

**BY ORDER OF THE
SECRETARY OF THE AIRFORCE**

**AIR FORCE INSTRUCTION 11-2E-9
VOLUME 3**



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Flying Operations

E-9—OPERATIONS PROCEDURES

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This volume implements AFD 11-2, *AIRCREW OPERATIONS*; AFD 11-4, *Aviation Service*; and AFI 11-202 Volume 3, *General Flight Rules*. It applies to all E-9 units. It describes Air Force standards and operational procedures to be used by personnel performing duties in the E-9. This publication does not apply to the Air National Guard (ANG) and U. S. Air Force Reserve. Keep supplements current by complying with AFI 33-360, *Publications and Forms Management*. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional's chain of command. Major commands (MAJCOMs) are to forward proposed MAJCOM-level supplements to this volume to HQ USAF/A3OI through HQ ACC/A3TO, for approval prior to publication IAW (In Accordance With) AFI 33-360, paragraph 2.12.7.4. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) maintained in the Air Force Records Management System (AFRIMS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>. This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval. This instruction requires the collection or maintenance of information protected by the Privacy Act (PA) of 1974. The authority to collect and maintain the records prescribed in this instruction are Title 37 United States Code, Section 301a; Executive Order 9397, *Numbering System for Federal Accounts Relating to Individual Persons*, November 22, 1943 as amended by Executive Order 13478, Amendments to Executive

Order 9397 Relating to Federal Agency Use of Social Security Numbers, November 18, 2008; Public Law 92-204 (Appropriations Act for 1973), Section 715; Public Law 93-570 (Appropriations Act for 1974); Public Law 93-294 (Aviation Career Incentive Act of 1974); DOD Instruction 7730.57, *Aviation Career Incentive Act and Required Annual Report*; AFI 11-401, *Aviation Management*. Forms affected by the PA have an appropriate PA statement. System of records notice F011 AF XOA Aviation Resource Management System (ARMS) (December 26, 2002, 67 FR 78777) applies.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. The opening paragraph to this instruction has been reworded for clarity and updated. The following is a synopsis of the numerous major changes set forth in this instruction. **Chapter 1**, General Information, describes E-9A operations, including updates to waiver authority and deviations from operating procedures. **Chapter 2**, Command and Control, describes the appropriate execution authority and monitoring procedures for E-9 operations. Pilot in Command (PIC) responsibilities and duties are described; and added Mission Clearance Decision responsibilities of the PIC and command and control (C2); updated waiver authority guidance are included. **Chapter 3**, Aircrew Requirements, addresses crew complement, orientation flight guidance, and expanded flight duty periods. **Chapter 4**, Aircraft Operating Restrictions, is completely revised and describes aircraft operating restrictions to include minimum equipment list, waivers, and aircraft loading restrictions. **Chapter 5**, Operational Procedures, is completely revised. Operational procedures, to include checklist usage, duty station manning requirements, emergency equipment usage, communication policy, and passenger handling are described. This chapter details maximum crosswind limits for different runway surface conditions; minimum takeoff runway length and minimum runway landing length are included; and Crew Resource Management, for flight safety, is addressed. **Chapter 6**, Aircrew Procedures, is completely revised; aircrew procedures, including pre-mission requirements, pre-departure requirements, en-route/mission execution requirements, arrival requirements, and post-flight requirements are described. This chapter also describes mission planning requirements, addresses performance factors, takeoff and landing data requirements, and briefing/debriefing requirements. Weather minimums and weather alternate planning are included, adverse weather hazards and operations; instrument approach procedure requirements, and on-loading and offloading personnel are described. **Chapters 7 through 12** are new chapters to this AFI. **Chapter 7**, Aircrew Security Procedures, describes aircraft security operations, responsibilities, and requirements when operating away from home station. **Chapter 8**, Aircrew Operational Reports and Forms, addresses operational reports and forms pertaining to aircraft operations. **Chapter 9**, Training And Operating Limitations, describes E-9A training and operating limitations for continuation training and proficiency, and simulated emergency procedures restrictions and operations. **Chapter 10**, Fuel Planning, discusses fuel planning for mission operations and minimum fuel requirements. **Chapter 11**, Aircrew Maintenance Support Procedures, incorporates aircrew maintenance support procedures. **Chapter 12**, Cargo And Passenger Procedures, describes cargo and passenger procedures and aircrew responsibilities for E-9A operations.

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Chapter 1

GENERAL INFORMATION

1.1. General. This Air Force Instruction (AFI) provides policy for operating the E-9A aircraft. Use it in conjunction with the aircraft flight manuals, FLIP, and AFI11-202V3, *General Flight Rules*, as supplemented, and other governing directives. This volume prescribes procedures for E-9A aircraft under most circumstances but is not to be used as a substitute for sound judgment or common sense. Operations and/or procedures not specifically addressed may be accomplished if they enhance safe and effective mission accomplishment. When guidance in this AFI conflicts with another basic/source document, that document takes precedence. For matters where this AFI is the source document, waiver authority is In Accordance With (IAW) **paragraph 1.4**.

1.1.1. Unit commanders and agency directors involved with or supporting E-9A operations shall make current copies of this AFI available to appropriate personnel.

1.2. Applicability. This AFI applies to aircrew members, support personnel, contractors, and managers involved with employing E-9A aircraft.

1.3. Key Words Explained.

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

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

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

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

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

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

1.4. Deviations. Deviations from these procedures require specific approval from the 53 WEG/CC unless an urgent requirement or an aircraft emergency dictates otherwise, in which case the aircrew will take the appropriate action to safely recover the aircraft.

1.5. Waivers. Unless specifically noted otherwise in the appropriate section, waiver authority for requirements of this volume is ACC/A3 (T-2). Waivers, if approved, will be issued for a maximum of 1 year from the effective date. ACC/A3TV is Office of Collateral Responsibility (OCR) on all waiver requests to this AFI.

1.6. Instruction Changes: Submit recommendations for changes to this volume using AF Form 847, **Recommendation for Change of Publication**, through the 53 WEG Stan/Eval. Approved AF Forms 847 will be forwarded to HQ ACC/A3TV for coordination. HQ USAF/A3O is the approval authority for changes and revisions to this instruction.

1.7. Definitions. Find explanations or definitions of terms and abbreviations commonly used in the aviation community in Code of Federal Regulations (CFR) Title 14, Part 1; *DoD FLIP General Planning*, Chapter 2; and Joint Pub 1-02, *The DoD Dictionary of Military and Associated Terms*. See **Attachment 1** for common terms used herein.

Chapter 2

COMMAND AND CONTROL

2.1. General. The ACC command and control (C2) system is based on the principles of centralized monitoring and decentralized control and execution. The result is a C2 mechanism which keeps the ACC commander informed of the current status of ACC forces while enabling the wing or group commander to exercise control over day-to-day operations. The C2 network consists of the 53rd Wing and the 53rd Weapons Evaluation Group (WEG).

2.2. Execution Authority. Commanders with execution authority formulate plans, allocate assets, and approve PICs to carry out directed or training missions through the C2 network. The WEG/CC serves as the execution authority for local training missions. The Squadron Commander (SQ/CC) or the designated representative assigns unit missions to PICs. The Pilot in Command is the final authority for proper mission planning and the safe conduct of the flight.

2.3. Pilot in Command Responsibility and Authority. SQ/CCs shall designate an aircraft commander (AC), instructor pilot (IP), or evaluator pilot (EP) as the PIC for all flights, on a flight authorization form, IAW AFI 11-401, *Aviation Management*, and applicable supplements. An unqualified or non-mission ready pilot may not be designated as PIC. PICs are:

2.3.1. In command of all persons aboard the aircraft and responsible for the welfare of aircrew members, Mission Essential Personnel (MEP), and passengers.

2.3.2. Responsible for safe mission execution. The PIC shall only fly events authorized by appropriate command supervision (C2, which represents Operations Supervisor, SQ/Director of Operations (DO), SQ/CC and/or appropriate chain of command authorities), unless in the PIC's judgment an emergency condition demands otherwise.

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

2.3.4. The final authority for requesting and accepting aircrew or mission waivers. **(T-3)**

2.3.5. Responsible for passing mission progress reports (at least daily) when away from home station to C2.

2.4. Mission Clearance Decision. The execution authority and PIC shall make the mission clearance decision. In all cases, final responsibility for the safe conduct of the mission rests with the PIC. If a PIC elects to delay a mission, that mission will not depart until the conditions that generated the decision to delay improve or are resolved. Further, no execution authority may task another PIC to take the same mission under the same conditions.

2.4.1. Only re-route or divert a mission when authorized by the execution authority, to resolve an emergency, or if required by en route or terminal weather conditions.

2.4.2. The agency that directed the re-route or divert shall ensure the aircraft is capable of executing departure, en route, and destination arrival procedures.

2.4.3. The PIC will notify the appropriate C2 agent of any aircraft or aircrew limitation that may **preclude re-route or divert.**

2.5. Diversion. When a C2 agent directs a PIC to fly to an alternate airfield, the agent will ensure existing and forecast weather for the alternate, Notices to Airmen (NOTAMs), and

airfield information from the Airfield Suitability and Restrictions Report (ASRR) is suitable. If the alternate becomes unsuitable while en route, the PIC will coordinate with the C2 agent for other suitable alternates. The PIC is final authority for accepting a suitable alternate. A C2 agent will alert all appropriate ground service agencies of the aircraft's impending arrival.

Chapter 3

AIRCREW REQUIREMENTS

3.1. Aircrew Qualification. Primary aircrew members, or those occupying a primary position during flight, must be qualified or in training for qualification in that crew position and mission. If non-current or in training for a particular event, the aircrew member must be under the supervision of an instructor while accomplishing that event (direct supervision for critical phases of flight). Additionally, commanders and key supervisors under the direct supervision of an instructor may occupy a primary position IAW 11-401, paragraph 3.6.1.

3.1.1. Senior leaders who complete a Senior Staff Qualification course (restricted AF Form 8, *Certificate of Aircrew Qualification*) or orientation for a Senior Staff Familiarization flight may occupy a primary crew position when under direct instructor supervision. Refer to AFI 11-401 for procedures and requirements governing senior leader flying.

3.1.2. Crewmembers who complete the Senior Staff Course will log FP as the Flight Authorization Duty Code on the AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document*.

3.1.3. Crewmembers who complete the Senior Officer Familiarization flight will log OP as the Flight Authorization Duty Code on the AFTO Form 781.

3.2. Crew Complement:

3.2.1. Minimum Crew. The minimum crew is two pilots. Mission system operators will fly dependent upon mission requirements.

3.2.2. Aircrew members will occupy their respective seats during takeoff, approach, landing, climb and descent, emergencies (simulated and actual), and turbulent flight conditions.

3.3. Pilots. An IP must supervise non-current or unqualified pilots regaining currency or qualification (direct IP supervision during takeoffs, landings and emergency procedures).

