

**BY ORDER OF THE  
SECRETARY OF THE AIR FORCE**



**AIR FORCE INSTRUCTION 11-2B-1,  
VOLUME 3**

**11 MARCH 2002**

***Flying Operations***

***B-1--OPERATIONS PROCEDURES***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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OPR: HQ ACC/DOTO  
(Maj Timothy J. Schepper)  
Supersedes AFI11-2B-B1, Volume 3, 1 June 1998

Certified by: HQ USAF/XOO  
(Brig Gen H. Marshal Ward)  
Pages: 70  
Distribution: F

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This volume implements AFPD 11-2, *Aircraft Rules and Procedures*; AFPD 11-4, *Aviation Service*; and AFI 11-202V3, *General Flight Rules*. It applies to all B-1 units. Selected paragraphs of this publication do not apply to Air National Guard (ANG) units and members. This instruction does not apply to the Air Force Reserve. MAJCOMs/DRUs/FOAs are to forward proposed MAJCOM/DRU/FOA-level supplements to this volume to HQ USAF/XOOT, through HQ ACC/DOTV, for approval prior to publication IAW AFPD 11-2. Copies of MAJCOM/DRU/FOA-level supplements, after approved and published, will be provided by the issuing MAJCOM to HQ AFFSA/XOF, HQ ACC/DOTV, and the user MAJCOM/DRU/FOA and NGB offices of primary responsibility (OPR). Field units below MAJCOM/DRU/FOA level will forward copies of their supplements to this publication to their parent MAJCOM/DRU/FOA office of primary responsibility for post publication review. **NOTE:** The terms Direct Reporting Unit (DRU) and Field Operating Agency (FOA) as used in this paragraph refer only to those DRUs/FOAs that report directly to HQ USAF. Keep supplements current by complying with AFI 33-360V1, *Publications Management Program*. See paragraph 1.5. of this volume for guidance on submitting comments and suggesting improvements to this publication.

***SUMMARY OF REVISIONS***

This change incorporates interim change (IC) 2002-1. It includes numerous administrative changes throughout the document. Changes include: updates references to outdated publications; adds On Scene Commander procedures to aircrew aid requirements; adds low altitude chart annotation requirements; deletes references to Military Airspace Management System (MASMS); adds Bird Avoidance Model (BAM) information; updates authorized B-1 formation position information; clarifies requirements for ops checks; deletes references to the Tanker Visual Observation position; deletes references to turbulence and icing restrictions; changes copilot air refueling restrictions; clarifies low altitude equipment restrictions; adds requirement to carry T.O. 1B-1B-1 section III in-flight; adds reference publications to **Attachment 1**; and removes the FTU/FIC only restriction from partial flap approaches. See the last attachment of the publication, IC 2002-1, for the complete IC. A ( | ) indicates revisions from the previous edition.

This instruction contains references to the following field (subordinate level) publications and forms which, until converted to departmental level publications and forms, may be obtained from the respective MAJCOM publication office:

**Publications:** ACCI 11-456, ANGI 11-B-1BV2.

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## Chapter 1

### INTRODUCTION

**1.1. Aircrew Responsibility.** In conjunction with other governing directives, this instruction prescribes procedures for B-1B aircraft under most circumstances. It is not a substitute for sound judgment or common sense. Operations or procedures not specifically addressed may be accomplished if they enhance safe and/or effective mission accomplishment.

**1.2. Deviations.** Deviations from these procedures require specific approval by the MAJCOM/DO (ANG: HQ ACC/CG) unless an urgent requirement or an aircraft emergency dictates otherwise. In that case, the pilot in command will take the appropriate action to safely recover the aircraft.

**1.3. References.** The primary references for specific B-1B operations are located in technical orders, Air Force Tactics, Techniques, and Procedures (AFTTP) 3-1V1, *General Planning and Employment Considerations*; AFTTP 3-1V2, *Threat Reference Guide and Countertactics*; *Electronic Combat (EC) Mission Guide(s)*, ACCI 11-456, *ACC Electronic Combat Training and EMCON Procedures*; and this instruction. Training guidance is contained in AFI 11-2B-1V1, *B-1 Aircrew Training*. Air refueling references are contained in T.O.s 1-1C-1, *Basic Flight Crew Air Refueling Manual*; 1-1C-1-34, *B-1B Flight Crew Air Refueling Procedures With KC-135 and KC-10*; and Federal Aviation Administration Order (FAAO) 7610.4, *Special Military Operations*. A reference for techniques is AFTTP 3-3V20, *Combat Aircraft Fundamentals B-1*.

**1.4. Waivers.** Forward waiver requests through Numbered Air Force (NAF) OV (ANG: ACC/DOL) then to ACC/DO (ANG: HQ ACC/CG) for approval. Waivers, if approved, will be issued for a maximum of 1 year from the effective date. Information copies of approved waivers will be provided to the other NAF OPRs.

**1.5. Instruction Changes.** Send comments and suggested improvements to this publication on AF Form 847, **Recommendation for Change of Publication**, through the NAF/OV to HQ ACC/DOTV, 205 Dodd Blvd, Suite 101, Langley AFB, VA 23665-2789. Approval authority for Interim Changes to this instruction is AF/XO.

1.5.1. The asterisk (\*) symbol indicates a change (other than grammatical) when this instruction is updated.

## Chapter 2

### MISSION PLANNING

**2.1. Flight Manuals.** Each crewmember will maintain applicable B-1B TOs IAW AFI 11-215, *Flight Manuals Program (FMP)*.

**2.2. Local Aircrew Aids.** Develop locally produced aircrew aids. Provide an information copy to HQ ACC/DOTV and NAF OPR. As a minimum, include the following information in sequence:

2.2.1. Briefing guides (See [Attachment 2](#)).

2.2.2. Tabulated takeoff and landing data, including emergency takeoff and landing data.

2.2.3. Weight and balance data for calculating local aircraft configurations.

2.2.4. Terrain following (TF) minimum mach tabulated data for inflight TF check and low altitude operations.

2.2.5. Tabulated charts for Service Ceiling (SC) and Optimum Cruise (OC).

2.2.6. Divert, alternate, and emergency base information including runway data, approximate course/distance/estimated time enroute (ETE), coordinates, and fuel required.

2.2.7. Hung weapons procedures, jettison/bailout areas, and hot brake areas/procedures.

2.2.8. On Scene Commander Procedures.

2.2.9. Other information as deemed necessary by individual units.

**2.3. Mission Planning Responsibility.** Individual aircrews, unit operations, and intelligence functions jointly share responsibility for mission planning. The aircrew has the final responsibility for the accuracy of mission planning.

#### 2.4. General Procedures:

2.4.1. Accomplish sufficient flight planning to ensure safe mission accomplishment. Any certified computer based mission planning systems may be used for mission planning. Until planning systems are certified for fuel computations, fuel figures from all flight planning systems must be cross-checked for accuracy.

**2.4.2. Minimums.** (Does Not Apply to the ANG.) Time allocated for mission planning is dependent on the complexity of the mission and the amount of staff and computer prepared mission data available to the crew. As a minimum, 2 hours will be allocated for the crew to review mission data and complete an aircrew mission briefing.

**2.4.2.1. ANG.** Flight briefings will start a minimum of 2 hours prior to the scheduled takeoff. Briefing times may be increased based on mission requirements/complexity (e.g. upgrade training, global power etc.).

**2.4.3. Substitutions.** Make crew substitutions with sufficient time for the substitute crew member(s) to comply with paragraph [2.4.2](#). Substitutions require squadron TOP-3 or higher approval (ANG: Supervisor of Flying (SOF) or higher approval).

**2.5. Briefing/Debriefing.** All crew members will attend the mission briefing. Briefing guides will be used as a reference for the preparation and presentation of the mission briefing. **Attachment 2** contains suggested briefing guides. Items listed may be briefed in any logical sequence. Specific items not pertinent to the planned mission need not be covered. Items adequately covered in unit Standards may be briefed as "standard."

2.5.1. Unit developed briefing guides may be used in lieu of the briefing guides shown in **Attachment 2**.

2.5.2. Aircraft Commander (AC)/Flight Lead (FL)/Mission Leads (ML) are responsible for presenting a logical briefing which will promote safe, effective mission accomplishment.

2.5.3. During the briefing for all low altitude missions, emphasis will be placed on obstacle/ground avoidance. For low altitude training over water/featureless terrain, include emphasis on minimum altitudes and spatial disorientation. Also emphasize weapon release parameters including planned speed, altitude, fuse settings, planned track, weapon interval, fragmentation deconfliction, and time/track tolerances.

2.5.3.1. Units must ensure an OPR is designated to maintain low altitude and weapon activity data.

2.5.4. Brief an appropriate alternate mission for each flight if applicable. The alternate mission must 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. Flight leads will ensure changes are acknowledged by all flight members.

**2.5.5. Pre-takeoff Meeting.** A pre-takeoff meeting will be accomplished prior to stepping to the aircraft when the flight briefing is conducted prior to the day of the flight. The AC/FL/ML will ensure all crew members are briefed on current/forecast weather, NOTAMs and any mission changes.

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

**2.5.7. Debriefing:**

2.5.7.1. The AC/FL/ML will ensure the mission is thoroughly debriefed.

2.5.7.2. As a minimum, the debriefing will include an evaluation of the mission objectives, desired learning objectives, lessons learned, and execution errors.

**2.6. Chart Preparation:**

**2.6.1. Planning .** Aircrew members flying under VFR or inside MTRS in CONUS will supplement existing mission planning materials (e.g. chum, flip AP/1B, etc.) with either: PFPS/Falcon View with the following overlay options selected: Airports/heliports, airspace boundaries, airways, MTR, parachute jump and SUAS boundaries, or sectional aeronautical charts. Use of sectional aeronautical charts in flight is not required. Aircrew members flying outside CONUS will follow gaining MAJCOM, theater or host nation guidance on mission planning. If no guidance exists, use the best charts or Falcon View overlay options available to accomplish the requirements of paragraph **2.6.3.**

**2.6.2. Local Area Charts.** A local area chart is not required if aircrew inflight guides include jettison areas and divert information and provides sufficient detail of the local area to remain in local Military Operations Areas (MOA) or other assigned areas.

**2.6.2.1. VR Charts.** Annotate all charts with a route abort altitude (RAA). Compute the RAA, for the entire route/area, at a minimum of 1,000 feet above the highest obstacle/terrain feature (rounded up to the next 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 corridor.

**2.6.2.2. IR/MOA/Restricted/Warning Area Charts.** Annotate a minimum safe altitude (MSA) for each leg of the intended route of flight. The MSA is defined as an altitude which provides, as a minimum, 1000 feet of clearance above the highest obstacle/terrain (rounded up to the next 100 feet), within 5NM of the planned route corridor/segment. A single MSA may be used for MOAs, restricted areas, and warning area charts.

**2.6.3. (Added) Low Altitude Charts.** On low altitude training flights, one member of the pilot team, the Offensive Systems Officer (OSO) and Defensive Systems Officer (DSO) will carry a chart. Annotate headings and maximum/minimum route structure altitudes. The chart will be of scale and quality that terrain features, hazards, noise sensitive areas, and chart annotations are of sufficient detail to allow individual navigation and safe mission accomplishment. Annotate charts with noise sensitive areas, location and dimensions of class A/B/C/D airspace, civil/military airfields and other potential high-density traffic areas (e.g., parachute activity areas and ultra light/hang glider/glider sites, etc.) within 5 NM of any planned VFR route or airspace boundary. Applicable airfield approach control frequencies in the vicinity of class A, B, C, and D airspace will be annotated and briefed on all such flights. In addition, annotate and brief the intersection of crossing IFR Military Training Routes (IR)/VFR Military Training Routes (VR) (if applicable) and any other possible areas of conflict. Review pilot's and OSO/DSO low altitude charts for compatibility and accuracy.

**2.6.3.1. (Added) VR Charts.** Annotate all charts with a route abort altitude (RAA). Compute the RAA, for the entire route/area, at a minimum of 1,000 feet above the highest obstacle/terrain feature (rounded up to the next 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 corridor.

**2.6.3.2. (Added) IR/MOA/Restricted/Warning Area Charts.** Annotate a minimum safe altitude (MSA) for each leg of the intended route of flight. The MSA is defined as an altitude that provides, as a minimum, 1000 feet of clearance above the highest obstacle/terrain (rounded up to the next 100 feet), within 5NM of the planned route corridor/segment. A single MSA may be used for MOAs, restricted areas, and warning area charts.

## Chapter 3

### NORMAL OPERATING PROCEDURES

#### 3.1. Air Refueling:

3.1.1. Air refueling operations are authorized along published or special tracks/anchors. In addition, enroute refueling may be conducted between aircraft comprising a formation with Air Route Traffic Control Center (ARTCC) approval. For the dimensions of protected airspace, along with other conditions and procedures affecting the conduct of air refueling operations, refer to FAAH 7610.4. Refer to applicable air refueling T.O.s and flight information publications (FLIP) for communication requirements.

#### 3.1.2. Military Assumes Responsibility for Separation of Aircraft (MARSA):

3.1.2.1. MARSA between the tanker(s) and the receiver(s) begins when the tanker(s) advises Air Traffic Control (ATC) it accepts MARSA..

3.1.2.2. After MARSA has been declared, controller assigned course or altitude changes prior to rendezvous completion will automatically void MARSA. Once rendezvous is completed, heading and altitude assignments may be made with the tanker's concurrence with MARSA remaining in effect.

3.1.2.3. After rendezvous, receiver(s) will stay within 3 miles of the tanker until MARSA is terminated.

#### 3.1.3. Rendezvous:

**3.1.3.1. Point Parallel Rendezvous.** Receiver aircraft shall arrive at the Air Refueling Control Point (ARCP) no earlier than the scheduled Air Refueling Control Time (ARCT) minus 5 minutes and depart no later than ARCT plus 10 minutes. If unable to meet timing tolerance, attempt to contact a unit scheduler/duty officer for a new rendezvous time. If unable to schedule a new rendezvous time, air refueling is permitted provided ARTCC clearance is received.

Buddy, On-Course, and Enroute Rendezvous aircraft should arrive at the Rendezvous Point  $\pm$  5 minutes of the scheduled rendezvous time. If unable to meet timing tolerance, attempt to contact a unit scheduler/duty officer for a new rendezvous time. If unable to schedule a new rendezvous time, air refueling is permitted provided ARTCC clearance is received.

**NOTE:** Aircrews must be aware arriving outside the - 5/+10 minute window for point parallel rendezvous or the + 5 minute window for buddy, on-course, and enroute rendezvous may result in a conflict with other aircraft scheduled in the refueling airspace. If a conflict arises between two formations, the formation within their timing tolerance will take precedence.

**3.2. Low Altitude Training.** Conduct low altitude training in specifically approved areas.

**3.2.1. Domestic Low Altitude Military Training Routes (MTR).** Refer to FLIP AP/1B, Military Training Routes for airspace restrictions and contact the airspace Point of Contact (POC) through the local airspace manager to ensure the most current information is used for planning.

**3.2.2. Route Criteria.** Lateral separation is preferred to over-flight of noise complaint areas.

3.2.2.1. TF/Visual Contour (VC) minimum altitude considerations developed for the wing clearance plane letters/low level route briefing guides, provide at least 200 feet clearance above man-made obstructions within the route corridor. Where surface is the published minimum operating altitude in FLIP AP/1B, man-made obstructions under 200 ft above ground level (AGL) were not considered in route design.

3.2.2.2. For routes and other training areas not covered above, the following guidance applies. Crews will use set clearance planes providing at least 200 feet clearance above man-made obstructions within the route corridor/planned routing or, the obstruction will be avoided by at least 2 miles laterally.

