BY ORDER OF THE SECRETARY OF THE AIR FORCE

AIR FORCE MANUAL 11-2F-16 Volume 3

4 FEBRUARY 2020

Incorporating Change 3, 13 SEPTEMBER 2022

35 FIGHTER WING Supplement

6 JULY 2023

Flying Operations

F-16--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: ACC/A3TO

Certified by: AF/A3T (Maj Gen James A. Jacobson)

Supersedes: AFI11-2F-16V3, 13 July 2016

Pages: 84

OPR: 35 OG/OGV

Certified by: 35OG/CC (Colonel Doyle A. POMPA)

Supersedes: AFMAN11-2F-16V3_35FWSUP, 15 June 2021

Pages: 84

This publication implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, AFPD 11-4, *Aviation Service*, and references Air Force Instruction (AFI) 11-202, Volume 3 (V3), *General Flight Rules*. This publication establishes effective and safe operations of the F-16. This Air Force Manual (AFMAN) applies to all F-16 units in the Regular Air Force, Air National Guard (ANG) and Air Force Reserve (AFR). This publication does not apply to the United States Space Force. Ensure all records generated as a result of processes prescribed in this publication adhere to AFI 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. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the *Department of the Air Force (DAF) Form 847, Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command. Air Combat Command (ACC)/A3

will coordinate all changes to the basic volume with all major command (MAJCOM)/A3s. This publication may be supplemented at any level, but route all direct supplements to Air Force Flight Standards Agency (AFFSA) and ACC Flight Operations and Training Branch (ACC/A3TO) for coordination prior to certification and approval. Field units below MAJCOM/direct reporting unit (DRU)/field operating agency (FOA) level forward copies of their supplements of this publication to their parent MAJCOM/ DRU/FOA OPR for post-publication review. Copies of MAJCOM/DRU/FOA-level supplements, after approval and publishing, will be made available on the e-Publishing website at **https://www.e-publishing.af.mil**. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor's commander for non-tiered compliance items. Additional waiver authority to this publication is described in **paragraph 1.2**. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Department of the Air Force.

(35FW) This supplement implements and extends the guidance of Air Force Manual (AFMAN) 11-2F-16V3, F-16 Operations Procedures. Specifically, it outlines the 35 FW local flying procedures. This supplement applies to 35 FW assigned personnel. This supplement does not apply to the Air National Guard (ANG) or US Air Force Reserve (USAFR) units and members. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Additionally, if the publication generates a report(s), alert readers in a statement and cite all applicable Reports Control Numbers in accordance with AFI 33-324. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Form 847s from the field through the appropriate functional's chain of command.

SUMMARY OF CHANGES

This interim change revises AFMAN11-2F-16V3 by an admin addition to **paragraph 2.7,** added restrictions in **paragraph 3.9.3**, wording added at the end of **paragraph 3.27.1** new wording in **paragraph 6.4.2** for SCU 10 aircraft, a new restriction in **paragraph 7.1.3,** and rewording of **paragraph 7.5.3.3**. A margin bar (|) indicates newly revised material.

(35FW) This document has been substantially revised and must be completely reviewed. Major changes include: Reformatting to match parent publication layout, IMC Rules Link 16 and AGCAS options, lightning within 5nm procedures, updated EFB operations, and removal of ATC specific procedures that are included in 35FWI 13-204.

Chapter 1

GENERAL GUIDANCE

1.1. Roles and Responsibilities. This manual prescribes procedures for operating F-16 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.

1.1.1. Commanders. Commanders at their respective tier levels are responsible for complying with guidance in this manual. (T-1). F-16 flying unit wing commanders, delegated no lower than Operations Group Commander (or equivalent), are responsible for providing local operating guidance to supplement the requirements of this Manual. (T-1).

1.1.2. Pilot in Command Authority. The pilot in command is responsible for, and is the final authority for the operation of the aircraft. (T-1). Pilots will use best judgement to safely conduct flying operations. (T-1).

1.2. Waivers. Forward waiver requests through appropriate channels to the applicable MAJCOM/A3 or equivalent, or Commander Air Force Forces (COMAFFOR) for those aircrew and assets under the COMAFFOR's oversight, for approval. The COMAFFOR, MAJCOM/A3 (or equivalent) will notify ACC/A3 of waivers within 72 hours of issuance. Wing commanders will notify the publication OPR within 72 hours of waiver approval (T-2). In accordance with AFI 33-360, a copy of the approved waiver must follow within 30 days of issuance (T-2). An email to the waived publication OPR that includes a completed AF Form 679, *Air Force Publication Compliance Item Waiver Request/Approval* or equivalent will suffice. Waiver authority for supplemental guidance will be as specified in the supplement and approved through higher level coordination authority.

Chapter 2

MISSION PLANNING

Section 2A—General

2.1. Responsibilities. The responsibility for mission planning is shared jointly by all flight members and the operations and intelligence functions of fighter organizations. Fighter unit personnel must accomplish sufficient flight planning to ensure safe mission execution, to include fuel requirements, map preparation, and takeoff/landing data. (T-1).

2.2. Bird/Wildlife Aircraft Strike Hazard (BASH) Programs. Bird Watch Conditions are defined in AFI 91-202, *The US Air Force Mishap Prevention Program*, and AFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*. The OG/CC will determine local BASH procedures. **(T-3).**

2.2.1. Takeoffs, landings, or low-levels within one hour of either sunrise or sunset during the phase II period increase likelihood of bird strike. Significant bird hazards are published in flight information publications (FLIP) general planning GP, the IFR Supplement and local airfield guidance.

2.2.2. When operating at airfields where no BASH program exists, pilots should make decisions based on observable bird conditions and seek assistance from local airfield personnel.

2.2.3. Pilots should consider bird migratory patterns during enroute portion of the mission to minimize the potential of an in-flight bird strike. The Bird Avoidance Model (BAM) on United States Avian Hazard Advisory System (**http://www.usahas.com**) provides BASH information, including regionalized CONUS bird migration, portable flight planning software (PFPS) overlay, and latest news. See AFI 91-212 for additional information.

2.3. Standards. The OG/CC may publish and approve group or wing standards. Operations Group Standardization and Evaluation (OGV) will review all standards for AFI 11-series compliance prior to publication. (T-1).

2.4. Chemical, Biological, Radiological, Nuclear, and High Yield Explosive (CBRNE). Potential adversary use of CBRNE weapons against a friendly airfield presents a serious threat to flying operations. Although the most effective way for aircrews to avoid this threat is to be airborne before those weapons are detonated/dispersed and then land at a field that has not been contaminated, all personnel must be prepared to operate from a field that has come under CBRNE attack. **(T-1)**.

2.4.1. Mission Preparation. Be aware of the status of the CBRNE environment at the planned launch and recovery airfields, potential divert bases, and throughout the area in which the sortie may fly. Know the current and forecast surface wind direction and the MOPP level in effect for relevant sectors of the airfield. Don appropriate aircrew chemical defense equipment (ACBRN) or Ground Crew Ensemble (GCE) to match the appropriate MOPP level (reference AFTTP 3-4, *Airman's Manual*, and carry individual protective equipment (IPE) as required. **(T-1)**.

2.4.2. Stepping to Fly and Aircraft Preflight. This may entail donning ACBRN or transitioning from GCE to ACBRN. Take precautions to protect aircrew from injury and or contamination while in transit from the squadron facility to the aircraft. **(T-1)**. If possible, transport aircrew in a vehicle that provides overhead cover (enclosed vehicle). If aircrew travel on foot is unavoidable, choose a route that takes maximum advantage of available overhead cover (sun shades, buildings, etc.) to avoid agents that may be settling from the air. If extra aircrew members are available for preflight duties, consider assigning them to do so wearing GCE. This will allow the aircrew actually flying to minimize exposure. If Alarm Red occurs during the step or preflight process, take cover and don appropriate MOPP. **(T-1)**. This may require use of the ground crew mask. A hardened aircraft shelter (HAS) provides optimum protection, if available. Use caution if entering a HAS that contains aircraft and/or equipment. Close doors after entry. If a HAS or other overhead cover is not immediately available, accept the best rapidly reachable cover.

2.4.3. Engine Start to Takeoff. If a HAS is available, use it to minimize exposure time by accomplishing aircraft arming and End of Runway (EOR) procedures inside it (if local procedures permit) and by delaying taxi time as long as possible prior to takeoff.

2.4.3.1. Aircraft Launch to Survive (LTS). Units will develop local procedures to provide this option to the commander. **(T-1)**. In general, aircraft may LTS any time after engine start if they have sufficient fuel and safe, expeditious access to a runway. This option may only be practical for aircraft that are near EOR prior to takeoff or that have just landed.

2.4.3.2. Alarm Red Prior to Taxi. If in a HAS, the normal procedure is to shut down. Engine noise may preclude effectiveness of normal alert notification procedures, so ensure ground personnel are aware of the alarm warning, assume proper MOPP, and close HAS doors. Use hand signals if necessary.

2.4.3.3. Alarm Red (or Theater Equivalent) After Taxi. Units typically establish procedures for this contingency depending on whether additional protection is available along the taxi route (empty HAS, for instance). Ideally, ground crew sheltering in such a HAS would be available to assist in normal engine shutdown procedures and to close HAS doors. If protection is not available, the best option may be LTS. Maintain contact with Command and Control (C2) entities (Wing Operations Center, Maintenance Operations Center, Supervisor of Flying, etc.) to ensure unity of effort in the overall plan. **(T-1)**.

2.4.4. Takeoff to Landing.

2.4.4.1. Contamination. If Chemical Warfare (CW) agent contamination occurred prior to takeoff, flying the aircraft will dissipate the agent to some degree. The total amount of dissipation will be greater with lower flight altitudes and longer flight times. Because the agent may have entered wheel wells, flaps, etc., consider flying in landing configuration to increase airflow to these areas. In any circumstances, merely flying the aircraft is unlikely to achieve complete decontamination.

2.4.4.2. Preparing to Land. Aircrew should remain aware of the status of primary and alternate landing locations. Do not attempt to land during Alarm Red situations unless there is no other option. Follow C2 directions and either hold or divert. If mission needs preclude divert, hold until the Alarm Red (or theater equivalent) has cleared or become an Alarm Black. Prior to landing, gain awareness of contaminated sectors of the airfield and of current/forecast surface winds. Use this information in conjunction with C2 direction to plan a route from landing to engine shutdown. The liquid deposition phase following a CW airburst attack can extend up to 1 hour. If landing during Alarm Black, expect a contaminated environment and MOPP 4.

2.4.5. Landing to Engine Shutdown. Take advantage of any protection available, minimizing taxi time and distance. Maintain contact with C2 in order to remain aware of unexploded ordnance and/or damage to airfield movement surfaces. **(T-1)**. If a HAS is available and local procedures permit, accomplish aircraft de-arm and EOR procedures there. If Alarm Red (or Theater Equivalent) occurs between landing and engine shutdown, considerations are similar to those discussed in the engine-start-to-takeoff section.

2.4.6. After Engine Shutdown. Don appropriate MOPP if not already worn. **(T-1)**. If circumstances permit, accomplish normal post-flight inspection procedures. If the aircraft is not contaminated, close the canopy. If there is any suspicion of personnel contamination, aircrew will process through an aircrew contamination control area (ACCA). **(T-1)**. Accomplish maintenance debriefings under cover to the maximum extent possible.

2.5. Flight Material Preparation.

2.5.1. Mission Data Card (MDC). The minimum takeoff and landing data (TOLD) requirements on the MDC are: 2,000 foot acceleration check speed (if computed takeoff roll exceeds 2,500 feet); refusal speed (dry/wet); rotation speed; takeoff speed; takeoff distance; normal landing speed and distance (dry/wet); heavyweight (immediately after takeoff) landing speed and distance (dry/wet). If computed takeoff roll is less than 2,500 feet, pilots must evaluate aircraft performance by comparing actual takeoff distance to computed takeoff distance or use a 1000 foot acceleration check speed. (T-1).

2.5.2. Local Area Maps. Pilots must carry a local area map unless pilot aids include jettison areas, divert information, controlled bailout areas, and provide sufficient detail of the local area to remain within assigned training areas. **(T-1).**

2.5.3. Enroute Charts. Pilots may substitute FLIP enroute charts for maps on navigational flights within areas adequately covered by these charts.

2.5.4. Low Altitude Maps.

2.5.4.1. On low altitude flights, each pilot will carry a current map (updated using Chart Update Manual or electronic equivalent) of the route/operating area. **(T-1).** Pilots will ensure it is of such scale and quality that the detail of terrain features, hazards, and chart annotations permits navigation and safe mission accomplishment. **(T-1).** Pilots will circle/highlight manmade obstacles at above planned flight altitude within 5 nautical miles (NM) of the planned route. **(T-1).** Pilots will annotate time or distance tick marks and headings. **(T-1).**

2.5.4.2. Pilots will annotate route abort altitude (RAA) using the instrument flight rules (IFR) Off Airways guidance in AFI 11-202V3, para 6.2.2.2. **(T-1).**

2.5.4.3. For flights inside the CONUS under visual flight rules (VFR) or inside Military Training Routes (MTR), pilots will comply with the following:

2.5.4.3.1. Use FLIP AP/1B and either sectional aeronautical charts or mission planning software (e.g., Falcon View/JMPS). **(T-1).** Pilots will select the following overlay options for PFPS/Falcon View: airports/heliports, airspace boundaries, airways, MTR, parachute jump and special use airspace boundaries. **(T-1).**

2.5.4.3.2. Annotate low level charts, or locally developed low-level route books, with location and dimensions of class B/C/D airspace, military airfields, civil airfields, and other potential high density traffic areas (e.g., parachute activity areas and ultra-light/hang glider/glider sites) within 5 NM of any planned VFR route or MTR lateral boundary. **(T-1).** Pilots will annotate airfield approach control frequencies in the vicinity of class B/C/D airspace as well as the intersection of other VR/IR routes or other areas of conflict. **(T-1).**

2.5.4.4. Outside the continental United States (CONUS), pilots will follow gaining MAJCOM, theater, or host nation guidance on mission planning. **(T-1).** If no such guidance exists, pilots will use the best charts or flight planning software overlay options available to accomplish the intent of maximizing traffic awareness and awareness of controlled airspace boundaries. **(T-1).**

2.5.5. Digital Terrain System (DTS) and Automatic Ground Collision Avoidance System (AGCAS). F-16 mission planners will ensure re-gridded digital terrain elevation data (RDTED) coverage is adequate for the mission area and is loaded to each flight member's advanced data transfer cartridge ADTC to ensure maximum AGCAS protection. **(T-1).** Without appropriate RDTED coverage, or when corrupted data is present, AGCAS still provides recovery protection to 50 feet MSL, however this may not prevent potential ground collision when MSL elevation is higher.

2.5.6. All qualified crewmembers will carry current and applicable checklists and pilot aids on every flight. **(T-1).**

2.6. Fuel Conservation. Pilots will manage aviation fuel as a limited commodity and precious resource; design procedures for optimal fuel use and efficiencies throughout all phases of mission execution, to include ground operations, flight plans, power settings and climb/descent profiles. **(T-1).** Incorporate enroute tasks to make maximum use of airborne learning opportunities.

2.7. Overwater. Except where approved by Operations Group Commander (OG/CC), aircrew must accomplish planned flights over water, outside of the local training area (e.g., deployments, cross countries, programmed delivery for maintenance (PDM) inputs, etc.) as a two-ship minimum. **(T-2).** AFI 11-207, *Fighter Aircraft Delivery*, waiver authorities apply for deployments under ACC/Air Operations Squadron (AOS) movement control.

2.8. Briefing and Debriefing.

2.8.1. All flight members will attend the briefing unless previously coordinated with unit/squadron supervisors. **(T-3).** Flight leads are responsible for presenting a logical briefing to promote a safe and effective mission. Structure flight briefings to accommodate the capabilities of each pilot in the flight. Any item published in combat air force (CAF)/wing/group/squadron standards or AFI/AFMANs and understood by all participants may be briefed as "standard."

2.8.2. Flight leads must plan adequate time to discuss required briefing items depending on complexity of the mission and pilot capabilities, and start flight briefings at least 1.5 hours before scheduled takeoff. **(T-1).** Flight leads will start alert briefings in sufficient time to be completed prior to pilot changeover. **(T-1).** Items may be briefed in any sequence, provided all minimum requirements listed in this manual and AFI 11-202V3, para 4.19 are addressed. **(T-0).** Additional time and cockpit/crew resource management emphasis is necessary in D-model sorties especially on familiarization and incentive flights. The passenger must demonstrate oxygen regulator use, ability to establish multiple airways and mask removal after being strapped in. **(T-1).** Reference **Attachment 2** for example briefing guides. Flight leads will include the following for all flight briefings:

2.8.2.1. Weather and notices to airmen (NOTAMs). **(T-2).**

2.8.2.2. Emergency procedures**. (T-2).**

2.8.2.3. Mission priorities and task management. **(T-2).**

2.8.2.4. Significant rules (e.g., SPINS, Training Rules, ROE). **(T-2).**

2.8.2.5. Flight member responsibilities and deconfliction contracts. Flight leads will brief a formation deconfliction/blind/get well plan for every phase of flight. **(T-2).**

2.8.3. Flight leads will emphasize the following for all low-level briefings:

2.8.3.1. Obstacle/terrain acquisition and avoidance, bird hazards, emergency actions and weather avoidance with route abort procedures. **(T-2).**

2.8.3.2. Employment of all Collision Avoidance Advisories and Digital Terrain System warnings to include AGCAS. **(T-2).**

2.8.3.3. Human factors to include task prioritization, G-excess illusion, and perceptual issues associated with flight over water/featureless terrain. **(T-2).**

2.8.3.4. Airfield approach control frequencies in the vicinity of class B/C/D airspace as well as the intersection of other VR/IR routes or other areas of conflict. **(T-2).**

2.8.4. Dissimilar Formation Briefing. Flight leads must emphasize proper position to ensure wingtip clearance, flight member responsibilities, and aircraft-unique requirements for each phase of flight. **(T-1).**

2.8.5. Alternate Mission/Events and Multiple Go Days. Flight leads will:

2.8.5.1. Brief an alternate mission for each flight. **(T-1)**.

2.8.5.1.1. Ensure the alternate mission is less complex than the primary. **(T-1).** It should parallel the primary mission (e.g., Basic Fighter Maneuvers as alternate for Air Combat Maneuvers, Basic Surface Attack for Surface Attack Tactics, and Tactical Intercepts for Defensive Counter Air).

2.8.5.1.2. Brief the specific mission elements that are different, if the alternate mission does not parallel the planned mission. **(T-1).**

2.8.5.1.3. Ensure unbriefed missions/events are not flown. **(T-1).**

2.8.5.1.4. Mission elements may be modified and briefed airborne as long as flight safety is not compromised. Flight leads will ensure changes are acknowledged by all flight members. **(T-1).** Continuation training (CT) missions may fly primary or alternate missions in any sequence.

2.8.5.2. During deployed operations, exercises, or multiple-go days when aircraft turn times do not allow follow-on mission brief(s), if all flight members attend an initial flight brief, the flight lead need only brief any changes for subsequent flights.

2.8.5.3. On multiple-go days, when subsequent missions are of equal or less complexity. Continuation training (CT) missions may fly primary or alternate missions in any sequence. Units will schedule and plan upgrade/evaluation events on the first sortie only. **(T-3).** If that sortie is non-effective for weather, maintenance or airspace, instructor pilots (IPs)/standardization and evaluation flight examiners (SEFEs) may elect to accomplish the planned upgrade/evaluation events in the second sortie.

2.8.6. Debriefing.

2.8.6.1. Flight leads will ensure all missions are debriefed and address in-flight execution, flight member responsibilities, deconfliction contracts, tactical employment priorities, and sensor management. **(T-1).**

2.8.6.2. Flight leads will review the video/audio record of all tactical portions of the sortie to assess flight members' anti-G straining maneuver (AGSM) effectiveness. **(T-1).** It is imperative to evaluate AGSMs after pilots have had time to fatigue. This is typically when the AGSM breaks down and G-induced Loss of Consciousness (GLOC) occurs. Pilots with poor AGSM technique or low G-tolerance will be identified to the operations officer. **(T-1).** The squadron commander has the option of directing refresher centrifuge training in accordance with AFMAN 11-404, *Fighter Aircrew Acceleration Training Program.*

2.9. Unit Developed Checklists/Local Pilot Aids. Unit developed checklists used in lieu of flight manual checklists must contain all items, verbatim and in order, unless specifically addressed in the flight manual. (T-1). OGV will ensure pilot aids contain the following items:

2.9.1. Briefing guides (reference **Attachment 2** for examples). **(T-1).**

2.9.2. Local radio channelization. **(T-1).**

2.9.3. Appropriate airfield diagrams, to include cable/net barrier information. **(T-1).**

2.9.4. Emergency information (impoundment procedures, emergency action checklists, no radio (NORDO) procedures, divert information, search and rescue procedures, etc.). **(T-1).**

2.9.5. Divert base cable and barrier information. **(T-1).**

2.9.6. Bailout and jettison areas. **(T-1).**

2.9.7. Cross-country procedures to include: command and control, engine documentation, Joint Oil Analysis Program (JOAP) samples, and aircraft servicing. **(T-1).**

2.9.8. Other information as desired such as: stereo flight plans, turn procedures, local training areas, instrument preflight, and alert setup procedures. **(T-3).**

Section 2B—Night (see also night sections of Chapter 3, Chapter 5 and Chapter 6)

2.10. Minimum Safe Altitude (MSA). Pilots will compute the MSA for each leg of the intended route of flight in accordance with AFI 11-214. **(T-1).**

2.11. Night chart requirements. Pilots must comply with the minimum requirement of a Form 70 or chart/map containing headings, RAAs, MSAs, and maximum/minimum route structure altitudes. **(T-1).**

2.12. Video/Audio Recording. Pilots will operate the Digital Video Audio Data Recorder (DVADR)/ Digital Video Recorder (DVR) to the maximum extent possible without negatively impacting mission accomplishment and debrief. **(T-1).**

2.13. G-Suit Use. Pilots will wear anti-G garments on all flights regardless of anticipated Gs. **(T-3).**

Chapter 3

NORMAL OPERATING PROCEDURES

Section 3A—Ground Operations

3.1. Preflight. Pilots must:

3.1.1. [B/D model aircraft] Place the stick control switch in the FWD position when the rear cockpit is occupied by other than a fully qualified F-16 pilot. **(T-1).**

3.1.2. Not carry baggage/equipment in an unoccupied rear cockpit; in the avionics bay behind the cockpit; or in the aft canopy fixed transparency area (turtle back). **(T-1).**

3.1.3. Not place objects in or on top of the engine intake. **(T-1).**

3.1.4. Secure publications, maps and personal items to avoid flight control/ throttle interference. **(T-1).**

3.1.5. Select Pressure Breathing (PBG) except when using Aircrew Eye and Respiratory Protection System (AERPS) or Aircrew Chemical Biological, Radiological, Nuclear (ACBRN) equipment (T-1).

3.1.6. Remove the port plug on the CRU-94/120 (if installed), if flying with the COMBAT EDGE vest, and stow the plug during flight to prevent a foreign object damage (FOD) hazard, then re-install upon completion of the sortie. (T-1).

3.1.7. Ensure ejection seat survival kit deployment switch is in the automatic position. **(T-1).**

3.1.8. Not select CAT I on the Stores Configuration Switch with Category III configurations in accordance with T.O. 1F-16-1-2. **(T-1).** The Automated Stores Configuration System (ASCS), **https://awbs.hill.af.mil**, may be used to find the desired loading and stores limitations; the published 1F-16( )-1-2/1-3/1-4 takes precedence over any discrepancies.

3.2. Ground Visual Signals. Normally, pilot and ground crew communicate by the intercom system during all start-engine, pre-taxi and end of runway (EOR) checks. Pilots and ground crew must use the intercom system to the maximum extent possible anytime maintenance technicians are performing "redballs" on the aircraft and for emergency power unit (EPU) checks performed in congested areas. (T-1). Pilots will not actuate any system which endangers ground crew prior to receiving acknowledgment. (T-1). Units with an active air defense commitment may waive use of ground intercom during alert scrambles. When ground intercom is not used, pilots and ground crew will use visual signals in accordance with AFMAN 11-218, Aircraft Operations and Movement on the Ground, and this volume. (T-1). The crew chief will repeat the given signal when it is safe to operate the system. (T-1). Pilots and ground crew must use the following signals that augment AFI 11-218. (T-1).

3.2.1. EPU OPERATIONAL CHECK. Raise two fingers and rotate hand.

3.2.2. FLIGHT CONTROLS CLEAR. Raise arm, clench fist, and make a stirring motion.

3.2.3. BRAKE CHECK. Hold left or right arm horizontal, open hand and push forward, breaking at the wrist (as in applying rudder pedal pressure with feet).