3.3.1. Missions with Passengers. To occupy a pilot's seat with passengers aboard, pilots must have a current AF Form 8 for the E-9A aircraft. For takeoff, approach and landing one of the following conditions must be met:

3.3.1.1. Two qualified and current pilots must be at the controls.

3.3.1.2. A qualified pilot non-current no more than 60 days for flying currency requirements and an IP providing direct supervision (must be at the controls). AC's regaining currency may be designated PIC.

3.3.1.3. A qualified BMC pilot accomplishing mission qualification training (MQT) and an IP providing direct supervision.

3.3.1.4. A qualified AC upgrade candidate on an initial or requalification mission and a qualified IP with direct supervision of the controls (AC upgrade candidates will be designated in command).

3.3.1.5. A basic qualified (valid AF Form 8 in MDS-specific aircraft) senior officer who has completed a Senior Officer Qualification course may occupy either pilot seat under direct IP supervision.

3.4. Non-Current or Unqualified Pilots. An IP must be seated at a primary crew position with access to the flight controls while supervising non-current or unqualified pilots regaining currency or qualification.

3.5. Mission System Operators. Non-current and/or unqualified telemetry (TM) and sea surveillance radar (SSR) operators will fly with a current and qualified instructor at their respective station. Mission system aircrew members in training will have a mission system instructor providing direct supervision.

3.6. Orientation Flights. Orientation Flights will be conducted IAW 11-401 as supplemented. All orientation participants will be briefed IAW [Attachment 2](#). Rated pilots provided access to the controls during critical phases of flight will accomplish BOLDFACE, normal and critical action procedures training in the cockpit with an IP prior to flight.

3.7. Duty Periods.

3.7.1. Flight Duty Period (FDP) begins when the individual reports for his or her first duty period and ends at engine shutdown at the end of the mission or series of missions. However, time spent in the completion of post flight duties will not count as crew rest toward the next flight duty period. The maximum FDP is 16 hours (12 hours with an inoperative autopilot). No planned touch-and-go or practice/simulated emergency work will be accomplished after the flight duty period extends past 12 hours.

3.7.2. Crew Duty Time (CDT) begins when an individual reports for their first duty period. CDT is FDP combined with post-mission duties. Maximum CDT is 18+00 hours for basic aircrew. Plan the mission so aircrew members may complete post-mission duties within maximum CDT.

3.8. Scheduling Restrictions. Aircrew scheduling will be IAW AFI 11-202V3 requirements.

Chapter 4

AIRCRAFT OPERATING RESTRICTIONS

4.1. Objective. This chapter applies to accepting an aircraft from maintenance prior to launch. The ultimate objective of the aircraft maintenance team is to provide an aircraft for launch with all equipment operational (Fully Mission Capable, FMC). Manpower limitations, skills, and spare part availability have a negative and direct impact on mission accomplishment. However, under specific circumstances, some missions can be safely operated without all equipment being operational. Minimum equipment will be as established in AFI 21-103 ACC SUP 1, ADDENDUM Q, the Master Minimum Equipment Listing (MMEL), and/or maintenance guidance. The PIC is responsible for ensuring equipment required for safe flight is operable.

4.2. Master Minimum Equipment List Policy. The MMEL is a pre-launch document that lists the minimum equipment/systems to operate the aircraft. It is impractical to prepare a list that would anticipate all possible combinations of equipment malfunctions and contingent circumstances. Consider equipment/systems with no listed exceptions as grounding items. A PIC who accepts an aircraft with degraded equipment/systems is not committed to subsequent operations with the same degraded equipment. PICs are not committed to operations with degraded equipment accepted by another PIC.

4.2.1. The PIC is responsible for exercising the necessary judgment to ensure no aircraft is flown with multiple items inoperative that may result in an unsafe degradation and/or an undue increase in workload. The PIC shall account for the possibility of additional failures during continued operation with inoperative systems or components. The MMEL is not intended for continued operation over an indefinite period with systems/subsystems inoperative. Safety of flight is paramount.

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

4.3. E-9A Minimum Essential Subsystem List (MESL) (AFI 21-103 ACC SUP 1, ADDENDUM Q). This applies to E-9A aircraft and lists the minimum equipment and systems to launch the aircraft under routine operations. The MESL does not include all equipment or systems essential to airworthiness. The MESL is not intended to promote continued operation of the aircraft for an indefinite period with systems/subsystems inoperative.

4.4. Waiver Protocol. Waivers to operate with degraded equipment may be granted on a case-by-case basis and only in exceptional circumstances. Waiver authority is based on who has operational control (OPCON) and execution of the aircraft performing a specific mission. The PIC determines the need for a waiver and initiates the request.

4.4.1. Local Missions (Executed by WEG/CC). Waiver authority for local missions is the WEG/CC or designated representative. **(T-3)**

4.4.2. ACC-Directed Missions (including HQ ACC Operational Readiness Inspections). Waiver authority is HQ ACC/A3. **(T-2)**

4.4.3. Other Missions. Aircrew members may request additional assistance or confirmation from their home units or ACC.

4.5. Technical Assistance Service. The PIC may (at any time in the decision process) request technical support and additional assistance from their home unit and/or maintenance representatives.

4.5.1. PICs electing to operate with degraded equipment or aircraft systems (with appropriate waiver, if necessary) must coordinate mission requirements (revised departure times, fuel requirements, maintenance requirements, etc.) with the C2 agency before flight.

4.6. Aircraft Loading/Cargo Handling. Passenger and cargo loading will be in accordance with [Chapter 12](#) of this instruction.

4.6.1. Cargo, including baggage, will be safely secured prior to taxi.

4.6.2. Ensure a weight and balance computation is accomplished if cargo/passengers change the standard configuration weight and balance on aircraft.

4.7. Arms and Ammunition. No ammunition will be carried in magazines, clips or inserted in weapons aboard the aircraft except when approved by the PIC.

4.8. Transportation of Passengers. Passengers are limited to personnel authorized IAW AFI11-401/ACC Sup 1, *Flight Management*, and approved by the Wing Commander (WG/CC). Orientation flights may be accomplished IAW AFI 11-401/ACC Sup 1.

4.9. Passenger Manifest. The PIC is responsible for ensuring a copy of the manifest is filed with a responsible agency at the departure point, and that sufficient copies of the manifest are in their possession before departure.

4.10. Maintenance and Inspection Records Review. The AFTO Form 781, **Aerospace Vehicle Flight Data Document**, will be available at the aircraft when the crew reports to visually inspect the aircraft. No aircraft system will be activated without a pilot first reviewing the AFTO Form 781.

Chapter 5

OPERATIONAL PROCEDURES

5.1. Checklists. Accomplish all checklists with strict discipline. A checklist is not complete until all items have been accomplished and all crewmembers have called it complete. Momentary hesitations for coordination items, ATC interruptions, and deviations specified in the flight manual, etc., are authorized. Notes amplifying checklist procedures or limitations may be added to the checklists in pencil. Aircrew will use Air Force Technical Orders and Checklists produced by Tinker AFB, OK.

5.1.1. Unit Developed Checklists/Local Pilot Aids are authorized and will be used for all local flights.

5.2. Duty Station. A qualified pilot will be in control of the aircraft at all times during the flight. (EXCEPTION: Unqualified pilots undergoing qualification training and senior leaders who have completed training IAW paragraph 3.1.3 of this volume). Only one pilot may be absent from their duty station at a time. During non-critical phases of flight, aircrew members will notify the pilot before leaving and after returning to their duty stations.

5.3. Emergency Exits and Safety Aisles:

5.3.1. The emergency cabin exits and cabin safety aisle will remain unobstructed during flight. **NOTE:** Aircraft telemetry antenna modification blocks a portion of the right side emergency exits.

5.3.2. Cargo will be loaded so as to provide an unobstructed safety aisle from the cockpit to the rear of the aircraft.

5.4. Safety Belts, Shoulder Harness and Life Vests. The PIC will ensure crew members and passengers have safety belts securely fastened during takeoffs, approaches, landings, simulated emergencies and when turbulence is encountered or anticipated.

5.4.1. When occupying their crew position, the pilot and copilot will have safety belts and shoulder harnesses fastened at all times.

5.4.2. Life vests will be located in the immediate vicinity of the crew during over water flights so as to be accessible and worn when directed by the PIC.

5.5. Missions with Passengers. See [Para 3.3.1](#) for pilot qualification requirements.

5.5.1. Pilots shall not conduct emergency procedure patterns, touch-and-go, or stop-and-go landings with passengers on board. Emergency procedure training, touch-and-go and stop-and-go landings are authorized with MEPs on board.

5.6. Landing Gear and Flap Operating Policy. The pilot flying (PF) the aircraft will command configuration changes. The pilot not flying (PNF) the aircraft will verify appropriate airspeed and configuration prior, then echo the gear and/or flap actuation command, and finally, actuate the appropriate switch.

5.7. Jumpseat/Observer Duties. Available crewmembers/passengers should assist in clearing during taxi operations, and any time the aircraft is below 10,000 feet MSL (provided it does not distract the pilots).

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

5.8.1. Challenge and Response. IAW TO 1E-9A-1, and local governing directives.

5.8.2. Sterile Cockpit. Limit conversation to that essential for crew coordination and mission accomplishment during taxi, takeoff, approach, landing, and any flight below 400 feet AGL.

5.8.3. Only aircrew-essential communications are permitted from commencement of the takeoff roll until passing an altitude of 400' AGL. This applies during touch-and-go or stop-and-go landings also.

5.9. Aircraft Interphone. Primary crewmembers will monitor interphone (Net 1) during critical phases of flight. Crewmembers will advise the PF before checking off Net 1 and notify him/her of which Net will be monitored.

5.10. Radios.

5.10.1. The PNF normally makes all air traffic control (ATC) radio calls.

5.10.2. In terminal areas, all crewmembers (if able) will monitor the primary radio unless directed otherwise.

5.10.3. The pilot operating the radios will notify the crew which radio is primary, and update the crew when the primary radio changes.

5.10.4. Both pilots will monitor UHF guard emergency frequency.

5.11. Advisory Calls. The PF will periodically announce intentions during departures, arrivals, approaches, and when circumstances require deviating from normal procedures. Mandatory calls will be IAW squadron SOPs.

5.12. Runway Criteria. The PIC is responsible for determining that all airfield facilities are of suitable construction, width, length between barriers, and weight bearing capacity for normal operations.

5.13. Barrier Operations. Takeoff, touch-and-gos, and landings over a raised cable are not authorized due to restricted clearance of the sea surveillance radar dome. Taxiing over a raised cable is permitted and will be executed with caution at the discretion of the PIC.

5.14. Minimum Takeoff Runway. The accelerate-stop distance corrected by Runway Condition Reading (RCR) must be less than 80% of usable runway available

5.15. Minimum Landing Runway. The computed landing distance must be less than 80% of the useable landing distance (without propeller reverse) corrected for RCR.

5.16. Landing Surface. Operations from other than hard surfaced runways are not authorized.

5.17. Crosswind Limitations. The following table will be used to determine maximum crosswind component allowed for takeoffs, full stop landings, and touch and go's.

