BY ORDER OF THE COMMANDERS **MULTI-COMMAND INSTRUCTION 11-F16**

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PILOT OPERATIONAL PROCEDURES--F-16

This instruction implements AFPD 11-4, Aviation Service. With its complementary Chapter 8, Local Operating Procedures, this instruction prescribes standard operational and weapons employment procedures to be used by all tactical pilots operating USAF F-16 aircraft. USAFAWC and USAFWTC aircraft may deviate from the contents of this instruction as outlined in individually approved test plans required for Follow On Test and Evaluation (FOT&E) purposes. File a copy of all approved waivers with this instruction. This instruction applies to Air National Guard (ANG) units when published in ANGIND2; it applies to United States Air Force Reserve (USAFR) units when published in AFRESIND2.

NOTE: This publication incorporates Chapter 9 using the paragraph supplementation method. **Supplemental material is highlighted in BOLD and prefaced with (PACAF/ACC/AFRES/ANG/AETC).**

SUMMARY OF REVISIONS

This instruction aligns with AFPD 11-4 and incorporates the requirements, information, procedures, and guidance formerly in MCR 55-116 (11-416). The ***** indicates a change (other than grammatical) from the previous edition of this publication. **(PACAF) This supplemented publication includes EMC 95-1.**

Supersedes MCR 55-116, 7 May 1993

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Paragraph

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Chapter 1

INTRODUCTION

1.1. General.

1.1.1. Scope. This Instruction outlines the procedures applicable to the safe operation of the F-16. With the complementary references cited, this Instruction prescribes standard operational procedures to be used by all USAF F-16 pilots.

1.1.2. Pilot's Responsibility. This Instruction, in conjunction with other governing directives, prescribes procedures for F-16 under most circumstances, but is not to be used as a substitute for sound judgment or common sense. Operations or procedures not specifically addressed may be accomplished if they enhance safe, effective mission accomplishment

1.1.3. Deviations. Deviations from these procedures require specific approval of the PACAF/DO unless an urgent requirement or an aircraft emergency dictate otherwise, in which case the pilot in command will take the appropriate action to safely recover the aircraft.

1.1.4. References. The primary references for F-16 operations are T.O.s 1F-16-1, 1-1C-1, 1-1C-1-30, MCMs 3-1 and 3-3, AFI 11-214 (AFR 55-79), and this Instruction. Training units may develop phase manuals from the procedures contained in these documents. Phase manuals may be used to augment initial and mission qualification training at operational units. Phase manuals may expand these basic procedures; in no case will they be less restrictive.

1.2. Waivers. Waiver requests will be forwarded through appropriate channels to the PACAF/DO for approval. Waivers, if approved, will be issued for a maximum of one year from the effective date. Information copies of approved waivers will be provided to the other OPRs.

1.3. Instruction Changes.

1.3.1. Submit recommendations for change to this Instruction on AF Form 847, Recommendation for Change of Publication (Flight Publication) to the parent MAJCOM. Approved recommendations will be forwarded to the Major Command OPR.

1.3.2. The ***** indicates a change (other than grammatical) from the previous edition of this basic Instruction.

1.4. Distribution. Each pilot is authorized a copy of this Instruction.

Chapter 2

MISSION PLANNING

2.1. Responsibilities. The responsibility for mission planning is shared jointly by the individual pilots and the operations and intelligence functions of fighter organizations.

2.2. General Procedures.

2.2.1. Accomplish sufficient flight planning to ensure safe mission accomplishment to include fuel requirements, map preparation, and takeoff and landing data.

2.2.2. Compute a 2,000 foot acceleration check speed anytime the computed takeoff roll exceeds 2,500 feet. When the computed takeoff roll is 2,500 feet or less, use the actual takeoff distance versus the computed takeoff distance to evaluate aircraft performance.

2.2.3. Compute a refusal speed for all takeoffs.

2.2.4 (PACAF) Planned flights over water outside the local training area (e.g., deployments, cross countries, and PDM inputs) will be accomplished two-ship as a minimum. Single-ship over water flights require wing commander approval.

2.2.5 (PACAF) F-16s will carry an Acceleration Monitoring Assembly (AMA) to the maximum extent possible. AMA carriage is not always possible or desired, but AMAs should be carried when scheduled and mission requirements permit. OG/CC is approval authority for flights without AMA pods.

2.3. Map / Chart Preparation.

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

2.3.2. Charts. FLIP enroute charts may be used instead of maps on navigational flights within areas which are adequately covered by these charts.

2.3.3. Low Altitude Maps.

_ On low altitude flights, each pilot in the flight will carry a current map of the low altitude route/operating area. The map will be of such scale and quality that terrain features, hazards, and chart annotations are of sufficient detail to allow individual navigation and safe mission accomplishment.

_ Prepare maps for low level IAW MCR 55-125 and/or as directed locally. Maps will be updated from the Chart Update Manual (CHUM) and all man-made obstacles at or above the planned flight altitude will be highlighted. Additionally, time and/or distance tick-marks will be annotated on low-level maps to ensure positive positional awareness of obstacles along the planned route of flight plus or minus 5 NM.

_ Annotate all maps with a route abort altitude (RAA). Compute the RAA for the entire route/area at a minimum of 1,000 feet separation from the highest obstacle/terrain feature (rounded to the next highest 100 feet) within the lateral limits of the route or training area, but in no case less than 5 NM either side of planned route.

2.3.4. Night or simulated night radar low level flight map preparation:

_ The minimum pilot chart requirement is a flight log or stick chart. The minimum annotations for this log/chart are headings, RAAs, MSAs, RMSA (if applicable) and maximum/minimum route structure altitudes.

_ Compute a minimum safe altitude (MSA) for each leg of the intended route of flight. The MSA is defined as an altitude which provides 1000 feet of clearance above the highest obstacle/terrain feature

(rounded to the next highest 100 feet), within 5NM of the planned course, route boundaries, or operating area.

_ To ensure maps accurately reflect planned routes, planned night turn point bank angles will not exceed 45 degrees.

_ *****A recovery MSA (RMSA) may also be computed and used in addition to RAA and MSA. RMSA is defined as an altitude which provides 1000 feet of clearance above the highest obstacle/terrain feature (rounded to the next highest 100 feet) within plus or minus 60 degrees of the planned egress heading within 5 NM of the planned release point (RP) for the weapon employed. To use RMSA, the planned weapons delivery recovery, on the planned egress ground track, must be accomplished.

_ For night LANTIRN missions, flight leads should select letdown points that avoid initial descents into rugged or mountainous terrain.

2.3.5. (PACAF) Map coordinates recorded on the Mission Cata Card will be cross-checked by at least one other flight member prior to stepping to the aircraft. Bearing and range will be computed from the end of runway to each checkpoint and verified prior to takeoff.

2.4. Briefing / Debriefing.

2.4.1. Flight leaders are responsible for presenting a logical briefing which will promote safe, effective mission accomplishment.

_ All pilots/crew members/passengers will attend the briefing unless previously coordinated with unit supervisors. **(PACAF) All aircrew members or passengers will attend the flight briefing.**

_ Begin briefings at least 1 and 1/2 hours before scheduled takeoff. Alert briefings will start in sufficient time to be completed prior to pilot changeover.

_ Structure flight briefings to accommodate the capabilities of each pilot in the flight.

_ Briefing guides will be used to provide the flight leader/briefer with a reference list of items which may apply to particular missions. Items listed may be briefed in any sequence. Those items understood by all participants may be briefed as “standard”. Specific items not pertinent to the mission need not be covered.

_ During the briefing for all low-level missions, emphasis will be placed on the following items: obstacle/ground avoidance, with emphasis on all altitude warning features and usage (ALOW/MSL), pilot determination of low altitude comfort level, and the avoidance of complacency.

_ For LANTIRN missions, emphasis will be placed on: ensuring the LANTIRN system is fully operational, transition from medium altitude to low-level terrain following (TF) operations, and TF maneuvering limitations.

_ When dissimilar aircraft are flown in formation, proper position (to ensure adequate wingtip clearance), responsibilities, and aircraft-unique requirements will be briefed for each phase of flight.

_ Brief an alternate mission for each flight. The alternate mission will be less complex than the primary and should parallel the primary mission. If not parallel, brief the specific mission elements that are different.

_ *****Mission elements/events may be modified and briefed airborne as long as flight safety is not compromised. Unbriefed missions/events will not be flown. Flight leads will ensure changes are acknowledged by all flight members.

_ All missions will be debriefed.

2.4.2. Deployed Operations, Exercise, and Quick Turn Briefings. If all flight members attend an initial or mass flight briefing, the flight lead on subsequent flights need brief only those items that have changed from the previous flight(s).

2.4.3. Mission briefing guides are contained in Attachment 1. Units may augment these guides as necessary. Pending development by a higher headquarters, units that fly missions not covered by this Instruction or its supplements (for example, OT&E weapons delivery profiles) will develop and maintain briefing guides for those missions, and submit them to PACAF/DO for review.

2.4.4. (PACAF) On multiple-go days when aircraft turn times do not allow for follow-on mission brief(s) and only an initial flight briefing is accomplished for all goes, the following guidance will apply:

_ Upgrade missions will be planned for the first sortie flown. Subsequent missions flown should be of equal or less complexity with no upgade training planned without OG/CC approval.

_ Pilots participating in continuation training missions may fly their primary or alternate missions in any sequence. The alternate mission will be less complex than the primary mission.

2.5. Unit Developed Checklists / Local Pilot Aids:

2.5.1. Unit developed checklists may be used in lieu of flight manual checklists (except -25 checklists) provided they contain, as a minimum, all items (verbatim and in order) listed in the applicable checklist.

2.5.2. Unit-developed pilot aids will include, as a minimum, the following items:

_ Briefing Guides.

_ Local UHF/VHF channelization.

_ Appropriate airfield diagrams.

_ Emergency information (impoundment proced-ures, emergency action checklists, NORDO /divert information, etc.).

_ Barrier/cable information at divert bases.

_ Bailout and Jettison Area.

_ Cross-country procedures to include: Command and control, Engine documentation, JOAP samples and, Aircraft servicing.

_ Other information as deemed necessary by the unit. For example: stereo flight plans, turn-around procedures, local training areas, instrument preflight, and alert setup procedures.

Chapter 3

NORMAL OPERATING PROCEDURES

3.1. Ground Visual Signals. Normally, pilot and ground crew will communicate by the intercom system during all start-engine, pre-taxi, and EOR checks. The intercom system will also be used to the maximum extent possible anytime maintenance technicians are performing "redballs" on the aircraft and for EPU checks performed in congested areas. The pilot will ensure that no system which could pose any danger to the ground crew is activated prior to receiving proper acknowledgment from ground personnel. Units with an active air defense commitment may waive use of ground intercom during alert scrambles. When ground intercom is not used, visual signals will be in accordance with AFR 60-11 and this Instruction. The crew chief will repeat the given signal when it is safe to operate the system. The following signals augment AFI 11-218 (AFR 60-11):

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

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

_ 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).

_ LOSS OF BRAKES WHILE TAXIING. Lower tailhook.

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

_ 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.

3.2. Preflight.

3.2.1. (B/D model aircraft) When the rear cockpit is occupied by other than a fully qualified F-16 pilot, the stick control switch will be placed in the FWD position.

3.2.2. Baggage/equipment will not be carried in the avionics bay behind the cockpit, except in F-16A/B (non-ADF) model aircraft. For F-16A/Bs (non-ADF), baggage/equipment will only be carried in a storage bag specifically designed to be securely fastened in the avionics bay and capable of securing all loose objects.

3.2.3. Baggage/equipment will not be carried in an unoccupied F-16B/D rear cockpit.

3.2.4. Objects will not be placed in or on top of the engine intake.

3.2.5. Publications, maps, and personal items placed in the cockpit will be secured to avoid flight control/ throttle interference.

3.2.6. *(PACAF) Pilots will wear Combat Edge (CE) equipment, once equiped and qualified, on all sorties except: cross countries, deployments, and dedicated instrument sorties.

3.3. Ground/Taxi Operations.

3.3.1. Taxi Interval. Minimum taxi interval is 150 feet staggered or 300 feet in trail. Spacing may be reduced when holding short of, or entering the runway.

3.3.2. Ice/Snow Conditions. Do not taxi during ice and/or snow conditions until all portions of the taxi route and runway have been checked for safe conditions. When ice and/or snow are present on the taxiway, taxi on the centerline with a minimum of 300 feet spacing.

3.3.3. Quick Check and Arming. Place hands in view of ground personnel while the quick check inspection and/or arming/dearming are in progress. If the intercom system is not used during EOR checks, the pilot will establish and maintain visual contact with the maintenance team chief and/or weapons load chief to facilitate the use of visual signals.

3.3.4. Pilots will ensure that maintenance technicians do not approach the aircraft until the EPU check is complete. Use a "thumbs up" signal or the intercom to indicate when it is safe.

3.3.5. Do not taxi in front of aircraft being armed/ de-armed with forward firing ordnance.

3.4. Flight Lineup. Flights will line up as appropriate based on weather conditions, runway conditions, and runway width. Spacing between separated elements/flights will be a minimum of 500 feet. If formation takeoffs are planned, wingmen must maintain wingtip clearance with their element leader. If runway width permits, lineup with wingtip clearance between all aircraft in the flight.

3.5. Before Takeoff Checks. After the “Before Takeoff Checks” have been completed and prior to takeoff, all flight members will inspect each other for proper configuration and any abnormalities.

3.6. Takeoff.

3.6.1. Do not takeoff when the RCR is less than 10.

3.6.2. Takeoff data will be reviewed and understood by every member of the flight. Particular emphasis should be placed on takeoff and abort factors during abnormal situations such as short/wet runway, heavy gross weights, non-standard cable configurations, and abort sequence in formation flights.

3.6.3. On training missions, do not takeoff if the computed takeoff roll exceeds 80 percent of the available runway single ship, or 70 percent for a formation takeoff.

3.6.4. When operating from airfields equipped with a compatible, remotely operated cable, ensure the departure end cable is raised for all takeoffs and landings, unless another departure end cable is in place.

3.6.5. Wing/Group Commander or Operations Group Commander (SOF for ANG/AFRES) may approve 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.

3.6.7. When centerline stores are carried, 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.

3.6.8. Takeoff interval between aircraft/elements will be a minimum of 10 seconds (15 seconds for afterburner). When join-up is to be accomplished on top or when carrying live air-to-surface ordnance, takeoff interval will be increased to a minimum of 20 seconds.

3.6.9. After releasing brakes, aircraft/elements will steer toward the center of the runway.

3.7. Formation Takeoff.

3.7.1. Formation takeoffs are restricted to elements of two aircraft.

3.7.2. Elements will be led by a qualified flight leader unless an IP, or flight lead qualified squadron supervisor is in the element.

