area, and 25 ft. from fuel vents during servicing. **(T-3).**

9.4.2.1.7. The AC, or designated aircrew representative, or CSS will advise PCMs when to evacuate passengers. **(T-3).**

9.4.2.1.8. Unless environmental conditions dictate, the crew entrance door and left paratroop door should remain open and the right paratroop door should remain closed and locked during concurrent servicing. The PCM may lower, but not lock, the left paratroop door during inclement weather.

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

9.4.2.1.10. The loadmaster shall ensure cargo loading or unloading does not jeopardize passenger safety. **(T-3).** Winching is prohibited. **(T-3).** Do not load/unload cargo containing explosives, oxygen, flammable gases or liquids during CS. **(T-2).**

9.4.2.2. Simultaneous fuel and oxygen servicing is not authorized.

9.4.2.3. Winching of rolling stock and non-spark-producing (e.g., wooden) pallets is authorized. Driving vehicles equipped with spark arresters is authorized during fuel servicing. When loading vehicles without spark arresters, the vehicles must be either completely inside the cargo compartment, or outside of the established fuel servicing safety zone, before fuel servicing lines can be pressurized. **(T-3). Exception:** Diesel and turbo-charged (without waste gates) gasoline-powered vehicles can be onloaded or offloaded without having to stop fuel flow.

9.4.3. Hot Refueling and Wet Wing Defueling. Only aircrews authorized, trained, and certified in accordance with MAJCOM guidance will conduct hot (with aircraft engines running) refueling/wet wing defueling. **(T-3).**

9.5. Aircraft Recovery Away from Main Operating Base. The PIC is responsible for ensuring the aircraft is ready to meet subsequent mission taskings, even when qualified maintenance specialists are unavailable. **(T-2).**

9.5.1. The PIC is responsible for the recovery items including:

9.5.1.1. Parking and receiving. **(T-2).**

9.5.1.2. Aircraft servicing, including Aircraft Ground Equipment usage. **(T-2).**

9.5.1.3. Supervision of minor maintenance within local capability. **(T-2).**

9.5.1.4. Minor configuration changes to meet mission tasking. **(T-2).**

9.5.1.5. Securing the aircraft before entering crew rest. **(T-2).**

9.5.1.6. Coordinating aircraft security requirements. **(T-2).**

9.5.1.7. Documenting AFTO 781-series forms. **(T-2).**

9.5.2. In all cases where aircrews must service the aircraft without qualified maintenance specialist assistance, comply with the appropriate maintenance T.O.

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

9.6. Aircrew and Maintenance Engine Runs. A mixture of aircrew and maintenance personnel will not normally accomplish engine runs. When an aircrew member is required to start or run up engines for maintenance purposes, the following procedures apply:

9.6.1. Maintenance personnel will accomplish all necessary inspections and preparations for the engine run. **(T-3).** These actions include but are not limited to: intake/exhaust inspections, access panel security servicing, and AFTO Form 781 documentation.

9.6.2. Use the pilot and loadmaster checklists. Begin with the POWER UP checklist, and complete all appropriate checklists through the BEFORE LEAVING AIRPLANE checklist. **(T-3).**

9.6.3. Only deviate from the aircrew checklist when maintenance requires less than four engines to be started. **(T-3).**

9.6.4. Operate symmetrical engines when power settings above ground idle are required. **(T-3).**

9.7. Towing Operations. Aircrew members normally will not participate in towing operations. If required to occupy cockpit positions during towing operations conducted by personnel not familiar with WC-130 towing procedures, the PIC will coordinate with the tow team supervisor to brief all personnel on their duties and associated hazards. **(T-3).** Aircrews and tow team members will comply with T.O. 1C-130(W)J-2-09JG-10-1, *Ground Handling* and all applicable guidance. **(T-3).** Under no circumstances will any aircrew member act as the towing supervisor. **(T-3).**

Chapter 10

CARGO AND PASSENGER HANDLING PROCEDURES

10.1. General. Reference AFMAN 11-202V3, applicable supplements, and this chapter for all cargo and passenger handling procedures. The loadmaster coordinates and supervises loading and offloading with air terminal operations or shipping agencies. Loadmasters also perform preflight and postflight inspections of aircraft systems, plan loads, and compute aircraft weight and balance. In addition, loadmasters provide for the safety and security of passengers, troops, cargo, mail, and baggage during flight. During airdrop operations, the loadmaster prepares and rigs equipment, and participates in the aerial delivery of equipment, supplies, and personnel. To ensure good CRM, the primary loadmaster will assume overall responsibility for completion of all checklists and ensure no confusion exists about what duties have been or need to be accomplished when multiple loadmasters are on the aircrew. **(T-3).**

10.2. Responsibilities of Aircraft Loading.

10.2.1. AMC-Designated Stations.

10.2.1.1. Aerial port personnel are responsible for selecting cargo and mail for airlift, promptly completing documentation, palletizing cargo, load planning, computing load distribution, and moving cargo to and from the aircraft to meet scheduled departure. They will advise the loadmaster of destination, size, weight, and type of cargo (classified, hazardous, etc.) before starting loading operations to permit proper positioning. **(T-3).** They will also coordinate traffic activities affecting loading and offloading and assign sufficient aerial port loading personnel for cargo handling. **(T-3).** Aerial port personnel are responsible for safe positioning of material handling equipment and cargo to or from the aircraft cargo door, ramp, or auxiliary ground loading ramps. Under supervision of the loadmaster, aerial port personnel may assist with the following: preparing the aircraft for loading, stowing loading/tie-down equipment if the aircraft is not to be reloaded, physically loading the aircraft and tying down cargo and equipment, as well as releasing cargo that is tied-down and physically offloading it.

10.2.1.2. The loadmaster is responsible for aircraft preflight, load planning, certifying load plans, operating aircraft equipment, supervising and directing loading and offloading operations, and cargo tie down. Loadmasters are also responsible for entering weight and balance data into the CNI-MU Weight and Balance pages and completing weight and balance documentation in accordance with AFMAN 11-2C-130JV3 *Addenda A*, *C-130J Operations Configuration/Mission Planning*. The loadmaster coordinates with the load team chief to verify cargo against manifests, supervises and directs loading operations, and is responsible for safe movement of cargo into and out of the aircraft. The loadmaster will notify the PIC, command post, or terminal operations officer if loading personnel are injured or cargo, aircraft equipment, or aircraft structure is damaged during loading or offloading. **(T-3).** The loadmaster will brief the PIC on any hazardous cargo and cargo jettisonability prior to engine start. **(T-3).**

10.2.1.3. The loadmaster will accept loads planned by qualified load planners. The loads will be loaded aboard the aircraft as planned, unless the load or any portion of it will compromise flight safety or does not comply with applicable aircraft technical orders or

USAF and MAJCOM publications**. (T-3).** If cargo is refused for these reasons, forward all applicable information, including a copy of the load plan, to MAJCOM Standardization and Evaluation. AMC personnel will attach an AMC Form 54. **(T-3). Exception:** The aircraft loadmaster may deviate from load plans to facilitate ease of onload or offload of cargo and to alleviate unnecessary aircraft reconfiguration without submitting documentation. The aircraft loadmaster must take into consideration the next station's cargo configuration requirements and will ensure the aircraft is in proper weight and balance limits. **(T-3).** A new load plan is not required if cargo is not refused.

10.2.1.4. The loadmaster is the on-scene expert for load planning and accepting cargo for airlift. Some loads are not specifically detailed in applicable directives and require the loadmaster to use his/her best judgment, based on training, experience, and knowledge, to determine the best and safest method of loading the cargo. When difficulties arise, they should seek advice of other personnel (e.g., available loadmasters and squadron, group, wing, NAF, or MAJCOM Stan/Eval personnel).

10.3. Emergency Exits and Safety Aisles. In addition to AFMAN 11-202V3 and applicable supplements, reference AFMAN 11-2C-130JV3 Addenda A, *C-130J Operations Configuration/Mission Planning***.**

10.3.1. When passengers are seated in side facing seats, the loadmaster will ensure there is sufficient space between the cargo and the seats to permit passenger leg room. **(T-3).**

10.3.2. Passengers/ambulatory patients may not be seated closer than 30 inches in front of palletized netted cargo or cargo secured with straps. **(T-3).** When the cargo, either palletized or non-palletized, is secured with chains, the 30-inch spacing is not required. **Exception:** Maintain 30-inch spacing on AE missions, when carrying occupied litters. **(T-3).**

10.4. Pre-mission Duties.

10.4.1. Cargo Missions. Loadmasters in coordination with aerial port personnel establish loading times. Loading times that differ from the normal pre-departure sequence will be established, with PIC coordination, before the loadmaster enters crew rest. **(T-3).** Loading time is governed by the type of load and complexity of loading procedures (bulk, palletized, etc.) -- not by port saturation or management of aerial port workload levels. When reporting for duty, the loadmaster checks in with the air terminal operation center or other designated location to obtain load breakdown and assist in load planning as required.

10.4.2. Passenger Missions.

10.4.2.1. All passenger briefing(s) contained in flight manual(s)/checklist(s) will be accomplished for any mission with passengers aboard. **(T-2).** This requirement is regardless of passenger category (e.g., DV, Duty, MEP, etc.) or manifest document (passenger manifest, flight orders, etc.).

10.4.2.2. The design of the sidewall seatbelt makes it difficult to remove enough slack to secure the intercommunications system (ICS). Crewmembers may need to reroute the seatbelt by crossing the belt, between the sidewall and the seatback webbing, routing the belt back through the webbing and through the securing point on the ICS. When removing slack from the seatbelt ensure the buckle remains on one side or the other so that it can be

easily accessed for release. The PIC is the final authority for determining whether the ICS is adequately secured.

10.5. Enroute and PostFlight Duties. At stations where an aircrew change is made and loading or offloading is required, the inbound loadmaster is responsible for offloading the aircraft. The outbound loadmaster is responsible for planning and loading the outbound load. When no aircrew change occurs, the inbound loadmaster is responsible for onloading or offloading cargo.

10.6. Weight and Balance. Accomplish weight and balance for this aircraft according to T.O. 1-1B-50, *Weight and Balance*, T.O. 1C-130(C)J-5-1/T.O. 1C-130J-5-1, *Sample Basic Weight Checklist*, T.O. 1C-130(C)J-5-2/T.O. 1C-130J-5-2, *Loading Data Manual* and AFMAN 11-2C-130JV3, Addenda A**.** 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. Enclose the supplemental handbook in a wear-resistant binder (preferably metal), stenciled "Weight and Balance" with the airplane model and complete serial number on the cover or spine. **(T-3).**

10.6.1. The supplemental handbook will include the Chart C, which includes the aircraft's basic weight, basic moment, and center of gravity. **(T-3).**

10.6.2. The loadmaster will complete the weight and balance in accordance with AFMAN 11-2C-130JV3 Addenda A. **(T-3).**

10.6.3. Loadmasters, in units that authorize the use of DD Form 365-4, *Weight and Balance Clearance Forms F-Transport/Tactical*, will still ensure all weight and balance data is correct in the CNI-MU. **(T-3).**

10.7. Emergency Airlift of Personnel. Refer to procedures in **Chapter 13.**

Chapter 11

FUEL PLANNING AND CONSERVATION

11.1. General. This chapter is designed to assist planners and aircrews in fuel planning missions, with or without low-level segments. A fuel plan is required for all flights except local area training flights with established standard fuel loads. **(T-3).** The CFPS Computer Flight Plan (CFP) and T.O. 1C-130J-1-1, *Performance Data* are the primary preflight references. All preflight planning must be verified with aircraft MC performance prior to departure. **(T-3).** Missions should be planned at altitudes, routes, and airspeeds to minimize fuel usage.

11.2. Fuel Conservation. Fuel conservation procedures will be in accordance with AFMAN 11-202V3 and AMC Pamphlet 11-3, *Birds Fly Free, AMC Doesn't*.

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

11.3.1. Plan fuel to an alternate only when AFMAN 11-202V3 or **Chapter 5** of this AFMAN require the filing of an alternate.