Table 5.1. Crosswind Limits.

MAXIMUM CROSSWIND IN KNOTS		
RCR	Full Stop	Touch and Go
26-23 (Dry)	20	15
15-12 (Wet)	15	10
11-09	10	Touch and go not authorized
08-05 (Ice/Snow)	05	Touch and go not authorized
04-01	Takeoff/landing not authorized	Touch and go not authorized

5.18. Maximum Gross Weights. Operating weights will be in accordance with the flight manual weight, altitude, and temperature limits. These limits will not be exceeded.

5.19. Transfer of Aircraft Control. Will be positive and verbally confirmed. The following information will be relayed: Aircraft altitude, heading, airspeed, primary navigational aid, and whether autopilot is engaged or not.

5.20. Altitude Monitoring. When climbing or descending the PNF will call 1,000 feet above/below and level off altitude. The PNF 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.

5.21. Landings. All landings will be made with 15° degrees of flaps unless an emergency dictates otherwise. Ensure sufficient runway is available beyond any barrier to permit a full stop landing without use of reverse.

5.22. Touch-and-Go Landings. Touch-and-go landings are authorized on runways with 6,000 ft or more between barriers. Procedures will be IAW squadron SOPs.

5.23. Radar Altimeter.

5.23.1. Any crewmember detecting the illumination of the radar altimeter Low Altitude Warning Light will immediately notify the PF. Terrain clearance and aircraft position must be verified.

5.23.2. Before departure set the radar altimeter for emergency return.

5.23.3. The pilot and copilot will use the same radar altimeter setting unless briefed otherwise.

5.23.4. Set the radar altimeter to the Height Above Touchdown/Height Above Airport (HAT/HAA) during instrument approaches.

5.24. Traffic Alert and Collision Avoidance System (TCAS). TCAS will be tested and audio monitored prior to and during flight if equipped. It is imperative to follow resolution advisories (RAs) to obtain aircraft separation computed by TCAS. Failure to follow the computed RA may increase the probability of a midair collision. Pilots who deviate from an ATC clearance in response to an RA shall notify ATC of the deviation as soon as practical and promptly return to the ATC clearance when the traffic conflict is resolved or obtain a new clearance.

5.25. Crew Resource Management (CRM) Assertive Statement “Knock it Off”

5.25.1. "Knock it Off" is the common assertive statement for use by all crewmembers. The use of "Knock it Off" will:

5.25.2. Provide a clear warning sign of a deviation, loss of situational awareness, or dangerous situation developing.

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

5.25.4. 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.

5.25.5. As soon as possible after a "Knock it Off " has been called, the aircrew will take the following actions:

5.25.5.1. Safety permitting, stabilize the aircraft and ensure terrain clearance.

5.25.5.2. The initiating crewmember will voice their concerns to the crew.

5.25.5.3. The PIC will provide all other crewmembers with the opportunity to voice inputs relative to the stated concerns.

5.25.5.4. After considering all inputs, the PIC will direct the aircrew to continue the current course of action or direct a new course of action.

5.26. 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 risk management is contained in AFI 11-290/ACC Sup 1. PICs are responsible for assessing ORM before flight IAW MAJCOM and local guidance as part of preflight activities.

5.27. Aviation Safety Action Program (ASAP). The Military Aviation Safety Action Program is an identity-protected, self-reporting system modeled after successful FAA/Airline programs to encourage the voluntary reporting Operational issues and events. It is designed to provide a non-punitive environment for the open reporting of safety concerns and information that might be critical to identifying hazardous situations and precursors to accidents. These safety concerns may be either observed or experienced by the submitter. The goal is to prevent mishaps by addressing those unintentional errors, hazardous situations and events, or high-risk activities not identified and/or correctable by other methods or through traditional safety reporting sources. The ASAP website is accessible at www.safety-masap.com. Crewmembers can submit comment via the Comment/Feedback link.

Chapter 6

AIRCREW PROCEDURES

6.1. General. Procedures in this chapter are to be used on E-9A missions. The procedures are designed to provide aircrews with standard methods of operation under normal conditions. The PIC is the final authority to operate other than standard if the situation dictates.

Section 6A-Pre-Mission

6.2. Aircrew Uniform.

6.2.1. Aircrew will wear the aircrew uniform, as outlined in AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*, and the appropriate MAJCOM supplement on all missions unless otherwise authorized.

6.2.2. Squadron commanders will determine clothing and equipment to be worn or carried aboard all flights commensurate with mission, climate and terrain involved.

6.2.3. All aircrew members are required to wear flight gloves during critical phases of flight and as deemed necessary by the PIC. Critical phases of flight is defined as engine starts, takeoffs, landings, and emergencies except where flight gloves hinder completion of required actions. Because of the inherent protection afforded, crewmembers are encouraged to wear gloves at all times in the aircraft. Gloves will not have the fingers exposed or modified in any manner.

6.3. Flight Planning Procedures. Aircrews will perform mission planning in sufficient detail to ensure safe and efficient mission accomplishment to include:

6.3.1. **Weight and Balance Clearance Form.** Pre-computed DD Forms 365-4 (or equivalent) are permitted. They must be available for ready reference and kept current in accordance with the contractor's maintenance plan. The PIC is responsible for ensuring the center of gravity is within specified limits for all flights.

6.3.2. **Weather Briefing.** The PIC is responsible for the best information available concerning weather, trends, and forecast for takeoff, the proposed route, destination, buoy data for mission sorties, and alternate airfields.

6.3.3. **Takeoff and Landing Data (TOLD) Computations.** A TOLD card will be computed for every mission and will cover the conditions existing at the takeoff location.

6.4. Flight Crew Information File (FCIF).

6.4.1. Crewmembers will review FCIF, Volume 1, before all missions or ground aircrew duties, and update the FCIF currency record with the latest FCIF item number, date, and crewmember's initials. **Note:** Electronic signatures, or PEX Sign-Off, may be used on FCIFs.

6.4.2. Crewmembers delinquent in FCIF review or joining a mission en route will receive an FCIF update from the PIC. Instructor pilots who fly with general officers are responsible for briefing appropriate FCIF items.

6.4.3. Crewmembers not assigned or attached to the unit operating a mission will certify FCIF review by entering the last FCIF number and their initials after their name on the file

copy of the flight authorization or file copy of their crew orders. This applies to all crewmembers if the electronic sign-in system is not working at show time.

6.5. Flight Kit Requirements. The following items will be carried as applicable:

- 6.5.1. AFI 11-202V3 and ACC Sup 1.
- 6.5.2. Aircraft Flight Manual (TO 1E-9A-1, TO 1E-9A-1CL-1, TO 1E-9A-1CL-2, and DeHavilland Manual)
- 6.5.3. Operating Data Manual (DeHavilland Manual)
- 6.5.4. Minimum Equipment List (MEL). AFI 21-103 ACC SUP 1, ADDENDUM Q and DeHavilland MMEL
- 6.5.5. FLIP terminal instrument approach procedures for the operating area of the aircraft.
- 6.5.6. FLIP enroute charts.
- 6.5.7. FLIP enroute supplement.
- 6.5.8. Pilots Flight Plan and Flight Log (AF Form 70, **Pilot's Flight Plan and Flight Log**) or approved substitute (i.e. stereo routing).
- 6.5.9. FLIP Standard Instrument Departures (SIDs) and FLIP Standard Terminal Arrival Routes (STARs).
- 6.5.10. 53 WEG Pilot Aid.
- 6.5.11. Supplemental weight and balance handbook to include a DD Form 365-4 (or equivalent) with standard setups (i.e., 2 pilots, 2 crew, and a full fuel load).

6.6. Mission Planning:

6.6.1. A pilot and telemetry operator will attend the Weapon System Evaluation Program (WSEP) pre-briefs unless missions dictate not attending. The PIC is responsible for gathering all pertinent mission information. For non-WSEP missions, the telemetry operator and PIC (if able) should coordinate mission requirements with the customer.

6.6.2. The crew briefing should occur NLT one hour prior to planned takeoff. All crew members should come to the crew briefing knowing what is needed to accomplish their portion of the mission. The main focus of the crew briefing should be a discussion on how the crew will act as a team to best accomplish the particular mission safely.

6.7. Performance Data. All factors which affect the performance of the airplane will be considered when computing takeoff data. Any one factor or combination of factors can jeopardize the safe accomplishment of the takeoff. Pilots should have complete understanding of the effects of gross weight, temperature, pressure altitude, runway available, runway gradient, runway condition, and wind on the airplane performance.

6.8. Flap Setting. Takeoff flap setting will be 5 degrees unless runway or climb out requirements dictate otherwise. Takeoff with 0 degrees flaps is not authorized.

- 6.8.1. Mandatory callouts will be IAW the Squadron Standard Operating Procedures (SOPs).

Section 6B – Pre-departure

6.9. Preflight. The PIC ensures the following are accomplished before departure.

6.10. Briefing/Debriefing:

6.10.1. The PIC is responsible for presenting a logical briefing that will promote safe, effective mission accomplishment and crew coordination. All crewmembers will attend these briefings unless excused by the PIC. Regardless, all crewmembers will be briefed prior to engine start. Briefing guides will be used to provide the briefer with a reference list of items that may apply to particular missions. Items listed may be briefed in any sequence. The briefer should tailor the briefing to the experience level of the aircrew participating in the mission as well as the difficulty of the mission.

6.10.2. Briefings should begin at least 1 hour before scheduled takeoff time.

6.10.3. An alternate mission will be briefed for each flight. Other than basic instrument and transition sorties, specifically brief the Operations Supervisor for approval of alternate mission profile.

6.11. AFTO Forms 781 Series.

6.11.1. Review AFTO Forms 781 series before applying power to the aircraft or operating aircraft systems. Any exceptional release must be signed before flight. A maintenance officer, maintenance superintendent, or authorized civilian normally signs the exceptional release. If one of these individuals is not available, the PIC may sign the exceptional release. Ensure that the DD Form 1896, *DoD Fuel Identiplate*, and Multi Service Corporation (MSC) AIR Card (AIR Card) are aboard the aircraft.

6.11.2. One-Time Flights. An aircraft may be released for one-time flight with a condition that might be hazardous for continued use, provided the aircraft is airworthy for one flight to another station for maintenance. Refer to T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, for downgrade authority and procedures. After the maintenance release is obtained, coordinate sortie requirements with the controlling agency. The PIC's concurrence is required before the aircraft can be flown.

6.12. FMS Verification. Both pilots will verify waypoint data inserted into the Flight Management System (FMS).

6.13. Oxygen Requirements. Oxygen will be used as prescribed in AFI 11-202V3/ACC Sup 1 or the flight manual, whichever is more restrictive.

6.14. Navigational Aids. Applicable navigational aids will be tuned and identified prior to departure to ensure accurate aircraft positioning.

6.15. 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 Risk Management is contained in AFI 90-802, *Risk Management*. PICs will accomplish ORM worksheets IAW MAJCOM and local guidance as part of preflight activities.

