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AIR FORCE MANUAL 11-2E-3G, VOLUME 3

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Flying Operations

E-3G OPERATIONS PROCEDURES

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This manual implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations* and Air Force Manual (AFMAN) 11-202 Volume 3, *Flight Operations*. It establishes effective and safe operations of the E-3G 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-3G aircraft. It does not apply to the Air National Guard or the United States Space Force. The applicable SORN F011 AF XO A, Aviation Resource Management System (ARMS) membership programs is available at **http://dpclo.defense.gov/Privacy/SORNs.aspx** Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with (IAW) 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 Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field, through the appropriate Major Command (MAJCOM) channels to Air Combat Command/Airborne Command and Control 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/Flight Directives (AFFSA/XOF), through ACC/A3CA, for approval prior to publication IAW 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. 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 Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures* for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor's commander for non-tiered compliance items. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Department of the Air Force. Compliance with the attachments in this publication is mandatory.

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. **(T-2)**

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. **(T-1)**

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 DAFMAN 90-161 and AFMAN 11-202 Volume 3, *Flight Operations*. Forward waiver requests through appropriate channels to the MAJCOM/Director of Operations (A3) for approval. All approvals will include an expiration date. **(T-2)** Air Combat Command Standardization and Evaluations Branch (ACC/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. Definitions are expanded to allow tailored crew complements.

1.5.1. Air Battle Manager (ABM) refers to aircrew members that have completed the Air Battle Manager syllabus and hold a qualification as an “ABM”.

1.5.1.1. The term Section Lead (SL) refers an ABM that holds the SL certification.

1.5.1.2. The term Active Sensor Operator (ASO) refers to an ABM who is responsible for sensor operations. This crew position can be held by an ABM after "ASO certification”.

1.5.1.3. The term Passive Sensor Operator (PSO) refers to an ABM whose responsibilities include the configuration and optimization of the passive sensor.

1.5.2. Because of changes regarding multiple qualifications, the term Weapons Controllers can refer to anyone being evaluated to applicable areas to control aircraft.

1.5.2.1. The term Mission System Operator (MSO) refers to aircrew that have completed the “Mission System Operator” syllabus and hold a qualification as an MSO.

1.5.2.2. The term Datalink Operator (DLO) refers to an MSO or ABM that hold a datalink certification.

1.5.3. The following technician crew positions and associated acronyms have been added.

1.5.3.1. Airborne Radio Operator (ARO) refers to a technician that has completed technician conversion or initial qualification training and is qualified on all associated communications systems and the Link 11 datalink.

1.5.3.2. Airborne Data Systems Technician (ADST) refers to a technician that has completed technician conversion or initial qualification training and is qualified on all associated mission computing systems, passive detection system (PDS), and the Link 16 datalink.

1.6. Distribution. Issue this manual to E-3 aircrew members IAW local procedures.

Chapter 2

MISSION PLANNING

2.1. Responsibilities. The Aircraft Commander (AC) is responsible for mission planning. The 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 Air Force (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. **(T-3)** Excessive ramp and recovery fuel adds to aircraft gross weight, which increases fuel consumption. 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. **(T-3)** In-flight procedures such as climb/descent profiles and power settings should also be considered for efficient fuel usage. 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 Auxiliary Power Unit (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:

2.4.1.1. Special Use Airspace (SUA) within the altitude structure and within 50 Nautical miles (NM) of the route of flight/orbit airspace per the Air Force Pamphlet (AFPAM) 11-216, *Air Navigation*. **(T-3)** [With-DMA] Display SUA overlay on the Integrated Multi-Function Display (IMFD) when applicable. **(T-3)** 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. **(T-3)** [With-DMA] Display

orbit Letter of Agreement (LOA) boundaries and air refueling information on the IMFD. **(T-3)**

2.4.1.3. Emergency airfields sufficient to cover the route of flight. [With-DMA, Display airfield overlay on IMFD as needed]. **(T-3)**

2.4.1.4. High terrain within 50 NM of the route of flight. **(T-3)** [With-DMA, not applicable (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.] **(T-3)**

2.4.1.6. Equal Time Point (ETP) and Flight Information Region (FIR) boundaries as required. [With-DMA, Display on IMFD.] **(T-3)**

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

2.4.2.1. Planned departure/arrival procedure and Special Departure Procedures (SDPs). [With-DMA, SPD will be displayed as secondary flight plan overlay]. **(T-3)**

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 AC/SLIC or local procedures dictate otherwise. **(T-3)**

2.5.1.2. The AC/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/SLIC to brief as "non-standard". **(T-3)**

2.5.2. Passengers. The AC will assign a crewmember to be responsible for passengers and/or Distinguished Visitors (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 Air Force 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 latitude (LAT)/longitude (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 SLIC to determine optimum orbit configuration based on tasking and orbit limitations. **(T-3)**

2.5.7. Mission Crew Planning. The SLIC will ensure mission activities are planned according to applicable procedures, assess the impact of equipment limitations, adjust taskings as necessary, and assign crew members to develop an employment plan. **(T-3)** The 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)**

Chapter 3

AIRCREW OPERATING PROCEDURES

3.1. Pilot in Command (PIC) Responsibilities. Squadron Commander (SQ/CC), Detachment Commander (DETCO), or designated representative must designate an AC, Instructor Pilot (IP), or Evaluator Pilot as the PIC for all flights on a flight authorization form IAW DAFMAN 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 IAW AFMAN 11-202 Volume 3 and applicable MAJCOM supplements. PIC responsibilities and/or authorities 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 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 IAW AFI 65-503, *US Air Force Cost and Planning Factors*. Mission crew manning may vary by the type of mission flown. Squadron Directors of Operations (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 North American Aerospace Defense Command (NORAD) personnel, if required.

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

3.2.3. Minimum mission crew manning to power up the mission systems includes SLIC, ASO (see **paragraph 5.7**), Airborne Radar Technician (ART), ADST and an ARO. **(T-3)** Battle Management Team (BMT) manning may vary by the type of mission flown.

3.2.3.1. The SLIC and ASO can be the same crewmember.

3.2.3.2. An ASO is only required when the active sensors will be operated.

3.2.4. Minimum mission crew manning for control of aircraft (in addition to the minimum power-up crew) will include at least one qualified weapons controller supervised by a SL or SLIC current for control. **(T-3)**

3.2.5. Unless waived by the SQ CC/DO, inexperienced ADSTs will fly with an experienced ADST, inexperienced ARTs will fly with an experienced ART, and inexperienced FEs will fly with an experienced FE. **(T-3)**

3.2.6. 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. **(T-3)** 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 consists 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, *Flight Operations,* 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 (engine shutdown) 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 Air Force 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 513d Air Control Group Commander (513 ACG/CC) and 552d Operations Group Commander (552 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 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 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 IAW 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 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, PACAF Flight Operations (PACAF/A3T), and Air Force Reserve Command Combat Division (AFRC/A3D). **(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 responsible 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 starting engines, when appropriate. (AC/Copilot (CP))

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

3.6.1.7. Revised ETA (if changed by more than 15 minutes) when in Ultra High Frequency (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 ARO prior to landing. **(T-3)** Use the Aircraft Landing Status and System Capability Codes as defined in DAFI 21-101, *Aircraft and Equipment Maintenance Management*, and applicable MAJCOM supplements.