3.7.3. To takeoff in formation, aircraft must be within 2,500 pounds gross weight of each other and symmetrically loaded. Consider symmetrical loading as those store 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.

3.7.4 Do not make formation takeoffs when:

_ Runway width is less than 125 feet.

_ Standing water, ice, slush, or snow is on the runway.

_ The crosswind or gust component exceeds 15 knots.

_ Loaded with live munitions (excluding air-to-air missiles, 20mm ammunition, 2.75 rockets, AGM-88, AGM-65**,** and night illumination flares).

_ Ferrying aircraft from contractor/AFLC facilities.

3.8. Join-up / Rejoin.

3.8.1. Day weather criteria for a VFR join-up underneath a ceiling is 1,500 feet and 3 miles visibility.

3.8.2. Flight leaders will maintain 350 KIAS until join-up is accomplished unless mission requirements necessitate a different airspeed. Pilots may delay coming out of AB to help establish a rate of closure on the leader or lead element.

3.8.3. If a turning join-up is to be accomplished, the flight leader will not normally exceed 30 degrees of bank.

3.8.4. Flight members will join in sequence. For a straight ahead rejoin, the number two aircraft will join on the left wing and the element will join on the right wing unless otherwise briefed. For a turning rejoin, the number two aircraft will rejoin on the inside of the turn and the element to the outside. If mission or flight requirements dictate, the flight leader will specifically direct the desired formation positions.

3.8.5. Battle Damage/Bomb Checks. When circumstances permit, flight leads will direct a battle damage/bomb check after each mission prior to or during RTB. This check is mandatory following the expenditure of any ordnance (including all types of 20mm ammunition). Established deconfliction responsibilities and position change procedures will be observed. Fly no closer than normal fingertip spacing.

3.8.6. For further join-up procedures, see Night Operational Procedures (3.20.3), and Chapter 4.

3.9. Formation, General.

3.9.1. Flight/element leads will always consider wingman/element position and ability to safely perform a maneuver before directing it. **(PACAF) The flight lead is always responsible for flight actions, regardless of the physical position in which he flies. Wingmen should always be prepared to fly the number one postion if, in the judgment of the flight lead, such action is warranted. The term element lead may be used to designate the number three aircraft in a flight of four.**

3.9.2. In IMC, the maximum flight size is four aircraft except when flying in close formation with a tanker (refer to T.O. 1-1C-1-30).

3.9.3. Do not use rolling maneuvers to maintain or regain formation position below 5,000 feet AGL or in airspace where aerobatics are prohibited.

3.9.4. Use airborne visual signals in accordance with AFI 11-205 or detailed in local procedures. For four-ship flights, configuration changes will be initiated by radio call, when practical. When formation position changes are directed by radio, all wingmen will acknowledge prior to initiating the change. A radio call is mandatory when directing position changes at night or under instrument conditions.

3.9.5. Flight leaders will not break up formations until each pilot has a positive fix from which to navigate (visual, radar, INS, or TACAN).

3.9.6. Changing Leads.

3.9.6.1. General.

_ During flight in limited visibility conditions (for example haze, night, or IMC) initiate lead changes from a stabilized, wings level attitude.

_ The minimum altitude for changing leads within a formation is 500 feet AGL over land or 1,000 feet AGL over water (for night see paragraph 3.20.4, for IMC see paragraph 4.6).

3.9.6.2. Procedures.

_ Do not initiate lead changes with the wingman further back than normal fingertip or route position, or greater than 30 degrees back from line abreast.

_ Flight/element leads will not initiate a lead change, unless the aircraft assuming the lead is in a position from which the lead change can be safely initiated and visual contact maintained.

_ The lead change will be initiated by either visual signal or radio call (night/IMC).

_ Acknowledge receipt of the lead by a head nod or radio call, as appropriate.

_ The lead change is effective upon acknowledgment.

_ The former leader then moves to the briefed wing position.

3.10. Tactical Formations.

3.10.1. General. The following rules apply for flight path deconfliction during tactical maneuvering:

_ Wingmen/elements must maneuver relative to the flight lead/lead element and maintain sight. Trailing aircraft/elements are responsible for deconflicting with lead aircraft/elements.

_ Wingmen/elements will cross above the lead /lead element when deconfliction is required.

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

_ If any flight member/element calls “Blind,” then the appropriate flight member/element will immediately confirm a “Visual” with an informative call.

_ If the other flight member/element is also “Blind,” then the flight leader will take action to ensure altitude separation between flight members/elements. The flight lead will specify either AGL or MSL when directing the formation to deconflict. When directed to “deconflict” a minimum of 500 feet altitude separation will be used. Climbs/descents through the deconfliction altitude should be avoided if possible.

_ If there is no timely acknowledgment of the original “Blind” call, then the flight member/element initiating the call will maneuver away from the last known position of the other flight member/element and alter altitude.

_ If visual contact is still not regained, the flight leader will take additional positive action to ensure flight path deconfliction within the flight to include a Terminate/Knock-It-Off if necessary. Scenario restrictions such as sanctuary altitudes and/or adversary blocks must be considered.

_ Aircraft will maintain altitude separation until a visual is regained and, if necessary, will navigate with altitude separation until mutual support is regained.

3.10.2. Two-Ship. The following rules apply for flight path deconfliction during tactical maneuvering of two-ship formations:

3.10.2.1 Normally, the wingman is responsible for flight path deconfliction.

3.10.2.2 The flight lead becomes primarily responsible for deconfliction when:

_ Tactical maneuvering places the leader in the wingman's “blind cone” or forces the wingman's primary attention away from the leader (e.g., wingman becomes engaged fighter).

_ The wingman calls “padlocked.”

_ The wingman calls “blind.”

_ Primary deconfliction responsibility transfers back to the wingman once the wingman acknowledges a visual on his lead.

3.10.3. Three/Four-Ship (or greater). When flights of more than two aircraft are in tactical formation:

_ Formation visual signals performed by a flight/element leader pertain only to the associated element unless specified otherwise by the flight leader.

_ Trailing aircraft/element(s) will maintain a sufficient spacing so that primary emphasis during formation maneuvering/turns is on low altitude awareness and deconfliction within elements, not on deconfliction between elements.

3.11. Chase Formation.

3.11.1. Restrictions. Any pilot may fly safety chase for aircraft under emergency or impending emergency conditions. All chase events may be flown by IP/SEFEs or upgrading IPs under the supervision of an IP. Qualified pilots (including IQT/MQT 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, WSEP, live weapons delivery, etc.) and training conducted IAW MCR 51-50 (MCI 11-208 or ANGI 11-217) may be chased by MR/MC pilots designated by Group/Squadron Commanders.

3.11.2. Procedures:

_ On transition sorties, the chase aircraft will perform a single-ship takeoff. In-flight, the chase aircraft will maneuver as necessary, but must maintain nose-tail separation. The chase will not stack lower than lead aircraft below 1,000 feet AGL. In the traffic pattern, the chase aircraft may maneuver as necessary to observe performance.

_ A safety observer in a chase aircraft will maneuver in a 30-60 degree cone with nose/tail clearance to 1,000 feet, from which he can effectively clear and/or provide assistance.

_ For live ordnance missions, the chase pilot is responsible for ensuring frag deconfliction is maintained for his aircraft.

3.12. Show Formation. These formations will be specifically briefed and flown IAW applicable directives. Refer to AFR 60-18 (AFI 11-209) and applicable MAJCOM (ANG/AFRES) directives for specific rules and appropriate approval levels to participate in static displays and aerial events.

3.13. Maneuvering Parameters.

*3.13.1. Minimum Altitudes.

_ Confidence Maneuvers/Advanced Handling - 10,000 Feet AGL.

_ Horn Awareness and Recovery Series 1, 2, and 3 - 10,000 feet AGL.

_ Horn Awareness and Recovery Series 4 and 5 -15,000 feet AGL.

_ Aerobatics - Aircraft will not descend below 5,000 feet AGL during any portion of aerobatic maneuvering.

3.13.2. Flight through wingtip vortices/jetwash should be avoided. If unavoidable, the aircraft should be unloaded immediately to approximately 1 G.

3.13.3. Do not manually extend the trailing edge flaps in an attempt to improve aircraft performance. (EXCEPTION: Trailing edge flaps may be manually extended during intercepts performed by air sovereignty tasked unit aircraft on targets traveling at less than 200 KIAS to allow night vision goggle (NVG) IDs at night in VMC).

3.13.4. Do not attempt to bypass flight control limiters to improve performance. Examples are: fuel transfer to alter CG, use of the MPO to gain additional negative G; or unloading/applying full rudder, then rolling and reapplying full aft stick at low airspeed.

3.13.5. The minimum airspeed for all maneuvering is based upon activation of the low speed warning tone. When the low speed warning tone sounds, the pilot will take immediate action to correct the low speed condition.

*3.13.6. Horn Awareness and Recovery Series (HARTS).

_ HARTS will be flown IAW MCM 3-3 Vol 5 (AFH 11-F16 Vol 5)

_ HARTS maneuvers will be flown in CAT -1 loaded aircraft only.

_ In F-16 C/D Block 40/42 aircraft, HARTS maneuvers 4 and 5 will be performed with one of the following configu\ration combinations: Clean, 300 gallon centerline tank, MAU-12s on stations 3 and 7, and/or and AIM 9/AMD on stations 1or 9.

3.14. Ops Checks.

3.14.1. Accomplish sufficient ops checks to ensure safe mission accomplishment. Additionally, each pilot should monitor the fuel system carefully throughout the flight to identify low fuel, trapped fuel or an out of balance situation as soon as possible. Frequency should be increased during tactical maneuvering at high power settings. Ops checks are required:

_ During climb or at level-off after takeoff.

_ When external fuel tanks (if carried) are empty.

_ Prior to each (D)ACBT engagement or intercept.

_ Prior to entering an air-to-surface range, once while on the range if multiple passes are made, and after departing the range.

3.14.2. Minimum items to check are engine instruments, total and internal fuel quantities/balance, G-suit connection, oxygen system, and cabin altitude.

3.14.3. For formation flights, the flight leader will initiate ops checks by radio call or visual signal. Response will be made by radio call or visual signal.

_ The query and response for ops checks will be based on the location and amount of fuel (low tank needle, high tank needle, totalizer) with the fuel quantity selector knob in the NORM position. (Exception: Total fuel only may periodically be used during high demand phases of flight).

_ 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. Once the tank(s) have been confirmed and called dry, this may be omitted from subsequent ops checks.

3.14.4. Pilots should use extreme caution when unstrapping their lapbelts inflight because of the potential for lapbelt buckle/side-stick controller/ throttle interference.

*****3.14.5 G-awareness Exercise. The G-awareness exercise should be accomplished when directed by AFI 11-214 (AFR 55-79) In accordance with the procedures described in AFM 11-F-16 Vol 5 (MCM 3-3), Para 9.2. ***(PACAF) G-awareness exercises will be filmed in HUD and in hot mic. Aircrews will accomplish g-awareness turns prior to any tactical maneuvering. These turns will not be accomplished during IMC or night conditions. The g-awareness maneuver will consist of at least two 90 degree turns. (The second turn of the g-awareness exercise for air-to-air sorties will be a minimum of 180 degrees of turn). The first turn will be a smooth onset rate to approximately 4 Gs. Aircrews will use this turn to ensure proper g-suit operation and to practice their anti-g straining maneuver. Regain airspeed and perform another 90 degree turn at up to 6-7 Gs. If aircraft limits preclude either of the above, turns should be performed so as to not exceed aircraft limits. Turns will not be used for systems checks or other items that detract from the intended purpose.**

_ **The tactical portion of all basic missions (BFM, ACM, SA, etc.) will be flown in hot mic to enable assessment of the AGSM. For high task sorties (DACT, Composite Force, Opposed SAT, etc.), it is highly desired for aircrews to fly in hot mic.**

_ **Flight leads will assess the AGSM effectiveness of flight members during mission debriefings. This assessment should not be limited to the g-awareness exercise. It is imperative to evaluate the AGSM after the aircrew has had time to fatigue, as this is usually when the AGSM breaks down and GLOC occurs.**

_ **Aircrews identified as having poor AGSM technique of low g-tolerance will be identified to their flight commander or the appropriate operations supervisor. The operations officer will determine what action is required to improve the aircrews g-tolerance. The squadron commander has the option of directing refresher centrifuge training in accordance with AFR 11-404, Centrifuge Training for High-G Aircrew**.

3.15. Radio Procedures. Preface all communications with the complete flight call sign (except for wingman acknowledgment). Transmit only that information essential for mission accomplishment or safety of flight. Do not use the radio as a flight "intercom". Use visual signals whenever practical.

*****3.15.1 Knock-It-Off (KIO)/Terminate Calls. Make a "Knock-It-Off"/"Terminate" radio call to cease tactical maneuvering for any reason, especially for an inflight emergency. Any flight member may make this call. When a dangerous situation is developing be directive first. A KIO applies to any phase of flight and all types of missions. All participants will acknowledge a KIO by repeating the call.

3.15.2. All radio checks and channel changes will be initiated by the flight/mission leader and will be acknowledged in turn, by individual flight members prior to any flight member switching channels. Exception: During Radio Silent or Limited Comm operations, channel changes will be as briefed.

3.15.3. Acknowledge radio checks, which do not require the transmission of specific data by individual flight members, in turn (Example: "2, 3, 4"). Acknowledgment indicates the appropriate action is either complete, is in the process of being completed, or is understood by the flight member.

3.15.4. In addition to the standard radio procedures outlined in AFM 51-37 (AFI 11-203), AFR 60-16 (AFI 11-206), Specific Mission Guides, and FLIP publications, the following radio transmissions are required:

_ All flight members will acknowledge understanding the initial ATC clearance. Acknowledge subsequent ATC instructions when directed by the flight lead, or anytime during trail departures.

_ Gear Checks. Each pilot will make gear check on base leg, or if making a VFR straight-in approach, not later than 3 miles on final. When flying instrument approaches, gear checks will be made in response to ATC instructions or no later than the final approach fix or glide path interception point. The wingman or chase need not make this call during a formation or chased approach.

3.15.5. Brevity code and other terminology will be IAW AFI 11-214 (AFR 55-79), MCM 3-1,Vol I.

3.16. Change of Aircraft Control. Both pilots of an F-16B/D must know at all times who has control of the aircraft. Transfer of aircraft control will be made with the statement "You have the aircraft." The pilot receiving control of the aircraft will acknowledge "I have the aircraft." Once assuming control of the aircraft, maintain control until relinquishing it as stated above. 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 prebriefed otherwise.

3.17. General Low Altitude Procedures.

3.17.1. Low level formation positions/tactics will be flown using MCM 3-1 and MCM 3-3 (AFM 11-F-16 Vol 5) (Fighter Fundamentals) as guides.