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

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

11.3.1.3. When selecting an alternate, suitable military airfields are preferred if within 75 nautical miles of destination. **Note:** The ACFP default distance to an alternate is 75 nautical miles. Consequently, where the alternate is less than 75 nautical miles from the primary destination, ACFP will assume that the airfield is 75 nautical miles away.

11.3.1.4. ACFP will provide route of flight to primary alternate if greater than 75 miles from the destination.

11.3.2. Using all available planning tools (including ACFP) and guidance in this chapter, PICs will determine the Required Ramp Fuel Load (RRFL). When actual fuel load exceeds the RRFL by more than 2,200 lbs. defuel the aircraft to the RRFL.

11.3.3. Minimum landing fuel is 3,000 lbs.. This fuel accounts for gauge errors. Do not include this 3,000 lbs. of fuel in the 45 minute fuel reserve and 15 minute contingency fuel calculations.

11.3.4. Routes will be planned at 320 KTAS (260 KTAS below 10,000 MSL), except for oceanic crossings. **(T-3).** For oceanic crossings, routes will be planned at 300 KTAS or 290 KTAS, optimized for gross weight. **(T-3).**

11.4. Fuel Requirements and Definitions. The following definitions apply to fuel planning, and take precedence over similar definitions published elsewhere. Refer to **Table 11.1** for definitions of WC-130J fuel load components. This section augments AFMAN 11-202V3 fuel requirements.

11.4.1. Required ramp fuel load (RRFL): Minimum fuel required at engine start to complete tasked mission.

11.4.2. Remote Continental airspace routes will be designated on the ACFP by a plus symbol (+) or ampersand symbol (&).

11.4.3. Contingency fuel: An identified extra to compensate for unforeseen circumstances during any phase of flight (e.g., unforecasted weather, launch delay, etc.).

11.4.4. Wing Relieving Fuel: Additional fuel kept in the main tanks intended to counter wing bending moments and keep the aircraft within flight manual weight limitations.

11.4.4.1. Calculate Wing Relieving Fuel using the flight manual weight limitations chart for the aircraft's planned cargo load. Enter the chart with the aircraft empty weight and cargo weight, then read across to determine the fuel required to remain within limits. Add enough Wing Relieving Fuel, if required, to ensure that Recovery Fuel does not fall below the fuel required to remain within limits. **(T-3).**

11.4.4.2. All local and JA/ATT missions flying low-level should initially takeoff with main tanks full to reduce the effects of wing upbending and increase the center wingbox service life. **(T-3).** Decreased takeoff fuel in the main tanks can decrease the center wingbox service life as much as 47 percent.

11.4.5. Weather avoidance fuel: Additional fuel required for avoidance of known or forecast thunderstorms or icing conditions. When weather conditions dictate, add the following fuel corrections:

11.4.5.1. 1,500 lbs. if forecast thunderstorms are scattered or numerous along the route of flight. **(T-3).**

11.4.5.2. 1,000 lbs. if the route of flight has known or forecast icing conditions. **(T-3).**

11.5. Fuel Planning Profiles. Enroute cruise airspeed normally should be planned at a constant true airspeed in accordance with the performance manual. Missions planned using Long Range Cruise (LRC) provide little flexibility in the air when faced with actual fuel critical situations requiring the conservation of additional fuel. Divert profiles should be fully fuel planned and represent what will actually be flown. Altitudes should be no higher than the ATC cruise ceiling per the performance manual.

11.5.1. CFPS CFP Planning Profile.

11.5.1.1. The C-130J performance module of PFPS is certified to calculate accurate fuel planning information. Aircrews should use the C130JHI09 printout when printing the CFP so both the route of flight and fuel planning information can be recorded. Use the fuel planning blocks on the top of the flight plan and **Table 11.1** for fuel planning. **(T-3).** Enroute and Minimum Landing Fuel will be automatically printed. Pilots will ensure an accurate Recovery Fuel is input on the CFPS Pre-mission/Configuration/Fuel screen so calculated Continuation Fuels used during in-flight fuel monitoring are valid. **(T-3).**

11.5.1.2. When alternates are required, aircrews may need to accomplish and print two iterations of the flight plan to incorporate an accurate Recovery Fuel. For example, after the first calculation, aircrews will extract the enroute fuel to the alternate from the last line of the flight plan and add this to the initial Recovery Fuel. A second flight plan will be calculated once the Pre-mission/Configuration/Fuel screen is updated with the correct Recovery Fuel. If an alternate is required, use the Turnpoint/Additional Points screen to insert the designated airfield as a divert type after the intended landing airfield. **(T-3).**

11.5.2. Aircrew will receive an ACFP when on an FM mission from C2. **(T-3).** ACFP will produce a ".rte" file. The flight plan .rte file can be opened in PFPS, and an accurate fuel plan can be obtained. This will also allow the C130JHI09 printout to be printed if desired, and a mission card can be cut from this flight plan. The PFPS flight plan may be easier for aircrews to log required entries when in Remote Continental airspace.

11.5.3. Manual AF Form 70, *Pilot's Flight Plan and Flight Log,* Profile. In the event aircrews must rely on a manually-calculated AF Form 70 (or equivalent), the WC-130J Fuel Planning Worksheet found on **Figure 11.1.** should be used for fuel planning. Enroute fuel is manually calculated by adding the required components supplied as standard or derived from charts or tabulated data in the applicable Performance Manual. *Fuel To Climb* charts are used to manually calculate climb fuel. *Range Summary* or *Specific Range* charts are used to manually calculate cruise fuel from Top-of-Climb (TOC) to overhead destination using an average gross weight. Continuation Fuel for each leg will be calculated using the following formula: **(T-3).**
Continuation Fuel = Fuel Remaining (beginning of leg) – Landing Fuel + Recovery Fuel

11.5.4. WC-130J MC Profile.

11.5.4.1. The WC-130J MC plans a complete climb, cruise, descent, approach and landing profile based on the inserted LEGS DATA and PERF CLIMB, CRUISE, and DESCENT factors. Accurate leg fuels, as calculated by the MC, are dependent on aircrews ensuring that airspeed, altitude, winds, temperature, and fuel flow are correctly represented for each leg of the route and updated and/or corrected as in-flight conditions change. Because the flight profile is more than a planning tool, aircrews must use good judgment when inputting forecast/planned information versus actual performance and conditions. During preflight and at each waypoint, the Fuel On Board (FOB) for remaining legs will be compared against the flight planned Continuation Fuel to ensure there is sufficient fuel to continue the mission as planned in order to meet or exceed destination fuel requirements. **(T-3).**

11.5.4.2. Once airborne, the FOB on the PERF INIT WEIGHT page is calculated (not sensed) using sensed Fuel Flow versus Time. Update the FOB on the PERF INIT WEIGHT page to the amount indicated by the totalizer only when the totalizer amount is less than the calculated FOB. **(T-3).** Use the most conservative reading of the FOB or totalizer readings when recording fuel remaining during in-flight fuel monitoring. **(T-3).** The CNI will provide a FUEL QTY ERROR advisory when the PERF INIT WEIGHT FOB and totalizer readings differ by more than 2500 lbs. for more than 10 minutes. Reserve Fuel (FIXED on PERF INIT WEIGHT) should be set to the Recovery Fuel value. The CNI supplies a Low Calculated Fuel advisory when the calculated EXTRA fuel on the PERF INIT WEIGHT page falls below zero. Destination and Alternate Landing Fuel can be obtained from the MC. Aircrews will use the MC to evaluate and verify destination landing fuel status after mission changes and reroutes and whenever a divert is required and/or extensive weather avoidance routing is required. **(T-3).**

11.6. In-flight Fuel Management. For a flight plan and corresponding fuel log to be most meaningful for in-flight fuel monitoring, the actual cruise altitude should be within 2,000 ft. of planned altitude and airspeed within +/- 10 KTAS of planned airspeed. If initial cruise conditions do not fall within these parameters, the PIC should strive to reach them as soon as possible.

11.6.1. Fuel consumption will be monitored by comparing the FOB to predicted Fuel Remaining and the required Continuation Fuel on the flight plan. At a minimum, consumption comparisons will be accomplished and recorded on the Master Flight Plan (MFP):

11.6.1.1. As soon as practical after initial level off. **(T-3).**

11.6.1.2. At convenient waypoint intervals not to exceed 1 hour. **(T-3).**

11.6.1.3. At convenient waypoint intervals not to exceed 30 minutes if aircraft performance is critical or marginal (actual fuel is less than Continuation Fuel, icing conditions, weather avoidance, etc.). **(T-3).**

11.6.1.4. Any time re-routing occurs or a lower altitude than what was flight-planned is required to be flown. **(T-3).**

11.6.2. The fuel recording portion of the master flight plan may be discontinued at the discretion of the PIC when ALL of the following conditions have been met:

11.6.2.1. The Equal Time Point (ETP) has been crossed (Remote Continental airspace routes).

11.6.2.2. Fuel systems and quantity indicators are functioning normally.

11.6.2.3. There is obvious extra fuel and the +EXCESS fuel trend is favorable.

11.6.3. On Remote Continental airspace routes, prior to the ETP, if the EXCESS fuel becomes negative the PIC will consider and accomplish one of the following recommended actions:

11.6.3.1. Change the flight profile to ensure planned performance is reacquired and Fuel Reserves at destination will be met or exceeded. **(T-3).**

11.6.3.2. Continue and land short of intended destination (e.g., First Suitable Airfield (FSAF)) or proceed to intended destination based on updated weather forecast that no longer requires an alternate. **(T-3).**

11.6.3.3. Return to the departure base or the Last Suitable Airfield (LSAF). **(T-3).**

11.6.4. Flight Plan Changes and Diversion. When mission requirements or ATC dictates a change to the planned mission or route, the fuel must be recalculated to ensure safe completion of the flight. **(T-3).** It is not practical to complete a new flight plan fuel log, so the MC is the primary method of deciding if a mission change or reroute can be accommodated.

11.6.4.1. For an unplanned or directed enroute divert, the FROM/TO page, with an associated cruise ground speed, can be used to determine an estimated time enroute (ETE). Using T.O. 1C-130J-1-1 fuel burn, aircrews should be able to decide if the new routing is achievable without adverse effects on destination fuel. Do not accept a reroute that adversely depletes the destination Reserve Fuel as prescribed in this chapter. **(T-3).**

11.6.4.2. If the enroute change does not affect the intended destination, then in-flight fuel monitoring will consist of comparing the MC predicted Remaining Fuel with Flight Plan Continuation Fuel at the next point common to the reroute and the original flight plan. After any route alteration, aircrews should actively monitor fuel state by recording the Fuel Remaining values at abeam positions of the original flight plan and using the "Abeam" function of the INDEX/FIX INFO PAGE to crosscheck fuel status.

11.6.5. Declare "Emergency Fuel" when it is determined that the aircraft may land with less than 3000 lbs. Declare "Minimum Fuel" when it is determined that the aircraft may land with less than 3000 lbs. plus the required reserve.

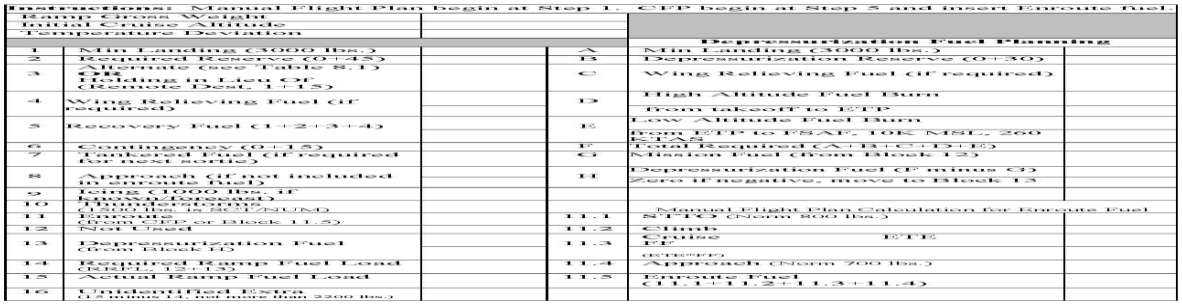
Table 11.1. Fuel Load Components.