3.7. Air Battle Manager (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 as appropriate for emissions control (EMCON) procedures being utilized IAW Allied Technical Publication (ATP)-3.3.4.2., *Air-to-Air Refueling,* ATP-56 Edition C Version 1. **(T-3)**

3.7.2. Procedures. The ABM will execute the pre-planned type of rendezvous as coordinated with the AC, SLIC, NAV, and tanker. **(T-3)** The ABM will pass bearing, range, and offset of the tanker as prebriefed/required. **(T-3)** Flight crew will advise the 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 level 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 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. **(T-3)**

3.10. Aircraft Location Monitoring. Flight and mission crew share responsibility of aircraft location monitoring relative to a preplanned flight path. The 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 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 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 or Electronic Flight Bag (EFB) to display prohibited areas within 25 NM of current position.

3.10.4. The AC and 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 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 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 crew to take immediate action to reposition the aircraft in order to avoid the prohibited/threat areas.

3.11. Airborne Warning and Control System (AWACS) Monitor. The 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 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 or ABM-Directed AAR 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 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 11-202 Volume 3 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, ADST, ARO, and any crewmember making an entry in the AFTO Form 781A will attend. **(T-3)** SLs and/or 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/SLIC will ensure that a mission debrief is accomplished. **(T-3)** Aircrew should use locally developed debriefing guides (developed IAW AFMAN 11-202 Volume 3 and AFTTP 3-3.IPE, *Integrated Planning and Employment*) 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*, DAFI 36-3802, *Force Support Readiness Programs*, AFMAN 11-202V3, AFI 48-127, *Occupational Noise and Hearing Conservation Program*, DAFMAN 91-203, *Air Force Occupational Safety, Fire, and Health Standards*. **(T-1)** PIC 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://usaf.dps.mil/sites/21562/AFE/Safe%20to%20Fly/Forms/AllItems.aspx**

3.14.2. Keep equipment clear of all entry doors, hatches and all emergency equipment during all ground and flight operations. The FE, ARO, 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 IAW DAFI 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 SLIC, or AC if a 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. Store "COMSEC" in the Command Post during stops at locations where no US security personnel are available. The SLIC/AC will designate crewmember(s) to remain with the aircraft if a Command Post is unavailable in order to provide security for software and "COMSEC". **(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 and technicians on board, flight crews will not exceed 4+00 hours total transition time. (**T-3)** However, flight crews will not conduct more than 1+30 hours of consecutive transition without SQ/DO approval.

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 of each flight deck crewmember. Transition may be accomplished with 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 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 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 DAFI 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 cell phones, or appropriate chat interface device, for notification. **(T-3)** Crew rest begins at notification.

3.23. Maximum Flight Duty Period (FDP) for Readiness Posture one (RP-1), Readiness Posture three (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 Air Force Handbook (AFH) 11-203 Volume 1, *Weather for Aircrews* and AFH 11-203Volume 2, *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. **(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. Freezing/frozen precipitation (freezing rain, drizzle, snow, fog, or temperatures near 0°C, etc.) may cause ice or frost to accumulate on aircraft surfaces. Crews will be familiar with and follow all procedures and restrictions in Technical Order (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 IAW 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 will 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 no sooner than 5 minutes prior to 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-3)**

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. **(T-3)**

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 IAW 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 ± 8°C 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 requirements and/or forecast surface winds (intermittent or prevailing) exceed appropriate runway condition reading (RCR) limits IAW this manual, AFMAN 11-202V3, and aircraft T.O.s.

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, IAW T.O. 1E-3A-1-1.

4.2.2. Rolling Takeoffs. Rolling takeoffs are authorized IAW 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) should 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 IAW 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 takeoff 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. **(T-3)** If RCR falls between the RCR values, use the lower RCR restrictions. **(T-2)** Operation at higher crosswind values requires specific approval by applicable GP/CC.

4.2.5.2. CPs are limited to a maximum takeoff/landing component of 15 knots unless under IP/Flight Examiner supervision. **(T-3)**

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 operational considerations dictate.

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.

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

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

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

4.2.8.2. Full stop landings with less than 40 degrees of flaps are not permitted. **(T-3)**

4.2.8.3. 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. **(T-3)**

4.2.8.4. Make no more than one full stop in a 30-minute period. **(T-3)**

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 foot 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)** IPs may takeoff or land in either seat under the conditions above; however, a CP will not occupy the left seat. **(T-2)**

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

4.3.2. CP Takeoffs and Landings.

4.3.2.1. CPs may perform takeoffs and landings if the weather is at least 300 foot 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 IAW 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). **(T-3)**

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

4.4.1. IP/Flight Examiner supervision. **(T-2)**

4.4.2. Minimum weather required is 300 foot ceiling and 1 SM visibility. **(T-2)**

4.4.3. Crosswind component does not exceed the following (including gusts): Dry runway-15 knots. Wet runway-10 knots. **(T-2)**

4.4.4. No passengers on board. **(T-2)**

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, 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 DAFMAN 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 Mission Crew Training (MCT) and Flight Crew Training (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. **(T-2)**

4.4.6. On wet runways:

4.4.6.1. Pilot flying (PF) 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. **(T-2)**

4.4.6.3. Normally 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 (e.g., drizzle or light rain), provided the precipitation is not moderate to heavy, not producing a Runway Condition Code (RCC) worse than 5.

4.4.6.5. 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 Emergence Procedures. **(T-3)**

4.5.2. In an actual emergency, all training and simulated emergency procedures will be terminated. **(T-3)** Training will resume only when the AC determines no hazards to safe aircraft operation exists. **(T-3)**

4.5.3. Except for simulated engine-out landings, restore all aircraft systems to normal operation prior to landing. **(T-3)**

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

4.5.5. Simulated engine-out maneuver restrictions:

4.5.5.1. Simulated engine-out takeoffs are prohibited. **(T-2)**

4.5.5.2. Simulated two-engine operations are prohibited. **(T-2)**

4.5.5.3. Do not accomplish actual engine shutdown in flight. **(T-2)** 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. **(T-2)**

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. **(T-2)** (See **paragraph 4.4.4**)

4.5.5.7. ACs/First Pilots (FP) certified to do so by their SQ/CC, IAW 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 (HAT). **(T-2)**

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. **(T-2)**

4.5.5.11. Night weather conditions must be at or above 1,000 foot ceiling and 2 SMs visibility or circling minimums, whichever is higher. **(T-2)**

4.6. Landing Attitude Demonstrations. Landing attitude demonstrations may only be accomplished by IP/Flight Examiner or ACs under IP/Flight Examiner supervision. **(T-2)** The following restrictions apply:

4.6.1. Must be accomplished four engine only. **(T-3)**

4.6.2. Dry runway only with normal touch-and-go conditions and restrictions. **(T-3)**

4.6.3. Flaps 40 or 50 only. **(T-3)**

4.6.4. Go-around will be initiated if aircraft touches down during the initial roundout. **(T-3)**

4.6.5. Go-around will be initiated with no less than 4,000 feet of runway remaining. **(T-3)**

4.7. Preflight.

4.7.1. When very important person (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] AUTONAV will normally be enabled for Embedded GPS INU (EGI)/Internal Navigation Unit (INU) ground alignment.