3.2.4. LOSS OF BRAKES WHILE TAXIING. Lower tailhook.

3.2.5. GUN ARMAMENT CHECK. Point index finger forward with thumb upward simulating a pistol and shake head (yes or no).

3.2.6. EPU ACTIVATION. Raise hand with palm open and perform shoving motion indicating "stay away." Then cup hands over oxygen mask indicating hydrazine vapors may be present.

3.3. Taxi and Arming.

3.3.1. Taxi Interval/Speed. Minimum taxi interval is 150 feet staggered or 300 feet in trail. Spacing may be reduced when holding short of or entering the runway. Unless mission requirements dictate, pilots will limit taxi speed to 30 knots, 15 knots over a raised cable, and 10 knots in turns. **(T-1).**

3.3.2. Ice/Snow Conditions. Pilots will not taxi during ice and/or snow conditions until all portions of the taxi route and runway have been checked for safe conditions. **(T-1).** When ice and/or snow are present on the taxiway, pilots will taxi on the centerline with a minimum of 300 feet spacing. **(T-1).** Minimum RCR for taxi is 10. **(T-3)**.

3.3.3. Ice FOD Procedures. The following procedures apply when the conditions in T.O. 1F-16-1 indicate engine damage due to icing is possible.

3.3.3.1. If conditions warrant, the Supervisor of Flying (SOF)/Top 3 will have the first flight lead start 5 minutes early to check for inlet ice formation. **(T-3).**

3.3.3.2. Pilots must position ANTI ICE switch to ON prior to engine start. **(T-1).**

3.3.3.3. An ice FOD monitor must be available to monitor the engine inlet for ice buildup whenever the aircraft is stopped for an extended period of time (i.e., ramp/shelter and EOR). **(T-1).** Avoid standing water and snow/slush accumulations.

3.3.3.4. Pilots must hold in the arming spot with an ice FOD monitor present until cleared for take-off. **(T-1).**

3.3.3.5. Pilots must shutdown immediately if icing is visually detected and notify the SOF/Top 3. **(T-1).** Make an appropriate entry in the aircraft forms and qualified personnel must accomplish an intake inspection prior to restarting the engine. **(T-1).**

3.3.4. EPU Check. Pilots will not allow maintenance technicians to approach the aircraft until the EPU check is complete. **(T-1).** Pilots must use intercom or a "thumbs up" signal to indicate when safe. **(T-1).**

3.4. EOR Inspections and Before Takeoff Checks. Pilots will place hands in view of ground personnel while the quick check inspection and/or arming/de-arming are in progress. (T-1). If the intercom system is not used during EOR checks, the pilot will establish and maintain visual contact with the chief and use visual signals. (T-1). Pilots must ensure EOR inspections are accomplished immediately prior to takeoff at a designated location, usually near the end of the runway or while departing the chock area (not required for alert scrambles). (T-1). At non-USAF bases, pilots will make every attempt to coordinate an EOR inspection with the host maintenance unit. (T-1).

3.4.1. Forward Firing Ordnance. Pilots will not taxi in front of aircraft being armed/de-armed with forward firing ordnance. **(T-3).**

3.4.2. Flight members will inspect each other for proper configuration and any abnormalities. (T-3).

3.5. Flight Lineup. Consider weather conditions, runway conditions, and runway width. Pilots must comply with minimum spacing between separated elements/flights of 500 feet. (T-1). Wingmen must maintain wingtip clearance with their element lead. (T-1). If runway width permits, pilots will lineup with wingtip clearance between all aircraft in the flight. (T-1).

Section 3B—Takeoff and Departure

3.6. Takeoff. Pilots will:

3.6.1. Not takeoff when the RCR is less than 10. **(T-1).** If reporting "slush on runway", consider the RCR is 12 unless otherwise reported and takeoffs are authorized.

3.6.2. Review takeoff data with emphasis on takeoff and abort factors such as short/wet runway, heavy gross weights, and cable configurations. **(T-1).**

3.6.3. On training missions, not takeoff if the computed takeoff roll exceeds 80 percent of the available runway. **(T-1).**

3.6.4. Ensure a compatible departure end cable is raised for all takeoffs and landings (including remotely operated cables). **(T-3).**

3.6.5. Get OG/CC approval for intersection takeoffs if operational requirements dictate.

3.6.6. Make an afterburner takeoff anytime the computed MIL power takeoff roll exceeds 50 percent of the available runway. **(T-1).**

3.6.7. Centerline Stores: start the takeoff roll beyond a raised approach end cable unless runway length, runway conditions (wet/icy), winds, gross weight or cable availability dictate otherwise. **(T-3).** Exception: aircraft with a centerline fuel tank or a centerline mounted AN/ALQ-188 pod may takeoff across approach end BAK-12 arrestment cables with an 8-point tie down system.

3.6.8. Comply with minimum takeoff interval between aircraft/elements of 10 seconds (15 seconds for afterburner). **(T-1).** Pilots will increase interval to 20 seconds minimum for join-up on top or when carrying live air-to-surface ordnance (excluding BDU-33s, rockets, and 20mm ammunition). **(T-1).**

3.6.9. Steer the aircraft toward the center of the runway after releasing brakes. **(T-1).**

3.7. Initial Join-up and Rejoins. Aircraft/elements will:

3.7.1. Comply with the minimums of 1,500 foot ceiling and 3 statute miles (5 km) visibility for VFR join-ups below a ceiling. **(T-1).**

3.7.2. Maintain 350 knots calibrated air speed (KCAS) while climbing or 300 KCAS at cruise until join-up is accomplished unless mission requirements necessitate a different airspeed. **(T-3).** Pilots may delay AB cancellation to establish closure on lead or lead element. OG/CCs may approve different climb and cruise airspeeds within dash one limits.

3.7.3. Accomplish battle damage (BD) check on return to base (RTB) when practical (i.e., weather prohibits accomplishing BD check). **(T-2).** Aircraft/elements are required to complete this check after expending any ordnance (including 20mm ammunition). **(T-3).**

3.7.4. Accomplish air-to-air systems checks above 10,000 feet MSL when practical. **(T-1).**

3.7.5. For further join-up procedures, see Night Operational Procedures (**Section 3E**) and Instrument Procedures (**Chapter 4**).

Section 3C—Enroute

3.8. Air Refueling.

3.8.1. Pilots undergoing initial or re-currency training in air refueling will not refuel with a student boom operator. **(T-1).** Lead/IP will announce when an upgrade or re-qualification pilot is in the formation and request a qualified (non-student) boomer. **(T-1).**

3.8.2. Pilots will inform boom operator when refueling from particular tanker type (e.g., KC-10, KC-135, or KC-46) for the first time. **(T-1).**

3.8.3. Quick flow procedures are authorized and pilots will conduct them in accordance with ATP-56B and AFTTP 3-3.F-16, Combat Aircraft Fundamentals-F-16. **(T-1)**.

3.9. Aircraft Handling Characteristics (AHC) and Automated Recovery Training Series (ARTS)/Maneuvering Parameters.

3.9.1. Pilots will comply with the following minimum altitudes for the prescribed maneuvers:

3.9.1.1. Confidence Maneuvers/Advanced Handling - 10,000 feet above ground level (AGL), except dive recovery maneuver (15,000 feet AGL minimum entry altitude). **(T-1).**

3.9.1.2. Horn Awareness and Recovery Training series (HARTS) numbers 1, 2 and 3 - 10,000 feet AGL. **(T-1).**

3.9.1.3. HARTS series numbers 4 and 5 - 15,000 feet AGL. **(T-1).**

3.9.1.4. Not descend below 5,000 feet AGL during aerobatic maneuvering. **(T-1).**

3.9.1.5. HARTS 3 with pilot activated recovery system (PARS) – 10,000 feet AGL. **(T-1).**

3.9.1.6. ARTS 2 – 8,000 feet AGL. **(T-1).**

3.9.1.7. ARTS series number 1, 3, 4, and 5 – 5,000 feet AGL. **(T-1).**

3.9.2. Pilots must avoid flight through wingtip vortices/jet wash. **(T-1).** If unavoidable, the aircraft should be unloaded immediately to approximately 1 G.

3.9.3. Pilots will not manually extend the trailing edge flaps in an attempt to improve aircraft performance. **(T-1). Exception**: Trailing edge flaps may be manually extended during intercepts performed by airspace control alert tasked unit aircraft, or during low/slow (below 5,000 feet AGL) visual identification (VID) training, on targets traveling at less than 200 KCAS. Once extended, pilots will not return the ALT FLAPS switch to NORM until above 240 KCAS and 2,000 feel AGL.

3.9.4. Pilots will not attempt to bypass flight control limiters to improve performance. **(T-1).** Examples are: transfer fuel to alter center of gravity (CG), manual pitch override (MPO) to gain additional negative G or assaulting two limiters at low airspeed.

3.9.5. The minimum airspeed for all maneuvering is based upon activation of the low speed warning tone. Except when operating IAW a MAJCOM-approved syllabus (e.g., air force materiel command (AFMC) high angle of attack training), the pilot will take action to correct the low speed condition when the low speed warning tone sounds. **(T-1).**

3.9.6. The following is guidance for Horn Awareness and Recovery Training Series (HARTS) (reference AFTTP 3-3.F-16):

3.9.6.1. Pilots will fly HARTS maneuvers in category (CAT)-1 loaded aircraft only. **(T-1).**

3.9.6.2. In F-16 C/D Block 40-52 aircraft, pilots will not fly HARTS maneuvers 4 and 5 unless in one of the following configurations: Clean (no tanks), or 300 gallon centerline tank. MAU-12s may be carried on stations 3 and 7, and/or AIM-9/AMDs/ACMI/CATM-120s may be carried on stations 1, 2, 8 and/or 9. Pilots must ensure CATM-120s are symmetrically loaded if carried. **(T-1)**. AIM-9/AMD/ACMI can be symmetric or one missile asymmetric. Inlet mounted target pod TGP and/or harm target system (HTS) pods may be carried.

3.9.6.3. For all F-16 Blocks, external tanks should be dry to avoid a faster than expected airspeed bleed-off due to excessive weight during the pull up, for all HARTS maneuvers.

3.9.7. The following is guidance for Automated Recovery Training Series (ARTS) for PARS recovery profiles (reference AFTTP3-3.F-16):

3.9.7.1. With exception of the HARTS 3 with PARS maneuver, PARS demo maneuvers may be flown in any aircraft configuration unless concern for over-G exists. However, a CAT I loading is preferred to demonstrate the full maneuvering potential of the automated recovery system. The potential for over-G exists if any Nose-low PARS maneuver is performed when the aircraft configuration has a symmetric G-limit of less than 6.2 G CAT I or 5.2 G CAT III.

3.9.7.2. Pilots will not demonstrate AGCAS recoveries by executing dive maneuvers toward the ground. **(T-1).** AGCAS is designed to provide a minimal buffer above the ground during recovery and pilots must not intentionally activate it. **(T-1).**

3.10. Formation, General. Flight leads and instructors will ensure contracts, roles and responsibilities of each flight member are established, briefed, executed and debriefed. **(T-1)**. Flight members will immediately notify lead if unable to fulfill basic responsibilities, contracts or other assigned tasks. **(T-1)**. Flight leads will avoid tasking element leads/wingmen beyond their abilities without sacrificing basic responsibilities. **(T-1)**. Reference AFTTP 3-3.F-16 and AFTTP 3-1.F-16, Tactical Employment-F-16.

3.10.1. The flight lead is always responsible for flight actions. Wingmen will be prepared to take the lead when directed. **(T-1).**

3.10.2. In instrument meteorological conditions (IMC), pilots will comply with the maximum flight size in visual formation of four aircraft except when flying in close formation with a tanker. **(T-1).**

3.10.3. 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-1).**

3.10.4. Pilots must use airborne visual signals in accordance with AFPAM 11-205, *Aircrew Quick Reference To Aircraft Cockpit And Formation Flight Signals*, or detailed in local procedures. **(T-1).** Pilots must initiate configuration changes for four-ship flights by radio call, when practical. **(T-1).** When formation position changes are directed by radio, all wingmen will acknowledge prior to initiating the change. **(T-1).** Pilots must make a radio call when directing position changes at night or under instrument conditions. **(T-1).**

3.10.5. Flight leads will not break up flights from visual or sensor formations until each pilot has a fix from which to navigate (visual, radar, inertial navigation system (INS) or tactical air navigation (TACAN) system). **(T-1).**

3.10.6. Lead changes. Pilots will:

3.10.6.1. Comply with the minimum altitude for changing leads within a formation of 500 feet AGL over land or 1,000 feet AGL over water [see also Night Operational Procedures (**Section 3E**)]. **(T-1).**

3.10.6.2. Initiate lead changes from a stabilized, wings level attitude during limited visibility conditions (e.g., night, IMC). **(T-1).** See also Night Operational Procedures (**Section 3E**) and Instrument Procedures (**Chapter 4**). **(T-1).**

3.10.6.3. Not initiate lead changes with the wingman further back than normal fingertip or route position, or greater than 30 degrees back from line abreast. **(T-1).**

3.11. G-Awareness Exercises (G-Ex) (Reference AFTTP 3-3 F-16 and AFI 11-214).

3.11.1. Pilots must accomplish a G-Ex if planned maneuvering exceeds 5G. **(T-1).** Pilots will accomplish the G-Ex day or night, only in visual meteorological conditions (VMC), with a discernible horizon, and only when unaided or NVG-aided visual cues are adequate to safely perform the maneuver. **(T-1).** If these requirements are not met, pilots must omit the G-Ex and reduce mission tasking to limit maneuvering to 5G. **(T-1).**

3.11.2. Unless performing a syllabus required event (e.g., chase of a G-Ex), flight members will follow AFTTP 3-3.F-16 G-Awareness Exercise Procedures. **(T-1).** Pilots use on-board systems (e.g., air-to-air TACAN, Radar, data link) to establish separation prior to maneuver execution. **(T-1).**

3.11.3. Pilots must conduct the G-Ex in order of preference listed below to help ensure the airspace is clear from potential traffic conflicts. (T-1). If practical, use air traffic control (ATC) to help clear the airspace:

3.11.3.1. Special Use Airspace (e.g., Restricted/Warning areas, Air Traffic Control Assigned Airspace (ATCAA), memorandum of understanding (MOA)s and MAJCOM approved large scale exercise/special mission areas).

3.11.3.2. In VFR only above 10,000 feet MSL outside of special use airspace.

3.11.3.3. In VFR only inside the confines of a Military Training Route (MTR).

3.11.3.4. In VFR only below 10,000 feet MSL outside of special use airspace.

3.11.4. Flight/element leads flying outside of CONUS will follow gaining MAJCOM, theater or host nation guidance on airspace in which G-Ex may be performed. **(T-1).** If no such guidance exists, follow the above procedures to the maximum practical extent.

3.12. Tactical Formations.

3.12.1. Tactical Maneuvering. Wingmen/elements must maneuver relative to the flight lead/lead element and maintain sight. **(T-1).** Trailing aircraft/elements are responsible for deconfliction with lead aircraft/elements and will do so vertically when required. **(T-1).** At low altitude, wingmen/trailing elements will deconflict high. **(T-1).** Trailing aircraft/element(s) will maintain sufficient spacing so that primary emphasis during formation maneuvering/turns is on low altitude awareness and deconfliction within elements, not on deconfliction between elements. **(T-1).** Normally, the wingman is responsible for flight path deconfliction, but the flight/element lead will be primarily responsible when: **(T-1).**

3.12.1.1. Tactical maneuvering places the leader well aft of the wingman's 3/9 line or forces the wingman's primary attention away from the leader (e.g., wingman becomes engaged fighter).

3.12.1.2. The wingman calls "padlocked."

3.12.1.3. The wingman calls "blind." Primary deconfliction responsibility transfers back to the wingman once the wingman acknowledges a visual on his lead.

3.12.2. Loss of Visual ("Blind") Procedures.

3.12.2.1. Flight members will call blind with an altitude to the hundreds of feet, i.e., "Blind 16.9." **(T-1).** The visual flight member will respond with "visual" and talk eyes on. **(T-1).**

3.12.2.2. If the other flight member is also "Blind," they will call blind with an altitude. **(T-1).** Lead will be directive to ensure altitude separation is maintained and direct the wingman's flow direction. **(T-1).** Use a minimum of 500 feet (1,000 feet above 5,000 feet AGL) altitude separation. Avoid climbs/descents through the deconfliction altitude. All flight members must visually clear their flight path. **(T-1).**

3.12.2.3. If there is no timely acknowledgment of the original "Blind 16.9" call, then the flight member/element initiating the call will maneuver away from the last known position of the other flight member/element and climb/descend if necessary. **(T-1).** If visual contact is still not regained, the flight lead will take additional positive action to ensure flight path deconfliction. **(T-1).** Scenario restrictions such as sanctuary altitudes and/or adversary blocks need to be considered.

3.12.3. Sensor formations. If situational awareness (SA) is lost or "Blind" in a sensor formation, pilots must call "Blind" with altitude and follow the above procedures. **(T-1).** Wingmen will strive to maintain an altitude stack at all times in sensor formation. **(T-1).**

3.13. Chase Formation.

3.13.1. Restrictions. Any pilot may fly safety chase for aircraft under emergency or impending emergency conditions. All chase events may be flown by IP/Flight Examiners (FEs) or upgrading IPs under the supervision of an IP. Pilots who have successfully completed an Instrument/Qualification evaluation may chase as safety observer for aircraft performing simulated instrument flight or hung ordnance patterns. Specialized missions (i.e., OT&E, Weapon System Evaluation Program (WSEP), live weapons delivery, etc.) and training conducted IAW AFMAN 11-2F-16V1, F-16--Pilot Training, may be chased by Combat Mission Ready (CMR)/Basic Mission Capable (BMC) pilots designated by group/squadron commanders.

3.13.2. Procedures. (See AFTTP 3-3.F-16)

3.13.2.1. Chase aircraft can maneuver as necessary, but must maintain nose-tail separation. **(T-1).** The chase will not stack lower than lead aircraft below 1,000 feet AGL. **(T-1).** In the traffic pattern, the chase aircraft may maneuver as necessary to observe performance.

3.13.2.2. A safety observer in chase will maneuver in a 30-60 degree cone with nose/tail clearance out to a range of 1,000 feet, from which he can effectively clear and/or provide assistance. **(T-3).**

3.13.2.3. For live ordnance missions, the chase pilot must ensure fragmentation deconfliction for his aircraft. **(T-1).**

3.14. Show Formation. Mission planners will refer to AFI 11-209, *Participation in Aerial Events*, and applicable MAJCOM or ANG directives for specific rules and appropriate approval levels to participate in static displays and aerial events. AGCAS SHOW mode may be selected only if operating IAW MAJCOM or ANG approved aerial events.

3.15. Low Altitude Operations (reference AFTTP 3-1 F-16 and AFTTP 3-3 F-16).

3.15.1. Airspeed and Altitude. Pilots will comply with the minimum airspeed for low level navigation of 300 KCAS and the minimum altitude of 1,000 feet AGL (or IAW approved step-down training). **(T-1).** For night or IMC operation, pilots will comply with the minimum altitude of the MSA (see AFI 11-214) unless operating under NVG LOWAT Procedures. **(T-1).**

3.15.2. At low altitude, pilots will immediately climb to a pre-briefed safe altitude (minimum 1,000 feet AGL) when experiencing task saturation, diverted attention, knock-it-off, or emergencies. **(T-1).**

3.15.2.1. When a "PULL-UP-PULL-UP" warning sounds, the pilot will take immediate action to ensure terrain clearance, while referencing the primary flight instruments. **(T-1).**

3.15.2.2. F-16s with pilot-selectable GCAS Minimum Terrain Clearance (MTC) settings will set an altitude that does not result in "PULL-UP" warnings at normal operational altitudes. **(T-1).** Pilots will comply with the minimum MTC of 50 feet for strafe and visual bombing, and 25 percent of LOWAT Category minimum altitude for all other operations. **(T-1**). Wings with significant tall trees in the operating area or VR routes will account for average tree height when setting MTC altitudes. **(T-1).**

3.15.2.3. F-16s equipped with an operational AGCAS will ensure NORM mode is selected prior to LOWAT operations down to 500 feet AGL to include HAS and LAS events. **(T-1).** If operations are necessary below 500 feet AGL, AGCAS MIN mode may be selected to prevent nuisance fly-ups.

3.15.3. Weather. Consult FLIP for minimum weather on a VR or IR route. For low altitude training outside the CONUS, pilots will comply with theater/host nation guidance. **(T-1).** While on a VR Route in deteriorating weather, assess whether VMC can be maintained. If able to maintain VMC and it becomes apparent that weather ahead does not permit continued flight on the VR, pilots will maintain VMC, slow down, maneuver to exit the route structure, and establish a VFR hemispheric altitude. **(T-0).** If unable to maintain VMC pilots will climb to briefed deconfliction altitudes (reference **Paragraph 2.8**). **(T-1).** Squawk applicable (IFF/SIF) modes and codes and contact a controlling agency to pick up an IFR clearance if required. Maintain preplanned ground track.

3.15.4. Obstacle/Terrain Avoidance. If unable to visually acquire or ensure lateral separation from known vertical obstructions which are a factor to the route of flight, flight leads will immediately direct a climb NLT 3 NM prior to the obstacle to an altitude that ensures vertical separation. **(T-1).**

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

3.15.6. When crossing high or hilly terrain, pilots will maintain positive G on the aircraft and do not exceed 120 degrees of bank. **(T-1).** Pilots will limit maneuvering at less than 1 G to upright bunting maneuvers. **(T-1).**

Section 3D—Recovery and Landing

3.16. Gear Checks. For a VFR straight in, pilots will call gear down no later than 3 NM final. (T-1). For an instrument approach (reference **Chapter 4**), pilots will call gear down at the final approach fix or published glide slope intercept point. (T-1). For an overhead, call gear down departing the perch. For a SFO or FO, pilots will call gear down at base key. (T-1).

3.17. Angle of Attack (AOA). Final approach normally is flown at 11 degrees AOA. Pilots will compare the computed final approach airspeed with AOA. **(T-1).**

3.18. Landing restrictions. When the computed landing roll exceeds 80 percent of the available runway, land at an alternate if possible. When the RCR at the base of intended landing is less than 10, land at an alternate if possible. Pilots will not land over any raised web barrier (e.g., MA-1A, 61QS11). **(T-1).**

3.19. Desired touchdown point and spacing.

3.19.1. The desired touchdown point is 500 feet from the aim point. The aim point for a VFR approach is the threshold. The aim point for a precision approach is the glide path interception point. To avoid possible speedbrake or nozzle damage, pilots will touch down either past a raised approach-end cable, or 500 feet prior to the cable. **(T-1).** With centerline stores, touchdown is normally past an approach-end cable. Circumstances that may dictate landing prior to the cable include runway length, wind, runway condition (wet or icy), gross weight or an aircraft malfunction where full normal braking may not be available. A landing with centerline stores may be made across BAK-12 arrestment cables which have been modified with an 8-point-tie-down system.

3.19.2. Pilots will comply with a touchdown spacing behind an aircraft while flying a 13 degree approach at a minimum of 6,000 feet due to susceptibility of the aircraft to wake turbulence and speedbrake/tail scrapes. **(T-1).** Pilots will comply with the minimum pattern and touchdown spacing between landing aircraft of 3,000 feet for similar aircraft (e.g., F-16 following F-16), 6,000 feet for dissimilar fighter aircraft (e.g., F-16 following F-15) or as directed by MAJCOM or the landing base, whichever is higher. **(T-1).** When wake turbulence is expected due to calm winds (less than or equal to 5 knots) or when landing with a light tail wind, pilots will comply with increased pattern/touchdown spacing to 6,000 feet minimum. **(T-1).** Under these conditions, moderate to severe wake turbulence has been reported out to 7,000 foot touchdown spacing.

3.19.3. All aircraft will land in the center of the runway and clear to the cold side when speed/conditions permit. **(T-1).** After achieving a safe taxi speed, pilots will not delay clearing to the cold side as this can create a conflict for subsequent landing aircraft. **(T-1).** Flight leads should brief which side of the runway is the cold side when operating at a strange field.

3.19.4. When an F-16 aircraft is used to certify a BAK-12 interconnected with a BAK-14 cable retraction system, the minimum engagement speed will be 75 knots groundspeed and the maximum engagement speed will be 90 knots groundspeed. Pilots should place the airspeed selection switch to GS for their crosscheck in the HUD during the certification. As the F-16 engages a BAK-12/14 at a speed approaching and/or exceeding 100 knots, damage to the underside of the F-16 aircraft may result. For actual emergencies, T.O. limits will apply.

