

TC 1-400

BRIGADE AVIATION ELEMENT HANDBOOK

APRIL 2006

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BRIGADE AVIATION ELEMENT HANDBOOK

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Preface

Army training circular (TC) 1-400 is intended for all Army brigade aviation element (BAE) personnel, brigade combat team (BCT) commanders, and their staffs. It is intended for use at brigade level but may be adapted for use at ground maneuver battalion level.

The focus throughout this TC is how the BAE operates and how it supports the BCT. This TC identifies coordination and information requirements necessary for effectively employing aviation and aviation-related assets in the combined-arms team.

TC 1-400 provides as much information as possible without reprinting other doctrinal manuals. Its intent is to provide considerations, lists, and checklists to assist the user in planning and executing aviation operations in support of the BCT. The operational concepts are based on Army doctrine as established in Army field manuals (FMs); thus, it cannot be read in isolation. To successfully use information presented here, the reader must have an understanding of doctrinal concepts contained in listed references within this TC.

The TC emphasizes force structure and enhanced operational capability provided by Army aviation transformation which is ongoing and should be complete by 2008.

This TC applies to the Active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), the United States Army reserve (USAR), and Army civilian employees of the transformation force across the full range of military operations—peacetime military engagements (PMEs), small scale contingencies (SSCs), and major theater war (MTW). TC 1-400 builds on the collective knowledge and experience gained through recent operations, many exercises, and the deliberate process of informed reasoning. This publication is rooted in time-tested principles and fundamentals, while addressing new technologies and evolving responses to the diverse threats to national security. It will also assist Army branch schools in teaching aviation operations. The procedures described herein are intended as a guide and are not to be considered inflexible. Each situation in combat must be resolved by an intelligent interpretation and application of the doctrine set forth herein.

The appendixes included in TC 1-400 provide information in the following areas:

- Appendix A, Recommended Equipment and Supplies.
- Appendix B, Mission Planning and Status Tracking Charts and Tools.
- Appendix C, Aviation Support of Ground Operations.
- Appendix D, Warfighting Functions GO/NO-GO Brief Checklists.
- Appendix E, Army Helicopter Planning Factors and Characteristics.
- Appendix F, Unmanned Aircraft System Characteristics and Planning Factors.
- Appendix G, Air Assault Planning Tools and Charts.
- Appendix H, Battle Command on the Move (Army Airborne Command and Control System).
- Appendix I, Suppression of Enemy Air Defense.
- Appendix J, Fire Support Quick Reference.
- Appendix K, Joint Air Attack Team Planning.
- Appendix L, Aviation Mission Planning System.
- Appendix M, Tactical Airspace Integration System.
- Appendix N, Air Mission Planning Checklist.
- Appendix O, Air Mission Coordination Meeting.

Appendix P, Air Mission Brief.

Appendix Q, Aircrew Brief.

Appendix R, Risk Management.

The proponent for this publication is the United States Army Training and Doctrine Command (TRADOC). Send comments and recommended changes to United States Army Aviation Center (USAAVNC). Using Department of the Army (DA) Form 2028 (*Recommended Changes to Publications and Blank Forms*), send to Commander, USAAVNC, ATTN: ATZQ-TD-D, Fort Rucker, Alabama 36362-5101; e-mail the Directorate of Training and Doctrine (DOTD) at av.doctrine@us.army.mil. Other doctrinal information can be found on the internet at Army Knowledge Online (AKO).

Chapter 1

Brigade Aviation Element Organization, Missions, and Fundamentals

As a part of Army transformation, each BCT will have a BAE. The structure and doctrinal roles and functions of this new staff element are still being refined. The genesis of the BAE concept is found in the history and practice of the air assault (AASLT) division. For years, the AASLT division has had an aviation planning cell dedicated to each of three ground maneuver brigades. Because of the close bond formed between this special group of aviators and their infantry counterparts, aviation is fully integrated into every operation. Many senior ground maneuver and aviation leaders recognize the need for a dedicated aviation planning capability in each BCT. The challenge is to provide BAE teams composed of well-rounded aviators, who can coordinate and assist the BCT in using aviation across the broad spectrum of aviation missions. Each member of the BAE must be an advocate for aviation and the BCT.

SECTION I – GENERAL

1-1. The BAE is a planning and coordination cell whose major function is to incorporate aviation into the ground commander's scheme of maneuver. The BAE focuses on providing employment advice and initial planning for aviation missions, unmanned aircraft systems (UASs), airspace planning and coordination, and synchronization with the air liaison officer (ALO) and the effects coordinator (ECOORD). The BAE also coordinates directly with the aviation brigade or the supporting aviation task force (TF) for detailed mission planning.

1-2. The BAE does not take the place of aviation TF involvement in the planning process. It assists the BCT in aviation planning and provides the aviation brigade or the supporting aviation TF leadership with BCT mission information. It is critical that aviation commanders and operations officers (S3s) participate and lead aviation mission planning in support of the BCT. Appendix N is an air mission planning checklist.

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1-3. The BAE is involved in the mission from receipt of the warning order (WARNO) from higher through planning. This includes movement to the port of embarkation (POE); deployment; reception, staging, onward movement, and integration (RSOI) into the force; the military decisionmaking process (MDMP), combat operations; and redeployment, reintegration, reconstitution and retraining (R4).

1-4. The mission of the BAE is to provide—

- Integration and synchronization of aviation into the BCT's scheme of maneuver.
- Employment advice and planning for attack reconnaissance elements, assault helicopters, airborne command and control (C2) assets, heavy helicopters, medical evacuation (MEDEVAC) helicopters, and UASs.
- Direct coordination with aviation brigade(s) and TF(s).
- Close integration/synchronization with BCT ALO and ECOORD.

- Army airspace command and control (A2C2) planning, coordination, and airspace deconfliction for combined arms and joint, interagency, and multinational (JIM) operations.

SECTION II – BRIGADE AVIATION ELEMENT ORGANIZATION

1-5. The BAE must possess the transportation and communications capabilities to operate from two locations simultaneously. Additionally, the BAE must be manned and equipped for 24-hour operations. BAE personnel include—

- One aviation branch major.
- One aviation branch captain.
- One aviation branch chief warrant officer three (CW3) tactical operations (TACOPS) officer.
- One aviation operations (15P), sergeant first class (SFC).
- One aviation operations (15P), staff sergeant (SSG).
- One aviation operations (15P), specialist (SPC).

BRIGADE AVIATION OFFICER

1-6. The primary duty of the brigade aviation officer (BAO) is to lead the BAE and integrate aviation into ground scheme of maneuver. The BAO accomplishes this by close coordination with the BCT S3, commander and BCT staff. The BAO is the aviation subject matter expert (SME) for the BCT commander and S3. In this capacity, he or she is responsible for advising the BCT commander and staff on the status and availability of aviation assets and their capabilities and limitations. The BAO recommends and helps coordinate priorities and allocations of aviation assets, and helps determine the priorities for their employment. Specifically, the BAO—

- Advises the BCT commander on employment of attack reconnaissance aviation battalion/squadron (ARB/ARS), AHB, GSAB, and UAS assets, including—
 - Employing attack reconnaissance assets to support requests for hasty close combat attacks (CCAs).
 - Integrating air ambulance company assets into the BCT MEDEVAC plan.
 - Employing aerial delivery Volcano mines and completing initial coordination with BCT engineer for their requisition.
 - Allocating terrain and available BCT security.
- Integrates A2C2 requirements for the BCT and communicates any BCT airspace changes to airspace users.
- Integrates and coordinates offensive information operations (IO) into aviation planning.
- Participates in the MDMP as a member of the BCT battle staff.
- Participates in the BCT targeting process, to include—
 - Developing the high-payoff target list (HPTL) with the ECOORD, intelligence officer (S2), and S3.
 - Recommending which high-payoff targets (HPTs) are appropriate to employ aviation assets against.
 - Recommending fire support coordinating measures (FSCMs) to support the aviation scheme of maneuver.
 - Working with the ECOORD to coordinate joint suppression of enemy air defenses (J-SEADs).
 - Working with the ECOORD, ALO, and air defense artillery (ADA) officer to plan for suppression of enemy air defense (SEAD) coincident with the employment of close air support (CAS) and Army aviation.
- Participates in the BCT's rehearsals, when appropriate.

1-7. The BAO works for the BCT commander and is an integral part of the BCT commander's staff. The BAO must also maintain a relationship with the aviation brigade commander/aviation TF commander and staff. The BAO must ensure appropriate information is exchanged between the aviation brigade, the BCT, and the rest of the BAE to facilitate smooth and timely aviation support.

BRIGADE AVIATION ELEMENT PLANS OFFICER

1-8. The BAE plans officer is an aviation captain and has the same duties and responsibilities as the BAO. Through alternating shifts with the BAO, the BAE plans officer provides the BAE a 24-hour capability. During surge operations, the BAO and the BAE plans officer may work the same shift to maximize efforts.

AVIATION TACTICAL OPERATIONS OFFICER

1-9. The BAE TACOPS officer is a CW3 and has the following duties and responsibilities:

- Advises BAO/plans officer on Army aviation aircraft weapons system employment.
- Advises the BAO/plans officer on Army aviation survivability measures/ countermeasures
- Advises the BAO and BCT staff on appropriate aircraft survivability equipment (ASE) techniques and procedures.
- Assists with airspace planning.
- Coordinates integration of joint assets for each major operation. (For information on joint air attack team planning, see appendix K.)
- Conducts the ASE portion of the risk management process.
- Integrates the BCT operation plan (OPLAN) into the theater airspace structure.
- Manages the personnel recovery (PR) program.
- Integrates Army aviation into BCT PR operations and the BCT MEDEVAC plan.

1-10. The TACOPS officer should be rated in the highest-density aircraft employed by the BCT.

AVIATION OPERATIONS SERGEANT

1-11. The aviation operations sergeants (SFC and SSG), like the BAO and BAE plans officers, share the following duties and responsibilities to provide 24-hour operational capability:

- Supervise the operation of the BAE.
- Determine and publishes the BAE shift schedule.
- Prepare for and supervises the movement of the BAE.
- Coordinate the integration of Army aviation into BCT PR operations and the BCT MEDEVAC plan.
- Ensure maintenance and operability of BAE equipment and vehicles.

AVIATION OPERATIONS SPECIALIST

1-12. The aviation operations specialist has the following duties and responsibilities:

- Assists the BAO, BAE plans officer, TACOPS officer, and aviation operations sergeant.
- Operates automation and communications equipment such as—
 - AN/VRC-83 ultra high frequency (UHF)/very high frequency (VHF) secure HaveQuick radio.
 - AN/VRC-100 high frequency (HF) communications system.
 - AN/FSQ-211 tactical airspace integration system (TAIS) airspace workstation (AWS).
- Disseminates aviation mission planning information via automated systems (see appendix L).
- Operates vehicles.

SECTION III – AVIATION LIAISON OFFICER TEAM

ROLES

1-13. Although the BAE will conduct many of the functions traditionally performed by liaison officers (LNOs), aviation LNO teams will remain a critical part of the process and must be staffed appropriately. While the members of the BAE work directly for the BCT commander as permanent members of the staff, aviation LNO teams represent the supporting aviation TF at a designated maneuver headquarters only for the duration of a specific operation. If collocated with the BAE, the LNO team will normally work directly for the BAO as a functioning addition to the BAE staff section. Effective employment of LNOs is imperative for coordination and synchronization. Often aviation LNO teams will coordinate with the BAE and then proceed to a supported ground maneuver battalion. An example would be an aviation LNO team in support of an infantry battalion performing an AASLT to seize a key piece of terrain as a part of a mechanized BCT scheme of maneuver.

RESPONSIBILITIES

1-14. Aviation LNOs must embody competence and credibility, and act as skillful representatives for their respective aviation TFs. A commander must exercise extreme care in choosing the LNOs since the unit is judged by their performance. The LNO must be capable of changing focus and approach depending on location and who he or she is supporting at the time. Above all, the LNO must be knowledgeable and project an ambitious attitude to the supported unit.

1-15. LNO teams maintain and provide current—

- Aviation unit locations.
- Aircraft/equipment status.
- Crew availability and fighter management cycle status.
- Class III/V status.
- Mission essential task list (METL) training status.
- Continuous updates to the aviation commander and staff on the BCT's plan.

SECTION IV – FUNDAMENTALS

BRIGADE AVIATION ELEMENT TRAINING

1-16. The members of the BAE must possess a thorough knowledge of the operations, capabilities, and limitations of the aviation brigade/aviation TF and the BCT. They should have completed professional military education commensurate with their grade, before assignment to the position. This includes the battle staff course for noncommissioned officers (NCOs) and ASE/electronic warfare (EW) course for the TACOPS officer.

1-17. Specific training for BAE members is under development as of the writing of this TC; but, until that training is established, at least one member of the BAE should attend the following courses. One or any number of individuals may attend any or all of the recommended courses. They include—

- Joint Fire Power Course, Nellis Air Force Base (AFB).
- Joint Targeting School (6 weeks).
- Joint Aerospace Command and Control Course.
- Joint Personnel and Recovery Agency (JPRA) PR courses 101 and 301.
- Joint Air Tasking Order Process Course (JATOPC), Hurlbert Field.

REQUIRED EQUIPMENT AND SUPPLIES

1-18. The table of organization and equipment (TOE) and a recommended list of supplies required to operate the BAE is found in appendix A. This list is not necessarily all-inclusive.

BRIGADE AVIATION ELEMENT REFERENCE LIBRARY

1-19. The BAE reference library includes a number of publications that have been consolidated on electronic media. The BAE reference library may be provided on CD by e-mailing a request to DOTD (av.doctrine@us.army.mil). A list of references can be found in the bibliography.

GENERAL PROCEDURES/COORDINATION

PRIOR TO DEPARTURE

1-20. Before coordinating BCT aviation support requirements with the supporting aviation unit, the BAE must accomplish the following:

- Receive a briefing from the BCT S3 that outlines—
 - Unit(s) the aviation TF will be expected to support.
 - Points of contact (POCs) at supported units.
 - Callsign/frequency of supported units.
 - Supporting unit LNO linkup locations, if not already accomplished.
 - Type of support expected to be provided by the BCT.
 - BCT commander's intent for the mission or operation to be supported.
- Prepare a briefing for the supporting aviation S3/commander on how the BCT commander envisions incorporating them into the BCT operations.
- Collect necessary equipment listed in the equipment section of the checklist and brief the driver.
- Confirm the aviation TF is aware the BAE member is coming and designate a meeting time upon arrival.

EN ROUTE

1-21. En route to the supporting aviation unit, the BAE commander must —

- Establish/maintain communications with the aviation TF and the BCT.
- Obtain status (mission oriented protective posture [MOPP], threat condition [THREATCON], and so forth) of the supporting aviation unit's assembly area (AA) and request permission to enter.

ARRIVAL

1-22. Upon arrival to the supporting aviation unit, the BAE staff must—

- Report to the aviation tactical operations center (TOC) and contact the operations officer or commander.
- Camouflage the vehicle and living quarters (if planning to stay overnight).
- Ensure BAE members are on the headcount for meals with the headquarters and headquarters company (HHC) commander (if appropriate).
- Contact the BCT and the aviation TF to receive a situation update.
- Provide a briefing to the aviation S3/commander on how the BCT commander envisions incorporating them into the BCT's operations.

FOLLOW UP

- 1-23. Following the execution of an aviation mission, the BAE commander must—
- Debrief the BCT commander on the mission. The debrief must be specific and identify positive events the BCT did as well as how aviation assets could have been used better.
 - Debrief the aviation unit commander on the mission. The debrief must be specific and identify positive things the aviation unit did as well as how they may have better supported the BCT.
 - Complete a written after-action review (AAR) and maintain a copy at the BCT. A copy should be offered to the supporting aviation unit for their records. Terms that lay blame on a unit or individual should be avoided; the document should be used as a training tool.

Chapter 2

Army Aviation Organizations, Missions, and Fundamentals

Aviation forces normally operate as part of the combined arms team integrated from the BCT level to the theater level. Aviation is organized and equipped to support both Army and JIM operations. The aviation brigade can employ other combined arms elements conducting ground operations and operate semi-independently or as a part of a joint force (see appendix C). Aviation conducts missions across the full spectrum of operations. These operations range from stability and reconstruction to major combat operations (MCO) by conducting close combat attack, mobile strike, reconnaissance, security, air assault, air movement, command and control, air traffic services, casualty evacuation, aerial MEDEVAC, personnel recovery, downed aircraft recovery, aerial mine delivery and FARP operations.

SECTION I – GENERAL

Note. For the purposes of this TC, the term company includes troop, and the term battalion includes squadron. The terms troop and squadron may be used when specifically discussing ARSs or air cavalry squadrons (ACSs) or their respective subordinate units. This has been done to improve readability.

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BRIGADE TYPES

- 2-1. The transformation force consists of four distinct types of aviation brigades:
- Combat aviation brigade (CAB).
 - Theater general support aviation brigade (AVN BDE [GS]).
 - Theater assault aviation brigade (AVN BDE [ASLT]).
 - Army special operations aviation regiment (ARSOAR).

ORGANIZATION

2-2. Each brigade differs in both form and function with different capabilities and subordinate units. Each brigade has an HHC, providing personnel and equipment for the C2 functions of the brigade and security and defense of the command post (CP).

NEW TO THE AVIATION BRIGADE

2-3. The transformation aviation brigade differs from previous aviation brigade structures in that it includes—

- An enhanced brigade headquarters capable of planning and conducting mobile strike operations.
- An organic aviation support brigade (ASB) with a headquarters and support company (HSC), a distribution company, a network signal company, and an aviation support company (ASC).
- A general support aviation battalion (GSAB) with organic air traffic services (ATS) company, an air ambulance company, and a heavy helicopter company.
- A forward support company (FSC) in each operational aviation battalion to provide maneuver sustainment.

2-4. Aviation brigades assigned to echelons above division (EAD) are considered functional aviation brigades. Functional brigades are more specialized, with limited battalions and airframes that permit them to focus only on specific aviation support missions. These brigades do not contain attack/reconnaissance helicopters.

2-5. Multifunctional brigades can perform all aviation missions with little or no external augmentation. They contain a variety of battalions and different airframes allowing them to perform these missions and operate at division level.

2-6. The numbers and types of subordinate battalions included in a specific brigade are based on the aviation brigade's mission. Separate companies may be assigned, attached, or placed under operational control (OPCON) to aviation brigades. However, this situation presents challenges for C2 as the brigade staff must prepare plans and orders on the level of detail normally found at battalion level.

2-7. Subordinate battalions found in aviation brigades include—

- Attack reconnaissance squadron (ARS) with 30 observation helicopters OH-58Ds.
- Attack reconnaissance battalion (ARB) with 24 attack helicopters AH-64Ds.
- Assault helicopter battalion (AHB) with 30 utility helicopters UH-60s.
- General support aviation battalion (GSAB) with 8 utility helicopters UH-60s (5 C2 equipped), 12 cargo helicopters CH-47, and 12 MEDEVAC HH-60s.
- Aviation support battalion (ASB).
- Fixed Wing (FW) aviation battalion with 8 C-12 and 32 C-23 FW aircraft.

BRIGADE MISSIONS

2-8. Each aviation brigade is tailored for specific missions; each also accepts other organizations and performs missions not necessarily defined in the TOE mission statement.

2-9. Aviation missions include—

- Reconnaissance.
- Security.
- Close combat attack.
- Mobile strike.
- Air assault.
- Air movement.
- Command and control.

- Aerial MEDEVAC.
- Casualty evacuation.
- Personnel recovery.
- Downed aircraft recovery.
- Aerial mine delivery.
- Air traffic services.
- FARP operations.

SECTION II – COMBAT AVIATION BRIGADE

ORGANIZATION

2-10. The combat aviation brigade (figure 2-1) has a headquarters and headquarters company (HHC), two attack/reconnaissance battalions, an assault helicopter battalion, a general support aviation battalion, and an aviation support battalion. The Warrior (formerly ERMP) UAS is scheduled to become part of the active Army CAB with fielding dates to be determined. Initial plans call for a company sized unit with 12 unmanned aircraft.

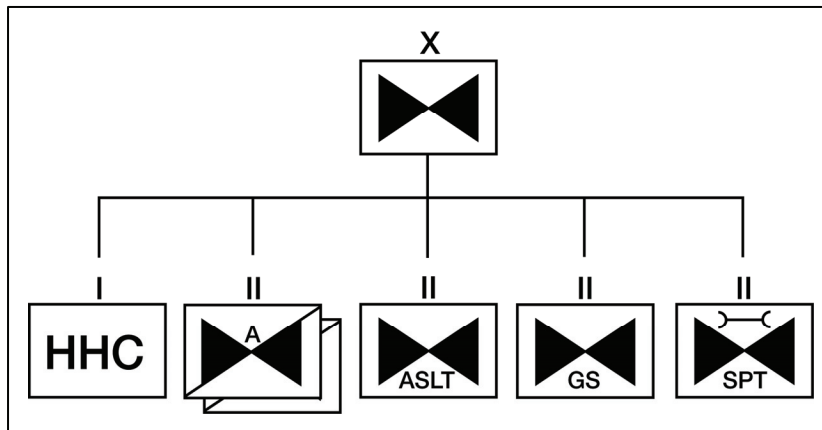


Figure 2-1. Combat aviation brigade

2-11. All CABs are virtually identical with the exception of the attack / reconnaissance battalions:

- CAB (heavy): 2 x attack reconnaissance battalions (48 AH-64s)
- CAB (medium): 1 x attack reconnaissance battalion (24 AH-64s), 1 x attack reconnaissance squadron (30 OH-58s)
- CAB (light): 2 x attack reconnaissance squadrons (60 OH-58s)

2-12. The CAB (medium) also includes a Pathfinder Company in the assault helicopter battalion.

2-13. National Guard CABs have two basic designs:

- One is identical to a CAB (heavy).
- The other design has 1 x attack helicopter battalion and 1 x security and support squadron.

2-14. The security and support squadron is a nondeployable unit designed to focus primarily on homeland security operations, to include counterdrug missions, stability operations, humanitarian assistance, disaster relief, civil disturbance, counterterrorism, and domestic support. The squadron contains 24 OH-58 A/Cs, and when fielded, will be replaced by the light utility helicopter (LUH).

MISSION

2-15. The CABs TOE mission is to find, fix, and destroy enemy forces using maneuver to concentrate and sustain combat power at the critical time and place, as an integrated member of the combined arms team. The CAB destroys enemy forces using fire, maneuver, and shock effect. It is capable of conducting all aviation missions.

FUNDAMENTALS

2-16. The CAB supports the division scheme of maneuver by facilitating ground maneuver through aviation operations. Utility and heavy helicopters allow the brigade to move forces and materiel quickly throughout the battlespace. Attack reconnaissance aircraft focus on providing quick-reaction fire support (FS) through CCA to friendly maneuver forces in contact and mobile strikes against high-value targets (HVTs).

SECTION III – THEATER GENERAL SUPPORT AVIATION BRIGADE

ORGANIZATION

2-17. An AVN BDE (GS) structure (figure 2-2) includes an HHC, a fixed wing aviation battalion, three GSABs, and an ASB.

2-18. The ASB assigned to support this brigade differs from the standard ASB in that it has no support capability for attack reconnaissance aircraft since those airframes are not assigned to the brigade.

2-19. Support aviation brigades contains a mixture of Active Army, RC, and NG elements. A majority, to include the brigade headquarters, resides in the NG.

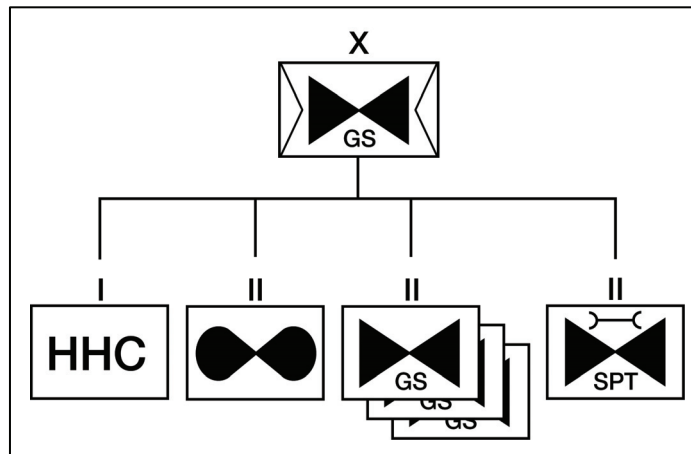


Figure 2-2. Theater general support aviation brigade

MISSION

2-20. The AVN BDE (GS) TOE mission is to plan, coordinate, and execute aviation operations to support the theater. The brigade supports echelons above corps (EAC) organizations. Its principal focus is C2 support for theater operations, liaison among theater commands, and transportation support within the theater. The brigade is capable of conducting all mission sets with the exception of reconnaissance, security, close combat attack, mobile strike, aerial mine delivery, and air traffic services.

FUNDAMENTALS

2-21. The AVN BDE (GS) is designed to support the theater commander and theater-level units. The brigade provides the EAC and theater command with C2 support and it provides subordinate units with general support (GS) and MEDEVAC support. The FW battalion provides long-range transportation and liaison capability.

SECTION IV – THEATER ASSAULT AVIATION BRIGADE

ORGANIZATION

2-22. The AVN BDE (ASLT) (figure 2-3) has a HHC, three assault helicopter battalions, one general support helicopter battalion and one aviation support battalion.

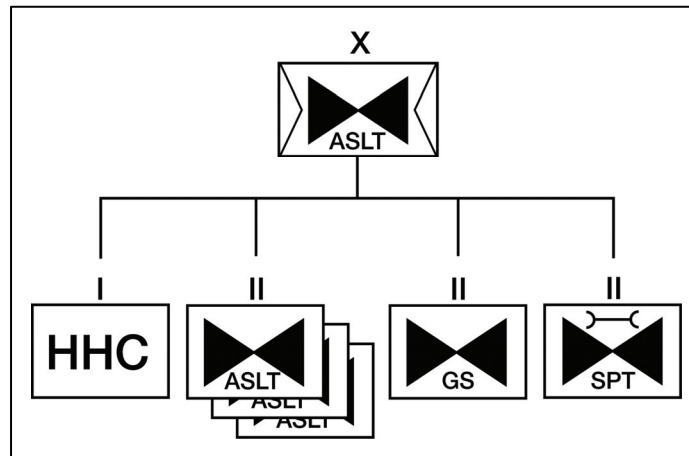


Figure 2-3. Theater aviation assault brigade

MISSION

2-23. The AVN BDE (ASLT) principal mission focus is C2, AASLT, air movement, aerial delivery of mines, aerial MEDEVAC, downed aircraft recovery and FARP operations. The AVN BDE (ASLT) TOE mission is to plan, coordinate, synchronize, integrate, and execute maneuver support and maneuver sustainment, supporting the corps' and subordinate divisions' scheme of maneuver. The brigade is capable of conducting all mission sets with the exception of reconnaissance, security, close combat attack, mobile strike, and air traffic services.

FUNDAMENTALS

2-24. The AVN BDE (ASLT) operates at corps level but may allocate elements to augment subordinate divisions. Utility and heavy helicopter units transport combat personnel, supplies, and equipment

SECTION V – ARMY SPECIAL OPERATIONS AVIATION REGIMENT

ORGANIZATION

2-25. The Army special operations aviation regiment (ARSOAR) (see figure 2-4) consists of an HHC, three battalions, separate forward-deployed companies, a special operations aviation training company (SOATC), and a systems integration and maintenance office (SIMO). The ARSOAR rotary-wing aircraft include the AH/MH-6, MH-60, MH-60 variant known as the defensive armed penetrator (DAP), and MH 47. ARSOAR units are designed to plan, conduct, and support special operations missions unilaterally

or jointly in all theaters and at all levels of conflict. To accomplish this mission, ARSOAR units are task-organized according to the unit they will support, the theater of operations, and expected missions. ARSOAR task organizations are formed around one of the regiment's battalions.

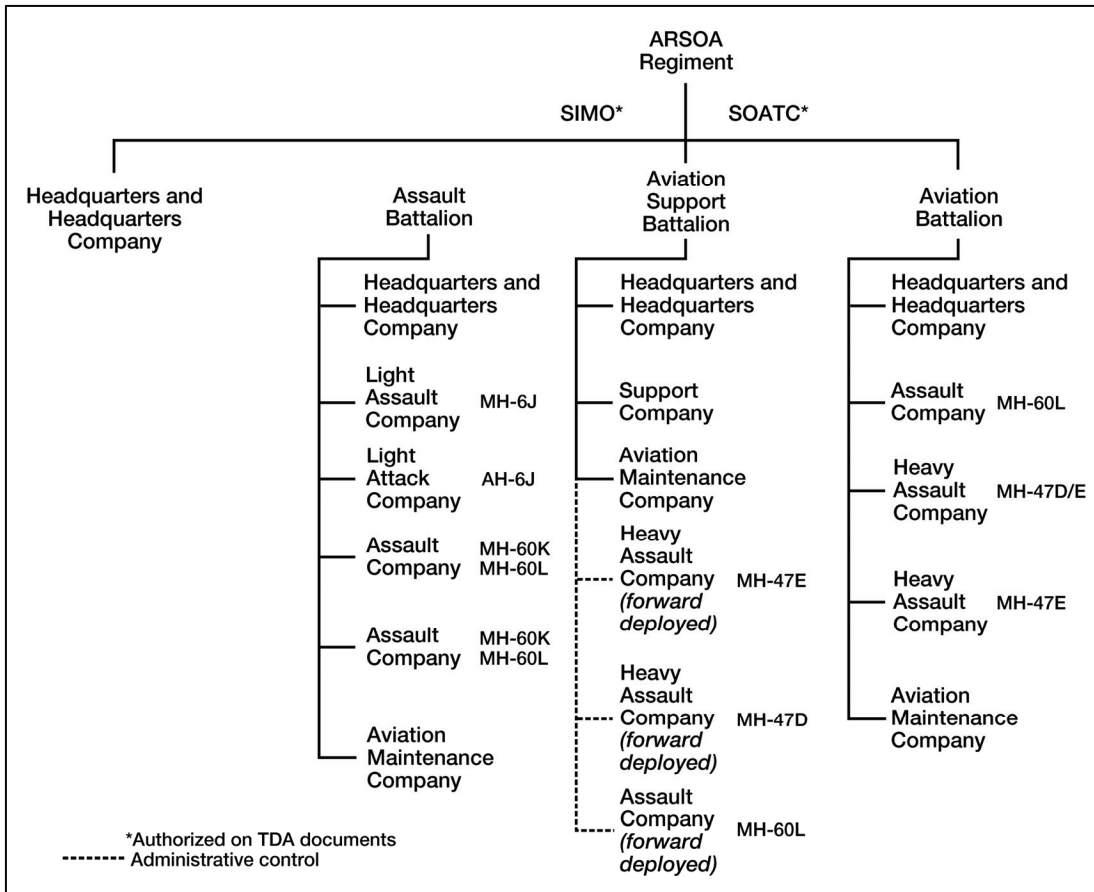


Figure 2-4. Army special operations aviation regiment

MISSION

2-26. ARSOAR's mission is to plan, support, and conduct special air operations by covertly penetrating hostile and denied airspace. ARSOAR supports special operations forces (SOF) conducting joint, combined, interagency, and coalition operations in regional crises, major conflicts, or as directed by the President and the Secretary of Defense. ARSOAR organizes, equips, trains, validates, sustains, and employs assigned aviation units for the United States Army Special Operations Command.

FUNDAMENTALS

2-27. ARSOAR units are trained and equipped to infiltrate, resupply, and exfiltrate U.S. SOF and other designated personnel. Training is tailored specifically to profiles supporting the SOF mission. Units prefer to operate at night, using night vision goggles (NVG) or night vision systems (NVS) and low-level flight profiles. Training is conducted in all operational environments and terrain. Inherent in training is the ability to operate from maritime platforms. Emphasis is placed on precise long-range navigation under adverse weather conditions.

2-28. ARSOAR aircraft are modified to add the capability for aerial refueling and to enhance precise navigation, secure communications, long-range flight performance, and increased weapons lethality. These

enhancements give ARSOAR the unique capability of taking advantage of adverse weather, limited visibility, or low-cloud ceilings. These conditions provide concealment for air operations and help achieve surprise.

2-29. Organic attack helicopter aircrews are specifically trained to provide CCA and terminal guidance for precision munitions to support SOF.

SECTION VI – ATTACK RECONNAISSANCE BATTALIONS / SQUADRONS

ATTACK / RECONNAISSANCE UNIT TYPES

2-30. In the transformation force, there are three distinct types of attack reconnaissance units.

- Attack reconnaissance battalion (ARB) with 24 AH-64s.
- Attack reconnaissance squadron (ARS) with 30 OH-58s.
- Air cavalry squadron (ACS) with 8 AH-64s, 30 OH-58s, and 10 UH-60s.

MISSIONS

2-31. Missions performed (excluding ACS) are the following:

- Reconnaissance.
- Security.
- Close combat attack.
- Mobile strike.
- Personnel recovery.

ORGANIZATION

2-32. The attack reconnaissance battalion/squadron has an HHC, an FSC, three companies (with 8 AH-64 or 10 OH-58D each), and an aviation maintenance company (figure 2-5). It receives intermediate maintenance support from the aviation brigade's ASB. The battalion is dependent upon the aviation brigade or division for A2C2, weather, legal, finance, FS, and specific personnel and administrative services. (See FM 1-114, chapter 1 for additional details.)

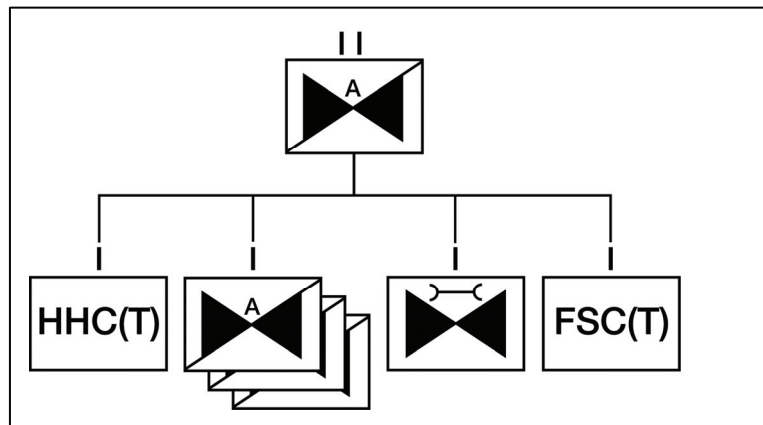


Figure 2-5. Attack reconnaissance battalion/squadron

HEADQUARTERS AND HEADQUARTERS COMPANY / TROOP

2-33. The HHC provides personnel and equipment for the C2 functions of the battalion, and security and defense of the CP. The HHC also provides unit level personnel service, UMT, logistical, and CBRN support.

FORWARD SUPPORT COMPANY / TROOP

2-34. The FSC has a headquarters section, a distribution platoon, and a ground maintenance platoon. The FSC provides field feeding, transportation, refueling, and ground maintenance support; and coordinates with the ASB for additional support as required.

ATTACK RECONNAISSANCE COMPANY / TROOP

2-35. The attack reconnaissance company consists of a headquarters element and two attack reconnaissance platoons with four AH-64 or five OH-58D aircraft.

AVIATION MAINTENANCE COMPANY / TROOP

2-36. The aviation maintenance company consists of a company headquarters, production control (PC) and quality assurance (QA) sections, an aircraft maintenance platoon, and an aircraft component repair platoon (CRP). The aviation maintenance company also provides necessary maneuver sustainment to operate autonomously throughout the division battlespace.

MISSION

2-37. Reconnaissance operations are conducted to find or fix the threat, to assist in building and sharing the common operational picture (COP), and to focus combat power at the decisive point at the right time. Security operations provide reaction time, maneuver space, and protection to air to ground maneuver. Enemy forces are destroyed through the use of aerial firepower, mobility, and shock effect. The battalion participates in offensive, defensive, decisive, and shaping operations.

SECTION VII – AIR CAVALRY SQUADRON

ORGANIZATION

2-38. The ACS (figure 2-6) is equipped with 30 OH-58Ds, eight AH-64s, and 10 UH-60s. It has an HHT, an FST, three air cavalry troops (ACT), one attack helicopter troop (ATKHT), an assault aviation troop (ASLTHT), and an aviation maintenance troop.

2-39. The squadron is dependent on the Stryker brigade combat team (SBCT), division, or higher for A2C2, weather, legal, finance, and sustainment functions.

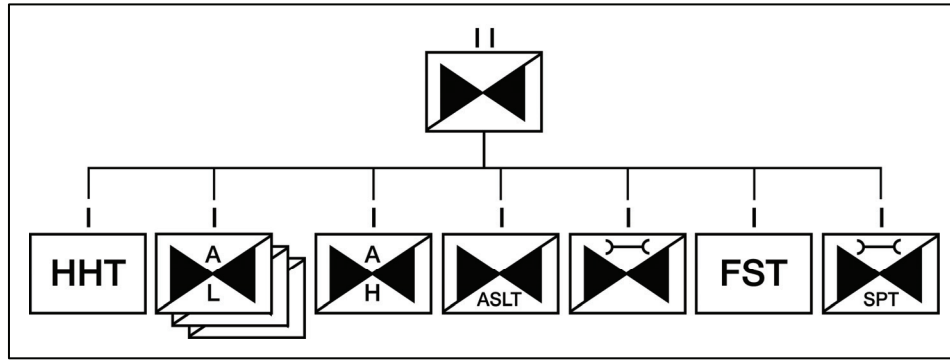


Figure 2-6. Air cavalry squadron

HEADQUARTERS AND HEADQUARTERS TROOP

2-40. The HHT provides personnel and equipment for the C2 functions of the squadron, and security and defense of the CP. The HHT also provides unit level personnel service support, UMT support, logistical support, and CBRN support.

FORWARD SUPPORT TROOP

2-41. The FST has a headquarters section, a distribution platoon, and a ground maintenance platoon. The FST provides field feeding, transportation, refueling, and ground maintenance support and coordinates with the SBCT brigade support battalion (BSB) for additional support as required.

AIR CAVALRY TROOP

2-42. The three air cavalry troops (ACT) consist of a headquarters section and two attack reconnaissance platoons of five OH-58D aircraft each.

ATTACK HELICOPTER TROOP

2-43. The ATKHT consists of a headquarters section and two attack helicopter platoons of four AH-64s each.

ASSAULT HELICOPTER TROOP

2-44. The ASLTHT consists of a headquarters section, a GS platoon with seven UH-60 aircraft, and a C2 platoon with three UH-60s and two Army airborne command and control systems (A2C2Ss) mission kits.

AVIATION MAINTENANCE TROOP

2-45. The aviation maintenance troop consists of a troop headquarters, PC and QA sections, an aircraft maintenance platoon, and an aircraft CRP. The aviation maintenance troop also provides necessary maneuver sustainment to operate autonomously throughout the division battlespace.

AVIATION SUPPORT TROOP

2-46. The aviation support troop provides support to the squadron for maintenance functions normally conducted by the aviation support battalion.

MISSION

2-47. The ACS is capable of conducting all aviation missions except command and control, air traffic services, and aerial MEDEVAC.

2-48. The ACS gathers information about the enemy and terrain, maintains surveillance, and provides early warning of enemy contact. It provides reconnaissance, surveillance, and security of lines of communications (LOCs) to enhance C2, and target acquisition (TA) for field artillery (FA), naval surface fire support (NSFS), AHs, and CAS.

SECTION VIII – ASSAULT HELICOPTER BATTALION

2-49. In the transformation force, the fundamentals, mission, and organization of the AHB are relatively the same regardless of whether it is part of a heavy, medium, or light CAB. The AHB's primary role is to plan, execute, and logistically support operations. The two basic tasks common to each AHB include AASLT and sustainment. In the sustainment role, the AHB provides support to any ongoing AASLT operation first, then to division. The AHB can also provide aircraft for GS missions when available. (See FM 1-113, chapter 1 for additional details.)

ORGANIZATION

2-50. The assault helicopter battalion (figure 2-7) consists of a HHC, a FSC, three assault companies, and an aviation maintenance company. The CAB (M) AHB also has a pathfinder company.

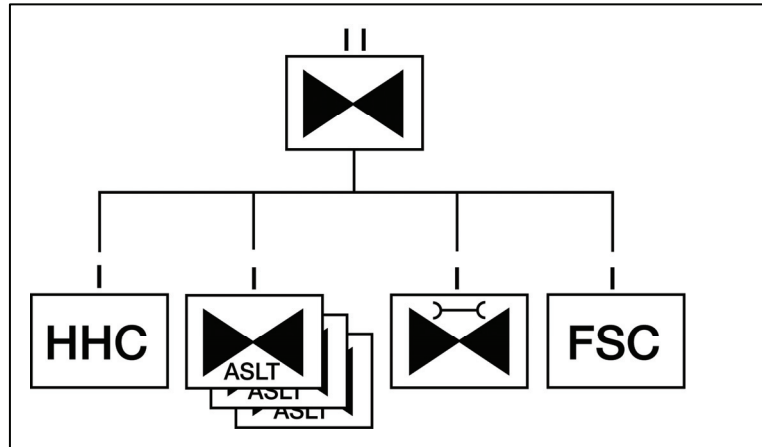


Figure 2-7. Assault helicopter battalion

HEADQUARTERS AND HEADQUARTERS COMPANY

2-51. The HHC provides personnel and equipment for the C2 functions of the battalion, and security and defense of the CP. The HHC also provides unit level personnel service, UMT, logistical, and CBRN support.

FORWARD SUPPORT COMPANY

2-52. The FSC consists of a headquarters section, a distribution platoon, and a ground maintenance platoon. The FSC provides field feeding, transportation, refueling, and ground maintenance support; it coordinates with the ASB for additional support as required.

PATHFINDER COMPANY

2-53. The pathfinder company is located in the CAB (M)'s AHB. It consists of a company headquarters, a GS platoon with a medical section and two GS teams, a base radio station team, a direct support (DS) platoon, and two DS teams.

ASSAULT COMPANY

2-54. The AHB has three assault companies. Each has a company headquarters section and two flight platoons with five UH-60 aircraft each.

AVIATION MAINTENANCE COMPANY

2-55. The aviation maintenance company consists of a company headquarters section, PC and QA sections, an aircraft maintenance platoon with two UH-60 repair sections, and an aircraft CRP with powerplant, powertrain, structural, pneudraulics, and avionic/electrical sections that provide necessary aviation unit level maintenance and battle damage assessment and repair (BDAR). The aviation maintenance company provides necessary maneuver sustainment to operate autonomously throughout the division battlespace. The aviation maintenance company also stores, maintains, and transports the AHB's organic aerial mine delivery operations (Volcano) systems.

MISSION

2-56. The primary missions of the AHB are conducting AASLT and air movement operations to extend the tactical reach of the maneuver commander, negating effects of terrain, seizing key nodes, achieving surprise, and isolating or dislocating enemy forces. The battalion also conducts numerous other missions, including—

- Air assault.
- Air movement.
- Casualty evacuation.
- Personnel recovery.
- Downed aircraft recovery.
- Aerial mine delivery.
- FARP Operations (Wet Hawk, Fat Hawk)

SECTION IX – GENERAL SUPPORT AVIATION BATTALION

2-57. In the transformation force, the fundamentals, mission, and organization of the GSAB the same regardless of whether it is part of a division, corps, or theater level aviation brigade.

ORGANIZATION

2-58. Each CAB has one GSAB. The AVN BDE (GS) has 3 GSABs and the AVN BDE (ASLT) has one GSAB. At the theater echelons, GSABs are composed of primarily RC units.

2-59. Each CAB GSAB consists of a HHC, a forward support company, a command aviation company (CAC), a heavy helicopter company, a MEDEVAC company, an ATS company, and an aviation maintenance company (figure 2-8).

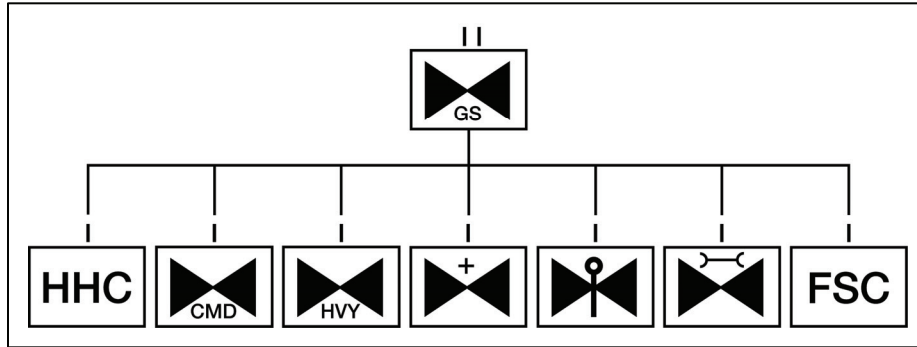


Figure 2-8. General support aviation battalion

HEADQUARTERS AND HEADQUARTERS COMPANY

2-60. The HHC provides personnel and equipment for the C2 functions of the battalion, and security and defense of the CP. The HHC also provides unit level personnel service, UMT, logistical, and CBRN support.

FORWARD SUPPORT COMPANY

2-61. The FSC has a headquarters section, a distribution platoon, and a ground maintenance platoon. The FSC provides field feeding, transportation, refueling, and ground maintenance support; and coordinates with the ASB for additional support as required.

COMMAND AVIATION COMPANY

2-62. The CAC consists of a company headquarters, one platoon with five UH-60 command and control aircraft and four A2C2S mission kits, and one GS platoon with three UH-60 aircraft.

HEAVY HELICOPTER COMPANY

2-63. The heavy helicopter company consists of a company headquarters, and three flight platoons with four CH-47 aircraft each.

MEDEVAC COMPANY

2-64. The MEDEVAC company consists of a company headquarters and four air ambulance platoons. Each air ambulance platoon consists of three HH-60 aircraft and a platoon headquarters that can support 24-hour operations.

AIR TRAFFIC SERVICES COMPANY

2-65. The air traffic services (ATS) company consists of a company headquarters with a communication and navigation maintenance section, a ground maintenance section, a terminal control platoon with a tactical tower section and a ground control approach radar section, and an information services platoon with two tactical tower teams and an airspace information center (AIC). The GSAB's ATS company supports the aviation brigade with one instrumented airfield with en route, terminal, and airspace information services.

AVIATION MAINTENANCE COMPANY

2-66. The aviation maintenance company consists of a company headquarters, PC and QA sections, an aircraft maintenance platoon with UH-60 and CH-47 repair sections and an aircraft CRP with powerplant, powertrain, structural, pneudraulics, and avionic/electrical sections that provide aviation unit level field maintenance, and BDAR. The aviation maintenance company also provides necessary maneuver sustainment to operate autonomously throughout the division battlespace.

MISSION

2-67. The mission of the GSAB is to conduct general aviation support: airborne C2; air transport of personnel, equipment, and supplies; aerial sustainment operations; AASLT operations support as required; ATS; and MEDEVAC support throughout its AOR.

2-68. Missions performed include—

- Air assault.
- Air movement.
- Command and control.
- Aerial MEDEVAC.
- Casualty evacuation.
- Personnel Recovery.
- Downed aircraft recovery.
- Air traffic services.
- FARP operations.

2-69. Because of the CH-47's characteristics, heavy helicopter units can perform two unique sub-missions:

- High-altitude operations.
- Oversized, heavy, and special munitions movement.

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Chapter 3

Reconnaissance/Security/Attack Operations

This chapter addresses the missions and employment of attack reconnaissance helicopter units. These organizations are highly versatile and can conduct a myriad of reconnaissance, security, and attack missions. In addition attack reconnaissance helicopters can perform special purpose operations such as urban, search, and stability and reconstruction operations.

SECTION I – GENERAL

Note. For the purposes of this TC, the term company includes troop, and the term battalion includes squadron. The terms troop and squadron may be used when specifically discussing an ARS or ACS or their respective subordinate units. This has been done for readability purposes.

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3-1. The ARB and ARS are maneuver units that can dominate, but not occupy, terrain for limited periods. ARBs and ARSs fulfill traditional attack as well as cavalry responsibilities. Advanced sensors, communications equipment, and weaponry enable both independent operations and operations in concert with ground or joint forces. Battalion missions include—

- Reconnaissance—the battalion conducts reconnaissance operations, obtaining information by visual observation, fire, or other detection methods.
- Security—the battalion conducts security operations, providing maneuver space, gaining reaction time, and protecting the supported commander's main body force.
- Attack—the battalion conducts independent or joint operations with other services in all phases of operations and under adverse environmental conditions.

3-2. The ARB and ARS provide added and significant combat power that can be massed rapidly at the time and place to decisively affect the outcome of any battle.

SECTION II – ALLOCATING FORCES

3-3. During the planning process, a 75 percent operational readiness (OR) rate for attack reconnaissance aircraft should be assumed, although the actual percentage available at execution has been historically higher. Attack reconnaissance aircraft should normally be employed as company elements. This technique provides a good balance of capabilities in terms of aerial reconnaissance in the AO, and the ability to mass fires and conduct attack reconnaissance helicopter operations in separate locations or to maintain a continuous presence.

3-4. Attack reconnaissance aircraft can be employed in two-ship teams if the requirement for continuous presence outweighs the requirements for mass. The company is the lowest level for planning and coordinating operations. During an AASLT, the attack reconnaissance elements provide security and overwatch and are directly controlled by the air mission commander (AMC) until the AASLT is complete.

3-5. BCT planners must be aware of the fact that, when an aviation TF is attached to the BCT, they may not have a full battalion of attack reconnaissance aircraft. Missions must be planned based on the resources allocated, or additional resources must be requested.

KIOWA WARRIOR ROLES

3-6. The mast-mounted sight (MMS) allows the OH-58D to remain almost completely masked during observation operations, while its small signature makes it difficult to detect and engage.

3-7. The planning airspeed is 90 knots and its combat radius, with a 10-minute station time and 20-minute fuel reserve, is approximately 120 kilometers. The OH-58D cannot carry an auxiliary fuel tank to extend its mission duration time. Precision effects are also degraded due to limited payload capacity.

3-8. The OH-58D is smaller and more maneuverable than an AH-64, giving it advantages in deployability and operations in urban or confined areas. However, the OH-58D lacks a multidirectional suppressive weapon system and thus, is less survivable than the AH-64. If AH-64s are available, the OH-58D may be better suited to providing supporting fires, rather than direct fires, in CCA operations in unrestricted terrain.

3-9. Depending on the target, an ARS tasked with an attack to destroy mission may have to commit more aircraft than an ARB due to the OH-58D's limited ordnance. Prior to launching on a mission, crews must have a well-developed picture of the enemy situation and a high level of confidence that a known and readily accessible enemy force will be in the engagement area (EA). Ammunition loads vary drastically according to the METT-TC.

APACHE LONGBOW ROLES

3-10. Although there are still two models of OH-58D airframes in the inventory (I and R), the difference is not as drastic as that between the A and D (Longbow) models of the AH-64. The basic organization and roles of the Longbow Apache (LBA) are discussed below. When assigned to an aviation battalion task force (ABTF), the commander can task organize AH-64Ds with other assets (such as OH-58D, UH-60, UAS, CH-47, and so forth) to maximize each system's effect, while performing specific missions.

3-11. The AH-64D LBA provides the ARC and the ABTF with an increased capability over the AH-64A. Part of that stems from the ability of the Longbow equipped unit to maintain a common tactical picture and unprecedented SU. (For a detailed discussion of AH-64D operations, see FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126].)

TASK ORGANIZATION

3-12. Task organization is based on METT-TC. The basic building block is the team. A team consists of two or more aircraft operating together and providing mutual security. The ARC has eight AH-64D aircraft, three AH-64Ds are equipped with fire control radar (labeled Delta with radar frequency interferometer [DWI]) and five AH-64Ds are without fire control radar (labeled Delta without [DWO]). Assuming a 75 percent OR rate, BCT should plan for six aircraft (2 DWIs and 4 DWOs). AH-64D equipped units have a variety of task organization options. The most lethal is all AH-64Ds with radar. Teams will normally be a mix of DWIs and DWOs, so each team can capitalize on fire control radar (FCR) capabilities. Given the above, the ARC can task organize in two teams of three aircraft (one DWI and two DWOs) each. It is possible for the battalion commander to authorize the unit to reconfigure a DWO AH-64D to a DWI AH-64D by taking the required component parts from a not mission capable maintenance (NMCM) DWI AH-64D. However, this is a time-consuming process and should not be attempted regularly.

Pure With Radar Team

3-13. Units may task organize a pure DWI team for a specific mission (such as the lead element tasked to destroy AD systems during an attack, movement to contact, reconnaissance, and security missions). With this team mix, TA and mutual FS are enhanced. Numerous radar frequency interferometer (RFI) merged targets can be fired upon very rapidly. All elements can pass radar frequency handovers (RFHOs) to follow-on teams.

Pure Without Radar Team

3-14. Units may task organize a pure DWO team for a follow and support role in conjunction with other DWI-equipped teams. Units might use this task organization when the enemy AD threat is low and to reduce fratricide risks by using visual acquisition and designation of targets. Units may also task organize pure DWO teams to support ground forces in close contact with the enemy. If available, AH-64As should be given this type of mission to allow the DWI AH-64Ds to be employed on missions requiring that capability.

SECTION III – RECONNAISSANCE OPERATIONS

3-15. Attack reconnaissance aircraft are employed to support the BCT commander's scheme of maneuver and significantly extend the battlespace of both the BCT and echelons above the BCT. Attack reconnaissance aircraft assist in locating the threat, building and sharing the COP, enhancing force protection, enabling freedom of movement, facilitating unobstructed movement for AASLT and aerial mining missions, securing routes for aerial/ground resupply, and allowing the commander to focus combat power at the decisive point and time. Sensor video recording capability can provide the BCT commander excellent reconnaissance and battle damage assessment (BDA) information.

3-16. The organic weapons systems of attack reconnaissance aircraft enhance the synergy achieved through the employment of external fires and effects that gives the BCT commander a robust counterreconnaissance capability.

3-17. BCT commanders will frequently task the ARB to conduct reconnaissance to obtain information about the activities and resources of the enemy, or about the meteorological, hydrographic, or geographic characteristics of a particular area. The battalion may perform reconnaissance before, during, and after other combat operations to provide updated/current combat information.

3-18. BCT commanders need real-time information during the execution of current operations to be precise in the maneuver and application of combat power against the enemy. A major source of near real-time information is the ARB, which is an intelligence source that can fight for information. Attack reconnaissance aircraft have decisive advantages over other intelligence resources because they—

- Move quickly over inaccessible terrain to elevated positions of advantage.
- Use advanced, eyes-on, long-range sensors.
- Work through and counter enemy deception efforts better than any sensor system.
- Provide the fastest, most reliable means of assessing terrain the enemy is trying to configure to the BCT commander's advantage.
- Are not a passive source. Aircraft not only find the enemy but can further develop the situation and force the enemy to reveal more information.
- Can more effectively disseminate information to commanders with an immediate need.

(See FM 3-90 and FM 17-95 for additional details.)

RECONNAISSANCE TECHNIQUES

3-19. Reconnaissance techniques are the basic methods of using available equipment and personnel to accomplish reconnaissance tasks. These techniques fall into the broad categories of aerial, mounted (using tanks or armored personnel carriers [APCs], and dismounted [on foot]). They are best used in combination to meet the needs of the situation. Only information pertaining to the aerial techniques will be discussed

here. The BAE must have an understanding of all three and of how to interrogate available aviation assets to best support the BCT.

3-20. Aerial reconnaissance is characterized by—

- Need for rapid reconnaissance.
- Integration of aerial reconnaissance assets with forward ground elements to accelerate reconnaissance tempo and movement.
- Requirement to maintain reconnaissance over extended distances.
- Use of aircraft systems to acquire targets or reconnaissance objectives at maximum standoff distance.
- Use of aircraft video imagery to acquire combat information.
- Low probability of effective AD threat.

3-21. The advantages of aerial reconnaissance are available firepower, maneuverability, advanced optics, navigational aids (NAVAIDs), and communication capabilities. The disadvantage is the larger overall signature and exposure of aircraft.

3-22. When conducting reconnaissance forward of ground elements, detailed coordination must take place to reduce the potential for fratricide. Aviation units must be provided with updated ground maneuver graphics to include FSCMs, limits of advance (LOAs), and lateral/rear boundaries. Conversely, it is critical that the details of the aviation unit operations are passed to all ground elements, especially AD units, to maintain a COP.

FUNDAMENTALS OF RECONNAISSANCE

3-23. The seven fundamentals of successful reconnaissance operations are—

- Ensure continuous reconnaissance.
- Do not keep reconnaissance assets in reserve.
- Orient on the reconnaissance objective. Commanders must stay focused on reaching the reconnaissance objective regardless of what is encountered during the mission.
- Report all information rapidly and accurately. Negative reports may tell more than positive reports or no reports at all.
- Retain freedom to maneuver. When a unit becomes decisively engaged, reconnaissance ceases.
- Gain and maintain enemy contact. Contact can be a surveillance sighting or engaging in close combat. Once gained, contact is not lost unless ordered.
- Develop the situation rapidly. Attempt to determine enemy size, composition, dispositions, and activities.

3-24. The following critical tasks for multidimensional reconnaissance are—

- Recognize threat and countermeasures (identify threat activities and recommend probable threat courses of action [COAs]).
- Find all threats that can affect the mission.
- Establish and maintain contact with local civilian and military leadership.
- Identify key municipal infrastructure (utilities, sewage, water, and communications).
- Determine media activities.
- Understand the regional, local, and neighborhood situations.
- Clarify organizations and methods of operation for terrorists, trans-national groups, and ethnic centers of power.
- Identify local population allegiances to factions, religious groups, or other organizations.
- Analyze the threat centers of influence to clarify the threat order of battle, centers of gravity, and intentions.

- Reconnoiter specific terrain.
- Report all reconnaissance information.

ACTIONS ON CONTACT

3-25. The following tasks define actions on contact:

- Deploy and report. Deploy to a covered position that provides for observation and fields of fire. A contact report is made immediately.
- Develop the situation. The threat is defined through use of direct and indirect fires. An element is left in contact if required, and the unit continues on to the recon LOA.
- Choose a COA.
- Hasty attack if sufficient combat power is available (at least a company).
- Bypass, keeping a minimum force in contact with the bypassed enemy.
- Hasty defense, if bypass or hasty attack is not feasible.
- Recommend or execute a COA.

FORMS OF RECONNAISSANCE

3-26. Reconnaissance missions are divided into four forms—zone, area, route, and reconnaissance in force. In most mission profiles, integration of ground and air reconnaissance provides mutual reinforcement.

ZONE RECONNAISSANCE

3-27. A zone reconnaissance is conducted to obtain information concerning routes, obstacles (to include CBRN contamination), terrain, and enemy forces within a zone defined by a line of departure (LD), LOA, and lateral boundaries. The boundaries are restrictive, and permission is required for the team to extend reconnaissance outside of them. Every route within the zone must be reconnoitered unless otherwise directed. It is the most time-consuming of the reconnaissance missions.

Tasks

3-28. Zone reconnaissance tasks include—

- Find and report all enemy forces within the zone.
- Clear all enemy forces in the designated AO within the capability of the unit conducting reconnaissance.
- Determine the trafficability of all terrain within the zone, including built-up areas.
- Locate and determine the extent of all contaminated areas in the zone.
- Evaluate and classify all bridges, defiles, overpasses, underpasses, and culverts in the zone.
- Locate any fords, crossing sites, or bypasses for existing and reinforcing obstacles (including built-up areas) in the zone.
- Locate all obstacles and create lanes as specified in execution orders.
- Report the above information to the commander directing the zone reconnaissance, to include providing a sketch map or overlay. (Figure 3-1 shows typical graphics for a zone reconnaissance.)

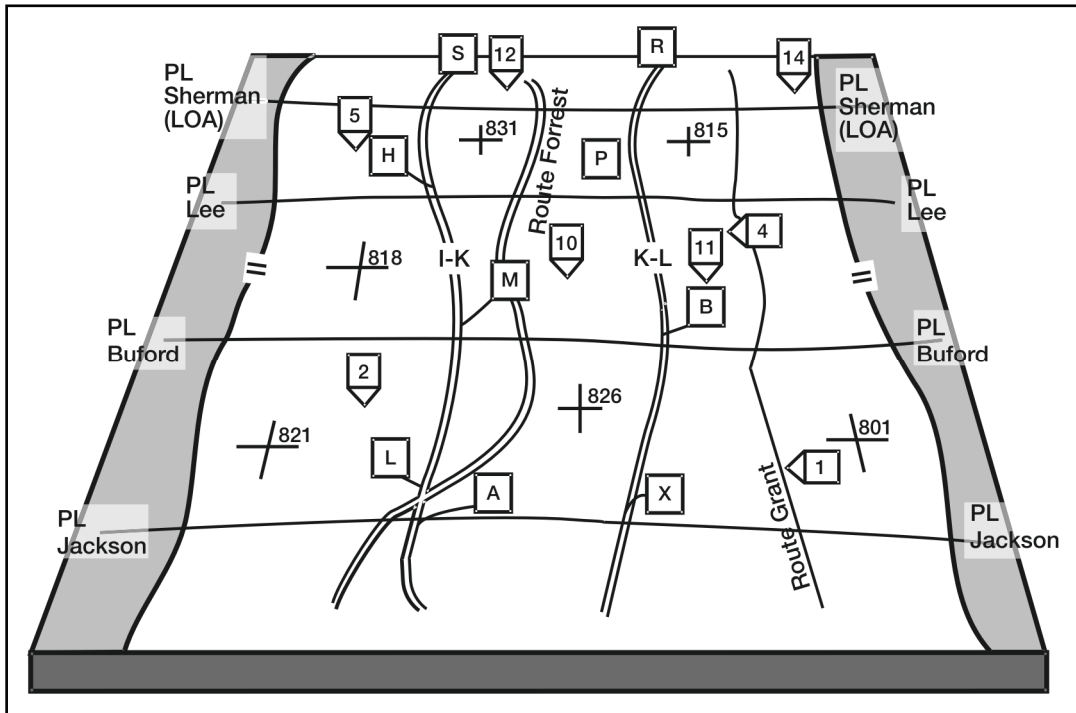


Figure 3-1. Zone reconnaissance

Tactical Planning Considerations

3-29. At a minimum, the supported maneuver commander must provide the following—

- Zone boundaries.
- Departure time or completion time or both.
- When, where, and how to report the information.
- Type of unit or vehicles expected to use the zone, if applicable.
- Actions after completion of the mission.
- Specific instructions for actions on contact/engagement criteria.

Capabilities/Limitations

3-30. Without augmentation, the ARB does not have the organic capability of conducting a detailed zone reconnaissance. For example, it cannot—

- Locate and determine the extent of all contaminated areas in the zone.
- Evaluate and classify all bridges, defiles, overpasses, underpasses, and culverts in the zone.

3-31. The ARB can conduct a hasty zone reconnaissance. The ARB leadership should be involved in the planning process, and METT-TC must be considered to determine actual capability. (The following is provided for planning purposes.) Without augmentation, an ARB can conduct a hasty zone reconnaissance, terrain dependent, of an 8 to 10 kilometers-wide zone at an average rate of 10 kilometers per hour. Rate depends on route complexity and desired detail.

3-32. When a company conducts a zone reconnaissance in nonrestrictive terrain, it can operate up to 10 kilometers forward of ground companies due to the quality of communications, TA capability of onboard systems (OBSs), and aircraft armament. Close coordination and continuous communication between forces is critical to reduce the risk of fratricide.

Brigade Aviation Element Planning Tasks

3-33. The BAE advises the BCT concerning capabilities and limitations of the ARB to provide information described in the tactical task and tactical planning consideration sections described above. On the basis of the level of detail required, suspected enemy forces in zone, and other factors of METT-TC, the BAE may, for example, recommend the BCT augment the ARB with the following—

- Chemical section to locate and determine the extent of all contaminated areas in the zone.
- Engineers to evaluate and classify all bridges, defiles, overpasses, underpasses, and culverts.
- Ground maneuver force to help clear enemy forces.

AREA RECONNAISSANCE

3-34. An area reconnaissance is conducted to obtain detailed information about a specific area (town, ridgeline, key terrain, choke point, and so forth). The particular area must be specifically defined and thoroughly reconnoitered. Emphasis is normally placed on reaching the area quickly. Enemy forces are normally avoided or bypassed. (See FM 3-90 and FM 17-95 for additional details.)

Tactical Tasks

3-35. The tasks for an area reconnaissance are also the same for a zone reconnaissance (see paragraph 3-28, page 3-5). Figure 3-2 shows typical graphics for an area reconnaissance.

