101st AIRBORNE DIVISION
(AIR ASSAULT)

GOLD BOOK

12 April 2010

DEPARTMENT OF THE ARMY
HEADQUARTERS, 101st AIRBORNE DIVISION (AIR ASSAULT) AND FORT CAMPBELL
2700 INDIANA AVENUE
FORT CAMPBELL, KENTUCKY 42223-5656

REPLY TO ATTENTION OF

AFZB-CG 12 April 2010

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Gold Book

1. The Gold Book is not authoritative Joint or U.S. Army Doctrine. The 2010 Gold Book describes the tactics, techniques, and procedures (TTPs) used to execute air assault operations in the 101st Airborne Division (Air Assault). It is intended to be a "how to" guide for those serving in our division and those modular units who will be employed with the Division in training and combat operations.

2. The 2010 Gold Book reflects changes in doctrine, organization, training, and lessons learned from recent combat operations. The Gold Book will continue to be reviewed after future operations.

3. Proponent for the Gold Book is G5, Plans at DSN 352-6518/6532.

4. Air Assault!

John F. Campbell
Major General, U.S. Army
Commanding

DISTRIBUTION: A

Summary of Significant Changes from 03 July 07 Gold Book

Introduction:

- Removed references to battlespace and replaced with area of operations
- Updated references list with new/revised FMs
- Updated aircraft frame nomenclature to reflect UH-60M and CH-47F models

Chapter 1

- Revised AMCM checklist items into like groups
- Clarified Hasty AMCM checklist
- Added Air Assault Back Brief format
- Inserted Combined Arms Rehearsal format example
- Revised Air Assault Conditions Checklist and definition of status blocks

Chapter 2

- Added Air to Ground Communication Check-in Procedures and clarified between aircraft check-in and CCA check-in

Chapter 3

- Updated UH-60 PZ/LZ diagram to reflect 50m between aircraft
- Added UAS platforms to CHERRY/ICE call procedures
- Updated Off load diagrams in Figure 3-3 and 3-4 to better reflect air frames

Chapter 4

- Updated Figure 4-8 with new Airborne Command & Control Systems
- Updated AC2 seating configurations in Figure 4-9

Chapter 5

- Modified Chapter layout to Staging Operations, Chalk Check-in, Light PZ, Heavy PZ, and Loading Plan IOT reduce redundancy on topics such as PZ Control, set-up, communication, and markings
- Added additional PZ marking diagrams for clarification on Touch Down Point landing lights and night markings
- Updated aircraft spacing in Light and Heavy PZ operations based on FM 3-21.8, Pathfinder Operations
- Updated communication devices to AN/PRC148 MBITR and AN/PRC-152 Harris systems
- Added sling load instructions for M1025/M1026, M1151, M119 105mm Howitzer, M777 155mm Howitzer, A-22 Cargo bag, 5k and 10k Cargo nets, and One to Four 500-Gallon Fuel Drums (Blivets)
- Updated Sling Load Inspection Record to latest version
- Updated Hooker Training requirements to within 30 days

Chapter 6

- Replaced references of LOGPAD Operations to Sustainment Operations
- Updated Figure 6-13 and Figure 6-15 terminology for 10T crane

requirements
- Updated MEDEVAC section to include Forward Support MEDEVAC Team (FSMT)
- Changed 4-line MEDEVAC request to 5-line request
- Updated Pathfinder METL tasks IAW current METLs
- Updated Pathfinder link-up procedures with GTC on LZ

Chapter 7
- Deleted fighter management Standards section and Figure 7-8 (Duty Period and Rotary Wing Flight Hour Maximums) – added reference to supporting CAB SOPs
- Updated Aircraft Capabilities Section - updated Avionics for UH-60L, UH-60M, CH-47F, OH-58D, and AH-64D; added UH-60M capabilities
- Deleted Figure 7-23 (REDCON Status) due to redundancy and incorrect REDCON status color codes
- Updated Seats Out / Seats In Assault Aviation TF capabilities diagram for readability

Chapter 8
- Updated terminology IAW FM 3-0 – Army Airspace Command and Control (A2C2) is now Airspace Command and Control (AC2)
- Updated terminology IAW FM 3-04.155 – Unmanned Aerial Vehicles (UAV) is now Unmanned Aircraft Systems (UAS)
- Added section on Sentinel Radar operations ISO AC2
- Updated FRIES Approval Authority data

Chapter 9
- Updated Artillery Raid section with M777 data for Figure 9-2
- Updated FRIES SOP, A/C, and Approval data
- Added Aerial Reaction Force (ARF) and Aerial Weapons Platform (AWP) TTPs

Chapter 10
- Inserted Air Assault Training Chapter (Previously contained in Cam Reg 350-1, *Fort Campbell Training Guidance*)

Chapter 11
- Glossary removed from Chapter 10; re-inserted as Chapter 11
- Updated glossary definitions from FM 101-5-1 to FM 1-02

Throughout Gold Book
- Removed model designation of aircraft for brevity, when model designation is not necessary

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GOLD BOOK

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Chapter 9 Mission Specific Tactics, Techniques, and Procedures (TTPs)

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INTRODUCTION

Joint force commanders conduct forcible entry operations at the operational level of war. Commanders operating at the tactical level conduct airborne or air assault operations to gain a positional advantage or to envelop or turn the enemy. Airborne and air assault operations are types of entry operations that use a vertical envelopment to insert a force into an area of operations (AO). The capability to conduct airborne and air assault operations allows the commander to:

- Dictate the time, place and terms of engagement.
- Conduct up to a BCT-size Air Assault in a non-linear, non-contiguous, joint/combined battle space.
- Fight with Air/Ground combined arms task forces that are agile, synchronized, fast, lethal, flexible and maneuverable.
- Achieve operational depth for Theater, Corps, or JTF Commander.
- Exploit the effects of mass (BCT) and precision strike (Armed Helicopters).
- Attack and fight day or night.
- Sustain the fight without ground lines of communication (LOC) for limited duration.

The 101st Airborne Division (Air Assault) has a long and rich heritage. As the world's only functional Air Assault Division, the 101st Airborne has pioneered the development of Air Assault tactics, techniques and procedures (TTPs). These tactics were quantifiably demonstrated in 1991 during Operation Desert Storm and most recently during Operation Enduring Freedom and Operation Iraqi Freedom. We are currently at war with dangerous and adaptive terrorist forces in complex environments. In response, the Division continually refines its TTPs, exploiting our unique capabilities to defeat our nation's enemies.

References such as *FM 90-4 Air Assault Operations* (slated for revision as ATTPM 3-97.4) and *FM 71-100-3 Air Assault Division Tactics, Techniques and Procedures (TTP)* capture basic Air Assault Doctrine. These FM's are not presently up to date, nor do they capture the required level of detail. Therefore, the Gold Book serves to describe those TTPs unique to the 101st Airborne Division (Air Assault). It is intended to be a "how to" guide for those serving in the Division and those modular units who will be employed with the Division in training and combat operations.

The Gold Book retains a focus on brigade and battalion air assault task forces. To address the demands of current operations, information on smaller scale air assaults and supporting operations is included. Regardless of echelon, the fundamentals of air assault planning and execution remain the same and are based on air assault doctrine (*FM 90-4 Air Assault Operations,* and *FM 71-100-3 Air Assault Division Tactics, Techniques, and Procedures)*, Division organization, and the baseline skills taught in The Sabalauski Air Assault School. The Gold Book also addresses the role of aviation brigades and their supporting relationship to the Air Assault Task Force Commander (AATFC).

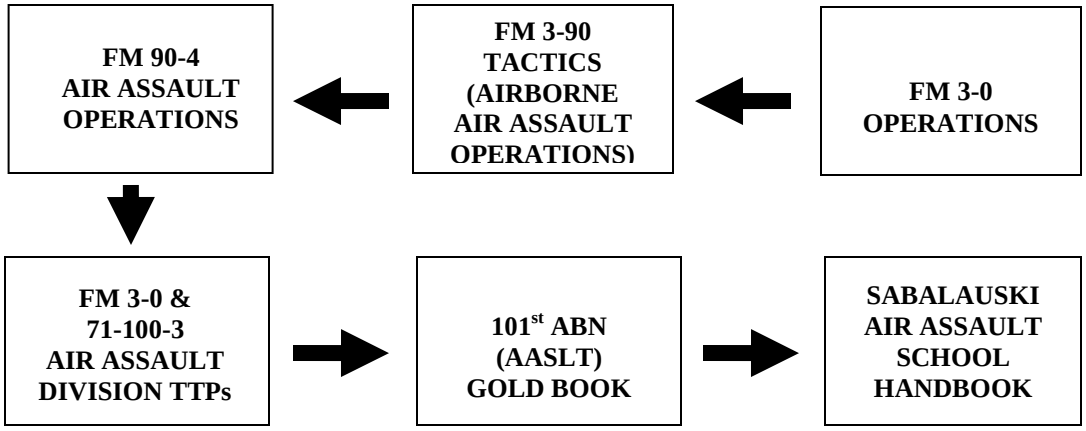


Figure 1: Hierarchy of Air Assault Doctrine

The Gold Book is not authoritative joint or U.S. Army doctrine. However, familiarity and proficiency with the Gold Book standards are critical for this Division to perform air assault operations routinely both in training and combat. Regular reviews of the Gold Book ensures incorporation of wartime lessons learned and changes in Doctrine, Organization, Training, Material, Leadership & Education, Personnel, and Facilities (DOTMLPF) related to air assault operations. The Gold Book is a key tool by which the Division prepares for its next "*Rendezvous with Destiny."* Air Assault!

SECTION A: REFERENCES

These are the sources quoted or paraphrased in the Gold Book.

Field Manuals:

FM 90-4	Air Assault Operations (currently under revision as ATTPM 3-97.4)
FM 71-100	Division Operations
FM 71-100-2	Infantry Division Operations
FM 71-100-3	Air Assault Division Operations
FM 17-95	Cavalry Operations
FM 3-04.126	Attack Reconnaissance Helicopter Operations (formerly FM 1-112)
FM 3-04.203	Fundamentals of Flight
FM 3-0	Operations
FM 3-90	Tactics, Annex C, Airborne & Air Assault Operations
FM 3-04.113	Utility and Cargo Helicopter Operations (formerly FM 1-113)
FM 3-21.8	Infantry Rifle Platoon and Squad (formerly 7-8)
FM 3-21.28	Pathfinder Operations
FM 3-21.30	Infantry, Airborne, and Air Assault Brigade Operations (formerly FM 7-30)
FM 3-52.1	Multi-Service Tactics, Techniques, & Procedures for Airspace Control
FM 3-04.155	Army Unmanned Aircraft System Operations
FM 4-20.197	Multi-Service Helicopter Sling Load: Basic Operations and Equipment

Army Regulation:

AR 95-1	XVIII Airborne Corps Supplement to AR 95-1

Training Circular:

TC 1-400 Brigade Aviation Element Handbook

SECTION B: HOW WE FIGHT

1. **Overview:** The 101st Airborne Division (Air Assault) is a versatile force. It provides regional combatant commanders a large-scale, early-entry, air/ground force capable of destroying enemy formations, while seizing, denying or holding key terrain at operational depths. This force is also capable of executing air assault operations at various echelons to achieve speed, surprise, and lethality across any terrain and across the full spectrum of sustained combat operations.

2. **Myths:** It is worth addressing some things commonly said about air assault operations.

Myth	Reality
Air Assaults are really air movements of rifle companies	**Air Assault is a Combined Arms mobile strike.** It is Dominant Maneuver with complex vertical envelopments involving up to hundreds of aircraft sorties assaulting thousands of soldiers at decisive points.
Easy to do; Air Assault = Air Movement	Incredibly complex and **not a pick-up game**; requires habitual relationships among all members of the Air Assault combined arms team
Infantry's purpose is to secure FOBs and FARPs for Apaches	**Infantry** seizes objectives in non-linear/non-contiguous areas of operation as our **main effort: the finishing force that ultimately accomplishes our Division Task and Purpose.** Attack helicopters set the conditions and support the inner and outer ring fight.
The 101st is a Light Infantry outfit with a bunch of helicopters	The Infantry, Aviation and Artillery forces of the Air Assault Division are inextricably linked as a combined arms team able to rapidly achieve combat power overmatch against any potential adversary.

Figure 2: Air Assault Myths and Facts

3. **Air Assault Division Fundamentals:** Sometimes observers think that air assaults depend on certain numbers of aircraft or certain distances of operational reach. Those are certainly considerations. However, far more important than "how many" or "how far" is the more basic understanding of "how to" air assault. That understanding pushed to the lowest echelon, rests on these fundamentals:

a. Standard operating procedures between the aviation/ground units
b. Combined Arms aviation/ground TTPs (as discussed in this Gold Book)

c. Air Assault School qualification
d. Equipment optimized to be flown or driven into combat
e. 101st Airborne Division (Air Assault) tradition and esprit de corps

4. **How We Fight:** The unique capabilities resident in the Division provide commanders a wide menu of operations from which they can select.

a**. Objective/Flight Landing Strip (FLS) Seizure**: The Division will seize an immediate objective area and/or FLS. The purpose is to establish a forward operating base (FOB) in preparation for follow-on operations. Within the FOB, Air Assault forces establish rapid refuel points, logistical packages, artillery position areas, and accomplish other essential tasks.

b**. Inner/Outer Ring Fight**: The area of operations within the FOB is the inner ring. The inner ring is under control of the BCT or Ground Tactical Commander and extends to the radius covered by the range of organic weapon systems. The outer ring fight isolates the objective area and sets the conditions for follow-on operations. The outer ring can be controlled by the supporting aviation commander or Division Tactical CP.

c. **Air Assault Raids:** Air Assault Raids stage from the immediate objectives/FOB. Purposes for Air Assault Raids include attacks to destroy key enemy units or facilities, securing Position Areas for Artillery (PAA), battalion or brigade size air assaults to seize subsequent terrain objectives, and deep attacks to engage hostile forces in specified engagement areas.

d. **Sustainment Operations:** The Division will conduct joint aerial re-supply operations to sustain forward deployed forces prior to establishing ground routes. Within the FOB, Forward Arming Refueling Points (FARPs) are established and Forward Logistical Bases (FLBs) form to receive needed classes of supply and provide the logistical operations necessary for current and future combat operations. USAF airdrop and air land methods are key part of this effort.

e. **Hasty Air Assaults:** Proficiency in the fundamentals of air assault operations and the habitual relationships between ground and air units provides the capability to conduct smaller-scale air assault operations (usually platoon and company) with planning timelines within one crew cycle. Such operations allow commanders to rapidly exploit intelligence and changing battlefield conditions.

SECTION C: DIVISION STRUCTURE

a. In its current configuration, the Division consists of a headquarters (101st Headquarters and Headquarters Battalion) and can be task organized with up to six brigade combat teams and five supporting brigades (aviation, fires, and maneuver enhancement) for specific missions. Due to the complex nature of air assault operations, the Division is habitually aligned with four infantry brigade combat teams, and two combat aviation brigades.

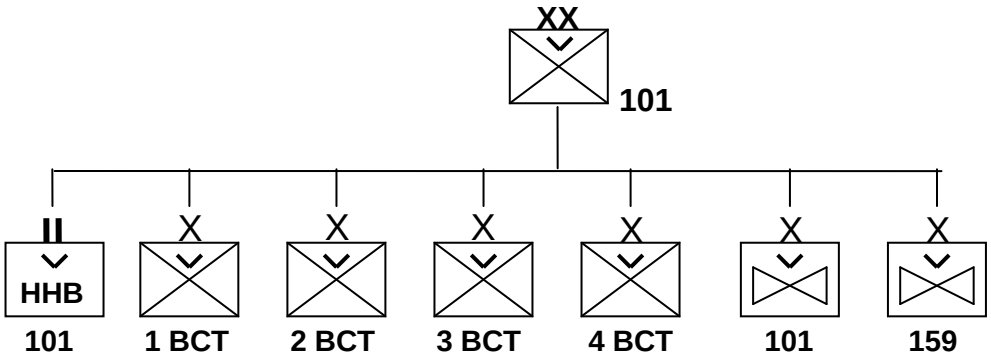


Figure 3: 101st Airborne Division Habitual Alignment

This organization is flexible based on METT-TC. The Division may give up certain habitually assigned units, and can be reinforced with additional aviation forces, infantry or armored BCTs, U.S. Marine Corps forces, or other units as required. This flexibility is inherent in the modular concept.

b. The Division Commander exercises Command and Control over the entire Division area of operations through two primary command posts: the Main and one Tactical CP.

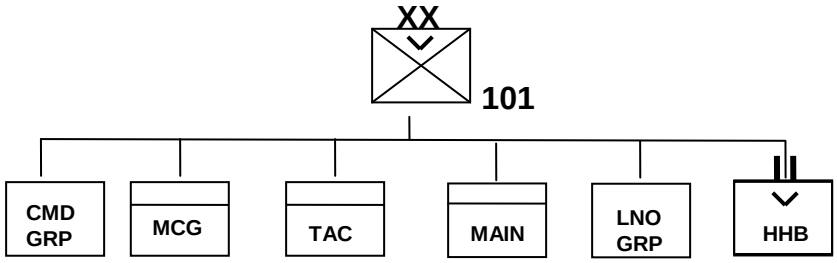


Figure 4: 101st DIV HQ & Headquarters and Headquarters Battalion

SECTION D: BRIGADE STRUCTURES

1. **The Infantry Brigade Combat Team (BCT):** The Infantry BCT is a rapid deployment force consisting of two infantry battalions, a RSTA squadron, a fires battalion, a brigade troops battalion, and a brigade support battalion.

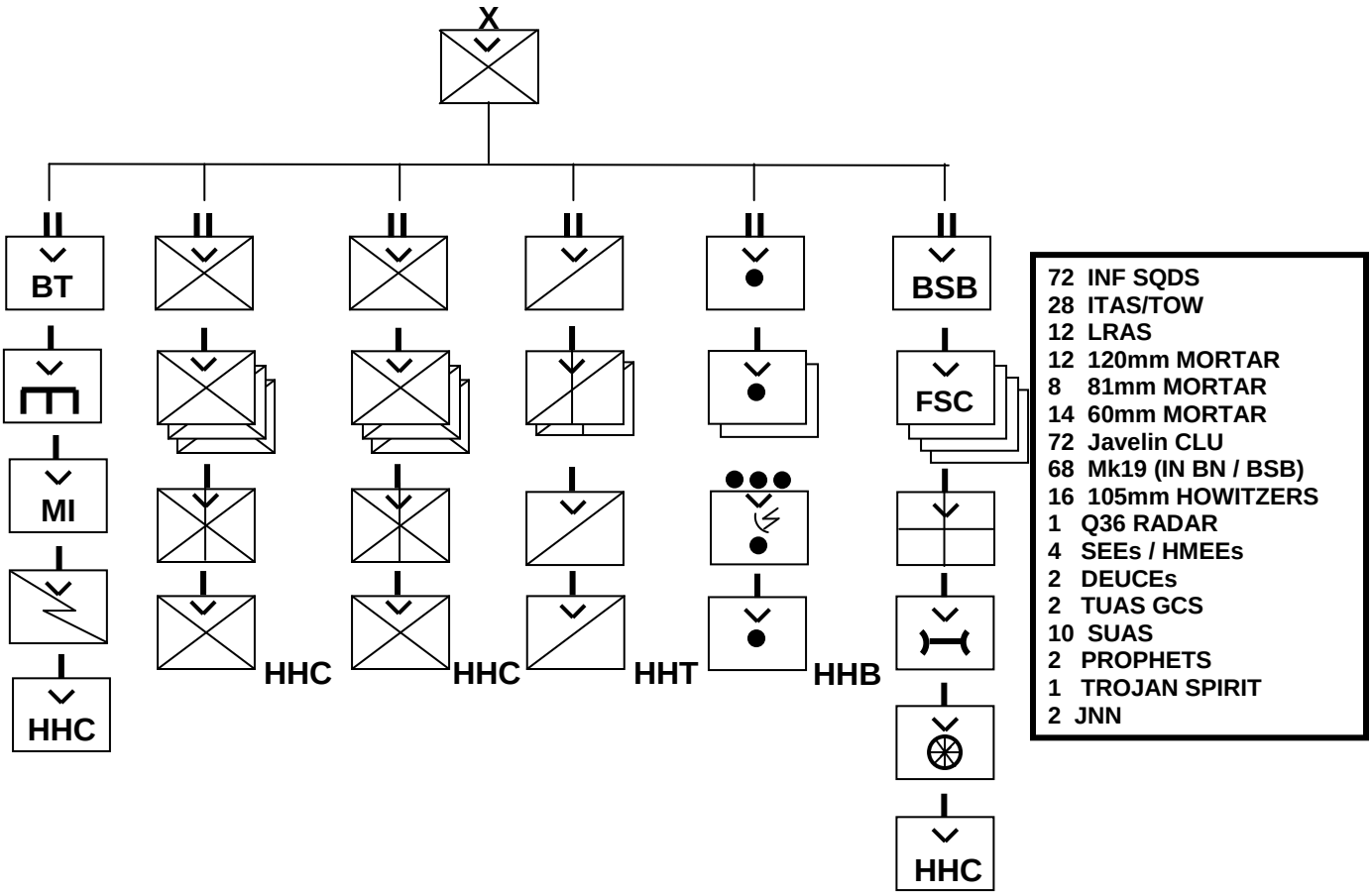


Figure 5: Infantry Brigade Combat Team

a. Task Organization. The BCT is designed as a combined arms unit, capable of independent operation.

b. Command Relationships. For most air assault operations, the BCT is the supported command, while one or more aviation brigades is the supporting command.

2. **Combat Aviation Brigade**. The Division is habitually aligned with two identical combat aviation brigades (CABs). Each consists of an air cavalry squadron (OH-58D Kiowa Warrior), an attack aviation battalion (AH-64D Apache Longbow), an assault aviation battalion (UH-60L/M Blackhawk), a general support Aviation battalion (UH-60A/L/M Blackhawk, UH-60A Blackhawk-MEDEVAC, and CH-47D/F Chinook), and an aviation support battalion.

a. Task Organization: The CAB organizes for combat based on METT-TC factors. Additional aviation companies, platoons, or sections may be task organized and include attack, assault, medium assault, MEDEVAC, air traffic services, or unmanned aerial systems (UASs). In BCT-sized air assaults, reinforcement with additional aviation is a common way to mass combat power and accelerate force build-up. Other combined arms forces, to include infantry, field artillery, engineers, or logistics elements may be part of the CABs task organization for specific missions.

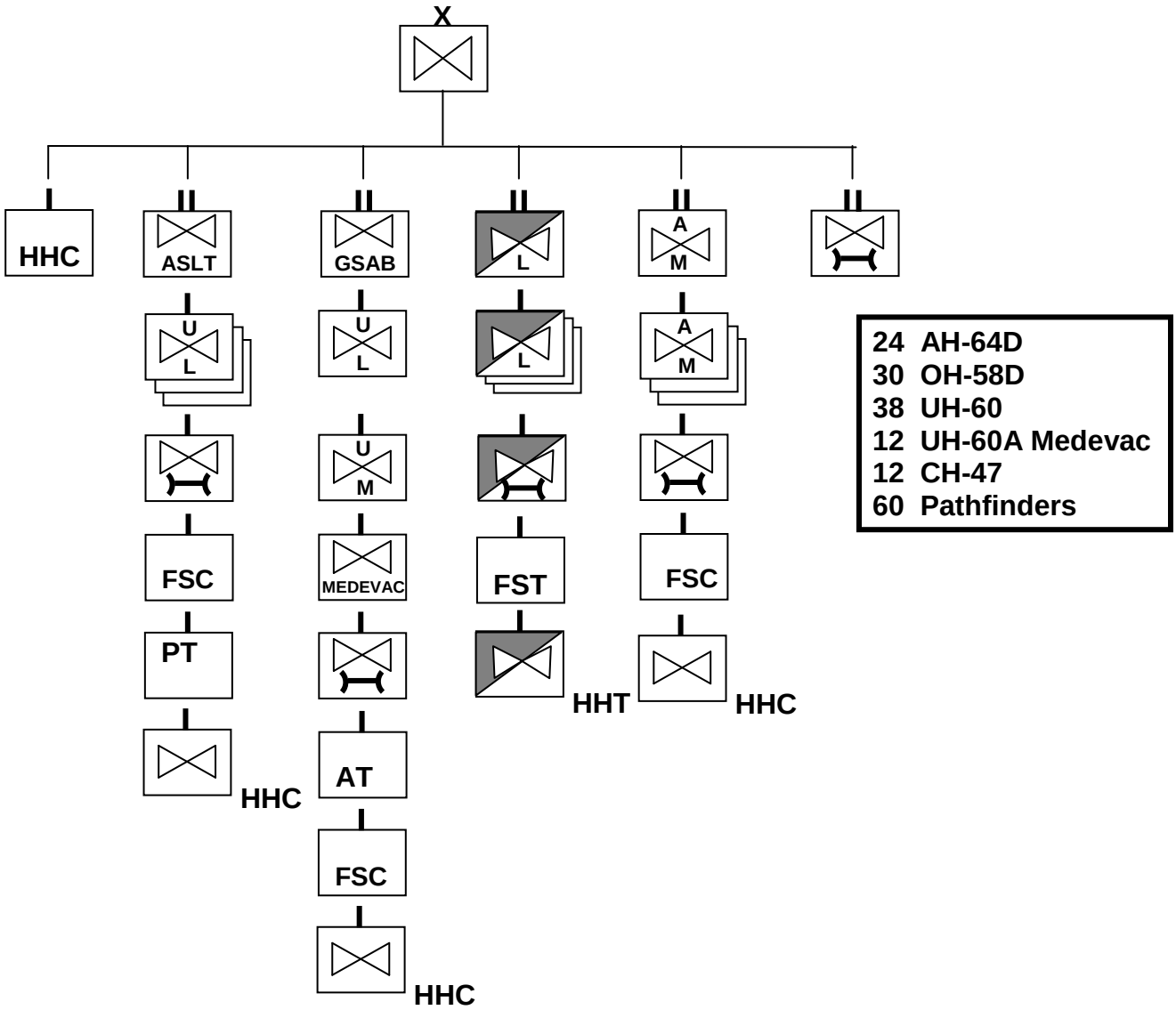


Figure 6: Combat Aviation Brigade

b. Command Relationships: During large-scale Air Assault operations, the Division Commander will normally assign a CAB a supporting relationship to the supported BCT. The supporting relationship of the CAB to the BCT requires the aviation brigade's battle staff and its subordinate units' staffs to assist in planning, rehearsing and executing all phases of the air assault. With a permanently assigned Brigade

Aviation Element, each BCT collaboratively plans with the CAB for missions. The CAB provides both the support required by the Air Assault Task Force Commander and the support required by the Division for mobile strikes and sustainment operations.

Chapter 1

Air Assault Operations

SECTION A: THE REVERSE PLANNING SEQUENCE

Reference: FM 90-4 (currently under revision to ATTPM 3-97.4)

1. Successful air assault execution bases on a careful analysis of METT-TC and detailed, precise reverse planning. Five basic plans that comprise the reverse planning sequence are developed for each air assault operation. They are:

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

These plans are not developed independently. The concurrent coordination, development and refinement by both the air assault task force (AATF) staff and aviation unit staff allows the best use of available time. The ground tactical plan, normally developed first, serves as the basis from which the other plans derive.

2. Planning for air assault operations requires time to plan, rehearse, and brief. Efficient use of time available requires the AATF and Aviation unit to use common troop leading procedures and SOP's. The standardization of operations between units conducting the air assault significantly enhances the ability of the unit to accomplish the mission.

3. Planning for air assault operations should contain as much detail as time permits to include completion of written orders and plans. Within time constraints, the air assault task force commander (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-thirds/two-thirds rule" to ensure subordinates have enough time to plan and rehearse themselves.

4. Scaling of air assault operations should begin with the tactical task assigned to the AATFC and consider whether assets available, to include aviation assets, can support the AATFC with respect to METT-TC. In some cases, a battalion-size AATF may require a company (+) of aviation support or a company-size AATF may require multiple aviation battalions from the combat aviation brigade (CAB).

SECTION B. ROLES AND RESPONSIBILITIES

1. Parent Headquarters Staff. The headquarters above the element forming the AATF sets the conditions for the formation of an AATF. The staff of that headquarters is responsible for producing the task organization of the AATF and conducting the necessary mission analysis of the Military Decision Making Process (MDMP). Additionally, the combat aviation brigade (CAB) will place an Aviation unit appropriate to the scale of the air assault operation in a supporting relationship to the AATF. On occasion, the CAB may be the supporting aviation unit or it may serve as the AATF headquarters for specific missions to include, but not limited to Forward Operating Base (FOB) seizure and Forward Arming Refueling Point (FARP) occupation. For air assault operations when the AATF is larger than company-size, the Commanding General is the approving authority for the formation of the AATF.

2. Air Assault Task Force. The AATF is the foundation of the Air Assault. The primary role of the AATFC and his staff is to develop the ground tactical plan (GTP). By using the Brigade Aviation Element (BAE) and a supporting aviation brigade or battalion staff, the AATFC and his staff have more time to focus on the GTP and follow on missions while the aviation staff focuses on the first four phases of Air Assault planning. It is essential that the AATFC provide his key tasks and intent. The supporting aviation units need to know how the Commander wants to weight his attack/cavalry coverage and his level of acceptable risk. The AATFC has overall responsibility for developing and obtaining approval for the air assault mission risk assessment.

3. Aviation Units. An aviation unit assumes a supporting relationship to the AATFC for air assault operations. Concurrent planning is conducted to support the air assault based on the size and composition, of the organic assets of the CAB through the use of the BAE and respective Liaison Officers (LNOs) from the aviation unit. As opposed to having a specific Aviation unit task organized to a brigade combat team (BCT), the Aviation Brigade will anticipate the needs of the AATFC and provide the necessary aviation assets to support the mission of the Air Assault. As the supporting Commander, the aviation unit 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. The aviation commander will support the AATFC during planning to ensure aviation hazards and control measures are captured for the overall mission risk assessment.

SECTION C. AIR ASSAULT PLANNING

1. The AASLT planning process mirrors the steps in the military decision making process (MDMP) and incorporates parallel actions necessary to provide the additional time and detailed planning required for successful air mission execution.

Time	MDMP Steps	Air Assault Planning Steps
	Receipt of Mission	
	Mission Analysis	
	COA Development	
	COA Analysis	
	COA Comparison	
	COA Approval	Air Mission Coordination Meeting (AMCM)
	Orders Production	
	OPORD Brief	
		Air Mission Brief (AMB)
	Combined Arms Rehearsal (CAR)	
		Aircrew Brief
		AVN TF Rehearsal
H Hour		

Figure 1- 1: MDMP& Air Assault Planning Process

2. Parallel planning.

a. Air Assault planning begins immediately upon receipt of a mission involving an air assault. All personnel involved with air assault planning conduct continuous coordination under the AATF S3 during COA development in order to ensure air assault considerations factor into COA development. Concurrent planning includes identification of air assault hazards and the development of controls to mitigate risk. The BAE is therefore, a critical part to the AATF staff planning process during mission analysis and COA development. The BAE must anticipate requirements of the CAB and disseminate these requirements as soon as possible. The following information is published with the warning order to provide units the information they need to plan:

(1) Ground Commander's scheme of maneuver.

(2) Estimate of the size of force that will be air assaulted.

(3) Identify likely PZs and LZs; narrow the focus to those that support the evolving ground commander's scheme of maneuver.

(4) AATFC's intent on the number of lifts and general timeline.

(5) Initial estimate on coverage requirements for Attack and Cavalry to be on station.

b. CAB and AATF staffs must receive and share:

(1) LZ confirmations by imagery, Apache/Kiowa Warrior tapes, unmanned aircraft system (UAS) videos, LZ sketches, Cavalry recon products, patrols, and higher headquarters intelligence.
Note: The Space Support Element can assist in acquiring space-based imagery.

(2) Composition of assault, follow-on, and rear echelons by unit.

(3) Nomenclature of every vehicle/sling load to intended for lift; verify weights and air item availability for heavy and light loads.

(4) Confirmed troop counts by serial for assault and follow-on echelons.

c. Air movement annex to OPORD/OPLAN.

(1) Tentative lift and serial composition (Draft AMT).

(2) Suitable PZs and LZs.

(3) Tentative air routes.

(4) LZ imagery (if available).

(5) Any deviations from standard planning factors.

3. Meetings and briefings.

a. The Air Mission Coordination Meeting (AMCM) is a meeting between ground and aviation units.

(1) This is an S3 level meeting that follows the development of the ground tactical plan. The Brigade Aviation Element runs the AMCM while the AATF S3 chairs the event. The BCT S3 is the final arbitrator. Scheduling of the AMCM should allow sufficient time for maneuver units to have decided on a specific ground course of action (COA), based on the warning order and standard planning factors. The AATFC should have already approved the maneuver COA. At the AMCM, battalion S3's brief the concept of their ground tactical plans (GTP). Specifically, battalion S3's show the composition of combat power, by echelon, required for delivery to each landing zone (LZ). It is imperative that the subordinate S3s attend this meeting with an 80-90% solution on their requirements.

(2) The meeting is not complete until the Assault LNOs know what loads go to what LZ and in what sequence. Attack LNOs must know air routes to be used and all must understand the LZs and agree on a tentative Air Movement Table (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. The AMCM is the true “good idea cut-off point.” The BCT S3, XO, Commander, or Deputy Commander must approve changes after the AMCM. It is critical that the supported Infantry unit and the assault planners come to the AMCM with the information they must provide to have an effective meeting. The format of the AMCM is in section E of this chapter.

(3) The result of the AMCM is a finalized air movement plan, landing plan, air routes, pick-up zones, and LZs.

NOTE: “Seats out” is considered High Risk. The CG is the approval authority for High Risk Operations.

b. Air Mission Brief (AMB).

(1) The AMB is a coordinated staff effort. It is where the AATFC approves the air assault plan. The AMB is a focused adjunct to the BCT OPORD. It highlights air assault requirements to the AATF, aviation, and ground units. The term “AMB” refers to both the written product and the briefing itself. The AMB should not be a working meeting. An operations order should be published prior to this point. Therefore, the AMB is essentially a backbrief to the BCT Commander and, equally important, to the key subordinate Aviation and ground leaders who will execute the mission. The AMB should focus on Assault and Attack concepts along with the sequence of events, and why the staff developed the sequences for the mission. The slightest change in serial separation, landing zones, or other elements of the mission can significantly affect the rest of the plan. The CAB staff will play a pivotal role in the AMB process. The format of the AMB is in section F of this chapter.

(2) The BCT Commander must approve any changes to the air assault mission once the AMB is complete. It is very difficult to re-synchronize the different combat systems in the short time that remains between the AMB and mission execution.

c. Aircrew Brief (AB).