3.20. Low Approaches.

3.20.1. Pilots will observe the following minimum altitudes: **(T-1).**

3.20.1.1. IP/FEs flying chase position: 50 feet AGL.

3.20.1.2. Formation low approaches: 100 feet AGL.

3.20.1.3. Chase aircraft during an emergency: 300 feet AGL unless safety or circumstances dictate otherwise.

3.20.2. During go-around, pilots will remain 500 feet below VFR overhead traffic pattern altitude until crossing the departure end of the runway unless local procedures, missed approach/climbout procedures or controller instructions dictate otherwise. **(T-1).**

3.21. Touch-and-Go Landings. Fly touch-and-go landings IAW AFI 11-202V3. Pilots will not fly them with live or hung external ordnance or with fuel remaining in any external tank. (T-1).

3.22. Overhead Traffic Patterns. Unless the OG/CC determines that local conditions (e.g., threat condition, populated areas) dictate otherwise, pilots will not fly overhead patterns with unexpended heavy-weight ordnance (larger than BDU-33). (T-3).

3.23. Tactical Overhead Traffic Patterns. Pilots will only execute tactical entry to the overhead traffic pattern if the following conditions are met: (T-1).

3.23.1. Published overhead pattern altitude and airspeed are used.

3.23.2. Specific procedures have been developed locally and coordinated with appropriate air traffic control agencies.

3.23.3. The flight consists of a maximum of four aircraft (aircraft/elements more than 6,000 feet in trail are considered a separate flight).

3.23.4. No aircraft offset from the runway in the direction of the break (the intent is to avoid requiring a tighter than normal turn to arrive on normal downwind).

3.23.5. Normal downwind, base turn positions, and spacing are flown.

3.24. Closed Traffic Patterns. Pilots will initiate the pattern at the departure end of the runway unless directed/cleared otherwise by local procedures or the controlling agency. (T-3). An element low approach may be followed by a sequential closed with controller approval. Plan to arrive on downwind at 200-250 KCAS.

3.25. Back Seat Approaches and Landings.

3.25.1. An upgrading IP will only accomplish back seat landings when an IP is in the front cockpit. **(T-1).**

3.25.2. During back seat approaches and landings, the front seat pilot will visually clear the area, monitor aircraft parameters/configurations and be prepared to direct a go-around or take control of the aircraft (as briefed by the rear cockpit IP) if necessary. **(T-1).**

3.26. Formation Approaches.

3.26.1. Aircraft must be symmetrically loaded. **(T-1).** Consider symmetrical as those stores loadings which do not require an abnormal trim or control application to counter a heavy wing or yaw during takeoff and acceleration to climb airspeed. The weather will be at or greater than 500 foot ceiling and 1.5 statute miles visibility (or a flight member's weather category, whichever is higher). This also applies to chased approaches.

3.26.2. Elements will be led by a qualified flight lead unless an IP or flight lead qualified squadron supervisor is in the element. **(T-1).**

3.26.3. Pilots will use a rate of descent similar to a precision approach. (T-1). Fly a published precision instrument approach if one is available. (T-1). If not, pilots will fly a non-precision approach or VFR straight in and reference available lighting systems (e.g., VASI, PAPI) for descent angle. (T-1).

3.26.4. If the crosswind exceeds 5 knots, lead will position the wingman on the upwind side. (T-1).

3.26.5. The wingman will maintain a minimum of 10 feet lateral wingtip spacing. **(T-1).**

Section 3E—Night (see also night sections of Chapter 2, Chapter 5 and Chapter 6)

3.27. General Night Procedures.

3.27.1. **Night Ground Operations** . The anti-collision (strobe) light may be OFF and the position lights STEADY if they prove to be a distraction. Pilots will comply with a taxi spacing minimum of 300 feet and taxi on the centerline. **(T-1).** Pilots will use the taxi light during all night taxiing. **(T-1). Exception**: When the light might interfere with the vision of the pilot of an aircraft landing or taking off, the taxiing aircraft will come to a stop if the area cannot be visually cleared without the taxi light. **(T-1).** Night/IMC Link 16 requirement: at least one flight member per element will have full Link 16 capability prior to take off. **(T-3). Exception**:

this restriction does not apply to non-Link 16 equipped F-16s or in locations where there is no line of sight to the Network Time Reference on the ground.

3.27.2. Night Takeoff. Aircraft will maintain the anti-collision light ON and position lights FLASH for takeoffs, unless IMC is anticipated shortly after takeoff. **(T-3).** Following takeoff, each aircraft will climb on runway heading to 1,000 feet AGL before initiating turns, except where departure instructions specifically preclude compliance. **(T-3).**

3.27.3. Night Join-up. 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-1).** After join-up, pilots must ensure: the anti-collision light is OFF and position lights are STEADY for all except the last aircraft, which keeps the anti-collision light ON and position lights FLASH unless otherwise directed by the flight lead. **(T-3).**

3.27.4. Position/Lead Changes. Unless operating with NVGs, pilots will not change lead or wing positions below 1,500 feet AGL unless on radar downwind. **(T-1).** Pilots will call such changes over the radio and initiate them from a stabilized, wings-level attitude whenever possible. **(T-1).**

3.27.5. Night Break-up. Prior to a night formation break-up, the flight lead will confirm position and transmit attitude, altitude, airspeed, and altimeter setting. **(T-1).** Wingmen will acknowledge and confirm good navigational aids. **(T-1).**

3.27.6. Night Landing. Land from the most precise approach available.

3.28. Night Vision Goggles (NVG) Procedures.

3.28.1. NVG Preflight. NVGs must be preflight tested and adjusted/focused for the individual pilot using (in order of preference) the Hoffman ANV-20/20 Tester, a unit eye lane, or equivalent. **(T-1).** Reference AFI 11-301V1, Aircrew Flight Equipment (AFE) Program.

3.28.2. Cockpit Lighting. Pilots will fly with NVGs only in aircraft whose cockpit lighting MAJCOM designates as NVG compatible. **(T-2).** MAJCOMs will only make such a designation if all control and performance instruments are sufficiently illuminated by the NVG-compatible lighting so as to make them immediately available to the pilot in the event they need to transition to instruments.

3.28.3. Weather/Visibility/Illumination Levels/Minimum Altitudes/Discernable Horizon. Reference AFI 11-214, AFTTP 3-3.F-16, and AFI 11-202V3. All pilots conducting NVG operations that include air-to-air/surface-to-air threat reactions or air-to-ground dynamic/diving deliveries will conduct a “30-Up and 30-Down” horizon orientation maneuver before conducting tactical maneuvering. **(T-3).** Pilots will accomplish this maneuver in VMC and above the MSA. **(T-1).** It should be completed after the G-awareness exercise. The purpose is to evaluate horizon conditions and practice an NVG horizon orientation and crosscheck. If airspace precludes the maneuver, pilots operating on NVGs will limit maneuvers to AFI11-214 “Restricted Maneuvering” guidelines. **(T-1).** Pilots adhere to the following guidelines when conducting the 30-Up and 30-Down maneuver:

3.28.3.1. In VMC conditions (with a discernible horizon), and with sufficient altitude (~3,000-5,000 feet) in approved operating airspace, pilots will accelerate to 350 KCAS minimum and maintain a minimum spacing of 6,000 feet between aircraft throughout the maneuver. **(T-3).** The flight lead will announce, "Standby 30-UP, 30-Down" and communicate a reference heading prior to execution for flight deconfliction. **(T-3).** Flight members will verify correct spacing, heading, and entry parameters and will communicate "stand by" if not ready. **(T-3).**

3.28.3.2. Flight leads will command "30 Up," and all pilots will execute a military power, 3-4 G wings-level pull up to place the bore cross on the 30 degree pitch ladder. **(T-3).** Pilots will evaluate and orient themselves with the horizon in the forward quadrants, both above and below the horizon while maintaining intra-flight deconfliction contracts. **(T-3).** Take note of the physical cranial movement required to move the NVG field of regard back to the horizon, as well as the condition of the horizon due to ambient factors. If at any time the airspeed drops below 250 KCAS, weather is encountered, or symptoms of spatial disorientation are recognized, the pilot will immediately transition to primary flight instruments, call a "knock it off (with reason)," and conduct an IMC nose-high recovery. **(T-3).**

3.28.3.3. After approximately 5 seconds, or sooner if airspace or altitude restrictions require, the flight lead will command "roll left (or right), 30 down". **(T-3).** All aircraft will roll inverted and accomplish the military power, 3-4 G wings-level pull to place the bore cross at the 30 degree nose-low, then roll upright on the reference heading. **(T-3).** Once intra-flight deconfliction is assured, pilots will repeat the horizon crosscheck and visibility assessment while maintaining the 30 degree-nose low attitude. **(T-3).**

3.28.3.4. If during any portion of the maneuver a flight member determines that the visibility or horizon reference is unsuitable for tactical maneuvering per AFI11-214 guidance, the flight lead will modify the training profile and either transition to non-NVG formations or NVG formation tactics limited to AFI11-214 "Restricted Maneuvering" guidelines. **(T-1).** Pilots will continually modify profiles or airspace utilization throughout the sortie if conditions change and no longer permit the planned maneuvering. **(T-1).** Flight training modification includes: restricted maneuvering limitations (with or without NVGs) per AFI-11-214, a non-NVG formation IMC game plan, or accomplishing a briefed alternate mission without NVGs.

3.28.3.5. Pilots will continually cross-check visually perceived attitude aided by NVGs with frequent cross-checks of primary flight instruments throughout the mission. **(T-1).**

3.28.4. NVG Qualifications. Pilots will not wear NVGs in flight unless they are NVG qualified or a qualified NVG IP is in the flight (ratio of one NVG IP per non-NVG qualified pilot). **(T-1).** F-16B/D Familiarization flights are authorized but the unit must ensure appropriate academics are accomplished and an NVG IP is in the front seat. **(T-1).**

3.28.5. Radio Calls. Flight leads will direct donning of NVGs and final raising/stowing of NVGs. **(T-1).** All flight members will advise when donning, raising, or stowing NVGs during other phases of flight. **(T-3).**

3.28.6. Obstacle/Intra-Flight Deconfliction. When flying in route, only one flight member per element will don/raise/stow NVGs at a time. **(T-1).** Flight leads will call turns if forced to maneuver while flight members are donning/raising/stowing NVGs. **(T-1).**

3.28.7. Takeoffs/Landings. Pilots must stow or raise NVGs during takeoff until at or above 2,000 feet AGL in climbing or level flight and only in VMC. (T-1). Pilots must stow or raise NVGs no later than 5 minutes prior to landing unless NVGs are necessary to handle an emergency or mission requirements dictate. (T-1).

3.28.8. NVG Use during Air to Air Refueling (AAR). Pilots must stow or raise NVGs no later than the stern position and resume NVG use no earlier than boom disconnect. **(T-1).**

Section 3F—Other

3.29. Targeting Pod Operations. Pilots will not use the TGP for anything other than navigational SA below 1,000 feet AGL (e.g., Only VID aircraft, designate for weapons delivery, etc. above 1,000 feet AGL). **(T-1).** (USAFWC, Test, and AATC: Minimum altitudes for TGP operations are established in WIC or test syllabus requirements, continuation training plans or operational test and evaluation requirements).

3.30. Radio Procedures. Flight members must preface all communications with the complete flight call sign (except for wingman acknowledgment). (T-1). Flight members must transmit only that information essential for mission accomplishment or safety of flight. (T-1).

3.30.1. Radio Checks. Flight members must acknowledge radio checks, which do not require the transmission of specific data by individual flight members, in turn (EXAMPLE: "2, 3, 4"). **(T-1).** Acknowledgment indicates the appropriate action is either complete, is in the process of being completed or is understood by the flight member.

3.30.2. Clearance Acknowledgement. All flight members will acknowledge understanding the initial air traffic control (ATC) clearance. **(T-1).** If flight members are not monitoring in-flight ATC frequency, the flight lead will pass all ATC instructions to the flight. **(T-1).** Flight members will acknowledge subsequent ATC instructions when directed by the flight lead. **(T-1).**

3.30.3. Flight members will use brevity code and other terminology IAW AFI 11-214 and AFTTP 3-1, Integrated Planning and Employment. **(T-3).** Other, officially published documents containing brevity codes (i.e., Air Land Sea Application Center) may also be used.

3.30.4. Ops Checks.

3.30.4.1. Pilots will monitor the fuel system carefully to identify low fuel, trapped fuel or an out of balance situation as soon as possible. **(T-1).** Frequency should be increased during tactical maneuvering at high power settings. Pilots must complete the following ops checks:

3.30.4.1.1. During climb or at level-off after takeoff. **(T-1).**

3.30.4.1.2. When external fuel tanks (if carried) are empty. **(T-1).**

3.30.4.1.3. Prior to each (D)ACBT engagement or intercept. **(T-1).**

3.30.4.1.4. Prior to entering an air-to-surface range, once while on the range if multiple passes are made and after departing the range. **(T-1).**

3.30.4.2. Pilots must check the minimum items of engine instruments, total and internal fuel quantities/balance, G-suit connection, oxygen system, validity of standby attitude indicator, and, cabin altitude. **(T-1).** If the G-suit malfunctions or becomes disconnected, pilots will terminate all ACBT maneuvering until normal operation is reestablished. **(T-1).**

3.30.4.3. For formation flights, the flight lead will initiate ops checks by radio call or visual signal. **(T-1).** Flight members will respond by radio call or visual signal. **(T-1).**

3.30.4.3.1. During Ops checks, pilots will ensure the fuel quantity selector knob is returned to the NORM position. **(T-1).** Totalizer-only Ops checks may be used periodically during high demand phases of flight.

3.30.4.3.2. For mandatory ops checks when external tanks are carried, each flight member will check the external tank(s) and add “Tank(s) feeding/dry” to the Ops Check. **(T-1).** Once the tank(s) have been confirmed and called dry, this may be omitted from subsequent ops checks.

3.30.4.3.3. Pilots will not substitute data-linked fuel status for operations checks. **(T-1).**

3.31. Lap Belts. Use extreme caution when disconnecting the lap belt in flight due to potential for lap belt buckle/side-stick controller/throttle interference.

3.32. Change of Aircraft Control. Both pilots of an F-16B/D must know at all times who has control of the aircraft. (T-1). Pilots will transfer control of the aircraft with the statement "You have the aircraft." (T-1). The pilot receiving control of the aircraft will acknowledge "I have the aircraft." (T-1). Once assuming control of the aircraft, the pilot will maintain control until relinquishing it as stated above. (T-1). **Exception:** If the intercom fails, the pilot in the front cockpit (if not in control of the aircraft) will rock the wings and assume control of the aircraft, radios and navigational equipment unless briefed otherwise. (T-3).

3.33. Fuel Requirements.

3.33.1. Joker Fuel. A briefed fuel quantity needed to terminate an event and proceed with the remainder of the mission.

3.33.2. Bingo Fuel. A briefed 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 as listed below:

3.33.3. Normal Recovery Fuel. The fuel quantity on initial or at the FAF at the base of intended landing or alternate, if required. This fuel quantity is the higher of what is established locally or:

3.33.3.1. All F-16 Blocks 10 through 32 - 1,000 pounds.

3.33.3.2. All F-16 Blocks 40 and higher - 1,200 pounds.

3.33.4. Minimum/Emergency Fuel. Pilots will declare the following when it becomes apparent that an aircraft is entering initial or start an instrument final approach at the base of intended landing or alternate, if required, with: **(T-1).**

3.33.4.1. Minimum Fuel:

3.33.4.1.1. All F-16 Blocks 10 through 32 - 800 pounds or less.

3.33.4.1.2. All F-16 Blocks 40 and higher - 1,000 pounds or less.

3.33.4.2. Emergency Fuel:

3.33.4.2.1. All F-16 Blocks 10 through 32 - 600 pounds or less.

3.33.4.2.2. All F-16 Blocks 40 and higher - 800 pounds or less.

3.33.5. Afterburner Use. Pilots will not use AB below 2,000 pounds total fuel or established bingo fuel, whichever is higher, unless required for safety of flight. **(T-1).**

3.34. Radar Altimeters and Terrain Warning/Avoidance Systems.

3.34.1. If the aircraft is equipped with such systems (CARA, DTS, PGCAS, AGCAS, etc.), the pilot will turn them on for all flights and set LIS altitude advisory as appropriate on all missions. **(T-1).** Pilots will enable PGCAS with a minimum altitude setting of 200 feet for day operations and 700 feet for night operations. **(T-1).** Pilots will confirm the correct AGCAS mode (NORM/MIN/SHOW) is selected per mission requirements. **(T-1).** AGCAS should only be turned off if a known system malfunction affecting safety of flight requires system deactivation. Pilots will ensure that the appropriate values are set prior to takeoff. **(T-1).** For low altitude operations GCAS settings, reference **paragraph 3.15.2.2** and **paragraph 3.15.2.3** in this publication.

3.34.2. Pilots must set the ALOW function of the radar altimeter and the LIS at the briefed minimum altitude, the command-directed minimum altitude, or as briefed, whichever is highest. **(T-1).** They should be set at sufficient altitudes, during various phases of flight, to allow for safe recovery of the aircraft when activated.

3.34.3. Prior to commencing an approach during night or IMC, pilots should reset the LIS and/or ALOW warning system to an altitude appropriate to the instrument approach procedure being flown or the general terminal area. Refer to 1F-16C/CM-34-1-1, *Avionic and Nonnuclear Weapons Delivery Flight Manual*, for warning limitations when the gear is down.

3.35. Wind and Sea State Restrictions. Pilots will not conduct training missions when surface winds along the intended route of flight exceed 35 knots steady state. (T-1). Pilots will not conduct over water training missions when surface winds exceed 25 knots steady state or when the sea state exceeds 10 feet (or 4 meters-USAFE). (T-3). This is not intended to restrict operations when only a small portion of the route is affected.

3.36. Airborne Interrogator Friend Foe (AIFF) Operation.

3.36.1. To reduce the potential for adverse effects on Combat Identification, Air Traffic Control, and Traffic Collision Avoidance systems, pilots will limit interrogations to the minimum required for the mission. **(T-1).**

3.36.2. For AIFF operations within the United States and its Possessions (US&P), pilots will comply with the equipment and operational restrictions as specified in the applicable radio frequency authorizations (RFAs) which can be obtained from the unit spectrum management office. **(T-1).**

Chapter 4

INSTRUMENT PROCEDURES

4.1. General.

4.1.1. Head-Up Display (HUD) Use. Regardless of Block, pilots will use the ADI as the primary reference to recover from an unusual attitude or while executing lost wingman procedures. **(T-1).** The HUD should be used as a crosscheck in these situations. The HUD in F-16 Block 25/30/32 aircraft and Block 40/42/50/52 aircraft has been certified as a primary flight instrument and may be used as a primary flight reference in night/IMC conditions. The HUD in all other F-16 Blocks may be used as an additional instrument reference only. No F-16 Block may use the HUD as the sole reference in night/IMC conditions. Pilots are required to also check the validity of the standby attitude indicator prior to IMC flight. **(T-2).**

4.1.2. The F-16 is approved for RNAV 2 and BRNAV for enroute navigation IAW with advisory circular (AC) 90-108 change 1, *Use of Suitable Area Navigation (RNAV) Systems on Conventional Routes and Procedures* and international civil aviation organization (ICAO) Doc 7300, Convention on International Civil Aviation. RNAV waypoints, routes and NAVAIDs must be pulled from a valid and certified database, e.g., Digital Aeronautical Flight Information File, by name. Terminal area RNAV procedures, (RNAV approaches, missed approaches, arrivals and departures) are not authorized until such a time as the procedure in its entirety can be pulled by name from an approved database and auto sequenced during the procedure.

4.1.3. Simulated Instrument Flight. Follow AFI11-202V3 guidance. A qualified safety observer must be in the aircraft or in a chase aircraft when conducting simulated instrument flight. (T-1). A safety observer may occupy either seat of the F-16B/D provided the intercom is operable. Use the radar to aid in clearing the area. Pilots in F-16A/C aircraft may not log simulated instrument flight without a chase. They may fly multiple approaches in VMC without a chase, but pilots should place their primary emphasis on seeing/sensing and avoiding other aircraft.

4.2. Takeoff and Initial Join-up. If weather is below 1,500 foot ceiling and 3 statute miles (5 km) visibility, each aircraft will climb on takeoff heading to 1,000 feet AGL before initiating any turns, except when departure instructions specifically preclude compliance. (T-1).

4.3. Trail Procedures.

4.3.1. General. During trail formations, basic instrument flying is the first priority and is not to be sacrificed when performing secondary trail tasks. Pilots will strictly adhere to the briefed airspeeds, power settings, altitudes, headings and turn points. (T-1). If task saturation occurs, pilots will cease attempts to maintain radar contact, immediately concentrate on flying the instrument procedure, and then notify the flight lead. (T-1). The flight lead will notify ATC. (T-1).

4.3.1.1. Flight leaders will request non-standard formation from ATC. **(T-1).**

4.3.1.2. ATC instructions issued to the lead aircraft apply to the entire flight. The flight lead should ensure ATC states when trailing wingmen/elements climb or descend. In lieu of guidance, trailing flight members will climb/descend at the same geo-location that lead starts a climb or descent. **(T-1).**

4.3.1.3. Normal spacing is 2-3 NM.

4.3.1.4. Each aircraft and element will follow the No Radar Contact procedures until the aircraft or element immediately in trail has radar contact and called "tied." **(T-1).**

4.3.2. No Radar Contact.

4.3.2.1. The flight leader will call initiating all turns. **(T-1).** Subsequent aircraft must delay turns to maintain the desired spacing. **(T-1).**

4.3.2.2. Each aircraft and element will maintain 20 seconds or 2-3 NM spacing using all available aircraft systems and navigational aids to monitor position. **(T-1).**

4.3.2.3. During climbs and descents, each aircraft or element will call passing each 5,000 foot altitude increment with altitude and heading (or heading passing) until join-up, level-off, or the following aircraft or element calls "tied." **(T-1).**

4.3.2.4. Each aircraft and element will call initiating any altitude or heading change. **(T-1).** Acknowledgments are not required; however, it is imperative that preceding aircraft or elements monitor the radio transmissions and progress of the succeeding aircraft and elements, and immediately correct deviations from the planned route.

4.3.2.5. Each aircraft and element will maintain at least 1,000 feet vertical separation from the preceding aircraft or element until establishing radar or visual contact, except in instances where departure instructions specifically preclude compliance. **(T-1).** Reduce vertical separation to 500 feet if necessary to comply with MSA restrictions.

4.3.2.6. In the event a visual join-up cannot be accomplished on top or at level-off, the flight leader will request altitude separation for each succeeding aircraft or element to meet the requirements of the above paragraph. **(T-1).**

4.3.3. Radar Contact.

4.3.3.1. Each aircraft and element will call "tied" when radar contact is established with the preceding aircraft. **(T-1)**. Once all aircraft are tied, no further radio calls are necessary, except to acknowledge ATC instructions, unless radar contact is lost.

4.3.3.2. In flights of three or more aircraft, pilots will use all available aircraft systems (i.e., radar, TACAN, AAI, etc.) to ensure that trail is maintained on the correct aircraft. **(T-1).**

4.3.4. Trail Departures.

4.3.4.1. Pilots will use a minimum of 20 seconds takeoff spacing. **(T-1).**

4.3.4.2. Each aircraft/element will accelerate in MIL or AB power until reaching 350 KCAS (or as required by local procedures). **(T-1).** Upon reaching this speed, the flight leader will set a pre-briefed power setting. **(T-1).** Climb at 350 KCAS until reaching cruise Mach/TAS, unless otherwise briefed.

4.3.4.3. Pilots will make all turns using 30 degrees of bank. **(T-1).**

4.3.5. Enroute Trail. Flight leads must brief airspeeds, power settings, and configurations. (**T-1).**

4.3.6. Trail Recovery.

4.3.6.1. Trail recoveries are only authorized at locations where procedures have been established. Appropriate ATC agencies must approve. **(T-1).** OG/CCs must ensure trail recovery procedures are included in local procedures. **(T-3).** As a minimum, OG/CCs must ensure procedures address each recovery profile, missed approach, climb-out, desired and maximum spacing requirements, lost contact and lost communications. **(T-1).**

4.3.6.2. OG/CCs must limit trail recovery to a maximum of four aircraft. **(T-1).**

4.3.6.3. Trail recoveries are authorized when weather at the base of intended landing is at or above the highest pilot weather category in the flight or approach minimums, whichever is higher.