### 3.2.3. IR Training Activity:

3.2.3.1. Scheduling. Comply with the scheduling requirements of the route originating/scheduling activity. Confirm entry tolerances with the scheduling agency. If no entry tolerances are provided aircraft will enter only at scheduled time  $\pm 2\frac{1}{2}$  minutes. If the scheduled entry cannot be made within  $\pm 2\frac{1}{2}$  minutes, the use of subsequent primary or alternate entry points/times is authorized provided the airspace has been scheduled and briefed.

3.2.3.1.1. Deleted.

3.2.3.1.2. Deleted.

3.2.3.1.3. Deleted.

3.2.3.1.4. Deleted.

3.2.3.2. (Added) Flight. Instrument routes are one-way. While flying an IR do not turn more than 90-degrees off of route centerline.

### 3.2.4. Deleted

**3.2.5. Hazardous Conditions.** Relay any safety hazard (e.g. icing, turbulence, thunderstorms, bird concentrations etc.), through a Pilot Weather Report (PIREP) to the controlling agency and any other aircraft operating in the area.

3.2.5.1. Bird Strikes. Generally, the hour before and after sunrise and sunset presents an increased threat of a bird strike, with migration seasons posing a significant hazard at different times. Units should check the AF Safety Center Bird Avoidance Model (BAM), the Avian Hazard Advisory System (<http://www.ahas.com>) or contact their base CE wildlife expert or AF Safety Center Bird Aircraft Strike Hazard (BASH) team for further information on times of increased bird activity.

### 3.2.6. Weather Requirements:

3.2.6.1. Attempt to update weather information prior to entering training airspace if significant weather changes are anticipated.

### 3.2.7. Altitude Variation:

3.2.7.1. When the altitude variation exceeds -400 feet, night/Instrument Meteorological Conditions (IMC) TF maybe flown, however, in the event of a fly-up/malfunction you must abort the route. MSA/RAA altitude no longer provides safe terrain clearance in that situation. Flight during day/Visual Meteorological Conditions (VMC) is not restricted.

3.2.7.1.1. The difference between aircraft pressure altitude with the most current altimeter setting and the Offensive Avionics System (OAS) altitude exceeds -400 feet. Measure this by taking an altitude calibration (ACAL) and comparing Mean Sea Level (MSL) to OAS altitude. For example, a 2420 MSL pressure altimeter reading and a 2000 ft OAS altitude indicates a -420 ft altitude variation).

3.2.7.1.2. The aircraft radar altimeter indicates less than a 600 ft terrain crossing while at the MSA/RAA. Use this method with caution in mountainous terrain. Additionally, this method may provide erroneous information when operating above a cloud deck due to occasional radar altimeter lock on to clouds.

3.2.7.2. Deleted.

3.2.7.2.1. Deleted.

3.2.7.2.2. Deleted.

3.2.7.2.3. Deleted.

3.2.8. Low Altitude Navigation/Weapon Run Procedures:

3.2.8.1. If aircraft position is uncertain, maintain TF (if night/IMC) until the terrain can be cleared in the direction of flight then abort the route.

**3.2.9. Combat Altimeter Setting.** During day VMC, aircrews may compute, set, and maintain computed true altitude in the aircraft pressure altimeters. Enter the training area using the latest ARTCC/Flight Service Station (FSS) altimeter then compute a combat altimeter setting after established at TF or VC altitudes. Reset altimeters using current FSS information before entering IMC and before climbing to MSA/RAA altitude.

**3.2.10. Abort Procedures.** The following guidance will be used when aborting any low altitude training area.

**3.2.10.1. VMC Abort Procedures.** Maintain safe separation from the terrain and comply with VFR altitude restrictions. Squawk applicable (IFF/SIF) modes and codes and attempt to contact a controlling agency. If unable to maintain VMC, comply with the procedures outlined below.

**3.2.10.2. IMC Abort Procedures.** Immediately climb to, or above the computed MSA/RAA and maintain the preplanned ground track. If necessary, execute lost wingman procedures. If deviations from normal route/area procedures are required, or if the MSA/RAA is higher than the vertical limits of the route/area, squawk emergency. Contact the appropriate controlling agency and obtain an IFR clearance. If required to fly in IMC without an IFR clearance, cruise at the appropriate VFR hemispheric altitude until clearance is received.

**3.3. Night Vision Goggle (NVG) Procedures.** While both pilots on NVGs is the preferred employment configuration, there are no restrictions to single pilot NVG operations when qualification level and/or NVG availability precludes dual pilot NVG operations.

3.3.1. During mission planning, review lunar illumination and elevation, anticipated ground light sources, and weather for the planned route of flight. Weapons effects and expendables use should also be studied for their impact on NVG operations.

3.3.2. Each crewmember whose duties require the use of NVGs will preflight their respective NVGs IAW AFTTP 3-3V20 or, when available, use the Hoffman ANV 20/20 or equivalent infinity focusing device. This device is preferred over an eye lane for NVG preflight.

3.3.3. Do not fly with NVGs unless the cockpit is modified with NVG compatible lighting. As a baseline, use the guidance in AFTTP 3-3V20 for proper NVG cockpit setup.

### 3.4. Formation:

3.4.1. Authorized B-1 Formations. For additional guidance, refer to AFTTP 3-3V20:

3.4.1.1. **Route/Observation.** Route/observation is defined from 30 to 70 degrees aft of lead's/the tanker's 3/9 line and 150 to 1000 foot aircraft separation.

3.4.1.2. **Fluid.** Fluid is defined from 30 to 70 degrees aft of leads 3/9 line and 1,000 to 3,000 foot aircraft separation. The formation envelope is a donut around the lead aircraft. Fluid is reserved for those situations where moderate maneuver potential is desired (e.g., holding in a tactical environment, rejoins during departure, tactical recoveries, maneuvering around clouds or when striking an area target with near simultaneous time over targets (TOT)).

3.4.1.3. **Wedge.** Wedge is defined from 30 to 70 degrees aft of lead's 3/9 line with 3,000 feet to 3 miles longitudinal separation. The formation envelope is a donut around the lead aircraft.

3.4.1.4. **Trail.** Aircraft in trail stack at a minimum of 500 foot intervals and ½-3 NM separation. Altitude separation is not required if at least 1 NM separation is maintained.

3.4.1.5. **Stream.** Stream is flown with 3-9 NM separation. During low altitude, aircraft within a flight may fly different altitudes provided formation position is maintained. If not flying the briefed altitude inform the formation.

3.4.1.6. Deleted.

3.4.2. **Ground/Taxi Operations.** When ice, snow, or rain is present on taxi surfaces, pilots will increase spacing and reduce taxi speeds as appropriate.

3.4.3. **Before Takeoff Checks.** Wingmen will indicate they are ready for takeoff by a radio call unless otherwise briefed.

### 3.4.4. Takeoff:

3.4.4.1. 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 a wet runway, heavy gross weights, and abort procedures for formation flights.

3.4.4.2. Minimum takeoff interval from the same runway is 30 seconds or when the lead aircraft is airborne, whichever occurs first. Abort calls are mandatory any time the takeoff is aborted.

### 3.4.5. Departure:

3.4.5.1. **VMC.** Close to and maintain the prebriefed formation. No calls are required as long as "visual" is maintained.

3.4.5.2. **IMC.** All aircraft will follow No Radar Contact procedures until all trailing aircraft have radar contact and call "tied". Once all aircraft are tied, no further radio calls are required. If radar contact is subsequently lost, No Radar Contact procedures will be resumed.

**3.4.5.2.1. No Radar Contact.** Flight lead will call initiating and rolling out of all turns, passing each 5000' altitude increment during climbout and level-of.

Each aircraft will establish and maintain a minimum of 1 NM trail during the climb unless otherwise briefed.

Once VMC can be maintained and wingmen have called "visual" the flight lead may clear the flight to join to the prebriefed formation. This terminates the trail departure.

### **3.4.6. Join-up/Rejoin:**

3.4.6.1. Join-up/rejoin airspeed and configuration will be as briefed. Flight leads should limit their angle of bank to 30 degrees for turning rejoins immediately after takeoff.

3.4.6.2. Turning join-ups/rejoins will be to the inside of lead's turn unless otherwise briefed.

3.4.6.3. Straight ahead join-ups/rejoins will be to lead's left side unless otherwise briefed.

**3.4.6.4. Midmission Join-ups.** A midmission join-up should provide sufficient time beyond the planned rendezvous point to effect join-up. Lead should be directive by specifying type of rejoin (Trail/Tactical), altitude separation if required (1000 feet minimum), airspeeds, and headings as necessary to effect the rejoin.

### **3.4.7. Formation, General:**

3.4.7.1. Lead/Position Change During IMC. During IMC, initiate a lead change from a stabilized wings level attitude and follow procedures outlined in [Attachment 4](#).

3.4.7.2. Lead/Position Change During VMC. Flight 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. VMC procedures for Trail are described in [Attachment 4](#).

3.4.7.2.1. All lead changes during visual formations will ensure a positive transfer is accomplished. They may be accomplished by flight lead directing "Call Sign (C/S), lead change." The wingman acknowledges "Two", and moves forward to approximately line abreast. Once line abreast and both aircraft are visual, flight lead directs "(C/S), lead left/right." The wingman acknowledges, "(C/S), check," followed by acknowledgement by the new wingman, "Two."

3.4.7.2.2. The former leader then moves to the appropriate wing position.

**3.4.7.3. Wake Turbulence Awareness.** Hazards associated with wake turbulence/wingtip vortices in multiple heavy aircraft formation must be thoroughly understood by all formation members. Characteristics and effects of wake turbulence are contained in AFI 11-217V2, *Instrument Flight Procedures*.

### **3.4.8. Flight-path Deconfliction:**

3.4.8.1. Apply the following rules for flight path deconfliction during maneuvering.

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

3.4.8.1.2. The flight lead becomes responsible for deconfliction when the wingman calls "blind," maneuvering places the leader in the wingman's "blind cone", or when maneuvering forces the wingman's primary attention away from the leader.

3.4.8.1.3. Wingmen must maneuver relative to the flight lead and maintain sight. Wingmen should cross above lead when deconfliction is required.

**3.4.8.2. Loss of Visual.** Use the following procedures when visual contact within the formation is lost.

3.4.8.2.1. When any flight member calls "Blind," the appropriate flight member will immediately respond with "Visual" and a position report or "Blind."

3.4.8.2.2. When all flight members are blind, flight lead will take action to ensure 1000' altitude separation is established and maintained.

3.4.8.2.3. When there is not a timely acknowledgment of the original "Blind" call, the flight member initiating the call will maneuver away from the last known position of the other flight member and increase vertical spacing.

3.4.8.2.4. 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 "Knock-It-Off (KIO)/Terminate" call if necessary.

3.4.8.2.5. Aircraft will maintain altitude separation until a visual is regained.

3.4.8.2.6. Deconfliction responsibility transfers back to the wingman once the wingman acknowledges a visual on his lead.

3.4.9. Ops Checks. Accomplish sufficient ops checks to ensure safe mission accomplishment.

3.4.9.1. Ops checks are required:

3.4.9.1.1. (Added) During climb or at level-off after takeoff.

3.4.9.1.2. (Added) Prior to each Dissimilar Air Combat Tactics (DACT) engagement or intercept.

3.4.9.1.3. (Added) Prior to entering an air-to-surface range and after departing the range.

3.4.9.1.4. (Added) Following Air Refueling.

3.4.9.2. Minimum Ops Check items--Central Air Data Computers (CADC) (angle of attack indicators within .8 degrees), hydraulic panel, engine instruments, fuel controls/total fuel, oxygen system, electrical system, cabin altitude, autopilot control panel, and ejection seat status.

3.4.9.3. (Added) For formation flights, flight leads will initiate ops checks.

### **3.4.10. Radio Procedures:**

3.4.10.1. The leader will develop and brief a communication plan.

3.4.10.2. Ultra High Frequency (UHF) radio normally will be the primary means of communication between aircraft. Do not fly formation on training sorties without interplane communications capability, except in an emergency. Except for loss of radios, all flight members will maintain a common frequency. All capable aircraft should monitor the same ATC frequency unless mission requirements dictate otherwise.

3.4.10.3. Make a "Knock-It-Off/Terminate" radio call to cease tactical maneuvering for any reason, particularly when a dangerous situation is developing. Any flight member may make this call. All participants will acknowledge a KIO by repeating the call.

3.4.10.4. Radio checks will be initiated by the flight lead and acknowledged by each flight member, in turn.

3.4.10.4.1. Channel changes will be directed by lead. The flight members do not need to acknowledge if lead uses the word "push." Check in on the new frequency when lead directs.

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

3.4.10.4.3. All flight members will acknowledge understanding of initial ATC clearance. Acknowledge subsequent ATC instructions when directed by the flight lead.

3.4.10.5. Unless otherwise directed by a specific operations or communications plan, the flight call sign will be the flight leader's call sign.

3.4.10.5.1. If aircraft positions within a flight are changed, do not change the flight call sign or Mode III IFF squawk. The aircraft at the front of the formation will squawk the mode III for the flight.

3.4.10.5.2. Formation aircraft will use individual call signs for all rendezvous and air refueling operations unless directed otherwise in operational plans.

3.4.10.6. Individual call signs and squawks will be used after formation breakup and for any emergency situations.

3.4.10.7. Use brevity codes and other terminology IAW AFJPAM 10-228, *Multiservice Air-Air, Air-Surface, Surface-Air Brevity Codes*; AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*; AFTTP 3-1V1 and local standards.

**3.4.10.8. No Radio (NORDO) Procedures.** During VMC, the following guidance for mutual support of a NORDO aircraft in the formation applies. When the lead aircraft is NORDO, lead will inform number two with a wing rock and a Mode 3 code of 7600. Two acknowledges with a wing rock and by moving to the outer limits of route/inner limits of fighting wing. Two now takes the lead and the old lead moves aft to establish route/fighting wing on the new lead. When number 2 is NORDO, number 2 will move to the outer limits of route/inner limits of fighting wing and give lead a wing rock. This plus a Mode 3 code of 7600 communicates to lead the wingman is NORDO. Lead acknowledges with a wing rock.

**3.4.11. Abort Procedures.** The following procedures are in addition to those listed in paragraph **3.2.10**.

**3.4.11.1. Individual Aircraft.** If an individual aircraft aborts during low level, clear the formation and immediately notify the flight of intentions.

**3.4.11.2. Multiple Aircraft.** If the entire formation must abort the low level route, all aircraft will immediately establish radio contact while placing appropriate radars and air-to-air TACAN to operate/on. Lead will direct altitude separation, headings, and airspeeds. Establish positive radar and/or visual contact before the formation performs any climbing maneuver other than to establish immediate altitude separation and maintain a safe terrain clearance.

**3.4.12. Dissimilar Formations.** Normal formation procedures apply during dissimilar formation. Give special consideration to aircraft performance differences.

## Chapter 4

### INSTRUMENT PROCEDURES

#### 4.1. Approach Category. The B-1 is approach category E.

4.1.1. Use approach Category D minimums in an emergency/divert situation where no Category E minimums are published provided:

4.1.1.1. A straight-in approach is flown.

4.1.1.2. The aircraft gross weight is reduced such that final approach airspeed is 165 knots indicated airspeed (KIAS) or less.

4.1.1.3. 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.

**NOTE:** Units may request MAJCOM assistance to have Category E minimums published for airfields used on a recurring basis for emergency/divert practice approach work.

**4.2. Navigation.** The B-1 is approved to use inertial navigation system (INS) for enroute Area Navigation (RNAV). RNAV approaches have not been adopted for use by the USAF and will not be flown.

**4.3. Simulated Instrument Flight.** Use of vision restricting devices to simulate instrument flight is prohibited.

**4.4. Airborne Instrument Landing Approach (AILA).** When aircrews practice an AILA, they must meet the following conditions:

4.4.1. Use a Department of Defense (DOD)/FLIP terminal approach procedure with a designated final approach fix (FAF). This does not restrict accomplishing an AILA when cleared for a visual approach from the radar pattern.