(1) Aviation unit/serial commanders brief all flight crews that will execute the air assault mission. This Aircrew Briefing (AB) covers all essential flight crew actions and aviation planning necessary to accomplish the mission successfully. Flight crews must fully understand the mission for successful execution of the air assault.

(2) The AB takes place at the Aviation task force level with the aircrews (minimum of Pilots in Command) from each unit in attendance.

(3) The AB can also be conducted at the company level (with assistance from the Aviation Task Force staff) when field conditions do not allow the brief to be conducted at the Task Force level.

d. Air Assault Back Brief.

(1) While the Air Mission Brief serves as a good back brief format within the AATF it does not translate easily as a back brief format for Platoon Level and Company (-) AASLT operations as it relates to allocation of resources from the BN or BCT. A condensed format capable of being tailored to specific mission sets by the unit offers concise details for a back brief for approval.

(2) The format of the Air Assault Back Brief is in Section G of this chapter.

e. Combined Arms Rehearsal (CAR).

(1) The CAR is the culmination of the formal air assault planning process. It is a rehearsal of the entire air assault mission, beginning with the setting of conditions for success and ending with the Commander's expressed end state.

(2) The rehearsal includes AVN flight lead / S3, the battle staff and other key leaders. The focus is on synchronizing how all assets are to support and execute the air assault. Included in the rehearsal is a discussion and demonstration of likely ground and air contingencies such as downed aircraft, alternate route or LZ activation, delays in the PZ, alternate SEAD plan and others suited to a particular mission.

(3) It is critical that air assault security forces from attack or cavalry units are represented at the rehearsal in order to demonstrate air route de-confliction, fire control measures, and locations of expected attack by fire positions or battle positions. Additionally, the AATF S3 and FSO or their designated representatives attend the rehearsal in order to brief the ground tactical plan and fire support plan. An example CAR format is in section I of this chapter.

f. Aviation Task Force (ATF) Rehearsal.

(1) The ATF Rehearsal is similar to a CAR discussed in the preceding paragraph. The focus is on the aviation scheme of maneuver and the contingencies associated with the movement of aircraft and their applicability to the mission. It begins with the setting of conditions for success and ends with the Commander's expressed endstate.

(2) The rehearsal includes at a minimum the Pilot In Command (PIC) of each aircraft, the AMC of each serial, the Aviation Task Force S3 and the Aviation Task Force Commander. The Commander may set additional requirements. It is essential that every airframe is present for the rehearsal.

(3) Topics for discussion should include, but are not limited to, route de-confliction, bump plan execution, execution matrix, and downed aircraft procedures.

Note: Based on the mission timeline, Attack and Cavalry units may be incapable of full representation at the rehearsal. Often, Attack and Cavalry assets have initiated the

condition-setting phase of the operation.

SECTION D. PLANNING TIMELINES:

1. There are three timelines used in air assault mission planning. Deliberate, Time Constrained, and Hasty air assault planning. All steps to the air assault mission planning process apply to all three timelines.

a. Deliberate Planning. Due to their complexity, air assault operations are deliberate. Ideally, the AATF will receive 96 hours or more after the issuance of their order to complete planning for a brigade combat team sized air assault. This is especially important for forced entry operations. When time is available, units should use the timeline outlined below to develop the best plan possible.

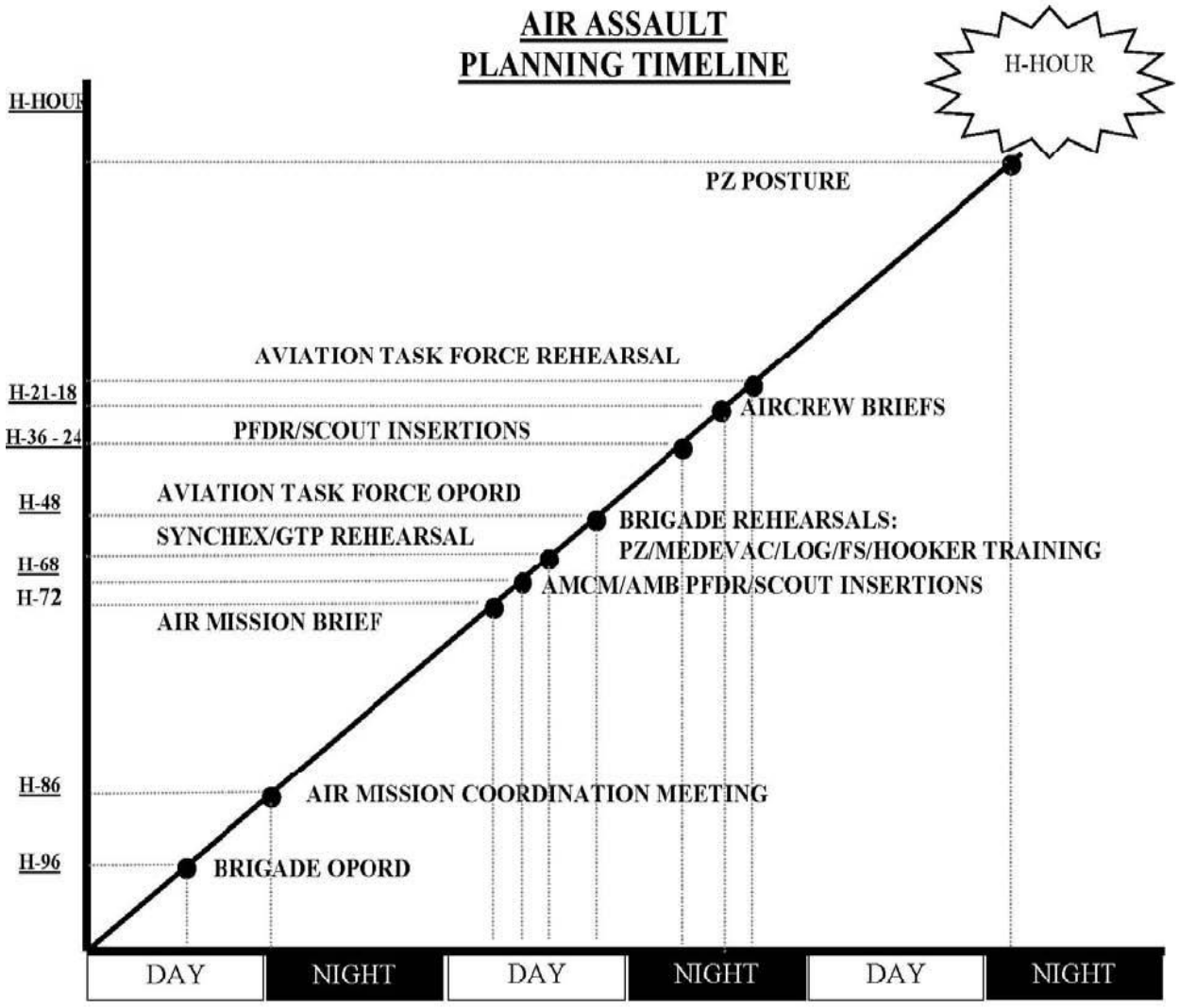


Figure 1- 2: Air Assault Planning Timeline

b. Time Constrained Planning. Recent combat experience has shown that due to the fluid nature of operations, units have been required to execute air assaults with less than 96 hours from the time of the operations order. Successful execution of an air assault under time constrained planning requires both parallel planning by all levels of command and habitually aligned units. Mission coordination and planning may be completed by phone, e-mail, and/or collaboration systems with the exception of the combined OPORD/AMB (see figure 1-3) the timeline below provides a method to reduce the planning process.

Time	MDMP Steps	Air Assault Planning Steps
	Receipt of Mission	
	Mission Analysis	
	COA Development	
	COA Analysis	
	COA Comparison	
	COA Approval	AMCM
	Orders Production	
	OPORD Brief	AMB ICW with OPORD Brief
		Aircrew Brief
	CAR	AVN TF Rehearsal
H Hour		

Figure 1- 3: Combined OPORD/AMB

(1) Parallel planning for the air assault begins as soon as the mission is received with the supporting Aviation Brigade providing LNOs or coordinates through the BAE to the AATF if they are not already present. Through continual coordination with the supporting Aviation Brigade, the BAE advises the AATF S3 on any limitations of aircraft or crew availability that will effect COA development. Once the AATFC has either provided a directed COA or approved a COA, the BAE immediately begins the AMCM.

(2) In order to save time by reducing the number of meetings, specific portions of the AMB are included in the AATF OPORD Brief in lieu of doing a separate AMB. The specific portions of the AMB required to be included in the OPORD brief are:

- staging plan
- air movement plan
- landing plan
- attack / cavalry coverage
- cherry / ice criteria
- weather decision
- risk assessment

(3) Inclusion of this information in the OPORD Brief reduces the requirement to get the command and staff together for a separate AMB while still providing all the necessary information. Back briefs, Aircrew Briefs and rehearsals are

executed as described earlier.

(4) Based on the time available, the AATF XO adjusts the timeline as required. It is critical for the XO to take into consideration the ability of the supporting Aviation unit to accomplish its tasks with its fighter management cycle.

c. Hasty Air Assault Planning. Hasty air assaults typically are in response to time-sensitive intelligence or rapidly changing battlefield conditions and are planned and executed within one crew cycle. The planning steps are the same however, executed on a condensed timeline set by the AATFC. Primary method of coordination is via electronic means (VOIP, SIPRNET, MIRC, etc.). However, it is essential that a face-to-face meeting addressing the contents of an AMB take place prior to mission execution. This meeting may occur on the PZ with aircraft shutdown. At a minimum one member from each aircraft, flight lead, AMC, chalk leaders, S2, and the Ground Tactical Commander must be present.

SECTION E. AIR MISSION COORDINATION MEETING (AMCM)

ROLL CALL	BAE
INTEL UPDATE (AVN FOCUSED)	TF S2
WEATHER	SWO
GROUND TACTICAL PLAN AND FIRE SUPPORT	TF S3 & FSO
LANDING PLAN (by LZ)	TF S3
AIR MOVEMENT PLAN (routes)	ASLT LNO
ATTACK AVN CONCEPT	ATK LNO
FIRES (PZ, SEAD, LZ)	FSO
C2 PLAN	TF S6
MEDEVAC / CASEVAC PLAN	CHSO
FARP PLAN	ASLT LNO
LOAD PLAN	BAE
REVIEW DECISIONS	TF S3
S3 CLOSING COMMENTS	TF S3

Figure 1- 4: AMCM Agenda

- **The AMCM Checklist serves as the Hasty AMC checklist.**
- **The chart above is only the agenda of a working meeting (AMCM), not the agenda of a brief.**
- **If executing scout or pathfinder insertions, also cover the following: emergency extraction plan/trigger, alternate communications plan and rehearsals, commo check, and final coordination.**
- **For an artillery raid, include the following: Laager time/location, and trigger**

for extraction.

AMCM CHECKLIST

Time Received and BAE Initials_____

1) Roll Call – Ground Element / Aviation Element
2) Supported Unit / Supporting Unit
3) Weather
4) Mission / Key Tasks / Endstate
5) Concept (with Macro Concept Sketch)
6) # / Type of Aircraft
7) H-Hour
8) PZ Operations
    a) Location / grid / marking
    b) Call sign / Frequency
    c) Pickup Time
    d) Landing Heading / Formation
    e) Door / Ramp entry
    f) Number of Troops / Type of Cargo loads (Speedballs, Mortar systems, etc.)
    g) Takeoff Direction / Formation
9) False Infil LZ grid / Concept (LZ card with updated digital photo or imagery)
10) Route / Time of Flight
11) LZ Operations
    a) Tadpole
    b) LZ Sketches (LZ card with updated digital photo or imagery)
    c) LZ Marking / Security / Call sign / Frequency
    d) Landing Heading / Formation
    e) Weapons Status
    f) Door exit
    g) Number of turns required
    h) Takeoff Direction / Formation
12) Laager Plan (Location / Recon level)
13) Attack / Scout Aviation Plan
    a) Coverage Times
    b) Task and Purpose
    c) Grid Reference Graphic
    d) Ammo Load (i.e. illum during low illumination for lift aircraft)
14) Airspace Control (Rotary Wing, CAS, ISR)
15) Refuel Plan / Location
16) Detainee Transport Plan
17) Cherry / Ice Criteria (Platform making call / Frequency)
18) Abort Criteria (Weather, Minimum Aircraft, Minimum Force, other)
19) Weather Call
20) Fires Plan (Pre-assault fires / LZ prep fires)
21) Deception Plan
22) Resupply
23) Bump Plan
24) MEDEVAC Aircraft location
25) QRF (Air or Ground)

26) Communication
    a) CAN
    b) Internal Frequencies
    c) Fires
    d) SATCOM
    e) GTC/RTO Call signs
    f) Aircraft Call signs
27) Command (GTC, AATFC, ATFC, AMC)
28) ISR Requested / Approved
29) CAS Requested / Approved
30) Proposed Timeline (Approval brief, CONOPS to Div, AB, CAR)

Air Mission Commander's Initials _____ Infantry Battalion S3 Initials_____

SECTION F. AIR MISSION BRIEF (AMB)

Task Organization and Roll Call	AATF S3
Time Hack	AATF S6
Enemy Forces	AATF S2
Friendly Forces	AATF S3
Task Force Mission	AATF S3
BCT/BN CDR's Intent	AATFC
Infantry Scheme of Maneuver	AATF S3
Concept of Fires (SEAD and Ground Tactical)	AATF FSO
Aviation Mission	ASLT AVN S3
Staging Plan	AATF AS3
Loading Plan	AATF AS3
Air Movement Plan	ASLT S3 / MSN Lead
Landing Plan	ALST S3 / MSN Lead
Laager Plan	ASLT S3 / MSN Lead
Attack Aviation Mission / Concept	ATK S3 / CDR
Tasks to Subordinate Units	AATF S3
Coordinating Instructions	AATF S3
Service Support (FARP Plan)	ASLT AVN S4
Command	AATF S3
Signal	AATF S6
Operational Risk Assessment	AATF S3
AATFC Comments	AATFC

Figure 1- 5: AMB Agenda

AMB CHECKLIST

ROLL CALL_____ TIME ZONE_____ TIME HACK_____ PACKET CHECK____

REFERENCES:

TASK ORGANIZATION (BCT / TF S3)

1. SITUATION

a. Enemy Forces. (BCT / TF S2)
   (1) Air IPB.
   (2) Enemy air capability.
   (3) Enemy ADA capability.
      (a) Type/location.
      (b) Night capability/range.
   (4) WEATHER/NOTAMS.

      Sunrise:_____ Sunset:_____ Moonrise:_____
      Moonset:_____ Max % Illum:_____ Illum Range:(during AASLT, i.e. 0% -45%) NVG Window:_____
      Ceiling/Vis:_____ MAX Temp:_____ MAX DA/PA:_____
      EENT:_____ BMNT:_____

b. Friendly Forces (BCT / TF S3)
   (1) Mission and Intent of BCT / TF Higher HQ's
   (2) BCT / TF Concept
      (a) BCT / TF Mission
      (b) AATFC Intent
      (c) BCT/TF Scheme of Maneuver
      (d) Conditions required for AASLT
      (e) Mission Risk assessment

2. AVN TF MISSION. (AVN TF S3)

3. EXECUTION

AVN TF CDR Intent (AMC)

a. Concept of the aviation Operation (AVN TF S3)

b. Aviation Task Force Tasks to Subordinate Units (AVN TF S3)

(1) ASLT BN / CO's
    (a) Pathfinder CO
(2) General Support BN
    (a) Command AVN CO
    (b) Med lift CO
    (c) Medevac CO

(3) ATK BN / CO

(4) CAV SQDN / TRP

c. Fires (BCT/AVN TF FSO)

(1) Field Artillery
    (a) Purpose of Supporting Fires
    (b) Firing units / locations
    (c) Priority of Fires
    (d) SEAD information / targets
    (e) LZ Prep

(2) Close Air Support (ALO)
    (a) Purpose
    (b) #, type, and time of sorties available
    (c) Call signs and Freqs

(3) Attack Aviation (ATK BN or CAV SQDN S3)
    (a) Mission
    (b) Concept of Operations (routes, FARP rotations, etc…)

(4) Unmanned Aerial Systems (UAS) (BAE)
    (a) Purpose
    (b) type, and coverage time
    (c) controller, frequency, and call sign

d. Staging Plan ANNEX A (PZ Diagram) (AATF AS3)

LIGHT HEAVY

(1) Name / Number

(2) Location (grid)

(3) Load Time

(4) Take Off Time

(5) Markings

(6) Control

(7) Call Signs / Freqs

(8) Landing Formation

(9) Heading

(10) Hazards / Go Around

(11) Emergency touchdown point(s)

(12) Supported Unit Bump Plan

(13) PZ Arrival Time

(14) Update Brief / Face to Face (time and location)

e. Air Movement Plan (ASLT S3 / Flight Lead)

(1) Routes / Corridors. ANNEX B (ROUTE CARD)
- (a) Ingress Primary / alternate
- (b) Egress Primary / alternate
- (c) Other

(2) Enroute Hazards

(3) Abort Criteria
- (a) Weather
- (b) Aircraft available
- (c) Time
- (d) Mission Essential combat power
- (e) Mission criticality
- (f) Enemy

(4) Enroute formation / rotor separation / angle / airspeeds

(5) Deception measures / false insertions

(6) Air Movement Table. ANNEX D

(7) Cargo Doors

(8) External Lighting (SOP)

(9) ROZ Locations

(10) Aircraft Decontamination Plan

f. Landing Plan ANNEX C (LZ Diagram) (ASLT S3 / Flight Lead)

PRI ALT PRI ALT

(1) Name / number

(2) Location (grid)

(3) Landing Times per AMT

(4) Markings

(5) Control

(6) Call sign / Freq

(7) LDG formation / direction

(8) LZ abort criteria. Based on GTC guidance

(9) Go arounds. Flight/single ship – per crew brief

(10) Departure. As per crew brief

g. Laager Plan (ASLT S3 / Flight Lead)

(1) Name / Location
(2) Time/REDCON status

(3) Security Plan

(4) Scatter Plan

(5) Call Forward Plan

h. Extraction Plan (ASLT S3 / Flight Lead)

i. Coordination Instructions (Aviation) (ASLT S3)

(1) MOPP level / NBC Warning status

(2) Aircraft Door Gunner control status

(3) ADA status

(4) IFF procedures
(5) Common Missile Warning System (CMWS) / ALQ 144 employment

(6) NVG specific procedures

(7) VHIRP / IIMC. Per crew brief

(8) Mission Contingencies

(a) DAPP / SAR / PR
(b) Downed aircraft / SERE / DART
(c) BDAR
(d) BUMP Plan
(e) Detainee Transport Plan
(f) Refuel Plan

(9) Spare aircraft procedures

(10) Special aircraft equipment / preparation

(11) PPC

(12) Mission Brief Sheet

(13) Risk assessment Form. Completed / Signed

(14) Safety considerations / hazards

(15) OPSEC considerations (SOI, kneeboard sheets, maps)

(16) Weather decision plan / times

(17) Debrief location / time

j. Coordinating Instructions (AATF) (AATF S3)

4. SERVICE SUPPORT

a. Class I

b. Class III/V
(1) Minimum Fuel – per crew brief
(2) Basic Load

(3) FARP / RRP

c. Class VIII [Combat Health Support Officer(CHSO)]
(1) Casualty collection Point
(2) Evacuation plan / hospital location

d. MEDEVAC / CASEVAC Plan (CHSO)

5. COMMAND AND SIGNAL (AVN TF S3)

a. Command
(1) A2C2
(2) AATFC / location
(3) AVN TF AMC / location
(4) ABC / location
(5) Aviation Succession of Command

b. Signal (AVN TF S6)
(1) Commo card day: _____ (ANNEX_____)
(2) EXECUTION MATRIX (ANNEX___)
(3) Code Words

MISSION BRIEF BACK

FINAL QUESTIONS

COMMANDERS COMMENTS

1. The Six Basic AMB Documents

a. Six basic documents form the backbone of the AMB. These are:

(1) The modified air movement table (AMT), which regulates the sequence of flight operations from PZ to LZ. The Modified AMT combines the tadpole diagram and air movement table and decreases the amount of products used by commanders and staff to track the staging through the landing phases of an air assault.

(2) The communications card, an all-in-one summary of call-signs and nets.

(3) The PZ diagram, which graphically shows the pickup zone. One is prepared for each PZ.

(4) LZ diagram, which depicts the landing zone. One is prepared for each primary and alternate LZ. Pilots must have these on their kneeboards.

(5) An operations sketch is provided by each infantry battalion S3 to describe the scheme of maneuver. Ideally, these sketches are one-half sheet of paper in size, which is about the size of an aviators' knee board. The infantry battalion S3 provides these concept sketches to the aviation S3 at the brigade task force rehearsal.

These sketches are carried by every pilot to provide situational awareness and counter the potential for fratricide during close combat operations. These sketches are also included as enclosures to the AMB.

(6) Route cards for every ingress and egress route on the AASLT.

b. The air assault execution checklist and the mission checklist for air assault operations, permits brief, informative radio transmissions on crowded nets. An example execution checklist is included as an eighth document, 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.

c. If the mission involves a FARP or laager area/site, sketches of each should be included as a document of the AMB and should be in the knee board packet.

d. The AATF staff should include fire support coordination measures and a GTP overlay in the AMB packet.

Modified Air Movement Table

1	2	3	4	5	6	7	8	8	8	8	9	10	11	12	13	14	15
AVN UNIT	LIFT	SERIAL	CHALK	INGRESS ROUTE TO PZ	LAND PZ TIME	PZ	CHALK 1	CHALK 2	CHALK 3	CHALK 4	T/O TIME	RP TIME	INGRESS ROUTE	LZ	LZ TIME	EGRESS ROUTE	BUMP PLAN
INSERTION																	
5-101	1	1	1-1, 1-2, 1-3, 1-4	N/A (ON CAAF)	02:40:00	ELM	1 / 1 / 1 B/2-502 11 PL / EN	1 / 1 / 2 B/2-502 11 PSG / IA	1 / 1 / 3 B/2-502 11 CO CDR	1 / 1 / 4 D/2-502 11 1SG	03:28:43	03:58:00	SATURN	DOVE	04:00:00	SATURN	1-3, 1-4,1-2,1-1
EXTRACTION																	
5-101	2	1	1-1, 1-2, 1-3, 1-4	PLUTO	07:00:00	MAPLE	2 / 1 / 1 B/2-502 11 PL / EN	2 / 1 / 2 B/2-502 11 PSG / IA	2 / 1 / 3 B/2-502 11 CO CDR	2 / 1 / 4 D/2-502 11 1SG	07:02:00	07:14:50	PLUTO	ELM	07:16:50	N/A (ON CAAF)	1-3, 1-4,1-2,1-1

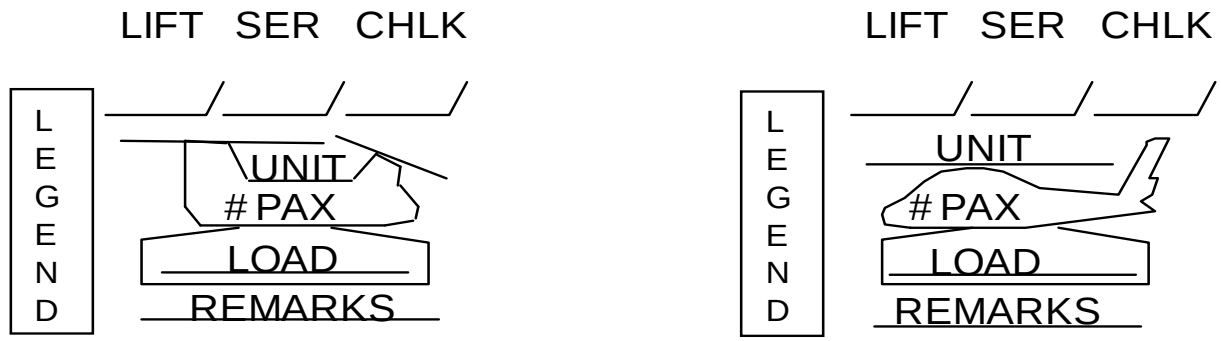


Figure 1- 6: Modified Air Movement Table

1. Aviation unit supporting the AASLT.
2. A lift is a group of serials which make one complete turn out to and back from the LZ(s).
3. Number sequentially. A serial is a group of the same type of A/C; the capacity of the smallest LZ determines the number of A/C in each serial.
4. Each A/C = one load. Number UH-60 and CH-47 loads separately.
5. Name of air route used for ingress.
6. Time A/C lands at PZ.
7. Name of PZ.
8. Chalk information. See item 16.
9. Time A/C takes off from PZ.
10. Time that A/C hit the RP, a BAE determined point about 3-5 km from the LZ.
11. Name of air route used for ingress.
12. Name of LZ. Note: Additional LZ and LZ Time columns can be added if aircraft will land at multiple LZs during aerial resupply missions.
13. Time A/C lands at LZ.
14. Name of air route used for egress.
15. Bump Plan insures essential personnel and equipment arrive on time to the Objective Area. It specifies personnel and equipment that may be bumped and delivered later in the air assault.
16. Legend for Chalk “Tadpole” information.

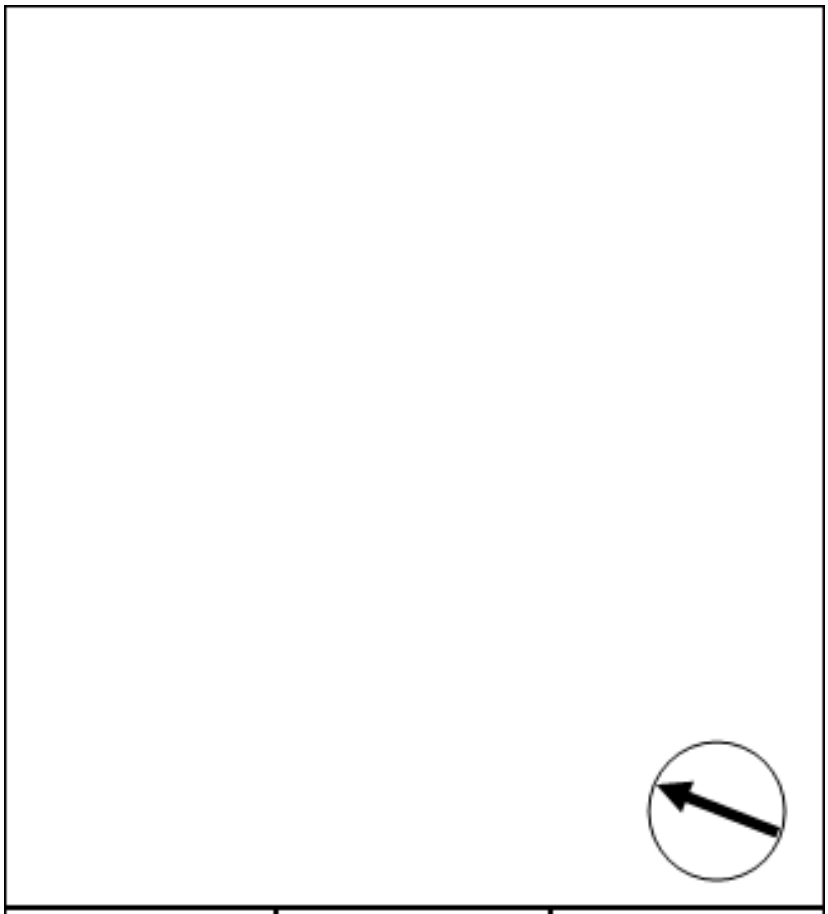
Communication Card

NET	CALL SIGN	NET ID	CUE FREQ	ELEMENT	EXPANDER	BFT URN	CELL PHONE GSM, IRIDIUM THURAYA
DIV FM1	EAGLE	300	85	CDR	O6	EAGLE 6 101	555-555-5555
DIV FM2		302	39.25	XO	O5	EAGLE 5 101	222-444-3333
BDE CMD	RAKKASAN	350	83.45	S1	O1	RAK 01 3-101	111-222-3333
BDE RTS		351	63.95	S2	O2	RAK 02 3-101	666-777-8888
BDE O/I		352	86.3	S3	O3	RAK 03 3-101	222-333-5555
BDE A/L		353	86.8	S3 AIR	O3 AIR	RAK 03AIR 3-101	999-888-7777
CAN 01		354	83.95	S4	O4	RAK 04 3-101	333-555-7777
PZ CNTRL		355	48.95	S5	O8	RAK 08 3-101	888-999-1111
PZ VHF TX		VHF TX	143.2875	CSM/1SG	O7	RAK 07 3-101	444-666-2222
PZ VHF RX		VHF RX	141.0375	CHEMO	11	RAK 11 3-101	555-888-9999
BDE HF PRI		HF	4.52	SIGO	O9	RAK 09 3-101	333-222-1111
BDE HF ALT		HF	26.5485	TOC	MAIN	RAK MAIN 3-101	777-444-2222
ABN 01	UNIFORM	UHF	232.3	TAC	TAC	RAK TAC 3-101	444-555-1111
1/187 IN	LEADER	500	36.95	ALOC	REAR	LEADER REAR 1-187	777-333-2222
3/187 IN	IRON	416	84.75	ENG	13	IRON 13 3-187	999-999-9999
1-33 CAV	WAR	532	60.45	ALO	40	WAR 40 1-33	666-666-5555
3-320 FA	REDKNIGHTS	548	63.2	FSO	17	REDKNIGHT 17 3-320	888-000-0000
3 STB	RAK SOLID	580	51.45	IMO	14	RAK SOLID 14 3 STB	999-111-8888
626 BSB	ASSURGAM	585	55.6	ADO	12	ASSURGAM 12 626	888-999-0000
SCT TACSAT	UPLINK	GHZ	302.75				
	DOWNLINK	GHZ	249.15				

Figure 1- 7: Communications Card

Note: This commo card can be completed in pen or pencil. Ensure that you leave blank spaces to add additional subordinate units and frequencies.

GENERIC LZ/PZ DIAGRAMS



NAME	GRID	ELEVATION
FORMATION	FREQ / CS	ENTRY / EXIT
DIRECTION	GO AROUND	ALTERNATE
MARKINGS	HAZARDS	WEAPONS STATUS
LOAD	FUEL	REMARKS

Figure 1- 8: Generic LZ/PZ Diagram

* ACTUAL PICTURE IMAGERY PREFERRED OVER A HAND WRITTEN SKETCH. ORIENT IMAGERY IN THE DIRECTION OF FLIGHT

Example UH-60 PZ Diagram

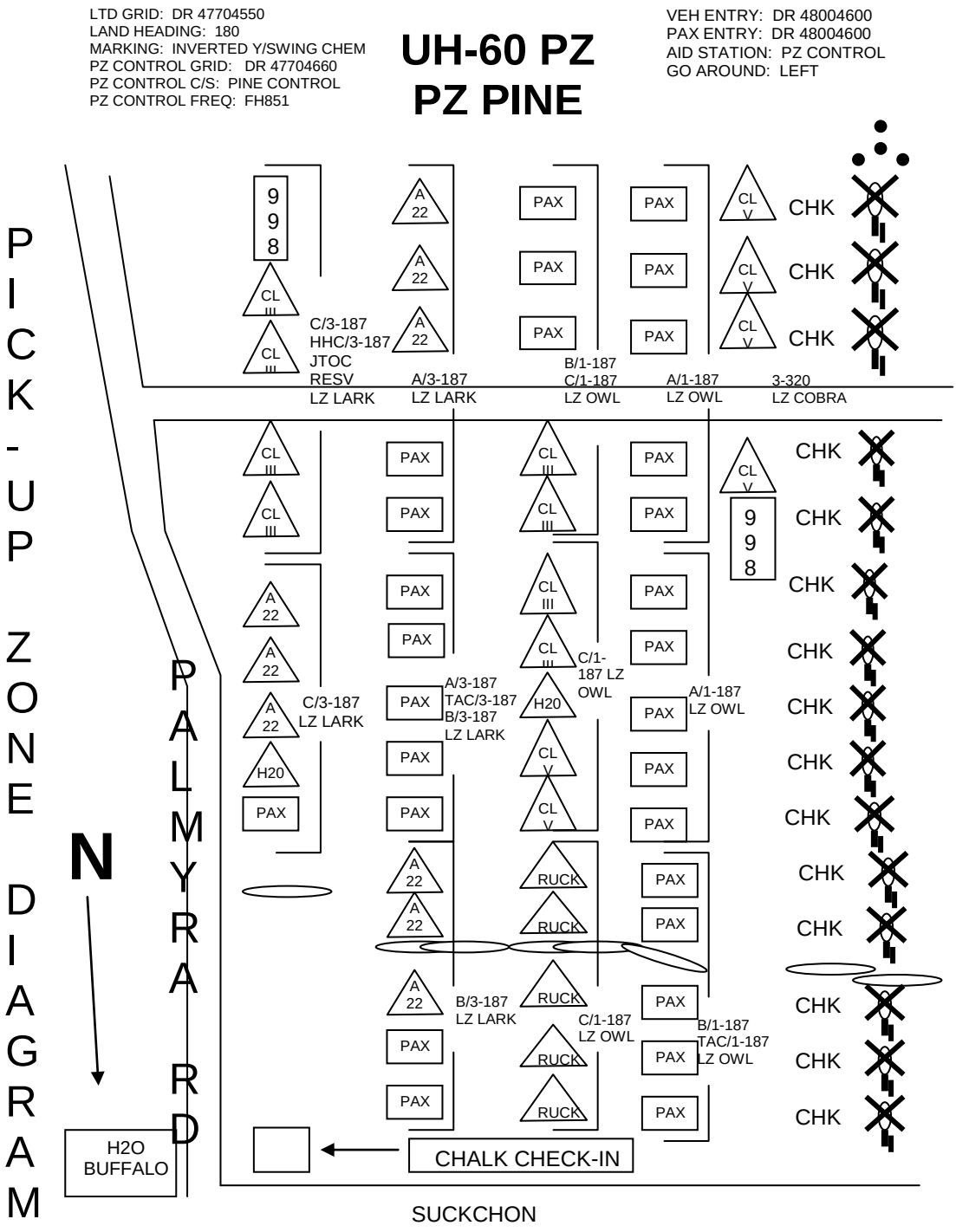


Figure 1- 9: Example UH-60 PZ Diagram

Landing Zone (LZ) Diagram

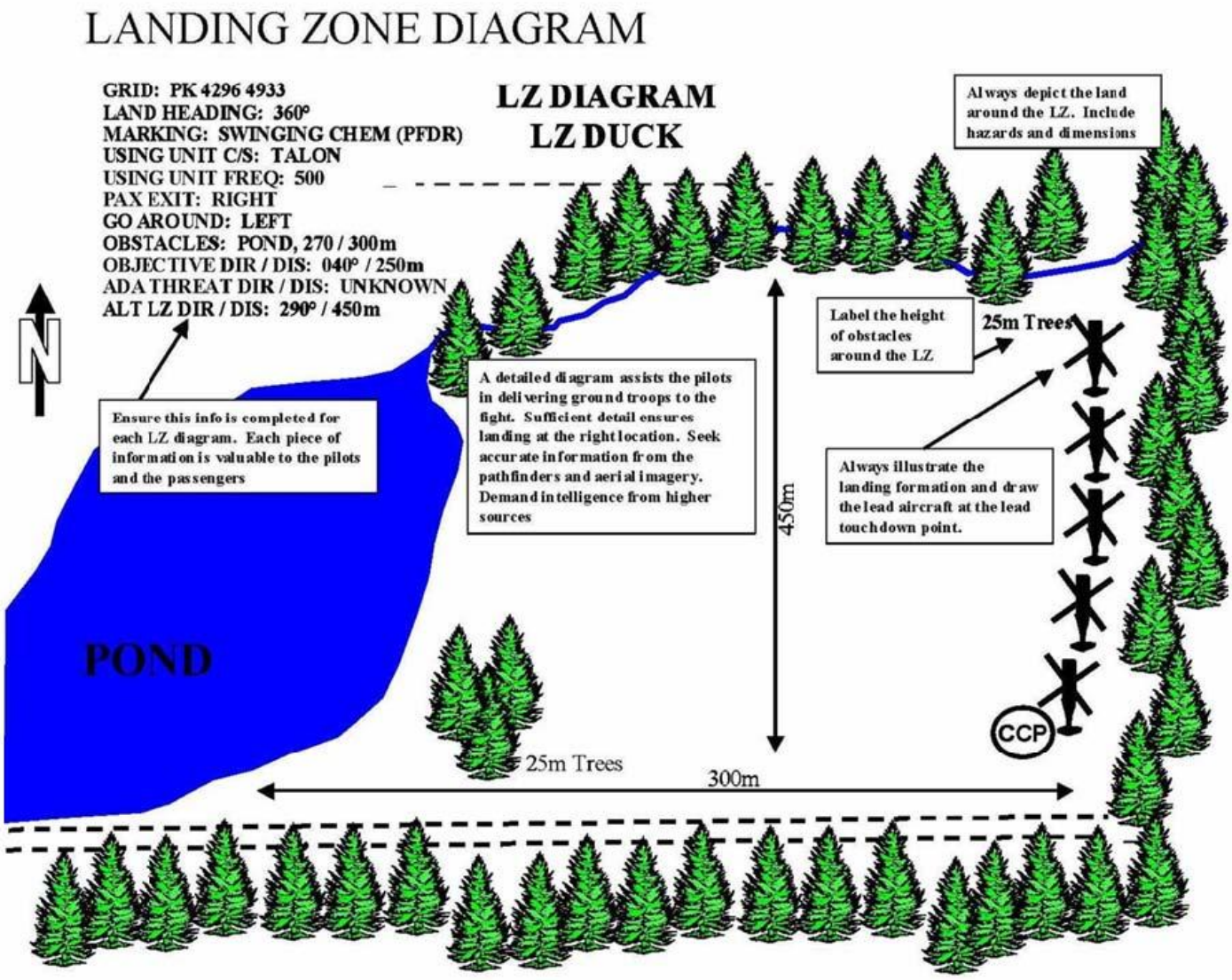


Figure 1- 10: Landing Zone (LZ) Diagram

Note: Actual imagery should be used in the LZ/PZ diagram if available.