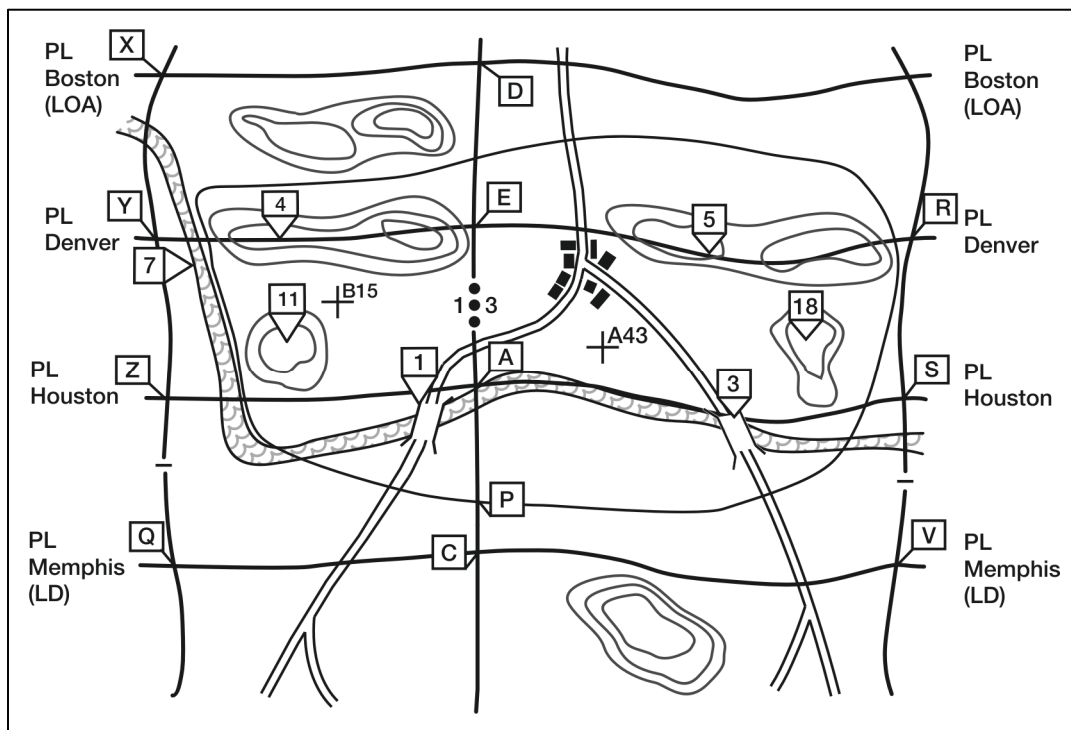


Figure 3-2. Area reconnaissance

Tactical Planning Considerations

3-36. At a minimum, the supported maneuver commander must provide the following:

- Area boundaries.
- Departure time or completion time or both.
- When, where, and how to report the information.

- Type of operation or mission planned for the area, if applicable.
- Actions after completion of the mission.
- Specific instructions for actions on contact/engagement criteria.

Capabilities/Limitations

3-37. The ARB leadership should be involved in the planning process and METT-TC must be considered to determine actual capability. (The following is provided for planning purposes.) Without augmentation, a company can reconnoiter up to two areas continuously or three routes simultaneously for limited periods. Rate depends on the area complexity and desired detail.

Brigade Aviation Element Planning Tasks

3-38. The BAE must assist the BCT in providing the supporting aviation TF with information described in the tactical task and tactical planning consideration sections described above. In addition to those items, the following coordination and synchronization tasks should be considered by the BAE:

- Route to and from the area.
- Specific information to be gathered from the area.
- Chemical section to locate and determine the extent of all contaminated areas.
- Engineers to evaluate and classify all bridges, defiles, overpasses, underpasses, and culverts.
- Ground maneuver force to help clear enemy forces.
- FS elements able to range the area.
- Adjacent friendly forces.

LANDING ZONE OR PICKUP ZONE RECONNAISSANCE

3-39. Landing zone (LZ)/pickup zone (PZ) reconnaissance is a specific type of area reconnaissance performed to determine the suitability for AASLT operations of a designated area. Principal concerns are determining if an enemy force is present, whether it is in a position to bring direct fires on the LZ or PZ, and evaluating the physical characteristics of the area. This reconnaissance is often performed as a subtask during AASLT security missions.

Tactical Tasks

3-40. Reconnaissance elements evaluate and make recommendations on the following tactical considerations:

- Whether the LZ or PZ will facilitate the unit's ability to accomplish the mission.
- Whether the LZ or PZ meets the commander's intent for distance from the objective.
- The force required to provide security during the assault.

3-41. Technical characteristics (utilizing the mnemonic code LONGGLASSV) of the LZ or PZ include—

- Landing formations.
- Obstacles and hazards in the landing area and vicinity.
- Number and type of aircraft that the LZ or PZ can support.
- Ground slope of the landing area.
- Load suitability.
- Approach and departure directions.
- Size of the available landing area.
- Surface condition, including brown-out or white-out characteristics, of the landing area.
- Vulnerability.

3-42. If meteorological conditions observed during the reconnaissance are expected to be present during the AASLT, reconnaissance elements assess the impact of—

- Ceiling and visibility.
- Density altitude.
- Winds.

3-43. Reconnaissance elements evaluating the LZ or PZ should create a sketch of the area with pertinent information (figure 3-3).

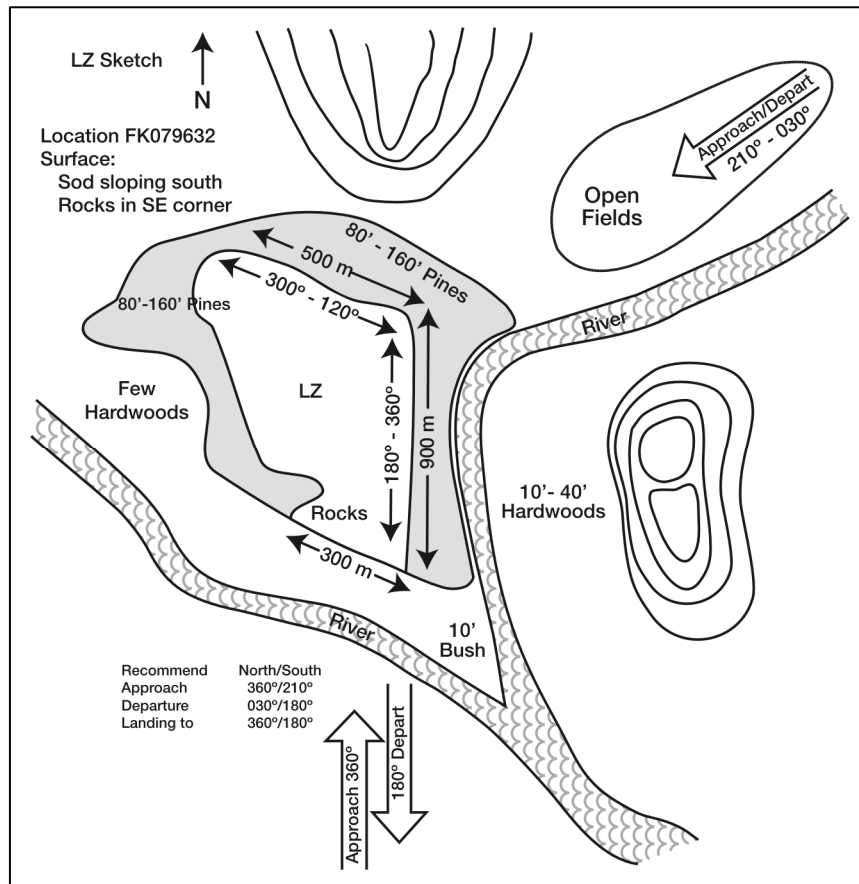


Figure 3-3. Figure LZ or PZ sketch

Tactical Planning Considerations

3-44. At a minimum, the supported maneuver commander must provide the following:

- Area desired for use as a LZ/PZ.
- Requirement for alternate LZ/PZs.
- Time of the AASLT or air movement.
- Number and type of aircraft in each lift and the number of lifts.
- Information on the ground force's objective and other actions after landing.
- When, where, and how to report the information.
- Actions after completion of the mission (such as, security for the LZ/PZ).

Capabilities/Limitations

3-45. Without augmentation, an ARB company can reconnoiter up to two LZ/PZs simultaneously. Rate depends on area complexity and desired detail.

Brigade Aviation Element Planning Tasks

3-46. The BAE must assist the BCT in providing the supporting aviation TF with information described in the tactical task and tactical planning consideration sections described above. In addition to those items, the following coordination and synchronization tasks should be considered by the BAE:

- Route to and from the LZ/PZ.
- Engineers, pathfinders, or scouts to clear trees or debris from the LZ/PZ.
- Ground maneuver force to help clear enemy forces prior to the major AASLT.
- FS elements able to range the LZ/PZ for preparatory fires.

ROUTE RECONNAISSANCE

3-47. A route reconnaissance is conducted to obtain detailed information about a specific route and adjacent terrain from which the threat could influence movement along the route. It focuses along a specific LOC (such as a road, railway, air route, or cross-country mobility corridor). (See FM 3-90 and FM 17-95 for additional details.)

Tactical Tasks

3-48. Route reconnaissance tasks are as follows:

- Find, report, and clear, within capabilities, all enemy forces that can influence movement along the route.
- Determine the trafficability of the route; can it support the friendly force?
- Reconnoiter all terrain the enemy can use to dominate movement along the route (such as choke points, ambush sites, PZ, LZ, and drop zones).
- Reconnoiter all built-up areas, contaminated areas, and lateral routes along the route.
- Evaluate and classify all bridges, defiles, overpasses, underpasses, and culverts along the route.
- Locate any fords, crossing sites, or bypasses for existing and reinforcing obstacles (including built-up areas) along the route.
- Locate all obstacles and create lanes as specified in execution orders.
- Report the above route information to the headquarters initiating the route reconnaissance mission, to include providing a sketch map or a route overlay. (Figure 3-4 shows typical graphics for a route reconnaissance.)

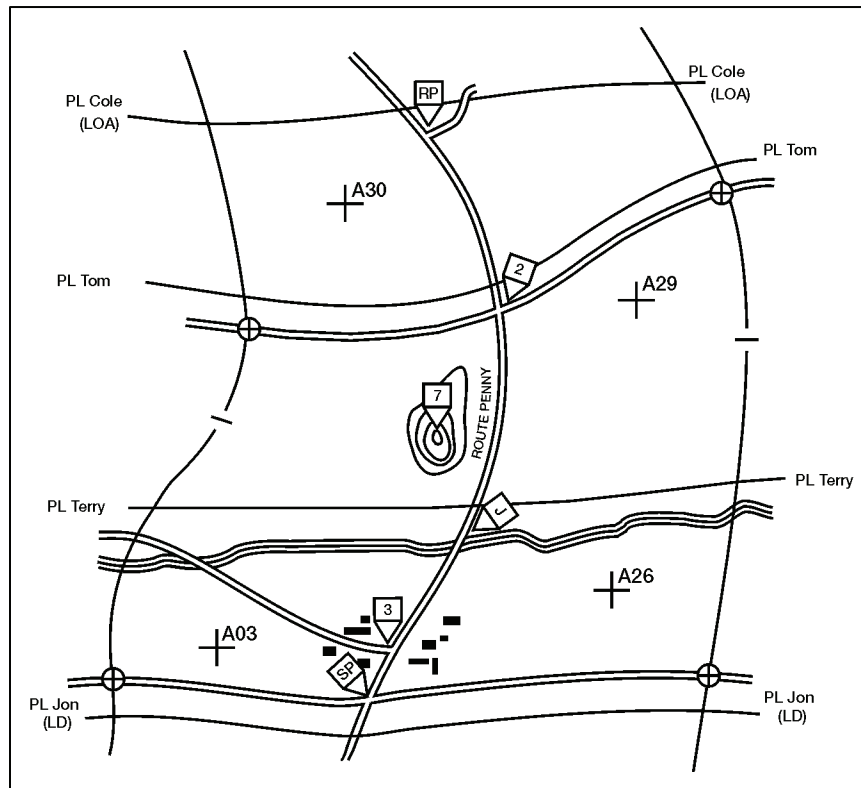


Figure 3-4. Route reconnaissance

Tactical Planning Considerations

3-49. The supported maneuver commander must provide the following:

- Critical tasks to be accomplished by the reconnaissance team's air and ground elements, when used.
- Task organization. Any reinforcements, especially engineers, and their relationship to the troop are identified, and supporting artillery relationships are defined.
- Start point (SP), release point (RP), and designation of the route.
- No earlier than (NET) departure time, no later than (NLT) completion time or both.
- When, where, and how to report the information.
- Type of unit or vehicles expected to use the route, if applicable.
- Time of day or night the route is expected to be used.
- Actions after completion of the mission.
- Any constraints or restrictions.

Capabilities/Limitations

3-50. The ARB leadership should be involved in the planning process and METT-TC must be considered to determine actual capability. (The following is provided for planning purposes.) Without augmentation, an ARC can reconnoiter up to two routes continuously or three routes simultaneously for limited periods.

Brigade Aviation Element Planning Tasks

3-51. The BAE assists the BCT by providing the supporting aviation TF with information described previously in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:

- Chemical section to locate and determine the extent of all contaminated areas.
- Engineers to evaluate and classify all bridges, defiles, overpasses, underpasses, and culverts.
- Ground maneuver force to help clear enemy forces.
- FS elements able to range the area.

Air Route Reconnaissance

3-52. The principles of an air route reconnaissance are the same as for a ground route, but the areas of interest are different. Aviation forces moving along an air route are primarily concerned with the location of enemy forces, ease of navigation, suitability of landing sites and zones, and hazards to flight. Hazards to flight include suspected enemy AD locations, mountainous areas, wires, large bodies of water, open terrain, and other natural and manmade features.

RECONNAISSANCE IN FORCE

3-53. A reconnaissance in force is a deliberate combat operation designed to discover or test the enemy's strength, dispositions, and reactions or to obtain other information. This operation is assigned to a larger-than-company size force when this information cannot be gathered by other means. (See FM 3-90 and FM 17-95 for additional details.)

Tactical Tasks

3-54. Reconnaissance in force tasks are—

- Penetrating the enemy's security area and determining its size and depth.
- Determining the location and disposition of enemy main positions.
- Attacking enemy main positions and attempting to cause the enemy to react by using local reserves or major counterattack forces, employing FS assets, adjusting positions, and employing specific weapon systems.
- Determining weaknesses in the enemy's dispositions to exploit.

Tactical Planning Considerations

3-55. At a minimum, the supported maneuver commander must provide the following:

- Area boundaries.
- Departure time, completion time or both.
- When, where, and how to report the information.
- Type of operation or mission planned for the area, if applicable.
- Actions after completion of the mission.
- Specific instructions for actions on contact/engagement criteria.

Brigade Aviation Element Planning Tasks

3-56. The BAE assists the BCT by providing the supporting aviation TF with information described previously in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:

- Locate a forward arming and refueling point (FARP) as close as METT-TC possible to the reconnaissance area.

- Establish bypass criteria, if contact is made.
- Provide lethal and nonlethal support.

SECTION IV – SECURITY OPERATIONS

3-57. Security operations provide reaction time and maneuver space for the BCT. These operations are characterized by reconnaissance to reduce terrain and enemy unknowns, gaining and maintaining contact with the enemy to ensure continuous information flow, as well as providing early and accurate reporting of information to the protected force. Security operations are particularly valuable during early entry operations when the COP is degraded or the dynamics of the battlefield change faster than expected.

3-58. An ARB or an aviation TF supporting the BCT can conduct security operations. Each can accomplish screen, and with augmentation, guard and cover security operations. To act as the covering force headquarters, the ARB will require ground elements and DS artillery. The combination of attack reconnaissance aircraft and UASs enables commanders, at all levels, to quickly move or deploy interactive and interpretive intelligence collectors over great distances to provide early warning, and gain and disseminate a timely picture of the battlefield. These aircraft can quickly transition from a reconnaissance/counterreconnaissance or security mission to an economy of force or attack mission providing reaction time, maneuver space, and protection for air-ground operations. The ACS gives the SBCT added flexibility in conducting operations throughout its entire AO. (See FM 3-90 and FM 17-95 for additional details on security operations.)

FUNDAMENTALS

3-59. Successful security operations depend on properly applying five fundamentals, known by the mnemonic MOPPP:

- Maintain enemy contact. This requires continuous visual contact with the ability to use direct and indirect fires.
- Orient on the main body. The security force operates at a specified distance between the main body and known or suspected enemy positions and must be prepared to move as the main body maneuvers.
- Perform continuous and aggressive reconnaissance.
- Provide early and accurate warning. This step provides the main body commander with time and information for retaining the tactical initiative.
- Provide reaction time and maneuver space. The security force operates as far ahead of the main body as possible, consistent with METT-TC.

PLANNING CONSIDERATIONS

3-60. There are a number of general considerations when conducting security operations. These apply to all forms of security operations but are most applicable to screen, guard, and cover missions. The following list should be considered when planning security missions:

- Common security control measures.
- Force to be secured.
- Location and orientation of the security area.
- Initial observation post (OP) locations.
- Types of OPs.
- Time to establish the security force.
- Criteria for ending the security mission.
- Augmentation of security forces.
- Intelligence support to security operations.
- Special requirements or constraints.
- Fire planning.

- Integration of ground and air operations.
- Planning the engineer effort.
- Reporting.
- Requesting CSS.
- Positioning of C2 and CSS assets.

FORMS OF SECURITY OPERATIONS

3-61. There are five forms of security operations—screen, guard, cover, area security, and local security.

SCREEN

3-62. The primary purpose of a screen is to provide early warning to the main body. Screen missions are defensive in nature, largely accomplished by establishing a series of OPs and conducting patrols to ensure adequate surveillance of the assigned sector. The screen provides the protected force with the least protection of any security mission. Based on the higher commander's intent and the screen's capabilities, security elements destroy enemy reconnaissance and may be tasked to impede and harass the enemy main body with indirect or direct fires. (See FM 3-90 and FM 17-95 for additional details.)

Methods of Execution

3-63. There are two methods of executing a screen:

- Stationary screen. The screening force establishes OPs with overlapping fields of observation. Patrols reconnoiter dead space (areas that cannot be observed from an OP).
- Moving screen. The screening force may use several methods to move the screen as the protected force moves. Some of the methods available are—
 - Alternate bounds by operations.
 - Alternate bounds by units.
 - Successive bounds.
 - Continuous marching.

Tactical Tasks

3-64. Screen tasks include the following:

- Allow no enemy ground element to pass through the screen undetected and unreported.
- Maintain continuous surveillance of all avenues of approach larger than a designated size into the area under all visibility conditions.
- Destroy or repel all enemy reconnaissance patrols within its capabilities.
- Locate the lead elements of each enemy advance guard and determine its direction of movement in a defensive screen.
- Maintain contact with—
 - Enemy forces and report any activity in the AO.
 - The main body and any security forces operating on its flanks.
- Impede and harass the enemy within its capabilities while displacing.

3-65. Events causing displacement of a screen include—

- Relief on station/battle handover (BHO).
- Movement of the protection force.
- Enemy contact.

Tactical Planning Considerations

- 3-66. The ground maneuver unit must provide the following information to the screening force:
- General trace of the screen and the time the screen must be established.
 - Width of the screen sector.
 - Force being screened.
 - Rear boundary of the screening force.
 - Any special requirements (such as target areas of interest [TAIs] or named areas of interest [NAIs]) that the screening force must observe.

Brigade Aviation Element Planning Tasks

- 3-67. The BAE assists the BCT by providing the supporting aviation TF with information described above in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:
- Coordinate contact points with adjacent security forces.
 - Analyze the depth of the screen.
 - Coordinate to establish a FS quick fire (QF) radio net.
 - Analyze the impact of potential follow-on missions.

GUARD

3-68. A guard differs from a screen in that a guard force has enough combat power to defeat, cause the withdrawal of, or fix the lead elements of an enemy ground force before it can engage the main body with direct fire. Additionally, a guard force prevents enemy ground observation of and direct fire against the main body. A guard force reconnoiters, attacks, defends, and delays as necessary to accomplish its mission. A guard force normally operates within the range of main body FS weapons. The main body commander assigns the guard mission when contact is expected or there is an exposed flank requiring greater protection than a screen provides. (See FM 3-90 and FM 17-95 for additional details.)

Guard Operations

- 3-69. The three types of guard operations are—
- Advance guard.
 - Flank guard.
 - Rear guard.
- 3-70. A commander can assign a guard mission to protect either a stationary or a moving force.

Tactical Tasks

- 3-71. Guard tasks include the following:
- Destroy the enemy advance guard.
 - Maintain contact with enemy forces and report activity in the AO.
 - Maintain continuous surveillance of avenues of approach into the AO under all visibility conditions.
 - Impede and harass the enemy within its capabilities while displacing.
 - Cause the enemy main body to deploy and then report its direction of travel.
 - Allow no enemy ground element to pass through the security area undetected and unreported.
 - Destroy or cause the withdrawal of all enemy reconnaissance patrols.
 - Maintain contact with its main body and any other security forces operating on its flanks.

Tactical Planning Considerations

- 3-72. The ground maneuver commander must provide the following information to the guard force:
- General trace of the guard and the time the guard must be established.
 - AOR for the guard force.
 - Force being secured and its concept of the operation.
 - Rear boundary of the guard force.
 - Any special requirements (such as TAIs or NAIs) that the guarding force must observe.
 - Reinforcements for the guarding force.

Brigade Aviation Element Planning Tasks

3-73. The BAE assists the BCT by providing the supporting aviation TF with information described above in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:

- Coordinate contact points with adjacent security forces.
- Analyze the depth of the guard.
- Coordinate to establish a FS QF radio net.
- Synchronize the attack by fire (ABF)/support by fire (SBF) positions with the ground obstacle plan.
- Recommend helicopter engagement criteria.
- Analyze the impact of potential follow-on missions.

COVER

3-74. A covering force accomplishes all the tasks of screening and guard forces. Additionally, a covering force operates apart from the main body to develop the situation early and deceive, disorganize, and destroy enemy forces. Unlike screening or guard forces, a covering force is tactically self-contained and capable of operating independently of the main body. The aviation TF or ARB usually participates in covering force operations as part of a larger force.

3-75. Whether the cover is for a stationary (defending) or moving (attacking) force, the various types of cover missions, as well as knowledge of the terrain and enemy, dictate the specific task organization of the covering force. (See FM 3-90 and FM 17-95 for additional details.)

Tactical Tasks

3-76. Offensive covering force tasks include—

- Performing zone reconnaissance along the main body's axis of advance or within the AO.
- Clearing or bypassing enemy forces within the AO in accordance with bypass criteria.
- Denying the enemy information about the strength, composition, and objective of the main body.

3-77. Tasks against a defending enemy include—

- Penetrating the enemy's security area to locate enemy main defensive positions.
- Determining enemy strengths and dispositions.
- Locating gaps or weaknesses in the enemy's defensive scheme.
- Defeating or repelling enemy forces as directed by the higher commander.
- Deceiving the enemy into thinking the main body has been committed and causing the enemy to launch counterattacks prematurely.
- Fixing enemy forces to allow the main body to maneuver around enemy strengths or through weaknesses.

3-78. In a meeting engagement, covering tasks include—

- Destroying enemy reconnaissance, the advance guard, and the lead elements of the main body.
- Determining the location of enemy assailable flanks.
- Fixing enemy forces to allow the main body to maneuver around its strengths or through its weaknesses.

3-79. A defensive covering force emphasizes the following tasks:

- Preventing the main body from being surprised and becoming engaged by direct-fire weapons.
- Defeating enemy advance guard formations.
- Maintaining continuous surveillance of high-speed avenues of approach into the security area.
- Defeating all enemy reconnaissance formations before it can observe the main body.
- Causing the deployment of the enemy main body.
- Determining the size, strength, composition, and direction of the enemy's main effort.
- Destroying, defeating, or attriting enemy forces within its capacity.
- Depriving the enemy of its FS and AD umbrellas or require it to displace them before it attacks the main battle area (MBA).
- Deceiving the enemy about the location of main body and main defensive positions.
- Avoiding being bypassed.

Tactical Planning Considerations

3-80. Planning for covering force operations is like planning for guard operations. The ground maneuver commander must provide the following information to the covering force:

- General trace of the guard and the time the guard must be established.
- AOR for the guard force.
- Force being secured and its concept of the operation.
- Rear boundary of the guard force.
- Any special requirements (such as TAIs or NAIs) that the guarding force must observe.
- Reinforcements for the guarding force.

Brigade Aviation Element Planning Tasks

3-81. The BAE assists the BCT by providing the supporting aviation TF with information described in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:

- LOA for the offensive covering force.
- Follow-on missions in the MBA and deep battlespace.
- Joint operations conducted in the same AO.
- Providing reconstitution criteria.

AREA SECURITY

3-82. Area security operations may be offensive or defensive in nature. Area security includes reconnaissance and security for designated personnel, airfields, unit convoys, facilities, main supply routes (MSRs), LOC, equipment, and critical points. An area security force neutralizes or defeats enemy operations in a specified area. It screens, reconnoiters, attacks, defends, and delays as necessary to accomplish its mission. Area security operations focus on the enemy, the force being protected, or a combination of the two. (See FM 3-90 and FM 17-95 for additional details.)

LOCAL SECURITY

3-83. Local security includes any local measure taken by units against enemy actions. It involves avoiding detection by the enemy or deceiving the enemy about friendly positions and intentions. It also includes

finding any enemy forces in the immediate vicinity and knowing as much about their positions and intentions as possible. (See FM 3-90 for additional details.)

Tactical Tasks

3-84. Units use both active and passive measures to provide local security. Active local security measures include—

- Using OPs and patrols.
- Establishing specific levels of alert within the unit. The commander adjusts those levels based on the factors of METT-TC.
- Establishing stand-to times. The unit standing operating procedure (SOP) should detail the unit's activities during the conduct of stand-to.

3-85. Passive local security measures include using—

- Camouflage.
- Movement control.
- Noise and light discipline.
- Proper communications procedures.
- Available ground sensors.
- Night vision devices (NVDs).
- Daylight sights to maintain surveillance over the area immediately around the unit.

Capabilities/Limitations

3-86. While most aviation units can successfully employ all of the passive security measures, personnel manning levels, operating tempo (OPTEMPO), and fighter management cycles make effectively employing all of the active measures a challenge. The BAE should be aware of this fact and assist the aviation unit in coordinating assistance from military police (MP), ground maneuver units, engineers and other assets.

Brigade Aviation Element Planning Tasks

3-87. The BAE assists the BCT by providing the supporting aviation TF with information described above in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:

- Analyze the impact of proposed missions and battle rhythm.
- Coordinate with local authorities to control indigenous forces operating in the area.
- Coordinate for MP support along known routes and suspected avenues of approach.
- Analyze the impact of the depth of the security area.
- Coordinate critical times of employment based on ground security/reconnaissance plan.

AIR ASSAULT AND AIR MOVEMENT SECURITY

3-88. The aviation and air assault task force commanders (AATFCs) integrate attack reconnaissance into the scheme of maneuver to conduct reconnaissance, screening, or overwatch operations during all phases of the AASLT/air movement operations. The successful execution of the operation is based upon a careful analysis of the factors of METT-TC and a detailed, precise, reverse-planning sequence. Planning begins with the ground tactical plan (GTP) and works backward to the staging plan. (See chapter 4 of this TC for more details on the planning cycle.) Reverse planning is imperative, as each successive planning step impacts the phase that precedes it. FM 1-113 contains a more detailed discussion of AASLT planning considerations.

3-89. Typically, the ARB elements are employed in support of an AASLT approximately 48 hours before H-hour (or D-2 where D-day/H-hour is the first AASLT aircraft into the LZ) to set conditions for the

AASLT. METT-TC will determine the actual length of time for condition setting before an AASLT. (See FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126] and FM 1-113 for additional details.)

D-2

3-90. As part of setting conditions for an AASLT, the ARB conducts terrain-oriented aerial reconnaissance on D-2. This reconnaissance is completed to accomplish the following—

- Destroy HPTs of opportunity.
- Confirm or deny the suitability of flight routes and LZs.
- Gain information on the ground routes from LZs to the objectives.
- Gain information on the objective area.
- Determine targets for SEAD missions.
- Assist in registration of artillery targets.

3-91. These actions will begin to confirm or deny the enemy template and contribute to selecting other HPTs. The focus of D-2 operations is on reconnaissance and a shift to attack operations may require a deliberate decision by the commander, usually to destroy an enemy force of great criticality.

3-92. Upon completion of the D-2 reconnaissance, the ARB provides its final reconnaissance products to the AATFC. Typical products the air assault task force (AATF) can expect include—

- Surveillance tapes.
- LZ and key terrain sketches, route and objective area sketches.
- PhotoTelesis digital imagery.
- Aircrew debrief products.

D-1

3-93. D-1 operations are normally executed as a movement to contact with the purpose of setting the AD, maneuver, fires, and intelligence conditions for the AASLT. In its operations, the ARB refines the intelligence picture in the AO and attacks to destroy HPTs in zone to set conditions for D-day operations.

3-94. These operations are enemy force oriented to—

- Prevent the enemy from influencing movement along the air route(s).
- Establish forward passage lanes.
- Deny the enemy the ability to influence friendly forces in the vicinity of the objective(s).
- Prevent the enemy from surprising enemy forces vicinity the objective(s).

3-95. At the end of D-1 operations, enemy forces in the AO that can affect the AASLT should be destroyed or located for targeting and attack before the AASLT.

D-DAY

3-96. On D-day, the focus of ARB operations is to finalize setting conditions for the AASLT, provide security for the AASLT itself, and then close CS fires. After the initial lift is in the LZ, the focus shifts to securing the airhead and/or providing supporting fires to the commander on the ground.

3-97. A typical pattern for attack reconnaissance helicopter operations on D-day begins with attacks to destroy located/templated forces that can affect the AASLT to finalize setting conditions. This is normally a company operation. This stage ends with the LZs confirmed clear and attack reconnaissance helicopters in overwatch of the LZs. Typically, the lead company will conduct a BHO to a second company who will perform the actual overwatch. This second company will overwatch the initial lift into each LZ and then either push out beyond the airhead line into the security zone or provide close supporting fires to the ground tactical commander (GTC). The third company usually cycles in to extend the duration of the security zone mission and/or the supporting fires. The third company may also be held as a reserve.

Staging Phase

3-98. Attack reconnaissance elements may conduct screening operations to provide early warning and limited security while infantry companies form on or near the PZs. If enemy forces are close by, or contact is likely, attack reconnaissance assets should be reinforced to increase their ability to repel enemy forces.

Loading Phase

3-99. Battalion elements may be tasked to reconnoiter PZs beyond the security areas established by ground forces before the arrival of assault helicopters. Once the PZ is cleared, they may screen a vulnerable flank or likely avenues of approach. Ground mechanized or armor companies are also well suited to help provide security in both the staging and loading phases. Table 3-1 shows standard PZ markings for security elements to reference.

Table 3-1. Marking techniques for day and night PZs

<i>Position in PZ</i>	<i>Daylight Marking</i>	<i>Night Marking</i>
PZ Entry	Guide and sign	Guide with 2 blue chemical lights
PZ Control	M998 and VS-17 panel	2 green chemical lights on antenna
Aid Station	M997	Steiner device
Chalk stage points	PZ control party guides/signs	Guide/blue chemical light per chalk
Lead touchdown point	VS 17 panel, smoke	Inverted Y, infrared (IR) flashlight
Chalk touchdown points	Soldier on knees with raised rifle	IR chemical light per aircraft (A/C)
Obstacles	Notify pilots on radio	Red chemical light ring around obstacle
Loads to be picked up	Hook up team on loads	Swinging IR chemical light per load

Air Movement Phase

3-100. Attack reconnaissance elements may be tasked to precede the AASLT element along the air route. They can conduct route reconnaissance followed by area reconnaissance of the LZs, and possibly the objective, depending on the factors of METT-TC. ARC elements penetrate the forward line of own troops (FLOT) at a time interval dictated by the mission and conduct or assist with an aerial passage of lines. Along the route, they locate any previously unknown enemy AD weapons and radar and suppress those systems or develop a bypass route for the AASLT element. Attack reconnaissance elements may also provide information on threats to flight, including natural and manmade obstacles. They may perform this mission by a moving flank screen or by occupying battle positions (BPs) along the route. Attack reconnaissance elements can also provide early warning of the enemy’s approach and can engage the enemy with organic weapon systems or indirect fires. They may also be assigned responsibility for coordinating the recovery of downed aircrews with other elements of the TF.

Landing Phase

3-101. Battalions can also be tasked to perform the same tasks during the landing phase as they do during the staging and loading phases. They may occupy BPs to overwatch LZs and the objective.

3-102. If the LZs are hot, the AATFC may decide to delay, divert, or terminate the mission. Aggressiveness by the AATFC and attack reconnaissance aviation may be the only way to set conditions to eliminate resistance in the LZ. This requires close coordination between the AATFC and attack reconnaissance aviation to avoid fratricide and to minimize risk to the aircrews. The AATFC must be aware of the time that is required to clear the LZs and must adjust the mission accordingly.

Ground Tactical Phase

3-103. As the ground force moves forward and seizes its objective, the ARB may again be tasked to support the GTP. These missions include area security for forward operating bases (FOBs) and FARPs, reconnaissance of follow-on objectives, establishing screen lines, and conducting route reconnaissance and security for LOCs. Throughout all missions, the attack reconnaissance unit is prepared to conduct target/BHOs to other attack reconnaissance aviation elements, conduct CCAs, assist with C2, and provide reconnaissance information and products.

FIRE SUPPORT

3-104. Planned fires along the route of flight protect aircraft against known or suspected enemy positions. These fires must be intense and of a duration that destroys or suppresses enemy forces but does not interfere with aircraft as they fly past specific locations. They are planned on areas and can be fired either on a time schedule or on call. Fire plans cover PZs, LZs, flight routes, and suspected enemy avenues of approach to LZs. FS plans include lethal and nonlethal J-SEAD and smoke. Plans ensure the friendly FS elements do not use ordnance that obscures aircrew vision, especially during NVD missions. Appendix J gives more information on FS.

PRIORITIZATION

3-105. While the ARB can perform many tasks in support of AASLT operations, it cannot perform many tasks simultaneously. The AATFC must prioritize the tasks needed and select those that are essential. Giving the ARB too many tasks simultaneously “dilutes” its effectiveness by forcing a piecemeal commitment of the ARB.

3-106. Additionally, the AATFC must prioritize when he or she wants aircraft available to support operations. Continuous presence can only be maintained for about 24 hours, forcing a sequential employment of teams of two aircraft. The result is that, if asked to assume the attack mode, the ARB loses the flexibility to mass.

3-107. For planning purposes, an attack reconnaissance helicopter company can perform no more than one task at a time. Depending on the duration of a particular task, companies may be able to conduct two tasks sequentially as long as they are related efforts (such as transitioning from LZ overwatch to airhead security or close supporting fires). The limiting factor for conducting sequential tasks is crew endurance. The battalion’s missions and the time allocated to accomplish them should be included when evaluating planning considerations.

CONVOY SECURITY

3-108. Convoy security operations are conducted when insufficient friendly forces are available to continuously secure LOCs in an AO. They may also be conducted with route security operations. A convoy security force operates to the front, flanks, and rear of a convoy element moving along a designated route. Convoy security operations are offensive in nature and orient on the force being protected. (See FM 3-90 and FM 17-95 for additional details.)

TACTICAL TASKS

3-109. A convoy security mission has certain critical tasks that guide planning and execution. To protect a convoy, the security force must accomplish the following critical tasks:

- Reconnoiter the route the convoy will travel.
- Clear the route of obstacles or positions from which the enemy could influence movement along the route.
- Provide early warning and prevent the enemy from impeding, harassing, containing, seizing, or destroying the convoy.

3-110. The convoy security force is organized into three or four elements. These elements include—

- Reconnaissance element. The reconnaissance element performs tasks associated with zone and route reconnaissance forward of the convoy.
- Screen element. The screen element provides early warning and security to the convoy's flanks and rear.
- Escort element. The escort element provides close-in protection to the convoy. It may also provide a reaction force to assist in repelling or destroying enemy contact.
- Reaction force. The reaction force provides firepower and support to the elements above to assist in developing the situation or conducting a hasty attack. It may also perform duties of the escort element.

Capabilities/Limitations

3-111. Convoy security operations are performed at a minimum by an ARC. ARCs are well suited to the requirements of protecting a convoy because of their organic reconnaissance capability and combat power. The company may be reinforced with engineers and MPs.

Brigade Aviation Element Planning Tasks

3-112. The BAE assists the BCT by providing the supporting aviation TF with information described above in the tactical task and tactical planning consideration sections. Additionally, the following coordination and synchronization tasks should be considered by the BAE:

- Coordinate convoy route (designation, limits and time of day to be used).
- Disseminate composition of convoy to include number of vehicles and crew-served weapons systems available.
- Coordinate actions on contact.
- Coordinate graphic control measures with security force.

SECTION V – ATTACK MISSIONS

3-113. The capability of the ARB, coupled with Army and joint systems, provides the commander with the capability to extend fires and effects to the maximum range of the commander's organic and supporting sensors. ARBs conduct attack operations in support of BCT, division, corps, and/or theater objectives. Attack reconnaissance units also make an excellent reserve or quick reaction force for the supported commander. The aviation brigade headquarters has the inherent staff planning experience to support maneuver, the synchronization and integration of joint effects, and the ability to control mobile strike operations. Appendix K has information on joint air attack team (JAAT) planning.

3-114. The ARB brings firepower, speed, and shock effect to the fight. ARB elements assigned to the BCT provide the BCT commander a capability to reach beyond the commander's organic indirect fire capability. Attack reconnaissance aviation can also act as a counterattack force to block or destroy enemy penetrations.

3-115. The battalion shapes the battlefield by assisting in finding, fixing, and engaging the enemy. When early engagement of enemy forces is desired in a meeting engagement, attack reconnaissance units may be employed to develop the situation until adequate ground forces can move into position to join the fight. Attack operations can occur in either offensive or defensive schemes of maneuver, and either near or independent of friendly forces.

3-116. A battalion attack mission is intended to accomplish at least one of the following attack mission criteria:

- Destroy (kill at least 70 percent of the enemy force).
- Attrit (kill at least 30 to 70 percent of the enemy force).
- Disrupt (temporarily remove an enemy force from action or force them to lose the initiative).
- Deny terrain.

FORMS OF ATTACK

3-117. The two forms of attacks are hasty attack and deliberate attack. The major difference between the two is the planning time available.

HASTY ATTACK

3-118. Hasty attacks may serve as a precursor to a deliberate attack or may result from unexpected enemy contact. Hasty attacks occur most often during R&S operations, meeting engagements, and in response to an enemy attack. In all cases, units conduct hasty attacks to rapidly develop the situation or overwhelm the enemy before it can adequately respond. Units may conduct hasty attacks without the foreknowledge of the location of EAs and BPs. Planners may not know the exact attack time, location, and threat, until shortly before the mission. CCA battle drills, habitual training, and contingency plans based on probable enemy actions and intelligence preparation of the battlefield (IPB) improve the success of hasty attacks.

DELIBERATE ATTACK

3-119. A deliberate attack is planned and carefully coordinated with all involved elements to provide synchronization of combat power at the decision point (DP). The deliberate attack requires thorough reconnaissance, evaluation of all available intelligence and relative combat strength, analysis of various COAs, and other factors affecting the situation. To conduct a successful deliberate attack, the attack reconnaissance unit must effectively integrate with the overall ground scheme of maneuver or the joint, operational, or tactical plan to shape the enemy prior to ground force contact.

TYPES OF ATTACK MISSIONS

3-120. The two types of attack missions the ARB is tasked to perform are mobile strikes and CCA.

MOBILE STRIKE

3-121. A mobile strike combines ground based fires, attack aviation, unmanned systems, and joint assets to mass effects for isolating and destroying key enemy forces and capabilities and shielding friendly forces as they maneuver out of contact. A mobile strike is a shaping operation in support of a division or a BCT. It may be focused in a deep area beyond the BCT's AO, or it may be within the BCT's AO but beyond the reach of direct fire systems. The purpose of a mobile strike is to deny the enemy freedom of action, support friendly maneuver, and destroy key enemy forces and capabilities.

3-122. ARBs conduct mobile strikes to—

- Isolate and destroy key enemy forces and capabilities.
- Shield friendly forces as they maneuver out of contact.
- Focus on key objectives and fleeting HVTs.
- Destroy enemy C2 elements, AD systems, long-range surface-to-surface missiles (SSMs) and artillery.
- Reinforce ground forces.

CLOSE COMBAT ATTACK

3-123. CCAs are inherent in maneuver and have one purpose—to decide the outcome of battles and engagements. They are carried out with direct-fire weapons and supported by indirect fire, CAS, and nonlethal effects. CCAs defeat or destroy enemy forces or seize and retain ground. The range between combatants may vary from several thousand meters to hand-to-hand combat. During CCA, attack reconnaissance aircraft may engage targets that are near friendly forces, thereby requiring detailed integration of fire and maneuver of ground and aviation forces. CCA is sometimes referred to as aviation “over the shoulder” fires in support of ground forces. To achieve the desired effects and reduce the risk of fratricide, air-ground integration must take place down to company, platoon, and team levels. Close-

combat engagements also require a higher training standard for aerial weapons delivery accuracy. (FM 3-04.111 has additional information.)

3-124. For aviation units, CCA is defined as a hasty or deliberate attack in support of units engaged in close combat during either offensive or defensive operations. During CCA, armed helicopters engage enemy units with direct fires that impact near friendly forces. Targets may range from tens of meters to a few thousand meters. CCA is coordinated and directed by a team, platoon, or company-level ground unit using standardized CCA procedures/briefing.

3-125. The CCA briefing (figure 3-5) provides clear and concise information in a logical sequence enabling aircrews to employ their weapons systems. It also provides appropriate control, thereby reducing the risk of fratricide. (See FM 3-04.111 for additional information.)

CLOSE COMBAT ATTACK BRIEFING(Ground to Air)	
1. Observer/Waming Order "_____, THIS IS _____, FIRE MISSION, OVER." <i>(Helicopter)</i> <i>(Observer C/S)</i>	
2. Friendly Location/Mark: "MY POSITION _____ MARKED BY _____" <i>(TRP, Grid, etc.)</i> <i>(Strobe, Beacon, IR Strobe, etc)</i>	
3. Target Location: "_____" <i>(Bearing [magnetic] & Range [meters], TRP, Grid, etc.)</i>	
4. Target Description/Mark: "_____, MARKED BY _____, OVER." <i>(Target Description)</i> <i>(IR Pointer, Tracer, etc.)</i>	
5. Remarks: "_____" <i>(Threats, Danger Close Clearance, Restrictions, At My Command, etc.)</i>	
AS REQUIRED 1. Clearance: Transmission of the Fire Mission is clearance to fire (unless Danger Close). Danger close ranges are in accordance with FM 3-09.32. For closer fire, the observer must accept responsibility for increased risk. State "CLEARED DANGER CLOSE" (with commanders initials) on line 5. This clearance may be preplanned. 2. At my command: For positive control of the gunship, state "AT MY COMMAND" ON LINE 5. The gunship will call "READY TO FIRE" when ready.	
LEAD-WING ATTACK BRIEF (TPM-R)	
Technique: - Running - Diving - Hovering	Sample
Pattern Attack Direction: - Racetrack - Cloverleaf - Figure 8 - 45 - degree offset	
Munitions: - Appropriate for Target - Minimize Collateral Damage - Maximize Standoff	
Range: - Bump Point - Start Fire - Break/Stop Fire - IP/Re-attack Point	

Figure 3-5. CCA briefing

3-126. CCA tasks include—

- Conduct fire, maneuver, and tactical assault in close support of ground forces.
- Provide complementary fires and maneuver while taking advantage of terrain, stand off, and ground forces for protection.
- Provide reinforcing fires.
- Continue development of dynamic situation.
- Extend the tactical reach of maneuver forces, particularly in urban and other complex terrain.
- Present the enemy with multiple/simultaneous dilemmas from which it cannot escape.
- Establish and control the OPTEMPO of the fight.
- Synchronize all available reconnaissance, security, and target acquisition (RSTA), fires (Joint/Army), and maneuver on the enemy force.
- Provide extended acquisition range and lethality to the force after contact is made.

Note. Specific aviation forces are usually OPCON to specific ground forces (and vice versa) as situation dictates.

ATTACK EMPLOYMENT METHODS

3-127. Attack employment methods include the continuous attack, phased attack, and maximum destruction, all of which vary by duration.

CONTINUOUS ATTACK

3-128. A continuous attack is planned to provide constant attack reconnaissance aviation assets onto a target area for an extended timeframe. While one company is engaged in the battle, the other two companies prepare to relieve the engaged company by positioning at the holding area (HA) or the FARP, or maneuvering to the BP. This continuous attack method provides the commander with the most flexibility as well as the most efficient operation of the FARP.

PHASED ATTACK

3-129. To exert increased initial firepower of the battalion on the enemy force, the battalion commander employs one ARC to begin the attack and then quickly phases in the second ARC from a different BP. The third ARC is phased into the fight when either of the other companies is low on fuel or ammunition. The commander may choose to change this method of employment. For example, the commander may employ one ARC to set up the fight and then exploit the attack with the other two companies.

MAXIMUM DESTRUCTION

3-130. To exert maximum combat power on the enemy force the battalion commander will employ the maximum destruction method. To overwhelm the enemy force with massed fires, the battalion will attack with all three companies simultaneously. While employing this method, it is important for the supported commander to understand that the entire battalion will be out of the fight for 20 to 90 minutes at the completion of the initial attack. The time away from the fight will be dependent on the distance to the FARP and the time required for refueling and rearming after the initial engagement.

OFFENSIVE OPERATIONS

3-131. In the offense, the battalion attacks to isolate the objective, conducts reconnaissance, and augments ground forces. Offensive operations fall into one of the following categories: movement to contact, exploitation, and pursuit.

MOVEMENT TO CONTACT

3-132. Movement to contact is used to develop the situation and establish or regain contact with the enemy. Attack reconnaissance assets perform the movement to contact like a zone reconnaissance with a reconnaissance objective of finding the enemy force and developing the situation. Terrain reconnaissance is conducted only as necessary to support locating the enemy. As a result, a movement to contact mission proceeds much faster than a zone reconnaissance. The mission culminates in either termination or contact with the enemy, at which point, the attack reconnaissance unit often conducts a hasty attack.

EXPLOITATION

3-133. Exploitation is an offensive operation that usually follows a successful attack and is designed to disorganize the enemy in depth. The purpose is to aggressively exploit success at every turn, thus denying the enemy the ability to reconstitute an effective defense by shifting forces or regaining the initiative through counterattack. The commander designs the exploitation to maintain pressure on the enemy and take advantage of its disorganization, shatter its will to resist, and seize decisive or key terrain.

3-134. Exploitation is the primary means of translating tactical success into operational advantage. It reinforces enemy force disorganization and confusion in its C2 system caused by tactical defeat. It takes

advantage of reduced enemy capability to make permanent what would be only a temporary tactical effect. Exploitation may be decisive.

3-135. One of the main concerns during exploitation is outrunning support. Timely relocation of FARPs is critical to sustaining operations.

3-136. Pursuit is an offensive operation designed to catch or cut off a hostile force attempting to escape, with the aim of destroying or capturing it. A pursuit operation generally begins when an enemy force attempts to conduct retrograde operations. An aggressively executed pursuit leaves the enemy trapped, unprepared, and unable to defend. Aggressive pursuit limits the enemy's option to surrender or complete destruction.

3-137. Characteristics of a pursuit operation include—

3-138. Rapid shifting of units.

- Continuous day and night movements.
- Hasty attacks.
- Containment of bypassed enemy forces.
- Large numbers of prisoners.
- A willingness to forego some synchronization to maintain contact with and pressure on a fleeing enemy.

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Chapter 4

Air Assault and Air Movement Operations

This chapter discusses the mechanics of AASLT and air movement operations. The primary difference between an AASLT and an air movement is the expected threat. Air movements are conducted in a permissive environment, while AASLTs are conducted when enemy contact is likely. Since the majority of the planning is the same for both operations, this chapter will use the term air assault to address both air assault and air movement operations. Where major differences exist, they are discussed separately.

SECTION I – GENERAL

4-1. Aviation brigade utility and heavy helicopter assets provide the maneuver commander the ability to sustain continuous offensive or defensive operations, and to conduct brigade level AASLTs. AASLT operations extend the tactical reach of the maneuver commander, negate effects of terrain, seize key nodes, attain the advantage of surprise, and dislocate or isolate the enemy. FARPs emplaced by lift aircraft and ground assets enable aviation to support and sustain operations throughout the AO. Additionally, heavy lift helicopters are capable of transporting internal and external cargo in a variety of configurations to meet the CS and CSS requirements of both the BCT and the division. Detailed information on AASLT operations and planning is found in FM 1-113 and FM 90-4.

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DIVISION STAFF ROLES AND RESPONSIBILITIES

4-2. The division staff sets the conditions for the formation of an AATF. The division staff is responsible for producing the task organization of the AATF and conducting the necessary mission analysis of the MDMP. Additionally, an aviation brigade will be placed in a supporting relationship to the AATF. On occasion, the aviation brigade may be assigned as the AATF headquarters for specific missions to include, but not limited to, FOB seizure and FARP occupation. The commanding general (CG) is the approval authority for the formation of the AATF.

BRIGADE COMBAT TEAM ROLES AND RESPONSIBILITIES

4-3. The BCT is the foundation of the AASLT. The primary role of the AATFC and staff is to develop the GTP. By utilizing the BAE and a supporting aviation brigade staff, the AATFC and staff have more time to focus on the GTP and follow-on missions. The aviation brigade then focuses on the first four phases of AASLT planning. It is essential that the AATFC provide the key tasks and commander's intent. The commander must relate how he or she wants to "weight" the ARS/ARB coverage and the level of acceptable risk to the supporting aviation units.

AVIATION BRIGADE ROLES AND RESPONSIBILITIES

4-4. For AASLT operations, an aviation brigade is normally placed in a supporting relationship to the AATF and BCT. Through the use of the BAE and respective LNOs from the aviation brigade, concurrent planning is conducted to support the AASLT. As opposed to having a specific aviation unit task organized to the BCT, the aviation brigade's role is to anticipate the needs of the AATFC and provide the necessary aviation assets to support the mission of the AASLT. As the supporting commander, the aviation brigade commander has the ability to direct aviation assets within the brigade or request augmentation from division to provide a ready response to the needs of the AATFC.

SECTION II – AIR ASSAULT PLANNING

PLANNING PROCESS OVERVIEW

4-5. The AASLT planning process (table 4-1) mirrors the steps in the MDMP and incorporates parallel actions necessary to provide the additional time and detailed planning required for successful air mission execution. Each of these steps is discussed in more detail in chapter 10 of this TC to include the air mission coordination meeting (AMCM), air mission brief (AMB), and the aircrew brief (AB). (See appendixes G, O, Q, and R also.)

Table 4-1. Air assault planning process

<i>Time</i>	<i>MDMP Steps</i>	<i>Air Assault Planning Steps</i>
	Receipt of mission	
	Mission analysis	
	COA development	
	COA analysis	
	COA comparison	
	COA approval	AMCM
	Orders production	
	Operation order (OPORD) brief	
		AMB
	AATF rehearsal	
		AB
		AVN TF rehearsal
H-hour		

PLANNING TIME LINES

DELIBERATE PLANNING

4-6. Because of their complexity, AASLT operations are deliberate. Ideally, the AATF receives 96 hours or more, after the issuance of the order, to complete the planning for a BCT-sized AASLT. This is especially important for forced entry operations. When time is available, units should use the time line outlined in figure 4-1 below to develop the best possible plan. Each of these steps is discussed in more

detail along with planning in a time constrained environment and hasty AASLT planning in chapter 10 of this TC.

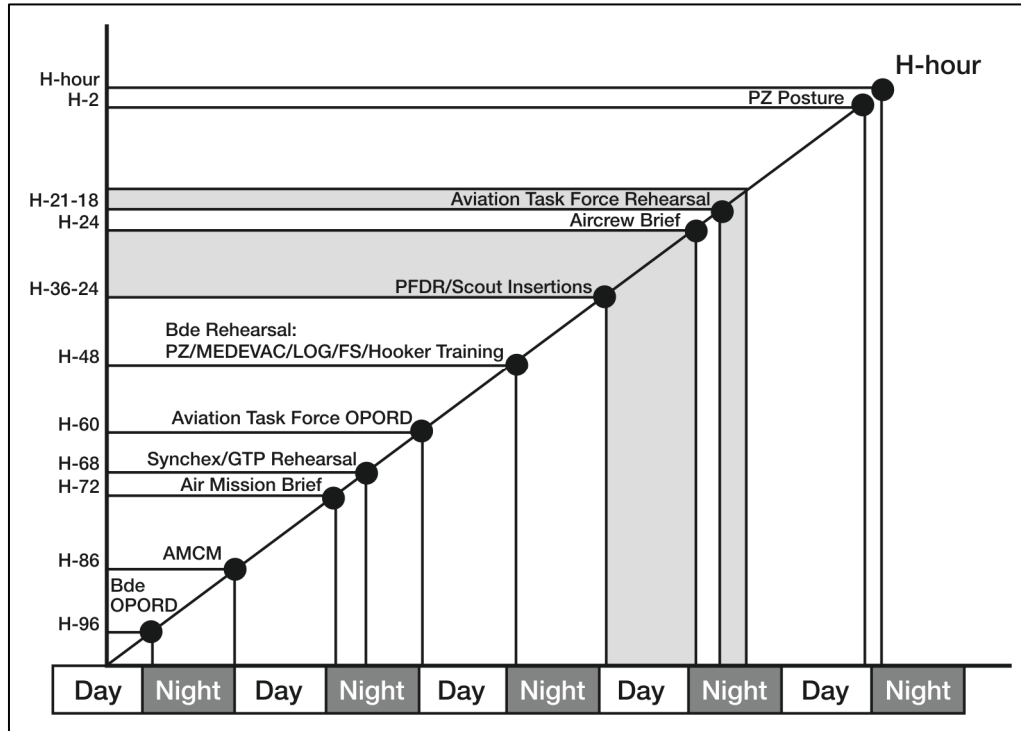


Figure 4-1. Air assault planning time line

THE REVERSE PLANNING SEQUENCE

4-7. Successful AASLT execution is based on a careful analysis of METT-TC and detailed, precise reverse planning. Five basic plans that comprise the reverse planning sequence (figure 4-2) are developed for each AASLT operation. They are—

- The ground tactical plan.
- The landing plan.
- The air movement plan.
- The loading plan.
- The staging plan.

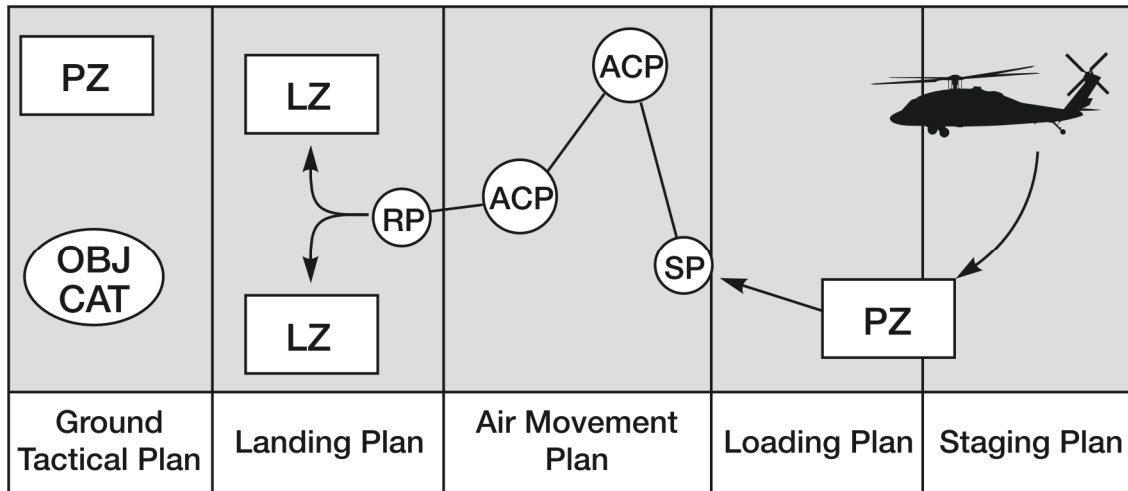


Figure 4-2. Air assault planning stages

4-8. These plans are not developed independently. They are coordinated, developed, and refined concurrently by both the AATF and aviation brigade staffs, making the best use of available time. The GTP is normally developed first and is the basis from which the other four plans are derived.

4-9. Planning for AASLT operations requires time to plan, rehearse, and brief. To efficiently use the time available, the AATF and aviation brigade use common troop leading procedures (TLP) and SOPs. Standardizing operations between units conducting AASLT significantly enhances the units' ability to accomplish the mission.

4-10. Planning for AASLT operations is as detailed as time permits and should include completing written orders and plans, as described in chapter 10 of this TC. Within time constraints, the AATFC must carefully evaluate capabilities and limitations of the total force and develop a plan that ensures a high probability of success. The planning time should abide by the "one-third/two-third rule" to ensure subordinates have enough time to plan and rehearse. (See FM 90-4 and FM 1-113 for more details.)

GROUND TACTICAL PLAN

4-11. The AASLT ends and the GTP begins when the assaulted forces have cleared the LZ and the assaulting helicopters have returned to the AA. The GTP ends upon completion of the ground forces commander's scheme of maneuver. Once the AASLT is complete, the BAE must shift its focus to supporting the GTP.

4-12. In accordance with doctrine, tactics, techniques, and procedures (TTP), and METT-TC, the GTC determines the GTP. The plan includes the following components:

- Mission objectives.
- Primary/alternate LZs.
- Task organization.
- D-day/H-hour times.
- Forces required/available.
- Special equipment required (kick-off bundles).
- FS plan (including preparatory fires).
- Attack reconnaissance aviation missions.
- Means of identifying LZ(s).
- Landing formations.
- Offloading procedures.

4-13. The BAE plays an integral role during the entire MDMP. The role of the BAE during this phase is—but is not limited to the following:

- Acts as SME on aviation capabilities and employment.
- Updates AATFC or GTC on aircraft status and availability.
- Establishes communication link to respective aviation LNOs to relay the GTP and BCT mission.
- Establishes communication link to the aviation brigade/TF commander about changes and special mission requests.
- Establishes the AMB time line.
- Advises the pickup zone control officer (PZCO) on PZ setup.
- Assists in developing staging and loading plans.
- Briefs the AMC on the GTP.

LANDING PLAN

4-14. The landing plan begins when the assault helicopters cross the RP and ends when the assaulted forces clear the LZ. Factors that must be considered when developing the landing plan include—

- Where to place the LZs.
- The number of LZs required.
- Integration of attack reconnaissance assets and indirect fires.
- LZ update procedures (Cherry/Ice call).
- The procedures required to divert to an alternate LZ and the impact diverting will have on the GTP.
- Aircraft offloading techniques.
- Derigging loads techniques.
- Reaction to enemy contact.

WHERE TO LAND

4-15. The GTP drives the landing plan. In general, there are two types of landing plans: landing away from the objective, or on the objective.

- Landing away from the objective. The intent when landing away from the objective (most common method) is to arrive at the LZ prepared to move out quickly with tactical integrity, to ensure rapid advance toward the objective and maximum force protection. The METT-TC considerations for landing away from the objective are:
 - Mission—usually an enemy force-oriented mission.
 - Enemy—incomplete intelligence on enemy dispositions.
 - Terrain—there is incomplete intelligence on the terrain (especially LZs) or there is a lack of acceptable LZs on/near the objective.
 - Troops available—conditions are not set or cannot be confirmed.
 - Time—time is not available to develop the situation.
 - Civilian—there is incomplete intelligence on the local civilian population.
- Landing on the objective. The intent when landing on the objective (less common method) is to immediately, upon landing, establish continuous suppression of enemy forces while aggressively assaulting to secure the objective. The METT-TC considerations for landing on the objective are—
 - Mission—usually a terrain-oriented mission.
 - Enemy—precise intelligence on enemy disposition is known.
 - Terrain—precise intelligence is known on the terrain (especially LZs). There are good LZs on/near the objective.
 - Troops available—conditions are set and verified.

- Time—time is critical to secure the objective.
- Civilian—intelligence on the local civilian population is known and they are not a factor.

LANDING ZONES CONSIDERATIONS

4-16. The larger the number of LZs (such as for a brigade AASLT), the higher the risk and complexity of the operation. Whether landing away from or on the objective, brigades should plan for one primary LZ and one alternate LZ per maneuver battalion. This normally results in six different LZs for planning at the brigade level. Touchdown points are often confused with LZs. A touchdown point is that point on the LZ where the first chalk of any serial lands. LZs should all have different names and associated grids to further avoid confusion. Additionally, a greater number of planned LZs increases the difficulty of setting conditions at each LZ prior to landing. Only in a permissive environment, low-level conflict, if sufficient assets are available to set the conditions at each LZ, or after careful analysis of the METT-TC situation, should the AATFC plan for more than one primary and one alternate LZ per maneuver battalion.

4-17. The sequencing of forces into the LZ is critical. Each serial must be ready to execute the GTP from either the primary or alternate LZ. At each of the battalion LZs, forces must land ready to fight. Forces should be organized on the PZ, not the LZ. Using the following standards in prior planning will make this possible:

- Fly and land in the order of march/order of assault.
- Ensure that each serial is able to fight as a team (combat loading).
- Provide guidance (radio and visual) to the helicopters as they are inbound to the LZ; use pathfinders or scouts for en route guidance (at the RP) or on the LZ for terminal guidance. Pathfinder or other qualified Soldiers from the assault force lead serial may also be used for terminal guidance for subsequent serials inbound to LZ. Inbound guidance is not an option.
- Separate serials by a minimum of one minute or more, based on conditions.
- Land UH-60s at least 30 meters and CH-47s at least 35 meters out from the right or left tree line. This is critical to the deconfliction of fires and flight routing.

Note. The term tree line is used throughout the TC to refer to the area providing the best cover and concealment, and is a safe rushing distance from the aircraft. This area may be an actual tree line, building, revetment or other terrain feature.

- Have aircraft land plus or minus 50 meters from the GTC's intended landing point (as per the AMB).
- Have aircraft land plus or minus 30 seconds from the air movement table (AMT) touchdown time.
- Have aircraft land plus or minus 15 degrees from the planned landing heading.
- Ground forces can exit from one or both doors of the aircraft (METT-TC dependent).
- Ground forces offload aircraft within 30 seconds or less.
- Ground forces are in the tree line within 1 minute or less (after serial takeoff).
- Slingloads are landed and crews offloaded within 2 minutes or less.
- Vehicles are cleared from the LZ within 5 minutes of touchdown or less (this includes the 2 minutes of load landing and crew offload).

Note. Increase LZ size, as required, if serial time intervals are shorter between slingloads to allow loads to clear LZ. This allows subsequent serials/aircraft to maneuver avoiding loads, if the ground unit cannot move a load off the LZ quickly enough.

4-18. The LZ is where the ground and aviation forces separate. Landing is the critical moment in any AASLT. Four UH-60's will require at least a 240-meter 60-meter LZ/PZ (60 meters per UH-60) regardless

of the mission. These are minimum planning requirements. Blowing dust, obstacles, or other hazards dictate larger PZs/LZs.

4-19. The assault force has the option to go out the left, right, or both doors. Whichever side(s) is planned, touchdown points, troop door exit, troop movement, aircraft door gunnery, and supporting fires are tied to that decision. Switching to the other side on the fly (an audible) can only occur with assured communications and before aircraft cross the RP. Changes must be relayed to all chalk leaders.

AIR MOVEMENT PLAN

4-20. The air movement plan begins when the assault helicopters cross the SP and ends when they cross the RP. Factors that must be considered when developing the air movement plan include—

- Air route selection and planning.
- Attack reconnaissance updates on the LZ.
- SEAD/JSEAD planning and coordination.
- AASLT security en route.
- FARP rotation.
- C2 procedures.

ROUTE PLANNING CONSIDERATIONS

4-21. Air movement involves flight operations from the PZ to LZ and back. The BAE should assist by recommending the route; however, it must remember that the final designation and use of flight routes is a command decision.

4-22. In executing the air movement, the AMC takes OPCON of all army aviation forces (assault, heavy, and attack reconnaissance helicopters and MEDEVAC, UAS, and C2). The AMC controls all timing for deconfliction. The AMC controls all en route fires, initiation and shifting of LZ preparatory fires.

4-23. Flight paths include flight routes, air corridors (with specified height and width), and flight axes (specified width but not height). Both routes and corridors are commonly used. Flight axes are less commonly used. When possible, plan for one-way flight traffic to mitigate risk. Designation of a two-way flight route is reserved for the AATFC and should only be used for those highly unusual circumstances where this risky measure might be necessary. Two-way flight routes are deconflicted by time and/or altitude separation. To ensure simplicity and focus of available fires, an AASLT uses one ingress flight route and a different egress flight route. Key elements of a one-way flight route include the following:

- Always plan alternate ingress and egress flight routes.
- Locate the SP 3 to 8 kilometers from the PZs. The flight route starts here.
- Locate the RP 3 to 8 kilometers from the LZs, primary and alternate. The flight route ends here.
- Use a prominent, designated terrain feature located along the flight route that facilitates navigation, control of speed, and control of en route fires as air control points (ACPs).
- Ensure that no turn in the route exceeds 60 degrees if slingloads are involved.
- Ensure that routes are at least two kilometers wide.
- Ensure that heading to the RP is within 30 degrees of the LZ landing heading.

SUPPRESSION OF ENEMY AIR DEFENSE/JOINT-SUPPRESSION OF ENEMY AIR DEFENSE PLANNING AND COORDINATION

4-24. In executing air movement, the AMC integrates flight routes based upon PZ and LZ locations and avoids known or suspected enemy ADs. The BCT ECOORD plans lethal and nonlethal suppressive fires on known or suspected enemy ADs that cannot be avoided. The AATFC must ensure that flight routes support both the primary and alternate LZs. The BAE must reflect key SEAD events and countdown calls on the AASLT execution checklist. SEAD/JSEAD planning and coordination is discussed in appendix I of this TC.

AIR ASSAULT SECURITY

4-25. AASLT security is conducted throughout the air movement phase. AASLT security is not necessarily just an escort mission. The AASLT security process can be conducted sequentially, simultaneously, or over a period of 24 to 72 hours before the start of the AASLT mission. This process is determined early in the mission analysis phase and is a direct result of the BCT commander's initial guidance and key tasks.

4-26. Normally, just before the launch of the air movement phase, attack reconnaissance assets fly along the route to conduct an AASLT security mission. This mission is much like a movement to contact. Usually, one to two ARCs conduct the mission just before the assault aircraft launching for the air movement. This allows another cursory look at the air routes and LZs and allows the attack reconnaissance assets an opportunity to conduct a relief on station with elements already on station providing reconnaissance.

