*BY ORDER OF THE COMMANDER*
*AIR EDUCATION AND TRAINING COMMAND*

*AIR EDUCATION AND TRAINING COMMAND MANUAL 11-2T-7, VOLUME 3*

*17 FEBRUARY 2026*

***Flying Operations***

***T-7 OPERATIONS PROCEDURES***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

---

**ACCESSIBILITY:** Publications and forms are available for downloading or ordering on the e-Publishing website at **www.e-Publishing.af.mil**

**RELEASABILITY:** There are no releasability restrictions on this publication

---

OPR: AETC/A3V

Certified by: AETC/A3/6

Pages: 62

---

This manual implements Air Force Manual (AFMAN) 11-202V3, *Flight Operations*. This manual prescribes standard procedures used by all aircrew members operating an Air Force T-7 aircraft and applies to all Air Education and Training Command (AETC) Regular Air Force, Air Force Reserve, and Air National Guard instructors flying the T-7 but does not apply to members of the US Space Force. Refer recommended changes and questions about this manual to the Office of Primary Responsibility (OPR) listed above using the Department of the Air Force (DAF) Form 847, *Recommendation for Change of Product*; route DAF Forms 847 from the field through the appropriate Stan/Eval functional chain. The authorities to waive wing/unit level requirements in this manual are identified with a tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*, for a description of the authorities associated with the tier numbers. Submit requests for waivers through the chain of command to the appropriate tier waiver approval authority, or alternately, to the OPR for non-tiered compliance items. Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. This publication may be supplemented at any level, but all supplements must be routed to the OPR of this publication for coordination prior to certification and approval.

# Chapter 1

## GENERAL GUIDANCE

**1.1. Scope.** This manual outlines the procedures applicable to the safe operation of the T-7. With the complementary references cited, this manual prescribes standard operational procedures to be used by all aircrew members operating T-7 aircraft.

**1.2. Roles and Responsibilities.** This manual prescribes procedures for operating T-7 aircraft under most circumstances. It is not a substitute for sound judgment. Procedures not specifically addressed may be accomplished if they enhance safe and effective mission accomplishment.

1.2.1. Commanders. Commanders at their respective tier levels are responsible for complying with guidance in this manual. T-7 flying unit wing commanders, delegated no lower than the operations group commander (or equivalent), are responsible for providing local operating guidance to supplement the requirements of this Manual.

1.2.2. Pilot in Command (PIC) Authority. The pilot in command is responsible for and is the final authority for the operation of the aircraft. Pilots will use best judgment to safely conduct flying operations while adhering to all regulations IAW AFMAN 11-202V3. Personnel will not deviate from the procedures in this publication without specific approval by AETC director of operations (A3) unless an urgent requirement or aircraft emergency dictates otherwise. **(T-2)** In this case, PIC may take all actions necessary to safely recover the aircraft and/or aircrew. Aircrews will notify their squadron leadership (i.e., operations supervisor, Director of Operations, Commander) within 24 hours of actions taken for any deviations. **(T-2)**

1.2.3. AETC Standardization & Evaluation Division (AETC/A3V). Statements along the lines of “AETC will provide guidance…”, “AETC will define…”, etc. will be defined by AETC/A3V prior to students operating under this manual. These are identified areas in which T-7 initial cadre will provide input.

**1.3. References.** The primary reference for T-7 operations is Technical Order 1T-7-1, *Flight Manual, USAF Series T-7 Aircraft* and this manual.

## Chapter 2

## MISSION PLANNING

**2.1. Responsibilities.** The responsibility for mission planning is shared jointly by the PIC and the operations functions of organizations.

**2.2. General Procedures:**

2.2.1. Pilots should ensure sufficient flight planning to assure safe mission accomplishment. The minimum requirements are outlined within AFMAN 11-202V3.

2.2.2. Pilots will compute takeoff and landing data for all flights. **(T-2)** Major Command (MAJCOM)-approved tab data or electronic calculators may be used. Aircrew will use single-ship takeoff and landing data for formation takeoffs. **(T-2)**

2.2.2.1. The minimum runway length required for normal operations is 6,000 feet. **(T-2)** Operations group commander approval is required for takeoff/landing with a runway length between 5,000 feet and 5,999 feet long. **(T-2)** For airfields with declared distances, pilots will ensure the available runway length is greater than the minimum runway length. **(T-2)**

2.2.2.2. For T-7 operations at airfields using declared distances, in place of the usable runway length, pilots will use Takeoff Run Available. **(T-2)**

2.2.2.3. Pilots will use the shorter of Accelerate-Stop Distance Available and useable runway length to calculate refusal speed. **(T-2)**

2.2.2.4. Pilots will ensure the calculated takeoff distance meets the criteria in **paragraph 3.7.3** and is less than or equal to Takeoff Runway Available before accepting the respective runway for takeoff. **(T-2)**

2.2.2.5. Pilots will ensure the calculated landing distance is less than or equal to Landing Distance Available before accepting the respective runway for landing. **(T-2)** Aircrew may use projected weight and forecast conditions for landing data calculations at drop-in locations and the destination airfield.

2.2.2.6. For touch-and-go operations, aircrew will confirm takeoff and landing data for the projected aircraft weight make it possible to conduct an initial takeoff and a full stop (treated as separate operations) within the runway's declared distances. **(T-2)**

2.2.3. Runway Condition Assessment Matrix (RCAM). When necessary, aircrew will use the RCAM to derive the runway condition reading (RCR) and associated information (i.e., runway surface condition, pilot reported braking action, etc.) from the runway condition code described in published field condition notices to airmen. **(T-2)** The RCAM is in the Flight Information Handbook.

2.2.4. Students will use flight planning software according to current training syllabus guidance. **(T-2)**

2.2.5. AETC will define in this publication T-7 terminal area navigation operations procedures.

**2.3. Map and Chart Preparation:**

2.3.1. Local Area Maps. A local area map is not required if aircrew aids include jettison areas, divert information, controlled bailout areas and provides sufficient detail of the local area to remain within assigned training areas.

2.3.2. Charts. Flight information publications (FLIP) en route charts may be used instead of maps on navigational flights within areas adequately covered by these charts.

2.3.3. Low Altitude Maps:

2.3.3.1. On low-altitude flights (500 feet to 1,000 feet above ground level [AGL]), each aircrew in the flight will carry a current map of the low altitude route or operating area. **(T-2)** AETC will specify in this publication whether the T-7 electronic map functions or current electronic flight book overlays may be used to satisfy this requirement.

2.3.3.2. Aircrew will prepare maps for low-altitude flights according to AFMAN 11-202V3, MAJCOM guidance, and as directed locally. **(T-2)** The map will be of such scale and quality that terrain features, hazards and chart annotations are of sufficient detail to allow individual navigation and safe mission accomplishment. **(T-2)**

**2.4. Briefing and Debriefing:**

2.4.1. Flight leads are responsible for presenting a logical briefing that will promote safe, effective mission accomplishment. **(T-2)** In addition, the following guidance applies:

2.4.1.1. All aircrew will attend the briefing and debriefing unless previously coordinated with the flight lead, instructor, or with unit supervisors (if the flight lead or instructor is not immediately available) and at least one member from each aircraft is present. **(T-2)**

2.4.1.2. For local sorties, briefings will begin at least 1 hour before scheduled takeoff. **(T-2)**

2.4.1.3. During deployed operations, exercises and quick-turns, if all flight members attend an initial or mass flight briefing, the flight lead on subsequent flights during the same flight duty period must brief only those items that have changed from the previous flights. **(T-2)**

2.4.1.4. Briefers will structure flight briefings to accommodate the capabilities of each aircrew member in the flight. **(T-2)** Briefers will brief the position of the pilot priority switch on every dual sortie, unless the pilot priority switch position will be as detailed in unit-level guidance or standards. **(T-2)** Aircrew will discuss the risks of inadvertent stick actuations and the dangers of dual controlling the aircraft. **(T-2)**

2.4.1.5. Briefers will use briefing guides to provide the flight lead or briefer with a reference list of items which may apply to particular missions. **(T-2)** Items listed may be briefed in any sequence. Those items understood by all participants may be briefed as standard. Specific items not pertinent to the mission need not be covered.

2.4.1.6. During the briefing for all low altitude missions, briefers will emphasize the following items: obstacle awareness, ground avoidance, aircrew determination of low-altitude comfort level and the avoidance of complacency. **(T-2)**

2.4.1.7. The squadron operations officer must approve dissimilar formations prior to accomplishment. **(T-2)** When dissimilar aircraft are flown in formation, briefers will brief proper position (to ensure adequate wingtip clearance), responsibilities and aircraft-unique requirements for each phase of flight. **(T-2)**

2.4.1.8. When appropriate, briefers will brief an alternate mission for each flight. **(T-2)** The alternate mission will be less complex than the primary mission.

2.4.1.9. Mission elements and events may be modified and coordinated airborne if flight safety is not compromised. Pilots will not fly any unbriefed missions or events will not be flown. **(T-2)** Flight leads will ensure changes are acknowledged by all flight members.

2.4.1.10. Briefers will debrief all missions. **(T-2)**

2.4.2. Required topics for flight briefing guides are contained in Attachments **3** through **13.** Units may augment these guides as necessary. The following is a listing of the briefing guides in this manual:

2.4.2.1. Ground Ops/Takeoff/Departure Briefing Guide **(Attachment 3).**

2.4.2.2. Recovery/After Landing Briefing Guide **(Attachment 4).**

2.4.2.3. Special Subject Briefing Guide **(Attachment 5).**

2.4.2.4. Advanced Handling/Instrument Briefing Guide **(Attachment 6).**

2.4.2.5. Air Combat Training/Intercept Briefing Guide **(Attachment 7).**

2.4.2.6. Basic Fighter Maneuvers/Air Combat Maneuvering Briefing Guide **(Attachment 8).**

2.4.2.7. Escort Mission Briefing Guide **(Attachment 9).**

2.4.2.8. Low Altitude Navigation Briefing Guide **(Attachment 10).**

2.4.2.9. Air-to-Surface Weapons Employment/Range Mission Briefing Guide **(Attachment 11).**

2.4.2.10. Crew/Passenger/Ground Crew Coordination Briefing Guide **(Attachment 12).**

2.4.2.11. Mission Debriefing Guide **(Attachment 13).**

## 2.5. Unit-Developed Checklists and Local Pilot Aids:

2.5.1. Unit-developed checklists may be used in lieu of flight manual checklists. If used, unit-developed checklists will be established IAW AFI 11-215, *Flight Manuals Program*. Aircrew will have a current flight manual checklist immediately available on all flights. **(T-2)**

2.5.2. Local aids will include, as a minimum, the following items:

2.5.2.1. Briefing guides pertinent to the unit's mission(s).

2.5.2.2. Local radio channelization.

2.5.2.3. Appropriate airfield diagrams (home and auxiliary fields), including aircraft arresting systems.

2.5.2.4. Emergency information (impoundment procedures, emergency action checklists, radio failure and divert information).

2.5.2.5. Aircraft arresting systems information at divert bases.

2.5.2.6. Bailout and jettison area.

2.5.2.7. Cross-country procedures to include command and control, engine documentation, Joint Oil Analysis Program samples and aircraft servicing.

2.5.2.8. Other information as deemed necessary by the unit (for example, stereo flight plans, turnaround procedures, local training areas, instrument preflight, and datalink procedures).

**2.6. Navigation Data Loading Procedures.** AETC will define in this publication the procedures that aircrew will use to build, load, and validate the navigational data in the T-7.

## Chapter 3

## NORMAL OPERATING PROCEDURES

**3.1. Ground Visual Signals.** The PIC will ensure that no system that could pose a risk to the ground crew is activated prior to receiving proper acknowledgment from ground personnel. **(T-2)** When ground intercom is not used, aircrew will use visual signals IAW AFMAN 11-218, *Aircraft Operations and Movement on the Ground,* and this manual. **(T-2)** AETC will define in this publication specific visual signals to augment AFMAN 11-218 when conducting automated flight control checks.

**3.2. Preflight:**

3.2.1. AETC will define in this publication whether baggage or equipment may be carried in unoccupied T-7 rear cockpits and detail any approved T-7 rear cockpit cargo carriers. **Exception:** Aircrew flight equipment may be secured in the rear cockpit.

3.2.2. Aircrew will not place objects on top of the glare shield during start with the canopy open. **(T-2)**

3.2.3. Aircrew will secure all publications, maps and personal items in the cockpit to avoid flight control or throttle interference. **(T-2)**

3.2.4. For solo, orientation, or incentive flights, the PIC will ensure the electronic inter-seat sequencer is set IAW local guidance. **(T-2)**

3.2.5. AETC will define in this publication when aircrew are required to wear a G-suit.

3.2.6. The PIC will verbalize the position of the pilot priority switch to the other crewmember via the “challenge and response” method. **(T-2)**

**3.3. Fuel Requirements:**

3.3.1. Joker Fuel. A prebriefed fuel needed to terminate an event and transition to the next phase of flight.

3.3.2. Bingo Fuel. A prebriefed fuel state which allows the aircraft to return to the base of intended landing or alternate, if required, using preplanned recovery parameters and arriving with normal recovery fuel.