Knee Board Sketch

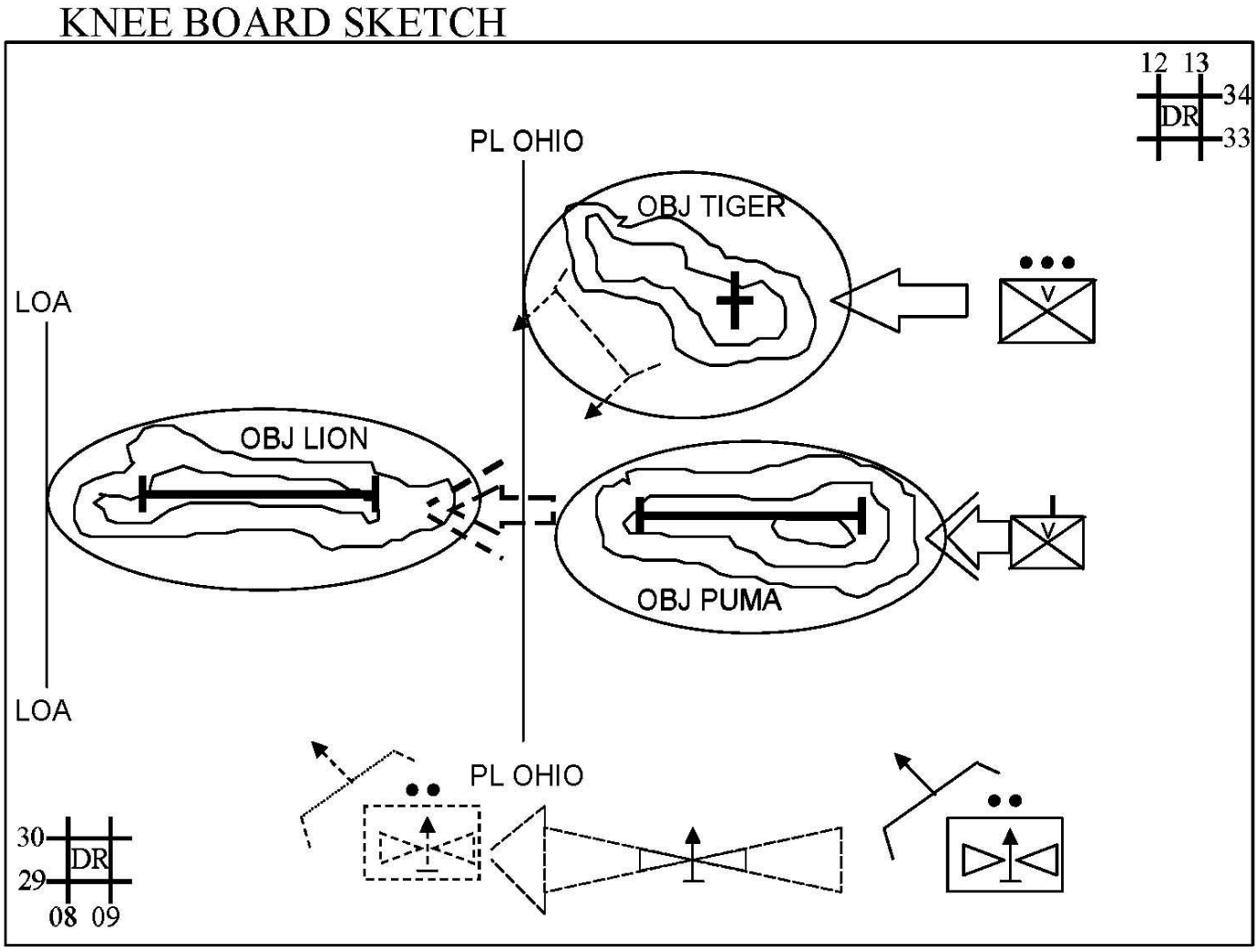


Figure 1- 11: Kneeboard Sketch

ROUTE CARD

TDH CARD 1b: INGRESS (HEAVY)
ROUTE MERCURY FB
MVAR 1.3

ACP	GRID	M AG HDG	ETA	DIST (km)	A/S (kts)	REM ARKS
PZ	D R 2915 6185					*VEGHEL*
OAK						
SP	D R 2855 6513	349	0+01.47	3.3	60	*TINTER.*
			0+01.47	3.3		
1	D R 2830 6790	354	0+01.08	2.8	80	*GHOST*
			0+02.55	6.1		
2	D R 3295 6965	068	0+02.01	5.0	80	
			0+04.56	11.1		
3	D R 3815 6834	103	0+02.11	5.4	80	*RIVER*
			0+07.07	16.5		*BEND*
RP	D R 3908 6165	171	0+02.45	6.8	80	*ROAD*
			0+09.52	23.3		*BEND*
LZ	D R 3890 5770	182	0+02.40	4.0	60	*FB40A*
GAMECOCK			0+12.32	27.3		

Figure 1- 12: Route Card

AIR ASSAULT EXECUTION CHECKLIST

LINE #	EVENT		M/X	NET	FROM	TO	CODE WORD
10	8+00.00 1305.00	INITIAL WEATHER CALL	M	BDE CMD	RAKKASAN TOC	ALL	
15	4+00.00 1705.00	INTEL UPDATE/ FINAL WEATHER CALL (INTEL TENT)					
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	3-101 ATK ON STATION	M	CAN1	ATTACK 6	RAKKASAN 6	ALBANY
35	3+00.00 1805.00	EH-60 ARRIVES PZ OAK	M	CAN1	QUICK FIX	WINGS 6	ALLENTOWN
40	2+55.00 1810.00	MEDEVAC ARRIVES AT PZ	M	CAN1	DUST-OFF 44	WINGS 6	ARLINGTON
45	2+53.00 1810.00	CDR's COMMUNICATIONS CHECK	M	BDE CMD CAN1 ABN, OF 1	RAKKASAN 6	GUIDONS	SEE COMMO CARD
50	2+50.00 1815.00	PZ POSTURE					
53	2+44.00 1821.00	TUAS ON STATION VIC FB COBRA	M	ABN/CAN1	RAKKASAN TOC	WINGS 06 / RAKKASAN 6	ASHVILLE
54	2+41.00 1823.23	CAS ARRIVES ON STATION VIC FB COBRA	M	ABN/CAN1	RAKKASAN TOC	WINGS 06 / RAKKASAN 6	ATLANTA
55	2+38.08 1826.08	LIFT 1, SERIAL 1 AT SP FOR LZ COBRA(3-320 FA ADVON) (5 X UH60)	M	ABN/CAN1	KINGSMAN 13 / WINGS 6	WINGS 06 / RAKKASAN 6	AUGUSTA
60	2+25.00 1840.00	3-101 ATK CONDITIONS CALL ON LZ COBRA	M	CAN1	ATTACK 6	RAKKASAN 6	CHERRY/ICE COBRA
65	EVENT	MEDEVAC ROZ ESTABLISHED (1 X UH60V)	M	ABN/CAN1	DUST-OFF 44 / WINGS 6	WINGS 06 / RAKKASAN 6	BALTIMORE
70	2+18.39 1846.21	LIFT 1, SERIAL 1 AT RP FOR LZ COBRA (3-320 FA ADVON) (5 X UH60)	M	ABN/CAN1	KINGSMAN 13 / WINGS 6	WINGS 06 / RAKKASAN 6	BANGOR/COBRA
75	2+08.08 1856.52	LIFT 1, SERIAL 2 AT SP FOR LZ COBRA(3-320 FA MAIN) (4 X CH47)	M	ABN/CAN1	OUTLAW 12 / WINGS 6	WINGS 06 / RAKKASAN 6	BAYONNE
80	1+48.39 1916.21	LIFT 1, SERIAL 2 AT RP FOR LZ COBRA(3-320 MAIN BODY) (4 X CH47)	M	ABN/CAN1	OUTLAW 12 / WINGS 6	WINGS 06 / RAKKASAN 6	BEAVER DAM / COBRA
85	EVENT	SITREP ON FB COBRA	M	OF1/CAN1	RED KNIGHT 3 / RED KNIGHT 6	RED KNIGHT 6 RAKKASAN 6	
90	0+45.00 2020.00	Q36 OPERATIONAL	M	OF1/CAN1	RED KNIGHT 3 / RED KNIGHT 6	RED KNIGHT 6 RAKKASAN 6	BILOXI
95	0+45.00 2020.00	3-101 CONDITIONS CALL ON LZ OWL/LZ LARK	M	CAN1	ATTACK 6	RAKKASAN 6	CHERRY/ICE OWL/LARK
100	0+45.00 2020.00	FB COBRA READY TO FIRE	M	OF1/CAN1	RED KNIGHT 3 / RED KNIGHT 6	RED KNIGHT 6 RAKKASAN 6	BIRMINGHAM
103	0+22.52	LIFT2,SERIAL 1 AT SP X-FLOT SEAD **COUNTDOWN CALL** (5 X UH60)	M	ABN/CAN1	COMMANCHERO 13 WINGS 6	WINGS 6 / RED KNIGHT TAC	CANTON
105	0+22.57 2042.03	LIFT 2, SERIAL 1 AT SP FOR LZ OWL (1-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 13 WINGS 6	WINGS 06 / RAKKASAN 6	CHARLESTON
107	0+22.57 2042.03	CROSS-FLOT SEAD WE0055/WE0060 FIRED	M	OF1/CAN1	RED KNIGHT 3 / RED KNIGHT 6	RED KNIGHT 6 RAKKASAN 6	CHICAGO
110	0+18.57 2046.03	LIFT 2, SERIAL 2 AT SP FOR LZ OWL (1-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 23 WINGS 6	WINGS 06 / RAKKASAN 6	CLEVELAND
113	0+05.12 2059.48	LIFT2,SERIAL1 AT RP FOR LZ OWL **COUNTDOWN CALL (5 X UH 60)**	M	ABN/CAN1	COMMANCHERO 13 WINGS 6	WINGS 6 RED KNIGHT 3	CLIFTON / OWL
115	0+05.07 2059.53	LIFT 2, SERIAL 1 AT RP FOR LZ OWL (1-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 13 WINGS 6	WINGS 06 / RAKKASAN 6	COLUMBUS / OWL
117	0+05.00 2100.00	TERMINAL SEAD WE0020/WE0025 FIRED	M	OF1/CAN1	RED KNIGHT 3 / RED KNIGHT 6	RED KNIGHT 6 RAKKASAN 6	CONCORD
120	0+01.07 2103.53	LIFT 2, SERIAL 2 AT RP FOR LZ OWL (1-187 IN) (5 X UH 60)	M	ABN/CAN1	COMMANCHERO 23 WINGS 6	WINGS 06 / RAKKASAN 6	DALLAS / OWL

LINE #	EVENT		M/X	NET	FROM	TO	CODE WORD
125	**H – HOUR 2105.00**						
130	0+15.00 2120.00	BDE TAC ON GROUND	M	CAN1	RAKKASAN 3	RAKKASAN 6	DECATUR
135	1+49.33 2254.33	LIFT 4, SERIAL 1 AT RP FOR LZ LARK (3-187 IN) (5 XUH60)	M	ABN/CAN1	COMMANCHERO 13 WINGS 6	WINGS 06 / RAKKASAN 6	ELKINGTON / LARK
140	1+53.33 2258.33	LIFT 4, SERIAL 2 AT RP FOR LZ LARK (3-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 23 WINGS 6	WINGS 06 / RAKKASAN 6	ELMIRA / LARK
145	2+28.55 2333.55	LIFT 5, SERIAL 1 AT SP FOR LZ LARK (3-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 13 WINGS 6	WINGS 06 / RAKKASAN 6	FLAGSTAFF
150	2+32.55 2337.55	LIFT 5, SERIAL 2 AT SP FOR LZ LARK (3-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 23 WINGS 6	WINGS O6 / RAKKASAN 6	FRESNO
155	2+36.56 2341.56	LIFT 5, SERIAL 1 AT RP FOR LZ LARK (3-187 IN) (5 X UH60)	M	ABNCAN1	COMMANCHERO 13 WINGS 6	WINGS 06 / RAKKASAN 6	FRANFORT / LARK
160	2+40.56 2345.56	LIFT 5, SERIAL 2 AT RP FOR LZ LARK (3-187 IN) (5 X UH60)	M	ABN/CAN1	COMMANCHERO 23 WINGS 6	WINGS 06 / RAKKASAN 6	GRANT / LARK
162	3+05.00 0010.00	CAS DEPARTS STATION	M	ABN/CAN1	RAKKASAN TOC	WINGS 06 / RAKKASAN 6	GRAND RAPIDS
165	4+00.00 0105.00	MEDEVAC ROZ RESTABLISHED	M	CAN1	DUST-OFF 44 / WINGS 6	WINGS 06 / RAKKASAN6	GREELY
170	EVENT	SITREP ON LZ LARK	M	CAN1	IRON 6	RAKKASAN 6	
175	EVENT	IN ASSAULT POSITION FOR OBJ WOLF	M	CAN1	LEADER 6	RAKKASAN 6	HAMPTON
180	EVENT	IN ASSAULT POSITION FOR OBJ WOLF	M	CAN1	LEADER 6	RAKKASAN 6	HARRISBURG
185	EVENT	ENEMY VIC OBJ WOLF DESTROYED	M	CAN1	LEADER 6	RAKKASAN 6	HARTFORD
190	EVENT	IN ASSAULT POSITION FOR OBJ PUMA	M	CAN1	IRON 6	RAKKASAN 6	HOUSTON
195	EVENT	ENEMY VIC OBJ PUMA DESTROYED	M	CAN1	IRON 6	RAKKASAN 6	HUNNINGTON
200	EVENT	BDE CDR TO GROUND	M	CAN1	RAKKASAN 6	ALL	IDIANAPOLIS
205	EVENT	3-101 ATK OFF STATION	M	CAN1	ATTACK 6	RAKKASAN 6	JACKSON
210	EVENT	MEDEVAC REQUEST	X	CAN1		WINGS 6	INITIAL 4 LINES
215	EVENT	SWITCH TO FH685 FOR MEDEVAC REQUEST	M	CAN1	ASSURGUM 8M	ALL	BAND AID
220	EVENT	SWITCH TO BDE CMD NET	M	CAN1	RAKKASAN 6	ALL	HOLLYWOOD
225	EVENT	3O MINUTE DELAY IN H-HOUR	X	CAN1	RAKKASAN 6	ALL	COYOTE + 30
230	EVENT	45 MINUTE DELAY IN H-HOUR	X	CAN1	RAKKASAN 6	ALL	COYOTE + 45
235	EVENT	FRUSTRATED CHALK DEPARTS PZ OAK	X	CAN1	PZ CONTROL	RAKKASAN 6	WENTWORTH+ LIFT+SERIAL+ CHALK

Figure 1- 13: Air Assault Execution Checklist

Notes on the Execution Checklist:

1. On smaller-scale air assaults brevity codes may be omitted and full calls of the events may be used: for example “You, this is me, Lift 1 RP for LZ OWL”.
2. On larger assaults, the commander may decide to have calls made only by exception, meaning the calls are only made if a task will not be executed on time.
3. Code words are queried by line number; For example “You, this is me, provide status of line 120.”

SECTION G: AIR ASSAULT BACK BRIEF FORMAT

0) Task Organization
1) Intel Overview
    - Target Intelligence
    - Enemy Set (EMLCOA, EMDCOA)
    - Weather
    - ISR Plan
2) Mission
3) Execution
    a) Staging Plan
        - Location of PZs and Units
        - PZ C2
    b) Loading Plan
        - Sequence (Macro)
        - # / Type / status of Aircraft per unit
    c) Air Movement Plan
        - Routes (ingress and egress)
        - ROZs & Coordinating Altitude
        - General Air Movement Table (Lifts and Serials per unit)
        - Escort
        - SEAD
        - Spares and bump plan (Macro)
    d) Landing Plan
        - LZs Primary and Alternate
        - Landing Formation / direction and departures
        - Cherry / Ice call procedures
        - Fires (indirect / aerial, Pre-assault and on-call, Illum/Smoke, electronic)
        - Abort Criteria (Minimum Force Requirements)
        - Laager Plan
    e) Ground Tactical Plan (general only)
        - Graphic Control Measures (Include orbits & go-arounds, ABF positions, mortar/FA positions, gun target lines, and sectors of fire)
        - Task and Purpose by unit
4) Logistics
    - FARP/JUMP FARP plan
    - CASEVAC/MEDEVAC plan

- Resupply plan
- DART / Maintenance plan

5) Command and Control
- Key Leaders and locations (AATF CDR, AVN TF CDR, AMC, GTC)
- Key nets and communications diagram

SECTION H: COMBINED ARMS REHEARSAL FORMAT (example)

Time Hack
Roll Call (AASLT TF XO)

AASLT TF Reps	**Aviation TF Reps**	**BCT Representatives**
CDR/CSM	CDR (AMC)	CDR/CSM
XO	AVN TF S3	ALO
S3	ASLT FLT LEAD	FSCOORD
S3 Planner	SWT/AWT OIC	SWO
FSO	AVN LNO	PAO
BTL CPT	AVN Planner/TACOPS	
JTAC	MEDEVAC Representative	
CO CDRs/1SGs	DART Representative	
Interpreters / FSF Units		

Opening Comments (BCT CDR, AASLT TF CDR, and AMC)
Combined Arms Rehearsal Format (AASLT TF XO)
Phases of the Operation that will be rehearsed – Staging through Exfil
Concept of Rehearsal will follow: CHANGES TO EN SIT/TASK ORG & CMBT PWR/KEY TASKS/DECISION POINTS/CONTINGENCIES by Event for the following 9 Events

Events to be rehearsed
- Loading and Staging
- GAC Movement Plan up to GAC RP
- Air Movement Plan
- Ground Assault Force Movement to OBJ Area
- Landing Plan
- Ground Tactical Plan
- Laager Plan
- Air Exfil Plan
- Ground Exfil Plan

Briefer Standards (Key Tasks and Timings): Concise Concept/Actions/Reports/Radio NET/EXCHECK line/Codeword

Locations of leadership
Succession of Command

Current Disposition (AASLT TF S2/S3)

Terrain Board Orientation (Minimum information for the terrain board should depict the following: PZ, Enroute, RP to Objective, Objective, and location of CASH/nearest medical facility)

Current Steady State Enemy Disposition/Situation

Current Friendly Steady State Disposition/Situation

Specific Mission Overview

S2

- Weather and Terrain Overview, Solar Lunar Information, Winds
- Enemy Situation
  - Trigger for Operation (Time or Event Driven)
  - Disposition of Objective
  - Ongoing ISR Collection

S3

- BN Task Organization review (Visually displayed next to sand table area)
- Adjacent Unit Activities
- Initial array of forces at the start of each phase/event

EVENT 1 Loading and Staging Plan

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event

Current CBT PWR for this Event

Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

- Airspace Coordination Measures (i.e. Disposition of ISR, Attack, CAS, etc.) – (BAO)
- Establish PZ Control (PZ NCO)
- Departure/Arrival of AASLT Forces to PZ (ASLT TF S3, Co CDR)
- Cold Load Training (PZ NCO)
- PZ Update Brief (PZ NCO, AVN TF S3)
- Conditions Check (ASLT TF S3, AVN TF S3)

Decision Points for this Event

- Accept Mission as GO/NOGO from Conditions Check

Contingencies for this event

- Aircraft Bump Plan
- Execution of Alternate Commo Plan
- Weather below minimums

EVENT 2 GAC Movement Plan to Ground Assault RP

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event

Current CBT PWR for this Event
Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

- RTE Clearance (GAC CDR)
- GAC Departure and Route (GAC CDR)
- GAC Fire Support (GAC CDR, FSO)
- Airspace Coordination Measures (GAC CDR, BAO)
- MEDEVAC (GAC CDR, AVN MEDEVAC OIC)

Decision Points for this Event

- Delay Mission based on GAC Conditions
- Commit Ground Recovery Assets to GAC
- Commit to Ground Assault (Cancel Air Assault)

Contingencies for this event

- Vehicle Maintenance
- Vehicle Accidents
- Lost Navigation
- Enemy Contact along route

EVENT 3 Air Movement Plan

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event
Current CBT PWR for this Event
Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

- Airspace Coordination Measures (BAO)
- Fire Support Plan (FS COORD)
- CAS Plan (ALO)

(SWT/AWT AMC or Flight Lead)

- Aircraft departure times and route of flight
- Available Weapon Systems

(UH-60/CH-47 AMC or Flight Lead)

- Aircraft departure times and route of flight
- Pax Weapon Status (US and IA/ANA)

(SWT/AWT/ISR)

- Cherry/Ice Call criteria re-stated (timed prior to ASLT Force at RP)

Decision Points for this Event

- Abort / Adjust Route due to En Sit/Wx
- Abort / Adjust Landing due to En Sit/Wx

Contingencies for this event

- Weather Enroute
- Enemy Contact Enroute (Attack & Assault Aircraft)
- Maintenance Fault Enroute

- LZ is Cherry
- Time Delay (Any of the following: HAF, R/W CAS, F/W CAS, GAC delayed enroute)

EVENT 4 Ground Assault Force (Part of GAC) Movement to OBJ Area

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event

Current CBT PWR for this Event

Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

- Establish blocking position(CO CDR)
- TAC Movement/Establishment(GAC CDR)
- Key Fire Support Tasks (FSO)
- Airspace Coordination Measures (BAO)

Decision Points for this Event

- Abort / Adjust Mission due to GAC Contingencies

Contingencies for this event

- Contact with Enemy
- Unable to establish commo at TAC

EVENT 5 Landing Plan

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event/Winds

(S3): Current Task Org for this Event

Current CBT PWR for this Event

Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

- Airspace Coordination Measures (BAO)
- Fire Support Plan (FS COORD)
- CAS Plan (ALO)

(SWT/AWT AMC or Flight Lead)

- Direct Fire Plan/Control Measures
- Airspace Deconfliction (Altitude, Position, Time)

(UH-60/CH-47 AMC or Flight Lead)

- Primary LZ Landing Plan
- Door Gun Direct Fire Plan
- Heavy LZ Considerations

(Chalk Leaders)

- Actions on the LZ

Decision Points for this Event

- Shift to Alternate LZ

Contingencies for this event

- Alternate LZ use

- Aircraft Damaged/Downed on LZ
- Go Arounds
- Contact During Landing
- Contact in LZ after aircraft departure
- ARF Actions (if utilized)

EVENT 6 Ground Tactical Plan

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event

Current CBT PWR for this Event

Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

- Airspace Coordination Measures (BAO)
- Fire Support Plan (FS COORD)
- CAS Plan (ALO)

(Security Force Leader)

- Establish Blocking Positions and Support By Fire – Markings and Fire Control Measures

(Assault Force Leader)

- Movement to OBJ
- Actions on OBJ
- Consolidate and Reorganize /TSE
- Prepare for Exfil

(SWT/AWT OIC)

- CCA Procedures
- Anti-Fratricide Measures

(MEDEVAC OIC)

- Primary MED HLZ / Marking
- Level 1,2&3 Care Facility and timings

Decision Points for this Event

- Deviations to actions on the Objective

Contingencies for this event

- Squirters
- Dry Hole
- Enemy Contact on Objective
- Casualties on Objective
- MASCAL

EVENT 7 Laager Plan

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event

Current CBT PWR for this Event
Key Tasks/Timings for this Event: (Excheck lines ___ to ___)
(AMC/ FLT Lead)
- H+0+30:00 actions and beyond
- Aircraft Refuel Plan and location
- C2 ROZ plan
- ARF Plan (Insertion Criteria, Approval Authority)
- Laager HLZ or Orbit location

(SWT/AWT OIC)
- RTE to/from Refuel, Time through FARP
- Continuous Coverage Plan

Decision Points for this Event
- Initiate Exfil

Contingencies for this event
- Enemy Contact at Laager Site
- FARP delays

EVENT 8 Air Exfil Plan
(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event
(S3): Current Task Org for this Event
Current CBT PWR for this Event
Key Tasks/Timings for this Event: (Excheck lines ___ to ___)
(ASLT Force CDR)
- PZ Security Plan
- PZ Staging (Marking, Commo, Weapon's Status)
- Alt PZ Plan

(ARF Leader)
- ARF PZ Location and actions or link with GAC for RTB

(Lift AMC)
- PZ Landing and landing time
- Alt PZ
- Commo
- Return Route and PAX off-load
- Aircraft RTB

(SWT/AWT AMC)
- Orbit area during exfil
- Obj Departure Time
- Return Route to RTB

Decision Points for this Event
- Initiate Exfil

Contingencies for this event

- Lift Aircraft time delay
- Enemy Contact in PZ
- Aircraft downed/damaged in PZ
- Lost commo
- Detainee Exfil and drop locations
- Weather

EVENT 9 Ground Exfil Plan

(S2): Changes to Enemy Situation/Anticipated Enemy Actions/Reaction to this Event

(S3): Current Task Org for this Event

Current CBT PWR for this Event

Key Tasks/Timings for this Event: (Excheck lines ___ to ___)

(ASLT Force CDR)

- GAC Preparation after Actions on OBJ are complete
- Elements return to GAC
- GAC route to RTB
- GAC RTB

(ARF Leader)

- ARF link-up to GAC

Decision Points for this Event

- Initiate Gnd Exfil

Contingencies for this event

- Enemy contact during RTB
- Vehicle Maint
- Lost Nav
- Lost commo
- Detainee Back Haul and Drop Locations

By Exception

(S1) Personnel Operations
(S5) CMO Operations
(S6) Cross BCT Net Utilization
(S3) - Consequence Management
- BN Disposition at the end of the OPN
-Safety & Risk Management
- Timeline Adjustments
- S3 Closing Comments

Closing comments: Avn CDR/CSM, AASLT TF CDR/CSM, BCT CDR/CSM

SECTION I: ABORT CRITERIA

1. The methodology used in executing an air assault involves setting conditions, providing suppressive fires immediately before and on landing, and continuously monitoring abort criteria from beginning to end.

2. Abort criteria are a change of one or more conditions which seriously threatens mission success. As such, they are CCIR relating to any ongoing air assault operation and require command consideration regarding mission continuation. It is important that the AMB clearly defines abort criteria and that the AATFC monitor them throughout conduct of the operation.

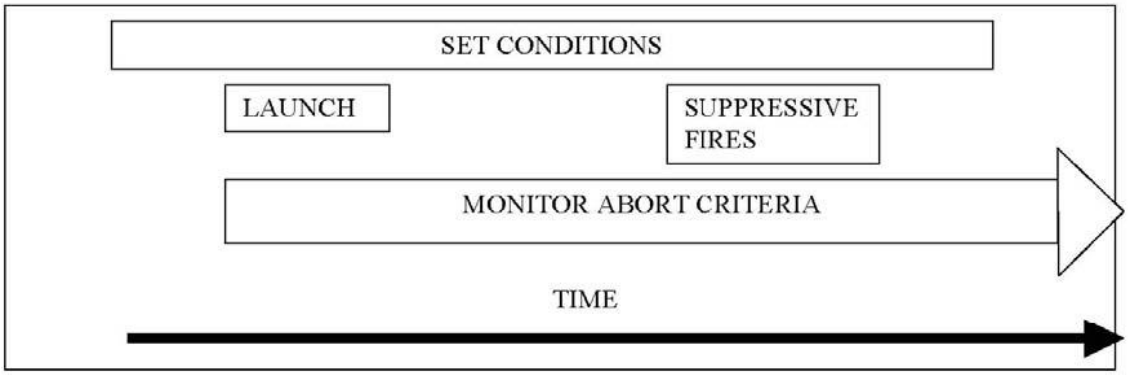


Figure 1- 14: Monitor Abort Criteria

3. 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**. There are six factors considered to determine abort criteria for air assault missions:

a. Weather. 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 (IR crossover should be a consideration when planning the mission). 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 that aircraft are flying, and over the entire area in which they will operate, unless waived by the CG due to criticality of a specific combat operation.

b. Aircraft available. The ground tactical plan (GTP) for an air assault operation depends on the rapid massing of combat power at the critical place and time by helicopters. Aviation battalions set standard FMC rates for planning purposes. If actual FMC rates fall below the planning figure, the AATF will not be able to build its combat power as quickly as planned. Abort criteria, in terms of aircraft, are set to inform the AATFC when desired combat power may not be achieved.

c. Time. This refers most particularly to light and darkness. The 101st Airborne

Division (Air Assault) gains a significant advantage over most military forces in the world by operating at night. Unsophisticated air defense systems rely on visual target tracking and acquisition. Also, some types of combat power, like AC-130 gunship support, are vulnerable during daylight hours. Abort criteria in terms of take-off times are set to ensure that the 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.

d. Mission essential combat power. Air assault mission planners use doctrine and experience to determine the minimum combat power including infantry, artillery, and attack 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.

e. Mission criticality. BCT Air assault operations are often conducted as part of a Division, JFLCC, or JTF attack. The success of other units and future operations may depend on the seizing of the air assault objective. Therefore some air assault operations may proceed despite the presence of circumstances that would normally abort the mission.

f. Enemy. Certain types of enemy activity, especially along flight routes or in the vicinity of LZs or objectives, may abort an air assault mission. Abort criteria are usually stated in terms of the size or type of an enemy unit, the type of enemy equipment, especially air defense, and the proximity of the enemy to present or future friendly locations.

g. Given a continued advantage of using the primary LZ over the alternate, delay (enroute 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.

(1) Delay. If time is available, a mission will be delayed to correct a circumstance that may abort a mission and set the conditions.

(2) Divert. If time is not available or a delay will not correct an abort criteria, the task force may execute a divert contingency. Examples are to use alternate flight routes, LZs, or objectives

(3) 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.

h. There are two types of abort.

(1) Lift. A lift is aborted when it reaches an aborting criterion. The mission itself is not aborted.

(2) Mission. A mission is aborted when an abort criterion exists for the entire mission, and the AATFC **decides to abort**.

SECTION J: SETTING THE CONDITIONS

1. Conditions are set for all air assault operations. Condition setting includes both lethal and non-lethal systems against enemy forces and systems that can affect the air assaulting force. Normally three days are allocated for condition setting, however, the threat and our ability to assess the impact of condition setting determines the duration. The purpose of condition setting is to limit and or mitigate the risk to an acceptable level for the Division Commander and subordinate commanders.

a. One of the best non-lethal systems for determining conditions is unmanned aerial systems (UAS). The UAS are intelligence, surveillance, and reconnaissance tools. The systems transmit live airborne video images which aid in searching for targets and recognizing terrain, and enable the operator to record all information for analysis. The UAS can provide operational capability in the following areas, among others:

(1) Remote reconnaissance and surveillance

(2) Force protection

(3) Convoy security

(4) Target acquisition

(5) Battle damage assessment

2. Condition setting is about situational awareness in the broadest terms. It is about confirming or denying information about ourselves, the terrain, weather, and the enemy. We have good certainty (but not perfect) about ourselves, some certainty about terrain and weather, and a varying degree of certainty about the enemy. Once we know what we know (and don't know), we then apply combined arms forces to recon terrain, check weather, and find and attack the enemy. Throughout the process, commanders and staff must check and see what we know *and* how we're affecting those conditions by our actions.

3. 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. It follows the targeting process of deciding, detecting, delivering, and assessing. In this iterative process of setting conditions, unacceptable risks can be negated until final conditions are acceptable to launch the air assault.