4.3.6.4. The flight lead must brief the flight on spacing, configuration and airspeeds. **(T-1).**

4.3.6.5. The flight lead must coordinate the trail recovery with ATC prior to taking spacing. **(T-1).**

4.3.6.6. Prior to wingmen taking spacing for the trail recovery, the flight lead will ensure that all wingmen have operative navigational aids and radar. **(T-1).**

4.3.6.7. Accomplish flight separation IAW local directives and in VMC if possible.

4.3.6.8. The formation must squawk as directed by ATC. **(T-1).**

4.3.6.9. ATC will provide radar flight following for the entire formation. **(T-1).**

4.3.6.10. Pilots must limit all turns to a maximum of 30 degrees of bank. **(T-1).**

4.3.6.11. Once established on a segment of a published approach, each aircraft must comply with all published altitudes and restrictions while maintaining in-trail separation. **(T-1).**

4.3.6.12. Unless local procedures establish defined reference points for airspeed and configuration changes, the flight lead must direct changes by radio. **(T-1).** At flight lead's call all aircraft must simultaneously comply with the directed change. **(T-1).**

4.3.6.13. All aircraft must report the final approach fix. **(T-1).**

4.3.6.14. If contact is lost with the preceding aircraft, the pilot will transmit "Callsign (C/S) lost contact." **(T-1)** The preceding aircraft will respond with altitude, airspeed and heading. **(T-1).** The aircraft will establish altitude deconfliction and coordinate a separate clearance with ATC. **(T-1).** If contact is lost while established on a segment of a published approach, flight members may continue the approach, but must confirm separation via navigation aids. **(T-1).** If separation cannot be confirmed, the pilot will execute missed approach or climb-out as instructed by ATC. **(T-1).**

4.3.6.15. Flight leads will coordinate with local ATC prior to penetration if the trail recovery terminates in a precision approach radar (PAR) or airport surveillance radar (ASR) approach. **(T-1).**

4.4. Formation Break-up. Pilots must execute formation break-up from a visual formation in VMC. (T-1). If IMC is unavoidable, pilots must breakup from a visual formation in straight and level flight. (T-1). This restriction does not apply to trail formation. Prior to an IMC break-up, the flight lead will confirm position and transmit attitude, altitude, airspeed, and altimeter setting. (T-1). Wingmen will acknowledge and confirm good navigational aids (reception of appropriate TACAN, ILS and/or appropriate GPS/INS waypoint). (T-1).

4.5. Formation Penetration.

4.5.1. Pilots must restrict formation penetrations in route or close formation to two aircraft when the weather at the base of intended landing is less than overhead traffic pattern minimums. **(T-1).**

4.5.2. Formation penetrations using radar trail procedures are authorized when weather at the base of intended landing is at or above the highest pilot weather category in the flight or approach minimums, whichever is higher.

4.6. Formation Approach. During IMC formation flights, pilots will not change lead or wing positions below 1,500 feet AGL unless on radar downwind or if required during a formation approach with an F-16 experiencing an emergency. **(T-1).**

4.7. Instrument Approach Procedures.

4.7.1. Pilots will not fly any published instrument procedure (e.g., DoD, Jeppesen, ICAO) that requires airspeeds less than those specified in 1F-16C/CM-1, *Flight Manual*. **(T-1).**

4.7.2. The F-16 is Approach Category E. If no Category E minimums are published, Category D minimums can be used, provided:

4.7.2.1. A straight-in approach is flown.

4.7.2.2. For the final approach segment, the aircraft is flown at 165 KCAS or less.

4.7.2.3. For the missed approach segment, the aircraft is flown at 260 knots true airspeed (KTAS) or less. At high density altitudes 260 KTAS may require a KCAS below the speed specified in 1F-16C/CM-1 and pilots shall not fly Category D approaches. **(T-1).**

Chapter 5

AIR-TO-AIR WEAPONS EMPLOYMENT

5.1. General. Reference AFI 11-214 for procedures and restrictions.

5.2. Simulated Gun Employment. Aircrew must comply with the below restrictions and procedures.

5.2.1. Never perform simulated gun employment with a hot gun (one that is not safe IAW 1F-16C/CM-34-1-1). (T-1). Never perform a trigger check with a hot gun, regardless of Master Arm switch position. (T-1).

5.2.2. Prior to flight, confirm the status of the gun system. (T-1). Prior to simulated gun employment, perform a trigger check with the Master Arm switch in SIMULATE and the aircraft pointed away from other aircraft and populated areas. (T-1). If HUD symbology reads “ARM” or SMS/MFD symbology reads “RDY,” do not squeeze the trigger or continue with simulated weapons employment. (T-1).

5.3. Maneuvering Limitations. Pilots must comply with the below restrictions and procedures.

5.3.1. Negative "G" guns jink maneuvers are prohibited. **(T-1).**

5.3.2. Minimum airspeed during low altitude offensive or defensive maneuvering is 350 KCAS. **(T-1).**

5.3.3. All configurations are authorized for unlimited maneuvering as defined by AFI 11-214. Before conducting unlimited maneuvering in a CAT III configured aircraft, consider gross weight, drag, departure susceptibility and training requirements.

5.3.4. For D-model F-16s, restrict maximum-commanded or abrupt control inputs below 150 KCAS when flying ACBT sorties. **(T-1).** Full maneuvering may be resumed at or above 150 KCAS.

Chapter 6

AIR-TO-SURFACE WEAPONS EMPLOYMENT

Section 6A—General

6.1. General. Reference AFI 11-214 for procedures and restrictions.

6.2. Simulated Gun Employment. Pilots must comply with the below restrictions and procedures.

6.2.1. Never perform a trigger check with a hot gun, regardless of Master Arm switch position (T-1).

6.2.2. Never perform simulated gun employment (squeezing the trigger with the Master Arm switch in SIM) with a hot gun (one that is not safe IAW 1F-16C/CM-34-1-1). (T-1). This restriction does not apply on a controlled range against targets approved for gun employment with ammunition loaded.

6.2.3. Prior to flight, confirm the status of the gun system. (T-1). Prior to simulated gun employment, perform a trigger check with the Master Arm switch in SIMULATE and the aircraft pointed away from other aircraft and populated areas. (T-1). If HUD symbology reads "ARM" or SMS/MFD symbology reads "RDY," do not squeeze the trigger or continue with simulated weapons employment. (T-1).

6.3. Training Missions with a Hot Gun.

6.3.1. Pilots will not select strafe submode until immediately prior to roll in and deselect strafe submode immediately after completing the safe escape maneuver. (T-1).

6.3.2. Before firing the laser, ensure avionics (to include master arm switch, master mode, and SMS) will not allow the gun to fire.

6.3.3. Pilots will not disable AGCAS for strafe operations. (T-3). During LAS an automated recovery may occur near 2000 feet slant range; therefore pilots must cease fire prior to 2000 feet slant range or rounds may be employed well long of the target during automated pull-up. (T-1).

6.4. Simulated Air-to-Surface Weapons Employment.

6.4.1. A simulated attack is defined as an attack in which the pilot presses the weapons release (pickle) button and/or pulls the trigger with the intention of conducting a dry pass.

6.4.2. Simulated Attacks against off-Range or Manned Targets. Do not conduct such attacks with internally/externally loaded live ordnance (except for 20 mm ammunition with a safed gun IAW 1F-16C/CM-34-1-1), externally loaded heavyweight inert ordnance, or hung ordnance. **(T-1)**.When the aircraft is loaded with expendable stores (e.g., external fuel tanks, TERs carted at the pylon), load simulated weapons (zero quantity, or positive quantity in Training SMS for SCU10 and later) in the SMS/MFD only on empty or uncarted/unexpendable stations (Exception: Captive Maverick and HARM missiles may be selected). **(T-1).** Confirm the Master Arm switch is in OFF or SIMULATE prior to the first attack. **(T-1).** Flight lead will query and flight members will reply to a "check zero quantity, uncarted station" or "check Training SMS, uncarted station (SCU10 and later) radio call. **(T-1).**

6.5. Weather. In training, pilots will not conduct climbing or diving deliveries with a ceiling below 2,000 feet AGL or level deliveries with a ceiling below 1,500 feet AGL. (T-1).

6.6. Pop-Up Attacks. Pilots will abort pop-up attacks if airspeed decreases below 350 KCAS (300 KCAS above 10,000 feet AGL). (T-1).

6.7. Target Identification. Pilots shall positively identify the target prior to weapons release. (T-1). For wartime or contingency sorties, comply with ROE. For training sorties, achieve positive identification by either visually acquiring the target or by confirming target location through valid on-board/off-board cues. Exercise caution when relying on a single cue to confirm target location. For night training sorties when actual training, inert or live weapons will be released via a visual attack mode, do not rely on visual cues alone; confirm visual acquisition of the target with at least one additional on-board/off-board cue before releasing weapons. Cues may include, but are not limited to, radar, GPS, marking rounds, TGP or IR Maverick lock on, IR pointers or NVG-compatible marking devices.

6.8. Safety of Ground Personnel. When ground controllers are present on Class B/C ranges, range personnel will brief pilots on locations of these personnel. **(T-1).** Each pilot will acknowledge. **(T-1).** Pilots must know applicable range weapons delivery procedures, appropriate targets and weapons footprints. **(T-1).** Pilots shall not expend ordnance if any doubt exists as to the ground personnel or intended target locations. **(T-1).**

Section 6B—Night

6.9. Altitude. Compute an MSA for the entire bombing pattern using the guidance in AFI 11-214. For low illumination conditions, the minimum altitude for night high angle strafe (HAS) is the target MSA, as defined in **Attachment 1**. See AFI 11-214, Chapter 3, for night training rules. Pilots will review and confirm parameters prior to roll-in. **(T-1).**

6.10. Bank Angle. Pilots will not exceed 135 degrees of bank when returning to the low altitude structure (<5,000 feet AGL). **(T-1).**

Chapter 7

ABNORMAL OPERATING PROCEDURES

7.1. General. Follow the procedures in this chapter when other than normal circumstances occur. These procedures do not supersede procedures contained in the flight manual. Pilots will:

7.1.1. Not accept an aircraft for flight with a malfunction which is addressed in the emergency/abnormal procedures section of the flight manual until appropriate corrective actions have been accomplished. **(T-1).**

7.1.2. Not fly an aircraft with a tripped engine monitoring system (EMS) Go-No-Go indicator (Bit Ball) until maintenance has accomplished the appropriate procedures and cleared the fault. **(T-1).**

7.1.3. Do not taxi with a known or suspected physiological incident or a known malfunction of the nose-wheel steering system, the brake system, or a generator. **(T-1). Note:** F-16C/D aircraft may be taxied with a single generator failure (main or standby) if the other generator is operating normally.

7.1.4. Once a malfunctioning aircraft system is isolated, do not use that system again unless its use in a degraded mode is essential for recovery. **(T-1).** Pilots will not conduct ground or in-flight trouble-shooting after flight manual emergency procedures are complete. **(T-1).**

7.1.5. In the F-16B/D, the pilot in command is primarily responsible for handling in-flight emergencies. The additional pilot will confirm that all critical action procedures have been accomplished and provide checklist assistance at the request of the pilot in command. **(T-1).**

7.1.6. For actual/perceived flight control malfunctions, pilots will terminate maneuvering and take appropriate action. **(T-1).** If the problem was due to crew/passenger stick or rudder interference, the pilot will take positive action to ensure no further control interference occurs. **(T-1).**

7.1.7. When a fuel imbalance exceeds dash one limits, terminate tactical maneuvering and investigate. **(T-1).** If the problem was caused by a slow feeding external or internal fuel tank and can be corrected, the mission may continue IAW 1F-16C/CM-1. If not, terminate the mission. Instruments, deployment missions, level weapons deliveries and straight-through-non-maneuvering intercepts are authorized to reduce gross weight until a safe landing is possible.

7.2. Critical Action Procedures (CAPs). General. Pilots will be evaluated on the following **Table 7.1** procedures IAW MAJCOM guidelines. (T-1). Pilots shall be able to immediately accomplish these procedures in the published sequence without reference to the checklist. (T-1). Certain steps (e.g., Stores - Jettison) may be performed out of sequence, if conditions warrant. CAPs may be abbreviated when written, but pilots must convey clear procedural intent. (T-1).

Table 7.1. Critical Action Procedures (CAPs).

FIRE/OVERHEAT/FUEL LEAK (GROUND)

1. Throttle - Off
2. JFS – Off
3. Fuel Master Switch - Off

GROUND EGRESS

1. Throttle - Off
2. Seat - Safe
3. Belt / Kit / Harness / G-Suit - Release

ABORT

1. Throttle - Idle
2. Hook - Down (Above 100 Knots or If Required)

AB MALFUNCTION ON TAKEOFF (TAKEOFF CONTINUED)

1. Throttle - MIL
2. Stores - Jettison (If Required)

ENGINE FAILURE ON TAKEOFF (TAKEOFF CONTINUED)

1. Zoom
2. Stores-Jettison (If Possible)
3. Eject

ENGINE FIRE ON TAKEOFF (TAKEOFF CONTINUED)

1. Climb
2. Stores - Jettison (If Required)

***PW 200]* LOW THRUST ON TAKEOFF/AT LOW ALTITUDE (NON-AB)**

1. EEC/BUC Switch - Off.

If Thrust Is Still Insufficient:

2. Throttle - MAX AB.

If Thrust Is Still Insufficient:

3. Throttle - MIL
4. EEC/BUC Switch - BUC

If Nozzle Fails To Close After Transferring To BUC Or If Thrust Is Still Insufficient:

5. EEC/BUC Switch - OFF

***[PW 220/229]* LOW THRUST ON TAKEOFF/AT LOW ALTITUDE (NON-AB)**

1. Throttle - AB
2. Stores - Jettison (If Required)

If PRI thrust is insufficient to maintain level flight at a safe altitude:

3. Engine Control Switch - SEC

***[PW200]* ENGINE FAILURE/AIRSTART**

1. Zoom (If at Low Altitude)
2. Stores - Jettison (If Required)
3. Throttle – OFF
4. Airspeed - As Required
5. EEC/BUC Switch - As Required.

When RPM Is Between 40-25 Percent And FTIT Is Below 700 Degrees:

6. Throttle - IDLE
7. JFS - Start 2 When Below 20,000 Feet and 400 KCAS

***[PW220]* ENGINE FAILURE/AIRSTART**

1. Zoom (If At Low Altitude)
2. Stores - Jettison (If Required)
3. Throttle - OFF
4. Airspeed - As Required.

When RPM Is Between 50-25 Percent And FTIT Is Below 700 Degrees:

5. Throttle - IDLE
6. JFS - Start 2 When Below 20,000 Feet and 400 KCAS

***[PW229]* ENGINE FAILURE/AIRSTART**

1. Zoom (If at Low Altitude)
2. Stores - Jettison (If Required)
3. Throttle - OFF, then Midrange
4. Airspeed - As Required
5. JFS - Start 2 When Below 20,000 Feet and 400 KCAS

[LESS M6.2]OUT-OF-CONTROL RECOVERY

1. Controls - Release
2. Throttle - Idle
3. FLCS Switch – RESET

If Still Out-Of-Control:

4. MPO Switch - OVRD and Hold

After Yaw Rotation Stops or is Minimized:

5. Stick - Cycle in Phase

[M6.2+]OUT-OF-CONTROL RECOVERY

1. Controls - Release

6. Throttle - MAX AB 7. Stores - Jettison (If or When Required) ***[GE100/129]*** **LOW THRUST ON TAKEOFF / AT LOW ALTITUDE (NON-AB)** 1. Throttle - AB. 2. Stores-Jettison (If Required). **If thrust is insufficient to maintain level flight at a safe altitude:** 3. Engine Control Switch – SEC, then PRI ***[GE100/129]*** **ENGINE FAILURE/AIRSTART** 1. Zoom (If at Low Altitude) 2. Stores - Jettison (If Required) 3. Engine Control Switch – SEC, Then PRI 4. Airspeed – As Required JFS – Start 2 When Below 20,000 Feet and 400 KCAS	2. Throttle - Idle **If Still Out-Of-Control:** 3. MPO Switch - OVRD and Hold **After Yaw Rotation Stops or is Minimized:** 4. Stick - Cycle in Phase **[ANALOG FLCS]OUT-OF-CONTROL RECOVERY** 1. Controls - Release 2. Throttle - Idle **If In An Inverted Deep Stall:** 3. Rudder - Opposite Yaw Direction **If Still Out-Of-Control:** 4. MPO Switch - OVRD and Hold **After Yaw Rotation Stops or is Minimized:** 5. Stick - Cycle in Phase

7.3. Ground Aborts.

7.3.1. If a flight member aborts prior to takeoff, the flight lead normally renumbers the flight to maintain a numerical call sign sequence. Flight leads will advise the appropriate agencies of such changes. **(T-1).**

7.3.2. Pilots who do not takeoff with the flight may join the flight in accordance with the brief or flight lead instructions. If a join-up is to be accomplished on an air-to-ground range, the flight lead must terminate all events until the joining aircraft has achieved proper spacing. **(T-1).**

7.4. Takeoff Aborts.

7.4.1. If an abort occurs during takeoff roll, the aborting pilot must say call sign and intentions when practical. **(T-1).** Following aircraft will alter takeoff roll to ensure clearance or abort takeoff if adequate clearance cannot be maintained. **(T-1).** Pilots must use the phrase "Cable, Cable, Cable" to indicate a departure-end cable arrestment. **(T-1).** Pilots must use the phrase "Barrier, Barrier, Barrier" to indicate a departure-end net arrestment. **(T-1).** Group/CCs will establish local cable and barrier procedures. **(T-1).**

7.4.2. When aborting above 120 KCAS, or whenever hot brakes are suspected, pilots will declare a ground emergency, taxi the aircraft to the designated hot brake area and follow hot brake procedures. **(T-1).**

7.4.3. If aborting at or above 100 KCAS, pilots will lower the hook. **(T-1).** If aborting below 100 KCAS, pilots will lower the hook if there is any doubt about the ability to stop on the remaining runway. **(T-1).**

7.5. Air Aborts.

7.5.1. If an abort occurs after takeoff, all aircraft will maintain their original numerical call sign. **(T-1).**

7.5.2. Escort aborting aircraft with an emergency condition to the field of intended landing. When other than an emergency condition exists, the flight lead will determine if an escort for the aborting aircraft is necessary. **(T-3).**

7.5.3. Pilots will abort the mission, regardless of apparent damage or subsequent normal operation, for any of the following:

7.5.3.1. Bird strike **(T-1).**

7.5.3.2. Actual or suspected foreign object damage. **(T-1).**

7.5.3.3. Recovery inside the FRAG envelope with live ordnance. **(T-1).**

7.5.3.4. Moderate to severe icing. **(T-1).**

7.5.3.5. Over-G. **Note:** Land as soon as practical out of a straight-in approach. **(T-1).**

7.5.3.6. Flight control system anomalies, including un-commanded departures from controlled flight. **(T-1). Exception:** intentional departures from controlled flight conducted IAW a MAJCOM-approved syllabus, but not including flight control system lights that reset IAW flight manual procedures.

7.5.3.7. Engine flameout/stagnation or shutdown. **(T-1).**

7.5.3.8. Lightning strike. **(T-1).**

7.6. Radio Failure/No Radio (NORDO). Reference AFPAM 11-205 and the Flight Information Handbook.

7.6.1. NORDO in Formation.

7.6.1.1. A pilot who experiences total radio failure while in close or route formation will maneuver within close/route parameters to attract the attention of another flight member and give the appropriate visual signals. **(T-1).** The mission should be terminated as soon as practical and the NORDO aircraft led to the base of intended landing or a divert base. A formation approach to a drop-off on final should be performed unless safety considerations dictate otherwise.

7.6.1.2. If flying other than close/route formation when radio failure occurs, the NORDO aircraft should attempt to rejoin to a route position at approximately 500 feet on another flight member. The NORDO aircraft is responsible for maintaining clearances from other flight members until his presence is acknowledged by a wingrock, signifying clearance to join. Once joined, the NORDO aircraft will give the appropriate visual signals. **(T-1).** If pre-briefed, the NORDO aircraft may proceed to a rendezvous point and hold. If no one has rejoined prior to reaching bingo fuel, the NORDO aircraft should proceed to the base of intended landing or a divert base. Aircraft experiencing any difficulty/emergency in addition to NORDO will proceed as required by the situation. **(T-1).**

7.6.2. NORDO on a Class A Range or a Manned Class B Range.

7.6.2.1. Pilots will attempt contact with the range control officer (RCO) on the appropriate back-up frequency or back up radio. **(T-1).**

7.6.2.2. If contact cannot be reestablished, pilots will make a pass by the range control tower on the attack heading while rocking wings and turn in the direction of traffic. **(T-1).** The flight lead will direct another flight member to escort the NORDO aircraft to a recovery base or rejoin the flight and RTB. **(T-1).**

7.6.2.3. If the NORDO aircraft has an emergency, the NORDO aircraft will 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. **(T-1).** The flight lead will direct a flight member to join-up and escort the emergency aircraft. **(T-1).**

7.6.3. NORDO on an Unmanned Class B Range or on a Class C Range.

7.6.3.1. The NORDO aircraft will make a pass on the target maintaining normal pattern spacing, if possible, while rocking wings. **(T-1).** The flight lead will direct another flight member to escort the NORDO aircraft to a recovery base or rejoin the flight in sequence and recover. **(T-1).** If the NORDO aircraft has an emergency, if practical, it will make a pass on the target maintaining normal pattern spacing, rocking wings, turn opposite direction of traffic and proceed to a recovery base. **(T-1).** The flight lead will direct a flight member to join-up and escort the emergency aircraft. **(T-1).**

7.6.3.2. Unexpended Ordnance. If radio failure occurs and circumstances preclude landing with unexpended ordnance, safe jettison of ordnance may be accomplished provided the following conditions are met:

7.6.3.2.1. The NORDO aircraft joins on another flight member who has radio contact with the RCO and the remainder of the flight.

7.6.3.2.2. Stores jettison visual signals specified in AFPAM 11-205 are relayed to the NORDO aircraft to initiate jettison.

7.6.4. NORDO during Missile or Air-to-Air Gunnery Firing.

7.6.4.1. Aircraft will not fire without two-way radio contact. **(T-1).**

7.6.4.2. If radio failure occurs, the pilot will safe the armament switches, join on another member of the flight or the tow aircraft, IAW **paragraph 7.6.1**. **(T-1).**

7.6.4.3. Gunnery target tow aircraft experiencing radio failure will rock wings and continue the turn if an attack is in progress. **(T-1).** The flight lead of the attacking aircraft will join on the tow's wing. **(T-1).** Remain clear of the banner in the event it is cut. The tow pilot will use standard hand signals to indicate his difficulty. **(T-1).** The flight lead will signal when the banner is cleared for cut with a slicing motion across the throat. **(T-1).** After the banner is away and the flight lead determines there is no remaining cable, he will take the lead, RTB with the tow aircraft on the wing, advise the tower of the NORDO and establish the appropriate landing pattern. **(T-1).** If cable remains, follow local procedures.

7.6.5. NORDO during Recovery.

7.6.5.1. If a formation straight-in approach is flown and a go-around becomes necessary, the chase will go-around, pass the NORDO aircraft and rock his wings. **(T-1).** The NORDO aircraft will go-around, if the situation allows. **(T-1).** If the NORDO aircraft is in formation as a wingman, the leader will initiate a gentle turn into the wingman and begin the go-around. **(T-1).**

7.6.5.2. To signal the need for an approach-end arrestment, the pilot will lower the tailhook (visual formation) or fly a straight in approach flashing the landing light (unescorted). **(T-1).**

7.7. Severe Weather Penetration. Do not fly through severe weather. (T-2). If unavoidable, flights will split-up and obtain separate clearances prior to severe weather penetration. (T-2).

7.8. Spatial Disorientation (SD). SD has proven to be a leading killer of F-16 pilots. Although SD is most common at night or in IMC, it can and has happened in day VMC. Reference AFPAM11-417, *Orientation in Aviation,* for information on the causes of SD, how to avoid it, and how to mitigate its consequences.

7.8.1. Enabling PARS is an acceptable recovery method from SD induced unusual attitudes, reference AFTTP 3-3.F16 for recommended throttle techniques during PARS recoveries.

7.8.2. Pilots should ensure deconfliction from other aircraft (primarily above or below their position) prior to PARS activation.

7.9. Lost Wingman.

7.9.1. Priorities. The first priority is to establish safe separation from other aircraft (e.g., tanker or wingman). Next, obtain a separate clearance to ensure obstacle/terrain clearance and clearance from other traffic.

7.9.2. Prohibitions. Do not practice lost wingman procedures in other than day VMC conditions.

7.9.3. General Procedures. Simultaneously transition to instruments and inform lead while executing lost wingman procedures (ref AFTTP 3-3.F16 for amplifying data). Lead will acknowledge the radio call and transmit attitude, heading, altitude and airspeed. (T-1). Once lost wingman procedures have been executed, permission to rejoin must be obtained from the flight lead. (T-1).

7.9.4. Two- or Three-Ship Flights. **Note:** If in three-ship echelon, refer to four-ship lost wingman procedures.

7.9.4.1. Wings-Level Flight (climb, descent or straight and level). Simultaneously inform the leader and turn away using 15 degrees of bank for 15 seconds, then resume heading and obtain a separate clearance.

7.9.4.2. Outside the Turn. Reverse the direction of turn using 15 degrees of bank for 15 seconds and inform the leader. Continue straight ahead to ensure separation prior to resuming the turn. Obtain a separate clearance.