4.4.2. Obtain an ATC clearance for the specific approach procedures selected.

4.4.3. Advise the appropriate ATC facility that the AILA will be flown in conjunction with the requested DOD/FLIP terminal approach.

4.4.4. VMC weather conditions must prevail from the Final Approach Fix (FAF) to the missed approach point (MAP)/decision height (DH). AILA under lower weather minimums is restricted to emergency conditions when no other type of approach is available.

4.4.5. Terminate the AILA and resume pilot navigation any time it becomes apparent to any aircrew member that the aircraft will exceed the parameters established for terminal instrument procedures.

## Chapter 5

### AIR EXPENDABLE EMPLOYMENT

#### **5.1. Responsibilities.** Units must ensure that:

5.1.1. All personnel concerned are familiar with AFJI 36-2220, *Joint United States (US) Air Force, US Army, US Navy and US Marine Corps Air Combat Training Programs*; CJCSM 3212.02, *Performing Electronic Attack in the United States and Canada*; AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*; AFI 11-202V3, *General Flight Rules*; and ACCI 11-456, *ACC Electronic Combat Training and EMCON Procedures*.

**5.2. Inadvertent Flare Drops.** In case of an inadvertent flare drop, contact the applicable airspace controller and advise them of the incident. Note the approximate location and estimated damage and immediately safe the expendable countermeasures (EXCM) system.

5.2.1. Units will develop local procedures to handle hung/hot flare situations.

## Chapter 6

### AIR TO GROUND WEAPONS EMPLOYMENT

**6.1. References.** AFI 11-214 contains air-to-surface procedures applicable to all aircraft.

**6.2. Planning Guidance.** Unit staff must ensure aircrews have current range information prior to flight. Aircrews will review all applicable rules, regulations, technical orders, and range/area procedures when carrying weapons. Units will establish local procedures in **Chapter 8** of this instruction for this activity.

#### **6.3. Inflight Procedures:**

**6.3.1. Actual Releases.** Release weapons on designated weapon ranges or release areas. All aids to navigation are authorized to ensure on-range weapon impacts. The withhold criteria will be published in the exercise Operations Order (OPORD)/range guide or as briefed.

Accomplish PREBOMB check over open water or sparsely populated areas to the maximum extent possible.

The Bomb Release Mode Switch must remain in MANUAL until cleared for release. All other switches may be prepositioned.

#### **6.3.2. Night/IMC Procedures:**

6.3.2.1. The following procedures apply when clearance to release during night/IMC is authorized in the range guide and when release clearance is received from the range control officer. If the pilot cannot visually identify the target, the weapon(s) will not be released unless a minimum of two radar aim points are positively identified using hi-resolution patches, or by a target direct .6 NM or 1.2 NM hi-resolution patch.

6.3.2.2. Multiple weapons deliveries may be accomplished at night and/or during IMC, if range patterns and procedures which ensure positive aircraft separation are established and briefed.

**6.3.3. Post Release.** Accomplish post-release checklist before conducting any subsequent training activity. If unable to accomplish a complete post-release checklist, lock release system and refer back to checklist when able.

**6.4. Hung Weapons.** After an unsuccessful release, contact the range control officer (RCO) for authorization to release or jettison hung weapons in a suitable area, if required. Follow RCO instructions and Technical Order guidance. Re-attacks on the planned/same target is approved if coordinated with the RCO.

6.4.1. If hung weapons are not jettisoned, the crew will accomplish the post release/abort checklist and return directly to home station or other suitable landing base, avoiding overflight of populated areas. Air refueling is authorized to ensure safe recovery of the aircraft.

**6.5. Simulated Weapons Attacks Following Actual Releases.** Conduct simulated attacks provided:

6.5.1. No release system, indicator, or weapon bay door malfunction exists.

6.5.2. Post release/abort checklist is complete.

6.5.3. Release system is in Full Simulation.

## Chapter 7

### AIRCREW AND AIRCRAFT OPERATIONAL LIMITS AND RESTRICTIONS

**7.1. Scope.** This chapter adds aircraft limitations and restrictions to those already specified in flight manuals and applies to all aircrews.

**7.2. New/Modified Aircraft Equipment/Weapons.** Aircrew members not qualified in the operation of new or modified aircraft equipment are restricted in aircrew duties. They will not operate that equipment on any flight unless under the supervision of a current and qualified instructor of like specialty.

**7.3. Number of Personnel Authorized Aboard B-1 Aircraft.** Maximum number of individuals authorized in-flight is four.

7.3.1. Seat changes will be accomplished when the aircraft is at a safe altitude (i.e., MSA during low altitude operations or traffic pattern altitude during transition). Pilots will not conduct seat swaps with only two pilots on board the aircraft.

**7.4. Unusual Attitudes Recovery.** Intentionally placing the aircraft into unusual attitudes for the purpose of practicing recoveries is prohibited.

**7.5. Flight Characteristics.** The Formal Training Unit (FTU) will define specific requirements for accomplishment of flight characteristics. The FTU is the only unit authorized to perform this activity in-flight. Do not conduct this activity with weapons onboard the aircraft.

**7.6. Fuel Minimums.** The usable fuel reserve requirements in AFI 11-202V3, *General Flight Rules* and MAJCOM supplements apply except as listed below.

**Table 7.1. Fuel Minimums.**

<b>12,000 lbs</b>	Emergency Fuel
<b>16,000 lbs</b>	Min Fuel - Final Landing
<b>20,000 lbs</b>	Min Fuel over Destination or Alternate
<b>40,000 lbs</b>	Min Fuel over Remote or Island (No alternate required)
<b>60,000 lbs</b>	Min Fuel over Remote or Island (Alternate required)

**7.7. Formation.** Aircrews will not conduct or perform any of the formation positions described in this instruction, the HQ ACC/ANG Policy Memorandum for Tactical Formation, or AFI 11-2B-1V1 until completing the appropriate formal training program unless under the supervision of a qualified instructor (ANG: Qualified instructor or squadron supervisor).

7.7.1. Visual Formation. Visual formations will be flown during daylight hours (official sunrise to sunset) as two ship elements.

#### 7.7.1.1. Equipment:

7.7.1.1.1. Flight leads will tailor maneuvering for aircraft with degraded SEF capability.

7.7.1.1.2. Both aircraft will maintain the same wing sweep, except during rejoins.

#### **7.7.1.2. Weather:**

7.7.1.2.1. Minimums for medium and high altitude (at or above 5000' AGL) operations is clear of clouds with at least 2 NM visibility.

7.7.1.2.2. During low altitude operations, (below 5000' AGL) maintain VMC with a ceiling no less than 1500' AGL and 5 NM visibility.

#### **7.7.1.3. Low Altitude:**

7.7.1.3.1. Visual formation is limited to the wedge position and will not be flown below 500' AGL.

7.7.1.3.2. Rejoins will not be initiated/accomplished below 1000' AGL.

7.7.1.3.3. Fluid/Route may be flown below 5000' AGL during departures, recoveries, or authorized flyovers.

7.7.2. Route/Observation. Route/Observation is not a tactical employment formation. Aircraft must be stabilized at 1000' before proceeding closer to lead.

**7.7.3. Battle Damage Checks.** When circumstances permit, flight leads should direct a battle damage check after each mission prior to or during return to base (RTB). Except at night/IMC, this check should also be accomplished following the expenditure of any weapon. Fly no closer than route formation spacing.

**7.8. Lost Wingman Procedures.** Use these procedures when visual and radar contact cannot be maintained and positive separation can not be assured. In any lost wingman situation, immediate separation of aircraft is essential to maintain safety. Upon losing visual and radar contact with the leader, or if unable to maintain formation due to disorientation, the wingman will simultaneously execute the applicable lost wingman procedure, transition to instruments, and notify lead. Once lost wingman procedures have been executed, permission to rejoin the flight must be obtained from the flight lead.

#### **7.8.1. Two-Aircraft Flights:**

7.8.1.1. In wings level flight (climbing, descending, or level) simultaneously transition to instruments, inform lead, turn 15 degrees away and maintain new heading for 15 seconds, then resume course. Ensure 500 feet altitude separation. Return to formation or obtain a separate clearance if required.

7.8.1.2. In turns (climbing, descending or level):

7.8.1.2.1. On the outside of the turn, transition to instruments, roll wings level, and inform lead. Continue straight ahead to ensure separation prior to resuming turn. Ensure 500 feet altitude separation. Return to formation if able or obtain a separate clearance if required.

7.8.1.2.2. On the inside of the turn, transition to instruments to maintain established bank angle, reduce airspeed by 10 KIAS to ensure clearance, and inform lead. Lead will simultaneously roll wings level, maintain airspeed, and acknowledge wingman's call. If lead has acknowledged the lost wingman call and confirms lead aircraft is wings level, the wingman will, after 15 seconds, roll wings level, establish 500 feet altitude separation, turn to lead's reference heading and attempt to acquire lead on radar. If lead does not acknowledge loss of

visual contact, maintain established bank angle, establish 500 feet altitude separation, roll out on new heading, attempt to acquire lead on radar, and form into trail formation position. If radar contact cannot be reestablished, obtain separate clearance from the controlling agency.

**7.8.2. Three-Aircraft Flights.** If only one aircraft in the flight is separated, the procedures listed above will provide safe separation; however, as it is impossible for number three to immediately ascertain if number two still has visual or radar contact with lead, it is imperative that number three's initial action be based on the assumption that number two is also separated. Number two will maintain position if in visual or radar contact. If number two goes lost wingman, follow the procedures outlined above; number three will follow the procedures listed below:

7.8.2.1. In wings level flight (climbing, descending, or level) simultaneously transition to instruments, inform lead, turn 30 degrees away, and maintain new heading for 30 seconds, then resume course. Adjust to formation or obtain separate clearance as required.

7.8.2.2. In turns (climbing, descending, level):

7.8.2.2.1. On the outside of the turn, transition to instruments, inform lead and reverse direction of turn for 15 seconds to ensure separation from lead and number two. Adjust to formation or obtain separate clearance as required.

7.8.2.2.2. On the inside of the turn, transition to instruments to maintain established bank angle, reduce airspeed by 20 KIAS to ensure clearance, and inform lead. Lead will simultaneously roll wings level, maintain airspeed and acknowledge the wingman's call. If lead acknowledges the lost wingman call and confirms wings level, establish 1,000 feet altitude separation, turn to lead's reference heading, and attempt to acquire lead and number two on radar. If lead does not acknowledge loss of visual contact, maintain established bank angle, establish 1,000 feet altitude separation, roll out on new heading, attempt to acquire lead on radar, and form into trail formation position. If radar contact is not reestablished, obtain separate clearance from the controlling agency.

**7.8.3. All Aircraft.** At night, after establishing positive separation, all aircraft will display anti-collision and position lights to aid in reestablishing contact, if applicable.

## **7.9. Air Refueling Limitations and Restrictions:**

7.9.1. Do not accomplish air refueling during training missions when:

7.9.1.1. In-flight turbulence is encountered that, in the opinion of any participant, results in marginal control of the receiver aircraft while in the refueling envelope.

7.9.1.2. The tanker or receiver has less than all engines operating (except in an emergency).

7.9.1.3. The tanker or receiver is unable to retract the landing gear (except in an emergency).

### **7.9.2. Disconnect Malfunctions:**

7.9.2.1. Air refueling without tanker disconnect capability (including tanker manual operation without tanker disconnect capability or receiver emergency override operation) is allowed only under the following conditions:

7.9.2.1.1. When necessary to ensure safe recovery of the aircraft. Minimize contacts and contact time to that required for safe recovery of the aircraft.

7.9.2.1.2. When necessary to complete contingency operations, deployment, redeployment, or when specifically directed by MAJCOM.

7.9.2.2. Conduct emergency override (manual boom latching) training with receiver instructor pilot (IP) supervision. Brief procedures during mission planning. Coordinate receiver pilot and boom operator procedures IAW applicable refueling T.O.s. Receivers must demonstrate disconnect capability prior to accomplishing manual boom latching.

### **7.9.3. Air Refueling Breakaway Training and Envelope Limits Demonstration:**

7.9.3.1. Do not accomplish breakaway training or demonstrate envelope limits while in contact unless the receiver system is in normal and the tanker disconnect capability has been checked with the applicable receiver by either a boom operator initiated or a boom limit switch disconnect.

7.9.3.2. For breakaway training, the tanker pilot, boom operator, and the receiver pilot must coordinate the maneuver before its actual accomplishment. This coordination must include when the maneuver will occur and who will give the command of execution.

**7.9.4. Maximum Air Refueling Altitude.** Normal training sorties should conduct air refueling at or below the maximum refueling altitudes at 1.3G available.

7.9.5. Copilot Air Refueling.

7.9.5.1. Copilots must be certified proficient by an IP prior to accomplishing unsupervised air refueling (AR). Separate certifications are required for day and night AR; and will be designated by the squadron commander on the letter of certification. Once designated, copilots can AR with any current aircraft commander. Copilots not AR certified require supervision by an IP or squadron supervisor of like specialty.

7.9.5.2. (Added) ANG. Copilots are authorized to conduct AR without instructor supervision if they have completed training and received an evaluation, including air refueling, IAW ANGI 11-B-1BV2, *Aircrew Standardization Evaluation Criteria--B-1*.

7.9.6. Deleted.

7.9.6.1. Deleted.

7.9.6.2. Deleted.

7.9.6.3. Deleted.

### **7.10. Low Altitude Limitations:**

7.10.1. Deleted.

7.10.1.1. Deleted.

7.10.1.2. Deleted.

7.10.1.3. Deleted.

7.10.1.4. Deleted.

7.10.1.5. Deleted.

7.10.2. Minimum operating altitudes/Set Clearance Planes (SCP) are 300 feet day and 500 feet night/IMC.

7.10.2.1. Minimum TF altitudes for military training routes in FLIP AP/1B and AP/3 and those provided by the local airspace managers at the originating activity will take precedence if higher than the altitudes listed above.

7.10.2.2. Det 1, USAFWS, 28 BS/FIC, and Det 2, 53 TEG, will fly low altitude as required IAW Weapons School/FIC syllabi or for test sorties, but no lower than 200 feet AGL.

7.10.2.3. Functional Check Flight (FCF) qualified crews may fly at 200 feet to accomplish required bias checks on terrain following systems during a FCF.

7.10.3. Minimum weather for TF/VC flight for crews not night/IMC TF qualified is 1,500 foot ceiling and 5 mile visibility for training areas or as defined in FLIP for VR routes. TF operation above cloud decks in VMC conditions is not restricted.

7.10.3.1. Visual contour flight at night is prohibited.

**7.10.4. Night/IMC TF Operations.** Only crews who are night/IMC TF qualified or are conducting night/IMC TF checkout IAW AFI 11-2B-1V1 are authorized to fly night/IMC TF.

7.10.4.1. The terrain following system must be fully operational to conduct TF operations. Additionally, both pilots' Visual Situational Displays (VSD) must be functional with Terrain Following (TER FLW) selected.

7.10.4.2. First and second detent positions will not be used to maintain TF altitudes. During night/IMC, first detent may only be used to increase the set clearance plane or to climb to MSA/RAA.

## 7.11. Equipment Restrictions:

7.11.1. Offensive Radar Set (ORS) Electronic Protection (EP). Obtain permission to activate the ORS EP modes through HQ ACC/DOTW on a case-by-case basis. In order to operate the ORS with EP enabled, the airspace must be clear of Radio Frequency (RF) collection assets. Additionally, the airspace controlling agency must monitor for unplanned RF collection assets and have procedures to terminate ORS EP operations if RF collection assets arrive.

7.11.1.1. Deleted.

7.11.1.2. Deleted.

7.11.1.3. Deleted.

7.11.1.4. Deleted.

7.11.1.5. Deleted.

7.11.1.6. Deleted.

7.11.1.7. Deleted.

7.11.2. (Added) Do not use ORS quiet mode during night/IMC below 5000' AGL.