6.15.1. Flying units will develop a local ORM program to include personal ORM assessment for all missions and accomplished by all crewmembers prior to each flight.

Section 6C - Departure:

6.16. Taxi. All checklists will be accomplished IAW applicable flight manuals and local governing directives.

6.16.1. During ground operations in congested areas, all aircrew members will devote their full attention to clearing the aircraft.

6.16.2. Do not taxi an aircraft within 25 feet of obstructions without wing walkers monitoring the clearance between aircraft and obstructions. With wing walkers, avoid taxi obstructions by at least 10 feet. **EXCEPTION:** IAW AFI 11-218 *Aircraft Operations and Movement on the Ground*, aircraft may taxi without marshalers/wing walkers at home station along fixed taxi lines which have been measured to ensure a minimum of 10 feet clearance from any obstruction and the obstruction is permanent. Parked aircraft (e.g. on the WSEP ramp) are not considered permanent, and 25 feet of clearance, or a wing walker, is required.

6.16.3. The reverse taxi capability of the E-9 will not be utilized, except in an emergency.

6.16.4. Aircraft will not be taxied with malfunctions that affect the gear, the nose wheel steering, or brake systems.

6.17. Takeoff, Departure, Climb, and Cruise:

6.17.1. Takeoff, Departure, and Climb Briefing. The pilot performing the takeoff, departure, and climb will accomplish this IAW TO 1E-9A-1CL-1.

6.17.2. Takeoff. Takeoff weather minimums will be in accordance with AFI 11-202V3/ACC Sup 1.

6.17.3. Takeoff Performance. To obtain the best takeoff performance, prescribed takeoff procedures should be followed exactly. Airplane performance, as predicted by the Aircraft Dash-1 performance section, can only be achieved by following the procedures contained in this section. These procedures result in the safest possible operation of the airplane.

6.17.4. Engine-Out Takeoff. Engine-out takeoffs are not authorized.

6.18. Takeoff Aborts. If a takeoff abort occurs (regardless of airspeed), the crew will accomplish the full stop taxi-back checklist if another takeoff will be attempted. Determine maximum braking energy and consider the possibility of cumulative effects of hot brakes if a subsequent abort occurs.

6.19. On-Time Takeoffs. Mission departures are on time if the aircraft is airborne within 15 minutes of scheduled takeoff time or as specified in a MAJCOM supplement.

6.19.1. Early Departures. Early departures are authorized to prevent a delay due to weather, ATC restrictions, airfield or aircraft operational limitations, to adjust mission flow during a large-scale operation, or if approved through C2 channels provided the impact on local and downrange facilities and crew duty is evaluated.

6.20. Departure/Approach Briefing. The pilot who will perform the takeoff will accomplish the departure briefing. This briefing will be completed prior to taxiing onto the runway for takeoff. The approach briefing will be accomplished in conjunction with the descent or traffic pattern checklist.

6.21. Takeoff, Climb, and Cruise.

6.21.1. For normal missions in the Gulf Range the E-9A should fly a stereo flight plan.

6.21.2. The E-9A will fly IFR to the maximum extent possible. If unable to proceed IFR into working airspace, the following procedures are available:

6.21.2.1. Hold outside of airspace IFR with the controlling agency until scheduled airspace becomes available, and IFR entry is permissible.

6.21.2.2. Proceed IFR down a corridor until scheduled airspace becomes available, and IFR entry is permissible.

6.21.2.3. Proceed VFR into the airspace if able to maintain Visual Meteorological Conditions (VMC). Request flight following, and updates on aircraft working in the airspace. Work to coordinate for airspace below 7,000 MSL to accomplish range sweep.

6.21.3. At no time will E-9A aircraft penetrate warning area airspace without knowledge of, or coordination with the controlling agency or players. This presents an unacceptable hazard to both E-9A and other aircrews.

6.22. In-flight Emergency Procedures. The PIC shall report deviations from directives that may occur as a result of an emergency according to AFI 11-202V3. Time and conditions permitting, inform passengers of the situation and intentions.

6.22.1. When practical after completing the aircraft emergency action checklists and associated actions, the PIC shall furnish ATC and appropriate C2 agencies with a description of the difficulty, assistance required, intentions, and any other pertinent information. Follow tech order 1E-9A -1 guidance for emergency procedure actions.

6.23. Air Aborts. The mission will be aborted, regardless of apparent damage or subsequent normal operation, for any of the following:

6.23.1. Birdstrike/Foreign Object Damage.

6.23.2. Over-G. The aircraft will land when practical out of a straight-in approach.

6.23.3. Flight control system malfunctions.

6.23.4. Engine flameout or unplanned shutdown.

6.24. Weather Minimums for Takeoff: See [Table 6.1](#) below.

Table 6.1. Weather Minimums for Takeoff.

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

NOTES:

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

When weather is below approach and landing minimums (ceiling or visibility) a takeoff alternate is required (See paragraph 6.27.)

6.25. Alternate Planning. Select alternate airports meeting the requirements of AFI 11-202V3. Choose alternates that best meet mission requirements and conserve fuel; they should not be within the same terminal area, if terminal forecasts are marginal. Select alternates that are not restricted by FLIP and are compatible with the mission load and performance characteristics of the aircraft. The PIC retains final authority in the choice of alternates; however, selection by support agencies normally should be used if they meet the above criteria and the aircraft has already been serviced.

6.26. Departure Alternates.

6.26.1. A departure alternate is required if weather (ceiling or visibility) is below landing minimums for the available approach (at departure aerodrome).

6.26.2. Suitability of Departure Alternates. When a departure alternate is required, the aircraft must be capable of maintaining the minimum enroute altitude (MEA) or minimum obstruction clearance altitude (MOCA), whichever is higher, to the alternate using one engine inoperative (OEI) performance criteria. To qualify as a departure alternate, the airfield must meet one of the following conditions:

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

6.26.2.2. For an alternate within 1 hour flying time, the existing weather must be at least 500-1 above the lowest compatible published approach minimums, but not less than 600-2 for a precision approach or 800-2 for a non-precision approach, and forecast to remain so for 1 hour after ETA at the alternate.

6.27. Destination Requirements (for filing purposes). Plan fuel to an alternate only when 11-202V3 requires filing of an alternate. The forecast destination weather will be according to AFI 11-202V3 and the following:

6.27.1. File two alternates when:

6.27.1.1. The forecast visibility (intermittent or prevailing) is less than published for the available DoD precision approach; or:

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

6.27.2. When filing to a remote or island destination, aircrews may use holding in lieu of an alternate airport. In such situations, use 2+00 hours reserve fuel (1+15 holding in lieu of an alternate and 0+45 reserve). For remote destinations, reserve and contingency fuel, will be computed using consumption rates providing maximum endurance at 20,000 feet MSL at destination gross weight. A remote or island destination is defined as any aerodrome, which due to its unique geographic location, offers no suitable alternate (civil or military) within 2 hours of flying time. The forecast weather at the remote or island destination must meet the following criteria:

6.27.2.1. The prevailing surface winds, corrected for RCR, must be within limits at ETA and forecast to remain so for 2 hours thereafter, and:

6.27.2.2. The prevailing ceiling and visibility must be equal to or greater than published minimums for an available non-precision approach, for ETA plus 2 hours. However, if a precision approach is available, the ceiling or visibility may be intermittently below non-precision approach minimums (excluding ASR), but not below precision approach minimums (for ETA plus 2 hours). **NOTE:** See Chapter 10, Table 10.1, this AFI, for fuel planning considerations to a remote or island destination.

Section 6D – Enroute/Mission Execution.

6.28. Flight Progress. In-flight, use all available navigational aids to monitor FMS performance. Immediately report malfunctions or any loss of navigation capability that degrades centerline accuracy to the controlling air route traffic control center (ARTCC).

6.29. Operations Under Adverse Conditions. The following guidance will be strictly adhered to:

6.29.1. Thunderstorms. There is no mission which requires intentional penetration of a thunderstorm. Aircrews will follow guidance in AFI 11-202V3/ACC Sup 1.

6.29.2. When performing approaches and landings at locations where temperatures are 0°C or below, refer to the Flight Information Handbook (FIH) Section D, Temperature Correction Chart, to correct MDA, DH, and other altitudes inside the Final Approach Fix (FAF). Additional procedures for temperature corrections beyond the requirements listed in the FIH are contained in AFI 11-202V3/ACC Sup 1.

6.29.3. Do not fly into an area of known or forecast moderate or greater mountain wave turbulence.

6.29.4. Do not fly directly above (within 2,000 feet) thunderstorms or cumulonimbus clouds. If unable to vertically clear thunderstorms or cumulonimbus clouds by at least 2000 feet, avoid them by at least:

6.29.4.1. 20 NM at or above flight level (FL)230.

6.29.4.2. 10 NM below FL230, or:

6.29.4.3. 5 NM for low-level operations below FL230 provided the outside air temperature is at or above 0°C at flight altitude. Avoid gust fronts and winds preceding a rapidly moving thunderstorm. **CAUTION:** Aircraft damage may occur 20NM or more from any thunderstorm. Aircrews must familiarize themselves with information on thunderstorm development and hazards. Refer to AFH 11-203, Volumes 1 and 2, *Weather for Aircrews*.

6.29.5. The use of ground-based radar as a means of thunderstorm avoidance should only be used to assist in departing an inadvertently penetrated area of significant weather. It should never be considered a normal avoidance procedure. When relying exclusively on ground-based radar for weather avoidance, and the ground controller is unable to provide avoidance instructions, attempt to maintain VMC by:

6.29.5.1. Changing routing.

6.29.5.2. Diverting to alternate.

6.29.5.3. Declaring an emergency and requesting priority assistance.

6.29.6. Aircrews should avoid flying in areas of recently dissipated thunderstorms and advected clouds (horizontal movement of clouds caused by wind) downwind of thunderstorms.

6.29.7. In order to minimize exposure to thunderstorm hazards when approaching or departing an airport in an area where thunderstorms are occurring or are forecast:

6.29.7.1. Attempt to maintain VMC.

6.29.7.2. Maintain at least 5 NM separation from heavy rain showers.

6.29.7.3. Avoid areas of high lightning potential, i.e. clouds within plus or minus 5,000 feet of the freezing level or plus or minus 8°C of the freezing level. **NOTE:** Approaches or departures may be accomplished when thunderstorms are within 10NM providing they are not producing any hazardous conditions (such as hail, lightning, strong winds, gusts fronts, heavy rain, wind shear, or microburst) at the airport, and are not forecast or observed to be moving in the direction of the route of flight (to include the planned missed approach corridor, if applicable).

6.29.8. Missions will not be planned into areas of forecast severe turbulence.

6.29.9. Significant Meteorological Information (SIGMET). National Weather Service in-flight weather advisories are not limiting to Air Force aircraft. Contact the nearest military weather facility or flight service station for details, if applicable.