7.9.4.3. 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 a separate clearance. The leader may resume turn only when separation is ensured.

7.9.4.4. Precision/Non-precision Final. The wingman will momentarily turn away to ensure clearance, inform lead, and commence the published missed approach procedure while obtaining a separate clearance. **(T-1).**

7.9.4.5. Missed Approach. The wingman will momentarily turn away to ensure clearance, inform lead, and continue the published or assigned missed approach procedure while climbing to 500 feet above missed approach altitude. **(T-1).** Obtain a separate clearance.

7.9.5. Four-Ship Flights. If only one aircraft in the flight becomes separated, the previous procedures would provide safe separation, but since it is impossible for number 4 to immediately ascertain that number 3 still has visual contact with the leader, 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 above. **(T-1).** Number 4 will follow the appropriate procedure listed below: **(T-1).**

7.9.5.1. Wings-Level Flight. Simultaneously inform the leader and turn away using 30 degrees of bank for 30 seconds, then resume heading and obtain a separate clearance.

7.9.5.2. Outside the Turn. Reverse direction of turn using 30 degrees of bank for 30 seconds to ensure separation from lead and number 3 and obtain a separate clearance.

7.9.5.3. Inside the Turn. Momentarily reduce power to ensure nose-tail separation and increase bank angle by 15 degrees. Inform the leader to roll out. Obtain a separate clearance. Leader will resume turn only when separation is ensured. **(T-1).**

7.10. Armament System Malfunctions.

7.10.1. General. Do not attempt to expend ordnance using a weapons release system with a known malfunction. If abnormal missile launch or erratic missile flight occurs, have the launching aircraft visually inspected by a chase pilot, if possible, to determine if any damage has occurred.

7.10.2. Inadvertent Release. Record switch positions at the time of inadvertent release and impact point, if known, and provide the information to debrief personnel. Check switches safe and do not attempt further release in any mode. Treat remaining stores as hung and obtain a chase aircraft for RTB, if practical. If remaining stores present a recovery hazard, jettison in a suitable area on a single pass, if practical.

7.10.3. Hung Freefall Ordnance or Missile Hangfire/Misfire. First confirm switches/SMS settings were correct. If they were, record all relevant switch/SMS settings and proceed as follows.

7.10.3.1. Hung Live Freefall Ordnance. Attempt delivery using an alternate delivery mode, if applicable. If unsuccessful, use selective jettison procedures for the store. If unsuccessful and the ordnance is either unsecure or the security of the ordnance cannot be determined, consider selective jettison of the rack.

7.10.3.2. Hung Practice/Inert Freefall Ordnance. Make an additional attempt to expend. If unsuccessful, select an alternate delivery mode and try again. If unsuccessful, ordnance from other stations/dispensers may be released provided this does not violate load symmetry limits. If remaining stores present a recovery hazard, jettison in a suitable area on a single pass, if practical.

7.10.3.3. Maverick Missile Hangfire. A missile that fires but fails to depart the aircraft is a hangfire. If able, have a chase pilot inspect such a missile.

7.10.3.4. Maverick Missile Misfire. A missile that fails to fire when all appropriate switches were selected is a misfire. If this occurs, safe the Master Arm switch. If able, have a chase pilot inspect the missile for smoke or fire. If either exists, jettison the missile on the range. If not, pilots may attempt another pass. If the second attempt fails and conditions permit, remain dry in the pattern for 15 minutes, then proceed to the recovery base following hung ordnance/weapons malfunction recovery procedures.

7.10.3.5. Hung Ordnance/Weapons Malfunction Recovery Procedures. Visually inspect the aircraft for damage, if practical. Declare an emergency (not required for hung practice/inert ordnance or hung rockets). Obtain a chase aircraft, if available. Avoid populated areas and trail formations. Land from a straight-in approach.

7.11. In-flight Practice of Emergency Procedures. Reference AFI 11-202V3, para 3.32. A simulated emergency procedure is any procedure that produces an effect closely paralleling the actual emergency. One example would be retarding the throttle sufficiently to emulate the performance of an aircraft with a flamed out or idle engine.

7.11.1. Prohibitions. Do not practice aborted takeoffs in the aircraft. **(T-1).** Instead, use the flight simulator, Cockpit Familiarization Trainer or a static aircraft, in that order of preference. Do not practice in-flight engine shutdown. **(T-1).** Do not practice SFO patterns unless crash rescue is available and either an active tower or a runway operations monitor (ROM) or equivalent, e.g., SOF, is in operation. **(T-1).** Pilots will not practice SFO patterns in conditions other than day VMC. **(T-1).**

7.11.2. Simulated Flameout (SFO)/Emergency Landing Patterns. OG/CCs will establish specific procedures for SFO training and establish letters of agreement with appropriate agencies. **(T-1).** They will publish those procedures in their supplement to this volume. **(T-1).** General SFO procedures follow:

7.11.2.1. The SFO pattern may be entered from any direction or altitude that ensures the aircraft is properly configured above 2,000 feet AGL and in a position to safely complete the approach.

7.11.2.2. Do not initiate or continue an SFO if a potential traffic pattern conflict exists that would require division of the pilot's attention between the SFO and sequencing with traffic. **(T-2).** Discontinue an SFO whenever excessive maneuvering is required, whether as a result of a traffic conflict or when making corrections. **(T-2).** Discontinue an SFO if unable to obtain wings level on final by 200 feet AGL. **(T-2).** Discontinue an SFO if airspeed drops below Dash One minimum airspeed any time between base key and the initiation of the flare. **(T-2).** Once the decision to discontinue an SFO has been made, initiate a go-around and do not attempt to resume the SFO. **(T-2).**

7.11.2.3. Except when operating IAW a MAJCOM-approved syllabus (e.g., AFMC high angle of attack training), do not touch down from an SFO. **(T-2).**

7.11.2.4. Make radio calls IAW local procedures, but as a minimum call:

7.11.2.4.1. "High Key"

7.11.2.4.2. "Low Key"

7.11.2.4.3. "Base Key, Gear Down, (Intentions)"

7.12. Search and Rescue (SAR) Procedures. General directive procedures are listed below. OG/CCs will establish specific procedures in the unit supplement to this volume. (T-1).

7.12.1. Squawk. Immediately cease tactical maneuvering by executing Knock-It-Off procedures. Place IFF to EMER to alert ATC/GCI/AWACS of the emergency situation.

7.12.2. Talk. Establish an on scene commander (OSC). Communicate the emergency situation and intentions immediately to applicable control agencies. Use GUARD frequency if necessary.

7.12.3. Mark. Mark the last known position of survivors/crash site using any means available, e.g., visual ground references, TACAN, INS, EGI, ATC/GCI/AWACS, HMCS, or TGP. Pass this information to follow-on SAR forces.

7.12.4. Separate. Remain above the last observed parachute altitudes until the position of all possible survivors is determined. If visual contact with parachute is not maintained, allow approximately 1 minute per thousand feet (16 feet per second) for parachute descent. The OSC will establish deconfliction between all aircraft involved in the SAR. **(T-1).**

7.12.5. Update Bingo/Recovery Base. Revise bingo fuels or recovery bases as required to maintain maximum SAR coverage over survivor(s). Pilots will not overfly bingo. **(T-1).** Relinquish OSC duties to more qualified rescue forces (e.g., SANDY 1, US Coast Guard) upon their arrival.

7.12.6. For overwater SAR/CSAR, OSC will utilize every means available (visual, TGP, Radar Ground Map, or Ground Moving Target Modes) to locate vessels that may aid in recovery. **(T-1).**

7.13. Post Arresting Gear Engagement Procedures. Do not shut down the engine unless fire/other conditions dictate or directed to do so by the arresting gear crew. (T-2). Raise the tailhook on the signal from the arresting crew. Pilots will not taxi until directed to do so by the arresting gear crew. (T-1).

7.14. AGCAS and PARS Reporting Procedures. Complete and expeditious reporting of certain AGCAS and PARS events is critical as it enables improvements to the AGCAS system as well as the addressing of anomalies that could affect mission effectiveness or safe aircraft operation. Units will report the following AGCAS and PARS events:

7.14.1. AGCAS activations assessed to have prevented or to likely have prevented Controlled Flight into Terrain (CFIT). (T-1).

7.14.2. AGCAS nuisance activations that had a significant negative impact on mission effectiveness. (T-1).

7.14.3. AGCAS erroneous activations or recoveries that affected safe operation of the aircraft. (T-1).

7.14.4. PARS erroneous activations, abnormal or incomplete recoveries, and/or PARS recoveries that affected the safe operation of the aircraft. (T-1).

7.15. For AGCAS and PARS events. For AGCAS and PARS events that fall into the categories identified in **paragraph 7.14**, the following actions will be taken:

7.15.1. HUD video 1 minute before to 30 seconds after the event will be extracted and saved. **(T-1)**.

7.15.2. The AGCAS Log File and PCDS file (if applicable) will be downloaded and saved using the JMPS UPC before the ADTC is returned to service. **(T-1)**.

7.15.3. CSFDR and FDR data will be downloaded and stored. **(T-1)**.

7.16. Units will report AGCAS and PARS events. Units will report AGCAS and PARS events listed in **paragraph 7.15** via email to the "F-16/AGCAS Reporting" distribution group in the NIPRNET Outlook GAL. **(T-1)**. Recipients of the report will promptly advise the unit how to gather and transmit the data.

7.17. Controlled Bailout Procedures. Local controlled bailout areas will require an ejection altitude no lower than 3,000 feet AGL (or as appropriate in high altitude locations) to allow reasonable pilot reaction time for seat or parachute failures. **(T-3).**

Chapter 8

LOCAL OPERATING PROCEDURES

8.1. General. This chapter provides a consolidated framework for wings to supplement (IAW AFI 33-360) local operating procedures. Units composed of multiple aircraft types may publish guidance in a single, stand-alone local operating instruction instead of supplementing this manual. Added or stand-alone procedures cannot be less restrictive than those contained elsewhere in this volume. This chapter is not intended to be a single source document for procedures contained in other directives or regulations. Avoid unnecessary repetition of guidance provided in other established directives; however, reference to those directives is acceptable when it serves to facilitate the location of information. This chapter is authorized to be issued to each pilot. Units will supplement the following paragraphs for local operating guidance:

8.1.1. Section A. Introduction. **(T-1).**

8.1.1.1. **(Added-35FW)** This chapter supplements AFMAN 11-2F-16V3 with guidance specific to commanders, supervisors, and aircrew under the operational control of the 35th Fighter Wing (35 FW). Knowledge of the parent AFMAN is essential when using this supplement. If conflicting guidance exists between this chapter and other applicable regulations, the most restrictive guidance applies.

8.1.1.2. **(Added-35FW)** For all references to OGV SharePoint, refer to the following website: **https://usaf.dps.mil/sites/misawa/35FW/35OG/OGV/SitePages/Home.aspx**.

8.1.1.3. **(Added-35FW)** Deviations. Unless otherwise noted, the 35th Operations Group Commander (35 OG/CC) must approve deviations to this supplement except for urgent requirements for safety or in-flight emergencies.

8.1.2. Section B. General Guidance. **(T-1).**

8.1.2.1. **(Added-35FW)** First Flight Requirements. Newly arrived pilots, including guest flyers, must accomplish all requirements in accordance with the 35 OG First Flight Checklist, 35 OG In-processing Checklist and 35 OG OI 11-202v2 before flying in any wing-assigned aircraft.

8.1.2.2. **(Added-35FW)** Preflight Planning.

8.1.2.2.1. **(Added-35FW)** Flight Plans. Base Operations files “standard route” Instrument Flight Rules (IFR) flights plans for local sorties upon receipt of desired routes from squadron operations. Missions that do not require a DD Form 1801 are flights that use a clearance limit defined on the Itachi 1 or REWAI 1 departure to REIWA.

8.1.2.2.2. **(Added-35FW)** Practice Approaches. To coordinate practice approaches at Matsushima AB or Chitose AB, contact 35 OG JASDF liaison (226- 2210) 24 hours prior. If unable to contact the liaison officer, contact the 3rd Air Wing liaison (226-4476), Chitose AB (226-4960) or Matsushima (226-4180, ext 8252, then ext. 232). Same day approach requests are less likely to receive approval.

8.1.2.2.3. **(Added-35FW)** Low Level Mission Planning. All low-level mission planning will be IAW USFJ Instruction 11-100 and AFMAN 11-2F-16V3. Low level mission materials will include a map that contains the most updated noise sensitive and no-fly areas. This map will be carried in the cockpit during low level training.

8.1.2.2.4. **(Added-35FW)** Large Force Employment (LFE). Coordination and procedures for LFEs will be IAW 35 FWI 13-204 and Sapporo ACC (SACC) Local Operating Procedures (LOP).

8.1.2.3. **(Added-35FW)** Single ship missions.

8.1.2.3.1. **(Added-35FW)** Top 3 will notify the SOF of the single-ship missions prior to takeoff. Top 3 must coordinate with 35 OG/CC if the single-ship is not on an approved single-ship mission.

8.1.2.3.2. **(Added-35FW)** 35 FW approved single ship missions include.

8.1.2.3.2.1. **(Added-35FW)** Aircraft rejoining as briefed with flight.

8.1.2.3.2.2. **(Added-35FW)** Red air missions.

8.1.2.3.2.3. **(Added-35FW)** Local instrument missions.

8.1.2.3.2.4. **(Added-35FW)** CMR/BMC pilots on Draughon Range with an RCO present.

8.1.2.3.2.5. **(Added-35FW)** CMR/BMC pilots on AHC sorties.

8.1.2.3.2.6. **(Added-35FW)** Upgrades/specialized training programs (i.e., maverick upgrade) in an F-16D with appropriate supervision in the rear cockpit.

8.1.2.3.2.7. **(Added-35FW)** FCF flights (both training and actual FCF mission).

8.1.2.3.3. **(Added-35FW)** The following single ship missions require 35 OG/CC approval:

8.1.2.3.3.1. **(Added-35FW)** Program Depot Maintenance inputs or returns.

8.1.2.3.3.2. **(Added-35FW)** Over-water flights outside the local flying training area.

8.1.2.3.4. **(Added-35FW)** Pilots will not conduct single-ship low altitude navigation missions unless in support of specific upgrade training requirements.

8.1.2.3.5. **(Added-35FW)** A single-ship sortie, rejoining as briefed with flight or adversary, will monitor the applicable flight AUX frequency. Otherwise, single- ships will monitor the SOF VHF.

8.1.2.4. **(Added-35FW)** Aircrew Flight Equipment.

8.1.2.4.1. **(Added-35FW)** OTS suits will be worn on all missions when flying over water less than 60°F/15.5°C. The 35 OG/CC may lower this requirement to 51°F/10.5°C when local air temperature is above 70°F/21.2ºC.

8.1.2.4.2. **(Added-35FW)** Pilots will wear OTS suits with a ninja suit or thermal underwear when operating overwater less than 50°F in the local area or on any trans-oceanic overwater flights with the water temperature below 60°F.

8.1.2.4.3. **(Added-35FW)** Pilots are authorized to fly with MASSIF Cold Weather Aviation System (CWAS) Intermediate Weather Outer Layer (IWOL). The CWAS IWOL can be worn in place of the flight suit while flying. Both pants and jacket must be worn if a flight suit is not.

8.1.2.4.4. **(Added-35FW)** Survival vests will be worn on all local missions.

8.1.2.5. **(Added-35FW)** Use of ORM worksheets and matrices will be the primary means to determine mission operational risk prior to stepping to fly. Pilots will integrate ORM fundamentals into the scheduling, planning and briefing process to help identify and mitigate risk factors.

8.1.2.5.1. **(Added-35FW)** Pilots will utilize the ORM worksheet located on the OGV SharePoint site.

8.1.2.6. **(Added-35FW)** Electronic Flight Bag (EFB) Operations

8.1.2.6.1. **(Added-35FW)** OGV will issue EFB guidance to include, minimum required settings, content and IOS update instruction. Updates to these requirements will be published in FCIFs in PEX and posted to the OGV SharePoint pub checker.

8.1.2.6.1.1. **(Added-35FW)** Pilots will maintain squadron issued EFBs, in accordance with OGV guidance.

8.1.2.6.1.2. **(Added-35FW)** CCV's will maintain ready spares as a failsafe, and to cover shortfalls on a temporary basis.

8.1.2.6.2. **(Added-35FW)** EFB Preflight & Planning

8.1.2.6.2.1. **(Added-35FW)** Pilots will fly with two EFBs every flight.

8.1.2.6.2.2. **(Added-35FW)** EFB battery levels must be at least 10% for each hour of planned total flight time plus sufficient time for engine start, taxi, and shutdown, but not less than 50%.

8.1.2.6.2.3. **(Added-35FW)** The EFBs must be in airplane mode during flight. If ADSB-in device is in use Wi-Fi may be enabled, while in airplane mode.

8.1.2.6.3. **(Added-35FW)** EFB Vault operations

8.1.2.6.3.1. **(Added-35FW)** Pilots will not connect EFBs to classified systems or activate device wireless capabilities while inside vaulted facilities for any reason.

8.1.2.6.3.2. **(Added-35FW)** CPA vaults (UTDs).

8.1.2.6.3.2.1. **(Added-35FW)** PACAF has authorized EFB’s in CPAs up to “Secret” classification with command approval. OG/CC has authorized EFBs in UTD facilities located in secret CPAs.

8.1.2.6.3.2.2. **(Added-35FW)** Pilots are authorized to bring squadron EFBs to UTD’s.

8.1.2.6.3.2.3. **(Added-35FW)** Pilots will ensure they have completed the EFB Classified Processing Area Checklist prior to bringing the EFBs into facility.

8.1.2.6.3.2.4. **(Added-35FW)** Pilots are required to log the EFBs both into and out of the facility.

8.1.2.6.3.3. **(Added-35FW)** SAPF/SCIF vaults (MTC, Squadron Vaults)

8.1.2.6.3.3.1. **(Added-35FW)** Authorized in 35FW_CVN - External Guest System_EFB CONOPS memo.

8.1.2.6.3.3.2. **(Added-35FW)** Pilots will not bring personal issue EFBs to these locations. CVN approved EFBs will be staged in the facility and maintained by EFB administrators.

8.1.2.6.3.3.3. **(Added-35FW)** Pilots will ensure EFB Checklist is attached. If a device is found without a checklist; immediately locate or obtain a checklist from EFB admin, verify that the steps have been complied with, then reattach. If a discrepancy is noted, report discrepancies to an admin.

8.1.2.6.3.3.4. **(Added-35FW)** Pilots will not remove SAPF/SCIF EFBs from facilities. Devices will be logged into and out of facilities by EFB administrators or Select CVN personnel for maintenance.

8.1.3. Section C. Ground Operations. **(T-1).**

8.1.3.1. **(Added-35FW)** Turn off the anti-collision light when in a Hardened Aircraft Shelter (HAS) to avoid triggering HALON fire suppression systems.

8.1.3.2. **(Added-35FW)** If ground control will not allow you to taxi without clearance, coordinate with the SOF or contact squadron ops.

8.1.3.3. **(Added-35FW)** When conditions permit, taxi spacing on C, C3 and B will be 150 feet staggered.

8.1.3.4. **(Added-35FW)** Standard taxi routes to/from RWY 10.

8.1.3.4.1. **(Added-35FW)** From 14 FS Loop to Charlie to Charlie 1, then Bravo to Bravo 1.

8.1.3.4.2. **(Added-35FW)** From 13 FS Loop to Charlie to Charlie 2, then Bravo to Bravo 1.

8.1.3.4.3. **(Added-35FW)** From RWY 10 End of Runway (EOR) to Bravo, then Charlie 3 to 13 FS Loop.

8.1.3.4.4. **(Added-35FW)** From RWY 10 EOR to Bravo, then Charlie 3 to Charlie, then to 14 FS Loop.

8.1.3.5. **(Added-35FW)** Standard taxi routes to/from RWY 28.

8.1.3.5.1. **(Added-35FW)** FS Loops to Charlie then Charlie 3, then Bravo to Bravo 5.

8.1.3.5.2. **(Added-35FW)** From RWY 28 EOR to Bravo then Charlie 2, then Charlie to Charlie 3 to the 13 FS Loop.

8.1.3.5.3. **(Added-35FW)** From RWY 28 EOR to Bravo then Charlie 1, then Charlie to the 14 FS Loop.

8.1.3.6. **(Added-35FW)** Pilots will only taxi in front of another aircraft in the same HAS if there are full taxi lines painted and a wing walker is available.

8.1.3.7. **(Added-35FW)** Pilots will not taxi with less than 10 feet of wingtip clearance of any vehicles or equipment unless the HAS throat has white lines depicting a minimum of 5 feet of clearance and the equipment is completely on the other side of the white lines. The waiver to AFMAN 11-218 that allows taxiing with less than 10 feet of wingtip clearance is on file on the OGV SharePoint.

8.1.3.8. **(Added-35FW)** During pushbacks, ensure the parking supervisor remains visible and appropriate wing walkers are present for the operation. To ensure toe brakes are operative, latch FLCS relays by selecting MAIN PWR and FLCS PWR TEST. Ensure ACFT BATT TO FLCS light is illuminated. If there is any doubt concerning aircraft clearance or safety, stop the aircraft (i.e., no wingtip clearance, supervisor directs, etc.). Raise the canopy and remove helmet to ensure adequate visibility during pushback operations (including exercise MOPP 4 conditions).

8.1.3.9. **(Added-35FW)** Arm/de-arm. Arm/de-arm procedures are IAW 35 FWI 13- 204 and the 35FW standards.

8.1.3.10. **(Added-35FW)** Do not hot pit refuel or taxi with less than 600 pounds of fuel remaining.

8.1.3.11. **(Added-35FW)** Monitor PRI-1 (respective squadron ops) during hot pit operations in each squadron's flows. If hot pit operations are occurring in other than the squadron flows all pilot will monitor PRI-1 Panther Ops.

8.1.3.12. **(Added-35FW)** AN/ALQ-188A(V) Winter Operations. 188 pods are equipped with an air scoop to allow for cooling during normal operation. The 35 FW has modified this air scoop with a cover plate to block de-icing fluids which increases the potential for the AN/ALQ-188A(V) pod to overheat.

8.1.3.13. **(Added-35FW)** During the preflight inspection of AN/ALQ-188A(V) pods, pilots will determine if a cover plate is present. If the runway or taxiways are wet during winter months and a cover plate is not installed, pilots will query Top 3 for the status of de-icing fluids before starting the aircraft.

8.1.3.13.1. **(Added-35FW)** During operations when a cover plate is installed, pilots will not operate the AN/ALQ-188A(V) pod in temperatures over 70°F and notify Top 3.

8.1.3.13.2. **(Added-35FW)** To minimize spray potential, aircraft equipped with a AN/ALQ-188A(V) pod with a cover plate installed during winter months will taxi with 300 feet spacing or greater. Takeoff spacing for aircraft equipped with a AN/ALQ-188A(V) pod will be 30 seconds, and landing distance between aircraft where the trail aircraft has a AN/ALQ-188A(V) pod will be 6,000 feet.

8.1.3.13.3. **(Added-35FW)** Pilots will ensure that power to the AN/ALQ- 188A(V) pod in STANDBY does not exceed 1 hour on the ground. Pilots will operate in XMIT only when flying above (colder than) the forecast freezing level.

8.1.3.13.4. **(Added-35FW)** During startup the AN/ALQ-188A(V) pod software causes the BLKR 060 MFL just after initial power application due to normal software programing. If a pilot discovers this MFL no maintenance is required.

8.1.4. Section D. Flying Operations. **(T-1).**

8.1.4.1. **(Added-35FW)** Local Flying Area. The 35 FW local flying area is generally within a 200 NM radius of Misawa, excluding those areas beyond the Japanese Outer ADIZ.

8.1.4.2. **(Added-35FW)** Transition altitude in Japan is 14,000 feet.

8.1.4.3. **(Added-35FW)** Departures.

8.1.4.3.1. **(Added-35FW)** Magnum Area Cold

8.1.4.3.1.1. **(Added-35FW)** When Runway 10 is in use pilots using the Magnum airspace will file a REIWA departure, Misawa 6 Hanamaki transition or Itachi 1 to points KILO, LIMA, MIKE, NOVEMBER or GEARP.

8.1.4.3.1.2. **(Added-35FW)** When Runway 28 is in use pilots using the Magnum airspace will file a REIWA departure, Misawa 6 Hanamaki transition or Itachi 1 to points BROWN, KILO, MIKE, NOVEMBER or GEARP.

8.1.4.3.1.3. **(Added-35FW)** Pilots using airspace other than the Magnum area will depart on the Itachi 1 with the appropriate transition.

