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Flying Operations

E-3 OPERATIONS PROCEDURES

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PURPOSE

This manual implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations;* and is consistent with AFPD 11-4, *Aviation Service*, and Air Force Manual (AFMAN) 11-202V3, *Flight Operations*. It establishes effective and safe operations of the E-3 Airborne Warning and Control System (AWACS). It applies to all civilian employees and uniformed members of the Regular Air Force and the Air Force Reserve operating E-3 aircraft. It does not apply to the Air National Guard or the United States Space Force. This manual requires the collection and or maintenance of information protected by Department of Defense Instruction (DoDI) 5400.11, *DoD Privacy and Civil Liberties Programs.* The applicable System of Records Notice (SORN) F011 AF XO A, Aviation Resource Management System (ARMS), is available at **http://dpclo.defense.gov/Privacy/SORNs.aspx**. Ensure that all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed of in accordance with the Air Force Records Disposition Schedule which is located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) listed above using the Air Force Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field, through the appropriate Major Command (MAJCOM) channels to Air Combat Command/Airborne C2 Systems Branch (ACC/A3CA). Forward approved recommendations to ACC/A3CA. MAJCOMs, Direct Reporting Units (DRUs), and Field Operating Agencies (FOAs) forward

proposed MAJCOM/DRU/FOA-level supplements to this volume to Air Force Flight Standards Agency, through ACC/A3CA, for approval prior to publication in accordance with AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*. The issuing office provides copies of approved and published supplements to ACC/A3CA, and the user MAJCOM/DRU/FOA OPRs. Field units below MAJCOM/DRU/FOA level forward copies of their supplements to this publication to their parent MAJCOM/DRU/FOA OPR for post publication review. **Note:** The above applies only to those DRUs/FOAs that report directly to HQ USAF. Keep supplements current by complying with DAFI 33-360, *Publications and Forms Management*. The authorities 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 DAFI 33-360 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. See additional waiver processing guidance at **paragraph 1.4** 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. Compliance with the attachments in this publication is mandatory.

SUMMARY OF CHANGES

This interim change revises AFMAN 11-2E-3V3 by (1) directing this publication is not applicable to the United States Space Force; (2) clarifying additional waiver processing can be found at **paragraph 1.4**; and (3) clarifying thunderstorm avoidance guidance provided at **paragraph 4.1.3** A margin bar (|) indicates newly revised material.

Chapter 1

GENERAL INFORMATION

1.1. Scope. This manual, in conjunction with other governing directives, prescribes those procedures applicable to the operation of E-3 aircraft under most circumstances. It is not a substitute for sound judgment. Procedures not specifically addressed may be accomplished if they enhance safe and effective mission accomplishment.

1.2. Roles and Responsibilities.

1.2.1. Major Command (MAJCOM). MAJCOMs will provide guidance and approve waivers (as required), where specified throughout this manual.

1.2.2. Pilot in Command (PIC). The PIC is the aircrew member designated by competent authority, regardless of 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. **(T-3)**.

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

1.2.4. Mission Crew. See **Chapter 5** for a detailed roles and responsibilities section for mission crew positions.

1.3. Deviations. Deviations from mandatory requirements in this manual require specific approval of the waiver authority unless an urgent requirement or an aircraft emergency dictates otherwise. In that case, the PIC will take the appropriate action to ensure the safety of crewmembers/passengers and the aircraft.

1.4. Waivers. Tier waiver authorities (T-0, T-1, T-2, T-3) have been added to all mandated unit compliance items (wing level and below) as prescribed by DAFI 33-360 and AFMAN 11-202V3. Forward waiver requests through appropriate channels to the MAJCOM/Director of Operations OR Operations (A3) for approval. All approvals will include an expiration date. ACC/Stan Eval (A3TV) and ACC/A3CA are the offices of coordinating responsibility for all waiver requests to this manual.

1.5. Explanation of New Terms. This document is written to increase flexibility of squadron and crew leadership. Legacy crew constructs are still applicable but some definitions are expanded to allow tailored crew complements. Where new crew positions or functions use terminology with existing acronyms, those names are spelled out to differentiate (e.g., Active Sensor Operator vs Air Surveillance Officer (ASO)). "Air Battle Manager (ABM)" is intended to reference Mission Crew Commander (MCC)/Senior Director (SD)/ASO/Electronic Combat Officer (ECO); "Air Battle Manager-Qualified (ABM-Q)" refers to aircrew that have completed the "Air Battle Manager" syllabus and hold a qualification as an "ABM" on the E-3G. The term "Section Lead (SL)" refers to section leaders, such as an SD/ASO/ECO, and ABM-Q aircrew that hold the SL certification. The term "Active Sensor Operator" refers to an ASO, an MCC (that is evaluated in applicable areas to operate the active sensors and datalinks), or an ABM-Q. The term "Passive Sensor Operator" (PSO) refers to an ECO with full Electronic Support (ES) integration, an MCC evaluated to the applicable areas to perform full ES integration or limited passive sensor

operations, or a PSO whose responsibilities are dedicated only to passive sensor operations. Finally, because of changes regarding multiple qualifications, the term "Weapons Controllers" can refer to anyone being evaluated to applicable areas to control aircraft (e.g., a previously dual-qualified ASO/Air Weapons Officer (AWO)).

1.6. Distribution. Issue this manual to E-3 aircrew members in accordance with local procedures.

Chapter 2

MISSION PLANNING

2.1. Responsibilities. The Aircraft Commander (AC) is responsible for mission planning. The MCC/Section Lead in Command (SLIC) is responsible for preparing the crew for and executing mission taskings. The operations functions of the unit will support both efforts. Flying crews may perform their own mission planning or units may utilize a Mission Planning Cell (MPC). The MPC will designate qualified individuals to perform mission planning and/or conduct briefings. **(T-3)**. Units will develop specific procedures to ensure all aircrew members are thoroughly prepared for each flight. **(T-3)**.

2.2. Forms and Logs. Appropriate Group Commander (GP/CC), or GP/CC-designated representative, will develop/specify flight plans, logs, and mission forms. **(T-3)**. Existing AF and MAJCOM forms should be used to the maximum extent possible.

2.3. Fuel Conservation. Aircrew and mission planners will manage aviation fuel as a limited commodity and precious resource. **(T-3)**. Fuel optimization will be considered throughout all phases of mission planning and execution. Excessive ramp and recovery fuel adds to aircraft gross weight, which increases fuel consumption. **(T-3)**. Do not ferry extra fuel beyond optimum requirements for safe mission accomplishment and training objectives. Aircrew and mission planners will optimize flight plans and flight routing for fuel efficiency. In-flight procedures such as climb/descent profiles and power settings should also be considered for efficient fuel usage. **(T-3)**. Aircrew should employ the following aviation fuel optimization measures without compromising flight safety or jeopardizing mission/training accomplishment:

2.3.1. Optimize fuel loads. Mission plan for the required ramp and recovery fuel. Ensure ramp fuel is correct upon arrival at aircraft.

2.3.2. Minimize APU use. Use ground power units when practical.

2.3.3. Delay engine start time. Establish and implement local engine start time standards.

2.3.4. Minimize aircraft weight through optimized fuel loads and reduction of equipment not necessary to accomplish the mission.

2.3.5. Establish Command and Control (C2) and flight following procedures to ensure timely notification of mission changes/cancellations to avoid unnecessary or unproductive flight time.

2.4. Navigational Charts.

2.4.1. Annotate an appropriately scaled navigational chart (electronic or paper) with the route of flight and the following: **(T-3)**.

2.4.1.1. Special Use Airspace (SUA) within the altitude structure and within 50 NM of the route of flight/orbit airspace per the AFPAM 11-216, Air Navigation. [With-DMA] Display SUA overlay on the Integrated Multi-Function Display (IMFD) when applicable. Crews may use electronic navigational charts in lieu of paper navigational charts.

2.4.1.2. Mission airspace/E-3 orbit airspace with altitude blocks. For E-3 Air-to-Air Refueling (AAR) airspace, label AAR Initial Point (ARIP), AAR Control Point (ARCP), and AAR Exit Point. Annotate any applicable restrictions. [With-DMA] Display orbit Letter of Agreement (LOA) boundaries and air refueling information on the IMFD.

2.4.1.3. Emergency airfields sufficient to cover the route of flight. [With-DMA, Display airfield overlay on IMFD as needed].

2.4.1.4. High terrain within 50 NM of the route of flight. [With-DMA, N/A Enhanced Ground Proximity Warning System (EGPWS).]

2.4.1.5. Air Defense Identification Zone boundaries within 50 NM of the route of flight. [With-DMA, Display on IMFD.]

2.4.1.6. Equal Time Point (ETP) and FIR boundaries as required. [With-DMA, Display on IFMD.]

2.4.2. Annotate an Operational Navigation Chart (ONC), or larger scale, with the planned departure/arrival airfield and the following. [With-DMA, Utilize FMS and DRAGON avionics to display appropriate navigational procedure.]

2.4.2.1. Planned departure/arrival procedure and Special Departure Procedures (SDPs). [With-DMA, SDP can be displayed as a secondary flight plan.]

2.4.2.2. Highest terrain or obstacle within 50 NM along expected route of flight. [With-DMA, N/A due to EGPWS.]

2.4.2.3. Units may specify flight plan requirements and procedures in their local chapters to meet specialized mission requirements.

2.5. Mission Planning Requirements. The appropriate GP/CC may waive requirements contained in this paragraph if deemed necessary to accomplish a specific mission. **(T-3)**.

2.5.1. Briefings/Debriefings.

2.5.1.1. All aircrew members will attend these briefings unless excused by the Aircraft Commander (AC)/MCC/SLIC or local procedures dictate otherwise. **(T-3)**.

2.5.1.2. The AC/MCC/SLIC will brief and debrief all crewmembers to ensure safe and effective mission accomplishment. **(T-3)**. Aircrew may use locally developed mission specific briefing guides to enhance mission planning and briefing efficiency and effectiveness.

2.5.1.3. Units will develop and document guidance for items that are commonly briefed as "standard." **(T-3)**. Items in unit standards and those items understood by all participants may be briefed as "standard." The purpose of unit or local standards is to reduce the briefing time of administrative tasks to allow for concentration on the mission. Aircrew will use these procedures unless conditions, objectives, or execution dictates the AC/MCC/SLIC to brief as "non-standard". **(T-3)**.

2.5.2. Passengers. The AC will assign a crewmember as responsible for passengers and/or DVs; reference **paragraph 3.12** for minimum responsibilities. **(T-3)**.

2.5.3. Aircraft and Aircrew Status. Aircraft and aircrew status will be briefed/addressed as appropriate. **(T-3)**. Aircraft status will be obtained on the day of the flight from the appropriate maintenance unit, including open discrepancies from the AF Technical Order (AFTO) Form 781A, *Maintenance Discrepancy and Work Document*. **(T-3)**. Aircrew status will be obtained from ARMS personnel. **(T-3)**.

2.5.4. ABM-Assisted Rendezvous. The AC or Navigator (Nav) will review the AAR rendezvous procedures and techniques with the ABM in charge of assisting the rendezvous. **(T-3)**. The ABM will be provided with the following information:

2.5.4.1. Location of rendezvous: AAR Control Time (ARCT), ARIP, ARCP coordinates in degrees LAT/LONG, and AAR altitudes. **(T-3)**.

2.5.4.2. Rendezvous geometry and communications: Desired tanker offset and turn range, desired calls, alternate procedures, and transponder codes. (**T-3)**.

2.5.5. ABM-Directed Rendezvous. The ABM will brief the flight crew on the AAR rendezvous procedures to include AAR rendezvous type, altitude, and anticipated turn ranges and turn direction. **(T-3)**.

2.5.6. Orbit Planning. The flight crew will coordinate with the MCC/SLIC to determine optimum orbit configuration based on tasking and orbit limitations. **(T-3)**.

2.5.7. Mission Crew Planning. The MCC/SLIC will ensure mission activities are planned according to applicable procedures, assess the impact of equipment limitations, adjust taskings as necessary, assign crew members to develop a communication plan, and coordinate computer software requirements. **(T-3)**. The MCC/SLIC will guide and conduct a final review of planning. **(T-3)**.

2.6. Theater Procedures. The unit tasked to support an area of operations will develop theater procedures (classified/unclassified) and make them available to the crew upon implementation of a contingency Operation Plan (OPLAN) for deployment to the theater. **(T-3)**. As a minimum, these procedures will include through the appropriate:

2.6.1. Communications plans.

2.6.2. Flight and mission crew positional actions/procedures.

2.6.3. Other information deemed necessary by the unit.

2.6.4. Theater documents in accordance with AFTTP 3-3.IPE, *Integrated Planning and Employment*, Chapter 1.

Chapter 3

AIRCREW OPERATING PROCEDURES

3.1. Pilot in Command (PIC) Responsibilities. SQ/CC, Detachment Commander (DETCO), or designated representative shall designate an AC, Instructor Pilot (IP), or Evaluator Pilot as the PIC for all flights on a flight authorization form in accordance with AFI 11-401, *Aviation Management*, and applicable supplements. **(T-3)**. The PIC is responsible for the safe and effective flight operations. The aircrew is responsible to the PIC for the successful accomplishment of all flight activities in accordance with AFMAN 11-202V3 and applicable MAJCOM supplements. PIC responsibilities and/or authority include:

3.1.1. Managing crew resources and safe mission accomplishment.

3.1.2. Crew welfare.

3.1.3. Final word for requesting or accepting any waivers affecting the crew or mission.

3.1.4. Coordinating with the MCC/SLIC regarding any portion of the flight affecting mission accomplishment.

3.2. Crew Manning.

3.2.1. Guidance for Aircrew manning for operational employment is normally be in accordance with AFI 65-503, *US Air Force Cost and Planning Factors*. Mission crew manning may vary by the type of mission flown. SQ/DO, DETCO, or designated representative may tailor aircrew manning to meet operational requirements. In the Northern Command (NORTHCOM) area of responsibility (AOR), the mission crew may be augmented with NORAD personnel, if required.

3.2.2. Minimum flight crew manning includes two pilots (one qualified AC), Navigator, and Flight Engineer (FE). [With-DMA] Minimum flight crew manning includes two pilots (one qualified AC), and FE.

3.2.3. Pilot proficiency sorties will be flown with an additional aircrew member as a safety observer, who will occupy seat 5 during critical phases of flight. **(T-3)**.

3.2.4. Minimum mission crew manning to power up the mission systems includes MCC/SLIC, Active Sensor Operator (see **paragraph 5.7**), Airborne Radar Technician (ART), Computer Display Maintenance Technician (CDMT)/Systems Technician (ST), Communications Technician (CT), and Communications Systems Operator (CSO). Mission crew manning may vary by the type of mission flown. **(T-3)**.

3.2.4.1. For technician training sorties, the MCC/SLIC and Active Sensor Operator can be the same person if certified to perform both roles.

3.2.4.2. An Active Sensor Operator is only required when the active sensors will be operational.

3.2.5. Minimum mission crew manning for control of aircraft (in addition to the minimum power-up crew) will include at least one qualified Weapons Controller (e.g., AWO, ABM-Q, control-qualified ASO) supervised by a Section Lead or MCC/SLIC certified in control. **(T-**

3). Limitations on the type of control activity will be developed by GP/CC in local procedures. **(T-3)**.

3.2.6. Unless waived by the SQ CC/DO, inexperienced CDMTs/STs will fly with an experienced CDMT/ST, and inexperienced ARTs will fly with an experienced ART until certified experienced. **(T-3)**.

3.2.7. Flight Crew Augmentation. In addition to the normal flight crew, minimum crew augmentation will consist of an additional AC, NAV, and FE who are qualified and current in the duties that will be performed. Adding flight crewmembers after the first takeoff in a crew duty period is not considered augmentation. SQ/CC, DETCO, or designated representative will determine the augmented mission crew compliment. **(T-3)**. [With-DMA] Minimum crew augmentation will consist of an additional AC and FE who are qualified and current in the duties that will be performed.

3.3. Crew Rest/Flight Duty Period (FDP). Crew rest, FDP, and augmented aircrew FDP guidance is provided in AFMAN 11-202V3 and applicable MAJCOM supplements with the following additional guidance:

3.3.1. Units/Aircrews will limit basic FDP to 12 hours and augmented FDP to 16 hours with any of the following inoperative: autopilot, altitude hold, or any axis of the autopilot. **(T-2)**. If an autopilot malfunction occurs after departure, the AC, after consideration of operational risk and mission requirements, may request GP/CC approval to continue to normal maximum basic FDP, as applicable.

3.3.2. Non-Duty Time. Crewmembers will be afforded 12 hours of non-duty time after a flight before reporting for normal non-flying duties, unless waived by SQ/DO for operational necessity. **(T-3)**.

3.3.3. Crew Rest Timing. Crew rest for successive flight activity will begin 1 hour after final landing from previous flight activity, or when the last crewmember departs after completing required aircrew duties, whichever occurs later.

3.3.4. Crew Rest for Deploying/Redeploying Aircrews. Ground time between landing and subsequent takeoff will not be planned for less than 18 hours when transitioning four time zones or more, unless waived by applicable GP/CC. This does not apply to "Ops Stops" made within an aircrew duty period. This restriction applies only to initial reporting prior to commencement of a new mission. It does not apply to multi-day missions that are in progress.

3.3.5. Management of AF Reserve Command (AFRC) Crewmembers. The on-scene commander or E-3 DETCO is responsible for the effective management of aircrews. **(T-3)**. An element of that responsibility is the effective use of the Reserve associate aircrew personnel during their periods of availability. There is no guarantee that missions will always be completed at scheduled Mission End Time (MET). Therefore, it is incumbent upon Reserve associate crewmembers to make available sufficient time to accommodate unavoidable delays in returning to home station. Scheduled Return Time (SRT) will be calculated as MET plus 24 hours for routine exercise and operational deployments. **(T-3)**. SRT(s) for contingencies and missions of unknown duration will be determined by the 513 Air Control Group Commander (ACG/CC) and 552 Operations Group Commander (OG/CC) or the requesting authority in coordination with HQ AFRC. **(T-3)**. The SRT will be determined and placed on the initial and subsequent flight authorizations until the mission is complete. **(T-3)**. The

overall objective is to recover aircrews on schedule and provide scheduling stability. Two essential elements of this concept are realistic determination of SRT(s) based on mission duration and conscientious management by the on-scene commander or DETCO to ensure return of reserve associate aircrews by the MET. Except in uncontrollable or unusual circumstances, Reserve associate crewmembers must be assured that their missions will be complete within the SRT. **(T-3)**. The Reserve associate AC and MCC/SLIC will be provided a copy of all mission itinerary changes. **(T-3)**. Delays in return of Reserve associate personnel beyond their SRT will be coordinated through the 552 OG/CC and 513 ACG/CC, and concurred with by the aircrew. **(T-3)**. Every available means will be used to return Reserve associate crewmembers to home station to meet the SRT. **(T-3)**. If Reserve associate aircrew (or members) cannot extend past the SRT, the on-scene commander will verify whether military or contract means of transportation is available. If no such means are available, the on-scene commander or DETCO will use the most expeditious means, including commercial air, to return Reserve associate personnel to home station. **(T-3)**.