4. 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. Start with a standard checklist as we plan and apply forces to determine what we know and how our actions are affecting the equation. When setting conditions, here are four ideas to keep in mind:

a. This is truly an art, not a science. Don't mistake the orderly process of calculations and routes for certainty. Professional judgment must be applied.

b. Following the checklist does not equal setting conditions. Once knowns and unknowns are determined, actions must be taken. The checklist is used as a periodic evaluation tool, not as a one-time "GO/NO GO" drill.

c. Battle damage assessment (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/G2 community alone; it must be the Commander's call.

d. Each mission into hostile airspace is planned and resourced as a combined arms combat operation.

5. Conditions Checklist

a. The conditions for the air assault must continuously be checked. It is important to consider the latency of the information when presenting it to the Commander.

b. For a BCT air assault, there is a series of Division conditions checks as the preliminary operations continue, and a supporting series of BCT conditions checks. These are held in command posts. All Warfighting Functions (WFF) staff principals participate. Brigade and division LNOs attend each other's conditions checks, when possible in person, but by VTC or conference call when necessary.

c. The final conditions check is held near the Air Assault Task Force's PZ control CP. It always includes a review of the latest friendly, terrain and weather, and enemy situations.

d. The standard conditions check slide set depicts the conditions that must be considered and evaluated if applicable in order to launch an air assault. A No-Go condition indicates a situation that places the mission at an extremely higher potential of failure or an excessive risk to soldiers' lives and equipment. Based on METT-TC, other conditions should be added that have significant impact on the mission.

Air Assault Conditions Checklist

- **Weather**
- **Warfighting Functions Check** (detailed checklist on next 3 pages)
    - ○ Intelligence
    - ○ Movement and Maneuver
    - ○ Fires
    - ○ Protection
    - ○ Sustainment
    - ○ Command and Control

Legend (for circles throughout checklist):

Green	Planned, In progress, or Low Risk
Yellow	Delayed, Degraded, or Moderate Risk
Red	Not Identified or High Risk
Black	Extremely High Risk
White	N/A

- **AATFC Recommendation:** (GO, No Go, Delay)

Intelligence: (G2/S2)

◯ ○ Current weather and light data for AASLT / CAS
○ Post Air Assault weather
○ Suitability of LZs
○ Enemy C2W capabilities identified
○ Enemy indirect fire in range of Primary & Alternate LZs
○ Enemy direct fire in range of Primary & Alternate LZs
○ Enemy Wheel, Mechanized, or Armor force able to influence primary or alternate LZs
○ BDA Confidence Level (focus on ADA and other key weapons)
○ Eyes on key NAIs with communications to sensor
○ Division priority of higher collection effort

Movement & Maneuver: (G3/S3, G3AVN/BAO, DIV/BDE ENG)

◯ ○ Assault Aircraft and crews ready
○ Attack Aviation ready
○ Sufficient lifts available for minimum force requirements
○ Command and Control Warfare (C2W) operations coordinated (OPSEC, PSYOP, MILDEC, and EW) within ROE limits
○ PZs ready and secure
○ Units in PZ posture
○ Personnel recovery and/or CSAR in place
○ Primary and Alternate LZs designated/rehearsed
○ Higher and adjacent units notified of plan/assets available to reinforce/spt ops
○ Anti-fratricide measures in place
○ Plan for civilians on the battlefield
○ LZ obstacle clearing teams ready
○ Flight landing strip (FLS) clearing team ready
○ Flight landing strip (FLS) layout confirmed
○ Airfield repair package ready for airdrop
Counter-mobility assets in place to support
○ Ground Assault planned/in progress

Fires: (Fire Support Cell)

- ○ JSEAD & IEW coordination complete
- ○ FSCMs coordinated
- ○ Firing units in position
- ○ SEAD fires planned on suspected locations/fire plans forwarded to subordinate units
- ○ CAS coordinated / available
- ○ Appropriate communications established
- ○ CF radar coverage in place/planned
- ○ TACP task organized
- ○ Fire plan rehearsed
- ○ Air Assault / Mobile Strike on ATO
- ○ Non-lethal SEAD covers critical portions of operation
- ○ Enemy C2W suppression plan
- ○ Known fire support assets within range of primary and alternate LZs destroyed/suppressed; SEAD fires planned on suspected locations
- ○ Passage points covered by indirect fire

Protection: (G3 AVN/BAO, DIV/BDE ENG, CBRN Section, ADAM Cell)

- ○ Routes, ROZs and mission on ACO and ATO
- ○ Coordinated friendly & cross boundary ADA locations and coverage
- ○ Early Warning coverage for Artillery Raid LZs
- ○ Joint Tactical Information Distribution System (JTIDS) located with assault
- ○ HIMAD coverage of critical nodes (PZ, AVN assembly area, FARP)
- ○ TMD coverage of critical nodes (PZ, AVN assembly area, FARP)
- ○ Weapons control status – hold along air routes
- ○ AWACS coordination / linkup
- ○ Route clearance and survivability assets confirmed
- ○ LZs not contaminated
- ○ Obstacles / Barrier plan in place for EA shaping
- ○ Decontamination assets available and coordinated

Sustainment: (G3 AVN/BAO, G4/S4)

- ○ RRP / FARP(s) ready to support mission
  - ○ TAA FARP
  - ○ Jump FARP
- ○ Sufficient supplies ready
  - ○ Class I/Water
  - ○ Class III
  - ○ Class IV
  - ○ Class V
  - ○ Class VIII
- ○ Availability of Alternate RRP / FARP
- ○ MEDEVAC / CASEVAC planned and ready
- ○ DART/Maintenance plan/assets ready
- ○ Essential transportation plan/assets ready

Command and Control: (G3/S3, G6/S6)

- ◯ Seats out risk management completed and approved
- ◯ Appropriate TAC in PZ posture
- ◯ TACSAT channel available
- ◯ HF channel available
- ◯ Retrans in place (if required)
- ◯ NIPR/SIPR package available
- ◯ All preparation for Joint Network Node (JNN) mission support complete
- ◯ OP SCHED complete and distributed
- ◯ LNO teams to higher and adjacent in place and aware of plan
- ◯ Division media plan in place
- ◯ Rehearsals complete
- ◯ Commo rehearsals complete (to include C2 aircraft)

Chapter 2

Ground Tactical Operations

SECTION A: ROLES AND RESPONSIBILITIES:

1. Ground Tactical Commander (GTC): In accordance with doctrine, TTPs, and METT-TC, the GTC determines his ground tactical plan. The plan includes the following components:

a. Mission objectives

b. Primary / Alternate LZs

c. Task Organization

d. D-day / H-hour times

e. Forces required / available

f. Special equipment required (kick-off bundles)

g. Fire support plan (including preparatory fires)

h. Attack aviation missions

i. Means of identifying LZ(s)

j. Landing formations

k. Off-loading procedures

2. Brigade Aviation Element (BAE)/Brigade Aviation Officer (BAO): The BAE/BAO will play an integral role during the entire Military Decision Making Process (MDMP). The role of the BAE/BAO is, but not limited to:

a. Subject matter expert on Aviation capabilities.

b. Communication link to respective LNOs on the ground tactical plan and BCT mission.

c. Update AATFC or GTC on aircraft status and availability.

d. Communication link to the Combat Aviation Brigade Commander regarding changes and special mission requests. The P.A.C.E (Primary, Alternate, Contingency, and Emergency) communications requirements are:

1. Primary: VoIP/VoSIP
2. Alternate: SIPRNET/NIPRNET
3. Contingency: TACSAT/HF/FM
4. Emergency: Cell Phone/Iridium Phone

e. Establishes the AMB timeline.

f. Coordinates PZ setup and control.

g. Develops the staging and loading plans.

h. Briefs the Air Mission Commander (AMC).

3. Air Mission Commander (AMC): The Air Mission Commander is the senior flight commander designated by the Aviation Brigade or Aviation Task Force Commander. The AMC is responsible for the following information:

a. Developing the Air Movement plan.

b. Coordinating actions of the supporting Cavalry or Attack Commanders.

c. Updating AATFC on Aviation status.

SECTION B: INNER RING-OUTER RING

1. General. METT-TC dependant, the AATFC will normally employ a form of the inner ring – outer ring concept during an air assault. Using this concept enables the Ground Tactical Commander to focus on his objective while directing Aviation or Aviation and other ground elements to provide security for the main effort by establishing an outer ring. The AATFC may phase the operation so that the sizes of the inner and outer rings expand as the objective is seized and/or additional combat power arrives in the AO.

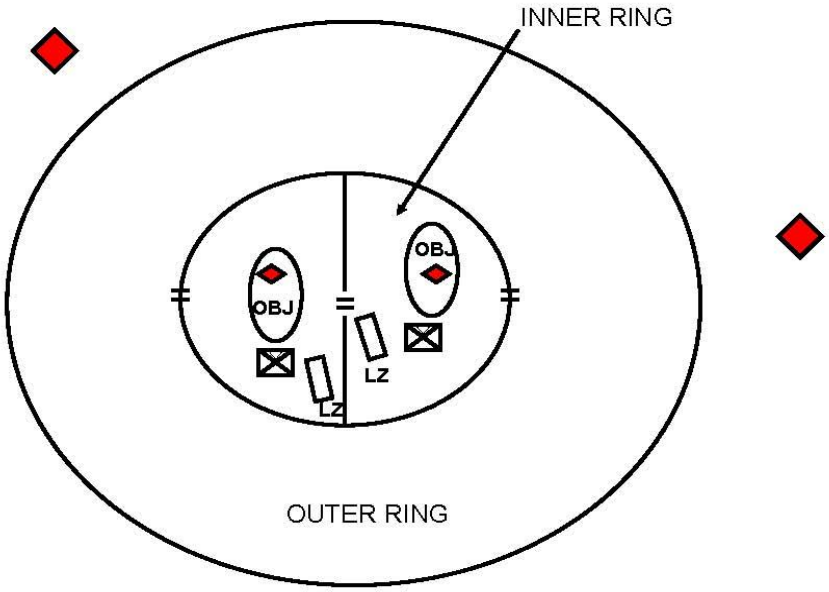


Figure 2- 1: Inner Ring – Outer Ring

2. Employment Considerations.

a. Use of attack Aviation and air cavalry. If the AATF is task organized with both attack Aviation and air cavalry assets, the AATFC should consider the specific capabilities and limitations of each type of airframe in determining which mission they should give to each unit.

(1) Complex urban terrain. In complex urban terrain, the air cavalry is generally better suited to perform the inner ring operations in an OPCON relationship to the GTC. This technique takes advantage of the OH-58's better visibility and smaller signature. AH-64s are then used as the outer ring (outside the urban area) which takes advantage of their firepower and airspeed to destroy any enemy forces from either entering or departing the inner ring.

(2) Open terrain. In generally open terrain, AH-64s are typically better suited to perform the inner ring operations in an OPCON role to the GTC. This technique takes advantage of the AH-64's firepower in providing close combat attacks in support of the ground force. The air cavalry can provide the outer ring security with a screen mission to identify (and destroy within their capability) any enemy forces from entering or departing the inner ring.

b. Use of Aviation and ground units in the outer ring.

(1) Due to its habitual training relationship, the air cavalry squadron is

ideal to work in conjunction with RSTA units if the RSTA unit is given the responsibility of the outer ring or a portion thereof.

(2) This relationship is mutually supporting and also provides the AATFC assurance of 24/7 coverage of the outer ring regardless of weather or aircraft availability.

c. Inner and Outer Ring Dimensions. Although still METT-TC dependant, the outer ring should be established at a minimum distance from the inner ring so as not to allow any direct or observed indirect fire against forces in the inner ring.

SECTION C: AIR TO GROUND Check-In & CLOSE COMBAT ATTACKS (CCA)

1. General.

a. When used in conjunction with ground forces, fires from AH-64s and OH-58s provide tremendous advantages to the ground force in contact. The Division uses CCA procedures to ensure that these Aviation fires destroy the enemy with minimal risk to friendly forces.

b. The most important factor to successful CCAs is positive and direct communications between the Aviation and ground elements. To work, CCA requires ground soldiers and aviators to understand and train the following procedures:

(1) CCA requests.

(2) CCA unit and target marking.

(3) CCA target hand-over.

2. Air to Ground Check-In.

a. OIF and OEF present different challenges in the effective and successful communication between ground elements and Aviation. For example, many CCA missions in OEF are not executed as target acquisitions during a Troops-In-Contact (TIC) event, but as target development during an operation. In OIF, troop density required increased situational awareness at BN and BCT level, while in OEF pilots normally talk directly to On Scene Commanders (OSC) due to larger areas of operation.

b. In non-CCA related circumstances aircraft should check in with BN TOCs in order to maximize situational awareness on constraints (ROZs, etc) and receive an overall SITREP before checking in with the OSC. A TIC or CCA request still demands immediate pilot-to-OSC communication as well as different communication / information requirements. The chart below delineates between the different communication / information requirements for A/C check-in and CCA.

CHECK-IN	
AIRCRAFT	GROUND FORCE
Call sign (# of A/C and Type)	ROZ / Gun Status (Including active Ravens) / NFAs
Position	Enemy Situation (Past 1 hour)
Destination	Friendly Situation (include all ground unit patrol locations and activity and other A/C)
Request / Remarks	Task and Purpose for aircraft (NAIs and indicators / zones)
	Handover Information (Unit call sign, location, frequency of Co/Plt/Ptrl)
CCA	
AIRCRAFT	GROUND FORCE
Call Sign (# of A/C / Type / Location / Ordnance / Station Time)	Observer Call sign / WARNO
Request / Remarks	Friendly Composition / Location / Markings
	Target Location / Activity (SALT format)
	Target Description / Marking Method
	Remarks (restrictions / NFA / buildings / civilians, etc)

Figure 2- 2: Air to Ground Communication

3. CCA requests.

a. Any element in contact can request support from attack or cavalry aircraft by transmitting “request CCA” through their higher headquarters on their internal command net. The request is forwarded through command channels until it reaches the AATFC or controlling headquarters on CMD/CAN1. This process allows the AATFC or controlling headquarters to allocate limited attack/cavalry assets to the element in the greatest need of support. Should this process fail, the unit in contact with the authority to clear fires in the affected battlespace may request CCA directly to the aviation element.

b. The diagram below shows the general request procedure. Regardless of the type of unit in contact or the responding Aviation element, the procedure remains the same.

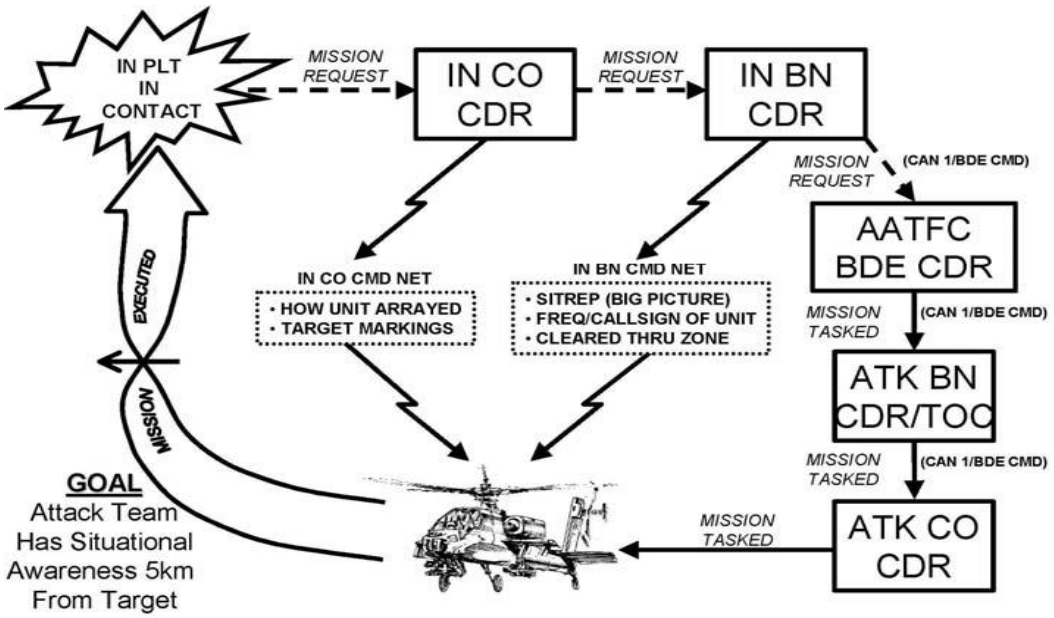


Figure 2- 3: CCA Request Procedure

c. If the AATFC decides to allocate attack or cavalry Aviation assets to the requesting unit, he directs the attack / cavalry commander to drop to the supported command net. The Aviation unit always goes to the supported ground commander's net, but also has at least one aircraft monitoring either CAN1 or the AATF CMD net, depending on which is in use at the time. If CCA cannot be made available, the FSO immediately arranges for alternate fire support means to attack the enemy target. It is important to remember that the ground commander owning the terrain is responsible for clearing fires during the CCA by giving aircrews the situational awareness of where friendly elements are located. It is equally important that the ground commander de-conflict the airspace between any indirect fires, close air support and CCA aircraft several kilometers (outside of direct fire range) behind the FLOT until the Aviation element establishes positive communication with the unit in contact.

d. Upon establishing contact, the Aviation element will transmit to the ground commander the number and type aircraft in the flight, number and type ordnance on board, and amount of station time available to the supported unit. It is important that the ground unit in contact (the one that has visual sight of the enemy and can best mark the target) is in communication with the aircraft (this may be a squad, platoon, company or battalion) and passes a situation update to the aviation element.

e. The situation update should include a detailed description of all friendly locations/FLOT and target locations in relation to friendly positions. Generally this occurs while the aircraft are enroute to the friendly location. Some items which should be covered during this update are as follows:

1) Enemy situation. In addition to location relative to friendly position and description of enemy, include types of weapons employed (if known). The type of

weapons utilized by enemy forces will affect how the supporting aircraft will execute their CCAs (*e.g*. small arms vs. RPG ranges)

2) Friendly situation. Provide the location of friendly forces in contact and any others in the immediate area. If a grid is used, it is important that "friendly location" is prefaced before sending the grid in order to reduce the risk of fratricide. Additionally, describe how the friendly unit is marked (*e.g*., "marked with VS-17 Panel").

3) Additional considerations must be made when operating in an urban environment. The view from the ground can be very different from that of a supporting aircraft. It can be very helpful if specific land marks can be utilized in a situation update and subsequent talk-on/marking of the target. Highly visible or unusual structures should be referenced to aid in describing friendly and enemy locations. An example is as follows:

"Attack 6, this is Rock 6. Current friendly position is just south of the water tower at Grid DF12345678. We are occupying a courtyard attached to a one story house at the base of the tower. Our position is marked by an orange VS-17. We are taking small arms fire from a two story building on the east side of a north-to-south running canal 300 meters to our Northeast."

e. Once aircraft are on station, the rapid and accurate marking of a target is essential to a positive target handover. Aircraft conducting CCAs normally rely on a high rate of speed and low altitude for survivability in the target area. Due to these factors, the aircrew will generally only have an extremely limited amount of time to acquire both the friendly and enemy marks. It is essential that the ground unit have the marking ready and turned on when requested by the aircrew. Remember that the AH-64 uses both thermal sight and NVG's to fly with and acquire targets, and OH-58 aircrews use NVGs to fly with as well as acquire targets. The table shown below lists some methods to best mark locations:

Friendly Marking	**Day**	**Night NVG**	**Night Thermal**
VS-17 panel	go	no go	no go
smoke	go	no go	no go
mirror	go	no go	no go
IR strobe	no go	go	no go
Chemlights	no go	go	Maybe
Target Marking	**Day**	**Night NVG**	**Night Thermal**
tracer bullets	go	go	no go
PEQ-2 / PEQ-15	no go	go	no go
briefing pointer	no go	go	no go
GCP	no go	go	no go
G/LLVD	go	no go	Go
40mm Illumination	go	go	Go

Figure 2- 4: CCA Friendly and Target Marking

f. After initially engaging the target, if a re-attack is required, the aircrew generally approaches from a different angle for survivability reasons. Adjustments are made by the observer utilizing the eight cardinal directions and distance (meters) in relation to the last round(s) impacts and the actual target (*e.g.* – "from last rounds North 300 meters").

g. At the conclusion of the CCA, the aircrew provides their best estimate of BDA to the unit in contact.

4. CCA Call For Fire.

a. Elements of CCA Call for Fire. Similar to an indirect Call for Fire, the Aviation element will repeat each element of CCA Call for Fire to ensure clarity.

- 1st Transmission: Observer Call sign / Warning Order
- 2nd Transmission: Friendly Composition / Location / Markings (Beacon, IR Strobe, etc)
- 3rd Transmission: Target location / Activity (SALT format)
- 4th Transmission: Target description / Marking method (IR Pointer, Tracer, etc)
- 5th Transmission: Remarks (restrictions / NFA / buildings / civilians / etc.)

b. For mutual protection and clarity on the appropriate target, the ground unit will not mark the target until requested to do so by the aviation element. This in no way restricts the ground unit from returning fire from the enemy, but the ground unit should remember that if they plan on marking the target with fire, the aircrews may not be able to distinguish the correct target from other fires. If marked by fire, the Aviation element also requests the ground unit to stop mark. The Aviation element additionally calls when they are clear of the area and estimated BDA. Ground units should have multiple means of marking their position.

c. Additionally, the Aviation element needs to know the location of all friendly elements in the area. The Aviation element tailors its attack angles and weapons selections based upon the target and friendly unit proximity to the target: *e.g.* that provides the necessary information to the aircrew: "My location is AB123456, marked by IR. *There are no friendly units North of my position".* This allows the Aviation element to fire from roughly a 180° arc to the North without risking fratricide. The bottom line being that the CCA cannot be conducted without positive identification of friendly and enemy forces by both the ground and aviation commander prior to the AH-64s/OH-58s opening fire.

5. CCA Call for Fire Example 5 Transmissions (5th transmission includes "Remarks" and is included as required)

Ground Unit	**Aviation Element**
1. Attack 6 this is Rock 6, fire mission over	
	Rock 6 this is Attack 6 fire mission out
2. My position is grid AB123456 marked by IR strobe	
	Your position is grid AB123456 marked by IR strobe
3. Target is 210 degrees, distance 500 meters	
	Target is 210 degrees, distance 500 meters
4. One technical vehicle and five troops in defilade marked with GCP	
	One technical vehicle and five troops in defilade marked with GCP.
5. Estimated one ADA gun 500 meters to the North of the target	
	Estimated one ADA gun 500 meters to the North of the target Rock 6, Attack 6, mark target
	Rock 6, this is Attack 6 standby
	Rock 6, Attack 6, Laser or Spot On.
Attack 6, Rock 6, roger, Laser or Spot On	
	Target acquired – Terminate (if applicable)
	Rock 6, Attack 6 clear, target destroyed

¥ Note

Figure 2- 5: Call for Fire Example

¥ Note : Instead of target destroyed, the ground commander, can adjust fires if the target is not destroyed, or shift fires to subsequent targets.

Chapter 3

LANDING PLAN (LZ OPERATIONS)

SECTION A: ROLES AND RESPONSIBILITIES

1. CHALK LEADER REQUIREMENTS.

a. The ground element/chalk leader will maintain the following items:

(1) A marked air route map; at a minimum, he will display the air route in the vicinity of the planned LZs in his brigade's area of operations.

(2) A compass.

(3) A watch synchronized with GPS time.

(4) The air movement table, tadpole diagram, PZ sketch, and LZ sketch.

(5) Call signs and frequencies for aviation and ground units (especially Pathfinders on and near the LZs).

(6) Communications with higher using the PACE format: See Chapter 2. Contingency radios could be one of the following: PRC-119 (FM), PRC-117F (TACSAT), PRC-150 (HF).

(7) Data on Pathfinders and Scouts in the objective area: See Chapter 5, Insertion Coordination Meeting.

b. The chalk leader will conduct a final face to face with the aircrew on the PZ. The chalk leader will give the aircrew LZ diagram/imagery to confirm LZ name, grid, planned land heading, and lift/serial/chalk number. If imagery is unavailable, provide information on 3x5 card.

c. In flight, the chalk leader will monitor the aircrew radio net using a headset provided by the aircrew (primary) or a ceiling handset (alternate); he will pass updates and time warnings to his soldiers to ensure situational awareness.

d. Upon exit, the chalk leader will verify his location and direction of movement by means of compass or global positioning system (GPS) and map.

2. AIRCREW REQUIREMENTS AND UPDATE TO CHALK LEADER.

a. The air crew will ensure the chalk leader is given a working headset (primary) or handset (alternate) in order to receive updates while in flight. The 101st Division standard is a headset as the aircraft cabin is usually too noisy for the handset to be effective.

b. The air crew will pass the following information to the chalk leader:

(1) Time when through the start point (SP).

(2) Time when crossing air control points (ACPs).

(3) Time when crossing the release point (RP) (workload permitting).

(4) Upon landing or on final approach, the aircrew will pass via handset any changes to the landing plan from what was briefed at the AMB to include grid and land heading.

(5) Time warnings:

	"10 Minutes"	"5 Minutes"	"Check Equip"	"1 Minute"	"Execute"
Pilot	Initiates command to crew chief	Initiates command to crew chief	N/A	Initiates command to crew chief	Initiates command to crew chief upon landing and gives final verbal update to chalk leader
Crew Chief	Relays command to chalk leader verbally and visually by extending ten fingers	Relays command to chalk leader verbally and visually by extending five fingers	N/A	Relays command to chalk leader verbally and visually by extending one finger	Relays command to chalk leader and points to the aircraft exit
Chalk Leader	Echoes command to passengers	Echoes command to passengers	Initiates command verbally and visually by tapping his chest twice with a closed fist	Echoes command to passengers; removes headset and puts on helmet	Echoes command to passengers
Passengers	Acknowledge the command by holding up fist	Acknowledge the command by holding up five fingers	Acknowledge the command by holding up fist. Secure any loose items. Seatbelts remain buckled.	Acknowledge the command by holding up one finger	Unbuckle seatbelts and exit the aircraft

Figure 3- 1: Aircrew/Chalk Leader Requirements

SECTION B: PLANNING THE LANDING PLAN.

1. The Ground Tactical Commander's (GTC's) plan drives the landing plan. In general there are two types of landing plans: away from the objective, or on the objective.

a. Landing away from the objective.

(1) Mission: usually an enemy force-oriented mission.

(2) Enemy: incomplete intelligence on enemy dispositions.

(3) Terrain: incomplete intelligence on terrain (especially LZs), weather, and/or local civilians; no good LZs near the objective.

(4) Troops available: conditions are not set, or we cannot be sure.

(5) Time: time available to develop the situation.

(6) Intent: The intent 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.

b. Landing on the objective.

(1) Mission: often a terrain-oriented mission.

(2) Enemy: precise intelligence on enemy dispositions.

(3) Terrain: precise intelligence on terrain (especially LZs), weather, and/or local civilians; good LZs on the objective.

(4) Troops available: conditions set and verified.

(5) Time: time critical to secure the objective.

(6) Intent: Immediately upon landing, establish continuous suppression of enemy forces while aggressively assaulting to secure the objective.

2. Number of LZs. A large number of LZs for a brigade air assault increases risk and complexity of the operation. Whether away from or on the objective, brigades should plan for *one primary* LZ and *one alternate LZ* per maneuver battalion. This results in six different LZs for planning at the brigade level. LZs should all have different names and associated grids to avoid confusion. Keep in mind, a greater number of planned LZs increase 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 1 primary and one alternate LZ per maneuver battalion.

3. At each of the battalion LZs, forces must land ready to fight. Organize on the PZ, not the LZ. :

a. Fly and land in the order of march/order of assault.

b. Each serial is able to fight as a team.

c. Provide inbound guidance (radio and visual); use pathfinders for enroute guidance (at the release point) or on the LZ for terminal guidance. Pathfinder qualified soldiers from the assault force lead serial may also be used for terminal guidance for subsequent serials inbound to LZ.

d. Separate serials by a minimum of one minute (may be more, based on conditions).

e. Land UH-60s at least 30m and CH-47s at least 35m out from the right *or* left tree line; this is critical to the deconfliction of fires and flight routing.

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

f. Land **plus or minus 50 meters** from the GTC's intended landing point (As per AMB).

g. Land **plus or minus 30 seconds** from the air movement table touchdown time.

h. Land **plus or minus 15 degrees** from the planned landing heading.

i. Ground forces exit one or both doors, or ramp for CH-47 (METT-TC dependent).

j. Ground forces **off-load aircraft within 30 seconds or less (1 minute or less for CH-47).**

k. Ground forces **in the tree line within 1 minute or less** (after serial takeoff).

l. **Sling loads** landed, crews offloaded **within 2 minutes or less.**

m. **Vehicles clear of LZ within 5 minutes of touchdown or less** (including 2 minutes of load landing and crew offload).

Note: Increase LZ size, as required, if serial time intervals are short between sling loads

to allow loads to clear LZ. If the ground unit cannot move a load off the LZ quickly, subsequent serials/aircraft into LZ must maneuver to avoid loads.

4. The sequencing of forces into the LZ is critical. Each serial must be ready to execute at either the primary or alternate LZ.

5. Planning the landing zone. Landing is the critical moment in any air assault.

UH-60 PZ/LZ Example

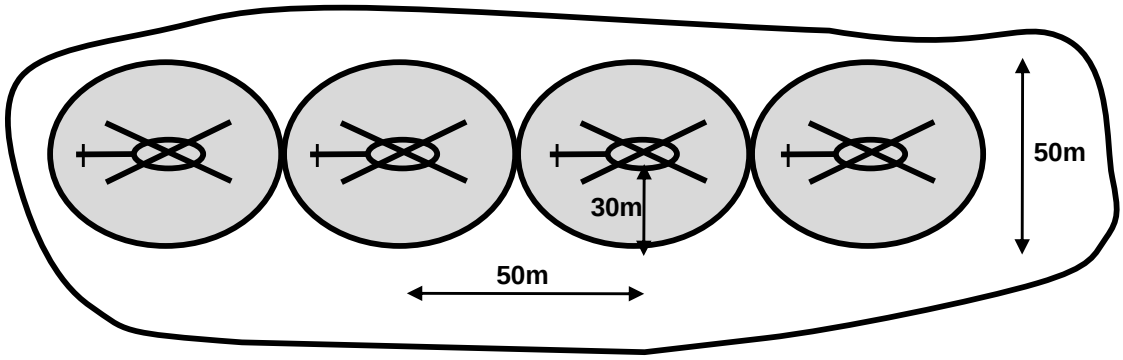


Figure 3- 2: UH-60 PZ/LZ Example

This example demonstrates how 4 UH-60's will require at least a 200mX50m LZ/PZ (50m per UH-60), regardless of the mission. These are minimum planning requirements; slingloads, blowing dust, obstacles, or other hazards dictate larger PZ's/LZ's.

6. Exiting Aircraft: The assault force has the option to go left, right, or out both doors, and the ramp on CH-47s. Whichever sides are 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 Release Point (RP). This must be relayed to all chalk leaders.

7. Approach end: That portion of the LZ closest to the flight route RP.

8. Departure end: That portion of the LZ farthest from the flight route RP. Aircraft eggressing depart the LZ over the departure end.

SECTION C: FIRE PLANNING/EXECUTION

Ground forces land ready to fight, with the integrated support of attack aviation

and indirect fires. Supporting fires, direct or indirect, are directed and cleared on the LZ by the GTC. The 101st Division's TTPs for fire and maneuver after landing:

a. The GTC clears all ground, air, and indirect fires inside the Air Head Line.

b. Door gunners in assault aircraft fire only at the base of the tree line to avoid fratricide of overwatching gunships.

c. As long as the air assault continues, attack aviation works for the AATFC. An attack aviation battalion is normally placed in direct support of the GTC for air assault security and Close Combat Attack (CCA) within the Air Head Line. The GTC passes control of attack aviation aircraft to subordinate commanders for CCA. Once the threat is eliminated, attack A/C are passed back to the GTC's control. Only a GTC can clear Apache/Kiowa fires into the tree line being assaulted by friendly forces. See Chapter 6 for more on attack aviation.

d. Indirect fires on the tree line being assaulted by friendly forces are always treated as "danger close." (In other words, in a right door exit, a fire mission into the right tree line would be "danger close.")

e. Know the locations (NFAs) of all friendly forces in the area (i.e. BN Scouts, RSTA SCTs, Pathfinders, SOF, etc…)

SECTION D: LZ UPDATES (CHERRY/ICE CALL)

1. As discussed in Chapter 1, LZ updates occur just prior and/or during the air movement. Apache or Kiowa Warrior aircraft shift to an LZ overwatch mission as Assault aircraft conduct the air movement. Attack assets will provide an LZ update with a "Cherry/Ice" call. This call lets the AATFC, GTC, and AMC know the status of the LZ. If enemy activity is occurring on the LZ, then the LZ is considered "Cherry." If no enemy activity is observed, then the LZ is considered "Ice".

2. If the LZ is Cherry, then the overwatch attack aviation and/or air cavalry will provide a SITREP consisting of enemy activity, what their actions are towards the enemy, an estimation of how to achieve an "Ice status", and/or recommendation for use of the alternate LZ.

3. The requirement for a "Cherry/Ice" call is METT-TC based on the need to preserve surprise on the objective.

4. Fixed wing aircraft can be added to make the "Cherry/Ice" call when assets are available. As long as lift aircraft or attack aviation possess UHF or VHF capabilities, fixed wing aircraft can relay the call directly to the AATFC. If these capabilities are not present, fixed wing aircraft can relay the call to the JTAC RTO located with the AATFC. The plan must account for the time it will take to relay the call to all parties. UAS

platforms may be utilized to make the “Cherry/Ice” call based on the AATFC assessment of risk and METT-TC.

5. The “Cherry/Ice” call should be made at the start of the air movement and 2 minutes out from the release point. The manner in which attack aviation conducts its “Cherry/Ice” call should not give away the exact location of the LZ.

SECTION E: USE OF ALTERNATE LZ

The decision to use an alternate LZ rests with the AATFC based on the recommendation of attack aviation and / or air cavalry report. As part of the mission analysis and rehearsal process, aircrews will have rehearsed the air movement and execution of using an alternate LZ.

SECTION F: OFFLOADING TECHNIQUES

1. Offload Procedures

a. Offload Techniques:

- Two-sided offload
- One-sided offload

b. There are four primary techniques used to offload an aircraft:

- TECHNIQUE #1: ONE-SIDE LZ RUSH
- TECHNIQUE #2: TWO-SIDED LZ RUSH
- TECHNIQUE #3: ONE SIDE OFFLOAD/PRONE
- TECHNIQUE #4: TWO-SIDED OFFLOAD/PRONE

Normally, the lead unit(s) in the LZ have responsibility to CLEAR the LZ in order to support follow-on light and heavy lifts. This is accomplished using a number of different techniques. However, the most common is to assign assault objectives that require subordinate units to move through an area to clear enemy forces prior to reaching their assault objective or rally point. The technique used is entirely METT-TC dependent. Moreover, the separation between serials and the number of serials that can fit into the LZ at one time are critical planning consideration when determining the offloading techniques.