7.11.3. (Added) Do not initiate the penetration to low altitude or continue low altitude training if any of the following conditions exist:

7.11.3.1. (Added) Any flight control system malfunction that denies the pilot a safe margin of control.

7.11.3.2. (Added) Loss of Real Beam Ground Map (RBGM) and High Resolution Ground Map (HRGM), during IMC. RBGM and HRGM off/out operations are authorized during VMC only. During night VMC, climb to MSA until radar malfunction is corrected.

7.11.3.3. (Added) Loss of INS(s) during night/IMC. INS(s) off/out operations are authorized during day VMC.

7.11.3.4. (Added) Loss of Avionics Control Unit Complex (ACUC) during night/IMC. ACUC off/out low altitude operations are authorized during day VMC while attempting to recycle the ACUC.

7.11.3.5. (Added) At least one multi-function display (MFD) at the OSO position and the DSO MFD must be operable.

7.11.3.6. (Added) Loss of all attitude reference systems (Gyro Stabilization System (GSS) and INS). Both aft station attitude indicators must be fully operational for low altitude operations during night/IMC.

7.11.3.7. (Added) Loss of all radar altimeter. Low altitude activity may be continued at MSA.

## 7.12. NVG Restrictions:

7.12.1. Do not use NVGs for VC low altitude or visual formation flying.

7.12.2. Do not use NVGs in low altitude night/IMC without the TF system engaged, unless operating at MSA/RAA.

7.12.3. Do not use NVG's for air refueling or pattern operations. NVG's should be removed at least 5 minutes before the first air refueling contact or landing to allow time for night vision adaptation.

## 7.13. Traffic Pattern Limitations:

7.13.1. See [Table A5.1](#) for limitations and restrictions.

7.13.2. Practice no flap or slat full stop landings are prohibited.

7.13.3. Practice traffic pattern operations are prohibited under the following conditions:

7.13.3.1. Any engine shutdown.

7.13.3.2. Unable to set military power on all four engines using the normal throttle system.

7.13.3.3. Any flight control problem.

7.13.4. SCAS Failure. Normal touch-and-go landings or low approaches are permitted with a PITCH AUG 1, ROLL AUG 1, YAW AUG 1, and/or SPOILER 1 caution light illuminated.

7.13.5. (Added) Overhead patterns are prohibited at night.

7.13.6. (Added) Closed patterns are not authorized unless required for safety of flight.

## 7.14. Navigation Equipment:

7.14.1. An INS must be operational as the prime navigation model for takeoff on all missions except for flight in the local area during day VMC. Specific pre-designated missions requiring INS in-flight alignment may launch provided VMC can be maintained until INS is aligned.

7.14.2. Do not takeoff with the GSS inoperative (steady illumination of the GSS caution light).

7.14.3. Selecting Dead Reckoning (DR) as the prime navigational model for training is not considered loss or degradation of the INS.

7.14.4. Do not take off if the INS and GSS headings differ more than 4 degrees (unless staying in the local area under day VMC).

7.14.5. Both aft station attitude indicators and one flight parameter indicator (FPI) must be fully operational for takeoff.

### **7.15. Emergency Limitations:**

7.15.1. Do not practice in-flight emergency procedures with weapons loaded on the aircraft.

7.15.2. Do not practice compound emergencies during flight (unless specifically required for upgrade training).

**7.15.3. Aircraft Operations with One Engine Inoperative.** Takeoffs with one engine inoperative from start of takeoff roll are prohibited. During emergency evacuation, launching an aircraft with one engine inoperative may be accomplished at the wing commander's discretion or when directed by higher headquarters.

### **7.16. Aircrew and Aircraft Limitations:**

7.16.1. Aircrews will not taxi, takeoff, or land when the measured Runway Condition Reading (RCR) is less than 9 without OG/CC approval.

**7.16.2. Structural Limitations.** These restrictions are a result of the Aircraft Structural Integrity Program (ASIP) and are imposed to increase the life of the airframe. Additional weight and overall "G" loading are key factors in reducing the life of the aircraft. Crewmembers should be aware of the ASIP and realize smoothness in all phases of flight reduces unnecessary wear and tear on the aircraft. Additional gross weight is the single most damaging factor to the aircraft. Crews should reduce fuel loads to the minimum required to accomplish the mission.

7.16.2.1. For all wing sweep positions less than 65 degrees, the maximum G loading is 1.5 G. For wing sweeps 65 degrees and aft, the maximum G loading is 2.5 G.

7.16.2.2. For gross weights between 275,000 and 300,000 pounds, aircrews are limited to a maximum of two approaches, a touch and go and a full stop landing. This restriction does not apply when required for formal training or when necessary for safety of flight.

7.16.2.3. Units will plan sortie fuel loads with fuel conservation and Aircraft Structural Integrity Program considerations in mind. Aircraft fuel loads should be the minimum fuel load required to complete the mission and land at or below 230,000 lbs gross weight unless required fuel reserves dictate otherwise.

7.16.2.4. Maximum afterburner climbouts should be restricted to syllabus training, ARTCC requests, safety of flight, or those climbs required for tactical threat/weapons employment.

### **7.17. Weapon Employment Restrictions:**

7.17.1. Withhold weapons when an inflight emergency procedure is being accomplished or when an engine is shut down. Weapons will also be withheld when release exceeds aircraft T.O. limits, CG limits, briefed track/timing tolerances, or deconfliction for fragmentation.

7.17.2. While carrying weapons, do not conduct simulated bomb or missile runs, unusual maneuvers, approach to stall, touch-and-go landings (touch and go landings with BDU-33s are authorized), or other potentially hazardous activity. Carrying weapons does not preclude accomplishing intercept training with fighter aircraft, air refueling, and transition. Low altitude training and electronic attack (EA) may be accomplished with retained weapons provided targets are not selected or designated.

7.17.3. Do not open weapon bay doors during flight with weapons on board other than for intentional release or jettison.

7.18. (Added) **Publications:**

7.18.1. (Added) One full copy of Section III from T.O. 1B-1B-1 will be carried on board during each flight.

## Chapter 8

### LOCAL OPERATING PROCEDURES

**8.1. Scope.** This chapter is reserved for unit local operating procedures. Procedures in this chapter will not be less restrictive than this or any other instruction. This chapter is also not intended to be a single source document for procedures contained in other directives or instructions. This chapter is authorized to be issued to each B-1 crewmember. MAJCOMs or other subordinate agencies (NAF, etc.), may direct publications approval channels and a specific format for **Chapter 8** based on unique flying areas, missions, and/or procedures.

8.1.1. When published, units will forward copies to MAJCOM NAF/OVs and appropriate subordinate agencies, who will review the **Chapter 8** and return comments or required changes back to the unit(s), if appropriate. If a procedure is applicable to all B-1B units, it will be incorporated into the basic instruction.

**8.2. Format.** Organize the local chapter in the following format and, as a minimum, include the following:

- 8.2.1. Introduction.
- 8.2.2. General Policy.
- 8.2.3. Ground Operations.
- 8.2.4. Flying Operations.
- 8.2.5. Weapons Employment.
- 8.2.6. NVG Procedures.
- 8.2.7. Abnormal Procedures.

**8.3. Requirements.** The following areas will be covered (additional items may be added at unit discretion):

- 8.3.1. Fuel Requirements and Bingo Fuels.
- 8.3.2. Mission Plan Fly Procedures (N/A ANG).
- 8.3.3. Diversion Instructions.
- 8.3.4. Weapons Jettison Areas/Procedures/Parameters (IFR/VFR).
- 8.3.5. Controlled Bailout Areas.
- 8.3.6. Local Weather Procedures.
- 8.3.7. Cross-Country Procedures.

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**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

ACCI 11-456, *ACC Electronic Combat Training and EMCON Procedures.*

AFI 11-2B-1 VOLUME 1, *B-1 Aircrew Training*

AFI 11-2B-1 VOLUME 2, *B-1--Aircrew Evaluation Criteria*

AFI 11-202 VOLUME 3, *General Flight Rules*

AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*

AFI 11-215, *Flight Manuals Program (FMP)*

AFI 11-217 VOLUME 2, *Instrument Flight Procedures*

AFI 33-360 VOLUME 1, *Publications Management Program*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 11-4, *Aviation Service*

AFJI 36-2220, *Joint United States (US) Air Force, US Army, US Navy and US Marine Corps Air Combat Training Programs*

AFJPAM 10-228, *Multiservice Air-Air, Air-Surface, Surface-Air Brevity Codes*

AFTTP 3- 1 VOLUME 1, *General Planning and Employment Considerations*

AFTTP 3-3 VOLUME 20, *Combat Aircraft Fundamentals--B-1B*

CJCSM 3212.02, *Performing Electronic Attack in the United States and Canada;*

FAAO 7610.4, *Special Military Operations*

T.O. 1-1C-1-34, *B-1B Flight Crew Air Refueling Procedures With KC-135 and KC-10*

***Abbreviations and Acronyms***

**AC**—Aircraft Commander

**ACAL**—Altitude Calibration

**ACC**—Air Combat Command

**ACCI**—Air Combat Command Instruction

**AFI**—Air Force Instruction

**AFTTP**—Air Force Tactics, Techniques, and Procedures

**AGL**—Above Ground Level

**ANG**—Air National Guard

**ARCP**—Air Refueling Control Point

**ARCT**—Air Refueling Control Time  
**ARTCC**—Air Route Traffic Control Center  
**ASIP**—Aircraft Structural Integrity Program  
**ATC**—Air Traffic Control  
**ATO**—Air Tasking Order  
**BASH**—Bird Aircraft Strike Hazard  
**CHUM**—Chart Update Manual  
**C/S**—Call Sign  
**DH**—Decision Height  
**DOD**—Department of Defense  
**DR**—Dead Reckoning  
**DSO**—Defensive Systems Officer  
**EA**—Electronic Attack  
**EP**—Emergency Procedures or Electronic Protection  
**EXCM**—Expendable Countermeasures  
**FAAO**—Federal Aviation Administration Order  
**FAF**—Final Approach Fix  
**FIC**—Flight Instructor Course  
**FL**—Flight Lead  
**FLIP**—Flight Information Publications  
**FPI**—Flight Parameter Indicator  
**FSS**—Flight Service Station  
**FTU**—Formal Training Unit  
**GCI**—Ground Controlled Intercept  
**GSS**—Gyro Stabilization System  
**HAT**—Height Above Touchdown  
**HRGM**—High Resolution Ground Map  
**IAF**—Initial Approach Fix  
**IAW**—In Accordance With  
**ICAO**—International Civil Aviation Organization  
**IFF**—Identification Friend or Foe  
**IFR**—Instrument Flight Rules

**IMC**—Instrument Meteorological Conditions  
**INS**—Inertial Navigation System  
**IP**—Initial Point or Instructor Pilot  
**IR**—IFR Military Training Route  
**KIAS** —Knots Indicated Airspeed  
**KTAS** —Knots True Airspeed  
**MAJCOM**—Major Command  
**MAP**—Missed Approach Point  
**MARSA**—Military Assumes Responsibility for Separation of Aircraft  
**MDA**—Minimum Descent Altitude  
**MFD**—Multi-Function Display  
**ML**—Mission Lead  
**MOA**—Military Operations Area  
**MSA**—Minimum Safe Altitude  
**MSL**—Mean Sea Level  
**N/A**—Not Applicable  
**NAF**—Numbered Air Force  
**NM**—Nautical Miles  
**NORDO**—No Radio  
**NVG**—Night Vision Goggles  
**OAS**—Offensive Avionics System  
**OC**—Optimum Cruise  
**ORS**—Offensive Radar Set  
**OSO**—Offensive Systems Officer  
**OG/CC**—Operations Group Commander  
**OPORD**—Operations Order  
**OPR**—Office of Primary Responsibility  
**PAR**—Precision Approach Radar  
**PIREP**—Pilot Weather Report  
**POC**—Point of Contact  
**RAA**—Route Abort Altitude  
**RBGM**—Real Beam Ground Map

**RCO**—Range Control Officer  
**RCR**—Runway Condition Reading  
**RF** —Radio Frequency  
**ROE**—Rules of Engagement  
**RTB**—Return to Base  
**SC**—Service Ceiling  
**SCP**—Set Clearance Plane  
**SIF**—Selective Identification Feature  
**SOF**—Supervisor of Flying  
**TACAN**—Tactical Air Navigation  
**TF**—Terrain Following  
**TER FLW**—Terrain Following  
**TOT**—Time Over Target  
**UHF**—Ultra High Frequency  
**VDP**—Visual Descent Point  
**VFR**—Visual Flight Rule  
**VMC**—Visual Meteorological Conditions  
**VOL**—Volume  
**VC**—Visual Contour  
**VR**—VFR Military Training Route  
**VSD**—Visual Situational Display

### *Terms*

**Attempted Release**—The OAS issues a release pulse in either automatic or manual mode with all switches correctly positioned.

**High Altitude Activity**—Same as AFI 11-2B-1V1.

**Hung Weapon**—A live or inert weapon that does not separate from the aircraft following an attempted release. **NOTE:** Weapons not released due to "slow switch status following squib fire" are considered retained if the "hung state" is removed and the fault clears following corrective action by the OSO.

**Live Weapon**—Actual munitions containing a primary explosive charge (Mk 82, CBU-87, etc.).

**Low Altitude Activity**—Same as AFI 11-2B-1V1.

**Medium Altitude Activity**—Same as AFI 11-2B-1V1.

**Mountainous Terrain**—Terrain that varies more than 1000 feet in elevation in 10 NM along published track.

**Operating Altitudes**—Altitudes for all routes will be published in FLIP AP/1B or AP/3. TF/VC altitudes will be based on a minimum altitude published for the route or the clearance plane settings developed by local airspace managers at the originating activity, whichever is higher.

**Practice Weapon**—A weapon intended for training or practice and containing no primary explosive charge (BDU-33/50 etc.).

**Retained Weapon**—A weapon still on board the aircraft with no release attempted or after successfully releasing the intended number of weapons in a partial load. Weapons not released due to procedural errors are retained. **NOTE:** Weapons not released due to a "slow switch status following squib fire" are considered retained if the "hung state" is removed and the fault clears following corrective action by the OSO.

**Visual Contour Flight**—Operation at a predetermined altitude above the ground, following contours visually with radar altimeter crosscheck.

**Weapon**—Any live, inert, or training munitions.

**Attachment 2****BRIEFING GUIDES  
(STANDARD BRIEFING, STANDARD PREBRIEF, STANDARD DEBRIEF)*****Section A2A—Standard Briefing*****A2.1. Time Hack/Roll Call**

**NOTE:** Asterisk (\*) items = B-ONE standards.

**A2.2. Introduction/Briefing ROE**

- A2.2.1. Call Sign
- A2.2.2. Mission Execution Date
- A2.2.3. Mission/Alternate Commander
- A2.2.4. Flight Lead

**A2.3. Mission Overview (General)**

- A2.3.1. Mission Objectives/DLOs
- A2.3.2. Mission priorities
- A2.3.3. Target(s)
- A2.3.4. Intel Scenario
- A2.3.5. Mission Route
- A2.3.6. Composite Force Makeup/Escort

**A2.4. Weather****A2.5. Administration**

- A2.5.1. Line Up Card Review
  - A2.5.1.1. Times
  - A2.5.1.2. Aircraft configuration (simulated vs. actual)
  - A2.5.1.3. Frequencies
  - A2.5.1.4. A/A TACAN
- A2.5.2. \* Ground Ops**
- A2.5.3. Silent Ops Launch
- A2.5.4. Taxi sequence
  - A2.5.4.1. Sympathetic Delay
- A2.5.5. Late Takeoff options/mid mission rejoins

A2.5.6. Go/No-Go considerations

**A2.6. Takeoff/Departure**

A2.6.1. Static/Rolling/Spacing

A2.6.2. Obstructions/High Terrain

A2.6.3. SID/Departure Routing

A2.6.4. Rejoin Considerations (VMC/IMC)

A2.6.5. Final Level Off/Airspeed

**A2.7. Enroute**

A2.7.1. Systems check (TF, NEAJAM, Bomb Steer)

A2.7.1.1. WX Updates

A2.7.1.2. Restricted Airspace/ADIZ

A2.7.1.3. High Terrain

A2.7.1.4. Emergency Airfields

A2.7.2. Communication Procedures (VMC/IMC)

A2.7.2.1. AFTTP 3-1 Calls (Blind, Tied, Visual, Popeye, etc.)