4-27. The AASLT security force makes the final LZ update (Cherry/Ice) call as the assault forces are en route to the LZ. Prior to assault forces landing on the LZ, AASLT security forces shift to an LZ overwatch mission, ensuring they do not conflict with the air routes entering or exiting the LZ. As the assault forces land on the LZ, AASLT security forces move forward to the next phase line (PL) to conduct a screening mission. Additionally, attack reconnaissance assets maintain the flexibility to execute on-call CCAs, as needed.

4-28. Security assets must maintain communications with the FS elements for immediate suppression missions.

LOADING AND STAGING PLANS (PICKUP ZONE OPERATIONS)

4-29. The loading and staging plans, although two separate plans, are incorporated into PZ operations. This is a collaborative effort between infantry and aviation elements. A PZ run to standard is the first essential step to any AASLT operation. Its success is paramount to the success on the LZ and the follow-on GTP. Factors that must be considered when developing the loading and staging plans include defining responsibilities for providing PZ control, crisis action teams, load inspection teams, hookup teams, security forces, and PZ rehearsal schedules.

4-30. The UH-60 PZ is known as the light PZ, and the CH-47 PZ is known as the heavy PZ. Both PZs stage and load troops and slingloaded vehicles, equipment, and supplies. During BCT level AASLTs, at least one light PZ and one heavy PZ is designated.

4-31. Consider the following when selecting and setting up a PZ:

- Choose PZs by leader's reconnaissance, aerial imagery, and updated maps.
- Consider security, size, and simplicity.
- Separate UH-60 (light) and CH-47 (heavy) PZs.
- Remove or mark obstacles.
- Consider dust and debris in the vicinity of individual loads and aircraft landing points.
- Consider cover when choosing troop entry and staging areas.
- Consider vehicle entry and staging routes/point for cover, and restrictive terrain.
- Request infantry, MP, and ADA support for security.
- Limit the depth of the PZ by establishing suitable vehicle placement locations (plan on a standard 5 x UH-60 light serials and 4 x CH-47 heavy serials).
- Identify the location of light and heavy PZ control elements. Collocate the light or heavy PZ control with the BCT PZ control when possible.

4-32. The PZ control element is responsible for all actions on its PZ. Some considerations include the following:

- The control element should be emplaced where it can best C2 and overwatch PZ operations (locate on high ground to maximize radio reception and visibility). Use Avenger forward-looking infrared (FLIR) to overwatch night PZ operations.
- The element must ensure positive communications are established with the C2 aircraft (AATFC and AMC) and each serial commander. Based on the size of the AASLT and distance from PZ to LZ, the AATFC and AMC will use their own C2 aircraft, one in a restricted operations zone (ROZ) around the PZ and one in a ROZ around the LZ and GTP objective. If line-of-site communications (FM / UHF) is not possible, tactical satellite (TACSAT) should be the primary means of communication.
- The element must understand and be ready to execute the bump plan.
- The element must employ the entire PZ chain of action/command.
- Generally, the supporting effort's infantry battalion executive officer (XO) or RSTA squadron XO is the light PZCO and may also be assisted by the assault helicopter LNO.
- Generally, the fires battalion's XO is the heavy PZCO assisted by the fires battalion HSB commander. The heavy PZCO may also be assisted by the heavy helicopter LNO.
- For a BCT level AASLT, the BCT executive officer is responsible for overall PZ operations and directs the efforts of the light and heavy PZCOs. Typically, to assist in the operation, the aviation brigade will collocate a TAC with the PZ control element(s).
- Brigade PZ control erects the PZ update tent and runs the PZ rehearsal assisted by the light and heavy PZCOs and aviation LNOs.
- Brigade PZ control serves as the C2 node for all PZs. It locates where it can best C2 all forces.
- The element must stage CH-47D CASEVAC and spare aircraft on the heavy PZ. Stage spare, C2, and MEDEVAC UH-60s as close as possible to BCT PZ control.
- The element must have one cargo truck (LMTV type) with necessary security for EPW evacuation.
- FLA and trauma treatment team must be available to assist in CASEVAC from backhauling aircraft and to facilitate MEDEVAC to a Level III treatment facility as necessary.
- The element must have one cargo truck (LMTV-type) configured for ground CASEVAC from backhauling aircraft.
- The element must maintain PZ local security at all times.

4-33. The PZ rehearsal is conducted after the AMB and prior to the AASLT mission. The rehearsal is a joint light/heavy PZ rehearsal run by the BCT executive officer and subordinate PZCOs in conjunction with the aviation brigade. The intent is to have all personnel, involved in running the PZs, provide input and suggestions on the execution. Everything will be rehearsed, from the set up to the clearing of the PZ. Discussion will be centered on the following topics:

- Communications.
- Aircraft arrival.
- Staging.
- PZ update brief.
- Hookup and CAT teams.
- Actions for bump plan.

SECTION III – ABORT CRITERIA

4-34. The methodology used in executing an AASLT involves setting conditions, providing suppressive fires immediately before and on landing, and continuously monitoring abort criteria from beginning to end. The same criteria and process applies to most aviation missions, thus they can be adapted for use with other missions.

4-35. Abort criteria reflects a change of one or more conditions which seriously threatens mission success. As such, they are the commander's critical information requirements (CCIR) relating to any ongoing AASLT operation and require command consideration regarding mission continuation. It is important that the AMB clearly defines abort criteria and the AATFC monitor them throughout the operation.

4-36. Planners establish proposed abort criteria to assist commanders in deciding when success of the operation is no longer probable. The AATFC retains authority for abort decisions.

4-37. Given the continued advantage of using the primary LZ over the alternate, delaying (en route or at PZ) is preferable to diverting. The AATFC must evaluate the risk of such a delay in light of time, fuel, enemy, and other METT-TC considerations. If an abort criterion is "met," a decision sequence is used prior to aborting the mission. The three options are—

- Delay. If time is available to set the conditions, a mission will be delayed to correct a circumstance that would otherwise abort a mission.
- Divert. If time is not available or a delay will not correct an abort criteria, the TF may execute a divert contingency. Examples include using alternate flight routes, LZs, or objectives.
- Abort. If an abort criterion exists and a delay or diversion to the mission will not correct it, the mission can be aborted by the AATFC.

4-38. There are two types of aborts:

- Lift. A lift is aborted when it reaches an aborting criterion. The mission itself is not aborted, only that lift.
- Mission. A mission is aborted when an abort criterion exists for the entire mission, and the AATFC decides to abort.

4-39. The following paragraphs discuss the six factors considered when determining abort criteria for AASLT missions.

WEATHER

4-40. All AASLT operations have one thing in common; AASLT forces maneuver on the battlefield using the firepower, mobility, and total integration of helicopter assets. Adverse weather conditions make flying unsafe and degrade the effectiveness of the helicopters' organic weapon systems. Ambient temperature conditions also must be favorable for AH-64 aircraft to support the mission. Army regulation (AR) 95-1 sets the minimum weather conditions, stated as a ceiling and visibility, for certain types of helicopter missions over certain types of terrain. Weather conditions must be at or above minimums for the entire time aircraft are flying, and over the entire area in which they will operate, unless waived by the division CG or higher due to criticality of a specific combat operation.

AIRCRAFT AVAILABILITY

4-41. The GTP for an AASLT operation depends on the rapid massing of combat power, at the critical place and time, by helicopters. Aviation battalions set standard fully mission capable (FMC) rates for planning purposes. If actual FMC rates fall below the planning figure, the AATF will be unable to build its combat power as quickly as planned. Abort criteria, in terms of aircraft, are set to inform the AATFC when overwhelming combat power may not be achieved.

TIME

4-42. Time refers most particularly to daylight and darkness. A significant advantage is gained over most military forces in the world by operating at night. Unsophisticated AD systems rely on visual target tracking and acquisition. Other types of combat power, such as AC-130 gunship support, are vulnerable during daylight hours. Abort criteria, in terms of takeoff times, are set to ensure that aircraft are in hostile territory under the cover of darkness. Abort criteria are also made to prevent long delays, which lead to increased fatigue in Soldiers and may exceed the fighter management cycle of the pilots.

MISSION ESSENTIAL COMBAT POWER

4-43. AASLT mission planners use doctrine and experience to determine the minimum combat power, including infantry, artillery, and attack reconnaissance helicopters as well as other assets necessary to ensure mission success. Abort criteria are used to ensure that friendly forces have the required combat ratio for the operation.

MISSION CRITICALITY

4-44. BCT AASLT operations are often conducted as part of a division or joint task force (JTF) attack. Thus, the success of other units and future operations may depend on the seizing of the AASLT objective. Therefore, some AASLT operations may proceed despite the presence of circumstances that would normally abort the mission.

ENEMY

4-45. Certain types of enemy activity, especially along flight routes or in the vicinity of LZs or objectives, may abort an AASLT mission. Abort criteria are usually stated in terms of the size or type of an enemy unit, the type of enemy equipment, especially AD, and the proximity of the enemy to present or future friendly locations.

SECTION IV – CONDITION SETTING

PURPOSE OF CONDITION SETTING

4-46. Conditions are set for all AASLT operations. Condition setting includes both lethal and nonlethal systems against enemy forces and systems that can affect the air assaulting force. Normally, three days are allocated for condition setting. The threat and ability to assess the impact of condition setting determines the duration. The purpose of condition setting is to limit and/or mitigate risk to an acceptable level. The same criteria and process apply to most aviation missions, thus they can be adapted for use with other missions.

4-47. BCT commanders must have adequate information about their own units and those units working with them. There must also be some assurance about terrain and weather and a varying degree of certainty about the enemy. Once the BCT commander knows the situation (and can recognize what is also unknown), the combined arms forces can be applied to conduct terrain reconnaissance, check weather, and find and attack the enemy. Throughout this process, information must be verified and reverified so the BCT can better understand the conditions discussed above as well as how their actions are affecting those conditions.

4-48. Condition setting is a process that spans echelons from joint theater intelligence assets to an Apache team. All levels of command are involved in setting conditions. Condition setting follows the decide, detect, deliver, and assess (D3A) targeting process. In this iterative process of setting conditions, unacceptable risks can be negated until final conditions are acceptable to launch the AASLT.

4-49. The exact conditions to be set are determined by METT-TC as is the degree of risk the commander is willing to accept with regard to each condition. The process starts with a standard checklist as forces are planned and applied to determine what is known and how specific actions will affect the equation. When setting conditions, four factors should be kept in mind:

- The orderly process should not be mistaken for certainty of calculations and routes. Professional judgment must be applied.
- Completing the checklist does not equal setting conditions. Once the information is known, it must be used. Use the checklist as a periodic evaluation tool, not as a one-time “GO/NO-GO” drill.
- BDA of enemy forces and capabilities is not easy. In weighing the validity of BDA projections, it is important to balance confirmed intelligence against friendly combat power applied. More

combat power is usually a good hedge against uncertain BDA. In the end, BDA is too important to leave to the S2/Assistant Chief of Staff–Intelligence (G2) community alone; the commander must assume responsibility for making the final decision.

- Remember, each mission into hostile airspace is planned and resourced as a combined arms combat operation.

CONDITIONS CHECKS

4-50. The conditions for the AASLT must continuously be checked. It is important to consider the latency of the information when presenting it to the commander.

4-51. For a BCT AASLT, there is a series of division conditions checks as the preliminary operations continue, and a supporting series of BCT conditions checks. These are conducted in the applicable CPs. All warfighting functions staff members participate. Brigade and division LNOs attend each other’s conditions checks, when possible in person, or by video teleconference (VTC)/conference call when necessary.

4-52. The final conditions check is held near the AATF’s PZ control CP. It always includes a review of the latest friendly and enemy situation, and information on terrain and weather.

4-53. The standard conditions check slide set depicts the conditions that must be considered and evaluated, if applicable, to launch an AASLT. A NO-GO condition indicates a situation that places the mission at an extremely high potential of failure or is an excessive risk to Soldiers’ lives and equipment. Based on METT-TC, other conditions should be included that are deemed to have significant impact on the mission.

4-54. Table 4-2 depicts the areas in which conditions must be set. Appendix D provides the detailed checklist by warfighting functions for the GO/NO-GO decision.

Table 4-2. Air assault conditions check

Condition	Set: Yes/No
Weather	
Warfighting function check	
Intelligence	
Maneuver	
FS	
Space	
AD / airspace	
Mobility / countermobility / survivability	
CSS	
C2	
Risk management	
Recommendation	

Chapter 5

Aviation Support Operations

This chapter addresses lift aircraft combat and CS missions. In FF terms, these missions are considered maneuver and maneuver support missions. A detailed discussion of each is found in FM 1-113.

SECTION I – ARMY AIRBORNE COMMAND AND CONTROL SYSTEM

5-1. The A2C2S, a UH-60-based package, represents a significant enhancement to the commander's ability to C2 forces. The A2C2S has five operational roles. They include—

- BCOTM platform.
- Ground tactical command post (TAC CP).
- Jump TOC.
- Early entry CP.
- First responder during national disasters.

5-2. On-board communications linkages allow the commander to be continuously in contact with committed forces. This permits the commander to be untethered to a static operations center, maintain SU, issue and receive fragmentary orders (FRAGOs) with graphics, synchronize fires and maneuver, and extend the coverage throughout the entire battlespace. A2C2Ss are organic to the CAC of the GSAB. Appendix H has more information on A2C2S, and a detailed discussion of A2C2S is found in FM 3-04.111.

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SECTION II – CASUALTY EVACUATION/MEDICAL EVACUATION

CASUALTY EVACUATION

5-3. CASEVAC is the use of standard mission aircraft to move the wounded when there are not enough MEDEVAC assets. CASEVAC aircraft and crews—

- Do not include medical personnel or equipment.
- Are not able to provide en route medical care.
- Are not protected under the Geneva Convention.

5-4. Both MEDEVAC and CASEVAC are planned for every operation. The CH-47 can transport up to 24 litter patients, 31 ambulatory patients or some combination thereof. The UH-60 can carry four or six litters, depending on seating configuration. Utility and heavy helicopter units conduct CASEVAC operations when medical aircraft are insufficient or not readily available.

5-5. Evacuation of casualties is the responsibility of the health service support (HSS) system. Air evacuation is the preferred method of evacuation of seriously wounded and ill Soldiers.

MEDICAL EVACUATION

5-6. The aviation brigade's GSAB has an organic air ambulance company consisting of a company headquarters and four air ambulance platoons with three aircraft each. Air ambulance company assets can collocate with HSS organizations, and the aviation TF or higher to provide air ambulance support throughout the division AO.

5-7. MEDEVAC applies to both air and ground evacuation. All aeromedical evacuation capability is housed in the aviation brigade and provides support to all theater, corps, and division subordinate units. It is important to note that air ambulance assets are responsible for a multitude of implied tasks relative to the continuum of health care with Title 10 of United States Code. These implied tasks include, but are not limited to—

- Evacuation support to JIM operations.
- Transportation of blood and biologicals.
- Movement of key and essential medical personnel, equipment, and supplies.
- Support to civilian population when necessary.

5-8. The speed, range, flexibility, and versatility of aeromedical evacuation permits patients to be moved directly to a medical treatment facility (MTF) best equipped to deal with their condition. The HH-60 is used as the primary dedicated air ambulance and is equipped with medical personnel and equipment that enables en route care of casualties.

MISSION

5-9. The primary mission of the air ambulance company is patient evacuation. The air ambulance company also provides the following:

- Movement of medical personnel and equipment.
- Emergency movement of class VIII, including blood products and biologicals.
- PR support.
- Aerial NEO when directed by applicable commander/authority.
- MEDEVAC support both within the division and external to the division AOR in support of Title 10 of United States Code taskings.

5-10. All MEDEVAC asset use is directed through the aviation brigade, GSAB, or TF TOC as appropriate. Mission coordination between the theater medical command structure and the aviation brigade, GSAB, or TF structure will be required for execution of MEDEVAC missions as it relates to the entire HSS spectrum.

5-11. MEDEVAC missions require two authorizations:

- **Mission authority.** The validation of a medical requirement (casualty, blood/biologicals, emergency medical resupply), establishment of medical priorities (urgent, urgent-surgical, priority, and routine), and recommendation of mission platform (ground or air, if air then either air ambulance or opportunity CASEVAC aircraft) must be in the form of a 9-line MEDEVAC request. A medical officer approves the use of MEDEVAC aircraft for the mission based on medical necessity and asset availability.
- **Launch authority.** The aviation commander considers the collective risk assessment of the mission and determines final mission execution authority or launch authority. The operational aspects related to the collective risk assessment include, but are not limited to, the following:
 - Threat.
 - Rules of engagement (ROE).
 - Weather.
 - Fighter management.

- Escort requirements.
- Overall tactical situation.

5-12. Aeromedical evacuation is a critical capability used across the breadth and depth of the battlefield. Both mission approval authority and aircraft launch authority must be specified by the senior commander with request procedures clearly understood by all subordinate units.

5-13. Recent conflicts indicate that extended distances from point of injury to MTF make en route patient care more important than ever. Effectively trained and competent flight medics are essential for patient stabilization/sustainment over extended distances. Recent conflicts have also indicated the need for armed aerial escort, and often a trail aircraft, during MEDEVAC mission execution.

MEDICAL EVACUATION DURING AIR ASSAULT OPERATIONS

Planning Considerations

5-14. Planning considerations for MEDEVAC during AASLT operations include the following:

- The air ambulance platoon leader should brief the MEDEVAC plan at the AMCMs, AMBs and HSS rehearsal.
- The AATFC's casualty estimate drives how many MEDEVAC aircraft will support AASLTs.
- MEDEVAC aircraft are limited assets and should be scheduled and used accordingly.
- MEDEVAC aircraft should be staged to support an AASLT at the latest possible time (to keep the crew on station for the longest amount of mission hours.) MEDEVAC aircraft should not be placed in the ROZ too early.
- ROZs should only be used to expedite pickup of casualties in long distance AASLT (METT-TC).
- MEDEVAC aircraft support short distance AASLT from the PZ or brigade support area (BSA).
- MEDEVAC routes to Level II or III health care facilities are briefed to all aircrews participating in the AASLT because aircraft conducting the AASLT could be diverted to CASEVAC.
- Casualty collection point (CCP) locations are briefed during the AASLT rehearsal.
- It is necessary to maintain a FARP after the AASLT is completed. MEDEVAC aircraft will still support follow-on ground tactical operations.

Execution

5-15. MEDEVAC and CASEVAC aircraft are normally OPCON to the AATF during AASLT operations. When task organized to the BCT, MEDEVAC aircraft work for the aviation TF or the BAE when aviation TF is not working for the BCT. The AATFC is normally the launch authority, although the AATFC may release this authority to the AMC. The AMC controls the MEDEVAC operation to deconflict airspace. The AMC clears all MEDEVAC/CASEVAC aircraft movements, to include launch and landings, using the air battle net (ABN). (Launch authority may be retained by the AATFC, but the AMC is responsible for execution.) A check should be made, over the combat aviation net (CAN)1, with the AMC before committing MEDEVAC/CASEVAC aircraft into the operational area. MEDEVAC/CASEVAC is requested over the CAN1 net for the duration of the AASLT operation, until the evacuation net is established. This ensures good coordination of fires and airspace. A minimum of two flight/ground medics should fly on each CASEVAC CH-47D (The medical company providing area support normally provides these medics). The following are keys to a successful MEDEVAC or CASEVAC operation:

- Ensuring MEDEVAC or CASEVAC crews are available for AASLT orders, rehearsals, and preparations.
- Sending MEDEVAC aircraft into secure PZs.
- Using lethal and nonlethal SEAD.
- Integrating attack reconnaissance aviation escort and/or PZ overwatch.
- Ensuring terminal guidance into the PZ.

- Ensuring CCPs are planned at each LZ and annotated on the AMBs LZ diagrams.
- Ensuring MEDEVAC crews receive all AASLT OPORDs and aviation support from the AMC.
- Ensuring MEDEVAC can be called for the extraction of injured/downed aircrews, if PR aircraft are unavailable.
- Requesting units mark, secure, and provide aid and litter teams at the PZs. Select LZs that are level and clear of debris (wires, engineer tape, loose equipment) within a 50-meter radius.

Backhaul Planning

5-16. During AASLT planning, the AATF staff and AMC plan the combined use of aerial MEDEVAC and CASEVAC. While assaulting aircraft may backhaul wounded from the PZ, the time required to load and unload casualties could desynchronize the AMT. If possible, separate CASEVAC aircraft should be used. While executing MEDEVAC or CASEVAC during the AASLT, this added factor will almost always cause delays in AASLT flow unless spare aircraft are committed to replace backhaul (CASEVAC) aircraft preventing delays of follow-on lifts. Commitment of spare aircraft limits the effect on insertion forces seeing wounded Soldiers and bloodstains in aircraft.

Backhaul Procedure

- 5-17. The backhaul of casualties during AASLT operations requires the following procedures:
- Radio call goes to C2 aircraft on CAN1. The health service support officer (HSSO) relays the request to AATFC. If the request is approved, the AMC will direct the next serial's last 2 aircraft (per METT-TC), after dropping off personnel, to relocate to the LZ CCP to pick up casualties.
 - All backhauled casualties are taken to the PZ or FARP.
 - Backhaul aircraft with casualties notify PZ control or FARP control that they are inbound with casualties.
 - The last serial of the final lift makes the final CASEVAC pick up of casualties, as required, before the conclusion of the AASLT.

Landing Zone Marking

- 5-18. Following are the preferred methods of marking LZs:
- Day = smoke (do not pop until instructed), panel marker.
 - Night = strobe or chemlight (blue/green not visible under aviation NVG).
- 5-19. Units should consider the following when marking the LZ:
- Keep vehicles and personnel, except signalman, clear of area until instructed otherwise by aircrew. A well marked LZ and inexperienced signalman is better than a poorly marked LZ and experienced signalman.
 - Keep all other light sources away from LZ (they will shut down aviators' NVG), unless instructed otherwise by aircrew.
 - Once aircraft is inbound, the crew makes an estimated time of arrival call. The person on the radio at the site must have visual on the LZ to confirm the signal, if required, or to assist crew in positioning.
 - Once aircraft is landed, keep personnel away from the aircraft, while the medic comes to the patient. The unit must provide personnel to assist in loading the patient on the aircraft (under direction of the medic).
 - Do not evacuate weapons and pyrotechnics (real-world casualties).

Medical Evacuation Request

5-20. Units use the MEDEVAC request format (table 5-1) for requesting support for both air and ground ambulances and for requesting CASEVAC.

Table 5-1. Nine-Line MEDEVAC request format

<i>Line Item</i>	<i>Explanation</i>	<i>Where/How Obtained</i>	<i>Who Provides</i>	<i>Reason</i>
1. Location of pickup site.	Transmit the grid coordinates of the casualty PZ.	Map, global positioning system (GPS), or mission plan OPORD.	Unit leader.	Tells aircrew where to pickup casualties.
2. Radio frequency.	Transmit frequency/call sign of radio at the LZ CCP/casualty PZ.	Signal operation instructions (SOI).	Radio telephone operator (RTO).	Tells aircrew who to contact.
3. Number of casualties by precedence.	Use brevity code to report applicable info: A=Urgent B=Urgent-surgical C=Priority D=Routine E=Convenience	Assessment of casualties.	Medic, combat life saver, unit leader.	Tells the commander controlling aircraft the priority of the request.
4. Special equipment required.	Use the applicable brevity codes: A-None B-Hoist C-Extraction equipment D-Ventilator	From evaluation of patient/situation.	Medic or senior person present.	Required so that equipment can be placed on board the evacuation vehicle prior to the start of the mission.
5. Number of casualties by type.	Report casualties needing litter versus ambulatory: "Litter + Number break, Ambulatory + Number"	Assessment of casualties.	Medic, combat lifesaver, unit leader.	Tells commander how many aircraft in what configuration are required.
6. Security of pickup site (wartime).	N-No enemy troops on area. P-Possibly enemy troops in area (approach with caution). E-Enemy troops in area (approach with caution). X – Enemy troops in area (armed escort required).	Evaluation of enemy contact around PZ.	Unit leader.	Assists the evacuation crew in assessing the situation and determining if assistance is required. More definitive guidance can be furnished to the evacuation vehicle while it is en route.
6. Security of pickup site (peacetime).	Specific information about patient wounds by type (gunshot or shrapnel). Report serious bleeding, along with patient blood type, if known.	Evaluation of patient.	Medic or senior person present.	Assists evacuation personnel in determining treatment and special equipment needed.

Table 5-1. Nine-Line MEDEVAC request format

<i>Line Item</i>	<i>Explanation</i>	<i>Where/How Obtained</i>	<i>Who Provides</i>	<i>Reason</i>
7. Method of marking pickup site.	Use the applicable brevity codes: A-Panels B-Pyrotechnic signal C-Smoke signal D-None E-Other	Based on situation and availability of materials.	Medic or senior person present.	Assists the evacuation crew in identifying the specific location of the pick up. Note that the color of the panels or smoke should not be transmitted until the evacuation vehicle contacts the unit (just prior to its arrival). For security, the crew should identify the color and the unit should verify it.
8. Patient nationality and status.	The number of patients in each category need not be transmitted. Send only the applicable brevity codes: A-U.S. military B-U.S. civilian C-Non-U.S. military D-Non-U.S. civilian E-EPW	From patient	Medic or senior person present	Assists in planning for destination facilities and the need for guards. Unit requesting support should ensure that there is an English-speaking representative at the pickup site.
9. CBRN contamination (when applicable).	Include this line only when applicable. Send the applicable brevity codes: C-Chemical B-Biological R-Radiological N-Nuclear	From situation	Medic or senior person present	Assists in planning for the mission. (Determine which evacuation vehicle will accomplish the mission and when).
9. Terrain description (Peacetime).	Include details of terrain features in and around proposed landing site. If possible, describe relationship of site to prominent terrain feature (lake, mountain, and tower).	From area survey	Personnel at site	Allows evacuation personnel to assess route/avenue of approach into area. Of particular importance if hoist operation is required.
In lines 3 and 5 of the MEDEVAC/CASEVAC request, use the word "break" between each category on line 3, and between litter and ambulatory on line 5.				

HEALTH SERVICE SUPPORT REHEARSAL

5-21. HSS requires its own distinct rehearsal to maximize success. This rehearsal is distinct from the CSS rehearsal. The BCT or infantry battalion XO runs the HSS rehearsal. BCT participants include—

- BAO (may be the PZ control representative).
- Aviation TF representative.
- Air ambulance forward support medical team leader.
- Brigade adjutant (S1)/officer in charge (OIC).
- Brigade surgeon.

- Brigade fires and effects cell (FEC) representative or FA battalion representative.
- BSB logistics operations officer.
- BSB health services support officer.
- BSB medical company commander.
- BSB S2.
- BSB ground ambulance platoon leaders.
- Division medical operations center representative.
- Infantry battalion S1s.
- Infantry battalion medical platoon leaders.

5-22. The rehearsal of the HSS plan includes review of the enemy and friendly situation and C2 relationships. The crew rehearses communications, casualty collection and treatment, evacuation, and the use and manning of MEDEVAC and CASEVAC aircraft for each phase of the AASLT operation using the brigade AASLT execution checklist. Specific points covered include—

- A walk-through of casualty collection from point of injury to CCPs.
- Locations and markings of CCPs.
- Insertion of medical treatment teams.
- Proposed changeover codeword and timing for MEDEVAC requests to shift from CAN1 to the forward medical support company evacuation net. This is planned for the conclusion of the AASLT, but may have to occur earlier if METT-TC demands.
- Transmission of 4- versus 9-line MEDEVAC request format.
- Tracking of casualties and MEDEVAC/CASEVAC missions from the point of injury to MTF.
- Procedures for contacting, manning, and calling forward MEDEVAC/CASEVAC aircraft to include linkup of attack reconnaissance escort and/or LZ overwatch.
- Airspace control, to include PZs, LZs, routes, and SEAD plans. If a ROZ orbit is planned, it will be discussed here.
- Planned location and daytime/nighttime marking of the MEDEVAC pad located near the forward support medical company.
- Post-air assault MEDEVAC/CASEVAC procedures.
- Communications exercise (COMMEX) plan and timings. MEDEVAC/CASEVAC communications will be rehearsed using actual means.
- Litter exchange.
- Class VIII resupply.

SECTION III – AERIAL SUSTAINMENT

LOGISTICS

5-23. Mechanized and infantry BCTs have significantly different needs and requirements. The aviation TF supporting the BCT provides aerial resupply, CSS, or maneuver sustainment based on METT-TC. The BAE assists in this effort by providing information and requirements to the aviation TF as appropriate. The discussion provided here focuses on aerial sustainment of infantry or forced entry BCTs.

BRIGADE LOGISTICS OPERATIONS

5-24. Aviation assets for logistics operations in support of the BCT must be built considering METT-TC and the BCT resupply plan.

5-25. At the beginning of sustainment operations, the BSB support operations officer (SPO) receives support requirements from the BCT logistics officer (S4). This occurs during the logistics meeting that takes place the day before the actual resupply operation. The BCT S4 is responsible for consolidating and prioritizing the support requirements from the subordinate battalion S4s.

5-26. The SPO plans resupply missions for the entire BCT based on input from the BCT S4. The SPO makes the ultimate decision on how best to resupply units based on the situation. The SPO coordinates with BAE to ensure available aircraft are used in a manner that best supports the BCT commander’s plan.

LOGISTICS PAD

5-27. Some units establish a logistics helipad (LOGPAD) in the brigade or division support area (DSA). The LOGPAD often serves as the focal point for aerial resupply missions where internal and external loads can be picked up for delivery to units.

5-28. Battalion S4s direct their support platoon leaders to prepare supplies for slingload operations on the BSB LOGPAD based on guidance from the BCT S4 and the SPO.

AIR MISSION COORDINATION MEETING

5-29. After support requirements have been identified, the SPO conducts an AMCM at the BSB TOC the night before the planned aerial resupply. Attendees include—

- Aviation operations representatives (BAO, S3, or pilots).
- SPO.
- BCT S4.
- LOGPAD OIC.
- Battalion S4s.
- Support platoon leaders.

5-30. The SPO presents the AMB in five-paragraph OPORD format. The LOGPAD OIC provides a PZ sketch of the LOGPAD to the aviation operations representative. The battalion S4s and support platoon leaders also provide LZ sketches to the aviation operations representative for each LZ. The battalion S4s coordinate with their battalion S3s for LZ security. The BSB SPO provides PZ and LZ times to the aviation operations representatives.

5-31. The AMCM produces an operational resupply mission matrix (table 5-2) used to execute the resupply missions. This table can be used as is or reconfigured as needed by the user.

Table 5-2. Resupply mission matrix

<i>Unit</i>	<i>ACFT Type</i>	<i>Cargo</i>	<i>Time</i>	<i>PZ</i>	<i>LZ</i>	<i>Marks</i>	<i>Freq</i>	<i>Call Sign</i>

5-32. Support platoon leaders ensure their resupply loads are prepared on the BSB LOGPAD using their respective unit’s air items. When the resupply aircraft arrive in accordance with the operational matrix coordinated the night before, battalion S4s take control of the hookup crews. The support platoon leaders may fly in the lead aircraft during the resupply missions. This allows the support platoon leaders to coordinate last minute changes at the load dropoff point due to changes in the tactical situation. It also allows the support platoon leaders to coordinate directly with the combat trains and provide terminal guidance to the pilots.

SKETCHES

5-33. At division and BCT level, LOGPAD sketches are developed by the main support battalion (MSB) and BSB and distributed to the supporting aviation S3s for dissemination to their units. All sketches should be kneeboard size and contain, at a minimum, the following information:

- Name.
- Lead touchdown coordinates.

- Markings (such as North American Treaty Organization [NATO] T, swinging chemlight, flashlights with cones).
- PZ control location.
- Numbered pickup points (essential for C2).
- Call sign.
- PZ frequency (FM, frequency hop secure).
- PZ alternate frequency (FM, single channel unsecure).
- Emergency touchdown points.
- Approach/departure headings.
- Go-around direction.

5-34. A2C2 sketches are developed by both the sustainment brigade support operations section and LOGPAD OICs. Sketches should be distributed to support aviation S3s for dissemination to their units. Sketches are kneeboard size and contain a general concept of the flow of air traffic in and out of the DSA and BSAs. These concepts must tie in with the division and BCT A2C2 plan.

PREPARATION

5-35. When possible, conduct a rehearsal of LOGPAD operations, which consists of an actual hook up, load transport, and AAR. Also conduct a fuel spill rehearsal. This consists of a physical inventory of spill kits, a class on spill procedures, and actual rehearsal of these procedures.

5-36. The supporting aviation unit provides aircraft and crews to conduct hookup training on the LOGPAD for personnel who comprise hookup teams. The LOGPAD OICs have overall responsibility for supervising this training.

5-37. The division LOGPAD operates in the DSA and should ideally accommodate four CH-47s simultaneously. As always, safety is paramount; training, rehearsals, communications, coordination, and NCO supervision must mitigate the inherent danger in LOGPAD operations. Consider the following items when establishing a LOGPAD:

- Location to include road networks to and from.
- Security.
- Size. Is there enough usable space?
- Petroleum, oil and lubricants (POL) spill plan with berm for blivet filling and spill kits prepared.
- Can multiple loads be staged on each point?
- Aviation hazards in immediate vicinity (such as wires, poles/antennas, dust).
- Approach and departure headings (do not over-fly tents or TOCs).
- Trafficability of terrain in poor weather.

5-38. The tempo of resupply operations can dramatically impact combat operations. Aircraft use must be optimized. The goal is to maximize the number of turns during each shift. This can only be accomplished through coordination and training.

WET HAWK, FAT HAWK, AND FAT COW OPERATIONS

5-39. A Wet Hawk is a UH-60 that provides fuel to another aircraft from its own internal and external fuel tanks via a micro-forward area refueling equipment (FARE) system. A Fat Hawk is a UH-60 that provides both fuel and ammunition. A Fat Hawk crew can refuel and rearm four OH-58D aircraft in less than 15 minutes without slingloading fuel or ammunition. Normal operations consist of two external stores support systems (ESSSs)-equipped UH-60 aircraft with full crew, three to four POL personnel, a combat lifesaver/medic, security personnel, armament personnel, and armament and refuel equipment to support the mission.

5-40. The CH-47's ERFs, commonly known as Fat Cow, is a modular, interconnected system composed of up to four 600-gallon noncrashworthy tanks, four electrically operated fuel pumps, and a vent system. It

mounts on the left side of the aircraft cargo area; exact placement depends on aircraft center-of-gravity limits. This system provides up to 2,320 gallons to refuel other aircraft. (For a complete discussion of FARP operations see FM 3-04.111.)

DOWNED AIRCRAFT RECOVERY

5-41. The BAE assists the supporting aviation TF in the planning and execution of DART operations in the BCT's AO. A discussion of PR operations, as well as aircraft recovery, evacuation, and BDA is found in FM 3-04.111.

ARTILLERY RAID

5-42. The artillery raid is a high-risk, short-duration mission historically performed by forced entry divisions. It is used to facilitate the attack of HPTs located beyond the range of current friendly artillery positions and/or targets tactically "out of reach" of other available FS or maneuver systems. Detailed planning, accurate fires of sufficient volume, and speed in execution are key to its success. Minimal required equipment and personnel should be taken. The artillery raid is identical to an AASLT in terms of planning and execution. The additional set of extraction of the FS element is normally conducted.

5-43. Both the M119 (105 mm) and the M198 (155 mm) howitzers can be transported in an artillery raid. While the available aircraft may limit some of the configuration choices, the battery commander normally determines the most suitable configuration based on METT-TC and in coordination with the artillery S3 and the AMC. Further information on artillery raids can be found in FM 1-113.

AERIAL MINE DELIVERY

5-44. Mine delivery operations are generally controlled at the division or corps level. Aerial mine delivery is an assault helicopter mission that may be conducted by AHB assets at either level. The aviation brigade has the capability, with proper coordination, to support a BCT or division mission anywhere in the AO. Further information on aerial mine delivery can be found in FM 1-113.

Chapter 6

Unmanned Aircraft System

Although the BAEs are not the primary/sole planners for UAS missions, they must have a thorough understanding of how UAS operations support the BCT commanders and their staffs as they plan, coordinate, and execute operations. UAS increase the SU of commanders through intelligence, surveillance, and reconnaissance (ISR). Armed UASs provide BCT commanders direct fire capabilities to execute the close fight and influence shaping of the battlefield. UASs can perform enhanced targeting through acquisition, detection, designation, suppression, and destruction of enemy targets as well as BDA. Other UAS missions support the BCT commander by contributing to the effective TACOPS of subordinate units. The Use of ground control stations (GCSs) with common data links, remote video terminals (RVTs), portable GCSs, and Army helicopter/A2C2S/unmanned aircraft (UA) teaming will enhance the COP and therefore SU, helping to set the conditions for the current force and FF's success. For more information on UASs, refer to FMI 3-04.155.

SECTION I – GENERAL

UNMANNED AIRCRAFT SYSTEM TYPES

Contents	
Section I – General 6-1 Section II – RQ-1L IGNAT Organization ... 6-6 Section III – RQ-5/MQ-5 Hunter Aerial Reconnaissance Company 6-6	Section IV – RQ-7 Shadow Aerial Reconnaissance Platoon 6-7 Section V – RQ-11 Raven Team 6-8 Section VI – Duty Descriptions and Responsibilities 6-9

- 6-1. There are four different types of Army UASs:
- Improved-Gnat (IGNAT) (RQ-1L).
 - Hunter (RQ-5/MQ-5).
 - Shadow (RQ-7).
 - Raven (RQ-11).

ORGANIZATION

6-2. Each UAS organization is diverse in form and function with different capabilities and limitations based upon the specific echelon and the UASs they employ (see appendix F). Each UAS organization is structured to effectively conduct reconnaissance, surveillance, TA, attack (when equipped), and BDA.

MISSION

6-3. The primary mission of UASs is to perform aerial reconnaissance using an electro-optical (EO)/IR mission payload. UASs are capable of locating and recognizing major enemy forces, moving vehicles, weapons systems, and other targets that contrast with their surroundings. UASs that employ synthetic aperture radar and ground moving target indicator (GMTI) sensors will have enhanced ability. In addition, UASs are capable of locating and confirming the position of friendly forces and the presence of noncombatant civilians. Conversely, it is difficult to visually locate well-camouflaged enemy forces that blend in with their surroundings. UAS capabilities are enhanced when employed as part of an overall collection plan integrated with and cued by other intelligence systems in a synchronized effort to support the BCT's needs.

6-4. Detailed UAS unit missions are listed below. Many secondary missions exist; some are dedicated missions and others occur in conjunction with the primary reconnaissance, surveillance, and TA missions.

RECONNAISSANCE

6-5. Reconnaissance missions other than the standard route, zone, and area include—

- Intelligence gathering.
- Surveillance.
- BDA.
- CBRN detection (future capability).
- Mine detection (future capability).

ATTACK

6-6. Attack missions include—

- Direct attack (lethal and nonlethal) using onboard AV resources (when equipped).
- Designation of a target using onboard AV subsystem (when equipped).

UTILITY

6-7. Utility missions include—

- Signal processing and/or propagation (future capability).
- Delivery of supplies (emergency, long-range surveillance detachment [LRSD], SOF, and so forth.) (future capability).
- PSYOP (leaflet drops, and so forth) (future capability).
- Meteorological surveys (future capability).
- Multimode (combination of two or more of the above) (future capability).

FUNDAMENTALS

6-8. UASs play an integral role in the accomplishment of each of the warfighting functions. The roles are discussed in depth for each of the following in FMI 3-04.155—

- Intelligence.
- Maneuver.
- FS.
- AD.
- Mobility/countermobility/survivability.

- CSS.
 - C2.
- 6-9. UAS organizations can operate under the following conditions—
- As a subordinate unit assigned, attached, OPCON, or tactical control (TACON) to another service.
 - Near ground forces.
 - Day or night.
 - Limited visibility.
 - CBRN (avoid intentional contamination).
 - In environments such as desert, mountainous terrain, rolling hills, dense forest, jungle, plains, and urban areas.
 - All operational environments (such as contiguous, noncontiguous, linear, nonlinear, and asymmetrical).

ECHELONS OF SUPPORT

6-10. UAS provide three echelons of support that include below BCT, BCT, and division and above level.

BELOW BRIGADE COMBAT TEAM

6-11. UAS in this echelon, primarily the Raven, are characterized by close-range (less than 25 kilometers), short duration missions (1 to 2 hours), operating below the coordinating altitude and thoroughly integrated with the ground forces normally in a DS role (figure 6-1).

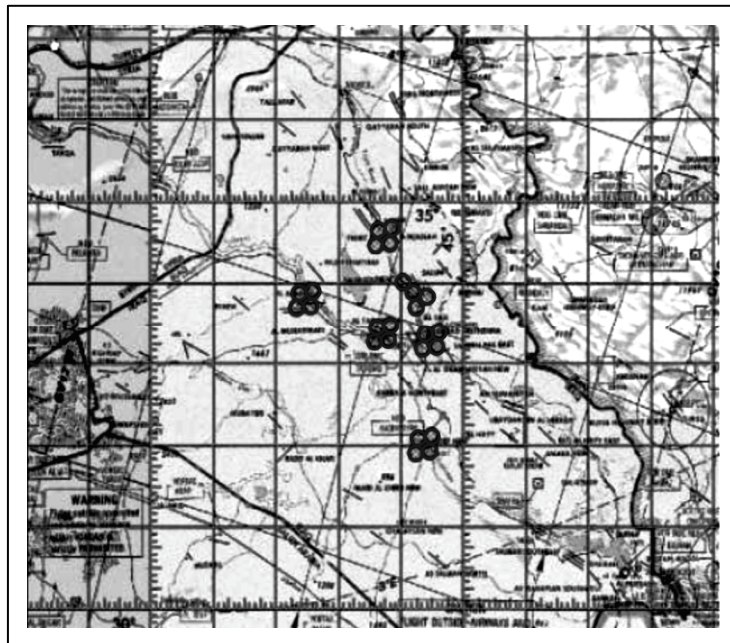


Figure 6-1. Below BCT coverage

BRIGADE COMBAT TEAM - DIVISION

6-12. The RQ-7 Shadow is organic to the BCT. Increasing in complexity (GS and/or DS) with longer duration (4+ hours) and range (less than 125 kilometers), the RQ-7 Shadow operates above the coordinating altitude and provides coverage for multiple sectors and ground units (figure 6-2).

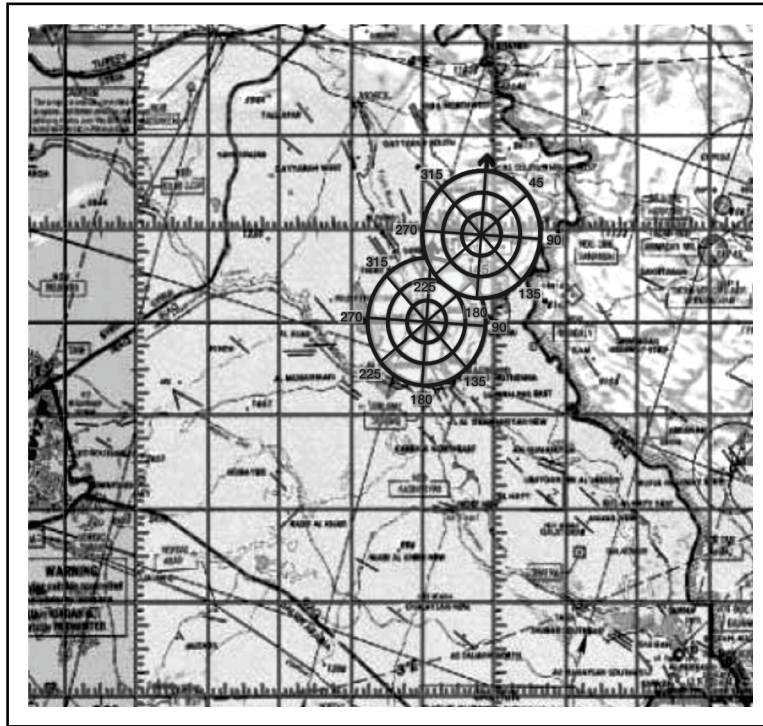


Figure 6-2. BCT to division coverage

DIVISION AND ABOVE

6-13. Medium-endurance (16+ hours), extended-range (200+ kilometers) UASs conduct operations at this echelon similarly to the previous level. Primarily in a GS role, these larger platforms bring multiple payloads (RQ-1L Army IGNAT) and strike capability (MQ-5B Hunter and RQ-1L Army IGNAT) to their supported units. The pie shaped circles in figure 6-3 and figure 6-4 depict examples of the different data links present; line of sight (LOS), and non-line of sight (NLOS) for the satellite communications (SATCOM)/KuBand. The IGNAT is currently being upgraded with SATCOM capability.

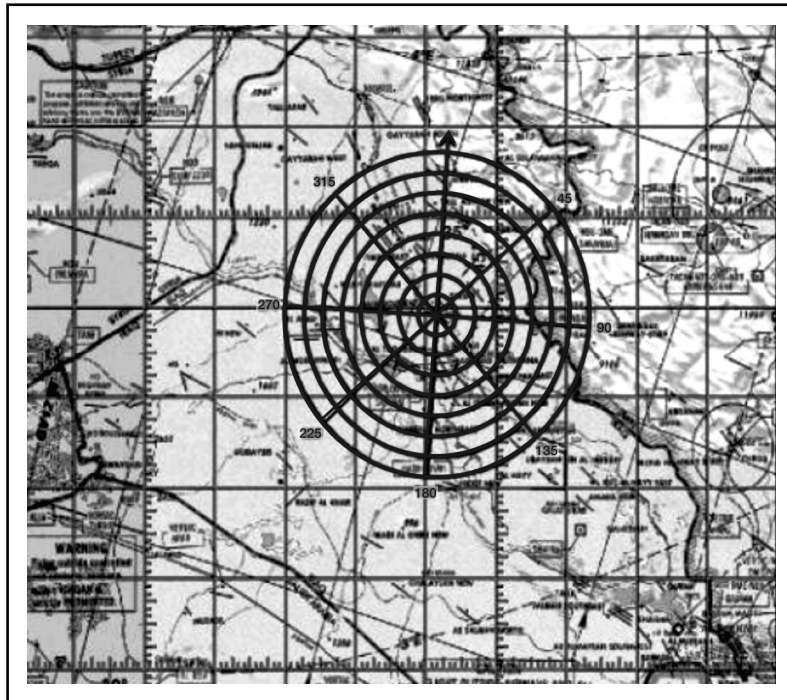


Figure 6-3. Division and above LOS coverage

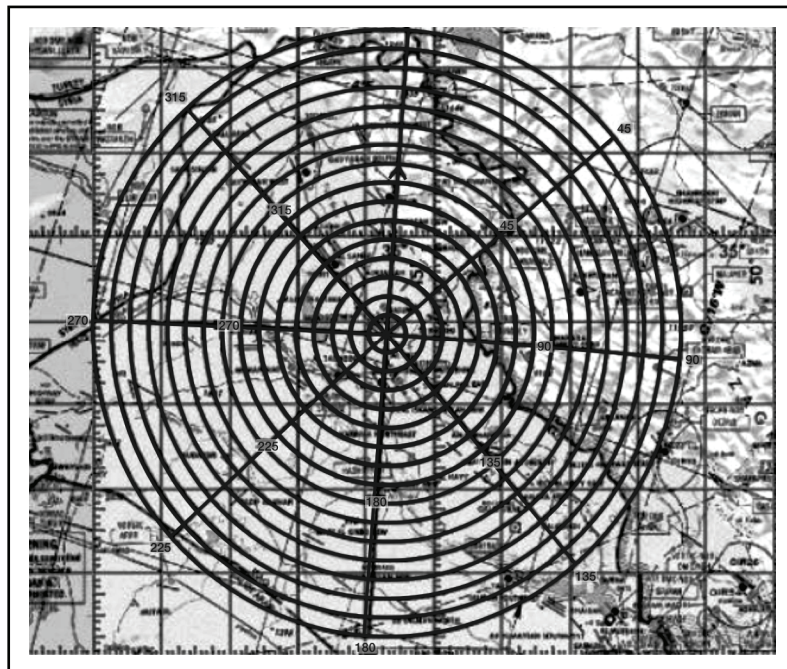


Figure 6-4. Division and above NLOS coverage

SECTION II – RQ-1L IGNAT ORGANIZATION

ORGANIZATION

6-14. The IGNAT organization has—

- Three UAs.
- Two antennas.
- One GCS.
- Ground support equipment.

MISSION

6-15. The mission of the IGNAT unit is to provide a real-time, responsive, day-and-night imagery surveillance and reconnaissance capability to support SA, TA, and BDA.

FUNDAMENTALS

6-16. The IGNAT unit operates at the corps level but may be allocated to support a subordinate division's scheme of maneuver by facilitating ground maneuver operations. The IGNAT AV is deployed to conduct R&S missions to protect friendly forces. The IGNAT unit can perform screen missions and participate in guard or cover missions. The IGNAT AV is capable of moving quickly (160 knots dash speed) to provide reconnaissance and security, and/or employ indirect fires. IGNAT can perform real-time BDA.

SECTION III – RQ-5/MQ-5 HUNTER AERIAL RECONNAISSANCE COMPANY

ORGANIZATION

6-17. The aerial reconnaissance company (figure 6-5) organization consists of—

- Forty-eight military (4/2/42) and five contractor logistic support (CLS) personnel.
- Headquarters platoon.
- Aerial reconnaissance support section.
- Two aerial reconnaissance platoons.
- Maintenance section (PC, armament personnel, and CLS).
- Six medium altitude long-endurance (MALE) UAs (currently MQ-5B Hunter).
- Three vehicle-mounted GCSs with trailer-mounted generators.
- Two GDTs.
- Two 5-ton trucks with trailers
- One 5-ton truck with crane and fuel trailer
- One 5-ton truck with tank and pump unit.
- Six high-mobility multipurpose wheeled vehicles (HMMWV) and trailers.

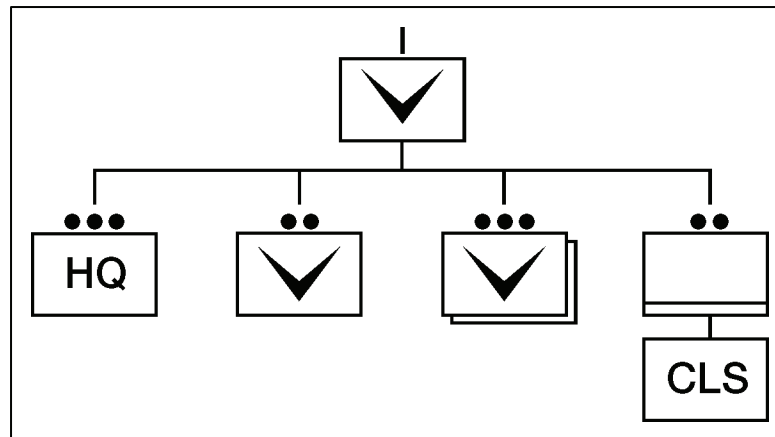


Figure 6-5. Aerial reconnaissance company

MISSION

6-18. The mission of the aerial reconnaissance company is to provide a real-time, responsive, day-and-night imagery surveillance and reconnaissance capability to support SU, TA, attack targets (autonomous and/or remote engagements), and BDA.

FUNDAMENTALS

6-19. The aerial reconnaissance company operates at the corps level, but may be allocated to support a subordinate unit's scheme of maneuver by facilitating ground maneuver operations. Aerial reconnaissance company UAs are deployed to conduct the same breadth of missions as the Shadow platoons. The additional capability gained through armed UAs allows the company to perform screen missions and participate in guard or cover missions either as an aerial fire controller or in the direct attack role.

6-20. The modular organization of the aerial reconnaissance company facilitates the integration of nonstandard contractor-operated UASs (such as the RQ-1L IGNAT) or additional detachments of other service UASs.

6-21. The aerial reconnaissance company is not capable of independent operations. It requires external administrative and logistical (A&L) support and has minimal self-defense capability.

SECTION IV – RQ-7 SHADOW AERIAL RECONNAISSANCE PLATOON

ORGANIZATION

6-22. The aerial reconnaissance platoon consists of (figure 6-6)—

- Twenty-two military personnel (1/1/20).
- Maintenance section and CLS.
- Flight operations section.
- Four UAs (currently RQ-7 Shadow).
- Four RVTs.
- Two vehicle-mounted GCSs.
- Two personnel/equipment transport vehicles with one equipment trailer.

- One vehicle-mounted air vehicle transport (AVT) with launcher trailer.
- Two tactical automated landing systems (TALSs).
- One vehicle-mounted mobile maintenance facility with maintenance trailer.

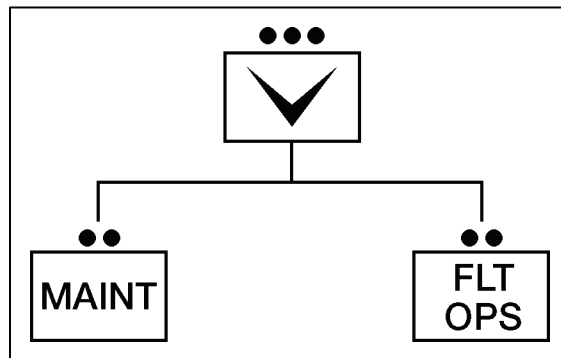


Figure 6-6. Shadow platoon

MISSION

6-23. The mission of the aerial reconnaissance platoon is to provide a real-time, responsive, day-and-night imagery surveillance and reconnaissance capability to support SA, TA, and BDA to brigade and below units.

FUNDAMENTALS

6-24. The aerial reconnaissance platoon operates at the brigade level (organized under squadron level within the SBCT, but may be allocated to support a subordinate battalion). Shadow UASs are deployed to conduct R&S missions to protect friendly forces. The aerial reconnaissance platoon can perform screen missions and participate in guard or cover missions. The UAS provides reconnaissance and security and/or employs indirect fires. UASs can perform near real-time BDA.

SECTION V – RQ-11 RAVEN TEAM

ORGANIZATION

- 6-25. A Raven team typically consists of (figure 6-7)—
- Two operators from the unit to which the equipment is assigned.
 - Three UAs.
 - Three payload types—
 - Three EO front and side look.
 - Two IR front look.
 - Two IR side look.
 - One ground control unit (GCU).
 - RVT.
 - Batteries (single use and rechargeable).
 - Carry/protective cases.

- Battery charger/power supply.
- Field maintenance kit.
- Spares and repair parts.

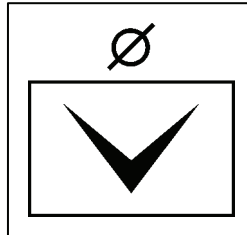


Figure 6-7. Raven team

MISSION

6-26. The mission of the Raven team is to provide R&S and remote monitoring, day-and-night imagery to support SA and TA, and BDA.

FUNDAMENTALS

6-27. The Raven team operates at the company level. Raven UAs are deployed to conduct R&S missions and convoy security to protect friendly forces. The Raven AV travels at 25 to 60 knots to provide information on enemy location, disposition, activity, and/or employ indirect fires. Ravens can perform real time BDA.

SECTION VI – DUTY DESCRIPTIONS AND RESPONSIBILITIES

6-28. The personnel listed below perform crucial roles in the preparation, execution, and support of UAS operations. Not all UAS units have all of the military occupational specialties (MOSs) listed below. (See FMI 3-04.155 for a detailed description of each position.)

- Company commander.
- First sergeant (1SG).
- Platoon leader.
- UAS operations officer (MOS 350U/150U).
- AV operator (MOS 96U/15W).
- External pilot (RQ-5/MQ-5 Hunter only).
- Raven UAS operator (MOS nondescript).

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Chapter 7

Aviation Related Missions

This chapter briefly discusses missions that directly relate to aviation operations. While the BCT Commander will not request FARP or ATS operations, it is extremely important for the BAE to ensure these missions are facilitated or support for other missions such as reconnaissance or security could be adversely affected. The BAE ensures that all aviation related missions are fused to support BCT operations.

FORWARD ARMING AND REFUELING POINT

7-1. Aviation FARPs are generally transitory and support specific mission objectives. The BAE assists the aviation TF and the BCT by coordinating FARP locations and FARP task organizations according to the nature and scope of the mission.

7-2. The quality of fuel used in ground vehicles does not have to meet the same standards as that used to refuel aircraft. Any fueling systems used to refuel aviation aircraft must be certified for aviation service by having a fuel sample validated. Each vehicle/system will submit a fuel sample to the class III bulk fuel point to be sent to the petroleum field office laboratory for analysis. The certification of the system is valid only for 30 days.

7-3. In addition to the laboratory test for solid contaminants, a local aqua-glow test must be conducted to determine the amount of water in the fuel. An aqua-glow test must be conducted daily before refueling aircraft and anytime filter elements or fuel sources are changed. The maximum allowable water contamination is ten parts per million (ppm). For a comprehensive discussion of FARP operations, see FM 3-04.111, appendix H.

AIR TRAFFIC SERVICES

7-4. ATS assets provide A2C2 and ATS support enabling commanders to orchestrate the air and ground maneuver, lethal and nonlethal fires, and ADs to conduct decisive operations. ATS support is provided through automated airspace planning and en route services, terminal control tower, precision recovery, and airfield operations services throughout the BCT and division AO. These assets provide ATS and A2C2 support, through the TAIS, throughout the corps AO. TAIS is the A2C2 node of the Army battle command system (ABCS). (For more information on TAIS, see appendix M.) A2C2 cells organic to the battle staff at brigade and above will assist in deconflicting, synchronizing, and integrating all airspace requirements throughout the joint battlespace, including UASs. A2C2 cells will develop and maintain a real-time single-integrated air picture (SIAP) through multipath communications with all members of the air-ground team, allowing unhindered simultaneous access to the airspace across the full spectrum of operations.

7-5. At the aviation brigade level the initial ATS capability is found in the GSAB of the aviation brigade. The company will conduct terminal ATS operations, establish AICs as required, provide ATS at temporary LZs and begin terminal instrument procedures (TERP).

7-6. The ATS company consists of a company headquarters with a communication and navigation maintenance section and a ground maintenance section, a terminal control platoon with a tactical tower section and a ground control approach radar section, and an information services platoon with two tactical tower teams and an AIC. The GSAB's ATS company supports the aviation brigade with one instrumented airfield with en route, terminal, and airspace information services.

PERSONNEL RECOVERY

7-7. Joint doctrine defines PR to include combat search and rescue (CSAR); search and rescue (SAR); survival, evasion, resistance, and escape (SERE); and coordination of forcible recovery operations. All component commanders are responsible for establishing and coordinating recovery operations. The corps has additional communications linkages and detection capabilities, which may enable the rescue operation to be performed more safely and efficiently within the constraints of METT-TC. The corps will then augment subordinate elements with the required assets to accomplish the mission.

7-8. Corps PR operations are conducted primarily in support of their own operations (downed Army aircrew recovery) and provide mutual PR support at both the intra- and inter-service levels as required. Additionally, PR contingencies are incorporated into all mission plans. Special instructions (SPINS) are issued for each plan and the brigade will prepare to generate PR support requests. (Further information can be found in FM 3-04.111.)

REAR AREA OPERATIONS

7-9. Maneuver sustainment and support operations are normally conducted in rear areas. There may or may not be ground maneuver forces in the rear area. Aviation units provide a flexible mix of capabilities to effectively handle the full range of threats to the rear area. Attack reconnaissance and lift capabilities provide agile, responsive support of rear area operations and may be performed by aviation units above the BCT level.

HOMELAND SECURITY MISSIONS

7-10. Homeland security includes defense against terrorist threats or attacks and assistance to public authorities and the populace during emergencies.

THREAT DEFENSE

7-11. Threat defense includes acting against terrorism, rebellion, foreign aggression, and serious civil disturbance. These are likely to be conducted as joint operations because of potential targets, such as—

- Power projection capabilities.
- C2 systems.
- Population centers.
- Space-based systems.
- Information systems.
- Computer networks.
- Communications.
- Aerial and seaports of embarkation.
- Mobilization capabilities and facilities.
- Strategic military installations.
- Military energy sources.
- Key military transportation nodes.
- ISR capabilities.

HUMANITARIAN MISSIONS

7-12. Humanitarian missions include support of disaster relief, rescue of stranded personnel in a nontactical environment, and disaster presence patrols. During these missions, the greatest threat may come from the natural environment itself. Humanitarian missions should be conducted to the same detail as tactical missions.

Chapter 8

Predeployment/Deployment/Arrival In-Theater Operations

This chapter briefly discusses missions that directly relate to aviation operations. While the BCT commander will not request FARP or ATS operations, it is extremely important for the BAE to ensure these missions are facilitated or supported for other missions such as reconnaissance or security could be adversely affected. The BAE ensures that all aviation related missions are fused to support BCT operations.

SECTION I – PREDEPLOYMENT

8-1. The BAE must be ready to advise and assist the BCT staff in preparing aviation elements assigned to the BCT for deployment. Within the BCT staff, BAE personnel will be the only staff members who are familiar with the unique requirements necessary to successfully deploy aviation assets.

8-2. BAE personnel should coordinate with the BCT unit movement officer (UMO) and the UMOs of subordinate aviation elements. The BAO must reinforce to the BCT logisticians that aircraft require more preparation for transport than do most ground vehicles, so additional time is required to get aircraft mission-ready both in preparing to load and after offloading at the point of debarkation (POD).

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PLANNING AND PREPARATION

8-3. Successful movement depends on detailed planning, the pre-preparation of OPLANs, SOPs for deployment by various methods, and the identification, training, and validation of deployment and load teams.

8-4. Time permitting, advance parties are sent to both the POE and PODs upon receiving the WARNO. This aids in preparation for embarkation and debarkation and provides C2 and intelligence.

8-5. An advance party is the first team of unit representatives sent to the theater of operations. Aviation TF advance parties normally consist of the following:

- Key leaders.
- Instructor pilots (IPs).
- Maintenance test pilots (MTPs).
- Maintenance team.
- Reception team.
- Security force.

8-6. The advance party size depends on the deploying force. They will meet the main body personnel and equipment upon arrival at the POD.

8-7. All aviation elements require local area orientations, test flights, or other requirements not executed in advance as part of the RSOI process. If units are already present in the country, advance party personnel

should deploy as early as possible to train with those units. The advance party must be briefed on the theater training requirements and the plan for execution, so it can identify and coordinate required external support as necessary.

UNIT MOVEMENT INFORMATION

8-8. It is important to remember that aviation units have significant numbers of ground vehicles in addition to aircraft, so planning must include the movement of these vehicles.

8-9. It is not advisable to move helicopters by rail. They should be ferried to the seaport of embarkation (SPOE)/aerial port of embarkation (APOE) before loading onto aircraft or ships.

8-10. The UMO prepares and maintains unit movement plans. The UMO maintains contact with higher headquarters and coordinates logistical support as well as other support activities related to unit movement. The UMO is also responsible for updating and submitting unit movement data (UMD) as required by major command-Army (MACOM) and ASCC. The UMO's duties also include the following:

- Prepares and maintains the automated unit equipment list (AUEL) and other documentation needed for unit movements.
- Supervises the preparation and execution of unit load plans.
- Maintains approved copies of all unit load plans.
- Establishes and trains the unit loading team.
- Ensures the unit has access to personnel authorized to certify hazardous materials (HAZMAT).

8-11. The following references discuss deployment actions and considerations:

- UMO deployment handbook reference 97-1, published by the United States Army Transportation School. The handbook can be downloaded from <http://www.transchool.eustis.army.mil/UMOD/>.
- FM 3-04.500 (FM 1-500), appendix H, deployment.
- FM 4-01.011 (FM 55-65).

8-12. Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) pamphlets provide specific guidance for preparation of equipment for movement. Download the following pamphlets from <http://www.tea.army.mil/pubs/deploy.asp> :

- SDDCTEA Pamphlet 55-19.
- SDDCTEA Pamphlet 55-20.
- SDDCTEA Pamphlet 55-21.
- SDDCTEA Pamphlet 55-22.
- SDDCTEA Pamphlet 55-23.
- SDDCTEA Pamphlet 55-24.
- SDDCTEA 70-1.
- SDDCTEA Pamphlet 700-2.
- SDDCTEA Pamphlet 700-4.
- SDDCTEA 700-5.
- SDDCTEA Pamphlet 700-6.

8-13. Aircraft preparation, lifting, and tiedown must be completed according to appropriate preparation for shipment manuals and specific loading instructions manuals for military aircraft (FW air shipments only). Download the following technical manuals (TMs) from <https://www.logsa.army.mil/etms/online.htm>:

- TM 1-1520-Apache/Longbow.
- TM 1-1520-237-S (UH-60 A/L).

- TM 55-1520-238-S (AH-64A).
- TM 1-1520-248-S (OH-58D).
- TM 55-1520-241-S (CH-47D).
- TM 1-1520-252-S (MH-47E).

8-14. Not all contingencies for unit movement can be foreseen because of the wide range of missions and world events that may occur. BCT staffs should be aware of battle plans and potential early entry COAs. Initial plans to cover early entry contingencies should be prepared.

8-15. Unit movement personnel should be familiar with the POEs available to their organization and mission requirements. Special needs and considerations should be addressed as early as possible for each POE. Unit movement personnel should—

- Establish and periodically update telephone lists, POCs, and special requirements for likely POEs.
- Conduct periodic leader's reconnaissance of POEs. Personnel should include members of unit load teams and advance party personnel.
- Identify advance party personnel and define duties. The BAE should be represented in the advance party.
- Identify operations security (OPSEC) requirements during movement and embarkation activities.
- Plan workspace for personnel during the embarkation phase (empty offices, borrowed tentage from nondeploying units, and rented or borrowed trailers).
- Identify communications requirements (commercial lines, wire, radio, and cellular phone).
- Determine transportation requirements at POE for movement teams and key personnel (borrowed vehicles and rental cars).
- Determine messing, billeting, MTF, refueling/defueling points, and special requirements for weapons and ammunition.

SECTION II – DEPLOYMENT

8-16. Depending upon the situation at the POE, the BAE should advise the BCT commander to carefully plan loading the aircraft along with other combat elements to phase forces into theater with the appropriate mix for initial force protection or direct entry into combat operations.