8.1.4.3.2. **(Added-35FW)** Magnum Area Hot

8.1.4.3.2.1. **(Added-35FW)** When Runway 10 is in use pilots using the Magnum airspace will file a REIWA departure, Misawa 6 Hanamaki transition or Itachi 1 to points KILO, LIMA, MIKE, NOVEMBER or GEARP (at 4000’ MSL).

8.1.4.3.2.2. **(Added-35FW)** When Runway 28 is in use pilots using the Magnum airspace will file a REIWA departure, Misawa 6 Hanamaki transition or Itachi 1 to point BROWN.

8.1.4.3.2.3. **(Added-35FW)** Pilots using airspace other than the Magnum area will depart on either the REIWA or Itachi 1 with the appropriate transition.

8.1.4.3.3. **(Added-35FW)** The last aircraft in the formation will squawk Mode 3 of 5400 and Mode C until in standard formation with the lead aircraft (this applies to both normal and radar assisted trail departures/recoveries).

8.1.4.3.4. **(Added-35FW)** Dance Airspace. Depart via an Itachi-1 departure, and at 5 NM from the airfield or above 10,000 feet MSL the flight lead will advise ATC if able to cancel IFR and proceed VFR to Dance airspace. If unable to cancel IFR, the flight lead will inform ATC and follow ATC instructions.

8.1.4.3.4.1. **(Added-35FW)** The Dance airspace can be recalled by ATC at any time and aircraft must terminate the mission and follow ATC instructions.

8.1.4.3.4.2. **(Added-35FW)** The Dance airspace should only be used as a last resort to get effective training, not to increase the Magnum airspace.

8.1.4.4. **(Added-35FW)** Do not plan flights outside of gliding distance of land without dedicated search and rescue assets available, on alert or in the Misawa local area.

8.1.4.5. **(Added-35FW)** Comply with all no fly/avoidance areas under IFR control. Pilots will reference USFJI 11-100, USFJI 11-101 and AP/3 for current no fly/avoidance areas.

8.1.4.6. **(Added-35FW)** Avoid overflight of Misawa City below 3,000 feet MSL.

8.1.4.7. **(Added-35FW)** Draughon Positive Control Area is established to keep aircraft clear of Draughon Range. Do not overfly below FL230 when the range is called “hot”. Contact Misawa Approach when exiting the range.

8.1.4.8. **(Added-35FW)** Supersonic flight is allowed above FL200 over land with tactical necessity, or any altitude over water when greater than 10 NM from the shore- lines of Honshu, Hokkaido, and Okushiri.

8.1.4.9. **(Added-35FW)** Local VFR Flight.

8.1.4.9.1. **(Added-35FW)** Misawa has a significant risk of TCAS conflict and midair collisions due to the high volume of military VFR operations and the high density of Japanese civil air routes. It is paramount that pilots recognize the enormous responsibility that comes with the privilege of flying VFR in Japan. Pilots must be particularly alert for civil or military traffic when operating between Aomori, Hakodate, and Chitose, and the local traffic pattern. There are multiple major north-south airways over Northern Honshu. VFR flight in Japanese airspace must be performed below FL290 (FL290 and above is Class A airspace).

8.1.4.9.2. **(Added-35FW)** Cross airways perpendicular at a VFR hemispheric altitude, below FL150 if possible.

8.1.4.9.3. **(Added-35FW)** Be aware of IFR traffic climbing from or descending into Aomori, Hakodate, and Chitose.

8.1.4.9.4. **(Added-35FW)** All flight members will squawk Mode III/C assigned or 1150 (VFR) when performing tactical maneuvering outside of Special Use Airspace (SUA). Flight leads will squawk 1150 or assigned when cruising VFR.

8.1.4.9.5. **(Added-35FW)** When flying in Chitose Approach airspace, monitor Chitose Approach. Chitose airspace extends from surface to FL200, 45 NM south and 52 NM east.

8.1.4.9.6. **(Added-35FW)** When flying VFR within 20 NM of Hakodate, monitor Hakodate Approach. Hakodate airspace extends from the surface to 6,000 feet MSL out to 5 NM.

8.1.4.10. **(Added-35FW)** Airliner Avoidance. Maneuver to avoid airliners by a minimum of 5 NM and 2000 feet. If on an intercept course, attempt to maneuver off CATA no later than 10 NM. Maneuvers to pass behind an airliner and large altitude deconfliction will avoid unwarranted TCAS incidents. Excessive climb/turn/descent rates can trigger TCAS alarms.

8.1.4.11. **(Added-35FW)** Flight Following. VFR flight following is mandatory outside SUA. Contact Headwork (JASDF GCI) or SACC and request “VFR flight following” (use “Radar Advice” for Headwork). When conducting low altitude tactical navigation, GCI/SACC will likely lose contact below 2,000 feet AGL. Expect minimal service at low altitude. Update flight position with the flight following agency when climbing from low altitude environment. Flight following does not ensure TCAS separation. Headwork is not a certified ATC facility. Contact SACC when Instrument Meteorological Conditions (IMC) penetration is unavoidable.

8.1.4.11.1. **(Added-35FW)** If there is a specific mission that requires flight following, to include sorties during hours of darkness, it is the responsibility of the squadron schedulers or flight leads to coordinate.

8.1.4.12. **(Added-35FW)** Local Airspace Operations.

8.1.4.12.1. **(Added-35FW)** Chaff, flares, and ECM are approved in Bravo, Charlie, Delta and Magnum airspaces. Do not employ flares below 2,000 feet AGL over land.

8.1.4.12.2. **(Added-35FW)** SUAS when Camel/Sabre is scheduled. Aircraft will check in with Camel/Sabre when flowing to and from the Charlie/Bravo or Magnum airspace on 233.1. Switch to discrete frequencies when directed by Camel/Sabre.

8.1.4.12.3. **(Added-35FW)** SUAS when Camel/Sabre is not scheduled or available. Aircraft will check in with Headwork when flowing to and from the Charlie/Bravo airspace on 276.3. Flights will request traffic status in the airspace, Keyhole status, and local altimeter. Push to primary/secondary discrete frequency as applicable. Headwork will respond as a courtesy when time, and conditions permit; but are not required to respond. Headwork is not available for radar advisories on the fight frequencies. Flights are responsible to see and avoid traffic and clear airspace frequencies during entry/exit as required.

8.1.4.12.3.1. **(Added-35FW)** Aircraft will not check in with Headwork when using the Magnum airspace without Camel/Sabre control. The Magnum airspace will become hot and cold at the times stated in the NOTAM. Once the airspace is hot scheduled users are cleared to enter and use the airspace.

8.1.4.12.3.2. **(Added-35FW)** Charlie primary/secondary frequencies are: 306.4/328.0.

8.1.4.12.3.3. **(Added-35FW)** Bravo & Magnum primary/secondary frequencies are: 227.8/334.6.

8.1.4.12.4. **(Added-35FW)** Camel/Sabre Control/Headwork/AWACS is required for weather penetration within Magnum, Bravo, Charlie and Delta airspace. GCI/AWACS is not an approved ATC agency but may be used to deconflict from other aircraft. When neither GCI nor AWACS are available, SACC may be used for weather penetration within Bravo, Charlie, and Delta airspace. Flight following from SACC will be at the discretion of the controller as task load allows.

8.1.4.12.5. **(Added-35FW)** ATC Approved Mode 3 Codes. To deconflict from Japanese ATC Mode 3 codes 35 FW aircraft will use the following Mode 3 when operating in SUA. Blue air Mode 3 codes will be 35XX where XX is the flight's callsign. Red air Mode 3 codes will be IAW the 35 FW Employment Standards.

8.1.4.12.6. **(Added-35FW)** Keyhole (A561B).

8.1.4.12.6.1. **(Added-35FW)** A561B, also known as the Keyhole, can be activated from surface to FL150 for Okushiri inbound and outbound traffic. The lateral confines of A561B are found in FLIP AP3/A.

8.1.4.12.6.2. **(Added-35FW)** When Camel/Sabre is on station and the Keyhole is declared active, 35 FW aircraft will maintain +/- 1000 feet altitude separation when within 10 NM from traffic located inside A561B.

8.1.4.12.6.3. **(Added-35FW)** If Camel/Sabre is not on station, pilots will follow the directions of the control agency of record or maintain above FL150 when overflying A561B until the Keyhole is no longer active. Pilots will not conduct tactical maneuvering in A561B without GCI/AWACS/SACC flight following.

8.1.4.12.7. **(Added-35FW)** Dance airspace. Dance airspace. Dance airspace is a locally created airspace between the 35 FW and ATC located overhead the field. The exact borders are outlined in the IFG.

8.1.4.12.7.1. **(Added-35FW)** Notify the SOF and ATC of intentions to use Dance airspace prior to departure. Once established in Dance airspace, flight leads will request a discrete UHF frequency from Misawa Approach for traffic information and ATC instructions. Traffic information may be limited due to the aircraft's position overhead the ASR. Pilots will use a 35 FW inflight aux frequency for tactical communications. Pilots shall notify Misawa Approach prior to leaving Dance airspace.

8.1.4.12.7.2. **(Added-35FW)** ECM, chaff, and flares are not authorized in Dance airspace. Do not use afterburner unless required for safety of flight.

8.1.4.13. **(Added-35FW)** Tanker Operations.

8.1.4.13.1. **(Added-35FW)** In order to simultaneously execute AAR and F-16 flying operations several deconfliction plans, including altitude or lateral deconfliction, may be used. Lateral deconfliction plans may use divisions of the Charlie airspace. Tanker flight restrictions will be referred to by lines of latitude (e.g., stay south of the 4100 line) rather than by local airspace description (e.g., stay in C4S). Normally this type of coordination will occur prior to the mass brief between flight leads, GCI and the tanker crew telephonically. If a deconfliction plan is developed in the mass briefing, Top 3 will communicate the plan to GCI & the tanker directly if possible. If the tanker is already airborne then the plan will be passed through the SOF or Camel/Sabre. If this coordination cannot be accomplished prior takeoff, then the first F-16 to report to the tanker will relay the plan. Each F-16 flight lead is responsible for ensuring that both the flight and the tanker understand the deconfliction plan.

8.1.4.13.2. **(Added-35FW)** Aircraft departing the tanker will contact Camel/Sabre and broadcast their departure intentions. Flights will monitor Camel/Sabre until tanker deconfliction is assured. Operations within the Kary Track will utilize Hakodate as a common bullseye. The Sunshine Track will utilize Misawa.

8.1.4.13.3. **(Added-35FW)** Unless prior coordination has occurred, the Kary and Sunshine Tracks will utilize block altitudes FL200 - FL240, with the tanker at FL220. Changes to this block altitude will be coordinated and acknowledged by all aircraft utilizing the affected airspace.

8.1.4.13.4. **(Added-35FW)** Camel/Sabre will inform aircraft within the Charlie/Bravo airspace when the Kary or Sunshine Tracks go “hot” or “cold” when on scope.

8.1.4.13.5. **(Added-35FW)** Tanker Operations when Camel/Sabre is not available. Careful coordination with the tanker prior to flying will help minimize confusion when Camel/Sabre cannot be used for air refueling. When the airspace is Visual Meteorological Conditions (VMC), pilots may coordinate rendezvous on the boom frequency. The tanker is required to monitor GCI or SACC during air refueling operations. Normally, use Headwork when IMC penetration is required for tanker rendezvous within the confines of the Charlie/Bravo airspace, otherwise SACC is available.

8.1.4.14. **(Added-35FW)** Night Operations.

8.1.4.14.1. **(Added-35FW)** During night weeks pilots flying first-go will verbally confirm the operation of aircraft lighting with the crew chief prior to engine shutdown. The following exterior lights are required for night flying: Taxi/Landing light, one position light per side (either intake light, upper wingtip light or lower wingtip light) and the anti-collision light (strobe).

8.1.4.14.2. **(Added-35FW)** During night weeks pilots flying first-go will check the operation of the interior cockpit lighting before engine shutdown. The following interior lights are required for night flight: All lights controlled by the primary instrument control panel (INST PNL) rheostat and at least one eyebrow light.

8.1.4.14.3. **(Added-35FW)** Reduced Lighting Operations. Reduced lighting operations is defined as operating with exterior lights set to less than BRIGHT and/or covert settings. Reduced lighting operations are only permitted in Bravo, Charlie, Delta & Magnum airspaces.

8.1.4.15. **(Added-35FW)** Local Recoveries.

8.1.4.15.1. **(Added-35FW)** Recovery from Charlie airspace. Pilots must receive an IFR clearance from SACC before departing Charlie airspace when recovering in IMC conditions or above FL290. If recovering VFR, request flight following from SACC. Avoid RJR1 below 19,000 feet (Shariki radar site).

8.1.4.15.2. **(Added-35FW)** Recovery from Bravo airspace with the Magnum Airspace Cold. Attempt to depart below FL200 (south of N4100) or below FL150 (north of N4100) and contact Misawa Approach (**CH 5**) for an IFR clearance or VFR flight following. SACC (303.8) controls the airspace above these altitudes. Pilots must contact SACC for an IFR clearance or flight following if recovering to Misawa in Sapporo’s airspace. Pilots must receive an IFR clearance from SACC before leaving Bravo airspace when recovering in IMC conditions or above FL290.

8.1.4.15.3. **(Added-35FW)** Recovery from Draughon Range. When recovering VFR from Draughon Range, remain on a westerly heading (RWY 10) or an easterly heading (RWY 28) until in contact with Misawa Approach (CH 15).

8.1.4.15.4. **(Added-35FW)** Recovery from MAGNUM Airspace. Reference the MAGNUM LOP for expanded guidance when operating in the MAGNUM Airspace.

8.1.4.15.4.1. **(Added-35FW)** VFR. Exiting aircraft will contact Misawa Approach upon RTB and request VFR recovery procedures via point KILO, LIMA, MIKE, NOVEMBER or GEARP. Pilots should exit below 4,000 feet prior to reaching 15NM of Misawa.

8.1.4.15.4.2. **(Added-35FW)** IFR. Aircraft recovering IFR from MAGNUM airspace will proceed to point KILO, LIMA, MIKE, NOVEMBER or GEARP at 5,000 MSL and contact Misawa Approach. Aircraft will remain in MAGNUM airspace until cleared by Misawa Approach control.

8.1.4.15.5. **(Added-35FW)** IMC Recoveries. Remain in the airspace until under radar contact. Normal recovery during IMC will be a trail recovery to an instrument final approach. Flights should strive for a minimum of 10 NM separation departing the airspace to aid sequencing.

8.1.4.15.6. **(Added-35FW)** VFR Recoveries. VFR recovery procedures are located in 35 FWI 13-204.

8.1.4.15.7. **(Added-35FW)** SFO procedures. SFO procedures are located in 35 FWI 13-204.

8.1.4.16. **(Added-35FW)** Trail Recoveries.

8.1.4.16.1. **(Added-35FW)** Inform ATC of non-standard formations. ATC will treat trail recovery formations as single flights and provide vectors/service to the lead aircraft. Establish and maintain 1.5 - 2 NM spacing between aircraft. Use 3 NM spacing if RCR is less than wet (18). The trail aircraft will squawk Mode III/C 5400.

8.1.4.16.2. **(Added-35FW)** Pass unbriefed airspeed changes over the radio. Flight leads will transmit “Callsign, gear” when configuring. All aircraft in the formation will then configure and slow to 180 KIAS.

8.1.4.17. **(Added-35FW)** IMC training rules.

8.1.4.17.1. **(Added-35FW)** All pilots without IMC training rules experience will receive OSK-developed IMC training rules academics before utilizing IMC training rules in flight. Academics will be incorporated into the MQT syllabus for all newly assigned pilots without IMC training rule experience.

8.1.4.17.2. **(Added-35FW)** IMC training rules are authorized under control of U.S. tactical C2 or when training aids can monitor all blue players via Link 16. If neither of the previous options are available, IMC rules may be executed with blue air operating with RESTRICTED maneuvering and training aids NON-MANEUVERING in pre-briefed altitude blocks. Flight Leads will maximize blue air training in VMC when possible, by prioritizing support asset/training aids into IMC blocks. Otherwise, IMC rules are most effectively used when transitioning between clear air blocks. Reference AFI11-214.

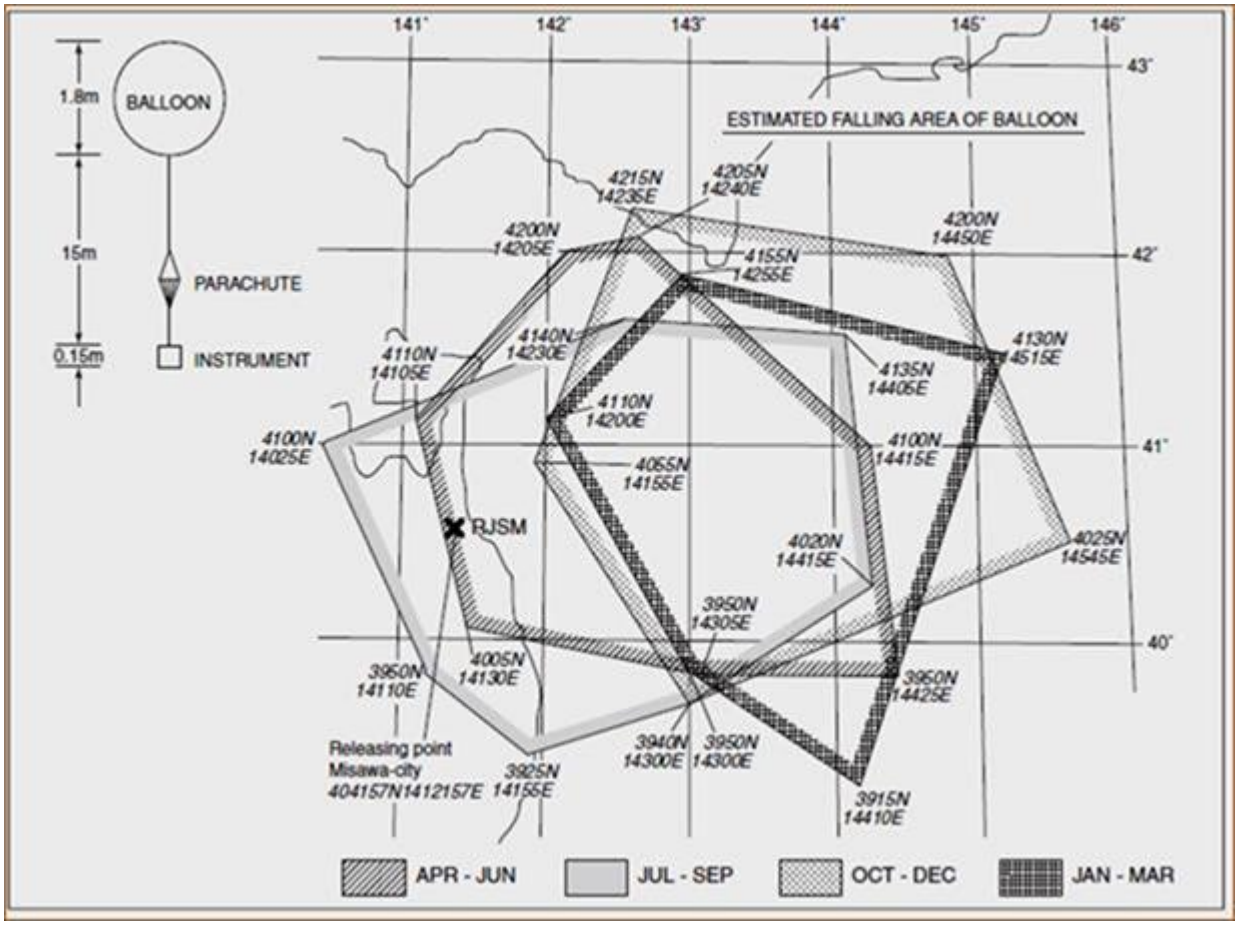
8.1.4.17.3. **(Added-35FW)** When weather impacts the majority (or all) of the airspace, Flight Leads will make conservative war calls and ensure proper deconfliction measures are in place (e.g., blocks, sensors, geographic boundaries) or reduce aircraft in the scenario.

8.1.4.17.4. **(Added-35FW)** The 35 OG/CC has approved 135 degrees of bank in IMC for experienced pilots when executing outs, aborts, exits, and surface-to-air threat reactions with functional AGCAS and "Good AGCAS" voiced.

8.1.4.18. **(Added-35FW)** Local Hazard to Flight Operations.

8.1.4.18.1. **(Added-35FW)** JSDF-A weather releases a weather balloon twice a day at 2330Z (0830L) and 1130Z (2030L) every day from Misawa Air Base. The balloon is 1.8 meters in diameter. The rate of climb is approximately 1,000 feet per minute to a maximum altitude of approximately 85,000 feet MSL. The balloon bursts and falls using a parachute at a rate of 1,000 feet per minute. The estimated falling area of the balloon changes based on the season. This area is depicted in **Figure 8.1**. The balloon may affect operations for approximately 3 hours after release in Magnum, R-130/PCA, and Dance Airspace.

Figure 8.1. (Added-35FW) JSDF-A Weather Balloon Estimated Falling Area.



8.1.4.18.2. **(Added-35FW)** There have been sightings of small Unmanned Aircraft Systems (sUAS) in the vicinity of Misawa Air Base. Pilots will use the following procedures if a sUAS is encountered:

8.1.4.18.2.1. **(Added-35FW)** Primary consideration when a sUAS is encountered is ensuring deconfliction from airborne aircraft. If pilots flying identify a sUAS, immediate actions will be to maneuver their aircraft and formation away from the sUAS hazard.

8.1.4.18.2.2. **(Added-35FW)** Once immediate deconfliction from the sUAS is ensured, pilots will then inform the controlling agency and 35 FW SOF of the location and altitude of the sUAS.

8.1.4.18.2.3. **(Added-35FW)** The SOF will immediately close the pattern and direct aircraft to hold at either North/East Hold points (RWY 10/28) or North/East IP (RWY 10/28). The SOF will prioritize the holding location furthest away from the sUAS that is in use for the active runway. The SOF will broadcast on UHF Guard that Misawa AB pattern is closed due to sUAS sighting and direct airborne aircraft to appropriate hold points for deconfliction.

8.1.4.18.2.4. **(Added-35FW)** Aircraft will coordinate with the SOF for holding and recovery options.

8.1.4.18.2.5. **(Added-35FW)** Once aircraft deconfliction from sUAS is ensured, the SOF will notify 35 SFS BDOC for appropriate response. The SOF will pass last known location and altitude of the sUAS.

8.1.4.18.2.6. **(Added-35FW)** For recovery with a sUAS in the area pilots will not fly close formations.

8.1.5. Section E. Weapons Employment. **(T-1).**

8.1.5.1. **(Added-35FW)** Simulated SAT Attacks. Do not use temples, shrines, schools, or other sensitive areas as targets. Limit low altitude SAT attacks to two per 5 NM target area when flying over land. During planning, pilots will consider run in axis to avoid continual over-flight of a particular area. Plan SAT attacks over populated areas for a minimum recovery altitude of 2,000 feet. Consider ski areas as populated areas for SAT planning.

8.1.6. Section F. Abnormal Procedures. **(T-1).**

8.1.6.1. **(Added-35FW)** Lost communication procedures are IAW 35 FWI 13-204.

8.1.6.2. **(Added-35FW)** Lost Wingman Procedures. Wingman should declare “lost wingman” on flight AUX. The flight lead will coordinate with ATC for a separate clearance.

8.1.6.3. **(Added-35FW)** EPU Activation. Refer to T.O. 1F-16CM-1CL-1 and 35 FW IFG. Inform SOF and control agency using the words "activated EPU" (not "fired"). If landing, proceed to the appropriate hydrazine area on Taxiway B1/B5 spot 6 (red painted de-arming parking spot), or hold position if activated on the ground.

8.1.6.4. **(Added-35FW)** Hot Brakes. The hot brake areas are Taxiways B1/B5 spot 6 (red painted de-arming parking spot). Park facing into the wind and shutdown when fire support arrives unless an emergency dictates otherwise. With hot brakes and not at Taxiway B1/B5, maintain present position and contact ground control for fire support. If feasible, taxi to a clear area.

8.1.6.5. **(Added-35FW)** Aircraft Impoundment. Request impoundment IAW the 35 FW IFG. Remain with the aircraft after landing until impoundment is verified by a 35 MXG/QA inspector or designated impoundment official.

8.1.6.6. **(Added-35FW)** Cable Certification Procedures. Reference 35FWI13-204 for cable certification procedures. The below restrictions apply for F-16s conducting cable certifications.

8.1.6.6.1. **(Added-35FW)** Aircraft will not be configured with a centerline store (tank or ECM pod).

8.1.6.6.2. **(Added-35FW)** Film the HUD with LIST 6 displayed in the HUD to monitor ground speed.

8.1.6.6.3. **(Added-35FW)** Put the hook down greater than 1,500 feet before the cable (possibly before brake release) unless a prior cable is a conflict.