A2.7.2.2. Airspeed Changes

A2.7.2.3. Climbs, Descents

A2.7.2.4. Position Changes

A2.7.2.5. Lost Wingman

A2.7.2.6. Stack

**A2.8. Aerial Refueling Procedures**

A2.8.1. Tanker Unit/Call Sign

A2.8.2. Track/Anchor

A2.8.3. C/R Plan/Emission Option

A2.8.4. Type Rendezvous

A2.8.5. Altitude (Base/Max)

A2.8.6. Times

A2.8.7. Onload

**A2.8.8.** \* Overrun/Breakaway/IMC

**A2.8.9.** \* Reform Method

**A2.9. Recovery**

A2.9.1. Joker/Bingo

**A2.9.2.** \* Reform/Breakup

A2.9.3. Route of flight

A2.9.4. Destination/Alternates

**A2.9.5.** \* Approach Type (Low Vis)

A2.9.6. Simulated EP's

A2.9.7. ERCC/Taxi Back Procedures

## **A2.10. EP of the Day**

## **A2.11. Threat of the Day**

## **A2.12. Weapon of the Day**

## **A2.13. Tactical Employment**

### **A2.13.1. Spins**

A2.13.1.1. SPINS Ladder

A2.13.1.2. Range Guide Review--Entry/Exit Procedures/Plan

A2.13.1.3. Enter/Exit EW/GCI/Threat Coverage/Bullseye

A2.13.1.4. Route/MOA Overview

### **A2.13.2. Fence In**

A2.13.2.1. MESL (Go/No-Go)

A2.13.2.2. Alibis

### **A2.13.3. Big Picture**

A2.13.3.1. Package Composition

A2.13.3.1.1. SEAD

A2.13.3.1.1.1. Type/Number/Plan (Single Sweep, Orbits, etc.)/Timeline/Priorities

A2.13.3.1.2. OCA

A2.13.3.1.2.1. Type/Number/Plan (Caps, Sweep, Close Escort, etc.)/Timeline

A2.13.3.1.3. HVAA Orbits

A2.13.3.1.3.1. AWACS/Rivet Joint/JSTARS/Tankers

A2.13.3.1.4. Transport Drops

A2.13.3.1.4.1. Type/Number/Drop Zones/Timeline

A2.13.3.1.5. Other Strikers

A2.13.3.1.5.1. LLTRs/Possible Conflicts/Proximity of Targets/TOTs

A2.13.3.2. Minimum Force Composition AWACS/GCI Check In

A2.13.3.3. Radio Set Up/Comm Plan

A2.13.3.4. IFF Procedures

A2.13.3.5. Code Words

A2.13.3.6. Marshalling

#### **A2.13.4. Ingress**

A2.13.4.1. Push time

A2.13.4.2. Route of flight

A2.13.4.2.1. FLOT, FEBA, FSCL (location/transverse procedures)

A2.13.4.2.2. Threats

A2.13.4.2.3. Combat descent (As required)

A2.13.4.2.3.1. Letdown

A2.13.4.2.3.1.1. Type (VFR vs. TF-Assisted vs. Blind)

A2.13.4.2.3.1.2. Start Descent Point

A2.13.4.2.3.1.3. Terrain

**A2.13.4.2.3.1.4.** \* Ring In, Round Out, Level Off, No-lower-than altitude

A2.13.4.2.3.1.5. SCP

A2.13.4.2.3.1.6. Min Machs

A2.13.4.2.3.1.7. MSA, RAA

A2.13.4.3. Environment (sun position, cloud cover, ducting, contrails, terrain, etc.)

A2.13.4.4. Avionics Setup (radar search plan, EA, EP, TWF, TDS, TF)

A2.13.4.5. Performance Criteria/Maneuvering data

A2.13.4.6. Formation (stack up, tactical spacing, etc.)

A2.13.4.7. Defensive Response (formation threat reactions)

A2.13.4.8. Maneuvering Blocks/Contracts

#### **A2.13.5. Strike**

A2.13.5.1. Threats

A2.13.5.2. Environment (sun position, cloud cover, ducting, contrails, terrain, etc.)

A2.13.5.3. Avionics Setup (radar search plan, EA, EP, TWF, TDS, TF)

A2.13.5.4. Performance Criteria/Maneuvering data

A2.13.5.5. Formation (stack up, tactical spread, etc.)

A2.13.5.6. Defensive Response (decision range)

A2.13.5.7. Maneuvering Blocks/Contracts

A2.13.5.8. IP Description

A2.13.5.9. Target (attack card review)

**Table A2.1. Attack Card Review.**

Target Description	OAPs
Weapon type/number/configuration	Aiming Priorities
OAS setup	Delivery parameters/constraints
CWDS data	Safe Escape/Frag deconfliction
Weaponneering	TOT window
ACAL	Withhold criteria
Target/OAP acquisition	Reattack

A2.13.5.10. Medium/High Altitude Strike

A2.13.5.10.1. Pop-to-Level Delivery Procedures

A2.13.5.11. Low Altitude Strike

A2.13.5.11.1. Visual funneling features/target acquisition

A2.13.5.11.2. Formation Procedures (position/threat reactions)

A2.13.5.11.3. Deconfliction Contracts

A2.13.5.12. Strike contingencies

A2.13.5.12.1. Strike abort plan

A2.13.5.12.2. Reset/Reform

A2.13.5.12.3. Delouse Procedures (IFF, Radio, etc.)

A2.13.5.12.4. Reattack

A2.13.5.12.5. Dump target

A2.13.5.12.6. Hung Stores

### **A2.13.6. Egress**

A2.13.6.1. Route of flight

A2.13.6.1.1. Threats

A2.13.6.1.2. Environment (Sun position, cloud cover, ducting, contrails, terrain, etc.)

A2.13.6.1.3. Avionics Setup (Radar search plan, EA, EP, TWF, TDS, TF)

A2.13.6.1.4. Performance Criteria/Maneuvering data

A2.13.6.1.5. Formation (Stack Up, Tactical Spread, etc.)

A2.13.6.1.6. Defensive Response (Split, Notch, etc.)

A2.13.6.1.7. Maneuvering Blocks/Contracts

A2.13.6.2. FENCE out

A2.13.6.3. Egress routing (Transient Corridor)

A2.13.6.4. Post target reform

A2.13.6.5. Package flow

### **A2.13.7. Tactical Considerations**

A2.13.7.1. Night Considerations

A2.13.7.1.1. NVG Ops

A2.13.7.1.2. Illumination

A2.13.7.1.3. External Lighting

A2.13.7.2. Jettison Procedures

A2.13.7.3. Wounded Bird

A2.13.7.4. CSAR (SARDOT, SARNEG)

A2.13.7.4.1. Assets Available

A2.13.7.4.2. Rescue Procedures

A2.13.7.4.2.1. Word, Number, Letter of the Day

A2.13.7.4.3. SAFE Areas

A2.13.7.4.4. Battle Damage/Stores Bay Checks

### **A2.13.8. Recap**

### **A2.13.9. Questions?**

## **A2.14. Recovery**

A2.14.1. Joker/Bingo

**A2.14.2.** \* Reform/Breakup

A2.14.3. Route of flight

A2.14.4. Destination/Alternates

**A2.14.5.** \* Approach Type (Low Vis)

A2.14.6. Simulated EP's

A2.14.7. ERCC/Taxi Back Procedures

## **A2.15. Special Subjects**

A2.15.1. Alternate/Backup Mission

A2.15.2. Training Rules

A2.15.3. SAR Procedures

A2.15.4. Crew Coordination

**A2.15.5. \* Emergencies**

A2.15.6. Currencies

A2.15.7. FCIF

A2.15.8. Special Interest Items

A2.15.9. Debrief Time/Place

***Section A2B—Standard Prebrief***

**A2.16. Time Hack/Roll Call**

**A2.17. Introduction**

A2.17.1. Call Sign

A2.17.2. Mission Execution Date

A2.17.3. Mission/Alternate Commander

A2.17.4. Flight Lead

**A2.18. Mission Overview (General)**

A2.18.1. Mission Objectives/DLOs

A2.18.2. Target(s)

A2.18.3. Intel Scenario

A2.18.4. ATO/SPINS/Composite Force Makeup/Escort (if applicable)

**A2.19. Mission Planning Tasks.** Suggested list--all items may not apply.

**Table A2.2. Mission Planning Tasks.**

1:50/1:250 Chart	Airspace Coord/Range Brief
JMEM	Tanker Coord
CWDS	Sun/Moon Illumination Data
Safe Escape	Maneuver Data
F-Plan/CFPS/PFPS	Comm Card
FPs/OAPs	Attack/Play Cards
Overview Charts	Time Slices (If applicable)
OCA/GCI Coord	WX
Filing (175)	EP, Weapon, Threat of the Day
Audio Recorders	Reverse JMEM
Tgt Scaling Diagram	Aircraft/Weapons Data/Coord
Arrival/Dept Coord	Fuels

**A2.20. Mission Planning Timeline.** Suggested list--all items may not apply.

**Table A2.3. Suggested Mission Planning Timeline.**

CWDS/JMEM Complete	Target/Bomb Run Plotted/Planned
Flight Plan Complete	How Goes It
Slide/White Board Prep	Briefing

### **A2.21. Questions/Clarifications**

#### ***Section A2C—Standard Debrief***

**A2.22. Mission/Formation Debrief.** A mission/formation debrief is required for each sortie. This debrief is conducted by the Flight Lead at the specified time.

##### A2.22.1. Basic Flow of Debriefings

###### A2.22.1.1. Overview

A2.22.1.1.1. Establish debrief format/ROE (i.e. hold questions until the end, etc.)

A2.22.1.1.2. Alibis

###### A2.22.1.2. Mission Objectives/Desired Learning Objectives (DLOs)

###### A2.22.1.3. Admin

A2.22.1.3.1. Mission Planning

A2.22.1.3.2. Brief

A2.22.1.3.3. Ground Ops

A2.22.1.3.4. Takeoff/Departure

- A2.22.1.3.5. Enroute
- A2.22.1.3.6. Air Refueling
- A2.22.1.3.7. Recovery
- A2.22.1.3.8. Motherhood
- A2.22.1.4. Tactical Execution. **NOTE:** Spend the majority of your time here.
  - A2.22.1.4.1. Threats (where engaged, EA, EXCM, reactions)
  - A2.22.1.4.2. Package (marshaling, push, egress, deconfliction)
  - A2.22.1.4.3. Formation (position, mutual support, comm)
  - A2.22.1.4.4. Bombing (ACALs, offsets, target direct, effectiveness, scores)
  - A2.22.1.4.5. Get well
- A2.22.1.5. Mission Objectives/DLOs Recap
  - A2.22.1.5.1. Did you accomplish what you set out to accomplish?
    - A2.22.1.5.1.1. If yes, how?
    - A2.22.1.5.1.2. If no, why not?
    - A2.22.1.5.1.3. How could it have been done better?
  - A2.22.1.5.2. Execution Errors/Lessons Learned
  - A2.22.1.5.3. What one thing did you learn today to increase your (and your unit's) combat capability?
- A2.22.1.6. Comments (when solicited by Flight Lead)

### Attachment 3

#### STRANGE FIELD FAMILIARIZATION

**A3.1. Use of Guide.** The following procedures aid crew members in their preparation for flights into strange airfields. This outline is a guide and crew members should review only the information that is appropriate to their mission (for example, load bearing capacity need not be reviewed for flights into airfields with similar aircraft).

A3.1.1. During mission planning, crews should review the following for each base of intended landing:

**A3.1.1.1. FLIP Enroute Supplement:**

A3.1.1.1.1. Traffic pattern/special practices.

A3.1.1.1.2. Nav aids maintenance periods.

A3.1.1.1.3. Facilities/services available, including radar coverage.

A3.1.1.1.4. Load bearing capacity.

**A3.1.1.2. FLIP Planning Documents:**

A3.1.1.2.1. Special notices.

A3.1.1.2.2. Preferred routing.

A3.1.1.2.3. Terminal control areas.

A3.1.1.2.4. ICAO information.

A3.1.1.2.5. Foreign Clearance Guide (unclassified and classified version).

A3.1.1.2.6. Special Weapons Overflight Guide (SWOG).

**A3.1.1.3. Approach Plates:**

A3.1.1.3.1. Airfield layout/obstacles/runway length and width.

A3.1.1.3.2. Final approach runway alignment.

A3.1.1.3.3. Airfield lighting.

A3.1.1.3.4. Navigation chart (review for local terrain features and AILA considerations).

A3.1.2. Before departure from each base, crews may use the following guide as a means of reviewing the arrival/approach procedures for the next intended landing base:

**A3.1.2.1. Departure:**

A3.1.2.1.1. Obstacles.

A3.1.2.1.2. Rate of climb required.

A3.1.2.1.3. Emergency/minimum safe altitudes.

A3.1.2.1.4. Routing/nav aids/altitude restrictions/available radar coverage.

**A3.1.2.2. Enroute Descent:**

A3.1.2.2.1. Start descent point.

A3.1.2.2.2. Rate of descent required.

A3.1.2.2.3. Transition altitude.

A3.1.2.2.4. Terminal fix (IAF, FAF, Procedures turn fix, PAR, etc.).

A3.1.2.2.5. Lost communications procedures.

A3.1.2.2.6. Emergency/minimum safe, sector altitudes.

**A3.1.2.3. Published Penetration:**

A3.1.2.3.1. IAF/holding fix.

A3.1.2.3.2. Initial rate of descent required.

A3.1.2.3.3. Transition altitude.

A3.1.2.3.4. Altitude restrictions.

A3.1.2.3.5. Emergency/minimum safe altitudes.

A3.1.2.3.6. Final approach fix.

A3.1.2.3.7. Lost communications procedures.

**A3.1.2.4. Final Approach--Published or Radar:**

A3.1.2.4.1. Rate of descent.

A3.1.2.4.2. Timing.

A3.1.2.4.3. Weather minimums/MDA/VDP/DH.

A3.1.2.4.4. Missed approach procedures.

A3.1.2.4.5. Lost communications procedures.

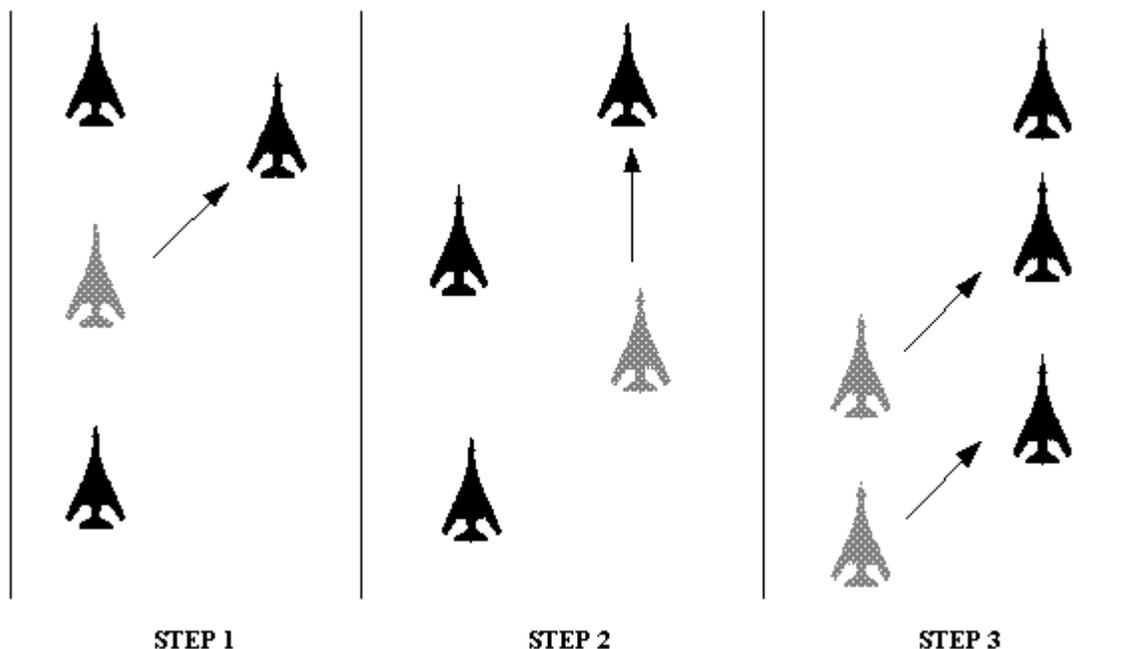
A3.1.2.4.6. Transition to landing/runway environment.