3.4. Pre-Mission Duties. The AC, in coordination with the MCC/SLIC and DO/DETCO, may adjust crew report time to meet mission requirements. Crew report times will allow sufficient time to accomplish all preflight activities in accordance with locally prescribed guidance. Normally, use a show time of 3+30 hours prior to takeoff for sorties planned by aircrew and flown on the same day. If an MPC is used, the SQ/DO or MPC Chief will set the show time. The technicians (CSO, CT, CDMT/ST, ART) and FE should arrive at the aircraft 1+30 hours prior to the scheduled takeoff time. All other crewmembers show at the aircraft no later than 1 hour prior to the scheduled takeoff time. On the day of the mission, aircrew may only be scheduled for duties related to the mission.

3.5. Minimum Equipment. The 552 OG is the Combat Air Forces (CAF) lead for developing and maintaining the Minimum Equipment List (MEL) for use by all AWACS units. The MEL is a guide to determine operable equipment required for safe flight. 552 OG will forward a copy of the MEL to ACC/A3CA, Pacific Air Forces (PACAF)/Flight Operations (A3T), and AFRC/Flight Operations (A3T). **(T-3)**.

3.6. Communications.

3.6.1. Required Communication. Communicate the following to the applicable Command Post or operations center, unless local directives or tactical deception requirements specify otherwise: **Note:** crew position identified at end of action is reasonable for ensuring communication is made.

3.6.1.1. Maintenance discrepancies, which will delay preflight or takeoff. (AC or designated rep)

3.6.1.2. Engine start time. Notify Base Defense Operations Center (BDOC) at least 10 minutes prior to stating engines, when appropriate. (AC/Copilot (CP)

3.6.1.3. Anytime equipment malfunctions, or an incident occurs that will adversely affect mission accomplishment. (AC/MCC/SLIC)

3.6.1.4. Actual takeoff time. (Nav) [With-DMA, FE].

3.6.1.5. Significant changes in mission timing. (Nav) [With-DMA, AC or designated rep].

3.6.1.6. Maintenance codes and estimated time of arrival (ETA) prior to final landing. (CSO)

3.6.1.7. Revised ETA (if changed by more than 15 minutes) when in UHF radio contact. (Nav) [With-DMA, AC or designated rep].

3.6.1.8. Sortie block time and flight duration. (Nav) [With-DMA, AC or designated rep].

3.6.2. Aircraft landing status and System Capability Codes ("Maintenance Codes"). The FE and each technician will provide the maintenance codes to the CSO prior to landing. **(T-3)**. Use the Aircraft Landing Status and System Capability Codes as defined in AFI 21-101, *Aircraft and Equipment Maintenance Management*, and applicable MAJCOM supplements.

3.7. ABM-Assisted/Directed Rendezvous Responsibilities. The ABM will provide information to assist the flight crew in accomplishing the rendezvous and for situational awareness. **(T-3)**.

3.7.1. Communications. Internal coordination between the flight crew and the ABM during the rendezvous will be over Net 1. **(T-3)**. Other crewmembers should minimize use of Net 1 for 30 minutes before the ARCT until after the refueling is complete, unless required for safety of flight. During Directed Rendezvous, ABMs will voice vectors, altitude changes, and any other directive calls over the primary AAR frequency.

3.7.2. Procedures. The ABM will execute the pre-planned type of rendezvous as coordinated with the AC, MCC/SLIC, Nav, and tanker. **(T-3)**. The ABM will pass bearing, range, and offset of the tanker as prebriefed/required. **(T-3)**. Flight deck will advise the MCC/SLIC when to terminate ABM assistance and when the mission systems may be configured for AAR. **(T-3)**.

3.8. Radar Radiation Restrictions. Do not radiate the mission radar at or below transition flight level (FL) due to the potential for conflict with Visual Flight Rules (VFR) traffic that may pass closer than 650 feet vertically and 1,300 feet horizontally. However, aircrew may operate the mission radar at or below transition flight level within equipment limitations during contingency operations, emergency situations, and special operations.

3.9. On-Station Procedures.

3.9.1. Nav [With-DMA, Flight Crew] will notify the MCC/SLIC of orbit intercept over Net 1 along with altitude, winds aloft, and any changes to planned orbit. **(T-3)**. Winds aloft should be briefed if assuming on-station outside of the orbit.

3.9.2. Fly mission orbits at best endurance indicated airspeed whenever practical, but not lower than maneuver speed for computed maximum bank angle. **(T-3)**. Limit bank angle if operational necessity exists. The FE will brief the AC and coordinate with the Nav [With-DMA, Pilot] of the maximum bank angle and minimum computed indicated airspeed in this case.

3.10. Aircraft Location Monitoring. Flight and mission crew share responsibility of aircraft location monitoring relative to a preplanned flight path. The MCC/SLIC, Nav [With-DMA, N/A], and AC will coordinate location and orbit pattern changes. **(T-3)**.

3.10.1. Pilots will monitor the E-3 location via Global Positioning System (GPS) Integrated Navigation System (GINS), and radio navigation aids when within range. **(T-3)**. [With-DMA,

N/A]. The AC will ensure separate steering solutions are selected on the AC's and CP's (CP) Control Display Unit (CDU). **(T-3)**.

3.10.2. The Nav [With-DMA, Pilots] will establish a radio navigation fix or line of position between the closest point of the E-3 orbit and the threat area as a "be-no" or "no flying beyond" line for all E-3 orbits. **(T-3)**. This information will be passed to the MCC/SLIC. **(T-3)**. [With-DMA, Display threat areas on IMFD. **(T-3)**.]

3.10.3. The AC, CP, and Nav [With-DMA, N/A] positions will be occupied, except for periods of crew relief, during flights within 25 NM of an established prohibited area or within 50 NM of a potentially hostile border. **(T-3)**. Whenever possible, use aircraft displays to display prohibited areas within 25 NM of current position.

3.10.4. The AC and MCC/SLIC are responsible to ensure safe separation between the E-3 and other aircraft when flying in Warning Areas, Military Operating Areas (MOAs), Restricted Areas, or Air Traffic Control (ATC)-assigned working areas with other aircraft.

3.10.5. The MCC/SLIC must have at least a stand-behind position at an operational console, with access to monitor coordination and safety frequencies as required by the mission. **(T-3)**.

3.10.6. The AWACS monitor and MCC/SLIC must maintain awareness of the E-3's position and altitude. E-3G crewmembers will use E-3 Mode C pressure altitude information when making AWACS monitor calls. **(T-3)**. If the accuracy of the E-3 symbol is in doubt, consider worst case location, and coordinate with the flight deck to take immediate action to reposition the aircraft in order to avoid the prohibited/threat areas.

3.11. AWACS Monitor. The MCC/SLIC will designate an AWACS monitor to provide traffic advisories to the flight crew during flight under Due Regard and when the mission radar or Identification, Friend, or Foe (IFF) are operating. **(T-3)**. At any other time, an AWACS monitor may be used as determined by the PIC. AWACS monitor will notify the flight crew and MCC/SLIC when AWACS monitor assumes monitor duties and whenever AWACS monitor is terminated, (provide a brief explanation for the reason). **(T-3)**. Normally, the ABM providing ABM-Assisted AR Rendezvous or ABM-Directed AR Rendezvous will also perform AWACS monitor responsibilities. **(T-3)**. AWACS monitor will pass track information on climbing/descending and/or maneuvering aircraft which could pose a threat to the E-3 with the following parameters and format, or as briefed by the PIC. **(T-3)**.

3.11.1. For ATC-controlled airspace: Tracks that are ±1,000 feet (IFF Mode C) or ± 3,000 feet (radar measured) of E-3 altitude and 15 nautical miles (NM) from the E-3, if the track is on a heading towards, overtaking, or passing in front of the E-3.

3.11.2. For uncontrolled airspace: Tracks which are ±3,000 feet of E-3 altitude and 15 NM from the E-3, if the track is on a heading towards, overtaking, or passing in front of the E-3.

3.11.3. Pass the tracks to the flight crew over Net 1 giving magnetic bearing (rounded to the nearest 10 degrees from the E-3), range, altitude, crossing information about the traffic, and whether the track altitude is radar measured or IFF reported. AWACS monitor should monitor ATC frequency for increased SA and to prevent interference between flight crew and ATC.

3.12. Transportation of Passengers.

3.12.1. Space-A Passengers. Space-A passengers will not normally fly on the E-3 due to mission and training requirements. **(T-3)**.

3.12.2. Responsibility. The crewmember(s) designated by the AC as responsible for passengers or DVs will supervise passenger movement, especially on the flight line, and familiarize the passengers with the aircraft interior, to include assigned seats and survival equipment. **(T-3)**. Brief passengers according to AFMAN 11-202V3 using **Attachment 3** of this manual as a guide prior to engine start and assist/direct passengers in the event of an aircraft emergency.

3.12.3. Engine running passenger off-load. Shut down engines on the left side of the aircraft and position an aircrew member at the bottom of the stairs to assist passengers. If left engines are shutdown, the TAXI BACK or an approved checklist for the given situation may be used.

3.12.4. Passenger Comfort. Pilots should make every effort to enhance the comfort of passengers. Flight operations should be planned for the minimum use of drag devices and maneuvers, which might cause discomfort or apprehension.

3.13. Debriefings.

3.13.1. Debrief maintenance as soon as practical after engine shutdown. The AC, FE, ART, CDMT/ST, CT, and any crewmember making an entry in the AFTO Form 781A will attend. **(T-3)**. SLs and/or MCCs/SLICs should attend if time permits.

3.13.2. Debrief intelligence, if required. Utilize sensor reconstruction to facilitate intelligence debrief, as necessary.

3.13.3. The AC/MCC/SLIC will ensure that a mission debrief is accomplished. **(T-3)**. Aircrew should use locally developed debriefing guides (developed in accordance with AFMAN 11-202V3 and AFTTP 3-3.IPE) to ensure that a comprehensive analysis of mission accomplishment and mission effectiveness is completed.

3.14. Flying Clothing/Equipment.

3.14.1. All aircrew members will wear or carry the minimum items of clothing and equipment according to AFI 11-301V1, *Aircrew Flight Equipment (AFE) Program*, AFI 36-3802, *Force Support Readiness Programs*, AFMAN 11-202V3, AFI 48-127, *Occupational Noise and Hearing Conservation Program*, AFMAN 91-203, *Air Force Occupational Safety, Fire, and Health Standards*. **(T-1)**. GP/CC will determine clothing and equipment to be worn or carried aboard all flights commensurate with mission, climate, and terrain involved. **(T-3)**. All crewmembers will have issued Nomex® flight gloves in their possession. **(T-3)**. **Note:** Air Force Safe-to-Fly aircrew flight equipment letters are reviewable at **https://cs2.eis.af.mil/sites/21562/afe/default.aspx**

3.14.2. Keep equipment clear of all entry doors, hatches and all emergency equipment during all ground and flight operations. The FE, CSO, and ART will ensure that these areas are clear of obstructions during their preflight inspection. **(T-3)**. It is the responsibility of each crewmember to store/secure their personal and professional equipment carried onboard. Excess personal and professional gear should be secured in the J-compartment (or as directed).

3.15. Aircraft Security at Enroute Stops/Destination.

3.15.1. The AC is responsible for ensuring aircraft security at enroute stops. Secure the aircraft as a Protection Level 2 resource in accordance with AFI 31-101, *Integrated Defense (ID)*, as supplemented by MAJCOM. This requires a US entry controller (at least one per every two aircraft) and restricted access. ACs will provide a copy of the flight orders and

passenger manifest (as applicable) to the entry controller as a way to identify personnel authorized to enter the aircraft and those crewmembers designated to have escort privileges. **(T-3)**. Perimeter patrol can be accomplished by host nation security, but the entry controller must be US security personnel or a US E-3 crewmember. In addition, equipment classified as SECRET (that cannot be removed from the aircraft) must be safeguarded by US security personnel or a US E-3 crewmember. TOP SECRET material must be safeguarded by US security personnel or a US E-3 crewmember with TOP SECRET clearance. Only the AC may release security forces from guarding the aircraft. The Wing Commander (WG/CC) owning the aircraft is the waiver authority to the paragraph.

3.15.2. The MCC/SLIC, or AC if an MCC/SLIC is not available, is responsible for the security of classified documents and software. While deployed or during enroute stops, classified documents such as "Communications Security (COMSEC)" and software can be stored on the aircraft when US security personnel are used as the entry controller. "COMSEC" will be stored in the Command Post during stops at locations where no US security personnel are available. The MCC/SLIC/AC will designate crewmember(s) to provide security for software and "COMSEC" by remaining with the aircraft if a Command Post is unavailable. **(T-3)**.

3.16. Personal Publications Requirements. Guidance directing local units to issue each crewmember publications is provided in AFI 11-215, *Flight Manuals Program* and applicable supplements. MAJCOMs may authorize the use of electronic publications through supplements to this manual. Wings may authorize the creation and use of locally developed checklists when/if Tech Order-derived checklists do not exist or are inadequate.

3.17. Aircraft Recall/Diversion. With the exception of pilot proficiency sorties, challenge any recall or diversion of an E-3 using the appropriate authentication for the theater of operation unless received over secure communications.

3.18. Transition Training.

3.18.1. Flight crews will not conduct transition when scheduled takeoff or final landing is between 0000L and 0600L without SQ/DO approval. **(T-3)**.

3.18.2. When performing transition with mission crew, CDMT/ST, and ART on board, flight crews will not exceed 2+30 hours total transition time. (**T-3)**. However, flight crews will not conduct more than 1+30 hours at one time without SQ/DO approval. Pilot proficiency sorties with CTs/CSOs onboard have no restrictions for transition timing.

3.18.3. Aircrews will mission plan and secure SQ/DO (or higher) approval prior to departure for sorties where off-station transition is intended. **(T-3)**. Aircrew may "drop-in" to airfields designated as "familiar" by the GP/CC in local supplements without pre-flight mission planning/approval.

3.18.4. Transition duty day is a period of 12 hours that starts and runs concurrently with the maximum flight duty period and applies to all flight crewmembers. Transition may be accomplished with additional crewmembers onboard that have exceeded transition duty day provided they are not occupying their primary flight crew duty position or performing flight crew instructor or Flight Examiner duties. GP/CC can approve requests to extend transition duty day to 16 hours. 513 ACG may perform transition training on local training missions provided duty day does not exceed 16 hours and actual flying time does not exceed 12 hours.

3.19. Crew Coordination Drills (CCD). Thoroughly plan, brief, practice, and debrief the CCD (e.g., Ditching, Crash Landing, Loss of Pressurization, Nuclear Event, Smoke or Fumes, and Fuselage Fire drills) during each training sortie when the mission profile allows. The following procedures apply:

3.19.1. The AC and MCC/SLIC will coordinate prior to initiation and make every effort to inform all instructors and evaluators of CCD timing in order to maximize training. **(T-3)**.

3.19.2. Operational requirements will not be interrupted. **(T-3)**.

3.19.3. Doors and hatches will not be opened and equipment will not be powered down. **(T-2)**. However, if a CCD is performed after calling "off-station," a normal equipment power down may be incorporated into the drill in anticipation of landing the aircraft.

3.19.4. Passengers will be briefed about the CCD but will not participate. **(T-3)**.

3.19.5. The AC will make a Public Address (PA) announcement at the start of the CCD vulnerability period, upon execution of the drill, and at the conclusion of the drill. **(T-3)**.

3.20. Aircraft Cleanliness. AC and MCC/SLIC are responsible for aircraft cleanliness and order after a mission. All crewmembers are responsible for removing or stowing their personal and professional items prior to departing the aircraft.

3.21. Aircraft Configuration for Static Display. Whenever an E-3 is on static display and opened for viewing, there will be a passenger stand at each open door. **(T-3)**. Aircrew members will be positioned at any open hatches. **(T-3)**. ACs will ensure proper safety/security precautions are taken to protect the aircraft, passengers, and crew. **(T-3)**. Reference AFI 11-209, *Participation in Aerial Events*, and MAJCOM supplements.

3.22. Readiness Postures.

3.22.1. Readiness Posture One (RP-1) denotes an aircraft and crew capable of launching within 1 hour from notification. Crews designated for RP-1 alert duty should normally be housed in a designated alert facility. Crews must have Twelve hours of pre-alert crew rest prior to assuming RP-1 alert duty. **(T-2)**.

3.22.2. Readiness Posture Three (RP-3) denotes an aircraft and crew capable of launching within 3 hours from notification. Twelve hours of pre-alert crew rest is required prior to assuming RP-3 alert duty. **(T-2)**.

3.22.3. Readiness Posture Fifteen (RP-15) is not an alert status, but denotes an aircraft and crew capable of launching 15 hours after notification. The RP-15 crew will be present for normal duty each day and carry pagers and/or cell phones for notification. **(T-3)**. Crew rest begins at notification.

3.23. Maximum FDP for RP-1, RP-3.

3.23.1. Aircrews will not exceed 12 hours (16 hours for augmented crews) for RP-1 and RP-3 FDP. **(T-2)**.

3.23.2. Guidance on alert duty scheduling, RP-1/RP-3 FDP extensions, flight duty on alert, and maximum number of days on alert is provided in the MAJCOM Supplements to AFMAN 11-202V3.

3.24. Post-Alert Compensation Time.

3.24.1. Units will compensate aircrews 1 day for every 4 days on alert duty if alert duty is performed away from normal quarters (e.g., alert facility or billeting) for a period of 96 hours or more, unless waived by the applicable GP/CC or designated representative. **(T-3)**.

3.24.2. No compensatory time is authorized if alert duty was performed in normal quarters.

Chapter 4

FLIGHT CREW OPERATING PROCEDURES

4.1. Adverse Weather. Refer to AFH 11-203V1, *Weather for Aircrews* and V2, *Weather For Aircrews-Products And Services*, for familiarization with weather, weather services, and products.

4.1.1. Icing Restrictions. Flight crews will not fly into areas of forecast or reported severe icing is prohibited. **(T-3)**. Avoid prolonged operation (cruise flight, holding, etc.) in areas of moderate icing. Aircrew will confirm the intensity and type of associated icing with weather personnel when freezing fog, freezing drizzle, or freezing rain is forecast or reported. **(T-2)**.

4.1.1.1. Flight crews will not takeoff under conditions of freezing precipitation as defined by AFMAN 11-202V3. **(T-1)**. Freezing/frozen precipitation (freezing rain, drizzle, snow, fog, or temperatures near 0°, etc.) may cause ice or frost to accumulate on aircraft surfaces. Crews will be familiar with and follow all procedures and restrictions in T.O. 1E-3A-1/1E-3G(II)-1, *Flight Manual*, and T.O. 1E-3A-1-1, *Performance Manual*, regarding de-ice/anti-ice procedures and reference T.O. 42C-1-2, *Anti-icing, Deicing, and Defrosting of Parked Aircraft* for further guidance. **(T-1)**.

4.1.1.2. Flight Crews will reference published winter operations guidance to determine approved de-icing fluids. **(T-1)**. Type I and Type II de-icing fluids do not provide any anti-icing benefit, and, therefore, do not have holdover times. As a guide, for approved anti-icing fluids, crews may use published anti-icing holdover times in accordance with T.O. 42C-1-2 and winter season holdover tables available on the Federal Aviation Administration (FAA) website. **Caution:** The guidelines may not be consistent with Federally approved weather intensity definitions used by qualified National Weather Service, FAA, or USAF weather personnel in developing forecasts or official weather observation reporting.