2. Two-Sided Offload**.** Soldiers exit both doors of the aircraft. Soldiers either move five meters out from the aircraft, and drop to a prone fighting position until the aircraft lift to depart the LZ or the fire teams move directly to the nearest tree line or rally point.

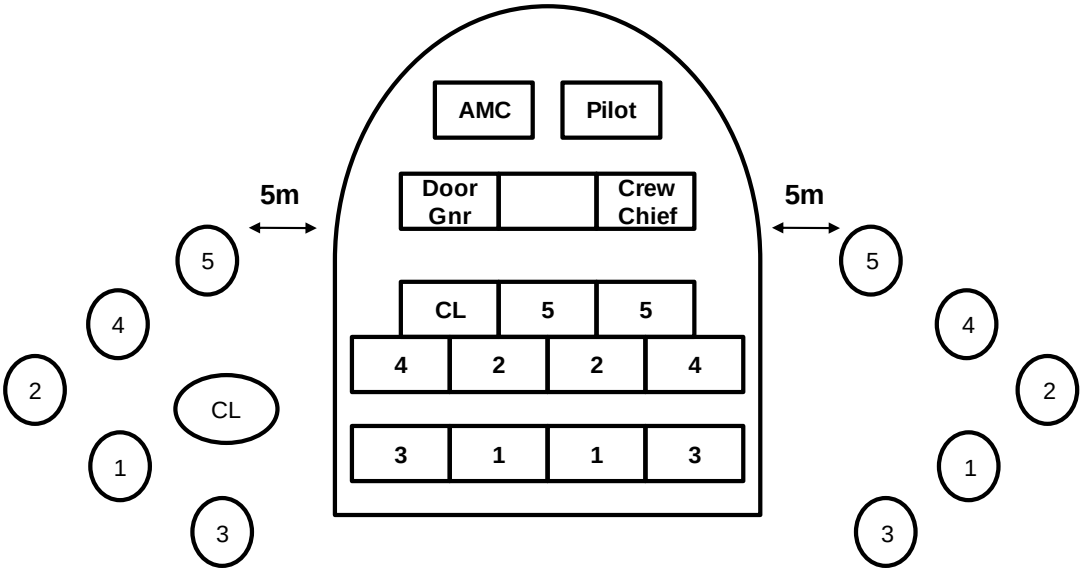


Figure 3- 3: Two-Sided Offload

3. One-Sided Offload**.** Soldiers exit from one door of the aircraft. Soldiers either move five meters out from the aircraft, and drop to a prone fighting position until the aircraft lift to depart the LZ or the chalk moves directly to the nearest tree line. Figure 3-4

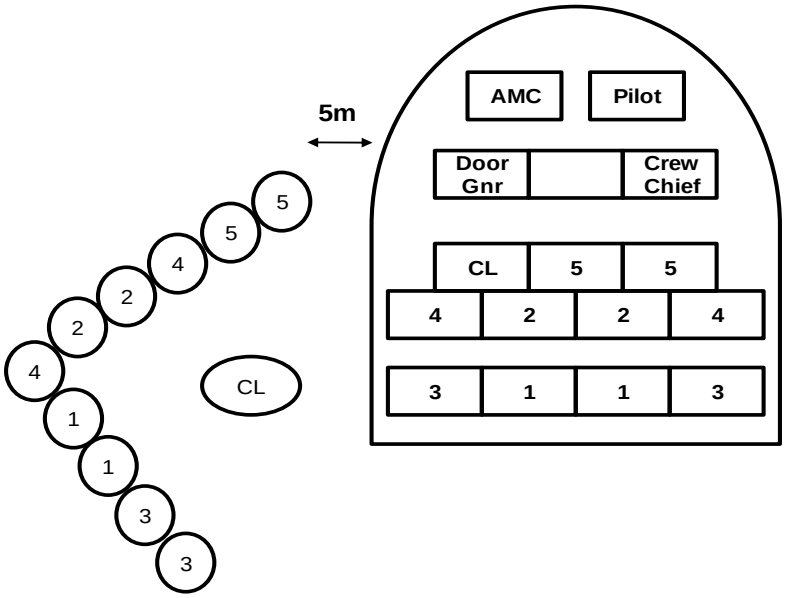


Figure 3- 4: One Sided Offload

4. TECHNIQUE #1**:** ONE-SIDE LZ RUSH:

a. General Situation (used throughout Technique descriptions): The first serial of Lift #1 will fit into the LZ. The AATFC/AMC received the "Cherry/Ice" call from air

assault security AH-64s. The AATFC decides to continue the mission into the primary LZ. Door gunners continuously scan assigned sectors with pre-planned RFLs to support ground unit. The interval between serials is 2 minutes.

b. Soldiers move immediately from the aircraft to the tree line in wedge formation. Chalks assemble at rally point and then move to assault objectives on the LZ or to objective off the LZ. This is the preferred method to use when touchdown points are near a wood line and enemy contact is not expected.

c. Advantages: Moves unit off danger area fast, facilitates control, less vulnerable to indirect fires, maintains momentum, establishes zones of responsibility on LZ, minimizes aircraft cross-loading plans, allows follow-on serials door gunners to engage targets on the far side tree line, clears the LZ quickly for follow-on lifts.

d. Disadvantages: Vulnerable to direct fire weapons while moving off LZ.

e. Figure 3-5 depicts TECHNIQUE #1: ONE-SIDE LZ RUSH

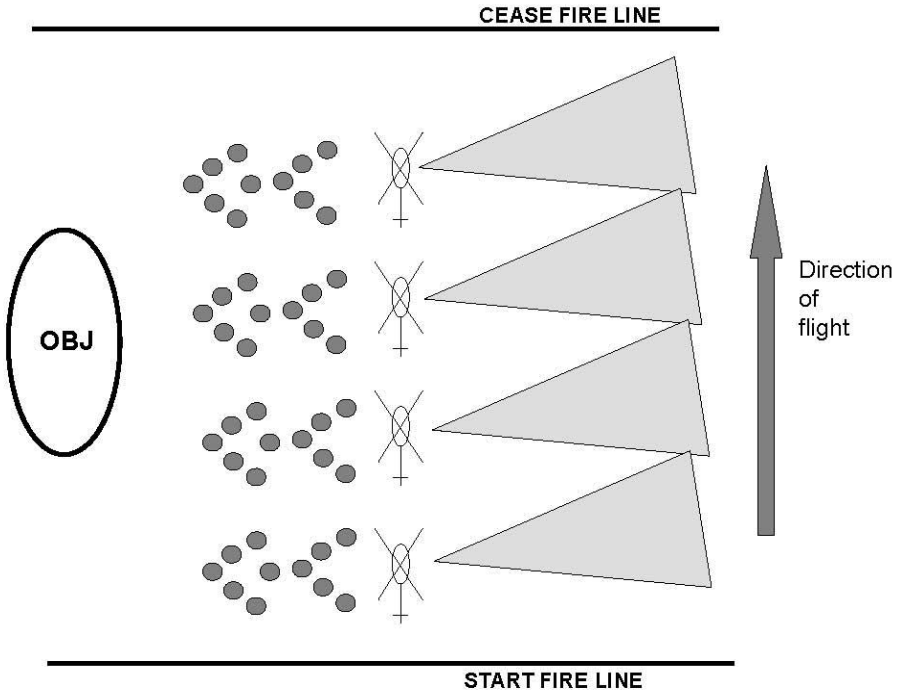


Figure 3- 5: One-Sided LZ Rush

5. TECHNIQUE #2: TWO-SIDED LZ RUSH:

a. Aircraft load plan options include splitting squads across two chalks so each team exits the same door or each chalk is a pure squad and all even numbered chalks exit right door while odd number chalks exit left door. The aircraft landing formation can help facilitate the unit in rapidly clearing soldiers off the LZ.

b. Soldiers move immediately from the aircraft to the tree line in wedge formation. Chalks assemble at rally point and then move to assault objectives on the LZ or to objective off the LZ.

c. Advantages: Moves unit off danger area fastest, facilitate clearing/securing LZ, facilitates fire control measures (zones) on LZ, less vulnerable to indirect fires, maintains momentum, establishes zones of responsibility on LZ, and clears the LZ quickly for follow-on lifts.

d. Disadvantages: More complex to plan and C2, more complex aircraft cross-loading plan, unit vulnerable to direct fire weapons while moving off LZ, masks fires of supporting attack Aviation once in wood line, possible contact with rotor blades.

e. Figure 3-6 depicts TECHNIQUE #2: TWO-SIDED LZ RUSH (Cross Load Plan on each chalk). Figure 3-7 depicts TECHNIQUE #2: TWO-SIDED LZ RUSH (Cross Load Plan within serial).

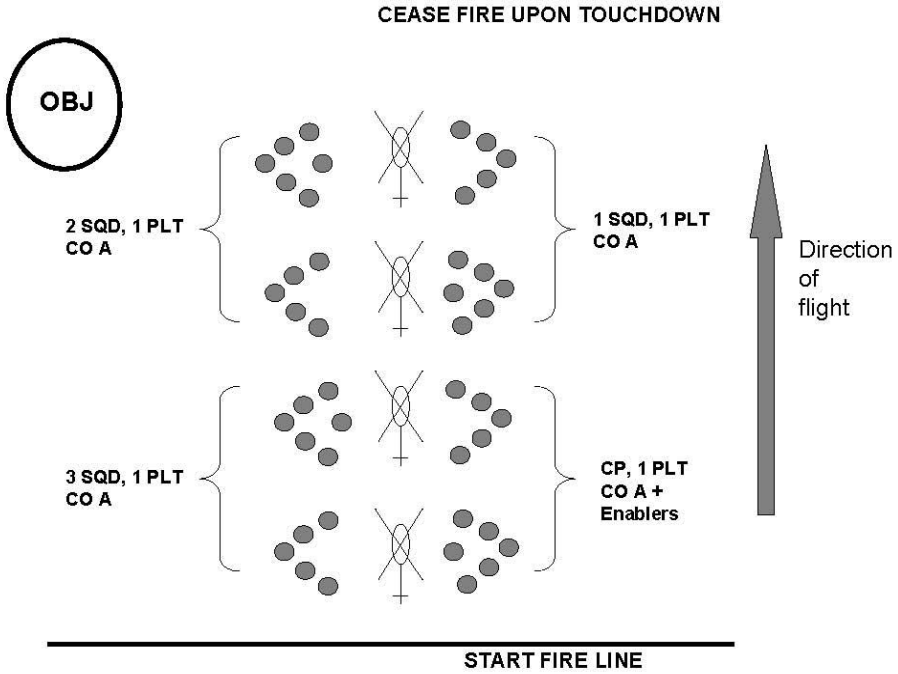


Figure 3- 6: Two-Sided LZ Rush

TECHNIQUE #2: TWO-SIDED LZ RUSH (Cross Load Plan on each chalk)

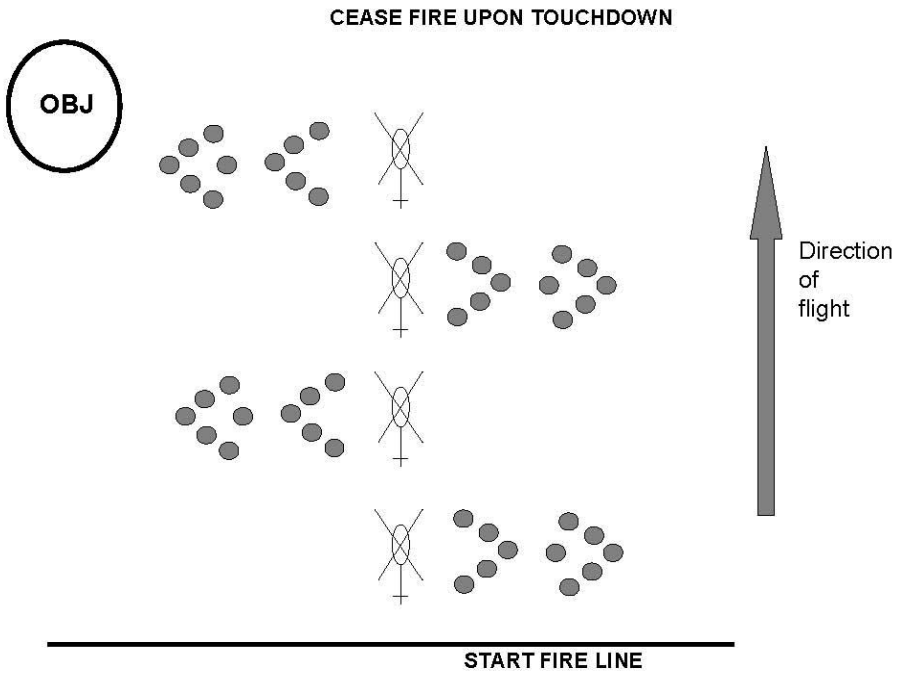


Figure 3- 7: Two-Sided LZ Rush (Cross Load Plan within Serial)

6. TECHNIQUE #3: ONE SIDE OFFLOAD/PRONE

a. Soldiers exit the left side door of the aircraft, move ten meters out from the helicopter, and assume a prone fighting position with weapons oriented outward. Once the aircraft lift to depart the LZ, teams and squads pickup a wedge formation and move to unit rally points or assault objectives. This is the preferred method to use when exiting single door and touchdown points are in large open area or in a desert environment.

b. Advantages: Simplifies command and control, allows opposite side door gunners to engage targets during offloading, establishes zones of responsibility on LZ, minimizes aircraft cross-loading plans, and allows follow-on serials door gunners to engage targets on the far side of LZ.

c. Disadvantages: Slowest of all offloading techniques, unit is vulnerable to indirect fire.

d. Figure 3-8 depicts TECHNIQUE #3: ONE SIDE OFFLOAD/PRONE.

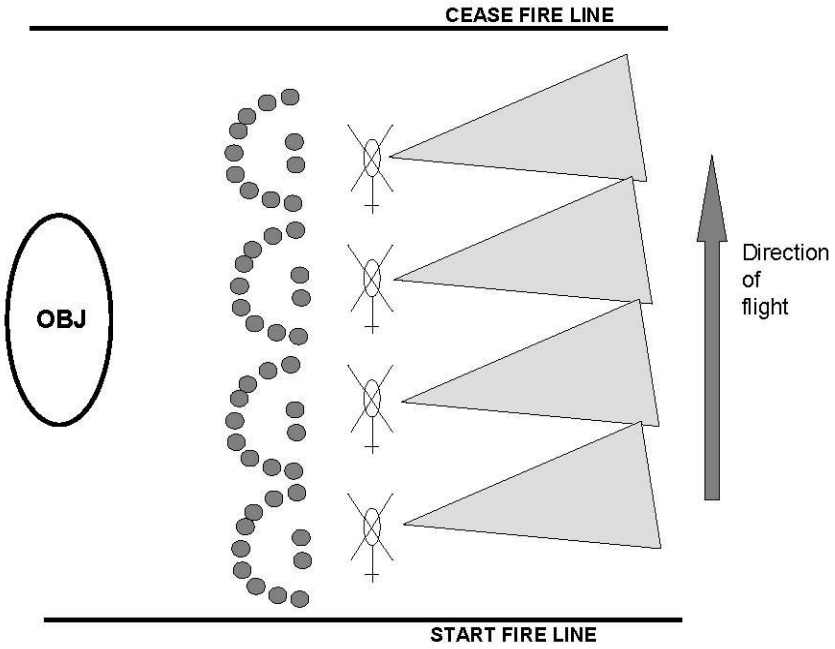


Figure 3- 8: One-Side Offload Prone

7. TECHNIQUE #4: TWO-SIDED OFFLOAD/PRONE:

a. Soldiers exit both doors, move ten meters out from the helicopter, and assume a prone fighting position with weapons oriented outward. Once aircraft lift to depart the LZ, teams and squads pickup a wedge formation and move to unit rally points or assault objectives. This is the preferred method to use when exiting both doors and touchdown points are in large open area or in a desert environment. Cross load options allow for pure unit integrity of chalks or mixed loads to support moving to opposite sides of large PZ. Cross load planning considerations support command and control initially required on the LZ and follow-on lifts into the LZ.

b. Advantages: Quick offload, contact with rotor blades less likely, leaders able to assess the situation and make decisions, simplifies command and control, and establishes zones of responsibility on LZ.

c. Disadvantages: Slower movement time off the LZ may masks both door gunner fires, and unit is vulnerable to indirect fire.

d. Figure 3-9 depicts TECHNIQUE #4: TWO-SIDED OFFLOAD/PRONE (Cross Load Plan on each chalk). Figure 3-10 depicts TECHNIQUE #4: TWO-SIDED OFFLOAD/PRONE (Cross Load Plan within serials and lifts).

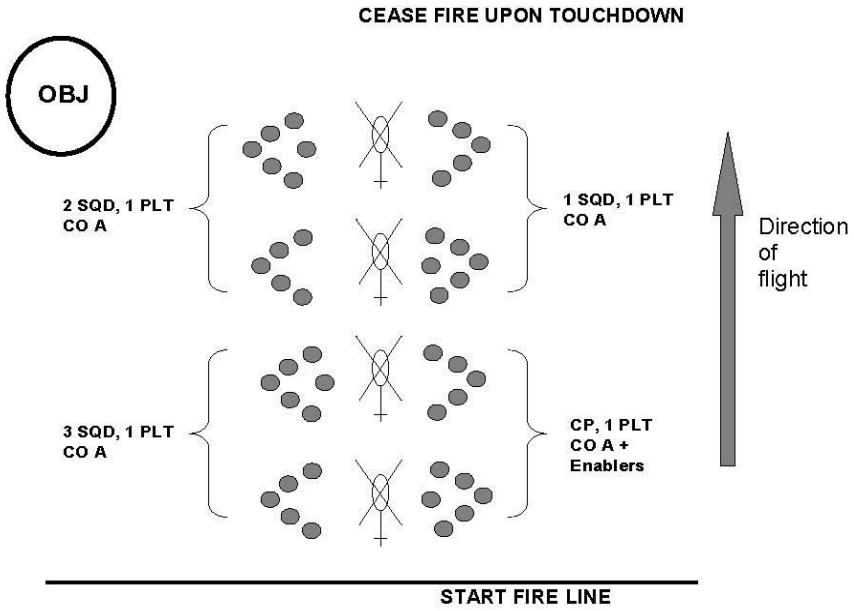
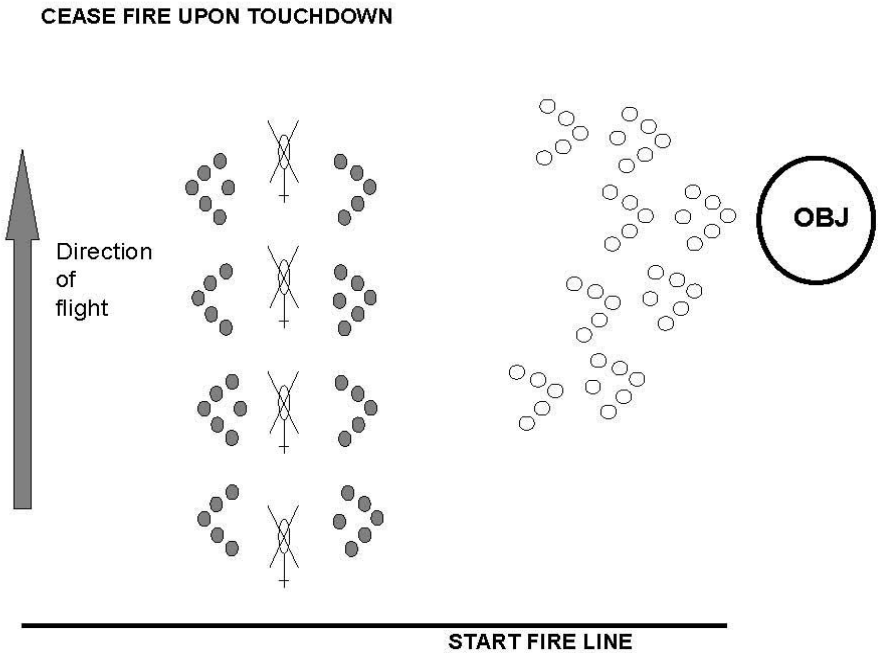


Figure 3- 9: TWO-SIDED OFFLOAD/PRONE (Cross Load Plan on each chalk)



SERIALS 1, LIFT #1

Figure 3- 10: TWO-SIDED OFFLOAD/PRONE (Cross Load Plan within serial and lift)

SECTION G: DERIGGING TECHNIQUES

1. Once crews are offloaded, they will move off the LZ to prevent interfering with follow-on serials. The standards referenced in Chapter 3, Section B apply to all single or dual point and shotgun loads.

2. Crews will place into operation all radios and weapon systems quickly and quietly prior to movement off the LZ.

3. Complete de-rigging of sling sets is done in unit assembly areas prior to movement to blocking positions or movement to objective area.

4. Performance Measures:

a. Section exits the aircraft and moves immediately to their vehicles.

b. Section posts security.

c. Section removes CGU straps from the front/rear of the vehicles, as required.

d. Section removes front sling legs from one of the vehicles, as required.

e. Section removes rear sling legs from the other vehicle, as required.

f. Crew unties steering wheel and hand brake.

g. Crew mounts antenna.*

h. Crew unsecures ring mount hatch cover.*

i. Crew mounts automatic weapon.*

j. Section begins movement to vehicle rally point/ assembly area.

*if applicable to vehicle.

SECTION H: HOT LZ PROCEDURES

1. The following acronym (**STRIKE**) will be used as a guide for reacting to a Hot LZ:

S uppress enemy/obscure friendly positions.
T urn off fires as subsequent lifts approach
R eport to higher/ activate battle command net
I solate enemy using all direct/ indirect fires
K ill enemy using fires and maneuver if necessary
E valuate the situation: Continue, divert, abort; evacuate casualties.

This can happen on any air assault. Our reaction is a battle drill, based on the overall mission profile. Rehearse it. Be ready for it.

a. Enemy actions. There are four types of enemy activity that can be employed to oppose landing operations. The enemy may employ a combination of these activities.

(1) Near Ambush: enemy force within grenade range (35 meters) of the LZ.

(2) Far Ambush: enemy force outside grenade range.

(3) Indirect fire: delivered by distant mortars, FA, or rockets, but directed by an enemy OP that can see the LZ.

(4) Mines/obstacles: anti-landing mines, booby traps, and barriers.

b. Friendly actions. There are five basic options: divert to the alternate LZ; fight through, abort remaining serials; slow airspeeds to delay serials, and racetrack serials. During the racetrack option, all serials will orbit at their current position. Once the conditions are set at the LZ, the air assault will resume in the order outlined in the Air movement table. The racetrack option is high risk and the Air Mission Commander (AMC) will determine whether there is enough fuel, spacing and time between serials to conduct this option. The AATFC makes the final decision on all options involving a “Hot LZ”. The AMC and GTC execute.

c. In general, ground forces landing away from the objective can more readily divert to the alternate LZ. When landing on the objective, forces normally apply combat power and fight through.

d. In both cases, it is important that primary and alternate LZs are mutually supporting, to permit the AATFC to shift the main effort.

e. The following two profiles are examples of reactions to Hot LZs.

2. Hot LZ: Landing away from the final objective.

a. In this case, fighting for the LZ is not important. If the AATFC decides to divert the air assault to the alternate LZ, the extraction of the force at the hot LZ becomes a supporting effort while the main effort diverts to the alternate LZ. If the alternate LZ is Hot too, the AATFC then chooses which LZ to fight through as his main effort.

b. A force that encounters a near ambush, unless extremely successful in counteracting that ambush, will normally be extracted, reorganized, and the force is reinserted with the main effort. In the other three cases, the force on the hot LZ continues its mission.

Enemy Action	AATFC	AMC	Engaged GTC
Near ambush	• Divert remaining serials to alternate LZ • Racetrack	• Aircraft at the RP land or racetrack • Aircraft short of the RP, divert or racetrack • Extract and reinsert force at alternate LZ	• Fire & maneuver (attack) • Prepare to extract • Extract • Resume mission at alternate LZ
Far ambush	• Racetrack or slow serials OR • Divert remaining serials to alternate LZ	• Bring in attack aviation for close combat attacks • Racetrack or slow remaining inbound A/C • Sustain supporting effort • Extract on order	• Fire & maneuver (attack) or • Base of fire (defend) or • Break contact (withdraw & extract) • Support main effort • Extract on order
Indirect	• Racetrack or slow serials OR • Divert remaining serials to alternate LZ	• Bring in attack aviation • Racetrack or slow remaining inbound A/C • Extract on order • Sustain supporting effort	• React to indirect fire; • Q-36/37 counter-fire • Clear off LZ; • Find and destroy OP • Support main effort • Extract on order
Mines/obstacles	• Divert remaining serials to alternate LZ	• Divert all landings until LZ is clear again	• Move off LZ and continue mission • Support main effort

Figure 3- 11: Hot LZ: Landing away from the objective

3. Hot LZ: Landing on the objective.

a. In this case, fighting for control of the hot LZ is important. The LZ is the objective. Continuing the assault takes priority. The force at the Hot LZ becomes a supporting effort to fix the enemy while the main effort lands at an alternate LZ and fights through to the objective.

b. A force that faces a near ambush becomes the fixing force to allow time for the main effort to execute its assault from the alternate LZ. If the alternate LZ is Hot too, the AATFC then chooses which LZ to designate as his main effort. Given the overall mission, breaking contact or extraction is not likely for forces caught on a Hot LZ. In cases other than a near ambush, the AATFC will normally fight through without diverting serials to the alternate LZ.

Enemy Action	AATFC	AMC	Engaged GTC
Near ambush	• Fight through • Force on hot LZ becomes fixing force and supporting effort • Racetrack or slow serial OR • Divert remaining serials to Alternate LZ	• Bring in attack aviation • Racetrack or slow remaining serials OR • Aircraft short of the RP, divert	• Fire & maneuver (attack) • Support ME by fixing the enemy
Far ambush	• Fight through	• Bring in attack aviation • Sustain SE	• Fire & Maneuver (attack) or • Base of fire (defend)
Indirect	• Fight through	• Bring in attack aviation • Sustain SE	• React to indirect fire; • Clear off LZ; • Find and destroy OP • Support ME
Mines/obstacles	• Fight through	• Land only in safe areas	• Mark safe areas immediately • Clear sufficient LZ to continue mission • Support ME

Figure 3- 12: Landing on the Objective

(1) Soldiers with heavy loads (RTOs, mortar crewmen, etc.) take positions (seats in training) in the middle of UH-60s to facilitate exit from either door.

(2) Designated personnel on each chalk (minimum of two) have smoke grenades “at the ready” for use if the LZ is hot. If LZ is hot, soldiers employ smoke grenades once clear of the helicopter rotor-blades, and move to cover once the smoke has built up.

(3) Plan to consolidate and then redistribute mortar rounds on the LZ.

(4) All platoon leaders and above "shoot" GPS grid location immediately upon landing.

(5) Heavy LZ commander designates a Quick Reaction Force (QRF) (two sections dismounted) from anti-armor assets while in PZ.

d. Fire Support:

(1) Mortars prepared for "hip shoot" upon arrival in LZ. De-conflict round trajectory with flight routes during mission planning/AMB.

(2) Prepare LZ with indirect fires and AH-64 fires if no friendly forces (Pathfinders, RSTA Scouts or BN Scouts) are in the area.

e. Command and control:

(1) Company integrity maintained on LZs.

(2) Platoons cross load crew served weapons (machine-guns, mortars, and JAVELINs) to preserve the ability for alternate door exits.

(3) All elements understand communications nets and call signs, and the capability of each to monitor or switch to different nets.

(4) Platoons must have day and night (IR and thermal) marking and fire direction capability. Day markings include VS-17 panel, and smoke. Night markings include chemlights, strobe lights (with IR cover), flares, glint tape, reverse polarity tape, MRE heaters. Fire control measures include PEQ-2 / PEQ-15 and GCP1A/B at night and 40mm smoke and illumination rounds for day or night.

(5) Fire control plan must integrate ground fires, AH 64 fires, door gunners, and indirect assets. Ground commander in the LZ (designated by the AATF Cdr) controls and clears all fires within the boundary of the airhead.

(6) Units mark their own positions as known "TRPs" and adjust fires using polar plots (distance and direction from the known location/TRP).

SECTION I: REACT TO CONTACT (HOT LZ) TASK, CONDITIONS & STANDARDS

ELEMENT: Infantry Battalion, or Company
TASK: REACT to enemy contact in a landing zone (hot LZ).
CONDITION: The brigade, battalion, or company has been assigned a mission that involves insertion by air assault. The initial or subsequent serials in the lift encounter enemy direct, and/or indirect fires, or passive denial measures.
TASK STANDARD:
1. The unit plans and executes air assault IAW the Gold Book and ARTEP 7-10/20-MTP

2. The unit encounters enemy fire or denial measures while landing; unit in contact reacts to the enemy.

3. The ground commander orders actions that neutralize or destroy the enemy threat.

4. The unit moves off the LZ to objectives within 10 minutes of landing with a minimum of 75 percent of all personnel and equipment (or the minimum force required as stated in the OPORD).

5. The unit sustains less than 30% casualties.

6. The unit sustains no casualties from friendly fires.
SUBTASKS AND STANDARDS:

1. In addition to standard planning, the unit addresses the following items during the **air mission brief (AMB):**

a. Integration and fire control of direct and indirect fire assets (UH-60, AH-64, Mortars, and Artillery) through LZ engagement area management. Mission specific techniques will be IAW standards for fire control subtask (subtask #9). NO ILLUMINATION ROUNDS USED ON LZ.

b. Communications plan between flight crews and transported unit; signals and/or codes for alternate door exit, alternate LZ landing, and actual location of the LZ (six digit grid) if different from planned location, etc.

c. Signals/markings to be used by ground forces in the LZ to designate friendly and enemy forces.

d. Casualty evacuation plan to include markings and position of aircraft and casualty collection point.

e. Downed aircraft procedures, to include "zeroing" of COMSEC equipment, location of first aid kits and fire extinguishers, and recovery plan.

f. Abort criteria are established (delay, divert, abort).

g. Plans for in-flight communications between chalks/serials, C2 aircraft, assault aircraft, and attack aircraft using organic assets and/or assets on the aircraft (e.g., external antenna).

2. Upon landing, the initial serial encounters passive **denial measures (minefields)**.

a. All personnel in the minefield stop.

b. Unit recovers casualties and "backtracks" out of the minefield.

c. Unit commander assesses the situation to determine if an alternate route off the LZ is possible. Moves along alternate route and recommends to AATFC to divert subsequent serials or to continue to land on same LZ.

d. If an alternate route is not available, ground commander clears a lane using available assets. AH-64 support with 30mm cannon fire to clear a lane in the minefield.

e. Unit proofs, clears, and marks the lane, and makes recommendation to the AATFC to land subsequent serials on the LZ or move to an alternate LZ.

3. Upon landing, subsequent serial(s) encounters passive denial measures.

a. Unit performs steps 1a-c above.

b. If alternate route not available, unit proofs, clears, and marks the lane. AH-64 support cannot be used to help clear the lane if friendly forces already off the LZ are inside the surface danger zone of the aerial fires.

c. Ground commander recommends to AATFC to land subsequent serials on the LZ or to divert to alternate LZ.

4. Upon landing, the initial serial encounters **enemy indirect fires**.

a. Unit moves out of the impact area a designated (SOP, IAW OPORD/FRAGO, or as directed on the ground by unit commander) distance and direction.

b. Ground commander attempts to find and destroy enemy OP/forward observers.

c. Ground commander recommends to AATFC to land subsequent serials in the LZ or to divert to alternate LZ.

d. Ground commander attempts to determine caliber and type of indirect asset being used; directs AH-64/OH-58 to search likely firing points within the range of the suspected weapon system.

e. If ground commander unable to move unit out of impact area, or to find and destroy OP, recommends to AATFC to land reinforcements on off-set LZ to destroy enemy forward observer or to destroy enemy indirect assets (mortar platoons/batteries).

5. Subsequent serials land in LZ and encounters enemy indirect fires.

a. Unit performs steps 3a-d above. Ground tactical commander clears fires to prevent fratricide.

b. If unable to move chalk(s) out of impact area, ground commander assesses situation and recommends to AATFC where to land subsequent serials: alternate LZ to complete mission, or divert to LZ's where they can destroy enemy indirect assets not destroyed by attack helicopters or counter fire.

6. During ingress of the initial serial, AATFC learns of **enemy direct fire/ambush assets on the LZ.**

a. Prior to reaching the RP, flight crews relay to assaulting units which door/side of aircraft to move to upon landing (based on enemy situation, to put pax out on the side opposite of enemy forces).

b. Door gunners on the enemy side of the aircraft engage targets to destroy or suppress enemy forces during off-load and egress. Additionally, gunners on the side of contact employ smoke grenades to conceal ground troops as the aircraft depart.

c. Ground unit obscures its movement with smoke, breaks contact with enemy, and employs indirect fire assets to destroy/suppress enemy unit.

d. Ground unit consolidates and reorganizes, prepares for CASEVAC as necessary.

e. Ground commander makes recommendation to AATFC to abort, reinforce, or change assault objective.

7. Upon landing, initial or subsequent serials encounter **enemy direct fire/ambush**.

a. Unit executes steps 5a-e listed above if fire is ineffective. Subsequent lifts will be in weapons tight status and only engage targets cleared by the ground commander.

b. If enemy fire is effective:

(1) Forces (chalks) taking effective fire react to ambush (take cover/return fire/suppress the enemy).

(2) Ground commander directs obscuration of enemy by use of hand/M203/or Mortar emplaced smoke. If mortars are employed, ground commander must notify AATFC to de-conflict A2C2. Ground commander employs fire support assets against enemy forces on the LZ.

(3) Forces (chalks) not taking effective fire suppress the enemy and maneuver to gain an exposed flank.

(4) Stationary forces (chalks) in kill zone shift fires as assaulting forces fight through enemy ambush position.

(5) Units consolidate and reorganize and conduct CASEVAC.

(6) Ground commander makes recommendation to AATFC to abort, reinforce, or change assault objective.

8. **Heavy assets** landing in support of unit air assault operation react to enemy contact.

a. Considerations for Heavy LZ:

(1) All forces OPCON to Heavy LZ commander.

(2) All forces rehearse and execute using a common frequency

(3) Heavy LZ commander constitutes a Quick Reaction Force from OPCON elements

b. Forces on the "Heavy" LZ encounter passive denial measures:

(1) All vehicles in the mine field stop.

(2) Unit recovers casualties and equipment and backtracks out of mine field.