## Attachment 4

## TRAIL FORMATION PROCEDURES

## A4.1. Trail Formation Position Change to Lead:

Figure A4.1. Formation Position Change--Any Aircraft Moves to Lead.



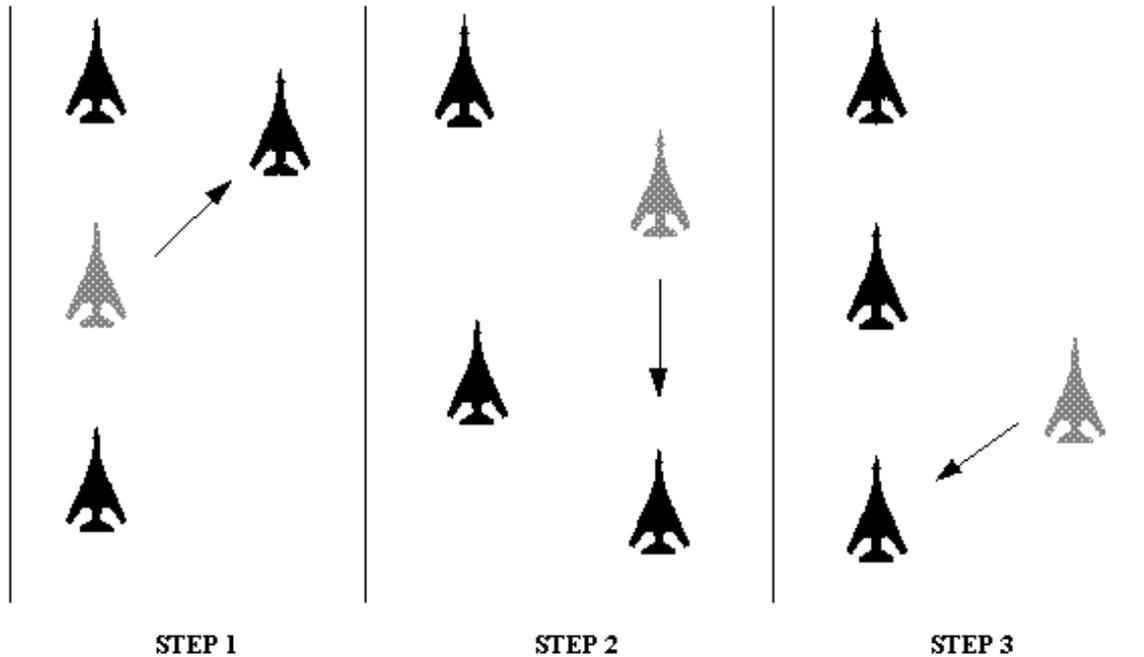
**A4.1.1. Step 1.** Lead will ensure altitude separation and identify the aircraft/element to take the lead by calling for a position change, e.g., "Bone 21 position change, right side, Two to Lead." All wingmen will acknowledge. The maneuvering aircraft/element will offset to achieve lateral separation. During night or IMC conditions, maintain 1 NM lateral separation. The maneuvering aircraft/element will maintain radar and/or visual contact with the lead aircraft during the position change. If radar and visual contact is lost during, maintain altitude, advise lead, and attempt to reestablish contact by all means available. The last aircraft in formation with operable radar will monitor the position of other aircraft to ensure proper separation. During VMC conditions maintain a minimum of 1/2 NM lateral separation.

**A4.1.2. Step 2.** After establishing lateral separation, the maneuvering aircraft/element will accelerate forward to pass lead on the designated side. During night or IMC conditions, the maneuvering aircraft/element should resume formation airspeed and stabilize approximately 1 1/4 NM forward range from the original lead. Once Lead has the maneuvering aircraft/element tied on radar in the forward echelon position, Lead will verbally direct the lead change, e.g., "Bone 21 Two, you have the lead." The new Lead will acknowledge, check-in the formation, and direct altitude swaps as required. For example, "Roger, Two has the lead. Bat 21 check. Two, Three... Bone 21, altitude change, Two take..., Two, Three..." During VMC conditions, as the maneuvering aircraft/element approaches lead's 3/9 line, lead will verbally direct the lead change as stated above.

**A4.1.3. Step 3.** The rest of the formation will maneuver to reestablish formation position behind the new lead/lead element.

#### A4.2. Trail Formation Position Change to End:

**Figure A4.2. Formation Position Change--Any Aircraft Moves to the End of the Formation.**



**A4.2.1. Step 1.** Lead will ensure altitude separation and identify the aircraft/element to move to the end of the formation by calling for a position change, e.g., "Bone 21 position change, right side, Two to Three." All wingmen will acknowledge. The maneuvering aircraft/element will offset to the specified side to achieve lateral separation. During night or IMC conditions, maintain 1 NM lateral separation. If radar and visual contact is lost during the position change, maintain altitude, advise lead, and attempt to reestablish contact by all means available. The last aircraft in formation with operable radar will monitor the position of all aircraft to ensure proper separation. During VMC conditions maintain visual contact and a minimum of 1/2 NM lateral separation.

**A4.2.2. Step 2.** After establishing lateral separation, the maneuvering aircraft/element will decelerate to move to the end of the formation. During night or IMC conditions, the maneuvering aircraft/element should resume formation airspeed and stabilize approximately 1 NM aft of the last aircraft in the formation.

**A4.2.3. Step 3.** Once the maneuvering aircraft/element is tied on radar and stabilized with sufficient nose-tail separation with the rest of the formation, assume the new formation position. Lead will verbally direct altitude changes as necessary.

## Attachment 5

## TRAFFIC PATTERN AND LANDING LIMITATIONS AND RESTRICTIONS

## A5.1. Traffic Pattern Restrictions:

Table A5.1. Traffic Pattern and Landing Limitations and Restrictions.

Approach Type	Gross Weight	Crosswind Component	Weather	IP Supervision	Night	RCR
Normal Low Approach	300,000	N/A	Published Minimums	NO	YES	N/A
Normal Touch and Go (NOTE 1)	300,000	20 Knots	500 ft 1 NM NOTE 5	NO	YES	12
Sim Eng Out Low App (NOTE 3)	275,000	N/A	NOTE 2	FTU/FIC Only	YES	N/A
Sim Eng Out Full Stop (NOTES 1, 4)	275,000	10 Knots	NOTE 2	FTU/FIC Only	YES	Dry
Sim Eng Out Touch and Go (NOTES 1, 4)	275,000	10 Knots	NOTE 2	FTU/FIC Only	YES	Dry
No Slat/Flap Low Approach	275,000	N/A	NOTE 2	NO	YES	N/A
SCAS Off Low Approach	275,000	N/A	NOTE 2	FTU/FIC Only	YES	N/A
SCAS Off Full Stop Landing (NOTE 1)	275,000	10 Knots	NOTE 2	FTU/FIC Only	NO	Dry
Simulated loss of airspeed pen/app/low app	275,000	N/A	VFR Conditions	YES	NO	N/A
No Slat or Flap Touch and Go (NOTE 1, 9)	250,000	15 Knots	NOTE 2	NO NOTE 6	Only with IP Supervision	Dry
Full Stop Landing (NOTE 7, 8)	300,000	26 Knots NOTE 10	Published Minimums	NO	YES	9

Approach Type	Gross Weight	Crosswind Component	Weather	IP Supervision	Night	RCR
Slat Only Touch and Go (NOTE 1)	230,000	15 Knots	NOTE 2	FTU/FIC Only	NO	DRY
25° Wing No Slat/ Flap Touch and Go (NOTE 1)	250,000	15 Knots	NOTE 2	FTU/FIC Only	NO	DRY
AMI Out Touch and Go (NOTE 1)	300,000	15 Knots	NOTE 2	FTU/FIC Only	NO	12
½, ¼, and ¾ Flap Touch and Go (NOTE 1)	250,000	15 Knots	NOTE 2	YES	YES	DRY

**NOTES:**

1. Go around if not in the designated touchdown zone. Runway length and RCR consideration must permit an aborted takeoff using computed landing ground run distance.
2. Weather required is 1,000 feet/2 miles visibility or circling minimums, whichever is higher.
3. Initiate go around/missed approach no lower than 200 feet HAT.
4. Unplanned go around/takeoff portion of maneuver requires symmetrical thrust.
5. May fly published minimums with an IP.
6. Instructor Pilot is required for No Slat - No Flap Touch and Go. Aircraft commanders designated by the squadron commander on the letter of certification do not require instructor pilot supervision.
7. Full stop landings are authorized to T.O. 1B-1B-1 gross weight limits in an Emergency or Safety of Flight situation.
8. Crews will not full stop when the measured RCR is less than 9 without OG/CC approval.
9. Aircraft Commanders require SEF/SIS operational to conduct no-flap touch and go training.
10. If mission requirements dictate, the OG/CC may authorize aircraft recovery within maximum flight manual limitations.

## Attachment 6

## IC 2002-1 TO AFI 11-2B-1 VOLUME 3, B-1--OPERATIONS PROCEDURES

11 MARCH 2002

## SUMMARY OF REVISIONS

This change incorporates interim change (IC) 2002-1. It includes numerous administrative changes throughout the document. Changes include: updates references to outdated publications; adds On Scene Commander procedures to aircrew aid requirements; adds low altitude chart annotation requirements; deletes references to Military Airspace Management System (MASMS); adds Bird Avoidance Model (BAM) information; updates authorized B-1 formation position information; clarifies requirements for ops checks; deletes references to the Tanker Visual Observation position; deletes references to turbulence and icing restrictions; changes copilot air refueling restrictions; clarifies low altitude equipment restrictions; adds requirement to carry T.O. 1B-1B-1 section III in-flight; adds reference publications to [Attachment 1](#); and removes the FTU/FIC only restriction from partial flap approaches. See the last attachment of the publication, IC 2002-1, for the complete IC. A ( | ) indicates revisions from the previous edition.

OPR: HQ ACC/DOTO (Maj Timothy J. Schepper)

This instruction contains references to the following field (subordinate level) publications and forms which, until converted to departmental level publications and forms, may be obtained from the respective MAJCOM publication office:

**Publications:** ACCI 11-456, ANGI 11-B-1BV2.

**1.3. References.** The primary references for specific B-1B operations are located in technical orders, Air Force Tactics, Techniques, and Procedures (AFTTP) 3-1V1, *General Planning and Employment Considerations*; AFTTP 3-1V2, *Threat Reference Guide and Countertactics*; *Electronic Combat (EC) Mission Guide(s)*, ACCI 11-456, *ACC Electronic Combat Training and EMCON Procedures*; and this instruction. Training guidance is contained in AFI 11-2B-1V1, *B-1 Aircrew Training*. Air refueling references are contained in T.O.s 1-1C-1, *Basic Flight Crew Air Refueling Manual*; 1-1C-1-34, *B-1B Flight Crew Air Refueling Procedures With KC-135 and KC-10*; and Federal Aviation Administration Order (FAAO) 7610.4, *Special Military Operations*. A reference for techniques is AFTTP 3-3V20, *Combat Aircraft Fundamentals B-1*.

2.2.4. Terrain following (TF) minimum mach tabulated data for inflight TF check and low altitude operations.

2.2.8. On Scene Commander Procedures.

2.2.9. Other information as deemed necessary by individual units.

2.5.3. During the briefing for all low altitude missions, emphasis will be placed on obstacle/ground avoidance. For low altitude training over water/featureless terrain, include emphasis on minimum altitudes and

spatial disorientation. Also emphasize weapon release parameters including planned speed, altitude, fuse settings, planned track, weapon interval, fragmentation deconfliction, and time/track tolerances.

2.5.3.1. Units must ensure an OPR is designated to maintain low altitude and weapon activity data.

2.6.1. **Planning.** Aircrew members flying under VFR or inside MTRS in CONUS will supplement existing mission planning materials (e.g. chum, flip AP/1B, etc.) with either: PFPS/Falcon View with the following overlay options selected: Airports/heliports, airspace boundaries, airways, MTR, parachute jump and SUAS boundaries, or sectional aeronautical charts. Use of sectional aeronautical charts in flight is not required. Aircrew members flying outside CONUS will follow gaining MAJCOM, theater or host nation guidance on mission planning. If no guidance exists, use the best charts or Falcon View overlay options available to accomplish the requirements of paragraph 2.6.3.

2.6.2. **Local Area Charts.** A local area chart is not required if aircrew inflight guides include jettison areas and divert information and provides sufficient detail of the local area to remain in local Military Operations Areas (MOA) or other assigned areas.

2.6.3. (Added) **Low Altitude Charts.** On low altitude training flights, one member of the pilot team, the Offensive Systems Officer (OSO) and Defensive Systems Officer (DSO) will carry a chart. Annotate headings and maximum/minimum route structure altitudes. The chart will be of scale and quality that terrain features, hazards, noise sensitive areas, and chart annotations are of sufficient detail to allow individual navigation and safe mission accomplishment. Annotate charts with noise sensitive areas, location and dimensions of class A/B/C/D airspace, civil/military airfields and other potential high-density traffic areas (e.g., parachute activity areas and ultra light/hang glider/glider sites, etc.) within 5 NM of any planned VFR route or airspace boundary. Applicable airfield approach control frequencies in the vicinity of class A, B, C, and D airspace will be annotated and briefed on all such flights. In addition, annotate and brief the intersection of crossing IFR Military Training Routes (IR)/VFR Military Training Routes (VR) (if applicable) and any other possible areas of conflict. Review pilot's and OSO/DSO low altitude charts for compatibility and accuracy.

2.6.3.1. (Added) **VR Charts.** Annotate all charts with a route abort altitude (RAA). Compute the RAA, for the entire route/area, at a minimum of 1,000 feet above the highest obstacle/terrain feature (rounded up to the next 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 corridor.

2.6.3.2. (Added) **IR/MOA/Restricted/Warning Area Charts.** Annotate a minimum safe altitude (MSA) for each leg of the intended route of flight. The MSA is defined as an altitude that provides, as a minimum, 1000 feet of clearance above the highest obstacle/terrain (rounded up to the next 100 feet), within 5NM of the planned route corridor/segment. A single MSA may be used for MOAs, restricted areas, and warning area charts.

3.2.3. IR Training Activity:

3.2.3.1. Scheduling. Comply with the scheduling requirements of the route originating/scheduling activity. Confirm entry tolerances with the scheduling agency. If no entry tolerances are provided aircraft will enter only at scheduled time  $\pm 2\frac{1}{2}$  minutes. If the scheduled entry cannot be made within  $\pm 2\frac{1}{2}$  minutes, the use of subsequent primary or alternate entry points/times is authorized provided the airspace has been scheduled and briefed.

3.2.3.1.1. Deleted.

3.2.3.1.2. Deleted.

3.2.3.1.3. Deleted.

3.2.3.1.4. Deleted.

3.2.3.2. (Added) Flight. Instrument routes are one-way. While flying an IR do not turn more than 90-degrees off of route centerline.