4.7.4. 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 Altitude and Heading Reference System (AHRS). [With-DMA, N/A]. **(T-3)**

4.7.5. Verify baggage and equipment are loaded IAW **Attachment 2**.

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/Very High Frequency (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. While operating at less than 2,000 feet above the ground, the Pilot Monitoring (PM) will inform the 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)** (See **Chapter 6**.)

4.10.1. [With-DMA, N/A] The NAV will back up the Pilots in observing and reporting these deviations along with notifying the pilots of the computed minimum ground speed. **(T-3)**

4.11. Departure.

4.11.1. Planning. 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). SDP data is retrieved via the Jeppesen™ Runway Analysis (JRA) Tool on the MilPlanner™ website **https://www.milplanner.com/**. Password and Identification (ID) will be provided via local Flight Crew Information File (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. **Note:** Crews must be certified in order to execute SDPs. **(T-3)**

4.11.3. VFR departures require GP/CC approval. **(T-2)** ACs may consider VFR departures if unable to comply with Instrument Flight Rules (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. Random Area Navigation (RNAV)/direct routing may be flown according to Flight Information Publication (FLIP) General Planning (GP). NAVs 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)** Log 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 SLIC as required) of any discrepancies or malfunctions. **(T-3)**

4.12.3. Special Qualification Airspace Navigation. The E-3 is approved for operation in Required Navigation Performance (RNP) airspace with operational limitations based on GINS [With-DMA, EGI] navigational equipment. See **Table 4.1** for E-3 Communications. Navigation, and Surveillance (CNS)/Air Traffic Management (ATM) Certifications and **Table 4.2** for E-3B/C/G CNS/ATM Operational Approvals. Reference AFMAN 11-202V3, FLIP GP and the following guidance for RNP requirements:

4.12.3.1. [With DMA, N/A] 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 are IAW RNP/Basic Area Navigation (BRNAV) update and contingency procedures in this manual.

Table 4.1. E-3 Communications. Navigation, and Surveillance (CNS)/Air Traffic Management (ATM) Certifications.

Airspace/Equipment Type	Certified	Operational Approval	Training Required	Notes
VHF FM Immunity	Yes	Yes	No	
8.33 kHz VHF Radios	Yes	Yes	No	
EGPWS	Yes	Yes	Yes	Training incorporated in IQT and DCT
Elementary Mode S	Yes	Yes	No	
Enhanced Mode S	Yes	Yes	No	
ADS-B Out	Yes	No	Yes	Training incorporated in IQT and

				DCT
Mode 5 L1/L2	Yes	Yes	Yes	Procedures IAW with MAJCOM and AOR SPINS.
CPDLC/ACARS	Yes	Yes	Yes	Training incorporated in IQT and DCT. CPDLC Reference: ICAO GOLD
TCAS II V7.0 (ACAS)	Yes	Yes	Yes	Training incorporated in IQT and DCT.
RVSM	Yes	Yes	Yes	Jet specific entry requirements IAW para. 4.12.6
NAT MNPS (RNP 12.6)	Yes	Yes	Yes	Training IAW Overseas employment section of Aircrew Proficiency Program
RNAV 5 (BRNAV)	Yes	Yes	No	Enroute Airspace
RNAV 2	Yes	Yes	No	Enroute Airspace (NAS Q and T Routes)
RNAV 1	Yes	Yes	Yes	Terminal Airspace (RNAV SID/ STAR) Training incorporated in IQT and DCT
RNP 10/ RNAV 10	Yes	Yes	No	Oceanic and Remote Navigation Airspace
RNP 5.0	Yes	Yes	No	European Enroute Airspace
RNP 4.0	Yes	Yes	No	Oceanic Airspace
RNP 2.0	Yes	Yes	No	Enroute Airspace
RNP 1.0	Yes	Yes	Yes	Terminal Airspace Training incorporated in IQT and DCT
RNP 0.3	Yes	Yes	No	Approach Airspace
RNP 0.1	No	No	N/A	No WAAS or Radius to Fix capabilities
RNP APCH (1,2)	Yes	Yes	Yes	(ICAO only) RNP APCH is equivalent to (NAS only) RNAV (GPS) are the same thing. Reference AFMAN 11-202 V3
RNP AR APCH	No	No	N/A	Special Authorization is required.
RNAV (GPS) APCH (1,2)	Yes	Yes	Yes	Training incorporated in IQT and DCT
RNAV (RNP) APCH	No	No	N/A	Special Authorization is required.
PBN transition to conventional Final Approach	Yes	Yes	Yes	Training incorporated in IQT and DCT. See AFMAN 11-202 V3
LNAV minimums (2)	Yes	Yes	Yes	Training incorporated in IQT and DCT
LNAV/VNAV minimums (2)	Yes	No	N/A	Currently unable to fly due to DAFIF database errors. See E-3G II

				(DRAGON) CNS/ATM Operational Approval 13 Jul 20
LP/ LPV	No	No	N/A	

Notes:
1. DMA are not capable of flying Radius to Fix (RF) procedures.
2. RNAV and RNP APCH procedures will be flown with Flight Director guidance and the auto-pilot not coupled.

Table 4.2. E-3B/C/G Communications. Navigation, and Surveillance (CNS)/Air Traffic Management (ATM)Operational Approvals.

Airspace/Equipment Type	Certified	Operational Approval	Training Required	Notes
VHF FM Immunity	Yes	Yes	No	
8.33 kHz VHF Radios	Yes	Yes	No	
EGPWS	No	No	N/A	
Elementary Mode S	Yes	Yes	No	
Enhanced Mode S	No	No	N/A	
ADS-B Out	No	No	N/A	
Mode 5 L1/L2	No	No	N/A	
CPDLC/ACARS	No	No	N/A	
TCAS II V7.0 (ACAS)	Yes	Yes	Yes	Training incorporated in IQT and DCT.
RVSM	Yes	Yes	Yes	Jet specific entry requirements IAW **paragraph. 4.12.6.**
NAT MNPS	Yes	Yes	Yes	Training IAW Overseas employment section of Aircrew Proficiency Program
RNAV 5 (BRNAV)	Yes	Yes	No	Enroute Airspace
RNAV 2	No	No	N/A	Enroute Airspace (NAS Q and T Routes)
RNAV 1	No	No	N/A	Terminal Airspace (RNAV SID/ STAR)
RNP 10/ RNAV 10	Yes	Yes	No	Oceanic and Remote Navigation Airspace
RNP 5.0	Yes	Yes	No	European Enroute Airspace
RNP 4.0	No	No	N/A	Oceanic Airspace
RNP 2.0	No	No	N/A	Enroute Airspace
RNP 1.0	No	No	N/A	Terminal Airspace
RNP 0.3	No	No	N/A	Approach Airspace
RNP 0.1	No	No	N/A	
RNP APCH (1,2)	No	No	N/A	
RNP AR APCH	No	No	N/A	
RNAV (GPS) APCH (1,2)	No	No	N/A	

RNAV (RNP) APCH	No	No	N/A	
PBN transition to conventional Final Approach	No	No	N/A	
LNAV minimums (2)	No	No	N/A	
LNAV/VNAV minimums (2)	No	No	N/A	
LP/ LPV	No	No	N/A	
Notes: 1. DMA are not capable of flying Radius to Fix (RF) procedures. 2. RNAV and RNP APCH procedures will be flown with Flight Director guidance and the auto-pilot not coupled.				