FUEL PLANNING	
RECOVERY FUEL	The minimum planned landing fuel at intended destination. This is the sum of the Minimum Landing Fuel, Required Reserve, Wing Relieving Fuel (if required) and Alternative Fuel (if required). This fuel is critical to calculating accurate Continuation Fuels for each leg, it must be updated in the Pre-mission Configuration screen of PFPS if using a CFPS CFP. **(T-3).**
CONTINUATION FUEL	Fuel required at the beginning of each leg to be able to proceed to the intended destination and land with the required Recovery Fuel.
TANKERED FUEL	Fuel for succeeding legs without refueling.
UNIDENTIFIED EXTRA	The difference between RRFL and actual ramp fuel. This figure should not exceed 2,200 lbs. of RRFL. **(T-3).**
WING RELIEVING FUEL	Additional fuel kept in the main tanks intended to counter wing bending moments and keep the aircraft within flight manual weight limitations.
WEATHER AVOIDANCE	1,500 lbs. if forecast thunderstorms are scattered or numerous along the route of flight.
ICING	1,000 lbs. if the route of flight has known or forecast icing conditions.
KNOWN HOLDING DELAYS	Fuel for anticipated/planned holding, including remote destinations. Compute at Four-Engine Maximum Endurance Fuel Flow.
ENROUTE	Fuel required from engine start through landing at the intended destination. Components include engine start/taxi/takeoff (STTO), climb, cruise, approach fuel. Enroute fuel will be obtained from the CFPS CFP, or Performance Manual.

STTO	A component of enroute fuel. Fuel required for engine start, taxi, and takeoff. Normally 800 lbs. For known taxi delays or additional engine-running ground time in excess of 30 minutes, add 30 lbs./min. **(T-3).**
CLIMB	A component of enroute fuel. Fuel required from takeoff through climb to initial cruise altitude. If a manual calculation is required, the applicable Performance Manual's Fuel to Climb charts will be used. **(T-3).** Unless required for mission accomplishment, plan to climb no higher than ATC cruise ceiling per the Performance Manual.
CRUISE	A component of enroute fuel. Fuel required from TOC to overhead intended destination. If a manual calculation is required, the applicable Performance Manual's charts will be used.
APPR	A component of enroute fuel. Fuel required for approach and landing for overhead destination. Normally 700 lbs., which accounts for one instrument approach of no longer than 10 minutes. For longer approaches, follow-on visual, and/or pattern work, compute fuel burn at 85 lbs./min. **(T-3).**
ALTERNATE	Fuel required from intended destination to alternate, or most distant alternate when two are required. Flown at optimum cruise altitude, using direct routing to the alternate at LRC airspeed. Fuel for a missed approach (2,000 lbs.) and second approach at the alternate airfield is required when the visibility-only weather criteria is used to determine the suitability of the original destination.
REQUIRED RESERVE	45 minute reserve, using maximum endurance airspeed at 10,000 feet MSL (20,000 feet remote fields). Required overhead destination or alternate (if alternate is needed).
CONTINGENCY FUEL	15 minutes, using maximum endurance airspeed at 10,000 feet MSL (20,000 feet MSL for remote fields).

DEPRESSURIZATION FUEL	Fuel from the ETP to a recover airfield, with 30 minutes reserve. Calculated at LRC airspeed and 10,000 feet MSL. Plan on burning all other fuel. Compare with RRFL to see if additional fuel is required before flight. **(T-3).**
MINIMUM LANDING FUEL	3,000 lbs. (required). If it is determined that the aircraft will land with less than this amount, a fuel emergency exists and ATC must be informed. This entry is separate from required reserve and contingency fuel. **(T-3).**

Figure 11.1. WC-130J Fuel Planning Worksheet.



Chapter 12

COMBAT MISSION PLANNING

12.1. General. Should this capability be required, refer to AFMAN 11-2C-130JV3, *C-130J Operations Procedures* for guidance.

Chapter 13

AIRLAND EMPLOYMENT

13.1. General. Should this capability be required, refer to AFMAN 11-2C-130JV3 for guidance.

Chapter 14

AIRCRAFT FORMATION

14.1. General. The WC-130 is not outfitted with station keeping equipment and formation flying should not be conducted without the installation of this equipment. Should aircraft become equipped for formation flight, refer to AFMAN 11-2C-130JV3 for guidance.

Chapter 15

AIRDROP

15.1. General. Should this capability be required, refer to AFMAN 11-2C-130JV3 for guidance.

Chapter 16

AEROMEDICAL EVACUATION (AE)

16.1. Mission. This chapter applies to Air Force WC-130J Aircrews, AE Aircrews and all management levels concerned with operations of the WC-130J aircraft. All operators involved in AE missions on WC-130J aircraft will use AFMAN 11-202V3, this AFMAN, and AFTTP 3-3.C-130J. **(T-3).**

16.1.1. WC-130J aircraft may be used for AE transport of ill or injured DOD members and their dependents. These AE missions may be directed at any time by C2 agencies. AE personnel will utilize the procedures in applicable AFMAN 11-2AEV3, *Aeromedical Evacuation (AE) Operations Procedures*, in conjunction with this publication, to accomplish the AE mission. **(T-2).**

16.2. Aircraft Configuration.

16.2.1. A five (5) high configuration using the center seat and litter stanchions is approved for all AE missions.

16.2.2. The seat and litter stanchion ladder will be installed for all AE missions when cargo requirements permit. **(T-3).**

16.2.3. Litter support straps will be secured to the aircraft floor prior to takeoff. **(T-3).** If litters are not in the tier, loose litter support straps will be secured in a top and bottom litter support bracket on the center seat and litter stanchion. **(T-3).** This will remove a free-swinging strap hazard. **(T-3).**

16.3. Passengers and Cargo.

16.3.1. For patient comfort and to permit in-flight rest for patients use the following for missions over 4 hours in duration:

16.3.1.1. Minimum of 2 litters should be available for ambulatory patients.

16.3.1.2. One seat must be reserved for every 3 litter patients. **(T-3).**

16.3.2. An emergency litter will be set up on all AE missions. **(T-3).**

16.4. Floor Loading Procedures. Floor loading of 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. Floor loading procedures can be practiced or trained during Aeromedical Readiness Missions (ARMs), joint training operations, exercises, etc. The cargo/ramp floor will be configured with all rollers stowed (cargo permitting). Maximum altitude for floor loaded patients is FL350. Patients will have an EPOS pre-positioned on their litter when floor loaded. **(T-3).**

16.4.1. Ambulatory Patients. If available, any cushioning material may be used for seating, to prevent the patient from having to sit on the cargo floor. Seat ambulatory patients so they face forward in the aircraft. Attach a cargo strap in accordance with T.O. 1C-130J-9, *Cargo Loading Manual* to provide forward restraint and body stability for each row of patients.

16.4.2. Litter Patients. Refer to AFMAN 11-2AEV3 Addenda A, *Aeromedical Evacuation Operations Configuration/Mission Planning*, for securing litter patients.

Chapter 17

WEATHER RECONNAISSANCE (WR)

17.1. Mission. WR missions are conducted both internal and external to the DoD. Applications of WR internal to the DoD include the collection and dissemination of environmental data and intelligence for the purposes of situational awareness and integration into numerical environmental prediction models. External to the DoD, WR conducts Defense Support of Civil Authority (DSCA) missions in support of the lead federal agencies (LFA), National Oceanic and Atmospheric Administration (NOAA)'s National Hurricane Center (NHC), Central Pacific Hurricane Center (CPHC), and National Center for Environmental Prediction (NCEP). The publications that outline specific mission requirements are AFI 10-801, FCM-P12, *National Hurricane Operations Plan (NHOP),* and FCM-P13, *National Winter Season Operations Plan (NWSOP).* Both operations plans represent coordinated interagency agreements between NOAA, The Federal Aviation Administration (FAA) and the US Air Force. The Chief, Aerial Reconnaissance Coordination, All Hurricanes (CARCAH) office, embedded at the NHC, will coordinate any requests for assistance between the LFA and WC-130 units before disseminating in the form of the "Plan of the Day" (POD). **(T-2).**

Section 17A—Anticipation

17.2. Scheduling.

17.2.1. Once a mission is tasked, Operations Support Squadron Current Operations will relay the POD to the tasked unit, who will begin the scheduling and preflight mission planning process. **(T-3).**

17.2.1.1. The designated Mission Commander (MC) will initiate the required planning for any off station tasking. **(T-3).**

17.2.1.2. Current Operations (or MC if deployed) will request fuel load for both the primary and spare aircraft the day prior to the mission. **(T-3).** Spare aircraft fuel load will normally be 36,000 lbs.

17.2.2. Call Signs. Current Operations or the MC (deployed) will determine all tasked weather reconnaissance mission call signs. **(T-3).** Guidance on call signs for DSCA missions is provided in the NHOP/NWSOP. Deviations in call sign utilization are allowed with concurrence from the LFA and communicated to the FAA.

17.2.3. Unit scheduling or MC (deployed) will ensure crewmembers are scheduled accordingly to meet tasked mission requirements. Scheduling or the MC will initiate the ORM process. **(T-3).**

17.2.4. Unit scheduling will ensure a navigator and duty loadmaster are scheduled to perform preflight mission planning and loadmaster requirements for the tasked mission(s). See **paragraph 17.4** for Planning Navigator procedures and **paragraph 17.5** for Duty Loadmaster procedures.

17.3. Aircrew Requirements.

17.3.1. Crew Duty Day/Crew Rest Restrictions

17.3.1.1. Crewmembers placed in scheduled crew rest are not considered alerted for a mission until formally notified by the tasked unit or the MC. **(T-3).**

17.3.1.2. In situations requiring augmentation, the aircrew must be augmented from the start of the FDP. Basic aircrews will not be augmented after the FDP has started. **(T-2). Note:** Minimum altitude for any mission beyond 12 hours FDP is FL 048 (850 mb). **(T-2).**

Section 17B—Respond

17.4. Mission Planning.

17.4.1. Passengers and Media.

17.4.1.1. MAJCOM/A3 may provide provisional blanket approval to fly media personnel on WC-130J aircraft during DSCA missions and training flights. Local Wing Public Affairs is responsible for obtaining this approval. Passenger manifests will be accomplished by Wing Public Affairs. **(T-3).**

17.4.1.1.1. Only a pilot and/or co-pilot that is fully storm certified will occupy a pilot seat when media are on board the aircraft during any tasked weather reconnaissance mission. **(T-2).**

17.4.1.2. Only passengers that meet the requirements under **paragraph 17.4.2.2** or those authorized under approved inter-fly agreements are authorized to be manifested or carried on any weather reconnaissance tasked flight. **(T-3).**

17.4.2. Current Operations or MC (Deployed).

17.4.2.1. Diplomatic Clearances. Initiate diplomatic clearance requests as required. Reference the Flight Crew Bulletin and Foreign Clearance Guide for the most up to date information on diplomatic clearances for DSCA tasked missions. **(T-3).**

17.4.2.2. Approval to Fly Media Aboard. Coordinate with Wing Public Affairs to ensure the proper approval has been granted for all media flights (home station or deployed). Provide any required documentation/approval message to the tasked unit or MC along with the tasked mission Aircraft Commander.