6.29.10. Severe Weather Penetration. Flight through severe weather should not be attempted. However, if unavoidable, prior to severe weather penetration, appropriate flight manual procedures will be accomplished.

6.29.11. Intentional flight into areas of known or forecast freezing rain or severe icing is prohibited. Cruising flight in moderate icing is permissible provided all de-ice equipment is operating and mission requirements will not allow for alternate profiles. The E-9A will not takeoff with suspected snow/ice on aircraft surfaces.

6.30. Range Patrol:

6.30.1. Initial range patrol will be accomplished at an altitude that the radar operator determines to be the best for that day, but all attempts will be made to keep UHF radio contact with the controlling agency. Normally altitudes from 5,000 ft to 8,000 ft work for initial range patrol. If radio contact cannot be maintained, the crew will inform the controlling agency prior to ascending. They will give an Estimated Time of Arrival (ETA) of when they will descend back to an altitude where radio contact can be maintained.

6.30.2. After the initial range patrol, the SSR operator will receive "boats of interest" (BOI) information from the Range Safety Officer (RSO) and coordinate with the crew on verifying contacts. The radar operator should pass current latitude, longitude, heading, and speed of the BOI to the RSO if the contacts pose a threat to the shoot track. If the radar system is not able to keep updates on the boats of interest, the radar operator will convey this to the RSO and pilots as soon as possible. The pilots will provide a stable platform and make every attempt to allow the radar system to update all BOI. If the crew believes that they will be unable to update a boat of concern for a period longer than 30 minutes, the SSR operator (callsign "Vanna") will inform the RSO. This call will include the contact number and the last time of known update.

6.31. Telemetry Receiving/Recording/Relaying:

6.31.1. The crew should hold at the altitude and standoff distance discussed in mission planning, unless conditions dictate otherwise.

6.31.2. Telemetry gathering may dictate bringing the wing up or down to improve telemetry data quality. Pilots may either use the rudder trim or manually step on the rudder to bring the wing up or down.

6.31.3. Care must be exercised when changing power during telemetry collection.

6.31.4. As airspeed decreases below 135-130 Knots Indicated Airspeed (KIAS) the outboard spoilers become effective. If the aircraft is in a slip to bring the wing up for telemetry collection and the plane slows through this speed the spoilers become effective immediately and bobble the wing. This bobble equates to decreased performance of the telemetry antenna and therefore transitioning through these speeds should be avoided during telemetry receiving.

6.31.5. Minimum airspeed of $1.3V_S$ will be observed. Landing gear horn actuation should be avoided.

6.32. UHF Relay:

6.32.1. The E-9A is equipped with 4 UHF radios capable of relaying two different pairs of frequencies. Two of the four radios are labeled Air-to-Ground; the other two are labeled Air-to-Air. Each Air-to-Ground radio is paired with an Air-to-Air radio to allow for the relay. Due to this set up, radios are described as Air-to-Air 1, Air-to-Ground 1, Air-to-Air 2, & Air-to-Ground 2. Do not tune/transmit on UHF 2 radio (copilot's side) if the same frequency is in one of the Air-to-Ground radios. The Air-to-Ground radio antennas and the UHF 2 antenna are in close proximity and could damage each other when simultaneously transmitting. If a SSR operator is aboard, the PIC may designate him/her with UHF relay operation responsibilities.

Section 6E – Arrival

6.33. Descent. Obtain approach and landing weather, compute landing data, and review the planned initial descent and approach. This initial review will, at minimum, include navigation aid frequencies, minimum and emergency safe altitudes, descent rates, minimums for the approach to be flown, missed approach procedures, landing ground roll and flare distance, and aerodrome sketch. The pilot flying the approach will brief the crew on the descent rate, Minimum Descent Altitude (MDA)/Decision Height (DH)/Vision Descent Point (VDP), and missed approach/climb out procedures. Lost communications procedures will be coordinated if required. During the descent and approaches, other crewmembers will back up the pilot flying the approach and report any deviation from prescribed procedures.

6.33.1. Both pilots flying the approach will set the radio altimeter MDA index to the Height Above Touchdown (HAT) or Height Above Airport (HAA) for the approach being flown.

6.34. Instrument Approaches: The E-9A is a category "B" aircraft. If an approach will be flown at greater than 120 KIAS, use category "C" minimums. Prior to starting an instrument approach, pilots will confirm that their aircraft can comply with the missed approach climb gradient requirements established in AFI 11-202 V3.

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

6.34.2. Night and Marginal Weather Operations. Fly a precision approach, if available, at night or during marginal weather. If a precision approach is not available, fly any approved instrument approach. A visual approach may be flown during night VFR conditions, if an approved instrument approach procedure is not available or mission requires a non-standard approach.

6.34.2.1. On training/evaluation flights at familiar fields, pilots may fly non-precision approaches or VFR traffic patterns to accomplish required training and evaluations. The pilot monitoring (PM) will monitor a precision approach when practical to enhance safety.

6.34.2.2. For recovery at home station, pilots may elect to fly a visual or non-precision approach, if weather minimums permit.

6.35. Instrument Approach Procedures. Before starting an instrument approach, or beginning an enroute descent, pilots will confirm the existing weather is reported to be:

6.35.1. At or above required visibility for straight-in or sidestep approaches.

6.35.1.1. For precision approaches, visibility will be no lower than RVR 2400 (730 meters) or 1/2 mile visibility (800 meters) with no RVR readout available. DH will be based on a HAT of no less than 200 feet.

6.35.1.2. At or above required ceiling and visibility for circling approaches.

6.35.1.3. If the ceiling is below the value depicted for published DoD precision approach, but visibility is at or above authorized minimums, comply with fuel requirements before initiating enroute descent, penetration or approach.

6.35.2. Established on a segment of the approach. When cleared for or established on a segment of the approach and weather is reported or observed to be below approach minimums, the PF has the option of continuing the approach to the missed approach point (MAP)/DH. If the approach is abandoned, level off (or descend if lower altitude is required for the missed approach procedure). Comply with the last assigned clearance until a new or amended clearance is received.

6.35.2.1. Do not continue the approach below minimums unless the runway environment is in sight and the aircraft is in a position to make a safe landing.

6.35.2.2. If the approach is continued, the PIC must have sufficient fuel available to complete the approach and missed approach, and proceed to a suitable alternate with normal fuel reserve.

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

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

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

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

6.36. 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.

6.36.1. The following criteria apply to all approaches:

6.36.1.1. At 1000 feet AGL:

6.36.1.1.1. Aircraft is in approach configuration. Circling configuration is acceptable for circling approaches. **NOTE:** In those cases where VFR traffic pattern is 1,000 feet AGL (as opposed to 1,500 feet), the aircraft will be configured for landing prior to commencing the base turn to final.

6.36.1.1.2. Airspeed is appropriate for the configuration and conditions.

6.36.1.1.3. Sink rate is no greater than 1200-1500 fpm. **NOTE:** Under certain conditions (WX, Threats, Terrain, etc.) some IAPs and Tactical Approaches may require greater than a 1000 fpm descent rate.

6.36.1.1.3.1. Non-precision Approaches. A recommended technique is to calculate a constant descent gradient profile from the FAF altitude to the VDP. This is considered the safest profile. During a go-around, ensure descent below the MDA does not occur.

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

6.36.1.1.5. Aircraft is on the correct track.

6.36.1.1.6. Aircraft in the correct bank angle to maintain proper approach track for instrument, circling, or visual/tactical approach.

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

6.36.1.1.8. If these criteria are not met by 1000 feet AGL, the PM will announce the deviation and the PF will take immediate corrective action. PM states "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. Examples: "1000, fast," or "1000, half dot low". If criteria are met, PM will simply state "1000."

6.36.1.2. From 500 AGL to the runway, if these parameters are exceeded the PM will announce "Go-Around" and the PF will execute a go-around/missed approach. If criteria for stable approach are met, the PM will state "500."

6.36.1.2.1. Parameters are the same as those at 1000 feet AGL.

6.36.1.2.2. If unstable at 500' crews should perform a go-around.

6.36.1.3. From 300' AGL to the runway, if these parameters are exceeded the PM will announce "Go-Around" and the PF will execute a go-around/missed approach. If criteria for stable approach are met, the PM will state "300', Stable."

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

6.36.1.3.1.1. Airspeed: +10/-5 kts from target

6.36.1.3.1.2. Bank Angle: +/- 15 degrees

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

6.37. Closed Traffic Patterns. Initiate the pattern at the departure end of the runway unless directed/cleared otherwise by local procedures or the controlling agency.

Section 6F – Post Flight/Miscellaneous

6.38. Loading and Offloading of Personnel. The loading/offloading of passengers and/or cargo through the aircrew entrance door is permitted. The PIC will ensure the number one engine is shut-down and propeller has stopped rotating before allowing personnel and/or cargo to enplane or deplane the aircraft. An aircrew member or crew chief will be positioned at the air stair door to assist passengers and keep them clear of the aircraft's propeller arc (forward of the plane extending perpendicular to the fuselage from the rear of the air stair door).

6.38.1. The loading/offloading of passengers and/or cargo through the cargo door is permitted. The PIC will ensure the number one engine is placed in the START/FEATHER position before any personnel and/or cargo are loaded or offloaded.

6.39. Cross-Country (X/C) Procedures:

6.39.1. Review/Approval. All off-station training and cross country sorties that will remain overnight will be approved IAW ACCI 11-261, *Cross Country Operations*.

6.39.2. Enroute Reporting. Any enroute changes in itinerary must be coordinated and approved through C2.

6.39.3. Refueling and Servicing. Aircrews should have refueling instructions, oil and oxygen servicing instructions, and extra oil onboard the aircraft. In absence of qualified maintenance personnel, crewmembers will check the engines oil level within 30 minutes of engine shutdown.

6.40. Night Flying Operations. Night flying operations are authorized. Pilots must be current and qualified IAW AFI 11-2E-9V1. If night flying operations must be conducted without a night flying current pilot, an instructor pilot must be at the controls (left or right seat) throughout the mission.

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

Chapter 7

AIRCREW SECURITY PROCEDURES

7.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (hijacking) of the E-9A aircraft. AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, AFI 31-101, *Integrated Defense (FOUO)*, FAA Notice (FAAN) 7110.422, *Aircraft Hijack and Suspicious Inflight Activities - Response and Notification Procedures*, and specific MAJCOM security publications contain additional guidance. Aircrews will not release information concerning hijacking attempts or identify armed aircrew members or missions to the public.

7.2. Security. The PIC determines the adequacy of local security capabilities to provide aircraft security commensurate with this chapter. If he or she determines security to be inadequate, the aircraft will depart to a station where adequate security is available. Aircraft security at non-United States military installations is the responsibility of the controlling agency.

7.2.1. Security personnel must be made aware of all visits to the aircraft. The security POC must be identified to the PIC.

7.2.2. Securing. Secure the aircraft during a remain overnight (RON) on non-secure ramps with tampering tape placed on the crew entrance door and cargo door.