3.3.3. Normal Recovery Fuel. The fuel on initial or at the final approach fix at the base of intended landing or alternate, if required. AETC will define the normal recovery fuel in this publication.

3.3.4. Minimum and Emergency Fuel. When it becomes apparent an aircraft will land at the base of intended landing or alternate (if required), pilots will declare either minimum or emergency fuel with air traffic control. **(T-2)** AETC will define the minimum and emergency fuel levels in this publication.

3.3.5. Afterburner Use. Pilots will not use afterburner below established bingo fuel, unless required for safety of flight. **(T-2)**

**3.4. Ground and Taxi Operations.**

3.4.1. Taxi Interval. The minimum taxi interval is 150 feet staggered or 300 feet in trail. **(T-2)** Spacing may be reduced when holding short of or entering the runway. AETC will define the maximum taxi speeds in this publication.

3.4.2. Ice or Snow Conditions. Pilots will not taxi during ice or snow conditions until all portions of the taxi route and runway have been checked for safe conditions. **(T-2)** When ice or snow are present on the taxiway, pilots will taxi on the centerline with a minimum of 300 feet of spacing. **(T-2)**

**3.5. Before-Takeoff Checks.**

3.5.1. Aircrew will ensure ejection seat and canopy fracturing system safety pins are removed and stowed no later than completion of the before takeoff checklist according to the appropriate flight crew checklist. **(T-2)**

3.5.2. After the before-takeoff checks have been completed and prior to takeoff, flight members will inspect accompanying aircraft for proper configuration and any abnormalities. **(T-2)**

3.5.3. Aircrew will use the video-data transfer system to the maximum extent practical. **(T-2)**

**3.6. Flight Lineup.** The flight lead should consider weather conditions, runway conditions and runway width when lining up the flight for takeoff. If formation takeoffs are planned, wingmen must maintain wingtip clearance with their element leader. **(T-2)** If runway width permits, pilots should line up with wingtip clearance between all aircraft in the flight. Trailing elements will delay engine run up if wingtip clearance cannot be ensured. **(T-2)** The flight lead will place the wingman on the upwind side if the crosswind exceeds 5 knots. **(T-2)**

**3.7. Takeoff:**

3.7.1. The operations group commander must approve takeoffs when the runway condition reading is less than 10, as defined in the Flight Information Handbook. **(T-2)**

3.7.2. Every member of the flight will review and understand the takeoff data. **(T-2)** Particular emphasis should be placed on takeoff and abort factors during abnormal situations such as short or wet runway, heavy gross weights, nonstandard barrier configurations and abort sequence in formation flights. The PIC will make the decision to continue or abort a takeoff based on available information; for example, the speeds and distances computed during preflight planning, environmental factors, runway length and condition, barrier capability, the actual speed when the event occurs, and the severity of the event. **(T-2)**

3.7.3. Pilots will not take off if the computed takeoff roll exceeds 80 percent (single ship or interval takeoff) or 70 percent of the available runway (formation takeoff). **(T-2)**

3.7.4. The operations group commander may approve intersection takeoffs if operational requirements dictate.

3.7.5. Pilots may only accomplish rolling takeoffs as a single aircraft or within a flight (i.e., each aircraft of a formation accomplishing a rolling takeoff behind the preceding aircraft). **(T-2)**

3.7.6. AETC will define the minimum fuel load in this publication.

**3.8. Formation Takeoff:**

3.8.1. Formation takeoffs are restricted to elements of two aircraft. **(T-2)**

3.8.2. Elements will be led by a qualified flight lead unless an instructor pilot (IP) or flight-lead qualified squadron supervisor is in the element. **(T-2)**

3.8.3. Pilots will not takeoff in formation when:

3.8.3.1. AETC will define in this publication the minimum runway width for formation takeoffs. **(T-2)**

3.8.3.2. Standing water, ice, slush, or snow is on the runway. **(T-2)**

3.8.3.3. AETC will define in this publication the maximum crosswind component to conduct formation takeoffs. **(T-2)**

3.8.4. Pilots will use a minimum takeoff interval of 10 seconds between aircraft or elements. **(T-2)** When join-up is to be accomplished above a cloud layer, pilots will increase the takeoff interval to a minimum of 20 seconds. **(T-2)** After releasing brakes, single ship aircraft will steer toward the center of the runway. **(T-2)**

**3.9. Join-up and Rejoin:**

3.9.1. Day weather criteria for a visual flight rules (VFR) join-up underneath a ceiling is 1,500 feet and 3 miles visibility.

3.9.2. Pilots will maintain no faster than 350 knots calibrated air speed (KCAS) until join-up is accomplished unless mission requirements necessitate a different airspeed. **(T-3)** Pilots may delay afterburner cancellation to establish closure on lead or lead element. The operations group commander may approve different climb and cruise airspeeds within flight manual limits.

3.9.3. Flight members will join in sequence. **(T-2)** For a straight-ahead rejoin, the number 2 aircraft will join on the left wing and the element will join on the right wing unless otherwise briefed. For a turning rejoin, the number 2 aircraft will rejoin on the inside of the turn and the element to the outside. If mission or flight requirements dictate, the flight lead will specifically direct the desired formation positions. **(T-2)**

3.9.4. When circumstances permit, flight leads will direct a battle damage check after each mission prior to or during return to base. **(T-2)** Established deconfliction responsibilities and position change procedures will be according to flying fundamentals publications. Fly no closer than normal fingertip spacing.

**3.10. Maneuvering Parameters:**

3.10.1. Except as specified for range procedures in AFMAN 11-214, *Air Operations Rules and Procedures*, the minimum altitude is 500 feet AGL for low altitude maneuvering. **(T-2)**

3.10.2. Aircraft will not descend below 5,000 feet AGL during any portion of aerobatic maneuvering. **(T-2)** Aerobatic flight must be performed in special use airspace. **(T-2)** If this requirement is waived, pilots must ensure AFMAN 11-202V3 requirements regarding aerobatic flight are met.

3.10.3. Flight through wingtip vortices or jetwash should be avoided. If this is unavoidable, the aircraft should be unloaded immediately to approximately 1 gravitational load factor (G). Use asymmetric G limits if evaluating a jetwash-induced over-G. **(T-2)**

3.10.4. AETC will define prohibited maneuvers, and knock-it-off or terminate situations and procedures in this publication.

**3.11. Restrictions for Solo Pilots Lacking T-7 Qualification (Flying Training only):**

3.11.1. Solo pilots lacking T-7 qualification will not perform the following:

3.11.1.1. Traffic pattern stalls, approach to stalls and slow flight. **(T-2)**

3.11.1.2. Advanced handling characteristics maneuvers. **(T-2)**

3.11.1.3. Practice nose high and low recoveries. **(T-2)**

3.11.1.4. Practice lost wingman as wing. **(T-2)**

3.11.1.5. Rolling takeoffs. **(T-2)**

3.11.1.6. Practice precautionary flameout patterns. **(T-2)**

3.11.1.7. Low closed or circling approaches. **(T-2)**

3.11.1.8. AETC will specify crosswind limitations for pilots lacking T-7 qualification in this publication.

3.11.1.9. Flight in an aircraft with any known malfunction or requiring an operational check (**Exception:** Inoperative instrumentation in the rear cockpit). **(T-2)**

3.11.1.10. Any unbriefed maneuver. **(T-2)**

3.11.1.11. On the wing of another pilot lacking T-7 qualification. **(T-2)**

3.11.1.12. Formation low approaches below 300 feet AGL. **(T-2)**

3.11.2. AETC will specify minimum fuel for pilots lacking T-7 qualification in this publication. **(T-2)**

3.11.3. Post-contact checkride, pilots lacking T-7 qualification may climb and descend through instrument meteorological conditions (IMC) if the ceiling is at or above 5,000 feet AGL and not more than 2,000 feet thick. Minimum in-flight visibility above and below the ceiling is 5 miles. Solo pilots lacking T-7 qualification will not level off or cruise in any IMC. **(T-2)**

**3.12. Ops Checks:**

3.12.1. Aircrew will accomplish sufficient ops checks to ensure safe mission accomplishment. **(T-2)** Additionally, aircrew will monitor the fuel system carefully throughout the flight to identify low fuel state or trapped fuel situation as soon as possible. **(T-2)** Frequency should be increased during tactical maneuvering at high power settings. Aircrew will accomplish ops checks during climb or at level-off after takeoff, before each engagement or intercept, before entering an air-to-surface range, once while on the range if multiple passes are made and after departing the range. **(T-2)**

3.12.2. Minimum items to check are engine instruments, fuel quantities, G-suit connection (when appropriate), oxygen system and cabin altitude.

3.12.3. For formation flights, the flight lead may use datalink, radio call, or visual signal to conduct ops checks on formation members. Flight members will respond using the same method that flight lead used to conduct the ops check (e.g., radio call or visual signal). **(T-2)** The query and response for ops checks will be based on the amount of fuel and Gs. Normally, the G meter should be reset between ops checks.

**3.13. G-awareness Exercise.**

3.13.1. Refer to AFMAN 11-214 (if applicable).

3.13.2. AETC will define when aircrew must conduct a G-awareness exercise, and the minimum turn required during the G-warmup and G-awareness turns in this publication. AETC may establish additional G-awareness exercise requirements.

3.13.3. Refer to AFMAN 11-214 for minimum separation between aircraft. Pilots will establish separation prior to maneuver execution. **(T-2)** During maneuver execution pilots will use visual lookout and briefed formation contracts as primary means of ensuring aircraft deconfliction. **(T-2)** Pilots will use other systems only to enhance situation awareness; for example, air-to-air tactical air navigation (TACAN), traffic collision avoidance system, the T-7's Embedded Training Datalink, etc. **(T-2)**

3.13.4. Flight leads and pilots will ensure the airspace intended for the G-awareness exercise is free from potential conflict. **(T-2)** The G-awareness exercise requires a discernible horizon with sufficient visual cues to perform the exercise. In the event a G-awareness exercise cannot be accomplished, flight leads will modify the flight profile as appropriate. **(T-2)**

3.13.5. Use air traffic control (ATC) services to the maximum extent practicable to make sure the airspace is clear. Aircrew will conduct the G-awareness exercise IAW the following prioritized airspace preference:

3.13.5.1. Special use airspace (for example, restricted or warning areas, ATC assigned airspace, military operating areas, or MAJCOM-approved, large-scale exercise or special missions' areas). **(T-2)**

3.13.5.2. Above 10,000 feet mean sea level (MSL) outside of special use airspace. **(T-2)**

3.13.5.3. Inside the confines of military training routes/low altitude training zones. **(T-2)**

3.13.5.4. Below 10,000 feet MSL outside of special use airspace. **(T-2)**

**3.14. Radio Procedures:**

3.14.1. Pilots will preface all communications (except for wingman acknowledgment) with the complete flight call sign. **(T-2)** Transmit only information essential for mission accomplishment or safety of flight. Do not use the radio as a flight intercom. Pilots should use visual signals whenever practical.

3.14.2. Refer to AFMAN 11-214 for knock-it-off (KIO) procedures. Aircrew will use a KIO radio call to cease tactical maneuvering when safety of flight is a factor, especially for an in-flight emergency. **(T-2)** Any flight member may make this call. When a dangerous situation is developing, be directive first. A KIO applies to any phase of flight and all types of missions. All participants will acknowledge a KIO by repeating the call. **(T-2)**

3.14.3. The flight lead should initiate all radio checks and channel changes. **Exception:** During radio silent or limited communications operations, channel changes will be as briefed. **(T-2)**

3.14.4. Pilots will acknowledge radio checks that do not require the transmission of specific data by individual flight members in turn (e.g., 2, 3, 4). **(T-2)** Acknowledgment indicates the appropriate action is complete, in the process of being completed, or understood by the flight member.

3.14.5. In addition to the standard radio procedures outlined in AFMAN 11-202V3, specific mission guides and FLIP publications, all flight members will acknowledge understanding the initial ATC clearance. **(T-2)** If flight members are not monitoring inflight ATC frequency, the flight lead will pass all ATC instructions to the flight. **(T-2)**

3.14.6. Brevity code and other terminology will be according to Air Force Tactics, Techniques and Procedures (AFTTP) 3-2.5, *Multi-Service Tactics, Techniques, and Procedures for Multi-Service Brevity Codes*. **(T-2)**

**3.15. Change of Aircraft Control.**

3.15.1. Aircrew must maintain positive control of the aircraft at all times. **(T-2)**

3.15.2. Transfer of aircraft control will be made with the statement "You have the aircraft." **(T-2)** The aircrew member receiving control of the aircraft will acknowledge "I have the aircraft." **(T-2)** Once assuming control of the aircraft, the aircrew member will maintain control until relinquishing it as stated above. **(T-2) Exception:** If the intercom fails, the instructor or the pilot in the front seat (if both pilots have the same qualification levels) will rock the wings and assume control of the aircraft, radios, and navigational equipment if not in control of the aircraft, unless otherwise briefed. **(T-3)** See **paragraph 6.12** for procedures after a birdstrike or canopy loss.