17.4.3. Mission Planning Navigator.

17.4.3.1. Upon notification of the POD, execute the mission planning process in accordance with interagency agreements, tasking orders, and locally established guidance to include flight track and dropsonde release points. **(T-3).**

17.4.3.2. The mission planning navigator will produce CFPS flight logs, DD Form 1801 flight plan, navigation charts, mission coordination sheets and NOTAM requests (NOTAM requests are valid for US airspace/controlling agencies only). **(T-3).** Weather Reconnaissance Area (WRA) coordination will be planned in accordance with interagency agreements. **(T-0).** Specific mission requirements will dictate the planned FL and fuel load. The required mission fuel will be relayed to Current Operations or the MC, who will request the primary aircraft fuel load with maintenance. **(T-3).**

17.4.3.3. ATC Coordination. Pre-mission ATC coordination will be accomplished in accordance with interagency agreements. **(T-0).** If required, the Mission Planner Navigator will coordinate with scheduling/using agencies for special use airspace clearance/notification. **(T-3).**

17.4.4. Duty Loadmaster (LM).

17.4.4.1. The Duty LM will show 3+00 prior to scheduled takeoff time. **(T-3).**

17.4.4.2. The Duty LM will prepare dropsondes, water, and ice chests for the tasked aircrew. **(T-3).**

17.4.4.3. The primary and spare aircraft will be released 2+45 and 2+15 before scheduled takeoff time, respectively. **(T-3).** When the primary aircraft is released, the Duty LM will perform a complete Dash 1 preflight, complete the DD Form 365-4 (Form F) (as required), and distribute LPUs. **(T-3).**

17.4.4.3.1. If there is a maintenance problem while preflighting the aircraft, the Duty LM will notify the tasked unit or MC along with the Aircraft Commander. **(T-3).** The Duty LM will assist maintenance personnel and the Aircraft Commander as required. **(T-3).**

17.4.4.4. When the aircraft preflight is complete, the Duty LM will brief the flying LM on aircraft status and then go to the spare aircraft to perform the Alert Aircraft Preflight, in accordance with T.O. 1C-130(W)J-1, **Section 2A**, "Alert Procedures". **(T-3).** A crew chief may or may not be available to assist.

17.4.4.5. The fuel truck and the Duty LM will standby 30 minutes after aircraft takeoff. **(T-3).** If the spare is to be used, the Duty LM will assist in refueling the aircraft. **(T-3).** If the spare is not to be used, the Duty LM will assist the crew chief with re-installing aircraft plugs and required tie downs. **(T-3).**

17.4.4.6. Pre-load any cargo onto deploying/re-deploying aircraft as required. If deployed, the Duty LM will ensure cargo is properly manifested and prepare US Customs and Border Protection forms NLT 24 hours prior to re-deployment. **(T-3).**

17.4.4.7. Duty LMs are subject to normal crew rest/CDT and will follow all scheduling restrictions contained in this AFMAN and AFMAN 11-202V3. **(T-3).** The Duty LM will perform additional duties as assigned by the tasked unit or MC, which may include flying duties, when deployed, in the event a primary LM is put on DNIF status or mission requirements dictate rescheduling of crewmembers. **(T-3).**

17.4.4.8. While deployed, the Duty LM is "on call" for a 12-hour shift. During this time, the Duty LM is not required to be physically present at Operations for the entire shift. Duty LM will be at Operations for every takeoff scheduled during their shift. **(T-3).**

Section 17C—Operate

17.5. Aircrew alerting and show time procedures.

17.5.1. Alert and show times for tasked WR missions will be set and revised by Current Operations or the tasked unit (MC if deployed) as mission requirements dictate. **(T-3).** Standard alert and show time procedures are in accordance with **paragraph 2.4**. **(T-3).**

17.5.1.1. Show time for missions requiring cargo loading utilizing a forklift, etc., (e.g., deployment kits, large parts runs, etc.) is normally 3+00 prior to takeoff. This does not include missions carrying only passengers with personal non-palletized luggage or small amounts of parts or equipment.

17.5.1.2. The tasked unit Director of Operations (DO), MC, or designated representative is responsible for alerting all crewmembers on tasked WR missions. **(T-3).**

17.5.1.3. Crewmembers flying training and other non-tasked missions may report earlier than the scheduled show time with prior tasked unit DO or MC approval.

17.5.2. Equipment Guidelines

17.5.2.1. Aircrews will be issued Friendly Force Trackers (FFTs) for all tasked WR missions. **(T-3).**

17.5.2.2. Aircraft Commanders and ARWOs will coordinate with Squadron Aviation Resource Management to ensure sufficient communications security materials are issued for the duration of the mission. **(T-3).**

17.6. Mission Briefing Requirements.

17.6.1. For all tasked weather reconnaissance missions, the DO, MC, or designated representative will conduct a mission briefing detailing aircraft status, tasked mission objectives, departure airfield/weather conditions, and other relevant mission details. **(T-3)**.

17.6.2. The Aircraft Commander Aircrew Brief should be given immediately following the DO/MC mission briefing.

17.6.3. For all tasked missions, approximately 1+30 prior to scheduled departure time, the Aircraft Commander will contact the FAA National Airspace Operations Manager and/or appropriate ARTCC to brief and finalize mission requirements and any additions/changes to the planned mission. **(T-3).**

17.6.4. Aircraft Commanders will ensure that all passengers and media personnel flying on actual storm missions are properly manifested and briefed. **(T-3).**

17.6.5. The Mission Navigator will calculate mission fuel required prior to stepping. **(T-3).** Plan for weather reconnaissance enroute, recovery, alternate and missed approach portions per **Chapter 11**. **(T-3). Note:** The nature of tropical cyclone reconnaissance missions will cause bingo fuel calculations to be dynamic. Use sound practice and best judgement to calculate a dynamic bingo fuel and change as adjustments become necessary. Fuel requirements for tropical cyclone reconnaissance delays will be calculated at 180KIAS for the appropriate altitude based on weather conditions most likely to be encountered. **(T-3).**

17.6.6. During pre-flight checks, the ARWO or LM should brief the Aircraft Commander of any meteorological equipment failures as soon as possible.

17.6.7. Mission Debriefing. Conduct immediately after the mission, if practical, using **Attachment 2** Weather Reconnaissance (WR) Debrief Guide.

17.7. Tropical Cyclone Reconnaissance.

17.7.1. Tropical cyclone missions are conducted in accordance with the NHOP. The objective of any tasked mission is to provide situational awareness for forecasters and data inputs for

numerical models. Prior to arrival into the tasked area, the Aircraft Commander will conduct all appropriate briefings and required checklists. **(T-3).** Taskings typically fall into one of four profiles:

17.7.1.1. *Investigative Missions.* Flown to determine either the existence or nonexistence of a closed circulation and or the wind radii of a developing system. Investigative missions are normally scheduled with "on station" time during daylight hours to maximize visual data gathering, however, night missions are allowed. Altitudes for these missions may include 500 - 2500 ft. AGL, however, higher levels may be necessary based on environmental conditions or mission requirements.

17.7.1.2. *Fix Missions.* Flown to determine the intensity of a tropical cyclone and the location of the vortex center. Missions may be tasked for any standard pressure level up to and including 700 mb (FL099).

17.7.1.3. *Synoptic Tracks*. Flown to measure the large-scale wind and thermodynamic fields on the around and in advance of a storm. NHC will provide specific mission profile requirements through CARCAH.

17.7.1.4. *Buoy Missions*. Flown to deploy an array of buoys in advance of an approaching storm or in a suspected area of storm genesis. For employment procedures for all WC-130J buoy release operations, see **paragraph 17.13**, Buoy Deployment Operations.

17.7.2. Class II (long range overwater navigation) procedures, when required, will be followed from coast-out to storm entry, and storm exit to coast-in. **(T-3).** Class II procedures will be suspended during operations within the storm environment. **(T-3).** The Navigator will maintain a running BINGO fuel to the nearest suitable alternate/recovery base. **(T-3).**

17.7.3. Low-Level Procedures. The low-level environment is defined as any mission flown below FL048.

17.7.3.1. Prior to descent below 700 mb (FL 099), the ARWO will compute a minimum altimeter setting for aircrew use. The altimeter setting will be updated at least every 5 mb of change (approximately 150 ft. of altitude). **(T-2).**

17.7.3.2. When conducting a low-level "invest" mission descend to an altitude near, but no higher than, 1,500 ft. AGL. **(T-3).** If VMC cannot be obtained at 1,500 ft. AGL, then a descent may be made to no lower than 500 ft. AGL during daylight or 1,000 ft. AGL at night to obtain VMC. **Exception:** Due to the high concentration of offshore oil drilling platforms and high density helicopter traffic, aircrews flying low level investigative or fix missions tasked to operate within 60 NM of the US coastline from 88 00'w to 97 30'w longitude will only fly below FL 048 at the Aircraft Commander's discretion providing daytime VMC can be maintained. **(T-3).** CAUTION: Exercise extreme vigilance for helicopter and seaplane traffic. It is highly encouraged to make periodic "in the blind" broadcasts on common helicopter, fish spotter and guard frequencies to announce aircraft position, altitude and direction of flight.

17.7.3.3. Climb Criteria. If meteorological conditions are anticipated to meet or exceed the following restrictions, the Aircraft Commander should consider a precautionary climb. If any of the following conditions are observed, the Aircraft Commander will climb. **(T-3).** On any tasked WR mission, when the unfavorable conditions are no longer observed

or anticipated, Aircraft Commanders may descent to a lower level to meet mission requirements.

17.7.3.3.1. When flying at mission levels below 850 mb (FL048) and sustained FL or surface winds exceed 80 knots, an immediate climb will be made to 850 mb (FL048) or higher. **(T-3).** After 12 hrs Flight Duty Period (FDP), climb to 850 mb (FL048) or higher. **(T-3).**

17.7.3.3.2. When flying at mission levels up to and including 850 mb (FL048) and sustained moderate or greater turbulence is encountered, an immediate climb will be made to 700 mb (FL 099). **(T-3).**

17.7.3.3.3. Minimum altitude for all missions after 12 hours FDP is 850 mb (FL048). **(T-2).**

17.7.4. Terrain/Obstacle Clearance (all FLs). In no instance during IMC will the aircraft approach closer than 5 NM to hazardous terrain or obstacles unless maintaining 2,000 ft. vertical obstruction clearance. Navigators will ensure a "chummed" and current map card appropriate for the mission, a PFPS computer with current Digital Aeronautical Flight Information File, or an EFB with Foreflight © or equivalent program with Stratus © input moving map is on board the aircraft. **(T-3).**

17.7.5. Eyewall Penetration Procedures:

17.7.5.1. Before penetration of the eyewall, secure all loose equipment and ensure all personnel are secured by seat belts. **(T-3). Note:** Flight Examiners, Instructors, ARWOs, and LMs may stand if required to perform flight duties.

17.7.5.2. Fly the aircraft at turbulent air penetration airspeed, Vra. **(T-3).**

17.7.5.3. Normally use the autopilot for penetrations; however, any axis may be disengaged at the pilot's discretion. When encountering moderate or greater turbulence during penetration, it is recommended that altitude hold be disengaged.

17.7.5.4. Penetrations at flight altitudes where the ambient temperature is between -3°C and -5°C SAT will not be attempted due to ice accumulation potential unless:

17.7.5.4.1. All anti-ice and deicing systems are operational. **(T-2).**

17.7.5.4.2. Immediate descent to a temperature warmer than freezing is possible. **(T-2).**

17.7.5.4.3. Flight is through THIN alto or cirrostratus clouds. **(T-2).**

17.7.5.4.4. Aircraft remains clear of nimbo or cumulo-type clouds at least 50 percent of the time. **(T-2).**

17.7.6. Aircraft Separation.

17.7.6.1. More than one weather reconnaissance or research aircraft may be operating simultaneously within or near a WRA. Confirm radio frequencies and mission profiles with CARCAH prior to entering the storm area according to any existing letters of agreement. **(T-3).**

17.7.6.2. Aircrews will make every effort to establish and maintain radio contact with all other participating aircraft. **(T-2).** Consideration should also be given to utilizing the air-to-air function of the TACAN.

17.7.6.3. During missions where multiple aircraft are operating as "participating aircraft" in the same storm environment, at least one pressure altimeter in each aircraft will be set to 29.92 in hg and used as a reference when communicating with the other aircraft. **(T-2).**

17.7.6.4. Navigators will log storm mark points and substantiate equipment accuracy prior to the next storm fix. Accuracy substantiation does not require any log entries. **(T-3).**

17.8. Winter Season Reconnaissance.

17.8.1. Winter season missions are requested by the NCEP and are conducted in accordance with the NWSOP. The primary objective and intent of these tasked missions is to provide data inputs for numerical models. They are high-level missions (250 mb, approximately FL 340) flown to determine the intensity of developing meteorological systems and other atmospheric phenomena that poses a threat to the US and its interests. These missions may include systems over the Gulf of Mexico, Western Atlantic Ocean, Eastern Pacific Ocean (off of CONUS West Coast), or the Central Pacific Ocean (between Alaska and Hawaii).