3.17.2. Line abreast formations are authorized at or above 300 feet AGL. When flying in formation below 300 feet AGL, the wingman will be directed to a wedge formation position.

3.17.3. Training in the 300 feet to 100 feet AGL altitude block will be in short segments consistent with real-world risks and realistic tactical considerations.

3.17.4. During briefings, emphasis will be placed on low altitude flight maneuvering and observation of terrain feature/obstacles along the route of flight. For low altitude training overwater/featureless terrain, include specific emphasis on minimum altitudes and spatial disorientation.

3.17.5. 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 direct a climb NLT 3 NM prior to the obstacle to ensure vertical separation.

3.17.6. At altitudes below 1,000 feet AGL, wingmen will not fly at a lower AGL altitude than lead.

3.17.7. When crossing high or hilly terrain, maintain positive G on the aircraft and do not exceed approximately 120 degrees of bank. Maneuvering at less than 1G is limited to upright bunting maneuvers.

3.17.8. The minimum airspeed for low level navigation is 300 KIAS.

3.17.8. Minimum Altitudes. A pilot's minimum altitude will be determined and certified by the unit commander IAW MCI 11-F16 Vol 1 (MCR 51-50), as supplemented. Pilots participating in approved step-down training programs will comply with the requirements and restrictions of that program. The following minimum altitudes apply to low level training unless higher altitudes are specified by national rules, route restrictions, or a training syllabus:

3.17.8.1. 500 feet AGL for: Pilots who have not entered step-down training and who are not designated for flights at lower altitudes.

3.17.8.2. For night or IMC operation, the minimum altitude is 1000 feet above the highest obstacle within 5 NM of course unless operating under the conditions of paragraph 3-18, LANTIRN Operations.

3.17.9. During all low altitude operations, the immediate reaction to task saturation, diverted attention, knock-it-off, or emergencies is to climb to a prebriefed safe altitude (minimum 1000 feet AGL).

3.17.10. Weather minimums for visual low level training will be 1,500 feet and 3 miles for any route or area, or as specified in FLIP for Military Training Routes, unit regulations, or national rules, whichever is higher.

3.17.11.**Low Level Route/Area Abort Procedures:**

3.17.11.1. VMC route/area abort procedures:

_ Maintain safe separation from the terrain.

_ Comply with VFR altitude restrictions and squawk applicable (IFF/SIF) modes and codes.

_ Maintain VMC at all times. If unable, follow IMC procedures outlined below.

_ Attempt contact with controlling agency, if required.

3.17.11.2. IMC route/area abort procedures:

_ Immediately climb to, or above, the computed RAA.

_ Maintain preplanned ground track. Execute appropriate lost wingman procedures if necessary.

_ If deviations from normal route/area procedures are required, or if the RAA/MSA is higher than the vertical limits of the route/area, squawk (IFF/SIF) emergency.

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

3.18. LANTIRN Operations.

3.18.1. The minimum altitude for LANTIRN training will be the higher of VR/IR/MOA minimum altitude or pilot minimum altitude as certified by the unit commander IAW MCI 11-F16, Vol 1 (MCR 51-50). **(PACAF) The minimum altitude for night operations is MEA for pilots not TFR certified and 500 feet set clearance plane (SCP) or pilot-certified SCP, whichever is higher, unless in step-down training to a minimum of 300 feet SCP. This minimum altitude will be the minimum night run-in altitude for planned level or climbing deleveries.**

3.18.2. VRD Restrictions:

_ VRDs will only be worn while conducting LANTIRN low-level training and LANTIRN weapon deliveries.

_ When a VRD is in use, a safety observer must be present. A safety observer is defined as a crewmember qualified in that aircraft in the rear cockpit of a two-place aircraft or another aircraft flying in the chase position (as defined in para 3-11). The chase aircraft must maintain continuous visual contact and have two-way radio communication between aircraft.

_ When a VRD is in use, pilots are restricted to the same altitude and procedures they are cleared to for night LANTIRN operations.

3.18.3. Operational Procedures. All procedures in AFI 11-214 apply.

_ A full INS ground alignment (gyro compass or stored heading to a flashing RDY/ALIGN) must be performed prior to LANTIRN missions. Terrain following is prohibited after any alignment other than a full ground alignment. Additionally, auto or manual TF is prohibited after an INS degraded PFL/MFL message.

_ TFR/LANTIRN systems will be inflight checked using flight manual procedures on every flight involving TFR/LANTIRN operations.

_ *****Pilots must ensure all LANTIRN systems are functioning properly prior to sustained low-level operations. If any feature that is critical to overall system performance (FLCS, INS, CARA) is questionable or disabled, the checks and/or LANTIRN portion of the mission will be discontinued. All pilots will confirm by radio call that the TFR and radar altimeter are on and working properly before descending below the MSA; "(Call Sign), RALT ON, TFR ON".

_ *****The LANTIRN Attitude Advisory Function **(**LAAF) must be operational and set IAW MAJCOM directives for all night, self-designated LGB Loft deliveries. **(PACAF) OFP 40T4 must be loaded and operationally checked for correct LAAF advisory display.**

_ ***(PACAF/ACC/ANG) During all night, self-designated, LGB loft deliveries, the LANTIRN Attitude Advisory Function (LAAF) will be on and set at the IP to TGT run-in MSA plus 5000 feet.**

_ ***(PACAF) Target Area MSA (TAMSA) will be computed as follows: add 1,000 feet to the highest obstacle (rounded up to the next 100 ft) in a circle 8nm around the target. This technique allows for variations in actual versus planned loft deliveries and off-axis attacks (due to threat reactions or spacing maneuvers). TAMSA may be alternatively computed by using the same obstacle clearance but along the planned route of flight is defined as 5nm either side of centerline measured from the pull-up point (lofts) or weapons release point (diving/level deliveries) through 60 degrees either side of the planned egress heading out to a minimum of 5nm. If the second option is used, deviations from planned delivery parameters, run-in axis, or egress heading may invalidate TAMSA computations. Do not initiate the loft recovery maneuver until above the TAMSA.**

_ ***(PACAF) Pilots must ensure the TF system is in AUTO TF before descending below the TAMSA. Blended mode is still an option if conditions warrant. The type of loft recovery, level or descending, depends on threat, terrain, and targeting considerations.**

_ For TFR/LANTIRN operations, the ALOW feature of the CARA will be set no lower than 90 percent of the set clearance plane (SCP). The CARA may be placed to standby or off only during air refueling operations. Pilots need to ensure the CARA is tracking properly when descending through 4500 feet AGL.

_ Minimum airspeed for TFR navigation is 400 KCAS.

_ During descent, pilots will accomplish a 1000 foot SCP level off prior to selecting a lower SCP.

_ Pilots will not conduct LANTIRN operations in IMC below the MSA and must abide by FLIP weather minimums while on military training routes.

3.18.4. Abnormal Operation.

3.18.4.1. Pilots who experience failure of the terrain following system or failure of the LANTIRN HUD/FLIR imagery system while flying low-level missions will immediately climb to the MSA or above. The mission may be continued at the MSA within the low-level structure provided the aircraft position is known and ground mapping modes of the radar remain operational. If ground mapping modes of the radar fail, or if aircraft position cannot be positively determined, pilots will terminate that portion of the mission and execute route abort procedures IAW para 3.17.11.3.

3.18.4.2. If the TFR/LANTIRN system fails prior to route entry, pilots may still enter the route and continue the mission at the MSA, provided the above provisions are met.

3.18.4.3. Pilots will honor all system fly-ups and will not continue low-level operations below the MSA without TFR protection. The following procedures will be used at the first indication of a fly-up, pilots need only accomplish sufficient steps of the fly-up procedure to assure terrain clearance or until the fly-up terminates/clears:

_ Allow the fly-up to develop. (CAUTION: If an automatic fly-up is not initiated by the system and aural or visual pull-up warnings are present, pilots will manually initiate a fly-up and comply with these procedures.)

_ Throttle - As required. (CAUTION: Military Power may be required to maintain a safe airspeed. Do not hesitate to use AB if required.)

_ Terrain clearance ensured.

_ Paddle Switch - Depress and release. (CAUTION: Holding the paddle switch depressed inhibits fly-up commands to the FLCS.)

_ IF THE SYSTEM DOES NOT RESET: Climb to MSA. (CAUTION: Using climb angles greater than 20 degrees can result in rapid airspeed bleed off. The use of AB and/or steep climb angles can result in spatial disorientation).

_ Level off at or above MSA and refer to checklist (if required). If the malfunction can be reset, pilots may continue TFR operations.

3.19. Air Refueling. Pilots undergoing initial/ recurrency training in air refueling will not refuel with a student boom operator (does not apply to KC-10).

3.20. Night Operational Procedures.

3.20.1. Night Ground Operations. The anti-collision (strobe) light may be OFF and the position lights STEADY if they prove to be a distraction. Taxi spacing will be a minimum of 300 feet and on the taxiway centerline. The taxi light will normally be used during all night taxiing. (Exception: When the light might interfere with the vision of the pilot of an aircraft landing or taking off, the taxiing aircraft will come to a stop if the area cannot be visually cleared without the taxi light). For formation takeoffs, flight/element leaders will turn the anti-collision light OFF and position lights STEADY when reaching the run-up position on the runway. Wingmen will maintain the anti-collision light ON and position lights FLASH for takeoffs, unless IMC will be encountered shortly after takeoff.

3.20.2. Night Takeoff. During a night formation takeoff, brake release, gear retraction and AB termination will be called on the radio. Following takeoff, each aircraft/element will climb on runway heading to 1,000 feet AGL before initiating turns, except where departure instructions specifically preclude compliance.

3.20.3. Night Joinup. Weather criteria for night joinup underneath a ceiling is 3,000 feet and 5 miles. After joinup, the anti-collision light will be OFF and position lights will be STEADY for all except the last aircraft, which will keep the anti-collision light ON and position lights FLASH unless otherwise directed by the flight lead.

3.20.4. Night Formation Procedures.

_ When in positions other than fingertip or route, aircraft spacing will be maintained primarily by instruments, RADAR/EID, and/or timing with visual reference secondary. If aircraft spacing cannot be ensured, then altitude separation (minimum of 1,000 feet) will be established. At all times, aircrews will cross-check instruments to ensure ground clearance.

_ Do not change lead or wing positions below 1,500 feet AGL unless on RADAR downwind. Lead and position changes will be called over the radio, and should be initiated from a stabilized, wings-level attitude.

3.20.5. Night Fingertip Position. Night fingertip formation is flown in approximately the same position as during the day. If illumination is insufficient to use day references, exterior lighting relationships can be used.

_ Align the upper wingtip light below the canopy position (formation) light. Stabilize, then move forward until the canopy position (formation) light, bottom formation light, and the position light on the engine inlet almost form an equilateral triangle.

_ Align vertically so that the wingtip light is approximately equidistant between the top and bottom formation lights. Another vertical reference is to fly so that the tail, wingtip, and position lights are in a straight line.

_ Align laterally so that the wingman's head is abeam the tail flood light. Avoid fixation on any one light or reference point to help reduce spatial disorientation.

3.20.6. Night Break-up. Prior to a night formation break-up, the flight leader will transmit attitude, altitude, airspeed, and altimeter setting, which will be acknowledged by wingmen. Wingmen will also confirm good navigational aids.

3.20.7. Night Landing. Landings will normally be accomplished from an instrument straight-in approach. Refer to AFI 11-206 (AFR 60-16), as supplemented for specific procedures.

_ Night formation landings will only be performed when required for safe recovery of the aircraft.

3.21. Fuel Requirements.

3.21.1. Joker Fuel. A pre-briefed fuel needed to terminate an event and proceed with the remainder of the mission.

3.21.2. Bingo Fuel. A pre-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:

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

_ All F-16 Blocks 10 through 32 - 1000 pounds.

_ All F-16 Blocks 40 and higher - 1200 pounds

*3.21.4 Minimum/Emergency Fuel. Declare the following when it becomes apparent that an aircraft will enter initial or start an instrument final approach at the base of intended landing or alternate, if required.

∗3.21.4.1 Minimum Fuel.

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

_ All F-16 Blocks 40 and higher - 1000 pounds or less.

*3.21.4.2 Emergency Fuel.

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

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

3.21.5. Do not use AB below 2,000 pounds total fuel or established BINGO fuel, whichever is higher, unless required for safety of flight.

3.22. Approaches and Landings.

3.22.1. The desired touchdown point for a VFR approach is 500 feet from the threshold, or the glidepath interception point for a precision approach. When local procedures or unique runway surface conditions require landing beyond a given point on the runway, the desired touchdown point will be adjusted accordingly.

3.22.2. Final approach will normally be flown at 11 degrees AOA. Touchdown spacing behind an aircraft while flying a 13 degree approach will be a minimum of 6,000 feet due to susceptibility of the aircraft to wake turbulence and speedbrake/tail scrapes. Minimum pattern and touchdown spacing between landing aircraft is 3,000 feet for similar aircraft (e.g. F-16 versus F-16), 6,000 feet for dissimilar aircraft (e.g. F-16 versus F-15) or as directed by MAJCOM or the landing base, whichever is higher. When wake turbulence is expected due to calm winds or when landing with a light tail wind, spacing should be increased.

3.22.3. To avoid possible speedbrake or nozzle damage, touch down either past a raised approach-end cable, or 500 feet prior to the cable. With centerline stores, touchdown will normally be 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. Single-ship or formation landings with centerline stores may be made across BAK-12 arrestment cables which have been modified with an 8-point tiedown system.

3.22.4. All aircraft will land in the center of the runway and clear to the cold side when speed /conditions permit.

3.22.5. 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.

_ Do not land over any raised web barrier (e.g. MA-1A, 61QS11).

3.23. Overhead Traffic Patterns.

3.23.1. Overhead patterns can be made with unexpended practice ordnance and unexpended live air-to-air ordnance including AGM-88/AGM-65.

3.23.2. Initiate the break over the touchdown point or as directed.

3.23.3. The break will be executed individually in a level 180 degree turn to the downwind leg at minimum intervals of 5 seconds (except IP/SEFE chase or when in tactical formation).

3.23.4. Aircraft will be wings level on final at approximately 300 feet AGL and 1 mile from the planned touchdown point.

3.24. Tactical Overhead Traffic Patterns. Tactical entry to the overhead traffic pattern is permitted if the following conditions are met:

3.24.1. Published overhead pattern altitude and airspeed will be used.

3.24.2. Specific procedures will be developed locally and coordinated with appropriate air traffic control agencies.

3.24.3. Four aircraft are the maximum permitted. Aircraft/elements more than 6,000 feet in trail will be considered a separate flight.