4.1.1.3. The holdover time begins when anti-icing fluid is first applied and is affected by intensity/type of precipitation, time, temperature, and type/dilution of mixture. PIC shall use this information to determine when holdover time is exceeded and re-apply fluid if required. **(T-3)**.

4.1.1.4. The PIC will ensure the following information is received from the de-icing ground crew after anti-icing is complete:

4.1.1.4.1. Type and Brand of Fluid (Type IV, Kilfrost ABC-S Plus, Octagon MaxFlight, etc.). **(T-3)**.

4.1.1.4.2. Percentage of fluid to water (for example, 60/40 is 60% fluid and 40% water). **(T-3)**.

4.1.1.4.3. Time anti-icing operations were initiated (Local Time). All holdover times are based on this value. **(T-3)**.

4.1.1.4.4. Date (DD-MMM-YY) based on Local Time. **(T-3)**.

4.1.1.5. PICs will ensure a visual inspection is completed within 5 minutes of departure. **(T-3)**.

4.1.2. Turbulence Restrictions. Aircrew will not fly into areas of forecast or reported severe turbulence. **(T-3)**. This includes actual or forecast areas of "moderate to occasional severe" turbulence or "moderate to severe" turbulence. Aircrew will make every effort to avoid areas of reported moderate turbulence. **(T-3)**. The AC will consult weather personnel and develop contingency routing if moderate turbulence is forecasted along the planned route of flight. **(T-3)**.

4.1.2.1. Crews will attempt to confirm the type of aircraft the forecast turbulence applies to, or what type of aircraft reported the encounter, to gain a more accurate picture of the route of flight. **(T-3)**.

4.1.2.2. The PIC is responsible for ensuring all aircrew/passengers are seated, with seat belts fastened, when areas of moderate or greater turbulence are encountered or anticipated.

4.1.3. Thunderstorm Avoidance. Pilots will neither file a flight plan nor intentionally fly into an area of known or forecasted thunderstorm activity when the weather radar is inoperative or unusable and thunderstorm activity cannot be visually circumnavigated. **(T-1)**.

4.1.3.1. During flight, avoid thunderstorms by at least 20 NM at or above flight level (FL) FL230 and 10 NM below FL230.

4.1.3.2. In the vicinity of the airport, maintain at least 5 NM separation from heavy rain showers. **Note:** Approaches or departures may be authorized by the appropriate GP/CC if thunderstorms are officially observed to be closer than 10 NM (but not less than 5 NM) from the airport in accordance with AFMAN 11-202V3, the thunderstorm must not be producing any hazardous conditions (such as hail, lightning, strong winds, gust fronts, heavy rain, wind shear, or microburst) at the airport, and must not be forecast or observed to be moving in the direction of the route of flight (to include the planned missed approach corridor, if applicable). **(T-3)**.

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

4.1.4.1. When the temperature is ± 8oC or ± 5,000 feet of the freezing level.

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

4.1.5. Destination Requirements (for filing purposes). An alternate will be filed if forecast destination weather does not satisfy AFMAN 11-202V3 requirements and/or forecast surface winds (intermittent or prevailing) exceed appropriate runway condition report (RCR) limits.

4.2. Takeoff and Landing Data (TOLD)/Restrictions.

4.2.1. An FE will compute all initial TOLD during mission planning, utilizing an authorized TOLD computer program or T.O. 1E-3A-1-1. **(T-3)**.

4.2.1.1. A Pilot or additional FE on the sortie will crosscheck this data using the computer program or T.O. 1E-3A-1-1.

4.2.1.2. The applicable GP/CC may authorize use of Mission Accomplishment Planning Methods when operational/contingency missions dictate, in accordance with T.O. 1E-3A-1-1. **(T-3)**.

4.2.2. Rolling Takeoffs. Rolling takeoffs are authorized in accordance with T.O. 1E-3A-1/1E-3G(II)-1.

4.2.3. Reduced Power Takeoffs. The following information is provided in addition to that found in T.O. 1E-3A-1-1:

4.2.3.1. Use reduced power takeoffs when practical.

4.2.3.2. Actual inboard takeoff rated thrust (TRT) will be displayed on the inboard exhaust pressure ratio (EPR) bugs for quick reference in the event TRT is required.

4.2.3.3. Reduced thrust takeoffs may be accomplished on a wet runway in accordance with T.O. 1E-3A-1/1E-3G(II)-1 and T.O. 1E-3A-1-1.

4.2.3.4. Reduced thrust takeoffs are permitted with falling precipitation unless precipitation is moderate or greater.

4.2.4. Tailwind Takeoffs. Takeoffs with tailwinds are not recommended, but may be performed if required due to operational considerations. If a tailwind is performed, a tailwind component of up to 10 knots may be allowed, provided that the data does not exceed allowable T.O. 1E-3A-1-1 limits.

4.2.5. Crosswinds.

4.2.5.1. Unless further restricted by aircraft gross weight or emergency conditions, the maximum crosswind component (including gusts) for takeoff and landing for RCR 26/23 is 25 knots; RCR 15 is 20 knots; RCR 10 is 15 knots. If RCR falls between the RCR values, use the lower RCR restrictions. Operation at higher crosswind values requires specific approval by applicable GP/CC.

4.2.5.2. Copilots are limited to a maximum takeoff/landing component of 15 knots unless under IP/Flight Examiner supervision.

4.2.6. Runway and Taxiway. Minimum runway length and width for takeoff or landing is 7,000 x 135 feet, unless waived by GP/CC. Minimum taxiway width is 75 feet unless waived by GP/CC.

4.2.6.1. Takeoff and land on the longest suitable runway available unless prohibited by operational considerations.

4.2.6.2. Intersection takeoffs will not be performed unless operational necessity dictates. In such a situation, follow MAJCOM directives.

4.2.7. Runway Condition Reading (RCR). At airfields that report runway condition code(s) (RwyCC), refer to the FIH for the Runway Condition Assessment Matrix (RCAM) and associated conversion per code.

4.2.7.1. Aircraft will not takeoff or land when reported RCR is less than 10. **(T-2)**. The applicable GP/CC may waive the minimum RCR to 7 when operational necessity warrants. **(T-3)**

4.2.7.2. Do not taxi with an RCR less than 7. **(T-2)**.

4.2.7.3. If RCR is unknown or less than 7, E-3 maintenance personnel are authorized to tow the E-3 with crew onboard to a known area of RCR of 7 or greater. E-3 maintenance

personnel will comply with current AFMAN 91-203 restrictions by complying with operational risk management (ORM) assessment and approval requirements, See **Chapter 6**. (**T-2**).

4.2.8. Noise Abatement. Perform in accordance with T.O. 1E-3A-1/1E-3G(II)-1 and T.O. 1E-3A-1-1 guidance. Disregard noise abatement procedures if emergency procedures occur during takeoff.

4.2.9. Landings. Except in emergency situations, the following apply:

4.2.9.1. Computed landing distance plus 1,000 feet must not exceed runway available. **(T-3)**.

4.2.9.2. Full stop landings with less than 40 degrees of flaps are not permitted.

4.2.9.3. If it appears that the actual touchdown will occur beyond the first 1/3 or 3,000 feet (whichever is less) of the runway length, pilots will go-around.

4.2.9.4. Make no more than one full stop in a 30-minute period. When performing taxi back type operations and/or multiple full stop landings, observe brake limitations and cooling procedures in accordance with T.O. 1E-3A-1/1E-3G(II)-1 and T.O. 1E-3A-1-1.

4.2.10. Missed Approach. Prior to starting an instrument approach, the AC will ensure aircraft performance complies with missed approach climb gradient requirements in accordance with AFMAN 11-202V3. For planning purposes, base performance on the expected go-around configuration.

4.3. Takeoff and Landing Guidance.

4.3.1. AC Responsibilities.

4.3.1.1. A qualified AC will make all takeoffs and landings when weather is below 300' ceiling and/or 1 statute mile (SM) visibility or when a DV (Code 4, Code 4 equivalent, or higher) is on board as a passenger. **(T-2)**. **Note:** IPs may takeoff or land in either seat under the conditions above; however, a copilot will not occupy the left seat.

4.3.1.2. An AC, IP, or Flight Examiner will make all approaches and landings during aircraft emergencies. **(T-2)**.

4.3.2. Copilot Takeoffs and Landings.

4.3.2.1. Copilots may perform takeoff and landings if the weather is at least 300' ceiling and 1 SM visibility, or published minimums, whichever is higher. During takeoffs and landings, an IP/Flight Examiner or an AC that is certified to supervise CP landings in accordance with local certification guidance must properly supervise CPs. **(T-3)**.

4.3.2.2. CPs must be certified by the SQ/CC as "Experienced" in order to accomplish takeoffs and/or landings under the supervision of an experienced AC with passengers onboard (no DVs Code 4 or higher).

4.4. Touch-and-Go Landings. Accomplish touch-and-go landings under the following conditions:

4.4.1. IP/Flight Examiner supervision.

4.4.2. Minimum weather required is 300' ceiling and 1 SM visibility.

4.4.3. Crosswind component does not exceed the following (including gusts): Dry runway-15 knots. Wet runway-10 knots.

4.4.4. No passengers on board.

4.4.4.1. The following are not considered passengers for this restriction: Wing supervisors, E-3 maintenance personnel, USAF Aircrew qualified in other aircraft, Air Force Academy (AFA)/Air Force Reserve Officer Training Corps (AFROTC) cadets, Federal Aviation Administration (FAA)/ATC personnel, weapons directors, ACC TRSS Detachment 6 personnel not on aeronautical orders, Airborne Command Element (ACE) team members, Mission Essential Personnel (MEP), Security Forces, Intelligence personnel, and US customs personnel flying under the provisions of AFI 11-401 and MAJCOM supplement.

4.4.4.2. The following are not considered passengers for this restriction with applicable GP/CC approval prior to takeoff: military members not on aeronautical orders who are awaiting training, Computer Support Group (CSG) personnel conducting in-flight software testing, and MCT and FCT contract instructors in direct support of training and operations.

4.4.5. The following length/width criteria apply: Dry runway--9,000 feet x 135 feet minimum; wet runway--10,000 feet x 135 feet minimum.

4.4.6. On wet runways:

4.4.6.1. Pilot flying will Touchdown in the first 2,000 feet of the runway or initiate a go-around. **(T-2)**.

4.4.6.2. Conduct touch-and-go landings at flaps 50 degrees only.

4.4.6.3. Display the actual charted go-around EPR on the inboard EPR "bugs" for quick reference in the event go-around EPR is required while airborne. Outboard EPR "bugs" should display 1.50 EPR.

4.4.6.4. Touch-and-go landings are permitted with falling precipitation (i.e., drizzle or light rain), provided the precipitation is not moderate to heavy, not producing a runway surface condition (RSC), and it can be determined that water is not pooling on the runway.

4.4.6.5. Runway must be free of all snow, ice, and slush. This does not preclude touch-and-go landings provided the RCR is reported as 10 or higher. Flight crews will use the following standard: landing surface (67.5 feet left and right of centerline) is completely clear of slush and the minimum RCR reading for any portion of the runway is 10. **(T-2)**.

4.5. In-Flight Simulated Emergency/Engine-Out Procedures.

4.5.1. The IP/AC will alert all crewmembers in the cockpit prior to performing simulated EPs. **(T-3)**.

4.5.2. In an actual emergency, all training and simulated emergency procedures will be terminated. Training will resume only when the AC determines no hazards to safe aircraft operation exists.

4.5.3. Except for simulated engine-out landings, restore all aircraft systems to normal operation prior to landing.

4.5.4. IP/Flight Examiner supervision is required for all flaps 14, flaps 25, and flaps 25-to-50 approaches/landings/touch-and-go's. Prior to performing a flaps 14 approach/landing, update

the brake energy limited landing weight and landing distance limited landing weight and brief differences to normal configuration habit patterns, emphasizing the gear lowering sequence.

4.5.5. Simulated engine-out maneuver restrictions:

4.5.5.1. Simulated engine-out takeoffs are prohibited.

4.5.5.2. Simulated two-engine operations are prohibited.

4.5.5.3. Do not accomplish actual engine shutdown in flight. A reduction in thrust can adequately simulate training in aircraft control procedures.

4.5.5.4. Limit all in-flight simulated engine-out activity to a gross weight of 270,000 lbs. or less, with rudder boost on.

4.5.5.5. Pilots performing simulated engine-out touch-and-go landings will follow normal four-engine takeoff procedures. **(T-2)**.

4.5.5.6. No passengers on board. Do not consider FCT/MCT contract instructors in direct support of training and operations as passengers for this restriction.

4.5.5.7. ACs/First Pilots (FP) certified to do so by their SQ/CC, in accordance with local supplements, may accomplish simulated engine-out missed approaches, go-arounds, and full-stop landings in visual meteorological conditions (VMC; day or night) without IP/Flight Examiner supervision.

4.5.5.8. Initiate all planned simulated engine-out missed approaches/go-arounds no lower than 200 feet height above touchdown.

4.5.5.9. During a simulated engine-out approach, establish symmetrical thrust on all engines when safe and practical if an unplanned go-around or missed approach is executed.

4.5.5.10. Day weather conditions must be at or above published circling minimums.

4.5.5.11. Night weather conditions must be at or above 1,000’ ceiling and 2 SMs visibility or circling minimums, whichever is higher.

4.6. Landing Attitude Demonstrations. Landing attitude demonstrations may only be accomplished by IP/Flight Examiner or ACs under IP/Flight Examiner supervision. The following restrictions apply:

4.6.1. Must be accomplished four engine only.

4.6.2. Dry runway only with normal touch-and-go conditions and restrictions.

4.6.3. Flaps 40 or 50 only.

4.6.4. Go-around will be initiated if aircraft touches down during the initial roundout.

4.6.5. Go-around will be initiated with no less than 4,000 feet of runway remaining.

4.7. Preflight.

4.7.1. When VIP Stand or Air Stairs are unavailable, crews will arm escape slides at unopened doors to facilitate a rapid ground egress. **(T-3)**.

4.7.2. Receiver Autonomous Integrity Monitoring (RAIM) will normally be enabled at all times.

4.7.3. [With-DMA] If Random Area Navigation (RNAV) approach(es) are planned, check Predictive RAIM.

4.7.4. [With-DMA] AUTONAV will normally be enabled for EGI/INU ground alignment.

4.7.5. To confirm proper INU alignment, the Nav will check the INU true headings prior to engine start and confirm they are within 1 degree of each other and cross-checked with the AHRS. [With-DMA, N/A]. **(T-3)**.

4.8. Engine Start/Taxi.

4.8.1. Aircrews will close entry doors and arm escape slides prior to the removal or placement of VIP Stand or Air Stairs. **(T-3)**.

4.8.2. The occupants of both pilot seats will have their seat belt fastened while taxiing/towing and will wear their shoulder harness during critical phases of flight. **(T-3)**.

4.8.3. Taxi speed in the parking area or any congested area will be slow enough to accommodate a wing walker. **(T-3)**.

4.8.4. The Nav will monitor GINS ground speed during taxi operations. [With-DMA, N/A]. **(T-3)**.

4.8.5. The Nav [With-DMA, Pilots] will use the weather radar to scan the departure path prior to takeoff to avoid flying into areas of heavy precipitation and/or possible associated turbulence. **(T-3)**.

4.8.6. At the hammerhead, flight crews will verify the accuracy of the GINS position. [With-DMA, N/A]. **(T-3)**.

4.9. Frequency Monitoring. All flight crew will monitor the briefed primary radio frequency during all phases of flight unless directed otherwise by the AC. **(T-3)**. The AC will ensure at least one emergency frequency and mission interphone are always monitored. **(T-3)**. All flight deck crewmembers will monitor UHF/VHF guard, as operational conditions permit. **(T-3)**. During critical phases of flight, the AC will designate at least one flight crewmember to monitor guard. **(T-3)**. Pilots have the option to monitor guard during critical phases of flight based on current workload. C2 or other frequencies to be monitored will be designated by the AC. **(T-3)**. The observer's seat occupant will be briefed on the relationship between the pilot's Flight Deck Audio Panel (FDAP) and the observer's interphone to prevent extraneous radio transmissions. **(T-3)**.

4.10. Altitude Monitoring. When climbing or descending, the Pilot Monitoring (PM) will call 1,000 feet above/below and approaching level off (within 200 feet) altitude. **(T-3)**. While operating at less than 2,000 feet above the ground, the PM will inform the Pilot Flying (PF) anytime the indicated altitude varies more than 100 feet from the desired altitude, or if the aircraft appears to be dangerously close to terrain or obstructions. **(T-3)**. The Nav will back up the Pilots in observing and reporting these deviations. **(T-3)**.

4.11. Departure.

4.11.1. Planning. Use AFMAN 11-202V3, this chapter, and the appropriate MAJCOM supplements. During mission planning, the flight crew will determine a gross weight that ensures E-3 performance will meet or exceed departure requirements. **(T-3)**. **Note:** If E-3 performance is unable to meet the published climb gradient at the desired gross weight,

decrease fuel load, use other applicable approved departure methods described below, or delay until more favorable conditions exist.

4.11.2. Special Departure Procedures (SDP). E-3 crews that are certified for SDP, in accordance with AFMAN 11-2E-3V1, *E-3 Aircrew Training*, are authorized to use SDPs in accordance with AFMAN 11-202V3, MAJCOM Supplements, and any applicable FCIFs and GP/CC guidance. SDP data is retrieved via the Jeppesen™ Runway Analysis (JRA) Tool on the MilPlanner™ website **https://www.milplanner.com/**. Password and ID will be provided via local FCIF. SDP data for airports that are not currently supported can be requested via email to the JRA Ops Data Airport Data Team. A link to do so is found on the MilPlanner™ website.

4.11.3. VFR departures require GP/CC approval. ACs may consider VFR departures if unable to comply with IFR climb gradient requirements and the mission justifies the increased risk.

4.12. Enroute Navigation.

4.12.1. Fly great circle routes to the maximum extent practical. RNAV/direct routing may be flown according to Flight Information Publication (FLIP) General Planning (GP). Navigators will annotate changes to the route of flight on the navigational chart unless safety of flight dictates other priorities [With-DMA, N/A]. **(T-3)**. Navs [With-DMA, Pilots] will compute revised ETAs [With-DMA add, by FMS] and brief ETA(s) to significant events. **(T-3)**. Waypoints or patterns entered into the navigation system will be crosschecked by an additional flight crewmember. **(T-3)**.

4.12.2. [With-DMA, N/A] The Nav will log a full navigational fix, suitable for dead reckoning, prior to leaving radio navigation aid coverage. **(T-3)**. Logged additional fixes as required to ensure safe mission accomplishment. The Nav will also perform periodic crosschecks of navigation equipment, intended route, cleared route to identify navigation errors, prevent inadvertent deviations, and ensure equipment is performing within tolerances. **(T-3)**. At a minimum, perform these crosschecks after level-off, prior to AAR, during orbit intercepts, and when assuming on-station. The Nav will log the time and aircraft position as part of these crosschecks. **(T-3)**. The Nav will notify the AC (and MCC/SLIC as required) of any discrepancies or malfunctions. **(T-3)**.

4.12.3. Special Qualification Airspace Navigation. Both Required Navigation Performance (RNP) Airspace and Reduced Vertical Separation Minimum (RVSM) airspace are considered special qualification airspace. The E-3 is approved for operation in RNP airspace with operational limitations based on GINS [With-DMA, EGI] navigational equipment. See **Table 4.1** for E-3 CNS/ATM Certifications. Reference FLIP GP and the following guidance for RNP and RVSM requirements:

4.12.3.1. The E-3 may operate in RNP-10 airspace without time limits when “GPS only” or “GPS/INS-blended” mode of navigation is selected.