17.9. General Weather Mission Procedures.

17.9.1. Aircraft Commanders will maintain an IFR clearance to the maximum extent possible while flying tasked NHOP missions. **(T-2).** Flying "Due Regard" or "Operational" will not be utilized in most cases, but if required comply with FLIP GP, paragraph 8.8 "Operations Not Conducted Under ICAO Procedures" and **paragraph 17.7.** of this document. **(T-2).** Aircraft Commanders should comply with mission execution procedures described in NHOP unless the safety of the aircrew is at risk.

17.9.2. Standard position reports should be transmitted at designated reporting points. In the absence of required reporting points, make "Ops Normal" calls 20-40 minutes from the last contact utilizing VHF/UHF, HF, or Satellite Phone as required. **(T-3)**. If necessary, position reports and ATC clearance requests can be relayed through CARCAH via the SATCOM.

17.9.3. Weather observations will be collected during over water training missions if an ARWO is part of the aircrew. **(T-3).**

17.9.4. Weather observation format and frequency will be according to mission objectives. As a minimum, horizontal observations should be collected at least every 200 NM enroute and hourly in orbit. Vertical observations should be accomplished over water at least every 400 NM.

17.9.4.1. If the status of meteorological systems prevents meeting the horizontal observation frequency requirements over land, the ARWO will send observations as close to the requirement as able until mission objectives have been accomplished. **(T-3).**

17.9.4.2. If the inventory of dropsondes is at a level that places operational requirements at risk of not being met, aircrews should make every effort to minimize the use of dropsondes while maintaining training, qualification, and currency requirements.

17.9.5. Weather data, with the exception of winter season tasking, is of greatest value when it is collected at altitudes equaling standard pressure (millibar) levels. All missions on which

weather observations are taken should be flown as near as practical to a standard level. **Table 17.1** depicts standard levels and their corresponding altitudes.

Table 17.1. Standard FLs.

Altitude	Standard Level
500-1500 AGL	Sea Level (Low-Level)
FL 025	925 mb
FL 048	850 mb
FL 099	700 mb
FL 183	500 mb
FL 236	400 mb
FL 301	300 mb
FL 340	250 mb

17.9.6. Tasked operational tropical cyclone reconnaissance missions are exempt from the weather avoidance criteria specified in **Chapter 5** only for weather related to tasked mission objectives. Aircrews will use caution and prudent judgment to balance their encounters with adverse weather and accomplishing mission objectives. This exemption does not apply to unrelated weather encountered while enroute to or from the tasked storm environment.

17.10. Weather Reconnaissance Missions Conducted Close to Sovereign Territories.

17.10.1. All diplomatic clearances must be obtained through official diplomatic channels. **(T-2).** An Air Traffic Control (ATC) clearance to enter sovereign airspace is not an authorized diplomatic clearance.

17.10.2. Certain nations recognize the need for weather reconnaissance flights into and/or through their airspace and routinely authorize such flights. Current Operations, the DO, or MC will ensure aircrews are briefed on current restrictions and any diplomatically cleared routes of flight for the mission being flown. **(T-2).**

17.10.3. Unless otherwise cleared by the appropriate authority, NHOP tasked weather reconnaissance missions will avoid sovereign territory by **(T-2):**

17.10.3.1. Cuba: 32 NM

17.10.3.2. All Others: 12 NM

17.10.4. Reference local Flight Crew Information File guidance for a list of countries that have granted over flight rights for "TEAL" aircraft on NHOP tasked missions. This spreadsheet states whether over flight rights are granted in the Foreign Clearance Guide or through a blanket clearance. If a blanket clearance is in effect, a copy of the granting message will be kept on-file by the local Current Operations office. **(T-3).**

17.11. ATC Handling and Clearances.

17.11.1. DSCA tasked reconnaissance missions are coded priority 1A3. On .tasked weather missions, request priority handling from ATC (only if required) to meet tasked timing or position, to correct or prevent a fuel critical condition, or any other situation deemed urgent and/or necessary. The request for priority handling should be used judiciously. It may be made in writing when filing the flight plan or verbally by phone or radio.

17.11.2. Aircrews will ensure they have an operable Mode 4 when operating outside the inner ADIZ (off published airways). **(T-3).** An operational ground test of the Mode 4 will be accomplished prior to departure (ground assets permitting). **(T-3).** Attempt to fix an inoperable Mode 4 prior to takeoff. Do not delay nor cancel a mission for an inoperable Mode 4. Conduct an in-flight check of the Mode 4 when required for mission accomplishment. For further guidance, refer to Foreign Clearance Guide, Aircrew Guide, OPORD or Air Tasking Order as appropriate. **(T-3).**

17.11.3. CARCAH, tasked unit DO, or the MC are authorized to relay ATC clearances and/or messages to aircraft utilizing SATCOM. Aircrews may send a SATCOM message to CARCAH or Ground Ops to request a clearance by providing the following information: present position and altitude/FL, estimate to next navigation checkpoint, and route of flight/altitude desired. Include any additional pertinent information. CARCAH or Ground Ops will contact the appropriate ATC Center and speak to the Oceanic Supervisor or Military Mission Coordinator. When ATC issues the clearance, CARCAH or Ground Ops must transmit the clearance to the aircraft verbatim and must preface the clearance with the words "ATC clears..." **(T-2).**

17.11.4. Operations not conducted under ICAO procedures.

17.11.4.1. There are certain operational situations that do not lend themselves to ICAO flight procedures (such as Low Level Investigative flights). Operations not conducted under ICAO flight procedures are conducted under the "Due Regard" or "operational" prerogative of military aircraft and are subject to one or more of the following conditions:

17.11.4.1.1. Aircraft shall be operated in Visual Meteorological Conditions. **(T-2).**

17.11.4.1.2. Aircraft shall be operated within radar surveillance and radio communications of a surface radar facility. **(T-2).**

17.11.4.1.3. Aircraft shall be equipped with airborne radar that is sufficient to provide separation between themselves, aircraft they may be controlling, and other aircraft. **(T-2).**

17.11.4.1.4. Aircraft shall be operated outside controlled airspace. **(T-2).**

17.11.4.2. The above conditions provide for a level of safety equivalent to that normally given by ICAO Air Traffic Control agencies. This also fulfills obligations under ICAO Doc 7300/9, *Convention on International Civil Aviation* (also known as the Chicago Convention of 1944), Part I, Chapter, 1, Article 3 which stipulates there must be "due regard for the safety of navigation of civil aircraft" when flight is not being conducted under ICAO flight procedures. **Note:** Flight under the "Due Regard" or "operational" option obligates the AC to be their own Air Traffic Control agency and to separate their aircraft from all other air traffic.

17.11.4.3. Flight under these provisions shall be regarded as deviations from normally accepted operating procedures and practices, and shall not be undertaken routinely. **(T-3).** Aircrews should reference DoD Instruction 4540.01, *Use of International Airspace by U.S. Military Aircraft and for Missile and Projectile Firings*, prior to planning missions that will exercise "Due Regard".

17.11.5. Airborne Release of Dropsondes.

17.11.5.1. The pilot will authorize release of dropsondes. **(T-3).** Use the following procedures to determine if the area is clear prior to release:

17.11.5.1.1. Visually clear the area on both sides of aircraft when in VFR conditions. **(T-3).**

17.11.5.1.2. Utilize the radar to determine the location of any aircraft and/or surface vessels in the target drop area. Careful consideration will be given to the effect of wind on the falling dropsonde. **(T-3).** Use TCAS in the below mode to scan for traffic indicated below the aircraft.

17.11.5.1.3. Releasing from altitudes above FL 190 and in direct radio contact with ATC. Dropsonde instrument releases will be coordinated by advising ATC of a pending drop of a "weather instrument" approximately 10 minutes prior to the drop. **(T-3).** When contact with ATC is via ARINC, releases will be included in the position report prior to the drop point (e.g., "TEAL 40, SLATN at 1215, FL 290 Block 310, estimate FLANN at 1250, CHAMP next. Weather instrument release at FLANN."). **(T-3).**

17.11.5.1.4. Releasing from altitudes above FL 190 and not in radar contact with no traffic advisories available. The Aircraft Commander will ensure that a transmission is made on both 243.0 UHF Guard and 121.5 VHF Guard advising traffic of the release approximately five minutes prior e.g., "TEAL 40 on Guard, attention any aircraft in the vicinity of FLANN intersection. TEAL 40 will release a weather instrument from FL 300 at FLANN at 1250 ZULU." **(T-3). Note:** Broadcasts should not be made if they will interfere with routine air traffic control transmissions (i.e., near airport traffic areas).

Section 17D—Meteorological Procedures

17.12. Instrument Calibrations.

17.12.1. Meteorological System Calibrations (MET CALs)

17.12.1.1. The MET CAL program will be administered at the discretion of the Chief ARWO. Therefore, a Meteorological System Calibration Flight (MSCF) will only be required when the Chief ARWO (or designated ARWO representative) deems it necessary.

17.12.1.1.1. MSCFs may be flown during daytime or nighttime hours, however low level calibrations will only be accomplished if daylight visual meteorological conditions (VMC) can be satisfied. **(T-3).** The 1,000 ft. AGL calibration will be conducted based off of the radar altimeter. **(T-3).**

17.12.2. Stepped Frequency Microwave Radiometer (SFMR) Calibrations

17.12.2.1. SFMR calibrations will be accomplished at the discretion of the Chief ARWO, in conjunction with the specifications of the SFMR pod manufacturer. The Chief ARWO (or designated ARWO representative) and meteorological equipment maintenance technicians will jointly track the calibration status of SFMR pods. **(T-3).**

17.12.2.2. Current Operations will designate SFMR calibration missions "SFMR CAL" in GDSS2. **(T-3).**

17.12.3. Units may conduct MSCFs and SFMR calibrations simultaneously. The mission ARWO and Navigator should reference local guidance for detailed MSCF and SFMR calibration procedures and mission profiles as part of the mission planning process.

17.12.4. Calibrations must be accomplished over water. Do not take over land or marsh. **(T-3).**

17.12.5. The Chief ARWO (or designated ARWO representative) is responsible for coordinating MSCFs and/or SFMR calibration flights with squadron scheduling, the maintenance group, and operations group Current Operations. **(T-3).**

17.13. Buoy Deployment Operations.

17.13.1. Testing and Certification. New or modified buoys will be certified for deployment through the aerial deployment testing program normally run by AMC/TE at Scott AFB (DSN 779-3156, **https://eim2.amc.af.mil/org/TEDR/SitePages/AMC/TE%20Home.aspx** and **amc.tea@us.af.mil**) and ASC/ENFC at Wright Patterson AFB (DSN 785-6039) prior to being approved and added to this list. An alternative test agency is the Air National Guard Air Force Reserve Command Test Center at Tucson, AZ. The following certified buoys are available for deployment:

17.13.1.1. *Wind Speed and Direction (WSD).* This buoy is 101 inches long by 8 inches in diameter and has a cone float that is 27 inches in diameter at its widest point. The total assembly (ready for aerial deployment) weighs approximately 700 lbs. The chute is deployed by static line.

17.13.1.2. *Oceanographic Profiler (OP).* The standard "A-size" instrument measures 5 inches in diameter and 36 inches long. The instrument weight depends upon the makeup of the scientific package it carries and is typically 26 lbs. The device has an internal parachute and does not require a static line to employ. The primary purpose of the instrument is to measure the temperature of the ocean at a pre-determined depth below the ocean surface.

17.13.1.3. *Airborne Expendable Bathythermograph (AXBT) and Alamo Floats*. These buoys are the same dimensions and make up as the OP.