3.24.4. Regardless of the formation flown, no aircraft should be 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.

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

3.25. Touch-and-Go Landings.

3.25.1. Will be flown as outlined in AFI 11-206 (AFR 60-16), as supplemented by MAJCOM.

3.25.2. Will not be flown with live or hung ordnance or with fuel remaining in any external tank.

3.26. Low Approaches.

3.26.1. Observe the following minimum altitudes:

_ IP/SEFEs flying chase position - 50 feet AGL.

_ Formation low approaches - 100 feet AGL.

_ Chase aircraft during an emergency - 300 feet AGL unless safety or circumstances dictate otherwise.

3.26.2. During go-around, 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.

3.27. Closed Traffic Patterns. Initiate the pattern at the departure end of the runway unless directed/cleared otherwise by local procedures or the controlling agency. When in formation, a sequential closed may be flown with ATC concurrence at an interval to ensure proper spacing. Plan to arrive on downwind at 200-250 KIAS.

3.28. Back Seat Approaches and Landings.

3.28.1. An upgrading IP may only accomplish back seat landings when an IP is in the front cockpit.

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

3.29. Formation Approaches and Landings.

3.29.1. General:

_ Formation landings will normally be accomplished from a precision approach. If not, use a published instrument approach or a VFR straight-in approach using the VASI lights, if available. In all cases, use a rate of descent similar to that of a normal precision approach.

_ A qualified flight leader must lead formation landings unless an IP, or flight lead qualified squadron supervisor is in the element.

_ Aircraft must be symmetrically loaded (as defined in paragraph 3.7.3).

_ Position the wingman on the upwind side if crosswind exceeds 5 knots.

_ The wingman will maintain a minimum of 10 feet lateral wingtip spacing.

_ If the wingman overruns the leader after landing, accept the overrun and maintain the appropriate side of the runway and aircraft control. Do not attempt to reposition behind the leader. The most important consideration is wingtip clearance.

3.29.2. Formation landings are prohibited when:

_ The crosswind or gust component exceeds 15 knots.

_ The runway is reported wet; or ice, slush, or snow is on the runway.

_ The runway width is less than 125 feet.

_ Arresting gear tape connectors extend onto the runway surface at the approach end of 125 feet wide runways (excluding overrun installations).

_ Landing with hung ordnance or unexpended live ordnance (excluding live air-to-air missiles and 20mm ammunition).

_ The weather is less than 500 feet and 1_ miles (or a flight member's weather category, whichever is higher).

3.30. Use of Altimeters.

*****3.30.1. General. For those aircraft so equipped, the radar altimeter will be on for all flights (Exception: Thunderbirds when conducting aerial demonstrations). In addition, the barometric altitude setting (MSL floor/line-in-the-sky) will be used for those missions that are conducive to spatial disorientation (night/IMC) or where minimum altitudes must be observed (ACBT floors). **(PACAF) MSL floor/line-in-the-sky will be set, as appropriate, on all missions.**

3.30.2. Non-TFR Operations. Set the radar altimeter at either the briefed minimum altitude or the command-directed minimum altitude, whichever is higher.

3.30.3. TFR Operations. Set the radar altimeter on and no lower than 90 percent of the briefed minimum altitude or 90 percent of the command-directed minimum altitude,whichever is higher.

3.30.4. (PACAF) During TF operations, if a "NO TERRAIN" advisory is noted, cross-check CARA performance by monitoring HUD radar altitude information. A locked-up CARA is indicated by a frozen altitude scale. If a locked-up CARA is detected or an electrical brownout situation occurs, terminate Auto-TF operations and climb to MSA or RAA. Do not resume TF operations, even if the faults causing the problem are cleared.

Chapter 4

INSTRUMENT PROCEDURES

4.1. Approach Category.

4.1.1. The F-16 is Approach Category E. Missed approach will be accomplished in accordance with flight manual procedures. Missed approach airspeed is 200-250 KIAS.

4.1.2. Approach Category D minimums may be used at an emergency/divert airfield where no Category E minimums are published provided:

_ A straight-in approach is flown.

_ The aircraft is flown at a final approach airspeed of 165 KIAS or less.

_ The aircraft is flown at 255 knots true airspeed (KTAS) or less for the missed approach segment of the approach. (At high pressure altitudes and temperatures 255 KTAS may not be compatible with published missed approach airspeeds and Category D approaches should not be flown).

4.1.3. F-16s are approved to use INS for enroute Area Navigation (RNAV). The enroute navigation period may not exceed one and one half (1.5) hours between INS updates. An update is defined as establishing a positive position using visual references, TACAN, or on-board radar. Do not fly RNAV approaches.

*****4.1.4. GPS approaches have not been approved for USAF aircraft.

4.2. Takeoff and Joinup.

4.2.1. The flight leader must notify the appropriate ATC agency when a VMC joinup is not possible due to weather conditions or operational requirements. Coordinate for an appropriate altitude block or trail formation. Formation in-trail departures will comply with instructions for a nonstandard formation flight as defined in FLIP. Flight lead should request IFF squawks for wingmen in trail.

4.2.2. If weather is below 1500 feet and 3 miles, each aircraft/element will climb on takeoff heading to 1,000 feet AGL before initiating any turns, except when departure instructions specifically preclude compliance.

4-3. Trail Procedures.

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

4.3.2. Trail Departures.

_ Use a minimum of 20 seconds takeoff spacing.

_ Each aircraft/element will accelerate in MIL/AB power until reaching 350 KIAS. Climb at 350 KIAS until reaching cruise Mach/TAS, unless otherwise briefed. All turns will be made using 30 degrees of bank.

_ Upon reaching 350 KIAS, the flight leader will set a pre-briefed power setting.

_ On departure, each aircraft/element will follow the No Radar Contact procedures until all aircraft/elements have gained radar contact and called "tied".

_ Each aircraft/element will maintain 2-3 mile trail during the climb, unless otherwise briefed.

4.3.3. No Radar Contact.

_ The flight leader will call initiating all turns. **(PACAF) The flight leader will call the new heading and navaid fix when initiating all turns to ensure all aircraft turn at the same point (example: Viper 11, turning right to 200, 180 radial/5DME).**

_ During climbs and descents, each aircraft/element will call passing each 5,000 foot altitude increment with altitude and heading (or heading passing) until joinup or level-off, or the following aircraft/element calls "tied." In addition, each aircraft/element will call initiating any altitude or heading change. Acknowledgments are not required; however, it is imperative that preceding aircraft/elements monitor the radio trans-missions and progress of the succeeding aircraft/elements and immediately correct deviations from the departure route or planned course.

_ Each aircraft/element will maintain 20 seconds or 2-3 mile spacing using all available aircraft systems and navigational aids to monitor position.

_ Each aircraft/element will maintain at least 1,000 feet vertical separation from the preceding aircraft/element during the climb/descent and at level-off until radar/visual contact is established, except in instances where departure instructions specifically preclude compliance.

_ In the event a visual joinup cannot be accomplished on top or at level-off, the flight leader will request 1,000 feet of altitude separation for each succeeding aircraft/element providing all aircraft can comply with MSA restrictions. If the MSA cannot be complied with, the 1,000 foot vertical separation may be reduced to 500 feet.

4.3.4. Radar Contact.

_ Each aircraft/element will call "tied" when radar contact is established with the preceding aircraft. Once all aircraft are tied, no further radio calls are required (except to acknowledge ATC instructions) unless radar contact is lost.

_ In flights of three or more aircraft, every attempt should be made to use radar information to help ensure that trail is maintained on the correct aircraft.

_ If radar contact is lost, a "c/s, lost contact" radio call will be made and the flight lead will direct No Radar Contact procedures be re-established.

***4.3.5. Trail Recovery.**

_ Trail recovery procedures must be coordinated /approved through the responsible ATC facilities and addressed in a local operating procedure or in the unit supplement (Chapter 8) to this instruction. Trail recoveries will only be accomplished at home stations/deployed locations where procedures have been established and briefed. As a minimum, procedures will address each recovery profile, missed approach, climbout, lost contact, lost communications and desired/maximum spacing requirements. **(PACAF) Trail recoveries are not authorized for initial arrival at a deployed base.**

_ Trail recovery is limited to a maximum of four aircraft.

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

_ **(PACAF) Trail recoveries are restricted to two aircraft if the weather at the base of intended landing is less than overhead traffic pattern minimums.**

_ **(PACAF/ACC/ANG/AFRES/AETC) Trail recoveries will not terminate in PAR or ASR approaches.**

_ The flight lead will brief the flight on spacing, configuration, and airspeeds. Minimum spacing between aircraft is 9000 feet and will be maintained using on-board radar

_ The flight lead will coordinate the trail recovery with ATC prior to taking spacing.

_ Prior to split-up, the flight lead will ensure that all wingmen have operative navigational aids and radar.

_ Formation break-up should not be accomplished in IMC; however, if unavoidable, break-up will be accomplished in straight and level flight and IAW para 4.4. Flight separation will be accomplished in accordance with local ATC directives.

_ The formation will squawk as directed by ATC.

_ ATC instructions to the lead aircraft will be for the entire flight. ATC will provide radar flight following for the entire formation.

_ All turns are limited to a maximum of 30 degrees of bank.

_ Once established on a segment of a published approach, each aircraft will comply with all published altitudes and restrictions while maintaining in-trail separation.

_ Unless local procedures establish defined reference points for airspeed/ configuration changes, the flight lead will direct changes by radio. At flight lead's call, all aircraft will simultaneously comply with the directed change.

_ All aircraft will report the final approach fix.

_ If contact is lost with the preceding aircraft, the pilot will transmit "c/s, lost contact". The preceding aircraft will respond with altitude, airspeed and heading. Altitude deconfliction will be established and a separate clearance will be coordinated with ATC. If contact is lost after established on a segment of a published approach, flight members may continue the approach, but must confirm separation via navigation aids. If separation cannot be confirmed, aircraft will execute missed approach or climbout as instructed by ATC.

4.4. Formation Break-up. Formation break-up should not be accomplished in IMC; however, if unavoidable, break-up will be accomplished in straight and level flight. Prior to a weather break-up, the flight leader will transmit attitude, airspeed, altitude, and altimeter setting which will be acknowledged by wingmen. Wingmen will also confirm good navigational aids.

4.5. Formation Penetration.

_ Formation penetrations are restricted to two aircraft when the weather at the base of intended landing is less than overhead traffic pattern minimums. Three ship penetrations are authorized for ASLAR approaches in accordance with AFM 13-214, as supplemented.

_ If a formation landing is intended, the wingman should be positioned on the appropriate wing prior to weather penetration.

4.6. Formation Approach. During IMC, formation flights will not change lead or wing positions below 1,500 feet AGL unless on RADAR downwind.

4.7. Simulated Instrument Flight. Simulated instrument flight requires a qualified safety observer in the aircraft or in a chase aircraft.

_ The pilot in either cockpit of the F-16B/D may act as safety observer when the pilot in the other cockpit is flying simulated instruments. Under these conditions, an operable intercom is required. If radar is operable, it will also be utilized as an aid to clear the area.

_ A chase aircraft is required in order to log simulated instrument flight in an F-16A/C. This does not preclude flying multiple approaches in VMC without a chase; however, in this case the primary emphasis will be on the “See and Avoid” concept. Chase aircraft may move into close formation on final if a formation landing is intended and simulated instrument flight is terminated.

4.8. Use of the Heads Up Display (HUD). The HUD may be used as an additional instrument reference in night/IMC conditions; however, it will not be used as the sole instrument reference in these conditions.

Do not use the HUD to recover from an unusual attitude or executing lost wingman procedures except when no other reference is available.

4.9. Airborne Radar Approach (ARA):

4.9.1. ARA Planning:

_ ARAs will be submitted through Air Force Flight Standards Agency (AFFSA) channels for development and approval.

_ ARA minimums will be no lower than ASR or TACAN minimums, whichever is higher.

_ ARAs will be flown in IMC only during an emergency or when the following conditions are met.

_ Approved ARAs may be practiced when weather is at or above ARA minimums as depicted on the ARA approach plate provided ground radar traffic advisories are available and utilized during the approach, or a navigational aid (TACAN/ILS) is operational and monitored by the pilot during the approach. If a navigational aid or ground radar is not available, ARAs will not be practiced unless weather is at or above 1,500 feet and 3 miles visibility.

4.9.2. ARA Procedures:

_ Approval for the practice approach will be obtained from the controlling agency prior to commencing the approach. The pilot will request IFR separation with radar flight following.

_ Fly to intercept the penetration heading prior to the fix, with no more than a 60 degree turn to penetration heading, if possible.

_ Begin the penetration when over the fix, descend and level off at the altitude specified for approach, or at 2,000 feet above the terrain, whichever is higher. If level-off at higher than 2,000 feet is required, continue to fly the altitudes specified for the approach.

_ Identify the airfield on the radar scope and decrease radar range selection to keep the airfield near the center of the scope.

_ If the runway or reflectors cannot be defined, continue the approach by estimating the runway location in relation to the radar returns from the airfield.

_ Approximately 10 miles from the runway, descend to 1,500 feet AGL or local pattern altitude as specified.

_ At 5 miles from the runway, descend to the MDA, or local pattern altitude as specified. Descend so as to reach the MDA prior to the MAP.

_ Missed approach procedures will be as directed/published.

Chapter 5

AIR-TO-AIR WEAPONS EMPLOYMENT

5.1. References. AFI 11-214 (AFR 55-79) contains air-to-air procedures, to include operations with live ordnance (air-to-air missiles), applicable to all aircraft. This chapter specifies additional procedures or restrictions which are applicable to F-16 operations.

5.2. Simulated Gun Employment. The gun is considered SAFE and simulated gun employment is authorized if the following conditions are met:

_ Preflight: Accomplished IAW DASH-34 Cold Gun (SAFE) Procedures.

_ In-flight: A trigger check must be performed with the Master Arm switch in SIMULATE and the aircraft pointed away from other aircraft and inhabited areas. If HUD symbology reads "ARM" or SMS/MFD symbology reads "RDY," do not depress the trigger or continue with simulated weapons employment. Regardless of Master Arm switch position, do not perform a trigger check with a "hot" gun.

5.3. Maneuvering Limitations:

5.3.1. Negative "G" guns jink-out maneuvers are prohibited.

5.3.2. Minimum airspeed during low altitude offensive or defensive maneuvering (LOWAT) is 350 KIAS.

5.3.3. **(PACAF) Contiuation Training (CT) High-aspect BFM Training: A dedicated "fighter" and "training aid" must be clearly identified for each engagement. The "fighter" will have some kind of advantage (power, G available, lead turn advantage at the merge). Syllabus (MQT/FLUG/IPUG) high-aspect BFM will be conducted IAW the appropriate syllabus.**

Chapter 6

AIR-TO-SURFACE WEAPONS EMPLOYMENT

6.1. References. AFI 11-214 contains air-to-surface procedures applicable to all aircraft. This chapter specifies procedures or restrictions applicable to F-16 operations. Qualification and scoring criteria are contained in MCR 51-50 (MCI 11-208).