8-17. When deploying into a theater where friendly forces are already in place, an advance party is sent to prepare, receive, and train the unit.

LOADING

8-18. Combat loading is arranging personnel and stowing equipment and supplies in a manner designed to conform to the anticipated tactical operation of the organization. Each individual item is stowed so that it can be unloaded at the required time.

8-19. In most cases, the first equipment loaded is the last offloaded. Cargo personnel must carefully follow guidance from the commander so, at the POD, the sequence of offloading follows the commander's intent.

8-20. At the POE or APOE, the transport aircraft or vessel should be loaded in such a manner that the first equipment to offload is that which will be needed most immediately by the unit. If deploying to an already secure environment, it may be best that the first offload is the type of support equipment that will facilitate the rapid and efficient offload of the remainder of the load. If unloading in an area that is not yet fully secure, the first equipment offloaded is that which builds up combat power most rapidly.

8-21. Particular attention to the task organization planned at the destination is required. Aviation elements are likely to be among the first units into the fight and can provide sufficient ISR and security during the buildup of the BCT force.

SEA OR AIR TRANSPORT

MOVEMENT

8-22. Upon receiving the order, units ferry their aircraft and move ground vehicles along preselected routes to the POE. Units that can perform depot-level maintenance normally operate at these embarkation points. As the units arrive, a dedicated depot support team assists in preparing the vehicles, equipment, and aircraft for deployment. Preparation includes required maintenance and installation of ferry equipment.

8-23. Air and sea deployment modes terminate at the POD. Depot or ASB facilities should be available there or elsewhere in the theater. Personnel at these facilities remove ferry equipment, install mission equipment, and perform required maintenance and inspections to prepare the equipment for the mission. Depot/ASB personnel also coordinate the immediate backhaul of designated support teams and ferry equipment. On receipt of the deployment order, ASB commanders dispatch preselected facility teams. Deployment headquarters staff members' position command facilities at each termination site to facilitate the integration of aircraft, vehicles, and personnel into the theater force structure.

TASK ORGANIZATION

8-24. According to the threat expected upon arrival (discussed in the next chapter), arriving elements are task organized as appropriate for the mission to provide force protection as quickly as possible after the offload. CSS efforts are prioritized to build combat-capable units and command, control, communications, computers, and intelligence (C4I) architecture.

8-25. To reduce the risk of fratricide, the BAE obtains and provides information to subordinate aviation units concentrating on—

- The composition and location of friendly forces and the battle plan.
- Theater-specific identification friend or foe (IFF) procedures.

AVIATION SELF-DEPLOYMENT

8-26. Self-deployment is an alternate method to rapidly move aircraft. AH-64, UH-60, HH-60, and CH-47 helicopters with auxiliary tanks can carry enough usable fuel to self-deploy to many locations.

8-27. The BAE should advise the BCT commanders against self-deployment over large bodies of water except in an emergency or when other methods are not available because of the high operational risk. Units with a METL, including overwater operations, are required to train for the overwater environment.

8-28. BAE should advise against deploying combat troops on self-deploying aircraft. Available space is typically used to accommodate supplies, tools, parts, survival equipment, and limited support personnel necessary to make the flights self-sustaining during the deployment.

8-29. Configuring some aircraft to self-deploy long distances may require alternate transport of some weapons systems, equipment, and baggage. Maintenance and armament personnel must reconfigure these aircraft before the unit can commit them to combat. (See FM 3-04.111, for additional information on self-deployment.)

TRANSIT

8-30. If aviation assets are task organized under the BCT for deployment, the BAO should advise the commander to direct aviation personnel to accompany and supervise helicopters at all times. A detachment from the support aviation unit should be formed to accompany the aircraft as soon as the requirement is identified.

8-31. The stress produced by transporting helicopters aboard ships and cargo aircraft is different from that encountered during routine operations, and damage can occur in unexpected ways. The helicopters should be inspected every few hours during transit and any concerns immediately addressed by unit and cargo vessel personnel. The personnel operating the transport vessel cannot be expected to be familiar with the special needs of transporting helicopters. A watch or guard roster from the accompanying detachment should be established for this purpose. See appendix E for more on helicopter planning factors and characteristics.

FORCE PROTECTION

8-32. Accompanying troops may require special training, the establishment of special ROE, cooperation with other military elements, coordination with civilian security and law enforcement agencies, and interagency coordination to defend themselves and their equipment.

8-33. Stops en route to the POD may require varying levels of alert. Troops escorting the equipment must be alert and prepared for unexpected belligerent activity in areas that might usually be considered benign.

SECTION III – ARRIVAL AND IN-THEATER OPERATIONS

TASK ORGANIZATION

8-34. According to the intensity of conflict, arrival in the theater of operations can be as diverse as an administrative offload in a benign environment or a forced entry airhead or beachhead.

8-35. Arriving elements should be task organized in a configuration that provides for the build up of maximum combat power as early as possible during the offload. This means vehicles and aircraft are loaded so as to allow offload in the order that will provide the rapid buildup of combat power most effectively. CSS efforts are prioritized to build combat-capable units and C4I architecture.

FORCE PROTECTION

8-36. Aviation forces are particularly vulnerable during the buildup phase when the unit is not at full strength and when aircraft and vehicles are not fully assembled for combat. The security plan must be understood and executed from the moment the first unit arrives. The security plan should include passive and active measures to combat air and ground threats. The BAE should advise the BCT commander to augment aviation units with additional ground force personnel to increase security.

8-37. Aviation forces are often among the first units to arrive in theater. They may be required to provide reconnaissance, security, and attack operations to secure a lodgment before more forces arrive in theater. This situation may require aviation units to conduct immediate and continuous operations from offshore or remote locations while the main body moves into the lodgment area. The BAE should ensure that appropriate training for shipboard operations and water survival is accomplished, if operating from naval vessels is part of the aviation METL.

8-38. To reduce the risk of fratricide, the BAE must obtain and disseminate the following information to subordinate aviation units:

- The composition and location of friendly forces.

- The battle plan.
- Theater-specific IFF procedures.
- Anticipated movement operations.

ARRIVAL IN-THEATER

- 8-39. The advance party conducts the following measures in preparation for the arrival of the main body:
- Establish telephone lists, POC, and special requirements for the POD.
 - Identify OPSEC requirements for the theater.
 - Locate workspace for personnel during the debarkation phase (empty offices, warehouses, borrowed tentage from units already in country, and rented or borrowed trailers and other equipment).
 - Identify communications requirements and availability (commercial lines, wire, radio, secure and unsecure internet, and cellular phone).
 - Determine requirements for and obtain transportation at POD for movement teams and key personnel (borrowed vehicles and rental cars).
 - Locate mess, billeting, and MTFs, refueling/defueling points, and special requirements for weapons and ammunition.
 - Secure marshaling and AAs.
 - Receive personnel as they arrive.
 - Supervise offloading of vehicles, equipment, and accompanying supplies.
 - Coordinate, prepare, receive, and provide local area orientation as applicable.
 - Arrange for and accomplish test flights.
 - Coordinate, prepare, and administer special training on the local area.
 - Prepare for integration of the BCT into the tactical plan.
 - Address any other requirements not executed in advance.

IN-THEATER TRAINING

8-40. If units are already present in the country, the advance party should deploy, as early as possible, to train with those units. The advance party will identify and coordinate external support required for training and execution of the plan. The BAE is an integral part of this coordination.

8-41. Many units that move from one environmental extreme to another need a period of adjustment to the new climate. The BAE should anticipate this requirement and assist aviation unit commanders and S3s in arranging training and conditioning to accelerate acclimation.

8-42. Special training for aircrews may be required, such as operating in desert, high altitude, cold weather, overwater, or jungle environments. If special training cannot be accomplished before deployment, it should be accomplished as quickly as possible thereafter. Special training requirements must be identified, as early as possible before deployment or as part of home station training based on the unit METL.

8-43. Most deployments will involve operating in a joint or multinational environment. Units arriving early in theater may be able to schedule training with other services. Liaison elements from the supporting aviation S3 shop should be designated to ensure smooth coordination. Special training for liaison personnel may also be required.

REGIONAL COMBAT COMMAND COORDINATION

8-44. Regional combat command coordination begins as soon as the WARNO to deploy is received. Of special interest to the BAE are airspace control considerations, FSCM, and coordination for PR.

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Chapter 9

Military Decisionmaking Process

This chapter stresses the necessity of using the MDMP process in planning. Because of the decisive impact Army aviation has on most operations, BAE personnel should be heavily involved in the decisionmaking process to incorporate aviation into the BCT scheme of maneuver. This includes bringing subordinate aviation units into the planning process as early as possible so they can begin their own parallel MDMP and TLP.

PLANNING

BRIGADE COMBAT TEAM HEADQUARTERS

9-1. In addition to planning for the operational mission, the BAE must ensure that the countless details of aviation operations are planned, coordinated, and rehearsed concurrently with OPLAN development. Examples of ongoing preparation include—

- Task organization actions (such as unit movements or exchange of liaison personnel).
- A2C2 coordination.
- Theater air-ground system (TAGS), airspace control order (ACO), air tasking order (ATO), and SPINS review.
- Rehearsal planning and execution.
- FARP movement, composition, and locations.
- Maintenance support for BAE equipment.
- PR plans and procedures.
- DART planning.
- Weather checks and analysis.
- Passage of lines planning.
- AD status.
- Weapons configurations and loads.
- Internal configuration of utility and cargo aircraft.
- Communications planning.
- Aircraft markings.
- ASE requirements and settings.
- IFF procedures and mode 4 settings.

MILITARY DECISIONMAKING PROCESS

9-2. To effectively plan and coordinate missions, the commander and staff follow MDMP.

9-3. Figure 9-1 below shows the steps involved in MDMP. For more aviation specific information, refer to FM 3-04.111 and FM 5-0 for discussion of this process in detail.

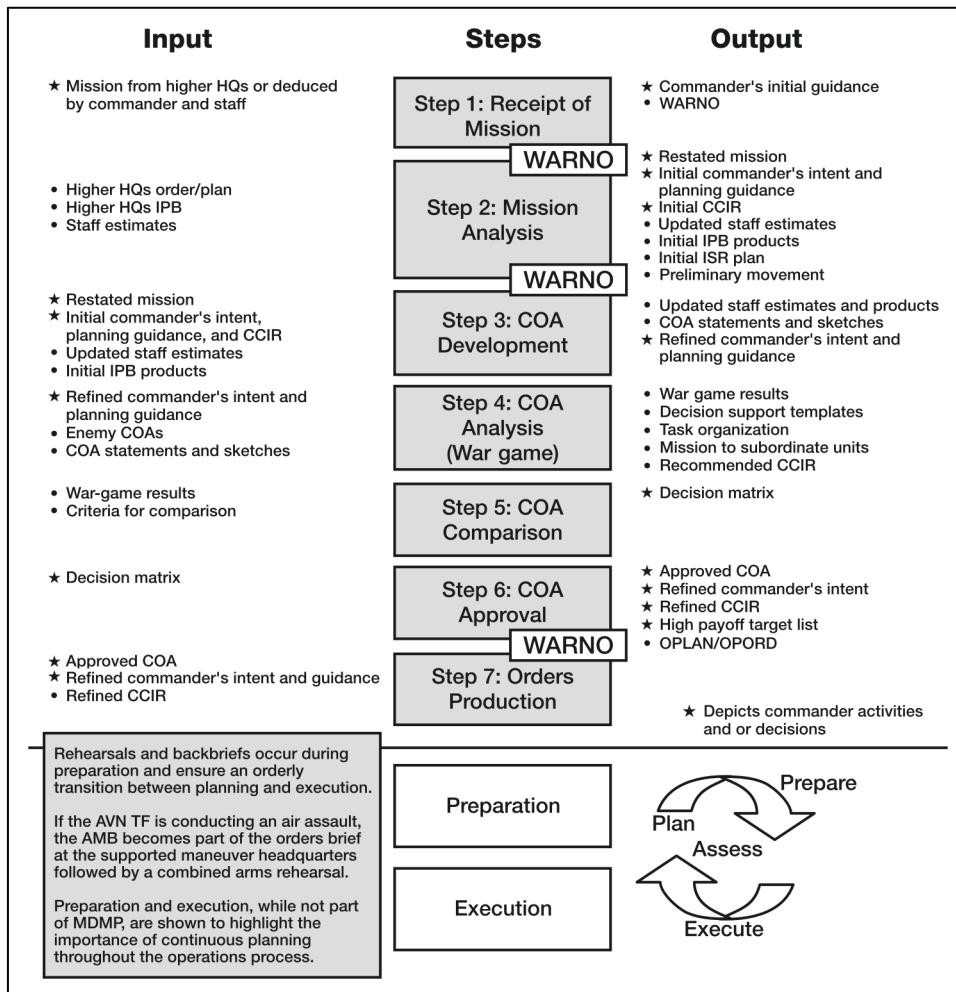


Figure 9-1. Military decisionmaking process

TIME REQUIRED TO PLAN

9-4. Planning time is critical for every type of military mission. While aviation units can move rapidly, planning time is essential for coordination, clearing routes, mission briefings to Soldiers and leaders, and unit SOP compliance. WARNOs maximize time available by allowing subordinate units to prepare for pending action. Planning and operations are greatly simplified by SOPs that are understood, followed, and internalized through training.

READINESS CONDITION LEVELS

9-5. A system of five readiness conditions (REDCONs) are used to alert units for combat operations or movements. Units report their readiness to move by stating their REDCON. Additionally, mechanics, medics, and others should use these codes to estimate when elements (injured personnel, combat vehicles, supplies, and so forth) will be ready for combat. These levels are typically defined in each unit's tactical standing operating procedure (TACSOP). See appendix B for REDCON level definitions.

WARNING ORDER

9-6. A WARNO is a preliminary notice of an order or action that will follow. It is a planning directive that describes the situation, allocates forces and resources, and establishes command relationships. It provides other initial planning guidance and initiates subordinate unit mission planning. Planning and coordination begin when the unit receives a notice of mission. Units may also begin to reconfigure or reposition in support of the upcoming operation.

DECIDE, DETECT, DELIVER, AND ASSESS METHODOLOGY

9-7. D3A methodology facilitates the attack of the right target or objective with the right asset at the right time. Principally developed for targeting, D3A applies to Army aviation in a slightly different manner. Aviation flies manned aircraft (and coordinates for UAS and other support) to a target area to deliver ordnance, and when required, conducts AASLTs to achieve the desired results. For aviation, D3A is much more than targeting. The D3A process outlined in the following paragraphs offers a method for the BAE to help the BCT commander make optimal use of the process.

DECIDE, DETECT, DELIVER, ASSESS USE

9-8. D3A is used in every aspect of mission planning. The unit's COA may be included in the orders/directives from higher headquarters or it may fall squarely on the commander. D3A helps the commander decide what to attack, how to acquire necessary enemy information, when best to attack, and how to attack in a way that meets the higher commander's intent. Finally, it enables the commander to know whether the guidance has been met. D3A is a dynamic process. It must continually be updated to match the changing face of the battlefield.

9-9. An HVT is a target the enemy commander requires for the successful completion of the mission. Enemy loss of HVTs should seriously degrade important enemy functions throughout the friendly commander's area of interest.

9-10. A HPT is a target whose loss to the enemy will significantly contribute to the success of the friendly COA. HPTs are those HVTs, identified through war-gaming that must be acquired and successfully attacked for the success of the friendly commander's mission.

Decide

9-11. The decide function is the first step of the D3A process. It is based on current intelligence and helps define further intelligence requirements. Targeting priorities must be addressed for each phase or critical event of an operation. The products developed include the HPTL. The HPTL is a prioritized list containing those targets whose loss to the enemy will contribute to the success of friendly COA. The list also includes the main targets and those targets that protect it.

9-12. The HPTL indicates the prioritized targets to be acquired and attacked for each phase of the battle. The number of target priorities should not be excessive. Too many priorities dilute intelligence collection, acquisition, and attack efforts. The HPTL is used as a planning tool to determine attack guidance and to refine the intelligence collection/ISR plan. This list may also indicate the commander's operational need for BDA of the specific target and the time window for collecting and reporting it.

9-13. The decide function provides the overall focus and sets priorities for intelligence collection, target selection standards (TSS), and attack planning. Even if orders dictate the AASLT target, the D3A process can assist in planning SEAD and in dealing with subset targets en route and at the objective. Each phase or critical event in an AASLT, for instance, requires planners to address targeting priorities. The decide function should answer the following questions:

- What targets or objectives should be acquired and attacked?

- What is the priority for targets or objectives to be attacked?
- When and where are the targets or objectives likely to be found?
- What routes are required for Army aviation ingress and egress?
- Who or what can locate the targets?
- How accurately must the target location be known to the attack?
- What channels are needed to provide acquisition on a real-time basis?

9-14. The decide function is facilitated and supported by—

- The intelligence collection plan (which may include external assets such as Air Force, Navy, and Marine assets) that answers the commander's priority information requirements (PIR), including those HPTs designated as PIR. At division level and below, an ISR plan supports the intelligence collection plan (see FM 34-2-1).
- The TSS, which addresses target location accuracy or other specific criteria that must be met before targets can be attacked.
- The attack guidance matrix that is approved by the commander and addresses which targets will be attacked, how, when, and the desired effects.

Detect

9-15. The detect process finds the HPTs (critical enemy forces) that must be attacked to accomplish what has been decided for each phase of an operation. TA assets and agencies execute the intelligence collection plan and focus on specific areas of interest. Mobile HPTs must be detected and tracked to maintain a current target location. Target tracking is inherent to detection and is executed throughout the collection plan. Tracking priorities are based on the commander's concept of the operation and targeting priorities. The detect function should answer the following questions:

- What are the target descriptions and their size?
- Where are the targets?
- What objective must be secured?
- What DP should exist beyond which a target becomes a HPT?
- How long will the enemy stay in the desired target area once acquired?
- Do any ingress or egress routes have to be changed or modified?

9-16. The S2 is the main figure in directing the effort to detect the HPTs identified in the decide function. The S2 determines accurate, identifiable, and timely requirements for collection systems. The detect function involves locating HPTs accurately enough to engage them. It primarily entails executing the intelligence collection plan.

Deliver

9-17. The deliver function of the process executes the attack guidance and supports the commander's battle plan after locating and identifying HPTs. Both tactical and technical decisions affect the selection of the attack systems and the units to conduct the attack. The decisions are reflected in the staff's earlier development of the attack guidance matrix, schemes of maneuver, and FS plans for planned targets. The decision to attack targets of opportunity follows the attack guidance. It is based on factors such as target activity, dwell time, and payoff compared with other targets currently being processed for engagement. The deliver function should answer the following questions:

- When should the target or objective be attacked?
- What is protecting the target and how will those targets be neutralized or destroyed?
- What is the desired effect/degree of damage?

- What attack system(s) (aviation, artillery, other service, lethal or nonlethal) should be used?
- What unit(s), including ground forces, will conduct the attack?
- What are the number and type of munitions to be employed?
- What is the response time of the attacking unit(s)?

9-18. The staff recommends and the commander approves attack guidance, distributing it via the attack guidance matrix. The guidance should detail when and how the attack will be launched, the desired effects, SPINS, and required BDA of the HPTL. The S3, ECOORD, or BAO recommends the attack system for each target. All attack assets, including ground forces, should be considered. The attack should optimize the capabilities of—

- Ground and SOF.
- Helicopters.
- Armed UASs.
- Indirect fire assets: artillery, mortars, NSFS.
- Combat air operations—CAS and air interdiction (AI).
- Countermobility—engineers and helicopter and artillery-delivered mines.
- ADA.
- Cruise missiles.
- EW.
- PSYOP.
- Civil affairs.
- Deception.

9-19. Attack criteria refer to the desired effects on the target or objective. The S3/ECOORD specifies assault/attack criteria according to higher headquarters guidance. Attack criteria should be given in quantifiable terms. Criteria may be expressed as a percentage of casualties, destroyed elements, TOT, duration of fires, number of tubes or launchers, or allocation or application of assets. If ground forces are required to achieve the desired effects, the staff must determine the size of the force, time on the ground, extraction, and linkup plans. Additionally, the S3/ECOORD/BAO should identify accuracy or time constraints, required coordination, limitations on amount or types of ammunition, use of ground forces, and BDA requirements. For units working with attack reconnaissance helicopter elements, table 9-1 outlines preferred weapons for anticipated targets.

Table 9-1. Munitions selection

<i>Preferred Munitions</i>	<i>Type Targets</i>
Missile, radar frequency (RF) Hellfire	Heavy armor, wheeled vehicles, helicopters, slow-moving FW aircraft, other hard targets. Used when minimizing exposure is essential for survival.
Missile, semiactive laser (SAL) Hellfire	Heavy armor, bunkers, cave entrances, helicopters, slow-moving FW aircraft, other hard targets. Used when a good LOS to target is available and to conserve RF missiles.
Missile, Blast Fragment Hellfire	Naval craft, military operations on urbanized terrain (MOUT) targets, heavy equipment, light armor, weapon caches, and targets in a severe EO countermeasure environment. Warhead has a delay fuse with lethal fragmentation and incendiary pellets upon detonation.
Missile, Stinger	Helicopters, slow-moving FW aircraft.
Cannon, 30 mm high explosive, dual purpose (HEDP)	Lightly armored targets, materiel and helicopters.
Machine gun, .50-caliber ball	Materiel and unarmored targets.
Machine gun, .50-caliber tracer	Observation of trajectory, incendiary effect, and signaling.
Machine gun, .50-caliber, armor piercing	Light armor, concrete shelters, and similar bullet resistant targets.
Machine gun, .50-caliber, incendiary	Hardened or armored targets to ignite flammable material.
Machine gun, .50-caliber, armor piercing incendiary	Combined effects of armor piercing and incendiary rounds.
Machine gun, 7.62 mm ball	Personnel and unarmored targets.
Machine gun, 7.62 mm tracer	Observation of trajectory, incendiary effect, and signaling.
Machine gun, 7.62 mm armor piercing	Light armor, concrete shelters, and similar bullet resistant targets.
Rocket, high explosive (HE)	Materiel, personnel, light armor, and wheeled vehicles.
Rocket, high explosive multipurpose submunition (MPSM)	Light armor, wheeled vehicles, materiel, fighting positions, and strong points.
Rocket, flechette	Personnel, unarmored vehicles, and helicopters.
Rocket, illumination	Battlefield illumination, shut-down of enemy NVDs.
Rocket, white phosphorous (smoke)	Target marking, incendiary.

9-20. FM 3-09.32 provides risk estimates (danger close) for fixed- and rotary-winged aircraft-delivered ordnance.

9-21. Especially with rockets and guns, aviation commanders must consider aircrew proficiency when operating near ground units. FM 3-09.32 designates danger close range for Army aircraft systems as—

- Hellfire, 75 meters.
- Rockets, 175 meters.
- Guns, 150 meters.

WARNING

These estimates and the resultant danger close ranges are for use in combat and are not minimum safe distances for peacetime training use. The supported commander must accept responsibility for the risk to friendly forces when targets are inside the danger close range.

Assess

9-22. Combat assessment is the determination of the overall effectiveness of force employment during military operations. Combat assessment has three major components:

- BDA.
- Munitions effectiveness assessment.
- Reattack recommendation.

9-23. BDA is the timely and accurate estimate of damage resulting from the application of military force. BDA accomplishes the following:

- Provides commanders with snapshots of their effectiveness on the enemy and an estimate of the enemy's remaining combat effectiveness, capabilities, and intentions.
- Provides essential information for determining if a reattack is required.

9-24. Munitions effectiveness assessment is conducted concurrently with BDA. It is the basis of recommendations for changes to increase the effectiveness of—

- Methodology.
- Tactics.
- Weapon system.
- Munitions.
- Weapon delivery parameters.

9-25. Reattack and other recommendations should address operational objectives relative to—

- Target.
- Target critical elements.
- Target systems.
- Enemy combat force strengths.

INTEGRATING THE DECIDE, DETECT, DELIVER, AND ASSESS PROCESS

9-26. The D3A process is integrated into the unit's MDMP. As the staff develops plans for future operations, D3A methodology is used to cross-check and ensure the synchronization of the plan.

MISSION ANALYSIS

9-27. During mission analysis, the S2 provides the HVT list that results from aviation brigade and higher headquarters' analysis of the enemy COAs. The HVT list details the capabilities and limitations of each target. Additionally, each staff member reviews the assets available to acquire (detect), attack (deliver), or assess targets.

COMMANDER'S GUIDANCE

9-28. The commander issues guidance following approval of the restated mission. This guidance provides the staff an initial planning focus. The commander identifies the enemy COA considered most probable or most dangerous, along with its associated HVTs. The commander also identifies an initial focus on targets deemed critical to mission success. While issuing guidance on the scheme of maneuver, the commander issues initial attack guidance, indicating the desired effect on targets. The commander also specifies when and where on the battlefield he or she is willing to accept risk.

COURSE OF ACTION DEVELOPMENT

9-29. During the development of each COA, the staff determines the targets that, if successfully attacked, would contribute to the success of the mission. Forces are arrayed to acquire and attack these tentative HPTs to meet the commander's guidance.

COURSE OF ACTION ANALYSIS AND COMPARISON

9-30. The staff analyzes the COAs by risk assessment, war-gaming, and a comparison of the war-game results. During war-gaming, the staff prioritizes the HPTs and determines which assets are available to acquire the targets (this becomes the basis for the S2's ISR plan). The staff also determines which attack mechanisms are available to achieve the desired effects on the target. TSS are determined to identify the time and accuracy requirements necessary to destroy HPTs. Additionally, war-gaming establishes the criteria for a successful attack, actions to achieve BDA, and reattack options. During COA comparison, the staff can use the COA's ability to achieve the commander's attack guidance as a criterion. The results of the war-gaming are reflected in the development of the initial targeting synchronization matrix.

ESSENTIAL ELEMENTS OF FRIENDLY INFORMATION

9-31. Essential elements of friendly information (EEFI) are critical aspects of a friendly operation that, if known by the enemy, would subsequently compromise, lead to failure, or limit success of the operation, and so must be protected from enemy detection (FM 3-13).

9-32. EEFI are neither information requirements nor part of the CCIR. EEFI establish information to protect, not to get information. EEFI are the critical aspects of a friendly force or operation that, if known by the enemy, would subsequently compromise, lead to failure, or limit success of the operation, and must be protected from enemy detection (FM 5-0). EEFI is information the commander does not want the enemy to find out about the friendly force and answers the question, How can I (the commander) prevent the enemy force from seeing and knowing me? For example, a commander may determine that if the enemy discovers the movement of the friendly reserve, the operation is at risk. In this case, the location and movement of the friendly reserve become EEFI. EEFI provide a basis for indirectly assessing the quality of the enemy's SU. If the enemy commander does not know an element of EEFI, it weakens the SU

COMMANDER'S INTENT

9-33. A clearly stated commander's intent, combined with specific CCIR, is fundamental to gain the intelligence information needed for the unit to accomplish its missions. CCIR also provide the focus required to understand critical information throughout the aviation brigade. Additionally, the commander must provide guidance on how to protect the EEFI.

9-34. CCIR (FM 5-0 and FM 6-0) are elements of information required by commanders that directly affect decisionmaking and dictate the successful execution of military operations. As part of the MDMP, commanders visualize the battlefield and the fight. Information collected to answer the CCIR either confirms the commander's vision of the battlefield and fight or indicates the need to issue a FRAGO or execute a branch or sequel.

9-35. CCIR result from the analysis of information requirements in the context of the mission and commander's intent. Commanders limit CCIR to a useable number (usually ten or less) for comprehension. Commanders designate them to let their staffs and subordinates know what information they deem necessary for decisionmaking. These are typically information requirements that help the commander confirm their vision of the battlefield or identify significant deviations from it. CCIR must be focused enough to generate relevant information. Unfocused requests, such as "I need to know if the enemy moves," may provide data but not much useable information. "I need to know when the enemy lead brigade reaches NAI 2" or "I need to know if the multinational unit on our right flank advances beyond PL Blue" are examples of CCIR specific enough to focus collection and information management (IM) priorities.

9-36. CCIR are key elements of information commanders require to support decisions they anticipate. CCIR also help screen the type and amount of information reported directly to the commander. CCIR include PIR and friendly forces information requirements (FFIR), defined below:

- PIR are those intelligence requirements for which a commander has an anticipated and stated priority in the commander's task of planning and decisionmaking. PIR identify the information the commander considers most important for decisionmaking. They concern both the enemy (including the time available to the enemy) and the environment (terrain, weather, and some civil considerations).
- FFIR are information the commander and staff need about the forces available for the operation. FFIR consist of information on the mission, troops and support available, and time available for friendly forces.

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Chapter 10

Orders, Briefings, and Rehearsals

The process of planning and preparing mission orders mirrors the steps in the MDMP and incorporates parallel actions necessary to provide the additional time and detailed planning required for successful air mission execution. To conduct a successful mission, a concerted effort is coordinated between the BCT S3, aviation TF S3, BAO, ALO, BCT ECOORD, and appropriate ground battalion S3/S2, reconnaissance leaders, and selected aviators. Immediately after receiving the mission, each BCT, heavy, forced entry, or light, conducts planning according to its SOP. FM 5-0 provides information pertaining to planning and preparing mission orders. The planning and rehearsal processes depicted in this chapter pertain to an AASLT mission; it can be modified to apply to any mission.

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SECTION I – SAMPLE ORDER DEVELOPMENT PROCESS

- 10-1. The sequence of critical events in the planning process is depicted in figure 10-1. All time lines are tied to the expected AASLT H-hour. Because aircrews must attend the briefings and rehearsals, the aircrews’ fighter management cycle is a significant factor affecting the exact timing of events.
- 10-2. Ideally, the BCT will receive 96 hours to complete the planning for a brigade-sized AASLT. If planning time is less, leaders should require their staffs to compress the time line up front to provide aircrews with as much time as possible to plan for the mission.
- 10-3. The planning and orders preparation process is not linear. It is done at more than one location simultaneously. The results of this parallel planning effort are shared among several headquarters nearly simultaneously. The parallel planning process is discussed in detail later in this chapter.

WARNING ORDERS

10-4. As soon as a new mission is received, the BCT S3 operations section issues a WARNO to the staff allowing preparation and updating of staff estimates to begin. The WARNO is immediately shared with the aviation TF. Proposed LZs are identified for the BCT AASLT, attack, or other operations, so coordinated scout/ground reconnaissance insertions can be accomplished if required. (See table B-3, on page B-3, for a sample scout/pathfinder insertion checklist.)

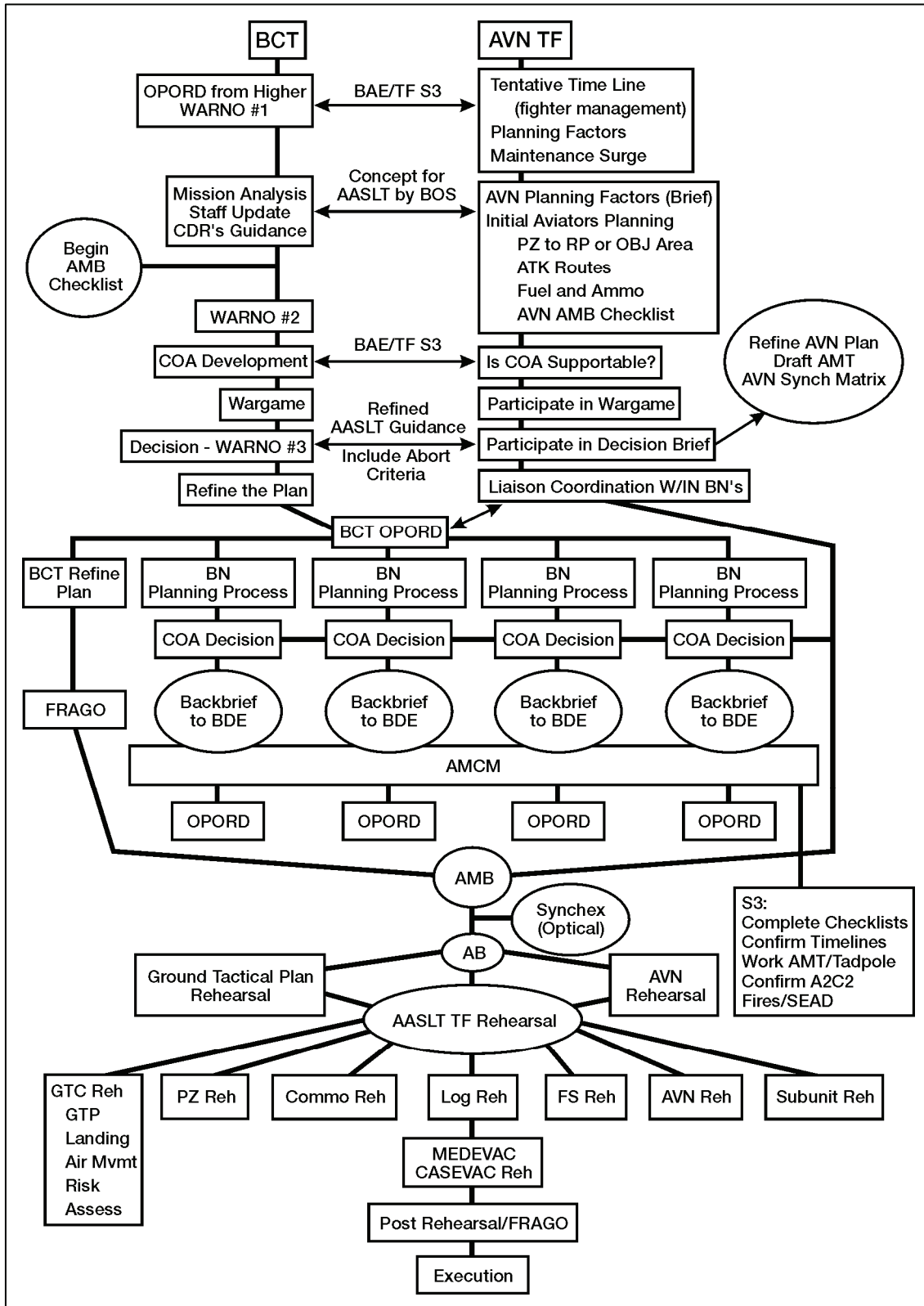


Figure 10-1. Air assault planning and rehearsal time line

10-5. Proposed LZs and ABF/SBF positions, and ingress and egress routes are identified by the brigade S3 and S2, and BAE using all available intelligence (such as map reconnaissance, satellite imagery, and surveillance videos). Often the AATFC or the operations officer will be included in the initial planning process.

10-6. At the supporting aviation unit, a tentative time line is established and factors affecting the mission are considered. Fighter management measures are put into place as necessary, as well as possible requirements for maintenance surges or relocation of units.

10-7. After the BCT mission analysis and the staff update their estimates, the BCT issues a second WARNO along with the commander's guidance.

COURSE OF ACTION DEVELOPMENT

10-8. To develop a course of action through issuing brigade combat team orders—

- Each COA is developed, war-gamed, and refined.
- A decision brief is conducted, the COA is selected, and a third more detailed WARNO is issued.
- The plan is then refined again. The aviation TF begins to draft the AMT, liaison with the ground maneuver battalions increases, and the BCT OPORD is issued.

AIR MOVEMENT ANNEX

10-9. Certain AASLT planning information must be formally issued to the battalions before the AMCM. This information is included in coordinating instructions of the brigade OPORD or in an air movement annex to the OPORD/OPLAN.

- Tentative lift and serial composition (draft AMT).
- Suitable PZs and LZs.
- Tentative air routes.
- LZ imagery (if available).
- Any deviations from standard planning factors.

AVIATION TASK FORCE OPERATIONS ORDER EVOLUTION

10-10. After the subordinate units receive the OPORD, they issue another WARNO to their subordinate elements and continue to improve their own COA development. Completed COAs are then back-briefed to the BCT, and FRAGOs are issued as modifications to the OPORD become necessary.

SECTION II – PLANNING TIME LINES

PARALLEL PLANNING

10-11. Parallel planning begins immediately upon receipt of a mission involving an AASLT. All personnel involved with AASLT planning conduct continuous coordination under the AATF S3, during COA development to ensure AASLT considerations are factored into COA development. The BAE is a critical part to the AATF staff planning process during mission analysis and COA development. The BAE must anticipate information requirements of the aviation brigade and disseminate these requirements as soon as possible. The following information is sent out with the WARNO to provide units the information required for planning:

- Estimates of the size of the force to be air assaulted.

- Identified likely PZs and LZs. The focus should be narrowed to those PZs/LZs that support the evolving brigade scheme of maneuver.
 - AATFC's intent on the number of lifts and general time line.
 - Initial estimate on coverage requirements for ARB assets to be on station.
- 10-12. Aviation brigade and BCT staffs must receive and share—
- LZ acceptability verification using imagery, Apache/Kiowa Warrior video tapes, LZ sketches, patrols, and higher headquarters intelligence. Additionally, the space support element can assist in acquiring space-based imagery.
 - Composition of assault, follow-on, and rear echelons by unit.
 - Nomenclature of every vehicle/slingload to be flown. Verify weights and item availability for heavy and light loads.
 - Confirmed troop counts by serial for assault and follow-on echelons.
- 10-13. At a minimum, the air movement annex to OPORD/OPLAN must contain the following items:
- Tentative lift and serial composition (draft AMT).
 - Suitable PZs and LZs.
 - Tentative air routes.
 - LZ imagery (if available).
 - Any deviations from standard planning factors.

TIME CONSTRAINED PLANNING

10-14. Recent combat experience has shown that because of the fluid nature of operations, units have been required to execute AASLTs with less than 96 hours from the time the operations order is issued. Successful execution of an AASLT under time-constrained planning requires both parallel planning by all levels of command and units that are habitually aligned. Table 10-1 provides a time line and method to reduce the planning process.

Table 10-1. Time constrained planning process

<i>Time</i>	<i>MDMP Steps</i>	<i>Air Assault Planning Steps</i>
	Receipt of mission	
	Mission analysis	
	COA development	
	COA analysis	
	COA comparison	
	COA approval	AMCM
	Orders production	
	OPORD brief	AMB in conjunction with OPORD brief
		AB
	AATF rehearsal	
		AVN TF rehearsal
H-hour		

10-15. Normally, parallel planning for AASLT operations begins as soon as the mission is received with the supporting aviation battalions providing LNOs, or coordinating through the BAE to the AATF.

Through continual coordination with the supporting aviation brigade, the BAE advises the AATF S3 on any limitations of aircraft or crew availability that could affect COA development. Once the AATFC has either provided a directed COA or approved a COA, the BAE immediately begins the AMCM.

10-16. By placing specific portions of the AMB in the AATF OPORD, it reduces the requirement to get the command and staff together for a separate AMB while still providing all the necessary information. Back briefs, ABs, and rehearsals are still conducted as described earlier. The specific portions of the AMB required for inclusion in the OPORD brief are—

- Staging plan.
- Air movement plan.
- Landing plan.
- Attack reconnaissance coverage.
- Cherry/Ice (LZ is unusable/usable due to enemy force occupation) criteria.
- Weather decision.
- Risk assessment.

10-17. Based on the time available, the AATF XO adjusts the time line as required. The BAO should remind the XO to take into consideration the ability of the supporting aviation unit to accomplish its tasks within its fighter management cycle.

HASTY AIR ASSAULTS

10-18. This section standardizes responsibilities in planning and executing a hasty AASLT (planning and execution occur during the same crew cycle). Hasty AASLTs typically are executed in response to a fluid tactical situation. Generally, the planning time for a hasty AASLT is less than 8 hours from notification to execution. The complexity of the detailed planning and coordination required for a BCT-level AASLT precludes it from being executed as a hasty AASLT. Hasty AASLTs are normally infantry company and platoon level AASLTs supported by some portion of the aviation TF.

RESPONSIBILITIES

10-19. Upon notification of the mission, the supporting aviation unit immediately executes a face-to-face AMCM with the supported ground unit. The AMCM checklist found in appendix O, table O-2, serves as the hasty AMCM checklist. It is completed during the AMCM and sent to higher headquarters for A2C2 deconfliction and approval.

10-20. The AMC is the assault aviation unit commander. The AMC collocates with the AATF S3 to assist in planning. The AATFC is the ground battalion commander. The BCT commander normally retains launch authority, but the AMC may delegate launch authority as necessary.

PROCEDURES

10-21. Upon notification of the mission, the aircraft package will be under TACON to the AATF. The AATFC stages the aircraft based on METT-TC and the recommendation of the AMC and AATF S3. The infantry and aviation units adjust personnel and aircraft REDCON levels based on the infantry battalion commander's METT-TC assessment. Because of the potential length of the mission and restricted amount of flight time that crews are allocated while flying with NVG at night, aviation fighter management is a concern and must be closely monitored.

10-22. If attack reconnaissance helicopter support is required for the mission, an attack reconnaissance team leader must attend the AMCM and an attack reconnaissance team must be under TACON to the AATFC for the duration of the AASLT.

10-23. Ideally, conditions have been set in the vicinity of the routes, FLOT, and objective area requiring minimal or no SEAD.

PLANNING TASKS

Assault Aviation

10-24. The assault aviation unit completes the following planning tasks:

- Receives WARNO from higher headquarters.
- Directs activities to prepare company for AASLT operations.
- Issues WARNO and initial planning guidance to subordinates.
- Develops a plan to select aircrews and configure aircraft for mission requirements.
- Maintains contact/communications with supported unit and higher headquarters, ensuring optimum reaction time to respond to mission changes.
- Ensures that designated representatives (or commander) attend AMCM and/or AMB, if applicable.

Assault Battalion Operations Officer (or Aviation Task Force Operations Officer) and the Infantry Battalion Operations Officer

10-25. The assault battalion S3 (or aviation TF S3) and the infantry battalion S3 complete the following planning tasks:

- Coordinate all phases of the AASLT with the supported unit and higher headquarters.
- Develop AASLT plan and AMT.
- Advise AATFC on all aspects (capabilities/limitations) of available resources and help develop mission plan.
- Provide information on number of mission aircraft as well as passenger and cargo capabilities.
- Select suitable PZs/LZs for loading and landing phases of the AASLT, if available. Select primary LZ and alternates with available information.
- Select times for staging, loading, movement, and landing phases of the AASLT.
- Coordinate AASLT security and develop the FS plan to include attack reconnaissance helicopter support, if available.
- Ensure higher headquarters obtains A2C2 control measures and integrate planned operation into A2C2 system of the brigade and higher.
- Establish contact with supporting aviation units (attack reconnaissance), if employed, to finalize the FS plan.
- Coordinate with ECOORD/attack elements to lift or shift fires as necessary.
- Develop the communications card for the mission.
- Develop kneeboard sketches.
- Brief scheme of maneuver to flight lead, if not already imbedded in planning process.

Effects Coordinator

10-26. The ECOORD develops an FS plan that includes coordination with attack reconnaissance helicopter support.

Brigade Aviation Officer

10-27. The BAO completes the following planning tasks:

- Ensures higher headquarters obtains A2C2 control measures and integrates the planned operation into the A2C2 system of the brigade and higher.
- Coordinates with ECOORD and supporting attack reconnaissance aviation units to finalize the FS plan.
- Coordinates with ECOORD/attack reconnaissance elements to lift or shift fires as necessary.

Communications-Electronic Officer

10-28. The AATF communications-electronic officer (S6) develops a communications card for the mission.

Flight Lead

10-29. The flight lead completes the following planning tasks:

- Uses available intelligence to select flight routes that avoid known hazards and ADA locations.
- Selects primary and alternate flight routes and coordination points, and complies with PR plan.
- Receives thorough terrain analysis and available information from the S2.
- Plans mission to ensure aircraft survivability.
- Selects safest terrain flight techniques compatible with mission requirements.
- Conducts AB with company commander/platoon leader(s).

Infantry Battalion Task Force

10-30. The infantry battalion TF, with the assistance of an aviation LNO team, plans for and establishes the following:

- Integration and fire control of direct and indirect fire assets (UH-60, AH-64, OH-58D, mortars, and artillery) for the GTP.
- Communications between flight crews and transported unit signals and/or codes for alternate door exit, alternate LZ landing, and location of the LZ (six-digit grid), if different from planned location.
- Signals/markings used by ground forces (if already in the LZ) to designate friendly and enemy forces.
- CASEVAC plan to include markings and position of aircraft and CCP.
- Downed aircraft procedures, to include "zeroing" of communications security (COMSEC) equipment, location of first aid kits and fire extinguishers, and recovery plan.
- In-flight communications between chinks/serials, C2 aircraft, assault aircraft, and attack reconnaissance aircraft, using organic assets and/or assets on the aircraft such as external antenna.
- Establishes abort criteria for landing on the alternate LZ, changing the mission, and extracting units in contact.

10-31. The supported unit S2 provides intelligence products to the supporting unit for air mission planning.

PREPARATION AND COORDINATION TASKS

10-32. The assault helicopter commander or TF commander is the AMC. The commander is responsible for aviation briefings to aviation leaders and crews.

10-33. The infantry battalion TF—

- Develops the bump plan and provides it to the aviation BAE or LNO.
- Establishes and maintains communications with fire support officers (FSOs).
- Ensures unit is in PZ posture in accordance with the mission plan.

EXECUTION TASKS

Staging

10-34. The following events occur as the aviation company/battalion conducts staging operations:

- Aircraft depart the AA and move over designated routes to PZ (if not collocated).
- Upon arrival at PZ, flight lead or AMC links up with ground commander at PZ Control.
- Company/battalion arrives at staging area at the time designated in AMT.
- Aircraft laager/park tactically and orient on the assigned security perimeter from GTC, as required.
- AMC establishes contact with supported unit/LNO to get updated information and intelligence, finalize route planning, and rehearse.
- Supported battalion S3 with aviation LNO and flight lead finalize LZs and routes.
- Supported battalion XO is the PZCO.
- Assault helicopter company conducts loading of supported unit and provides static load training as time permits.
- Supported infantry company/battalion executes bump plan as required.

Air Assault

10-35. The assault and cargo helicopters conduct AASLT of the supported unit by—

- Inserting—
 - Pathfinders and ATS.
 - LRSDs.
 - Assault infantry elements.
- Executing false insertions.
- Repositioning artillery.
- Hauling internal and external loads of vehicles, ammunition, and supplies.
- Performing CASEVAC.

10-36. The ARB/ARS provide the following:

- Screen of forward, flanks, and rear, as necessary.
- Observation of NAIs and TAIs.
- Escort of assault and cargo helicopters.
- Objective and LZ preparatory fires.
- Overwatch of ground elements.
- CCAs in support of ground elements in contact.
- Assist with indirect fire observation and control.
- Defeat enemy counterattacks.

FIRE CONTROL MEASURES/TASKS

10-37. During initial serial insertion, AATFC controls all fires. Attack reconnaissance aviation, FS, and door gunners engage targets as planned in the initial order and AMB. Prior to the first serial arriving on the LZ, weapons status is free in accordance with the fire plan and airspace coordinating measures (ACMs) (restrictive fire areas [RFAs], no-fire areas [NFAs], and so forth).

10-38. Once troops are on the ground, the ground commander controls and clears all fires in and around the LZ.

10-39. Status of all weapons on subsequent serials is "tight." Use of target designators, AN/PAQ-4 and GCP-1A/B, is also "tight" with specific control by the ground commander.

10-40. Each chalk carries primary and alternate day/night markers to designate their position. Markers must be visible to both ground and air observation. (Examples include VS-17 panel, smoke, glint tape, IR strobe-lights, and meal, ready to eat (MRE) heaters, and so forth.)

SECTION III – SAMPLE MEETINGS AND BRIEFINGS PROCESS

INITIAL PLANNING CONFERENCE

10-41. Although not mandatory, before the AMCM a unit can elect to complete an initial planning conference (IPC). The IPC is the first meeting between the ground maneuver unit and the aviation unit or TF. The IPC takes place when the AATFC has a general idea of the intent and GTP scheme of maneuver. During the IPC, each unit involved in the AASLT back-briefs task and purpose, general scheme of maneuver, and task organization. The information gained in the IPC is used to develop the aviation OPORD and AMB. (See FM 1-113 for additional information.)

AIR MISSION COORDINATION MEETING

10-42. The AMCM provides the conduit for coordination of operational information between ground and aviation operations officers and key members of the BCT staff. The purpose of the AMCM is to complete coordination between ground and aviation TFs.

10-43. The AMCM is a S3 level meeting that follows the development of the supported battalion's GTP. The AMCM is lead by the BAO with the aviation TF S3 present. It is chaired by the brigade S3; the S3 being the final arbitrator. The AMCM is scheduled to allow enough time for maneuver units to decide on specific ground COAs based on the WARNO and the standard planning factors. Maneuver COAs should have been previously approved by the AATFC at the back-brief.

10-44. At the AMCM, battalion S3s brief their GTPs. Specifically, battalion S3s show the composition of combat power, by echelon, required to be delivered to each LZ. It is imperative that the subordinate S3s attend this meeting with an 80 to 90 percent solution of their requirements.

10-45. The meeting is complete when the AHB LNOs know which loads go to which LZ and their sequence, the ARB/ARS LNOs know air routes and ABF/SBF positions, and all have agreed on a tentative AMT (with the start and end times of the first and last serial on the LZ). The BAE is the central figure in coordinating this information. It is critical that the supported infantry unit and the assault planners attend the AMCM ready to provide the required information to have an effective meeting.

10-46. The end result of the AMCM is a finalized air movement plan, landing plan, air routes, PZs, and LZs.

10-47. The AMCM is the true "good idea cut-off point." All changes must be approved by the BCT S3, XO, or commander after the AMCM.

ATTENDEES

10-48. The attendees for AMCM are the—

- BAO.
- BCT S3.
- Battalion S3s from attack reconnaissance and/or assault supporting unit (as appropriate).
- BCT S2.
- BCT S6.
- BCT ECOORD.
- ALO.
- Flight lead(s).
- Air ambulance platoon leader.
- Scout/pathfinder team leaders (as appropriate).
- Ground battalion staff representative.
- Reconnaissance platoon leader (s).

AGENDA

10-49. Appendix O provides a sample AMCM agenda and checklist. The following personnel brief at the AMCM:

Operations Officer

10-50. The BCT S3 briefs the following:

- Friendly situation.
- Higher mission and intent.
- Brigade mission and intent.
- Concept of the operation.
- Proposed LZs.
- Communication plan/reporting information (window, required information).
- False insertions/fire, false LZs (no predictable pattern) plan.
- Rehearsal schedule.
- Primary BCT TOC.
- Alternate assault aviation TOC.

Intelligence Officer

10-51. The BCT S2 briefs the following:

- Weather and light data from insertion to extraction + 24 hours.
- Terrain analysis (obstacles, key terrain, routes, LZs).
- Imagery, if available.
- HVTs.
- Recent enemy/civilian activity in the area.
- Expected enemy activity during insertion through extraction.
- Enemy capabilities (intelligence collection assets, weapons capabilities).
- Review draft R&S plan.
- PIR.
- NAIs.

- Specific information requirements (SIR).
- Specific orders or requests (SORs).
- Time hack.

Brigade Aviation Officer

10-52. The BAO briefs the following:

- Aircraft package and time separation.
- Screen, guard, or cover lines.
- EAs.
- ABF and SBF positions.
- Routes and passage points (PPs).
- MEDEVAC/CASEVAC plan.

Effects Coordinator

10-53. The BCT ECOORD briefs the following:

- SEAD plan.
- FS assets available.
- Fire base requirements (fire base commander).
- Fire base location.
- HPTs.
- NFAs.
- RFAs.

Air Liaison Officer

10-54. The ALO briefs the following:

- Preplanned CAS.
- FW assets available.
- J-SEAD available.

AIR MISSION BRIEF

10-55. The AMB is the time when the parallel planning already accomplished comes together. The supported unit briefs the AMC on the entire operation. (See appendix P of this manual for a sample AMB format and checklist.)

10-56. The AMB is a coordinated staff effort. It is where the AATFC approves the AASLT plan. The AMB is a focused adjunct to the BCT OPORD. It highlights AASLT requirements to the AATF's aviation and ground units. The term "AMB" is used to mean both the written product and the briefing itself.

10-57. The AMB should not be a working meeting. An OPORD should have already been published, so the AMB is essentially a back-brief to the BCT commander. The AMB should focus on assault and attack reconnaissance concepts, sequence of events, and why the staff developed the sequence for the mission. The slightest change in serial separation, LZs, or other elements of the mission can significantly affect the rest of the plan.

10-58. Changes to the mission after the AMB must be approved by the BCT commander. It is very difficult to resynchronize the many different combat systems in the short time that remains between the AMB and mission execution.

AIR MISSION BRIEF PRODUCTS

10-59. Ten basic documents form the backbone of the AMB (table 10-2). Examples of each are found in appendix G.

Table 10-2. AMB products

<i>Product</i>	<i>Definition</i>
Air Movement Table	Regulates the sequence of flight operations from PZ to LZ
Tadpole Diagram	Describes lift compositions. One is prepared for each lift.
Communications Card	Is a consolidated summary of call-signs and nets.
Pickup Zone Diagram	Graphically depicts the PZ. One is prepared for each PZ.
Landing Zone Diagram	Graphically depicts the LZ. One is prepared for each LZ (primary and alternate). Must be provided to all pilots.
Chalk Card	Card normally handed to the pilot by the chalk leader as he enters the helicopter. Purpose is too ensure coordination of LZ data.
Attack Reconnaissance Sketches	Help to counter the potential for fratricide during close support operations, and are included as enclosures to the AMB. Prepared by each infantry battalion for each company-sized element in the TF. Provided to the aviation S3 at the BCT rehearsal.
Route Cards	Include the planning data for every ingress and egress route for the operation.

Other Documents

10-60. The AASLT execution checklist and the mission checklist for AASLT operations permit brief informative radio transmissions on crowded nets. An example execution checklist is included in appendix G, although it will not be available at the AMB. A draft checklist will be available at the TF rehearsal with the final version distributed before execution.

10-61. If the mission involves a FARP, sketches of each should be included as a document of the AMB and should be in the kneeboard packet.

AIRCREW BRIEF

10-62. After AMC approval, the AB is conducted. Preferably, it occurs at a central location where all aircrews can gather, but it may be necessary to have separate briefs at individual unit locations. Flight crews must fully understand the mission and execution for the AASLT to be executed successfully. (See appendix Q of this manual for a sample AB.)

10-63. The AB is a critical part of the AATF orders process. It covers the essential flight crew actions and aviation planning necessary to successfully accomplish the mission. The AB may incorporate some or all of the serial/pilot briefs (time permitting).

10-64. The AB may be conducted at the aviation TF level or the company level. While conducting the AB at the TF level may ensure a level of standardization in the information given, it is often difficult to effectively communicate mission information to such a large audience, especially at night in a field location where noise and light discipline is required.

10-65. The AB involves only aviation units and is analogous to any other unit order. The AMC is the final arbitrator of this briefing. The BCT TF S3 attends as the maneuver unit representative.

PICKUP ZONE UPDATE BRIEF

10-66. The PZ update brief is the final assembly of key leaders before conducting the AASLT. It disseminates the most current operational and intelligence information. This update is the final conditions check. The AATFC, AMC, ground tactical commanders (GTCs), S3s, TF S2, and PZ OIC attend. When possible, the PZ update brief is scheduled to begin after aircraft arrive so pilots can attend. At a minimum, key aviation leaders attend. (See table 10-3 for the PZ update brief agenda.)

Table 10-3. PZ update brief agenda

<i>Responsibility</i>	<i>By Whom</i>
Time line/agenda	TF S3
Enemy situation update	TF S2
Operations update	TF S3
Airspace update	TF S3
Attack reconnaissance products (tapes, photos, imagery, sketches, debriefs)	Attack reconnaissance LNO
Routes	
LZs	
Objectives	
Communications update	TF S6
Final conditions check	TF S3
Time hack (using Plugged or GPS)	TF S6
Commander's comments	AATFC

10-67. Following the PZ update brief, the AATFC will execute a commander's communications check. This is a complete check, involving commanders and leaders of all systems and nets to be used during execution of the AASLT. The AATFC and key leaders perform their communications checks from the C2 aircraft, while the aviation and ground forces use their organic communications systems.

SECTION IV – REHEARSALS

10-68. Rehearsals validate the plan. Air and ground units may conduct separate rehearsals for the operation. Air and ground units will ultimately come together for a rehearsal of the AATF as a whole. As a result of rehearsals, minor changes such as time line adjustments may occur, but major changes are not likely. Units may issue a postrehearsal FRAGO to disseminate changes to the plan. Lastly, the execution phase of the mission begins.

PRE-EXECUTION COMMUNICATION EXERCISE

10-69. The purpose of the COMMEX is to ensure that all communications systems within the brigade TF are operational before starting an operation.

10-70. The BCT S6, in coordination with the BCT S3, publishes the window in which the COMMEX will occur. This is normally a 5-hour window. Systems to be checked are specified. Normally, the following systems and nets are exercised:

- FM command.
- FM operations and intelligence (O&I).
- FM A&L.
- ABN.
- Amplitude modulation (AM) command.
- AM O&I.
- TACSAT.
- CAN1.
- Mobile subscriber radio telephone (MSRT) (battalions to brigade).
- Digital nonsecure voice terminal (DNVT) (BSA to brigade TOC).
- UXC-7 facsimile (FAX).
- C2 aircraft.
- PZ control net.
- MEDEVAC. (MEDEVAC requests can normally be made on any of the above nets.)

10-71. During the window published by the S6, all units will initiate calls on the specified communications nets. Signal personnel will maintain a log to keep track of the systems/units that report. The only exception to this reporting system is the FM command net. Battle captains in the BCT TOC will initiate a “GUIDONS” call to quickly free up the net.

10-72. Any unit incapable of reporting within the specified window notifies the BCT S6 for assistance and schedules an “alibi call” before the start of the operation.

MISSION REHEARSALS

10-73. The mission rehearsal for an AASLT is conducted sequentially by lifts beginning with the air movement plan, then the landing plan and finally, the GTP. Its purpose is to ensure a common understanding of the overall BCT effort. All commanders must know and understand the AATFC’s mission and intent, and how their mission and intent supports it. This rehearsal may follow the OPORD brief/AMB at the BCT, maneuver battalion, or it may be conducted separately by the aviation TF.

AVIATION TASK FORCE REHEARSAL

10-74. The aviation TF rehearsal is the culmination of the formal AASLT planning process. It is a rehearsal of the entire AASLT mission. It begins with setting conditions for success and ends with the commander’s expressed end state.

10-75. The rehearsal includes aircrews, the battle staff, and other key leaders. The focus centers on the synchronization of all assets required to support and execute the AASLT. A discussion and demonstration of likely contingencies are included in the rehearsal (such as DART operations, alternate route or LZ activation, delays in the PZ and other delays suited to a particular mission).

10-76. It is critical that AASLT security forces from OPCON attack reconnaissance units are fully represented at the rehearsal to demonstrate air route deconfliction, fire control measures, and locations of expected ABF positions or BPs. Additionally, the BCT S3, BAO, and ECOORD, or their designated representatives, attend the rehearsal to brief the ground tactical and FS plans.

10-77. The aviation TF rehearsal significantly contributes to the SA of aircrews and other key leaders by providing important risk reduction information significant to successful completion of a complex AASLT. (See appendix R for more on risk management.)

10-78. Based on the mission time line, attack reconnaissance units may not be fully represented at the rehearsal. Normally by this time, attack reconnaissance assets have started the condition setting phase of the operation.

PICKUP ZONE REHEARSAL

10-79. The TF brigade XO runs the PZ rehearsal. At a minimum, all flight leads and serial commanders flying the air mission, PZ OICs, and crisis action team noncommissioned officers in charge (NCOICs) attend. The PZ rehearsal covers the staging and loading plans of the air assault. Much of the rehearsal concentrates on the pilot's and hookup teams' actions in and around the PZs. If not done on the actual ground location with the correct loads, terrain models with wooden blocks to represent each load may be used. Hookup teams, crisis action teams, the PZ control, and each chalk must also rehearse loading and hookups, actions for frustrated loads, and emergency procedures. As with any rehearsal, maximum participation improves execution.

Chapter 11

Execution

During mission execution, the BAE monitors the mission as a team. To facilitate proper BAE manning requirements, a time line for the operation must be clearly established and each phase manned accordingly.

SECTION I – GENERAL

LOCATION DURING OPERATIONS

11-1. The BAO is positioned where he or she can best support the accomplishment of the mission. According to the operation and resources available, there are advantages to the BAO locating at the BCT TOC or accompanying the BCT commander. If the BAO accompanies the commander, the aviation plans officer or the TACOPS officer assumes BAE OIC duties at the TOC.

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11-2. The BAO must be able to assist the BCT S3 or commander from anywhere on the battlefield. The BAO must maneuver to an area where he or she can assess the risks and make adjustments by seeing, hearing, and understanding what is occurring. This allows the BAO to best understand the situation without losing the ability to help the BCT respond to changing situations.

11-3. When the BAO moves about the battlefield with the BCT S3 or commander and interacts with other commanders and their staffs, the experiences help him or her mentally visualize current operations. This permits the BAO to provide educated assessments on adjustments needed in current operations and requirements for future operations, which help to achieve the commander's desired intent. This assessment process is continuous and led by focused information requirements. A direct link with the BCT operations officer and the BCT commander helps the BAO provide adequate advice on aviation operations.

11-4. The BAO is a combat arms officer, trained in the employment of the combined arms team. The commander relies on the BAO's judgment not only in the employment of helicopters and UASs but in the teaming of all weapons systems available to accomplish the mission.

LOCATING AT THE TACTICAL OPERATION CENTER

ADVANTAGES

11-5. When locating at the BCT TOC, the BAO has access to various communications packages allowing him or her to stay informed and coordinate operations. The BAO has the assistance of the BAE staff as well as immediate access to the rest of the BCT staff. Routine planning continues and emergency planning can be accomplished when unforeseen situations arise.

DISADVANTAGES

11-6. When located at the TOC, the BAO cannot see what the commander is seeing. The BAO is unable to move from one critical location to the next and physically evaluate the situation hindering the BAO's ability to provide adequate advice to the commander on current operations.

LOCATING WITH THE COMMANDER

ADVANTAGES

11-7. An aircraft or vehicle carrying the commander will contain an A2C2 package. This permits many communications links that would otherwise be unavailable. These aircraft or vehicles may not have room for the BAO. If collocated, decisions requiring action from the commander may be made more quickly because the BAO and commander can discuss them face to face.

11-8. The C2 aircraft or vehicle is normally placed in a position to view the action most important at the time. When emphasis changes among locations in the battlespace, the commander has the option of moving to the newly developing location to observe and influence the action. When the BAO is able to accompany the commander, the BAO and the commander view operations from the same perspective.

DISADVANTAGES

11-9. Generally, there is a degradation of information flow available from other sources (such as intelligence) and less availability of tools (such as the tactical internet [TI]). C2 aircraft and vehicles do not always have systems access as sophisticated as that available in the TOC.

11-10. There is also less or slower access to those staff members, normally found in the BCT TOC, that can assist and provide information.

SECTION II – BATTLE TRACKING

11-11. Battle tracking of all aviation assets and the weapons systems employed by aviators, including artillery and joint systems, is vital. Additionally, maneuver locations and boundaries, and FSCMs must be tracked. Aviation operations NCOs and specialists must be experts in the digital systems of the TOC. Information that comes into the TOC must be passed from section to section in a rapid, smooth, and unhindered manner. The BAE must request and receive regular updates from aviation elements attached to or working for the BCT. This information is immediately available and accessible through the BAE workstation within the BCT TOC.

11-12. The BAE must be aware of all aspects of the mission relating to employing aviation assets. Every aspect of the mission must be tracked. This includes, but is not limited to—

- Arrival at marshaling areas.
- PZ arrival and departures.
- Execution of bump plans.
- Arrival on screen lines or OPs.
- Any enemy activity.
- Crossing FLOT or PLs.
- LZ arrival and departure.
- LZ hot or cold calls.
- Shift to alternate LZs.
- Arrival or departure at ABF and SBF positions.

- Commencing fires on targets in EAs by attack reconnaissance elements.
- Damage assessments on targets.
- BCT unit movements.
- Any change to control measures.
- Aviation fighter management cycle.
- Aircraft and aircrew status.
- FARP activity.
- FARP locations and status.
- MEDEVAC/CASEVAC plan.

11-13. Attendance at the appropriate air and ground rehearsals is important for BAE SU. During the planning and rehearsal phase, the BAE must be involved. Lists of key functions to be tracked must be carefully prepared and distributed for each operation.

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Chapter 12

Redeployment/Reset

Redeployment from recent operations in Iraq and Afghanistan have shown that the BCT TF end of mission and return to home station is a major operation which must be deliberately planned and well executed. Redeployment includes ending the mission, returning home safely, and resetting the BCT to a trained and ready status. The R4 model is discussed in this chapter. The discussion centers on the BCT with an attached aviation TF.

REDEPLOYMENT

12-1. Redeployment begins when the BCT TF receives a change of mission to redeploy to home station. Initially, the requirement will be to continue the current mission, perform a relief-in-place, and concurrently plan the necessary ground and air movements back to the appropriate in-theater SPOEs and APOEs.

12-2. Depending on the tactical situation, the BCT must assess and address training, personnel, and equipment. Training may involve weapons proficiency, convoy rehearsals, and convoy live fire exercises. Movement officers and hazardous materiel teams may need retraining/validation according to the amount of time since deployment. Equipment must not only be accounted for but must arrive at specific locations for load preparation and movement. LNO teams must be strategically placed to facilitate loading and movement at SPOEs and APOEs.

12-3. The BAE must be aware of and track BCT redeployment requirements and incorporate aviation into the planning and execution process. Aviation assets can provide convoy security and C2 for ground movement. Aviation specific requirements for redeployment should be clearly articulated and coordinated with the BCT. Aviation LNO teams should be included in advance party operations at the in-theater SPOE and APOE.