17.13.1.4. *Lagrangian Float*. This package measures 80"l x 15"w x 14"h, weighs 180 lbs. and is housed inside an air canister. This tube is attached to a wooden skid, running its entire length. A 13-foot diameter parachute with suspension lines and riser is packed in a deployment bag fit into the top section of the tube. The chute is deployed by static line.

17.13.1.5. *Autonomous Drifting Observing System Drifter*. The package measures 44 1/2"l x 44 1/2"w x 51"h and weighs 340 lbs. The system consists of a skid plate and pallet on top of which is placed a specially reinforced cardboard deployment box. The chute is deployed by static line.

17.13.1.6. *Surface Velocity Program/Mini-Meteorological Drifter (SVP/MINIMET Drifter).* The weight, size, mass distribution, and rigging of the deployment package is the same as the Autonomous Drifting Observing System. The chute is deployed by static line.

17.13.1.7. *Argo Sounding Oceanographic Lagrangian Observer Float (MRV ARGO NAVO SOLO Float).* Argo SOLO Float. This package is a cardboard box 92"l x 18"w x 18"h weighing 116 lbs. with risers and chute attached to the outside. The chute is deployed by static line.

17.13.2. Aircrew Certification and Currency Requirements.

17.13.2.1. Crewmembers must complete the AFRC/A3 approved buoy certification training course . **(T-2).** Personnel who have completed the academic portion may fly a training or operational deployment mission with an instructor to complete their initial certification.

17.13.2.2. For Loadmasters to maintain currency, the Personnel Airdrop checklist must be accomplished, no actual deployment of either an operational or training buoy is required. **(T-2).** Qualified Pilots, Navigators, and ARWOs may maintain currency either in the C-130J Weapons System Trainer or aircraft by accomplishing the airdrop checklists in T.O. 1C-130(W)J-1CL, *Flight Crew Checklist*.

17.13.3. Deployment Array/Pattern. Missions will be as requested by the LFA and relayed through CARCAH. **(T-3).** Date and time of deployment will be coordinated between the LFA and Current Operations office via CARCAH. **(T-3).**

17.13.4. Manufacturer's Rigging. Rigging will be in accordance with the manufacturer's specifications as tested and certified for deployment from the WC-130J. **(T-2).**

17.13.5. Pre-Flight Procedures.

17.13.5.1. Buoy Deployment Kits. The LM will carry enough equipment in the buoy deployment kit to satisfy mission requirements. **(T-3).** Minimum contents: pressure sensitive tape, 550 cord, type 8 nylon, a Phillips screwdriver, a flat head screwdriver, and one rescue knife.

17.13.5.2. Safety Equipment.

17.13.5.2.1. Seat Belts and Restraint Harness. During buoy deployments, all personnel in the cargo compartment except LMs performing buoy deployment duties will have a seat belt fastened before any doors are opened. **(T-3).** The LM will wear a restraint harness from the Drop Preparation checklist until the ramp and door is closed and locked in the Completion of Drop checklist. **(T-3).**

17.13.5.2.2. Flight Helmets. Personnel required to be mobile in the cargo compartment during buoy deployments will wear helmets from the Drop Preparation checklist until the ramp and door is closed and locked in the Completion of Drop checklist. **(T-3).** Ensure the boom mic is operational prior to flight. **(T-2).** LMs will lower their helmet visor before opening the ramp and door and keep it lowered while doors are open. **(T-2).**

17.13.5.2.3. Restraint Harness. LMs will fit the restraint harness and adjust the lifeline before flight as follows: The flight deck restraint harness will not be used for air

deployments. **(T-2).** Connect the hook to a floor/ECHS tiedown ring no further aft than LS 1017 (FS 737). Adjust the lifeline to allow mobility to LS 1115 (FS 835), and to a point that will preclude the wearer from exiting the aircraft. Restraint harness lifelines may be attached to an unused anchor cable provided the anchor cable stop is positioned and taped at LS 1017 (FS 737). Ensure tiedown ring used during airdrop is no further aft than the tiedown ring used when preflighting the restraint harness. **(T-2).**

17.13.6. Flight Restrictions and Requirements.

17.13.6.1. Weather.

17.13.6.1.1. IMC. No restriction. Aircraft radar will be used to clear the area.

17.13.6.1.2. Thunderstorms. Adhere to the thunderstorm avoidance criteria in AFMAN 11-202V3.

17.13.6.1.3. Turbulence. Light turbulence or less (for deployment and drifting of buoys).

17.13.6.1.4. Wind. No altitude wind restrictions.

17.13.6.2. Night Operations. No restriction.

17.13.6.3. Flight Duty Period. Standard 16 hour FDP applies. **(T-3).** Reference this AFMAN and AFMAN 11-202V3 for guidance. As a reminder, low level operations (below FL 048) are limited to first 12 hours of FDP.

17.13.7. Aircrew complement.

17.13.7.1. Operational Missions. Two current and qualified Pilots, a Navigator, ARWO and two LMs (valid AF Form 8) are required for all operational buoy deployment missions. **(T-2). Exception:** Only one LM is required for deploying OP/AXBT buoys. **(T-3).** If initial buoy pilot training is being conducted during an operational mission, a buoy-qualified IP must occupy a seat during buoy deployment. **(T-3).** Other crewmembers in training must be supervised by a buoy-qualified instructor of the same aircrew position. **(T-3).**

17.13.7.2. Training Missions (Pilot). Two qualified pilots are required (completed basic aircraft qualification with a valid AF Form 8). **(T-2).**

17.13.7.3. Initial Buoy Training. No restrictions to training. Minimum requirements are an IP and a pilot in upgrade training. Actual deployment of an operational or training buoy is required. **(T-2).**

17.13.7.4. Non-Current Pilots, Navigators or ARWOs. Buoy mission currency is regained under the direct supervision of a current instructor of the same aircrew position. Currency may be regained in the C-130J WST or aircraft by accomplishing the airdrop checklists. If in the aircraft, actual buoy deployment is not required. **(T-3).**

17.13.7.5. Training Missions (LM). Two current and qualified LMs are required for all training buoy deployment missions. **(T-2). Exception**: Non-current LM can fill one position to regain currency under the supervision of an IL. During initial training, LM

requirement will be one instructor per student. **(T-3).** The instructor(s) will demonstrate the first buoy deployment. **(T-3).**

17.13.8. Mission Computer (MC). Use of the MC to execute the buoy release is prohibited. **(T-2).**

17.13.9. Cargo Compartment.

17.13.9.1. No cargo (other than buoys) is allowed aft of FS 550.

17.13.9.2. Use of the Enhanced Cargo Handling System (ECHS) to release a buoy is prohibited.

17.13.9.3. Authorization for passengers other than MEP requires MAJCOM/A3 approval. Pilot and LM buoy mission certification or re-currency flight training may be conducted with passengers on board only if the individual is qualified (completed basic aircraft qualification with a valid AF Form 8) for the seat position occupied. Media are not permitted onboard tasked buoy missions unless both pilots are buoy certified. **(T-2).**

17.13.9.4. ICS Panel. LMs will monitor only interphone & VOX from the Drop Preparation checklist until the panel is reset in the Completion of Drop checklist. **(T-2).**

17.13.10. Deployment Procedures.

17.13.10.1. Roll On Roll Off Equipment Connections.

17.13.10.1.1. When mission requirements call for the deployment and direct collection of data from buoys, reference **Attachment 3** Roll On Roll Off Sonobuoy Equipment Checklists for cautions and procedures to connect and disconnect receiver equipment.

17.13.10.2. Flight Parameters.

17.13.10.2.1. Altitudes. The minimum drop altitude is 1,000 ft. AGL. All buoys deployed out the ramp and door will normally be released at 1,000 ft. AGL (except WSD at 1,500 ft. AGL). The max altitude for release if no permanent buoy launch tube is installed is 10,000 ft. AGL. **(T-3).** If the OP buoy is released through the flare launch tube, there is no maximum altitude restriction.

17.13.10.2.2. Airspeed. 140 KIAS. (OP flare launch tube deployment - has no airspeed restriction.).

17.13.10.2.3. Radar Altimeter. Normally set to 100 ft. below the planned release altitude.

17.13.10.2.4. Drop Area. Normally within 5 NM of tasked coordinates. (Reference tasking message for additional information.).

17.13.10.3. Checklists. Aircrews will utilize Personnel Airdrop Checklists listed in T.O. 1C-130(W)J-1CL "Drop Preparation" through "Completion of Drop" to accomplish buoy deployments. **(T-2).** In addition, aircrews should utilize any applicable items of the Combat Entry and Exit checklist from T.O. 1C-130(W)J-1CL.

JOSEPH T. GUASTELLA Jr., Lt Gen, USAF
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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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AFI 21-101, *Aircraft and Equipment Maintenance Management*, 16 January 2020

AFI 24-605V2, *Air Transportation Operations*, 2 July 2020

AFI 31-101, *Integrated Defense (ID) (FOUO)*, 25 March 2020

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

AFI 33-324, *The Air Force Information Collections and Reports Management Program*, 22 July 2019

AFI 34-219, *Alcoholic Beverage Program*, 30 April 2019

AFMAN 11-2AEV3, *Aeromedical Evacuations (AE) Operations Procedures*, 19 October 2020

AFMAN 11-2AEV3ADDA, *Aeromedical Evacuation Operations Configuration/Mission Planning*, 16 June 2020

AFMAN 11-2C-130JV3, *C-130J Operations Procedures*, 17 July 2019

AFMAN 11-2C-130JV3 Addenda A, *C-130J Operations Configuration/Mission Planning*, 19 December 2019

AFMAN 11-2WC-130JV1, *WC-130J Aircrew Training*, 14 July 2021

AFMAN 11-202V3, *Flight Operations*, 10 June 2020

AFMAN 11-218, *Aircraft Operations and Movement on the Ground*, 5 April 2019

AFMAN 11-230, *Instrument Procedures*, 24 July 2019

AFMAN 24-604, *Preparing Hazardous Materials for Military Air Shipments*, 09 October 2020

AFTTP 3-3.C-130J, *(U) Combat Aircraft Fundamentals C-130J*, 12 July 2016

AFH 11-203V2, *Weather for Aircrews-Products and Services*, 13 August 2015

AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*, 11 November 1994

T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, 11 July 2016

T.O. 00-25- 172, *Ground Servicing Aircraft and Static Grounding/Bonding*, 13 March 2017

T.O. 1-1-300, *Maintenance Operational Checks and Check Flights*, 15 March 2012

T.O. 1-1B-50, *Weight and Balance*, 1 August 2015

T.O. 1C-130(C)J-5-1, *Sample Basic Weight Checklist*, 1 January 2018

T.O. 1C-130(C)J-5-2, *Loading Data Manual*, 1 January 2018

T.O. 1C-130J-1-1, *Performance Data*, 1 July 2011

T.O. 1C-130J-5-1, *Sample Basic Weight Checklist*, 1 January 2018

T.O. 1C-130J-5-2, *Loading Data Manual*, 1 January 2018

T.O. 1C-130J-6CF-1, *Acceptance or Functional Check Flight Procedures*, 1 July 2018

T.O. 1C-130J-9, *Cargo Loading Manual*, 1 July 2020

T.O. 1C-130(W)J-1, *Flight Manual*, 1 July 2011

T.O. 1C-130(W)J-1CL, *Flight Crew Checklists*, 1 July 2011

T.O. 1C-130(W)J-2-09JG-10-1, *Ground Handling*, 1 January 2017

T.O. 12S10-2AVS9-2, *Technical Manual Image Intensifier Set, Night Vision Type AN/AVS-9*, 10 March 2020