6.2. Off-Range Attacks. With expendable ordnance (bombs, external fuel tanks, TERs carted at the pylon, etc.) loaded on the aircraft, simulated weapons will be loaded (zero quantity) in the SMS/MFD only on empty or uncarted/unexpendable stations. (Exception: TGM-65s when loaded, may be selected) and the Master Arm switch will be confirmed in OFF or SIMULATE. **(PACAF) Flight leads will verbally confirm all flight members have the Master Arm switch in OFF or SIMULATE and an empty weapons or uncarted/unexpendable station is selected on the SMS prior to the attack.**

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

6.4. Pop-Up Attacks. Abort pop-up attacks if airspeed decreases below 350 KIAS (300 KIAS above 10,000 feet AGL).

6.5. Night Weapons Delivery / Range Operations. All procedures in AFI 11-214 (AFR 55-79) apply.

_ Compute a MSA for the entire bombing pattern.

_ Do not exceed 135 degrees of bank when returning to the low altitude structure following practice/actual night weapons deliveries.

_ **(PACAF) For non-LANTIRN (non-TFR) missions, the minimum altitude for night weapons delivery is 2,000 feet AGL.**

6.6. LANTIRN Weapons Delivery / Range Operations. All procedures in AFI 11-214 apply.

_ If CARA ALOW and/or MSL warnings are used for altitude cues on medium altitude weapons deliveries, care must be taken to reset them as appropriate when descending into the low-level structure.

_ The pilot will perform no duties (i.e. adjusting designation cursor on targeting pod) other than maintaining aircraft control from the initial pull-up during the performance of a night weapons delivery safe escape maneuver or during a night climbing delivery which employs a descent back to low altitude until the aircraft is recovered back within TFR limits and TFR indications are adequate to continue safe low altitude operations.

6.7. Night/VRD Threat Reactions. Refer to AFI 11-214 for maneuvering limits.

Chapter 7

ABNORMAL OPERATING PROCEDURES

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

7.1.1. Do not accepted 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.

7.1.2. Do not fly an aircraft with a tripped engine monitoring system (EMS) Go-No-Go indicators (Bit Balls) until it has been approved or cleared by maintenance. Verify that the appropriate technical order fault tree analysis has been accomplished.

7.1.3. Do not taxi an aircraft with nosewheel steering, brake system, or generator malfunctions /failures. 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. Do not fly an aircraft at night or in IMC if the INS dumps during the EPU check and an INS battery warning PFL/MFL has occurred (F-16A/B: INS 026; F-16C/D: INS BATT WARN/INS 029).

7.1.5. Once a malfunctioning system is isolated and/or the fault corrected, that system will not be used again unless its use in a degraded mode is essential for recovery. Do not conduct ground or in-flight trouble-shooting after flight manual emergency procedures are completed.

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

7.1.7. (PACAF) The CAT III position of the Stores Configuration Switch will be selected when the aircraft is configured with a Category III loading.

7.1.8. (PACAF) When a fuel imbalance is greater than dash one limits, terminate tactical maneuvering and investigate. If the fuel problem was caused by a slow feeding exernal or internal fuel tank that can be corrected, vice a fuel system failure, the mission may continue IAW dash one guidance. If the fuel imbalance cannot be corrected terminate the mission. Instruments, deployment missions, level weapons deliveries and straight through non-maneuvering intercepts are authorized to reduce gross weight.

7.2. Ground Aborts:

7.2.1. If a flight member aborts prior to takeoff, the flight leader will normally renumber the flight to maintain a numerical call sign sequence. Flight leaders will advise the appropriate agencies of such changes.

7.2.2. A flight of two or more aircraft with only one designated flight lead in the formation must either sympathetically abort or proceed on a pre-briefed single-ship mission should the flight lead abort.

7.2.3. Pilots who do not takeoff with the flight may join the flight at a briefed rendezvous point prior to a tactical event, or may fly a briefed alternate single ship mission. If a joinup is to be accomplished on an air-to-ground range, all events will be terminated until the joining aircraft has achieved proper spacing.

7.2.4. 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 will provide checklist assistance at the request of the pilot in command.

7.3. Takeoff Aborts.

7.3.1. If an abort occurs during takeoff roll give call sign and state intentions when practical. Following aircraft will alter takeoff roll to ensure clearance or abort takeoff if adequate clearance cannot be maintained. The phrase “Cable, Cable, Cable” will be used to indicate a departure-end arrestment.

7.3.3. When aborting above 120 KIAS, or hot brakes are suspected, declare a ground emergency. Taxi the aircraft to the designated hot brake area and follow hot brake procedures.

7.4. Air Aborts:

7.4.1. If an abort occurs after takeoff, all aircraft will maintain their original numerical call sign.

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

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

_ Birdstrike/Foreign Object Damage.

_ Over-G. The aircraft will land as soon as practical out of a straight-in approach.

_ Flight control system anomalies. This does not include flight control system lights that reset IAW flight manual procedures. ***(PACAF) Includes: Departure from Controlled Flight**

_ Engine flameout/stagnation or shutdown.

7.4.4. Report all engine anomalies during maintenance debriefing.

7.5. Radio Failure:

7.5.1. Formation:

7.5.1.1. 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. 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.

7.5.1.2. 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. 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.

7.5.2. Surface Attack NORDO Procedures:

7.5.2.1. Class A / Manned Class B Ranges.

_ Attempt contact with the RCO on the appropriate back-up frequency.

_ If contact cannot be re-established, make a pass by the range control tower on the attack heading while rocking wings, and turn in the direction of traffic. The flight leader will either rejoin the flight and RTB, or direct another flight member to escort the NORDO to a recovery base.

_ If the NORDO aircraft has an emergency, make a pass by the range control tower, if practical, on the attack heading while rocking wings, turn opposite the direction of traffic, and proceed to a recovery base. The flight leader will direct a flight member to joinup and escort the emergency aircraft.

7.5.2.2. Unmanned Class B and Class C Ranges.

_ Make a pass on the target, if possible, while rocking wings. The leader will either rejoin the flight in sequence and recover, or direct another flight member to escort the NORDO aircraft to a recovery base. If the NORDO has an emergency, he will, if practical, make a pass on the target, rocking wings, turn opposite direction of traffic, and proceed to a recovery base. The flight leader will direct a flight member to joinup and escort the emergency aircraft.

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

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

_ Stores jettison visual signals specified in AFI 11-205 (AFR 60-15) are relayed to the NORDO aircraft to initiate jettison.

7.5.3. DART/Missile Firing NORDO Procedures:

_ Aircraft will not fire without two-way radio contact.

_ If radio failure occurs, safe the armament switches, join on another member of the flight or the tow aircraft, IAW para 7.5.1.

_ DART tow aircraft experiencing radio failure will rock wings and continue the turn if an attack is in progress. The flight leader of the attacking aircraft will join on the tow's wing. Remain clear of the DART in the event it is cut. The tow pilot will use standard hand signals to indicate his difficulty. The flight leader will signal when the DART is cleared for cut with a slicing motion across the throat. After the DART 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. If cable remains, follow local procedures.

7.5.4. NORDO Recovery:

_ The procedures in AFI 11-205 (AFR 60-15) and FLIP apply.

_ 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. The NORDO aircraft will go-around, if the situation allows. 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.

_ If the NORDO aircraft intends to make an approach-end arresting gear engagement, he will signal the escorting aircraft by extending the tailhook. If the NORDO aircraft is not escorted, the pilot will fly a straight-in approach flashing the landing light on final to signal the tower/ROM.

7.6. Severe Weather Penetration. Do not attempt flight through severe weather. If unavoidable, prior to severe weather penetration, flights should split-up and obtain separate clearances.

7.7. Lost Wingman Procedures. In any lost wingman situation, immediate separation of aircraft is essential. Upon losing sight of the leader, or if unable to maintain formation due to spatial disorientation (SD), the wingman will simultaneously execute the applicable lost wingman procedures while transitioning to instruments. Refer to para 7.8 for specific SD considerations. Smooth application of control inputs is imperative to minimize the effects of SD. Once lost wingman procedures have been executed, permission to rejoin the flight must be obtained from the flight lead.

7.7.1. Two- or Three-Ship Flights:

_ Wings-Level Flight. In 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 separate clearance.

7.7.1.1. Turns:

_ 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.

_ Inside the Turn. Momentarily reduce power to ensure nose-tail separation, and inform the flight leader to roll out of the turn. Maintain angle of bank to ensure lateral separation and obtain separate clearance. The leader may resume turn only when separation is ensured.

_ NOTE: If in three-ship echelon, refer to four-ship lost wingman procedures.

7.7.1.2. 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 from approach control.

7.7.1.3. 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. Obtain a separate clearance from approach control.

7.7.2. Four-Ship Flights. If only one aircraft in the flight becomes separated, the previous procedures will provide safe separation; however, 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. Number 2 and 3 will follow the procedures outlined above. Number 4 will follow the appropriate procedure listed below:

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

7.7.2.2. Turns:

_ 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 separate clearance.

_ 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 separate clearance. Leader will resume turn only when separation is ensured.

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

7.7.4. If a wingman becomes separated and any aircraft experiences radio failure, the aircraft with the operational radio will obtain a separate clearance. The NORDO aircraft will turn the IFF/SIF to emergency for one minute and then select NORMAL code 7600 while proceeding with previous clearance. If an emergency situation arises along with radio failure, turn the IFF/SIF to EMERGENCY for the remainder of the flight.

7.7.5. Lost wingman procedures will be practiced only in VMC.

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

7.8. Spatial Disorientation. Conditions which prevent a clear visual horizon or increase pilot tasking are conducive to SD. To prevent SD, the pilot will make a conscious attempt to increase his instrument cross-check rate. When SD symptoms are detected, the following steps will be taken until symptoms abate:

7.8.1. Single Ship:

_ Concentrate on flying basic instruments with frequent reference to the attitude indicator. Use heads-down instruments. Defer nonessential cockpit tasks. If flying dual, transfer control to the other pilot.

_ If symptoms persist, bring aircraft to straight and level flight with reference to the attitude indicator, conditions permitting. Maintain straight and level flight, terrain permitting, until symptoms abate, usually 30-60 seconds. Use the autopilot if required.

_ If necessary, declare an emergency and advise ATC.

_ NOTE: It is possible for SD to proceed to the point where the pilot is unable to see, interpret, or process information from the flight instruments. Aircraft control in such a situation is impossible. A pilot must recognize when physiological/ psychological limits have been exceeded and be prepared to abandon the aircraft.

7.8.2. Formation Lead:

_ A flight lead with SD will advise his wingmen that he has SD and he will comply with procedures in paragraph 7.8.1.

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

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

7.8.3. Formation Wingman.

_ Wingman will advise lead when disorientation makes it difficult to maintain position.

_ Lead will advise wingman of aircraft attitude, altitude, heading, and airspeed.

_ If symptoms persist, lead will establish straight and level flight for 30-60 seconds, conditions permitting.

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

7.8.4. Greater than 2-Ship Formation. Lead should separate the flight into elements to more effectively handle a wingman with persistent SD symptoms. Establish straight and level flight IAW paragraph 4.4 (Formation Break-up). The element with the SD pilot will remain straight and level while the other element separates from the flight.

7.9. Armament System Malfunctions:

7.9.1. Inadvertent Release.

_ Record switch positions at the time of inadvertent release and provide to armament and safety personnel. Record the impact point, if known.

_ Check armament switches safe and do not attempt further release in any mode. Treat remaining stores as hung ordnance and obtain a chase aircraft during RTB, if practical.

_ If remaining stores present a recovery hazard, jettison in a suitable area on a single pass, if practical.

7.9.2. Failure to Release/Hung Ordnance. If ordnance fails to release when all appropriate switches are set, proceed as follows.

_ Hung live ordnance or aircraft malfunction which precludes further live weapons delivery.

_ All release and fuzing switches should be noted then safed.

_ Attempt to release store(s) using an alternate delivery mode. If unsuccessful, attempt to jettison store(s) using selective jettison procedures. Lastly, consider attempting to selectively jettison the rack if ordnance is unsecure or security cannot be determined.

_ If ordnance remains on the aircraft, follow the hung ordnance recovery procedures.

7.9.2.1. Practice/Inert Ordnance:

_ Re-check switch positions and make an additional attempt to expend. If no release occurs, select an alternate delivery mode in an attempt to expend.

_ If the secondary release mode fails, ordnance from other stations/dispensers may be released providing the aircraft will remain within symmetrical load limits.

_ If remaining stores present a recovery hazard, jettison in a suitable area on a single pass, if practical.

_ If ordnance remains on the aircraft, follow the hung ordnance recovery procedures.

7.9.3. Hangfire/Misfire:

_ A missile that fires but fails to depart the aircraft is a hangfire. If this occurs, the missile should be closely observed and safety checked by a chase pilot.

_ A missile that fails to fire when all appropriate switches were selected is a misfire. If this occurs, safe the Master Arm switch and follow the hung ordnance recovery procedures.

_ MAVERICK Misfire. When a misfire occurs, safe the Master Arm switch and have the missile visually checked for smoke or fire. If either exists, the missile should be jettisoned on the range. If neither is noted, another pass may be attempted. If the second attempt fails, either remain dry in the pattern for 15 minutes or proceed to the recovery base following hung ordnance recovery procedures.

7.9.4. Hung Ordnance/Weapons Malfunction Recovery:

_ If practical, visually inspect the aircraft for damage.

_ Declare an emergency (not required for hung practice/inert ordnance or for live unexpended ordnance).

_ If available, obtain a chase aircraft (N/A at night) and avoid populated areas and trail formations.

_ Land from a straight-in approach.

7.9.5. Miscellaneous Procedures:

_ Pilots will not attempt to expend ordnance using a delivery system with a known weapons release malfunction.

_ When abnormal missile launch or erratic missile flight is noted after launch, the launching aircraft will be visually inspected (if possible) by another pilot to determine if any damage has occurred.

7.10. Post Arresting Gear Engagement Proced-ures:

_ Do not shut down the engine unless fire or other conditions dictate, or directed to do so by the arresting gear crew.

_ Raise the tailhook on the arresting crew's signal.

_ Do not taxi until directed to do so by the arresting gear crew.

_ Further procedures will be conducted IAW local unit directives (if applicable).

7.11. In-flight Practice of Emergency Procedures:

7.11.1. Simulated Emergency Procedure. Any procedure that produces an effect which would closely parallel the actual emergency, such as retarding the throttle to the degree which produces a drag equivalent to a flamed out or idle engine.