3.2.4. Deleted

3.2.5.1. Bird Strikes. Generally, the hour before and after sunrise and sunset presents an increased threat of a bird strike, with migration seasons posing a significant hazard at different times. Units should check the AF Safety Center Bird Avoidance Model (BAM), the Avian Hazard Advisory System (<http://www.ahas.com>) or contact their base CE wildlife expert or AF Safety Center Bird Aircraft Strike Hazard (BASH) team for further information on times of increased bird activity.

3.2.7.2. Deleted.

3.2.7.2.1. Deleted.

3.2.7.2.2. Deleted.

3.2.7.2.3. Deleted.

3.2.8. Low Altitude Navigation/Weapon Run Procedures:

3.3.1. During mission planning, review lunar illumination and elevation, anticipated ground light sources, and weather for the planned route of flight. Weapons effects and expendables use should also be studied for their impact on NVG operations.

3.3.2. Each crewmember whose duties require the use of NVGs will preflight their respective NVGs IAW AFTTP 3-3V20 or, when available, use the Hoffman ANV 20/20 or equivalent infinity focusing device. This device is preferred over an eye lane for NVG preflight.

3.3.3. Do not fly with NVGs unless the cockpit is modified with NVG compatible lighting. As a baseline, use the guidance in AFTTP 3-3V20 for proper NVG cockpit setup.

3.4.1. Authorized B-1 Formations. For additional guidance, refer to AFTTP 3-3V20:

3.4.1.1. Route/Observation. Route/observation is defined from 30 to 70 degrees aft of lead's/the tanker's 3/9 line and 150 to 1000 foot aircraft separation.

3.4.1.2. Fluid. Fluid is defined from 30 to 70 degrees aft of leads 3/9 line and 1,000 to 3,000 foot aircraft separation. The formation envelope is a donut around the lead aircraft. Fluid is reserved for those situations where moderate maneuver potential is desired (e.g., holding in a tactical environment, rejoins during departure, tactical recoveries, maneuvering around clouds or when striking an area target with near simultaneous time over targets (TOT)).

3.4.1.6. Deleted.

3.4.4.2. Minimum takeoff interval from the same runway is 30 seconds or when the lead aircraft is airborne, whichever occurs first. Abort calls are mandatory any time the takeoff is aborted.

3.4.7.1. Lead/Position Change During IMC. During IMC, initiate a lead change from a stabilized wings level attitude and follow procedures outlined in [Attachment 4](#).

3.4.7.2. Lead/Position Change During VMC. Flight 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. VMC procedures for Trail are described in [Attachment 4](#).

3.4.9. Ops Checks. Accomplish sufficient ops checks to ensure safe mission accomplishment.

3.4.9.1. Ops checks are required:

3.4.9.1.1. (Added) During climb or at level-off after takeoff.

3.4.9.1.2. (Added) Prior to each Dissimilar Air Combat Tactics (DACT) engagement or intercept.

3.4.9.1.3. (Added) Prior to entering an air-to-surface range and after departing the range.

3.4.9.1.4. (Added) Following Air Refueling.

3.4.9.2. Minimum Ops Check items--Central Air Data Computers (CADC) (angle of attack indicators within .8 degrees), hydraulic panel, engine instruments, fuel controls/total fuel, oxygen system, electrical system, cabin altitude, autopilot control panel, and ejection seat status.

3.4.9.3. (Added) For formation flights, flight leads will initiate ops checks.

3.4.10.7. Use brevity codes and other terminology IAW AFJPAM 10-228, *Multiservice Air-Air, Air-Surface, Surface-Air Brevity Codes*; AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*; AFTTP 3-1V1 and local standards.

7.3.1. Seat changes will be accomplished when the aircraft is at a safe altitude (i.e., MSA during low altitude operations or traffic pattern altitude during transition). Pilots will not conduct seat swaps with only two pilots on board the aircraft.

**7.6. Fuel Minimums.** The usable fuel reserve requirements in AFI 11-202V3, *General Flight Rules* and MAJCOM supplements apply except as listed below.

7.7.1. Visual Formation. Visual formations will be flown during daylight hours (official sunrise to sunset) as two ship elements.

7.7.1.1.1. Flight leads will tailor maneuvering for aircraft with degraded SEF capability.

7.7.1.2.2. During low altitude operations, (below 5000' AGL) maintain VMC with a ceiling no less than 1500' AGL and 5 NM visibility.

7.7.1.3.3. Fluid/Route may be flown below 5000' AGL during departures, recoveries, or authorized flyovers.

7.7.2. Route/Observation. Route/Observation is not a tactical employment formation. Aircraft must be stabilized at 1000' before proceeding closer to lead.

7.9.5. Copilot Air Refueling.

7.9.5.1. Copilots must be certified proficient by an IP prior to accomplishing unsupervised air refueling (AR). Separate certifications are required for day and night AR; and will be designated by the squadron commander on the letter of certification. Once designated, copilots can AR with any current aircraft commander. Copilots not AR certified require supervision by an IP or squadron supervisor of like specialty.

7.9.5.2. (Added) ANG. Copilots are authorized to conduct AR without instructor supervision if they have completed training and received an evaluation, including air refueling, IAW ANGI 11-B-1BV2, *Aircrew Standardization Evaluation Criteria--B-1*.

7.9.6. Deleted.

7.9.6.1. Deleted.

7.9.6.2. Deleted.

7.9.6.3. Deleted.

7.10.1. Deleted.

7.10.1.1. Deleted.

7.10.1.2. Deleted.

7.10.1.3. Deleted.

7.10.1.4. Deleted.

7.10.1.5. Deleted.

7.10.2.2. Det 1, USAFWS, 28 BS/FIC, and Det 2, 53 TEG, will fly low altitude as required IAW Weapons School/FIC syllabi or for test sorties, but no lower than 200 feet AGL.

7.10.2.3. Functional Check Flight (FCF) qualified crews may fly at 200 feet to accomplish required bias checks on terrain following systems during a FCF.

7.10.4.2. First and second detent positions will not be used to maintain TF altitudes. During night/IMC, first detent may only be used to increase the set clearance plane or to climb to MSA/RAA.

7.11.1. Offensive Radar Set (ORS) Electronic Protection (EP). Obtain permission to activate the ORS EP modes through HQ ACC/DOTW on a case-by-case basis. In order to operate the ORS with EP enabled, the airspace must be clear of Radio Frequency (RF) collection assets. Additionally, the airspace controlling agency must monitor for unplanned RF collection assets and have procedures to terminate ORS EP operations if RF collection assets arrive.

7.11.1.1. Deleted.

7.11.1.2. Deleted.

7.11.1.3. Deleted.

7.11.1.4. Deleted.

7.11.1.5. Deleted.

7.11.1.6. Deleted.

7.11.1.7. Deleted.

7.11.2. (Added) Do not use ORS quiet mode during night/IMC below 5000' AGL.

7.11.3. (Added) Do not initiate the penetration to low altitude or continue low altitude training if any of the following conditions exist:

7.11.3.1. (Added) Any flight control system malfunction that denies the pilot a safe margin of control.

7.11.3.2. (Added) Loss of Real Beam Ground Map (RBGM) and High Resolution Ground Map (HRGM), during IMC. RBGM and HRGM off/out operations are authorized during VMC only. During night VMC, climb to MSA until radar malfunction is corrected.

7.11.3.3. (Added) Loss of INS(s) during night/IMC. INS(s) off/out operations are authorized during day VMC.

7.11.3.4. (Added) Loss of Avionics Control Unit Complex (ACUC) during night/IMC. ACUC off/out low altitude operations are authorized during day VMC while attempting to recycle the ACUC.

7.11.3.5. (Added) At least one multi-function display (MFD) at the OSO position and the DSO MFD must be operable.

7.11.3.6. (Added) Loss of all attitude reference systems (Gyro Stabilization System (GSS) and INS). Both aft station attitude indicators must be fully operational for low altitude operations during night/IMC.

7.11.3.7. (Added) Loss of all radar altimeter. Low altitude activity may be continued at MSA.

7.13.4. SCAS Failure. Normal touch-and-go landings or low approaches are permitted with a PITCH AUG 1, ROLL AUG 1, YAW AUG 1, and/or SPOILER 1 caution light illuminated.

7.13.5. (Added) Overhead patterns are prohibited at night.

7.13.6. (Added) Closed patterns are not authorized unless required for safety of flight.

7.17.2. While carrying weapons, do not conduct simulated bomb or missile runs, unusual maneuvers, approach to stall, touch-and-go landings (touch and go landings with BDU-33s are authorized), or other potentially hazardous activity. Carrying weapons does not preclude accomplishing intercept training with fighter aircraft, air refueling, and transition. Low altitude training and electronic attack (EA) may be accomplished with retained weapons provided targets are not selected or designated.

**7.18. (Added) Publications:**

7.18.1. (Added) One full copy of Section III from T.O. 1B-1B-1 will be carried on board during each flight.

8.3.4. Weapons Jettison Areas/Procedures/Parameters (IFR/VFR).

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

ACCI 11-456, *ACC Electronic Combat Training and EMCON Procedures.*

AFI 11-2B-1 VOLUME 1, *B-1 Aircrew Training*

AFI 11-2B-1 VOLUME 2, *B-1--Aircrew Evaluation Criteria*

AFI 11-202 VOLUME 3, *General Flight Rules*

AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*

AFI 11-215, *Flight Manuals Program (FMP)*

AFI 11-217 VOLUME 2, *Instrument Flight Procedures*

AFI 33-360 VOLUME 1, *Publications Management Program*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 11-4, *Aviation Service*

AFJI 36-2220, *Joint United States (US) Air Force, US Army, US Navy and US Marine Corps Air Combat Training Programs*

AFJPAM 10-228, *Multiservice Air-Air, Air-Surface, Surface-Air Brevity Codes*

AFTTP 3- 1 VOLUME 1, *General Planning and Employment Considerations*

AFTTP 3-3 VOLUME 20, *Combat Aircraft Fundamentals--B-1B*

CJCSM 3212.02, *Performing Electronic Attack in the United States and Canada;*

FAAO 7610.4, *Special Military Operations*

T.O. 1-1C-1-34, *B-1B Flight Crew Air Refueling Procedures With KC-135 and KC-10*

***Abbreviations and Acronyms***

**AC** Aircraft Commander

**ACAL** Altitude Calibration

**ACC** Air Combat Command

**ACCI** Air Combat Command Instruction

**AFI** Air Force Instruction

**AFTTP** Air Force Tactics, Techniques, and Procedures

**AGL** Above Ground Level

**ANG** Air National Guard

**ARCP** Air Refueling Control Point

**ARCT** Air Refueling Control Time

**ARTCC** Air Route Traffic Control Center  
**ASIP** Aircraft Structural Integrity Program  
**ATC** Air Traffic Control  
**ATO** Air Tasking Order  
**BASH** Bird Aircraft Strike Hazard  
**CHUM** Chart Update Manual  
**C/S** Call Sign  
**DH** Decision Height  
**DOD** Department of Defense  
**DR** Dead Reckoning  
**DSO** Defensive Systems Officer  
**EA** Electronic Attack  
**EP** Emergency Procedures or Electronic Protection  
**EXCM** Expendable Countermeasures  
**FAAO** Federal Aviation Administration Order  
**FAF** Final Approach Fix  
**FIC** Flight Instructor Course  
**FL** Flight Lead  
**FLIP** Flight Information Publications  
**FPI** Flight Parameter Indicator  
**FSS** Flight Service Station  
**FTU** Formal Training Unit  
**GCI** Ground Controlled Intercept  
**GSS** Gyro Stabilization System  
**HAT** Height Above Touchdown  
**HRGM** High Resolution Ground Map  
**IAF** Initial Approach Fix  
**IAW** In Accordance With  
**ICAO** International Civil Aviation Organization  
**IFF** Identification Friend or Foe  
**IFR** Instrument Flight Rules  
**IMC** Instrument Meteorological Conditions

**INS** Inertial Navigation System  
**IP** Initial Point or Instructor Pilot  
**IR** IFR Military Training Route  
**KIAS** Knots Indicated Airspeed  
**KTAS** Knots True Airspeed  
**MAJCOM** Major Command  
**MAP** Missed Approach Point  
**MARSA** Military Assumes Responsibility for Separation of Aircraft  
**MDA** Minimum Descent Altitude  
**MFD** Multi-Function Display  
**ML** Mission Lead  
**MOA** Military Operations Area  
**MSA** Minimum Safe Altitude  
**MSL** Mean Sea Level  
**N/A** Not Applicable  
**NAF** Numbered Air Force  
**NM** Nautical Miles  
**NORDO** No Radio  
**NVG** Night Vision Goggles  
**OAS** Offensive Avionics System  
**OC** Optimum Cruise  
**ORS** Offensive Radar Set  
**OSO** Offensive Systems Officer  
**OG/CC** Operations Group Commander  
**OPORD** Operations Order  
**OPR** Office of Primary Responsibility  
**PAR** Precision Approach Radar  
**PIREP** Pilot Weather Report  
**POC** Point of Contact  
**RAA** Route Abort Altitude  
**RBGM** Real Beam Ground Map  
**RCO** Range Control Officer

**RCR** Runway Condition Reading  
**RF** Radio Frequency  
**ROE** Rules of Engagement  
**RTB** Return to Base  
**SC** Service Ceiling  
**SCP** Set Clearance Plane  
**SIF** Selective Identification Feature  
**SOF** Supervisor of Flying  
**TACAN** Tactical Air Navigation  
**TF** Terrain Following  
**TER FLW** Terrain Following  
**TOT** Time Over Target  
**UHF** Ultra High Frequency  
**VDP** Visual Descent Point  
**VFR** Visual Flight Rule  
**VMC** Visual Meteorological Conditions  
**VOL** Volume  
**VC** Visual Contour  
**VR** VFR Military Training Route  
**VSD** Visual Situational Display

### *Terms*

**Attempted Release**--The OAS issues a release pulse in either automatic or manual mode with all switches correctly positioned.

**High Altitude Activity**--Same as AFI 11-2B-1V1.

**Hung Weapon**-- A live or inert weapon that does not separate from the aircraft following an attempted release. **NOTE:** Weapons not released due to "slow switch status following squib fire" are considered retained if the "hung state" is removed and the fault clears following corrective action by the OSO.

**Live Weapon**--Actual munitions containing a primary explosive charge (Mk 82, CBU-87, etc.).

**Low Altitude Activity**--Same as AFI 11-2B-1V1.

**Medium Altitude Activity**--Same as AFI 11-2B-1V1.

**Mountainous Terrain**--Terrain that varies more than 1000 feet in elevation in 10 NM along published track.

**Operating Altitudes**--Altitudes for all routes will be published in FLIP AP/1B or AP/3. TF/VC altitudes will be based on a minimum altitude published for the route or the clearance plane settings developed by local airspace managers at the originating activity, whichever is higher.

**Practice Weapon**--A weapon intended for training or practice and containing no primary explosive charge (BDU-33/50 etc.).

**Retained Weapon**--A weapon still on board the aircraft with no release attempted or after successfully releasing the intended number of weapons in a partial load. Weapons not released due to procedural errors are retained. **NOTE:** Weapons not released due to a "slow switch status following squib fire" are considered retained if the "hung state" is removed and the fault clears following corrective action by the OSO.

**Visual Contour Flight**--Operation at a predetermined altitude above the ground, following contours visually with radar altimeter crosscheck.