(3) Heavy LZ commander designates an alternate route out of the LZ, and/prepares to clear, proof, and mark a lane through the mine field.

(4) Heavy LZ commander makes recommendation to the ground commander to abort, or to divert to alternate LZ.

c. Forces on the "Heavy" LZ encounter indirect fires.

(1) Vehicles and personnel move a specified distance and direction off the LZ (SOP, OPORD rally point, or as directed by the ground commander).

(2) Heavy LZ commander attempts to find and destroy enemy OP/forward observers.

(3) Heavy LZ commander recommends to ground commander to land subsequent serials in the LZ or to divert to alternate LZ.

(4) Heavy LZ commander attempts to determine caliber and type of indirect asset being used; directs AH-64/OH-58 to search likely firing points within the range of the suspected weapon system.

d. Forces on the heavy LZ encounter direct fires/ambush.

(1) Designated crew member provides covering fires with SAW or M203 while other crew members de-rig load. If tandem (shotgun) loads, crew members covering de-rigging face 180 degrees out from each other.

(2) Once de-rigged, vehicles move off the LZ to a covered and concealed position. Heavy LZ commander directs vehicles to position in assembly area, directs counterattack against enemy on LZ, or moves along covered and concealed route to link-up with forces on "light" LZ.

(3) Heavy LZ commander deploys QRF to fire and maneuver against an exposed flank of the enemy if necessary.

(4) Heavy LZ commander controls attack helicopter fires in the vicinity of

the heavy LZ once ground commander clears.

(5) Heavy LZ commander recommends to ground commander to abort, divert to alternate LZ, or to reinforce units on heavy LZ.

9. Fire control measures.

a. During initial serial insertion, AATFC controls all fires. Attack aviation, fire support, and door gunners engage targets as planned in the initial order and AMB. Prior to first serial arriving on the LZ weapons status is free IAW the fire plan and control measures (RFA's, NFA's, etc.).

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

c. Status of all weapons on subsequent serials is "tight." Use of target designators, A/N PEQ-15 and GCP-1A/B, is also "tight" with specific control by the ground commander.

d. 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, MRE heaters, etc.

Step One:

A. Control measures established during the AMB, include SBF positions, a Coordinated Fire Line (CFL) and an Airspace Control Area (ACA)

B. Single door exit for greater control of friendly on the ground. Allows aerial platforms to engage targets to one side of the direction of flight Restricted Fire Line (RFL) while ground troops engage targets to the opposite side.

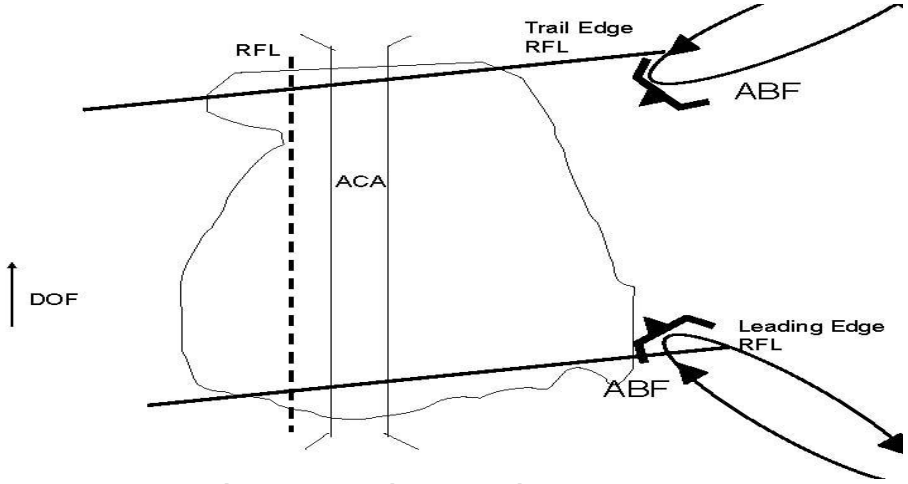


Figure 3- 13: Fire Control Measure

Step Two (First Serial):

A. As lift aircraft approach the LZ, door gunners are free to fire in both directions prior to landing.

B. Once on the ground, door gunners are restricted to firing to their side of the DOF RFL. In this example, troops exit left and fire left, lift aircraft fire right door guns only.

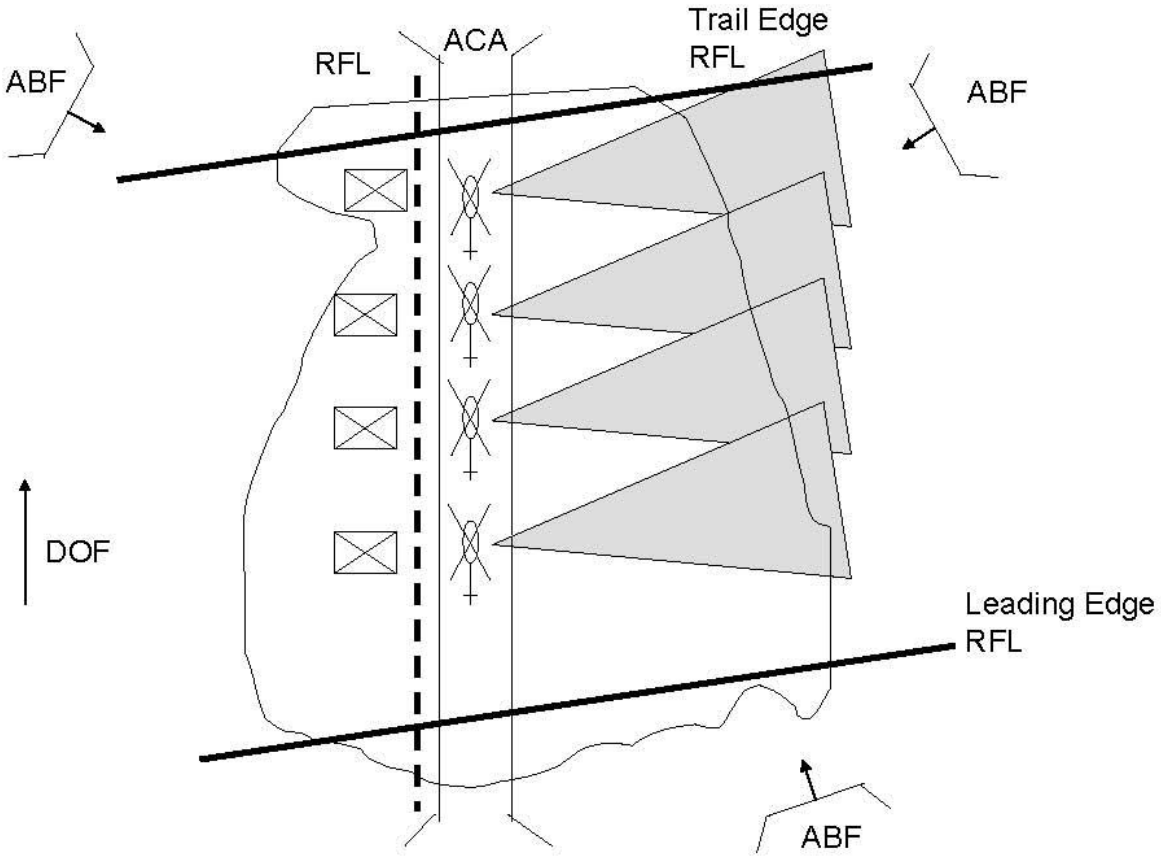


Figure 3- 14: Fire Control Measure First Serial

Step Three:

A. Chalks move to the near wood-line to assemble.

B. If chalks receive direct fire from enemy, immediate suppression of enemy with all assets available.

C. Use smoke to obscure friendly troops/mark enemy.

D. Ground commander reports contact to higher HQ or to AATFC.

E. Battle command net (FM) is activated to provide ground commander OPCON of all fires.

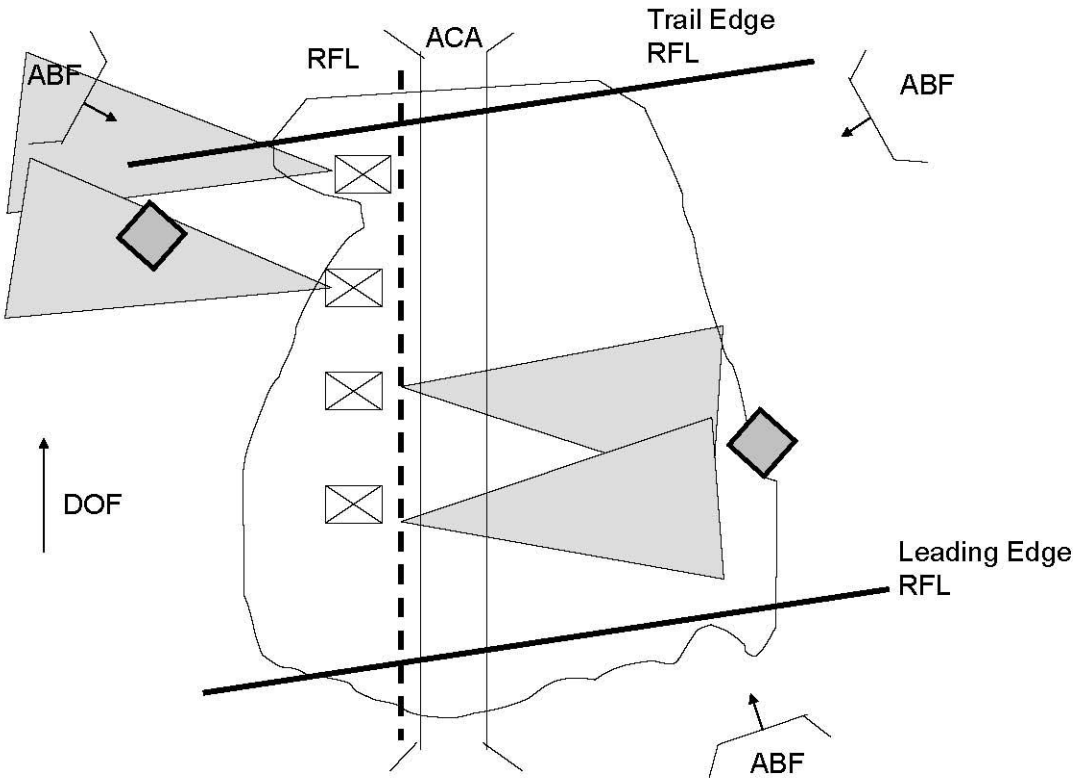


Figure 3- 15: Fire Control Measure

Step Four (Sub. Lifts):

A. Aircraft are cleared to fire forward of the leading edge RFL. Once aircraft cross the leading edge RFL, all ground fires must return to the left of the DOF RFL, while door gunners fire out the right side only.

B. As aircraft egress from LZ, they are clear to fire both sides again only after crossing the Trail Edge RFL.

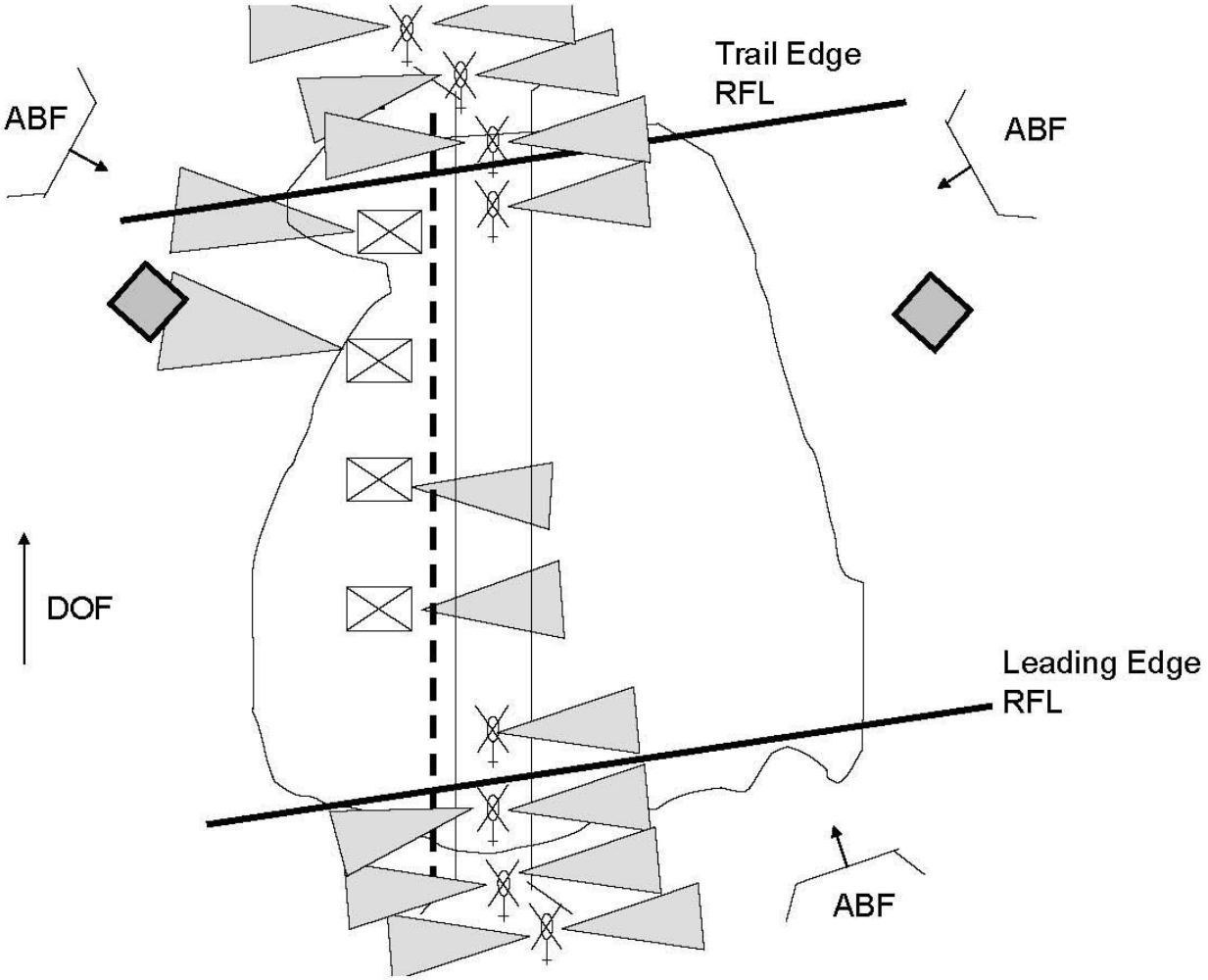


Figure 3- 16: Fire Control Measure Subsequent Lifts

Step Five:

A. Ground commander directs AH-64 or OH-58 to ABF that best supports destruction of the enemy, and maneuver by the ground force if necessary.

B. In this example, the ground commander directs AH-64 or OH-58 to suppress enemy section from the ABFs.

C. Indirect fires (Artillery/Mortars) must be clear of ACA. This can be accomplished through time or lateral separation.

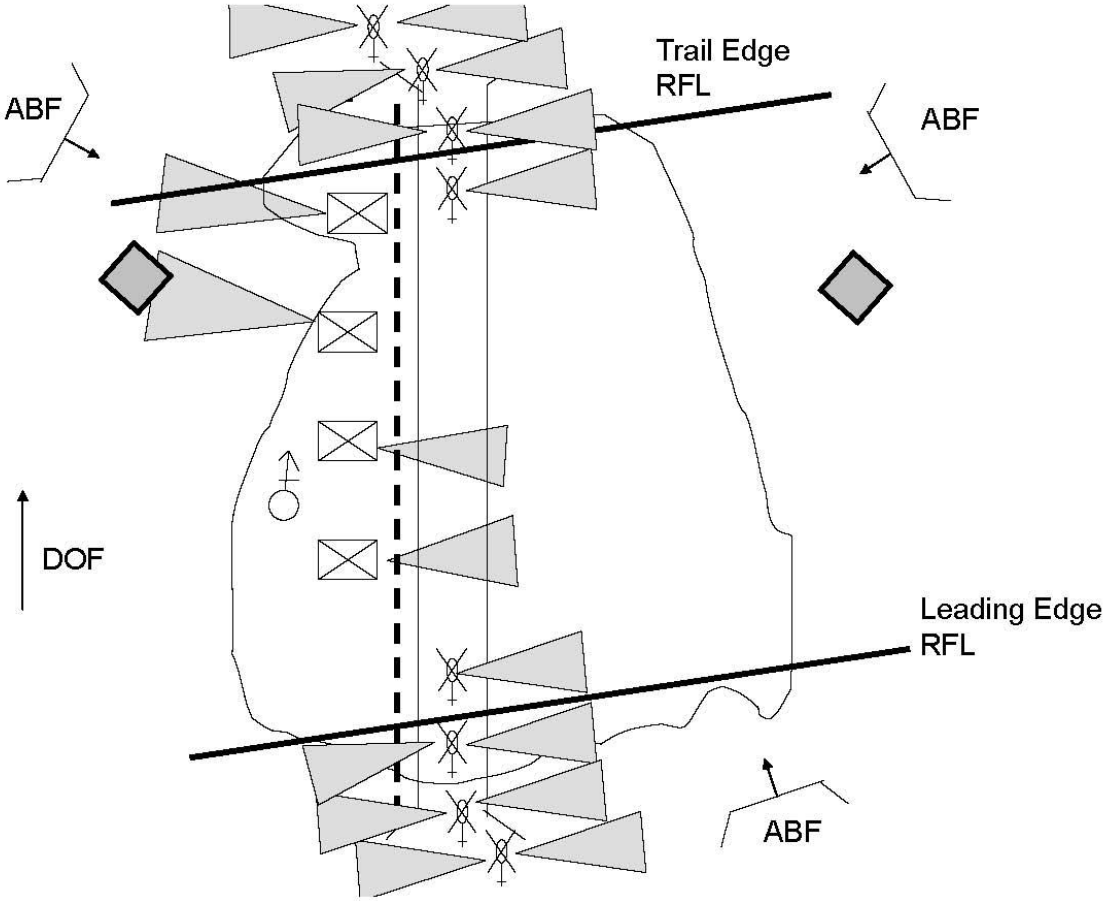


Figure 3- 17: GTC Directs CCA and CAS

Step Six:

A. Ground commander maneuvers against enemy flank to destroy if necessary.

B. AATFC decides to continue mission from current LZ or to divert to alternate LZ or to abort.

C. Casualty evacuation on egress A/C of subsequent lifts IAW AMB.

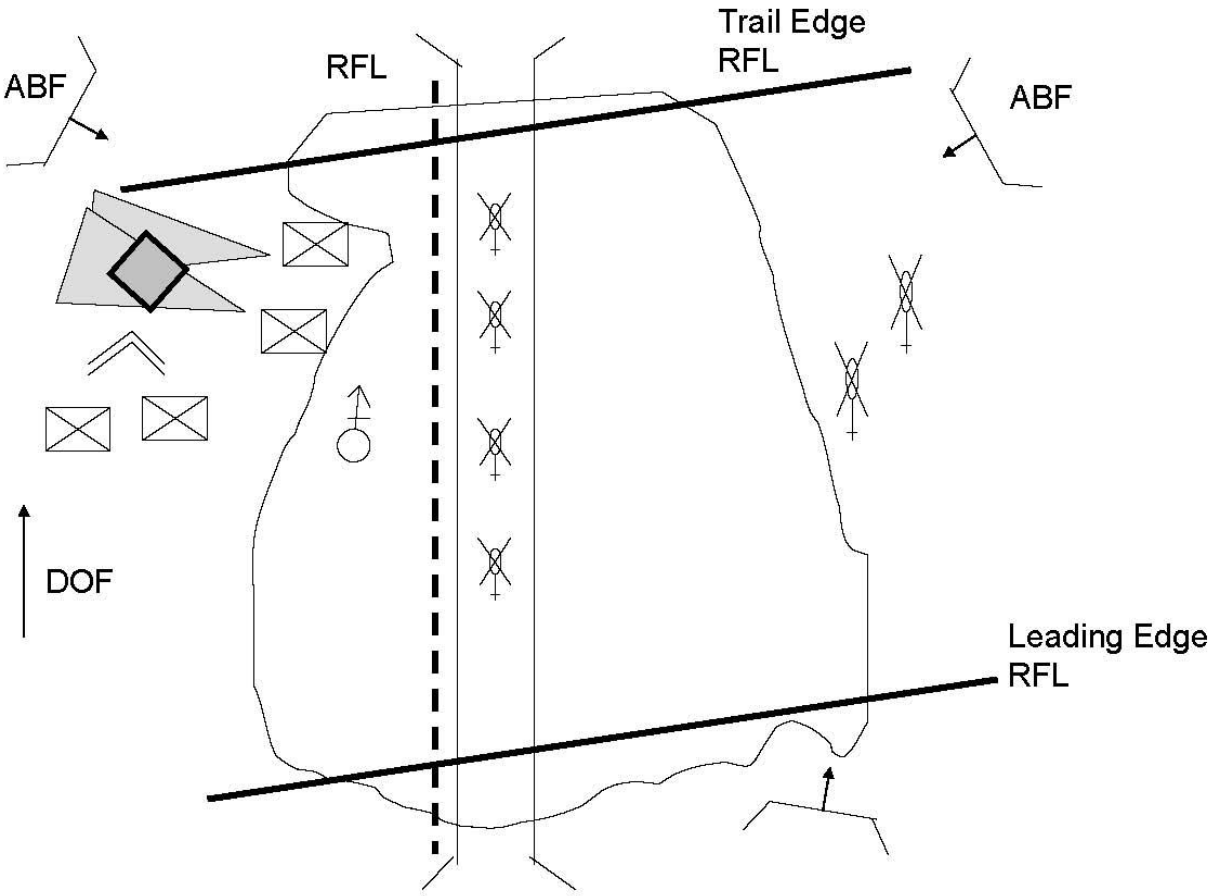


Figure 3- 18: GTC defeats remaining enemy on LZ

Chapter 4

AIR MOVEMENT PLAN

SECTION A: COMMAND RESPONSIBILITIES

1. Command responsibilities in the planning, rehearsing and execution of an AASLT operation.

a. AATFC (Air Assault Task Force Commander).

(1) Commands the air assault operation and is responsible for its overall planning and execution.

(2) Approves, disapproves, or modifies the five component air assault plans (ground tactical, landing, air movement, loading, and staging).

(3) Establishes abort criteria.

(4) Conducts the air mission brief (AMB).

(5) Establishes / controls PZs.

(6) Integrates fire support, electronic warfare, and SEAD.

(7) Develops an aviation laager plan, including security, as required.

(8) Plans for deception.

(9) Establishes priority of movement.

b. AMC (Air Mission Commander).

(1) Controls all aviation elements, including attack, heavy lift, and MEDEVAC supporting the air assault.

(2) “Fights the battle” from PZ to LZ while keeping the AATFC informed.

(3) Plans and briefs the air movement plan and landing plan.

(4) The AMC is subordinate to the AATFC.

c. GTC (Ground Tactical Commander).

(1) Commands the ground maneuver task force inserted during the air assault.

(2) Plans and briefs the ground tactical plan, loading plan, and staging plan.

(3) Ensures that the AMC's landing plan meets the requirements of the ground tactical plan.

(4) The GTC is subordinate to the AATFC.

2. Responsibilities of other key command group personnel.

a. ABC (Air Battle Commander).

(1) Commands attack aircraft.
(2) Observes/adjusts all supporting fires during the air movement phase.

(3) Controls JAAT.

b. ALO (Aviation Liaison Officer).

(1) Plans and coordinates close air support (CAS).

(2) Provides liaison with forward air controllers.

(3) Ensures the ATO/ITO depicts the AASLT air movement plans and CAS support.

c. FSO (Fire Support Officer).

(1) Plans and coordinates fires to support the scheme of maneuver.

(2) Coordinates use of the "quick fire" net during air movement.

SECTION B: ROUTE PLANNING CONSIDERATIONS

1. The air movement phase involves flight operations from PZ to LZ and back.

2. During the air movement, the AMC assumes operational control of all Army aviation forces (assault, heavy assault, attack, air cavalry, MEDEVAC, UAS, and C2). The AMC controls all timings for deconfliction and all enroute fires, to include initiation, shifting, and lifting of LZ preparatory fires.
3. Flight paths include flight routes, air corridors (specified height and width), and flight

axes (specified width but not height). Routes and corridors are commonly used. Flight axes are used less frequently.

4. One-way flight routes are preferred whenever possible to mitigate risk. Designation authority for a two-way flight route resides with the AATFC for those highly unusual circumstances where this risky measure might be necessary. Two-way flight routes are de-conflicted by time and/or altitude separation.

5. Key elements to consider when planning a flight route include:

a. Always plan alternate ingress and egress flight routes.

b. Locate the SP 3 to 8 kilometers from the PZs. The flight route starts here.

c. Locate the RP 3 to 8 kilometers from the LZs, primary and alternate. The flight route ends here.

d. Use prominent, designated terrain features located along the flight route that facilitate navigation, control of speed, and control of enroute fires as air control points (ACPs).

e. Select routes that are as short as possible, tactically sound, and conducive to successful navigation.

f. Routes should avoid brightly lit areas and population centers. This will reduce the probability of the air assault being detected.

g. If possible, select a route with terrain and vegetation that permit masking. This will deny exposure to enemy observation, direct fire weapons, and radar acquisition.

h. Consider the need to plan deception legs leaving FOBs in COIN environments. FOBs are under constant surveillance. Weigh the value of departing the FOB in a direction away from the objective versus the cost in fuel, flight time, and additional turns.

i. Ensure that no turn in the route exceeds 60 degrees if slingloads are involved.

j. Ensure routes are at least two kilometers wide.

k. Ensure the heading to the RP is within 30 degrees of the LZ landing direction. Large turns make formation flight difficult.

6. Flight routes should avoid known or suspected enemy air defenses. The FSO plans suppressive fires and nonlethal suppression of enemy air defense systems that cannot be avoided.

7. Flight routes must support both primary and alternate LZs. Each LZ should lie within a 30-degree arc from the RP. An example of flight route structure that meets this requirement is in Figure 4-1. Vulnerability of the air assault force will be reduced if the flight route facilitates rapid approach, landing, and departure from the LZ.

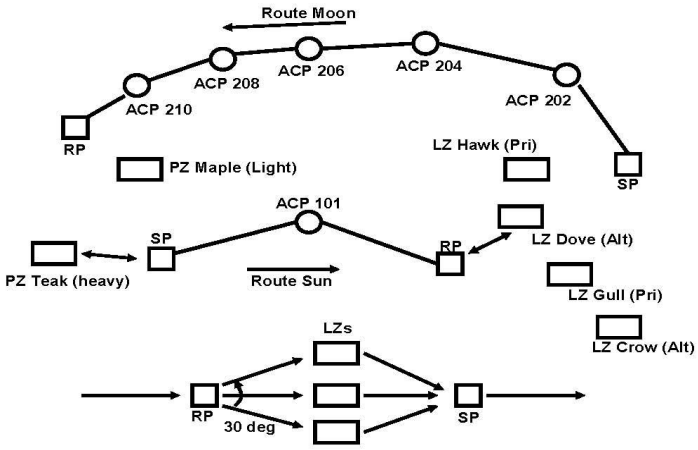


Figure 4- 1: Typical Flight Route Structure

SECTION C: SEAD/JSEAD PLANNING

1. SEAD (Suppression of enemy air defenses) is any activity that neutralizes or temporarily degrades enemy surface based air defenses by destructive or disruptive means. The purpose of SEAD is to protect and facilitate the maneuver of the AATF. It is required to set the conditions for any successful air assault operation. All available lethal and non-lethal means should be incorporated into the SEAD plan.

2. The AATF FSO is responsible for planning, synchronizing, and executing effective SEAD fires. The ground maneuver, attack helicopter, and assault helicopter fire support elements (FSEs), tactical operations officers (TACOPS), and intelligence officers participate in SEAD planning.

3. Lethal and non-lethal assets available to conduct SEAD missions include:

a. Tube and rocket artillery.

b. Air Force assets.

c. Naval gunfire.

d. Air Cavalry helicopters.

e. Attack helicopters. (The AH-64D Longbow is better suited for the SEAD mission than the OH-58D Kiowa because it is equipped with an avionics suite

capable of detecting, identifying, and locating enemy radar systems.)

f. Radar suppression and jamming (lethal and non-lethal).

g. Communications suppression and jamming (lethal and non-lethal).

h. Other EW, EA assets.

4. SEAD fires are categorized as 'planned' or 'immediate', and further described depending on the manner in which they are employed:

a. Planned SEAD: Is conducted against targets developed during the targeting process and designated for attack.

(1) Scheduled SEAD: Planned SEAD executed on a time sequence.

(2) On-call SEAD: Planned SEAD that is executed on event triggers under positive control.

(3) Deceptive SEAD: Planned SEAD fired into an area to deceive the enemy or cause him to reposition his air defense weapons away from where actual operations will take place.

b. Immediate SEAD: Conducted against ADA targets of opportunity. The execution of immediate SEAD should reflect priorities established on the High Payoff Target List and Attack Guidance Matrix. Delivery systems and quick-fire nets are critical to support immediate SEAD operations.

5. SEAD Planning is conducted as part of the MDMP and targeting process. Critical facts and assumptions that should be determined in the mission analysis include:

a. Ingress and egress flight routes and ACP locations.

b. Enroute airspeed. Use Figure 4-2 if an estimate is necessary.

Aircraft Planning Airspeeds			
Airframe	*Airspeed*	*Airframe*	*Airspeed*
UH-60 internal load	120 kts	OH-58D	80 kts
UH-60 external load	80 kts	AH-64D	100 kts
CH-47 internal load	100 kts		
CH-47 external load	100 kts		

Figure 4- 2: Aircraft Planning Airspeeds

b. Time, distance, and heading information for primary and alternate route of flight.

c. Expected FLOT crossing time (F-hour) on ingress and egress.

d. Enemy ADA locations within the AO.

e. Locations, frequencies, and call signs of friendly artillery.

f. Other assets available to deliver SEAD fires.

6. Determine enemy air defense capabilities:

a. Plot the location of all known enemy ADA systems on a map.

b. Draw a circle ('threat ring') around each ADA system. The radius of which is equal to the maximum engagement range. Depending on the threat system and its means of target acquisition (optical, IR, radar) and fire control, the size of the threat ring may change during hours of limited visibility. Terrain that blocks electronic or visual lines of sight may reduce the radius of a threat ring.

c. If available, mission planners may choose to use AMPS (Aviation Mission Planning Software), PFPS (Pilot Flight Planning Software), Falcon View, or other comparable software application to reduce workload and ensure accuracy.

d. Plot the primary and alternate flight routes, and all LZs on the map. Flight routes and LZs should avoid threat rings whenever possible.

7. Develop a course of action for SEAD employment.

a. SEAD fires should be planned against any enemy ADA system which threatens the air assault force. A period of focused immediate SEAD is normally planned at each LZ prior to the arrival of the AATF. If possible, deceptive SEAD should be planned to further mitigate risk.

b. Scheduled SEAD missions are planned against threat systems along the ingress / egress route of flight. The start time for each SEAD mission may be calculated if the assault aircraft's enroute airspeed and SP time on the flight route are known. These calculations may be made manually or with AMPS, PFPS, or similar planning software.

c. Factors that determine the duration of each SEAD mission include aircraft speed and the range of each enemy ADA system (size of the threat ring). This information may be used with planning software to determine how long each ADA system along the route of flight must be suppressed. Calculations may be made manually or estimated using Figure 4-3. *As a rule of thumb - estimate that*

the air assault will travel three kilometers in one minute.

Airspeed Conversion Chart								
Knots	Km/Hour	Km/Min	Knots	Km/Hour	Km/Min	Knots	Km/Hour	Km/Min
1	1.85	0.03	9	16.57	0.28	80	148.16	2.47
2	3.70	0.06	10	18.52	0.31	90	166.68	2.78
3	5.56	0.09	20	37.04	0.62	100	185.20	3.09
4	7.41	0.12	30	55.56	0.93	110	203.72	3.40
5	9.26	0.15	40	74.08	1.24	120	222.24	3.70
6	11.10	0.19	50	92.60	1.54	130	240.76	4.02
7	12.96	0.22	60	111.12	1.85	140	259.28	4.32
8	14.82	0.25	70	129.64	2.16	150	277.80	4.63

Figure 4- 3: Airspeed Conversion Chart

d. Assets should be positioned to support as much of the AO/AI as possible. All planned fires should be organized into a SEAD schedule or added to the EXCHECK to ensure synchronization.

e. Ensure provisions are made for immediate on-call fires in the SEAD plan. The FSO may establish a 'quick fire' net for this purpose. A quick fire net provides a direct link between an observer and weapon system (normally field artillery). Observers are ordered based on their priority of fire.

f. The effectiveness of the SEAD plan should be assessed during wargaming.

g. A fire support rehearsal should be conducted with the supporting unit. Brief and rehearse with all participants during the combined arms rehearsal.

8. Specialized SEAD assets are available, and unique planning requirements exist when operating as a component of a joint force.

a. JSEAD (Joint Suppression of Enemy Air Defenses) is a broad term that encompasses all SEAD activities provided by components of a joint force in support of one another.

b. JSEAD includes all SEAD categories and additional classifications:

(1) Joint Operations Area (JOA)/Area of Operations (AOR) Air Defense System Suppression: JOA/AOR-wide operations against specific enemy ADA systems to degrade or destroy their effectiveness. It targets high-payoff air defense systems whose degradation will have the greatest impact on the enemy's total system. Planning is based upon the Joint Force Commander's campaign planning objectives (JP 3.01.04,p. III-1).

(2) Localized Suppression: Can occur throughout the AOR / JOA and be conducted by all components but is limited in time and geographical areas associated with specific ground targets (JP 3.01.04, p. III-1).

(3) Opportune Suppression: A continuous operation involving immediate attack of Air Defense targets of opportunity. It is normally unplanned suppression and includes aircrew self-defense and attacks against targets of opportunity. (JP 3.01.04,p. III-1).

(4) Corridor Suppression: Planned JSEAD focused on creating an ADA suppressed corridor to maneuver aircraft. It may be requested by any component to the JFACC through normal channels. Four missions that normally require corridor suppression are missions transiting the forward line of own troops (FLOT), air missions supporting tactical airlift or combat, search and rescue operations or in support of special operation, and helicopter operations forward to the FLOT. (JP 3.01.04).

c. The following diagram depicts events and considerations essential to effective SEAD/JSEAD 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/JSEAD for Mobile strikes or Air Assault operations. Although the responsible agency may differ, the same actions are performed for any scale air assault.