REINTEGRATION

12-4. Reintegration is the initial return to home station. Personnel accountability and reorientation into the home station environment are key parts of the reintegration process. The BAE should maintain SA of the status of the aviation TF, and the BAE should participate in planning for reconstitution and retraining during reintegration. Reintegration involves tracking the return of Soldiers and equipment and requires continuous C2. The focus is on taking care of Soldiers and their families, and usually involves a substantial block leave.

RECONSTITUTION

12-5. Reconstitution begins with arrival of equipment and completion of block leave. Reconstitution ends with all equipment at 10/20 standards. For aviation, this requires a major maintenance effort. The BAE should be aware of the aviation brigade reconstitution plan and the projected availability of units, aircraft, and crews. During reconstitution, the BCT makes plans for retraining.

12-6. Reconstitution is a maintenance intensive recovery. It is a time to reestablish processes, systems, procedures, and update SOPs and TTP. The intent is to reset both ground and air capabilities in preparation for training.

RETRAINING

12-7. At some point in the reconstitution phase, the BCT will be eager to begin training to regain an operational/deployable capability. Aviation, being maintenance and equipment heavy, will tend to stay in the reconstitution phase longer than other elements of the BCT. The BAE must articulate the supporting aviation TF's status, and should work with supporting aviation units to facilitate combined arms collective training opportunities.

LESSONS LEARNED

12-8. Redeployment is not a stand-alone operation but a combination of continued daily tactical missions, a relief-in-place, and a multitude of redeployment activities. Some examples of recent lessons learned include—

- Stop loss/stop move works.
- Units should retain trained personnel.
- Units should train personnel with retainability.
- Place LNOs and C2 cells in key nodes.
- LNOs must be knowledgeable and aggressive.
- BCTs and aviation TFs may have insufficient personnel assets to simultaneously conduct combat operations, relief-in-place, and redeployment.
- Aviation TFs must bring adequate force structure.
 - Units should prepare to have a stay behind team.
 - Units need continuity of leadership in the rear detachment.
 - Multiple modes of transportation through multiple locations require an extremely detailed tracking system.
 - S4 and S3 must work hand in hand.

12-9. Key points are—

- Be prepared to balance combat operations, relief-in-place, and redeployment operations simultaneously.
- Put the right LNO packages at the right locations.
- Get personnel and equipment tracking systems organized.

Appendix A

Recommended Equipment and Supplies

The TOE and the list of supplies (table A-1 and table A-2) required to operate the BAE are not necessarily all-inclusive. Each can be modified according to the BCT to which the BAE is assigned and the geographic location in which they are operating.

Table A-1. Brigade aviation element table of organization and equipment

<i>Item</i>
A33020 Alarm: chemical agent, M22
A79381 Antenna group: OE-254/GRC
B67766 Binocular
C05541 Control receiver-transmitter
C41064 Command system: AN/USC-55A
C62375 Battery case
C68719 DR-8 ½ KM (WD-1 wire)
C78783 Automated mission planning system (AMPS)
C89480 Camouflage screening
D60801 TA-1042 DNVT
D78555 AN/CYZ-10 Data transfer device (DTD)
G42170 10 KW Generator
K47623 KY-99: MINTERM terminal
L63583 Light set chart field
N05482 Night vision goggle: AN/PVS-7B
P40750 Power supply: PP-6224/U
P49587 MSRT terminal enhanced position location reporting system (EPLRS)
R20684 Radiac set: AN/VDR-2
R30895 Radio set: AN/GRC-213
R31061 Radiac set: AN/UDR-13
R34974 Radio set: AN/GSQ-240A(C)
R59160 RL-39 Reel unit
R68044 AN/VRC-90F(C) Radio set
R81691 High frequency AN/VRC-100(V)1 radio set
T31872 Telephone wire with reel
T61494 M998 A1 HMMWV
T61630 Expanded capacity 4x4 W/E HMMWV
T95992 Trailer, cargo
V31211 Telephone set: TA-312/PT
V98788 Power supply vehicle: HYP-57/telecommunications security (TSEC)

Table A-1. Brigade aviation element table of organization and equipment

<i>Item</i>
XXX151 MT-2010 Transceiver
XXX852 Internet protocol phone
Z10018 Battlefield combat identification system (BCIS) transponder
Z36303 Iridium telephone
Z46135 Maneuver control system (MCS)
Z59863 Navigation set: GPS receiver

Table A-2. Recommended brigade aviation element equipment and supplies

<i>Item</i>
AN/PRC-117F SATCOM/UHF/VHF/FM
TACSAT
Maps and mapboard
Publications and references library
Organizational charts
Report forms
Unit overlays/graphics
Diagram of building/complex
Commercial telephone
STU-III secure telephone terminals
Phonebook
Commercial off the shelf laptop
Computer software packages (special software)
Printer
AMPS / JMPS / Falconview mission planning tools
Projector
Office supplies, and graphics tools (such as pens, paper, scissors, Post-it notes/icons, acetate, towels, alcohol, tape, [DA Form 1594, <i>Daily Staff Journal or Duty Officer's Log</i>])
Field desk/table
Storage (footlockers)
Map plotter (example: HP Design Jet 5000)
Plain language address designator (PLAD)
Global command and control system (GCCS) account
E-mail address
Laptop, projector, and plotter require commercial off-the-shelf (COTS) ruggedized cases. The plotter requires maximum memory and GL2 cartridge for printing images.

Appendix B

Mission Planning and Status Tracking Charts and Tools

The charts contained in this appendix are examples of TOC planning and operational status tracking charts. These charts are not intended to replace real time data provided by automated battle tracking systems. They are designed to consolidate and package information and to reduce the time and effort the BAE expends in designing and displaying commonly used charts. The information displayed on the charts in this appendix is not intended to be directive or all inclusive; BAEs should adjust the charts according to their needs. Also see FM 3-90.3 for more information.

SECTION I – SAMPLE PLANNING CHARTS

B-1. Table B-1 through table B-8 are examples of planning charts.

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SECTION I – Sample Planning Charts..... B-1
SECTION III – Sample Air-Ground Integration Planning Charts..... B-15

Table B-1. Unit REDCON levels

<i>Level</i>	<i>Response Time</i>	<i>Personnel</i>	<i>Equipment</i>	<i>Units</i>
1/Purple	Immediate	All personnel alert, loaded, in march order in PZ posture and ready to move.	Vehicles loaded, secured, weapons manned, and engines running. All equipment loaded including camouflage nets and M8 alarms.	Units ready to move immediately on notification.
2/Red	30 minutes	Fifty percent of personnel in “stand down” for mess, rest, and maintenance. Remainder of personnel man vehicles, OPs, dismount points, weapons, and M8 alarms and monitor radios/phones.	Listening posts (LPs)/OPs and wire pulled, camouflage nets taken down. Vehicle PMCSs and aircraft inspections completed.	Units ready to move in 30 minutes.

Table B-1. Unit REDCON levels

Level	Response Time	Personnel	Equipment	Units
3/Yellow	1 hour	50 percent of personnel in “stand down” for mess, rest and maintenance. Remainder of personnel man vehicles, Ops, weapons, and monitor radios/phones.	Camouflage nets, personal gear, stoves, cots, tents (except TOC) stored and loaded. LP/OPs out to include chemical agent alarms. Vehicle PMCSs and aircraft inspections completed.	Units ready to move in 1 hour.
4/Amber	2 hours	Two men per company on perimeter patrol. CP at minimum manning. One man alert per vehicle, monitoring radios and manning turret weapons. Remainder of personnel in “stand down” for mess, rest and maintenance. Vehicle drivers immediately available.	Tents, cots, camouflage nets, radios with OE 254 antenna, and M8A1 alarms up. Nonessential equipment uploaded.	Units ready to move in 2 hours.
5/Black	More than 2 hours	Normal operations.	All equipment loaded and manned within 4 hours.	Units dispersed & able to reach all personnel within 2 hours and PZ posture within 4 hours.

Table B-2. Aircraft REDCON levels

Level	Response Time	Aircraft	Engine	APU*	Avionics	Weapons	Communications	Prep Time
1	Immediate	OH-58 AH64 UH-60 CH-47	100 percent revolutions per minute (RPM)	NA	All on	Standby	Internal	NA
			100 percent RPM	NA	All on	Initialized	Internal	NA
2	15 minutes	OH-58 AH-64 UH-60 CH-47	Set for start	NA	Off	Off	PRC 119 / 112	Pilots at aircraft
			Set for start	On	All on	Off	Internal	

Table B-2. Aircraft REDCON levels

<i>Level</i>	<i>Response Time</i>	<i>Aircraft</i>	<i>Engine</i>	<i>APU*</i>	<i>Avionics</i>	<i>Weapons</i>	<i>Communications</i>	<i>Prep Time</i>
3	30 minutes	OH-58 AH-64 UH-60 CH-47	Set for start Set for start	NA Off	Off Off	Off Off	PRC 119/ 112 PRC 119/ 112	Pilots on standby with RTO
4	1 hour	OH-58 AH-64 UH-60 CH-47	NA NA	NA Off	Off Off	Off Off	Unit SOP Unit SOP	Aircraft thru-flight, crews briefed
5	2 hours	OH-58 AH-64 UH-60 CH-47	NA NA	NA Off	Off Off	Off Off	Unit SOP Unit SOP	Aircraft thru-flight, crews briefed
6	More than 2 hours	OH-58 AH-64 UH-60 CH-47	NA NA	NA Off	Off Off	Off Off	Unit SOP Unit SOP	Aircraft thru-flight, mission planning
Note 1: Response time refers to departure from the tactical assembly area (TAA). Note 2: REDCON 5 is a crew rest cycle with a mission planned and briefed. Note 3: REDCON 6 is a crew rest cycle for future mission planning. OH-58/AH-64/UH-60/CH-47								
*APU – auxiliary power unit								

Table B-3. Scout/pathfinder insertion checklist

<i>Topic</i>	<i>Remarks</i>
C2	Controlling headquarters for -Insertion -Emergency extraction -Extraction -Reporting
Aircraft package	Based on # personnel (PAX*) and availability of A/C
Communication plan	Primary Means: FM, HF, S/C TACSAT -Pathfinder frequency: -Scout frequency: -Scout frequency: Alternate means: -Pathfinder: -Scout frequency: -Scout frequency: Communication windows: 1. 2.
Flight route plan	Developed by the BAE and/or flight leads and will include ACP grids, RP and SP grids, ALT flight routes
En route security plan	Developed by the attack Bn flight leads
SEAD plan/false LZ preparation	Developed by the Bde ECOORD

Table B-3. Scout/pathfinder insertion checklist

<i>Topic</i>	<i>Remarks</i>
False insertion points	Grid(s): Grid(s):
Pathfinder insertion points	Primary grid(s): Alternate grid(s):
Pathfinders tentative route to LZ and RP	SP grid: CP # 1: CP # 2: CP # 3: CP # 4: RP grid:
Scout insertion points	Scout primary grid: Scout alternate grid: Scout primary grid: Scout alternate grid:
Scout tentative route to objectives and NAIs	Scout 1 SP grid: NAIs CP # 1: - CP # 2: - CP # 3: - CP # 4: - RP grid:
	Scout 2 SP grid: NAIs CP # 1: - CP # 2: - CP # 3: - CP # 4: - RP grid:
NFAs	Grids: Radius (200 meters):
NLT Time for pathfinder/scouts to be in RP / NFAs	H-(designated time)
Attack aviation station times	Time frames
Planned extraction points	Grids: -Pathfinders: -Scouts: -Scouts:
Emergency extraction points	Grids: -Pathfinders: -Scouts: -Scouts:
No Communication PZ	Grid: Signal:

Table B-3. Scout/pathfinder insertion checklist

Topic	Remarks
PZ posture plan	Time: Grid to PZ location:
*PAX - passengers	

Table B-4. Aircraft status

		Aircraft					Aircrews				
Line #	Type	A	B	C	D	E	F	G	H	I	J
		Auth	On Hand	Operational	Losses Since Last UA stat	Replacement A/C Rec'd	Auth	Day/ Night	NVG	Total	Flyable Next 24 Hours
1	AH-1										
2	N/A										
3	AH-64										
4	CH-47D										
5	EH-60										
6	OH-58C										
7	OH-58D										
8	UH-1										
9	UH-60A										
10	UH-60C2										
11	UH-60L										
12	UH-60V										
13-19	Other										

Table B-5. Class III/IV forecast chart

	<i>On Hand</i>	<i>24 Hours</i>	<i>48 Hours</i>	<i>72 Hours</i>
JP4				
Diesel				
MOGAS*				
Hellfire				
2.75-inch				
30-mm				
.50-cal				
*MOGAS – motor gasoline				

Table B-6. Airspace coordination measure request

An ACM request may contain the following information:

- DTG request submitted
- Measure type (ROZ, route, etc.)
- Requested name of route, ROZ, etc.
- Point of contact information of requesting unit
- Minimum altitude
- Maximum altitude
- Effective DTG
- Ending DTG
- System (AH-64, Shadow UAS, MLRS, etc)
- Grids of points identifying the measure
- Radius of Circle (if defined by single point)
- Width of route
- Purpose of ACM
- Additional Comments

Table B-7. Air mission request (Attack / Recon)

An air mission request may contain the following information:

- Supported unit info:
 - Date of request / Date of mission
 - Unit point of contact
 - Unit callsigns and frequencies
 - Summarized scheme of maneuver
 - Mission graphics (hard copy sent or give location on SIPR)
 - Target grid / area
 - Total number and type of friendly vehicles

Table B-7. Air mission request (Attack / Recon)

- Friendly unit markings
- Attack / Recon helicopter data:
 - Task and purpose
 - Arrival time on station
 - Expected duration of aviation support
 - Type / number of targets
 - Clearance of fires authority
 - Fire support during mission (location, call signs, FSCMs, etc.)
 - Route reconnaissance requirements
 - Airspace coordination measures affecting mission (ROZs, no fire areas, etc.)
 - Threat information

Table B-8. Assault mission request

An assault mission request may contain the following information:

- Task and purpose of aviation support
- Type of Airframe requested (UH-60 / CH-47)
- Requesting unit point of contact information
- Justification for flight
- VIP Code
- Proposed Itinerary
 - Date Time Group of mission
 - Pick-up site (PZ) grid / name
 - PZ Time
 - Drop-off site (LZ) grid / name
 - Expected delay times and location (PZ / LZ Ops)
 - Number of PAX (include name, SSN, weight)
 - Cargo information (description, size, weight, HAZMAT, etc.)
- Sling load requirements (describe type / weight and ensure load planning complete)
- Special requests and remarks

B-2. Table B-9 through table B-18 provide examples of mission tracking charts.

Table B-9. Aviation activities (current) checklist

<i>Mission</i>	<i>Who</i>	<i>What</i>	<i>When</i>	<i>Where</i>	<i>Task</i>	<i>Purpose</i>	<i>Status</i>					
Attack												
Lift												
Recon												
C2												
UAV												
CAS												
JSTARS*												
Coordination made with BCT units and higher		DIV	Flank	ADA	FSC	TF 1	TF 2	BN 3	FSC	MP	BRT	Atk/Recon
*JSTARS - joint surveillance target attack radar system												

Table B-10. Aviation activities (next 24 hours) checklist

<i>Mission</i>	<i>Who</i>	<i>What</i>	<i>When</i>	<i>Where</i>	<i>Task</i>	<i>Purpose</i>	<i>Status</i>					
Attack												
Lift												
Recon												
C2												
UAS												
CAS												
JSTARS												
Coordination made with BCT units and higher		DIV	Flank	ADA	FSC	TF 1	TF 2	BN 3	FSC	MP	BRT	Atk/Recon

Table B-11. A2C2 control measures

<i>Mission</i>	<i>Who</i>	<i>What</i>	<i>When</i>	<i>Where</i>	<i>Task</i>	<i>Purpose</i>	<i>Status</i>
Air AA							
Lift ACA*							
Recon PZ							
C2 LZ							
UAV launch and recovery							

Table B-11. A2C2 control measures

ADA weapon control status												
Army AV attack position												
FARP												
Coordinatio n made with BCT units and higher	DIV		FLANK	ADA	FS C	TF 1	TF 2	BN 3	FS C	MP	BR T	Atk/Reco n
*ACA – airspace coordination area												

Table B-12. Laager site information checklist

EN ROUTE TO LAAGER SITE

SP _____ WEAPONS STATUS _____

ROUTE _____

ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____

ALTERNATE ROUTE _____

RP _____ WEAPONS STATUS _____

LAAGER SITE _____

TIME _____

NAME/GRID _____ / _____

DESCRIPTION _____

ALT _____

SECURITY POSTURE _____

LANDING DIRECTION _____ FORM _____ G/A _____

OCCUPATION PLAN _____ SEQUENCE _____

HAZARDS _____

REDCON STATUS _____

SPECIAL INSTRUCTIONS (such as MSN UPDATE TIME & LOCATION)

APU CRANK TIME _____ COMMO CHECK _____ FREQUENCY _____

T/O TIME _____ HEADING _____ ALT _____ A/S-G/S _____ LIGHTING _____

FORMATION _____ ANGLE _____ SEPARATION _____ FUEL REQ'D _____

Table B-13. Multiple lifts briefing checklist

EN ROUTE TO PZ	
SP _____	WEAPONS STATUS _____
ROUTE _____	
ALT _____	A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____
ALTERNATE ROUTE _____	
RP _____	WEAPONS STATUS _____
PZ	
NAME/GRID _____ / _____	
TIME _____	FREQUENCY _____ CALL SIGN _____
DESCRIPTION _____	
ALT PZ _____	
MARKINGS (FAR) _____ (NEAR) _____	
SECURITY POSTURE _____	
LANDING DIR _____	FORM _____ G/A _____
HAZARDS _____ ACTIONS ON CONTACT _____	
TROOPS LOAD _____	
AIRCRAFT ACL* _____	CONFIG _____ DOORS O/C _____
KEY PERSONNEL LOCATION _____	
PZ CONTROL LOCATION _____	
EXT LOADS TYPE _____	WEIGHT _____ INSPECTION SHEETS _____
FRUSTRATED LOAD PROCEDURES _____	
APU CRANK TIME _____	COMMO _____ LOAD TIME _____
FORMATION _____	ANGLE _____ SEPARATION _____ FUEL REQ'D _____
TAKEOFF TIME _____	HDG _____ FORM _____
EN ROUTE TO LZ	
SP _____	WEAPONS STATUS _____
ROUTE _____	
ALT _____	A/S-G/S _____ FORM _____ DOORS _____ TURNS>60 _____
ALTERNATE ROUTE _____	
DOOR GUN POSITIONS _____	
HAZARDS _____	
FALSE INSERTIONS _____	
RP _____	WEAPONS STATUS _____
LZ	
NAME/GRID _____ / _____	
TIME _____	FREQUENCY _____ CALL SIGN _____
DESCRIPTION _____	
ALT LZ _____	
MARKINGS (FAR) _____ (NEAR) _____	
SECURITY POSTURE _____	
LANDING DIRECTION _____	FORMATION _____ GA _____
HAZARDS _____ ACTIONS ON CONTACT _____	
ENEMY SITUATION _____	THREAT ORIENTATION _____
WEAPONS STATUS _____ NO FIRE AREAS _____	
TROOPS OFFLOAD _____	TROOPS ACTIONS AFTER OFFLOAD _____
TAKEOFF SEQUENCE _____	
EGRESS ROUTE	
SP _____	WEAPONS STATUS _____
ROUTE _____	
ALT _____	A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____
ALTERNATE ROUTE _____	
RP _____	WEAPONS STATUS _____

Table B-13. Multiple lifts briefing checklist

<p>EN ROUTE TO PZ SP _____ WEAPONS STATUS _____ ROUTE _____ ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____ ALTERNATE ROUTE _____ RP _____ WEAPONS STATUS _____</p> <p>PZ NAME/GRID _____ / _____ TIME _____ FREQUENCY _____ CALL SIGN _____ DESCRIPTION _____ ALT PZ _____ MARKINGS (FAR) _____ (NEAR) _____ SECURITY POSTURE _____ LANDING DIR _____ FORM _____ G/A _____ HAZARDS _____ ACTIONS ON CONTACT _____ TROOPS LOAD _____ AIRCRAFT ACL* _____ CONFIG _____ DOORS O/C _____ KEY PERSONNEL LOCATION _____ PZ CONTROL LOCATION _____ EXT LOADS TYPE _____ WEIGHT _____ INSPECTION SHEETS _____ FRUSTRATED LOAD PROCEDURES _____ APU CRANK TIME _____ COMMO _____ LOAD TIME _____ FORMATION _____ ANGLE _____ SEPARATION _____ FUEL REQ'D _____ TAKEOFF TIME _____ HDG _____ FORM _____</p> <p>EN ROUTE TO LZ SP _____ WEAPONS STATUS _____ ROUTE _____ ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS>60 _____ ALTERNATE ROUTE _____ DOOR GUN POSITIONS _____ HAZARDS _____ FALSE INSERTIONS _____ RP _____ WEAPONS STATUS _____</p> <p>LZ NAME/GRID _____ / _____ TIME _____ FREQUENCY _____ CALL SIGN _____ DESCRIPTION _____ ALT LZ _____ MARKINGS (FAR) _____ (NEAR) _____ SECURITY POSTURE _____ LANDING DIRECTION _____ FORMATION _____ GA _____ HAZARDS _____ ACTIONS ON CONTACT _____ ENEMY SITUATION _____ THREAT ORIENTATION _____ WEAPONS STATUS _____ NO FIRE AREAS _____ TROOPS OFFLOAD _____ TROOPS ACTIONS AFTER OFFLOAD _____ TAKEOFF SEQUENCE _____</p> <p>EGRESS ROUTE SP _____ WEAPONS STATUS _____ ROUTE _____ ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____ ALTERNATE ROUTE _____ RP _____ WEAPONS STATUS _____</p> <p>*ACL – allowable combat load</p>
--

Table B-14. Primary FARP status report

	<i>Base FARP</i>	<i>Active FARP</i>	<i>Silent FARP</i>
Personnel			
Blivets			
HEMTTs* (tanker)			
HEMTTs (cargo)			
JP4 (gallons)			
Diesel (gallons)			
MOGAS (gallons)			
Hellfire PA79			
2.75 HE H163			
2.75 HE H164			
2.75 Illum H180			
2.75 MPSN N464			
2.75 SMK* H519			
30 mm B120			
Chaff			
.50-cal			
*HEMTT – heavy expanded mobility tactical truck			
*SMK - smoke			

Table B-15. FARP briefing checklist

ROUTE TO FARP
 SP _____ WEAPONS STATUS _____
 ROUTE _____
 ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____
 ALTERNATE ROUTE _____
 RP _____ WEAPONS STATUS _____

FARP
 TIME _____
 NAME/GRID _____ / _____
 DESCRIPTION (# OF PTS) _____
 MARKINGS _____
 LANDING DIRECTION _____ FORM _____ G/A _____
 NOZZLE TYPE _____
 HAZARDS _____
 SIGNALS _____

REPOSITION

HOLDING AREA/JOIN UP
 LOCATION _____
 HEADING _____

EGRESS ROUTE
 SP _____ WEAPONS STATUS _____
 ROUTE _____
 ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS>60 _____
 ALTERNATE ROUTE _____
 RP _____ WEAPONS STATUS _____

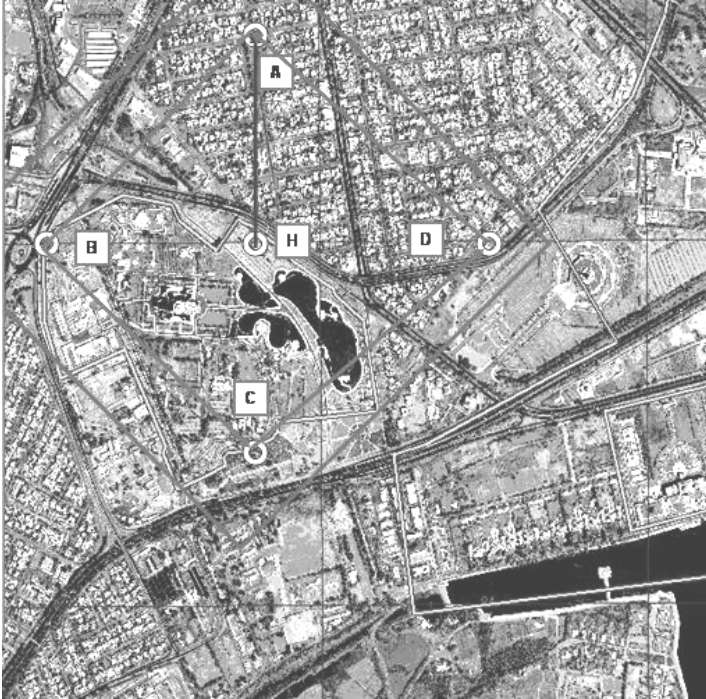
Table B-16. Tactical missions checklist

<i>MSN#</i>	<i>Date</i>	<i>AVN Unit</i>	<i>A/C Type</i>	<i>Mission</i>	<i>Times</i>	<i>Status</i>	<i>POC Name</i>	<i>POC #</i>	<i>Remarks</i>

Table B-17. Example of Raven (UAS) table

<i>Date</i>		<i>Unit</i>	<i>MSN#</i>	<i>Task</i>	<i>Zone</i>	<i>Times</i>	<i>Status</i>	<i>Remarks</i>	<i>POC Name</i>	<i>POC #</i>	
1st	Monday										
2nd	Tuesday										

Table B-18. Example of a Raven (UAS) mission

Call Sign:	BN, BCT, DIV, Date (Raven Missions)
Frequency:	
1) ATC:	
2) BN CMD:	
3) Multiuser internet relay chat (MIRC) channel/C/S:	
Launch site:	
Zone:	
Recovery site: Same as launch	
MSN altitudes: cruise specific fuel consumption-700 mean sea level (MSL)	
Proposed MSN times:	
1) Day flights:	
0630 to 0730	
1830 to 1930	
2) Night flights:	
2000 to 2100	
Estimated time en route (ETE): 1 hour each flight	
Checkpoints:	
H -	
A -	
B -	
C -	
D -	
E -	
R -	
Raven channel: (TBA)	
Mission description:	
POC / Ph#:	
E-mail:	

SECTION II – SAMPLE AIR-GROUND INTEGRATION PLANNING CHARTS

B-3. Table B-19 through B-22 provide examples of air-ground integration planning charts.

Table B-19. Artillery munitions and characteristics

Asset	Max Range Meters	Max Rate of Fire (P/min)	Sustained Rate of Fire (P/min)	Type Ammo
105 T M102	12,400 15,400 (RAP)	10 rounds (Rds)	3 Rds	HEP-T, RAP, WP, APERS, Gas, HE, ICM, ILLUM, HC
155 T M198	22,400 30,000 (RAP)	4 Rds		HE, ICM, WP, ILLUM, DPICM, ADAM, RAP, Nuke, Chem, RAAM, CPHD
155 self propelled	18,100 23,500 (RAP)	4 Rds	1 Rd	Same as M198
MLRS	30,000	1.5 Rds per second	1 Rd per 4.5 seconds	DPICM, Chem
60 mm mortar	3,500	30 Rds/min for 4 mins	20 Rds	HE, WP, ILLUM
81 mm mortar	4,700	30 Rds/min for 4 mins	8 Rds	Same as 60-mm
107 mm mortar	6,800	18 Rds/min for 2 mins	3 Rds	HE, WP, Chem, ILLUM
ADAM – area denial artillery munition APERS – antipersonnel Chem- chemical CPHD – copperhead DPICM – dual purpose improved conventional munition HC – zinc oxide HE – high explosive		HEP-T – high explosive plastic tracer ICM – improved conventional munition ILLUM – illumination RAAM – remote anti-armor munition RAP – improved rocket assisted projectile WP – white phosphorous		

Table B-20. Example of a BCT BAE battle rhythm time line

Time line	Actions Required	
	BAE Led	Other Actions that Occur Concurrently
0100		
0200		
0300		
0400		
0500		Scrub admin flight manifest
0600	BUB* slides due	
0700		
0800	Division Cdr's update, Shift change	
0900	Bde BUB	

Table B-20. Example of a BCT BAE battle rhythm time line

<i>Time line</i>	<i>Actions Required</i>		
	BAE Led	Other Actions that Occur Concurrently	
1000			
1100			
1200	Raven requests due to division		
1300			
1400	Admin AMR* manifest due to division		
1500			
1600	Brigade fighter management update	Scrub mission tracker with avn bde and division workbooks	
1700	Division update		
1800			
1900			
2000	Shift change	Scrub mission tracker	Space-A manifesting
2100			
2200			
2300			
2400			
0100			
<p>Additional Requirements:</p> <p>Check TAIS hourly for system/data messages.</p> <p>Check TAIS. Post changes to ACO, as required.</p> <p>Scrub mission tracker with electronic and paper copies of submitted AMRs. Make changes as necessary.</p> <p>Post changes to AMRs and notify personnel, as required.</p>			
<p>End of Month Requirements:</p> <p>Save all data from the previous month to a CD. Upon confirmation that all data has been recorded to the CD, delete all previous month data from hard drive.</p> <p>Prepare all folders for the next month's data.</p> <p>Scrub the continuity book. Update outdated information with the most current changes.</p>			
<p>*BUB – battle update brief</p> <p>*AMR – air mission request</p>			

Table B-21. Logistics and support checklist

<i>MSN #</i>	<i>Date</i>	<i>AVN Unit</i>	<i>Mission</i>	<i>PAX</i>	<i>Leg</i>	<i>Times</i>	<i>Status</i>	<i>POC Name</i>	<i>POC #</i>	<i>Remarks</i>

Table B-22. Abbreviated list matrix

Tasks	Proponent field manuals (all items in this matrix are FMs)											
	3-0	3-04.113	3-04.126	3-07	3-90	4-0	5-0	6-0	7-0	17-95	34-130	90-4
Actions on contact			X							X		
AASLT		X										X
Attack recon employment			X									
BHL/BHO			X							X		
CCIR							X	X				
COA							X					
CSS						X						
Direct fire planning			X									
EA development			X									
EEFI							X					
Fire control			X									
Fire distribution			X									
IPB											X	
MDMP							X					
Movement techniques			X									
Orders							X					
PR		X										
Recon fundamentals			X		X					X		
Recon ops			X							X		
Rehearsals		X	X					X				
Risk mgmt	X											
Screening			X							X		
Security			X							X		
Stability / support ops				X								
TLP							X					
Training model									X			
Utility helicopter ops		X										
Volcano		X										
Wargaming							X					

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Appendix C

Aviation Support of Ground Operations

This appendix is designed to assist the BAE in making recommendations to the BCT commander on the best doctrinal employment of aviation assets in support of the BCT's missions. It is divided into sections that include aviation support to heavy (mechanized infantry and armor) division operations, and light (light infantry, airborne, air assault) division operations. Once the BCT commander and S3 complete their mission analysis, the BAE can refer to the BCT's mission in this appendix and use the lists for possible doctrinal missions that each type of aviation asset can perform in support of the BCT. These missions are defined by task and purpose. These are not all-inclusive lists and serve to provide assistance. This appendix is not designed to be the aviation brigade commander's smart book. Aviation brigades may also conduct these types of missions directly for the division commander. In this case, the BAEs need not concern themselves with these missions.

SECTION I – HEAVY DIVISION OFFENSE

MOVEMENT TO CONTACT

ATTACK RECONNAISSANCE HELICOPTERS

C-1. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Armed reconnaissance or reconnaissance in force to gain and maintain enemy contact.
 - Route reconnaissance. Aircraft and ground scouts work together for a detailed reconnaissance. Aircraft working alone will accomplish the reconnaissance quicker but with less detail.
 - Guard operations. The battalion must be augmented with tanks or Bradleys.
 - Screen operations while units consolidate on objectives. The battalion can provide security for an assaulting force after it has reached its objective. Attack reconnaissance assets can provide early warning of enemy counterattack or routes of enemy withdrawal.
- Screening front, flank, or rear (counterreconnaissance).
- Augmenting and reinforcing ground scouts seeking enemy contact. This is especially effective because of the AH-64's night capability.

Contents	
SECTION I – Heavy Division Offense	C-1
SECTION II – Heavy Division Defense	C-6
SECTION III – Heavy Division Other Operations.....	C-9
SECTION IV – Light Infantry/Airborne/Air Assault Divisions Offense	C-15
SECTION V – Light Infantry/Airborne/Air Assault Divisions Defense.....	C-21
SECTION VI – Light Infantry/Airborne/Air Assault Divisions Other Operations	C-26

- Acting as a rapid reaction force (hasty attack) to develop the situation in a meeting engagement or allowing for disengagement if the enemy is too strong for advance guard forces.

ASSAULT HELICOPTERS

- C-2. Missions the AHB could perform include, but are not limited to, conducting—
- Air assault to seize key terrain, disrupt the enemy's rear, or emplace LRSD/SOF.
 - Air movement to emplace remote battlefield sensor system (REMBASS) to assist in NAI observation, CASEVAC, or refuel-on-the-move (ROM).
 - Countermobility operations with Volcano.
 - C2, retransmission (RETRANS).

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

- C-3. Missions the CAC could perform include, but are not limited to, employing—
- Employing A2C2S platforms in support of the division command group, BCT, and aviation brigade commanders' C2 requirements.
 - Employing Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

- C-4. Missions the HvyHC could perform include, but are not limited to, conducting—
- Air movements for general resupply, especially oversized, heavy, and special munitions, ROM, and CASEVAC.
 - Air assaults to seize key terrain, disrupt the enemy's rear, or emplace long-range surveillance detachment (LRSD)/SOF.

Air Ambulance Company

- C-5. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—
- Conducting MEDEVAC.
 - Resupplying emergency class VIII.
 - Transporting medical personnel and equipment, whole blood, and biologicals.

HASTY ATTACK

ATTACK RECONNAISSANCE HELICOPTERS

- C-6. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—
- Conducting—
 - Flank or forward screen to provide early warning, maneuver space and reaction time for the force conducting the hasty attack.
 - Route reconnaissance to prevent disruption of the movement.
 - Reconnaissance of enemy frontage and depth to locate routes around enemy position.
 - Reconnaissance to the rear of an enemy position to provide reports on enemy positions, reserves, artillery, and control CAS and artillery fires.
 - Deception operations to prevent detection of the movement to contact force.
 - A mobile attack to separate echelons and preventing or disrupting counterattacks.
 - Air assault security to protect AATF.

- Acting as—
 - The BCT's tactical combat force (TCF) for rear operations.
 - A reserve.
- Attacking the enemy's flanks and rear to develop the situation and diverting the enemy's attention. They can be used as either main or supporting attacks.
- Screening own flanks.

ASSAULT HELICOPTERS

C-7. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—

- Air assault to seize key terrain, disrupt the enemy's rear, or emplace LRSD/SOF.
- Air movement to emplace REMBASS to assist in NAI observation, CASEVAC, or ROM.
- Countermobility operations with Volcano.
- C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-8. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-9. Missions the HvyHC could perform include, but are not limited to, conducting—

- Air movements for general resupply especially oversized, heavy, and special munitions, ROM, and CASEVAC.
- Air assault to seize key terrain, disrupt the enemy's rear, or emplace LRSD/SOF.

Air Ambulance Company

C-10. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

DELIBERATE ATTACK

ATTACK RECONNAISSANCE HELICOPTERS

C-11. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - A deliberate attack into the enemy's flanks or rear to develop the situation, diverting the enemy's attention.
 - A mobile attack to separate echelons, preventing and disrupting counterattacks (main or supporting attack).
 - Air assault security to protect AATF.
- Screening own flanks.
- Acting as a reserve.

ASSAULT HELICOPTERS

- C-12. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—
- Air assault to seize key terrain, disrupt the enemy's rear, or emplace LRSD/SOF.
 - Air movement to emplace REMBASS to assist in NAI observation, CASEVAC, or ROM.
 - Countermobility operations with Volcano.
 - C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

- C-13. Missions the CAC could perform include, but are not limited to, employing—
- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
 - Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

- C-14. Missions the HvyHC could perform include, but are not limited to, conducting—
- Air movement operations—
 - For general resupply especially oversized, heavy, and special munitions, ROM.
 - For CASEVAC.
 - Air assault to seize key terrain, disrupt the enemy's rear, or emplace LRSD/SOF.

Air Ambulance Company

- C-15. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—
- Conducting MEDEVAC.
 - Resupplying emergency class VIII.
 - Transporting medical personnel and equipment, whole blood, and biologicals.

EXPLOITATION

ATTACK RECONNAISSANCE HELICOPTERS

- C-16. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—
- Screening vulnerable own flanks or gaps when performing as part of a large force.
 - Conducting air assault security to protect the AATF.
 - Attacking—
 - Flanks and rear to maintain constant pressure on the defeated force.
 - Rear area C2 and CSS assets to ensure total defeat of the enemy force.
 - Acting as reserve to blunt any counterattacks or providing the decisive blow by attacking to destroy lucrative targets.

ASSAULT HELICOPTERS

- C-17. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—
- Air assault to seize key terrain, disrupt the enemy's rear, gain and maintain momentum, or emplace LRSD/SOF.
 - Air movement to emplace REMBASS to assist in NAI observation, CASEVAC, or ROM.

- Countermobility operations with Volcano.
- C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-18. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-19. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movements operations for—
 - General resupply especially oversized, heavy, and special munitions rapidly to help maintain momentum.
 - Air movement for CASEVAC.
- Air assaulting forces to seize key terrain (bridges, crossing sites) to help maintain momentum.

Air Ambulance Company

C-20. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

PURSUIT

ATTACK RECONNAISSANCE HELICOPTERS

C-21. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Screening—
 - Vulnerable own flanks or gaps when performing as part of a larger force.
 - Pursuing forces' flanks especially at night.
- Attacking—
 - To destroy, disrupt, or attrit counterattack or reserve forces.
 - To fix withdrawing forces.
- Conducting air assault security to protect the AATF.

ASSAULT HELICOPTERS

C-22. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—

- Air assault to seize key terrain, disrupt the enemy's rear, or emplace LRSD/SOF.
- Air movement to emplace REMBASS to assist in NAI observation, CASEVAC, or ROM.
- Countermobility operations with Volcano.
- C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-23. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-24. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movements—
 - For general resupply especially oversized, heavy, and special munitions rapidly to help maintain momentum.
 - Air movement for CASEVAC.
- Air assaulting forces to seize key terrain (bridges, crossing sites) to help maintain momentum.

Air Ambulance Company

C-25. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

SECTION II – HEAVY DIVISION DEFENSE

AREA DEFENSE

ATTACK RECONNAISSANCE HELICOPTERS

C-26. Missions the ARB (FM 1-112 or FM 1-114 [both FM's will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Normal reconnaissance and security missions to provide information, reaction time, and maneuver space for the BCT commander.
 - Hasty defensive operations and reconnaissance and screen missions.
 - More deliberate defensive operations when part of a covering force or guard mission (with augmentation).
 - Economy of force for the BCT commander so the BCT commander can concentrate the combat power in the decisive area. The ARB may defend in a sector, delay, counterattack, or perform deception operations.
 - Mobile attack to destroy second echelon forces. This separates echelons and allows the BCT to defend against one echelon at a time.
 - Reconnaissance, counterreconnaissance, and security especially at night.
- Attacking to fix enemy forces. This assists in defeat mechanisms.
- Screening ground movement during disengagement and ground force movement subsequent positions.

ASSAULT HELICOPTERS

C-27. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—

- Air assault as a quick reaction force.
- Air movement to emplace REMBASS to assist in NAI observation, CASEVAC, or resupply.
- Countermobility operations with Volcano.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-28. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-29. Missions the HvyHC could perform include, but are not limited to, conducting air movements for—

- Personnel relief, general resupply especially oversized, heavy, special munitions.
- CASEVAC.

Air Ambulance Company

C-30. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

MOBILE DEFENSE

ATTACK RECONNAISSANCE HELICOPTERS

C-31. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Normal reconnaissance and security missions to provide information, reaction time, and maneuver space for the BCT commander.
 - Hasty defense operations during reconnaissance and screen missions.
 - More deliberate defensive operations when part of a covering force or guard mission (with augmentation).
 - Economy of force for the BCT commander so the BCT commander can concentrate the combat power in the decisive area. The ARB may defend in a sector, delay, counterattack, or perform deception operations.
 - Mobile attack to destroy second echelon forces. This separates echelons and allows the ground force to defend against one echelon at a time.
 - Reconnaissance, counterreconnaissance, and security especially at night.
- Attacking to fix enemy forces. This assists in defeat mechanisms or allows disengagement of mobile defensive forces.
- Screening ground movement during disengagement and ground force movement to subsequent positions.

ASSAULT HELICOPTERS

C-32. Missions the AHB (FM 1-113) could perform include, but are not limited to conducting—

- Air assault as a quick reaction force.
- Air movement to emplace REMBASS to assist in NAI observation, CASEVAC, or resupply.
- Countermobility operations with Volcano.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-33. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-34. Missions the HvyHC could perform include, but are not limited to, conducting air movement operations for—

- General resupply especially oversized, heavy, and special munitions, and conduct ROM.
- CASEVAC.

Air Ambulance Company

C-35. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

RETROGRADE OPERATIONS

ATTACK RECONNAISSANCE HELICOPTERS

C-36. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Screening forward, flanks, and rear during retrograde especially at night or during limited visibility.
- Attacking an enemy force to divert its attention away from the retrograde operations.
- Acting as reserve during retrograde.

ASSAULT HELICOPTERS

C-37. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—

- Air movement operations to move MPs forward to man traffic control points, CASEVAC, or resupply.
- Air assault as a quick reaction force.
- Countermobility operations with Volcano (during a delay).

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-38. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-39. Missions the HvyHC could perform include, but are not limited to, conducting air movement operations for—

- General resupply especially oversized, heavy, and special munitions.
- Fuel movement to ROM sites for forces conducting retrograde operations.
- CASEVAC.

Air Ambulance Company

C-40. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

SECTION III – HEAVY DIVISION OTHER OPERATIONS

RELIEF-IN-PLACE

ATTACK RECONNAISSANCE HELICOPTERS

C-41. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Facilitating movement for both the brigade assuming the battle and the brigade leaving the battle to ensure movement into and out of the area is smooth.
- Screening forward or flanks during relief especially at night or during limited visibility to provide early warning of an attack or during transfer of responsibility.
- Attacking an enemy force to divert its attention away from the relief.
- Acting as reserve during relief.

ASSAULT HELICOPTERS

C-42. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Conducting air movement operations:
 - To move limited numbers of personnel and equipment into and out of relief positions.
 - For CASEVAC or resupply.
 - To move MPs forward/rearward to man traffic control points.
- Augmenting C2 by providing mobility for commanders.
- Conducting air assault of a quick reaction force.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-43. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-44. Missions the HvyHC could perform include, but are not limited to, conducting air movement operations for—

- Personnel relief, general resupply especially oversized, heavy, and special munitions.
- CASEVAC.

Air Ambulance Company

C-45. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

PASSAGE OF LINES

ATTACK RECONNAISSANCE HELICOPTERS

C-46. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting screen/overwatch of BHL.
- Attacking to disrupt enemy force to allow friendly forces to disengage.
- Acting as reserve force during passage of lines.

ASSAULT HELICOPTERS

C-47. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Conducting air movement operations—
 - For CASEVAC or ROM.
 - To move MPs forward to man traffic control points.
- Augmenting C2 by providing mobility for commanders.
- Conducting air assault of a quick reaction force or seizing key terrain.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-48. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-49. Missions the HvyHC could perform include, but are not limited to, conducting air movements for general resupply especially oversized, heavy, and special munitions.

Air Ambulance Company

C-50. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

BREAKOUT OF ENCIRCLED FORCES

ATTACK RECONNAISSANCE HELICOPTERS

C-51. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Screening the front or flanks during the breakout to give the moving commander early warning, maneuver space and reaction time (especially at night).
- Attacking to—
 - Destroy enemy forces at the rupture point of the breakout.
 - Disrupt an enemy force and divert attention away from the rupture point. This is not the best use of attack assets.
 - Disrupt enemy fighting against rear guard.
- Acting as a reserve force or attacking to support a reserve force (assets should not be located with encircled forces due to vulnerability).

ASSAULT HELICOPTERS

C-52. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Conducting air movement operations—
 - To move limited numbers of personnel and equipment into and out of the encircled forces.
 - For CASEVAC or resupply.
- Augmenting C2 by providing mobility for commanders.
- Conducting:
 - Air assault of a breakout or quick reaction force.
 - Countermobility operations with Volcano.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-53. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT, and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-54. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.

- To move limited numbers of personnel and equipment into and out of relief positions.
- For CASEVAC.

Air Ambulance Company

C-55. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

RIVER CROSSING OPERATIONS

ATTACK RECONNAISSANCE HELICOPTERS

C-56. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Screening—
 - Forward, especially for the initial assault force establishing the bridgehead.
 - Assault force crossing and far bank seizure.
- Facilitating movement around the marshalling area and on routes to the crossing site.
- Conducting air assault security to protect the AATF.
- Attacking deep to destroy, disrupt, or attrit forces defending the bridgehead.

ASSAULT HELICOPTERS

C-57. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Air assaulting forces to seize key terrain (bridges, crossing sites) to help maintain momentum.
- Conducting air movement operations—
 - For CASEVAC.
 - To resupply assault force with limited fuel and ammunition.
 - To move MPs forward to man traffic control points.
- Conducting air assault as a quick reaction force.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-58. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT, and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-59. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations for—
 - General resupply especially oversized, heavy, and special munitions to resupply assault force.
 - CASEVAC.
- Air assaulting forces to seize key terrain (bridges, crossing sites) to help maintain momentum.

Air Ambulance Company

C-60. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

RESERVE OPERATIONS

ATTACK RECONNAISSANCE HELICOPTERS

C-61. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Acting as reserve by itself.
- Attacking to destroy enemy forces, reinforce, or blunt/block penetrations during enemy counterattacks.
- Receiving contingency missions to conduct offensive operations like attack helicopters.
- Conducting zone or route reconnaissance of the attack axis for the reserve force.
- Overwatching/screening passage of lines.
- Pinpointing artillery fires to hide intentions of a reserve force.

ASSAULT HELICOPTERS

C-62. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—

- Air movement for CASEVAC or resupply.
- Air assault as a reserve or quick reaction force.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-63. Missions the CAC could perform include, but are not limited to—

- Employing A2C2S platforms in support of the commander of the reserve forces' C2 requirements.
- Providing mobility for commander of reserve forces to see the battlefield.
- Employing non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-64. Missions the HvyHC could perform include, but are not limited to, conducting air movement operations for—

- General resupply especially oversized, heavy, and special munitions.
- CASEVAC.

Air Ambulance Company

C-65. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

REAR OPERATIONS

ATTACK RECONNAISSANCE HELICOPTERS

C-66. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Screens especially in vulnerable areas or likely LZs/DZs.
 - Zone, area, or route reconnaissance.
- Acting as TCF, if necessary.
- Attacking to destroy rear area level III threats.
- Overwatching MSRs to prevent ambush of supply vehicles.

ASSAULT HELICOPTERS

C-67. Missions the AHB (FM 1-113) could perform include, but are not limited to, conducting—

- Air assault operations to provide mobility for TCF.
- Air movement operations to support other aviation assets involved in rear operations, resupply and reconnaissance, and CASEVAC.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-68. Missions the CAC could perform include, but are not limited to—

- Employing A2C2S platforms in support of the rear area commander's C2 requirements.
- Providing mobility and C2 for the rear area operations commander.
- Employing non-A2C2S aircraft for GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-69. Missions the HvyHC could perform include, but are not limited to, conducting—

- Air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To support other aviation assets involved in rear operations.
- Air assault operations to provide mobility for TCF.

Air Ambulance Company

C-70. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

SECTION IV – LIGHT INFANTRY/AIRBORNE/AIR ASSAULT DIVISIONS OFFENSE

HASTY ATTACK

ATTACK RECONNAISSANCE HELICOPTERS

C-71. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Route, zone, or area reconnaissance to provide the BCT commander with information on the axis/zone of attack.
 - A reconnaissance in force to develop IPB and reduce uncertainties.
 - Deception operations to prevent the enemy from massing to defeat the main attack.
 - Mobile attacks against C2, logistics sites, moving forces, and artillery to separate echelons; preventing and disrupting counterattacks.
- Screening forward, flanks and rear of the advancing force to provide early warning, reaction time, and maneuver space in the event of an enemy counterattack.
- Covering or guarding forward, when augmented, to develop the situation or penetrate the security and first echelon defenses of the enemy.
- Providing air assault security if an air assault is part of the BCT commander's plan. Providing air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.
- Overwatching assault objectives to prevent ambushes and traps.
- Acting as reserve.

ASSAULT HELICOPTERS

C-72. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing air assaulting forces to—
 - Exploit the advantage gained during the movement to contact or to develop the situation.
 - Modify the original plan, either to reinforce a weakness or exploit an advantage.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (especially ammunition and water) to units in contact.
 - For CASEVAC or resupply.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-73. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-74. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations:
 - For general resupply especially oversized, heavy, and special munitions.

- To emplace FS/ADA assets to influence the battle.
- To provide resupply (especially ammunition and water) to the units in contact.
- For CASEVAC.
- Providing air assaulting forces to—
 - Exploit the advantage gained during the movement to contact or to develop the situation.
 - Modify the original plan, either to reinforce a weakness or exploit an advantage.

Air Ambulance Company

C-75. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

DELIBERATE ATTACK

ATTACK RECONNAISSANCE HELICOPTERS

C-76. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Route, zone or area reconnaissance to provide the BCT commander with information on the zone of attack.
 - A reconnaissance in force to develop IPB and reduce uncertainties.
 - Deception operations to prevent the enemy from massing to defeat the main attack.
 - Mobile attack to separate echelons; preventing and disrupting counterattacks.
- Screening forward, flanks, and rear of the advancing force to provide early warning, reaction time, and maneuver space in the event of an enemy counterattack.
- Covering or guarding forward when augmented to develop the situation or penetrate the security and first echelon defenses of the enemy.
- Providing—
 - Air assault security if an air assault is part of the BCT commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.
- Attacking the enemy's flanks or rear to develop the situation, diverting its attention.
- Acting as reserve.

ASSAULT HELICOPTER

C-77. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing air assaulting forces—
 - To bypass main defenses to destroy artillery, C2, logistics, or seize key terrain.
 - Away from the enemy or into armor-restrictive terrain to conduct dismounted attacks against mechanized forces.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (especially ammunition and water) to forces in contact.
 - For CASEVAC or resupply.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

- C-78. Missions the CAC could perform include, but are not limited to employing—
- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
 - Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

- C-79. Missions the HvyHC could perform include, but are not limited to—
- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions (especially ammunition and water) to the units in contact.
 - For emplacing FS/ADA assets to influence the battle.
 - For CASEVAC.
 - Providing air assaulting forces—
 - To bypass main defenses to destroy artillery, C2, logistics, or to seize key terrain.
 - Away from the enemy or into armor-restrictive terrain to conduct dismounted attacks against mechanized forces.

Air Ambulance Company

- C-80. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—
- Conducting MEDEVAC.
 - Resupplying emergency class VIII.
 - Transporting medical personnel and equipment, whole blood, and biologicals.

EXPLOITATION

ATTACK RECONNAISSANCE HELICOPTERS

- C-81. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—
- Screening forward, flanks and rear of the advancing force to provide early warning, reaction time, and maneuver space in the event of an enemy counterattack.
 - Conducting a reconnaissance in force to develop IPB and reduce uncertainties.
 - Providing—
 - Air assault security if part of the BCT commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.
 - Covering or guarding forward, when augmented, to develop the situation or penetrate the security and first echelon defenses of the enemy.
 - Attacking—
 - Flanks and rear to maintain constant pressure on the defeated force.
 - Rear area, C2, and CSS assets to ensure total defeat of the enemy force.
 - Acting as reserve to blunt any counterattacks or provide the decisive blow by attacking to destroy lucrative targets.

ASSAULT HELICOPTERS

C-82. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Air assaulting forces to bypass main defenses to destroy artillery, C2, logistics, or to seize key terrain to maintain the momentum.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (especially ammunition and water) to units in contact.
 - For CASEVAC.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-83. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT, and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-84. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (especially ammunition and water) to the units in contact.
 - For CASEVAC.
- Air assaulting forces to bypass main defenses to destroy artillery, C2, logistics, or to seize key terrain to maintain the momentum.

Air Ambulance Company

C-85. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

PURSUIT

ATTACK RECONNAISSANCE HELICOPTERS

C-86. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126])) could perform include, but are not limited to—

- Screening forward, flanks, and rear of the advancing force to provide early warning, reaction time, and maneuver space in the event of an enemy counterattack.
- Conducting a reconnaissance in force to develop IPB and reduce uncertainties.
- Providing—
 - Air assault security if an air assault is part of the BCT commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in the PZ/LZ areas.
- Covering or guarding forward, when augmented, to develop the situation or penetrate the security and first echelon defenses of the enemy.

- Attacking to—
 - Destroy, disrupt, or attrit counterattack or reserve forces.
 - Fix withdrawing forces.

ASSAULT HELICOPTERS

C-87. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing air assaulting forces to bypass main defenses to destroy artillery, C2, logistics, or to seize key terrain and act as the encircling force.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (especially ammunition and water) to forces in contact.
 - For CASEVAC.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-88. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-89. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions (especially ammunition and water) to the units in contact.
 - To emplace FS/ADA assets to influence the battle.
 - For CASEVAC.
- Providing air assaulting forces to bypass main defenses to destroy artillery, C2, logistics, or to seize key terrain and act as the encircling force.

Air Ambulance Company

C-90. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

RAID

ATTACK RECONNAISSANCE HELICOPTERS

C-91. Missions the ARB (FM 1-112 or FM 1-114) could perform include, but are not limited to—

- Conducting air route reconnaissance for raiding aircraft.
- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in the PZ/LZ areas.

- Screening the objective area to provide early warning, reaction time, and maneuver space to the force commander.
- Overwatching avenues of approach into the objective area.
- Attacking to destroy enemy in the objective area.

ASSAULT HELICOPTERS

C-92. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Air assaulting forces to destroy enemy installations, communications facilities, logistics bases.
- Conducting air assault to withdraw forces in contact. This is a critical event in the raid.
- Conducting air movement operations:
 - To emplace FS/ADA assets. This may be the primary means of conducting the raid or may be in support of the AATF.
 - For CASEVAC.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-93. Missions the CAC could perform include, but are not limited to, employing—

- Air assaulting forces to destroy enemy installations, communications facilities, logistics bases.
- Conducting air assault to withdraw forces in contact. This is a critical event in the raid.
- Conducting air movement operations:
 - To emplace FS/ADA assets. This may be the primary means of conducting the raid or may be in support of the AATF.
 - For CASEVAC.
- Conducting C2, RETRANS.

Heavy Helicopter Company

C-94. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets. This may be the primary means of conducting the raid, or may be in support of the AATF.
- Air assaulting forces to destroy enemy installations, communications facilities, logistics bases.
- Conducting air assault to withdraw forces in contact. This is a critical event in the raid.

Air Ambulance Company

C-95. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

SECTION V – LIGHT INFANTRY/AIRBORNE/AIR ASSAULT DIVISIONS DEFENSE

DEFEND AGAINST AN INFANTRY-HEAVY THREAT

ATTACK RECONNAISSANCE HELICOPTERS

C-96. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Screening forward, flanks, or rear to provide early warning, reaction time and maneuver space to the BCT commander.
- Guarding forward or flank, when augmented, to protect a force that is preparing its defense.
- Covering, when augmented, to force the attacker to deploy and then defeat its reconnaissance and first echelon forces.
- Attacking to—
 - Destroy C2, logistic, and artillery sites.
 - Deny enemy avenues of approach and MSR.

ASSAULT HELICOPTERS

C-97. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing air assaulting forces—
 - To subsequent BPs to allow a defense in depth.
 - In the covering force area to allow disengagement from or prevent decisive engagement with enemy forces.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to forces in contact.
 - For CASEVAC.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-98. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-99. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movements operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to the units in contact.
 - For CASEVAC.

- Providing air assaulting forces—
 - To subsequent BPs to allow a defense in depth.
 - In the covering force area to allow disengagement from or prevent decisive engagement with enemy forces.

Air Ambulance Company

C-100. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

DEFEND AGAINST AN ARMOR-HEAVY THREAT

ATTACK RECONNAISSANCE HELICOPTERS

C-101. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Reconnaissance, counterreconnaissance, and security (especially at night).
 - A mobile attack to destroy second echelon forces. This separates echelons and allows the ground force to defend against one echelon at a time.
 - Deception operations to divert enemy forces from the main attack.
- Screening—
 - Forward, flanks, or rear to provide early warning, reaction time, and maneuver space to the force commander.
 - Ground movement during disengagement and ground force movement to subsequent positions.
- Guarding forward or flank, when augmented, to protect a force that is preparing its defense.
- Covering, when augmented, to force the attacker to deploy and defeat its reconnaissance and first echelon forces.
- Attacking to fix enemy forces. This assists in defeat mechanisms or allows disengagement of mobile defensive forces.
- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.

ASSAULT HELICOPTERS

C-102. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing air assaulting forces—
 - To restrictive or urban terrain to defend in favorable terrain/areas.
 - To act as the rear area response force.
 - As part of a raid/counterattack.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to units in contact.
 - For CASEVAC.
- Emplacing minefields using the Volcano system (if available).

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

- C-103. Missions the CAC could perform include, but are not limited to, employing—
- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
 - Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

- C-104. Missions the HvyHC could perform include, but are not limited to—
- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets to influence the battle.
 - For CASEVAC.
 - Air assaulting forces—
 - To restrictive or urban terrain to defend in favorable terrain/areas.
 - To act as the rear area response force.
 - As part of a raid/counterattack.

Air Ambulance Company

- C-105. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—
- Conducting MEDEVAC.
 - Resupplying emergency class VIII.
 - Transporting medical personnel and equipment, whole blood, and biologicals.

ECONOMY OF FORCE

ATTACK RECONNAISSANCE HELICOPTERS

- C-106. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—
- Conducting all doctrinal operations (attack, delay, deny, overwatch, screen, and so forth). If allocated to a unit conducting an economy of force, attack reconnaissance helicopters would be the only FS means available to that commander.
 - Providing—
 - Air assault security if an air assault is part of the BCT commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.

ASSAULT HELICOPTERS

- C-107. Missions the AHB (FM 1-113) could perform include, but are not limited to—
- Providing air assaulting—
 - Forces to likely avenues of approach and withdraw them to subsequent BPs before decisively engaged.
 - Reserve forces to decisive points on the battlefield.
 - Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to units in contact.

- For CASEVAC.
- Emplacing minefields using the Volcano system (if available).

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-108. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-109. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movements operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to the units in contact.
 - For CASEVAC.
- Providing air assaulting—
 - Forces to likely avenues of approach and withdraw them to subsequent BPs before decisively engaged.
 - Reserve forces to decisive points on the battlefield.

Air Ambulance Company

C-110. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

DELAY

ATTACK RECONNAISSANCE HELICOPTERS

C-111. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Attacking to fix enemy forces. This assists in allowing disengagement of mobile defensive forces.
- Screening ground movement during disengagement and ground force movement to subsequent positions.
- Conducting—
 - Mobile attack to destroy second echelon forces—separates echelons and allows the ground force to delay against one echelon at a time.
 - Reconnaissance, counterreconnaissance, and security especially at night.
- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.

ASSAULT HELICOPTERS

- C-112. Missions the AHB (FM 1-113) could perform include, but are not limited to—
- Providing air assaulting forces to subsequent BPs before becoming decisively engaged (strip alert).
 - Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to units in contact.
 - For CASEVAC.
 - Emplacing minefields using the Volcano system (if available).
 - Conducting—
 - Air assault/air movement to withdraw stay behind forces, if necessary.
 - C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

- C-113. Missions the CAC could perform include, but are not limited to, employing—
- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
 - Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

- C-114. Missions the HvyHC could perform include, but are not limited to—
- Conducting air movements operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to the units in contact.
 - For CASEVAC.
 - Providing air assaulting forces to subsequent BPs before becoming decisively engaged (strip alert).
 - Conducting air assault/air movement to withdraw stay behind forces, if necessary.

Air Ambulance Company

- C-115. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—
- Conducting MEDEVAC.
 - Resupplying emergency class VIII.
 - Transporting medical personnel and equipment, whole blood, and biologicals.

SECTION VI – LIGHT INFANTRY/AIRBORNE/AIR ASSAULT DIVISIONS OTHER OPERATIONS

REINFORCE

ATTACK RECONNAISSANCE HELICOPTERS

C-116. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.
- Conducting route, zone, or area reconnaissance to provide information on the terrain and enemy to the BCT commander.
- Acting as reserve by itself, if necessary.
- Attacking to destroy enemy forces, reinforce, or blunt/block penetrations during enemy counterattacks.

ASSAULT HELICOPTERS

C-117. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing air assaulting—
 - Reserve forces to the decisive point on the battlefield.
 - Additional antiarmor platoons where necessary.
- Conducting air movement—
 - To emplace FS assets to weight the main effort and influence the battle.
 - For CASEVAC or resupply.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-118. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC.

Heavy Helicopter Company

C-119. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movements operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS assets to weight the main effort and influence the battle.
- Air assaulting—
 - Reserve forces to the decisive point on the battlefield.
 - Additional antitank (AT) platoons where necessary.

Air Ambulance Company

C-120. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

LINKUP

ATTACK RECONNAISSANCE HELICOPTERS

C-121. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Enhancing C2 links to ensure fratricide risks are reduced.
- Screening forward and flanks of lineup force to reduce uncertainties and make contact with the stationary force.
- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in the PZ/LZ areas.
- Attacking enemy forces to divert their attention away from the linkup.
- Acting as reserve during linkup.

ASSAULT HELICOPTERS

C-122. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Providing mobility over enemy terrain to effect liaison between the linking units.
- Conducting air movement operations—
 - To emplace FS/ADA assets to influence the battle.
 - To provide resupply (ammunition and water) to forces in contact.
 - For CASEVAC.
- Conducting C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-123. Missions the CAC could perform include, but are not limited to—

- Employing—
 - A2C2S platforms in support of the division command group, BCT, and aviation brigade commanders' C2 requirements.
 - Non-A2C2S aircraft for GS or CASEVAC.
- Aiding communications between the linking units (aerial retransmission).
- Providing aerial command, control, and communications (C3) platforms to allow commanders to prevent fratricide between linking units.

Heavy Helicopter Company

C-124. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace FS/ADA assets to influence the battle.

- To provide resupply (especially ammunition and water) to units in contact.
- For CASEVAC.

Air Ambulance Company

C-125. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

RIVER CROSSING OPERATIONS

ATTACK RECONNAISSANCE HELICOPTERS

C-126. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Screening assault force crossing and far bank seizure.
- Attacking to destroy, disrupt, or attrit forces attacking bridgehead.
- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.

ASSAULT HELICOPTERS

C-127. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Air assaulting forces—
 - To seize key terrain to prevent enemy interference with the crossing operation.
 - To provide flank security or quick reaction force.
 - To secure the bridgehead.
- Conducting—
 - Air movement operations for CASEVAC.
 - C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-128. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS or CASEVAC.

Heavy Helicopter Company

C-129. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - For CASEVAC.
- Air assaulting forces—
 - To seize key terrain to prevent enemy interference with the crossing operation.

- To provide flank security.
- To secure the bridgehead.

Air Ambulance Company

C-130. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

REAR OPERATIONS

ATTACK RECONNAISSANCE HELICOPTERS

C-131. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting zone, area, or route reconnaissance.
- Acting as TCF itself, if necessary. Attacking to destroy rear area level III threats.
- Overwatching MSRs to prevent ambush of supply vehicles.
- Providing—
 - Air assault security if an air assault is part of the force commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.

ASSAULT HELICOPTERS

C-132. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Air assaulting TCF to predetermined LZs to counter the rear area threat.
- Conducting air movement operations—
 - To place MPs in critical areas.
 - To emplace electronic sensors in unoccupied or difficult terrain.
 - For CASEVAC or resupply.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

C-133. Missions the CAC could perform include, but are not limited to, employing—

- A2C2S platforms in support of the division command group, maneuver and aviation brigade commanders' C2 requirements.
- Non-A2C2S aircraft for C2, GS, RETRANS or CASEVAC.

Heavy Helicopter Company

C-134. Missions the HvyHC could perform include, but are not limited to—

- Conducting air movement operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To place MPs in critical areas.
 - To emplace electronic sensors in unoccupied or difficult terrain.
 - For CASEVAC.
- Providing air assaulting TCF to predetermined LZs to counter the rear area threat.

Air Ambulance Company

C-135. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—

- Conducting MEDEVAC.
- Resupplying emergency class VIII.
- Transporting medical personnel and equipment, whole blood, and biologicals.

OPERATIONS OTHER THAN WAR

ATTACK RECONNAISSANCE HELICOPTERS

C-136. Missions the ARB (FM 1-112 or FM 1-114 [both FMs will be revised as FM 3-04.126]) could perform include, but are not limited to—

- Conducting—
 - Reconnaissance operations to reduce uncertainties in the AO.
 - CCA in support of ground operation.
- Screening the forces AA to provide early warning of attacks.
- Enhancing C3I especially along critical routes (such as LOCs).
- Providing—
 - Air assault security if an air assault is part of the BCT commander's plan.
 - Air route reconnaissance and overwatch to protect the assets in PZ/LZ areas.
- Attacking to destroy enemy in the objective area. Especially effective with point weapons systems to reduce collateral damage (tube-launched, optically tracked, wire-guided [TOW]/Hellfire).
- Overwatching routes, MSRs, and air routes to facilitate ground and air movement.
- Denying enemy avenue of approach.
- Dominating key terrain around an objective area.