4.12.3.2. The E-3 may operate in RNP-10 airspace in “INS-only” mode for 6.2 hours from the time the EGIs were commanded to the NAV mode or the last aligned, whichever is later.

4.12.3.3. Updates will be in accordance with RNP/BRNAV update and contingency procedures in this manual.

Table 4.1. E-3 CNS/ATM Certifications.

	RPN Airspace	RVSM	TCAS II	RNP-5	RNP-10	VHF-Nav FM Immunity	8.33kHz VHF	PRN 2.0	RNP 1.0	RNP 0.3	ADS-B Out	Mode 5 L1/L2	RNAV Approaches	CPDLC/ACARS	EGPWS
E-3 B/C/G	X(1)	X	X(2)	X	X	X	X								
E-3 Dragon	X	X	X(2)	X	X	X	X	X	X	X	X	X	X(3)	X	X

Notes:
1. Only with an operational GINS
2. Version 7.0 (ACAS II)
3. Includes RNAP Approaches, SIDs, and Standard Terminal Arrival Route (STARS)

4.12.4. BRNAV (RNAV5) Airspace. Compliance includes navigation accuracy within 5 NM of actual position 95 percent of the time. BRNAV accuracy criteria are RNAV5.

4.12.4.1. The E-3 may operate in BRNAV/RNAV5 airspace without time limits when "GPS-only" or "GPS/INS-blended" mode of navigation is selected.

4.12.4.2. The E-3 may operate in BRNAV/RNAV5 airspace in "INS-only" mode for 2.0 hours from the time the EGIs were commanded to the NAV mode or the last aligned, whichever is later.

4.12.5. RNP/BRNAV Flight Planning. The PIC will review airspace requirements (i.e., specific RNP level and contingency actions, etc.) and assess mission impact when flying in RNP-10/BRNAV (RNAV5) airspace. **(T-0)**.

4.12.5.1. Enroute. At the RNP/BRNAV entry point both EGIs must be operational and RAIM must be ON and operational. **(T-0)**.

4.12.5.2. Accomplish periodic crosschecks of all available navigation sources, intended route, and cleared route to identify navigation errors and prevent inadvertent deviation from ATC cleared routes. Advise ATC of the deterioration or failure of navigation equipment below navigation performance requirements and coordinate appropriate actions.

4.12.6. RVSM Airspace/Equipment/Operations. Airspace where RVSM is applied is considered special qualification airspace. The airspace requires both primary altimeters, the autopilot (to include the altitude hold function), the altitude alerter system, and an operational IFF transponder before entry into RVSM airspace. Before entering RVSM airspace, flight crews will advise ATC of any RVSM equipment failures and request a new clearance. **(T-0)**. The following are RVSM operational procedures:

4.12.6.1. Autopilot. The autopilot shall be engaged during level cruise except when circumstances, such as the need to re-trim the aircraft, require disengagement.

4.12.6.2. Altimeters. Crosscheck altimeters every hour to ensure they agree ± 200 ft.

4.12.6.3. Aircrews will immediately notify ATC and coordinate a plan of action if any required equipment fails after entry into RVSM airspace. **(T-0)**.

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

4.12.7. Trans-oceanic flights. To minimize trans-oceanic Gross Navigational Errors (GNE):

4.12.7.1. Navs will accomplish a coast out/in fix during trans-oceanic flights or when the aircraft is operating out of radio aid range. **(T-3)**. For trans-oceanic flights, Navs will compute an ETP. **(T-3)**. Additionally, the Nav will annotate the time over an oceanic checkpoint on the navigational chart. **(T-3)**. The aircraft heading will be crosschecked with the planned heading. **(T-3)**. The Nav will annotate the aircraft position on the navigational chart approximately 10 minutes after each oceanic waypoint is passed. **(T-3)**.

4.12.7.2. [With-DMA] Pilot(s) will accomplish a coast out/in fix during trans-oceanic flights or when the aircraft is operating out of radio aid range. **(T-3)**. For trans-oceanic flights, Pilot(s) will compute an ETP. **(T-3)**. Additionally Pilot(s) will annotate the time over an oceanic checkpoint on the navigational chart. **(T-3)**. The aircraft heading will be crosschecked with the planned heading. **(T-3)**.

4.13. On-Station.

4.13.1. The CSO will normally control the use of HF 1. **(T-3)**. The AC will coordinate with the CSO if the flight crew requires its use. **(T-3)**. The MCC/SLIC/CSO will coordinate with the AC if the mission crew requires the use of either of the flight crew's VHF or UHF radios. **(T-3)**.

4.13.2. Pilots and Navs [With-DMA, Nav N/A] will closely monitor the first complete trip around the orbit after initial intercept to ensure the aircraft is maintaining proper orbit. **(T-3)**.

4.13.3. The AC has the responsibility and final authority for determining when the aircraft should depart station considering all applicable factors (e.g., forecast enroute and destination weather, enroute winds, icing, mission requirements, fuel requirements, training requirements). **(T-3)**.

4.13.3.1. Within 1 hour after assuming station or AAR, the flight crew will compute "bingo fuel" and report remaining station time to the MCC/SLIC. **(T-3)**. If AAR is planned after orbit, make a similar computation allowing enough fuel so that in the event of a missed AAR, the aircraft can land at the destination or a preplanned alternate with the required fuel minimums. Bingo fuel computations will not include center wing tank fuel used as ballast to maintain center of gravity (c.g.) forward of 35% mean aerodynamic chord (MAC). **(T-3)**.

4.13.3.2. If fuel requirements necessitate a modification to on-station duration, orbit pattern, or altitude, the AC will notify the MCC/SLIC. **(T-3)**.

4.13.3.3. Aircrews will evaluate weather considerations within 1 hour after assuming station and make periodic weather checks as required. **(T-3)**. This check may include enroute, AAR track, landing base, and alternate base weather.

4.13.3.4. Crews should fly an alternate mission in lieu of dumping fuel to adjust gross weight should an equipment malfunction or an inability to complete an assigned mission occur. Alternate missions should be planned and briefed during mission planning day.

4.14. Arrival and Approach.

4.14.1. Approach Briefing. Prior to starting descent from cruise altitude, the PF the approach will brief the crew in accordance with T.O. 1E-3A-1/1E-3G(II)-1 and AFMAN 11-202V3 requirements. **(T-3)**. During an approach, the Pilots and Nav [With-DMA, the Pilots and FE] will each have a separate Terminal Approach Procedure and/or STAR booklet, or electronic equivalent, available for use during the descent briefing and for reference during the approach. **(T-3)**. The PM and the Nav [With-DMA, FE] will monitor their respective instruments, all radio transmissions by the controlling agency, and advise the PF the approach of any deviations from the prescribed procedures or instructions. **(T-3)**.

4.14.2. Instrument Approach Advisory Calls. Crew will make mandatory approach advisory calls in accordance with **Tables 6.3** and **Table 6.4**. **(T-2)**.

4.14.3. The Nav will monitor altitude and report deviations. [With-DMA, N/A] **(T-2)**.

4.14.4. Priorities. Upon commencing the final approach (glideslope interception or departing the final approach fix (FAF)), flight crewmembers will avoid unnecessary distractions. **(T-2)**. Priorities are monitoring the approach/landing and completing the BEFORE LANDING checklist. All activities not associated with the approach/landing checklist accomplishment will cease. **(T-2)**.

4.15. Simulator-Only Maneuvers. The following maneuvers will be practiced in the flight simulator only:

4.15.1. Aborted takeoff. **(T-0)**.

4.15.2. Engine failure(s) during takeoff and/or climbout to traffic pattern altitude. **(T-0)**.

4.15.3. Two-engine operations (cruise, approach, go-around, and/or landing). **(T-0)**.

4.15.4. Three-engine rudder boost out operations (cruise, approach, go-around, and/or landing). **(T-0)**.

4.15.5. Initial Buffet/Stick Shaker Recovery. **(T-0)**.

4.15.6. Unusual Attitudes. **(T-0)**.

4.15.7. Flaps-up touch-and-go landing. **(T-0)**.

4.16. Occupancy of Flight Crew Duty Positions.

4.16.1. ACs and FPs may perform their duties from either seat. CPs must be certified by the SQ/CC in accordance with local supplements in order to perform duties in the AC position during critical phases of flight under IP/Flight Examiner supervision. **(T-3)**.

4.16.2. During non-critical phases of flight, if the AC or CP leaves the flight deck, the FE position must be occupied by a qualified FE or be under the supervision of an instructor/Flight Examiner FE. **(T-3)**.

4.16.3. During critical phases of flight or simulated/actual emergencies, unqualified Pilots or Pilots not in training to achieve qualification in the E-3, will not occupy any flight crew duty

positions. **(T-3)**. Rated Pilot General/Flag officers flying under provisions of MAJCOM guidance are exempt. Waiver authority is MAJCOM/Directorate of Operations (A3). Reference AFI 11-401 for exceptions, which apply to commanders, key supervisors, and general officers.

4.17. Mid-Air Collision Avoidance.

4.17.1. Occupy all flight deck seats [With-DMA, Seat 4 is N/A] below FL180 to the maximum extent practical. Crews will maintain an IFR clearance for separation and use autopilot whenever practical. **(T-2)**. The Pilots and Nav [With-DMA, Nav N/A] will use available systems to search for traffic. **(T-2)**. The observer (seat 5), when available, will be on headset and actively scan for traffic. **(T-3)**.

4.17.2. Accomplish seat changes for the AC or CP position with the autopilot and altitude hold engaged, as practical. Initiate seat changes while stabilized in the IFR traffic pattern, extended VFR traffic pattern or when above 10,000 feet MSL during climbs and descents. Emphasize clearing during the seat change.

4.18. Equipment on the Flight Deck. Hold crew equipment and publications on the flight deck to a minimum, commensurate with mission requirements. Stowed equipment must not prevent rapid egress from the flight deck.

4.19. In-Flight Meals. The PF and PM should not eat meals at the same time and their meals should consist of different menu items if prepared by the same flight kitchen or organization.

4.20. Fuel Requirements. For planning purposes, fuel reserves on all flights will be 18,000 pounds over the destination (or alternate when required) initial approach fix, or in accordance with AFMAN 11-202V3, whichever is greater. Fuels listed herein are minimum required fuels. The PIC may plan to arrive overhead with more fuel based on the dynamics of the mission (e.g., weather enroute, airport environment, etc.).

4.20.1. Fuel required at the initial approach fix at the original destination will allow a penetration and an approach, then a climb to optimum altitude, and an arrival over the alternate initial approach fix with 18,000 pounds of fuel or greater. **(T-0)**.

4.20.2. Minimum landing fuel for flights on an IFR clearance is 15,000 pounds. "Minimum Fuel" will normally be declared to the controlling agency when it is determined that the aircraft may land at the intended destination with 15,000 pounds of fuel remaining or less. However, if the destination airfield is VFR, and after the aircraft is established in the airfield's radar and/or visual traffic pattern, practice approaches and landings may be conducted until 12,000 pounds of fuel remain, provided center of gravity (CG) limits are not exceeded or weather conditions deteriorate below VFR.

4.20.3. "Emergency Fuel" will be declared to the controlling agency when it is determined the aircraft may land at the intended destination with 10,000 pounds of fuel or less. **(T-0)**.

4.20.4. When extraordinary mission requirements dictate, GP/CC may approve reduced fuel reserves (provided they meet or exceed AFMAN 11-202V3 requirements) down to: Initial Approach Fix-12,000 pounds, Minimum Fuel-10,000 pounds, Emergency Fuel-8,000 pounds.

4.21. Aircraft Ground Refueling. FEs are authorized to refuel the aircraft. When refueling/defueling aircraft at bases where E-3 maintenance support is not available, FEs will comply with T.O. 1E-3A-2-7-5CL-1, *Refueling and Defueling*, T.O. 00-25-172, *Ground Servicing*

of Aircraft and Static Grounding/Bonding, and T.O. 1E-3A-2-7, *Ground Handling-Servicing and Airframe.* **(T-2)**.

4.21.1. The FE will notify the local fire department anytime adequate portable firefighting equipment is unavailable or any condition listed under Abnormal Conditions, Section 1, T.O. 00-25-172, exists. **(T-2)**. The FE will inform the fire department of the abnormal condition and parking spot/location of aircraft. **(T-2)**. The FE should be informed by the fire chief of the estimated response time or if a standby fire truck needs to be in position prior to servicing. Communication capability will be immediately available.

4.21.2. The AC may approve other crewmember to serve as refueling team members if base support is limited or nonexistent. At a minimum, there will be a fireguard at the fire extinguisher and a member next to the fuel truck/tank operator. Maintain positive communication throughout the entire refueling process. **(T-2)**. The FE will brief all team members on the use of fire equipment, safety precautions, and emergency shutdown procedures. **(T-3)**.

4.22. Fuel Jettisoning. Crews will conduct fuel dumping only to reduce gross weight in an emergency or for operational necessity. **(T-3)**. When circumstances permit, dump above 5,000 feet AGL over unpopulated areas or in designated fuel dump areas. Crews will advise the appropriate air traffic control agency of intentions, altitude, and location when jettisoning fuel, and when the operation is complete. **(T-2)**. Make the appropriate entry on the AFTO Forms 781A and AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance*.

4.23. Aircraft Interior Lighting. During ground/flight operation, minimize flight deck lighting. During night parking, do not use the high-level flight deck lighting until after the aircraft is chocked and brakes are released. This allows the pilots to ensure that the aircraft does not roll.

4.24. In-Flight Engine Failure. During peacetime training missions, if an engine is shutdown in flight, terminate the mission and land as soon as practical, in accordance with T.O. 1E-3A-1/1E-3G(II)-1. During contingency operations, if an engine is shutdown in flight, mission requirements may necessitate continuing the sortie unless safety of flight is compromised.

4.25. In-Flight Troubleshooting. After flight manual emergency procedures are complete, aircrews will not conduct in-flight troubleshooting. **(T-1)**.

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

4.27. Flight Control Malfunctions.

4.27.1. The following procedures will be adhered to when maintenance "Redballs" the jet for primary flight control malfunctions during preflight or ground operations. The AC will evaluate the malfunction with maintenance personnel and determine actions necessary to provide an airworthy aircraft. **(T-1)**. If the malfunction cannot be isolated to a particular part and/or repaired within a suitable amount of time, the aircraft will be returned to maintenance for repair. **(T-1)**.

4.27.2. In flight, if a primary flight control malfunction is experienced, the flight crew will perform the appropriate flight manual procedures, terminate the mission, and land as soon as practical, in accordance with T.O. 1E-3A-1/1E-3G(II)-1. **(T-1)**.

4.28. Divert Charts. Units will develop divert charts or tables to cover their local operating areas and publish them in their local chapter to this manual. **(T-3)**. Information will include divert airfields, headings, distances, flight times, fuel requirements, and cruise altitudes. Aircrews will carry electronic or hard copy of these products on all flights. **(T-3)**.

4.29. Air-to-Air Refueling Restrictions/Procedures.

4.29.1. Aircrews will conduct AAR procedures in accordance with ATP, 3.3.4.2, *Air-to-Air Refueling*, and national annexes. **(T-2)**. Plan to AAR with a center of gravity forward of 32% MAC. AAR can be accomplished outside of these limits provided it is thoroughly briefed prior to conducting AAR. **Note:** Air-to-air refueling has been successfully accomplished in flight tests up to 33.5% MAC.

4.29.2. Aircrews will not accomplish AAR during training missions when conditions are encountered which, in the opinion of the AC or boom operator, result in marginal control of the aircraft or the boom. **(T-2)**.

4.29.3. Aircrews will not accomplish AAR if any primary flight control malfunctions are encountered or with the series yaw damper inoperative. **(T-1)**.

4.29.4. Aircrews will not accomplish AAR without tanker disconnect capability. **(T-2)**. In exceptional circumstances, such as an actual fuel emergency, or when an operational necessity exists, at AC discretion, manual boom latching may be performed. The AC must coordinate with the tanker crew before conducting manual boom latching procedures. **(T-2)**.

4.29.5. Boom Envelope Demonstrations will be conducted under IP/Flight Examiner supervision. **(T-2)**. The boom operator will initiate and ensure disconnect capability before demonstrating limits in accordance with ATP-3.3.4.2. **(T-2)**.

4.29.6. First Pilots. Non-AAR qualified FPs are authorized to fly up to the precontact position from either pilot's seat with an AC in the other seat. Non-AAR qualified FPs must be under IP/Flight Examiner supervision in order to approach the contact position. **(T-2)**. AAR qualified FPs are authorized to fly to the contact position from either pilot's seat with an experienced AC in the other seat.

4.29.7. Copilots. Non-AAR qualified CPs are authorized to fly up to the pre-contact position from the right seat with an AC in the left seat. Non-AAR qualified CPs must be under IP/Flight Examiner supervision in order to approach the contact position. **(T-2)**. AAR qualified CPs are authorized to fly to the contact position from the right seat with an experienced AC in the left seat. Left seat certified CPs may perform AAR from the left seat while under IP/Flight Examiner supervision.

4.29.8. ACs/CPs undergoing initial qualification or upgrade training may conduct a rendezvous up to 1 NM from the tanker without IP/Flight Examiner supervision.

4.29.9. To allow time to establish communications with ATC, discontinue AAR at least 3 minutes prior to the end of track and descend to the bottom of the altitude block.

4.29.10. Loss of Radio Contact. If radio contact is not established or lost with the tanker on the AAR frequency, follow "Loss of Radio Contact" guidance in accordance with ATP 3.3.4.2.

4.30. Post-AAR Procedures. Use the following procedures after completion of AAR to achieve safe separation from the tanker:

4.30.1. The receiver pilot will maintain stabilized in the contact position while requesting or initiating a boom disconnect and will remain stabilized until confirming, either visually or verbally, that the boom is clear. **(T-2)**.

4.30.2. After confirmation that the boom is clear, the receiver pilot will begin to move aft to the pre-contact position. **(T-2)**. Once this separation has been attained, the receiver pilot will slowly descend at approximately 500 to 1,000 feet per minute (fpm), establish a power setting that will ensure increasing vertical separation, and avoid under-running the tanker during descent. **(T-2)**.

4.30.3. The pilots will establish a minimum of 1,000 feet vertical separation between the receiver and the tanker. **(T-2)**. Pilots will not make any turns from the established AAR heading/course during the descent phase unless safety of flight dictates.

4.30.3.1. Pilots will establish 1,000 feet vertical separation and engage autopilot (if available) before initiating the post-air refueling checklist. **(T-2)**. Slipway doors may be closed (to reduce noise) and autopilot circuit breaker may be reset (to ensure autopilot is available) [With-DMA, N/A] once the boom is clear and a descent has been established.

4.30.3.2. To ensure safe separation during the separation maneuver, the PM and the Nav will monitor the positions of all tankers in the formation by whatever means possible (visual, weather radar, air-to-air TACAN, etc.). **(T-2)**.

4.30.3.3. If the receiver cannot descend to establish the required vertical separation, the receiver will move back to the pre-contact position and request that the tanker initiate a climb to obtain a minimum of 1,000 feet vertical separation. **(T-2)**.