ACTION	RESPONSIBLE AGENCY	OUTCOME
Determine and Plot air corridors Ingress and Egress routes with ACP's	DIV FSE, AVN, AC2, tasked AVN unit LNOs and ALO	Air Route Overlay
Determine and plot enemy ADA assets that affect corridors to include their support structure (i.e. C2 nodes for IADS)	DIV FSE Targeting Officer ICW G2, G2 Collection Manager and FAIO, ADAO	Threat ADA Overlay
Determine Friendly assets available: • Collection Assets • Attack Systems • Field Artillery (Reinforcing, General Support and Gereral Support/Reinforcing) • Special Munitions (ATACMs,etc.) • Attack Aviation • Joint attack systems (lethal and nonlethal)	G2/ACE (Collection Mgr etc) Division FSE IWO AVN, ALO, BCD LNOs, FSE, ACE, IO, Space Officer	Synch Matrix of Collection assets Arty Org for combat Assets Available Joint Assets available and their capabilities
Identify enemy systems that division assets can effectively suppress or destroy and those requiring support from echelons above Division	G2, FSE Targeting Officer, FAIO, and the ACE Collection Manager	ID threat systems that higher must attack
Develop initial target nominations for SEAD/JSEAD requests	FSE Targeting Officer, G2, ACE collection Manager, IWO and ALO, EWO, AVN FSO	Submit targets to Targeting Officer
Develop J-SEAD plan for echelons above Division	FSE, G3, ALO	Coordinate with higher HQ for inclusion in the ATO
Disseminate targeting data to subordinate FSEs (ATO)	DIV FSE, ALO	ATO published
Establish SEAD fire plan for ingress and egress on each corridor and disseminate as appropriate	Applicable FSE ICW S3 air/AC2, G2, ALO, AVN LNO, AVN FSO	Publish SEAD plan
Revise, update and disseminate target data as appropriate/modify H-hour	FSE, G2, appropriate Cdr	Modify Targeting Plan as necessary
Rehearse with supporting unit	FSE, BAE/ADAM, ALO, AVN LNO, AVN	
Execute		

Figure 4- 4: SEAD/JEAD Planning Guidelines

SECTION D: AIR ASSAULT SECURITY

1. The air assault security force protects lift and assault forces from the PZ to the LZ in order to preserve combat power. See Chapter 6; section B for a complete description of Air Assault Security.

SECTION E: FARP ROTATIONS

1. Forward area rearming and refueling points (FARPs) are established to support high tempo operations. Complete FARP planning considerations in Chapter 6, section A.

2. Factors to consider when FARP planning include:

a. Schedule FARP rotations to ensure the EXCHECK / timeline is maintained. If necessary establish separate FARPs for attack and lift aircraft.

b. Establish alternate FARPs (maintained in a “silent” or inactive status) which can be activated should the primary FARPs become unusable due to compromise, fire, contaminated fuel, etc..

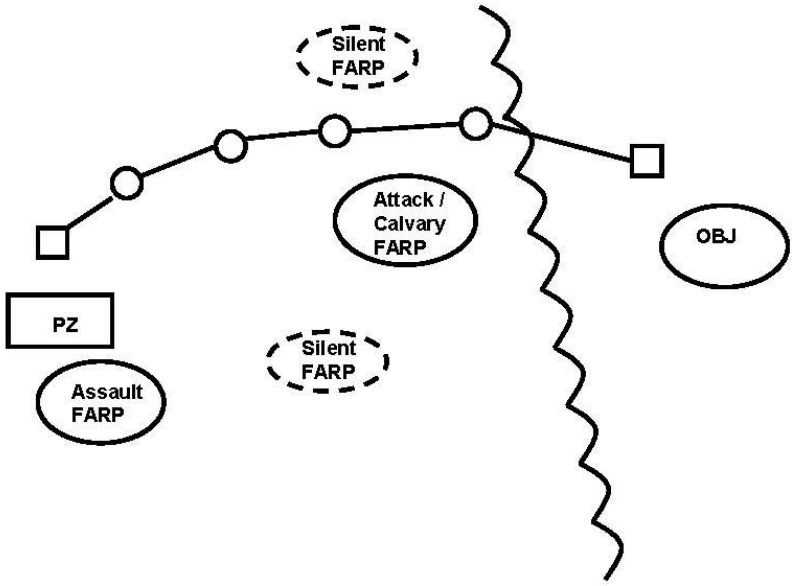


Figure 4- 5: Typical FARP Types and Locations

SECTION F: RECONNAISSANCE UPDATE BRIEF

1. The reconnaissance update brief is an important part of the air movement phase. It provides the AATF with the most currently available weather conditions, flight hazards,

enemy composition and locations, adjustments to the flight route, conditions at the LZ, and any recent CCIR.

2. If time permits the update brief should be conducted face to face. It may include imagery from personnel computer video data transfer system (PC-VDTS) or aircraft video recording systems (VRS). Imagery from RQ-7 Shadow or RQ-11A RAVEN-A unmanned aerial systems may be available. When time is limited, the brief may be broadcast to the AATF using secure radio communications.

SECTION G: COMMAND AND CONTROL CONSIDERATIONS

1. Command and Control (C2) systems support the commander in exercising authority over the AATF and directing subordinates. C2 requirements should be addressed early in the planning phase of any operation.

2. Key leaders should be tactically positioned into discrete elements, with provisions to ensure unity of command. An example for positioning key leaders is in Figure 4-6.

Air Assault Leadership Locations			
Position	**Lift**	**Serial**	**Chalk**
AATFC	1	1	2
Alternate AATFC	2	1	3
AMC	1	1	2
Alternate AMC	2	1	3
GTC	1	1	2
Alternate GTC	2	1	2

Figure 4- 6: Air Assault Leadership Locations

3. Ground forces monitor a minimum of two radio nets:

a. Combat aviation net (CAN). Two CANs are available in the SOI.

(1) CAN1 provides common communications between the AATFC, AMC, GTC, and PZCO. This net may be used by the PZCO to provide terminal guidance to individual flight leads when required.

(2) CAN2 is reserved as an anti-jamming net.

b. PZ control net. This net is reserved for communications between ground elements at the PZ/LZ. It may be used to disseminate mission critical information related to the air assault operation.

(1) The BN A&L frequency will be used for PZ control. During BDE level operations using a single PZ, the last lifted BN's A&L frequency is used.

(2) All lifted units must enter the PZ control net 30 minutes prior to their PZ time. Specific chalks may be required to monitor the net if the aircraft formation in the PZ requires.

(3) Prior to exiting the net and boarding the aircraft, the lifted unit will report "PZ clean". PZ control will reply with "permission to exit the net."

4. Frequency monitoring requirements should be organized into a communications matrix and distributed to key leaders and radio operators.

Standard Communications Matrix							
	CAN 1	CAN 2	CMD	ABN	QUICK FIRE	O&I	AVN TF
AATFC	X		X	X		X	
GTC	X		X		X		
AMC	X		X	X	X		X
FSO		X		X			
ABC	X		X	X	X		X
ALO	X						
PZCO	X	X					
Terminal Guide	X						
Lifted Unit		X	X			X	

Common Radio Nets	
CAN1	AATFC, AMC, GTC, PZCO common
CAN2	Reserved - anti-jamming
CMD	Superior headquarters and subordinate elements
ABN	AMC and AVN element leaders
QUICK FIRE	Observer and Fire Support common
O&I	Intelligence collectors and consumers
AVN TF	Supporting AVN TF CMD

Figure 4- 7: Standard Communications Matrix

5. The UH-60 is the host platform for three airborne command and control variants (FBCB2, UAS, AN/ASC-15E). Each has unique capabilities and limitations as described in Figure 4-8.

CONSOLE	FBCB2	UAS	AN/ASE-15E (UAS+FBCB2)
			
Personnel Seating	**10**	**10**	**9**
Ease of use	**Minimal Training**	**Minimal Training**	**Minimal Training**
PRC-117 RADIO	**2EA**	**1EA**	**3EA**
SATCOM	**1EA**	**NO**	**1EA**
IRIDIUM	**1EA**	**NO**	**1EA**
FBCB2 (AVN BFT)	**1EA**	**NO**	**1EA**
ICS (INTERCOM)	**5EA**	**5EA**	**10EA**
NVG Compatible	**YES**	**YES**	**YES**
Loiter Time	**2.5 HRS**	**2.5HRS**	**2.5HRS**
UAS L2 CONTROL(UAS)	**NO**	**YES**	**YES**

Figure 4- 8: Airborne Command and Control System Comparison

Note: Above listed configurations apply to the UH-60A/L models. C2 consoles for the UH-60M were not made as the aircraft were fielded. The C2 consoles listed above are analog and not compatible with the fully digital UH-60M.

6. Example AN/ASC-15E and AC2S seating configurations are depicted below.

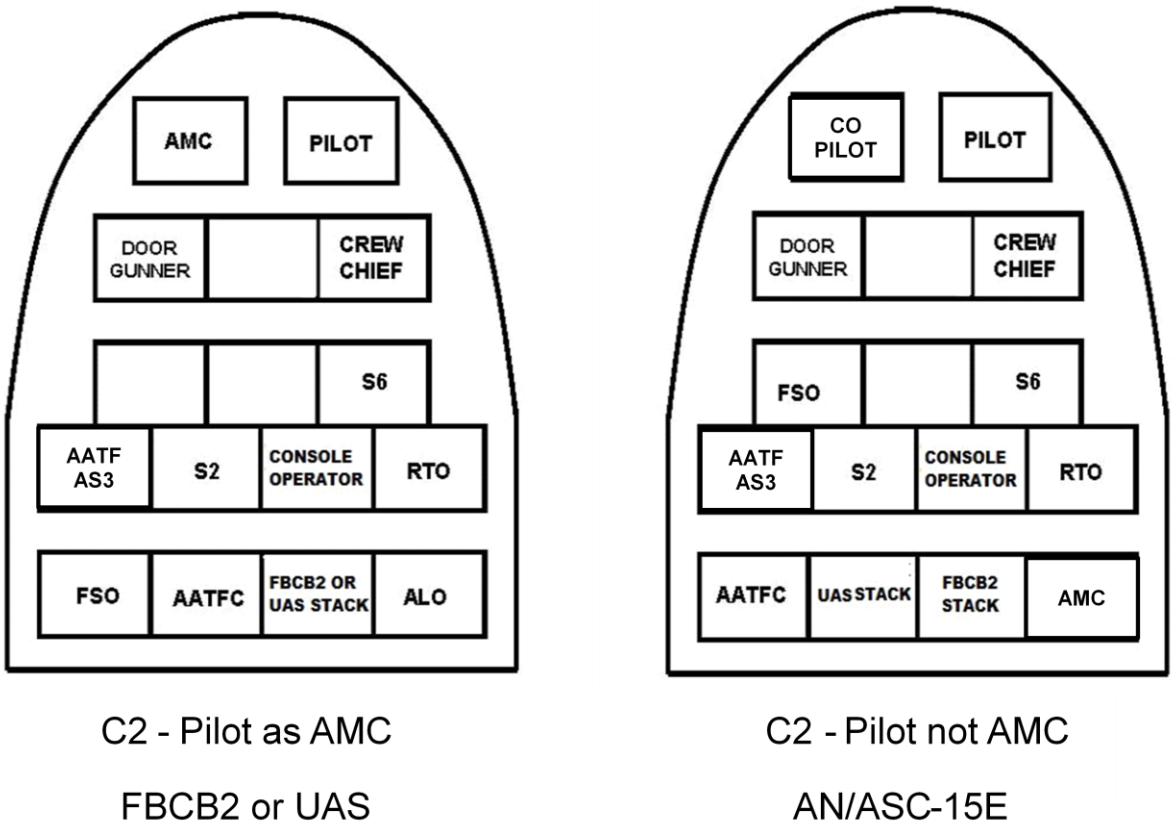


Figure 4- 9: Airborne Command and Control System Seating Configurations

Note: The seating configurations depicted above serve as an example. Exact seating of the AMC, AATF S3/AVN S3, and AATFC is situational dependent and should be taken into consideration based on each operation. For example, in certain situations, the AMC may chose to sit with the AASLT TF CDR and use the C2 console

7. The brigade signal officer (SIGO / S6) is the staff proponent responsible for planning and coordinating signal support for each phase of the air assault operation. The SIGO ensures voice and digital connectivity, providing command, control, communications, computers, and intelligence (C4I) support to the AATF.

8. Air assault operations present difficult challenges to the signal planner due to the large distances involved. Planning considerations for long range communications should include:

a. Use of HF radio when available.

b. TACSAT communication may be limited depending on azimuth and elevation

to the satellite. Switching between the azimuth and elevation antennas should be considered if difficulty is experienced.

c. UHF, VHF, and SINCGARS antennas are located on the underside of the aircraft. Low altitude operations may limit line of sight and reduce the radios effective range.

d. Maximize use of available RETRANs assets (Ground / Air).

Chapter 5

LOADING AND STAGING PLANS (PZ OPERATIONS)

1. Pickup Zone (PZ) operations are a collaborative effort between infantry and aviation elements. A PZ run to standard is the essential first step to any air assault operation.

2. The assault force organizes on the PZ, not the LZ. Every serial and lift is a self-contained force that understands what it must do on landing at either the primary or the alternate LZ, and later in executing the GTP. The number of PZs depends on the number and type of aircraft and number and type of loads. For a BCT air assault, one light PZ (UH-60 serials, personnel and slingloads) and one heavy PZ (CH-47 serials) is designated.

3. The Staging Plan establishes the PZ and organizes the movement of troops, chalks, and loads into position for the air assault. Both vehicle and artillery sling loads are staged on the heavy PZ.

Unit Duties	**BCT AASLT**	**BN AASLT**	**CO AASLT**	**PLT AASLT**
Overall PZ Control	BCT XO or BAO	BN XO or S3 AIR	CO XO, BN XO, BN S3 AIR, CO XO	CO XO, 1SG, Training NCO, Supporting Effort PLT LDR OR PLT SGT
Light PZ	Supporting Effort BN XO	Supporting Effort CO XO, S3 AIR	Supporting Effort PLT SGT	
Heavy PZ	FIRES, BSB, or STB XO	HHB, HHC, D CO, or FSC XO	Supporting Effort PLT SGT	
PZ Check-in	BDE S1	BN S1	BN S3 AIR NCO, or CO TRAINING NCO	

Note: The UH-60 PZ is the ***light PZ***, and the CH-47 PZ is the ***heavy PZ.*** Both PZs stage and load troops and sling loaded vehicles, equipment, and supplies (both UH-60s and CH-47s can lift slingloads from their respective PZs).

SECTION A. STAGING OPERATIONS

1. General: The staging plan is based on the loading plan and prescribes the arrival time of ground units (troops, equipment, and supplies) at the PZ in the proper order of

movement. The following are general considerations to follow in the staging plan.

a. When tactically sound, stage slingloads in daylight. Staging at night is extremely difficult, and should be utilized as a last resort.

b. Guide chalks to their position on the PZ. The supporting unit must maintain positive control of all chalks 100% of the time. Pure pax loads should be staged in the wood line alert and marked for quick notification and movement to their assigned aircraft.

c. Plan on three (3) hours to stage a light PZ, and a minimum of 6-8 hours to stage a heavy PZ (depending on number of loads) (Daylight).

d. Require chalk leaders to report early to PZ for chalk leader orientation for a light PZ, and at their designated time on the heavy PZ.

e. Units with equipment scheduled for slingload need to report to the respective PZ pre-rigged with reach pendants and all necessary equipment required to complete rigging once the load is staged.

f. Keep pure Soldier and vehicle/crew loads separate.

2. Procedures: Loads must be ready before aircraft arrive at the PZ; typically, ground units need to be in PZ posture 15 minutes before aircraft arrive. The staging plan also restates the PZ organization, defines flight routes to the PZ and provides instructions for linkup of all elements. Air-to-air linkup of aviation units should be avoided, especially at night when night vision goggles are being used.

3. PZ setup considerations.

a. PZ diagram. See Chapter 1 for the minimum items that must be included in the PZ diagram. This will enable aircrews, PZ Control (PZCO), and crisis action teams (CATs) to clearly understand the organization of the PZ.

b. Choose PZs by leader's reconnaissance, aerial imagery, and updated maps.

c. Consider security, size, and simplicity.

d. Separate UH-60 (light) and CH-47 (heavy) PZs.

e. Remove or mark obstacles.

f. Consider dust and debris vicinity individual loads and aircraft landing points.

g. Consider cover when choosing troop entry and staging areas. Unless area is secure, always stage soldiers in cover.

h. Consider vehicle entry and staging routes/point for cover, and restrictive terrain.

i. Always try to limit the depth of the PZ from a suitable vehicle location (plan on a standard 5 x UH-60 light serials and 4 x CH-47 heavy serials).

j. Identify the location of light and heavy PZ Control (PZCO). Co-locate the light and heavy PZCO with Brigade PZ Control when possible.

4. PZ Control (responsible for all actions on the PZ).

a. The PZCO forms a control group to assist him. It may include air traffic control, subordinate units, support personnel (personnel to clear the PZ, security, chalk link-up guides, lead aircraft signalman, inspection teams, and slingload teams).

b. Emplace for best command, control, and overwatch of PZ operations (Locate on high ground to maximize radio reception and visibility). Co-locate PZ control and aid station. Consider utilizing Sentinel radars as a way to provide situational awareness to PZ control, so the PZ Control Party can monitor the PZ actively. See Section D of Chapter 8 for description of Sentinel Radar capability in aiding Airspace Control.

c. Ensure positive communications are established with the C2 Aircraft (AATFC and AMC) and each serial commander. Based on size of the air assault and distance from PZ to LZ, the AATFC and AMC will utilize their own C2 aircraft one in a ROZ around the PZ and one in a ROZ around the LZ and Objective. If line-of-site communications (FM/UHF) is not be possible. TACSAT should be the primary means in this instance.

d. Understands and is ready to execute the bump plan.

e. Employ the entire PZ chain of action.

f. For a BCT PZ, the BCT Executive Officer is overall responsible for PZ operations and directs the efforts of the PZ control officer (BAE). To assist, the Aviation Brigade will co-locate a TAC with PZ control. During a battalion move, the battalion XO, or designated representative (usually the S-3 Air) will act as the PZCO. Company XO will act as the PZCO during company-size operations. Platoon Sergeants will act as PZCO during platoon-size operations.

g. Brigade PZ control erects the PZ update tent and runs the PZ rehearsal assisted by the Light and Heavy PZ Control Officers, BAE and Aviation LNOs.

h. Brigade PZ control serves as C2 node for all PZs. It locates where it can best command and control all aircraft.

i. Stage CH-47 CASEVAC and spares on the heavy PZ. Stage spare, C2, and MEDEVAC UH-60's as close as possible to BCT PZ control.

j. Provide one cargo truck (LMTV-type) with necessary security for EPW evacuation and one configured for casualty evacuation from returning aircraft.

k. Provide FLA and trauma treatment team to assist in CASEVAC from returning aircraft and to facilitate MEDEVAC to a level III treatment facility as necessary. Mark appropriately for easy identification.

l. Ensure redundant communications to CATs and guides.

m. Receive inbound reports from aircraft and notify guides accordingly.

n. Maintain spare goggles, static probes, gloves, and chemlights of all colors.

o. Keep AATFC and AMC notified of PZ status using the Air Assault Execution Checklist.

p. Maintain communications with all inbound and PZ-active aircraft through GTA.

q. Understand and execute the bump plan.

r. Notify inbound aircraft of bump plan, if in effect. Remind them to look for swinging IR chemlights.

s. The mission continues until the PZ is clean or until otherwise directed.

t. PZ local security is maintained at all times.

5. PZ Rehearsals.

a. PZ Rehearsal. The PZ rehearsal is conducted after the AMB and prior to the air assault mission. The rehearsal is a joint light/heavy PZ rehearsal run by the Brigade Aviation Element in conjunction with the Aviation Brigade and supervised by the BCT Executive Officer and subordinate PZ Control Officers. Discussion will be centered on the following topics:

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

b. Attendees. Infantry BCT/Battalion XO, BAE, Aviation Brigade S3, Assault LNO/s and pilots, supported unit commanders and chalk leaders, supporting NCOs and CATs, and the security force commander and platoon leaders.

c. PZ Control Officers, BAE will brief the manifest and inspection plan, time and location for chalk check in (separated by lift-serial-chalk), security plan, and conduct a walk-through using the PZ diagram.

d. Manifest Plan. Chalk leaders will provide two copies of manifests written on a standard form (no MRE box copies allowed). Each chalk leader will maintain one copy of the manifest, and provide the other copy to the PZ Control Officer at chalk check in.

e. Inspection Plan.

(1) The Soldier rigging the load completes three copies of the Sling Load Inspection Record (SLIR) (DA 7382-R) under supervision by the chalk leader. The inspection record is certified by a qualified inspector (in the grade of E4 or above and a graduate of the Pathfinder, Air Assault, or Sling Load Inspector Certification courses) and turned into PZ Control prior to the arrival of the first aircraft serial.

(2) PZ control is overall responsible for load certification. An Officer/NCO from the PZ Control Party will verify the rigging and inspection of the load and maintain a copy of the SLIR. Additional copies are given to the supporting aviation unit, securely taped or tied to the load, and maintained by PZ control (supporting unit).

(3) Drivers and TCs are responsible for their loads and must provide their own equipment to rig and fly, potentially more than once. Expendable items, reach pendants and/or static discharge equipment should be present.

f. MEDEVAC Plan: Each PZ maintains one aid station (including an ambulance with medical personnel and a dedicated CASEVAC). The unit running the PZ is responsible for providing the ambulance, the CASEVAC LMTV, and medics. During BCT air assaults the BSB provides two ambulances and associated medical personnel, a CASEVAC, and a treatment team for casualty backhaul contingency at the FARP and any additional PZ's. Typically, the BCT XO co-locates medical assets under his control at PZCO.

6. PZ Markings.

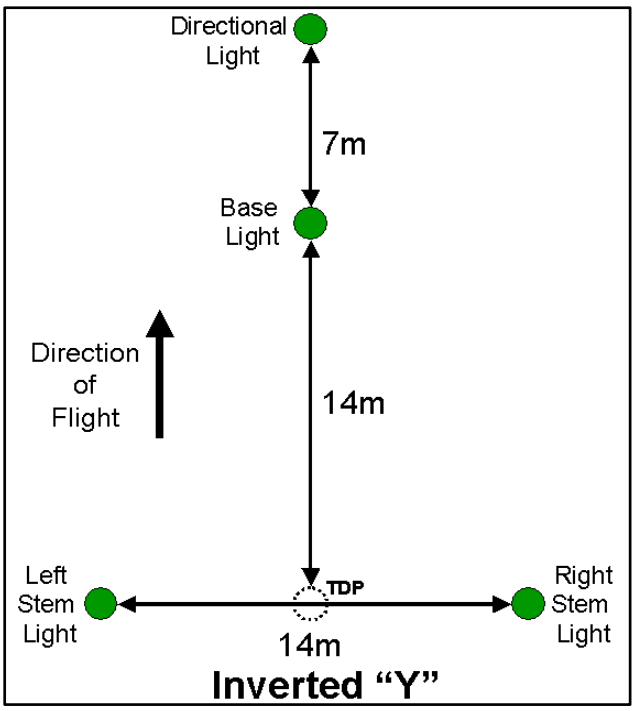
a. Daylight Operations.

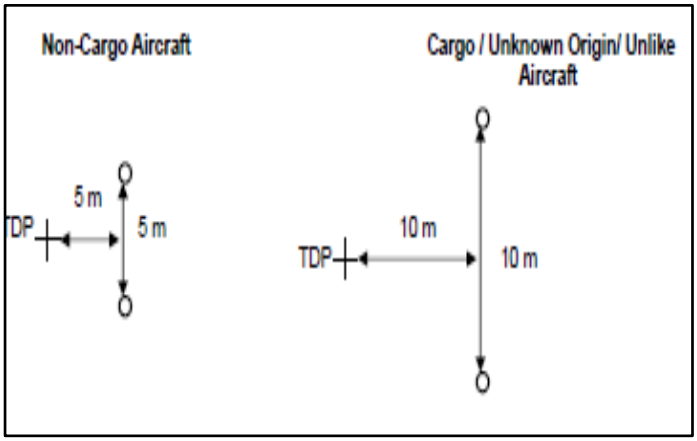
(1) During daylight operations, units will mark the number one touchdown point for each serial with a VS-17 panel. The lead AC will land approximately 20 meters to the left of the load. All pickup points are marked by the presence of a hook-up team, a signalman, and the actual load.

(2) PZ control vehicles are marked with a VS-17 panel on the hood.

b. Night Operations.

(1) During hours of limited visibility, units mark the number one touchdown point (TDP) for each serial in the first lift with an inverted “Y”. A touchdown point is defined as the specific point on the ground for a specific aircraft and is based on pilot/unit proficiency, size/type of aircraft, and atmospheric conditions. TDP landing lights are emplaced (10-meter separation for cargo aircraft and 5-meter separation for non-cargo aircraft). See Figure 5-1 for example TDP light markings.





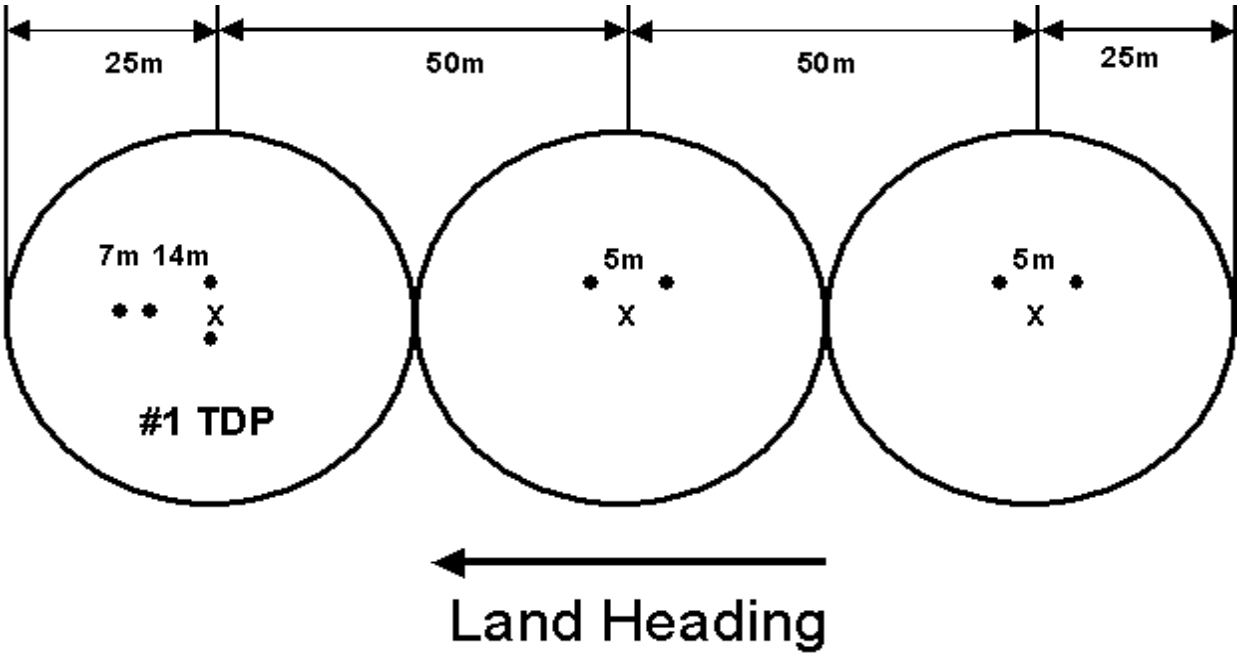


Figure 5- 1: TDP Night Markings

(2) Slingload Point landing lights and load reference lights are placed in relation to the load. Reference lights are placed 25 meters upwind of the landing point in a triangular formation with 5 meters separation as prescribed in Chapter 4 of FM 3-21.38 (Pathfinder Operations). See Figure 5-2.

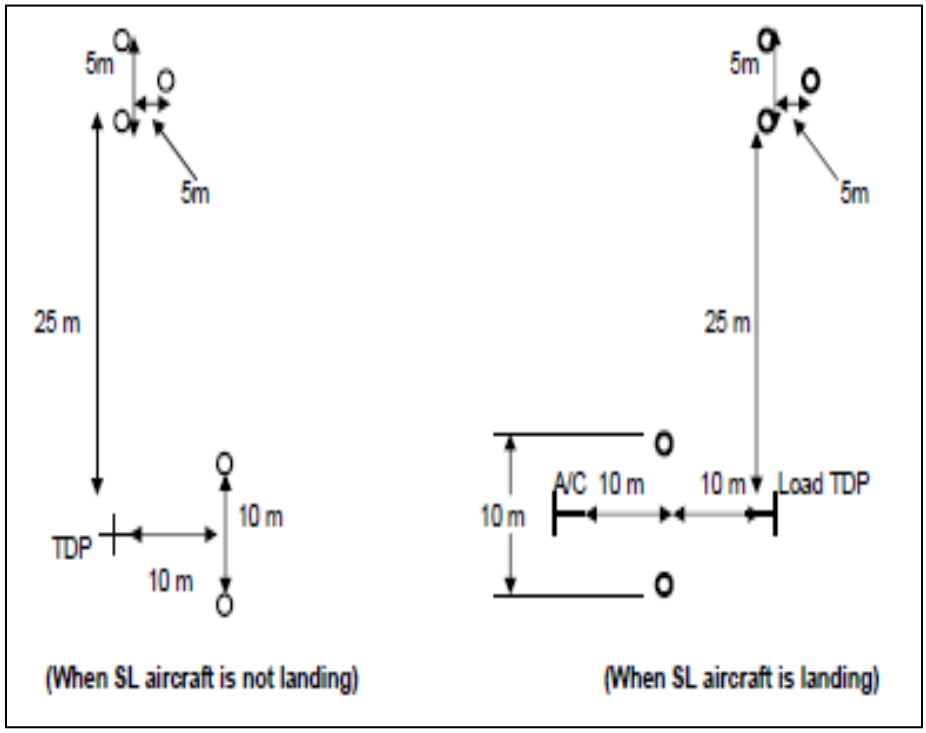


Figure 5- 2: Load Reference Lights Night Marking

(3) The PZCO directs the marking of the PZ to simplify night identification. Beanbag or chemlights in a shallow trench forming an inverted "Y" form a reliable marker for inbound aircrews. IR chemlights placed near each chalk can mark touchdown points. Other night marking mechanisms include glint tape, strobe lights with IR filters, and reverse polarity tape. VS-17 panels and smoke are good daylight markers. In grassy or dusty terrain ensure IR chemlights are elevated (use 6” tent stakes, or 4’ survey stakes) to ensure visibility.

(4) Blue chemlights are not visible under NVGs. Units will not use them for helicopter touchdown point marking.

(5) PZ control vehicles are marked with two green chemlights on the antennas.

(6) Mark FLAs with red chemlights or Stiner aid (a Stiner aid is a flat panel of cloth or other material capable of attaching chemlights in a distinct pattern i.e. a Red Cross for visual recognition on the PZ/LZ).

(7) CAT vehicles, if used, are designated with one green chemlight on the antennas.

(8) Personnel staging areas are designated with blue or orange chemlights.