**Weapon**--Any live, inert, or training munitions.

**Attachment 2****BRIEFING GUIDES****(STANDARD BRIEFING, STANDARD PREBRIEF, STANDARD DEBRIEF)***Section A2A--Standard Briefing***NOTE:** Asterisk (\*) items = B-ONE standards.**A2.1. Time Hack/Roll Call****A2.2. Introduction/Briefing ROE**

A2.2.1. Call Sign

A2.2.2. Mission Execution Date

A2.2.3. Mission/Alternate Commander

A2.2.4. Flight Lead

**A2.3. Mission Overview (General)**

A2.3.1. Mission Objectives/DLOs

A2.3.2. Mission priorities

A2.3.3. Target(s)

A2.3.4. Intel Scenario

A2.3.5. Mission Route

A2.3.6. Composite Force Makeup/Escort

**A2.4. Weather****A2.5. Administration**

A2.5.1. Line Up Card Review

A2.5.1.1. Times

A2.5.1.2. Aircraft configuration (simulated vs. actual)

A2.5.1.3. Frequencies

A2.5.1.4. A/A TACAN

A2.5.2. \*Ground Ops

A2.5.3. Silent Ops Launch

A2.5.4. Taxi sequence

A2.5.4.1. Sympathetic Delay

A2.5.5. Late Takeoff options/mid mission rejoins

A2.5.6. Go/No-Go considerations

**A2.6. Takeoff/Departure**

A2.6.1. Static/Rolling/Spacing

A2.6.2. Obstructions/High Terrain

A2.6.3. SID/Departure Routing

A2.6.4. Rejoin Considerations (VMC/IMC)

A2.6.5. Final Level Off/Airspeed

**A2.7. Enroute**

A2.7.1. Systems check (TF, NEAJAM, Bomb Steer)

A2.7.1.1. WX Updates

A2.7.1.2. Restricted Airspace/ADIZ

A2.7.1.3. High Terrain

A2.7.1.4. Emergency Airfields

A2.7.2. Communication Procedures (VMC/IMC)

A2.7.2.1. AFTTP 3-1 Calls (Blind, Tied, Visual, Popeye, etc.)

A2.7.2.2. Airspeed Changes

A2.7.2.3. Climbs, Descents

A2.7.2.4. Position Changes

A2.7.2.5. Lost Wingman

A2.7.2.6. Stack

**A2.8. Aerial Refueling Procedures**

A2.8.1. Tanker Unit/Call Sign

A2.8.2. Track/Anchor

A2.8.3. C/R Plan/Emission Option

A2.8.4. Type Rendezvous

A2.8.5. Altitude (Base/Max)

A2.8.6. Times

A2.8.7. Onload

A2.8.8. \*Overrun/Breakaway/IMC

A2.8.9. \*Reform Method

**A2.9. Recovery**

A2.9.1. Joker/Bingo

A2.9.2. \*Reform/Breakup

A2.9.3. Route of flight

A2.9.4. Destination/Alternates

A2.9.5. \*Approach Type (Low Vis)

A2.9.6. Simulated EP's

A2.9.7. ERCC/Taxi Back Procedures

**A2.11. EP of the Day**

**A2.12. Threat of the Day**

**A2.13. Weapon of the Day**

**A2.14. Tactical Employment**

**A2.14.1. Spins**

A2.14.1.1. SPINS Ladder

A2.14.1.2. Range Guide Review--Entry/Exit Procedures/Plan

A2.14.1.3. Enter/Exit EW/GCI/Threat Coverage/Bullseye

A2.14.1.4. Route/MOA Overview

**A2.14.2. Fence In**

A2.14.2.1. MESL (Go/No-Go)

A2.14.2.2. Alibis

**A2.14.3. Big Picture**

A2.14.3.1. Package Composition

A2.14.3.1.1. SEAD

A2.14.3.1.1.1. Type/Number/Plan (Single Sweep, Orbits, etc.)/Timeline/Priorities

A2.14.3.1.2. OCA

A2.14.3.1.2.1. Type/Number/Plan (Caps, Sweep, Close Escort, etc.)/Timeline

A2.14.3.1.3. HVAA Orbits

A2.14.3.1.3.1. AWACS/Rivet Joint/JSTARS/Tankers

A2.14.3.1.4. Transport Drops

A2.14.3.1.4.1. Type/Number/Drop Zones/Timeline

A2.14.3.1.5. Other Strikers

A2.14.3.1.5.1. LLTRs/Possible Conflicts/Proximity of Targets/TOTs

A2.14.3.2. Minimum Force Composition AWACS/GCI Check In

A2.14.3.3. Radio Set Up/Comm Plan

A2.14.3.4. IFF Procedures

A2.14.3.5. Code Words

A2.14.3.6. Marshalling

A2.14.4. **Ingress**

A2.14.4.1. Push time

A2.14.4.2. Route of flight

A2.14.4.2.1. FLOT, FEBA, FSCL (location/transverse procedures)

A2.14.4.2.2. Threats

A2.14.4.2.3. Combat descent (As required)

A2.14.4.2.3.1. Letdown

A2.14.4.2.3.1.1. Type (VFR vs. TF-Assisted vs. Blind)

A2.14.4.2.3.1.2. Start Descent Point

A2.14.4.2.3.1.3. Terrain

A2.14.4.2.3.1.4. \*Ring In, Round Out, Level Off, No-lower-than altitude

A2.14.4.2.3.1.5. SCP

A2.14.4.2.3.1.6. Min Machs

A2.14.4.2.3.1.7. MSA, RAA

A2.14.4.3. Environment (sun position, cloud cover, ducting, contrails, terrain, etc.)

A2.14.4.4. Avionics Setup (radar search plan, EA, EP, TWF, TDS, TF)

A2.14.4.5. Performance Criteria/Maneuvering data

A2.14.4.6. Formation (stack up, tactical spacing, etc.)

A2.14.4.7. Defensive Response (formation threat reactions)

A2.14.4.8. Maneuvering Blocks/Contracts

A2.14.5. **Strike**

A2.14.5.1. Threats

A2.14.5.2. Environment (sun position, cloud cover, ducting, contrails, terrain, etc.)

A2.14.5.3. Avionics Setup (radar search plan, EA, EP, TWF, TDS, TF)

A2.14.5.4. Performance Criteria/Maneuvering data

A2.14.5.5. Formation (stack up, tactical spread, etc.)

A2.14.5.6. Defensive Response (decision range)

A2.14.5.7. Maneuvering Blocks/Contracts

A2.14.5.8. IP Description

## A2.14.5.9. Target (attack card review)

**Table A2.1. Attack Card Review.**

Target Description	OAPs
Weapon type/number/configuration	Aiming Priorities
OAS setup	Delivery parameters/constraints
CWDS data	Safe Escape/Frag deconfliction
Weaponneering	TOT window
ACAL	Withhold criteria
Target/OAP acquisition	Reattack

## A2.14.5.10. Medium/High Altitude Strike

## A2.14.5.10.1. Pop-to-Level Delivery Procedures

## A2.14.5.11. Low Altitude Strike

## A2.14.5.11.1. Visual funneling features/target acquisition

## A2.14.5.11.2. Formation Procedures (position/threat reactions)

## A2.14.5.11.3. Deconfliction Contracts

## A2.14.5.12. Strike contingencies

## A2.14.5.12.1. Strike abort plan

## A2.14.5.12.2. Reset/Reform

## A2.14.5.12.3. Delouse Procedures (IFF, Radio, etc.)

## A2.14.5.12.4. Reattack

## A2.14.5.12.5. Dump target

## A2.14.5.12.6. Hung Stores

A2.14.6. **Egress**

## A2.14.6.1. Route of flight

## A2.14.6.1.1. Threats

## A2.14.6.1.2. Environment (Sun position, cloud cover, ducting, contrails, terrain, etc.)

## A2.14.6.1.3. Avionics Setup (Radar search plan, EA, EP, TWF, TDS, TF)

## A2.14.6.1.4. Performance Criteria/Maneuvering data

## A2.14.6.1.5. Formation (Stack Up, Tactical Spread, etc.)

## A2.14.6.1.6. Defensive Response (Split, Notch, etc.)

A2.14.6.1.7. Maneuvering Blocks/Contracts

A2.14.6.2. FENCE out

A2.14.6.3. Egress routing (Transient Corridor)

A2.14.6.4. Post target reform

A2.14.6.5. Package flow

**A2.14.7. Tactical Considerations**

A2.14.7.1. Night Considerations

A2.14.7.1.1. NVG Ops

A2.14.7.1.2. Illumination

A2.14.7.1.3. External Lighting

A2.14.7.2. Jettison Procedures

A2.14.7.3. Wounded Bird

A2.14.7.4. CSAR (SARDOT, SARNEG)

A2.14.7.4.1. Assets Available

A2.14.7.4.2. Rescue Procedures

A2.14.7.4.2.1. Word, Number, Letter of the Day

A2.14.7.4.3. SAFE Areas

A2.14.7.4.4. Battle Damage/Stores Bay Checks

**A2.14.8. Recap**

**A2.14.9. Questions?**

**A2.15. Recovery**

A2.15.1. Joker/Bingo

A2.15.2. \*Reform/Breakup

A2.15.3. Route of flight

A2.15.4. Destination/Alternates

A2.15.5. \*Approach Type (Low Vis)

A2.15.6. Simulated EP's

A2.15.7. ERCC/Taxi Back Procedures

**A2.16. Special Subjects**

A2.16.1. Alternate/Backup Mission

A2.16.2. Training Rules

A2.16.3. SAR Procedures

A2.16.4. Crew Coordination

A2.16.5. \*Emergencies

A2.16.6. Currencies

A2.16.7. FCIF

A2.16.8. Special Interest Items

A2.16.9. Debrief Time/Place

*Section A2B--Standard Prebrief*

**A2.17. Time Hack/Roll Call**

**A2.18. Introduction**

A2. 18.1. Call Sign

A2. 18.2. Mission Execution Date

A2. 18.3. Mission/Alternate Commander

A2. 18.4. Flight Lead

**A2.19. Mission Overview (General)**

A2. 19.1. Mission Objectives/DLOs

A2. 19.2. Target(s)

A2. 19.3. Intel Scenario

A2. 19.4. ATO/SPINS/Composite Force Makeup/Escort (if applicable)

**A2. 20. Mission Planning Tasks.** Suggested list--all items may not apply.

**Table A2.2. Mission Planning Tasks.**

1:50/1:250 Chart	Airspace Coord/Range Brief
JMEM	Tanker Coord
CWDS	Sun/Moon Illumination Data
Safe Escape	Maneuver Data
F-Plan/CFPS/PFPS	Comm Card
FPs/OAPs	Attack/Play Cards
Overview Charts	Time Slices (If applicable)
OCA/GCI Coord	WX
Filing (175)	EP, Weapon, Threat of the Day
Audio Recorders	Reverse JMEM
Tgt Scaling Diagram	Aircraft/Weapons Data/Coord
Arrival/Dept Coord	Fuels

**A2.21. Mission Planning Timeline.** Suggested list--all items may not apply.

**Table A2.3. Suggested Mission Planning Timeline.**

CWDS/JMEM Complete	Target/Bomb Run Plotted/Planned
Flight Plan Complete	How Goes It
Slide/White Board Prep	Briefing

## **A2.22. Questions/Clarifications**

### *Section A2C--Standard Debrief*

**A2.23. Mission/Formation Debrief.** A mission/formation debrief is required for each sortie. This debrief is conducted by the Flight Lead at the specified time.

#### A2.23.1. Basic Flow of Debriefings

##### A2.23.1.1. Overview

A2.23.1.1.1. Establish debrief format/ROE (i.e. hold questions until the end, etc.)

##### A2.23.1.1.2. Alibis

A2.23.1.2. Mission Objectives/Desired Learning Objectives (DLOs)

A2.23.1.3. Admin

A2.23.1.3.1. Mission Planning

A2.23.1.3.2. Brief

A2.23.1.3.3. Ground Ops

A2.23.1.3.4. Takeoff/Departure

A2.23.1.3.5. Enroute

A2.23.1.3.6. Air Refueling

A2.23.1.3.7. Recovery

A2.23.1.3.8. Motherhood

A2.23.1.4. Tactical Execution. **NOTE:** Spend the majority of your time here.

A2.23.1.4.1. Threats (where engaged, EA, EXCM, reactions)

A2.23.1.4.2. Package (marshaling, push, egress, deconfliction)

A2.23.1.4.3. Formation (position, mutual support, comm)

A2.23.1.4.4. Bombing (ACALs, offsets, target direct, effectiveness, scores)

A2.23.1.4.5. Get well

A2.23.1.5. Mission Objectives/DLOs Recap

A2.23.1.5.1. Did you accomplish what you set out to accomplish?

A2.23.1.5.1.1. If yes, how?

A2.23.1.5.1.2. If no, why not?

A2.23.1.5.1.3. How could it have been done better?

A2.23.1.5.2. Execution Errors/Lessons Learned

A2.23.1.5.3. What one thing did you learn today to increase your (and your unit's) combat capability?

A2.23.1.6. Comments (when solicited by Flight Lead)

## Attachment 5

## TRAFFIC PATTERN AND LANDING LIMITATIONS AND RESTRICTIONS

## A5.1. Traffic Pattern Restrictions:

Table A5.1. Traffic Pattern and Landing Limitations and Restrictions.

Approach Type	Gross Weight	Crosswind Component	Weather	IP Supervision	Night	RCR
Normal Low Approach	300,000	N/A	Published Minimums	NO	YES	N/A
Normal Touch and Go (NOTE 1)	300,000	20 Knots	500 ft 1 NM NOTE 5	NO	YES	12
Sim Eng Out Low App (NOTE 3)	275,000	N/A	NOTE 2	FTU/FIC Only	YES	N/A
Sim Eng Out Full Stop (NOTES 1, 4)	275,000	10 Knots	NOTE 2	FTU/FIC Only	YES	Dry
Sim Eng Out Touch and Go (NOTES 1, 4)	275,000	10 Knots	NOTE 2	FTU/FIC Only	YES	Dry
No Slat/Flap Low Approach	275,000	N/A	NOTE 2	NO	YES	N/A
SCAS Off Low Approach	275,000	N/A	NOTE 2	FTU/FIC Only	YES	N/A
SCAS Off Full Stop Landing (NOTE 1)	275,000	10 Knots	NOTE 2	FTU/FIC Only	NO	Dry
Simulated loss of airspeed pen/app/low app	275,000	N/A	VFR Conditions	YES	NO	N/A
No Slat or Flap Touch and Go (NOTE 1, 9)	250,000	15 Knots	NOTE 2	NO NOTE 6	Only with IP Supervision	Dry
Full Stop Landing (NOTE 7, 8)	300,000	26 Knots NOTE 10	Published Minimums	NO	YES	9

Approach Type	Gross Weight	Crosswind Component	Weather	IP Supervision	Night	RCR
Slat Only Touch and Go (NOTE 1)	230,000	15 Knots	NOTE 2	FTU/FIC Only	NO	DRY
25° Wing No Slat/ Flap Touch and Go (NOTE 1)	250,000	15 Knots	NOTE 2	FTU/FIC Only	NO	DRY
AMI Out Touch and Go (NOTE 1)	300,000	15 Knots	NOTE 2	FTU/FIC Only	NO	12
½, ¼, and ¾ Flap Touch and Go (NOTE 1)	250,000	15 Knots	NOTE 2	YES	YES	DRY

**NOTES:**

1. Go around if not in the designated touchdown zone. Runway length and RCR consideration must permit an aborted takeoff using computed landing ground run distance.
2. Weather required is 1,000 feet/2 miles visibility or circling minimums, whichever is higher.
3. Initiate go around/missed approach no lower than 200 feet HAT.
4. Unplanned go around/takeoff portion of maneuver requires symmetrical thrust.
5. May fly published minimums with an IP.
6. Instructor Pilot is required for No Slat - No Flap Touch and Go. Aircraft commanders designated by the squadron commander on the letter of certification do not require instructor pilot supervision.
7. Full stop landings are authorized to T.O. 1B-1B-1 gross weight limits in an Emergency or Safety of Flight situation.
8. Crews will not full stop when the measured RCR is less than 9 without OG/CC approval.
9. Aircraft Commanders require SEF/SIS operational to conduct no-flap touch and go training.
10. If mission requirements dictate, the OG/CC may authorize aircraft recovery within maximum flight manual limitations.