8.1.6.6.4. **(Added-35FW)** Engaging the cable greater than 100 knots ground speed increases the potential for damage to the F-16.

8.1.7. Attachments (Illustrations). **(T-1).**

8.2. Units will include procedures for the following in the appropriate section above (as applicable):

8.2.1. Command and Control. **(T-1).**

8.2.2. Fuel Requirements and Bingo Fuels. **(T-1).**

8.2.2.1. **(Added-35FW)** Plan fuel, when under Visual Flight Rules (VFR), to arrive on initial/FAF with a minimum of 1,500 pounds, which will provide fuel for an immediate divert to Hachinohe AB if the Misawa runway closes unexpectedly. Make calls using approved terms within five minutes of a divert decision. Pilots are ultimately responsible for fuel planning and will ensure landing with appropriate VFR or divert fuel. Approved terms are in 35 FWI 13-204.

8.2.3. Diversion Instructions. **(T-1).**

8.2.3.1. **(Added-35FW)** Divert in accordance with procedures outlined in the 35 FW IFG. Diverts will be a two-ship minimum to the maximum extent possible.

8.2.3.2. **(Added-35FW)** Emergency Divert to Hachinohe. Unforeseen runway closures at Misawa can immediately create a minimum or emergency fuel situation due to the single runway operations. Rapid assessment of fuel state and time available to hold during an unexpected runway closure may require immediate pilot action. If required, do not hesitate to declare “minimum” or “emergency fuel” (on UHF GUARD frequency if required) and start an immediate climb above 3000 feet when overflying Misawa City (if possible) and turn in the shortest direction to proceed to Hachinohe while contacting Hachinohe Tower. If fuel allows, request a normal Instrument or Visual approach to the landing runway. If an emergency fuel situation exists, declare “emergency fuel” and proceed direct to base for the landing runway at Hachinohe. The SOF will coordinate with the Misawa Tower Superintendent who will notify Hachinohe of the situation via the telephone.

8.2.3.3. **(Added-35FW)** Recovery at an Alternate Airfield with Activated EPU. Advise the tower/SOF (if available) of your situation and requirements. Request an isolated parking location and a hydrazine/bioenvironmental response team. Care must be taken to ensure the recovery base understands the potential hydrazine problem, but do not overstate the hazards. The pilot will check for leaks and take interim containment procedures in accordance with the 35 FW IFG. Do not attempt containment if safety equipment is not available. Clear the area (300 feet minimum) and advise Misawa Command Post of the situation.

8.2.4. Jettison Areas, Procedures and Parameters (IFR/VFR). **(T-1).**

8.2.4.1. **(Added-35FW)** Jettison areas and procedures are IAW 35 FWI 13-204.

8.2.5. Controlled Bailout Areas. **(T-1).**

8.2.5.1. **(Added-35FW)** Controlled bailout areas and procedures are IAW 35 FWI 13-204.

8.2.6. Local Weather Procedures. **(T-1).**

8.2.6.1. **(Added-35FW)** Ice Foreign Object Damage (FOD) Avoidance.

8.2.6.1.1. **(Added-35FW)** The SOF and Misawa Weather Flight will work together to declare an Ice FOD advisory. There are two conditions defining Ice FOD.

8.2.6.1.2. **(Added-35FW)** Ice FOD A. Ice FOD A is not subjective and will incur an Ice FOD advisory if either of these conditions are met:

8.2.6.1.2.1. **(Added-35FW)** Temperature is < 45ºF (7ºC) but > 20º F (-7ºC) with precipitation occurring.

8.2.6.1.2.2. **(Added-35FW)** Temperature-dew point spread < 9ºF (5ºC); and the temperature <45ºF (7ºC) but > 25ºF (-4ºC).

8.2.6.1.3. **(Added-35FW)** Ice FOD B. Ice FOD B conditions are:

8.2.6.1.3.1. **(Added-35FW)** The temperature is < 45º F (7ºC) with standing water or a mixture of water with ice or snow within the immediate proximity of the engine inlet.

8.2.6.1.3.2. **(Added-35FW)** The SOF will inform weather if an Ice FOD advisory is needed based on the immediate proximity of hazards to the engine inlet along the taxi routes. The SOF may implement or cancel Ice FOD procedures during Ice FOD B if the taxiways and HAS areas become wet or dry out during the flying window.

8.2.6.1.4. **(Added-35FW)** When Ice FOD procedures are declared, every effort should be made to avoid aircraft engine operation over visible moisture (rain, snow, slush or ice) for prolonged periods. Inlet ice monitors will be used in all parking locations, including stubouts and EOR. Crew Chiefs can serve as inlet monitors during single-man launches.

8.2.6.1.5. **(Added-35FW)** Airfield Ops will visually inspect the airfield. The SOF will coordinate taxi/arming procedures with Top 3s and the EOR supervisor.

8.2.6.1.6. **(Added-35FW)** Top 3s will brief pilots of taxi/arming procedures and ensure flight plans are adjusted if required.

8.2.6.1.7. **(Added-35FW)** Pilots will coordinate with the SOF prior to taxi to avoid EOR congestion. To the maximum extent possible, pilots will keep the intake away from airfield surfaces with visible moisture when stopped. Pilots will inform adjacent flight members if they are ingesting moisture and reposition to dry pavement if possible. Pilots will start with the Engine Anti-Ice On and will not reposition aircraft unless intake observers are available. During ground operation, pilots will shut down anytime ice formation is detected on the inside portion of the aircraft intake.

8.2.6.1.8. **(Added-35FW)** If one aircraft shuts down due to ice formation, several factors impact the decision to shut down adjacent running aircraft. These factors include but are not limited to, condition of airfield surfaces under the intake, length of time the aircraft has been running and local temperature and humidity. Maintenance area supervisors, Top 3s and the SOF may direct all aircraft in an area to shut down if the environmental conditions warrant (after 35 OG/CC coordination, time permitting).

8.2.6.1.8.1. **(Added-35FW)** Following shut down for ice buildup, maintenance must inspect the intake for damage. If no damage is detected, mission may be continued once cleared to restart by SOF/Operations Supervisor.

8.2.6.2. **(Added-35FW)** INLET ICING Caution Light Procedures.

8.2.6.2.1. **(Added-35FW)** All pilots will note the time, location, atmospheric conditions, and duration any time the INLET ICING caution light illuminates. If the light stays on for ≥ 70 seconds on the ground, flight members will inform their flight lead. Flight leads with an INLET ICING caution light will query the rest of the flight to see if another member has an INLET ICING caution light. Verbally check with the intake monitor to ensure no physical icing is observed.

8.2.6.2.2. **(Added-35FW)** All pilots will ensure their ANTI-ICE switch is in the ON position to ensure the inlet strut electrical heater turns on and the engine anti- ice system is activated. If the INLET ICING light does not turn off airborne by the time you reach the airspace, then inform your flight lead, perform a battle damage check and return to base. Ensure the ANTI-ICE switch is in the ON position and that your PROBE HEAT is on.

8.2.6.2.3. **(Added-35FW)** Pilots will annotate the time, atmospheric conditions, flight conditions, and total time of illumination whenever the INLET ICING caution light illuminates airborne in the AFTO 781.

8.2.6.3. **(Added-35FW)** De-Icing Procedures.

8.2.6.3.1. **(Added-35FW)** If any snow or ice accumulation is on the jet, de-icing is required. If there is visible freezing precipitation (snow/sleet/freezing fog), de-icing may be required, based on visual inspection of accumulation on flight control surfaces (mx/ops will interface to make a decision). During deicing operations, pilots will operate in accordance with the IFG.

8.2.6.3.2. **(Added-35FW)** Pilots will reference T.O.1F-16CM-1CL-1 and T.O.1F-16CM-1 for guidance on de-icing procedures. Specifically, pilots will turn non-essential avionics OFF and move the AIR SOURCE KNOB to OFF. Monitor de-icing operations to include ensuring that fluid spray does not contact the canopy and is not applied forward of the wing leading edge. If de-icing fluid contacts the canopy, the aircraft must shut down and the canopy must be cleaned prior to flight.

8.2.6.3.3. **(Added-35FW)** If de-icing procedures are in effect, aircraft will maintain 300-foot taxi spacing on centerline in accordance with the checklist.

8.2.6.4. **(Added-35FW)** When lightning within 5 nautical miles is declared and a "Lightning Warning" is in effect the following procedures apply.

8.2.6.4.1. **(Added-35FW)** Pilots will not step to aircraft.

8.2.6.4.2. **(Added-35FW)** Aircraft in the midst of start/shutdown may continue inside or outside of a HAS. Personnel will take shelter as quickly as the mission allows.

8.2.6.4.3. **(Added-35FW)** Arm/Dearm will continue at the SOFs discretion. Emphasis should be on quickly arming/de-arming to allow departure or taxi back.

8.2.6.4.4. **(Added-35FW)** The SOF will determine if aircraft can taxi/takeoff/land.

8.2.6.4.5. **(Added-35FW)** The SOF will cease outdoor activities as the mission allows.

8.2.7. Unit Standards. **(T-1).**

8.2.7.1. **(Added-35FW)** For unit standards see the current 35 OG Flying Standards.

8.2.8. Approved Alternate Missions. **(T-1).**

8.2.8.1. **(Added-35FW)** The following are standard alternate missions: Instruments, AHC, BFM, ACM, TI, BSA, unopposed medium altitude SAT, and unopposed SEAD. Opposed sorties must be briefed.

8.2.9. Cross-Country/Aircraft Servicing Procedures. **(T-1).**

8.2.9.1. **(Added-35FW)** Pilots scheduled to go cross-country will submit a completed cross-country request form for approval by the FS/CC (reference OGV SharePoint for the most updated request form). Submit to 35 OG/CC at least three duty days prior to proposed dates. Final approval resides with the 35 OG/CC. Depot missions do not require a cross-country request if no other legs are planned.

8.2.9.2. **(Added-35FW)** Pilots will review and be familiar with CVN read files regarding security prior to departing. Pilots will understand the required security for fighter aircraft upon arrival to their destination on all cross-country flights. It is at pilot/flight lead discretion to take DTCs/RMCs. If DTCs/RMCs are used, pilots will adhere to all CVN procedures when securing the media.

8.2.9.3. **(Added-35FW)** Obtain flight orders before departure. Refer to the 35 FW IFG for required actions during the cross-country.

8.2.9.4. **(Added-35FW)** Flight Plans.

8.2.9.4.1. **(Added-35FW)** Plan to land at the destination airfield before official sunset. Request exceptions on the cross-country form or request a waiver from the 35 OG/CC.

8.2.9.4.2. **(Added-35FW)** Use IFR flight plans to the maximum extent possible commensurate with mission requirements. Proposed VFR legs must be annotated on the request form.

8.2.9.4.3. **(Added-35FW)** Changes must be approved by the 35 OG/CC. Call Misawa Command Post after landing and before step on each leg.

8.2.9.4.4. **(Added-35FW)** The following is a list of approved cross-country bases (35 OG/CC approval is required to land at other bases).

8.2.9.4.4.1. **(Added-35FW)** Japan: Atsugi NAS, Iwakuni MCAS, Kadena AB, Yokota AB.

8.2.9.4.4.2. **(Added-35FW)** Korea: Kunsan AB, Osan AB.

8.2.9.4.4.2.1. **(Added-35FW)** Pilots flying aircraft to and from the depot should reference the OGV SharePoint for helpful information about planning and executing these flights.

8.2.9.5. **(Added-35FW)** Plan low-level missions at off station bases to ensure compliance with local noise sensitive and obstruction clearance restrictions. See USFJ Instruction 11-100 for planning details.

8.2.9.6. **(Added-35FW)** Cross-country pilots are responsible completion of aircraft maintenance requirements outlined in the 35 FW IFG.

8.2.9.6.1. **(Added-35FW)** Pilot Maintenance Training. If landing at a base without qualified Transient Alert personnel available, pilots will receive training from 35 MXG/QA on supervising post/pre-flight maintenance servicing prior to departing Misawa. Do not allow aircraft maintenance without applicable T.Os.

8.2.9.7. **(Added-35FW)** The F-16 is a Priority Level III asset. Remain with the aircraft, regardless of pilot duty day, until security arrangements are in place. Refer to the 35 FW IFG for off-station security procedures.

8.2.10. Search and Rescue and On-Scene Commander Procedures. **(T-1).**

8.2.10.1. **(Added-35FW)** Search and Rescue. The 35 FW Pilot Guide provides On-Scene Commander procedures for peacetime search and rescue operations.

8.2.11. Bird/Wildlife Aircraft Strike Hazard (BASH) program guidance IAW AFI 91-202 and AFI 91-212. **(T-1).**

8.2.11.1. **(Added-35FW)** For Local BASH guidance Reference 35FW sup to AFI 91-212.

8.2.12. Environmental Restrictions to Flight Operations (winds, sea state, temperature, etc.) applicable to unit operating locations. **(T-1).**

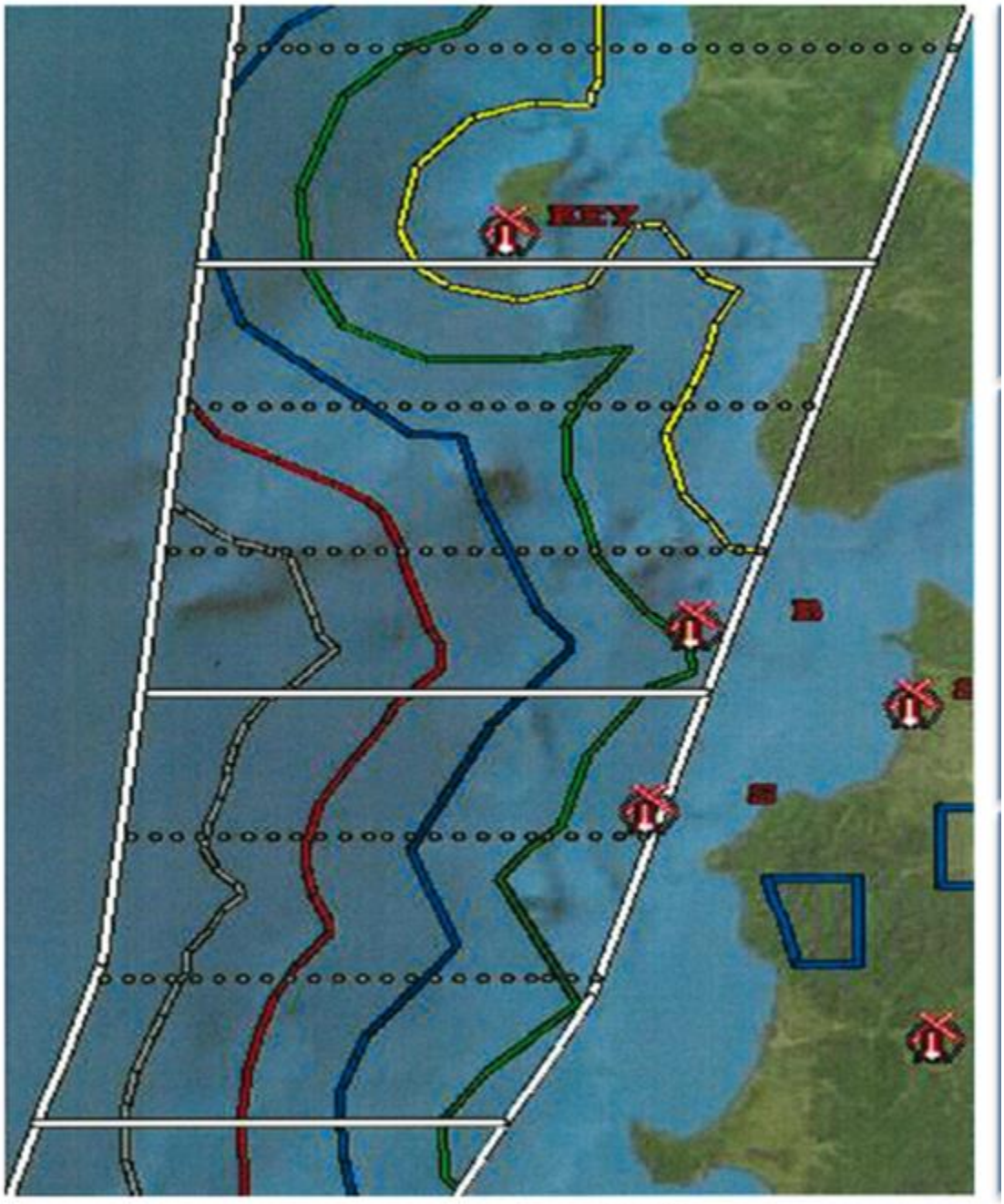
8.2.12.1. **(Added-35FW)** Flying operations will not be conducted if the equivalent wind chill temperature is below -25°F.

8.2.12.2. **(Added-35FW)** If over-water steady state winds exceed 25 knots or wave heights exceed 10 feet for planned airspace, flight leads will establish a floor at or above the altitudes depicted in **Figure 8.2**. or **Figure 8.3**. Graduated maneuvering floors may be used, provided an accurate means of ensuring adherence is briefed, and a map with the overlay is available to pilots in flight. Due to Japanese Search and Rescue helicopter limitations, at night if waves are >2.4m (7.8 feet) and/or winds are >21 knots, apply the floors listed above.

8.2.12.2.1. **(Added-35FW)** Pilots will strictly adhere to briefed minimum altitudes in flight. Deviations will result in a termination of tactical maneuvering.

8.2.12.2.2. **(Added-35FW)** OG/CC approval is required to operate in airspace where the over-water steady state winds exceed 35 knots or wave heights exceed 15 feet.

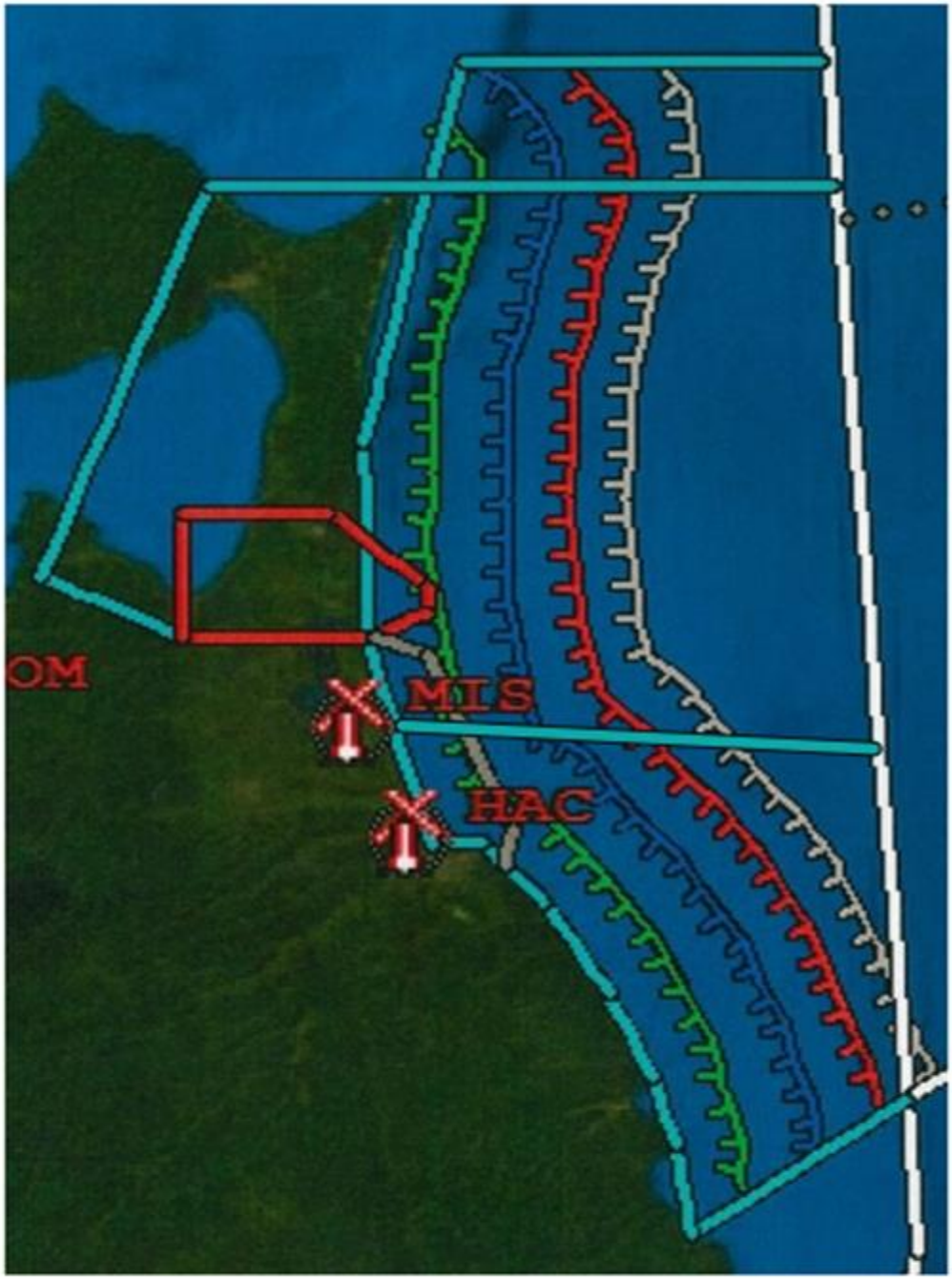
Figure 8.2. (Added-35FW) Winds and Waves Chart (Charlie Airspace).



ASSUMPTIONS:
240 KIAS at engine failure / stores jett
4k' lost in 180 degree turn towards land
7 AOA glide at 7 nm/5000'
120 KT tailwind
Arrive over land at 2k' AGL

LEGEND:
YELLOW—10k' FLOOR
GREEN—15k' FLOOR
BLUE—20k' FLOOR
RED—25k' FLOOR
GREY– 30k' FLOOR
NOTE: Floor is valid *INSIDE* the curve

Figure 8.3. (Added-35FW) Winds and Waves Chart (Magnum Airspace).



ASSUMPTIONS:
240 KIAS at engine failure / stores jett
4k' lost in 180 degree turn towards land
7 AOA glide at 7 nm/5000'
120 KT Headwind (reduces glide distance by 50%)
Arrive over land at 2k' AGL

LEGEND:
GREEN—15k' FLOOR
BLUE—20k' FLOOR
RED—25k' FLOOR
GREY– 30k' FLOOR
NOTE: Floor is valid *INSIDE* the curve

8.2.13. When AGCAS should be changed from the default setting of NORM (e.g., LASDT, AGCAS anomalies, demo team airshows, flight in close formation, etc.), and if any phases of flight operations require fully functional AGCAS (e.g., weather, LOWAT, nights, high-g sorties, etc.). **(T-1).**

8.2.13.1. **(Added-35FW)** 35 FW pilots will adhere to the following guidance when using AGCAS.

8.2.13.1.1. **(Added-35FW)** AGCAS may be changed from the default setting of "NORM" IAW AFMAN 11-2F-16V3.

8.2.13.1.2. **(Added-35FW)** An operational AGCAS is not required for any mission type, however pilots should consider the following factors when assessing ORM if the AGCAS has failed:

8.2.13.1.2.1. **(Added-35FW)** Weather / time of day.

8.2.13.1.2.2. **(Added-35FW)** Expected G-loading / ACBT currency.

8.2.13.1.2.3. **(Added-35FW)** Proximity to terrain / risk of CFIT.

8.2.13.1.2.4. **(Added-35FW)** Complexity of mission tasks.

8.2.13.1.2.5. **(Added-35FW)** Operational status of other ground collision avoidance systems.

8.2.13.1.3. **(Added-35FW)** Pilots will use the AGCAS Fly Up Decision Tree in **Figure 8.4** to determine follow-on actions should a fly-up occur. AGCAS fly-ups will be reported to 35 FW Flight Safety.

8.2.13.1.4. **(Added-35FW)** AGCAS must be functional to utilize the OG option during IMC rules listed in 8.1.4.17.4.

Figure 8.4. (Added-35FW) AGCAS Flyup Decision Tree.

AGCAS/PARS Recovery

-**Warranted:** PARS or AGCAS recovery due to disorientation or terrain

—KIO— Flight debrief to root cause. If safety allows mission may be continued.