4.31. Formation Restrictions. The enroute cell and air refueling formations described in ATP-3.3.4.2. are the only authorized formations. Crews will only fly these formations when specifically tasked; using the procedures published in the appropriate tech orders. **(T-2)**.

4.32. Abnormal Configurations. Aircrew will not fly missions with known abnormal configurations unless approved by the applicable GP/CC. **(T-2)**. Abnormal configurations can include operations with only six or seven brakes, partial spoilers, inoperative antiskid, etc.

4.33. Three-Engine Ferry Flights. Aircrew will not conduct three-engine ferry flights unless specifically approved by applicable MAJCOM/A3. **(T-1)**.

Chapter 5

MISSION CREW OPERATING PROCEDURES

5.1. General. This chapter contains roles and responsibilities for mission crew positions. This information is in addition to AFMAN 11-202V3, *General Flight Rules*, AFI 11-214, *Air Operations Rules and Procedures*, AFTTP 3-1.AWACS, *Tactical Employment*, AFTTP 3-3.AWACS, *Combat Aircraft Fundamentals* and AFTTP 3-1.TACS, *Tactical Employment,* T.O. 1E-3A-43-1-1, *Flight Manual, USAF Series, E-3 Aircraft Mission Systems Operations*, T.O. 1E-3A-43-1-1-1, *Supplemental Flight Manual*.

5.2. Mission Crew Communications. The primary means of off-board coordination for the mission crew varies depending on which E-3 variant is used (E-3B/C vs. E-3G), which system modifications are available, such as Iridium™ Communications System (ICS) or Internet Protocol-Enabled Communications (IPEC), and whether or not the computer is operational.

5.2.1. The programmed mission nets are always available. Crews should utilize tactical chat, when available, to pass information that is not time critical. **(T-2)**.

5.2.2. The PA system is for use in emergencies and practice emergencies. Except for emergency checklist items, use of the PA by the mission crew is restricted to the MCC/SLIC.

5.3. Mission Commander (MC). The MC is responsible to the Joint/Combined Forces Air Component Command (J/CFACC) for execution of Mission Type Orders (MTOs). Any rated E-3 officer, certified for mission command, can act as an MC and execute MTOs, when the assigned mission requires. The MC should not perform duties in a primary crew position (i.e., MCC/SLIC, SD, ABM-Q, or AC) while conducting mission command duties unless authorized by the SQ/CC. Commanders should weigh the complexity of the mission and whether or not the MC will have sufficient time and situational awareness to conduct mission command from the primary duty position without interfering with the operation of the E-3 weapons system. If required consider adding an additional crewmember to allow the MC to focus on external responsibilities.

5.4. Mission Crew Commander (MCC)/Section Lead in Command (SLIC). The MCC/SLIC is responsible to the appropriate commander for the safe, efficient, and successful employment of the E-3 weapons system. The MCC/SLIC is responsible for the leadership, management, and supervision of the mission crew. The MCC/SLIC will:

5.4.1. Execute command directives and perform battle management functions as required, to include transmitting, receiving, authenticating, and executing command messages. **(T-3)**.

5.4.2. Manage the air battle with appropriate command authorities and direct tactical action in accordance with applicable Operations Orders (OPORDs), OPLANS, Air Tasking Order (ATO), Operational Tasking Data Link (OPTASKLINK), Special Instructions (SPINS), and Rules of Engagement (ROE). **(T-3)**.

5.4.2.1. Assign and supervise Section Lead (SL/SD/Active Sensor Operator/PSO) responsibilities based on qualification of assigned crewmembers. **(T-3)**.

5.4.2.2. Assign and supervise primary sensor operators (ABM-Q/Active Sensor Operator/SST/PSO). Monitor and maintain sensor quality for mission duration. **(T-3)**.

5.4.2.3. Supervise all aircraft control activity (ABM-Q/AWO/SD/Others as qualified) in accordance with AFTTP 3-3.AWACS, AFTTP 3-3.IPE, and local procedures/standards. **(T-3)**.

5.4.2.4. Supervise the identification function in accordance with AFTTP 3-3.AWACS and local procedures. **(T-3)**.

5.4.2.5. Ensure the crew is thoroughly briefed and prepared to meet mission tasking. Have a thorough understanding of the capabilities and tactics of hostile and friendly forces. **(T-3)**.

5.4.2.6. Notify the AC and mission crew of all situations that could adversely affect safety of flight operations or mission accomplishment. **(T-3)**. Coordinate with the AC on tactical positioning of the E-3 to ensure safe and efficient mission execution. **(T-3)**.

5.4.3. Supervise the technicians (CSO/CT/ST/CDMT/ART) and safely operate the E-3 weapons system in accordance with technical orders. **(T-3)**. Ensure mission systems are configured and system information is current and correct to meet mission tasking. **(T-3)**. Supervise the communications, data processing and display, and sensor system functions to ensure effective support of mission objectives. **(T-3)**. Be responsible for the completion of the AFTO Form 46, *Prepositioned Aircrew Flight Equipment*. **(T-3)**.

5.4.4. Manage the orderly transfer of station responsibility as focal point between the E-3 crew and HHQ, as well as the mission crew and flight crew. **(T-3)**. Supervise coordination with lateral C2. **(T-3)**.

5.4.4.1. Declare "on-station" when all mission systems required to accomplish the assigned mission are operational, the E-3 is in position to accomplish the assigned mission, and the mission crew have completed their station assumption requirements. **(T-3)**.

5.4.4.2. Notify the appropriate command authorities of the "ops-normal/on-station" status and other reports, as specified by theater directives and any deviations from mission tasking. **(T-3)**.

5.4.4.3. Approve/coordinate downtime for scheduled/unscheduled maintenance. **(T-3)**. Assess equipment malfunctions and determine impact on the assigned mission. **(T-3)**. Coordinate with the AC to assess the risk of continued use (AC is responsible for the safety of the aircraft). **(T-3)**.

5.4.5. When operating in the NORTHCOM AOR, the MCC/SLIC will:

5.4.5.1. Act as or appoint a NORAD Certified Crewmember (NCCM) responsible for receiving and communicating message traffic concerning Emergency Action Messages (EAM)/Quick Reaction Messages (QRM) and Tabular Reports (TABs) in accordance with established guidance. **(T-3)**.

5.4.5.2. Orient the mission crew with NORAD C2 functions and identify responsibilities and authorities of NORAD-assigned AWACS missions. **(T-3)**.

5.5. Supervision of Sections. The MCC/SLIC will assign a Section Lead (ABM-Q/ASO/SD/ECO) to each battle management area (BMA) or functional assignment, based on qualification of crewmembers. **(T-3)**. SLs are responsible to the MCC/SLIC for conduct of the air battle or execution of their assigned function. The SL will:

5.5.1. Supervise assigned operators (ABM-Q/AWO/SST/MSO/AST) for battle management and allocation of crew resources in support of the mission and/or emergency procedures. **(T-3)**.

5.5.2. Maintain data on friendly and enemy orders of battle as it affects their role. **(T-3)**. Estimate and/or predict the capabilities of hostile forces. **(T-3)**. Develop a plan, or plans, which organize friendly counter forces, and defeat/negate the threat to accomplish mission objectives. Maintain current, relevant, and accurate tactical situational awareness. **(T-3)**.

5.5.3. Direct the air battle to ensure the accomplishment of assigned missions, including pairing effects/weapons/sensors against assigned targets. **(T-3)**. Notify the MCC/SLIC and Active Sensor Operator of any suspected emergency IFF/SIF returns or triangular distress patterns. **(T-3)**. Execute the Identification function in accordance with AFTTP 3-3.AWACS and local procedures. Supervise the detection, tracking, reporting, identification, and recording of surveillance data. **(T-3)**.

5.5.4. Coordinate directly with the Active Sensor Operator/PSO to obtain optimum sensor configurations. **(T-3)**.

5.5.5. Develop and maintain the communications worksheet for their assigned section. Coordinate communications changes with the MCC/SLIC/CSO/CT. **(T-3)**.

5.6. Weapons Controllers (SD/AWO/ABM-Q/Others as qualified). Weapons controllers are responsible for the direction, monitoring, and flight following of assigned aircraft during tactical and air refueling missions. **(T-3)**. They are responsible for extracting data from OPORDS, OPLANS, and other theater and command directives for command and control of the air battle. **(T-3)**. Conduct battle management in accordance with AFTTP 3-3.IPE, AFTTP 3-3.AWACS, and local procedures. Weapons Controllers will:

5.6.1. Locate, identify, and monitor tracking of aircraft assigned for control. **(T-3)**.

5.6.2. Control aircraft against assigned targets. **(T-3)**.

5.6.3. Direct air refueling missions consistent with prescribed emissions control (EMCON) procedures. **(T-3)**.

5.6.4. Coordinate with other crewmembers and external agencies, as applicable, on matters pertaining to airspace assignment and flight safety. **(T-3)**.

5.6.5. Ensure orderly and expeditious recovery of assigned aircraft. **(T-3)**.

5.7. Active Sensor Operator.

5.7.1. The Active Sensor Operator will report to the MCC/SLIC all radar and IFF sensor functions. **(T-3)**. The Active Sensor Operator will:

5.7.1.1. Monitor/maintain active sensor quality for mission duration and advise the MCC/SLIC of surveillance capabilities. **(T-3)**.

5.7.1.2. Notify the MCC/SLIC whenever active sensor Electronic Attack (EA) is experienced and coordinate active sensor Electronic Protection (EP) actions. **(T-3)**.

5.7.1.3. Notify the MCC/SLIC and SLs of any suspected emergency IFF/selective identification feature (SIF) returns or triangular distress patterns. **(T-3)**.

5.7.2. In conjunction with the CT/SST, coordinate with external agencies to enable accurate multi-link operations in accordance with Joint/Regional/Sector Interface Control Officer (J/R/SICO) guidance and AFTTP 3-3.AWACS. **(T-3)**. The Active Sensor Operator will coordinate data link modifications (filters, duties, ID usage) with the Joint/Regional Interface Control Cell (J/RICC). **(T-3)**.

5.7.3. If designated a Section Lead by the MCC/SLIC, the Active Sensor Operator will:

5.7.3.1. Assign and supervise ABM-Q/SST/MSO/AST responsibilities. **(T-3)**.

5.7.3.2. Execute the Identification function in accordance with AFTTP 3-3.AWACS and local procedures. **(T-3)**.

5.7.3.3. Supervise the detection, tracking, reporting, identification, and recording of surveillance data. **(T-3)**.

5.8. Air Surveillance Officer (ASO).

5.8.1. The ASO is responsible to the MCC/SLIC for all surveillance functions. The ASO will:

5.8.1.1. Monitor and direct the accurate collection, display, and dissemination of surveillance data. **(T-3)**.

5.8.1.2. Direct and/or coordinate the tracking and identification of all observed activity within designated areas. **(T-3)**.

5.8.1.3. Analyze the surveillance situation and advise the MCC/SLIC of surveillance capabilities. **(T-3)**.

5.8.1.4. Notify the MCC/SLIC whenever Electronic Attack (EA) is experienced and coordinate Electronic Protection (EP) actions. **(T-3)**.

5.8.1.5. Notify the MCC/SLIC and SD/SL of any suspected emergency IFF/selective identification feature (SIF) returns or triangular distress patterns. **(T-3)**.

5.8.1.6. Document all radar/IFF electronic combat (EC) training events on applicable forms and forward them to the squadron Weapons and Tactics office. **(T-3)**.

5.8.2. In conjunction with the SST, the ASO will coordinate with external agencies to ensure accurate multi-link operations in accordance with J/R/SICO guidance. **(T-3)**. The ASO will coordinate any data link modifications (filters, duties, ID usage) with the Joint Interface Control Officer (JICO) to ensure there are no impacts to the link architecture. **(T-3)**. Concurrent operations will not be used unless specifically mentioned in the OPTASKLINK or directed by the JICO. **(T-3)**. The ASO will:

5.8.2.1. Implement changes in interface configuration as directed. **(T-3)**.

5.8.2.2. Implement data link filters as stated in the OPTASKLINK or TACOPDAT. Any changes to filters must be approved by the JICO. **(T-3)**.

5.8.2.3. Utilize the Interface Control Network (ICN) and Datalink Coordination Net (DCN) to coordinate with J/R/SICO and other multi-link participants using directed net procedures if required by the NCS. **(T-2)**.

5.8.2.4. Monitor track exchange (surveillance, weapons, and ES) and coordinate with SST, SD/SL, and ECO if required. **(T-3)**.

5.8.2.5. Provide recommendations to JICO for data link changes. Forward changes to E-3 initial exchange requirements (IERS) to the JICO through the appropriate agency (i.e., Mission Planning Team (MPT), Air Control Wing Requirements (ACW/XR), Operations Group Exercises (OSOE), etc,.). **(T-3)**.

5.8.3. Assign and supervise SST and AST responsibilities. **(T-3)**.

5.8.4. Monitor and maintain sensor quality for mission duration. **(T-3)**.

5.8.5. Ensure surveillance team members receive maximum training from available resources including simulation (SIM). **(T-3)**.

5.9. Senior Surveillance Technician (SST). The SST is a supervisory position responsible to the ASO (or MCC/SLIC/SL, as applicable) and will provide assistance as required. **(T-3)**. The SST will:

5.9.1. Supervise the detection, tracking, reporting, identification, and recording of surveillance data. **(T-3)**.

5.9.2. Ensure the completion of AST duties. **(T-3)**.

5.9.3. Monitor sensors in the assigned areas, notify the ASO/SL of any unusual presentations. **(T-3)**.

5.9.4. Coordinate with the ASO/SL, CSO, and CT, as required, in the establishment and operation of data links. **(T-3)**.

5.9.5. Notify the ASO/SL of any suspected emergency IFF/SIF returns or triangular distress patterns. **(T-3)**.

5.10. Air Surveillance Technician (AST)/Mission System Operator (MSO). The AST/MSO is responsible for weapons and surveillance functions as directed by the MCC/SLIC/SL. **(T-3)**. The AST/MSO will:

5.10.1. Monitor accuracy of all tracks initiated within their assigned AOR and ensure continuity of tracking. **(T-3)**. Upon receipt of voice told tracks, enter track data into the computer. **(T-3)**. Monitor sensor data that may correlate to voice told tracks and take appropriate action. **(T-3)**.

5.10.1.1. Tell tracks via datalink and/or voice in accordance with AFTTP 3-3.AWACS and local procedure. **(T-3)**.

5.10.1.2. Notify ASO/SL of possible active sensor EA. **(T-3)**. Reporting format will include number and type of strobe(s), effect on radar EP, bearing, power level, and time of occurrence. **(T-3)**. Initiate and maintain passive tracking when directed by the ASO/SL/SST. **(T-3)**.

5.10.1.3. Notify the ASO/SL of any suspected emergency IFF/SIF returns or triangular distress patterns. **(T-3)**.

5.10.2. Conduct initial actions to identify all tracks in assigned AOR to include interrogation, ID by origin, flight plans, minimum risk routes, and other identification means in accordance with AFTTP 3-3.AWACS and local procedures. **(T-3)**. Make ID changes or coordinate with MCC/SLIC/SL for ID changes as required until all tracks have been identified. **(T-3)**. Track ID is a continuous process.

5.10.3. Assist the rest of the battle management team (MCC/SLIC/SL/SD/AWO/ABM-Q) by modifying and sharing accurate airspace overlays to support the timely execution of the air battle. **(T-3)**.

5.11. Passive Sensor Operator (ECO/MCC/ASO/SST/AWO/ABM-Q). The PSO performs a systematic checkout of the Electronic Support Measures (ESM)/Passive Detection System (PDS) and briefs the MCC/SLIC on the results. **(T-3)**.

5.12. Electronic Combat Officer (ECO). The ECO analyzes Electronic Support (ES) data from on-board and off-board sensors, fuses that data with other on-board and off-board sensors, then disseminates a comprehensive ES picture both internally (on-board the E-3) and externally (via data links and communications nets). **(T-3)**. The ECO is responsible to the MCC/SLIC. **(T-3)**. The ECO will:

5.12.1. Monitor the accurate collection, display, and dissemination of ES data. Coordinate with external agencies to ensure the accuracy of ES data. **(T-3)**.

5.12.2. Locate, report, and log all emitters of interest in accordance with AFTTP 3-3.IPE, AFTTP 3-3.AWACS, and local procedure. **(T-3)**.

5.12.3. Direct and/or coordinate the ES identification of all observed activity within designated areas with Electronic Warfare (EW) assets. **(T-3)**.

5.12.4. Maintain SA on Non-Kinetic Operations (NKO) and Suppression of Enemy Air Defenses (SEAD) capabilities. **(T-3)**.

5.12.5. Estimate and/or predict the capabilities of hostile forces and friendly forces relative to the Electronic Order of Battle (EOB), and advise the MCC/SLIC. **(T-3)**.

5.13. Communications. The CT and CSO perform the communications function.

5.13.1. The CT is responsible to the AC/MCC/SLIC for the proper maintenance and operation of communications related equipment. **(T-3)**. The CT will:

5.13.1.1. Evaluate equipment status of the Communications Functional Group (CFG) and advise the MCC/SLIC of its capabilities to support mission requirements. **(T-3)**.

5.13.1.2. Configure, operate, and monitor Joint Tactical Information Distribution System (JTIDS) equipment and software. **(T-3)**.

5.13.2. The CSO is responsible to the AC/MCC/SLIC for proper programming management and operation of communications systems. **(T-3)**. The CSO will:

5.13.2.1. Tune, configure, and operate clear and secure voice communications systems and communication nets to support mission requirements. **(T-3)**. Coordinate, obtain, use, and control COMSEC material and equipment. **(T-3)**. Perform frequency management; recommend and make required communications changes. **(T-3)**.

5.13.2.2. Configure and operate datalink equipment and software. **(T-3)**.

5.13.2.3. Compile and transmit required in-flight and position reports to appropriate facilities. **(T-3)**.

5.14. Computer Display Maintenance Technician (CDMT) / Systems Technician (ST). The CDMT/ST is responsible to the MCC/SLIC for the operation, monitoring, and limited in-flight

maintenance of the computer for E-3B Data Processing and Data Display (DPDG) and for E-3G Mission Computing System (MCS) and IPEC. **(T-3)**. Additionally, the ST has the same responsibility for the Onboard Test Monitor and Maintenance functional groups and Electronic Support Measures Group (ESMG). **(T-3)**. The CDMT/ST will:

5.14.1. Perform loading of the DPDG/MCS/IPEC, auxiliary system(s), and monitor performance. **(T-3)**. The CDMT/ST will also perform Onboard Test Monitor and Maintenance Groups using fault indications, ESM, and software messages displayed at seat 8 (E-3B/C) or any operator work station (OWS) (E-3G). **(T-3)**. If on E-3G with IPEC, the ST will occupy seat 18. **(T-3)**. The ST will:

5.14.2. Monitor the status of mission avionics equipment tested by the computer for efficient operation, service peripheral equipment, and perform diagnostic maintenance programs. **(T-3)**.

5.14.3. Perform inflight troubleshooting and fault isolation using utilities programs where needed to enable replacement/restart of hardware or software as required. **(T-3)**.

5.14.4. Establish and maintain connectivity with ICS/IPEC equipment. **(T-3)**.

5.15. Airborne Radar Technician (ART). The ART is responsible to the MCC/SLIC for the operation and maintenance of the radar and IFF systems and their subsystems. **(T-3)**. The ART will:

5.15.1. Initiate and monitor the Surveillance Radar Functional Systems and Identification Functional Systems including performance levels throughout the mission. **(T-3)**.