7.3. Arrival. On arrival, the PIC will assess the local situation and ensure the aircraft and equipment are properly secured.

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

7.5. Entry Control Procedures. Unescorted entry is granted to aircrew members and support personnel assigned to the mission who possess their home station AF Form 1199, *Air Force Entry Control Card*, supported by an Entry Access List (EAL) or aircrew orders. Aircrew members are authorized escort authority.

7.6. Detecting Unauthorized Entry.

7.6.1. When parking on a secure ramp, the aircraft will normally be left unsealed to allow ground personnel immediate access. If, in the PIC judgment, the aircraft needs to be secured in order to detect unauthorized entry, then:

7.6.1.1. Use available aircraft ground security procedures/recommendations at destination.

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

7.6.1.3. Close and secure all doors and exits.

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

7.6.1.5. Report any unauthorized entry or tampering to the Office of Special Investigation (OSI), security forces or local authorities, and the C2 agency. Have aircraft thoroughly inspected prior to flight.

7.6.2. Security awareness is crucial to effective mission accomplishment. Aircrews must always remain vigilant to their surroundings, especially at high threat, low security locations. In addition to normal preflight activities, aircrews must inspect areas of the aircraft not covered by normal preflight duties, to include inside inboard main landing gear doors, nose wheel compartment, and the aft avionics bay for unfamiliar devices. Report any suspicious items to host security forces. Aircrews will maintain a heightened security posture throughout all pre-takeoff activities.

Chapter 8

AIRCREW OPERATIONAL REPORTS AND FORMS

8.1. General. This chapter provides guidelines for worksheets, reports, and forms associated with E-9A operational activities. Consult governing instruction or contact wing, unit, or local flight safety officers for assistance with safety forms.

8.2. AF Form 457, USAF Hazard Report. The AF Form 457 is a tool to notify supervisors and commanders of a hazardous condition that requires prompt corrective action. For hazardous weather, complete the front side of an AF Form 457 and send it to the parent wing flying safety office. Ensure the parent unit receives it within 5 days of the event. For more information, see AFI 91-202, *The US Air Force Mishap Prevention Program*.

8.3. AF Form 651, Hazardous Air Traffic Report (HATR). The AF Form 651 is a tool to report near midair collisions and alleged hazardous air traffic conditions. See [Attachment 3](#) of AFI 91-202 for more information concerning the HATR program.

8.3.1. AFI 91-204, *Safety Investigations and Reports*, and AFMAN 91-223, *Aviation Safety Investigations and Reports*, list HATR reportable incidents.

8.3.2. The PIC shall report the hazardous condition to the nearest ATC agency (e.g. center, Flight Service Station (FSS), control tower, or aeronautical radio station) as quickly as safety allows. Include the following information in the radio call (as appropriate):

8.3.2.1. Aircraft identification or call sign.

8.3.2.2. Time and place (radial/DME of NAVAID, position relative to the airfield, incident, etc).

8.3.2.3. Altitude or flight level.

8.3.2.4. Description of the other aircraft or vehicle.

8.3.2.5. Advise controlling ATC agency that the PIC will file a HATR upon landing.

8.3.3. Deadline to file a HATR is 24 hours after event via any communication mode available. If landing airport has a USAF airfield management function, submit completed AF Form 651 to the airfield management officer for forwarding to wing safety office. If landing airport does not have an airfield management office, notify the safety office of the Air Force base nearest to location where the condition occurred, PIC's home base safety office, or as prescribed by overseas MAJCOM. In that case, provide contact sufficient information to prepare AF Form 651.

8.3.4. Grant individuals who submit a HATR immunity from disciplinary action provided:

8.3.4.1. If they were the offending party, their violation was not deliberate.

8.3.4.2. They committed no criminal offense.

8.3.4.3. Their actions did not result in a mishap.

8.3.4.4. They properly reported the incident using procedures above.

8.4. Report Violations, Unusual Events, or Circumstances. PICs shall document events that require them to deviate from AFI 11-202V3 (unless waived by appropriate authority) or alleged navigation errors (include over-water position errors over 24NM, border, or ATC violations).

8.4.1. Describe deviation(s) using the following report format:

8.4.1.1. Facts. Report pertinent details of the event.

8.4.1.2. Investigation and analysis. Report circumstances which required/drove deviation(s).

8.4.1.3. Findings and conclusions.

8.4.1.4. Recommendations to prevent recurrence.

8.4.1.5. Corrective actions taken.

8.5. Unusual Events. PICs shall expeditiously report unusual events/circumstances that impact their mission to appropriate MAJCOM agencies. Reportable events include, but are not limited to, spectrum interference, interception, fuel dumping, multiple engine failure, hostile fire, injury to passenger or aircrew member, etc. This list is not all exhaustive. Most events require C2 agents to forward OPREP reports to higher headquarters. In all cases, pass the—who, what, when, where, why, and how of the incident to a C2 agency.

8.6. Petroleum, Oil, and Lubricants (POL) - Aviation Fuels Documentation. This section prescribes aviation POL (AVPOL) procedures that ensure correct documentation, form and invoice processing, and program supervision. Use the AIR Card for the purchase of aviation fuel and ancillary ground services at commercial airports (and some military installations) worldwide. The AIR Card is authorized for use by all U.S. government aircraft, state, and local law enforcement aircraft, and some foreign government aircraft. In most cases, there will be no changes when refueling at non-Defense Energy Support Center (DESC) contract locations. The AIR card is accepted at approximately 4,800 locations worldwide. A list of all MSC-accepting merchants can be found at <https://www.airseacard.com>. It replaces the SF 44 at locations that accept the AIR card.

8.6.1. Responsibilities. Aircrew and maintenance personnel will be familiar with AVPOL procedures and documentation requirements of this chapter. Improper use of the MSC card could create financial liability for the purchaser.

8.6.2. Refuel/defuel USAF aircraft at DoD locations whenever possible. If DoD service is not available, purchase fuel from other source(s) in the following priority:

8.6.2.1. Defense Fuel Supply Center (DFSC) or Canadian into-plane contracts.

8.6.2.2. Open market AIR card purchase to include Shell International Trading Company (SITCO) agreement.

Chapter 9

TRAINING AND OPERATING LIMITATIONS

9.1. General. This chapter's purpose is to establish procedures for continuation training, simulated emergency procedure training, and area work training that may be accomplished to include: steep turns, traffic pattern stall series, alternate gear extension, and Vertical-S maneuvers.

9.2. Area Work. Military Operating Areas (MOA) for area work will be coordinated with unit scheduling. Area work maneuvers will be conducted in VMC.

9.2.1. Steep Turns. Steep turns should be limited to 60° of bank during level flight.

9.2.2. Traffic Pattern Stall Series.

9.2.2.1. Pre-Series Checks:

9.2.2.1.1. Accomplish traffic pattern stall series at an altitude between 5,000 ft AGL and 15,000 ft MSL. The crew will obtain an altitude block for accomplishing traffic pattern stalls. Accomplish the "Descent Checklist" and the "Before Landing Checklist."

9.2.2.1.2. Do not trim the aircraft at speeds below 100 KIAS.

9.2.2.2. Stall Series. Power settings to be used will be briefed prior to accomplishment.

9.2.2.3. Post-Stall Series Checks. Complete the "After Takeoff/Climb Checklist".

9.2.3. Alternate Gear Extension. Follow the procedures in T.O. 1E-9A -1 for alternate gear extension training.

9.2.4. Vertical-S. Fly Vertical-S maneuvers in accordance with AFI 11-217 Volume 1.

9.3. Practice and Simulated Emergencies. Practice/simulated emergencies will not be accomplished when there are passengers who are not on the AF IMT 4327 (Flight Authorization) (exception: Mission essential personnel (MEP) listed on the passenger manifest). Inform the crew of simulated emergency procedure (EP) intentions and actions before commencing simulated EPs. Additionally, notify crew once simulated EP training is complete and/or terminated.

9.4. Single-Engine Simulation. The following procedures will be used when simulating an engine failure in flight.

9.4.1. PF will disengage the autopilot. Turn off synchrophase and set condition levers to maximum (1200 RPM). Retard the appropriate power lever to 15-20 percent torque.

9.4.2. Accomplish the appropriate checklist. (**NOTE:** The gear warning horn circuit breaker system will not be disabled).

9.4.3. An instructor pilot with direct access to flight controls, is required to conduct simulated single-engine approaches, simulated single-engine missed approaches, simulated single-engine touchdowns to a two-engine (normal) go, and simulated single-engine full stop landings on dry runways. Weather must be 1000 ft and 2 miles or circling minimums, whichever is higher for simulated single-engine operations. This restriction does not

preclude initiating simulated single engine training while in IMC above 1000 ft and 2 miles or circling minimums, whichever is higher.

9.4.4. During a simulated single-engine approach, if an unplanned go-around or missed approach is executed, both power levers will be used. Again, planned simulated single-engine missed approaches are permitted but will be thoroughly briefed prior to the missed approach.

9.4.5. Simulated loss of an engine immediately after takeoff may be performed under the following conditions:

9.4.5.1. With an IP occupying either seat.

9.4.5.2. After reaching at least 300 feet AGL on takeoff.

9.4.5.3. Day only, 1,000 ft and 2 miles or circling minimums, whichever is higher.

9.4.5.4. When airspeed is above minimum control speed or computed takeoff speed, whichever is higher.

9.4.6. At no time will more than one of the aircraft's engines be simulated out. Simulated single-engine missed approaches will be initiated above 300 feet AGL to ensure that the aircraft will not descend below 300 feet AGL throughout the maneuver. If the aircraft descends below 300 feet AGL for a planned full stop or touch-and-go landing and a missed approach is necessary, the missed approach will be accomplished using both engines.

9.5. Practice Emergency Descents. Practice emergency descents will be completed clear of clouds and before reaching 5,000 feet AGL or the established MOCA, whichever is higher.

9.6. Touch-and-Go/Stop-and-Go Weather Minimums. Normal touch-and-go/stop-and-go landings will not be accomplished unless the actual weather conditions are at or above published approach minimums for the approach being flown (minimum 2,400 RVR) and useable runway length is at least 6,000 ft.

9.7. Practice No-Flap Landings. Practice no-flap landings will not be accomplished in the E-9A aircraft.

9.8. Divert Instructions. Refer to 53 WEG/WSEP Pilot Aid for divert data.

9.9. Operating Limitations.

9.9.1. Unless specifically authorized elsewhere in this section, do not practice emergency procedures that degrade aircraft performance or flight control capabilities (in-flight). In an actual emergency, terminate all training and flight maneuver practicing. Training should only be resumed when the PIC determines it is safe.

9.9.2. Option Approach and Visual Low Approaches. Initiate a planned missed approach according to the limitations in [Table 9.1](#)

9.9.3. Aircrews will only perform engine-out approaches and landings during daytime and clear of clouds with a discernible horizon present.

9.9.4. Other simulated emergency approaches will be limited to non-critical phases of flight and will be kept to a minimum when IMC or at night.

Table 9.1. Training Flight Restrictions.