**3.16. Formations (General):**

3.16.1. Flight or element leads will always consider wingman or element position and ability to safely perform a maneuver before directing it. **(T-2)**

3.16.2. The maximum flight size is six aircraft. **(T-2)**

3.16.3. Pilots will not use rolling maneuvers to maintain or regain formation position below 5,000 feet AGL or in airspace where aerobatics are prohibited. **(T-2)**

3.16.4. Pilots will use airborne visual signals IAW AFPAM 11-205, *Aircrew Quick Reference to Aircraft Cockpit and Formation Flight Signals*. **(T-2)** A radio call is mandatory when directing position changes at night or under instrument conditions. **(T-2)**

3.16.5. Flight leads will not break up formations until each pilot has a positive fix from which to navigate; for example, visual, global positioning system location, TACAN, or very high frequency omnidirectional range. **(T-2)**

3.16.6. When changing leads:

3.16.6.1. During flight in limited visibility conditions (for example haze, night, or IMC), pilots will initiate lead changes from a stabilized, wings-level attitude. **(T-2)**

3.16.6.2. The minimum altitude for changing leads within a formation is 500 feet AGL over land or 1,000 feet AGL over water. **(T-2)** In IMC, formation flights will not change lead or wing positions below 1,500 feet AGL unless on radar downwind. **(T-2)** For night position changes, see **paragraph 3.26.4.2** of this manual.

3.16.6.3. Flight or element leads will not initiate a lead change unless the aircraft assuming the lead is in a position from which the lead change can be safely initiated and visual contact maintained. **(T-2)**

3.16.6.4. The lead change will be initiated by either visual signal or radio call. **(T-2)** Pilots will use a radio call to initiate a lead change at night or in IMC. **(T-2)**

3.16.6.5. Pilots will acknowledge receipt of the lead by a head nod or radio call, as appropriate. **(T-2)**

3.16.6.6. The lead change is effective on acknowledgment. **(T-2)**

3.16.6.7. The former lead then moves to the briefed wing position. **(T-2)**

## 3.17. Tactical Formations:

3.17.1. General. The following rules apply for flightpath deconfliction during tactical maneuvering:

3.17.1.1. Wingmen must maneuver relative to the flight lead and must maintain sight while in visual formation. **(T-2)** In sensor formation, wingmen will ensure deconfliction from flight lead. **(T-2)**

3.17.1.2. Trailing aircraft or elements will deconflict from lead aircraft or elements. **(T-2)** Trailing aircraft or elements will maintain sufficient spacing so that primary emphasis during formation maneuvering and turns is on low altitude awareness and deconfliction within elements, not on deconfliction between elements. **(T-2)**

3.17.1.3. At low altitude, wingman or elements will deconflict by going high relative to the flight lead's or element's plane of motion. **(T-2)**

3.17.2. Loss of Visual Contact. Use the following procedures when one or more flight members or elements lose visual contact within the formation:

3.17.2.1. If any flight member or element calls blind, the other flight member or element will immediately make a directive call, followed by an informative position call. **(T-2)**

3.17.2.2. If the other flight member or element is also blind, the blind call will include altitude. **(T-2)** The flight lead will be directive to ensure altitude separation between flight members or elements. **(T-2)** At low altitude, the flight lead will specify either AGL or MSL when directing the formation to deconflict. **(T-2)** When directed to deconflict, use a minimum of 500 feet of altitude separation. **(T-2)** Avoid climbs and descents through the deconfliction altitude if possible.

3.17.2.3. If there is no timely acknowledgment of the original blind call, the flight member or element initiating the call will maneuver away from the last known position of the other flight member or element, alter altitude, and repeat the blind call. **(T-2)**

3.17.2.4. If visual contact is still not regained, the flight lead will take additional positive action to ensure flightpath deconfliction within the flight to include a terminate or KIO if

necessary. **(T-2)** Scenario restrictions, such as sanctuary altitudes and/or adversary blocks should be considered.

3.17.2.5. Aircraft will maintain altitude separation until a visual is regained and, if necessary, will navigate with altitude separation until mutual support is regained. **(T-2)**

3.17.2.6. AETC will define procedures for loss of procedural deconfliction while in sensor formations in this publication.

3.17.3. Two-Ship Formations. The following rules apply for flightpath deconfliction during tactical maneuvering of two-ship formations.

3.17.3.1. Normally, the wingman is responsible for flightpath deconfliction. **(T-2)**

3.17.3.2. The flight lead becomes primarily responsible for deconfliction when:

3.17.3.2.1. Tactical maneuvering places the leader in the wingman's blind cone or forces the wingman's primary attention away from the lead (for example, the wingman becomes the engaged fighter). **(T-2)**

3.17.3.2.2. The wingman calls blind and receives an acknowledgment from the flight lead. **(T-2)**

3.17.3.3. Primary deconfliction responsibility transfers back to the wingman once the wingman acknowledges a visual on lead. **(T-2)**

3.17.4. Three- and Four-Ship Formations. When flights of more than two aircraft are in tactical formation, visual signals performed by a flight or element lead pertain only to the associated element unless briefed otherwise by the flight lead. **(T-2)**

**3.18. Chase Formation:**

3.18.1. Any qualified pilot may fly safety chase for aircraft under emergency or impending emergency conditions. Qualified flight examiners may fly chase during flight evaluations.

3.18.2. On transition sorties, the chase aircraft will perform a single-ship takeoff. **(T-2)** In flight, the chase aircraft will maneuver as necessary but is primarily responsible for aircraft separation. **(T-2)** The chase aircraft will not stack lower than lead aircraft below 1,000 feet AGL. **(T-2)** In the traffic pattern, the chase aircraft may maneuver as necessary to observe performance.

3.18.3. A safety observer in a safety chase aircraft will maneuver in a 30- to 60-degree cone out to 1,000 feet from which the pilot can effectively clear and provide assistance. **(T-2)** Unless lower is required for safety of flight or unusual circumstances, the safety chase aircraft will initiate a go-around or low-approach to remain at or above 300 feet AGL IAW **paragraph 3.29.1.3**, while the aircraft being assisted is landing. **(T-2)**

**3.19. Show Formation.** These formations will be specifically briefed and flown according to applicable directives. **(T-2)** Refer to DAFI 11-209, *Participation in Aerial Events,* and applicable MAJCOM directives for specific rules and appropriate approval levels to participate in static displays and aerial events.

**3.20. Live-Virtual Constructive Operations:** AETC will define approved live-virtual constructive operations in this publication.

**3.21. Weather and IFR:**

3.21.1. Approach Category:

3.21.1.1. AETC will define in this publication the approach category for the T-7. Pilots will accomplish missed approaches according to flight manual procedures. **(T-2)**

3.21.2. Takeoff and Join-Up. The flight lead must notify the appropriate ATC agency when a visual meteorological conditions (VMC) join-up is not possible because of weather conditions or operational requirements. **(T-2)** Coordinate for an appropriate altitude block or trail formation. Formation trail departures will comply with instructions for a nonstandard formation flight as defined in FLIP. The flight lead should request transponder codes for wingmen in trail.

3.21.3. Trail Procedures:

3.21.3.1. During trail formations, basic instrument flying is the highest priority and will not be sacrificed when performing secondary trail tasks. Strictly adhere to the briefed airspeeds, power settings, altitudes, headings and turn points. If task saturation occurs, immediately concentrate on flying the instrument departure and notify the flight lead. The flight lead will then notify ATC.

3.21.3.2. Sensor trail operations are restricted to a maximum of four aircraft. **(T-2)**

3.21.4. Trail Departures:

3.21.4.1. Use a minimum of 20-second takeoff spacing. **(T-2)** All turns will be made using 30 degrees of bank. **(T-3)**

3.21.4.2. The flight lead will brief all members of the flight on the trail departure to be used, including the use of the embedded tactical datalink. **(T-2)** The flight lead will call initiating all turns, unless briefed otherwise (e.g., flight lead will only call initiating turns which differ from a published departure routing). Acknowledgments are not required. The flight lead must monitor the progress of the trailing aircraft or elements to ensure deconfliction and immediately correct deviations from the departure route or planned course.

3.21.4.3. Each aircraft or element will use all available aircraft systems (e.g., embedded tactical datalink) and navigational aids to monitor position. **(T-2)**

3.21.4.4. Each aircraft or element will maintain at least 1,000 feet of vertical separation from the preceding aircraft or element during the climb or descent and at level-off until visual contact is established, except instances where departure instructions specifically prohibit compliance or when sensor operations are in effect. **(T-2)**

3.21.4.5. In the event a visual join-up cannot be accomplished on top or at level-off, the flight lead will request 1,000 feet of altitude separation for each succeeding aircraft or element if all aircraft can comply with the minimum safe altitude (MSA) restrictions, unless sensor operations are in effect. **(T-2)** If the MSA cannot be complied with, the 1,000-foot vertical separation may be reduced to 500 feet.

3.21.5. Formation Breakup. Formation breakup should not be accomplished in IMC. However, if it is unavoidable, breakup will be accomplished in straight-and-level flight. **(T-2)** Prior to a weather breakup, the flight lead will transmit attitude, airspeed, altitude and altimeter

setting, which will be acknowledged by wingmen. **(T-2)** Wingmen will also confirm good navigational aids according to **paragraph 3.16.5** of this manual. **(T-2)**

3.21.6. Formation Penetration. Formation penetrations are restricted to two aircraft when the weather at the base of intended landing is less than overhead traffic pattern minimums. **(T-2)**

3.21.7. Formation Sensor Trail Recovery Procedures. AETC will define procedures for sensor trail recovery operations in this publication.

3.21.8. Formation VMC Drag Procedures:

3.21.8.1. A formation VMC drag maneuver may be used to establish spacing for single-ship landings when conditions do not permit a formation landing and the following conditions are met:

3.21.8.1.1. Weather is at least a 1,500-foot ceiling and 3 miles visibility. All aircraft will maintain VMC from the drag point to landing. **(T-2)**

3.21.8.1.2. Prior to directing the formation VMC drag under IFR, the flight lead will coordinate with the appropriate ATC agency for nonstandard formation during the remainder of the approach. **(T-2)**

3.21.8.1.3. The wingmen may use briefed power settings and configurations to establish and maintain spacing, but wingmen will not fly below final approach speed or angle-of-attack. **(T-2)** Student pilots without an instructor will not use s-turns to gain or maintain separation while on final. **(T-2)**

3.21.8.1.4. Minimum spacing is 3,000 feet, or greater if briefed, not to exceed 6,000 between aircraft.

3.21.8.1.5. The latest drag point must allow adequate time for the wingmen to establish the required separation and then for the flight lead to slow to final approach speed not later than 3 nautical miles (NM) from the runway. On instrument final approaches, the drag is normally accomplished so as to establish separation prior to the final approach fix or glideslope intercept.

3.21.8.2. Any time the spacing is in question, the wingman will go-around or execute the missed approach, notify ATC and comply with local procedures. **(T-2)**

3.21.9. Icing Restrictions. AETC will define aircraft icing restrictions in this publication.

3.21.10. AETC will define in this publication whether T-7 aircrew can conduct Visual Climb Over Airport procedures.

**3.22. Low-Altitude Procedures (General):**

3.22.1. During briefings, briefers will emphasize low altitude flight maneuvering and observation of terrain feature or obstacles along the route of flight. **(T-2)** For low altitude training over water or featureless terrain, briefers will include specific emphasis on minimum altitudes and spatial disorientation. **(T-2)**

3.22.2. Low-altitude formation positions and tactics will be flown using MAJCOM guidance or tactics and flying fundamentals publications, as guides. **(T-2)**

3.22.3. If flight leads are unable to visually acquire or ensure lateral separation from known vertical obstructions that are a factor to the route of flight, flight leads will direct a climb no later than 3 NM prior to the obstacle to ensure vertical separation by 2 NM from the obstacle. **(T-2)**

3.22.4. At altitudes below 1,000 feet AGL, wingmen will not fly at a lower AGL altitude than lead. **(T-2)**

3.22.5. When crossing high or hilly terrain, pilots will maintain a positive G on the aircraft and not exceed approximately 120 degrees of bank. **(T-2)** Maneuvering at less than 1 G is limited to upright bunting maneuvers.

3.22.6. The minimum airspeed for low altitude navigation is 300 KCAS or Final Turn angle of attack (AOA), whichever is faster. The minimum airspeed for tactical maneuvering is 350 KCAS. AETC will define the maximum airspeed during low altitude navigation in this publication.

3.22.7. During low-altitude training, pilots will maintain a minimum of 500 feet above the highest terrain or obstacle within 1/2 NM of the aircraft. **(T-2)** Aircrew will set the altitude warning function to alert the pilot at no less than 90 percent of planned altitude during low altitude operations. **(T-2)**

3.22.8. Conduct low-altitude training no earlier than 30 minutes after sunrise (1 hour in the vicinity of mountainous terrain) and exit the low-altitude structure no later than 30 minutes prior to sunset (1 hour in the vicinity of mountainous terrain). **(T-2)**

3.22.9. AETC will define single-ship low-altitude training restrictions in this publication.

3.22.10. During all low-altitude operations, the immediate reaction to task saturation, diverted attention, KIO, or emergencies is to climb to the emergency route abort altitude (ERAA) or a prebriefed safe altitude (minimum 1,000 feet AGL). **(T-2)** If a birdstrike enters the cockpit and the aircraft loses the canopy, the pilot flying will immediately select MIL or MAX power and establish a climb away from the ground. **(T-2)** The aircrew member not flying will be prepared to assume control if the pilot flying does not initiate a climb away from the ground. In this case, the aircrew member will change control of the aircraft according to **paragraph 6.12** of this manual.