ASSAULT HELICOPTERS

C-137. Missions the AHB (FM 1-113) could perform include, but are not limited to—

- Air assaulting forces to conduct attacks against specific targets.
- Conducting air movement operations—
 - To emplace reconnaissance assets, including TOW vehicles due to their thermal sights capability (TOW HMMWVs require at least UH-60L to lift).
 - To resupply remote OPs, checkpoints, and road blocks.
 - To remove damaged or destroyed equipment from objective areas.
 - For CASEVAC or resupply.
- Supporting immediate reaction force for own security.
- Conducting—
 - Raids.
 - False air movements and air assaults to aid in the PSYOP campaign. Can also conduct leaflet drops and speaker operations.
 - Air assault in support of NEO.
 - C2, RETRANS.

GENERAL SUPPORT HELICOPTERS

Command Aviation Company

- C-138. Missions the CAC could perform include, but are not limited to employing—
- A2C2S platforms in support of the division command group, BCT and aviation brigade commanders' C2 requirements.
 - Non-A2C2S aircraft for C2, GS, RETRANS, or CASEVAC

Heavy Helicopter Company

- C-139. Missions the HvyHC could perform include, but are not limited to—
- Conducting air movements operations—
 - For general resupply especially oversized, heavy, and special munitions.
 - To emplace reconnaissance assets including TOW vehicles due to their thermal sight capability.
 - To resupply remote OPs, check points, and road blocks.
 - To remove damaged or destroyed equipment from the objective areas.
 - For CASEVAC.
 - Conducting—
 - Raids.
 - False air movements and air assaults to aid the PSYOP campaign. Can also conduct leaflet drops and speaker operations.
 - Air assault in support of NEO.
 - Providing air assaulting forces to conduct attacks against specific targets.
 - Supporting immediate reaction force for security purposes.

Air Ambulance Company

- C-140. Missions the air ambulance company (FM 8-10-26) could perform include, but are not limited to—
- Conducting MEDEVAC.
 - Resupplying emergency class VIII.
 - Transporting medical personnel and equipment, whole blood, and biologicals.

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Appendix D

Warfighting Functions GO/NO-GO Brief Checklists

The BAE is an important staff element of the BCT and a major contributor to the planning process. Table D-1 through table D-9 give checklists intended for use by each warfighting functions representative during BCT aviation mission planning/execution as job aids to assist in the GO/NO-GO decisionmaking process.

Table D-1. GO/NO-GO brief agenda

Agenda	
Weather	
Warfighting functions check	
	Intelligence
	Maneuver
	FS
	AD/airspace
	Mobility/countermobility/survivability
	CSS
	C2
	Risk management
Recommendation	

Table D-2. Intelligence warfighting functions checklist

<i>GO</i>	<i>NO-GO</i>	<i>NA</i>	<i>Conditions</i>
			Current weather and light data for AASLT/CAS
			Post-AASLT weather
			Suitability of LZs
			Enemy command and control warfare (C2W) suppressed
			Indirect fire in range of primary and alternate LZs
			Direct fire in range of primary and alternate LZs
			Wheel, mech or armor force, able to influence primary or alternate LZs
			Known FS assets within range of PRI and ALT LZs Destroyed/SEAD fires planned on suspected locations
			Known ADA systems capable of ranging flight routes and LZs destroyed/SEAD fires planned on suspected LOCs
			BDA confidence level
			Eyes on key NAIs with communications to teams
			Division priority of higher's collection effort

Table D-3. Maneuver warfighting functions checklist

<i>GO</i>	<i>NO-GO</i>	<i>NA</i>	<i>Conditions</i>
			Aircraft (crew) ready
			Forward friendly locations confirmed (LSRD and pathfinders)
			RPs marked
			Unit in PZ posture
			PR procedures specified
			Alternate LZs designated and rehearsed
			Attack recon aviation in overwatch of LZs
			Higher and adjacent units notified of plan
			Assets available to reinforce and support operations
			EA prepared to support operations
			Sufficient lift available to reinforce/support operations
			C2W operations coordinated (OPSEC, PSYOP, EW, deception, physical destruction)
			Operation within ROE limitations
			Anti-fratricide measures in place
			Plan for COB

Table D-4. FS warfighting functions checklist

GO	NO-GO	NA	Conditions
			J-SEAD & intelligence and electronic warfare (IEW) coordination complete
			FSCMs coordinated
			Firing units in position ready to fire
			Fire plan forwarded to supporting units
			CAS coordinated/available
			Appropriate communications established
			PPs covered by indirect fires
			Tactical air control party task organized
			Air and naval gunfire liaison company (ANGLICO) task organized
			Fire plan rehearsed
			Air assault/mobile strike ATO
			Nonlethal SEAD covers critical portions of operations

Table D-5. AD/airspace warfighting functions checklist

GO	NO-GO	NA	Conditions
			Air routes / airspace control plan coordinated within division / higher / adjacent
			ACO / ATO approved by joint force air component commander (JFACC)
			Coordinate friendly and cross boundary AD locations and coverage
			Early warning coverage for artillery raids LZs
			Joint tactical information distribution system (JTIDS) located with assault forces
			Short-range air defense (SHORAD) coverage for artillery raids LZs
			High to medium altitude air defense (HIMAD) coverage for mobile strike operations
			TMD coverage for mobile strike operations
			Weapons control status-hold along air routes
			Ingress/egress routes in ACO
			Airborne warning and control system (AWACS) coordination / link-up
			Airspace user priorities
			Airfield and FARP locations and status

Table D-6. Mobility, countermobility, survivability warfighting functions checklist

<i>GO</i>	<i>NO-GO</i>	<i>NA</i>	<i>Conditions</i>
			LZ obstacle clearing teams ready
			Flight landing strip clearing team ready
			Flight landing strip layout confirmed
			Survivability assets planned
			Airfield repair rackage ready for airdrop
			LZ not contaminated
			Obstacles/barrier plan in place for EA shaping
			Countermobility assets in place to support
			Decontamination assets available and coordinated

Table D-7. CSS warfighting functions checklist

<i>GO</i>	<i>NO-GO</i>	<i>NA</i>	<i>Conditions</i>
			FARP ready to support mission
			Sufficient class III/V available to sustain the duration of the mission FARP zone: - Fuel for _____ ARB turns of _____ aircraft - Hellfires for _____ ARB turns (_____ missiles/turn) TAA: - _____ -Point consolidated FARP fully functional jump FARP: - _____ ARB turns ammo - _____ ARB/AHB turns fuel prepared for slingload
			Availability of alternate FARP
			Availability of other supply classes
			MEDEVAC/CASEVAC package: - _____ x HH-60 - _____ x UH-60 - _____ x CH-47

Table D-8. C2 warfighting functions checklist

GO	NO-GO	NA	Conditions
			Seats-out risk management completed and approved
			Alternate CP in PZ posture
			Redundant C2 A/C available (at least ____ of ____)
			TACSAT
			UHF/HF
			Retransmit in place
			Forced entry system (FES) programmed early entry
			Air mission brief checklist completed
			Operations schedule complete (as applies)
			LNO teams to higher and adjacent units
			Media plan in place
			Rehearsals complete
			Communication rehearsals conducted (C2 A/C rehearsals)

Table D-9. Recommendation checklist

GO	NO-GO	NA	Warfighting Functions Summary
			Intelligence
			Maneuver
			FS
			AD/airspace
			Mobility/countermobility/survivability
			CSS
			C2
			Operational risk assessment

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Appendix E

Army Helicopter Planning Factors and Characteristics

GENERAL CHARACTERISTICS

E-1. The following definitions and explanations apply to the information in this appendix.

DETECTION

E-2. The ability to classify a target as having military interest.

RECOGNITION

E-3. The ability to classify a target by category (such as wheeled, APC/infantry fighting vehicle [IFV], AD, or artillery).

IDENTIFICATION

E-4. The ability to determine the actual type of vehicle (such as M1 Abrams, Shika antiaircraft gun system [ZSU] 23-4, Boyevaya Maschina Piekhoty infantry fighting vehicle (BMP)-2, M-109).

INFRARED CROSSOVER

E-5. FLIR detects the difference in the emission of heat objects. On a hot day, the ground may reflect or emit more heat than the suspected target. In this case, the environment will be “hot” and the target will be “cool.” As the air cools at night, the target may lose or emit heat at a slower rate than the surrounding environment. At some point the emission of heat from both the target and the surrounding environment may be equal. This is IR crossover and makes target acquisition/detection difficult to impossible. IR crossover occurs most often when the environment is damp/wet. This is because the water in the air creates a buffer in the emissivity of objects. This limitation is present in all systems that use FLIR for TA.

ATTACK HELICOPTER-64 CHARACTERISTICS

E-6. This section addresses considerations for employment of the Longbow Apache (table E-1). It also explains the basics of Longbow Apache warfighting—the building blocks of how the Longbow Apache is employed in combat. Exploiting its new capabilities requires the review and modification of operational concepts and tactics, and integration with other warfighting functions. New concepts for target management and employment must be used. These new concepts are essential to exploit the system capabilities and fully capitalize on the potential effectiveness and lethality of the Longbow Apache attack unit.

SITUATIONAL AWARENESS

E-7. The AH-64D Longbow Apache gives the ARC and the ABTF with an increased capability over the AH-64A. Part of that stems from the Longbow company's ability to maintain a CTP and unprecedented SA.

FIRE CONTROL RADAR

E-8. Central to the capabilities of the Longbow Apache is its FCR. The Longbow system consists of an integrated FCR, along with a RFI. The FCR enables Longbow Apache helicopters to detect, classify, prioritize, and engage targets with RF Hellfire missiles without visually acquiring the target. Since LOS to the target is not mandatory, Longbow Apache crews may also employ the RF Hellfire missile during periods of poor visibility when laser, optical, and FLIR sensors are degraded. The RFI can detect and identify radar systems and display targeting information on the same screen as the information from the FCR. The FCR will not identify friend or foe other than air defense unit (ADU) weapons which are identifiable by their distinctive radar signatures detected by the RFI system.

Table E-1. AH-64 characteristics

Armament:	
	Missile range (Hellfire): 8000 m
	Rocket range (Hydra 70): 6600 to 9000 m
	Gun range (30 mm API, HEI): 3000 m
Optics:	
	TADS/day TV (low light, daytime): detection 10+ km
	Recognition 8 to 10 km
	Identification 5 to 7 km
TADS/FLIR (day, night, weather):	
	Detection 10+km
	Recognition 5 to 6 km
	Identification 90 to 1200 m (condition dependent)
Navigation equipment:	
	Heading attitude reference system (combination of inertial navigation and Doppler navigation); can slave TADS to a grid the operator inputs.
Flight characteristics:	
	Max speed (level): 164 kts
	Normal cruise speed: 100 kts
Additional capabilities:	
	Aircraft can be configured with an external 230 gallon fuel tank to extend its range on attack missions or with up to four 230 gallon fuel tanks for ferrying/self-deployment missions.
Limitations:	
	Threat ID; IR crossover; weather may inhibit Hellfire engagements (seeker must be able to "see" the laser designated spot); overwater operations severely degrade navigation system; pilot night vision system (PNVS) cannot detect wires or other small obstacles.

OBSERVATION HELICOPTER-58D CHARACTERISTICS

E-9. This section addresses considerations for employment of the Kiowa Warrior (table E-2).

Table E-2. OH-58 characteristics

Armament:	
	Missile range (Hellfire): 8000 m
	Missile range (ATA Stinger): 5000 m
	Rocket range (Hydra 70): 7000 m
Gun range (.50 cal):	
	1600 m
Optics - MMS:	
	Thermal imaging system (TIS):
	Detection 10+ km
	Recognition 6 to 7 km
	Identification 3 km
	Television sensor (TVS):
	Detection 8+ km
	Recognition 7 km
	Identification 4 to 6 km
	Laser range finder/designator:
	Maximum ranging distance 9.99 km
	Lasing a known point will update the navigation system.
	Maximum designating distance limited only by TIS/TVS.
	Pilots use AN/AVS-6 to fly the aircraft at night
Navigation equipment:	
	Embedded Global Inertial (EGI) system in Romeo model aircraft or attitude and heading reference system (AHRS)
	Can slave MMS to grid input by operator.
Flight characteristics:	
	Max speed (level): 125 kts
	Normal cruise speed: 80 kts
Additional capabilities:	
	Aircraft is equipped with airborne target handover system. This system takes targeting data from the AHRS and MMS and transmits it digitally (secure or unsecure) to tactical fire direction system (TACFIRE).
Limitations:	
	Threat ID; IR crossover; weather may inhibit Hellfire engagements (seeker must be able to see the laser designated spot.

UTILITY HELICOPTER-60 CHARACTERISTICS

E-10. This section addresses considerations for employment of the Blackhawk helicopter (table E-3).

Table E-3. UH-60 characteristics

Armament:	
	2 x M60D (7.62 MGs) (self protection only)
Optics:	
	Pilots use AN/AVS-6 to fly the aircraft at night
Navigation equipment:	
	Doppler navigation set or GPS
Flight characteristics:	
	Max speed (level): 156 kts
	Normal cruise speed: 120 to 145 kts. With external slingloads: 90 kts.
Additional capabilities:	
	The ESSS allows configuration for extended operations without refueling (5+ hours) (2 X 230 gallon fuel tanks). The ESSS also allows configuration for ferry and self-deployment flights (4 X 230 gallon fuel tanks).
	The enhanced C2 console provides the maneuver commander with an airborne platform which can support 6 secure FM radios, 1 HF radio, 2 VHF radios, and 2 UHF radios.
	Can be configured with the Volcano mine dispensing system. Requires 8 hours to install.
	Capable of inserting and extracting troops with FRIES/SPIES.
Limitations:	
	Use of the ESSS for fuel limits access to the cabin doors for troops and bulky cargo or litters. It also greatly decreases the payload.
	UH-60A cannot sling-load a TOW HMMWV.
	Cruise speed is greatly decreased by light, bulky sling-loads (less than 80 kts).

CHINOOK HELICOPTER-47 CHARACTERISTICS

E-11. This section addresses considerations for employment of the Chinook helicopter (table E-4).

Table E-4. CH-47 characteristics

Armament:	
	2 M60D 7.62 MGs (self protection only)
Optics:	
	Pilots use AN/AVS-6 to fly the aircraft at night
Navigation equipment:	
	Doppler navigation set or GPS
Flight characteristics:	
	Max speed (level): 170 kts
	Normal cruise speed: 120 to 145 kts
Additional capabilities:	
	The aircraft can be configured with additional fuel for either mobile FARE system (Fat Cow) or for ferrying/self-deployment missions.
	Aircraft has an internal load winch to ease loading of properly configured cargo.
	The CH-47D can sling-load virtually any piece of equipment in the light infantry, airborne or air assault divisions.
Limitations:	
	Cruise speed is greatly decreased by light, bulky sling-loads (less than 80 kts).

TYPICAL FUEL EXPENDITURE RATES AND CAPACITIES

E-12. Table E-5 depicts typical rates of fuel expenditures per helicopter and fuel capacities without additional tanks.

Table E-5. Typical helicopter fuel expenditure rates and capacities

<i>Helicopter</i>	<i>Average Gallons Per Hour</i>	<i>Fuel Capacity</i>
AH-64	175	370
OH-58D	44	112
OH-58D (armed)	110	112
UH-60	178	362
CH-47	514	1030

STANDARD LOAD CAPACITIES

E-13. The BAE should have a copy of the standard operator manuals (-10s) for each type of helicopter. Although an aircraft may be capable of carrying more than is indicated on these lists, safety, loading procedures, space limitations and other factors play a great part in determining authorized loads for each helicopter. Environmental conditions and configuration constraints affect the allowable cargo load (ACL) for each aircraft. This information must be updated and obtained from each unit periodically or when there is an obvious change. (See table E-6 and table E-7 for load capacities and planning weights.)

Table E-6. Typical helicopter load capacities

<i>Type</i>	<i>Empty Weight Plus Crew & Fuel</i>	<i>Max Gross Weight</i>	<i>Max Slingload</i>
UH-60A	14,000 lbs	22,000 lbs	8,000 lbs
UH-60L	14,250 lbs	23,000 lbs	9,000 lbs
CH-47D	30,000 lbs	50,000 lbs	26,000 lbs

Table E-7. Typical planning weights for combat equipment and vehicles

<i>Vehicle/Equipment</i>	<i>Weight in Pounds</i>
M998 HMMWV	7,535
M996 TOW HMMWV	8,095
M149 Water buffalo (empty)	2,540
(loaded)	6,060
M101A1 ¾ ton trailer (empty)	1,350
(loaded)	2,850
500 gallon fuel drum (empty)	275
(full) JP	3,625
M102 105 mm Howitzer	3,360
M119 105 mm Howitzer	4,000
M114A1 155 mm Howitzer	15,200
M198 155 mm Howitzer	15,740
M167 Vulcan (towed)	3,260
A22 bag (loaded)	2,200
Conex, steel (empty)	2,140
Conex, aluminum (empty)	1,560
Conex (either) max load	6,500

Table E-7. Typical planning weights for combat equipment and vehicles

<i>Vehicle/Equipment</i>	<i>Weight in Pounds</i>
Scamp crane	14,600
One mil-van	4,710
Electronic shop with wheels	3,940
Tool set, shop with wheels	3,030
Shop, portable, aircraft maintenance (empty)	4,220
(loaded)	5,425
M1008 pick-up (empty)	5,900
(loaded)	8,800
JD-550 Dozer	16,800

ATTACK RECONNAISSANCE AIRCRAFT MUNITIONS LOADS

E-14. As with the assault and GSAB helicopter units, the BAO must coordinate with attack reconnaissance helicopter units to determine standard munitions and fuel loads for those types of assets. (See table E-8 for typical attack reconnaissance helicopter ordnance loads.)

Table E-8. Typical attack reconnaissance helicopter ordnance loads

<i>Aircraft</i>	<i>Gun</i>	<i>2.75-inch Rockets</i>	<i>Missiles</i>
AH-64 (Standard)	1200	38	8 Hellfire
AH-64 (Heavy)	1200	-	16 Hellfire
OH-58D	500	7	
OH-58D		14	
OH-58D	500		2 ATAS*
OH-58D			4 Hellfire
*ATAS – air-to-air stinger			

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Appendix F

Unmanned Aircraft System Characteristics and Planning Factors

UAS units are located throughout the Army from platoon to corps. UAS presents the commander and staff with a new system that has the potential to be used in almost any mission profile. The lessons learned through UAS missions will establish the future use of these systems within the Army. (For more information see FMI 3-04.155.)

SECTION I – RQ-1L IGNAT

USE

F-1. Originally designed to perform tactical surveillance at altitudes up to 25,000 feet, the IGNAT (figure F-1) has been reconfigured with a turbocharged engine to increase its operating altitude to 30,500 feet with an endurance of up to 48 hours.

Contents	
SECTION I – RQ-1L IGNAT	F-1
SECTION II – RQ-5/MQ-5 Hunter	F-2
SECTION III – RQ-7 Shadow	F-5
SECTION IV – RQ-11 Raven	F-7



Figure F-1. IGNAT AV

SPECIFICATIONS

F-2. Data given by several sources show slight variations, so detailed system related questions should be directed to the Project Manager, UAS at Redstone Arsenal, Alabama. Data for the IGNAT (table F-1)—

Table F-1. IGNAT data specifications

<i>Wing Span</i>	<i>42 ft 2.4 in</i>
Weight	1,550 pounds (lbs)
Range	2,780 km
Airspeed	160 kts max
Ceiling	30,000 ft
Endurance	48 hours
Launch / Recovery	Improved runway

SECTION II – RQ-5/MQ-5 HUNTER

USE

F-3. Hunters (figure F-2) have been deployed in Macedonia, in support of NATO forces in Kosovo. In the first three months of Operation Allied Force (OAF), Hunters flew over 600 flight hours per 30-day period, providing imagery and real-time data. The Hunters operated in relay with two UAs airborne simultaneously for each mission.



Figure F-2. Hunter AV

F-4. An extended center wing version of the Hunter gives longer endurance and higher (up to 20,000 feet) altitude tactical missions. The Hunter is capable of carrying and employing the Viper Strike/Brilliant antitank munitions (VS/BAT) weapon.

SPECIFICATIONS

F-5. Data for RQ-5A (BQM-155A) (table F-2)—

Table F-2. RQ-5A data specifications

RQ-5A Specifications	
Wing Span	29 ft
Weight	1,600 lbs
Range	125 km radius (LOS data link)
Airspeed	70 kts loiter, 90 kts cruise, 106 kts dash
Altitude	15,000 ft
Endurance	10 to 12 hours
Payload(s)	EO / IR, airborne data relay and attack
Launch / Recovery	Unimproved runway (paved or dirt). Runway length depends on air density and location surface. Up to a 1200 ft runway may be required for takeoff. The distance may be cut to 600 ft for a landing area.

FREQUENCY MANAGEMENT

- F-6. Frequency management is a critical aspect of mission planning. Frequency planning notes include—
- Each channel has fixed frequencies assigned for the uplink and downlink.
 - Each flight requires two primary channels and one backup channel.
 - For relay operations, one AV must be assigned “A” channels and the other AV must be assigned “B” channels.

OUTSIDE CONTINENTAL UNITED STATES FREQUENCIES

- F-7. Outside the continental United States (OCONUS) frequencies (table F-3) include—

Table F-3. OCONUS frequencies

OCONUS Primary (MHz)			
Channel		Uplink Frequency	Downlink Frequency
A	1	5250	5555
	2	5252	5580
	3	5254	5605
	4	5256	5630
	5	5258	5655
	6	5260	5680
	7	5262	5705
B	8	5785	5445
	9	5778	5420
	10	5771	5395
	11	5764	5370
	12	5757	5345
	13	5750	5320

Table F-3. OCONUS frequencies

	14	5743	5295
OCONUS Backup (MHz)			
Channel	Uplink Frequency		Downlink Frequency
A	15	5274	5716
	16	5276	5718
	17	5278	5720
B	18	5726	5284
	19	5724	5282
	20	5722	5280

CONTINENTAL UNITED STATES FREQUENCIES

F-8. Continental United States (CONUS) frequencies (table F-4) include—

Table F-4. CONUS frequencies

CONUS Primary (MHz)			
Channel	Uplink Frequency		Downlink Frequency
A	1	4415	4755
	2	4422	4780
	3	4429	4805
	4	4436	4830
	5	4443	4855
	6	4450	4880
	7	4457	4905
B	8	4985	4645
	9	4978	4620
	10	4971	4595
	11	4964	4570
	12	4957	4545
	13	4950	4520
	14	4953	4495
CONUS Backup (MHz)			
Channel	Uplink Frequency		Downlink Frequency
A	15	4474	4916
	16	4476	4918
	17	4478	4920
B	18	4926	4484
	19	4924	4482
	20	4922	4480

F-9. All channels must be from an "A" group or "B" group. "A" and "B" groups cannot be mixed.

SECTION III – RQ-7 SHADOW

F-10. The RQ-7A (figure F-3) is constructed using the same twin-boom pusher design used in several other battlefield UASs, like the RQ-5 Hunter and the RQ-2 Pioneer (United States Navy [USN]). It has a nonretractable tricycle landing gear. The RQ-7A AV is launched using a hydraulic/pneumatic launcher and recovered on a runway by the TALS. A RQ-7 system consists of four RQ-7A UAs and two GCSs from which the operators have full control over the UAs and their sensors. Both LOS and NLOS data links are given for command uplink and sensor data downlink. The RQ-7 can be equipped with a GPS based navigation system for fully autonomous operations. The RQ-7's tasks include day/night reconnaissance, surveillance, TA, and BDA. The primary mission payload for the initial (Block 1) RQ-7A production vehicles is an Israel Aircraft Industries (IAI) Tamam plug-in optronic payload (POP) EO/IR sensor turret. Block 2 vehicles are projected to use an improved Wescam EO/IR sensor. Other payloads are also under consideration, including a synthetic aperture radar/moving target indicator (MTI) unit. In FY 2007, available sensors will include a laser rangefinder/designator (LRF/D). To date, fifteen systems have been delivered. The current fielding plan is one Shadow platoon per BCT.



Figure F-3. Shadow AV

F-11. The RQ-7B (figure F-4) has larger wings with a more efficient airfoil and increased fuel capacity allowing an endurance of more than 6 hours. Additionally, the vehicle has an enlarged tail, upgraded avionics (including an improved flight controller with an inertial measurement unit [IMU] and increased computing power), and new payload options. The RQ-7B is also fitted with the Army's tactical common data link (TCDL).



Figure F-4. Shadow RQ-7B AV

USE

F-12. The RQ-7A Shadow passed 10,000 flight hours and 2,500 sorties during Operation Iraqi Freedom (OIF). The Shadow's EO/IR payload is capable of producing color video during daylight operations and black and white thermal images at night. This imagery provides commanders with near real-time SA-day or night, while being virtually undetectable in urban areas or other areas with ambient noise. This system can spot ambush sites or insurgents planting improvised explosive devices (IEDs). These capabilities allow the Shadow unit to support conventional combat operations and raids, provide TA, followup BDA, perform counter mortar operations, and assist with search and rescue operations.

SPECIFICATIONS

F-13. Table F-5 gives data for the RQ-7A.

Table F-5. RQ-7A specifications

Wing Span	13 ft
Weight	350 lbs
Range	125 km, further limited to 50 km (LOS data link) with a single GCU
Airspeed	70 kts loiter, 70 kts cruise, 105 kts dash
Altitude	15,000 ft MSL
Endurance	5 hours
Payload(s)	EO / IR sensors
Launch / Recovery	Hydraulic rail launch distance 30 ft. Arrested landing in 200 ft.
TCDL	No
Laser Designation	No

F-14. Table F-6 gives data for the RQ-7B.

Table F-6. RQ-7B specifications

Wing Span	14 ft
Weight	380 lbs
Range	125 km further limited to 50 km (LOS data link) with a single GCU
Airspeed	60 kts loiter, 70 kts cruise, 105 kts dash.
Altitude	15,000 ft MSL
Endurance	5 hours
Payload(s)	EO / IR sensors
Launch / Recovery	Hydraulic rail launch distance 30 ft. Arrested landing in 200 ft.
TCDL	Yes
Laser Designation	Yes in 2006

FREQUENCY CHANNELS

F-15. The frequency channels for the video receiver, primary transceiver, and secondary transceiver (table F-7) are listed below.

Table F-7. RQ-7 shadow frequency channels

Interface	Frequency Range
Video Receiver	4.4 to 4.95 GHz (CONUS) 5.25 to 5.85 GHz (OCONUS)
Primary Transceiver	2.4 to 2.485 MHz
Secondary Transceiver	340 to 400 MHz

SECTION IV – RQ-11 RAVEN

F-16. In 2006, the Army will decide which UAS will become the Army's small unmanned aerial vehicle (SUAV) system; the Raven (figure F-5) is one system that is under consideration.



Figure F-5. Raven AV

F-17. Most missions are flown at 100 to 300 feet above ground level (AGL). The system can be flown actively or through set waypoints with either a daylight or IR camera, allowing both day and night operations. Design features include the use of the military standard Py Code GPS and a rechargeable battery. Disposable batteries are an option; but due to the potentially large quantity required, this may not be practicable. The majority of missions are flown with a lithium ion battery pack that can be recharged through a variety of sources, including the 28-volt direct current (DC) outlet on a HMMWV. Depending on the battery used, mission time can range from 60 to 90 minutes. Two recent additions to the Raven system include a Panasonic Toughbook computer to accompany the GCU as well as a Sony Handycam video camera. The computer uses Falconview joint mapping software to provide the overlay of the video image over a five-color map display. The video camera allows the recording of Raven imagery for additional analysis or exploitation at a later time.

USE

F-18. The Raven is a man-portable, hand-launched SUAV system that is designed for R&S and remote monitoring. The Raven can be launched and recovered in minutes without special equipment utilizing unprepared terrain. It can be either remotely controlled from the GCU or fly completely autonomous missions using GPS waypoint navigation. The AV can be ordered to immediately return to its launch point by pressing a single command button.

SPECIFICATIONS

F-19. Table F-8 gives data for Raven.

Table F-8. Raven specifications

<i>Raven Specifications</i>		
Power		Batteries
	Single use	Lithium (LiSO2)
	Rechargeable	Lithium ion
Wing Span		4.5 ft
Weight		
	AV	4 lbs (12 lbs with carrying case)
	GCU	17 lbs
Range		8 to 12 km
Airspeed		23 kts loiter, 34 kts cruise, 60 kts dash.
Altitude		150 to 1,000 ft AGL
Endurance		90 minutes (lithium – single use)
		60 minutes (lithium ion – rechargeable)
Payload(s)		EO / IR sensors
Launch / Recovery		Hand launched/auto land recovery on soft, unimproved surface
Crew		Two MOS nonspecific Soldiers

FREQUENCY CHANNELS

F-20. The frequency channel uplink and downlink (table F-9) are listed below.

Table F-9. Raven frequency channels

<i>Channel</i>	<i>Uplink (MHz)</i>	<i>Downlink (MHz)</i>
1	395.0	1787.5
2	395.05	1810.0
3	395.1	1840.0
4	394.95	1760.0

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Appendix G

Air Assault Planning Tools and Charts

G-1. Ten basic documents form the backbone for air assault planning and execution. They include the following:

- The AMT (table G-1) is used to regulate the sequence of flight operations from PZ to LZ. (Please note that the table has been split into two parts due to the amount of information provided.)
- The tadpole diagram (figure G-1) describes lift compositions. Prepare a separate diagram for each lift.
- The PZ diagram graphically depicts the pickup zone. Prepare a separate diagram for each PZ. Figure G-2 gives an example of a blank PZ card, and figure G-3 gives an example of a completed PZ card.
- The LZ diagram graphically depicts the landing zone. Prepare a separate diagram for each LZ. Figure G-2 gives an example of a blank LZ card, and figure G-4 gives an example of a completed LZ card.
- A sample operations kneeboard sketch (figure G-5) provided by each infantry battalion S3 describes the scheme of maneuver. These concept sketches are given to the aviation S3 at the BCT rehearsal. Each pilot carries an operations kneeboard sketch to provide SA and counter the potential for fratricide during close combat operations. These sketches are also included as enclosures to the AMB.
- Route cards (table G-2) depict ingress and egress route on the AASLT.
- The air assault execution checklist (table G-3) permits brief, informative radio transmissions on crowded nets. A draft checklist will be available at the TF rehearsal, with the final version distributed before mission execution.
- The communications card is an all inclusive summary of call-signs and nets (example not given).
- A sketch of any FARP (figure G-6) or laager area/site (equivalent to a LZ diagram) involved in the mission should be included as a document of the AMB and should be in the kneeboard packet given to each pilot.
- The chalk card (table G-4) is normally placed on a 3x5 inch index card and handed to the pilot by the chalk leader as the pilot enters the helicopter. This serves as a contract between the pilot and the chalk of Soldiers to ensure coordination of LZ data. In case the chalk lands in a different LZ, the pilot will write the grid of the new LZ and hand the 3x5 card back to the chalk leader before the Soldiers exit the helicopter.

Table G-1. Air movement table										
<i>Due to the amount of columns needed to complete this table, it has been broken into two parts.</i>										
Line # (1)	Avn Unit (2)	Lifted Unit (3)	Lift # (4)	Serial (5)	Chalk (6)	PZ (7)	PZ Arr/ Load Time (8)	Takeoff Time (9)	SP Time (10)	Continued below. Continuation begins with RP Time
1	B/4-101	B/320	1	1	1-5	Oak	H-2:21	H-2:12	H-2:10	
	Kingsman	Guns					19:13	19:22	19:24	
2	C/7-101	B/320	1	2	6-9	Oak	H-2:15	H-2:02	H-2:00	
	Outlaw	Guns					19:19	19:32	19:34	
3	C/7-101	B/320	1	3	10-13	Oak	H-2:05	H-1:52	H-1:50	
	Outlaw						19:29	19:42	19:44	
4	B/4-101	3-187	2	1	1-5	Oak	H-0:24	H-0:15	H-0:13	
	Kingsman	Rifle					21:10	21:19	21:21	
5	A/4-101	3-187	2	2	6-10	Oak	H-0:22	H-0:13	H-0:11	
	Vulture	Rifle					21:12	21:21	21:23	
6	B/4-101	3-187	2	3	11-15	Oak	H-0:20	H-0:11	H-0:09	
	Kingsman	Rifle					21:14	21:23	21:25	
7	C/7-101	3-187	2	4	16-19	Oak	H-0:17	H-0:04	H-0:02	
	Outlaw	Rifle					21:17	21:30	21:32	
8	C/7-101	1-187	2	5	20-23	Oak	H-0:15	H-0:02	H+0:04	
	Outlaw	Rifle					21:19	21:37	21:39	

Table G-1. Air movement (continuation)

<i>AMT begins here again. Continued from SP Time</i>	RP Time (11)	LZ (12)	LZ Time (13)	LZ Hdg (14)	LZ Form (15)	Routes (16)		Load (17)		Remarks (18)
						<i>Ingress</i>	<i>Egress</i>	<i>PAX</i>	<i>Sling</i>	
	H-2:02	Pintai I	H-2:00	155	TRL	Mercury	Pulsar	8	See Tadpole	Refuel
	19:32		19:35							
	H-1:52	Pintai I	H-1:50	155	TRL	Mercury	Pulsar	8	See Tadpole	Refuel
	19:42		19:45							
	H-1:42	Pintai I	H-1:40	155	TRL	Mercury	Pulsar	5	See Tadpole	Refuel
	19:52		19:55							
	H-0:03	Oriole	H-0:00	180	TRL	Mercury	Pulsar C	11	See Tadpole	
	21:31		21:35							
	H-0:01	Oriole	H-0:02	180	TRL	Mercury	Pulsar C	11	See Tadpole	
	21:33		21:37							
	H-0:00	Oriole	H-0:04	180	TRL	Mercury	Pulsar C	7	See Tadpole	
	21:35		21:39							
	H-0:07	Oriole	H-0:11	180	TRL	Mercury	Pulsar C		See Tadpole	
	21:42		21:46							
	H-0:14	Oriole	H-0:18	180	TRL	Mercury	Pulsar C		See Tadpole	
	21:49		21:53							

Notes for air movement table (table I-1):

1. Line #: Given to provide quick reference with brevity. Numbered sequentially.
2. Aviation Unit: Aviation unit conducting that event. Depicted as units designation over call sign to save space.
3. Lifted Unit: Unit being lifted/air assaulted. If more than one unit in the load, use unit with most assets in the load. Depicted as units designation over call sign to save space.
4. Lift: Is a group of serials which make 1 complete turn out to & back from the AO. Numbered sequentially.
5. Serial: Is a group of the same type of aircraft; the capacity of the smallest LZ determines the number of aircraft in each serial.
6. Chalk: Each aircraft / equals one load. Numbers UH-60 and CH-47 chalk separately.
7. PZ: Name of the PZ where chawks pick up the loads.
8. PZ Arrival / Load Time: Time the troops get on the aircraft or when the aircraft starts to hookup the load.
9. Takeoff Time: Time the aircraft lifts off the PZ.
10. SP Time: Time the aircraft hit the SP (BAE-determined point about 3-8 km from the PZ).
11. RP Time: Time the aircraft hit the RP (BAE-determined point about 3-8 km from the LZ).
12. LZ: Landing Zone name and location determined by the lifted unit's GTP.
13. LZ Time: Time that the serial lands in the LZ.
14. LZ Hdg: Compass heading the serial will landing. Should be converted to and shown in magnetic heading for the aircraft.
15. LZ Form: Landing formation, normally trail.
16. Routes: Primary ingress and egress routes for the mission.
17. Load: PAX and slingload configuration. Refer to the tadpole diagram to save space on this page.
18. Remarks: Used by the BAE to provide additional remarks (such as scheduled delays due refuel, or any other uncommon serial characteristics).

G-2. The tadpole diagram (figure G-1) consists of the following items:

- (1) Lift: Indicates a group of serials which make 1 complete turn out to & back from the AO. Numbered sequentially.
- (2) Serial: Refers to a group of the same type of aircraft; the capacity of the smallest LZ determines the number of aircraft in each serial.
- (3) Chalk: Refers to a complete load and the transporting aircraft. Numbers UH-60 and CH-47 chalk separately.
- (4) PZ name: Indicates name of the PZ where chawks pick up the loads.

- (5) T/O time: Designates the time the chalk(s) depart the PZ. Time is given in mission H-hour sequence and may also be given in local or Zulu time.
- (6) Code word: Refers to a brevity code word passed over a designated radio net to verify an event occurrence. Use a separate brevity code word for each event.
- (7) Serial load: Depicts each chalk load. A separate “tadpole” figure is drawn to represent each helicopter in the chalk. Tadpoles drawn head to tail give a better visual depiction of how the chalk will look when on the ground in the PZ/LZ. The unit designation and number of PAX is listed inside the tadpole figure. In a legend create a list of each type cargo load (if applicable) and assign it with an alphabetic designation. Place the corresponding alphabetic designation in the box(s) below each tadpole. A UH-60 helicopter has one cargo hook hence one box designating a load, CH-47 helicopters have two cargo hooks hence two boxes designating a load.
- (8) R/P Code word: Refers to a brevity code word as in number 6.
- (9) LZ name: Lists the name of the LZ in which the load is dropped off.
- (10) LZ time: Designates the time the chalk(s) load at the LZ. Time is given in mission H-hour sequence and may also be given in local or Zulu time.

Lift (1)	Serial (2)	Chalk (3)	PZ Name (4)	T/O Time (5)	Code Word (6)	Serial Loads (7)	R/P Code Word (8)	LZ Name (9)	LZ Time (10)
1	1	1-3	Oak	H-2	Akron		Betty	Sparrow	H-1+30
1	2	4-5	Oak	H-1+45	Clio		Jane	Sparrow	H-1+15
2	1	1-3	Pine	H-1+100	Dover		Darla	Oriole	H-0+30
a - trailer c - cargo pallet with rack sacks g - 155-mm towed gun									

Figure G-1. Tadpole diagram

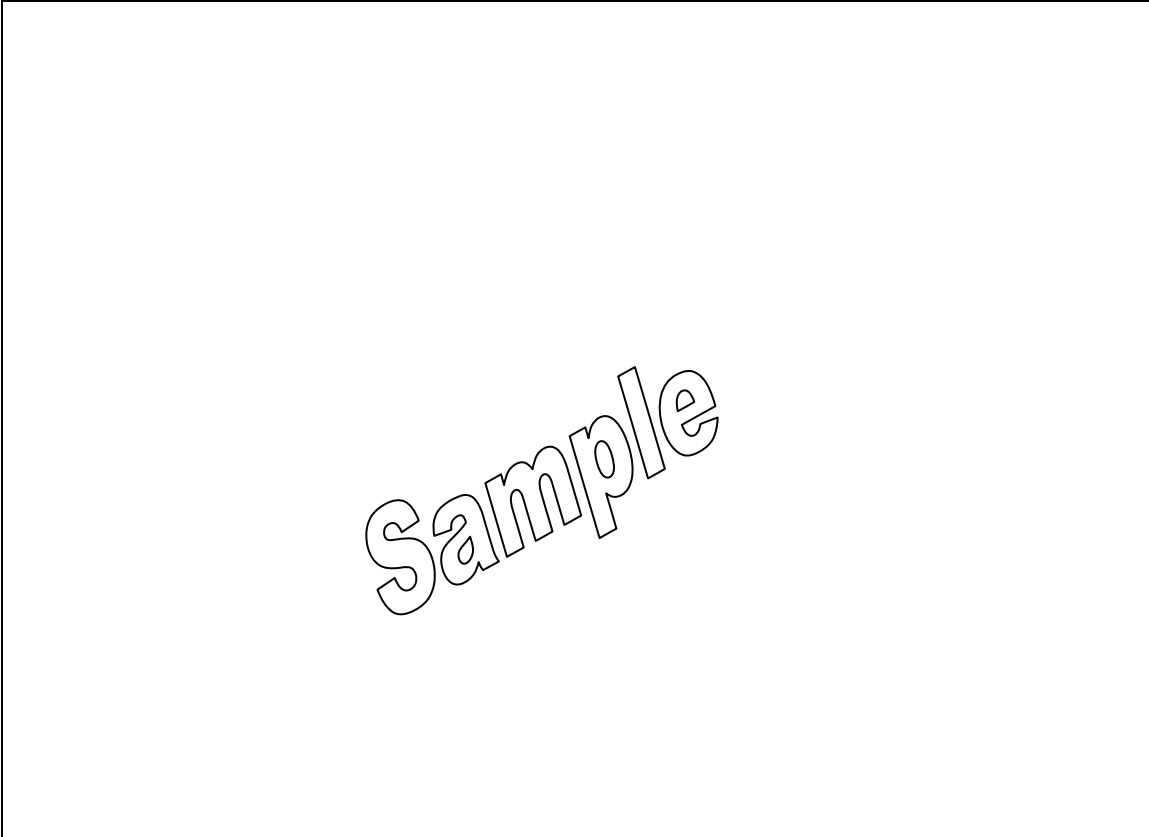
		
LZ / PZ Name	Grid	Elevation
Formation	Freq / C / S	Entry / Exit / Left / Right / Rear
Direction	Go Around	Alternate
Markings Near / Far	Hazards	Weapons Left / Right / Rear
Load	Fuel	Remarks

Figure G-2. Generic LZ/PZ diagram card

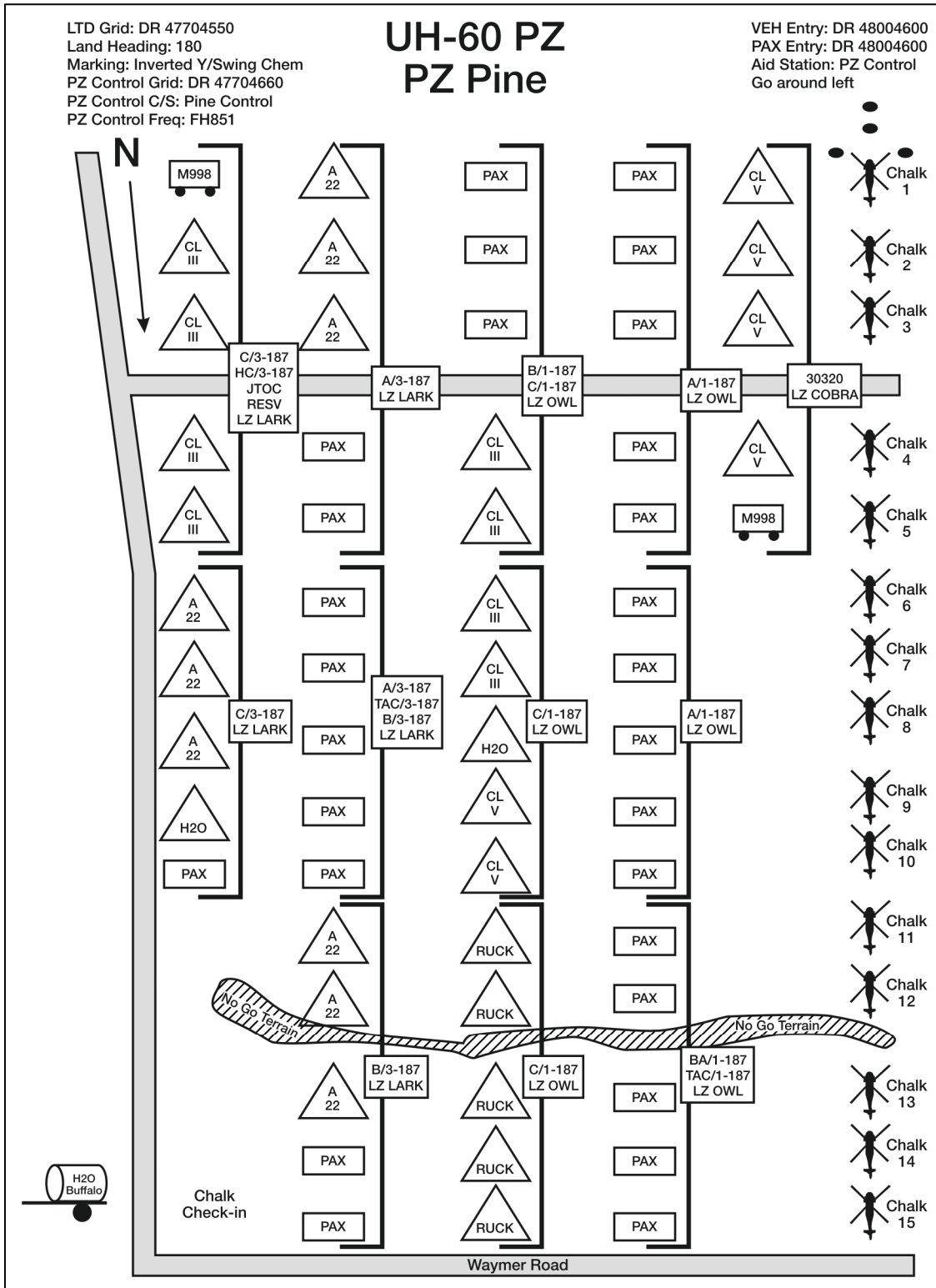


Figure G-3. Sample PZ diagram

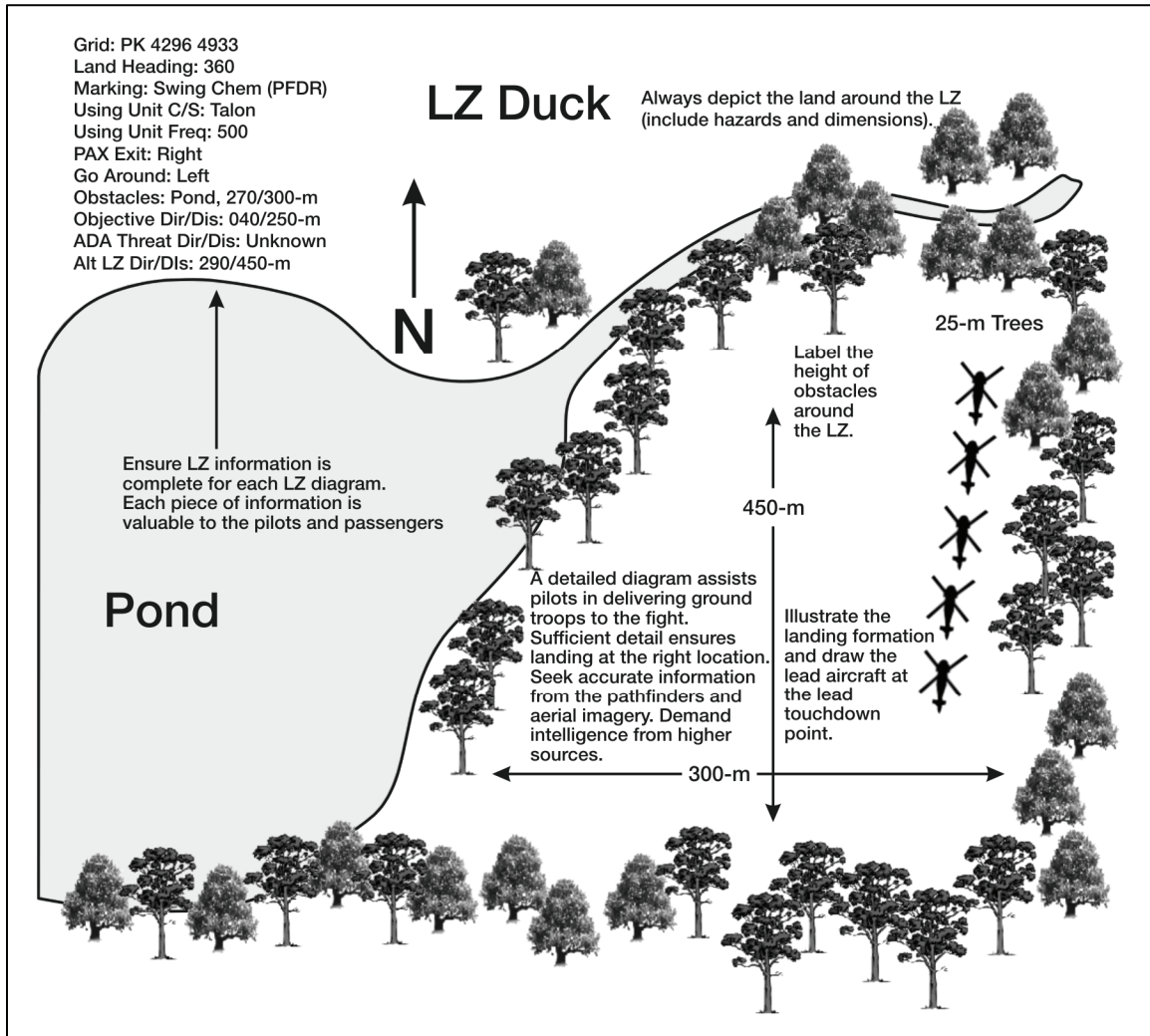


Figure G-4. Sample LZ diagram

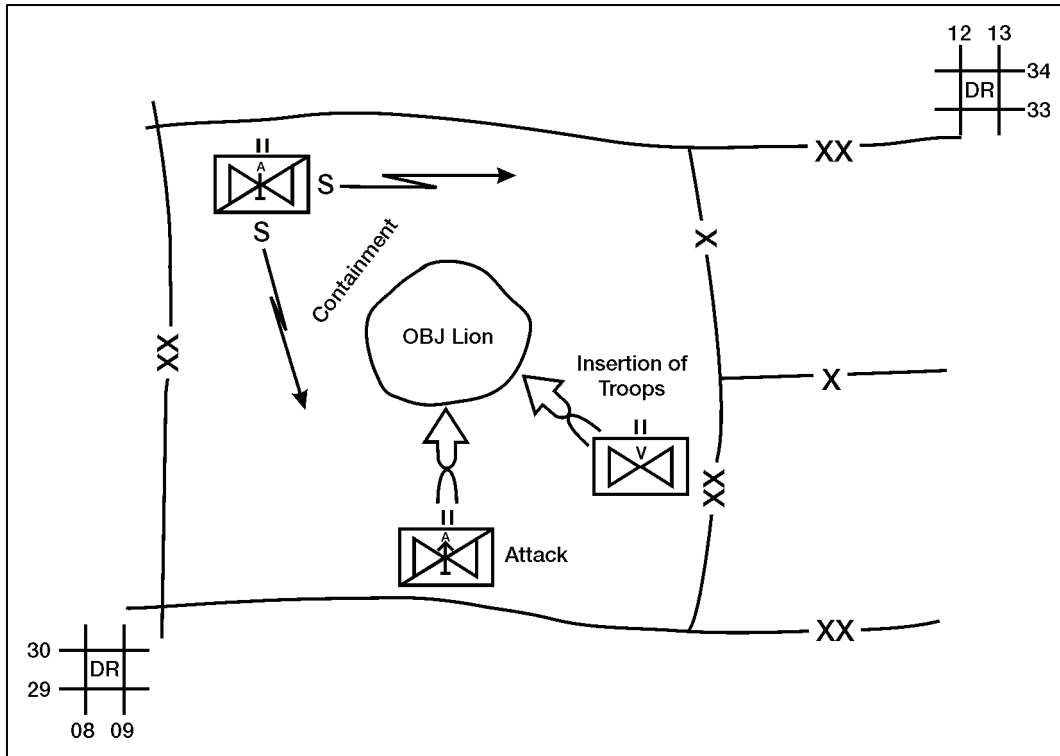


Figure G-5. Sample operations kneeboard sketch

Table G-2. Route card

<i>TDH* Card 1b: Route MVAR</i>	<i>Ingress (heavy) Mercury 1.3 degrees</i>					
	<i>Grid</i>	<i>Magnetic (MAG) Heading</i>	<i>ETA</i>	<i>Distance (km)</i>	<i>A/S (knots)</i>	<i>Remarks</i>
PZ Oak	DR 2915 6185					Square Field
SP	DR 2855 6513	349	0 + 01:47 0 + 01:47	3.3 3.3	60	Power line Intersection
1	DR 2830 6790	354	0 + 01:08 0 + 02:55	2.8 6.1	80	Road Intersection
2	DR 3295 6965	068	0 + 02:01 0 + 04:56	5.0 11.1	80	Pond
3	DR 3815 6834	103	0 + 02:11 0 + 07:07	5.4 16.5	80	River Bend
RP	DR 3908 6165	171	0 + 02:45 0 + 09:52	6.8 23.3	80	Road Bend
LZ Gameball	DR 3890 5770	182	0 + 02:40 0 + 12:32	4.0 27.3	60	FP 40A

*TDH – time, distance, and heading.

Table G-3. Air assault execution checklist

Line #	Time H/Local	Event	M/X	NET	From	To	Code Word
10	8 + 00:00 1305:00	Initial wx call	M	BDE CDM	Rakkasan TOC	All	
15	4 + 00:00 1705:00	Intel update / final wx call					
20	3 + 20:00 1745:00	C2 Aircraft arrives at PZ	M	CAN2	Warlord	Wings BAE	Adkinsville
25	3 + 00:00 1805:00	TM3 Pathfinders at RP/NFA for LZ Cobra	M	CAN1	Punisher 6	Wings 6	Akron
30	3 + 00:00 1805:00	2-101 Atk on Station	M	CAN1	Warrior 6	Rakkasan 6	Albany
35	2 + 55:00 1812:00	MEDEVAC arrives at PZ	M	CAN1	Dust-Off 44	Wings 6	Ashville
40	2 + 35:00 1810:00	Cdr's communications check	M	All (BDE CMD CAN1 & 2, ABN)	Rakkasan 6	All	See communication card
45	2 + 50:00 1815:00	PZ posture					
50	Event	Delay in H-hour	X	CAN1	Rakkasan 6	All	Bear + # of minutes delayed
55	2 + 38:08 1826:08	Lift 1, Serial 1 at SP for LZ COBRA (3-320 FA ADVON) (5xuh60)	M	ABN, CAN1	Kingsman 13 / Wings 5	Wings 6 / Rakkasan 6	Augusta
50	Event	Request MEDEVAC	X	CAN1	Anyone needing assistance	Wings 6	Initial 4 lines
60	Event	Frustrated chalk	X	CAN1	PZ Control	Rakkasan 6	Coyote + lift + serial + chalk
65	Event	Switch to BDE CMD Net	X	CAN1	Rakkasan 6	All	Lion
<p>Notes:</p> <ol style="list-style-type: none"> Line #: Given to provide quick reference. Initially numbered sequentially by five, to leave space to add events (1 to 4). Time: Time event is scheduled to be initiated. Given in mission H-hour sequence and in local or Zulu time. Event: Description of event to be accomplished. M/X: Designates where an event is a scheduled mission (M) or exceptional (X) event. Net: Radio net on which the event communications are executed. From: Who initiates the event communications call. To: Who receives the event communications call. Code Word: A brevity code word passed over a designated radio net to verify an event occurrence. Use a separate brevity code word for each event. 							

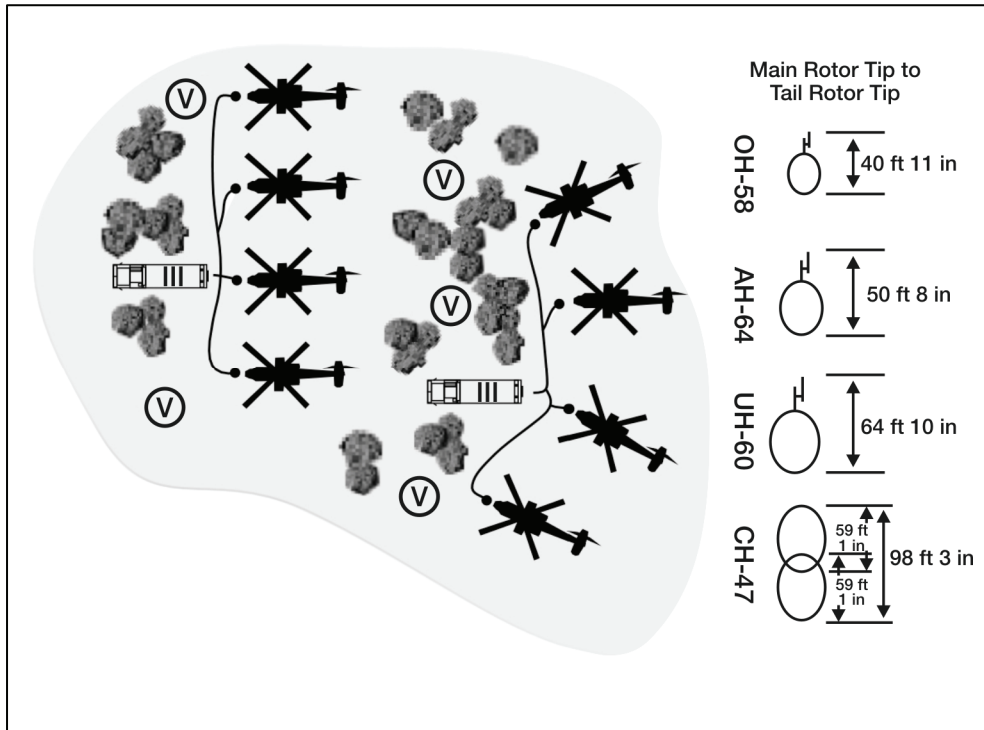


Figure G-6. FARP diagram

Table G-4. Chalk card

LZ NAME _____
LZ GRID _____
REMARKS:
Sample
SKETCH OF LZ:

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Appendix H

Battle Command on the Move (Army Airborne Command and Control System)

The A2C2S is a UH-60 based C2 system that serves as an airborne tactical CP. Through its onboard MCS, all source analysis system (ASAS), advanced field artillery tactical data system (AFATDS), air and missile defense workstation (AMDWS), combat service support control system (CSSCS), and Force XXI Battle Command Brigade and Below (FBCB2), A2C2S provides continuous battlefield SA. It also is the source of digital information for nondigitized aircraft supporting the operation. A2C2S provides maneuver commanders—from ARB/ARS to EAC—with on-the-move C2. The system supports three major operational functions—mission planning, mission execution, and mission support. Its primary function is to monitor the execution of current operations while the main CP focuses primarily on planning future operations.

ARMY AIRBORNE COMMAND AND CONTROL SYSTEM

CAPABILITIES

H-1. A2C2S enables the commander and staff to traverse the battlespace to critical places at critical times. The commander and staff can perform all battle command and coordination functions from A2C2S. It has simultaneous multiband voice and data channels and dynamic visual battlefield SA and C2 via C4I connectivity. A2C2S provides access to the TI to manipulate, store, manage, and analyze SA information, intelligence data, mission plans, and mission progress data to support the C2 decisionmaking process. The system has triservice interoperability and is compatible with NATO, civil aviation, maritime, and law-enforcement communications (see figure H-1).

FEATURES AND PERFORMANCE

H-2. A2C2S provides—

- Robust LOS and NLOS communications through single-channel air and ground radio system (SINCGARS) advanced system improvement program (ASIP), SATCOM demand assigned multiple access (DAMA), HaveQuick II, EPLRS (friendly positions), near-term digital radio (NTDR) (SA), and HF.
- GPS for present position and standard National Geospatial-Intelligence Agency (NGA) maps with overlays for a complete picture of the battlefield.
- Automated display of SA and C2.
- Five automated, reconfigurable, and removable workstations and a command database and two large common displays; each workstation incorporates a keyboard, monitor, and audio communications unit.
- Real-time battlespace control and monitoring.
- Common displays.
- Enhanced control of battle.
- Digital connectivity with all ABCSs.

- Standard communications and information security.
- Airborne and ground operational modes.

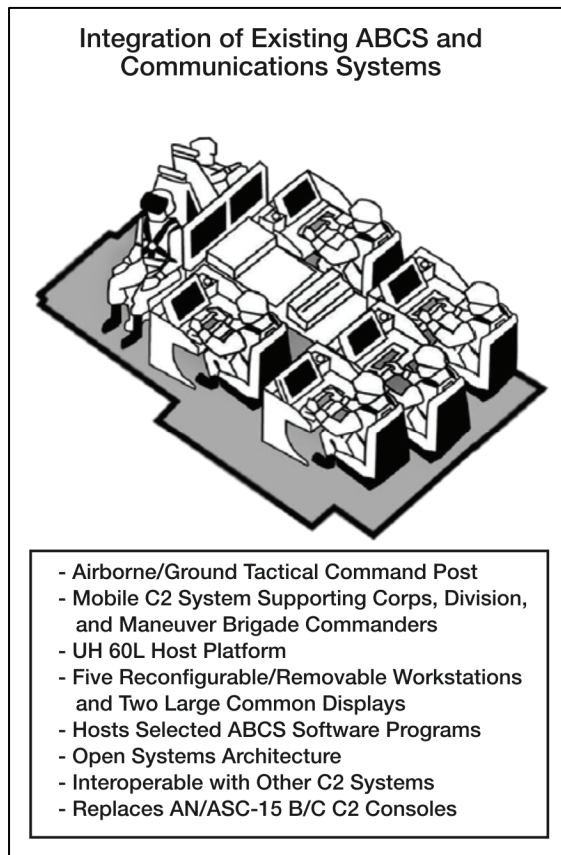


Figure H-1. A2C2S configuration

INTERFACES

H-3. A2C2S interfaces with—

- JSTARS.
- SATCOM.
- Maneuver TOCs.
- CH-47F.
- AH-64D.
- OH-58D.
- M1 main battle tank.
- M2/M3 cavalry fighting vehicle.
- MLRS.

OPERATION AS A GROUND COMMAND POST

H-4. When operating as a ground CP, the preferred power source is commercial power. If commercial power is not available, a generator is the next preferred power source. If external power is not available, aircraft power is required. Extended ground times may require a ground power unit, which could be brought in via slingload, or by a tactical ground vehicle (such as a HMMWV with a generator kit).

COMMAND AND CONTROL MISSION PLANNING CONSIDERATIONS

H-5. C2 planning considerations unique to A2C2S are discussed below.

SYSTEM INITIALIZATION

H-6. Initialization is an important step in preparing A2C2S automated systems. If A2C2S begins a mission without proper initialization, it is difficult to transfer the necessary volume of initial information while en route (in a timely manner) to exploit the capabilities of the automated workstations and data communications. A2C2S initialization is a three-step process:

- Initialize radios.
- Initialize the improved data modem (IDM) (+)/internet controller (INC).
- Load MCS data.

SYSTEM OPERATOR

H-7. A master operator manages the software/hardware while the commander and staff control the battle. The operator must be trained to initialize the system, use each of the component systems, troubleshoot the system, and provide immediate work-around solutions in case of malfunctions. The aviation unit may not have personnel available to operate the system. Therefore, the supported unit commander must be prepared to provide a systems operator.

OPERATOR MANUALS

H-8. This appendix is written to provide an overview of A2C2S. Operator manuals take precedence over any procedure in this appendix.

EMPLOYMENT

H-9. The IM capabilities of A2C2S are focused on controlling the execution of an operation. Planning capability is limited. Mission data is transferred to A2C2S from the digital TOC to bring it up to the same (current) operational status at the start of a mission.

INFORMATION FLOW

H-10. The Army tactical command and control systems (ATCCSs) are primarily top-down planning tools. Once the execution phase begins, the primary flow of information is bottom-up via FBCB2. A2C2S draws real-time data from broadcast sources to determine changes to the enemy situation during the execution phase of a mission. The intelligence information that the ASAS provides is an analyzed and formal product. Intelligence information that A2C2S receives from tactical related applications (TRAPs), tactical data information exchange-broadcast (TADIX-B), and tactical information broadcast service (TIBS) broadcast sources is raw data (figure H-2).

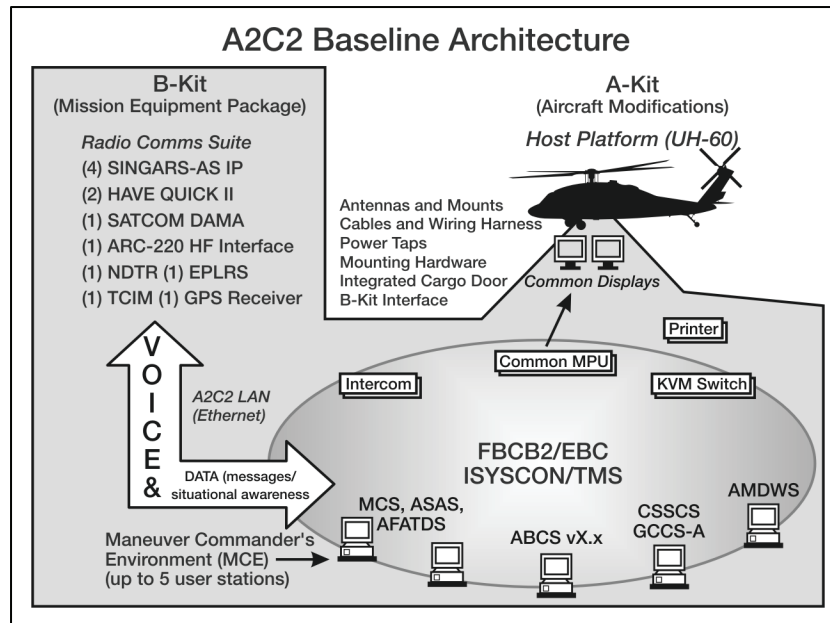


Figure H-2. A2C2S information flow

BATTLEFIELD EMPLOYMENT

H-11. A2C2S expands the battlefield by providing the means to exercise C2 and gather tactical information in support of a mission while on the move. From A2C2S, the commander and staff influence the battle via direct exchange of voice and digital information with units conducting the mission. They simultaneously develop the situation beyond the range of their unit's sensors and shooters by accessing broadcast intelligence sources.

COVERING FORCE AND DEEP AREAS

H-12. A2C2S enhances lethality during covering-force missions and shaping operations in deep areas by moving its command forward so that it can maintain contact with the maneuver forces. From A2C2S, the commander and staff can synchronize deliberate and hasty artillery fires. A2C2S can have a direct link to artillery, including the Army tactical missile system (ATACMS). Direct linkage is not necessary for direct FS or priority of fires.