Maneuver	Altitude	Remarks
Actual engine shutdown	5,000 ft AGL (min)	Perform only for FCF (Actual or Training)
Instrument Missed/low approaches	MDA/DH	Initiate practice instrument missed approaches no lower than the minimum altitude for the type of approach executed.
Simulated single engine missed approach (MA) or go-around	Initiate at or above 300 ft AGL	For all unplanned go-arounds from simulated single-engine approaches and if single engine missed approach occurs below 300 ft AGL, use BOTH throttles during MA/GA maneuver
Planned VFR go-arounds with simulated emergencies <i>other</i> than engine out	Initiate no lower than 100 ft AGL	Practice balked landings may be initiated below 100 ft
Simulated engine failure	Initiate above 300 ft AGL in clean configuration, daytime, and clear of clouds	
Any simulated emergency (except engine failure) On takeoff On landing	Initiate above 1000 ft AGL Initiate above 1000 ft AGL	
Men and equipment on runway	Initiate above 500 ft AGL	

9.10. Instructor Pilot Briefing. Before all training/evaluation missions, instructors/flight examiners should brief their crew on the following items:

- 9.10.1. Training/Evaluation requirements. Instructors/evaluators (for each crew position) will outline requirements and objectives for each student or examinee.
- 9.10.2. Planned training area and airport considerations, if applicable.
- 9.10.3. Importance of both pilots to actively monitor the fuel balance.
- 9.10.4. Importance of maintaining at least minimum charted speeds for configuration.
- 9.10.5. Approach profiles, clearing procedures, and responsibilities.
- 9.10.6. Simulated scenarios and CRM.
- 9.10.7. Safety, aircrew discipline, and airmanship.

Chapter 10

FUEL PLANNING

10.1. General. This chapter provides general E-9A fuel planning considerations and procedures. Missions should be planned at altitudes, routes, and airspeeds to minimize fuel usage. Publish local procedures in unit supplements to this AFI.

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

10.2.1. Fuel Loads. Excessive ramp and recovery fuel adds to aircraft gross weight and increases fuel consumption. Standard ramp fuel loads will be used for local missions. Do not ferry extra fuel beyond optimum requirements for safe mission accomplishment and training objectives.

10.2.2. Flight Planning. Aircrew and mission planners will optimize flight plans and flight routing for fuel efficiency.

10.2.3. Center-of-Gravity (CG). Load and maintain aircraft within CG limits consistent with Flight Manual restrictions.

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

10.2.5. Takeoff. Rolling takeoffs will normally be used for takeoff. Consider using reduced power when able if conditions permit. This saves fuel and engine wear. Clean up on schedule and don't delay gear and flap retraction.

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

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

10.2.8. Cruise techniques. Attempt to trim the aircraft and match throttle settings whenever possible. Fly fuel efficient speeds and altitudes to the maximum extent possible.

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

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

10.2.11. Parking. Consider using shortest taxi route when able.

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

10.3.1. Plan a 45-minute fuel reserve at destination or alternate (when an alternate is required).

10.3.2. Plan fuel to an alternate only when AFI 11-202V3 and/or this document require the filing of an alternate.

10.3.2.1. When only one alternate is required, use the closest suitable airfield meeting mission requirement and 11-202V3 weather criteria.

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

10.3.2.3. When selecting an alternate, suitable military airfields are preferred, but not required.

10.3.2.4. The practice of selecting an alternate in another weather system or selecting an alternate based on maintenance capability will not be used.

10.3.2.5. For remote destinations, holding is authorized in lieu of an alternate airport. In such situations, use 2+00 hrs reserve fuel (1+00 holding in lieu of an alternate, 0+45 reserve, 0+15 contingency).

10.3.2.6. Alternate selection is ultimately the Aircraft Commander's responsibility and should include multiple factors including landing fees, diplomatic relationships and availability of contract gas. Fuel savings should not compromise mission effectiveness.

10.3.3. For all missions calculate an additional 15 minutes of contingency fuel to compensate for unforeseen circumstances during any phase of flight (i.e. unforecasted weather, launch delay, etc). Contingency fuel will not be considered reserve fuel since crews may burn some or all of their contingency fuel at any time during the mission. Compute using planned destination gross weight at 10,000 feet.

10.3.3.1. Reserve and contingency fuel will be computed using consumption rates providing maximum endurance at 10,000 feet MSL at destination gross weight. If an alternate is required, compute using weight at alternate destination. When computing reserve and contingency fuel for remote destinations, use consumption rates providing maximum endurance at 20,000 feet MSL. If an alternate is required, compute using weight at the alternate destination.

10.3.4. Using all available planning tools and guidance in this chapter, PICs will determine the required ramp fuel load (RRFL) to complete mission to the final destination when away from home station.

10.4. Fuel Requirements. This paragraph implements standard minimum fuel requirements. Comply with AFI 11-202V3/ACC Sup 1 and local guidance, if applicable.

10.4.1. Required ramp fuel will consist of all fuel required for engine start, taxi, takeoff, climb, cruise, alternate/missed approach (if required), descent, approach, transition, landing, and fuel reserve (holding fuel). Plan fuel load using computer flight plan or AF Form 70, *Flight Plan*, **Table 10.1**, and the flight manual (fuel plan not required on local training missions remaining within 100 NM).

10.5. Alternate Fuel. Fuel for flight from intended destination to alternate aerodrome at optimum altitude and normal cruise speed. Compute fuel, time, and altitude from T.O. 1E-9A-1.

When holding is required in lieu of an alternate at a remote or island destination, compute holding for 2+00 hours using planned destination gross weight at FL200. This provides 1+15 minutes holding fuel in addition to the 45 minute reserve requirement. A remote or island destination is defined as any aerodrome, which, due to its unique geographic location, offers no suitable alternate (civil or military). The forecast weather at the remote or island destination must meet the criteria listed in Chapter 6. **NOTE:** Plan initial arrival overhead destination with fuel for holding plus approach and landing or 800 pounds, whichever is greater. If destination has two operational and suitable runways for landing, plan initial arrival overhead destination with fuel for holding plus approach and landing or 600 pounds, whichever is greater. Additional fuel may be added to allow crews some flexibility when dealing with unplanned contingencies (e.g. weather avoidance, ATC delays, etc). When dealing with unplanned contingencies, crews will still plan to touchdown with fuel reserve (minimum). Unit may develop standard alternate fuel requirements for local training missions; however, these fuel requirements will not be less than those specified in this chapter.

Table 10.1. Fuel Requirements.

Fuel Load Component	Requirement⁴
1. Start, taxi, takeoff	200 pounds
2. En route ¹	Fuel for planned climb and cruise to overhead destination at cruise altitude or initial approach fix altitude
3. En route reserve (off-station sortie)	Fuel for 10 percent of flight time over route segments at normal cruise
4. Alternate, required by paragraph 6.26.	Fuel from overhead destination to the alternate at normal speed and altitude
	OR
Alternate, based on VIS only criteria (see paragraph 6.37.) ²	Fuel for descent, approach, and missed approach; use 200 pounds + fuel from destination to alternate using climb and normal cruise charts
5. Holding ³	0+45 fuel using holding charts at 10,000 feet. When holding in lieu of alternate is required (paragraph 6.37.) use 1+15 holding fuel computed at 20,000 feet
6. Approach and landing	200 pounds
7. Known holding delays	Fuel for planned holding when delays are anticipated
NOTES:	
(1) Include all planned off-course maneuvering for departure or en route deviations.	
(2) When two alternates are required, compute fuel from the destination to the most distant alternate only.	
(3) Minimum fuel required over destination or alternate is fuel for holding plus approach and landing or 1,000 pounds, whichever is greater.	
(4) Compliance with this chart ensures fuel reserve requirements in AFI11-202V3.	

10.6. Minimum Fuel. Minimum fuel is 400 pounds. Crews should plan to terminate all missions with not less than 400 pounds (when required holding is 1+15 crews should plan to land with approximately 800-1000 lbs). When operating in FAA airspace, pilots will declare minimum fuel to the controlling agency when in their judgment the aircraft may land at the intended destination with less than these amounts.

10.7. Emergency Fuel. Emergency fuel is 260 pounds. Crews will declare an emergency whenever it is determined that they will land with emergency fuel or less.

Chapter 11

AIRCREW MAINTENANCE SUPPORT PROCEDURES

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

11.2. Responsibilities. Aircrew may assist the normal maintenance function when critical contingency tasking dictate their use, provided this action does not impact crew duty and crew rest limits specified in Chapter 3 of this AFI.

11.3. Authority to Clear a Red X. Pilots are not normally authorized to clear a Red X. If a situation is encountered where the aircraft is on a Red X and qualified maintenance personnel are not available to clear it, the PIC may obtain authorization to clear the Red X from the owning MX Program Manager or OG/CC. Other crew members are not authorized to clear a Red X.

11.4. Aircraft Servicing. Aircrew are normally not required to service the aircraft; however, they are qualified and authorized to perform those aircrew maintenance support tasks found in this volume. The aircrew performs these tasks only in the absence of qualified maintenance personnel. This exception is designed for support of the aircraft and its mission while away from home station. Without exception, the applicable checklists will be used during all refueling and de-fueling operations.

11.4.1. Aircraft Refueling. Aircrew members qualified in ground refueling may perform refueling duties. Aircrews will only refuel in cases when maintenance support is not readily available and the mission would be delayed.

11.4.1.1. When crewmembers are required to refuel, a pilot will act as the refueling team supervisor. Pilots acting as refueling supervisors and panel operators will comply with T.O. 00-25-172, *Ground Servicing Of Aircraft And Static Grounding/Bonding (ATOS)*, and applicable E-9A series T.O.s.

11.4.1.2. Concurrent Ground Operations. Concurrent servicing ground operations are not authorized.

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

11.4.2.1. Electric and electronic equipment may be left on provided it does not radiate energy; but it must not be turned on or off during refueling.

11.4.2.2. TACANs must be turned off.

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

11.4.2.4. IFF may be in standby but, if time permits, should be turned off.

11.4.2.5. FMS may be on and may be updated. Do not turn on or off during refuel operations.

11.4.2.6. A ground power unit (GPU) may be used to supply aircraft electrical power.

11.4.3. Fire Protection and Crash Rescue.

11.4.3.1. A fire bottle, if available, should be positioned near the front of the aircraft prior to starting engines.

11.4.4. Aircrew and Maintenance Engine Runs.

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

11.4.4.1.1. Coordinate engine run with scheduling and engine run objectives with maintenance.

11.4.4.1.2. Accomplish aircraft interior and exterior checklists, engine start and before taxi, taxi (if required), and engine shutdown checklists.