**3.23. Minimum Altitudes.** An aircrew member's minimum altitude will be determined and certified by the unit commander according to AETCMAN 11-2T-7V1, *T-7 Aircrew Training*. **(T-2)** Aircrew participating in approved stepdown training programs will comply with the requirements and restrictions of that program. The following minimum altitudes apply to low-altitude training unless higher altitudes are specified by route restrictions or a training syllabus:

3.23.1. For aircrew who have not completed low altitude training IAW AETCMAN 11-2T-7V1 and who are not designated for flights at lower altitudes, the minimum altitude is 1,000 feet AGL. **(T-2)**

3.23.2. For night or IMC operation, the minimum altitude is 1,000 feet above the highest obstacle within 5 NM of the course. **(T-2)**

3.23.3. Weather minimums for visual low-altitude training will be 1,500 feet and 3 miles for any route or area, as specified in FLIP (for military training routes), or as specified in unit publications, whichever is higher. **(T-2)**

3.23.4. AETC will define in this publication the training course requirements for an instructor to conduct low-altitude navigation missions or threat reactions.

3.23.5. The minimum altitude for VFR point-to-point navigation is 3,000 feet AGL. **(T-2)**

**3.24. Minimum Altitudes.** An aircrew member's minimum altitude will be determined and certified by the unit commander according to AETCMAN 11-2T-7V1. **(T-2)** Aircrew participating in approved stepdown training programs will comply with the requirements and restrictions of that program. AETC will define in this publication the training course requirements for an instructor to conduct low-altitude navigation missions or threat reactions. The following minimum altitudes apply to low-altitude training unless higher altitudes are specified by route restrictions or a training syllabus:

3.24.1. Aircrews will adhere to VFR/IFR minimum altitude restrictions for navigation outlined in AFMAN 11-202V3.

3.24.2. VFR Low Altitude Training. Weather minimums for visual low-altitude training will be the highest of 1,500 feet and 3 miles for any route or area, the ceiling and visibility as specified in FLIP (for military training routes), or as specified in unit publications. **(T-2)**

3.24.3. For aircrew who have not completed low altitude training IAW AETCMAN 11-2T-7V1 and/or who are not designated for flights at lower altitudes, the minimum altitude is 1,000 feet AGL. **(T-2)**

**3.25. Low-Level Route and Area Abort Procedures:**

3.25.1. VMC route and area abort procedures are:

3.25.1.1. Maintain safe separation from the terrain.

3.25.1.2. Comply with VFR altitude restrictions and squawk applicable transponder modes and codes.

3.25.1.3. Always maintain VMC. If VMC cannot be maintained execute an IMC route abort as outlined in **paragraph 3.24.2**.

3.25.1.4. Attempt contact with controlling agency, if required.

3.25.2. IMC route and area abort procedures are:

3.25.2.1. Immediately climb to or above the computed ERAA. Reference AFMAN 11-202V3 for procedures to compute ERAA.

3.25.2.2. Attempt to maintain preplanned ground track. Pilots should execute appropriate lost wingman procedures, if necessary.

3.25.2.3. If deviations from normal route or area procedures are required or if the ERAA or MSA is higher than the vertical limits of the route or area, squawk emergency.

3.25.2.4. Attempt contact with the appropriate ATC agency for an IFR clearance. If required to fly in IMC without an IFR clearance, cruise at appropriate VFR altitudes until IFR clearance is received.

**3.26. Night Operational Procedures:**

3.26.1. Night Ground Operations. The anticollision (beacon) light may be turned to OFF and the position lights turned to a dimmer brightness setting if they prove to be a distraction or

create a hazard. Taxi spacing will be a minimum of 300 feet and on the taxiway center line. **(T-2)** The landing-taxi light will normally be used during all night taxiing. **Exception:** When the light might interfere with the vision of the pilot of an aircraft landing or taking off, the taxi light may be turned off and the taxiing aircraft will come to a stop if the area cannot be visually cleared without the landing-taxi light. For formation takeoffs, flight or element lead will turn the anticollision light to OFF and position lights to a dimmer brightness setting when reaching the run up position on the runway. Wingmen will maintain the anticollision light to ON and position lights to BRIGHT for takeoffs, unless IMC will be encountered shortly after takeoff.

3.26.2. Night Takeoff. During a night formation takeoff, brake release and gear retraction will be called on the radio. Following takeoff, each aircraft or element will climb on runway heading to 1,000 feet AGL before initiating turns, except where departure instructions specifically prohibit compliance or executing a night overhead traffic pattern. **(T-2)**

3.26.3. Night Join-Ups. Night join-ups are not authorized unless all players are using night-vision goggles. **(T-2)** For night join-up underneath a ceiling, pilots will comply with the minimums of a 3,000-foot ceiling and 5 statute miles visibility. **(T-2)**

3.26.4. Night Formation Procedures:

3.26.4.1. When in positions other than fingertip or route and without the use of night vision goggles, aircraft spacing will be maintained primarily by instruments and/or timing, with visual reference secondary. If aircraft spacing cannot be ensured, the flight lead will establish an altitude separation of at least 1,000 feet between formation members, unless ATC clearances prohibit compliance. **(T-2) Exception:** If in sensor trail, aircrew may use sensor trail procedures for deconfliction. At all times, aircrews will cross-check instruments to ensure ground clearance.

3.26.4.2. Unless operating with night vision goggles, do not change lead or wing positions below 1,500 feet AGL unless under ATC control on radar downwind. **(T-2)** Lead changes and position changes will be called over the radio and they should be initiated from a stabilized, wings-level attitude. **(T-2)**

3.26.4.3. AETC will define night vision goggle restrictions in this publication.

3.26.5. Night Breakup. Prior to a night formation breakup, the flight lead will transmit attitude, altitude, airspeed and altimeter setting, which will be acknowledged by wingmen. **(T-2)** Wingmen will also confirm good navigational aids according to **paragraph 3.16.5** of this manual. This procedure is not required for a formation breakup that occurs in the overhead traffic pattern.

3.26.6. Night Landings. Night Landing. For night operations, the preplanned destination (other than home station) and alternate (if required) must have an operational straight-in approach with glidepath guidance. **(T-2)** Visual descent path indicator or precision guidance systems (e.g., Visual Approach Slope indicator [VASI] and Precision Approach Path Indicator [PAPI]) constitute acceptable glidepath guidance. Aircrew may practice approaches at facilities with no glidepath guidance if they descend no lower than the published minimum descent altitude.

3.26.7. Night Overhead Patterns. AETC will define when aircrew can conduct night overhead patterns in this publication.

3.26.8. Night Vision Goggles Procedures. AETC will define night vision goggle procedures in this publication.

**3.27. Approaches and Landings:**

3.27.1. AETC will define the desired touchdown point for VFR approaches in this publication. When landing from an instrument approach, touchdown may be beyond the VFR touchdown zone. When local procedures or unique runway surface conditions require landing beyond a given point on the runway, the desired touchdown point will be adjusted accordingly.

3.27.2. Reduced same runway separation is authorized according to DAFMAN 13-204V3, *Air Traffic Control*, and the AETC supplement. When wake turbulence is expected due to calm winds or when landing with a light tail wind, spacing should be increased.

3.27.3. AETC will define the final approach AOA. Pilots will compare the computed final approach airspeed with AOA. in this publication **(T-2)**

3.27.4. AETC will define when pilots must make an intercockpit call prior to moving the gear handle in this publication.

**3.28. Overhead Traffic Patterns.** Pilots will execute the break individually in a level 180-degree turn to the downwind leg at minimum intervals of 5 seconds (except for an IP or flight examiner when in chase or tactical formation).

**3.29. Tactical Overhead Traffic Patterns.** Tactical entry to the overhead traffic pattern is permitted, using the following parameters:

3.29.1. A maximum of four aircraft authorized in the formation. **(T-2)**

3.29.2. Lateral spacing of 4,000 to 6,000 feet. **(T-2)**

3.29.3. No more than 6,000 feet of element spacing (aircraft/elements more than 6,000 feet in trail are considered a separate flight). **(T-2)**

3.29.4. If using an offset box formation, offset away from the direction of the break.

3.29.5. The lead element will break to downwind abeam or over the touchdown point.

3.29.6. The second element (or aircraft if three-ship formation) will delay a break to downwind until number 2 is clear of the intended flightpath.

3.29.7. Use normal overhead altitude and airspeed.

3.29.8. Normal downwind, base turn positions and spacing will be flown.

3.29.9. The ATC agency must be familiar with the procedure to be flown.

**3.30. Low Approaches:**

3.30.1. Observe the following minimum altitudes:

3.30.1.1. For IPs or flight examiners flying chase position, 50 feet AGL. **(T-2)**

3.30.1.2. For formation low approaches, 100 feet AGL. **(T-2)**

3.30.1.3. For chase aircraft during an emergency, 300 feet AGL unless safety or circumstances dictate otherwise. **(T-2)**

3.30.2. When executing a low-approach and returning to the IFR structure, follow the published missed approach procedure, ATC issued alternate missed approach instructions, or ATC issued climb-out instructions, as appropriate. Note: The PIC is responsible for obstruction avoidance if executing a missed approach procedure beyond the missed approach point until reaching a minimum IFR altitude (MIA).

3.30.3. During go-around while VFR, remain 500 feet below a VFR overhead traffic pattern altitude until crossing the departure end of the runway. **(T-2)**

**3.31. Closed Traffic Patterns.** Pilots will initiate the pattern at the departure end of the runway unless directed or cleared otherwise by local procedures or the controlling agency. **(T-2)** When in formation, a sequential closed may be flown with ATC concurrence.

**3.32. Rear Cockpit Approaches and Landings:**

3.32.1. Only qualified IPs or those enrolled in a course of qualification leading to IP certification, with an IP in the front cockpit, will perform rear cockpit landings. **(T-2)**

3.32.2. During rear cockpit approaches and landings, the front cockpit pilot will visually clear the area, monitor aircraft parameters and configurations and be prepared to direct a go-around or take control of the aircraft (as briefed by the rear cockpit IP), if necessary.

**3.33. Formation Approaches:**

3.33.1. Formation approaches must be executed from a straight-in approach. **(T-2)**

3.33.2. The minimum weather required for a formation approach is a 500-foot ceiling and 1 ½ miles visibility or published approach minimums, whichever is greater. **(T-2) Note:** In an emergency, pilots may reduce weather requirements to the compatible instrument approach minimums as long as both aircraft are aware of the change and the non-emergency aircraft executes the missed approach once landing is assured for the emergency aircraft.

3.33.3. The maximum number of aircraft is two. **(T-2)** Both aircraft must be similarly configured.

3.33.4. Formation approaches will terminate in either a formation drop-off or a formation low approach. **(T-2)** Circling as a formation is not permitted.

**3.34. Landing Restrictions:**

3.34.1. When the computed landing roll exceeds 80 percent of the available runway, land at an alternate runway. **(T-3)**

3.34.2. The operations group commander must approve landings when the runway condition reading at the base of intended landing is less than 10, or pilots will land at an alternate runway. **(T-3)**

3.34.3. Do not land over any raised web barrier (for example, MA-1A, BAK-15). **(T-2)**

3.34.4. AETC will define maximum crosswind component, including gusts. for pilots lacking T-7 qualification in this publication.

**3.35. Extended Daylight Operations.** AETC will define the operations that can be accomplished during the extended daylight window in this publication.

**3.36. Checklist Discipline.** AETC will define the minimum required confirmation checks between each cockpit in this publication.

# Chapter 4

## AIR-TO-AIR WEAPONS EMPLOYMENT

**4.1. References.** AFMAN 11-214 contains air-to-air procedures applicable to all aircraft. This chapter specifies additional procedures or restrictions applicable to T-7 operations.

**4.2. Maneuvering Limitations:**

4.2.1. Negative G guns jink maneuvers are prohibited. **(T-2)**

4.2.2. Minimum airspeed during offensive or defensive maneuvering low altitude training is 350 KCAS. **(T-2)**

4.2.3. AETC will define minimum maneuvering airspeed during air combat training in this publication.

4.2.4. AETC will define in this publication the maximum number of T-7 aircraft that can be in a dissimilar air combat tactics visual engagement.

4.2.5. AETC will define in this publication applicable IMC rules and authorization based on training requirements.

4.2.6. The minimum slant range between T-7 aircraft during Air-to-Air maneuvering is 1,000-feet for student pilots.

# Chapter 5

## AIR-TO-SURFACE WEAPONS EMPLOYMENT

**5.1. References.** AFMAN 11-214 contains air-to-surface procedures applicable to all aircraft. This chapter specifies procedures or restrictions applicable to T-7 operations. Qualification and scoring criteria are contained in AETCMAN 11-2T-7V1.