7.11.2. Aborted Takeoff Practice. All practice and /or training related to aborted takeoffs will be accomplished in the flight simulator, Cockpit Familiarization Trainer (CFT), or (if trainer unavailable) a static aircraft.

7.11.3. Practice in-flight engine shutdown is prohibited.

7.11.4. Emergency Landing Patterns (SFO) (Refer to AFI 11-206 (AFR 60-16)):

7.11.4.1. Field Requirements. Practice of SFO/ emergency landing patterns at active airfields is authorized provided that crash rescue and either an active tower or a ROM (or equivalent) is available and in operation.

7.11.4.2. Supervisory Requirements. The pilot must be MR/MC. IQT (including FTU) pilots require an IP on board the aircraft or in a chase aircraft. MQT (including FTU) pilots require a ROM/RSO in place, or an IP or flight lead in the pattern and in a position to monitor all patterns.

7.11.4.3. Simulated Flameout (SFO) Procedures:

_ SFO training will be accomplished in Day/VMC conditions only.

_ Specific procedures for conduct of SFO training will be established in letters of agreement with appropriate agencies and published in Chapter 8, Local Operating Procedures.

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

_ An SFO will not be initiated or continued if a potential traffic pattern conflict exists which would require that the pilot divide attention between the SFO and sequencing with traffic. In addition, SFOs should be discontinued whenever excessive maneuvering is required, whether as a result of a traffic conflict or when making required/perceived corrections. Once discontinued, a go-around will be initiated and no attempt will be made to re-enter/complete that pattern/approach.

7.11.4.3.1. Radio Calls. Calls will be made IAW local agreements or procedures. As a minimum, the following radio calls will be made:

_ "High Key."

_ "Low Key."

_ "Base with Gear, Intentions (Touch-and-Go, Low Approach, Etc.)."

7.11.4.3.2 During an SFO, power response will be checked to at least 80 percent RPM (GE 100/129: 90 percent RPM) at the Low Key or equivalent position and returned to IDLE.

7.11.4.3.3. SFOs will be discontinued and a go-around initiated if airspeed drops below Dash One minimum airspeed any time between base key and the initiation of the flare, or if unable to obtain wings level on final by 200 feet AGL.

7.11.4.3.4. Full stop landings from training SFOs are prohibited.

7.11.4.3.4.1.(PACAF) Touch-and-go landings from training SFOs are prohibited. Low approaches will be flown so as not to touch down.

7.12. Search and Rescue (SARCAP) Procedures. In the event an aircraft is lost in flight, actions must begin to locate possible survivors and initiate rescue efforts. It is imperative that all flight members aggressively pursue location and rescue of downed personnel even though they seem uninjured. Many downed aircrews initially suffer from shock or have delayed reactions to ejection injuries. The following procedures are by no means complete and should be adjusted to meet each unique search and rescue situation. Specific procedures will be detailed in Chapter 8, Local Operating Procedures under Section F, Abnormal Procedures.

7.12.1. SQUAWK. Immediately terminate maneuvering using appropriate Knock-It-Off procedures. Establish a SARCAP commander. IFF should be placed to EMER to alert ATC/GCI of the emergency situation.

7.12.2. TALK. Communicate the emergency situation and aircraft/flight 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. TACAN/INS position, ATC/GCI positioning, or ground references should be used to identify the immediate area for subsequent rescue efforts.

7.12.4. SEPARATE. Remain above the last observed parachute altitudes until the position of all possible survivors is determined. Deconflict other aircraft assisting in the SARCAP by altitude to preclude midair collision. Establish high/low CAPs as necessary to facilitate communications with other agencies.

7.12.5. BINGO. Revise BINGO fuels or recovery bases as required to maintain maximum SARCAP coverage over survivors/crash site. Do not overfly BINGO fuel. Relinquish SARCAP operation to designated rescue forces upon their arrival.

7.13. Critical Action Procedures. Specific Critical Action Procedures are contained in Attachment 2.

7.14. (PACAF) Unsafe Nose Gear Indications. During takeoffs in extremely cold temperatures if the nose grar door fails to retract, indicated by all three green wheels down lights off and a red light in the LG handle on, and visually confirmed as the only malfunction by a chase aircraft, the landing gear handle may be cycled twice in an attempt to obtain a normal gear-up indication. This procedure will only be accomplished in VMC and with adequate light to visually confirm no other malfunction exists.

Chapter 8

LOCAL OPERATING PROCEDURES

8.1. This chapter is reserved for unit local operating procedures. If this chapter is incorporated in another base regulation, a single page insert will be used referencing its location, or the entire regulation inserted, as appropriate. Procedures herein will not be less restrictive than those contained elsewhere in this Instruction, nor is this chapter intended to be a single source document for procedures contained in other directives or Instructions. Unnecessary repetition of guidance provided in other established directives should be avoided; however, reference to those directives is acceptable when it serves to facilitate location of information necessary for local operating procedures. This chapter is authorized to be issued to each F-16 pilot. MAJCOMs or other subordinate agencies (NAF, Center, etc.), may direct publications approval channels and a specific format for Chapter 8 based on unique flying areas, missions, and/or procedures. Unless changed by MAJCOM or subordinate agency, the following procedures apply:

8.1.1. When published, units will forward copies to MAJCOM and appropriate subordinate agencies, who will review the Chapter 8 and return comments or required changes back to the unit(s), if appropriate. The process need not delay distribution unless specified otherwise by MAJCOM or a subordinate agency. If a procedure is determined to be applicable to all F-16 units, it will be incorporated into the basic Instruction.

8.1.2. The local chapter will be organized in the following format and will include, but is not limited to, the following:

_ Section A. Introduction.

_ Section B. General Policy.

_ Section C. Ground Operations.

_ Section D. Flying Operations.

_ Section E. Weapons Employment.

_ Section F. Abnormal Procedures.

_ Attachments. (Illustrations)

8.1.3. This chapter will include procedures for the following, if applicable:

8.1.3.1. Command and Control.

_ Fuel Requirements and Bingo Fuels.

_ Diversion Instructions.

_ Jettison Areas / Procedures / Parameters (IFR/VFR).

_ Controlled Bailout Areas.

_ Local Weather Procedures.

_ Unit Standards (Optional).

_ Approved Alternate Missions.

_ Cross-Country Procedures (if applicable).

_ Search and Rescue (SARCAP) Procedures.

_ **(PACAF) Environmental Restrictions. Each unit will establish local environmental restrictions to flight operations (i.e., winds, sea state or temperature) that are applicable to their geographic location. Unit commanders must weigh the risk versus the operational gain when defining these**

restrictions. These restrictions will be included in the unit local operating procedures MCI 11-F16, Vol. 3, Chapter 8

Chapter 9

MAJOR COMMAND OPERATING PROCEDURES

This chapter may be published by the individual command to delete, change, or insert procedures as applicable and approved by that command.

Attachment 1

FLIGHT BRIEFING GUIDES

1. GROUND OPS / TAKEOFF / DEPARTURE

MISSION DATA

1. Time Hack
2. EP / Threat of the Day
3. Mission Objective(s)
4. Mission Overview
5. Mission Data Card
   a. Mission Commander / Deputy Lead
   b. Joker / Bingo Fuel
   c. Takeoff and Landing Data
   d. Working Area
6. Weather / Sunrise / Sunset / Moon Illumination
7. Tactical Decision Aid Transm issivity / Absolute Humidity
8. NOTAMs / Bird Strike Potential
9. Personal Equipment
10. FCIF / Pubs / Maps

GROUND PROCEDURES

1. Pre-Flight
   a. Aircraft
   b. Armament
2. FLIR Tuning / Boresighting
3. Check-In
4. Taxi / Marshaling / Arming
5. Spare Procedures

TAKEOFF

1. Runway Lineup
2. Formation Takeoff
3. Takeoff Interval
4. Abort
5. Jettison Procedures
6. Low Altitude Ejection
7. Landing Immediately After Takeoff

DEPARTURE / EN ROUTE

1. Routing
2. Trail Departure
3. Join-Up / Formation
4. Systems / Ops Checks
5. TFR Checks

2. RECOVERY / LANDING BRIEFING GUIDE

RECOVERY

1. Rejoin
2. Battle Damage / Bomb Check
3. Type Recovery
4. Flight Break-Up
5. Pattern and Landing
6. After Landing / De-Arm
7. Emergency / Alternate Airfields

3. SPECIAL SUBJECT BRIEFING GUIDE (as applicable)

1. Instructor Responsibilities
2. Chase Procedures
3. IFF Procedures
4. Radar / Visual Search Responsibilities / Midair Collision Avoidance
5. Dissimilar Formations
6. Terrain Avoidance
   a. Departure / En Route / Recovery
   b. Use of Radar Altimeters / MSL Floor Settings
7. Bird Strike Procedures / Use of Visor(s)
8. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, and Complacency)

*****9. G-Awareness
   a. Turn/G-Suit connection/G-tolerance
   b. Use of L-1 Anti-G Straining Maneuver (AGSM)
10. Visual Illusions / Perceptions

*****11. Spatial Disorientation / Unusual Attitudes /G-excess illusion
12. Lost Wingman
13. Radio Inoperative
14. SARCAP
15. Recall Procedures
16. SIIs

SPECIFIC MISSION BRIEFING INDEX

3.1. ADVANCED HANDLING / INSTRUMENT BRIEFING GUIDE

AIRWORK

1. Airspace Restrictions
2. Area Orientation
3. Instructor Responsibilities
4. Maneuvers

APPROACHES

1. Frequencies

2. Holding
3. Penetration
4. Missed Approach /Climb Out

SPECIAL SUBJECTS
1. "G" Awareness
2. Fuel Awareness / AB Use / Consumption Rates
3. Maneuvering Limitations
   a. Airspeed and "G"
   b. Recognition / Prevention / Recovery From Out of Control
   c. Maneuvering at Heavyweight / High Angles of Attack / Asymmetrical Configuration
   d. Effects of CG Throughout the Flight
   e. Time to Ground Impact
      (1) Wings Level
      (2) Overbank / Under G
4. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation / Prioritization, and Complacency)

3.2. AIR REFUELING BRIEFING GUIDE

GENERAL
1. Tanker Call Sign(s) / Receiver Assignments
2. Refueling Track(s)
   a. Altitude
   b. Airspeed
   c. Airspace Restrictions
3. ARIPs, ARCPs, ARCTs
4. Radio Frequencies

BUDDY PROCEDURES
1. Departure
2. Join-Up

EN ROUTE
1. Route of Flight
2. Formation
3. Ops Checks

RENDEZVOUS
1. Type Rendezvous
2. Holding Procedures / Formation
3. Ground Radar Assistance
4. Tanker Identification - TACAN / Radar / Visual
5. Radar Procedures / Techniques
6. Wingman / Deputy Lead Responsibilities
7. Receiver Formation / Join-Up Procedures
8. Rendezvous Overrun

REFUELING
1. Checklist Procedures
2. Radio Calls
3. Refueling Order
4. Techniques
   a. EMCON
   b. Visual Signals
6. Fuel Off-Load
7. Bingo Fuel / (Abort Points / Abort Bases)

8. Drop-Off Procedures
9. Wake Turbulence

REFORM AND EXIT
1. Formation
2. Clearance

EMERGENCY PROCEDURES
1. Breakaway Procedures
2. Systems Malfunctions
3. Damaged Receptacle

IMC / NIGHT CONSIDERATIONS
1. Lost Wingman Procedures
2. Aircraft Lighting

SPECIAL SUBJECTS
1. Fuel Awareness / AB Use / Consumption Rates
2. Flight Path Deconfliction / Other Receiver Considerations
3. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, and Complacency)

3.3. AIR COMBAT TRAINING (ACBT) / INTERCEPT BRIEFING GUIDE

GENERAL / ADVERSARY COORDINATION / GCI COORDINATION
1. Call Signs
2. Number and Type Aircraft
3. Scenario
   a. Objective(s)
   b. Type Threat Simulated / Tactics Limitations (If Any)
   c. CAP Points / Target Locations
   d. Safe Areas / FEBA / Ground Threats
   e. VID / EID / BVR Criteria
4. Mission Contingencies
   a. Single Radar Scope / No GCI
   b. Single Frequency
   c. Area Weather / Alternate Mission
   d. Aircraft Fallout Plan (Primary / Alternate Missions)
   e. Rejoin in Area for Late Takeoffs
5. Area Information
   a. Controlling Agency (GCI / AWACS / ACMI)
      (1) GCI / Flight
      (2) Comm Requirements
      (3) Type / Level of Control
   b. Airspace Restrictions
   c. CAP Points / Target Locations
   d. Frequencies
   e. Squawks
   f. Block Altitudes / Min Altitudes / Flight Parameters
   g. Transmissions
      (1) KIO
      (2) Shots / Kills
      (3) Fuel / Altitude Awareness
6. Rendezvous / Recovery Procedures / Dissimilar Formation
7. Weapons Employment
   a. Simulated Ordnance (Type / Quantity)

b. Shot Criteria
c. Kill Criteria / Removal
d. Shot / Kill Passage
8. Training Rules
9. Emergency Procedures
a. Recovery
b. Escort Procedures
10. Debriefing (Time / Place)

FLIGHT / ELEMENT TACTICS

1. Avionics Set-up
a. Radar
b. INS
c. IFF
d. Air-to-air TACAN
2. CAP / Patrol Phase
a. Type Pattern
b. Formation / Altitude / Airspeed
c. Search Responsibilities
d. Commit
(1) Criteria / Range
(2) Procedures
3. Ingress / Intercept Phase
a. Formation / Altitude / Airspeed
b. Detection
(1) Search Responsibilities (Radar / Visual)
(2) Radar Sorting
c. Targeting Plan
d. Intercept Type / Planned Tactics
(1) Plan (Direct Attack / Deception)
(2) Mutual Support Requirements
(3) Identification Requirements / Procedures
(4) Minimum Altitudes / Airspeeds
(5) Vertical / Horizontal Conversions / Turning Room
e. Night / IMC Intercepts
(1) ECM / Chaff / Evasion Restrictions
(2) Radar Requirements
(3) Altitude Separation Requirements
4. Engagement Phase
a. Plan
(1) Turn and Fight
(2) Hit and Run
(3) Abort
b. Clearance for Wingman to Engage
(1) Offensive
(2) Defensive
c. Alternate Plan (Degraded Situation)
5. Egress / Separation Phase
a. Disengagement Plan (Why / When / How)
(1) Loss of Mutual Support
(2) Fuel
(3) Ordnance
b. Egress Formation / Responsibilities
6. Contingencies

a. Single Contact
b. Short Range Commit
c. Single Ship (Loss of Mutual Support)
d. Safe Escape / Rendezvous Point
7. Live Missile / Hot Gun Safety Procedures
8. Additional Considerations
a. Threat Reaction
b. Degraded Systems
c. Tactical Lead Changes
d. Bandit Options
e. Film / VTR
f. Codewords
9. Alternate Mission
a. Type Mission (refer to appropriate mission briefing guide)
b. Mission Objectives