5.15.2. Perform radar equipment test (Fault Isolation) routines and other checkouts. **(T-3)**.

5.15.3. Troubleshoot malfunctions in sensor systems and repair or replace equipment as required. **(T-3)**.

5.15.4. Initiate and monitor associated test equipment to optimize performance of sensor systems. **(T-3)**.

5.15.5. During deployment or dispersed base operations, if there is no conflict with flying responsibilities (e.g., crew rest and duty day), the ART will assist ground based personnel with maintenance activities when required. **(T-3)**.

5.15.6. Coordinate with the MCC/SLIC/ASO/Active Sensor Operator on radar operating parameters (e.g., dedicated time test azimuth, second-time-around-thresholds, etc.), and on detection, analysis, and response to EA. **(T-3)**.

5.16. Establishing Operations-Normal.

5.16.1. MCC/SLIC is responsible to ensure systems are adequately operational to conduct the assigned mission. **(T-3)**. The MCC/SLIC will:

5.16.1.1. Establish ‘Ops-Normal’ criteria during planning. **(T-3)**.

5.16.1.2. Coordinate with the AC on equipment issues, which affect aircraft systems, must approve continued operations of malfunctioning mission equipment that would affect the mission. **(T-3)**.

5.16.1.3. Evaluate the impact of using degraded equipment against the mission tasking and the inability to meet that tasking. **(T-3)**.

5.16.2. Active Sensor Management/Procedures. Prior to assuming station, the Active Sensor Operator will:

5.16.2.1. Perform sensor checks to determine the optimum radar/IFF settings for the mission. **(T-3)**.

5.16.2.2. Brief the MCC/SLIC on the results of the checks and the final radar setup. **(T-3)**. Sensor check procedures include:

5.16.3. IFF Sensor Check. Perform a systematic checkout of the IFF, to include all operational Receiver/Transmitters (R/T) as soon as it becomes available. If equipment malfunctions, the Active Sensor Operator will accomplish an additional check once the unit is back on line. **(T-3)**. If a previously unchecked R/T unit comes on line, the Active Sensor Operator will, again, accomplish an additional check. **(T-3)**. As a minimum, the Active Sensor Operator will check:

5.16.3.1. Mode IV Test. Perform a Mode IV loop test prior to declaring the IFF operational if allowed in operating area. **(T-3)**.

5.16.3.2. Maximum Range. Measure the maximum range of the IFF by determining the range of an IFF sensor return with a consistent (three out of seven returns) data trail. **(T-3)**.

5.16.3.3. IFF Jitter. Check in all quadrants, as close as possible to, but not beyond, 250 NM from the E-3. Measure jitter as sideways displacement of returns from a straight-line path. Normally jitter up to 3 NM is acceptable. **(T-3)**.

5.16.3.4. Quality. The overall quality of the IFF will be determined by checking consistency of data trails, and when radar becomes available, the mileage difference between the IFF and radar sensor returns. **(T-3)**. Normally, returns within 2 NM are acceptable. Accomplish this check within a radius of 250 NM from the E-3.

5.16.3.5. Resolution of IFF Overloads. The Active Sensor Operator will monitor IFF counts and make necessary adjustments to resolve overload conditions and minimize the loss of IFF data. **(T-3)**.

5.16.4. Radar Sensor Check. Time permitting, the Active Sensor Operator will check as many RF sets as possible, and select a primary and secondary RF set (preferably not in the same chain). **(T-3)**. The Active Sensor Operator will use identical radar tabular display settings for each RF set checked for accurate comparison. **(T-3)**. Radar mode will include both the Doppler™ and Beyond the Horizon (BTH) radars. **(T-3)**. A sensor quality check must be made when established in the orbit area if a checkout was accomplished prior to arrival to the orbit area. The radar check will include:

5.16.4.1. Doppler™/BTH Maximum Range. **(T-3)**. Determine the maximum Doppler™ range from the situation indicator display presentation using data trails with a minimum 40% blip-scan ratio (3 out of 7 scans have radar returns). A single data point, present or history, may be used to determine the maximum BTH range from the situation indicator display presentation.

5.16.4.2. Quality. **(T-3)**. Radar quality is determined by the percentage of all IFF returns within a 250 NM radius of the E-3 that have consistent discernible radar data trails. In addition, consider the overall consistency of the radar presentation. Use the following criteria to assess the overall quality of the radar: Good = Greater than 75%, Fair = Between 50 to 75%, Poor = Less than 50%.

5.16.4.3. System Counts. **(T-3)**. On applicable form, log the Doppler™, BTH, and Mode 3 counts for comparison of radar frequencies. Time of day, operating location, traffic density areas, and radar mode of operation may significantly affect the ratio of these figures.

5.16.5. Quality Control/Systems Check Out. **(T-3)**. Once the sensors have been initially checked and declared operational, the Active Sensor Operator is not required to re-accomplish a full sensor check unless the applicable sensor system is powered down or if the ART accomplishes a Fault Isolation Test (FIT) on the radar system, e.g., after Quality Control (QC). In circumstances, such as post-AAR, where sensors are transferred but not powered down, the Active Sensor Operator will, at minimum, accomplish a quality check of radar and IFF systems prior to declaring them operational. **(T-3)**.

5.16.6. Radar Setup. **(T-3)**. The Active Sensor Operator must consider the effects of the E-3 flight parameters on sensor performance and attempt to optimize checkout within these constraints. **(T-3)**. The assessment of overall air picture quality will be the primary factor in determining the optimum RF set. After selecting the optimum RF set, the Active Sensor Operator will declare the radar operational. **(T-3)**. When multiple E-3 flights operate in an area, the Active Sensor Operator will perform frequency de-confliction. **(T-3)**.

5.16.7. Data Link Procedures and Operation. **(T-3)**. Data link is the primary means of passing E-3 information. Establish data links according to, *Joint Multi-Tactical Data Link (TDL) Operating Procedures*, for the JTIDS Network Library for JTIDS and TADIL A during Continental United States (CONUS) operations. Establish data link operations outside CONUS according to local theater directives and the OPTASKLINK.

5.16.8. ESM Download and PDS checkout. **(T-3)**. Any Air Battle Manager certified to perform as PSO, or qualified MCC/SLIC/ASO, is permitted to download PDS when an ECO is not on-board. The designated crewmember will coordinate to ensure PDS is loaded with an appropriate database. **(T-3)**. The ECO (or ABM certified to perform as PSO) will also coordinate with the MCC/SLIC when PDS is downloaded, and operational. In addition, advise the MCC/SLIC, CDMT/ST, and/or Active Sensor Operator of any system degradation. **(T-3)**. Only an ECO or PSO will declare ESM operational. **(T-3)**. Perform checks on ESM to ensure operational status and determine optimal sensor set-up. The ECO/PSO will brief the MCC/SLIC on the results of these checks. At a minimum, check:

5.16.8.1. Reception in Frequency Range. **(T-3)**. Check to ensure 360-degree reception of signals within all three bands: low, medium and high. This is a subjective check, but there should be several indications within each band on different azimuths.

5.16.8.2. Triangulation. **(T-3)**. Triangulation of a known emitter (like an ATC radar at a civil airport) is conducted. Once the active emitter file reaches “monitor status,” check the location of the triangulated site against the location of the known emitter.

5.17. Assuming Station. Upon establishing "Operations-Normal," the MCC/SLIC will determine alibis for station assumption. **(T-3)**. Theater directives will set minimum equipment. Where minimum equipment is not defined, the following minimum guidelines may be modified by SQ/DO or MCC/SLIC during planning:

5.17.1. Conduct database checks as appropriate.

5.17.2. Radar and IFF are operational, optimized, and configured for mission use.

5.17.3. Contact with ground agencies or agency to be relieved has been established (voice/chat).

5.17.4. Operational data link(s).

5.17.5. Active Sensor correlation check. Based on a minimum of two tracks. IFF-only on-station operations are authorized according to this manual and theater operating instructions in accordance with FAA Order JO 7610.4 series or ATC LOA. The IFF only check is still valid if an Air Battle Manager subsequently correlates IFF to radar sensor returns.

5.17.5.1. Format should be Voice Tell format in accordance with AFTTP 3-3.IPE. Tracks used must be within 3 NM or less to be considered a good sensor correlation.

5.17.5.2. Data link correlation checks may be used instead of voice checks if accurate real-time data is being exchanged.

5.17.5.3. Coordinate procedures with the responsible Military Radar Unit (MRU) prior to assuming station when operating as an Airborne Radar Unit (ARU). When operating in Canada, the E-3 will comply with the TC (Transport Canada)/Department of Nation Defense (DND) agreement (short title, "AWACS Agreement") between Director General Air Doctrine and Operations Department National Defense, and Director Air Traffic Services Department of Transportation.

5.17.6. Check assigned voice frequencies / radio transmitters for usability.

5.17.7. Designated crewmembers monitoring Guard frequencies (VHF for duration of on station, UHF while aircraft are under control).

5.18. Voice Tell and Recording Procedures. When the E-3 is in an environment with units not capable of data link interface, voice tell may be needed to share a common tactical picture. The E-3 will voice tell HOSTILE/FAKER, UNKNOWN/PENDING, and Emergency tracks unless the receiving agency directs cease tell. Tell all other priorities on request only. Live tracks have priority over simulated tracks. Voice tell will be in accordance with AFTTP 3-3.IPE or theater directives. **(T-3)**.

5.19. Electronic Combat Procedures. The MCC/SLIC/Active Sensor Operator will monitor/coordinate EP actions. **(T-3)**. See AFTTP 3-1.AWACS and AFTTP 3-3.AWACS for complete EA/EP counter-tactics. Use the following baseline procedures for noise jamming against the E-3 radar:

5.19.1. The Active Sensor Operator, ECO, and ART will coordinate on any unusual sensor activity to determine whether the source is external or internal and type of interface if able. **(T-3)**. If no explanation can be determined and the source is external, submit an Air Force Spectrum Interference Reporting System (AFSIRS) report.

5.19.2. Make every effort in an EA environment to obtain active data on all EA targets. Whenever possible, use cooperative passive tracking. If cooperative support is not available, use self-passive tracking.

5.19.3. When self-triangulating, to determine if one of several previously active tracking returns is a suspected EA emitter, the AST/MSO will extrapolate the suspected track on its last known heading, speed, and altitude, before initiating a passive track. **(T-3)**.

5.19.4. The Active Sensor Operator will keep the MCC/SLIC/SL advised on status of passive tracks. **(T-3)**. When the Active Sensor Operator is confident that the passive track has correlated with the jammer's location, notify the SL that the track has "stabilized" and enable display to all consoles. In the event of burn-through, the Active Sensor Operator, in coordination with the MCC/SLIC and in accordance with ROE, may "validate" the track as a jammer and associate the track with active data. **(T-3)**.

5.20. Identification Procedures. The theater SPINS/ROE dictate which systems/platforms can complete the ID matrix. Some platforms can fulfill the ID matrix based on their organic capability or based on their integration capability (voice or data link) with other ID-capable platforms.

5.20.1. If the E-3 can fulfill the ID matrix and has the ability to declare a contact hostile, any Air Battle Manager (ABM-Q/AWO/SD/ASO/ECO/MCC/SLIC) on board the E-3 can complete the ID matrix. The MCC/SLIC may restrict this and retain hostile declaration authority or delegate it as mission needs dictate.

5.20.2. The ECO/PSO should coordinate with the Active Sensor Operator to ensure PDS data link filters are set correctly. ECO/PSO will coordinate with the SIGINT ID Authority (SIA) for selecting specific emitters to tell out during the mission. **(T-3)**. Reporting procedures will be in accordance with theater directives and AFTTP 3-1.AWACS. **(T-3)**.

5.21. Control Procedures. On-station control procedures will be in accordance with AFI 11-214. **(T-3)**. MCC/SLIC will notify the flight crew when aircraft are under control. **(T-3)**. With coordination, the SD/SL may control aircraft when simultaneous missions are not in progress. Aircrew providing control will be certified and current unless under supervision, per AFMAN 11-2E-3V1.

5.21.1. Airspace and Aircraft Handoff. Use of airspace will be in accordance with FAA JO 7610.4, *Special Operations*, and appropriate LOA. **(T-0)**. Handoff procedures in accordance with applicable FAA LOA. **(T-0)**. A designated ABM will monitor the handoff frequency once performing station assumption duties until termination of aircraft control. **(T-3)**.

5.21.2. Tracking. During all operations, ABM-Q/AWO/MSO/AST will ensure the J3.2 air track/local track and sensor data of controlled aircraft are within 2 NM of each other. **(T-3)**. Pair assigned aircraft to Combat Air Patrol (CAP), air-to-air intercept, and ground targets as briefed.

5.21.3. Controlled Aircraft Emergency Procedures. For aircraft with in-flight emergencies, the ABM performing the handoff will use the word "Emergency" at the beginning of transmissions to the recovery agency, as well as add "Emergency" to the callsign of the affected player.

5.22. Communications Procedures:

5.22.1. Radio Procedures. Adhere to communications discipline at all times. All crewmembers will use proper International Civil Aviation Organization phraseology, phonetic alphabet, R/T procedures outlined in Allied Communications Publications (ACP) 121, *Communications Instructions – General*, and applicable supplements, AFTTP 3-3.IPE, and AFTTP 3-2.5, *Multi-Service Brevity Codes.* **(T-0)**.

5.22.2. Phone Patches. Units will establish phone patch procedures in their local chapter. **(T-3)**.

5.22.3. Callsigns. Always use the aircraft callsign when transmitting messages of flight safety, aircraft movement, and radio calls required by this manual. Mission crewmembers will use the mission crew callsign when communicating with the respective controlling or monitoring agency, aircraft under their control, or as briefed. **(T-3)**.

5.23. Off-Station Procedures. The MCC/SLIC will ensure external agencies are aware the E-3 has departed station and the assigned mission has been handed over. **(T-3)**. All crewmembers will complete post-mission reports as directed by local procedure. The MCC/SLIC AC will debrief the crew, appropriate command authorities, and unit agencies as required.

Chapter 6

FLIGHT PATH MANAGEMENT (FPM), OPERATIONAL RISK MANAGEMENT (ORM), CREW RESOURCE MANAGEMENT (CRM), THREAT AND ERROR MANAGEMENT (TEM)

6.1. Flight Path Management. The term "flight path" applies any time the aircraft is in motion, including taxiing the aircraft. Flight Path Management is the planning, execution, and assurance of the aircraft's guidance, trajectory, and energy state--in flight or on the ground. All flight deck aircrew members must ensure that effective Flight Path Management is a primary and shared responsibility during all phases of flight. Flight Path Management is comprised of 3 aspects (Planning, Executing and Monitoring):

6.1.1. Planning. Developing a thorough understanding of the aircraft's desired flight path. Planning is dynamic and includes changes driven by the mission, environmental considerations, and clearances from authorities, such as ATC. **Note:** For the purposes of this document, a clearance is the flight path of the aircraft, as normally defined by the assigned ATC clearance. Typically, two pilots must hear/read, understand, anticipate its impact, and comply with the clearance, unless otherwise deemed necessary for the safe conduct of the flight. Other flight deck members who have the training, ability and authority to do so should assist with clearance acceptance.

6.1.2. Executing. The process through which the aircrew controls the aircraft and achieves compliance with the desired flight path.

6.1.3. Monitoring. The process through which aircrew members monitor compliance with the desired (planned) flight path. Effectively monitoring the flight path is a critical Threat and Error Management (TEM) task that discovers and corrects Flight Path Management errors that might lead to flight path deviations or Undesired Aircraft States (UAS). As a primary and shared responsibility, monitoring is equally as important as controlling the aircraft. Monitoring requirements vary depending on phase of flight and on situations encountered within each phase of flight. Aircrews should anticipate flight situations or phases where they will be most vulnerable to flight path deviations (Areas of Vulnerability – AOVs) and strategically manage workload and distractions to maximize monitoring during these AOVs.

6.2. Operational Risk Management (ORM). ORM is a logic based, common sense approach to making calculated decisions on human, material, and environmental factors before, during, and after all operations. USAF policy on ORM is contained in AFI 90-802, *Risk Management*. PICs will accomplish ORM worksheets in accordance with MAJCOM and local guidance as part of preflight activities. **(T-2)**.

6.2.1. Flying units will develop a local ORM program to include personal ORM assessment for all missions and accomplished by all crew members at the beginning of each flight duty period. **(T-3)**.

6.3. Crew Resource Management/Threat and Error Management (CRM/TEM).

6.3.1. CRM is the effective use of all available resources, people, weapon systems, facilities, equipment, and environment by individuals or crews to safely and efficiently accomplish an assigned mission or task.

6.3.2. TEM is a structured, proactive, systems approach that is intuitively, logically, and flexibly designed. It builds on multiple layers of defenses to identify, prevent, and mitigate threats and/or trap or mitigate inevitable human errors to avoid UAS and potential mishaps. See AFI 11-290, *Cockpit/Crew Resource Management Program* or applicable MAJCOM Supplement for additional information.

6.3.3. “Time Out”. “Time Out" is the common assertive statement for use by all crew members. The use of "Time Out" is intended to:

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

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

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

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

6.3.3.5. Safety permitting, stabilize the aircraft. **(T-2)**.

6.3.3.6. The initiating crewmember will voice their concerns to the crew. **(T-2)**.

6.3.3.7. The PIC will provide all other crew members with the opportunity to voice inputs relative to the stated concerns. **(T-2)**.

6.3.3.8. After considering all inputs, the PIC will direct the aircrew to continue the current course of action or direct a new course of action. **(T-2)**.

6.4. Automation Management.

6.4.1. Aircraft automation systems are tools intended to enhance safety, maximize efficiency, improve operational capabilities, and reduce pilot workload. **Note**: Although automation can assist with seeing and avoiding conflicting traffic, at least one pilot should maintain visual outside awareness.

6.4.2. Flight Automation. Pilots should maintain proficiency in the use of all flight automation levels and the skills required to seamlessly shift between those levels. Available flight automation levels vary between aircraft and may include many combinations of flight director guidance and autopilot modes including partial automation. The level of flight automation used shall permit both pilots to maintain situational awareness and a comfortable distribution of workload. If the use of flight automation creates a loss of situational awareness or results in task saturation, the pilot should shift to a less demanding level or disconnect the automation entirely and re-establish the desired aircraft flight path. Pilots should choose an appropriate flight automation level consistent with changing flight environments and balanced with the requirement to maintain manual flying skills.

6.4.2.1. The Pilot Flying (PF) will determine, announce, and fly the aircraft using the appropriate level of flight automation in accordance with Standard Operating Procedures (SOPs), flight manual guidance, and applicable regulations. **(T-2)**. The PM will acknowledge the announcement. **(T-2)**.

6.4.3. Information Automation. Managing information is an important aspect of FPM. The quantity and type of information available to the aircrew has substantially changed and will continue to change. Information Automation (IA) is automation devoted to the management and presentation of relevant information to flight deck aircrew members. Examples of IA systems include the Electronic Flight Bag (EFB), Aircraft Communications Addressing and Reporting System (ACARS), moving map displays, performance management calculations, multi- function displays, data uplink, alerting systems including lights and audible and tactile alerts, and FMS display unit pages and scratch pads.