**5.2. Weather Minimums.** Basic weather minimums established in AFMAN 11-214 apply. **(T-2)** In no case will the ceiling be lower than 2,000 feet AGL for climbing or diving deliveries or 1,500 feet AGL for level deliveries. **(T-2)**

**5.3. Popup Attacks.** AETC will define in this publication the minimum airspeed for popup attacks.

**5.4. Target Identification.** Pilots will positively identify the target prior to weapons release. **(T-2)**

**5.5. Night Weapons Delivery and Range Operations.**

5.5.1. Night weapons delivery and range operations are prohibited unless all aircrew are operating with night vision goggles. **(T-2)**

5.5.2. Compute an MSA for the entire bombing pattern using the guidance in AFMAN 11-214. For low illumination conditions, the minimum altitude for night strafe is the target MSA. Refer to AFMAN 11-214 for night training rules. Pilots will review and confirm parameters prior to roll-in. **(T-2)**

# Chapter 6

## ABNORMAL OPERATING PROCEDURES

**6.1. General.** Follow the procedures in this chapter when abnormal circumstances occur. These procedures do not supersede procedures contained in the flight manual.

6.1.1. Pilots will not accept an aircraft for flight with a malfunction addressed in the emergency or abnormal procedures section of the flight manual until appropriate corrective actions have been accomplished. **(T-2) Exception:** The operations group commander may authorize a one-time flight below 10,000 mean sea level to recover the aircraft for repair.

6.1.2. Do not taxi an aircraft with nosewheel steering, brake system, canopy, or generator malfunctions or failures. **(T-2)**

6.1.3. Once a malfunctioning system is isolated and/or the fault corrected, the system will not be used again unless it is essential for recovery. **(T-2)** Pilots will not conduct ground or in-flight troubleshooting after flight manual emergency procedures are completed. **(T-2)**

6.1.4. For actual/perceived flight control malfunctions, aircrew will terminate maneuvering and take appropriate action. **(T-2)** If the problem was due to crew or passenger interference, the pilot will take positive action to ensure no further control interference occurs. **(T-2)**

6.1.5. Aircrew will record all inadvertent supersonic events according to DAFMAN 13-201, *Airspace Management*. **(T-2)** Units will use AF Form 4290, *Unplanned Supersonic Flight Activity Log*, following guidance at **Attachment 2** to record inadvertent supersonic events. **(T-2)**

**6.2. Ground Aborts:**

6.2.1. If a flight member aborts prior to takeoff and the flight lead renumbers the flight to maintain a numerical call sign sequence, flight lead will advise the appropriate agencies and the squadron operations supervisor of such changes. **(T-2)**

6.2.2. If the flight lead aborts, a flight of two or more aircraft with no designated flight lead in the formation must either sympathetically abort or proceed on prebriefed single-ship missions. **(T-2)**

6.2.3. Pilots who do not take off with the flight may join the flight at a briefed rendezvous point prior to a tactical event or may fly a briefed alternate single-ship mission. If a join-up is to be accomplished on an air-to-ground range, the joining aircraft will remain 1,000 feet above all other aircraft, or all events will be terminated until the joining aircraft has achieved proper spacing and sequencing. **(T-2)**

6.2.4. The PIC is primarily responsible for handling in-flight emergencies. **(T-2)** The additional aircrew member (if applicable) will confirm all critical action procedures have been accomplished and provide checklist assistance at the request of the PIC. **(T-2)**

**6.3. Takeoff Aborts:**

6.3.1. If an abort occurs during takeoff roll, give the call sign and state intentions when practical. Following aircraft will alter their takeoff roll to ensure clearance or abort the takeoff

if adequate clearance cannot be maintained. The phrase “barrier, barrier, barrier” will be used to direct the tower to raise the departure end barrier. **(T-2)**

6.3.2. When aborting, if hot brakes are suspected, declare a ground emergency, taxi the aircraft to the designated hot brake area, and follow hot brake procedures.

**6.4. Air Aborts:**

6.4.1. If an abort occurs after takeoff, all aircraft will maintain their original numerical call sign. **(T-2)**

6.4.2. Aborting aircraft with an emergency condition should be escorted to the field of intended landing. When other than an emergency condition exists, the flight lead should determine if an escort for the aborting aircraft is required.

6.4.3. Regardless of apparent damage or subsequent normal operation, the mission will be aborted for any of the following:

6.4.3.1. Birdstrike or foreign object damage. **(T-2)**

6.4.3.2. Over-G. **(T-2)** The aircraft will land as soon as practical out of a straight-in approach.

6.4.3.3. Flight control system anomalies. **(T-2)**

6.4.3.4. Engine flameout, stagnation, or shutdown. **(T-2)**

6.4.3.5. AETC will define in this publication when pilots must abort the mission after flying through actual icing conditions.

6.4.4. Report all engine anomalies during maintenance debriefing.

**6.5. Radio Failure:**

6.5.1. Formation:

6.5.1.1. A pilot who experiences total radio failure while in close or route formation will maneuver within close or route parameters to attract the attention of another flight member and give the appropriate visual signals. The mission should be terminated as soon as practical and the aircraft with radio failure led to the base of intended landing or a divert base. A formation approach to a formation drop off on final should be performed unless safety considerations dictate otherwise.

6.5.1.2. If flying other than close or route formation when radio failure occurs, the aircraft should attempt to rejoin to a route position at approximately 500 feet on another flight member. The aircraft with radio failure is responsible for maintaining clearances from other flight members until its presence is acknowledged by a wing rock, signifying clearance to join. Once joined, aircraft with radio failure should give the appropriate visual signals. If prebriefed, the aircraft with radio failure may proceed to a rendezvous point and hold. If no one has rejoined prior to reaching bingo fuel, the aircraft with radio failure should proceed to the base of intended landing or a divert base. Aircraft experiencing any difficulty or emergency, in addition to radio failure, will proceed as required by the situation.

6.5.2. Surface Attack with Lost Communications Procedures:

6.5.2.1. For class A and manned class B ranges:

6.5.2.1.1. Attempt contact with the range control officer on the appropriate backup frequency.

6.5.2.1.2. If contact cannot be reestablished, make a pass by the range control tower on the attack heading while rocking wings and turn in the direction of traffic. The flight lead will either rejoin the flight and return to base or direct another flight member to escort the aircraft with radio failure to a recovery base. **(T-2)**

6.5.2.1.3. If the aircraft with radio failure has an emergency, make a pass by the range control tower (if practical) on the attack heading while rocking wings, turn opposite the direction of traffic and proceed to a recovery base. The flight lead will direct a flight member to join up and escort the emergency aircraft.

6.5.2.2. For unmanned class B and class C ranges, make a pass on the target, if possible, while rocking wings. The leader will either rejoin the flight in sequence and recover or direct another flight member to escort the aircraft with radio failure to a recovery base. If the aircraft with radio failure has an emergency, the aircraft will (if practical) make a pass on the target, rock its wings, turn the opposite direction of traffic and proceed to a recovery base. The flight lead will direct a flight member to join up and escort the emergency aircraft.

6.5.3. Radio Failure Recovery. For a radio failure recovery, the procedures in AFPAM 11-205 and FLIP apply, consider turning the transponder to code 7600 to alert air traffic control agencies. Consider using aircraft embedded tactical datalink to communicate the radio failure with appropriate agencies. If a formation straight-in approach is flown and a go-around becomes necessary, the chase will go around, pass the aircraft with radio failure and rock its wings. The aircraft with radio failure should go around if the situation allows. If the aircraft with radio failure is in formation as a wingman, the lead will initiate a gentle turn into the wingman and begin the go-around.

**6.6. Severe Weather Penetration.** Do not fly through severe weather. **(T-2)** However, if severe weather is unavoidable, prior to severe weather penetration, flights should split up and obtain separate clearances.

**6.7. Lost Wingman Procedures.** In any lost wingman situation, immediate separation of aircraft is essential. On losing sight of the lead, the wingman will simultaneously execute applicable lost wingman procedures while transitioning to instruments and inform lead. Lead will acknowledge the radio call and transmit attitude, heading, altitude and airspeed. Smooth application of control inputs is imperative to minimize spatial disorientation effects. Consider using the aircraft embedded tactical datalink to help regain visual. Once lost wingman procedures have been executed and the wingman regains visual, wingman must obtain permission from the flight lead to rejoin the flight.

6.7.1. For two- or three-ship flights, in wings-level flight (climb, descent, or straight and level) simultaneously inform the lead and turn away, using 15 degrees of bank for 15 seconds. Then resume the heading and obtain a separate clearance.

6.7.2. When outside the turn, reverse the direction of turn, using 15 degrees of bank for 15 seconds and inform the lead. Continue straight ahead to ensure separation prior to resuming the turn. Obtain a separate clearance.

6.7.3. When inside the turn, momentarily reduce power to ensure nose-tail separation and inform the flight lead to roll out of the turn. Maintain angle of bank to ensure lateral separation and obtain separate clearance. The lead may resume the turn only when separation is ensured. **Note:** If in three-ship echelon, refer to four-ship lost wingman procedures.

6.7.4. For a precision or nonprecision final, the wingman will momentarily turn away to ensure separation, commence a climb, inform lead, proceed to the missed approach point and carry out the published missed approach procedure while obtaining a separate clearance from approach control.

6.7.5. For a missed approach, the wingman will momentarily turn away to ensure separation, inform lead and continue the published or assigned missed approach procedure while climbing to 500 feet above missed approach altitude. The wingman will obtain a separate clearance from approach control.

6.7.6. For four-ship flights, if only one aircraft in the flight becomes separated, the previous procedures will provide safe separation. However, because it is impossible for number 4 to immediately ascertain that number 3 still has visual contact with the lead, it is imperative that number 4's initial action be based on the assumption that number 3 has also become separated. Numbers 2 and 3 will follow the procedures outlined in **paragraph 6.7.1**. Number 4 will follow the appropriate procedure as follows:

6.7.6.1. For wings-level flight, number 4 will simultaneously inform the lead and turn away, using 30 degrees of bank for 30 seconds. Number 4 will then resume heading and obtain a separate clearance.

6.7.6.2. When outside the turn, number 4 will reverse direction of the turn, using 30 degrees of bank for 30 seconds to ensure separation from lead and number 3. Number 4 will then obtain a separate clearance.

6.7.6.3. When inside the turn, number 4 will momentarily reduce power to ensure nose-tail separation and increase bank angle by 15 degrees. Number 4 will inform the lead to roll out. Then obtain a separate clearance. The lead will resume the turn only when separation is ensured.

6.7.7. The flight lead should acknowledge the lost wingman's radio call and transmit attitude, heading, altitude, airspeed and other parameters, as appropriate. Care must be taken to observe published terrain clearance limits.

6.7.8. If a wingman becomes separated and any aircraft experiences radio failure, the aircraft with the operational radio will obtain a separate clearance. The aircraft with radio failure will turn the transponder to normal code 7600 while proceeding with the previous clearance. If an emergency situation arises along with radio failure, turn the transponder to Emergency for the remainder of the flight.

6.7.9. With the flight lead's permission, wingmen may rejoin if weather conditions permit and a visual join-up can be accomplished.

6.7.10. Practice lost wingman procedures only in day VMC. **(T-2)**

**6.8. Spatial Disorientation (SD).** Conditions that prevent a clear visual horizon or increase pilot tasking are conducive to SD. To prevent SD, the pilot will make a conscious attempt to increase

instrument cross-check rate. When SD symptoms are detected, the following steps will be taken until symptoms abate:

6.8.1. Single-Ship:

6.8.1.1. Concentrate on flying basic instruments with frequent reference to the attitude indicator. Use heads-down instruments. Defer nonessential cockpit tasks. If flying dual, consider transferring control to the other aircrew member.

6.8.1.2. If symptoms persist, bring the aircraft to straight-and-level flight with reference to the attitude indicator, conditions permitting. If the terrain permits, maintain straight-and-level flight until symptoms abate. Consider activating the autopilot if available once wings-level.

6.8.1.3. If necessary, declare an emergency and advise ATC. **Note:** It is possible for SD to proceed to the point where the pilot is unable to see, interpret, or process information from the flight instruments. Aircraft control in such a situation is impossible. Aircrew must recognize when physiological or psychological limits have been exceeded and be prepared to abandon the aircraft.

6.8.2. Formation Lead:

6.8.2.1. A flight lead experiencing SD will notify the wingmen. The flight lead will then comply with procedures in **paragraph 6.8.1**.

6.8.2.2. If possible, wingmen should confirm attitude and provide verbal feedback to lead.

6.8.2.3. If symptoms persist, the lead will terminate the mission and recover the flight by the simplest and safest means possible.

6.8.3. Formation Wingman:

6.8.3.1. The wingman will advise the lead when disorientation makes it difficult for the wingman to maintain position.

6.8.3.2. The lead will advise the wingman of aircraft attitude, altitude, heading and airspeed.

6.8.3.3. If symptoms persist, the lead will establish a straight-and-level flight for approximately 30 to 60 seconds, conditions permitting.

6.8.3.4. If the above procedures are not effective, the lead should consider passing the lead to the wingman, provided the leader will be able to maintain situational awareness from a chase position. Transfer lead while in straight-and-level flight. Once assuming the lead, the wingman will maintain straight-and-level flight for approximately 60 seconds. If necessary, terminate the tactical mission and recover by the simplest and safest means possible.

6.8.4. Three- or Four-Ship Formation. The lead should separate the flight into elements to more effectively handle a wingman with persistent SD symptoms. If the terrain permits, establish straight-and-level flight. The element with the SD pilot will remain straight-and-level while the other element separates from the flight.