***TRAINING RULES/SPECIAL OPERATING INSTRUCTIONS**

***DESIRED LEARNING OBJECTIVES**

SPECIAL SUBJECTS
1. "G" Awareness
2. Fuel Awareness / AB Use / Consumption Rates
3. Flight Path Deconfliction
4. Maneuvering Limitations
a. Airspeed and "G"
b. Recognition / Prevention / Recovery from Out of Control
c. Time to Ground Impact
(1) Wings Level
(2) Overbank / Under "G"
5. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, and Complacency)

3.4. BASIC FIGHTER MANEUVERS (BFM) / AIR COMBAT MANEUVERING (ACM) BRIEFING GUIDE

AREA WORK
1. Area Description / Restrictions
2. G Warm-up
3. Horn Awareness
4. Belly / Guns
5. Roll-Slides
6. Other Exercises

SET-UPS
1. Objectives
2. Type Threat Simulated / Tactics Limitations
3. Floor (ALOW Use - MSL Floor)
4. BVR
a. Geometry
b. Heading / Altitude / Airspeeds
c. Points / Blocks
5. Perch Set-Ups
a. Position
b. Altitude
c. Airspeeds

d. Visual / Camera's On
6. Butterfly - Line Abreast / Action / “Fights On”

WEAPONS
1. Type Used / Engagement
2. Shot / Kill Criteria
3. Parameters / Restrictions / Simulations

KNOCK-IT-OFF / TERMINATE / BETWEEN ENGAGEMENTS
1. Maintain Tally / Visual
2. Airspeed
3. Formation
4. Camera Off / Fuel Check

DESIRED LEARNING OBJECTIVES (DLO'S)
SPECIAL SUBJECTS
1. “G” Awareness
2. Fuel Awareness / AB Use / Consumption Rates
3. Flight Path Deconfliction
4. Maneuvering Limitations
   a. Airspeed and “G”
   b. Recognition / Prevention / Recovery from Out of Control
   c. Time to Ground Impact
      (1) Wings Level
      (2) Overbank / Under “G”
5. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, and Complacency)

3.5. ESCORT MISSION BRIEFING GUIDE

EN ROUTE TO RENDEZVOUS / POST-MISSION NAVIGATION
1. Formation
2. Route of Flight
3. Control Agency Call Sign / Frequency

RENDEZVOUS
1. Protected Force Call Sign
2. Altitude
3. Airspeed

ESCORT PROCEDURES
1. Type Formation
2. Tactics
3. Escort Route
4. ECM / RWR

***TRAINING RULES/SPECIAL OPERATING INSTRUCTIONS**

ALTERNATE MISSION
1. Type Mission (refer to appropriate mission briefing guide)
2. Mission Objectives

SPECIAL SUBJECTS
1. Airspace Restrictions
2. “G” Awareness
3. Fuel Awareness / AB Use / Consumption Rate
4. Flight Path Deconfliction
5. Maneuvering Limitations
   a. Airspeed and “G”

b. Recognition / Prevention / Recovery from Out of Control
6. Time to Ground Impact
a. Wing Level
b. Overbank / Under "G"
7. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, and Complacency)

3.6. DART TOW COORDINATION BRIEFING GUIDE

TOW COORDINATION
1. Ground / T.O. / Departure
2. Rendezvous
3. Airspace Data
4. GCI Support
5. DART Launch / Chase
6. Shooter Order
7. Type Pattern
8. Tow Altitude Block(s) / Flight Parameters
9. Intercept Phase / Pattern Set-Up
10. Arming Procedures
11. Timing
12. Tow Maneuvering Parameters
13. Shooter / Firing Plan
14. Radio Procedures
15. Termination
a. Timing
b. Minimum Altitude
c. Joker / Bingo Fuel
d. Winchester
e. Fouls
16. Armament Safety Check
17. DART Scoring
18. Subsequent Set-Ups
19. DART Drop Procedures
20. Recovery Order
21. Abnormal Procedures
a. Erratic DART
(1) During Deployment
(2) During Employment
b. DART Drag-Off
c. Recovery With DART / Cable
d. NORDO
(1) During Engagement
(2) DART Drop
(3) Visual Signals
(4) Recovery

3.7. DART BRIEFING GUIDE

GENERAL
1. Formation
2. Area Information
a. Controlling Agency
b. Airspace Restrictions
c. Frequencies

3. Switch Positions
4. Arming Procedures
5. Intercept / Set-Up
6. Shooter Sequence
7. Position Changes
8. Chase Procedures
9. Timing

EMPLOYMENT

1. Firing Parameters
   a. Minimum Range
   b. Overtake
   c. Angle-Off
   d. Error Analysis
2. Contingencies
   a. Avionics Malfunctions
   b. Gun Malfunctions
   c. Range Estimation Without Radar
3. Safety Considerations
   a. Target Fixation
   b. Debris Avoidance
   c. Fouls

TRAINING RULES / SPECIAL OPERATING INSTRUCTIONS

ALTERNATE MISSION

1. Type Mission (refer to appropriate mission briefing guide)
2. Mission Objectives

SPECIAL SUBJECTS

1. Minimum Altitudes
2. "G" Awareness
3. Fuel Awareness / Ops Checks / AB Use / Consumption Rates
4. Maneuvering Limitations
   a. Airspeed / "G" / Stress
   b. Recognition / Prevention / Recovery From Out of Control
5. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, and Complacency)

3.8. LOW-LEVEL NAVIGATION BRIEFING GUIDE

GENERAL

1. Route / Clearance / Restrictions
2. Flight Responsibilities
   a. Navigation
   b. Radar / Visual Search
3. Entry / Spacing / Holding / Initial Altitude (MSA)

ROUTE PROCEDURES

1. Fence Checks
2. Tactical Formation / Turns
3. Low-Level Navigation
   a. Dead Reckoning / Use of Navigation Aids/ Equipment (i.e. INS)
   b. Radar Procedures / Techniques / Predictions
   c. Visual Procedures / Techniques / IR Predictions
   d. Updates / Calibrations
   e. Time / Fuel Control

*f. Terrain Following / Wingman Considerations / Pilot Comfort Level
g. Leg Altitudes / Set Clearance Plane / Obstacles (MSL / AGL)
h. Turnpoint Acquisition
*I. Obstacle / Ground Avoidance
*J. Use of Altitude Warning Systems (ALOW and MSL Settings)

4. Threat Reactions
   a. RWR / ECM / CHAFF / FLARES
   b. Engagement Criteria
   c. Flight Path Deconfliction
   d. Termination

CONTINGENCIES

1. Aircraft fallout plan
2. Rejoin after late takeoff

EMERGENCIES

1. Aircraft Malfunctions
2. Route Abort Procedures (RAA / MSA) / ATC Frequencies

TRAINING RULES / SPECIAL OPERATING INSTRUCTIONS

ALTERNATE MISSION

1. Type mission (refer to appropriate mission briefing guide)
2. Mission Objectives

SPECIAL SUBJECTS

1. Airspace Restrictions
2. "G" Awareness / Ops Checks
3. Fuel Awareness / AB Use / Consumption Rates
4. Flight Path Deconfliction
5. Maneuvering Limitations
   a. Airspeed and "G"
   b. Recognition / Prevention / Recovery From Out of Control
6. Time to Ground Impact
   a. Wings Level
   b. Overbank / Under "G"
7. Night Considerations
8. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**)

3.9. AIR-TO-SURFACE WEAPONS EMPLOYMENT BRIEFING GUIDERANGE MISSION

A. RANGE INFORMATION

1. Target / Range Description
2. Restrictions
3. Range Entry / Holding
4. Radio Procedures
5. Formation
6. Sequence of Events
7. Pattern Procedures
8. Aircraft fallout plan
9. Rejoin on range for late takeoffs

EMPLOYMENT PROCEDURES/TECHNIQUES

1. Avionics / Switch Positions
   a. Weapons Switchology / Delivery Mode
   b. Radar Switchology

c. Special Weapons Switchology
2. Laydown / Loft Events
a. Ground track / Altitude / Airspeed
b. Radar / Optical Depiction (OAP / TGT)
c. Radar / Optical Tuning / Techniques
d. Pickle / Release Point
e. Breakaway / Recovery Technique
f. Backup Deliveries / EMR
g. Delivery Spacing
3. Pop-Up Delivery
a. Entry Airspeed / Altitude
b. Pop Point / Pull-Up Angle / Power Setting
c. Target Acquisition
d. Pull Down / Apex Altitudes
e. Pattern Corrections
4. Roll-In
a. Position
b. Techniques (Pitch / Bank / Power)
c. Roll-Out / Wind Effect
5. Final
a. Aim-Off Distance
b. Dive Angle
c. Airspeed
d. HUD Depiction
e. Sight Picture / Corrections / Aim-Point
f. Release Parameters
g. Release Indications
h. Recovery Procedures

SPECIAL PROCEDURES
1. Live Ordnance Considerations
a. Safe Escape / Safe Separation
b. Fuse Arming / Frag Avoidance
2. RBS Operations
3. Laser Operations

NIGHT PROCEDURES
1. Aircraft Lighting
2. Radio Calls
3. Target ID / Range Lighting
4. Night Spacing Techniques
5. Instrument Cross-check / Disorientation

6. Flare Pattern
a. Flare Release Points and Interval
b. Wind Effect / Offset
c. Dud Flare Procedures
d. Switching Aircraft Patterns

OVER WATER RANGE OPERATIONS
1. Employment Techniques
a. Depth Perception / Reduced Visual Cues
b. Distance / Altitude Estimation
c. Pop-Up Positioning
(1) Timing

(2) Visual / Aircraft References to Establish Pull-Up Point
2. Special Considerations
a. Adjusted Minimum Altitudes
b. Training Rules / Special Operating Procedures

RANGE DEPARTURE PROCEDURES
1. Armament Safety Checks
2. Rejoin
3. Battle Damage / Bomb Check
4. Jettison Procedures / Parameters
5. Hung / Unexpended Ordnance
6. Inadvertent Release
7. Gun Unsafe / Jam

TRAINING RULES / SPECIAL OPERATING INSTRUCTIONS

ALTERNATE MISSION
1. Type Mission (refer to appropriate mission briefing guide)
2. Mission Objectives

SPECIAL SUBJECTS
1. Error Analysis
2. Fouls
3. Minimum Altitudes
4. Target Fixation
5. "G" Awareness
6. Fuel Awareness / Ops Checks / AB Use / Consumption Rates
7. Maneuvering Limitations
a. Airspeed / "G" / Stress (Carriage / Release)
b. Recognition / Prevention / Recovery From Out of Control
8. Time to Ground Impact
a. Wings Level
b. Overbank / Under "G"
9. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**)

B. SURFACE ATTACK TACTICS

GENERAL MISSION DATA
1. Intelligence / Threat Scenario
2. Low-Level (See Low-Level Briefing Guide)
3. Fence Checks
4. Operating Area Entry / Description / Boundaries
5. Target Area / Clearing Pass
a. Location / Description / Elevation / TOT
b. Visual Cues in the Target Area
c. Target Area Weather
(1) Ceiling / Visibility
(2) Winds / Altimeter
(3) Sun Angle / Shadows
(4) IR Considerations
6. Threat Array
a. Type / Capabilities
b. Locations
c. Countermeasures

(1) Chaff / Flare
(2) Terrain masking
(3) Radio Silent Procedures
(4) Authentication / Comm-Jamming / Chattermark Procedures
d. Threat Reactions
(1) LOWAT
(2) IP to Action Point
(3) During Delivery
7. Ordnance / Weapons Data
a. Type / Fuzing
b. Weapons Settings
c. Desired Effects
d. Specific Aim Points
e. Minimum Altitudes
(1) Safe Escape / Safe Separation
(2) Fuze Arming / Frag Avoidance
8. Laser Operations

EMPLOYMENT PROCEDURES
1. Tactics
a. Overview
b. Ingress
(1) Formation
(2) Speed / Altitude
c. Weapons Delivery
(1) Type Delivery
(2) Switchology
(3) Attack Parameters
(a) Action Point / Pop Point
(b) Altitudes (Pull-Down / Apex / Release / Minimum)
(4) Visual Lookout / Mutual Support Responsibilities
d. Egress
(1) Recovery / Return to Low Altitude
(2) Loss of Mutual Support / Rendezvous Point

RANGE DEPARTURE PROCEDURES
1. Armament Safety Checks
2. Rejoin
3. Battle Damage / Bomb Check
4. Jettison Procedures / Parameters
5. Hung / Unexpended Ordnance
6. Inadvertent Release
7. Gun Unsafe / Jam

MISSION REPORTING (BDA / IN-FLIGHT REPORT)

CONTINGENCIES
1. Rejoin for late takeoff
2. Two / Three Ship Options
3. Tactical Lead Changes
4. Air-to-Air TACAN
5. Codewords
6. Weather Backup Deliveries
7. Degraded Systems
8. Reattack
9. Wounded Bird / Escort Procedures

NIGHT PROCEDURES

1. Aircraft Lighting
2. Radio Calls
3. Target ID / Range Lighting
4. Night Spacing Techniques
5. Instrument Cross-check / Disorientation
6. Flare Pattern
   a. Flare Release Points and Interval
   b. Wind Effect / Offset
   c. Dud Flare Procedures
   d. Switching Aircraft Patterns

TRAINING RULES / SPECIAL OPERATING INSTRUCTIONS

ALTERNATE MISSION

1. Type Mission (refer to appropriate mission briefing guide)
2. Mission Objectives

SPECIAL SUBJECTS

1. Error Analysis
2. Fouls
3. Minimum Altitudes
4. Target Fixation
5. "G" Awareness
6. Fuel Awareness / Ops Checks / AB Use / Consumption Rates
7. Maneuvering Limitations
   a. Airspeed / "G" / Stress (Carriage / Release)
   b. Recognition / Prevention / Recovery From Out of Control
8. Time to Ground Impact
   a. Wings Level
   b. Overbank / Under "G"
9. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**)

C. WILD WEASEL / ARMED RECCE / CLOSE AIR SUPPORT

GENERAL INFORMATION

1. Intelligence / Threat Scenario
2. Low Level
3. En Route Formation(s) / Look Out Responsibilities / LOWAT (if applicable)
4. Fence Checks
5. Ordnance / Weapons Data
   a. Type / Fuzing
   b. Weapons Settings
   c. Live Ordnance Procedures / Minimum Altitudes
      (1) Safe Escape / Safe Separation
      (2) Fuse Arming / Frag Avoidance
      (3) Missile Launch Parameters
   d. Laser Operations
6. Control Agency
   a. Call Sign
   b. Frequencies
7. Coordination
   a. Attack Package Times / Support
   b. Other Weasel Flights

c. Data Gathering / Passage
d. Airspace Restrictions
e. Mission Number
f. Friendly Forces
g. Play Time