T.O. 13A1-1-1, *Repair, Cleaning, Insp And Test*

AMCI 11-208, *Mobility Air Forces Management*, 8 February 2017

AMCI 11-211, *Destination Airfield Suitability Analysis*, 8 June 2020

AMCI 24-6051V11, *Cargo and Mail Policy*, 4 February 2019

AMCI 90-903, *Aviation Operational Risk Management (AVORM) Program*, 2 July 2018

AMC Pamphlet 11-3, *Birds Fly Free, AMC Doesn't*

AMC Aircrew Border Clearance Guide

Adopted Forms

CBP Form 6059B, *Customs Declaration*

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

DD Form 1351-2, *Travel Voucher or Subvoucher*

DD Form 1351-2C, *Travel Voucher or Subvoucher (Continuation Sheet)*

DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*

DD Form 2131, *Passenger Manifest*

DD Form 365-4, *Weight and Balance Clearance Forms F-Transport/Tactical*

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

DD Form 1801, *International Flight Plan, DoD*

SF 44, *Purchase Order-Invoice-Voucher*

AF Form 8, *Certificate of Aircrew Qualification*

AF Form 70, *Pilot's Flight Plan and Flight Log*

AF Form 457, *USAF Hazard Report*

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

AF Form 673, *Air Force Publication/Form Action Request*

AF Form 711B, *USAF Mishap Report*

AF Form 847, *Recommendation for Change of Publication*

AF Form 1297, *Temporary Issue Receipt*

AF Form 1631, *NATO Travel Order*

AF Form 4075, *Aircraft Load Data Worksheet*

AF Form 4327a, *Crew Flight (FA) Authorization*

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

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*

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

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

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

Abbreviations and Acronyms

AC—Aircraft Commander

ACAWS—Advisory, Caution and Warning System

ACFP—Advanced Computer Flight Plan

ADC—Air Data Computer

ADF—Automatic Direction Finding

ADIZ—Air Defense Identification Zone

AE—Aeromedical Evacuation

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFRC—Air Force Reserve Command

AGL—Above Ground Level

AMC—Air Mobility Command

AMU—Flap Position Indicator

AOA—Angle of Attack

AOC—Air Operations Center

APPR—Approach

APU—Auxiliary Power Unit

ARM—Aeromedical Readiness Mission

ARTCC—Air Route Traffic Control Center

ARWO—Aerial Reconnaissance Weather Officer

ASRR—Airfield Suitability and Restrictions Report

A/T—Autothrottles

ATC—Air Traffic Control

ATCS—Automatic Thrust Control System

ATIS—Automatic Terminal Information Service

AVAPS—Airborne Vertical Atmospheric Profiling System

AXBT—Airborne Expendable Bathythermograph

BARO—Barometric

BASH—Bird Aircraft Strike Hazard

BAU—Bus Adapter Unit

BIU—Bus Interface Unit

BRNAV—Basic Area Navigation Airspace

C2—Command and Control

CAPS—Coordinated Airplane Positioning System

CARCAH—Chief Aerial Reconnaissance Coordination, All Hurricanes

CARP—Computed Air Release Point

CAT I—Category I Approach/Nav Route

CAT II—Category II Approach/Nav Route

CDT—Crew Duty Time

CFL—Critical Field Length

CFP—Computer Flight Plan

CFPS—Combat Flight Planning System

CNBP—Commercial Navigation Breaker Panel

CNI—Communication/Navigation/Identification

CNI-MS—Communication/Navigation/Identification-Management System

CNI-MU—Communication/Navigation/Identification-Management Unit

CNI-SP—Communication/Navigation/Identification-System Processor

CPHC—Central Pacific Hurricane Center

CRM/TEM—Crew Resource Management/Threat and Error Management

CS—Concurrent Servicing

CSS—Chief Servicing Supervisor

CVR—Cockpit Voice Recorder

DA/FD—Digital Autopilot/Flight Director Controls

DAFPD—Department of the Air Force Policy Directive

DFDR—Digital Flight Data Recorder

DH—Decision Height

DME—Distance Measuring Equipment

DO—Director of Operations

DSCA—Defense Support of Civil Authorities

DSO—Dropsonde Operator

DZ—Drop Zone

ECB—Electronic Circuit Breaker

ECHS—Enhanced Cargo Handling System

ED—Engineering Disposition

EFB—Electronic Flight Bag

EGI—Embedded Global Positioning System/Inertial Navigation System

EPOS—Emergency Passenger Oxygen System

ETA—Estimated Time of Arrival

ETE—Estimated Time Enroute

ETP—Equal Time Point

FAA—Federal Aviation Administration

FADEC—Full Authority Digital Electronic Control

FCF—Functional Check Flight

FCG—Foreign Clearance Guide

FD—Flight Director

FDP—Flight Duty Period

FFT—Friendly Force Tracker

FIH—Flight Information Handbook

FL—Flight Level

FLIP—Flight Information Publications

FMS—Flight Management System

FOB—Fuel on Board

FOD—Foreign Object Damage

FODS—Fire and Overheat Detection System

FOM—Figure of Merit

FS—Flight Station

FSAF—First Suitable Airfield

FTU—Formal Training Unit

GCAS—Ground Collision Avoidance System

GDSS—Global Decision Support System

GP—General Planning

GPS—Global Positioning System

GS—Ground Speed

GW—Gross Weight

HAT—Height Above Touchdown Elevation

HDD—Head Down Display

HDG—Heading

HF—High Frequency

HUD—Head Up Display

IAS—Indicated Airspeed

ICS—Intercommunications System

ICAO—International Civil Aviation Organization

IFF—Identification Friend or Foe

IFR—Instrument Flight Rules

IL—Instructor Loadmaster

ILS—Instrument Landing System

IMC—Instrument Meteorological Conditions

INAV—Integrated Navigation

INOP—Inoperative

INS—Inertial Navigation System

INU—Inertial Navigation Unit

IP—Initial Point/Identification Point/Instructor Pilot

IPRA—Independent Precision Radar Approach

JA/ATT—Joint Airborne/Air Transportability Training

KIAS—Knots Indicated Airspeed

KTAS—Knots True Airspeed

LFA—Lead Federal Agency

LM—**-**Loadmaster

LOC—Localizer

LPU—Life Preserver Unit

LRC—Long Range Cruise

LSAF—Last Suitable Airfield

LSK—Line Select Key

LZ—Landing Zone

MAF—Mobility Air Forces

MAFPS—Mobility Air Forces Flight Planning System

MB—Marker Beacon

MC—Mission Computer

MCD—Medical Crew Director

MDA—Minimum Descent Altitude

MDS—Mission Design Series (e.g., WC−130)

MEL—Minimum Equipment List

MEP—Mission Essential Personnel

MET CAL—Meteorological Systems Calibration

MFCD—Multifunction Control Display

MFCMETO—Minimum Field Length for Maximum Effort Takeoff

MFP—Master Flight Plan

MGT—Measured Gas Temperature

ML—Mission Loadmaster

MNPS—Minimum Navigation Performance Specification

MPC—Military Planning Controller

MPP—Most Probable Position

MR—Mission Ready

MRV ARGO NAVO SOLO—Argo Sounding Oceanographic Lagrangian Observer Float

MSCF—Meteorological System Calibration Flight

MSL—Mean Sea Level

NAT HLA—North Atlantic High Level Airspace

NAV—Navigation

NAVAID—Navigational Aid

NCEP—National Center for Environmental Prediction

NDB—Non Directional Beacon

NG—Gas Generator Speed

NHC—National Hurricane Center

NHOP—National Hurricane Operations Plan

NIU—Nacelle Interface Unit

NM—Nautical Mile

NMR—Non-Mission Ready

NOAA—National Oceanic and Atmospheric Administration

NOTAM—Notice To Airmen

NP—Power Turbine Speed/Propeller Rotation Rate

NVG—Night Vision Goggle

NWSOP—National Winter Season Operations Plan

OAT—Outside Air Temperature

OI—Open Item/Operating Instruction

OP—Ocean Profiler Buoy

OPR—Office of Primary Responsibility

ORM—Operational Risk Management

PA—Public Address

PAA—Primary Assigned Aircraft

PAR—Precision Approach Radar

PCM—Passenger Compartment Monitor

PF—Pilot Flying

PFD—Primary Flight Display

PFPS—Portable Flight Planning System

PIC—Pilot In Command

PLCU—Pallet Lock Control Unit

POD—Plan of the Day

PM—Pilot Monitoring

RNAV—Required Area Navigation

RNP—Required Navigational Performance

RPI—Reference Path Indicator

PRM—Precision Runway Monitor

RA—Radar Altimeter

RCR—Runway Condition Reading

REC—Receive

RFA—Request for Assistance

RNP—Required Navigation Performance

RPS—Regulated Power Supply

RRFL—Required Ramp Fuel Load

RSC—Runway Surface Condition

RVR—Runway Visual Range

RVSM—Reduced Vertical Separation Minimum

SAAM—Special Assignment Airlift Mission

SATCOM—Satellite Communications

SCA—Self-Contained Approach

SFMR—Stepped Frequency Microwave Radiometer

SM—Statute Mile

SLOP—Strategic Lateral Offset Procedures

STAN/EVAL—Standards and Evaluations

STAR—Standard Terminal Arrival Routes

STTO—Start/Taxi/Takeoff

SVP/MINIMET—Surface Velocity Program / Mini-Meteorological Buoy

TACAN—Tactical Air Navigation System

TACC—Tanker and Airlift Control Center

TAWS—Terrain Avoidance Warning System

TCAS—Traffic Alert Collision Avoidance System

TERPS—Terminal instrument procedures

T.O.—Aircraft Technical Order

TOC—Top of Climb

TOLD—Takeoff and Landing Data

TOT—Time Over Target

TR—Transformer Rectifiers

VFR—Visual Flight Rules

VMC—Visual Meteorological Conditions

VMCA—Velocity-Minimum Control (Air)

VOR—VHF Omnidirectional Radio Range

VVM—Verbalize, Verify, and Monitor

WR—Weather Reconnaissance

WRA—Weather Reconnaissance Area

WSD—Wind Speed and Direction Buoy

WX—Weather

X-FEED—Crossfeed

Terms

Aeromedical Evacuation (AE)—Movement of patients under medical supervision between medical treatment facilities (MTFs) by air transportation.

Air Route Traffic Control Center (ARTCC)—The principal facility exercising enroute control of aircraft operating under instrument flight rules within its area of jurisdiction. Approximately 26 such centers cover the United States and its possessions. Each has a communication capability to adjacent centers.

Air Traffic Control (ATC)—A service provided by an appropriate authority to promote the safe, orderly and expeditious use of the air transportation system and to maximize airspace utility.

Airfield Suitability and Restrictions Report (ASRR)—The ASRR and GDSS Airfield Database (AFD) products provide guidance for AMC organic aircraft operations at airfields worldwide by means of individual suitability assessments (Giant Reports). Per AFMAN 11-202V3, other MAJCOMs and services establish specific guidance concerning applicability of the ASRR (and associated information) for their aircraft. The ASRR and AFD products are available to anyone with a GDSS account or on request from the AMC Airfield Suitability office (AMC/A3AS) at: **Airfield.Helpdesk@us.af.mil**.

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

Bingo Fuel—The amount of fuel required to safely land at a given airfield.

Bird Aircraft Strike Hazard (BASH)—An Air Force program designed to reduce the risk of bird strikes.

Block Time—Time determined by the scheduling agency responsible for mission accomplishment for the aircraft to arrive at (block in) or depart from (block out) the parking spot.

BLUE BARK—US military personnel, US citizen civilian employees of the Department of Defense, and the dependents of both categories who travel in connection with the death of an immediate family member. It also applies to designated escorts for dependents of deceased military members. Furthermore, the term is used to designate the personal property shipment of a deceased member.

Border Clearance—Those clearances and inspections required to comply with federal, state, and local agricultural, customs, immigration, and immunization requirements.

COIN ASSIST—Nickname used to designate dependent spouses accompanying dependent children and dependent parents of military personnel reported missing or captured who may travel space available on military aircraft for humanitarian purposes on approval of the Chief of Staff, United States Air Force; Chief of Space Operations, United States Space Force; Chief of Staff, United States Army; Chief of Naval Operations; or the Commandant of the Marine Corps.

Command and Control (C2)—The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.