-**Unwarranted**: System anomaly caused fly-up command that was not legitimate. For example, a known phenomenon of AGCAS activation may occur when accomplishing Split S type/steep vertical maneuvers generally <12,000' AGL and >400 kts due to prediction of a 5g pull even though the pilot's planned higher g maneuver is appropriate. (see 1F-16CM- 34-1-1)

—KIO—Then either:

–If recovery attributed to other major system anomaly

–AGCAS - off

–Code 3 IFE if required

-If recovery associated with only FLCS 086 MFL (i.e. no other system issues)

–AGCAS - as required

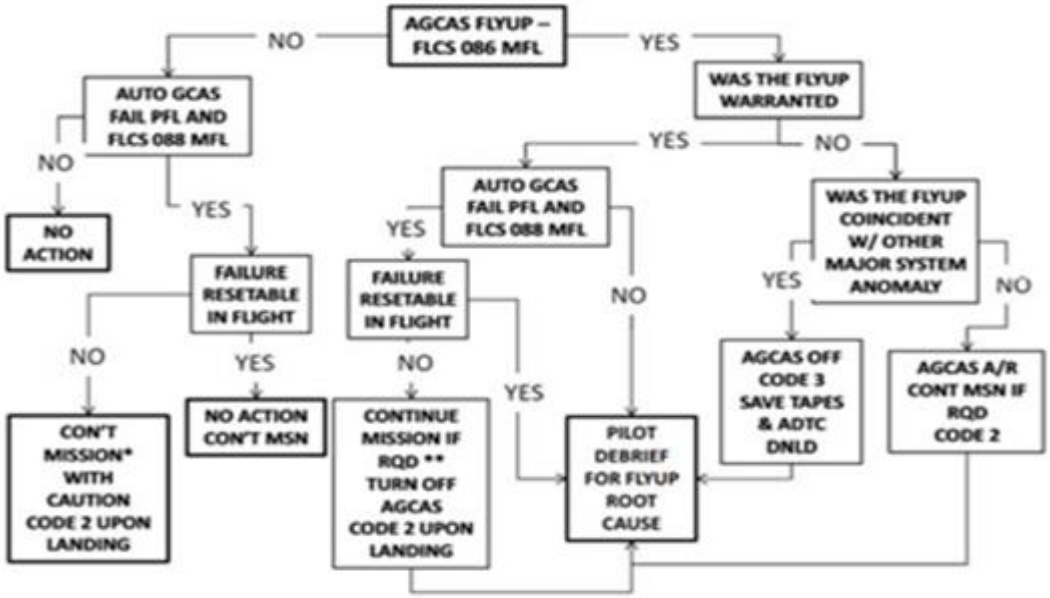
–Continue mission if appropriate per checklist

In all cases mentioned above:

1. **Ensure jet is not flown again until CSFDR data is downloaded and saved by maintenance.**
2. **Report the automated recovery to flight safety**
3. **Save relevant data from the CSFDR, HUD video and PCDS and submit to Flight Safety Officer IAW AFMAN 91-223.**

AGCAS or PARS States (have occurred)	MFLs	PFLs
AGCAS Fly-up	FLCS 086	
PARS Recovery	FLCS 087	
AGCAS Failed	FLCS 088	AUTO GCAS FAIL
AGCAS Off	FLCS 089	AUTO GCAS OFF

Operational AGCAS Logic Tree



8.3. Instructions. Prior to publishing, units will forward copies of the local supplement of this document to MAJCOM and appropriate subordinate agencies, which will review and return comments back to the unit(s). **(T-1).**

JOSEPH T. GUASTELLA Jr., Lt Gen, USAF
Deputy Chief of Staff, Operations

(35FW)

MICHAEL P. RICHARD, Colonel, USAF
Commander, 35th Fighter Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

(Added-35FW) 35 FWI 13-204, *Airfield Operations,* 2 May 2023

AC 90-108 Chg 1, *Use of Suitable Area Navigation (RNAV) Systems on Conventional Routes and Procedures,* 3 March 2011

(Added-35FW) AFI 11-301V1, *Aircrew Flight Equipment (AFE) Program,* 10 Oct 2017

(Added-35FW) AFI 33-322, *Records Management and Information Governance Program,* 28 Jul 2021

(Added-35FW) AFI 33-324 *The Air Force Information Collections and Reports Management Program,* 22 Jul 2019.

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

AFI 11-207, *Fighter Aircraft Delivery*, 4 April 2019

(Added-35FW) AFMAN 11-214, *Air Operations Rules and Procedures,* 29 Nov 2022

(Added-35FW) AFMAN 11-2F-16V3, *F-16 Operations Procedures,* 13 Feb 2022

(Added-35FW) AFMAN 11-404, *Fighter Aircrew Acceleration Training Program,* 27 Nov 2019

(Added-35FW) AFPAM 11-205, *Aircrew Quick Reference to Aircraft Cockpit and Formation Flight Signals,* 9 Aug 2018

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

AFI 11-214, *Air Operations Rules and Procedures,* 8 July 2020

AFI 11-301V1, *Aircrew Flight Equipment (AFE) Program,* 10 October 2017

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

(Added-35FW) DAFI 91-202, *The US Air Force Mishap Prevention Program,* 12 March 2020

(Added-35FW) DAFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program,* Apr 2023

DAFMAN 90-161, *Publishing Processes and Procedures,* 15 April 2022

AFI 91-202, The US Air Force Mishap Prevention Program, *12 March 2020*

AFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program,* 31 May 2018

AFMAN 11-2F-16V1, F-16-*Aircrew Training,* 17 June 2019

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

AFMAN 11-404, *Fighter Aircrew Acceleration Training Program,* 27 November 2019

AFMAN 33-363, (DELETED)

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

AFPAM 11-417, *Orientation in Aviation*, 9 April 2015

AFPD 11-2, *Aircrew Operations*, 31 January 2019

AFPD 11-4, *Aviation Service*, 12 April 2019

AFTTP 3-1, APE *Advanced Planning and Employment*, 14 January 2021

AFTTP 3-1.F-16, *Tactical Employment-F-16*, 17 January 2020

AFTTP 3-3.F-16, *Combat Aircraft Fundamentals-F-16*, 17 January 2020

AFTTP 3-4, Airman's Manual, *11 January 2019*

ICAO Doc 7300, Convention on International Civil Aviation, *3 December 2010*

1F-16C/CM-1, Flight Manual, *updated periodically*

1F-16C/CM-34-1-1, *Avionics and Nonnuclear Weapons Delivery Flight Manual*, updated periodically

Adopted Forms

AF Form 679, *Air Force Publication Compliance Item Waiver Request/Approval*, 9 May 2018

(**Added-35FW**) AF Form 679, *Air Force Publication Compliance Item Waiver Request/Approval*, 9 May 2018 AF Form 847, *Recommendation for Change of Publication*, 22 September 2009

AF Form 847, Recommendation for Change of Publication, *22 September 2009*

Abbreviations and Acronyms

ACBT—Air Combat Training

ACM—Air Combat Maneuver

ACMI—Air Combat Maneuvering Instrumentation

ADI—Attitude Director Indicator

AFMC—Air Force Materiel Command

AFTTP—Air Force Tactics, Techniques, and Procedures

AGCAS—Automatic Ground Collision Avoidance System

AGL—Above Ground Level

AGSM—Anti-G Straining Maneuver

ALOW—Automatic Low Altitude Warning

AMD—Acceleration Monitoring Device

AOA—Angle of Attack

ARTS—Automated Recovery Training Series

ASCS—Automated Stores Configuration System

ASR—Airport Surveillance Radar

ATC—Air Traffic Control

ATCAA—Air Traffic Control Assigned Airspace

AWACS—Airborne Warning and Control System

BD—Battle Damage

BFM—Basic Fighter Maneuver

BMC—Basic Mission Capable

CAF—Combat Air Force

CAP—Critical Action Procedure

CARA—Combined Altitude Radar Altimeter

CBRNE—Chemical, Biological, Radiological, Nuclear, and High Yield Explosive

CG—Center of Gravity

CMR—Combat Mission Ready

CE—Combat Edge

CONUS—Continental United States

DTS—Digital Terrain System

DVADR—Digital Video Audio Data Recorder

DVR—Digital Video Recorder

ECM—Electronic Counter Measure

EMCON—Emission Control

EMR—Emergency Release

EMS—Engine Monitoring System

EOR—End of Runway

EP—Emergency Procedure

EPU—Emergency Power Unit

FAC—Forward Air Controller

FAF—Final Approach Fix

FCIF—Flight Crew Information File

FE—Flight Examiner

FLCS—Flight Control System

FLIP—Flight Information Publications

FOD—Foreign Object Damage

GCAS—Ground Collision Avoidance System

GCI—Ground Control Intercept

GLOC—G induced Loss of Consciousness

HARTS—Horn Awareness and Recovery Training Series

HTS—HARM Target System

HUD—Heads-Up Display

IFF—Identification, Friend or Foe

IFR—Instrument Flight Rules

ILS—Instrument Landing System

IMC—Instrument Meteorological Conditions

INS—Inertial Navigation System

IP—Instructor Pilot or Initial Point

IQT—Initial Qualification Training

IR—Instrument Route

JOAP—Joint Oil Analysis Program

KCAS—Calibrated Airspeed

LANTIRN—Low Altitude Navigation and Targeting Infrared for Night

LEP—Laser Eye Protection

LIS—Line in the Sky

MOA—Military Operating Area

MPO—Manual Pitch Override

MQT—Mission Qualification Training

MSA—Minimum Safe Altitude

MSL—Mean Sea Level

MTR—Military Training Routes

NOTAM—Notice to Airmen

NVG—Night Vision Goggles

OAP—Offset Aim Point

OGV—Operations Group Standardization and Evaluation

PAR—Precision Approach Radar

PARS—Pilot Activated Recovery System

PDM—Programmed Depot Maintenance

RAA—Route Abort Altitude

RBS—Radar Bomb Scoring

RCO—Range Control Officer

RCR—Runway Conditions Reading

RDTED—Re-Gridded Digital Terrain Elevation Data

RNAV—Area Navigation

ROE—Rules of Engagement

ROM—Runway Operations Monitor

RTB—Return to Base

SAR—Search and Rescue

SD—Spatial Disorientation

SEFE—Standardization and Evaluation Flight Examiner

SFO—Simulated Flame Out

SOF—Supervisor of Flying

TACAN—Tactical Air Navigation (System)

TDA—Tactical Decision Aid

TOLD—Takeoff and Landing Data

VFR—Visual Flight Rules

VID—Visual Identification

VMC—Visual Meteorological Conditions

VR—Visual Route

VTR—Video Tape Recorder

WSEP—Weapon System Evaluation Program

Office Symbols

AFFSA—Air Force Flight Standards Agency

ACC/A3—Directorate of Operations

ACC/A3TO—ACC Flight Operations and Training Branch

ACC/AOS—ACC Air Support Squadron

Terms

Air Combat Training (ACBT)—A general term which includes (D)BFM, (D)ACM, and (D)ACT (AFI 11-214).

Air Combat Tactics (ACT)—Training in the application of BFM, ACM, and tactical intercept skills to achieve a tactical air-to-air objective.

Basic Mission Capable (BMC)—See AFMAN 11-2F-16V1.

Combat Edge (CE)—A positive-pressure breathing-for-G (PPG) system which provides pilots additional protection against high positive G accelerations experienced during flight. The system consists of aircrew equipment (high-pressure mask, counter-pressure suit, G-suit), and aircraft equipment (oxygen regulator, G-valve, and interfacing sense line). At 4-G and above, regulated air and oxygen are supplied to provide automatic mask tensioning, vest inflation, and positive pressure breathing to the mask.

Combat Mission Ready (CMR)—See AFMAN 11-2F-16V1.

Continuation Training (CT)—See AFMAN 11-2F-16V1.

Flight Lead (FL)—As designated on flight orders, the individual responsible for overall conduct of mission from preflight preparation/briefing to postflight debriefing, regardless of actual position within the formation. A certified 4-ship FL may lead formations and missions in excess of four aircraft, unless restricted by the unit CC. A 2-ship FL is authorized to lead an element in a larger formation.

Initial Qualification Training (IQT)—See AFMAN 11-2F-16V1.

Low Altitude Navigation and Targeting Infrared for Night (LANTIRN)—A navigation and targeting system that provides tactical aircraft with a low-altitude, under-the-weather, day and night operational capability.

Low Altitude Training (LOWAT)—See AFMAN 11-2F-16V1.

Mission Qualification Training (MQT)—See AFMAN 11-2F-16V1

Target MSA—An altitude that provides at least 1,000 feet of clearance above all obstacles within 5 nautical miles of the target.

Red Ball—Urgent/immediate maintenance response.

Squadron Supervisor—Squadron Commander, Asst/Operations Officers, and Flight CCs. ANG and AFRC only: as designated by the OG/CC.

Attachment 2

FLIGHT BRIEFING GUIDES

Table A2.1. General Briefing Guide.

Mission Data. Time Hack EP / Threat of the Day Mission Objective(s) Mission Overview Mission Data Card Mission Commander / Deputy Lead Joker / Bingo Fuel Takeoff and Landing Data Weather / Sunrise / Sunset / Moon Illumination Tactical Decision Aid / Transmissivity / Absolute Humidity NOTAMs / Bird Strike Potential Personal Equipment FCIF / Pubs / Maps **Ground Procedures.** Step Pre-Flight Aircraft Armament Boresight Check-In Taxi / Marshalling / Arming Spare Procedures **Takeoff.** Runway Lineup Takeoff Interval Abort Jettison Procedures Low Altitude Ejection Landing Immediately After Takeoff **Departure/Enroute.** Routing Trail Departure Join-Up / Formation Systems / Ops Checks **Airspace.** Area Times Restrictions (Chaff/Flare/Supersonic) Bailout (Controlled/Uncontrolled) MSA	**Recovery.** Rejoin Battle Damage / Bomb Check Type Recovery ALOW and LIS Settings Flight Break-Up Pattern and Landing After Landing / De-Arm Emergency / Alternate Airfields **Special Subjects (As Applicable).** General Roles and Responsibilities (IP, Flight Lead, Wingman) Formation Specific Responsibilities and Priorities Flight Member Mission Priorities Task / Sensor Prioritization Deconfliction Contracts Chase Procedures IFF Procedures DVADR/DVR Use – Maximum Possible Collision Avoidance Radar / Visual Search Responsibilities Departure/Enroute/Recovery High Density Traffic Areas Mid-Air Collision Avoidance From Other Military Aircraft From Civilian Aircraft Dissimilar Formations Terrain Avoidance Departure / Enroute / Recovery Use of Controlled Flight Into Terrain Prevention Systems CARA ALOW MSL Line-In-The-Sky Ground Collision Avoidance System (GCAS)/Minimum Terrain Clearance (MTC) (AGCAS)/MODE/Chevrons Targeting Pod Attitude Advisory Function Bird Strike Procedures / Use of Visor(s)Human Factors Considerations (i.e., Channelized

	Attention, Task Saturation / Prioritization and Complacency) G-Awareness Turn / G-Suit connection / G-tolerance Use of L-1 Anti-G Straining Maneuver Visual Illusions / Perceptions Spatial Disorientation / Unusual Attitudes / G-excess illusion PARS Considerations Lost Wingman Radio Inoperative SAR / CSAR Recall Procedures SIIs Pilot currencies for events to be flown **Training Rules / Special Operating Instructions / Rules of Engagement** **Tactical Portion of Mission**

Table A2.2. Additional Briefing Items, NVG.

- **Weather / Illumination:**
  - Civil / Nautical Twilight
  - Moon Rise/Set Times / Phase / Elevation / Azimuth
  - Ceiling / Visibility
  - LUX / EO TDA
  - Obscurants to Visibility
- **NVG Preflight:**
  - Check Adjustments / Helmet Fit and Security
  - Batteries
  - Resolution / Focus (Hoffman ANV-20/20 Tester, Eye Lane)
  - NVG Compatible Flashlight
- **Cockpit Preflight:**
  - Cockpit Setup
  - Cockpit Lighting (Leaks)
  - Cockpit FAM
  - Check Focus and Stow for Taxi
- **Before Takeoff:**
  - Don NVGs / Check and Adjust
  - Stow for Takeoff
- **Airborne:**
  - Exterior Lights
  - NVG Donning
  - Scan Pattern
    - Forward Scan
    - Narrow Field of View vs. Field of Regard
    - Peripheral Vision
    - Scan Techniques
  - Join-up and Enroute Considerations
    - Rejoin / Closure
    - Air-to-Air TACAN
    - G-Awareness Considerations
      - Lighting
      - Visible Horizon/30 Up & Down Maneuver
      - Deconfliction / Separation
  - Route Study / Scene Interpretation
    - NVG Predictions
    - Terrain/Shadowing/Visual Illusions/Visible Horizon
      - Terrain Avoidance
      - Radar Altimeter
    - City / Cultural Lighting
      - Direction / Orientation of Lighting
      - Formation Maneuvering
  - Map Reading
- **F-16D NVG Procedures / Crew Coordination**
- **NVG Abnormal Situations / Emergencies**
  - Lost Sight-NVGs
  - Lost Wingman-NVGs
  - Transition to Instruments
  - Visual Illusions / Depth Perception
  - Disorientation / Mis-orientation / Vertigo / PARS
  - Fatigue
  - NVG Failure
  - Battery Failure / Swap Out
  - Overconfidence in NVG Capabilities
  - Correct Lighting of Primary / Secondary Flight Instruments
  - Lost Comm (with Wingman / Target)
  - Aircraft Emergency
  - Ejection-Goggles-OFF
  - Target Fixation
  - Lack of Dive Information
  - Target / Fighter Enters IMC
  - No Tally by 1,500 feet Slant Range
    - 700 feet in VID mode [except tanker rejoins]
  - Radar Break Lock Inside 1,500 feet
  - Excessive Overtake / Target Maneuvers
  - Laser Eye Protection (LEP) Use
  - Laser / IR Pointer Safety
  - NVG FOD Considerations (Batteries, Equipment, etc.)
- **NVG ROE/Training Rules**

Table A2.3. Additional Briefing Items, Air Refueling.

General Tanker Call Sign(s) / Receiver Assignments Refueling Track(s) Altitude Airspeed Airspace Restrictions ARIPs, ARCPs, ARCTs Radio Frequencies **Buddy Procedures:** Departure Join-Up **Enroute:** Route of Flight Formation Ops Checks **Rendezvous:** Type Rendezvous Holding Procedures / Formation Ground Radar Assistance Tanker Identification - TACAN / Radar / Visual Radar Procedures / Techniques Wingman / Deputy Lead Responsibilities Receiver Formation / Join-Up Procedures Rendezvous Overrun	**Refueling:** Checklist Procedures Radio Calls Refueling Order Techniques EMCON Level Visual Signals Fuel Off-Load Bingo Fuel (Abort Points / Abort Bases) Drop-Off Procedures Wake Turbulence **Reform and Exit:** Formation Clearance **Emergency Procedures:** Breakaway Procedures Systems Malfunctions Damaged Receptacle **IMC/Night Considerations:** Loss of Visual Contact Aircraft Lighting **Special Subjects:** Fuel Awareness / AB Use / Consumption Rates Flight Path Deconfliction / Other Receiver Considerations Human Factors Considerations (i.e., Channelized Attention, Task Saturation / Prioritization and Complacency)

Table A2.4. Additional Briefing Items, Low-Level Navigation.

General Route / Clearance / Restrictions Flight Responsibilities Navigation Radar / Visual Search Entry / Spacing / Holding / Initial Altitude / MSA **Route Procedures:** Fence Checks Tactical Formation / Turns **Low-Level Navigation** Dead Reckoning/Use of Nav Aids/Equipment (EGI) Radar Procedures / Techniques / Predictions Visual Procedures / Techniques / IR Predictions Updates / Calibrations Time / Fuel Control Terrain Following / Wingman Considerations / Pilot Comfort Level Leg Altitudes/Set Clearance Plane/Obstacles (MSL/AGL) Turnpoint Acquisition Obstacle / Ground Avoidance Use of Altitude Warning Features (GCAS, ALOW and Line-In-The-Sky MSL Floor Settings, AGCAS MODE/Chevrons Enabled/Disabled) Threat Reactions RWR / ECM / Chaff / Flares Engagement Criteria Flight Path Deconfliction Termination	**Contingencies** Aircraft Fallout Plan Rejoin After Late Takeoff **Emergencies:** Aircraft Malfunctions Route Abort Procedures (RAA / MSA) / ATC Frequencies **Alternate Mission** Type Mission (refer to appropriate mission briefing guide) Mission Objectives **Special Subjects** Airspace Restrictions G-Awareness / Ops Checks Fuel Awareness / AB Use / Consumption Rates Flight Path Deconfliction Maneuvering Limitations Airspeed and G Recognition/Prevention/Recovery from Out of Control Time to Ground Impact Wings Level Overbank / Under G Night Considerations Human Factors Considerations (i.e., Channelized Attention, Task Saturation / Prioritization and Complacency)

Table A2.5. Additional Briefing Items, Air-to-Surface Range Operations.

- **Range Information**
  - Target / Range Description
  - Restrictions
  - Range Entry / Holding
  - Radio Procedures
  - Formation
  - Sequence of Events
  - Pattern Procedures
  - Aircraft Fallout Plan
  - Rejoin on Range for Late Takeoffs
- **Employment Procedures/Techniques:**
  - Avionics / Switch Positions
    - Weapons Switchology / Delivery Mode
    - Radar Switchology
    - Special Weapons Switchology
  - Laydown / Loft Events
    - Ground track / Altitude / Airspeed
    - Radar / Optical Depiction (OAP / TGT)
    - Radar / Optical Tuning / Techniques
    - Pickle / Release Point
    - Breakaway / Recovery Technique
    - Backup Deliveries / EMR
    - Delivery Spacing
  - Pop-Up Delivery
    - Entry Airspeed / Altitude
    - Pop Point / Pull-Up Angle / Power Setting
    - Target Acquisition
    - Pull Down / Apex Altitudes
    - Pattern Corrections
  - Roll-In
    - Position
    - Techniques (Pitch / Bank / Power)
    - Roll-Out / Wind Effect
  - Final
    - Aim-Off Distance
    - Dive Angle
    - Airspeed
    - HUD Depiction
    - Sight Picture / Corrections / Aim-Point
    - Release Parameters
    - Release Indications
    - Recovery Procedures
- **Special Procedures:**
  - Live Ordnance Considerations
    - Safe Escape / Safe Separation
    - Fuse Arming / Frag Avoidance
  - RBS Operations
  - Laser Operations
- **Night Procedures:**
  - Aircraft Lighting
  - Radio Calls
  - Target ID / Range Lighting
  - Night Spacing Techniques
  - Instrument Cross-check / Disorientation
  - Flare Pattern
    - Flare Release Points and Interval
    - Wind Effect / Offset
    - Dud Flare Procedures
    - Switching Aircraft Patterns
- **Over Water Range Operations:**
  - Employment Techniques
    - Depth Perception / Reduced Visual Cues
    - Distance / Altitude Estimation
    - Pop-Up Positioning
      - Timing
      - Visual/Aircraft References to Establish Pull-Up Pt
  - Special Considerations
    - Adjusted Minimum Altitudes
- **Range Departure Procedures:**
  - Armament Safety Checks
  - Rejoin
  - Battle Damage / Bomb Check
  - Jettison Procedures / Parameters
  - Hung / Unexpended Ordnance
  - Inadvertent Release
  - Gun Unsafe / Jam
- **Alternate Mission**
  - Type Mission (refer to appropriate mission briefing guide)
  - Mission Objectives
- **Special Subjects**
  - Error Analysis
  - Fouls
  - Minimum Altitudes
  - Target Fixation
  - G-Awareness
  - Fuel Awareness / Ops Checks / AB Use / Consumption Rates
  - Maneuvering Limitations
    - Airspeed / G / Stress (Carriage / Release)
    - Recognition/Prevention/Recovery from Out of Control
  - Time to Ground Impact
    - Wings Level
    - Overbank / Under G
    - Chevron Cues Enabled/Disabled
  - Human Factors Considerations (i.e., Channelized Attention, Task Saturation / Prioritization, and Complacency)

Table A2.6. Crew Coordination / Passenger / Ground Crew Briefing Guide.

Crew Coordination / Passengers: Pre-Flight Prohibited Items Cockpit Layout Flight Maneuvering Parameters Change of Aircraft Control Rear Seat Landing Procedures Emergencies Runway Departure Canopy Loss Ejection / Egress (With and Without Intercom) / Ejection Mode Selector Handle Position Loss of Intercom Bird Strike Procedures / Use of Visor(s) Flight Control Interference Rudder Interference - Rudder Pedal Adjustment Stick Interference - Lapbelt, Utility Light, Personal Equipment, Leg Position, Paddle Switch Override	**Ground Crew:** Act Only On Pilot's Instructions Ground Emergency Procedures Hand Signals Aircraft Danger Areas

Table A2.7. Mission Debriefing Guide.

Ground Procedures **Takeoff/Join-Up/Departure** **Enroute Procedures** **Recovery/Landing/After Landing** **General:** SIIs Radio Procedures Flight Member Responsibilities Formation and Deconfliction Contracts Sensor Management/Prioritization **Training Rules/Special Operating Instructions**	**Mission Accomplishment/Analysis:** Mission Reconstruction Mission Support VTR / Film Assessment Anti-G Straining Maneuver Effectiveness Tactical Employment Priorities Learning Objectives Achieved Lessons Learned Recommendations for Improvement **Comments/Questions**