WILD WEASEL / ARMED RECCE / CLOSE AIR SUPPORT PROCEDURES
1. Working Area
2. Formations / Working Altitudes
3. Target Types / Threat Array
4. Attack Tactics

WEAPONS DELIVERY
1. Tactics
   a. Type Delivery
   b. Switchology
   c. Attack Parameters
      (1) Action Point / IP / Pop Point
      (2) Altitude (Pull-Down / Apex / Release / Minimum)
   d. Visual Lookout / Mutual Support Responsibilities
   e. Egress
      (1) Recovery / Return to Low Altitude
      (2) Loss of Mutual Support / Rendezvous Point
2. Battle Damage / Bomb Check
3. Mission Reporting (BDA / In-Flight Report)

COMBAT SAR PROCEDURES
1. Communications Procedures
2. Downed Aircraft Procedures
3. On-Scene Commander
4. Fuel Considerations
5. Ordnance Considerations

CONTINGENCIES
1. Two- / Three-Ship Option
2. Tactical Lead Changes
3. Air-to-Air TACAN
4. Code Words / Comm Out Signals
5. Weather Back-Up Deliveries
6. Degraded Systems
7. Reattack
8. Asymmetrical Considerations
9. Jettison Procedures / Parameters
10. Hung / Unexpended Ordnance Procedures
11. Wounded Bird / Escort Procedures

TRAINING RULES / SPECIAL OPERATIONS INSTRUCTIONS

ALTERNATE MISSION
1. Type Mission (Refer to appropriate mission briefing guide)
2. Mission Objectives

SPECIAL SUBJECTS
1. Error Analysis
2. Fouls
3. Minimum Altitudes
4. Target Fixation

5. "G" Awareness
6. Fuel Awareness / Ops Checks / AB Use / Consumption Rates
7. Maneuvering Limitations
   a. Airspeed / "G" / Stress (Carriage / Release)
   b. Recognition / Prevention / Recovery From Out of Control
8. Time to Ground Impact
   a. Wings Level
   b. Overbank / Under "G"
9. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**)

D. LANTIRN

1. Weather
   a. Sunset / Moonrise / Moonset / Illumination
   b. Tactical Decision Aid (TDA)
      (1) Transmissivity
      (2) Absolute Humidity
      (3) Solar Elevation
      (4) IR Visibility
2. Personal Equipment
   a. Flashlight
   b. VRD / HUD Bonnet (If Required, Day Only)/ NVG
3. Preflight
   a. Nav Pod
   b. Manual TF Fly-up Switch - ENABLE (Inboard)
4. After Engine Start
   a. DFLCS Check
   b. Nav Pod Power-up
   c. IBITS
   d. FLIR / TGP Tuning
   e. FLIR / TGP Boresight
   f. Maverick Boresight
5. Takeoff FLIR Visual Illusions
6. TFR Check
   a. Setup
   b. Formation
   c. Procedures
   d. Abnormal Procedures
7. Holding Procedures
8. Letdown
   a. Checks
   b. Transition to TF Operations
   c. Cross-check
   d. Priorities / Responsibilities
9. Route
   a. IR Factors
   b. Formation
      (1) Priorities
      (2) Responsibilities
   c. Timing
   d. Airspeed / Altitude (SCP)
   e. RAA / MSA

f. Route Abort Procedures
g. Emergency Airfields
h. Terrain / Obstacle Avoidance
i. Updates
j. Snaplooks / Look-into-the-turn
k. IR Predictions
l. Radar Predictions

10. Target Area
a. IR Factors
b. Formation
c. Deconfliction
d. Timing
e. Airspeed / Altitude (SCP)
f. RAA / MSA
g. Obstacles
h. Target Description / Acquisition
(1) Photos
(2) IR
(3) Radar
(4) OAP / VRP / VIP
i. Visual References
j. Delivery Options
(1) Parameters
(2) Escape Maneuver
(3) DMPI
(4) Obstacles
k. Egress

11. Landing
a. FLIR Visual Illusions
b. FLIR Boresight Shift

12. Abnormal Procedures
a. FLIR / TFR Fail
b. FLIR / TFR Degraded
c. Poor IR Visibility
d. Fly-ups Procedures
e. Prism Stall / Spin
f. Hung Bomb / No-Spot
g. Aircraft Emergencies

13. Special Subjects
a. Ops Checks
b. LANTIRN Training Rules
c. LANTIRN Operational Restrictions
d. LANTIRN Maneuvering Limitations
e. Descent Checks
f. Transition from Medium to Low Level TF Ops (Comfort level, complacency)
g. Spatial Disorientation
h. Task Saturation
i. Task Prioritization

14. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**)

E. KILLER SCOUT

GENERAL INFORMATION

1. Frag
   a. Kill Zone Grid
      (1) Description
      (2) Threats
      (3) Coordinates
      (4) GEOREFs
      (5) Friendlies Who Share Grid / Call Signs for Swapout (In / Out)
   b. Vul Times
   c. Ordnance / Fuzing
   d. Flights To Be Controlled
      (1) Call Sign
      (2) Mission Number
      (3) Fragged Tgt and TOT
   e. High Value Tgts in Kill Zone
   f. Area Flow Plan

KILLER SCOUT EMPLOYMENT PROCEDURES

1. Ingress
   a. Check-In
   b. Fence Check
   c. Formation / RADAR Search
   d. Flow Plan / Deconfliction
   e. Swapout Options
2. Area Coordination Radio Procedures (VHF/UHF)
3. Scouting Procedures
   a. Formation Responsibilities
   b. Binocular Use
   c. Lead Changes
   d. INS Marks
4. Killer Scout Control / Fighter Briefing Procedures
   a. Fighter Check-In
   b. Fighter Brief
   c. Target Marks
   d. Fighter / Scout Flow Plan
   e. Target BDA
      (1) From Fighters
      (2) Scout Assessment
5. Scout Weapons Delivery
   a. Mixed Ordnance Considerations
   b. Drop Priority
   c. Attack Plans / Procedures / Techniques
6. Scout Egress Plan
   a. Joker / Bingo
   b. Exit Flow Plan / Deconfliction
   c. Handoff / Swapout / Transition
   d. Inflight Reports / BDA
7. Contingencies
   a. Weather
   b. High / Low Altitude Employment Considerations
   c. Battle Damage / Wounded Bird Procedures
   d. Ejection / SAR Plan

SPECIAL SUBJECTS

1. “G” Awareness

2. Fuel Awareness / AB Use / Consumption Rates
3. Flight Path Deconfliction
4. Maneuvering Limitations
   a. Airspeed and "G"
   b. Recognition / Prevention / Recovery from Out of Control
   c. Time to Ground Impact
   (1) Wings Level
   (2) Overbank / Under "G"
5. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency, **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**)

3.10. ALERT BRIEFING GUIDE

This guide is all inclusive and is designed to incorporate all the applicable items from the General Briefing Guide. If a specialized mission such as air refueling is anticipated, the specific briefing guide for that mission should also be used.

MISSION DATA

1. Time Hack
2. Mission Data Card
   a. Call Signs
   b. Aircraft / Location / Status
   c. Takeoff / Landing Data (Worst Case)
   d. Joker / Bingo Fuel
3. Actual / Forecast Weather
   a. Homebase
   b. Alternates
   c. Individual Weather Category / Mandatory Status
4. NOTAMs
5. FCIF / Pubs / Maps
6. Personal Equipment
7. Alert Packet
   a. Authenticators / Duress Code
   b. Security Procedures
8. Airfield Status
   a. Actual versus Max Allowable Tailwind
   b. Barriers
   c. Navigation Aids
   d. Hazards to Taxi / RCR

GROUND PROCEDURES

1. Aircraft / Armament Preflight
2. Cockpit Set-Up
3. Engine Run / Hot Preflight
4. Crew Chief Briefing
5. Quick Check Procedures

LAUNCH PROCEDURES

1. Notification / UHF Frequency / Authentication Requirement
2. Status
   a. Airborne Order
   b. Battle Stations
   c. Runway Alert
   d. Scramble
3. Taxi

4. Takeoff / Runway Lineup / Interval / Formation
   a. Day VMC
   b. Day IMC
   c. Night VMC
   d. Night IMC
5. Join Up / Trail Formation / Power Settings / Airspeeds

IN-FLIGHT PROCEDURES

1. Formation
2. Airspeeds
3. Weapons Safe Checks
4. Radar Search Responsibilities
5. Degraded Fire Control System
6. Transfer of Lead Procedures
7. Ops Checks
8. EMCON Procedures
9. Region Minimum Safe Altitude (MSA)
10. VID Procedures
    a. Authority Required to Close
    b. Formation / Tactics
    c. Range / Altitude Separation Requirements on Target Prior Permission to Close With / Without Visual Contact
    d. Radar Lock-On Requirements
    e. Maximum Closure Speed
    f. Minimum Airspeed
    g. Loss of Contact Procedures
    h. Breakaway Procedures
    i. Restrictions
11. Aircraft in Distress
    a. Minimum Closure Distance
    b. Visual Signals - Day / Night
    c. Escort Procedures
    d. Recovery / Landing Visual Signals
    e. Dissimilar Formation Procedures
12. Jettison Procedures
13. Lost Wingman
14. SARCAP
15. Emergency Airfields

SPECIAL SUBJECTS

1. Emergency of the Day
2. Fuel Awareness
3. Maneuvering Limitations
4. Recognition / Prevention / Recovery from Loss of Control
5. Spatial Disorientation
6. Recall Procedures

*7. Rules of Engagement (ROE) / Training Rules / Special Operating Instructions

8. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency, **(PACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance**.)

GROUND CREW BRIEFING

1. Act only on pilot's instructions
2. Ground emergency procedures
3. Hand signals

4. Aircraft danger areas

3.11. CREW COORDINATION / PASSENGER / GROUND CREW BRIEFING GUIDE

CREW COORDINATION / PASSENGER

1. Pre-Flight
2. Prohibited Items
3. Cockpit Layout
4. Flight Maneuvering Parameters
5. Change of Aircraft Control
6. Rear Seat Landing Procedures
7. Emergencies
   a. Runway Departure
   b. Canopy Loss
   c. Ejection / Egress (With and Without Intercom) /Ejection Mode Selector Handle Position
   d. Loss of Intercom
   e. Bird Strike Procedures / Use of Visor(s)
8. Flight Control Interference
   a. Rudder interference - rudder pedal adjustment
   b. Stick Interference - Lapbelt, utility light, personal equipment, leg position, paddle switch override

GROUND CREW

1. Act only on pilot's instructions
2. Ground emergency procedures
3. Hand signals
4. Aircraft danger areas

3.12. MISSION DEBRIEFING GUIDE

GROUND PROCEDURES

TAKEOFF / JOIN-UP / DEPARTURE

EN ROUTE PROCEDURES

RECOVERY / LANDING / AFTER LANDING

GENERAL

1. SIIs
2. Radio Procedures
3. Flight Discipline / Effectiveness

***TRAINING RULES / SPECIAL OPERATING INSTRUCTIONS**

MISSION ACCOMPLISHMENT / ANALYSIS

1. Mission Reconstruction
2. Mission Support
3. VTR / Film Assessment

*****4. Anti-G Straining Maneuver Effectiveness

5. Learning Objectives Achieved
6. Lessons Learned
7. Recommendations for Improvement

COMMENTS / QUESTIONS

Attachment 2

CRITICAL ACTION PROCEDURES

*****The following procedures will be evaluated IAW MAJCOM guidelines. Pilots shall be able to immediately accomplish these procedures in the published sequence without reference to the checklist. Certain steps (i.e. Stores - Jettison) maybe performed out of sequence, if conditions warrant

A2.1. FIRE / OVERHEAT / FUEL LEAK (GROUND):

(1) Throttle - Off
(2) JFS - Off
(3) Fuel Master Switch - Off

A2.2. GROUND EGRESS:

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

A2.3. ABORT:

(1) Throttle - Idle
(2) Hook - Down (If Required)

A2.4. AB MALFUNCTION ON TAKEOFF (TAKEOFF CONTINUED):

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

A2.5. ENGINE FAILURE ON TAKEOFF (TAKEOFF CONTINUED):

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

A2.6. ENGINE FIRE ON TAKEOFF (TAKEOFF CONTINUED):

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

A2.7. LOW THRUST ON TAKEOFF / AT LOW ALTITUDE (NON -AB):

(PW 200)

(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
(6) Throttle - MAX AB
(7) Stores - Jettison (If or When Required)

(GE100/129 / PW220/229)

(1) Throttle - AB

IF THRUST IS STILL INSUFFICIENT OR AB DOES NOT LIGHT:

(2) Engine Control Switch - SEC
(3) Stores - Jettison (If Required)

A2.8. ENGINE FAILURE / AIRSTART:

***(PW200)**

(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 KIAS

***(PW220)**

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

IF BELOW 10,000 FEET AGL

(5) Engine Control Switch - SEC

WHEN RPM IS BETWEEN 50-25 PERCENT AND FTIT IS BELOW 700 DEGREES:

(6) Throttle - IDLE
(7) JFS - Start 2 When Below 20,000 Feet and 400 KIAS

***(PW229)**

(1) Zoom (If at Low Altitude)
(2) Throttle - OFF

IF BELOW 10,000 FEET AGL

(3) Engine Control Switch - SEC
(4) Throttle - Midrange
(5) Stores - Jettison (If Required)
(6) Airspeed - As Required
(7) JFS - Start 2 When Below 20,000 Feet and 400 KIAS

(GE100/129)

(1) Zoom (If at Low Altitude)
(2) Throttle - OFF, then Midrange
(3) Stores - Jettison (If Required)

IF A RELIGHT DOES NOT OCCUR BEFORE RPM DECAYS BELOW 50 PERCENT, OR IF BELOW 10,000 FEET AGL:

(4) Engine Control Switch - SEC
(5) Airspeed - As Required
(6) JFS - Start 2 When Below 20,000 Feet and 400 KIAS

A2.9. OUT-OF-CONTROL RECOVERY:

(1) Controls - Neutral
(2) Throttle - MIL if in AB

IF IN AN INVERTED DEEP STALL:

*(3) Rudder - Opposite Yaw Direction (Delete This Step if the Aircraft has TV Code 105)

IF IN AN UPRIGHT DEEP STALL OR STILL IN AN INVERTED DEEP STALL:

(4) MPO Switch - OVRD and Hold
(5) Stick - Cycle in Phase

Attachment 3

SUBJECT-PARAGRAPH INDEX