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

4.12.4.1. The E-3 may operate in B-RNAV/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/B-RNAV 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 airspace. **(T-0)** Reference International Civil Aviation Organization (ICAO) State specific Aeronautical Information Publication (AIP) and FLIP AP for specific route requirements.

4.12.5.1. Enroute. At the RNP/B-RNAV 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. Reduced Vertical Separation Minimums (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 must be engaged during level cruise except when circumstances, such as the need to re-trim the aircraft, require disengagement. **(T-3)**

4.12.6.2. Altimeters. Crosscheck altimeters every hour to ensure they agree ± 200 ft. **(T-3)**

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 ARO will normally control the use of high frequency HF 1. **(T-3)** The AC will coordinate with the ARO if the flight crew requires its use. **(T-3)** The SLIC/ARO 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 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.

4.13.3.2. If fuel requirements necessitate a modification to on-station duration, orbit pattern, or altitude, the AC will notify the 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 a starting descent from cruise altitude, the PF the approach will brief the crew IAW 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 Standard Terminal Arrival Route (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 IAW **Table 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 IAW local supplements in order to perform duties in the Left Seat 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. **(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 DAFMAN 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 Mean Sea Level (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 IAW AFMAN 11-202 Volume 3, whichever is greater. **(T-0)** 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. **(T-0)** "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 reference 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 crewmembers 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 Above Ground Level (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, IAW 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 breakers.

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)**

4.28. 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 (AAR) Restrictions/Procedures.

4.29.1. Aircrews will conduct AAR procedures IAW ATP, 3.3.4.2, *Air-to-Air Refueling,* and national annexes. **(T-2)** Plan to AAR with a CG forward of 32% Mean Aerodynamic Chord (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 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 IAW ATP-3.3.4.2. **(T-2)**

4.29.6. FPs. 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. CPs. 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 IAW ATP-3.3.4.2.

4.30. Post-Air-to-Air refueling (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)**

4.34. Suspected Engine Compressor Stall/Surge on the Ground. If aircrew experience a known or suspected engine compressor stall/surge while on the ground, the aircraft will be returned to maintenance and the condition will be written up in the AFTO Form 781A.

4.35. Automatic Dependent Surveillance–Broadcast (ADS-B) In Devices. ADS-B in devices are approved for use on non-DRAGON modified E-3s.

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, 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.

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 CCDs. Except for emergency checklist items, use of the PA by the mission crew is restricted to the 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., SLIC, ABM, 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. Section Lead in Command (SLIC). The SLIC is responsible to the appropriate commander for the safe, efficient, and successful employment of the E-3 weapons system. The SLIC is responsible for the leadership, management, and supervision of the mission crew. The 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 IAW applicable operations orders (OPORDs), operations plans (OPLANS), Air Tasking Order (ATO), Operational Tasking Data Link (OPTASKLINK), Special Instructions (SPINS), Joint Air Operations Plan (JAOP), and Rules of Engagement (ROE). **(T-3)**

5.4.2.1. Assign and supervise responsibilities based on qualifications, certifications, and currencies of assigned crewmembers. **(T-3)**

5.4.2.2. Assign and supervise primary sensor/system operators. Monitor and maintain sensor quality for mission duration. **(T-3)**

5.4.2.3. Supervise all aircraft control activity (ABM/Others as qualified) IAW AFTTP 3-3.AWACS, AFTTP 3-3.IPE, AFTTP 3-2.5, *Multi-Service Brevity Codes*, AFTTP 3-2.8, *Multi-Service Tactics, Techniques, and Procedures for Air Control Communication* and applicable procedures/standards. **(T-3)**

5.4.2.4. 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)**

5.4.2.5. 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 and safely operate the E-3 weapons system IAW 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)**

5.4.4. Be responsible for the completion of the AFTO Form 46, *Prepositioned Aircrew Flight Equipment*. **(T-3)**

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

5.4.5.1. Declare "on-station" when the E-3 is operations-normal IAW mission requirements, is in position to accomplish the assigned mission, and the mission crew have completed their station assumption requirements. **(T-3)**

5.4.5.2. 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)**

5.4.5.3. 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)**

5.4.6. When operating in the NORTHCOM AOR, the SLIC will:

5.4.6.1. Act as or appoint a NORAD Certified Crewmember (NCCM) responsible for receiving and communicating message traffic concerning any Emergency Action Message (EAM)/Quick Reaction Message (QRM) and/or Tabular Report (TAB) IAW established guidance. **(T-3)**

5.4.6.2. 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 SLIC will assign a SL to each battle management area (BMA) or functional assignment, based on qualifications, certifications, and currencies of crewmembers. **(T-3)** SLs are responsible to the SLIC for conduct of the air battle or execution of their assigned function. The SL will:

5.5.1. Supervise assigned operators (ABM/MSO) 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 SLIC and ASO of any suspected emergency IFF/ Selective Identification Feature (SIF) returns or triangular distress patterns. **(T-3)**.

5.5.4. Execute/Coordinate the Identification function IAW AFTTP 3-3.AWACS and local procedures. Supervise the detection, tracking, reporting, identification, and recording of surveillance data. **(T-3)**

5.5.5. Coordinate directly with the ASO/PSO to obtain optimum sensor configurations. **(T-3)**

5.5.6. Develop and maintain the communications worksheet for their assigned section. Coordinate communications changes with the SLIC/ARO. **(T-3)**

5.6. Weapons Controllers (Air Battle Manager [ABM]/Others as qualified). Weapons controllers are responsible for the direction, monitoring, and flight following of assigned aircraft during tactical and operational missions. **(T-3)** They are responsible for extracting data from theater and command directives for C2 of the air battle. **(T-3)** Conduct battle management IAW AFTTP 3-3.IPE, AFTTP 3-3.AWACS, AFTTP 3-2.5, AFTTP 3-2.8, JAOP 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 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 (ASO).