**6.9. In-flight Practice of Emergency Procedures:**

6.9.1. A simulated emergency procedure is a procedure that produces an effect that would closely parallel the actual emergency, such as retarding the throttle to a degree that produces a drag equivalent to a flamed out or idle engine.

6.9.2. All training related to aborted takeoffs will be accomplished in the flight simulator, cockpit familiarization trainer, or static aircraft. **(T-2)** Practice in-flight engine shutdown is prohibited except for functional check flight training requirements. **(T-2)** Do not practice precautionary flameout patterns unless crash rescue is available and either an active tower or a runway supervisory unit is in operation. **(T-2)** Pilots will not practice precautionary flameout patterns in conditions other than day VMC. **(T-2)**

6.9.3. Refer to AFMAN 11-202V3 and applicable MAJCOM supplements for emergency landing patterns.

**6.10. Precautionary Flameout Operations.** AETC will define in this publication precautionary flameout/emergency landing pattern operations. The operations group commander will establish specific procedures for SFO training and establish letters of agreement with appropriate agencies. **(T-2)**

6.10.1. Pilots will make radio calls IAW local procedures, but as a minimum, call:

6.10.1.1. "High Key" **(T-2)**

6.10.1.2. "Low Key" **(T-2)**

6.10.1.3. "Base Key, Gear Down, (Intentions)" **(T-2)**

**6.11. Search and Rescue (SAR) Procedures.** If an aircraft is lost in flight, actions must immediately begin to locate possible survivors and initiate rescue efforts. All flight members must aggressively pursue location and rescue of downed personnel, even if they seem uninjured. Many downed aircrews initially suffer from shock or have delayed reactions to ejection injuries. The following procedures are a guide and should be adjusted to meet each unique SAR situation: (**Note:** Specific procedures will be detailed in the unit local supplement.)

6.11.1. Squawk. Immediately terminate maneuvering, using appropriate KIO procedures. Establish a SAR commander. Place the transponder in to Emergency to alert ATC or ground control intercept of the emergency situation.

6.11.2. Talk. Communicate the emergency situation and aircraft or flight intentions immediately to applicable control agencies. Use Guard frequency if necessary. Do not use aircrew names on the radio; individual crew positions may be referenced by using the call sign and the suffix ALPHA to refer to the front cockpit occupant and BRAVO to refer to the rear cockpit occupant (for example, TUSKY 04 ALPHA or TUSKY 04 BRAVO).

6.11.3. Mark. Mark the last known position of survivors or crash site, using any means available. Use the very high frequency omnidirectional range, TACAN, or inertial navigation system position; ATC or ground-controlled intercept positioning; or ground references to identify the immediate area for subsequent rescue efforts.

6.11.4. Separate. Remain above the last observed parachute altitudes until the position of all possible survivors is determined. As a guide, allow 1 minute per 1,000 feet for a deployed parachute to descend. Deconflict other aircraft assisting in the SAR by altitude to prevent a

midair collision. Establish high or low combat air patrol, as necessary, to facilitate communications with other agencies.

6.11.5. Bingo. Aircrew may revise bingo fuels or recovery bases as required to maintain maximum SAR coverage over survivors or crash site. Pilots will not overfly bingo fuel. Relinquish SAR operation to designated rescue forces on their arrival.

**6.12. Birdstrike and Loss of Canopy Procedures:**

6.12.1. Following any birdstrike that enters the cockpit, or loss of canopy, there is high potential for extreme confusion and disorientation. Aircrew should use extreme care to avoid situations resulting in both crewmembers attempting to fly the aircraft at the same time.

6.12.2. The pilot flying prior to the birdstrike or loss of canopy should maintain aircraft control (if able) until a positive transfer of aircraft control has occurred. The aircrew member not flying should monitor flight parameters and be ready to immediately assume control if the pilot flying is not responding appropriately (by initiating a climb if in the low-altitude environment).

6.12.3. If the aircraft is at low altitude when the birdstrike or canopy loss occurs, the pilot flying should (if able) immediately select power as required and establish a climb away from the ground. The aircrew member not flying should be prepared to assume control of the aircraft if the pilot flying does not initiate a climb away from the ground.

6.12.4. In the case of a birdstrike that has entered the cockpit or canopy loss with a corresponding loss of intercom or communication difficulty, the aircrew member assuming control of the aircraft should rock the wings of the aircraft and the aircrew member relinquishing control should show their hands, if able, unless prebriefed otherwise. (See **paragraph 3.15**.) If the aircrew member cannot assume control of the aircraft because of the position of the pilot priority switch, the aircrew member should attempt to communicate their intention using the common data selections on both cockpits' up-front control display touchscreens.

**6.13. Nonpilot Aircrew Flying.** AETC may establish procedures and restrictions for nonpilot aircrew member control of the aircraft.

**6.14. T-7 Minimum Equipment.** AETC will define in this publication the minimum operational equipment necessary for all sortie types except functional check flight sorties.

CHRISTOPHER R. AMRHEIN, Brig Gen, USAF
Director, Operations and Communications

## Attachment 1

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

***References***

AETCMAN 11-2T-7V1, *T-7 Aircrew Training*, 17 February 2026

AFI 11-215, *Flight Manuals Program*, 25 March 2019

AFI 33-322, *Records Management and Information Governance Program,* 23 March 2020

AFMAN 11-202V3, *Flight Operations*, 10 January 2022

AFMAN 11-214, *Air Operations Rules and Procedure*s, 29 Nov 2022

AFMAN 11-218, *Aircraft Operations and Movement on the Ground*, 5 April 2019

AFMAN 13-204V3_AETCSUP, *Air Traffic Control*, 26 July 2022

AFPAM 11-205, *Aircrew Quick Reference to Aircraft Cockpit and Formation Flight Signals*, 9 August 2018

AFTTP 3-2.5, *Multi-Service Tactics, Techniques, and Procedures for Multi-Service Brevity Codes*, January 2025

DAFI 11-209, *Participation in Aerial Events*, 20 May 2021

DAFMAN 13-201, *Airspace Management*, 10 December 2020

DAFMAN 13-204V3, *Air Traffic Control*, 26 April 2024

DAFMAN 90-161, *Publishing Processes and Procedures*, 18 October 2023

Technical Order 1T-7-1, *Flight Manual, USAF Series T-7 Aircraft*, 8 March 2016

***Prescribed Forms***

None

***Adopted Forms***

AF Form 4290, *Unplanned Supersonic Flight Activity Log*

DAF Form 847, *Recommendation for Change of Product*

***Abbreviations and Acronyms***

**AB**—afterburner

**AFI**—Air Force instruction

**AFMAN**—Air Force manual

**AGL**—above ground level

**AOA**—angle of attack

**ATC**—air traffic control

**DAF**—Department of the Air Force

**DAFMAN**—Department of the Air Force manual

**ERAA**—emergency route abort altitude

**FLIP**—flight information publications

**IAW**—in accordance with

**IFR**—instrument flight rules

**IMC**—instrument meteorological conditions

**IP**—instructor pilot

**KCAS**—knots calibrated airspeed

**KIO**—knock-it-off

**MAJCOM**—major command

**MSA**—minimum safe altitude

**MSL**—mean sea level

**NM**—nautical mile

**OPR**—office of primary responsibility

**PIC**—pilot in command

**RCAM**—runway condition assessment matrix

**SAR**—search and rescue

**SD**—spatial disorientation

**TACAN**—tactical air navigation

**VFR**—visual flight rules

**VMC**—visual meteorological conditions

***Office Symbols***

**AETC/A3/6**—Air Education and Training Command Operations and Communications Directorate

**AETC/A3V**—Air Education and Training Command Standardization and Evaluations Division

## Attachment 2

## INSTRUCTIONS FOR USING AF FORM 4290

**A2.1. Purpose.** Units use the AF Form 4290 to document unplanned supersonic flights according to the requirements of DAFMAN 13-201. Logging of planned supersonic flights is not required.

**A2.2. Scope.** Table A2.1 provides instructions for units documenting unplanned supersonic flights on AF Form 4290.

**Table A2.1. Instructions for Using AF Form 4290.**

| ITEM | A<br>In Block | B<br>Enter | C<br>Remarks |
|---|---|---|---|
| 1 | UNIT | The unit that authorized the flights. | Use a separate form for each unit. |
| 2 | BASE | Departure point of flights. | Use a separate form for each departure point. |
| 3 | FROM | Starting date of flights listed. | |
| 4 | TO | Ending date of flights listed. | Complete only when this form is no longer used or filed. |
| 5 | DATE | Date of unplanned supersonic flight. | |
| 6 | CALL SIGN | Call sign of aircraft. | Use additional lines for each aircraft in a flight. |
| 7 | TYPE AIRCRAFT | Type of aircraft. | |
| 8 | LOCATIONS | The special use airspace identifier, designated route number, or coordinates along supersonic route. | Navigation fixes may also be listed. |
| 9 | ALTITUDES | Highest and lowest altitudes of supersonic activity. | |
| 10 | NOTIFICATIONS | Personnel and offices notified, if any. | As required by local procedures. |

## Attachment 3

## GROUND OPS/TAKEOFF/DEPARTURE BRIEFING GUIDE

**A3.1. Mission Data:**

A3.1.1. Time Hack.

A3.1.2. Emergency Procedure/Threat of the Day.

A3.1.3. Mission Objectives.

A3.1.4. Mission Overview.

A3.1.5. Mission Data Card:

A3.1.5.1. Mission Commander/Deputy Lead.

A3.1.5.2. Joker/Bingo Fuel.

A3.1.5.3. Takeoff and Landing Data.

A3.1.5.4. Working Area.

A3.1.6. Weather/Sunrise/Sunset/Moon Illumination.

A3.1.7. Notices to Airmen/Birdstrike Potential.

A3.1.8. Personal Equipment.

A3.1.9. Operational Risk Management.

A3.1.10. Flight Crew Information File/Pubs/Maps.

**A3.2. Ground Procedures:**

A3.2.1. Preflight:

A3.2.1.1. Aircraft.

A3.2.1.2. Armament.

A3.2.2. Check In.

A3.2.3. Taxi/Marshaling/Arming.

A3.2.4. Spare Procedures.

**A3.3. Takeoff:**

A3.3.1. Runway Lineup.

A3.3.2. Formation Takeoff.

A3.3.3. Takeoff Interval.

A3.3.4. Abort.

A3.3.5. Jettison Procedures.

A3.3.6. Low-Altitude Ejection.

A3.3.7. Landing Immediately After Takeoff.

**A3.4. Departure/En Route:**

A3.4.1. Routing.

A3.4.2. Trail Departure.

A3.4.3. Join-up/Formation.

A3.4.4. Systems/Ops Checks.

A3.4.5. Military Operating Area/Low-Level Route Entry

## Attachment 4

## RECOVERY/AFTER LANDING BRIEFING GUIDE

**A4.1. Recovery:**

A4.1.1. Rejoin.

A4.1.2. Battle Damage/Bomb Check.

A4.1.3. Type Recovery.

A4.1.4. Flight Breakup.

A4.1.5. Pattern and Landing.

**A4.2. After Landing/Dearm.**

**A4.3. Emergency/Alternate Airfields.**

## Attachment 5

## SPECIAL SUBJECT BRIEFING GUIDE

**A5.1. Instructor Responsibilities.**

**A5.2. Chase Procedures.**

**A5.3. Transponder Procedures.**

**A5.4. Visual Search Responsibilities/Midair Collision Avoidance.**

**A5.5. Dissimilar Formations.**

**A5.6. Terrain Avoidance:**

A5.6.1. Departure/En Route/Recovery.

A5.6.2. MSL Floor Settings.

**A5.7. Birdstrike Procedures/Visor Use.**

**A5.8. Hazards Associated with Human Factors:**

A5.8.1. Channelized Attention.

A5.8.2. Task Saturation/Prioritization.

A5.8.3. Complacency.

**A5.9. G Awareness:**

A5.9.1. Turn/G-Suit Connection/G Tolerance.

A5.9.2. Use of L-1 Anti-G Straining Maneuver.

**A5.10. Visual Illusions/Perceptions.**

**A5.11. Spatial Disorientation/Unusual Attitudes/G Excess Illusion.**

**A5.12. Lost Wingman.**

**A5.13. Radio Inoperative.**

**A5.14. SAR.**

**A5.15. Recall Procedures.**

**A5.16. Special Interest Items.**

**A5.17. Crew/Cockpit Resource Management.**

## Attachment 6

## ADVANCED HANDLING/INSTRUMENT BRIEFING GUIDE

**A6.1. Airwork:**

A6.1.1. Airspace Restrictions.

A6.1.2. Area Orientation.

A6.1.3. Instructor Responsibilities.

A6.1.4. Maneuvers.

**A6.2. Approaches:**

A6.2.1. Frequencies.

A6.2.2. Holding.

A6.2.3. Penetration.

A6.2.4. Missed Approach/Climbout.

**A6.3. Special Subjects:**

A6.3.1. G Awareness.

A6.3.2. Fuel Awareness/AB Use/Consumption Rates.

A6.3.3. Maneuvering Limitations:

A6.3.3.1. Airspeed and G.

A6.3.3.2. Recognition/Prevention/Recovery From Out of Control.

A6.3.3.3. Maneuvering at Heavyweight/High Angles of Attack.

A6.3.3.4. Effects of Center of Gravity throughout the Flight.