CLOSE AREAS

H-13. Integral activities during operations in close areas include maneuver, close combat, indirect FS, CS and CSS of committed forces, and C3I. Aviation organizations may be employed as a security or reserve force in the security or MBA. A2C2S gives the commander a clear picture of the close battle and allows the commander to coordinate and synchronize maneuver and fires. Linked with other automated systems, A2C2S can pull information on demand allowing the commander to operate at the commander's own tempo without the information delays characteristic of traditional reporting methods.

REAR AREAS

H-14. The aviation brigade gives the division commander a highly mobile and lethal combat force to counter a level III incursion in the rear area. As a maneuver headquarters, the brigade can be tasked as a TCF to respond to a significant threat. A2C2S provides a flexible and highly mobile tactical CP to control operations.

STABILITY OPERATIONS AND SUPPORT OPERATIONS

H-15. During stability operations and support operations, the system provides connectivity to special operations, C2, embassy, law enforcement, maritime, civil, and/or other humanitarian information and communication networks. A2C2S can also improve the ability of local, state, and federal agencies to communicate and coordinate in a crisis environment (such as a hurricane or forest fire).

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Appendix I

Suppression of Enemy Air Defense

The purpose of SEAD and J-SEAD is to protect friendly aircraft with synchronized lethal and nonlethal fires to facilitate the maneuver of CAS, attack reconnaissance aviation, and assault aviation operations in support of the ground maneuver force. SEAD fires are normally planned for any operation where air assets (both rotary- and fixed-wing) are employed. The objective of SEAD is to increase the overall effectiveness of friendly operations by reducing the capabilities of enemy ADs, thereby increasing survivability of friendly air resources. SEAD is not an end unto itself, but it is planned and executed to support the concept of operations.

SECTION I – GENERAL

COMMON TERMS

SUPPRESSION OF ENEMY AIR DEFENSE

I-1. SEAD is any activity that neutralizes, destroys, or temporarily degrades enemy surface based ADs by destructive or disruptive means. (See joint publication [JP] 3-01.4 for more information on SEAD.)

JOINT SUPPRESSION OF ENEMY AIR DEFENSE

I-2. SEAD is a broad term that encompasses all SEAD activities provided by components of a joint force in support of one another.

Contents	
SECTION I – General	I-1
SECTION II – Suppression of Enemy Air Defense Planning.....	I-3
SECTION III – Planning Steps.....	I-4

JOINT OPERATIONS AREA / AREA OF OPERATIONS AIR DEFENSE SYSTEM SUPPRESSION

I-3. Joint operations area (JOA)/AO-wide operations are conducted against specific enemy AD systems to degrade or destroy their effectiveness. It targets high-payoff AD systems whose degradation will have the greatest impact on the enemy's total system. Planning is based upon the joint force commander's (JFC's) campaign planning objectives.

LOCALIZED SUPPRESSION

I-4. Localized SEAD can occur throughout the JOA/AOR and be conducted by all components but is limited in time to geographical areas associated with specific ground targets.

OPPORTUNE SUPPRESSION

I-5. Opportune SEAD is a continuous operation involving immediate attack of AD targets of opportunity. It is normally unplanned suppression and includes aircrew self-defense and attacks against targets of opportunity.

TYPES AND TECHNIQUES

I-6. Two types of SEAD are—

- Planned.
- Immediate.

I-7. The techniques include—

- Scheduled.
- On-call.
- Deceptive.
- Corridor suppression.

PLANNED SUPPRESSION

I-8. Planned suppression is SEAD targets developed by the G2/Joint Intelligence capabilities and designated for attack by lethal or electronic attack by Army, joint and/or combined assets.

IMMEDIATE SUPPRESSION

I-9. Immediate suppression is conducted on AD targets of opportunity. The execution of immediate SEAD should reflect the priorities established on the HPTL and attack guidance matrix (AGM). Delivery systems and quick-fire nets are critical to support immediate SEAD operations.

SCHEDULED SUPPRESSION

I-10. Scheduled suppression is planned SEAD executed on a time sequence.

ON-CALL SUPPRESSION

I-11. On-call suppression is planned SEAD that is executed on event triggers under positive control.

DECEPTIVE SUPPRESSION

I-12. Deceptive suppression involves firing a SEAD program in an area to deceive the enemy or cause it to reposition its AD weapons away from the actual operations will take place.

CORRIDOR SUPPRESSION

I-13. Corridor suppression is planned J-SEAD focused on creating an AD suppressed corridor in which to maneuver aircraft. It may be requested by any component to the JFACC through normal channels. From JP 3-01.04, four missions that normally require corridor suppression are—

- Missions transiting the FLOT.
- Air missions supporting tactical airlift or combat.
- Search and rescue operations or in support of special operations.
- Helicopter operations forward to the FLOT.

SECTION II – SUPPRESSION OF ENEMY AIR DEFENSE PLANNING

I-14. The development of SEAD plans must be done as part of the normal MDMP and targeting process. Because SEAD exists to support air operations, it must be an integrated part of the planning for that supported operation. Maneuver, intelligence and FS (to include the Air Force) warfighting functions are key to successful SEAD planning. These warfighting functions must ensure the SEAD plan maximizes the available collection and attack reconnaissance assets in synchronization with maneuver. As a key player in SEAD operations, the ECOORD’s duties for air assaults or mobile strikes are to plan, synchronize, and execute SEAD fires.

I-15. For most operations in a medium or high AD threat environment, a period of focused immediate SEAD to identify and destroy AD that can affect planned routes, LZs, or BPs, will set the conditions for mobile strikes or air assaults. This "find-kill" destruction of enemy air defense (DEAD) operation requires focused collection and streamlined sensor to shooter links. SEAD is still planned to support aircraft movement.

I-16. Table I-1 depicts events and considerations essential to effective SEAD/J-SEAD planning. This matrix is not intended to be an exhaustive portrayal, but rather an example designed to assist planners at all levels in coordinating, synchronizing, and executing SEAD/J-SEAD for mobile strikes or air assault operations. Many of the actions occur simultaneously and are integrated across multiple warfighting function elements and service organizations.

Table I-1. SEAD considerations

<i>Action</i>	<i>Responsible Agency</i>	<i>Products/Outcomes</i>
Mission Analysis	All Warfighting Function Elements	
Determine and plot air corridors ingress and egress routes with ACPs	BAO with ECOORD, G-3 Air, A2C2, AVN TF, and ALO	Air route overlay
Determine and plot enemy AD assets that affect corridors to include their support structure (C2 nodes for IADS)	ECOORD targeting officer with G2/S2, G2 collection manager and FAIO	Threat AD overlay
Determine friendly assets available:		
Collection assets	G2/S2/ACE (collection manager)	Synch matrix of collection assets
Attack systems FA (reinforcing, GS, and GS/reinforcing) Special munitions (ATACMs, etc.)	ECOORD	Arty org for combat
EW	IWO	Quick fix schedule
Attack recon aviation	BAO	Assets available
Joint attack systems (lethal and nonlethal)	ADO/G3 Air/BAO ALO, battlefield coordination detachment (BCD) LNOs, ECOORD, ACE	Joint assets available and their capabilities

Table I-1. SEAD considerations

<i>Action</i>	<i>Responsible Agency</i>	<i>Products/Outcomes</i>
Identify enemy systems that organic assets can effectively suppress or destroy and those requiring support from higher echelons	G2/S2, ECOORD targeting officer, FAIO, and the ACE collection manager	ID threat systems that higher must attack
Develop initial target nominations for SEAD/J-SEAD requests	ECOORD targeting officer, G2, FAIO, ACE collection manager, IWO, ALO	Submit targets to targeting officer
Develop J-SEAD plan for higher echelons	ECOORD, S3/G3, ALO, BAO	Coordinate with higher headquarters (HQ) for inclusion in ATO
Disseminate targeting data to subordinate FSOs (ATO)	ECOORD, ALO, BAO	ATO published
Establish SEAD fire plan for ingress and egress on each corridor and disseminate as appropriate	Applicable ECOORD with BAO/A2C2, G2/S2, G3/S3, ALO	Publish SEAD plan
Revise, update and disseminate target data as appropriate / change H-hour/F-hour	ECOORD, G2/S2, BAO, appropriate CDR	Modify targeting plan as necessary
Rehearse with supporting unit	ECOORD, BAO, ALO, AVN TF	Plan validation
Execute		

I-17. The ECOORD needs to fully integrate with the ground maneuver staff, the attack reconnaissance FSO, and/or the aviation TF staff. The SEAD planners must know—

- Ingress and egress flight corridors with ACPs.
- TDH info (or planning airspeed in knots at a minimum).
- Expected FLOT crossing time (F-hour) on ingress and egress.
- Enemy AD locations along routes.
- Locations, frequencies, and call signs of friendly artillery units capable of providing SEAD fires.
- Other lethal or nonlethal fires available (EW, electronic attack assets off the ATO). This is coordinated through ALOs and ECOORDs.

SECTION III – PLANNING STEPS

I-18. The following steps are a logical method of SEAD planning when cannon or MLRS systems will be used. These steps provide some of the detailed actions conducted by SEAD planners to support the SEAD considerations in the table K-1 above.

FIND THE ENEMY

I-19. Plot the locations of the enemy AD systems on a map.

DETERMINE VULNERABILITY

I-20. For each location, draw a circle around the AD site, using the enemy weapon location as the center of the circle. The radius of the circle is the maximum engagement range for the AD weapons system that is there. (For example, an SA-8 has a maximum weapon range of 14 kilometers.) A circle with a radius of 14 kilometers would be drawn around each SA-8 site, with the center of the circle being the weapon system at that particular location. These circles are known as “threat rings.”

I-21. Depending on the threat system and its means of TA (optical, IR, radar) and fire control, the size of the threat rings may change in hours of limited visibility. Additionally, significant terrain features that block electronic or visual LOS may affect the threat rings. The more time available to the planners, the greater the resolution the threat rings can portray.

I-22. The threat rings display the area of vulnerability friendly aircraft will have against the weapon at that location. Once friendly aircraft enter the circle, there is the potential of being shot down by that weapon system.

PLOT THE FLIGHT ROUTES

I-23. The flight routes should be developed to minimize exposure to the threat rings, while still accomplishing the primary mission.

DETERMINE AIRSPEED

I-24. The BAE or the aviation TF determines the flight speed that will be used for the mission. This may vary from mission to mission, so this must be determined every time. Using the airspeed, calculate how long it will take the aircraft to cover a specific distance.

I-25. In the absence of guidance to the contrary, the following planning factors will be used—

- UH-60 internal load - 120 knots
- UH-60 external load - 80 knots
- CH-47 internal load - 100 knots
- CH-47 external load - 100 knots
- OH-58D - 80 knots
- AH-64 - 100 knots

I-26. A good rule-of-thumb planning factor is that aircraft will cover three kilometers in one minute (90 to 100 knots).

I-27. Table I-2 converts airspeed in knots to kilometers per hour (KMPH) and kilometers per minute (KMPM). For example, an aircraft flying, 100 knots ground speed will travel 185.20 KMPH and 3.09 KMPM.

Table I-2. Airspeed conversion chart

<i>Airspeed Conversion Chart</i>					
<i>Knots</i>	<i>Km/Hour</i>	<i>Km/Minute</i>	<i>Knots</i>	<i>Km/Hour</i>	<i>Km/Minute</i>
1	1.85	.03	40	74.08	1.24
2	3.70	.06	50	92.60	1.54
3	5.56	.09	60	111.12	1.85
4	7.41	.12	70	129.64	2.16

Table I-2. Airspeed conversion chart

<i>Airspeed Conversion Chart</i>					
<i>Knots</i>	<i>Km/Hour</i>	<i>Km/Minute</i>	<i>Knots</i>	<i>Km/Hour</i>	<i>Km/Minute</i>
5	9.26	.15	80	148.16	2.47
6	11.10	.19	90	166.68	2.78
7	12.96	.22	100	185.20	3.09
8	14.82	.25	110	203.72	3.40
9	16.57	.28	120	222.24	3.70
10	18.52	.31	130	240.76	4.02
20	37.04	.62	140	259.28	4.32
30	55.56	.93	150	277.80	4.63

I-28. The unit A2C2 representatives normally plan the flight routes using a computer program which produces a route card for the mission. (ROTORNAV is one such computer program.) Using the planned airspeed for the mission, the route card displays how long it will take the aircraft to go from the start of the mission to the various ACP on the route. It also tells flight time from one ACP to the next ACP. While not essential for SEAD planning, these electronically produced route cards are very helpful in determining SEAD timings, as well as giving the planned airspeed for the mission.

SUPPRESSION OF ENEMY SYSTEMS (SUPPRESSION OF ENEMY AIR DEFENSE TARGETS)

I-29. Enemy systems suppression must be determined. On the map, simulate the flight of a helicopter along the planned flight route. Note the order in which the helicopter enters the various threat rings. The order in which the threat rings are entered is the order in which the AD systems should be attacked. This becomes the basis for placing targets on the SEAD schedule of fire in the proper order.

TARGET SUPPRESSION

I-30. The length of target suppression must be determined. Compute how long the helicopter will be inside each threat ring. Count the number of kilometers the flight route passes through the threat ring. Using the planned airspeed, compute the time it will take the helicopter to traverse the flight route distance that is inside the threat ring. This tells how long the helicopter is vulnerable to the enemy system at that location and how long the system must be suppressed.

I-31. In the absence of an exact airspeed, a rule of thumb is to use 90 knots for planning purposes. At this airspeed, the aircraft will cover approximately 3 kilometers in 1 minute. Using this airspeed, if the flight route takes the aircraft through the threat ring for 6 kilometers, the aircraft will be vulnerable to that weapon system for 2 minutes. In the SEAD schedule of fires, this target must be suppressed for the 2 minutes of exposure.

I-32. Due to the various ranges and the positioning of enemy weapon systems, the schedule of fires may get somewhat complicated, because you may still be suppressing one system while you are entering the threat ring of another system. Use the same procedure for both ingress and egress routes.

WEAPON SELECTION

I-33. Choosing the weapon system to use for suppression, whether it is tube artillery, rockets, or joint fires, must be made carefully. If MLRS will be used to fire the SEAD, usually one or two rockets per

minute is enough. Continuously suppressing the target for the entire time the aircraft is vulnerable may use up too many rockets, so another method may be appropriate to complement the rockets. Consult the unit's fire direction officer on the number of rockets available, the amount required to adequately suppress the target based on its size and the time of vulnerability, and the possibility of using additional weapons.

FIRE SUPPORT REHEARSAL

I-34. If possible, conduct a FS rehearsal with the supporting unit. Brief and rehearse with all participants at a combined arms rehearsal.

EXECUTION

I-35. Execution should be subject to minimal last-minute changes. Synchronization is key to success. Planned SEAD is normally started based on time (scheduled) or an event (on-call). Examples of events include crossing a specific PL or ACP. The event initiating the SEAD program should be a PL or ACP that is no less than 5 minutes flight time outside the first threat AD range fan or "bubble" that will be encountered. Timings for individual targets within the SEAD program are done utilizing the route cards produced by the appropriate aviation unit A2C2 element.

FIRE SUPPORT ASSETS

I-36. Besides the supporting fires network for SEAD, the division has other assets that may provide some SEAD capability. Attack reconnaissance helicopters are capable of conducting limited lethal SEAD operations. The Longbow Apache, with its RFI, millimeter wave (MMW) radar and RF Hellfire missiles is better suited for lethal SEAD missions targeting threat radar AD and AAA systems. Careful planning must be conducted when employing attack reconnaissance assets on a SEAD mission. Besides not being specifically suited to SEAD, any attack reconnaissance assets allocated to SEAD will be unavailable for attack reconnaissance missions.

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Appendix J

Fire Support Quick Reference

This appendix is a quick reference for the BAE to clarify definitions of artillery attack guidance, effects, and other tasks.

FIELD ARTILLERY ATTACK GUIDANCE

DESTRUCTION

J-1. Thirty percent in casualties or material damage usually renders a unit ineffective. Destruction puts targets out of action permanently. Destruction requires large expenditures of ammunition and is not considered economical.

NEUTRALIZATION

J-2. Ten percent or more in casualties or damage puts a target out of action temporarily. Most missions are neutralization fires.

SUPPRESSION

J-3. Suppression effects last only as long as fires are continued; but, they do limit the enemy's ability to perform its job.

HARASS

J-4. Harassing fires are designed to disturb the rest of enemy troops; curtail movement; and, by threat of losses, lower morale.

EFFECTS OF TARGET ATTACK

DISRUPT

J-5. Disruption is achieved by continuous suppression, neutralization, or destruction of targets by lethal means or could involve offensive EW.

DELAY

J-6. Delays slow the enemy's movement on the battlefield.

LIMIT

J-7. Limiting fires divert the enemy unit to another part of the battlefield to terrain not suitable for its purposes.

ATTRITION

J-8. Attrition involves the reduction in the effectiveness of a force caused by loss of personnel and materiel.

COMMANDER'S INTENT FOR FIRE SUPPORT

J-9. The following is covered when stating intent for FS—

- Prioritization of FS assets.
- Desired effects.
- Essential fire support task (EFST) statement including task, purpose, method, and end-state.

ESSENTIAL FIRE SUPPORT TASK

J-10. An EFST is required and permits FS support to be applied during a combined arms operation. Failure to achieve an EFST requires the maneuver commander to alter the tactical or OPLAN. The EFST must be fully defined by a task, purpose, method, and end-state. The commander must provide sufficient focus to mass effective fires. EFSTs are the basis for preparing the concept of fires, scheme of fires, fires paragraph, and essential field artillery tasks (EFATs).

TASK

J-11. An EFST task identifies the enemy formation (to attack), their function (when to attack), and desired effects. Tasks are expressed in terms of suppress, neutralize, destroy, obscure/screen, and delay/disrupt/limit.

PURPOSE

J-12. The EFST purpose identifies what the commander wants from fires in relationship to the friendly scheme of maneuver.

METHOD

J-13. The EFST method identifies how the task is to be accomplished. In most cases, the method is recommended by the ECOORD or FSO.

END-STATE

J-14. The EFST end-state defines what must be accomplished for mission success. This requires assessment and decision by the maneuver commander. If successful, the unit prepares for future operations. If not, the unit will—

- Repeat the process.
- Adjust the scheme of fires.
- Adjust the scheme of maneuver.

TERMS

CONCEPT OF FIRES

J-15. Concept of fires is the logical sequence of EFSTs that, when integrated with the scheme of maneuver, will accomplish the mission and achieve the commander's intent. The EFSTs are the framework for the concept of fires.

SCHEME OF FIRES

J-16. Scheme of fires is the logical sequence of targets and FS events required to find and attack, in time and space, to accomplish the commander's EFST. They should include—

- Tasks.
- Triggers.
- Purpose.
- Observers (primary/alternate).
- Method.
- End-state for each EFST.

FIRES PARAGRAPH

J-17. The fires paragraph is the commander's concept of fires by phase of the maneuver operation. This is a subparagraph of the maneuver concept of the operation. EFSTs are described in sequence by phase or event. Priorities, allocations, and restrictions should also be noted.

ESSENTIAL FIELD ARTILLERY TASKS

J-18. Essential field artillery tasks are used by the FA. These are tasks that must be accomplished to achieve an EFST. They are normally derived from the method portion of the EFST.

INHERENT RESPONSIBILITIES OF FIELD ARTILLERY STANDARD TACTICAL MISSIONS

J-19. Table J-1 lists the seven inherent responsibilities of FA standard tactical missions.

Table J-1. Responsibilities of FA standard tactical missions

<i>FA Unit Mission</i>	<i>DS</i>	<i>Reinforcing</i>	<i>GS Reinforcing</i>	<i>GS</i>
Answer calls for fire in priority from:	1. Supported Unit 2. Own Observers 3. Force FA HQ	1. Reinforced FA 2. Own Observers 3. Force FA HQ	1. Force FA HQ 2. Reinforced Unit 3. Own Observers	1. Force FA HQ 2. Own Observers
Has as its of zone of fire:	Zone of action of supported unit	Zone of fire of reinforced FA	Zone of action of supported unit to include zone of fire reinforced FA unit	Zone of action supported unit
Furnishes fire support team (FIST) or FEC elements	Provides temp replacements as required	No requirements	No requirements	No requirements
Furnishes LNO requirements	No requirement	Reinforced FA HQ	Reinforced FA HQ	No
Establish communication with:	CO FSO, FSO and supported maneuver unit HQ	Reinforced FA HQ	Reinforced FA HQ	No requirements
Positioned by:	DS FA unit CDR or by force HQ	Reinforced FA unit or by force FA HQ	Force FA HQ or reinforced FA unit if applicable by force FA HQ	Force FA HQ
Has its fires planned by:	Develops own fire plan	Reinforced FA HQ	Force FA HQ	Force FA HQ

Appendix K

Joint Air Attack Team Planning

This appendix provides a brief overview of joint air attack team (JAAT) operations. JAAT is a coordinated attack by rotary- and FW-aircraft, normally supported by artillery or naval surface fire support. Ground or airborne EW systems may also support the JAAT. JAAT operations support the JFC in offensive and defensive operations day or night. (See FM 3-04.111, appendix D for more details.)

PLANNING

OPERATIONAL PLANNING CONSIDERATIONS

K-1. The JAAT offers the commander unique strengths. JAAT operations provide mutual support with an increase in each member's survivability and a capability to mass combat power through diverse ordnance and employment procedures.

K-2. The maneuver commander has the responsibility for integrating JAAT missions into the battle plan. The requesting commander's staff plans for, organizes, and coordinates JAAT operations to support this plan. Successful JAAT execution depends upon careful mission analysis, coordination, and planning.

BATTLESPACE CONSIDERATIONS

K-3. When planning a JAAT operation, the proximity of friendly forces must be considered. The requesting commander will define close proximity to friendly forces. Special emphasis must be placed on preventing fratricide. JAAT operations beyond the fire support coordination line (FSCL) must be coordinated with the joint air operations center (JAOC) through the BCD.

K-4. The EA is an area in which the commander intends to fix and attack the enemy force with massed fires of all available weapons. EAs are terrain oriented control measures that focus the JAAT fires. Fire distribution planning ensures effective fires throughout the EA. To develop an EA, the IPB process determines where the enemy is currently located, where it will go, where best to engage it, and when it will be there. The commander selects the EA based on the IPB. The EA then becomes the focus for JAAT planning. JAAT assets are coordinated and integrated to destroy the enemy in the EA through massed firepower.

K-5. Once the EA is developed, the mission commander develops the fire distribution plan to avoid redundancy, minimize risk of fratricide, and maximize the effects of long-range weapon systems. For more information on EAs, please see FM 1-112 or FM 1-114 (both FMs will be revised as FM 3-04.126).

K-6. Planners must establish C2 procedures for conducting the attack. A good SOP, that members of the combined arms team understand, greatly reduces C2 coordination requirements. Every effort should be made to involve each community in the planning as early as possible. In establishing the "team" part of JAAT, face-to-face meetings are beneficial.

K-7. Communication among JAAT participants is key to mission effectiveness. Designing a JAAT communications plan and disseminating it early to participants helps ensure timely radio contact. Once developed, the communications plan is coordinated with the mission commander. Considerations include

using a tactical air coordinator (airborne)/forward air controller (airborne) as a radio relay; UAV communications node as a communications relay platform; the availability of HaveQuick and secure radios; and providing all components with the appropriate frequency and authentication. Additionally, friendly force AD units operating along ingress/egress routes and in the AO must be informed of JAAT missions occurring in the area.

CONCLUSION

K-8. JAAT operations involve the participation of different force components with varying operating procedures. They are by nature inherently complex and high-risk operations, so execution procedures must be as simple as possible and lie within the capabilities and understanding of the players involved. FM 3-09.32 assists the JAAT commander and mission commander, and supports personnel identified areas of consideration for preplanned or immediate JAAT execution. FM 3-09.32 has procedures proven by exercise and combat experience. These can reduce the overall risk to the forces involved.

Appendix L

Aviation Mission Planning System

This appendix details the use of AMPS. AMPS is an automated mission planning and synchronization tool designed specifically for aviation operations. Generally, it is used in the flight planning sections or TOC operations cells of aviation brigades, battalions, companies, and the BAE in the BCT. AMPS functions include tactical planning, mission management, and aircraft data loading.

TACTICAL PLANNING FUNCTION

L-1. The tactical planning function includes brigade and battalion level planning tasks (such as intelligence data processing, route, communications, and navigation planning). This facilitates review and preparation of the AMB. Additional AMPS uses are—

- Creation of detailed terrain analysis.
- Determination of LOS and intervisibility between a BP and an EA.
- Determination prominent terrain along the route to be flown, using the perspective view feature.
- Creation and distribution of graphics.

L-2. Each BAE has AMPS available to assist COA development and wargaming during the MDMP, reverse-planning and coordination. During air assaults, BCT AATF staff can exploit AMPS to simplify preparation of the landing, air movement and loading plans. The division staff similarly may employ AMPS to plan shaping operations and integrate aviation routes with J-SEAD/shaping fires and AI.

L-3. Because the BCT, aviation brigade, and battalion and below planners have AMPS access, planning can occur concurrently. Planners can use AMPS to pass aviation brigade and ground maneuver planning to lower echelons to update their plans. The orders function of AMPS assists OPOD, WARNO, and FRAGO development and distribution to lower echelons. This facilitates the passing of up-to-date information and changes from higher headquarters and supported units.

L-4. The mission management function also facilitates company and platoon level planning. These tasks include aircraft performance planning, weight and balance calculations, flight planning, and fighter management. The tasks also include OPLAN changes and OPOD development. It helps companies and platoons conduct rehearsals using the route visualization and intervisibility features of AMPS.

MISSION MANAGEMENT FUNCTION

L-5. AMPS is a subordinate system to the MCS. AMPS and MCS work together to better streamline the flow of data from the ground commander to the aviation assets tasked with the support. During the mission, MCS receives enemy locations, friendly locations, preplanned artillery locations, and weather forecasts and transfers data to AMPS. AMPS applies the technical characteristics of the aircraft (speed, range, and payload) to give the commander mission alternatives.

L-6. When mission changes occur, commanders at all echelons can direct staffs to employ AMPS to speed the development of revised plans and new FRAGOs. Revising plans can range from new and alternate routes to changing EA or objective of air assaults.

L-7. As one phase of a mission completes, the download of aircraft data into AMPS and subsequently MCS, can assist development of intelligence for higher echelons and staffs planning follow-on missions.

AVIATION MISSION PLANNING SYSTEM

Data

L-8. Aviation units may save AMPS data on a data transfer cartridge (DTC) used to upload mission data to the aircraft via the data transfer module (DTM). Data created at battalion level is given to the company for its own detailed planning down to platoon level. Printed output products can include weight and balance forms, strip maps, flight planning data, OPORDs, route navigation, and communications cards. After mission completion, aircrews use the DTC to download mission history to AMPS. Units can transfer AMPS post mission products (such as enemy locations and BDA, to MCS to update the tactical situation). Aviation units also can employ AMPS, with a personal computer improved data modem (PCIDM) to view video image crosslink (VIXL) imagery sent from the OH-58D. The transmission of video imagery requires the transmitting aircraft address the image directly to a specific AMPS.

Maps

L-9. AMPS uses maps created in compressed ARC digitized raster graphic (CADRG) and digital terrain elevation data (DTED), controlled image base (CIB) imagery, and feature foundation data (FFD) media available from the NGA. Maps may be stored on compact disks (CDs) or the AMPS hard disk drive for a particular AO.

Limitations

L-10. Because nearly all Army aircraft employ different DTCs, a single AMPS planning database cannot fill the DTCs for all aircraft types involved in any given mission. Units may employ a local area network (LAN), compact disk-rewritables (CD-RWs), or floppy discs to transfer the planning database of one AMPS to another. Once this database transfers, the gaining AMPS operator can modify the data to fit the specific aircraft and use that aircraft's DTC to download mission information.

L-11. Crews are only able to transfer data in flight via joint variable message format (JVMF) message to the aircraft IDM for those aircraft outfitted with this capability.

Appendix M

Tactical Airspace Integration System

This appendix is intended to provide a general overview of the TAIS, its components, other systems it interfaces with, and the products and services it provides. It is not intended to replace the operator's manual or operator training course material.

SECTION I – SYSTEM DESCRIPTION

M-1. The TAIS is a digitized, integrated battlefield management and decision support system designed to facilitate the BCT commander's role in the air battle. TAIS supports the BCT by automating A2C2 planning and operations, and ATS. TAIS also provides the vital link to the JFACC's theater battle management core systems (TBMCSs). It helps the BAE build BCT input for the joint ATO and ACO and distributes the approved A2C2 overlay. TAIS is one of the primary battlefield automation systems (BASs) of the ABCS. It supports the maneuver battlefield functional area (BFA) in all operations from MTW operations to PMEs and civil operations including connectivity with the Federal Aviation Administration (FAA) and the National Airspace System (NAS). TAIS can display ACMs in two or three dimensions while monitoring the real-time airspace situation. TAIS provides the commander with battlefield visualization, either two-dimensional or three-dimensional, of all four (width, breadth, vertical, and time) dimensions by providing near-real-time airspace information that displays the location and movement of aircraft transiting the battlespace overlaid against current ACMs and other graphics as desired.

Contents
SECTION I – System DescriptionM-1
SECTION II – Communications SuiteM-3
SECTION III – Mission PlanningM-6

SYSTEM COMPONENTS

M-2. A "full" TAIS, AN/TSQ-221, consists of two identically equipped packages which include:

- An extended capacity M1113 HMMWV with rigid-wall shelter, housing the mission equipment (described later in this appendix).
- A PU-801, 15 kilowatt (Kw) tactical generator.
- A standard installation command post system (SICPS) extension and antenna array.

M-3. The "full" TAIS is currently fielded to ATS companies in support of division level and higher headquarters.

M-4. A "1/2" TAIS is one stand-alone system as described above. The "1/2" TAIS is currently fielded to division level TAC CP-1 and TAC CP-2.

M-5. The TAIS AWS, AN/FSQ-211, is fielded to BAEs, air defense airspace management (ADAM) cells, UAs, BCDs, combat training centers (CTCs) and other users not requiring the "full" TAIS equipment package. The TAIS AWS provides the same software functionality resident in the AN/TSQ-221 "Full" TAIS for third and fourth dimension situational awareness and understanding, visualization, and deconfliction of airspace and airspace users. The AWS comes self-contained in transit cases but has no prime mover, no radios, and no AN/TSQ-214(V) air defense system integrator (ADSI).

M-6. TAIS is also configured on COTS, “white box,” hardware for use as a system specific training device. The “white box” TAIS is fielded to schools, CTCs, training sites, and other fixed facilities.

SHELTER COMPONENTS

M-7. Each TAIS shelter (figure M-1) has two TAIS AWSs, an ADSI, software for A2C2 and ATS planning and operations, and a communications suite. These components will be discussed in more depth throughout this appendix.

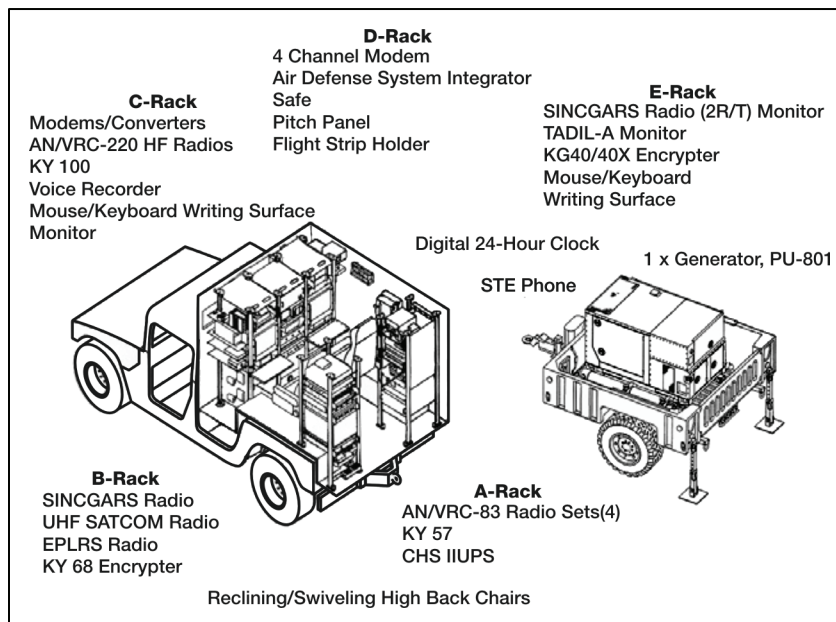


Figure M-1. TAIS vehicle

SECTION II – COMMUNICATIONS SUITE

COMMUNICATIONS EQUIPMENT AND SOFTWARE

M-8. The core electronic system of TAIS is the ADSI. ADSI consists of three modules:

- The tactical situational display.
- The master data base.
- Multiple link interface unit.

M-9. The ADSI system can accept external sensor data from tactical digital information links (TADILs), FAAD data links (FDLs), and from a variety of digitized radar systems. The ADSI is the subsystem used to import and fuse real-time airspace user positioning for the A2C2 air picture from external sensors. TAIS supports ABCS networking, TI, and the receipt of airtrack information.

M-10. TAIS employs airspace management software capable of near real-time airspace deconfliction and three-dimensional display (airspace digital overlay) of airspace to facilitate SU. TAIS airspace management software allows the near-real time modification or addition of ACMs to support battlefield flexibility, maneuver, and/or decisive action.

M-11. TAIS's extensive communications suite includes both ground and air frequency bands. This suite allows for real-time secure and nonsecure voice transmission and reception. All voice communications received by TAIS are processed through the AccessNet intercom system. AccessNet operator panels are provided for TAIS operators, allowing for selection of all voice radios, telephones, and the TAIS intercommunications system. Using the intercom system, an operator may transmit on all voice radios simultaneously. Two-way inter- and intra-shelter voice communication is provided via AccessNet intercom channels networked over a LAN. Other voice communication occurs over a variety of radio and telephone equipment. Table O-1 lists the TAIS equipment used for communication and the type of link each provides.

Table M-1. Communications equipment

<i>Equipment</i>	<i>Network</i>	<i>Link</i>	<i>Purpose</i>
AN/VRC-90F SINGARS	TI	Data	Data link to TI and back-up voice tactical FM radio.
AN/VRC-92E SINGARS (2 R/Ts)	Operational ground and aviation FM nets	Voice	Voice communications with ground forces and tactical Army aviation elements. TAIS monitors appropriate frequencies; there is also a dedicated TAIS FM frequency per the SOI.
AN/VRC-83 Have-quick radio set	UHF-AM	HaveQuick assigned SOI tactical aviation frequency	Secure frequency-hopping voice communications with aviation assets. TAIS monitors appropriate aviation frequencies; there is no dedicated TAIS UHF frequency.
AN/VRC-83 Have-quick radio set	UHF-AM	HaveQuick assigned SOI tactical aviation frequency	Secure frequency-hopping voice communications with aviation assets. TAIS monitors appropriate aviation frequencies; there is no dedicated TAIS UHF frequency.
AN/VRC-83 Have-quick radio set	VHF-AM	Assigned SOI tactical aviation frequency	Secure voice communications with aviation assets. TAIS monitors appropriate aviation frequencies; there is no dedicated TAIS VHF frequency.
AN/VRC-83 Have-quick radio set	VHF-AM	Assigned SOI tactical aviation frequency	Secure voice communications with aviation assets. TAIS monitors appropriate aviation frequencies; there is no dedicated TAIS VHF frequency.
AN/ARC-220 HF Radio set	HF (ALE)	Voice	(1) Long-range NLOS c communications with any HF equipped platform. Automatic Link Establishment (ALE) communications with ARC-220 equipped aircraft. (2) Long range TAIS to TAIS communications.
TADIL A, HF (95-S)	AWACS/ CRC TADIL A	Assigned SOI frequency (dedicated) to AWACS or CRC	Receives air track data. Used for battle tracking and airspace procedures compliance.
SATCOM, UHF (PSC-5)	UHF- TACSAT	Assigned SOI frequency	Warfighter net (1) Long-range communications with SATCOM-equipped aircraft. (2) Long-range (over the horizon) TAIS to TAIS communications.

Table M-1. Communications equipment

<i>Equipment</i>	<i>Network</i>	<i>Link</i>	<i>Purpose</i>
UHF/VHF COMM (URC 200)	UHF-AM VHF-AM	Assigned SOI tactical aviation frequencies and UHF/VHF Guard	Nonsecure COTS air traffic control (ATC) radio. Primarily used to monitor and transmit on UHF/VHF Guard frequencies.
AN/VSQ-2 EPLRS Radio Set	Lower TI/FAAD EO	Assigned SOI	Radio data link capability. Provides CTP, JVMF, data messaging, TAIS to TAIS link.
2 x Secure telephones (DNVT)		Supporting communications SEN	Provides voice & data (TADIL B) communication.
4-channel modem	FAAD	Ethernet LAN via AN/VRC-90F SINGARS	Receives air track data. Used for battle tracking and airspace procedures compliance.
Signal Entry Panel	ABCS	TOC LAN	Accesses ABCS data. Used to receive/transmit situational and airspace procedures data.
Signal Entry Panel	TADIL B	TOC LAN	Receives air track data. Used for battle tracking and airspace procedures compliance.
Signal Entry Panel	TBMCS/CTAPS*	TOC LAN	Accesses TBMCS data. Used to receive/transmit situational and airspace procedures data.
Signal Entry Panel	Voice/Data (TADIL B)	Land Line	9 voice lines for AIC/A2C2 communication needs. 1 data line for TADIL B.
KG40/40X Encrypter	N/A	HF	Encrypts HF (95-S) radio
KY-68 Encrypter	N/A	MSE*/DNVT	Encrypts MSE/DNVT radio
*CTAPS-contingency theater automated planning system			
*MSE-mobile subscriber equipment			

COMMUNICATIONS NETWORK

M-12. TAIS relies upon integration with the ABCS, TBMCS and civil aviation systems to access the most complete data essential for airspace management. TAIS also draws information from direct and indirect external sources to provide a near real-time air picture. To achieve this full integration, TAIS primarily uses the communications/mission equipment shown in table M-1 to link into those networks.

SECTION III – MISSION PLANNING

MISSION PLANNING OVERVIEW

M-13. TAIS provides for A2C2 planning, enhanced A2C2 operations, and improved theater, intra- and inter-corps/division ATS AIC support. TAIS can effectively synchronize battlespace in the third and fourth dimensions (altitude and time, respectively) while interfacing with civil and interagency authorities, as well as joint C2 nodes and air users. The combination of these capabilities manages battlespace to support BCT operations while minimizing fratricide.

PLANNING PHASE

M-14. TAIS supports BCT commanders and their staffs by providing the following capabilities—

- A2C2. It provides the BAE with automated planning assistance and full connectivity to higher airspace authorities and near real-time complete or tailorable battlespace visualization.
- Airspace information services (AIS). This function satisfies the air traffic controller requirement to visualize the airspace usage plan and then directly communicate to air vehicles to execute the various options of airspace control, procedural to positive.

M-15. TAIS planning fully integrates A2C2 planning methods and procedures digitally and automatically as part of ABCS. TAIS receives both the projected battlefield plan (to include graphics) and planned airspace usage information digitally or by manual input. It then correlates all information and automatically deconflicts airspace usage in all dimensions with preset commander priorities, prompted decisions, or manual tailoring by operators. TAIS continues this automated “building block” process over the planned operational time period until all pertinent airspace usage requirements are included in the ACO and the BCT’s A2C2 overlay. For A2C2 planning and deconfliction, TAIS graphically displays two- and three-dimensional control measures as selected by the operator. TAIS has the capability to graphically project proposed ACMs and ACOs in time (fourth dimension) and disseminate them as a deliverable throughout the ABCS. Additionally, TAIS produces a template for the requisite A2C2 orders, annexes, and overlays collectively called the unit airspace plan (UAP). The ACOs, orders, overlays, and ACMs produced in the planning phase enable the operations phase to occur. They are dynamically presented throughout that phase for A2C2 operational monitoring and updating.

CURRENT OPERATIONS PHASE

M-16. The TAIS operation fully integrates A2C2 operational methods and procedures digitally and automatically into the total battlefield visualization process through interface with other ABCS. TAIS automatically modifies and redistributes a revised UAP (or individually-modified ACMs) as an update to the battlefield visualization process. TAIS provides the capability to:

- Monitor execution of ACM and ACO dynamically by time.
- Identify and propose resolution of actual or imminent airspace conflicts in real-time.
- Accept and deconflict real-time airspace usage changes (either by automatic receipt or manual input).

M-17. AIC methods and procedures are characterized by digitized and automated operations including flight following, nonintrusive information exchanges by data burst, digitized radar-fed representations, and modernized voice and data radio communications equipment. The capacity of the TAIS allows the BAE to pass planned operational information and accompanying overlays to the TAIS performing the AIC function. Thus allowing ATC personnel to understand the scheme of maneuver. They can, in turn, give feedback to the A2C2 system for near real-time operational changes to the airspace. Information about other effects on airspace usage (such as weather, enemy operations, and CBRN contamination) can also be

readily transmitted to aircraft. The AIC function also integrates other ATS systems within its area of coverage into the airspace management system.

ROLE WITHIN ARMY BATTLE COMMAND SYSTEM

M-18. As part of the ABCS “system of systems,” TAIS communicates, shares, and coordinates airspace information with all ABCS systems. The primary objectives of TAIS are to:

- Integrate/synchronize. This means fully integrating and synchronizing all operations in the third dimension of that battlespace delegated to the BCT commander.
- Deconflict. Deconfliction of operational airspace according to the BCT commander’s priority of airspace usage or real-time decision should occur immediately.
- Increase flexibility and offensive capability. The BCT commander’s flexibility and offensive capability is increased by maximizing opportunities of continuous operations in time, location, and dimension.
- Digitize and automate. Transparent A2C2 planing and operations procedures are established through digitization and automation. It is important to ensure this transparency extends to the supported AIC functions.
- Reduce workloads. BAE workloads are reduced through automation. Additionally, sensor inputs and digital position reports should reduce ground-air voice communication requirements.
- Improve TAGS interface. This provides the BCT commander an improved real time interface with TAGS.
- Modernize AIC capabilities. Area and en route ATS support is upgraded and integrated through automation and modernized communications. TAIS is the primary tool that integrates all ATS assets into an Army airspace management system.
- Global interoperability. Interoperability is enhanced with joint, multinational, and civil C4I systems.

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Appendix N

Air Mission Planning Checklist

This appendix details information related to the air mission planning checklist. It is intended to give a greater level of detail for the planning of air missions in support of the BCT. It produces plans for those subordinate units providing support to the ground maneuver elements. Table N-1 gives an example of an air mission planning checklist.

Table N-1. Air mission planning checklist

<i>Air Mission Planning Checklist</i>
Duty Assignments Enemy Situation Friendly Situation Route Planning Fuel/FARP Planning Communications Plan SEAD / J-SEAD Plan Packet/Card Prep
Enemy Situation: Unit/Order of Battle/Uniforms Battalion/Company Locations Units Plotted on Map Strengths/Weaknesses Most Probable Course of Action (Effect on PZ/LZ) Most Dangerous Course of Action (Effect on PZ/LZ) ADA Threat (For Each Weapon System) System Location Plotted on Map Max/Min Range (Threat Rings Plotted on Map) Min Engagement Altitude Strengths Weaknesses ASE Indications How to Defeat ASE Settings (IRCM, M130) CBRN Threat

Table N-1. Air mission planning checklist

<i>Air Mission Planning Checklist</i>
Friendly Situation:
Brigade Mission/Intent
Battalion Mission/Intent
Friendly Unit Location (BN HQ Plotted on Map)
Friendly Graphics Posted On Map
Supported Unit Task/Purpose
Adjacent Unit Task/Purpose
Abort Criteria (Min Force Pax/Vehicles/Aircraft)
Other Aviation Units Task/Purpose (KW, Apache, Chinook)
Other Aviation Units Graphics Posted on Map (KW/Apache BPs)
ROE
Evaluate All Specified Tasks From:
WARNOs
OPORD
Initial planning conference (IPC) Checklists
AMB Packets
Verify ACO, ATO, SPINS Requirements
ROZ Locations/Dimensions/Freq/Callsigns
Artillery Position Area Locations Plotted
Active Routes/ACPs Plotted
Downed aviator pickup points (DAPPs) Plotted
SAR Information Verified
Verify PZ Time/H-hour Time
Verify AMT
Verify Load Table
Verify OPSKED (Date/Time Group)
Spare Aircraft Procedures
Internal Bump Plan
Downed Aircraft Plan
SAR Plan
DART Plan
MEDEVAC Plan
WX Decision Time
M60D Test Fire Area
Ammunition Issue
Weapons Issue

Table N-1. Air mission planning checklist

<i>Air Mission Planning Checklist</i>	
Route Planning:	
Map Reconnaissance of Route	
Identify/Mark Hazards to Flight	
Local Hazards	
Sectionals	
Chart update manuals (CHUMs)	
Primary Route (For Each LZ)	
Alternate Route (For Each LZ)	
Threat Plotted Along Route	
Flight Route Outside Threat Engagement Rings	
Route Time (Round to 10 Second Intervals)	
Times Submitted to Higher HQ	
ACPs Entered into AMPS computer	
DTM saved	
TDH/Waypoint Card Printed	
ACPs Plotted on Map	
Primary/Alternate Routes Plotted on Map	
Dog Houses Plotted on Map (TDH)	
1 Min Time Tickmarks Plotted on Map	
Times Triple Checked	
Check 1:	_____
Check 2:	_____
Check 3:	_____
Contingency Actions	
Abort to Alternate Route	
FARP/Fuel Planning:	
Estimated Fuel Burn Rate	
Pax Only	
External Loads	
Minimum Fuel at Departure	
Minimum Fuel Computed at Each Departure From PZ	
Maximum Fuel For External Loads	
Bingo Fuel	
Required Turns Through FARP	
FARP Information	
Location	
Frequency/Callsign	

Table N-1. Air mission planning checklist

<i>Air Mission Planning Checklist</i>
Landing Direction FARP Markings Individual TD Markings Number of Points Point Numbering Drive Through/Nose In Landing Lighting Requirements Number of Trucks/Gallons Available Nozzle Type Contingency Actions FARP Compromised Nozzle/Point Failure Emergency Actions (Fire)
LZ/PZ Planning: Enemy Situation/Location Primary/Alternate Locations Best Approach Direction Lead Touchdown Grid Landing Direction Markings Far Near Go Around Direction KW BP Passengers Load Direction/Doors Load Hot/Cold Doors Open/Closed Signal for Pax to Load Location of Key Pax ACL/Rucks/Assault Packs Frustrated Load Plan Location of PZ Control PZ Control Frequency/Callsign Weapons Status Take Off Sequence (Flight Up/TOWRICO) Contingency Plans Compromise on En route

Table N-1. Air mission planning checklist

<i>Air Mission Planning Checklist</i>
Compromise on Approach Compromise While on Ground
<p>Communication Plan:</p> <p>Flight Internals Other Unit Flight Internals (KW, Apaches, Chinooks) Flight Operations TOCs, Command Nets Task Force Infantry Brigade Infantry Battalion ABN FSC Net PZ Frequencies (Heavy, Light) LZ Frequencies CAN ATC (airfields, approach, etc.) Range Control Restricted Operating Zones CCT Tactical ATC United States Air Force (USAF) Drop zone safety officer (DZSO) Challenge and Password Running Password Contingency Actions Frequency Compromise COMSEC Compromise</p>

Table N-1. Air mission planning checklist

<i>Air Mission Planning Checklist</i>
Packet/Card/Map Preparation: Enemy Graphics Friendly Graphics ROZ Graphics Flight Routes Crew Card Time Flow Mission Sequence Waypoint Card PZ Card LZ Cards FARP Diagram Inadvertent instrument meteorological conditions (IIMC) Rehearsal Setup

Appendix O

Air Mission Coordination Meeting

AIR MISSION COORDINATION MEETING AGENDA

O-1. Table O-1 below is a sample AMCM agenda that can be used in its current form or modified by the user as desired. The AMCM is simply the agenda for a working meeting; it is not the agenda of a brief.

Table O-1. AMCM agenda

AMCM Agenda	
Roll call	BAO/S3 Air
Intelligence update (Avn focused)	TF S2
Weather (Avn focused)	SWO*
Ground tactical plan and FS (AASLT specific)	TF S3
Landing plan (by LZ)	TF S3
Air movement plan (routes)	ASLT LNO
Attack reconnaissance Avn concept (en route and LZ)	ATK LNO
Fires (PZ, SEAD, LZ prep)	FSO
C2 plan	TF S6
MEDEVAC/CASEVAC plan	HSSO
FARP plan	ASLT LNO
Load plan (detailed)	BAO/S3 Air
Review decisions	TF S3
S3 closing comments	TF S3
*SWO-squadron weather officer	

O-2. If scout or pathfinder insertions are conducted, also cover the following—

- Emergency extraction plan/trigger.
- Alternate communications plan and rehearsals.
- Communications check.
- Final coordinations with the teams.

O-3. For an artillery raid, include the following—

- Laager time/location.
- Trigger for extraction.

AIR MISSION COORDINATION MEETING CHECKLIST

O-4. The AMCM checklist (table O-2) is used to ensure that all elements important to the mission are addressed during the meeting. The supporting aviation unit will complete the italicized-bold entries and the supported ground unit will complete all others.

Table O-2. AMCM checklist

<i>AMCM Checklist</i>	
1. Mission number:	
2. Supported unit:	
3. Supporting unit:	
4. Time required:	
5. Mission (and concept sketch):	
6. Number/type of aircraft:	
7. H-hour:	
8. Pick-up time with rehearsal time built in:	
9. PZ location (and sketch):	
10. PZ frequency	A. Unit
	B. Aircraft
11. PZ call sign	A. Unit
	B. Aircraft
12. PZ marking (day/night)	
13. Landing heading	
14. Landing formation	
15. Door entry	
16. Number of troops total	
17. Number of troops per aircraft	
18. Number/type cargo loads	
19. Takeoff direction	
20. Takeoff formation	
21. False LZ grid	
22. Route	
23. Time of flight	
24. LZ grids (primary and alternates)	
25. LZ sketches:	
26. LZ marking (day/night)	
27. LZ frequency and call sign (if pathfinders are available)	
28. Attack reconnaissance avn concept	
29. LZ prep fires	
30. Landing heading	

Table O-2. AMCM checklist

AMCM Checklist	
31. Landing formation	
32. Weapons status	
33. Door exit	
34. Takeoff direction	
35. Number of turns required	
36. Abort criteria	
37. Weather call time	
38. Bump plan	
39. ABN frequency	
40. CAN/CMD frequencies	
41. Code words	
42. GO/NO-GO criteria	
Air mission commander's initials_____	Infantry battalion S3 initials_____

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Appendix P

Air Mission Brief

This appendix addresses the air mission brief. Included are samples of the air mission brief agenda and the air mission brief checklist. The air mission brief is the information required by subordinate units to complete their mission in accordance with the commander's intent. It details the scheme of maneuver and how supporting elements act to support it.

AIR MISSION BRIEF AGENDA

See table P-1 for a sample AMB agenda.

Table P-1. AMB agenda

<i>Air Mission Brief Agenda</i>	
Task organization and roll call	AATF S3
Time hack	AATF S6
Enemy forces	AATF S2
Friendly forces	AATF S3
TF mission	AATF S3
BCT/Bn commander's intent	AATFC
Ground scheme of maneuver	AATF S3
Concept of fires (SEAD and ground tactical)	AATF FSO
Aviation mission	ASLT AVN S3
Staging plan	TF XO
Loading plan	AATF S3 Air
Air movement plan	ASLT S3/ MSN Lead
Landing plan	ASLT S3/ MSN Lead
Laager plan	ASLT S3/ MSN Lead
Attack reconnaissance avn mission/concept	ATK S3/Cdr
Tasks to subordinate units	AATF S3
Coordinating instructions	AATF S3
Service support (FARP plan)	ASLT AVN S4
MEDEVAC/CASEVAC plan	HSSO/Med. Co. Cdr
Command	AATF S3
Signal	AATF S6
Operational risk assessment	AATFS3
AATFC comments	AATFC

AIR MISSION BRIEF CHECKLIST

See table P-2 for a sample AMB checklist.

Table P-2. AMB checklist

Air Mission Brief Checklist	
Roll Call Time Zone Time Hack Packet Check References Task Organization (Infantry Brigade TF)	
1. SITUATION	
	a. Enemy forces (synopsis of overall enemy situation) (TF S2).
	(1) Air IPB. (2) Enemy air capability. (3) Enemy ADA capability.
	(a) Type / location. (b) Night capability / range. (c) Weather / NOTAMS.
	Sunrise / Sunset. Moonrise / Moonset. Max Percent Illumination. Range: (during AASLT; i.e. 0% to 45%). NVG Window / Ceiling / Visibility. MAX Temp / MAX DA / PA. EENT / BMNT.
	b. Friendly forces (TF S3).
	(1) Mission higher headquarters (include CDR's intent). (2) BDE/BN Infantry scheme of maneuver (TF S3).
2. MISSION (TF S3).	
	a. Bde / Bn CDR's intent (AATFC). b. Conditions for AASLT. c. Mission risk assessment (TF S3). d. Aviation mission (AVN S3).
3. EXECUTION.	
	a. Aviation commander's intent (AMC). b. Concept of the aviation operation (AVN S3). c. AVN tasks to subordinate units (AVN S3). d. Fires (FSO).

Table P-2. AMB checklist

Air Mission Brief Checklist	
	(1) FA. ANNEX I (FS graphics).
	(a) Purpose of supporting fires. (b) Unit / location. (c) Priority of fires. (d) SEAD information/targets. (e) LZ prep.
	(2) CAS (ALO).
	(a) Purpose / mission. (b) Coordinating altitude.
	Rotary wing. Fixed wing.
	(3) Attack reconnaissance aviation. (ARB S3/CDR).
	(a) Mission. (b) Concept. (c) BPs / ABFs / sectors / routes in/out.
e. Staging plan. ANNEX A (PZ DIAGRAM) (TF XO).	
	(1) Name / number. (2) Coordinates. (3) Load time. (4) Take off time. (5) Markings. (6) Control. (7) Callsigns / frequencies. (8) Landing formation. (9) Heading. (10) Hazards / go arounds. (11) Supported unit bump plan. (ANNEX A-1, Coordinating Instructions). (12) PZ arrival times.
f. Air movement plan. (ASSLT S3/MSN lead).	
	(1) Routes / corridors. ANNEX B (ROUTE CARD).
	(a) Ingress primary / alternate. (b) Egress primary / alternate. (c) Others.
	(2) En route hazards. (3) Abort criteria.
	(a) Weather. (b) Aircraft available. (c) Time.

Table P-2. AMB checklist

Air Mission Brief Checklist	
	(d) Mission essential combat power. (e) Mission criticality. (f) Enemy.
	(4) Penetration points. (5) En route formation / rotor separation / angle / airspeeds (as per crew brief). (6) Deception measures / false insertions. (7) Air movement plan. ANNEX D. (8) Cargo doors. (9) External lighting (SOP). (10) Restricted operations area (ROA) locations.
	AASLT C2. ATK C2. QUICKFIX.
	(11) MEDEVAC / CASEVAC aircraft plan. (12) Aircraft decontamination plan.
g. Landing plan. ANNEX C (LZ DIAGRAM) (ASSLT S3 / MSN lead).	
	(1) Name / number. (2) Coordinates. (3) LDG times (as per AMT). (4) Markings. (5) Control. (6) Call signs / frequencies. (7) LDG formation / direction. (8) LZ abort criteria (based on GTCs guidance). (9) Go arounds (flight / single ship - as per crew brief). (10) Departure (as per crew brief).
h. LAAGER plan. (ASSLT S3/MSN Lead).	
	(1) Name / locations. (2) Times / REDCON status. (3) Security plan. (4) Scatter plan. (5) Call forward plan.
i. Extraction plan. (ASSLT S3 / MSN lead). j. Coordinating instructions (Aviation) (ASSLT S3).	
	(1) MOPP level / CBRN warning status. (2) M60D control status. (3) ADA status. (4) IFF procedures / times.

Table P-2. AMB checklist

Air Mission Brief Checklist	
	(5) Chaff / ALQ 144 employment. (6) NVG specific procedures (SOP). (7) VHIRP / IIMC (as per crew brief). (8) Mission contingencies (SOP).
	(a) DAARP / SAR / EAE. (b) Downed aircraft / SERE / DART. (c) BDAR.
	(1) Spare aircraft procedures. (2) Special aircraft equipment / preparation. (3) PPC. (4) Mission brief sheet. (5) Risk assessment form (completed / signed). (6) Safety considerations / hazards. (7) OPSEC considerations (SOI, kneeboard sheets, maps). (8) Weather decision plan/times. (9) Debrief location / time.
	k. Coordinating instructions (TF) (TF S3).
4. SERVICE SUPPORT.	
	a. Class I (1 case MREs/5 gallons water/survival kits) (TF S4). b. Class III/V (III/V PLT LDR).
	(1) Minimum fuel (as per crew brief). (2) Basic load. (3) FARP / FARP.
	c. Class VIII (HSSO).
	(1) CCP. (2) Evacuation plan/hospital location.
	d. MEDEVAC / CASEVAC plan (HSSO).
5. COMMAND AND SIGNAL (TF S3).	
	a. Command.
	(1) A2C2. As per ACO, this AMB, and established tactical flight procedures. (2) AATFC / location. (3) AVN TF AMC / location. (4) ABC / location (5) Aviation chain of command (as per serial chain of command).
	b. Signal (TF S6).
	(1) Communication card day (ANNEX ____).

Table P-2. AMB checklist

<i>Air Mission Brief Checklist</i>	
	(2) Execution matrix (ANNEX ____). (3) Code words.
MISSION BRIEFBACK:	
FINAL QUESTIONS:	
COMMANDERS COMMENTS:	

Appendix Q

Aircrew Brief

This appendix provides a sample of an aircrew brief checklist. The aircrew brief is a detailed discussion of the operation that delineates the actions of each element of the force and each aircrew. Its level of detail is like that of a patrol order. All previous planning comes together to support the decisions and information presented at this meeting. The rehearsal will validate the plan which is presented at the aircrew brief and then the mission will move into the execution phase. (See table Q-1 for a sample aircrew brief checklist.)

Table Q-1. Aircrew brief checklist

Aircrew Brief Checklist	
1. Introduction	MSN Number _____
2. Classification of briefing _____.	
3. Roll call: aircrews, aircraft status, packet inventory.	
4. Time hack: "In _____ seconds it will be _____" (at least 30 sec) at 10 sec count down.	
5. Administrative notes: (hold questions, pubs, risk, flight plan, etc.)	
TASK ORGANIZATION	
1. SITUATION (Briefed by the S2, if available)	
WEATHER TIME _____	DECISION TIME _____ DELAY NLT
WIND _____	CEILING _____ VISIBILITY _____ MAX PA _____ MAX TEMP _____
BMNT _____ SR _____ SS _____ EENT _____ MR _____ MS _____	ILLUM _____ %
BRIEFER'S INIT _____	VOID TIME _____ NOTAMS _____
DAPP LOCATIONS _____	TIMES _____
PR DATA LETTER _____ NUMBER _____	WORD _____ RAMROD _____
CHALLENGE/PASSWORD _____	DURESS CODE WORD _____
CONFIRM ISOLATED REPORT (ISOPREP) AND EVASION PLAN OF ACTION (EPA)	
UPDATED ENEMY FORCES _____	

Table Q-1. Aircrew brief checklist

<i>Aircrew Brief Checklist</i>
ADA _____
AIR TO AIR _____
ARTILLERY _____
CBRN _____
FRIENDLY FORCES _____

BCT MISSION _____

BCT CDR'S INTENT _____

TF MISSION _____

TF CDR'S INTENT _____

GROUND TACTICAL PLAN (UNIT, TASK, PURPOSE) _____

2. MISSION (WHO, WHAT, WHEN, WHERE, WHY)

3. EXECUTION
CDR'S INTENT _____

CONCEPT OF THE OPERATION _____

Table Q-1. Aircrew brief checklist

Aircrew Brief Checklist			
SUB-ELEMENT TASKS:			
CHALK			
1	_____		
2	_____		
3	_____		
4	_____		
5	_____		
6	_____		
7	_____		
8	_____		
9	_____		
10	_____		
C & C	_____		
ATK/RECON	_____		

DETAILED EXECUTION:			
CRANK SEQUENCE			
APU	COMMO	ENG	TAXI
_____	_____	_____	_____
LINE-UP LOCATION _____			
FORMATION	ANGLE	SEPARATION	FUEL REQ'D
_____	_____	_____	_____
T/O TIME	HEADING	ALT	A/S-G/S
_____	_____	_____	LIGHTING _____
EN ROUTE TO PZ			
SP	WEAPONS STATUS		
_____	_____		
ROUTE _____			
ALT	A/S-G/S	FORM	DOORS
_____	_____	_____	_____
ALTERNATE			
ROUTE _____			
WEAPONS TEST FIRE AREA _____			
RP	WEAPONS STATUS		
_____	_____		
PZ			
NAME/GRID _____ / _____			
TIME	FREQUENCY	CALL SIGN	
_____	_____	_____	

Table Q-1. Aircrew brief checklist

<i>Aircrew Brief Checklist</i>	
DESCRIPTION	_____
ALT PZ	_____
MARKINGS (FAR)	_____ (NEAR) _____
SECURITY POSTURE	_____
LANDING DIR	_____ FORM _____ G/A _____
HAZARDS	_____ ACTIONS ON CONTACT _____
TROOPS LOAD	_____
AIRCRAFT ACL	_____ CONFIG _____ DOORS O / C _____
KEY PERSONNEL LOCATION	_____
PZ CONTROL LOCATION	_____
EXT LOADS TYPE	_____ WEIGHT _____ INSPECTION SHEETS _____
FRUSTRATED LOAD PROCEDURES	_____
APU CRANK TIME	_____ COMMO _____ LOAD TIME _____
FORMATION	_____ ANGLE _____ SEPARATION _____ FUEL REQ'D _____
TAKEOFF TIME	_____ HDG _____ FORM _____
EN ROUTE TO LZ	
SP	_____ WEAPONS STATUS _____
ROUTE	_____
ALT	_____ A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____
ALTERNATE ROUTE	_____
DOOR GUN POSITIONS	_____
HAZARDS	_____
FALSE INSERTIONS)	_____
RP	_____ WEAPONS STATUS _____
LZ	
NAME/GRID	_____ / _____
TIME	_____ FREQUENCY _____ CALL SIGN _____
DESCRIPTION	_____
ALT LZ	_____
MARKINGS (FAR)	_____ (NEAR) _____
SECURITY POSTURE	_____
LANDING DIRECTION	_____ FORMATION _____ GA _____
HAZARDS	_____ ACTIONS ON CONTACT _____
ENEMY SITUATION	_____ THREAT ORIENTATION _____
WEAPONS STATUS	_____ NO FIRE AREAS _____
TROOPS OFFLOAD	_____ TROOPS ACTIONS AFTER OFFLOAD _____

Table Q-1. Aircrew brief checklist

<i>Aircrew Brief Checklist</i>
TAKEOFF SEQUENCE _____
EGRESS ROUTE
SP _____
ROUTE _____
ALT _____ A/S-G/S _____ FORM _____ DOORS _____ TURNS >60 _____
ALTERNATE ROUTE _____
HAZARDS _____
RP _____ WEAPONS STATUS _____
*SUBSEQUENT LIFTS/PHASES: (SEE TABLE D-3 BELOW)
ATTACK RECONNAISSANCE
MISSION _____
TASK _____
PURPOSE _____
SCREEN LINES, OPs, ABFs, SBFs _____

C & C
LOCATION _____
TIMES (T/O, FARP, ETC.) _____
CALLSIGN _____ FREQ _____ ALT FREQ _____
FIRE SUPPORT PLAN
ARTY UNIT _____ LOCATION _____
TYPE _____ MAX RANGE _____
GUN/TARGET LINES _____
TRP'S _____
PRIORITY OF FIRES _____
SEAD PLAN _____
H-HOUR TIME HACK: FREQUENCY _____ START _____ RESPONSE _____
ENEMY/TRPs EN ROUTE _____
REQUIRED CALLS _____
NAVIGATION/TIME STANDARDS _____ WHICH ACPs _____
LOST COMMO PROCEDURES _____

Table Q-1. Aircrew brief checklist

Aircrew Brief Checklist	
H-HOUR ABORT CRITERIA _____	ACTIONS _____
LAST ROUND MARKINGS _____	RESYNC PROCEDURES _____
CAS HOLDING AREA _____	
TYPE ACFT _____	RESPONSE _____
TIME _____	
ADA _____	
UNIT _____	TYPE _____
LOCATION _____	
WEAPONS CONTROL STATUS _____	
ELECTRONIC COUNTERMEASURES (ECM) SEQUENCE	
AREAS _____	TIMES _____
LOAD TABLE	
COORDINATING INSTRUCTIONS	
SPARE AIRCRAFT PROCEDURES	
LOCATION _____	TI LOCATION _____
ACTIONS _____	
FLIGHT UP SIGNALS _____	
BUMP PLAN (PAX) _____	(LOADS) _____
MINIMUM NUMBER OF AIRCRAFT _____	
MINIMUM GROUND FORCE (PAX) _____	(VEHICLES) _____
AIRCRAFT LIGHTING _____	
WEAPONS TEST FIRE AREA/TIME _____	
DOWNED AIRCRAFT PLAN	
ACTIONS _____	
SENSITIVE ITEMS _____	
ACFT DESTRUCT. PROCEDURES _____	
PERSONNEL PICKUP PROCEDURES _____	
SIGNALS _____	
MAINT RECOVERY PLAN _____	
ROE _____	
MEDEVAC PLAN (INT/EXT) _____	
PR (INT/EXT) _____	

Table Q-1. Aircrew brief checklist

<i>Aircrew Brief Checklist</i>
REQUIRED REPORTS
PZ CLEAN _____
MSN COMPLETE _____
OTHERS _____

ACTIONS ON AIR TO AIR COMBAT
ACTIONS _____
RALLY POINTS _____
ACTIONS AT RALLY POINT _____
ABORT CRITERIA
WEATHER _____
AIRCRAFT _____
MISSION _____
A2C2
AWACS/ABCCC _____
RANGE CONTROL _____
G/T LINES _____
ROZs _____
COORD. ALTITUDES _____
OTHERS _____
LEAD CHANGE (DAY/NIGHT) _____
LOST COMMUNICATION PROCEDURES

IIMC/VHIRP _____
OTHER CONSIDERATIONS
MINIMUM FUEL REQ _____
GOGGLE/DEGOGGLE PTS. _____
SPARE GOGGLE LOCATION _____

Table Q-1. Aircrew brief checklist

Aircrew Brief Checklist	
CBRN/MOPP LEVEL _____	
ASE _____	
HIRTA _____	
NO FLY AREAS _____	
PPR'S _____	
4. SERVICE AND SUPPORT	
CLASS I (FOOD) _____	
CLASS II (DURABLE EXPED.) _____	
CLASS III (POL) _____	
CLASS IV (MATERIALS) _____	
CLASS V (AMMO) _____	
CLASS VI (PERSONAL ITEMS) _____	
CLASS VII (MAJOR END ITEMS) _____	
CLASS VIII (MEDICAL) _____	
CLASS IX (REPAIR) _____	
MAINT (TI, MTP, ETC.) _____	
OTHER _____	
5. COMMAND AND SIGNAL	
COMMAND	
CHAIN OF COMMAND	

AATFC _____	LOCATION/ACFT _____
AMC _____	LOCATION/ACFT _____
GTC _____	LOCATION/ACFT _____
BN CDR _____	LOCATION/ACFT _____
BN S3 _____	
LOCATION/ACFT _____	
CO CDR _____	
LOCATION/ACFT _____	
SIGNAL	
H-HOUR EXECUTION CHECKLIST _____	

Table Q-1. Aircrew brief checklist

<i>Aircrew Brief Checklist</i>							
CALLS _____							
COMMO CHECK FREQS							
FM1 _____	UHF _____	VHF _____	FM2 _____	RED/GREEN FILL _____			
AVIATION TF COMMO CHECK							
TIME _____	FREQUENCY _____	RESPONSE ORDER _____					
COMMO NET							
STATION	C/S	PRI FM	ALT FM	UHF	VHF	SEC	
FILL							
AATFC							
AMC							
FSO							
INTER-FLT							
INTRA-FLT							
PZ							
LZ							
FARP							
FLT OPS							
OTHER							
CODE WORDS							
PZ HOT _____	LZ COLD _____						
PZ COLD _____	ALT LZ _____						
ALT PZ _____	DOWNED ACFT _____						
PZ CLEAN _____	ABORT _____						
ALT ROUTE _____	EOM _____						
LZ HOT _____	OTHER _____						

SIGNALS (i.e.: SMOKE, FLARES) _____							
SOI _____							
IFF/TRANSPONDER _____							
CHALLENGE/PASSWORD _____ / _____							
NAVAIDS _____							

Table Q-1. Aircrew brief checklist

<i>Aircrew Brief Checklist</i>
6. SAFETY

BACK BRIEF/REHEARSAL TIME & LOCATION _____
DEBRIEF TIME & LOCATION _____
COLLECT RISK ASSESSMENTS, FLT PLANS, ETC.
QUESTIONS
FINAL TIME HACK _____

Appendix R

Risk Management

Risk management is the process of identifying and controlling hazards to protect the force. It is the Army's principal risk-reduction process. The intuitive management of risk in conducting military training and operations is old, but its systematic application, as part of Army doctrine, is relatively new. This appendix presents a summary of risk information based on FM 5-0, FM 100-14, and FM 3-100.12. (See FM 3-04.111, for more information.)