5.7.1. The ASO is responsible to the assigned SL of the BMT to which they are assigned for all surveillance radar functions. The ASO will:

5.7.1.1. Monitor and direct the accurate collection, display, and dissemination of surveillance radar data and advise the crew of surveillance radar capabilities. **(T-3)**

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

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

5.8. Datalink Operator (DLO). The DLO is responsible to the appropriate SL for enabling multi-link operations IAW Joint/Regional/Sector Interface Control Officer (J/R/SICO) guidance and AFTTP 3-3.AWACS. **(T-3)** The DLO will:

5.8.1. Coordinate data link modifications (filters, duties, ID usage) with the Joint/Regional Interface Control Cell (J/RICC). **(T-3)**

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

5.8.3. Implement data link filters as stated in the OPTASKLINK or Tactical Operational Data (TACOPDAT). **(T-3)**. **Note:** Any changes to filters must be approved by the JICO. **(T-3)**

5.8.4. 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)**

5.8.5. Monitor track exchange (surveillance, weapons, and ES) and coordinate with SLs if required. **(T-3)**

5.8.6. 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)**

5.8.7. Coordinate with the SLIC and ADST/ARO, as required, in the establishment and operation of data links. **(T-3)**

5.8.8. Establish data links for the Joint Tactical Information Distribution System (JTIDS) Network Library for JTIDS and Tactical Digital Information Link (TADIL) A during Continental United States (CONUS) operations IAW established joint operating procedures. **(T-3)**

5.8.9. Establish data link operations outside CONUS according to local theater directives and the OPTASKLINK. **(T-3)**

5.9. Mission System Operator (MSO). MSOs perform various roles depending on the mission and BMT to which they are assigned. Roles range from; support the direction, monitoring, and flight following of assigned aircraft during tactical and air refueling missions. Support the BMT IAW AFTTP 3-3.IPE, AFTTP 3-3.AWACS, AFTTP 3-2.5, AFTTP 3-2.8, and local procedures; perform surveillance functions as directed by the SL; analyze Electronic Support (ES) data from on-board and off-board sensors, fuse that data with other on-board and off-board sensors, then disseminate a comprehensive ES picture both internally and externally. The MSO is responsible to the SL/ABM of the BMT to which they are assigned. **(T-3)**

5.9.1. MSOs will coordinate both internally and externally to perform force accountability, battle management, ES, and ID functions as assigned within the BMT/crew. **(T-3)**

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

5.10. Passive Sensor Operator (PSO). The PSO is responsible to the SL of the BMT to which they are assigned for the operation of the Electronic Support Measures (ESM) subsystem. The PSO will:

5.10.1. Monitor the accurate collection, display, and dissemination of ES data. **(T-3)**

5.10.2. Coordinate with external agencies to ensure the accuracy of ES data. **(T-3)**

5.10.3. Perform a systematic checkout of the ESM/PDS and brief the SLIC on the results. **(T-3)**

5.10.4. Complete an ESM log post-flight for any flight that anomalous system behavior or database mis-IDs occur and forward this information to the appropriate Electromagnetic Support Team (EST) representative. **(T-3)**

5.10.5. Debriefing intel on emitters of interest. **(T-3)**

5.10.6. Provide electronic IDs to ID matrices, as required, for mission crews and tactical battle management when the PDS is operational. **(T-3)** In the event that simultaneous activity with emitters and fighters requires the PSO to dedicate focus in one area; the PSO will coordinate with the SL to manage PSO effort prioritization. **(T-3)**

5.11. Internet Protocol Enabled Communication (IPEC) Operator.

5.11.1. The IPEC Operator will be a certified (P) MSO and/or (S) ABM. **(T-3)** The operator will be responsible for initialization, operation and maintenance of IPEC. All ADSTs will remain primary for Transitional Networking Capability (TNC)/SIC but will serve as a backup for IPEC. **(T-3)** ADST IPEC System knowledge will be maintained to a minimum level of 2b, ensuring familiarity with the system in the event no mission crew members are available, or assistance is required. **(T-3)**

5.12. Airborne Radio Operator. AROs perform communication functions.

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

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

5.12.1.2. Tune, configure, and operate clear and secure voice communications systems and communication nets to support mission requirements. **(T-3)**

5.12.1.3. Coordinate, obtain, use, and control COMSEC material and equipment. **(T-3)**

5.12.1.4. Perform frequency management; recommend and make required communications changes. **(T-3)**

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

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

5.13. Airborne Data Systems Technician (ADST). The ADST is responsible to the SLIC for the operation, monitoring, and in-flight maintenance of the Mission Computing System (MCS), Data Display Group, Electronic Support Measures Group (ESMG), Secure Iridium™ Communications (SIC) and Onboard Test Monitor and Maintenance functional groups, and JTIDS. **(T-3)** The ADST will:

5.13.1. Perform loading, power-on, and monitor performance of the MCS. **(T-3)**

5.13.2. Perform power-on of the ESM system and monitor performance. **(T-3)**

5.13.3. Evaluate equipment status of MCS and advise the SLIC of its capabilities to support mission requirements.

5.13.4. Monitor the status of mission computing connected avionics equipment, service peripheral equipment, and perform diagnostic maintenance programs. **(T-3)**

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

5.13.6. Establish and maintain connectivity with SIC equipment. **(T-3)**

5.13.7. In cooperation with DLO, configure, operate, and monitor JTIDS equipment and software. **(T-3)**

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

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

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

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

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

5.14.5. 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)**

5.14.6. Coordinate with the SLIC/ASO 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)**

5.15. Establishing Operations-Normal.

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

5.15.1.1. Establish ‘Ops-Normal’ criteria during planning if minimum equipment is not defined by local/theater guidance. **(T-3)**

5.15.1.2. Coordinate with the AC on equipment issues which affect aircraft systems. **(T-3)**

5.15.1.3. Approve continued operations of malfunctioning mission equipment that would affect the mission. **(T-3)**

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

5.15.2. Active Sensor Management/Procedures. Prior to assuming station, the ASO will:

5.15.2.1. Perform IFF sensor checks, radar sensor checks, and quality control/systems check out to determine the optimum radar/IFF settings and configurations for the mission. **(T-3)**

5.15.2.2. Brief the SLIC on the results of the checks and the final radar setup. **(T-3)**

5.15.3. IFF Sensor Check. Perform a systematic checkout of the IFF, to include all operational Transmitters as soon as they become available. If equipment malfunctions, the Active Sensor

Operator will accomplish an additional check once the unit is back online. **(T-3)** If a previously unchecked Transmitter unit comes online, the Active Sensor Operator will, again, accomplish an additional check. **(T-3)** As a minimum, the Active Sensor Operator will check:

5.15.3.1. 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)**

5.15.3.2. 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)**

5.15.3.3. 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.

5.15.3.4. Resolution of IFF Overloads. Monitor IFF counts and make necessary adjustments to resolve overload conditions and minimize the loss of IFF data. **(T-3)**

5.15.3.5. Mode 5 Test. Report Mode 5 operational when correlated Mode 5 returns are displayed. **(T-3)** With DRAGON, perform Mode 5 loop test to validate the E-3's Mode 5 transponder.

5.15.4. Radar Sensor Check. Time permitting, the ASO will check as many RF sets as possible and select a primary and secondary RF set for the mission. **(T-3)** The ASO will use identical radar 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:

5.15.4.1. 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.

5.15.4.2. 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%.

5.15.4.3. 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.

5.15.5. Quality Control (QC)/Systems Check Out. **(T-3)** Once the sensors have been initially checked and declared operational, the ASO 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 QC. In circumstances, such as post-AAR,

where sensors are transferred but not powered down, the ASO will, at minimum, accomplish a quality check of radar and IFF systems prior to declaring them operational. **(T-3)**

5.15.6. Radar Setup. **(T-3)** The ASO 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 ASO will declare the radar operational. **(T-3)** When multiple E-3 flights operate in an area, the ASO will perform frequency de-confliction. **(T-3)**

5.15.7. Data Link Procedures and Operation. **(T-3)** Data link is the primary means of passing E-3 information and are established by the DLO according to, *Joint Multi-Tactical Data Link (TDL) Operating Procedures*, for the JTIDS Network Library for JTIDS and TADIL A during CONUS operations. Data link operations outside CONUS are established according to local theater directives and the OPTASKLINK.