A6.3.3.5. Time to Ground Impact (Wings Level, Overbank and Under-G).

A6.3.4. **Hazards Associated with Human Factors:**

A6.3.4.1. Channelized Attention.

A6.3.4.2. Task Saturation and Prioritization.

A6.3.4.3. Complacency.

## Attachment 7

## AIR COMBAT TRAINING/INTERCEPT BRIEFING GUIDE

**A7.1. General/Adversary Coordination/Ground Controlled Intercept Coordination:**

A7.1.1. Call Signs.

A7.1.2. Number and Type Aircraft.

A7.1.3. Scenario:

A7.1.3.1. Objectives.

A7.1.3.2. Type Threat Simulated/Tactics Limitations (if any).

A7.1.3.3. Combat Air Patrol Points/Target Locations.

A7.1.3.4. Safe Areas/Forward Edge of the Battle Area/Ground Threats.

A7.1.3.5. Visual Identification/Beyond Visual Range Criteria.

A7.1.4. Mission Contingencies:

A7.1.4.1. No Ground Controlled Intercept.

A7.1.4.2. Single Frequency.

A7.1.4.3. Area Weather/Alternate Mission.

A7.1.4.4. Aircraft Fallout Plan (Primary/Alternate Missions).

A7.1.4.5. Rejoin in Area for Late Takeoffs.

A7.1.5. Area Information:

A7.1.5.1. Controlling Agency:

A7.1.5.1.1. Ground Controlled Intercept/Flight.

A7.1.5.1.2. Communications Requirements.

A7.1.5.1.3. Type/Level of Control.

A7.1.5.2. Airspace Restrictions.

A7.1.5.3. Combat Air Patrol Points/Target Locations.

A7.1.5.4. Frequencies.

A7.1.5.5. Squawks.

A7.1.5.6. Block Altitudes/Minimum Altitudes/Flight Parameters.

A7.1.5.7. Transmissions:

A7.1.5.7.1. KIO.

A7.1.5.7.2. Shots/Kills.

A7.1.5.7.3. Fuel/Altitude Awareness.

A7.1.6. Rendezvous/Recovery Procedures/Dissimilar Formation.

A7.1.7. Weapons Employment:

A7.1.7.1. Simulated Ordnance (Type/Quantity).

A7.1.7.2. Shot Criteria.

A7.1.7.3. Kill Criteria/Removal.

A7.1.7.4. Shot/Kill Passage.

A7.1.8. Training Rules.

A7.1.9. Emergency Procedures:

A7.1.9.1. Recovery.

A7.1.9.2. Escort Procedures.

A7.1.10. Debriefing (Time/Place).

**A7.2. Flight/Element Tactics:**

A7.2.1. Avionics Setup:

A7.2.1.1. Transponder.

A7.2.1.2. Air-to-Air TACAN.

A7.2.2. Combat Air Patrol /Patrol Phase:

A7.2.2.1. Type Pattern.

A7.2.2.2. Formation/Altitude/Airspeed.

A7.2.2.3. Search Responsibilities.

A7.2.2.4. Commit:

A7.2.2.4.1. Criteria/Range.

A7.2.2.4.2. Procedures.

A7.2.3. Ingress/Intercept Phase:

A7.2.3.1. Formation/Altitude/Airspeed.

A7.2.3.2. Detection:

A7.2.3.2.1. Search Responsibilities (Visual).

A7.2.3.3. Targeting Plan.

A7.2.3.4. Intercept Type/Planned Tactics:

A7.2.3.4.1. Plan (Direct Attack/Deception).

A7.2.3.4.2. Mutual Support Requirements.

A7.2.3.4.3. Identification Requirements/Procedures.

A7.2.3.4.4. Minimum Altitudes/Airspeeds.

A7.2.3.4.5. Vertical/Horizontal Conversions/Turning Room.

A7.2.4. Engagement Phase:

A7.2.4.1. Plan:

A7.2.4.1.1. Turn and Fight.

A7.2.4.1.2. Hit and Run.

A7.2.4.1.3. Abort.

A7.2.4.2. Clearance for Wingman to Engage:

A7.2.4.2.1. Offensive.

A7.2.4.2.2. Defensive.

A7.2.4.3. Alternate Plan (Degraded Situation).

A7.2.5. Egress/Separation Phase:

A7.2.5.1. Disengagement Plan (Why/When/How):

A7.2.5.1.1. Loss of Mutual Support.

A7.2.5.1.2. Fuel.

A7.2.5.1.3. Ordnance.

A7.2.5.2. Egress Formation/Responsibilities.

A7.2.6. Contingencies:

A7.2.6.1. Single Contact.

A7.2.6.2. Short Range Commit.

A7.2.6.3. Single Ship (Loss of Mutual Support).

A7.2.6.4. Safe Escape/Rendezvous Point.

A7.2.7. Additional Considerations:

A7.2.7.1. Threat Reaction.

A7.2.7.2. Degraded Systems.

A7.2.7.3. Tactical Lead Changes.

A7.2.7.4. Bandit Options.

A7.2.7.5. Film/Videotape Recorder.

A7.2.7.6. Codewords.

A7.2.8. Alternate Mission:

A7.2.8.1. Type Mission (Refer to appropriate mission briefing guide).

A7.2.8.2. Mission Objectives.

**A7.3. Special Subjects:**

A7.3.1. G Awareness.

A7.3.2. Fuel Awareness/AB Use/Consumption Rates.

A7.3.3. Flightpath Deconfliction.

A7.3.4. **Maneuvering Limitations:**

A7.3.4.1. Airspeed and G.

A7.3.4.2. Recognition/Prevention/Recovery from Out of Control.

A7.3.4.3. Time to Ground Impact:

A7.3.4.3.1. Wings Level.

A7.3.4.3.2. Overbank/Under G.

A7.3.5. **Hazards Associated with Human Factors:**

A7.3.5.1. Channelized Attention.

A7.3.5.2. Task Saturation and Prioritization.

A7.3.5.3. Complacency.

## Attachment 8

## BASIC FIGHTER MANEUVERS/AIR COMBAT MANEUVERING BRIEFING GUIDE

**A8.1. Area Work:**

A8.1.1. Area Description/Restrictions.

A8.1.2. G Warmup.

A8.1.3. Belly/Guns.

A8.1.4. Roll-Slides.

A8.1.5. Other Exercises.

**A8.2. Setups:**

A8.2.1. Objectives.

A8.2.2. Type Threat Simulated/Tactics Limitations.

A8.2.3. Floor.

A8.2.4. Beyond Visual Range:

A8.2.4.1. Geometry.

A8.2.4.2. Heading/Altitude/Airspeeds.

A8.2.4.3. Points/Blocks.

A8.2.5. Perch Setups:

A8.2.5.1. Position.

A8.2.5.2. Altitude.

A8.2.5.3. Airspeeds.

A8.2.5.4. Visual/Camera On.

A8.2.6. Butterfly - Line Abreast/Action/—Fights On.

**A8.3. Weapons:**

A8.3.1. Type Used/Engagement.

A8.3.2. Shot/Kill Criteria.

A8.3.3. Parameters/Restrictions/Simulations.

**A8.4. KIO/Terminate/Between Engagements:**

A8.4.1. Maintain Tally/Visual.

A8.4.2. Airspeed.

A8.4.3. Formation.

A8.4.4. Camera Off/Fuel Check.

**A8.5. Desired Learning Objectives.**

**A8.6. Special Subjects:**

A8.6.1. G Awareness.

A8.6.2. Fuel Awareness/AB Use/Consumption Rates.

A8.6.3. Flightpath Deconfliction.

A8.6.4. Maneuvering Limitations:

A8.6.4.1. Airspeed and G.

A8.6.4.2. Recognition/Prevention/Recovery from Out of Control.

A8.6.4.3. Time to Ground Impact:

A8.6.4.3.1. Wings Level.

A8.6.4.3.2. Overbank/Under G.

**A8.7. Hazards Associated with Human Factors:**

A8.7.1. Channelized Attention.

A8.7.2. Task Saturation and Prioritization.

A8.7.3. Complacency.

## Attachment 9

## ESCORT MISSION BRIEFING GUIDE

**A9.1. En Route to Rendezvous/Post-Mission Navigation:**

A9.1.1. Formation.

A9.1.2. Route of Flight.

A9.1.3. Control Agency Call Sign/Frequency.

**A9.2. Rendezvous:**

A9.2.1. Protected Force Call Sign.

A9.2.2. Altitude.

A9.2.3. Airspeed.

**A9.3. Escort Procedures:**

A9.3.1. Type Formation.

A9.3.2. Tactics.

A9.3.3. Escort Route.

**A9.4. Training Rules.**

**A9.5. Alternate Mission:**

A9.5.1. Type Mission. (Refer to appropriate mission briefing guide.)

A9.5.2. Mission Objectives.

**A9.6. Special Subjects:**

A9.6.1. Airspace Restrictions.

A9.6.2. G Awareness.

A9.6.3. Fuel Awareness/AB Use/Consumption Rate.

A9.6.4. Flightpath Deconfliction.

A9.6.5. Maneuvering Limitations:

A9.6.5.1. Airspeed and G.

A9.6.5.2. Recognition/Prevention/Recovery from Out of Control.

A9.6.6. Time to Ground Impact:

A9.6.6.1. Wings Level.

A9.6.6.2. Overbank/Under G.

A9.6.7. Hazards Associated with Human Factors:

A9.6.7.1. Channelized Attention.

A9.6.7.2. Task Saturation and Prioritization.

A9.6.7.3. Complacency.

## Attachment 10

## LOW ALTITUDE NAVIGATION BRIEFING GUIDE

**A10.1. General:**

A10.1.1. Route/Clearance/Restrictions.

A10.1.2. Flight Responsibilities:

A10.1.2.1. Navigation.

A10.1.2.2. Visual Search.

A10.1.3. **Entry/Spacing/Holding/Initial Altitude (MSA).**

**A10.2. Route Procedures:**

A10.2.1. Fence Checks.

A10.2.2. Tactical Formation/Turns.

A10.2.3. Low Altitude Navigation:

A10.2.3.1. Dead Reckoning/Use of Navigation Aids/Equipment.

A10.2.3.2. Procedures/Techniques/Predictions.

A10.2.3.3. Visual Procedures/Techniques/Infrared Predictions.

A10.2.3.4. Updates/Calibrations.

A10.2.3.5. Time/Fuel Control.

A10.2.3.6. Terrain Avoidance/Wingman Considerations.

A10.2.3.7. Leg Altitudes/Obstacles (MSL/AGL).

A10.2.3.8. Turn Point Acquisition.

A10.2.4. Threat Reactions:

A10.2.4.1. Chaff/Flares.

A10.2.4.2. Engagement Criteria.

A10.2.4.3. Flightpath Deconfliction.

A10.2.4.4. Termination.

**A10.3. Contingencies:**

A10.3.1. Aircraft Fallout Plan.

A10.3.2. Rejoin after Late Takeoff.

**A10.4. Emergencies:**

A10.4.1. Aircraft Malfunctions.

A10.4.2. Route Abort Procedures (ERAA/MSA)/ATC Frequencies.

**A10.5. Training Rules/Special Operating Instructions.**

**A10.6. Alternate Mission:**

A10.6.1. Type Mission. (Refer to appropriate mission briefing guide.)

A10.6.2. Mission Objectives.

**A10.7. Special Subjects:**

A10.7.1. Airspace Restrictions.

A10.7.2. G Awareness/Ops Checks.

A10.7.3. Fuel Awareness/AB Use/Consumption Rates.

A10.7.4. Flightpath Deconfliction.

A10.7.5. Maneuvering Limitations:

A10.7.5.1. Airspeed and G.

A10.7.5.2. Recognition/Prevention/Recovery from Out of Control.

A10.7.6. Time to Ground Impact:

A10.7.6.1. Wings Level.

A10.7.6.2. Overbank/Under G.

A10.7.7. Night Considerations.

A10.7.8. **Hazards Associated with Human Factors:**

A10.7.8.1. Channelized Attention.

A10.7.8.2. Task Saturation and Prioritization.

A10.7.8.3. Complacency.

**Attachment 11**

**AIR-TO-SURFACE WEAPONS EMPLOYMENT/RANGE MISSION BRIEFING GUIDE**

***Section A11A—Range Information***

**A11.1. General Information:**

A11.1.1. Target/Range Description.

A11.1.2. Restrictions.

A11.1.3. Range Entry/Holding.

A11.1.4. Radio Procedures.

A11.1.5. Formation.

A11.1.6. Sequence of Events.

A11.1.7. Pattern Procedures.

A11.1.8. Aircraft Fallout Plan.

A11.1.9. Rejoin on Range for Late Takeoffs.

**A11.2. Employment Procedures and Techniques:**

A11.2.1. Avionics/Switch Positions:

A11.2.1.1. Weapons Switchology/Delivery Mode.

A11.2.1.2. Special Weapons Switchology.

A11.2.2. Laydown:

A11.2.2.1. Ground Track/Altitude/Airspeed.

A11.2.2.2. Target.

A11.2.2.3. Pickle/Release Point.

A11.2.2.4. Breakaway/Recovery Technique.

A11.2.2.5. Backup Deliveries.

A11.2.2.6. Delivery Spacing.