6.4.3.1. Aircrew members must be proficient in the use of automated systems and in accessing and interpreting automated information, determining its reliability, and understanding how to use the acquired information. These tasks must occur seamlessly throughout the flight to prevent distraction from primary flight path management tasks.

6.4.3.2. Head-Up/Head-Down Policy. Establish clear roles for computer-related tasks. One pilot should always remain "head-up." Announce “pilot head-down” or “copilot head-down" when the task requires prolonged attention within the flight deck. Other than momentary occasions, any crewmember who observes both pilots "heads-down" at the same time (other than instrument flying) shall announce the issue to the aircrew without delay. **(T-2)**.

6.4.4. Verbalize, Verify, and Monitor (VVM). VVM is a closed-loop system of communication designed to significantly reduce aircraft automation errors. Aircrews will utilize VVM practices unless safety of flight requires a temporary deviation from these requirements. VVM consists of a three-step process:

6.4.4.1. Verbalize. Prior to making changes to the selected/armed flight guidance (including altitude), the crewmember performing the action VERBALIZEs the intended change(s).

6.4.4.2. Verify. The appropriate crewmember(s) VERIFY the intended changes *prior* to execution. The crewmember(s) responds to the intended change(s) by verbally confirming the change or notifies the challenging crewmember of an issue and/or concern. When necessary, visual cues confirming intended change(s) are acceptable, but are not normally the primary method for confirmation. If visual cues are used, when time allows, ensure all appropriate flight deck crew members are aware of the executed action by verbally reviewing the executed action.

6.4.4.3. Monitor. Once the intended action(s) has/have been confirmed and "executed," crew members continually MONITOR the aircraft to ensure the expected performance is achieved by staying vigilant and situationally aware.

6.5. FPM Pilot Flying (PF) and Pilot Monitoring (PM) Duties. There must be a clear understanding of the PF and the PM duties at all times. The terms PF and PM are used to designate pilot roles and procedural duties when the aircraft is in motion or as designated by T.O. guidance. Controlling and monitoring the aircraft flight path is the highest priority of the PF and PM, regardless of automation level.

6.5.1. PF/PM roles may change throughout a flight. Transfer of PF and PM roles must be clear to all primary crew members. The transfer will be expressed using a three-part aircraft control transference statement and should be done positively with verbal assignment and verbal

acceptance to include a short brief of aircraft state, as necessary. Depending on the situation, it is suggested that the transference statement include airspeed, altitude, heading, and/or automation configuration. An example is as follows: Pilot: "Copilot's aircraft. We're level at flight level 310 at 275 knots and the autopilot is engaged in heading mode; heading 3-0-0." Copilot: "Understood. Copilot's aircraft." Pilot: "Copilot's aircraft."

6.5.2. Pilot Flying. The pilot at the flight controls who is in direct maneuvering control of the aircraft. The PF is primarily responsible to control and monitor the aircraft's flight path (including auto flight systems, if engaged). The PF is secondarily responsible to monitor non-flight path actions (e.g., radio communications, aircraft systems) but must never allow these activities to interfere with their primary responsibility. The PF should also recognize when the PM is not adequately monitoring the flight path and make the PM aware of this deviation. Assigning non-flight path- related tasks to the PF should generally be avoided. If the PF must engage in activities that distract from flight path control tasks, the PF should transfer aircraft control to the other pilot, and then assume the PM role.

6.5.3. Pilot Monitoring. In addition to Mission Design Series (MDS)-specific T.O. guidance, the PM is the pilot at the flight controls who is not in direct maneuvering control of the aircraft, yet is primarily responsible to actively monitor the aircraft's flight path, intervening if necessary within pre- established parameters. The PM supports the PF by accomplishing non-flight path actions (e.g., radio communications, aircraft systems) but should continue to monitor the flight path.

6.5.4. Pilot Monitoring (PM) Behaviors. An effective PM should:

6.5.4.1. Be knowledgeable of all policies and procedures related to monitoring the flight path (e.g., callouts).

6.5.4.2. Recognize when the PF is not adequately controlling the flight path. This includes pilot task loading and signs of diminished performance (e.g., lack of communication, channelized attention, and failure to make required callouts, etc.)

6.5.4.3. Be aware of applicable common errors regarding monitoring the flight path. This includes appropriate methods of recognizing precursors and signs of degraded monitoring and on resolving monitoring errors and/or lapses.

6.5.4.4. Be competent regarding the concept of Areas of Higher Vulnerability (AoHV.) If the PM recognizes the flight phases or situations when they are most vulnerable to flight path deviations (including when little time exists to correct deviations), then tasks can be planned strategically and workload managed to maximize flight path monitoring during those phases.

6.5.4.5. Be knowledgeable of CRM/TEM principles and human performance vulnerabilities related to monitoring, the importance of monitoring, and the approved practices that achieve effective monitoring of the flight path.

6.5.4.6. Be aware of system failures that may distract from effective monitoring and proper flight path management.

6.5.4.7. Be able to manage distractions that interfere with monitoring the flight path by managing task priorities and effectively switching between other tasks and monitoring of the flight path so that flight path vigilance is always maintained. The PM should be able

to apply task management strategies that enable pilots to use charts, EFB, ACARS, etc. While also effectively monitoring the flight path and airplane energy state.

6.5.4.8. Employ intervention methods that can be used to help the PF regain proper control of the flight path (e.g., calling out deviations, levels of assertiveness).

6.5.4.9. Have a working understanding of automated flight guidance and flight control systems. The PM should understand what happens 'next' given a certain set of flight circumstances, and the reasons why. The knowledge should incorporate FMS degradations, failures, and operational consequences requiring flight crew action, known flight guidance and flight control system-behavioral challenges and environmental/circumstantial traps (e.g., vectors off and on a STAR during a "descend via" clearance) that are known to lead to flight path-related errors.

6.5.5. Be able to sufficiently collaborate with the PF to transition seamlessly between combinations/levels of flight guidance or flight control automation (including manual flight) by anticipating, recognizing, and recovering from known flight guidance system-behavioral challenges (e.g., subtle mode reversions). **Note:** Flight guidance includes Flight Management System (FMS) and flight control (includes autopilot and autothrottles).

6.6. Advisory Calls.

6.6.1. The PF will announce intentions for departures, arrivals, approaches, and when circumstances require deviating from normal procedures. **(T-2)**. Should any crewmember be unsure of the PF's intentions, they will ask for clarification prior to accomplishment. **(T-2)**. Unless otherwise directed, all primary crew members (as applicable) will acknowledge mandatory calls. **(T-2)**.

6.6.2. The PM will make all normal advisory calls except those designated for other crew members by MDS-specific T.O. guidance and this instruction. **(T-2)**. **Exception:** Automated aircraft advisories satisfy this requirement if acknowledged by a primary crewmember, typically the PF (using the format below). Additionally, aircrew members (PM or otherwise) will advise the crew anytime the primary radio is changed. **(T-2)**. If aircraft specific Flight Manual callouts vary from the callouts listed in the tables below, the Flight Manual callouts take precedence (ex. Cat II/III callouts).

6.6.3. Advisory Calls: Refer to **Tables 6.1** through **Table 6.4** for a listing of mandatory advisory calls, responses, and aircrew actions.

Table 6.1. Climb Out Advisory Calls.

Climb Out	PM Call	PF Response
Transition Altitude	"Transition Altitude, 29.92, Set" (or 1013)	"29.92, Set" (or 1013)
1000' below assigned altitude	"(Altitude passing) climbing (Altitude Assigned)"	"Leveling at (Altitude Assigned)"

Note: Altitudes will be announced in the following format:
Below Transition Altitude: (12,500') "One Two Thousand Five Hundred"
Above Transition Altitude: (19,000') "Flight Level One Niner Zero"

Table 6.2. Descent Advisory Calls.

Descent	PM Call	PF Response
Transition Level	"Transition Level, (local altimeter), Set"	"(local altimeter), Set"
1000' above assigned altitude	"(Altitude passing) descending (Altitude Assigned)"	"Leveling at (Altitude Assigned)"
Note: Note: Altitudes will be announced in the following format: Below Transition Altitude: (12,500') "One Two Thousand, Five Hundred" Above Transition Altitude: (19,000') "Flight Level One Niner Zero"		

Table 6.3. Non-precision Approach Advisory Calls.

Non-precision Approaches (1)	PM Call	PF Response
100' above Final Approach Fix (FAF) Altitude	"100 above"	
1000' above touchdown	"1000, Stable (or deviation)"	"1000, stable (or deviation), cleared and configured" or "1000, stable (or deviation), configured, awaiting clearance"
100' above step down altitude	"100 above"	"100"
500' above touchdown	"500, Stable" or "Go-Around, unstable"	"500" or "Going Around"
100' above Minimum Descent Altitude (MDA)	"100 above"	"Continuing", "Landing", or "Going Around"
At MDA	"Minimums"	
Runway environment in sight: Called only if breaking out of weather inside the FAF.	"Runway in Sight"	"Continuing", "Landing", or "Going

Missed Approach Point (MAP)	"Missed Approach Point" **(2)**	"Landing" or "Going Around"

Notes:
1. Refer to stabilized approach guidance in **paragraph 6.8.1**. **Note:** Pilots should determine and reference height above touchdown for the approach to be flown using the most practical means available. Radar altimeter height provides a convenient reference but may not provide consistent stabilized approach callouts due to terrain along the approach. Touch Down Zone Elevation (TDZE) or Threshold Crossing Height (TCH/THRE/THR) provides accurate elevation but may not always be published for the desired runway.
2. If the pilot flying has stated "landing" then this call is not required.

Table 6.4. Precision Approach Advisory Calls.

Precision Approaches (1)	**PM Call**	**PF Response**
100' above glideslope intercept altitude	"100 above"	N/A
1000' above touchdown	"1000, Stable (or deviation)"	"1000, stable (or deviation), cleared and configured" or "1000, stable (or deviation), configured, awaiting clearance"
500' above touchdown	"500, Stable" or "Go- Around, unstable"	"500" or "Going Around"
100' above Decision Height (DH) / Decision Altitude (DA)	"100 above"	"100"
At DH/DA	"Minimums" **(4)**	**(2)**
Only Approach Lights in sight (CAT I ILS)	"Approach lights in sight"	"Continuing" **(3)**
Runway environment in sight: Called only if breaking out of weather inside the FAF.	"Runway in sight"	"Landing" or "Going Around"
Approach Lights and/or Runway environment not in sight	"Go-around"	"Going Around"
At 100' above TDZE (CAT I ILS)	"100 feet" (4)	"Landing" or "Going Around"

Notes:

1. Refer to stabilized approach guidance in **paragraph 6.8.1**. **Note:** Pilots should determine and reference height above touchdown for the approach to be flown using the most practical means available. Radar altimeter height provides a convenient reference but may not provide consistent stabilized approach callouts due to terrain along the approach. TDZE or TCH/THRE/THR provides accurate elevation but may not always be published for the desired runway.
2. The PF will announce his/her intentions to either land, continue (CAT I) or go-around. **(T-2)**. Respond with the intention to land if runway environment is in sight, will remain in sight throughout touchdown and the aircraft is in a position for a safe landing. **(T-2)**.
3. With weather at CAT I minimums on a CAT II ILS, the pilot may not see the runway environment at DA; however, the initial portion of the approach lights may be visible. The pilot may continue to 100' height above touchdown (HAT) with reference to the approach lights only. The pilot may not descend below 100 feet above touchdown zone elevation using the approach lights as reference unless the red terminating bars or the red side row bars are distinctly visible and identifiable and/or the runway environment is in sight. **(T-2)**.
4. If the pilot flying has stated "landing" then this call is not required.

6.6.4. Deviation Advisories. In accordance with sound CRM/TEM practices, aircrew members will inform the PF when flight path deviations exceed (or will exceed) tolerances and no attempt is being made to correct the deviation. Tolerances are defined by MDS specified SOPs. In absence of MDS SOPs, use the most restrictive of MDS specific V2 criteria, standards, or flight manual guidance. **(T-2)**. Any crewmember noticing a potential terrain and/or obstruction issue will immediately notify the PF. **(T-2)**. The PF will take immediate corrective action. **(T-2)**. This is especially important during critical phases of flight, nighttime, NVG ops, and/or instrument conditions.

6.6.4.1. Under normal flight conditions, deviations observed in excess of heading (+/- 5 degrees), airspeed (+10/-5 knots), or altitude (+/- 100 feet) will be announced by any aircrew member using clear and concise terminology (example: "XX knots fast). **(T-2)**. When conducting planned maneuvers with tolerances different than those listed above, comply with AFTTP 3-3 guidance for "Terminate criteria". **(T-2)**.

6.6.5. Emergency Advisories. Any crewmember detecting an existing or impending emergency condition will immediately inform the Aircraft Commander. The PF will take necessary action to establish and/or maintain control of the aircraft and call for the appropriate checklist. **(T-2)**.

6.7. Critical Action Coordination. During an emergency, as a general guideline the Aircraft Commander should attempt to assume control of the aircraft unless it has been determined that safety of flight would be compromised by assuming control (i.e., Aircraft Commander is not at the controls during the induction of the emergency). Those actions that are flight critical/irreversible in nature must always be confirmed by two crew members. **(T-2)**. These actions include, but are not limited to: placing the throttles to cut-off, pulling the engine fire handle, discharging agent, dumping fuel, and other actions determined to be critical in the aircraft flight manual. Critical Action Coordination is performed as follows:

6.7.1. Flight Deck crew members verbally and visually identify the affected control, (i.e., "CONFIRM NUMBER ONE"). The crewmember performing the action points to the affected control. The crewmember monitoring the action verbally and visually confirms the proper control is selected, (i.e., "NUMBER ONE CONFIRMED"). The crewmember performing the action then actuates the affected control. **Note**: During any emergency, the Aircraft Commander normally notifies the crew of the emergency, and the PM normally notifies all others concerned, such as ground control, tower, etc.

6.7.2. Rejected Takeoff Decision Making. The Rejected Takeoff (RTO)/Continue Takeoff decision making process is dynamic, time critical, and may be complex. Aircrew can mitigate takeoff hazards by building a shared mental model of the takeoff including Take-Off and Landing Data, aircraft systems, weight and balance, terrain, environmental conditions, high-speed vs. low-speed reject risks. The PIC is the final decision authority and should ensure a clear understanding of expected crew actions.

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

6.8.1. Stabilized Approach Criteria. The following stabilized approach criteria applies to all approaches and will be emphasized and briefed for every approach (Use an abbreviated briefing for multiple approaches conducted in the same terminal area):

6.8.1.1. Aircraft is in landing configuration. Final flap configuration may be delayed but will be briefed.

6.8.1.2. Airspeed is appropriate for the configuration and conditions.

6.8.1.3. Sink rate is no greater than 1000 fpm. **Note**: Under certain conditions (weather, terrain, etc.) some approaches may require greater than a 1000 fpm descent rate. This increased sink rate will be briefed. **(T-2)**.

6.8.1.4. All briefings and checklists are complete unless contrary to T.O. guidance.

6.8.1.5. Aircraft is on the correct track.

6.8.1.6. Aircraft is in the correct bank angle to maintain proper approach track for instrument, circling, or visual approach.

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

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

6.8.1.8.1. Airspeed: +10/-5 knots from target

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

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

6.8.2. Stabilized Approach Procedures. The following procedures apply to all approaches.

6.8.2.1. At 1000 feet HAT, the stable criteria in **paragraph 6.8.1** apply or as determined by specific MDS SOPs, standards, or T.O. guidance.

6.8.2.1.1. If these criteria are not met at 1000 feet HAT, the PM will announce the deviation and the PF will take immediate corrective action. **(T-2)**. PM will state "1000, XXXX," where "XXXX" equates to a concise description of the unstable characteristic(s) which clearly relay to the PF what actions are required to return the aircraft to a stable platform. Example: "1000, 15 fast." **(T-2)**.

6.8.2.1.2. If criteria are met, PM will state "1000, stable."

6.8.2.2. Between 1000 feet and 500 feet HAT:

6.8.2.2.1. Parameters are the same as those in **paragraph 6.8.1**.

6.8.2.2.2. If these criteria are not maintained, the PM will announce the deviation using the "XXXX" Format (Example: "15 fast") and the PF will take immediate corrective action. **(T-2)**.

6.8.2.3. At 500 feet HAT:

6.8.2.3.1. Parameters are the same as those in **paragraph 6.8.1** If accomplishing a VFR or circling approach, aircraft must meet all parameters in **paragraph 6.8.1** and also be in a safe position to land.

6.8.2.3.2. If criteria are met, PM will state "500, stable."

6.8.2.3.3. If unstable or not in final flap configuration at 500 feet HAT, the PM will call "Go around" and the PF will execute a go-around.

6.8.2.4. From 500 feet HAT to the runway, if these parameters are exceeded the PM or any other crewmember will announce "Go around" and the PF will execute a go-around.

6.8.3. Descent Planning and Energy Management. Awareness of maneuver entry parameters and energy management is crucial to meeting the stabilized approach criteria on every approach. Aircrews will ensure the aircraft is following the planned descent profile. All non-tactical descents should follow a normal descent profile in accordance with AFMAN 11-202V3 procedures and techniques in the absence of ATC or FLIP guidance. All tactical descents should follow published tactical procedures/profiles. When unforeseen interruptions alter the planned descent, immediately correct any deviations. It may be necessary to hold, request vectors, or take alternate actions in order to comply with the planned descent profile.

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

6.8.5. Missed Approach/Go-Around. Aircrews will conduct a thorough briefing for anticipated missed approach/go-around scenarios. This briefing will include a discussion of specific crewmember duties. **Note:** Execute missed approach/go-around in accordance with the Flight Manual and AFMAN 11-202V3 procedures.

6.8.6. Aviation Safety Action Program (ASAP). ASAP is an identity-protected, self-reporting system that is integral to reducing mishaps and improving operations and training. ASAP is

designed for Airmen to report information and concepts critical to resolving mishap precursors and to share this information across AF aviation communities. The information is used to reduce mishaps through operational, logistic, maintenance, training, and procedural enhancements.

6.8.7. Data generated from the ASAP process is not used for monitoring personnel performance or to initiate punitive or adverse action. Violations of the UCMJ or criminal statute should not be reported via ASAP. Aircrews reporting incidents involving personal injury and/or aircraft damage should contact unit or local safety offices for appropriate guidance. The ASAP Report Submission, Fatigue Submission, and ASAP Scoreboard websites are accessible at **www.safety-masap.com** or **https://afsas.safety.af.mil/**.