5.15.8. Passive Sensor Operator Procedures. A PSO/ABM will coordinate to ensure PDS is loaded with an appropriate database. **(T-3)** The PSO/ABM will also coordinate with the SLIC when PDS is downloaded, and operational. In addition, advise the SLIC, ADST, and all SLs of any system degradation. **(T-3)** Only a PSO/ABM will declare ESM operational. **(T-3)** Perform checks on ESM to ensure operational status and determine optimal sensor set-up. The PSO/ABM will brief the SLIC on the results of these checks. **(T-3)** At a minimum, check:

5.15.8.1. Reception in Frequency Range. **(T-3)** Check to ensure 360-degree reception of signals within all three bands: Low (500-1999 MHz), Medium (2000-7999 MHz), and High (8000-18000 MHz). This is a subjective check, but there should be several indications within each band on different azimuths.

5.15.8.2. Triangulation. **(T-3)** Check that triangulation is occurring in all quadrants. Triangulation for each frequency band is not required. The statues of "Triangulating," "Monitoring for Divergence", and "Diverged" all count to verify the system is working. Triangulation accuracy will be verified by a triangulation quality check conducted by verifying a triangulated site location against known emitter locations such as ATC radars, NAVAIDS, ECR sites etc. to an EEP accuracy of 10nm x 4nm (Major/Minor ellipse) or better. **(T-3)** This check can be accomplished at any point throughout the mission. Lack of correlation to a known emitting site for triangulation should not prevent ESM from being called operational and will be reported to the SLIC. **(T-3)**

5.15.8.3. Check that the correct map is loaded. **(T-3)**

5.15.8.4. Check that the average scan rate is below 8 seconds. **(T-3)**

5.16. Assuming Station. The SLIC is responsible for determining whether station assumption requirements are met. Unless otherwise defined in local/theater guidance, the following conditions should be met or alibied prior to station assumption:

5.16.1. Conduct database checks as appropriate.

5.16.2. Radar and IFF are configured for mission use.

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

5.16.4. Active Sensor correlation check. IFF-only operations are authorized according to this manual and theater operating instructions IAW FAA Order JO 7610.4 series or ATC LOA. IFF-only operations require a sensor correlation check to be accomplished.

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

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

5.16.4.3. Internal correlation checks are considered complete if all navigation equipment is functioning properly and RADAR and IFF have been declared operational.

5.16.5. 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 National 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.

5.16.5.1. Employ as Tactical Monitor (TM) IAW applicable guidance during planned exercise or daily training under the following conditions:

5.16.5.1.1. Responsibility for the ATC released airspace lies with the military aircraft that scheduled and are flying within the SUA/ Air Traffic Control Assigned Airspace (ATCAA). These aircraft must comply with Autonomous Operations for air traffic control purposes while in the SUA/ATCAA.

5.16.5.1.2. TMs do not accept responsibility for SUA/ATCAA.

5.16.5.1.3. TMs will provide necessary tactical information/guidance for the military aircraft operating in SUA/ATCAA to complete mission training.

5.16.5.2. When operating as TM, AWACS crews should not normally contact ATC during mission planning or during mission execution. Monitoring ATC frequencies for situational awareness is encouraged but contact with ATC should only be established in extraordinary situations.

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

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

5.16.8. The E-3 is in a position to accomplish the assigned mission.

5.17. 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 IAW AFTTP 3-3.IPE or theater directives. **(T-3)**.

5.18. Electronic Combat (EC) Procedures. The SLIC/ASO 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:

5.18.1. The ASO, PSO, 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.

5.18.2. 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.

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

5.18.4. The ASO will keep the SLIC/SL advised on status of passive tracks. **(T-3)** When the ASO 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 ASO, in coordination with the SLIC and IAW ROE, may "validate" the track as a jammer and associate the track with active data. **(T-3)**

5.19. 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.

5.19.1. If the E-3 can fulfill the ID matrix and has the ability to declare a contact hostile, any ABM on board the E-3 can complete the ID matrix. The SLIC may restrict this and retain hostile declaration authority or delegate it as mission needs dictate.

5.19.2. The PSO should ensure PDS data link filters are set correctly. 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 IAW theater directives and AFTTP 3-1.AWACS. **(T-3)**.

5.20. Control Procedures. On-station control procedures will be IAW AFI 11-214 and AFTTP 3-2.8. **(T-3)** SLIC will notify the flight crew when aircraft are under control. **(T-3)** With coordination, the SL may control aircraft when simultaneous missions are not in progress. Aircrew providing control will be current unless under supervision, per AFMAN 11-2E-3G Volume 1, *E-3 Aircrew Training*.

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

5.20.2. Tracking. During all operations, ABM/MSO will ensure the J3.2 air track/local track and sensor data of controlled aircraft are within 2 NM of each other. **(T-3)**

5.20.3. 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.

5.21. Communications Procedures.

5.21.1. 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, AFTTP 3-2.5 and, AFTTP 3-2.8. **(T-0)**

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

5.21.3. 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)**

5.22. Off-Station Procedures. The 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 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 crewmembers 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 IAW 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 crewmembers 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 AFMAN 11-290, *Cockpit/Crew Resource Management and Threat & Error 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 crewmembers. 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 crewmembers when someone sees the aircraft or crew departing from established guidelines, the briefed scenario, or that someone is simply uncomfortable with the developing conditions.

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 crewmembers 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 PF will determine, announce, and fly the aircraft using the appropriate level of flight automation IAW 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 (IA). 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. IA is automation devoted to the management and presentation of relevant information to flight crews. Examples of IA systems include the 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. **(T-2)** 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 crewmembers 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," crewmembers continually MONITOR the aircraft to ensure the expected performance is achieved by staying vigilant and situationally aware.

6.5. Flight Path Management (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 crewmembers. 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. PF. 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 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 crewmembers (as applicable) will acknowledge mandatory calls. **(T-2)**

6.6.2. The PM will make all normal advisory calls except those designated for other crewmembers by MDS-specific T.O. guidance and this manual. **(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 (e.g., 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)"
Within 200 feet of assigned altitude	"Approaching level off"	

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 feet above assigned altitude	"(Altitude passing) descending (Altitude Assigned)"	"Leveling at (Altitude Assigned)"
Within 200 feet of assigned altitude	"Approaching level off"	
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 feet above FAF Altitude	"100 above"	
1000 feet above touchdown	"1000, Stable (or deviation)"	"1000, stable (or deviation), cleared and configured" or "1000, stable (or deviation), configured, awaiting clearance"
100 feet above step down altitude	"100 above"	"100"
500 feet above touchdown	"500, Stable" or "Go-Around, unstable"	"500" or "Going Around"
100 feet 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 Around"
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 HAT 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 PF has stated "landing" then this call is not required.