APPLICATION

R-1. Risk management is applied to reduce the threat of the full range of METT-TC hazards, including enemy action. It is integrated into the MDMP as indicated in table R-1.

Table R-1. Risk management steps integrated into the MDMP

<i>MDMP</i>	<i>Identify Hazards</i>	<i>Assess Hazards</i>	<i>Develop Controls & Make Risk Decisions</i>	<i>Implement Controls</i>	<i>Supervise & Evaluate</i>
Receipt of Mission	X				
Mission Analysis	X	X			
COA Development	X	X	X		
COA Analysis	X	X	X		
COA Comparison			X		
COA Approval			X		
Orders Production				X	
* Preparation				X	X
* Execution				X	X
* Not part of the MDMP					

RESPONSIBILITIES

R-2. Leaders at every echelon are responsible for risk management.

BRIGADE AND HIGHER HEADQUARTERS

R-3. Every commander, leader, and staff officer must integrate risk management into the planning and execution of training and operational missions. Staff officers assist the commander in minimizing unnecessary risk by increasing certainty in all operations. They use the risk management process to assess their functional areas and make control-measure recommendations to reduce or eliminate risk to support the combat power dynamic of force protection. Examples include the following:

- Applying risk management during the MDMP to identify force protection shortcomings in the warfighting functions.
- Developing and implementing controls for the commanders that support the mission by avoiding unnecessary risk and loss of combat power.
- Providing support to operational requirements and establishing procedures and standards that are clear and practical for each specified and implied task.

BRIGADE AVIATION ELEMENT STAFF SECTION

R-4. The BAE staff has a responsibility to—

- Identify hazards most likely to result in loss of combat power (that is, hazards that are not adequately controlled).
- Develop control options that address reasons for hazards.
- Integrate hazard identification and selected controls into functional area paragraphs, graphics, and annexes of the OPORD. (See FM 3-04.111, for more information.)

Glossary

SECTION I – ABBREVIATIONS

A&L	administrative and logistical
A2C2	Army airspace command and control
A2C2S	Army Airborne Command and Control System
AA	assembly area
AAA	antiaircraft artillery
AAR	after-action review
AASLT	air assault
AATF	air assault task force
AATFC	air assault task force commander
AB	aircrew brief
ABCCC	Air Force airborne battlefield command and control center
ABCS	Army Battle Command System
ABF	attack by fire
ABN	air battle net
ABTF	aviation battalion task force
A/C	aircraft
ACA	airspace coordination area
ACI	air controlled interception
ACL	allowable combat load
ACM	airspace coordinating measure
ACO	airspace control order
ACP	air control point
ACS	air cavalry squadron
ACT	air cavalry troop
AD	air defense
ADA	air defense artillery
ADAM	air defense airspace management; area denial artillery munition
ADSI	air defense system integrator
ADU	air defense unit
AEB	aviation expeditionary brigade
AFATDS	Advanced Field Artillery Tactical Data System
AFB	Air Force base
AGB	advanced guard battalion
AGL	above ground level
AGM	attack guidance matrix

Glossary

AH	attack helicopter
AHB	assault helicopter battalion
AHRS	Attitude and Heading Reference System
AI	air interdiction
AIC	airspace information center
AIS	airspace information services
AKO	Army Knowledge Online
ALO	air liaison officer
AM	amplitude modulation
AMB	air mission brief
AMC	air mission commander
AMCM	air mission coordination meeting
AMDWS	air and missile defense workstation
AMPS	aviation mission planning system
AMR	air mission request
AMT	air movement table
ANGLICO	air and naval gunfire liaison company
AO	area of operations
AOR	area of responsibility
APC	armored personnel carrier
APERS	antipersonnel
APOE	aerial port of embarkation
APU	auxiliary power unit
AR	Army regulation
ARB	attack reconnaissance battalion
ARC	attack reconnaissance company
ARNG	Army National Guard
ARNGUS	Army National Guard of the United States
ARS	attack reconnaissance squadron
ARSOAR	Army special operations aviation regiment
ART	attack reconnaissance troop
ASAS	all source analysis system
ASB	aviation support battalion
ASC	aviation support company
ASCC	Army service component command
ASE	aircraft survivability equipment
ASIP	advanced system improvement program
AT	antitank

ATACMS	Army tactical missile system
ATAS	air-to-air stinger
ATC	air traffic control
ATCCS	Army tactical command and control system
ATKHT	attack helicopter troop
ATO	air tasking order
ATS	air traffic services
AUEL	automated unit equipment list
AV	aerial vehicle
AVT	air vehicle transport
AWACS	Airborne Warning and Control System
AWS	airspace workstation
BAE	brigade aviation element
BAO	brigade aviation officer
BAS	battlefield automation system
BAT	brilliant antitank
BCD	battlefield coordination detachment
BCIS	battlefield combat identification system
BCOTM	battle command on the move
BCT	brigade combat team
BDA	battle damage assessment
BDAR	battle damage assessment and repair
BFA	battlefield functional area
BHL	battle handover line
BHO	battle handover
BMNT	beginning morning nautical twilight
BMP	Bojevaya Maschina Piekhoty (infantry fighting vehicle)
BP	battle position
BSA	brigade support area
BSB	brigade support battalion
BUB	battle update brief
C2	command and control
C2W	command and control warfare
C3	command, control, and communications
C3I	command, control, communication, and intelligence
C4I	command, control, communications, computers, and intelligence
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CAC	command aviation company

Glossary

CADRG	compressed arc digitized raster graphic
CAN	combat aviation net
CAS	close air support
CASB	corps aviation support brigade
CASEVAC	casualty evacuation
CBRN	chemical, biological, radiological, and nuclear
CCA	close combat attack
CCIR	commander's critical information requirements
CCP	casualty collection point
CD	compact disk
CD-RW	compact disk-rewritable
CG	commanding general
CH	cargo helicopter
Chem	chemical
CHUM	chart update manual
CIB	controlled image base
CLS	contractor logistic support
COA	course of action
COMINT	communications intelligence
COMMEX	communications exercise
COMSEC	communications security
CONUS	continental United States
COP	common operational picture
CoS	Chief of Staff
COTS	commercial off-the-shelf
CP	command post
CPHD	copperhead
CRP	component repair platoon
CS	combat support
CSAR	combat search and rescue
CSS	combat service support
CSSCS	combat service support control system
CTAPS	contingency theater automated planning system
CTC	combat training center
CW3	chief warrant officer three
D3A	decide, detect, deliver, and assess
DA	Department of the Army
DAMA	demand assigned multiple access

DAP	defensive armed penetrator
DAPP	downed aviator pickup point
DART	downed aircraft recovery team
DC	direct current
DEAD	destruction of enemy air defense
DNVT	digital nonsecure voice terminal
DOTD	Directorate of Training and Doctrine
DP	decision point
DPICM	dual purpose improved conventional munition
DS	direct support
DSA	division support area
DSN	defense switch network
DTC	data transfer cartridge
DTD	data transfer device
DTED	digital terrain elevation data
DTG	date time group
DTM	data transfer module
DWI	AH-64D with radar frequency interferometer
DWO	AH-64D without fire control radar
DZSO	drop zone safety officer
EA	engagement area
EAC	echelons above corps
EAD	echelons above division
ECM	electronic countermeasures
ECOORD	effects coordinator
EEFI	essential elements of friendly information
EENT	end evening nautical twilight
EFAT	essential field artillery task
EFST	essential fire support task
EGI	embedded global inertial system
EO	electro-optical
EPA	evasion plan of action
EPLRS	enhanced position location reporting system
EPW	enemy prisoner of war
ERFS	extended range fuel system
ESSS	external stores support system
ETE	estimated time en route
EUH	electronic utility helicopter

Glossary

EW	electronic warfare
FA	field artillery
FAA	Federal Aviation Administration
FAAD	forward area air defense
FARE	forward area refueling equipment
FARP	forward arming and refueling point
FAX	facsimile
FBCB2	Force XXI Battle Command Brigade and Below
FCR	fire control radar
FDL	forward area air defense (FAAD) data link
FEC	fires and effects cell
FES	forced entry system
FF	future force
FFD	feature foundation data
FFIR	friendly force information requirements
FIST	fire support team
FLIR	forward-looking infrared
FLOT	forward line of own troops
FM	field manual; frequency modulated
FMC	fully mission capable
FOB	forward operating base
FRAGO	fragmentary order
FRIES	Fast-Rope Insertion/Extraction System
FS	fire support
FSC	forward support company
FSCL	fire support coordination line
FSCM	fire support coordinating measure
FSO	fire support officer
FST	forward support troop
FW	fixed-wing
G2	Assistant Chief of Staff-Intelligence
G3	Assistant Chief of Staff-Operations and Plans
GCI	ground control intercept
GCS	ground control station
GCCS	global command and control system
GCSS	global combat support system
GCU	ground control unit
GMTI	ground moving target indicator

GPS	global positioning system
GS	general support
GSAB	general support aviation battalion
GSAT	general support aviation troop
GTC	ground tactical commander
GTP	ground tactical plan
HA	holding area
HARM	high speed antiradiation missile
HAZMAT	hazardous materials
HC	zinc oxide (smoke)
HE	high explosive
HEDP	high explosive dual purpose
Hellfire	Hellfire laser air defense suppression and fire and forget guided missile
HEMTT	heavy expanded mobility tactical truck
HEP-T	high explosive plastic tracer
HF	high frequency
HH	health helicopter
HHC	headquarters and headquarters company
HHT	headquarters and headquarters company
HIMAD	high to medium altitude air defense
HMMWV	high mobility multipurpose wheeled vehicle
HPT	high-payoff target
HPTL	high-payoff target list
HQ	headquarters
HSC	headquarters and support company
HSS	health service support
HSSO	health service support officer
HTS	High Speed Antiradiation Missile Targeting System
HVT	high-value target
HvyHC	heavy helicopter company
IAI	Israel Aircraft Industries
ICM	improved conventional munition
IDM	improved data modem
IED	improvised explosive device
IEW	intelligence and electronic warfare
IFF	identification friend or foe
IFV	infantry fighting vehicle
IIMC	inadvertent instrument meteorological conditions

Glossary

ILLUM	illumination
IM	information management
IMU	inertial measurement unit
INC	internet controller
INS	inertial navigation system
IO	information operations
IP	instructor pilot
IPB	intelligence preparation of the battlefield
IPC	initial planning conference
IR	infrared
ISOPREP	isolated personnel report
ISR	intelligence, surveillance, and reconnaissance
JAAT	joint air attack team
JAOC	joint air operations center
JATOPC	Joint Air Tasking Order Process Course
JFACC	joint force air component commander
JFC	joint force commander
JIM	joint, interagency, and multinational
JOA	joint operations area
JP	joint publication
JPRA	Joint Personnel and Recovery Agency
J-SEAD	Joint suppression of enemy air defense
JSTARS	Joint Surveillance Target Attack Radar System
JTF	joint task force
JTIDS	Joint Tactical Information Distribution System
JVMF	joint variable message format
KMPH	kilometers per hour
KMPM	kilometers per minute
Kw	kilowatt
LAN	local area network
LBA	Longbow Apache
LD	line of departure
LNO	liaison officer
LOA	limit of advance
LOC	line of communications
LOGPAD	logistics helipad
LOS	line of sight
LOTS	logistics-over-the-shore

LMTV	light medium tactical vehicle
LP	listening post
LRF/D	laser rangefinder/designator
LRSD	long-range surveillance detachment
LUH	light utility helicopter
LZ	landing zone
MACOM	major command (Army)
MAG	magnetic
MALE	medium altitude, long endurance
MBA	main battle area
MCO	major combat operations
MCS	maneuver control system
MDMP	military decisionmaking process
MEDEVAC	medical evacuation
METL	mission essential task list
METT-TC	mission, enemy, terrain and weather, troops and support available, time available, and civil considerations
MIRC	multiuser internet relay chat
MLRS	multiple launcher rocket system
MMS	mast-mounted sight
MMW	millimeter wave
MOGAS	motor gasoline
MOPP	mission oriented protective posture
MOS	military occupational specialty
MOUT	military operations on urbanized terrain
MP	military police
MPSM	multipurpose submunition
MRE	meal, ready to eat
MSB	main support battalion
MSE	mobile subscriber equipment
MSL	mean sea level
MSR	main supply route
MSRT	mobile subscriber radio telephone
MTF	medical treatment facility
MTI	moving target indicator
MTP	maintenance test pilot
MTW	major theater war
NAI	named area of interest
NAS	National Airspace System

Glossary

NATO	North Atlantic Treaty Organization
NAVAID	navigational aid
NCO	noncommissioned officer
NCOIC	noncommissioned officer in charge
NEO	noncombatant evacuation operations
NET	no earlier than
NFA	no-fire area
NG	National Guard
NGA	National Geospatial-Intelligence Agency
NLOS	non line of sight
NLT	no later than
NMCM	not mission capable maintenance
NSFS	naval surface fire support
NTDR	near-term digital radio
NVD	night vision device
NVG	night vision goggles
NVS	night vision systems
O&I	operations and intelligence
OAF	Operation Allied Force
OBS	onboard system
OCONUS	outside the continental United States
OH	observation helicopter
OIC	officer in charge
OIF	Operation Iraqi Freedom
OP	observation post
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
OPSEC	operations security
OPTEMPO	operating tempo
OR	operational readiness
PAX	passenger
PC	production control
PCIDM	personnel computer improved data modem
PIR	priority intelligence requirement
Pk	probability of kill
PL	phase line
PLAD	plain language address designator

PMCS	preventive maintenance checks and services
PME	peacetime military engagement
PNVS	pilot night vision system
POC	point of contact
POD	point of debarkation
POE	point of embarkation
POL	petroleum, oil, and lubricants
POP	plug-in optronic payload
PP	passage point
ppm	parts per million
PR	personnel recovery
PSYOP	psychological operations
PZ	pickup zone
PZCO	pickup zone control officer
QA	quality assurance
QF	quick fire
R&S	reconnaissance and surveillance
R4	redeployment, reintegration, reconstitution, and retraining
RAAM	remote antiarmor munition
RAP	rocket assisted projectile
PAX	passengers
RC	reserve component
Rd	round
REDCON	readiness condition
REMBASS	Remote Battlefield Sensor System
RETRANS	retransmission
RF	radar frequency
RFA	restrictive fire area
RFHO	radio frequency handovers
RFI	radar frequency interferometer
ROA	restricted operations area
ROE	rules of engagement
ROM	refuel-on-the-move
ROZ	restricted operations zone
RP	release point
RPM	revolutions per minute
RSOI	reception, staging, onward movement, integration
RSTA	reconnaissance, security, and target acquisition

Glossary

RTO	radio telephone operator
RVT	remote video terminal
S1	adjutant
S2	intelligence officer
S3	operations officer
S4	logistics officer
S6	communications-electronics officer
SA	situational awareness
SAL	semiaactive laser
SAM	surface-to-air missile
SAR	search and rescue
SATCOM	satellite communications
SBCT	Stryker brigade combat team
SBF	support by fire
SDDCTEA	Surface Deployment and Distribution Command Transportation Engineering Agency
SEAD	suppression of enemy air defense
SERE	survival, evasion, resistance, and escape
SFC	sergeant first class
SHORAD	short-range air defense
SIAP	single integrated air picture
SICPS	Standard Installation Command Post System
SIGINT	signal intelligence
SIMO	systems integration and maintenance office
SINCGARS	Single-Channel Air And Ground Radio System
SIPR	secure internet protocol router
SIR	specific information requirements
SME	subject matter expert
SMK	smoke
SOATC	special operations aviation training company
SOF	special operations forces
SOI	signal operation instructions
SOP	standing operating procedure
SOR	specific order or request
SP	start point
SPC	specialist
SPIES	Special Patrol Infiltration/Exfiltration System
SPINS	special instructions
SPO	support operations officer

SPOE	seaport of embarkation
SSC	small scale contingency
SSG	staff sergeant
SSM	surface-to-surface missile
SU	situational understanding
SUAV	small unmanned aerial vehicle
SWO	squadron weather officer
TA	target acquisition
TAA	tactical assembly area
TAC CP	tactical command post
TACFIRE	Tactical Fire Direction System
TACON	tactical control
TACOPS	tactical operations
TACSAT	tactical satellite
TACSOP	tactical standing operating procedure
TADIL	tactical digital information link
TADIX-B	tactical data information exchange-broadcast
TADS	Target Acquisition and Designation System
TAGS	Theater Air-Ground System
TAI	target area of interest
TAIS	Tactical Airspace Integration System
TALS	Tactical Automated Landing System
TAOC	theater airfield operations command
TBMCS	Theater Battle Management Core System
TC	training circular
TCDL	tactical common data link
TCF	tactical combat force
TDH	time, distance, and heading
TERP	terminal instrument procedures
TF	task force
THREATCON	threat condition
TI	tactical internet
TIBS	tactical information broadcast service
TIS	Thermal Imaging System
TLP	troop leading procedures
TM	technical manual
TOC	tactical operations center
TOE	table of organization and equipment

TOT	time on target
TOW	tube-launched, optically tracked, wire-guided
TRAP	tactical related application
TRP	target reference point
TSAB	theater support aviation brigade
TSEC	telecommunications security
TSS	target selection standards
TTP	tactics, techniques, and procedures
TTT	time to target
TVS	television sensor
UAP	unit airspace plan
UAS	Unmanned Aircraft System
UH	utility helicopter
UHF	ultra high frequency
UMD	unit movement data
UMO	unit movement officer
UMT	unit ministry team
USAAVNC	United States Army Aviation Center
USAF	United States Air Force
USAR	United States Army Reserve
USN	United States Navy
VHF	very high frequency
VIXL	video image crosslink
Volcano	aerial mine delivery operations
VS	Viper Strike
VTC	video teleconference
WARNO	warning order
WP	white phosphorous
XO	executive officer
ZSU	Shika Antiaircraft Gun System

SECTION II – TERMS

This section standardizes the definitions of doctrinal terms routinely used in orders and aviation operations. The source documents used to establish these definitions were FM 1-02, 101st Airborne Division (AASLT) TACSOP and Gold Book, and schoolhouse definitions distributed by Fort Leavenworth.

A

air assault operations in which air assault forces CS, and CSS, using the firepower, mobility, and total integration of helicopter assets in their ground or air

	roles, maneuver on the battlefield under the control of the ground or air maneuver commander to engage and destroy enemy forces.
airborne command post	a suitably equipped aircraft used by the commander for the control of the forces. (FM 1-02)
air assault task force commander	normally the Infantry Brigade or Battalion Commander whose own unit(s) form the nucleus or predominance of forces in the air assault task force (AATF). The AATF commander commands the Air Assault Operation and is responsible for its overall planning and execution. The AATF commander controls all units assigned, attached, or under OPCON to the AATF, and establishes mission priorities for those units in DS or GS of the AATF. In situations where the enemy allows, the AATF commander will probably be airborne in a C2 helicopter during the movement and insertion phases of an Air Assault. At other times, the AATF commander fights the battle from a tactical command post (TAC CP) deployed well forward. (101st TACSOP)
air battle net	Radio net dedicated to air-to-air coordination during AASLT operations. (101st TACSOP)
air defense warnings	a degree of air raid probability according to the following codes: (FM 1-02) <ul style="list-style-type: none"> ● YELLOW-air attack probable. Hostile aircraft and/or missiles are en route toward an area. ● RED-air attack imminent or in progress. Hostile aircraft and/or missiles are within or are in the immediate vicinity of an area with high probability of entering the area. ● WHITE-air attack not probable. May be declared before or after YELLOW or RED.
air defense weapons control status	the degree of fire control imposed upon Army units having assigned, attached, or organic air defense weapons. Weapons control status terms normally used are— <ul style="list-style-type: none"> ● Weapons free-weapons may be fired at any aircraft not positively identified as friendly. This is the least restrictive of the weapons controls. ● Weapons tight-weapons may be fired ONLY at aircraft positively identified as hostile according to the prevailing hostile criteria. ● Weapons hold-weapons are NOT TO BE FIRED except in self-defense. (FM 1-02)
air interdiction	air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces. It is conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (FM 1-02)
air liaison officer	the senior Air Force officer at each TACP. Advises the Army commander and staff on the capabilities, limitations, and employment of tactical air operations. The air liaison officer operates the Air Force request net. The air liaison officer coordinates close air support (CAS) missions with the FSE, and assists in planning the simultaneous employment of air and

	surface fires. The air liaison officer supervises FACs and will assist the fire support team (FIST) in directing air strikes in the absence of a forward air controller (FAC). (See also tactical air control party). (FM 1-02)
air mission commander	operations of aviation elements providing air assault support are controlled by the commander of the largest supporting aviation unit. The air mission commander is designated the AMC. (FM 1-02)
air movement operations	operations using airlift assets, primarily helicopters, to move combat, CS, and CSS forces and/or equipment whose primary purpose is not to engage and destroy enemy forces. (FM 1-02)
air movement plan	a plan prepared jointly by the ground and airlift units. The plan covers the phase of an airborne, air assault, or air movement operation from the time units have loaded aircraft until they arrive in the objective area. The schedule indicates loading times at specific departure airfields or pickup zones and includes takeoff time, flight routes, order of flight, and arrival time over drop zones (DZs) or LZs. It is published usually as an annex to the OPLAN. (See also ground tactical plan; landing plan; marshaling plan.) (FM 1-02)
airspace coordination area	a block of airspace in the target area in which friendly aircraft are reasonably safe from friendly surface fires. It may occasionally be a formal measure (a three-dimensional box in the sky). More often, it is informal. The purpose of the ACA is to allow the simultaneous attack of targets near each other by multiple fire support means, one of which normally is air. Formal ACAs are usually established by a separate brigade or higher level command—informal ACAs may be established as low as the TF level. (FM 1-02)
air support	all forms of support given by air forces to forces on land or sea. (FM 1-02) alternate PZ/LZ: A PZ/LZ used when the primary PZ/LZ becomes untenable, compromised, or unsafe. It is located so that the unit can continue its mission with as little change as possible.
area of influence	a geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (FM 1-02)
area of interest	that area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. (FM 1-02)
area of operations	that portion of an area of conflict necessary for military operations. Areas of operations are geographical areas assigned to commanders for which they have responsibility and in which they have authority to conduct military operations. (FM 1-02)
area of responsibility	a defined area of land in which responsibility is specifically assigned to the commander of the area for the development and maintenance of installations, control of movement, and the conduct of tactical operations involving troops under the commander's control along with parallel authority to exercise these functions. (FM 1-02)
area reconnaissance	a directed effort to get detailed information concerning the terrain or enemy activity within a prescribed area (such as a town, ridge line, woods,

	or other feature critical to operations). (See also route reconnaissance; zone reconnaissance.) (FM 1-02)
area security	A military police mission that includes area reconnaissance, rear battle operations, security of designated personnel, unit convoys, facilities, and MSR critical points. area security force—see security operations. (FM 1-02)
armed reconnaissance	a mission with the primary purpose of locating and attacking targets of opportunity (such as, enemy materiel, personnel, and facilities) in assigned general areas or along assigned ground communications routes, and not for the purpose of attacking specific targets. (NATO usage: an air mission.) (FM 1-02)
army airspace command and control element	an Army element within the corps A2C2 element, the division A2C2 element, and the separate brigade A2C2 element TOCs responsible for the coordination, integration, and regulation of airspace within the organization's area of territorial responsibility. It coordinates directly with Air Force elements and functional Army elements (ADA, Army aviation, FSE) working within each TOC. (FM 1-02)
assault	1. the culmination of an attack which closes with the enemy. 2. in an amphibious operation, the period of time from the crossing of the line of departure (LD) by the first scheduled wave to the seizure of the initial objectives. 3. a phase of an airborne or air assault operation beginning with delivery of the assault force into the objective area and extending through the attack of objectives and consolidation of the initial airhead. 4. in river crossings, the period of time from the launching of the first crossing effort until the initial bridgehead has been secured and responsibility passed to the crossing area commander. 5. to make a short, violent, but well-ordered attack against a local objective (such as a gun emplacement or fortified area). (FM 1-02)
assault echelon	1. those forces required in the initial stages of an airborne or air assault operation to secure the assault objectives. 2. one or more units of an attacking force used to begin and lead the attack. (See also followup echelon; rear echelon.) (FM 1-02)
assault force	1. in an amphibious, airborne, or air assault operation, those units charged with the seizure of the lodgment area. 2. in offensive river crossing operations, the major subordinate units conducting the assault to, across, and beyond the water obstacle. Assault forces lead, making the initial assault of the river, and continue the advance from the exit bank to the final objectives. 3. those forces charged with passing through a breach in an enemy fortified position or strongpoint and seizing an objective or completing destruction of the enemy. (FM 1-02)
assault objectives	key terrain features or installations whose seizure facilitates the overall accomplishment of an airborne or air assault operation. (FM 1-02)

Glossary

assault command post	the ACP operates from organic tactical vehicles and Expandable Light Air Mobile Shelter (ELAMS) that can be moved by ground or AASLT means. The ACP controls all units specifically designated as being under its control. It is minimally manned to support maneuver, intelligence, mobility, and fire support. The ACP is prepared to assume the Division Main (DMAIN) role if necessary for short duration without augmentation (72 to 96 hours). This is normal during early phases of contingency operations when the DMAIN has not yet deployed or is out of action.
assault phase	1. that phase of an airborne, air assault, amphibious, or river crossing operation that begins with the delivery of the assault forces into the objective area and ends when all assault objectives have been seized. 2. that period during an attack which begins when the assault forces advance from their assault position and ends when the objective has been seized and consolidated. (See also air assault; airborne operation; amphibious operation; river crossing operation.) (FM 1-02)
assault position	that position between the LD and the objective in an attack from which forces assault the objective. Ideally, it is the last covered and concealed position before reaching the objective (primarily used by dismounted infantry). (FM 1-02)
assembly area	an area in which a force prepares or regroups for further action. (FM 1-02)
attack position	the last position occupied or passed through by the assault echelon before crossing the LD. (FM 1-02)
avenue of approach	an air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path. (FM 1-02)
aviation support officer	the aviation support officer (ASO) is the special staff officer responsible for coordinating Army aviation assets within the BCT.
B	
battle coordination element	the battle coordination element (BCE) will be the Army coordination element located at the Air Force TACC. The BCE will monitor and interpret the land battle situation for the TACC and give land force needs for tactical air support to the TACC. (See also tactical air control center.) (FM 1-02)
battle position	a defensive location oriented on the most likely enemy avenue of approach from which a unit may defend or attack. Such units can be as large as battalion task forces and as small as platoons. A unit assigned a battle position (BP) is located within the general outline of the BP. Security, CS, and CSS forces may operate outside a BP to give early enemy detection and all-around security. (FM 1-02)
beginning morning nautical twilight	begins when the sun is 12° degrees below the horizon. It is the start of that period where, in good conditions and in the absence of other illumination, enough light is available to identify the general outlines of ground objects, conduct limited military operations, and engage in most types of ground movement without difficulty.
brigade combat team	the brigade combat team (BCT) is an infantry brigade that has been task organized with aviation, combat support and combat service support elements as subordinate units to deploy and accomplish a specific mission. The 101st Airborne Division has three BCTs that are habitually aligned to train and operate together to reinforce the relationship.

brigade support area	a designated area in which CSS elements provide logistic support to a brigade. The brigade support area (BSA) normally is located 20 to 25 kilometers behind the forward edge of the battle area (FEBA). (FM 1-02)
C	
CASEVAC aircraft	UH-1Hs, UH-60s or CH-47s that are configured with litters and/or jump seats to provide evacuation of casualties when standard MEDEVAC aircraft are committed or unavailable.
check fire	a command to cause a temporary halt in firing. (FM 1-02)
checkpoint	a predetermined point on the ground used as a means of coordinating friendly movement. Checkpoints are not used as reference points in reporting enemy locations. (FM 1-02)
close air support	air action against hostile targets that are in near to friendly forces and that requires detailed integration of each air mission with the fire and movement of those forces. (See also air interdiction; air support; immediate air request; preplanned mission request.) (FM 1-02)
combat effectiveness	the ability of a unit to perform its mission. Factors such as the status of fuel, ammunition, weapons systems, and personnel are assessed and rated from 1 to 4 (1 being the highest rating).
combat power	a complex combination of tangible and intangible factors which are transitory and reversible on the battlefield. Combat power comprises the effects of maneuver, the effects of firepower, the effects of protection, and the effectiveness of leadership. The skillful combination of these elements in a sound operational plan will turn potential into actual power. (FM 1-02)
command aviation net	the radio net dedicated to air-to-ground coordination during AASLT operations. (101st TACSOP)
control	1. the authority exercised by a commander over part of the activities of subordinate organizations or other organizations not normally under the commander's command, which encompasses the responsibility for implementing orders or directives. All or part of this authority may be transferred or delegated. (DOD). 2. the physical or psychological pressures exerted with the intent to assure that an agent or group will respond as directed (DOD). 3. primary function performed by command posts and staff; includes acquiring and applying means to accomplish commander's intent, computing requirements, allocating means, integrating efforts, and generating options. Traditionally, control is direct, sequential, process-oriented, and positive. Control is evolving toward instantaneous, simultaneous, adaptive, action-oriented, intent-bound, and positive.
control measures	directives given graphically or orally by a commander to subordinate commands to assign responsibilities, coordinate fires and maneuver, and to control combat operations. Each control measure can be portrayed graphically. A minimum number of control measures should be used so that the operation progresses according to the concept of the operation. Less restrictive control measures are used, as much as possible, to permit subordinate commanders the freedom of action in executing assigned missions. In general, all control measures should be easily identifiable on the ground. Examples of control measures include boundaries, objectives, coordinating points, contact points, LDs, assembly areas, axis of advance, and direction of attack. (FM 1-02)

Glossary

coordinated fire line	a line beyond which conventional surface fire support means (mortars, field artillery, naval gunfire ships) may fire at any time within the zone of the establishing HQ without additional coordination. It is usually established by brigade or division, but may be established by a maneuver battalion. (the term no-fire line is used by other NATO nations for a CFL.) (FM 1-02)
coordinating altitude	a control measure designated by the airspace control authority which is designed to coordinate airspace use between high performance and rotary wing aircraft. (FM 1-02)
course of action	1. any sequence of acts that an individual or unit may follow. 2. a possible plan open to an individual or commander that would accomplish or is related to accomplishment of the mission. 3. a feasible way to accomplish a task or mission which follows the guidance given, will not result in undue damage/risk to the command, and is noticeably different from other actions being considered. (FM 1-02)
D	
damage assessment	a determination of the effect of attacks on targets. (FM 1-02)
D-day	the unnamed day on which a particular operation commences or is to commence. An operation may be the commencement of hostilities; the date of a major military effort; the execution date of an operation (as distinguished from the date the order to execute is issued); or the date the operations phase is implemented. The highest command or HQ responsible for coordinating the planning will specify the exact meaning of D-day within the above definition. Reference to days preceding or following D-day will be referred to by using a plus or minus sign and an Arabic numeral following the letter "D." (Example: D-3 is 3 days prior to D-day; D+7 is 7 days after D-day. If the figure becomes unduly large; such as D+90, the designation D+3 months may be used.) (FM 1-02)
direct support	1. a mission requiring a force to support another specific force and authorizing it to answer directly the supported force's request for assistance. 2. in NATO, the support provided by a unit or formation not attached to, nor under command of, the supported unit or formation, but required to give priority to the support required by that unit or formation. (See also general support; general support reinforcing.) (FM 1-02)
direct support artillery	artillery whose primary task is to provide fire requested by the supported unit. (See also general support artillery; reinforcing [artillery].) (FM 1-02)
division support area	an area normally located in the division rear positioned near air landing facilities and along the MSR. The division support area (DSA) has the division support command's, command post (DISCOM CP), the HQ elements of the DISCOM battalions, and those charged with providing backup support to the CSS elements in the BSA and direct support (DS) to units located in the division rear. Selected COSCOM elements may be located in the division support area (DSA) to provide DS backup and GS as required. (FM 1-02)
downed aviator point	a point to where aviators will attempt to escape and evade to be recovered by friendly forces. (FM 1-02)
drop zone	a specified area upon which airborne troops, equipment, or supplies are airdropped by parachute, or on which supplies and equipment may be delivered by free fall. (FM 1-02)

E

electronic warfare	the use of electromagnetic energy to determine, exploit, reduce, or prevent hostile use of the electromagnetic spectrum and to ensure its friendly use. (See also electronic counter-countermeasures; electronic countermeasures ; electronic warfare support measures.) (FM 1-02)
end evening nautical twilight	occurs when the sun has dropped 12 degrees beneath the horizon, and is the instant of last available daylight for the visual control of limited ground operations. At the end evening nautical twilight (EENT), there is no further sunlight available. (FM 1-02)
engagement area	an area in which the commander intends to trap and destroy an enemy force with the massed fires of all available weapons. Engagement areas are routinely identified by a target reference point in the 10-7 center of the trap area or by prominent terrain features around the area. Although engagement areas may also be divided into sectors of fire, it is important to understand that defensive systems are not designed around engagement areas, but rather around avenues of approach. Engagement areas and sectors of fire are not intended to restrict fires or cause operations to become static or fixed; they are used only as a tool to concentrate fires and to optimize their effects. (FM 1-02)
essential elements of friendly information	the critical aspects of a friendly operation that, if known by the enemy; would subsequently compromise, lead to failure, or limit success of the operation and so must be protected from enemy detection. (FM 3-13)

F

final coordination line	a line close to the enemy position used to coordinate the lifting and shifting of supporting fires with the final deployment of maneuver elements. It should be recognizable on the ground. It is not a fire support coordination measure. (FM 1-02)
fire support	assistance to those elements of the ground forces which close with the enemy (such as infantry and armor units) rendered by delivering artillery and mortar fire, naval gun fire, and CAS. FS may also be provided by tanks, air defense artillery, and Army aviation. (FM 1-02)
fire support coordination line	a line established by the appropriate ground commander to ensure coordination of fire not under the commander's control but which may affect current tactical operations. The fire support coordination line (FSCL) is used to coordinate fires of air, ground, or sea weapons systems using any type of ammunition against surface targets. The FSCL should follow well-defined terrain features. The establishment of the FSCL must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting elements may attack targets forward of the FSCL, without prior coordination with the ground force commander, provided the attack will not produce adverse surface effects on, or to the rear of, the line. Attacks against surface targets behind this line must be coordinated with the appropriate ground force commander. (See also coordinated fire line.) (FM 1-02)

follow-up echelon	forces moved into the objective area after the assault echelon of an airborne, airmobile, air assault, or amphibious operation to sustain the defense and to conduct offensive operations as part of the larger force after linkup. Normally, it includes follow up elements of the assault units, maintenance unit headquarters, and elements of the supply and service battalion. (See also assault echelon; rear echelon.) (FM 1-02)
forward arming and refueling point	a temporary facility that is organized, equipped, and deployed by an aviation unit commander, and located closer to the area of operation than the aviation unit's CSS area. It provides fuel and ammunition necessary for the employment of helicopter units in combat. (FM 1-02)
forward edge of the battle area	the forward limit of the main battle area (MBA). (See also main battle area.) (FM 1-02)
forward line of own troops	A line that indicates the most forward positions of friendly forces in any kind of military operation at a specific time. The forward line of own troops (FLOT) may be at, beyond, and short of the FEBA, depicting the nonlinear battlefield. (FM 1-02)
forward operational base	a command, control, and support element established by a special forces operational base (SFOB). It normally is established for specific missions requiring a separate command and control headquarters reporting directly to a joint unconventional warfare command/joint unconventional warfare task force (JUWC/ JUWTF). The organization, mission, and functions parallel those of a SFOB, but on a reduced scale. An forward operational base (FOB) also is established to extend the span of control when distances involved preclude effective command or support of deployed operational elements. The organization and functions of the FOB will vary with the mission; duration and scope of operations; and security, communications, administrative, and logistical support requirements. (See also special forces operational base.) (FM 1-02)
forward logistics base	immediately after the initial air assault a forward logistics base (FLB) will normally be established in the objective area. The nucleus of fuel operations in the FLB will be the BSB's class III section. A CRRP will normally be established in the FLB using personnel and equipment from the BSB and aviation brigade.
free fire area	a specific designated area into which any weapon system may fire without additional coordination with the establishing headquarters. (FM 1-02)
G	
general support	support that is given to the supported force as a whole and not to any particular subdivision. (FM 1-02)
general support artillery	artillery that executes the fire directed by the commander of the unit to which it organically belongs or is attached. It fires in support of the operation as a whole rather than in support of a specific subordinate unit. (See also direct support artillery; general support reinforcing; reinforcing [artillery].) (FM 1-02)
general support reinforcing	a tactical artillery mission. General support reinforcing (GSR) artillery is assigned the mission to support the force as a whole and provide reinforcing fires for another artillery unit. (See also direct support artillery; general support artillery; reinforcing [artillery].) (FM 1-02)

ground tactical commander	the ground tactical commander (GTC) is the commander of the largest ground maneuver task force inserted during the air assault. The GTC is usually an AATFC subordinate maneuver commander and flies on one of the first serials into the objective area. The GTC maintains communications with the AATFC during the flight. (101 st TACSOP)
ground tactical plan	an airborne or air assault operational plan covering the conduct of operations in the objective area. (see also air movement plan; landing plan; marshaling plan.) (FM 1-02)
H	
H-hour	the specific hour on D-day at which a particular operation commences is known as H-hour. It may be the commencement of hostilities; the hour at which an OPLAN is executed or is to be executed (as distinguished from the hour the order to execute is issued); or the hour that the operation phase is implemented. The highest command or headquarters coordinating planning will specify the exact meaning of H-hour within the above definition. When several operations or phases of an operation are being conducted in the same area on D-day and confusion may arise over the use of the same hour designation, the letters F, L, S, W, and Y may be used. When this is done, the letters used and their meaning must be stated in the plan or order. Reference to hours preceding or following H-hour will be referred to by using a plus or minus sign and an Arabic numeral following the letter H. (For example: H-3 is 3 hours prior to H-hour; H+7 is 7 hours after H-hour. If a time element other than hours is expressed, it must be spelled out [such as H+30 minutes]). (See also D-day.) (FM 1-02)
high density airspace control zone	airspace of defined dimensions, designated by the airspace control authority, in which there is a concentrated employment of numerous and varied weapons / airspace users. (FM 1-02)
high-payoff target	HVTs which, if successfully attacked, would contribute substantially to the success of our plans. (See also high-value target.) (FM 1-02)
high-value target	a target whose loss to the enemy can be expected to contribute to substantial degradation of an important battlefield function. (See also high-payoff target.) (FM 1-02)
holding area	1. a site located between assembly areas or FARPs and BPs that may be occupied for short periods of time by attack helicopters while coordination is being made for movement into BPs. It should give good cover and concealment and an area for the aircraft to hover or land. 2. nearest covered and concealed position to the PZ or crossing site where troops are held until time for them to move forward. (FM 1-02)
I	
immediate mission request	a request for an airstrike or reconnaissance mission that by its nature could not be identified sufficiently in advance to permit detailed mission consideration and planning. (FM 1-02)
information requirements	those items of information about the enemy and the enemy's environment which need to be collected and processed to meet the intelligence requirements of a commander. (See also priority intelligence requirements.) (FM 1-02)

Glossary

insertion	1. placement of troops and equipment into an operational area in air assault operations. 2. the placement of OPs, patrols, or raiding parties either by helicopter or parachute. (FM 1-02)
interdict	1. to isolate or seal off an area by any means; to deny use of a route or approach. 2. to prevent, hinder, or delay the use of an area or route by enemy forces. (FM 1-02)
intermediate staging base (ISB)	a secure base which an AATF can use for staging an air assault operation near an unsecured objective allowing the insertion of decisive force into the objective area. A notional example would be using Puerto Rico as an ISB for an air assault into Cuba.
intervisibility	the condition of being able to see one point from another. This condition may be altered or interrupted by weather, smoke, terrain masking, dust, or debris. (FM 1-02)
J	
joint air attack team	a combination of U.S. Army attack and scout aircraft and U.S. Air Force CAS aircraft operating together to locate and attack high priority, lucrative targets (such as tanks and other targets of opportunity). It normally operates in a coordinated effort with fire support, air defense artillery, and ground maneuver forces against enemy armored formations, command vehicles, and enemy air defense weapons systems. (FM 1-02)
joint task force	a force composed of assigned or attached elements of the Army, the Navy, the Marine Corps, and the Air Force, or two or more of these Services, which is constituted and so designated by the Secretary of Defense (SECDEF), or by the commander of a unified command, a specified command, or an existing JTF. (FM 1-02)
K	
key terrain	any locality or area the seizure, retention, or control of which affords a marked advantage to either combatant. (FM 1-02)
L	
landing plan	an airborne, air assault, or air movement plan prescribing the sequence, place of arrival, and method of entry into the objective area. The purpose of the plan is to get the correct units to the correct place in the correct order to properly execute the ground tactical plan. (See also air movement plan; ground tactical plan; marshaling plan.) (FM 1-02)
landing zone	a specified zone within an objective area used for landing aircraft. (FM 1-02)
liaison	that contact or intercommunication maintained between elements of military forces to ensure mutual understanding and unity of purpose and action. (FM 1-02)
lift	all helicopters assigned to a particular mission to move troops and equipment. (FM 1-02)
limit of advance	an easily recognized terrain feature beyond which attacking elements will not advance. (FM 1-02)

line of contact	a general trace delineating the location where two opposing forces are engaged. (See also line of departure; line of departure is line of contact (LD/LC); forward edge of battle area (FEBA); forward line of own troops.) (FM 1-02)
line of departure	a line designated to coordinate the commitment of attacking units or scouting elements at a specified time. A start line. (See also line of contact; line of departure is line of contact.) (FM 1-02)
lines of communication	all the routes (land, water, and air) that connect an operating military force with one or more bases of operations and along which supplies and military forces move. (FM 1-02)
linkup	a meeting of friendly ground forces (such as when an advancing force reaches an objective area previously seized by an airborne or air assault force, when an encircled element breaks out to rejoin friendly forces, or when converging maneuver forces meet). (See also linkup point.) (FM 1-02)
linkup point	an easily identifiable point on the ground where two forces conducting a linkup meet. When one force is stationary, linkup points normally are established where the moving force's routes of advance intersect the stationary force's security elements. Linkup points for two moving forces are established on boundaries where the two forces are expected to converge. (See also linkup.) (FM 1-02)
M	
main battle area	that portion of the battlefield extending rearward from the FEBA and in which the decisive battle is fought to defeat the enemy attack. Designation of the main battle area (MBA) includes the use of lateral and rear boundaries. For any particular command, this area extends from the FEBA to the rear boundaries of those units comprising its main defensive forces. (See also forward edge of the battle area.) (FM 1-02)
main body	1. the principal part of a tactical command or formation. It does not include detached elements of the command (such as advance guards, flank guards, covering forces, and so forth). 2. in a motor column, all vehicles exclusive of the column head, trail, and control vehicles which consist primarily of the vehicles carrying the bulk of the cargo or troops within the column. (FM 1-02)
main command post	the main command post (CP) consists of those staff activities involved in controlling and sustaining current operations and in planning future operations. The main CP normally operates under control of the chief of staff. In addition to the chief of staff, the main CP consists of G1, G2, G3, and G4 elements; fire support and chemical elements, TACP element, and an A2C2 element consisting of ADA and Army aviation staff elements. The main CP exercises C2 of the current operation in cases where a tactical CP is not employed. (See also command post; rear command post; tactical command post.) (FM 1-02)
main supply route	the route or routes designated within an area of operations on which the bulk of traffic flows in support of military operations. (FM 1-02)
maintain contact with enemy	actions taken to prevent the enemy from disengaging. (FM 1-02)

Glossary

maneuver	the movement of forces supported by fire to achieve a position of advantage from which to destroy or threaten destruction of the enemy. A principle of war. (FM 1-02)
marshaling	1. the process by which units participating in an amphibious, airborne, or air assault operation assemble or move to temporary camps in the vicinity of embarkation points to complete preparations for combat or to prepare for loading. 2. the process of assembling, holding, and organizing supplies and/or equipment, especially transport vehicles, for onward movement. (See also staging area.) (FM 1-02)
marshaling area	1. the general area in which unit preparation areas and departure airfields may be located and from which air movement is initiated. 2. in amphibious operations, the designated area in which, as part of the mounting process, units are reorganized for embarkation; vehicles and equipment are prepared to move directly to embarkation areas; and housekeeping facilities are provided for troops by other units. (FM 1-02)
mass casualty: (situation)	any casualty-producing situation which produces either a total number and/or type(s) of casualties which exceed the evacuation and/or treatment capabilities of supporting CHS assets.
MEDEVAC aircraft	UH-1Vs/UH-60As designed, equipped, and staffed to perform standard medical evacuation.
medical evacuation	Process of moving patients from point of injury (POI) or illness to a medical treatment facility (MTF).
meeting engagement	a combat action that occurs when a moving force, incompletely deployed for battle, engages an enemy at an unexpected time and place. The enemy force may be either stationary or in motion. (FM 1-02)
N	
N-hour	notification time for a mission. (101st TACSOP)
named areas of interest	a point or area on the ground, along a particular avenue of approach, through which enemy activity is expected to occur. Activity or lack of activity within an NAI will help to confirm or deny a particular enemy course of action. (FM 1-02)
neutralize	1. to render ineffective or unusable. 2. to render enemy personnel or materiel incapable of interfering with a particular operation. 3. to render safe mines, bombs, missiles, and booby traps. 4. to make harmless anything contaminated with a chemical agent. (FM 1-02)
no-fire area	an area in which no fires or effects of fires are allowed. Two exceptions are (1) when establishing headquarters approves fires temporarily within the no-fire area (NFA) on a mission basis, and (2) when the enemy force within the NFA engages a friendly force, the commander may engage the enemy to defend the commander's force. (FM 1-02)
O	
objective	1. the physical object of the action taken (such as, a definite terrain feature, the seizure and/or holding of which is essential to the commander's plan, or, the destruction of an enemy force without regard to terrain features). 2. the principle of war which states that every military operation should be directed toward clearly defined, decisive, and attainable objectives. (FM 1-02)

objective area	1. a defined geographical area where an objective is to be captured or reached by the military forces. 2. in airborne, air assault, and amphibious operations, it is the proposed area of operations and includes the airhead or beachhead. (FM 1-02)
occupy	to task a unit to move and physically position itself in a specified area. The command issuing the task does not envision the unit to have to fight to accomplish the task.
on-call target	in fire support, a planned target other than a scheduled target on which fire is delivered when requested. (See also scheduled target.) (FM 1-02)
operational control	the authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks that are usually limited by function, time, or location; to deploy units concerned, and to retain or assign tactical control of those units. It does not of itself include administrative or logistic control. In NATO, it does not include authority to assign separate employment of components of the units concerned. (See also assign; attach; detached unit.) (FM 1-02)

P

passage of lines	passing one unit through the positions of another, as when elements of a covering force withdraw through the forward edge of the main battle area, or when an exploiting force moves through the elements of the force that conducted the initial attack. A passage may be designated as a forward or rearward passage of lines. (See also passage of command.) (FM 1-02)
passage point	a place where units will pass through one another either in an advance or withdrawal. It is located where the commander desires sub-ordinate units to physically execute a passage of lines. (FM 1-02)
pathfinders	1. experienced aircraft crews who lead a formation to the drop zone (DZ), release point, or target. 2. teams dropped or air landed at an objective to establish and operate navigational aids to guide aircraft to DZs and/or landing zones (LZs). 3. teams air delivered into enemy territory for determining the best approach and withdrawal lanes, LZs, and sites for heliborne forces. (FM 1-02)
phase	a specific part of an operation that is different from those that precede or follow. Phasing assists in planning and controlling and may be indicated by time (preparatory fire phase), by distance (intermediate objective or report line), by terrain (crossing of an obstacle), or by occurrence of an event (commitment of a reserve). It is not to be confused with a phase line (PL). It normally is associated with operations of larger units and with special operations (such as river crossing and airborne operations). (FM 1-02)
phase line	a line used for control and coordination of military operations. It is usually a recognizable terrain feature extending across the zone of action. Units normally report crossing phase lines (PLs), but do not halt unless specifically directed. PLs often are used to prescribe the timing of delay operations. (FM 1-02)
pickup zone	a geographical area used to pick up troops and/or equipment by helicopter.
planning factor	a consideration or a multiplier used in planning to estimate the amount and type of effort involved in a contemplated operation. Planning factors are often expressed as rates, ratios, or lengths of time. (FM 1-02)

Glossary

point of departure	in night attacks, a specific place on the line of departure (LD) where a unit will cross. (FM 1-02)
point of injury	the geographical location where casualties receive their wounds/injuries.
position area for artillery	an area assigned to an artillery platoon for terrain management purposes in which the artillery can maneuver.
preparation fire	fire delivered on targets preparatory to an assault. The preparation is planned by a direct support (DS) field artillery battalion or higher echelon. It is an intense volume of fire delivered in accordance with a time schedule. The fires normally commence prior to H-hour and may extend beyond it. They may start at a prescribed time or be held on-call. The duration of the preparation is influenced by factors (such as the fire support needs of the entire force, number of targets and firing assets, and available ammunition). preplanned mission request— A request for air support that is submitted in compliance with a schedule that permits detailed mission coordination and planning. (FM 1-02)
primary PZ/LZ	the PZ/LZ chosen for an operation, based on METT-TC, that provides the best means to accomplish the assigned mission.
priority intelligence requirements	those intelligence requirements for which a commander has an anticipated and stated priority in the task of planning and decisionmaking. (See also information requirements.)
priority of fires	direction to a fire support planner to organize and employ fire support means according to the importance of the supported unit's missions. (FM 1-02)
priority of support	priorities set by the commander in the commander's concept of the operation and during execution to ensure that combat support (CS) and combat service support (CSS) are given to subordinate elements in accordance with their relative importance to accomplishing the mission. (FM 1-02)
priority target	a target on which the delivery of fires takes precedence over all the fires for the designated firing unit/element. The firing unit/element will prepare, to the extent possible, for the engagement of such targets. A firing unit/element may be assigned only one priority target. (FM 1-02)

R

raid	an operation, usually small-scale, involving a swift penetration of hostile territory to secure information, to confuse the enemy, or to destroy the enemy's installations. It ends with a planned withdrawal upon completion of the assigned mission. (FM 1-02)
range	1. the distance between any given point and an object or target. 2. the extent or distance limiting the operation or action of something (such as the range of an aircraft, ship, or gun). 3. the distance which can be covered over a hard surface by a ground vehicle with its rated pay-load, using the fuel in its tank and in cans normally carried as part of the ground vehicle equipment. (FM 1-02)
rear battle	those actions, including area damage control, taken by all units rear battle (combat, CS, CSS, and host nation [HN]), singly or in a combined effort, to secure the force, neutralize or defeat enemy operations in the rear area, and ensure freedom of action in the deep and close-in battles. (See also area damage control.) (FM 1-02)

rear battle threat levels	<p>attacks in the rear area that are categorized as follows:</p> <ul style="list-style-type: none">● Level I-enemy controlled agent activity; sabotage by enemy sympathizers; activities conducted by terrorist organizations.● Level II-diversionary operations and sabotage and reconnaissance missions conducted by tactical units of less than battalion size.● Level III-airborne, air assault, amphibious operations, or infiltration operations of battalion size or larger. <p>(FM 1-02)</p>
rear command post	<p>the rear CP consists of those staff activities concerned primarily with CSS of the force, administrative support of the HQ, and other activities not immediately concerned with current operations. Typical representatives within the rear echelon are elements of the G1 and G4 sections, G5, Adjutant General (AG), Staff Judge Advocate (SJA), Inspector General (IG), Provost Marshal (PM), supporting MI elements concerned with counterintelligence and prisoner of war interrogation (IPW) activities, and the tactical airlift representative of the TACP. Normally, rear CPs are near or collocated with CSS units (such as COSCOM). (See also command post; main command post; tactical command post.) (FM 1-02)</p>
reconnaissance (recon)	<p>a mission undertaken to obtain information by visual observation, or other detection methods, about the activities and resources of an enemy or potential enemy, or about the meteorologic, hydrographic, or geographic characteristics of a particular area. (FM 1-02)</p>
release point	<p>1. a clearly-defined control point on a route at which specific elements of a column of ground vehicles or flight of aircraft revert to their respective commanders, each one of these elements continuing its movement toward its own appropriate destination. 2. in dismounted attacks, especially at night, that point at which a commander releases control of subordinate units to their commanders/leaders. (See also start point.) (FM 1-02)</p>
relief in place	<p>an operation in which a unit is replaced in combat by another unit. Responsibilities for the combat mission and the assigned sector or zone of action of the replaced unit are assumed by the incoming unit. (FM 1-02)</p>
restrictive fire line	<p>a line established between converging friendly forces (one or both may be moving) that prohibits fires or effects from fires across the line without coordination with the affected force. It is established by the commander of the converging forces. (FM 1-02)</p>
restricted operating zone	<p>an area of air space in which aircraft crews await further instructions or within which commanders can control operations. This space, while not wholly prohibited, is subject to flight/air usage restrictions for aviation, ADA, artillery, Air Force, and so forth.</p>
route reconnaissance	<p>a directed effort to obtain detailed information of a specified route and all terrain from which the enemy could influence movement along that route. (See also area reconnaissance; zone reconnaissance.) (FM 1-02)</p>
rules of engagement	<p>1. directives issued by competent military authority that specify the circumstances and limitations under which forces will initiate and/or continue combat engagement with other forces encountered. 2. in air defense, directives that delineate the circumstances under which weapons can fire at an aircraft. The right of self-defense is always preserved. (FM 1-02)</p>

S

sector	an area designated by boundaries within which a unit operates and for which it is responsible. Normally, sectors are used in defensive operations. (See also area of influence; zone of action.) (FM 1-02)
secure	to gain possession of a position or terrain feature, with or without force, and to deploy in a manner which prevents its destruction or loss to enemy action. (FM 1-02)
security	1. measures taken by a military unit, an activity, or an installation to protect itself against all acts designed to, or that may, impair its effectiveness. 2. a condition that results from the establishment and maintenance of protective measures that ensure a state of inviolability from hostile acts or from hostile acts or influences. 3. with respect to classified matter, it is the condition that prevents unauthorized persons from having access to official information that is safeguarded in the interests of national security. 4. in NATO, a condition which results from the establishment of measures which protects designated information, materiel, personnel, systems, components, and equipment against hostile persons, acts, or influences. A principle of war. (FM 1-02)
security operations	<p>those operations designed to obtain information about the enemy and provide reaction time, maneuver space, and protection to the main body. Security operations are characterized by aggressive reconnaissance to reduce terrain and enemy unknowns, gaining and maintaining contact with the enemy to ensure continuous information, and providing early and accurate reporting of information to the protected force. Security operations include screening operations, guard operations, covering force operations, and area security operations. Area security operations normally are associated with rear battle operations. The other types of security operations may be oriented in any direction from a stationary or moving force. (FM 1-02)</p> <p>A screening force maintains surveillance, provides early warning to the main body, impedes and harasses the enemy with supporting indirect fires, and destroys enemy reconnaissance elements within its capability. A guard force accomplishes all the tasks of a screening force. Additionally, a guard force prevents enemy ground observation of and direct fire against the main body. A guard force reconnoiters, attacks, defends, and delays as necessary to accomplish its mission. A guard force normally operates within the range of the main body indirect fire weapons. A covering force accomplishes all the tasks of screening and guard forces. Additionally, a covering force operates apart from the main body to develop the situation early and deceives, disorganizes, and destroys enemy forces. Unlike screening or guard forces, a covering force is a tactically self-contained force (that is, it is organized with enough CS and CSS forces to operate independently of the main body). The requirements of an area security force are delineated by the HQ assigning the mission. Area security operations are normally associated with rear battle operations. Rear battle forces neutralize or destroy enemy forces to defeat enemy attacks in the rear area. (See also rear battle response forces.)</p>
sortie (air)	one aircraft making one takeoff and one landing. An operational flight by one aircraft. (FM 1-02)

staging area	1. a general locality between the mounting area and the objective of an amphibious or airborne expedition. It is the area through which a force or parts pass after mounting for refueling, regrouping of ships, and/or the exercise, inspection, and redistribution of troops. 2. a general locality, containing accommodations for troops, that is established for the concentration of troop units and transient personnel between movements over the LOC. Also referred to as intermediate staging area or intermediate staging base. (FM 1-02)
start point	a clearly defined initial control point on a route at which specified elements of a column of ground vehicles or flight of aircraft come under the control of the commander having responsibility for the movement. (See also release point.) (FM 1-02)
suppression of enemy air defenses	that activity that neutralizes, destroys, or temporarily degrades enemy air defense systems in a specific area by physical attack and/or EW to enable tactical air operations to be successfully conducted. J-SEAD is that portion of SEAD which requires joint interaction to suppress enemy surface-to-air defense systems having an influence on the tactical air-land battle area. (See also suppression.) (FM 1-02)
T	
tactical air control party	the tactical air control parties (TACPs) are collocated at each appropriate command echelon of the supported ground force, normally battalion through corps. They advise and assist the commander, request and coordinate tactical air support, and meet other requirements of the individual ground force echelon supported. A TACP consists of experienced air crews and technicians, ground and/or airborne vehicles, and the communications equipment required to obtain, coordinate, and control tactical air support of ground operations. (See also air liaison officer; forward air controller.) (FM 1-02)
tactical command post	the tactical command post (TAC CP) is the forward echelon of a headquarters. The tactical CP may consist of G2, G3, FS, TACP, ADA, and CSS liaison (G1, G4) elements. It is located well forward on the battlefield so that the commander is in proximity to subordinate commanders and can directly influence operations. At division, the TAC CP is located within FM radio range of the committed brigades. (See also command post; main command post; rear command post.) (FM 1-02)
tactical control	the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control (TACON) does not include the authority to change organization, administrative or support responsibilities.
tactical operations center	the element within the main CP consisting of those staff activities involved in sustaining current operations and in planning future operations. Staff activities are functionally grouped into elements or cells. (See also command post.)

target	1. a geographical area, complex, or installation planned for capture or destruction by military forces. 2. in intelligence usage, a country, area, installation, agency, or person against which intelligence operations are directed. 3. an area designated and numbered for future firing. Target symbols and the target numbering system are found in FM 6-20. 4. in artillery and naval gunfire support, an impact burst which hits the target. (FM 1-02)
target acquisition	the detection, identification, and location of a target in sufficient detail to permit the effective employment of weapons.
target analysis	an examination of potential targets to determine military importance, priority of attack, and weapons required to get a desired level of damage or casualties. (FM 1-02)
target area of interest	an area or point along a mobility corridor, the successful interdiction of which will cause the enemy to either abandon a particular course of action or require the enemy to use specialized engineer support to continue. (FM 1-02)
target array	a graphic representation of enemy forces, personnel, and facilities in a specific situation, accompanied by a target analysis. Target box— Areas designated on identifiable terrain in which enemy targets are expected to appear and against which air support will be employed. (see also pop-up point.) (FM 1-02)
targeting	a process based on the friendly scheme of maneuver and tactical plan and an assessment of the terrain and threat which identifies those enemy functions, formations, equipment, facilities, and terrain which must be attacked to ensure success. Targeting begins with the commander's maneuver guidance, and continues through the development of a prioritized list of what targets are to be attacked, when they are to be attacked, why they are to be attacked, and what the conditions of success and failure are. This process ends with the commander's decision on which broad attack option will be used to engage the various targets—maneuver, fire support, or both. (See also target; target analysis; target array; target box; target list.) (FM 1-02)
target list	1. a tabulation of confirmed or suspected targets maintained by any echelon for information and fire support planning purposes. 2. an appendix to an obstacle annex of an OPORD/OPLAN which lists the obstacles by number, type, location, and executing unit. It is used for planning and monitoring the execution of the obstacle plan. (FM 1-02)
target of opportunity	a target which appears during combat and which can be reached by direct or indirect ground fire, naval fire, or aircraft fire, and against which fire has not been scheduled. (FM 1-02)
target reference point	an easily recognizable point on the ground (either natural or manmade) used for identifying enemy targets or controlling fires. Target reference points (TRPs) are usually designated by company commanders or platoon leaders for company teams, platoons, sections, or individual weapons. They can also designate the center of an area where the commander plans to distribute or converge the fires of all the weapons rapidly. TRPs are chosen by using the standard target symbol and target numbers issued by the FIST or FSO. Once designated, TRPs also constitute indirect fire targets. (FM 1-02)

task force	1. based upon mission, a temporary grouping of units under one commander formed to carry out a specific operation or mission, or a semi-permanent organization of units under one commander to carry out a continuing specific task. Units may be designated as a TF, regardless of attachments, whenever they are on a semi-independent mission. Brigade and higher units normally are not designated as TFs unless the operation or mission requires joint airborne, amphibious, or other special, semi-independent operations. 2. based upon organization, a battalion-sized unit of the combat arms consisting of a battalion control headquarters, with at least one of its major subordinate elements (a company), and the attachment of at least one company-sized element of another combat or combat support arm. An example is an infantry battalion headquarters; one or more of its organic companies; and the attachment of one or more of the following a tank company, an armored cavalry troop, or an engineer company. (See also battalion task force; task organization.) (FM 1-02)
task organization	a temporary grouping of forces designed to accomplish a particular mission. Task organization involves the distribution of available assets to subordinate control headquarters by attachment or by placing assets in direct support (DS) or under the operational control of the subordinate. (FM 1-02)
U	
unit distribution	a method of distributing supplies by which the receiving unit is issued supplies in its own area with transportation furnished by the issuing agency. (FM 1-02)
unobserved fire	fire for which the points of impact or burst are not observed.
up	a correction used by an observer or a spotter to indicate that an increase in height of burst (HOB) is desired. (FM 1-02)
V	
vertical envelopment	a tactical maneuver in which troops, either airdropped or air landed, attack the rear and flanks of a force, in effect cutting off or encircling the force. (See also envelopment; double envelopment; single envelopment; turning movement.) (FM 1-02)
X	
X-hour	time of notification for a planning cell to begin planning and deployment preparation in support of potential contingency operations that do not involve rapid, no-notice deployment.
Z	
zone reconnaissance	a directed effort to obtain detailed information concerning all routes, obstacles (to include chemical or radiological contamination), terrain, and enemy forces within a zone defined by boundaries. A zone reconnaissance normally is assigned when the enemy situation is vague or when information concerning cross-country traffic-ability is desired. (See also area reconnaissance; route reconnaissance.) (FM 1-02)

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