11.4.4.1.3. If taxi is required, coordinate with ground controllers or tower controllers as appropriate.

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

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

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

11.5.1.1. Taxi, parking and mission tasking coordination with C2.

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

11.5.1.3. Supervision of minor maintenance within local capability.

11.5.1.4. Minor configuration changes to meet mission tasking.

11.5.1.5. Securing the aircraft before entering crew rest.

11.5.1.6. Coordinating aircraft security requirements.

11.5.1.7. Documenting AFTO 781-series forms.

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

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

Chapter 12

CARGO AND PASSENGER PROCEDURES

12.1. General. A pilot coordinates passenger and cargo loading with C2 agency and/or unit schedulers.

12.2. Responsibilities for Aircraft Passenger Loading. A passenger manifest will be provided to the PIC to verify passengers on board for mission. The PIC or a designated representative qualified in egress procedures training will brief passengers on emergency actions and other pertinent passenger information. See Attachment 2 for Passenger Briefing Guide.

12.3. Responsibilities for Aircraft Cargo Loading. The pilot is responsible for aircraft preflight, load planning (as required) of all cargo, preparing takeoff and landing data, weight and balance criteria, properly operating aircraft equipment, tiedown of cargo, and checking the cargo against manifests. The pilot supervises and directs on/offloading and is responsible for safe movement of cargo into and out of the aircraft.

12.4. Emergency Exits and Safety Aisles. No part of the cargo load will extend into the aisle, so as not to obstruct the aisle in case of evacuation.

TOD D. WOLTERS, Lt Gen, USAF
Deputy Chief of Staff for Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

- AFI 11-2E-9V1, *E-9—Aircrew Training*, 10 Jul 2012
- AFI 11-2E-9V2, *E-9—Aircrew Evaluation Criteria*, 16 Sep 2011
- AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 Jan 2012
- AFI 11-202V1, *Aircrew Training*, 22 Nov 2010
- AFI 11-202V2, *Aircrew Standardization/Evaluation Program*, 13 Sep 2010
- AFI 11-202V3, *General Flight Rules*, 22 Oct 2010
- AFH 11-203 Vol 1, *Weather for Aircrews*, 12 Jan 2012
- AFH 11-203 Vol 2, *Weather for Aircrews*, 16 May 2002
- AFMAN 11-217V1, *Instrument Flight Procedures*, 22 Oct 2010
- AFI 11-290, *Cockpit/Crew Resource Management Program*, 15 Oct 2012
- AFI 11-301, Vol 1, *Aircrew Flight Equipment Program*, 25 Feb 2009
- AFI 11-401, *Aviation Management*, 10 Dec 2010
- AFI 11-401/ACC Sup 1, *Orientation Flight Program*, 25 Apr 2008
- AFI 11-403, *Aerospace Physiological Training Program*, 30 Nov 2012
- AFI13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, 21 Jun 2010
- AFI31-101, *Integrated Defense (FOUO)*, 08 Oct 2009
- AFI 33-360, *Publications and Forms Management*, 07 Feb 2013
- AFI 36-2201, *Air Force Training Program*, 15 Sep 2010
- AFI 91-202, *The US Air Force Mishap Prevention Program*, 05 Aug 2011
- AFMAN 11-210, *Instrument Refresher Program (IRP)*, 03 Feb 2005
- AFPD 10-9, *Lead Command Designation and Responsibilities for Weapon Systems*, 8 Mar 2007
- AFPD 11-2, *Aircrew Operations*, 19 Jan 2012
- AFPD 11-4, *Aviation Service*, 1 Sep 2004.
- AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*, 18 Jul 2011
- AFI 90-802, *Risk Management*, 11 Feb 2013
- AFI 11-218, *Aircraft Operation and Movement on the Ground*. 28 Oct 2011
- AFI 91-204, *Safety Investigations and Reports*, 24 Sep 2008
- AFMAN 91-223, *Aviation Safety Investigations and Reports*, 16 May 2013

Prescribed Forms

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

AFTO FORM 781 A, *Maintenance Discrepancy and Work Document*

DD Form 365-4, *Weight and Balance Clearance Form F* or Equivalent

AF IMT 8, *Certificate of Aircrew Qualification*

AF IMT 4327, *Flight Authorization*

Adopted Form

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AC—Aircraft Commander

ACC—Air Combat Command

ACCI—Air Combat Command Instruction

ADI—Attitude Indicator

AFI—Air Force Instruction

AFTO—Air Force Technical Order

AGE—Aircraft Ground Equipment

AGL—Above Ground Level

ASR—Airport Surveillance Radar

ASRR—Airfield Suitability Restrictions Report

ATC—Air Traffic Control

BOI—Boats of Interest

BMC—Basic Mission Capable

C2—Command and Control

CDT—Crew Duty Time

CFR—Code of Federal Regulation

CRM—Crew Resource Management

CVR—Cockpit Voice Recorder

DH—Decision Height

DME—Distance Measuring Equipment

DoD—Department of Defense

EP—Evaluator Pilot

ERO—Engine Running Onload/Offload

ETA—Estimated Time of Arrival
FAF—Final Approach Fix
FCIF—Flight Crew Information File
FDP—Flight Duty Period
FIH—Flight Information Handbook
FLIP—Flight Information Publications
FMS—Flight Management System
FMC—Fully Mission Capable
GFR—Government Flight Representative
HAA—Height Above Airport
HAT—Height Above Touchdown
HATR—Hazardous Air Traffic Report
HQ—Headquarters
IAW—In Accordance With
IMC—Instrument Meteorological Conditions
IP—Instructor Pilot
KIAS—Knots Indicated Airspeed
MAJCOM—Major Command
MAP—Missed Approach Point
MDA—Minimum Descent Altitude
MDS—Mission-Design Series
MEA—Minimum Enroute Altitude
MEL—Minimum Equipment List
MEP—Mission Essential Personnel
MESL—Minimum Equipment Subsystems List
MMEL—Master Minimum Equipment List
MOA—Military Operating Area
MOCA—Minimum Obstacle Clearance Altitude
MSL—Mean Sea Level
OEI—One Engine Inoperative
ORM—Operational Risk Management
NAVAID—Navigation Aid

NLT—No Later Than
NOTAM—Notice to Airman
PEX—Patriot Excalibur
PF—Pilot Flying
PIC—Pilot in Command
PM—Pilot Monitoring
PNF—Pilot Not Flying
RA—Resolution Advisory
RCR—Runway Condition Reading
RM—Risk Management
RON—Remain Overnight
RRFL—Required Ramp Fuel Load
RSO—Range Safety Officer
RVR—Runway Visual Range
SID—Standard Instrument Departures
SOF—Supervisor of Flying
SOP—Standard Operating Procedures
SQ/CC—Squadron Commander
SQ/DO—Squadron Director of Operations
TCAS—Traffic Collision Avoidance System
T.O.—Technical Order
TOLD—Takeoff and Landing Data
TM—Telemetry
UHF—Ultra High Frequency
VDP—Vision Descent Point
VFR—Visual Flight Rules
VMC—Visual Meteorological Conditions
WEG—Weapons Evaluation Group
WSEP—Weapon System Evaluation Program
X/C—Cross Country

Attachment 2
BRIEFING GUIDES

A2.1. GENERAL BRIEFING GUIDE**A2.1.1. MISSION DATA:**

- A2.1.1.1. Mission Objective
- A2.1.1.2. Flight Authorization/Flight Orders/ORM
- A2.1.1.3. Time Hack/Date
- A2.1.1.4. Mission number
- A2.1.1.5. Airspace
- A2.1.1.6. Range Time
- A2.1.1.7. Start Time
- A2.1.1.8. Takeoff time
- A2.1.1.9. Departure
- A2.1.1.10. Drone takeoff
- A2.1.1.11. Aircraft tail number and call sign
- A2.1.1.12. Takeoff Weight
- A2.1.1.13. Takeoff Torque
- A2.1.1.14. Maximum Torque allowed
- A2.1.1.15. Takeoff Roll Distance
- A2.1.1.16. V1, V2, Vse, Vapp, Vse, Vref, Vgo around
- A2.1.1.17. Current and forecast weather
- A2.1.1.18. Alternate or Take-off alternate required? and if so, its weather.
- A2.1.1.19. NOTAMS
- A2.1.1.20. Personnel Equipment
- A2.1.1.21. PEX/FCIF
- A2.1.1.22. Publications/Charts

A2.1.2. Mission Specifics:

- A2.1.2.1. Brief preflight duties.
- A2.1.2.2. Brief engine start and taxi procedures.
 - A2.1.2.2.1. a. Normal procedures.
 - A2.1.2.2.2. b. "What if" emergencies.
- A2.1.2.3. Brief takeoff procedures.

A2.1.2.4. Brief normal flight beginning at level off to include:

- A2.1.2.4.1. a. Level off altitude and final SID procedures (brief DD Form 175 if filed).
- A2.1.2.4.2. b. Range Patrol procedures.
- A2.1.2.4.3. c. Communications Plan.
- A2.1.2.4.4. d. Telemetry Procedures.
- A2.1.2.4.5. e. TM/Relay Frequencies
- A2.1.2.4.6. f. Recovery Procedures.
- A2.1.2.4.7. g. Traffic pattern work.
- A2.1.2.4.8. h. Debrief time.

A2.1.3. Other Topics:

- A2.1.3.1. Alternate Mission
- A2.1.3.2. Abnormal/Emergency Procedures (EP)
 - A2.1.3.2.1. a. Aborts
 - A2.1.3.2.2. b. Landing Immediately After Takeoff
 - A2.1.3.2.3. c. RESCAP
 - A2.1.3.2.4. d. Emergency/Alternate Airfields
 - A2.1.3.2.5. e. EP of the Day

A2.1.4. Special Subjects:

- A2.1.4.1. Crew Coordination
 - A2.1.4.1.1. a. Time crunches for each crew member.
 - A2.1.4.1.2. b. Task saturation for each crew member.
 - A2.1.4.1.3. c. Prioritization
 - A2.1.4.1.4. d. Situational Awareness.
 - A2.1.4.1.5. e. Interphone procedures.
- A2.1.4.2. Special Interest Items

A2.2. PASSENGER/ORIENTATION BRIEFING GUIDE

- A2.2.1. Location and Use of Emergency Exits
- A2.2.2. No Smoking/Seat Belt Signs/Use of Seat Belts
- A2.2.3. Emergency Depressurization/Use of Oxygen
- A2.2.4. Location/Use of Life Rafts/Ditching Procedures
- A2.2.5. Use of Electronic Equipment in Flight
- A2.2.6. Use of Lavatory

A2.2.7. Communications Procedures

A2.3. MISSION DEBRIEFING GUIDE

A2.3.1. Ground Procedures

A2.3.2. Takeoff/Departure

A2.3.3. Enroute Procedures

A2.3.4. Recovery/Landing

A2.3.5. General

A2.3.5.1. a. Radio Procedures

A2.3.5.2. b. Crew Coordination

A2.3.6. Mission Accomplishment/Analysis

A2.3.6.1. a. Mission Reconstruction

A2.3.6.2. b. Mission Support

A2.3.6.3. c. Objectives Achieved

A2.3.6.4. d. Lessons Learned

A2.3.6.5. e. Recommendations for Improvement

A2.3.7. Comments/Questions