Table 6.4. Precision Approach Advisory Calls.

Precision Approaches (1)	**PM Call**	**PF Response**
100 feet above glideslope intercept altitude	"100 above"	N/A
1000 feet above touchdown	"1000, Stable (or deviation)"	"1000, stable (or deviation), cleared and configured" or "1000, stable (or deviation), configured, awaiting clearance"
500 feet above touchdown	"500, Stable" or "Go-Around, unstable"	"500" or "Going Around"
100 feet 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 feet 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 HAT 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' 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. IAW 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. **(T-2)** Tolerances are defined by MDS specified SOPs. In absence of MDS SOPs, use the most restrictive of MDS specific Volume 2 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, night vision goggle (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 AC. **(T-2)** 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 AC should attempt to assume control of the aircraft unless it has been determined that safety of flight would be compromised by assuming control (e.g., AC 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 crewmembers. **(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 crewmembers verbally and visually identify the affected control (e.g., "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 (e.g., "NUMBER ONE CONFIRMED"). The crewmember performing the action then actuates the affected control. **Note**: During any emergency, the AC 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 (RTO) Decision Making. The 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. **Note:** Use an abbreviated briefing for multiple approaches conducted in the same terminal area.

6.8.1.1. Aircraft is in landing configuration. **(T-2)** **Note:** 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. **(T-2)** **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. **(T-2)**

6.8.1.5. Aircraft is on the correct track. **(T-2)**

6.8.1.6. Aircraft is in the correct bank angle to maintain proper approach track for instrument, circling, or visual approach. **(T-2)**

6.8.1.7. Power set to maintain the descent profile at approach speed. **(T-2)**

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. **(T-2)**

6.8.1.8.2. Bank Angle: +/- 15 degrees from target. **(T-2)**

6.8.1.8.3. Rate of Descent: +/- 300 FPM from target. **(T-2)**

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. **(T-2)**

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. **(T-2)**

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 IAW 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, and/or ramps to the max extent possible. This study will take place during the crew mission briefing and reviewed again prior to descent. **(T-2)**

6.8.5. Missed Approach/Go-Around. Aircrews will conduct a thorough briefing for anticipated missed approach/go-around scenarios. **(T-2)** This briefing will include a discussion of specific crewmember duties. **(T-2)** **Note:** Execute missed approach/go-around IAW 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 Uniform Code of Military Justice (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 **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

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

ADST—Airborne Data Systems Technician

ADS-B—Automatic Dependent Surveillance–Broadcast

AFA—Air Force Academy

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFROTC—Air Force Reserve Officer Training Corps

AFTO—Air Force Technical Order

AFPD—Air Force Policy Directive

AFSIRS—Air Force Spectrum Interference Reporting System

AGL—Above Ground Level

AHRS—Altitude and Heading Reference System

AIP—Aeronautical Information Publication

AoHV—Areas of Higher Vulnerability

AOR—Area of Responsibility

AOV—Area of Vulnerability

ARCP—AAR Control Point

ARCT—AAR Control Time

ARIP—AAR Initial Point

ARMS—Aviation Resource Management System

ARO—Airborne Radio Operator

ART—Airborne Radar Technician

ARU—Airborne Radar Unit

ASAP—Aviation Safety Action Program

ASO—Active Sensor Operator

ATC—Air Traffic Control

ATCAA—Air Traffic Control Assigned Airspace

ATM—Air Traffic Management

ATO—Air Tasking Order

ATP—Allied Technical Publication

APCH—Approach

APU—Auxiliary Power Unit

AWACS—Airborne Warning and Control System

A3—Director of Operations

A3T—Flight Operations

BDOC—Base Defense Operations Center

BMA—Battle Management Area

BMT—Battle Management Team

BRNAV—Basic Area Navigation

BTH—Beyond the Horizon

CAF—Combat Air Forces

CC—Commander

CCD—Crew Coordination Drill

CDU—Control Display Unit

CFG—Communications Functional Group

CG—Center of Gravity

CNS—Communications, Navigation, and Surveillance

CONUS—Continental United States

CP—Copilot

CPDLC—Controller Pilot Data Link Communications

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

CSG—Computer Support Group

CVR—Cockpit Voice Recorder

C2—Command and Control

DA—Decision Altitude

DAFI—Department of the Air Force Instruction

DAFIF—Digital Aeronautical Flight Information File

DAFMAN—Department of the Air Force Manual

DCN—Datalink Coordination Net

DCT—DRAGON Conversion Training

DD—Department of Defense

DDI—Digital Display Indicator

DETCO—Detachment Commander

DH—Decision Height

DLO—Datalink Operator

DMA—DRAGON Modified Aircraft

DND—Department of National Defense

DO—Director of Operations

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

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

EST—Electromagnetic Support Team

ETA—Estimated Time of Arrival

ETP—Equal Time Point

FAA—Federal Aviation Administration

FAF—Final Approach Fix

FCIF—Flight Crew Information File

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 Publication

FM—Frequency Modulation

FMS—Flight Management System

FOA—Field Operating Agency

FP—First Pilot

FPM—Flight Path Management

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

HF—High Frequency

HHQ—Higher Headquarters

IA—Information Automation

IAW—In Accordance With

ICAO—International Civil Aviation Organization

ICN—Interface Control Network

ID—Identification or Integrated Defense

IERS—Initial Exchange Requirements

IFF—Identification, Friend, or Foe

IFR—Instrument Flight Rules

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., IFE)

IPEC—Internet Protocol Enabled Communications

IQT—Initial Qualification Training

JAOP—Joint Air Operations Plan

JFACC—Joint Force Air Component Commander

JICC—Joint Information Coordination Center

JICO—Joint Interface Control Officer

JRA—Jeppesen™ Runway Analysis

JTIDS—Joint Tactical Information Distribution System

J/CFACC—Joint/Combined Forces Air Component Command

LAT—Latitude

LNAV—Lateral Navigation

LOA—Letter of Agreement

LONG—Longitude

MAC—Mean Aerodynamic Chord

MAJCOM—Major Command

MAP—Missed Approach Point

MC—Mission 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)

MOA—Military Operating Area

MPC—Mission Planning Cell

MPT—Mission Planning Team

MRU—Military Radar Unit

MSL—Mean Sea Level

MSO—Mission System Operator

MTO—Mission Type Order

NAT MNPS—North Atlantic Minimum Navigational Performance Specification

NAV—Navigator

NAS—National Airspace System

NCCM—NORAD Certified Crewmember

NM—Nautical Mile

NORAD—North American Aerospace Defense Command

NORTHCOM—Northern Command

NVG—Night

NWRO—NORAD Weapons Resource Officer

N/A—Not Applicable

OBS—On-Board Spare

OG—Operations Group

ONC—Operational Navigation Chart

OOM—Onboard/Offboard Media

OPCON—Operational Control

OPLAN—Operation Plan

OPORD—Operation Order

OPR—Office of Primary Responsibility

OPTASKLINK—Operational Tasking Data Link

ORM—Operational Risk Management

OSOE—Operations Group Exercises

PA—Public Address

PACAF—Pacific Air Forces

PAX—Passengers

PBN—Performance Based Navigation

PDS—Passive Detection System

PF—Pilot Flying

PIC—Pilot in Command

PM—Pilot Monitoring

PSO—Passive Sensor Operator

QC—Quality Control

QRM—Quick Reaction Message

RAIM—Receiver Autonomous Integrity Monitoring

RCC—Runway Condition Code

RCR—Runway Condition Reading

RCAM—Runway Condition Assessment Matrix

RF—Radius to Fix

RICC—Regional Interface Control Cell

RICO—Regional Interface Control Officer

RMA—Removable Media Assembly

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

RTO—Rejected Takeoff

RVSM—Reduced Vertical Separation Minimums

RwyCC—Runway Condition Code

R/T—Receive/Transmit

SDP—Special Departure Procedure

SIA—SIGINT ID Authority

SIC—Secure Iridium™ Communication

SICO—Sector Interface Control Officer

SIF—Selective Identification Feature

SL—Section Lead (as a member of the BMT construct)