A11.2.3. Popup Delivery:

A11.2.3.1. Entry Airspeed/Altitude.

A11.2.3.2. Pop Point/Pullup Angle/Power Setting.

A11.2.3.3. Target Acquisition.

A11.2.3.4. Pull Down/Apex Altitudes.

A11.2.3.5. Pattern Corrections.

A11.2.4. Roll-in:

A11.2.4.1. Position.

A11.2.4.2. Techniques (Pitch/Bank/Power).

A11.2.4.3. Rollout/Wind Effect.

A11.2.5. Final:

A11.2.5.1. Aim-off Distance.

A11.2.5.2. Dive Angle.

A11.2.5.3. Airspeed.

A11.2.5.4. Heads Up Display Depiction.

A11.2.5.5. Sight Picture/Corrections/Aim Point.

A11.2.5.6. Release Parameters.

A11.2.5.7. Release Indications.

A11.2.5.8. Recovery Procedures.

**A11.3. Over-Water Range Operations:**

A11.3.1. Employment Techniques:

A11.3.1.1. Depth Perception/Reduced Visual Cues.

A11.3.1.2. Distance/Altitude Estimation.

A11.3.1.3. Popup Positioning:

A11.3.1.3.1. Timing.

A11.3.1.3.2. Visual/Aircraft References to Establish Pullup Point.

A11.3.2. Special Considerations:

A11.3.2.1. Adjusted Minimum Altitudes.

A11.3.2.2. Training Rules/Special Operating Procedures.

**A11.4. Range Departure Procedures:**

A11.4.1. Armament Safety Checks.

A11.4.2. Rejoin.

A11.4.3. Battle Damage/Bomb Check.

A11.4.4. Jettison Procedures/Parameters.

A11.4.5. Hung/Unexpended Ordnance.

A11.4.6. Inadvertent Release.

**A11.5. Training Rules/Special Operating Instructions.**

**A11.6. Alternate Mission:**

A11.6.1. Type Mission. (Refer to appropriate mission briefing guide.)

A11.6.2. Mission Objectives.

**A11.7. Special Subjects:**

A11.7.1. Error Analysis.

A11.7.2. Fouls.

A11.7.3. Minimum Altitudes.

A11.7.4. Target Fixation.

A11.7.5. G awareness.

A11.7.6. Fuel Awareness/Ops Checks/AB Use/Consumption Rates.

A11.7.7. Maneuvering Limitations.

A11.7.8. Airspeed/G/Stress (Carriage/Release).

A11.7.9. Recognition/Prevention/Recovery from Out of Control.

A11.7.10. Time to Ground Impact:

A11.7.10.1. Wings Level.

A11.7.10.2. Overbank and/or Under G.

A11.7.11. Hazards Associated with Human Factors (Channelized Attention, Task Saturation/ Prioritization and Complacency).

***Section A11B—Surface Attack Tactics***

**A11.8. General Information:**

A11.8.1. Intelligence/Threat Scenario.

A11.8.2. Low Altitude. (See Low Altitude Briefing Guide in **Attachment 10**)

A11.8.3. Fence Checks.

A11.8.4. Operating Area Entry/Description/Boundaries.

A11.8.5. Target Area/Clearing Pass:

A11.8.5.1. Location/Description/Elevation/time on target.

A11.8.5.2. Visual Cues in the Target Area.

A11.8.5.3. Target Area Weather:

A11.8.5.3.1. Ceiling/Visibility.

A11.8.5.3.2. Winds/Altimeter.

A11.8.5.3.3. Sun Angle/Shadows.

A11.8.5.3.4. Infrared Considerations.

A11.8.6. Threat Array:

A11.8.6.1. Type/Capabilities.

A11.8.6.2. Locations.

A11.8.6.3. Countermeasures:

A11.8.6.3.1. Chaff/Flare

A11.8.6.3.2. Terrain Masking.

A11.8.6.3.3. Radio Silent Procedures.

A11.8.6.3.4. Authentication/Comm-Jamming/Chattermark Procedures.

A11.8.6.4. Threat Reactions:

A11.8.6.4.1. Low Altitude Training.

A11.8.6.4.2. Initial Point to Action Point.

A11.8.6.4.3. During Delivery.

A11.8.7. Ordnance/Weapons Data:

A11.8.7.1. Type/Fuzing.

A11.8.7.2. Weapons Settings.

A11.8.7.3. Desired Effects.

A11.8.7.4. Specific Aim Points.

A11.8.7.5. Minimum Altitudes:

A11.8.7.5.1. Safe Escape/Safe Separation.

A11.8.7.5.2. Fuze Arming/Frag Avoidance.

A11.8.8. Laser Operations.

**A11.9. Employment Procedures/Tactics:**

A11.9.1. Overview.

A11.9.2. Ingress:

A11.9.2.1. Formation.

A11.9.2.2. Speed/Altitude.

A11.9.3. Weapons Delivery:

A11.9.3.1. Type Delivery.

A11.9.3.2. Switchology.

A11.9.3.3. Attack Parameters:

A11.9.3.3.1. Action Point/Pop Point.

A11.9.3.3.2. Altitudes (Pull Down/Apex/Release/Minimum).

A11.9.3.4. Visual Lookout/Mutual Support Responsibilities.

A11.9.4. Egress:

A11.9.4.1. Recovery/Return to Low Altitude.

A11.9.4.2. Loss of Mutual Support/Rendezvous Point.

**A11.10. Range Departure Procedures:**

A11.10.1. Armament Safety Checks.

A11.10.2. Rejoin.

A11.10.3. Battle Damage/Bomb Check.

A11.10.4. Jettison Procedures/Parameters.

A11.10.5. Hung/Unexpended Ordnance.

A11.10.6. Inadvertent Release.

**A11.11. Mission Reporting (Battle Damage Assessment/In-flight Report).**

**A11.12. Contingencies:**

A11.12.1. Rejoin for Late Takeoff.

A11.12.2. Two-/Three-Ship Options.

A11.12.3. Tactical Lead Changes.

A11.12.4. Air-to-Air TACAN.

A11.12.5. Codewords.

A11.12.6. Weather Backup Deliveries.

A11.12.7. Degraded Systems.

A11.12.8. Reattack.

A11.12.9. Wounded Bird/Escort Procedures.

**A11.13. Training Rules/Special Operating Instructions.**

**A11.14. Alternate Mission:**

A11.14.1. Type Mission. (Refer to appropriate mission briefing guide.)

A11.14.2. Mission Objectives.

**A11.15. Special Subjects:**

A11.15.1. Error Analysis.

A11.15.2. Fouls.

A11.15.3. Minimum Altitudes.

A11.15.4. Target Fixation.

A11.15.5. G Awareness.

A11.15.6. Fuel Awareness/Ops Checks/AB Use/Consumption Rates.

A11.15.7. Maneuvering Limitations:

A11.15.7.1. Airspeed/G/Stress (Carriage/Release).

A11.15.7.2. Recognition/Prevention/Recovery from Out of Control.

A11.15.8. Time to Ground Impact:

A11.15.8.1. Wings Level.

A11.15.8.2. Overbank/Under G.

A11.15.9. Hazards Associated with Human Factors (Channelized Attention, Task Saturation/ Prioritization and Complacency).

***Section A11C—Close Air Support***

**A11.16. General Information:**

A11.16.1. Intelligence/Threat Scenario.

A11.16.2. Low Altitude.

A11.16.3. En Route Formations/Lookout Responsibilities/ Low Altitude Training (if applicable).

A11.16.4. Fence Checks.

A11.16.5. Ordnance/Weapons Data:

A11.16.5.1. Type/Fuzing.

A11.16.5.2. Weapons Settings.

A11.16.5.3. Simulated Ordnance Procedures/Minimum Altitudes:

A11.16.5.3.1. Safe Escape/Safe Separation.

A11.16.5.3.2. Fuse Arming/Frag Avoidance.

A11.16.5.3.3. Missile Launch Parameters.

A11.16.6. Control Agency:

A11.16.6.1. Call Sign.

A11.16.6.2. Frequencies.

A11.16.7. Coordination:

A11.16.7.1. Attack Package Times/Support.

A11.16.7.2. Other Weasel Flights.

A11.16.7.3. Data Gathering/Passage.

A11.16.7.4. Airspace Restrictions.

A11.16.7.5. Mission Number.

A11.16.7.6. Friendly Forces.

A11.16.7.7. Play Time.

**A11.17. Close Air Support Procedures:**

A11.17.1. Working Area.

A11.17.2. Formations/Working Altitudes.

A11.17.3. Target Types/Threat Array.

A11.17.4. Attack Tactics.

**A11.18. Weapons Delivery:**

A11.18.1. Tactics:

A11.18.1.1. Type Delivery.

A11.18.1.2. Switchology.

A11.18.1.3. Attack Parameters:

A11.18.1.3.1. Action Point/Initial Point/Pop Point.

A11.18.1.3.2. Altitude (Pull Down/Apex/Release/Minimum).

A11.18.1.4. Visual Lookout/Mutual Support Responsibilities.

A11.18.1.5. Egress:

A11.18.1.5.1. Recovery/Return to Low Altitude.

A11.18.1.5.2. Loss of Mutual Support/Rendezvous Point.

A11.18.2. Battle Damage/Bomb Check.

A11.18.3. Mission Reporting (Battle Damage Assessment/In-flight Report).

**A11.19. Combat SAR Procedures:**

A11.19.1. Communications Procedures.

A11.19.2. Downed Aircraft Procedures.

A11.19.3. On-Scene Commander.

A11.19.4. Fuel Considerations.

A11.19.5. Ordnance Considerations.

**A11.20. Contingencies:**

A11.20.1. Two-/Three-Ship Option.

A11.20.2. Tactical Lead Changes.

A11.20.3. Air-to-Air TACAN.

A11.20.4. Codewords/Communications Out Signals.

A11.20.5. Weather Backup Deliveries.

A11.20.6. Degraded Systems.

A11.20.7. Reattack.

A11.20.8. Asymmetrical Considerations.

A11.20.9. Jettison Procedures/Parameters.

A11.20.10. Hung/Unexpended Ordnance Procedures.

A11.20.11. Wounded Bird/Escort Procedures.

**A11.21. Training Rules/Special Operations Instructions.**

**A11.22. Alternate Mission:**

A11.22.1. Type Mission. (Refer to appropriate mission briefing guide.)

A11.22.2. Mission Objectives.

**A11.23. Special Subjects:**

A11.23.1. Error Analysis.

A11.23.2. Fouls.

A11.23.3. Minimum Altitudes.

A11.23.4. Target Fixation.

A11.23.5. G Awareness.

A11.23.6. Fuel Awareness/Ops Checks/AB Use/Consumption Rates.

A11.23.7. Maneuvering Limitations:

A11.23.7.1. Airspeed/G/Stress (Carriage/Release).

A11.23.7.2. Recognition/Prevention/Recovery from Out of Control.

A11.23.8. Time to Ground Impact:

A11.23.8.1. Wings Level.

A11.23.8.2. Overbank/Under G.

A11.23.9. Hazards Associated with Human Factors (Channelized Attention, Task Saturation/ Prioritization and Complacency).

## Attachment 12

## CREW/PASSENGER/GROUND CREW COORDINATION BRIEFING GUIDE

**A12.1. Crew/Passenger Coordination:**

A12.1.1. Preflight.

A12.1.2. Prohibited Items.

A12.1.3. Cockpit Layout.

A12.1.4. Flight Maneuvering Parameters.

A12.1.5. Change of Aircraft Control.

A12.1.6. Rear Seat Landing Procedures.

A12.1.7. Emergencies:

A12.1.7.1. Runway Departure.

A12.1.7.2. Canopy Loss.

A12.1.7.3. Ejection/Egress (With and Without Intercom)/Ejection Mode Selector Handle Position.

A12.1.7.4. Loss of Intercom.

A12.1.7.5. Birdstrike Procedures/Visor Use.

A12.1.8. Flight Control Interference:

A12.1.8.1. Rudder Interference - Rudder Pedal Adjustment.

A12.1.8.2. Stick Interference - Lap Belt, Utility Light, Personal Equipment, Leg Position, Paddle Switch Override.

**A12.2. Ground Crew Coordination:**

A12.2.1. Act Only On Pilot's Instructions.

A12.2.2. Ground Emergency Procedures.

A12.2.3. Hand Signals.

A12.2.4. Aircraft Danger Areas.

## Attachment 13

## MISSION DEBRIEFING GUIDE

**A13.1. Ground Procedures.**

**A13.2. Takeoff/Join-Up/Departure.**

**A13.3. En Route Procedures.**

**A13.4. Recovery/Landing/After Landing.**

**A13.5. General:**

A13.5.1. Special Interest Items.

A13.5.2. Radio Procedures.

A13.5.3. Flight Discipline/Effectiveness.

**A13.6. Mission Accomplishment/Analysis:**

A13.6.1. Mission Reconstruction.

A13.6.2. Mission Support.

A13.6.3. Videotape Recorder/Film Assessment.

A13.6.4. Anti-G Straining Maneuver Effectiveness.

A13.6.5. Learning Objectives Achieved.

A13.6.6. Lessons Learned.

A13.6.7. Recommendations for Improvement.

**A13.7. Comments/Questions.**