Command and Control Center—Each C2 Agency provides supervision, guidance, and control within its assigned area of responsibility. For the purpose of this AFMAN, C2 Agencies include air and space operations centers, command posts, air mobility elements, tanker airlift control elements (TALCE), air mobility control centers, and tanker task forces.

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

Critical Phase Of Flight—Takeoff, formation, low level (below MSA), airdrop (from DROP PREPARATION Checklist through COMPLETION OF DROP Checklist), approach, and landing.

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 a TOT/TOA. Notify controlling agency before takeoff to adjust the scheduled takeoff time.

Direct Instructor Supervision—Supervision by an instructor of like specialty with immediate access to controls (for pilots, the instructor must occupy either the pilot or copilot seat).

Distinguished Visitor (DV)—Passengers, including those of friendly nations, of star or flag rank or equivalent status, to include diplomats, cabinet members, members of Congress, and other individuals designated by the DoD due to their mission or position (includes BLUE BARK and COIN ASSIST).

Diverse Departure—The airfield has been assessed for departure by TERPS personnel and no penetration of the obstacle surfaces exist. An aircraft may depart the field, climb to 400 ft. above the departure end of the runway elevation, turn in any direction, and if a minimum climb gradient of 200 ft. per NM is maintained be assured of obstacle clearance. This is normally indicated on DoD/NOAA publications by the absence of any published departure procedures.

Due Regard—US military aircraft operate with due regard for the safety of all air and surface traffic. When following ICAO flight procedures is not practical and compatible with the mission, US military aircraft must operate with due regard consistent with "Operations Not Conducted Under ICAO Procedures" delineated in Enclosure 3 of DoDI 4540.01. These procedures fulfill U.S. Government obligations under international law. Under these procedures, the military aircraft commander must ensure that at least one of the following conditions be satisfied to enable safe separation from other aircraft: (1) aircraft must be operated in visual meteorological conditions, (2) aircraft may temporarily be operated in less than visual meteorological conditions when required by operational needs if the aircraft commander determines that there is acceptable risk to other aircraft, and/or (3) aircraft must be operated under continuous surveillance by, and in communication with, a surface or airborne facility providing the surveillance (See DoDI 4540.01, Enclosure 3 and FLIP General Planning, Chapter 7.).

Egress—The route portion from the last objective to the planned recovery base.

Equal Time Point (ETP)—Point along a route at which an aircraft may either proceed to First Suitable Airfield (FSAF) or return to Last Suitable Airfield (LSAF) in the same amount of time based on all engines operating. FSAF/LSAF are airports closest to the coast-out and coast-in route of flight that meet applicable destination alternate requirements.

Execution—Command-level approval for initiation of a mission or portion thereof after due consideration of all pertinent factors. Execution authority is restricted to designated command authority.

Familiar Field—An airport in the local flying area at which unit assigned aircraft routinely perform transition training. Each operations group commander will designate familiar fields within their local flying area.

First Suitable Airfield (FSAF)—The first suitable airfield available after completing the Category I route segment.

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).

Home Station Departure—Departure from the permanently assigned base of an aircraft/crew.

Ingress—The route portion from takeoff to the last objective.

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. HQ AMC publishes JA/ATT taskings in AMC OPORD 17−76, annex C, appendix 1.

Last Suitable Airfield (LSAF)—The last suitable airfield available before beginning the Category I route segment.

Latest Descent Point—Latest planned point on the DZ run-in course where the formation plans to initiate descent to drop altitude. This is planned to ensure all aircraft in the formation are stabilized (on altitude and airspeed) before the drop.

Loading Time—Specific time established jointly by the commanders concerned when aircraft loading will begin. For paratroopers, 20 minutes before Air Force stations time.

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

Maintenance Status—A1 – No maintenance required; A2 – Minor maintenance required, but not serious enough to cause delay; A3 – Major maintenance; A4 – Aircraft or system has suspected or known biological, chemical, or radiological contamination; A5 – Aircraft or system has suspected or known battle damage.

Medical Crew Director (MCD)—Flight Nurse responsible for supervising patient care and AEMCs assigned to AE missions. On missions where a Flight Nurse is not onboard, the senior AET will function as MCD.

Mission Contributing—Any degraded component, system, or subsystem, which is desired, but not essential to mission accomplishment.

Mission Essential—A degraded component, system, or subsystem, which is essential for safe aircraft operation or mission completion.

Mobility Air Force (MAF)—Forces assigned to mobility aircraft or MAJCOMs with operational or tactical control of mobility aircraft.

Modified Contour—Flight in reference to base altitude above the terrain with momentary deviations above and below the base altitude for terrain depressions and obstructions to permit a smooth flight profile.

Off Station Training Flight—A training flight that originates or terminates at other than home station that is specifically generated to provide the aircrew experience in operating away from home station. Off station trainers will not be generated solely to transport passengers or cargo.

Operational Control (OPCON)—Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.

Operational Order (OPORD)—A directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation.

Operational Plan (OPLAN)—A complete and detailed plan containing a full description of the concept of operations, all annexes applicable to the plan, and a time-phased force and deployment list.

Originating Station—Base from which an aircraft starts on an assigned mission. May or may not be the home station of the aircraft.

Operational Risk Management—ORM is a logic-based, common sense approach to making calculated decisions on human, materiel, and environmental factors before, during, and after Air Force operations. It enables commanders, functional managers and supervisors to maximize operational capabilities while minimizing risks by applying a simple, systematic process appropriate for all personnel and Air Force functions.

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

Permit to Proceed—Aircraft not cleared at the first US port of entry may move to another US airport on a permit to proceed issued by customs officials at the first port of entry. This permit lists the requirements to be met at the next point of landing, e.g., number of crew and passengers,

or cargo not yet cleared. Aircraft Commanders are responsible to deliver the permit to proceed to the customs inspector at the base where final clearance is performed. (Heavy monetary fines can be imposed on the Aircraft Commander for not complying with permit to proceed procedures.).

Positioning and Depositioning 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.

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.

Stabilized Approach—Criteria that define specific parameters in order to mitigate the risk during this critical phase of flight.

Stabilization Point—Point on the DZ run-in course at which the lead aircraft should plan to be stabilized at drop altitude and airspeed. This point will be planned to be at least 6 NM before the point of impact.

Stations Time—The time at which aircrews will have completed their pre-flight duties and be at their crew positions. Passengers will be seated and cargo will be secured.

618th Airlift Operations Center (Tanker Airlift Control Center) (618 AOC (TACC))—The Air Mobility Command direct reporting unit responsible for tasking and controlling operational missions for all activities involving forces supporting US Transportation Command's global air mobility mission. The Tanker Airlift Control Center is comprised of the following functions: current operations, command and control, logistics operations, aerial port operations, aeromedical evacuation, flight planning, diplomatic clearances, weather, and intelligence.

TEAL Aircraft—A WC-130 that has been tasked to provide defense support to civil authorities.

Terminal instrument procedures (TERPS)—MAJCOM TERPS office ensures each published instrument procedure is operationally acceptable for the command or unit mission to include evaluation and endorsement of each nonstandard procedure.

Terrain Charts—This includes both digital and paper charts.

Time Out—Common assertive statement used to voice crew member concern when safety may be jeopardized.

Training Mission—Mission executed at the unit level for the sole purpose of aircrew training for upgrade or proficiency.

Unilateral—Operations confined to a single service.

Unit Move—A mission airlifting military passengers or troops who originate from the same unit and onload point, are under the control of a designated troop commander and offload at the same destination.

Weather Reconnaissance Force (WR)—Forces assigned to weather reconnaissance aircraft or MAJCOMs with operational or tactical control of weather reconnaissance aircraft.

Attachment 2

WEATHER RECONNAISSANCE (WR) DEBRIEF GUIDE

A2.1. This is the AFRC-approved WR Debrief Guide. All PICs will use a MAJCOM-approved debrief guide upon mission or simulator completion, per **paragraph 12.12**. **(T-3).** This guide supersedes other aircrew flimsy, in-flight guide, and/or local debrief guides. However, current mission specific debrief guides tailored for specific mission variables (e.g., tropical cyclone, winter storm, atmospheric river reconnaissance, etc.) will still be used to augment **Table A2.1** Debrief Guide. **(T-3).**

Table A2.1. Debrief Guide.

DEBRIEF GUIDE
I. MISSION OVERVIEW:
a. Purpose (Operational Mission, Training, Evaluation)
b. Objectives
II. SORTIE OVERVIEW: See note below, Review Appropriate Items for Each Phase of Flight
a. Predeparture Planning/Briefing/Paperwork (FM Package)
b. Departure
c. Enroute
d. Mission – Tropical Cyclone, Winter Season, Other WX, Aeromedical Evacuation
e. Arrival/Landing
f. Termination
III. TRAINING REVIEW (If Required):
a. Training Objectives Met
b. Additional Training Requirements
c. Student Critique, Evaluation Debrief
IV. AFTER ACTION:
a. Events/Issues Warranting an ASAP Input or Other Safety Forms
b. Paperwork (Training Folder, MAR, Fuel tracker web site, etc.)
c. Crew Rest Requirements/Legal for Alert Time
d. Leadership Debrief (If Required)
i. Formal Training Mission

ii. Flight Evaluation Debrief
iii. Sub-Standard Aircrew Performance
Note: Review all CRM and Threat/Error Management (TEM) items in each Phase of Flight: Situational Awareness Aircrew Coordination and Verbalize/Verify/Monitor Adherence External Communication Task Management Threat Recognition/Management/Corrective Measures Error Recognition/Management/Corrective Measures Flight Integrity, Wingman Consideration Safety Considerations Successful/Unsuccessful – Root Cause of Success/Failure

Attachment 3

ROLL ON ROLL OFF SONOBUOY EQUIPMENT CHECKLISTS

A3.1. Table A3.1 is the WC-130 SPO-approved (20 July 2010) checklist for the connection/disconnection of buoy receiver equipment to the WC-130.

Table A3.1. SONOBUOY CHECKLIST.

SONOBUOY CONNECTION CHECKLIST	
A3.1. TURN OFF VHF#2 RADIO	(P/CP/LM)
A3.2. PULL AND STRAP ECB 896	(P/CP/LM)
CAUTION: DO NOT KEY RADIO IF ANTENNA IS DISCONNECTED	
A3.3. DISCONNECT VHF#2 ANTENNA CABLE FROM VHF#2 RADIO (FS 430, RIGHT SIDEWALL EQUIPMENT RACK)	(LM)
A3.4. CONNECT SONOBUOY BNC ANTENNA CABLE TO VHF#2 ANTENNA	(LM)
A3.5. PLUG SONOBUOY EQUIPMENT POWER CONVERTER INTO 20 AMP POWER SUPPLY ON LEFT SIDEWALL	(LM)
A3.6. SONOBUOY CONNECTION CHECKLIST – COMPLETE	(P/CP/LM)
SONOBUOY DISCONNECTION CHECKLIST	
A3.7. REMOVE SONOBUOY EQIUPMENT POWER CONVERTER POWER CORD FROM AIRCRAFT POWER OUTLET	(LM)
A3.8. DISCONNECT SONOBUOY BNC ANTENNA CABLE FROM VHF#2 ANTENNA	(LM)
A3.9. RECONNECT VHF#2 ANTENNA CABLE TO VHF#2 RADIO (FS430, RIGHT SIDEWALL EQUIPMENT RACK)	(LM)
A3.10. UNSTRAP AND RESET ECB 896	(P/CP/LM)
A3.11. TURN ON VHF#2 RADIO	(P/CP/LM)
A3.12. OPS CHECK VHF#2 RADIO TRANSMISSION/RECEIVE CAPABILITY	(P/CP/LM)
A3.13. IF VHF#2 DOES NOT OPS CHECK NORMALLY, WRITE UP RADIO AND HAVE MX PERFORM OPERATIONAL CHECKOUT OF VHF#2 RADIO PER T.O. 1C-130J-2-23JG-20-2 PAGE 1-1 ITEM 1-1	(P/CP/LM)
A3.14. SONOBUOY DISCONNECTION CHECKLIST – COMPLETE	(P/CP/LM)