SLIC—Section Lead in Command

SM—Statute Mile

SOP—Standard Operating Procedure

SPINS—Special Instructions

SQ/CC—Squadron Commander

SRT—Scheduled Return Time (AFRC only)

STAR—Standard Terminal Arrival Route

SUA—Special Use Airspace

TAB—Tabular Report

TACOPDAT—Tactical Operational Data

TACAN—Tactical Air Navigation System

TACS—Theater Air Control System

TADIL—Tactical Digital Information Link

TC—Transport Canada

TCAS—Traffic Collision Avoidance System

TCH/THRE/THR—Threshold Crossing Height

TDL—Tactical Data Link

TDY—Temporary Duty

TDZE—Touch Down Zone Elevation

TEM—Threat and Error Management

TM—Tactical Monitor

TNC—Transitional Networking Capability

T.O.—Technical Order

TOLD—Takeoff/Landing Data

TRT—Takeoff Rated Thrust

UAS—Undesired Aircraft States

UCMJ—Uniform Code of Military Justice

UHF—Ultra-High Frequency

VFR—Visual Flight Rules

VHF—Very High Frequency

VIP—Very Important Person

VNAV—Vertical Navigation

VMC—Visual Meteorological Conditions

VVM—Verbalize, Verify, and Monitor

WAAS—Wide Area Augmentation System

WG—Wing

Office Symbols

ACC/A3C—Air Combat Commands Command and Control, Intelligence, Surveillance and Reconnaissance Operations Division

ACC/A3CA—Air Combat Command Airborne Command and Control

ACC TRSS—Air Combat Command Training Support Squadron

ACC/A3TV—Air Combat Command Standardization and Evaluations Branch

AF/A3T—Air Force Training and Readiness Directorate

AFFSA/XOF—Air Force Flight Standards Agency/Flight Directives

AFRC/A3D—Air Force Reserve Command Combat Division

PACAF/A3T—PACAF Flight Operations

513 ACG/CC—513d Air Control Group Commander

552 OG/CC—552d Operations Group Commander

Terms

Air Battle Manager—Generic term to refer to any aircrew with the Air Force Specialty Code 13B.

Air Battle Manager (ABM)—An aircrew member that has graduated from formal training of the approved 'Air Battle Manager Syllabus'.

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 BMT that is operating the radar and IFF settings, executing ID processes, and managing datalink employment. Could be an ABM, ASO, or another crewmember that is qualified in the applicable areas from AFMAN 11-2E-3G Volume 2. *E-3 Aircrew Evaluation Criteria.*

Battle Management Team (BMT)—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), Section Lead in Command (SLIC), Active Sensor Operator (ASO), Passive Sensor Operator (PSO), Air Battle Manager (ABM), 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 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, FCT personnel are considered flight crewmembers; however, contractor personnel will not occupy primary E-3 crew positions during critical phases of flight.

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

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 C2, 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 BMT 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 OPLAN, rotation schedule, flying schedule, and/or OPORD, as necessary. The MET is the baseline for computing SRT.

Mission System Operator (MSO)—An aircrew member that has graduated from formal training of the approved "Mission System Operator" syllabus.

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 C2 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 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 (PSO)—Member of the BMT that operates the PDS to provide full ES integration capability or may be 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 BMT broken down by BMA or function; could be an ASO, PSO or ABM.

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 the ADST, ART, and ARO.

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 BMT that is qualified in the applicable areas to control aircraft.

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

Attachment 2

E-3 BAGGAGE AND EQUIPMENT LOADING

A2.1. Flight Engineer (FE) 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 Temporary Duty (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 FE will verify the weights of each box and its location were annotated on the AFTO Form 781A. **(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 Department of Defense (DD) Form 365-4, *Weight and Balance Clearance Form F – Transport/Tactical*, 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. Toolbox:

A2.2.3.1. Secure the in-flight toolbox carried by the ARO/ART in the "J" compartment with cargo straps or forward luggage compartment.

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 passengers (PAX) will maximize the use of soft luggage (e.g., issued B-4, A-3, and hang-up bags) for exercises and deployments. **(T-3)** 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. Removable Media Assembly (RMA)/Onboard/Offboard Media (OOM)/TNC/SIC/IPEC Kits. Store these kits in the area under the Digital Display Indicator (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 IAW T.O. 1E-3A-5-2.

A2.2.9. General:

A2.2.9.1. Mission crewmembers should store professional gear (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 IAW 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/SLIC names. **(T-3)**

A3.1.2. ETA to destination. **(T-3)**

A3.1.3. Cruise altitudes. **(T-3)**

A3.1.4. Weather enroute and at destination. **(T-3)**

A3.1.5. Passenger on-/off-load procedures. **(T-3)**

A3.2. Emergency Signals:

A3.2.1. Ground Evacuation: **(T-3)**

A3.2.1.1. Signal for evacuation. **(T-3)**

A3.2.1.2. Primary/secondary exits. **(T-3)**

A3.2.1.3. Escape slides. **(T-3)**

A3.2.1.4. Assembly area. **(T-3)**

A3.2.2. Crash Landing/Ditching:

A3.2.2.1. Signal for preparation. **(T-3)**

A3.2.2.2. Signal to brace for impact. **(T-3)**

A3.2.2.3. Brace position. **(T-3)**

A3.2.3. Loss of Pressure: **(T-3)**

A3.2.3.1. Signal. **(T-3)**

A3.2.3.2. Oxygen requirements. **(T-3)**

A3.3. Oxygen/Survival Equipment:

A3.3.1. How to check/use assigned oxygen source. **(T-3)**

A3.3.2. Life vest (LPU-10/P) fitting and use (if applicable). **(T-3)**

A3.3.3. Survival suit use (if applicable). **(T-3)**

A3.4. Restrictions:

A3.4.1. Reading lights. **(T-3)**

A3.4.2. Lavatory. **(T-3)**

A3.4.3. Seat belts. **(T-3)**

A3.4.4. Bunks. **(T-3)**

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

A3.4.6. Operation of electric/electronic devices (except non-smart watches, handheld non-print calculators, hearing aids, medically prescribed physiological instrumentation and portable voice recorders when approved by MAJCOM) will be IAW AFMAN 11-202 Volume 3. 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. Hot Plate.

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.