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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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Abbreviations and Acronyms

AAR—Air-to-Air Refueling

ABM—Air Battle Manager

ABM-Q—Air Battle Manager-Qualified

AC—Aircraft Commander

ACAS—Airborne Collision Avoidance System

ACARS—Aircraft Communications Addressing and Reporting System

ACC—Air Combat Command

ACE—Airborne Command Element

ACG—Air Control Group

ACP—Allied Communications Publications

ACW/XR—Air Control Wing Requirements

AFA—Air Force Academy

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFRC—Air Force Reserve Command

AFROTC—Air Force Reserve Officer Training Corps

AFTO—Air Force Technical Order

AGL—Above Ground Level

AHRS—Altitude and Heading Reference System

AoHV—Areas of Higher Vulnerability

AOR—Area of Responsibility

AOV—Areas of Vulnerability

ARCP—AAR Control Point

ARCT—AAR Control Time

ARIP—AAR Initial Point

ARMS—Aviation Resource Management System

ART—Airborne Radar Technician

ARU—Airborne Radar Unit

ASAP—Aviation Safety Action Program

ASO—Air Surveillance Officer (a qualification)

AST—Air Surveillance Technician

ATC—Air Traffic Control

ATM—Air Traffic Management

ATO—Air Tasking Order

AWACS—Airborne Warning and Control System

AWO—Air Weapons Officer

A3—Director of Operations

A3T—Flight Operations

BDOC—Base Defense Operations Center

BMA—Battle Management Area

BRNAV—Basic Area Navigation

BTH—Beyond the Horizon

CAP—Combat Air Patrol

CC—Commander

CCD—Crew Coordination Drill

CDMT—Computer Display Maintenance Technician

CDU—Control Display Units

CFG—Communications Functional Group

CG—Center of Gravity

CNS—Communications, Navigation, and Surveillance

CONUS—Continental United States

CP—Copilot

CRM/TEM—Crew Resource Management/Threat and Error Management

CSG—Computer Support Group

CSO—Communications Systems Operator

CT—Communications Technician

CVR—Cockpit Voice Recorder

C2—Command and Control

DA—Decision Altitude

DAFI—Department of the Air Force Instruction

DAFPD—Department of the Air Force Policy Directive

DCN—Datalink Coordination Net

DETCO—Detachment Commander

DMA—DRAGON Modified Aircraft

DND—Department of National Defense

DO—Director of Operations

DoDI—Department of Defense Instruction

DPDG—Data Processing and Data Display Group

DRAGON—Diminishing Manufacturing Sources Replacement of Avionics for Global Operations and Navigation

DRU—Direct Reporting Unit

DV—Distinguished Visitor

EA—Electronic Attack

EAM—Emergency Action Messages

EC—Electronic Combat

ECO—Electronic Combat Officer

EFB—Electronic Flight Bag

EGI—Embedded GPS INU

EGPWS—Enhanced Ground Proximity Warning System

EMCON—Emissions Control

EOB—Electronic Order of Battle

EP—Electronic Protection

EPR—Exhaust Pressure Ratio

ES—Electronic Support

ESM—Electronic Support Measures

ESMG—Electronic Support Measures Group

ETA—Estimated Time of Arrival

ETP—Equal Time Point

EW—Electronic Warfare

FAA—Federal Aviation Administration

FAF—Final Approach Fix

FCT—Flight Crew Training

FDAP—Flight Deck Audio Panel

FDP—Flight Duty Period

FE—Flight Engineer

FIR—Flight Information Region

FIT—Fault Isolation Test

FL—Flight Level

FLIP—Flight Information Publications

FOA—Field Operating Agency

FP—First Pilot

FPS—Flight Planning Software

FPM—Feet per Minute

GINS—Global Positioning System Integrated Navigation System

GNE—Gross Navigational Errors

GP—General Planning (reference FLIP GP)

GPS—Global Positioning System

GP/CC—Group Commander

HAT—Height Above Touchdown

IA—Information Automation

ICAO—International Civil Aviation Organization

ICN—Interface Control Network

ICS—Iridium ™ Communications System

ID—Identification

IERS—Initial Exchange Requirements

IFF—Identification, Friend or Foe

IFR—Instrument Flight Rules

IMC—Instrument Meteorological Conditions

IMFD—Integrated Multi-Function Display

INS—Inertial Navigation System

INU—Inertial Navigation Unit

IP—Instructor Pilot (an "I" prefix designates an instructor in that crew position, e.g., IMCC)

IPEC—Internet Protocol Enabled Communications

JCS—Joint Chiefs of Staff

JFACC—Joint Force Air Component Commander

JICC—Joint Information Coordination Center

JICO—Joint Interface Control Officer

JRA—Jeppesen™ Runway Analysis

JSIR—Joint Spectrum Interference Report

JSTARS—Joint Surveillance Target Attack Radar System

JTAO—Joint Tactical Air Operations

JTIDS—Joint Tactical Information Distribution System

LAT—Latitude

LOA—Letter of Agreement

LONG—Longitude

MAC—Mean Aerodynamic Chord

MAJCOM—Major Command

MAP—Missed Approach Point

MC—Mission Commander

MCC—Mission Crew Commander

MCS—Mission Computing System

MCT—Mission Crew Training

MDA—Minimum Descent Altitude

MDS—Mission Design Series

MEP—Mission Essential Personnel

MEL—Minimum Equipment List

MET—Mission End Time (AFRC only)

MPC—Mission Planning Cell

MPT—Mission Planning Team

MRU—Military Radar Unit

MSL—Mean Sea Level

MSO—Mission System Operator

MTO—Mission Type Orders

NAT MNPS—North Atlantic Minimum Navigational Performance Specification

Nav—Navigator

NCCM—NORAD Certified Crewmember

NECOS—Net Control Station

NKO—Non-Kinetic Operations

NM—Nautical Mile

NORAD—North American Aerospace Defense Command

NORTHCOM—Northern Command

NOTAMs—Notices to Airmen

OBS—On-Board Spare

OG—Operations Group

ONC—Operational Navigation Chart

OPCON—Operational Control

OPLAN—Operations Plan

OPORD—Operations Order

OPR—Office of Primary Responsibility

OPTASKLINK—Operational Tasking Data Link

ORM—Operational Risk Management

OSOE—Operations Group Exercises (OSOE)

OWS—Operator Work Station

PA—Public Address

PACAF—Pacific Air Forces

PDS—Passive Detection System

PF—Pilot Flying

PIC—Pilot in Command

PM—Pilot Monitoring

PR—Personnel Recovery

PSO—Passive Sensor Operator

QC—Quality Control

QRM—Quick Reaction Message

RAIM—Receiver Autonomous Integrity Monitoring

RCR—Runway Condition Reading

RDS—Records Disposition System

RICC—Regional Interface Control Cell

RICO—Regional Interface Control Officer

RNAV—Random Area Navigation

RNP—Required Navigation Performance

ROE—Rules of Engagement

RP-1—Readiness Posture One

RP-3—Readiness Posture Three

RP-15—Readiness Posture Fifteen

RSC—Runway Surface Condition

RSP—Readiness Spares Package

RTO—Rejected Takeoff

RVSM—Reduced Vertical Separation Minimums

R/T—Receive/Transmit

SARM—Squadron Aviation Resource Management

SD—Senior Director

SDP—Special Departure Procedure

SEAD—Suppression of Enemy Air Defenses

SIA—Signals Intelligence Identification Authority

SICO—Sector Interface Control Officer

SIF—Selective Identification Feature

SIM—Simulation

SL—Section Lead

SLIC—Section Lead in Command

SM—Statute Mile

SOP—Standard Operating Procedures

SORN—System of Records Notice

SPINS—Special Instructions

SQ/CC—Squadron Commander

SRT—Scheduled Return Time (AFRC only)

SST—Senior Surveillance Technician

ST—Systems Technician

STAR—Standard Terminal Arrival Route

SUA—Special Use Airspace

TAB—Tabular Report

TACON—Tactical Control

TACOPDAT—Tactical Operational Data

TACS—Theater Air Control System

TC—Transport Canada

TCAS—Traffic Collision Avoidance System

TCH/THRE/THR—Threshold Crossing Height

TDL—Tactical Data Link

TDZE—Touch Down Zone Elevation

TOLD—Takeoff/Landing Data

TRT—Takeoff Rated Thrust

UAS—Undesired Aircraft States

UHF—Ultra-High Frequency

VDP—Visual Descent Point

VHF—Very High Frequency

VIP—Very Important Person

VMC—Visual Meteorological Conditions

VVM—Verbalize, Verify, and Monitor

WG—Wing

Terms

Air Battle Manager—Generic term to refer to any aircrew with the AFSC 13B.

Air Battle Manager (Qualified) (ABM-Q)—An aircrew member that has graduated from formal training of the approved 'Air Battle Manager' syllabus for the E-3G.

Aircrew—Use this term to describe the complete complement of personnel required to fly an operational mission. It composes both the flight crew and the mission crew.

Active Sensor Operator—the member of the Battle Management Team that is operating the radar and IFF settings, executing ID processes, and managing datalink employment. Could be an ABM-Q, Air Surveillance Officer, or another crewmember that is qualified in the applicable areas from AFMAN 11-2E-3V2. *E-3 Aircrew Evaluation Criteria.*

Battle Management Team—Subset of the mission crew responsible for conducting the BMC2 mission of the E-3 including battlespace awareness, battle management, and decision superiority. It consists of the Mission commander (MC), Mission Crew Commander (MCC)/Section Lead in Command (SLIC), Senior Director (SD), Air Weapons Officer (AWO), Air Surveillance Officer (ASO), Active Sensor Operator, Passive Sensor Operator (PSO)/Electronic Combat Officer (ECO), Air Battle Manager-Qualified (ABM-Q), Senior Surveillance Technician (SST), Air Surveillance Technician (AST), and Mission System Operator (MSO). The composition of this team varies based on the mission.

Critical Phases of Flight—Critical phases of flight are takeoff, AAR, flight below 5,000 feet above ground level (AGL), approach, landing, and any other maneuver listed in this manual requiring IP/Flight Examiner supervision.

Flight Crew—The flight crew is responsible for the safe ground and flight operations of the E-3 aircraft. It consists of an AC, FP or CP, Nav, and FE. For purposes of this manual, Flight Crew Training (FCT) personnel are considered flight crewmembers; however, contractor personnel will not occupy primary E-3 crew positions during critical phases of flight.

Group Commander—For sorties under AFRC OPCON, the 970th Airborne Air Control Squadron Operations and Training (O and T) officer (or designated representative) acts as the applicable group commander.

Instructor/Flight Examiner Supervision—Instructor/Flight Examiner supervision requires an instructor/Flight Examiner who is qualified and current in the position and the maneuver that will be performed. Individuals not qualified or current in the aircraft, require instructor/Flight Examiner supervision for the activity in which they are unqualified or noncurrent. For unqualified or noncurrent Pilots, IP/Flight Examiner supervision requires the IP/Flight Examiner to be in one

of the Pilots' seats with immediate access to the controls while the maneuver is being performed. For all other crewmembers, instructor/Flight Examiner supervision requires over-the-shoulder observation of the unqualified/non-current crewmember. During critical phases of flight, flight crew instructors/Flight Examiners are allowed to stand, all others will be at the discretion of the PIC.

Mission Crew—The mission crew consists of those individuals responsible for the command, control, surveillance, communications/electronic, and management functions, to include the control and monitoring of assigned aircraft, sensor management, internal and external communications management for mission operations, and onboard systems maintenance. It consists of the Battle Management Team and the Technicians.

Mission End Time (MET)—(AFRC only) The scheduled day and time a flight crew is planned to return to home station from an exercise or deployment. The MET will be published in the monthly Operations Plan, rotation schedule, flying schedule, and/or OPORD, as necessary. The MET is the baseline for computing Scheduled Return Time.

NORAD Battle Staff—The battle staff assists the crew performing aerial operations within the NORAD AOR. The battle staff is responsible for managing the air battle and carrying out the required command and control functions. It has the responsibility and authority, as directed by the appropriate commander, to ensure the most effective use of assigned resources to accomplish the mission. The NORAD Certified Crewmember (NCCM) is an ACC/PACAF E-3 crewmember specifically trained to support the NORAD mission. Supported commanders may also provide a NORAD Airborne Battle Commander (NABC) and NORAD Weapons Resource Officer (NWRO). PACAF/AFRC E-3 crewmembers will be trained and certified by local procedures using a command-approved syllabus.

Passive Sensor Operator—Member of the Battle Management Team that operates the Passive Detection System. Can be an ECO that provides full ES integration capability or another crewmember that is qualified to operate PDS in a limited capacity.

Section Lead (SL)—A generic term to refer to the leader of a section of the Battle Management Team broken down by BMA or function; could be an MCC/SD/ASO/ECO or ABM-Q.

Squadron Aviation Resource Management (SARM)—The office responsible for, but not limited to publishing flight crew orders, flight and mission crew kits, and tracking the squadron's aircraft locations.

Scheduled Return Time (SRT)—(AFRC only) A force management tool used by the on-scene commander to assure return of the Reserve associate personnel to home station before the expiration of their active duty orders. The SRT is calculated MET plus 24 hours.

Technicians—Those crewmembers responsible for operation of special mission equipment on board the E-3 during flight. Includes Computer Display Maintenance Technician (CDMT)/Systems Technician (ST), Airborne Radar Technician (ART), Communications Systems Operator (CSO), and the Communications Technician (CT).

Transition—Practice multiple takeoffs, simulated emergency patterns, low approaches and touch and go landings. Transition timing begins when the aircraft crosses the threshold on the first approach.

Weapons Controller—a member of the Battle Management Team that is qualified in the applicable areas to control aircraft.

Wing Commander—For sorties under AFRC OPCON the 513th ACG Commander (or designated representative) acts as the WG/CC.

Attachment 2

E-3 BAGGAGE AND EQUIPMENT LOADING

A2.1. Flight Engineer Responsibilities:

A2.1.1. Verify an AFTO Form 781A entry was made when On-Board Spare (OBS) kits are loaded.

A2.1.2. Ensure the removal of the forward two metal boxes of the OBS kits after arrival at a TDY location, if the stay will be longer than 3 days.

A2.1.3. Ensure only enough cleaning supplies are stored in the galley compartment to clean the area for one mission. Store the remaining cleaning supplies and all onboard bench stock in the dedicated crew chief box in the aft lower lobe.

A2.2. Loading Procedures. The following loading procedures apply to all E-3 operations. For more specific guidelines, refer to the following T.O.s: 1E-3A-1, 1E-3A-5-1, 1E-3A-5-2, and 1E-3A-2-7.

A2.2.1. OBS Kits. An OBS kit consists of as many as five metal boxes and one fiberglass box containing an inertial navigation unit (INU). If maintenance requires OBS kits, install the five metal boxes in the forward lower lobe using the rail system described in T.O. 1E-3A-2-7. Any other method of securing the metal boxes in the forward lower lobe is not acceptable. Secure the INU in the "J" compartment with cargo straps. Weight of OBS kits vary. The actual weight is annotated on each box. The crew chief will be responsible for recording the weights of each box and its location with an AFTO Form 781A entry. **(T-3)**. For mission planning purposes, use the standard weight of 650 pounds in the forward lower lobe and 127 pounds in "J" compartment. Make adjustments on DD Form 365-4, *Weight and Balance Clearance Form F – Transport*, as necessary. After arrival at a TDY location, if the stay will be longer than 3 days, remove at least the forward two metal OBS kit boxes from the aircraft to allow for better access to the area for firefighting, etc., if the location has a means of securing the kits.

A2.2.2. Technical Orders. Carry one case of T.O.s when an OBS kit is loaded. Store in the "J" compartment and secure with cargo straps.

A2.2.3. Tool Box:

A2.2.3.1. Secure the in-flight toolbox carried by the CT in the "J" compartment with cargo straps.

A2.2.3.2. When a crew chief toolbox is required; secure it at the tie down point in the aft lower lobe or in "J" compartment with cargo straps.

A2.2.4. Crew Baggage. In order to facilitate loading, crewmembers and PAX will maximize the use of soft luggage (e.g., issued B-4, A-3, and hang-up bags) for exercises and deployments. Crewmembers should be aware that proper aircraft/loading requires strapping the load down tightly in order to prevent load shifting. Crewmembers are normally allowed a baggage limit of 25 pounds on short term TDYs (7 days or less) and 55 pounds on longer deployments. However, if on mission planning day, weight appears to be critical, the AC and FE will determine the maximum allowable baggage weight and inform crewmembers and passengers of how much they will be allowed to carry. Baggage will be secured at a height no higher than

40 inches in “J” compartment. Small, carry-on type baggage may be stacked higher that 40 inches provided they are secured at or below 40 inches.

A2.2.5. Jackets and Garment Bags. Jackets and lightweight garment bags may be stored on the clothing rack next to the lavatory.

A2.2.6. SF6. Up to four additional SF6 bottles, empty or full, may be stored in the aft lower lobe. Bottles will be secured in the SF6 storage racks, if the aircraft is modified. If not modified, use cargo straps, and up to four small bottles can be stored.

A2.2.7. RMA Kits. Store RMA kits in the area under the DDI at seat 8 (E-3B/C) or in the luggage area or “J” compartment (E-3G).

A2.2.8. Additional Baggage/Equipment. “J” compartment loading will be accomplished in accordance with T.O. 1E-3A-5-2.

A2.2.9. General:

A2.2.9.1. Mission crewmembers should store professional gear (4, pubs/helmet bag) either in “J” compartment or at their individual consoles in a manner that will minimize movement of gear.

A2.2.9.2. Compartment weight limitations will be in accordance with T.O. 1E-3A-1.

A2.2.9.3. Crew bunks will only be used for storing pillows and blankets, which will be secured by seatbelts. Nothing will be stored beneath the bunks. Floor rings used to secure bunks to the floor will not be used for luggage/equipment tie down.

Attachment 3

E-3 PASSENGER BRIEFING GUIDE

A3.1. Required Briefing Items. The following items are required briefing items unless individuals have been previously briefed during the pre-mission briefing:

A3.1.1. AC/MCC/SLIC names.

A3.1.2. ETA to destination.

A3.1.3. Cruise altitudes.

A3.1.4. Weather enroute and at destination.

A3.1.5. Passenger on-/off-load procedures.

A3.2. Emergency Signals:

A3.2.1. Ground Evacuation:

A3.2.1.1. Signal for evacuation.

A3.2.1.2. Primary/secondary exits.

A3.2.1.3. Escape slides.

A3.2.1.4. Assembly area.

A3.2.2. Crash Landing/Ditching:

A3.2.2.1. Signal for preparation.

A3.2.2.2. Signal to brace for impact.

A3.2.2.3. Brace position.

A3.2.3. Loss of Pressure:

A3.2.3.1. Signal.

A3.2.3.2. Oxygen requirements.

A3.3. Oxygen/Survival Equipment:

A3.3.1. How to check/use assigned oxygen source.

A3.3.2. LPU fitting and use (if applicable).

A3.3.3. Survival suit use (if applicable).

A3.4. Restrictions:

A3.4.1. Reading lights.

A3.4.2. Lavatory.

A3.4.3. Seat belts.

A3.4.4. Bunks.

A3.4.5. Smoking, smokeless tobacco, and electronic cigarettes, are prohibited.

A3.4.6. Operation of electric/electronic devices (except non-smart watches, hand held non-print calculators, hearing aids, medically prescribed physiological instrumentation and portable voice recorders when approved by MAJCOM) will be in accordance with AFMAN 11-202V3. Electronic flash attachments will not be used.

A3.4.7. Transportation or use of narcotics, marijuana, or other dangerous drugs is prohibited unless approved by proper medical/legal authority.

A3.4.8. Explosive, flammable, and corrosive materials, or materials with toxic or irritating fumes are prohibited unless approved by competent authority.

A3.4.9. Alcohol consumption is prohibited.

A3.5. Galley Area:

A3.5.1. Restrictions during refueling.

A3.5.2. Oven use.

A3.5.3. Coffee.

A3.5.4. Water.

A3.5.5. Flight lunches.

A3.5.6. Noise.

A3.6. Miscellaneous:

A3.6.1. Follow E-3 crewmember instructions at all times.

A3.6.2. If passengers are onboard during the crew coordination drill, they will be briefed but will not participate.