POSITION	DAY	NIGHT
PZ Entry	NCOIC present and a sign	NCOIC present with 2 blue chemlights
PZ Control	M998 and VS17	2 green chemlights on antenna
Aid Station	M997	Steiner device (red chemlights)
Chalk stage points	Guide/Sign	Guides/blue chemlight per chalk
Lead TDP	International Orange VS17, smoke	Inverted “Y”/ IR flashlight /chemlights
Additional (chalk) TDPs	Soldiers on knee with raised rifle	Directional lights/IR chemlights
Obstacles	Notify Pilots via FM Cerise-side VS-17	Red light (chemlights) surrounding obstacles
Loads for pickup	Signalman/ Hookup team on loads	Swinging IR chemlight per load

Figure 5- 3: Standard Position Markings

7. Command and Control

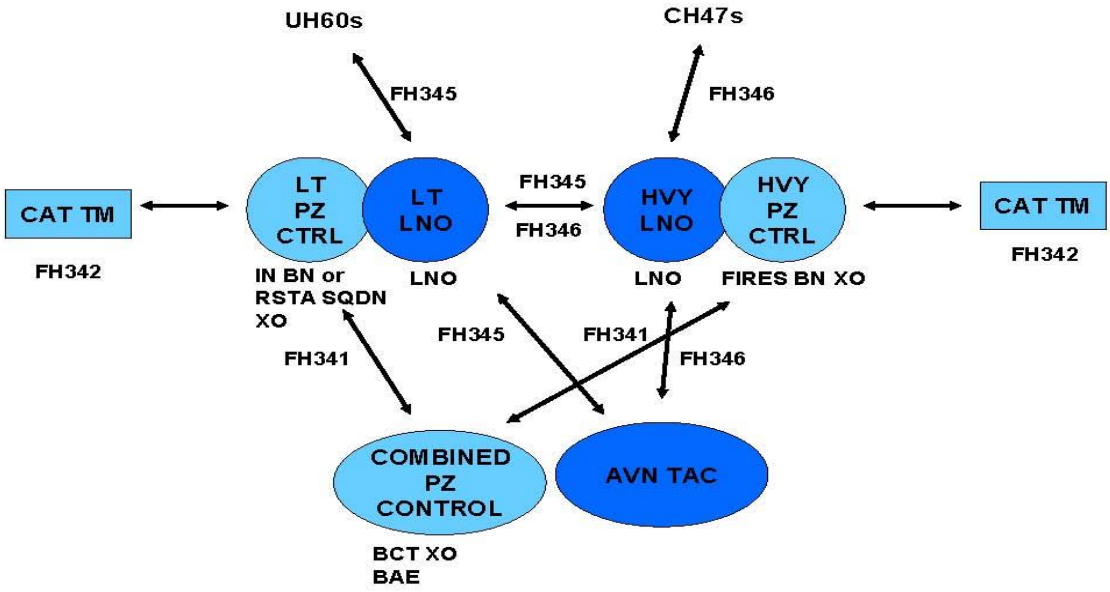


Figure 5- 4: C2 and Communication

a. PZ vehicles and aircraft will monitor the following frequencies while at the PZ:

	FM1	FM2	UHF	PRC 129	TACSAT
BCT XO AVN BDE S3 (TF PZ CONTROL OFFICER)	CAN1	CAN 2 BDE A/J	ABN (THRU ASLT LNO)	N/A	TACSAT CMD
FA BN XO (HEAVY PZ CONT.)	BN A&L	CAN 2 BDE A/J	ABN (THRU HVY LNO)	HVY GND FREQ	N/A
SUPT. BN XO (LIGHT PZ CONT.)	BN A&L	CAN 2 BDE A/J	ABN (THRU ASLT LNO)	LT GND FREQ	N/A
BAE/ASLT AVN LNO	LIGHT PZ CONTROL	CAN 2 BDE A/J	ABN	N/A	N/A
BAE/HVY ASLT LNO	HEAVY PZ CONTROL	CAN 2 BDE A/J	ABN	N/A	N/A
UH60 SERIAL CDRs/UH60 SPARE	LIGHT PZ CONTROL	SERIAL INTERNAL	ABN	N/A	N/A
CH47 SERIAL CDRs/CH47 SPARE	HEAVY PZ CONTROL	N/A	ABN	N/A	N/A
CASEVAC/ MEDEVAC/ C2 SPARE	LIGHT PZ CONTROL	PZ CONTROL	ABN	N/A	TACSAT CMD (C2 Spare)

Figure 5- 5: PZ Nets

PZ Operations
Loading and Staging

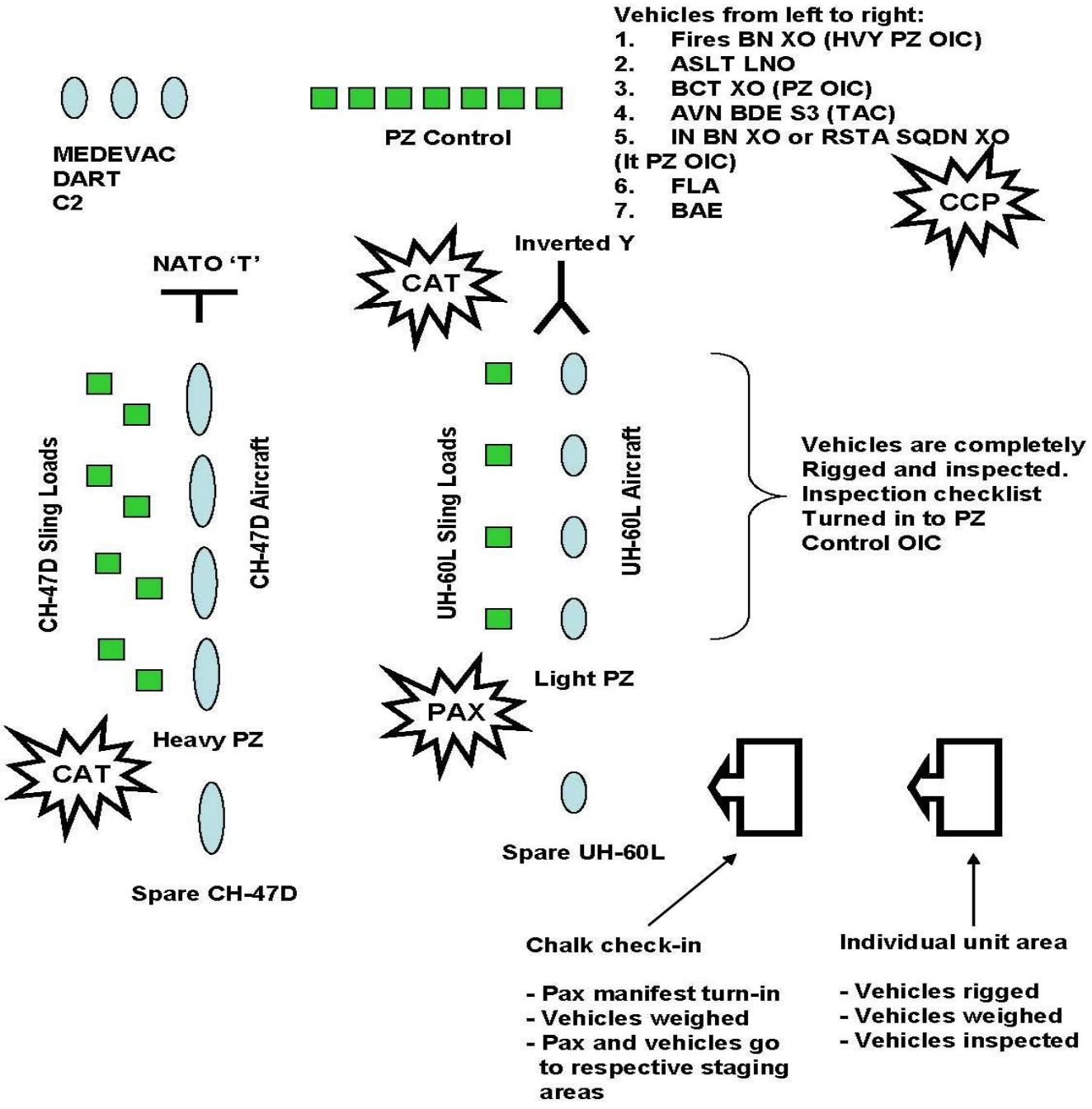


Figure 5- 6: PZ Loading and Staging

C2 and Communications Forward of PZ

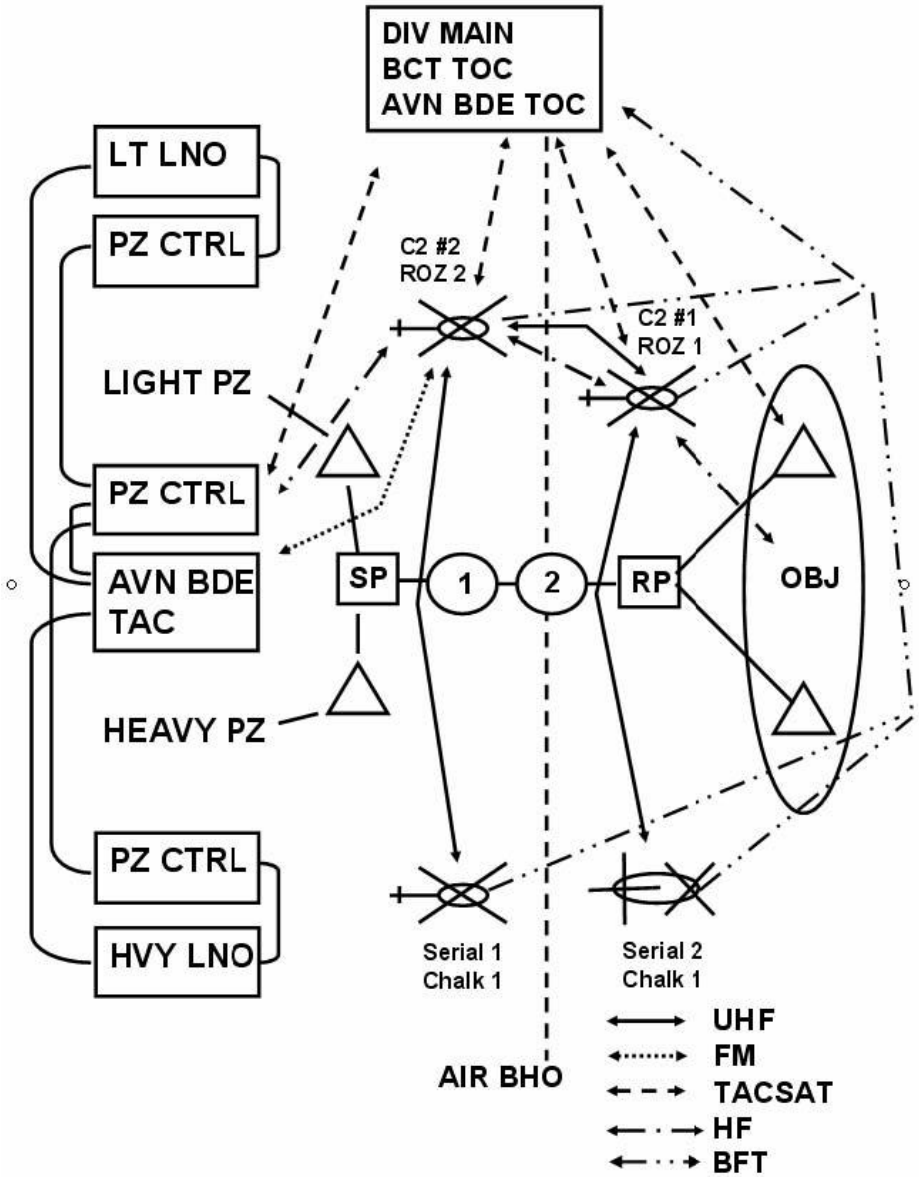


Figure 5- 7: C2 and Communication Forward of PZ

SECTION B: CHALK CHECK-IN

1. Light PZ chalk check-in.

a. Timeline. Light PZ chalk check-in (light and heavy) times are METT-TC dependent. Ample time is planned for required rigging and inspections if required and for movement to the staging area.

2. Heavy PZ chalk check-in.

a. Timeline. Heavy PZ chalk check-in times are METT-T dependent. Ample time is planned for loads to transition the 4-station check-in, rigging, and inspection.

(1) Plan 1 hour to check-in a serial, 1 hour for a serial to rig, 1 hour for the supporting unit to inspect, and 1 hour for Murphy. Stagger serials to check in at 20 to 30 minute intervals. The time required to check-in and inspect loads will increase as the number of serials increase. Serials with mostly shot-gun loads will need more time.

(2) The following chart is based on 4 load serials during daylight operations.

NUMBER OF SERIALS	CHECK-IN TIME (PZ POSTURE HOURS)
1-2	-3
3-4	-5
5-6	-6.5
7-8	-8

Figure 5- 8: Check-In Time

b. Heavy PZ Check-in Stations. The supporting unit provides one NCO and required soldiers to man each station. Communication is maintained between the supporting unit, check-in stations, and the security team with AN/PRC-148s, AN/PRC-152s, or handheld radios.

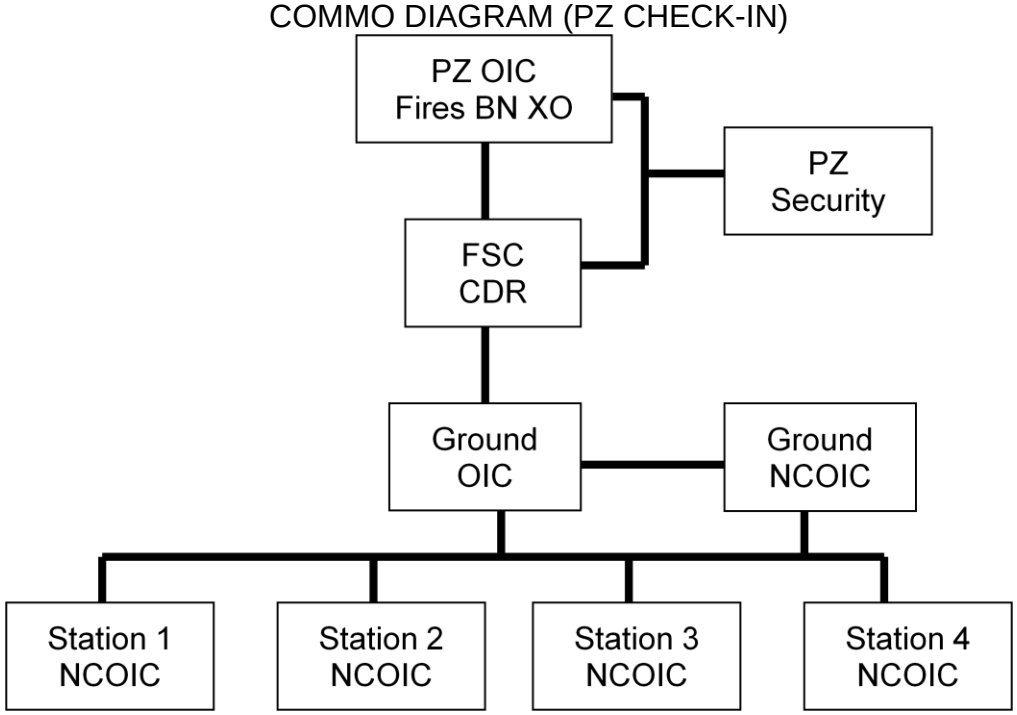


Figure 5- 9: PZ Commo Diagram

(1) Station 1: Chalk Check-in.

(a) Loads identified by Lift-Serial-Chalk (L-S-C), and shot-gun loads arrive together.

(b) Chalk leaders are briefed and manifests inspected.

(c) All air items present and separated for inspection at station 3.

(2) Station 2: Weigh-in. A large PZ (more than 40 loads) may require two weigh-in stations to alleviate a bottleneck.

(a) One copy of the manifest per load (2 vehicles for shot-gun) is collected and maintained at PZ control.

(b) Loads are weighed with all personnel and equipment to ensure they meet the ACL as briefed in the AMB. Loads overweight are sent to a designate frustrated area to download equipment prior to being reweighed. Special loads, such as Engineer equipment, pre-approved by the lifting Aviation unit, and the data plate weight are used.

(c) 3 copies of the DA Form 7382-R, Sling Load Inspection Record (SLIR), are inspected and annotated by the Station NCOIC with load weight and L-S-C. The Station NCO briefs the chalk leader on how to fill out the header and the “Load Rigged by” portion of the SLIRs. One copy is maintained on the load, one for PZ control, and one for the supporting aviation unit.

(d) Each load is visibly marked with its Lift-Serial-Chalk (L-S-C) for quick identification at stations 3 and 4.

(3) Station 3: Air Item Inspection.

(a) Air items are laid out/inspected IAW FM 4-20.197, Table 6-3.

(b) The supporting unit will maintain a parts box for on the spot corrections. This is for EMERGENCIES ONLY. Units are responsible for the serviceability and corrective maintenance of their own equipment.

(c) Loads with deficiencies are sent to a designated frustration area. Loads must remain in the frustrated area until deficiencies are corrected prior to re-inspection. No load is allowed to leave the PZ without permission from the PZ Control Officer.

(4) Station 4: Load Staging.

(a) Loads are staged in reverse chalk order by serial.

(b) Once a serial is complete, it is led into position on the PZ by a soldier from the PZ Control Party.

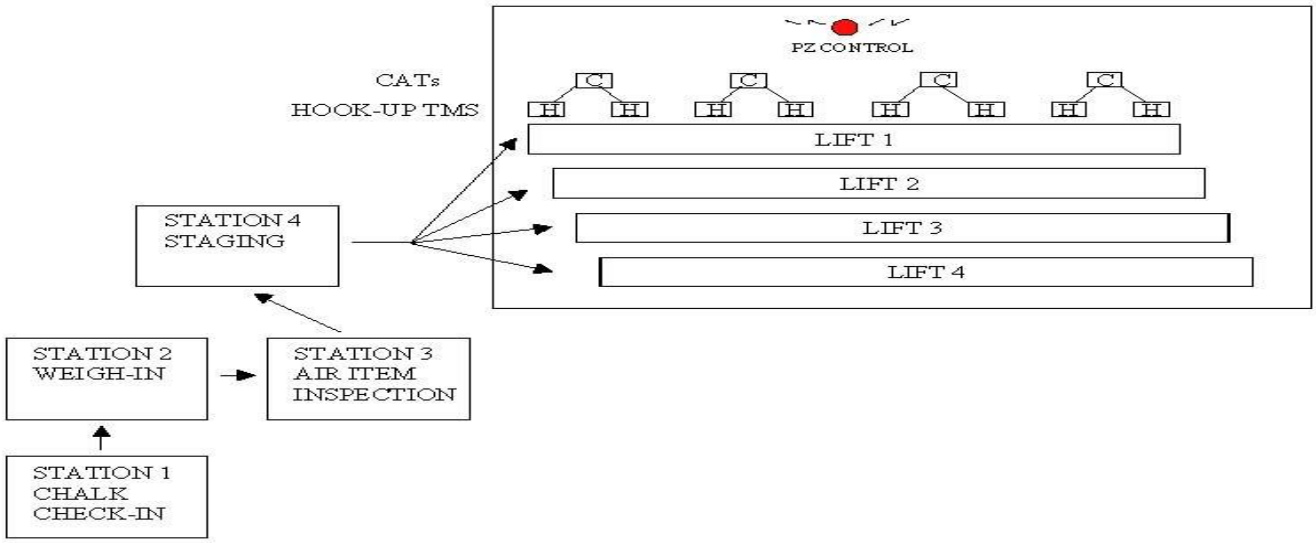


Figure 5- 10: Heavy PZ Check-in Sketch

c. Load Inspection Plan.

(1) The Soldier rigging the load completes three copies of the Sling Load Inspection Record (SLIR) (DA 7382-R) under supervision by the chalk leader. The load is certified by a qualified inspector (in the grade of E4 or above and a graduate of the Pathfinder, Air Assault, or Sling Load Inspector Certification courses) and turned into PZ Control prior to the arrival of the first aircraft serial.

(2) The inspector is a knowledgeable NCO/Officer from the PZ Control Party. The soldier must know how to rig and inspect each load for dual-point operations, and is able to reference the Sling Conversion Table, Appendix C, FM 4-20.197. The Soldier conducts an independent verification of each load and completes the "Load Inspected by" portion of the three (3) copies of the SLIR.

(3) One copy of the SLIR remains with the chalk leader and one collected by the inspector and maintained at PZ control. Aircraft Crew chiefs receive a courtesy copy.

(4) Drivers and TCs are responsible for their loads and must provide their own equipment to rig and fly, potentially more than once. Expendable items, reach pendants and/or static discharge equipment should be present.

(5) The PZ Control Party is the final approving authority on loads.

d. PZ Posture. All of the following requirements are met.

(1) PZ control established and communications checks complete.

(2) All loads inspected by PZ Control Party.

(3) All pax present on load.

(4) One copy of manifest and one copy of SLIR for each load present at PZ control.

(5) All hook-up teams briefed and at first load.

(6) All CATs briefed by PZ OIC and prepared to execute all contingencies.

(7) All the above requirements are met NLT 1 hour prior to the aircraft arrival to enable the PZ Control Party time to cope with last minute changes/problems.

SECTION C: LIGHT PZ OPERATIONS

1. Staging plan. See section A.

a. Allow 50 meters between UH-60 TDPs, 100 meters for helicopters with slingloads, 125 meters for slingload long-line operations, and 150 meters for slingload operations with night vision devices.

b. Figure 5-11 is an example of the proper distances needed to set up a Light PZ. All distances are minimums for daylight slingload operations (Night time operations is 150 meters). (Dashed lines represent the alternate method).

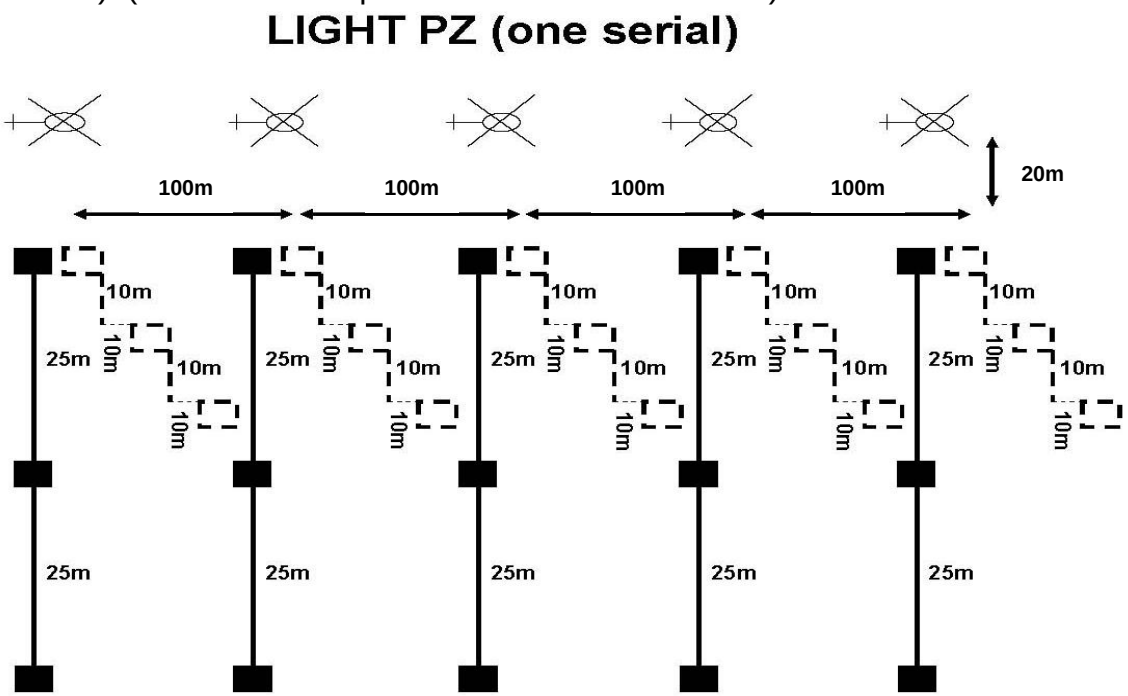


Figure 5- 11: Light PZ (One Serial)

c. Staging Troops.

(1) Keep troops in the wood line as long as possible.

(2) Chalks board the aircraft from the side facing the load. In the event that an aircraft has to make an emergency landing, the aircraft will land on the far side of the load, avoiding chalks staged in the PZ. Chalks are positioned between the load and the aircraft to shield them from possible fire; in the event an aircraft crashes.

(3) Ensure chalks are provided a PZ orientation upon entry into the PZ.

(4) Stage successive chalks behind each other (see diagram above)

(5) Guides should physically notify chalks when aircraft are inbound, ensure all Soldiers are alert.

d. Staging vehicles or other loads.

(1) Due to the nature of brown or white out conditions, a signalman is not required and a hover hookup is not safe. The load will be rigged with 50/ 120 ft non electrical long line or extension as required. An apex fitting will be placed at the end of the extension. The extension will be laid to the LEFT of the load and the aircraft will approach normally, taxi to the location of the apex fitting and set down. Once the aircraft is on the ground, the hookup team will move to the aircraft and attach the apex fitting to the cargo hook. The aircraft will suspend the load normally and depart as directed by the GTA.

(2) Whenever possible, stage, rig, and inspect loads in daylight.

(3) Total load weight is recorded and indicated on the load, in the case of vehicles, on the windshield.

(4) The max planning weight for a HMMWV under a UH-60L is 8000-8500 lbs (weight on the hook) plus troops up to a total of 9000 lbs. Weight *NOT* to exceed the weight specified on the Modified Air Movement Table (contract weight).

(5) Stagger subsequent lifts for each aircraft 25 x 25 meters to provide a reference for the previous lift.

(6) Ensure vehicles are not stuck in mud prior to hook – up.

(7) Position on flat terrain.

SECTION D: HEAVY PZ OPERATIONS

1. Staging plan. See Section A.

a. Distance between CH-47s is 80 meters in daylight, 100 meters in daylight for slingload operations, 150 meters (optimal) at night.

b. Figure 5-12 is an example of the proper distances needed to set up a heavy PZ for slingload daylight operations (Nighttime operations distance is 150 meters). All distances are minimums.

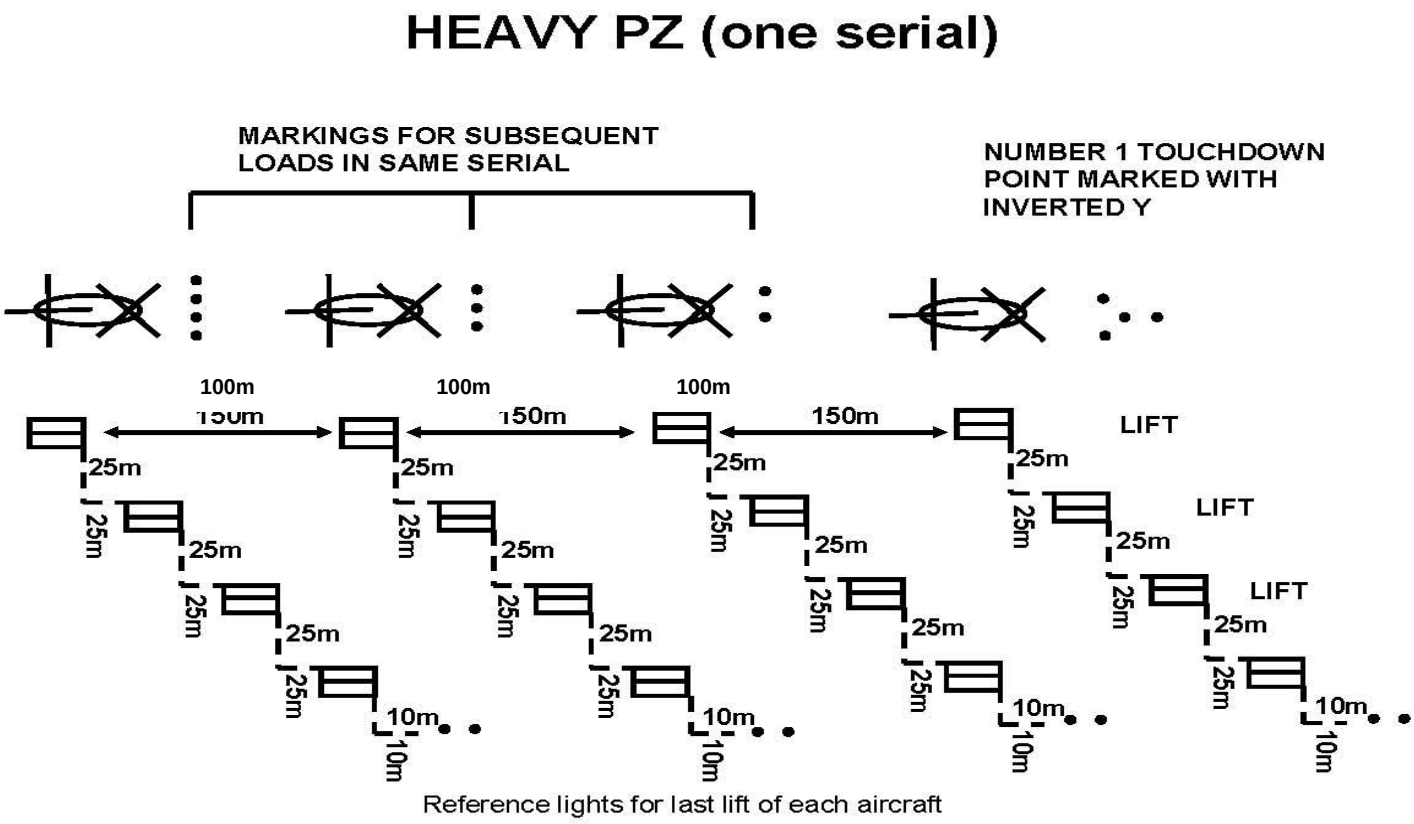


Figure 5- 12: Heavy PZ (one serial)

c. Staging Troops.

1) Keep troops in the wood line as long as possible.

(2) Chalks will board the aircraft from the side facing the load. In the event that an aircraft has to make an emergency landing, the aircraft will land on the far side of the load, avoiding chalks staged in the PZ. Chalks are positioned between the load and the aircraft to shield them from possible fire; in the event an aircraft crashes.

(3) Ensure chalks are provided a PZ orientation upon entry into the PZ.

(4) Stage successive chalks behind each other (see diagram above)

(5) Guides should physically notify chalks when aircraft are inbound, ensure all Soldiers are alert.

d. Staging vehicles or other loads.

(1) Staging vehicles: as with the light PZ. Remember, 19,000 lbs is the maximum planning weight for one CH-47 load.

(2) Whenever possible, stage, rig, and inspect loads in daylight.

(3) Due to the nature of brown or white out conditions, a signalman is not required and a hover hookup is not safe. The load will be rigged with 50/120ft non-electrical long line or extension as required. An apex fitting will be placed at the end of the extension. The extension will be laid to the LEFT of the load and the aircraft will approach normally, taxi to the location of the apex fitting and set down. Once the aircraft is on the ground, the hookup team will move to the aircraft and attach the apex fitting to the cargo hook. The aircraft will suspend the load normally and depart as directed by the GTA.

(4) Total load weight is recorded and indicated on the load, in the case of vehicles, on the windshield.

(5) Stagger subsequent lifts for each aircraft 25 x 25 meters to provide a reference for the previous lift.

(6) Ensure vehicles are not stuck in mud prior to hook – up.

(7) Position on flat terrain.

SECTION E: LOADING PLAN

The loading plan is a systematic process requiring both positive and procedural control from the Chain of Action. Contingencies are rehearsed at the PZ rehearsal. Crisis Action Teams (CATs) make the difference between success and failure.

1. Chain of Action.

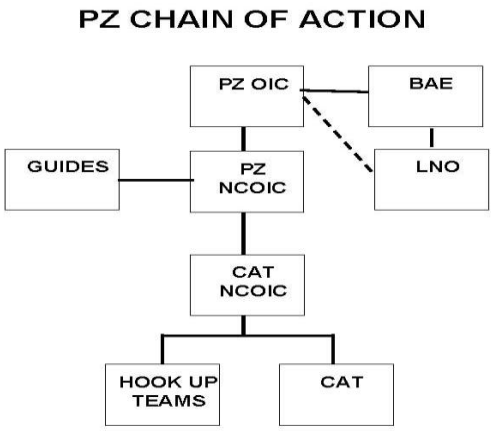


Figure 5- 13: PZ Chain of Action

2. Crisis Action Teams (CATs).

a. Provide experienced NCO/Officer who is experienced with loads rigged on the PZ.

b. Experts in hook-up procedures and rigging for all equipment.

c. Designate at least one CAT per two loads. The CATs moves between serials as each serial is lifted.

3. Communications plan.

a. The Brigade PZ control will use CAN 2 as the PZ control net as designated per the signal plan (commo card) to communicate with subordinate PZ controls.

b. Subordinate PZ controls (heavy and light) will use their battalion admin/logistics frequency to conduct ground to air (GTA) communication.

c. Crisis Action Teams will have continuous radio communications with PZ control. These teams will normally use the AN/PRC-148 MBITR, or the AN/PRC-152 Harris hand held radio to communicate with PZ control. CATs need a designated frequency other than PZ control nets. CATs must be included in the communications plan.

d. PZ control nets are frequency hop secure.

e. Aircrews will provide a headset for communication with each chalk leader. Chalk leaders will provide the aircraft pilots with a LZ diagram/imagery to verify destination LZ name, LZ gird, planned land heading, and lift/serial/chalk number.

f. Inbound to the PZ, the aircrew will establish initial communication with the PZ

control officer and transmit the following information:

(1) Call sign of PZ control.

(2) Call sign – Corresponding to the serial number and chalk number of the aircraft.

(3) Number of aircraft in the serial.

(4) Line number – Corresponding to the execution checklist.

g. Following initial communication with the aircraft, the PZ control officer will respond with the following information:

(1) Call sign of aircraft.

(2) Call sign of PZ control.

(3) Line number – Corresponding to the execution checklist.

(4) Load numbers – Corresponding to both the AMT and PZ diagram.

h. Sample radio call on PZ Control net with no changes from what was briefed:

- Aircraft to PZ Control: “PZ Pine this is Cowboy 11 with 4 aircraft for line 1, over”
- PZ Control to aircraft: “Cowboy 11 this is PZ Pine, execute as briefed”

i. Sample radio call on PZ Control net with changes in number of aircraft:

- Aircraft to PZ Control: “PZ Maple, this is Varsity 22 with only 3 aircraft for line 2, over”
- PZ Control to ACFT: “Varsity 22, this is PZ Maple, execute line 2, loads 5, 6, and 7”

j. Sample radio call on PZ control net with changes to the loads to be carried:

- Aircraft to PZ control: “PZ Oak, this is Outlaw 33 with 4 aircraft for line 3, over”
- PZ control to aircraft: “Outlaw 33 this is PZ Oak, execute line 3, loads 8, 9, 10, & 11”

4. Contingencies. Plan for the following:

a. Hot PZ. Always secure the PZ. The rear echelon or follow on echelon forces are best suited for this task. The same combat forces that will escort the ground convoy make excellent security forces. This contingency is always planned and rehearsed at the brigade PZ rehearsal.

b. Broken loads.
c. Backhaul of casualties.
d. Disabled aircraft.
e. Lost communications with aircraft, CATs, Brigade PZ Control, subordinate PZ control, AMC, and AATFC.
f. EPW detention/evacuation plan.
g. Hook-up team or boarding troop injuries.
h. Emergency laager plan(s) due to weather or mission aborts.
i. Brownout/whiteout conditions.
j. Fog setting in.
k. Major change in wind direction.

5. Bump plan. When a load is frustrated the serial commander contacts PZ control and tells them the lift/serial/chalk number of the frustrated load along with the reason for the problem, if they know it, i.e. too heavy, sling legs intertwined, etc. PZ control refers to the PZ OIC for instructions as to the aircraft's actions, i.e. stand by while hooker team re-rigs the load and re-certifies the load, or takeoff without the load. Once the serial is ready, serial commander contacts PZ control for departure clearance. The bump plan is rehearsed by the PZ Control Party and CATs. Always bump top to bottom, left to right. The only time this rule does not apply is if the next serial inbound destined for a LZ that will not support a bumped load. If this occurs, the bumped load waits until a serial destined for the appropriate LZ arrives. *Serials are not split without AMC approval*. Supported unit gets one attempt to hook a load. If it is deemed frustrated then personnel will be offloaded, and serial commander will either accept a bump plan load or have entire serial depart together, maintaining continuity. Delays on PZs burn necessary, and often critical, fuel and throw the maneuver commander's sync matrix off schedule.

a. Sending each battalion to a single LZ makes execution of the bump plan easier. It gets hard if the AATFC activates the alternate LZ due to a hot primary LZ.

NOTE: Only the AATFC has the authority to order activation of the alternate LZ. Flight leads/serial commanders do not have the authority to make this decision. They must request permission to go to the alternate LZ through the AMC.

6. Hook-up teams.

a. Composition: Hook-up team members will be Air Assault qualified and will have participated in Hooker training within 30 days. Under most conditions use a signal person to provide hand/arm signals to the pilots. The signal person must utilize cone lights with IR chemlights during low light and night PZ operations. If limiting atmospheric conditions exist such as whiteout/brownout then a signal person is neither safe nor required. In those instances it is advisable to use the 120' non-electric long lines. The aircraft will land beside the load and the crew chief, or hook up team can then connect the long lines while aircraft is on the ground. The pilots rely on the combination of visual guidance from the guide and the oral guidance of the crew chief while conducting the hook-up. Large open grassy PZs require reference points for NVG

flight operations (i.e. IR chemlights or markers for assisting crews in aircraft control). Refer to Chapter 4, FM 3-21.38 Pathfinder Operations for proper placement. UH-60 hook-up teams consist of one hook-up man and one static probe man. CH-47 hook up teams consist of a hook-up man and static probe man per APEX. (Note: a Cargo Hook Reach Pendant is preferred as this removes the requirement for a static probe person).

b. Hook-up team members need the following equipment: ID tags, Kevlar helmet, Goggles (w/clear lens), Static probe (1 per hookup team if no reach pendant used), Gloves, and Ear Plugs.

SECTION F: SLINGLOAD PROCEDURES

External Load Rigging Process
Gold Book Standard

**Note: The Gold Book does not contain the most recent changes to the FMs and TMs. The current manuals supersede the Gold Book.

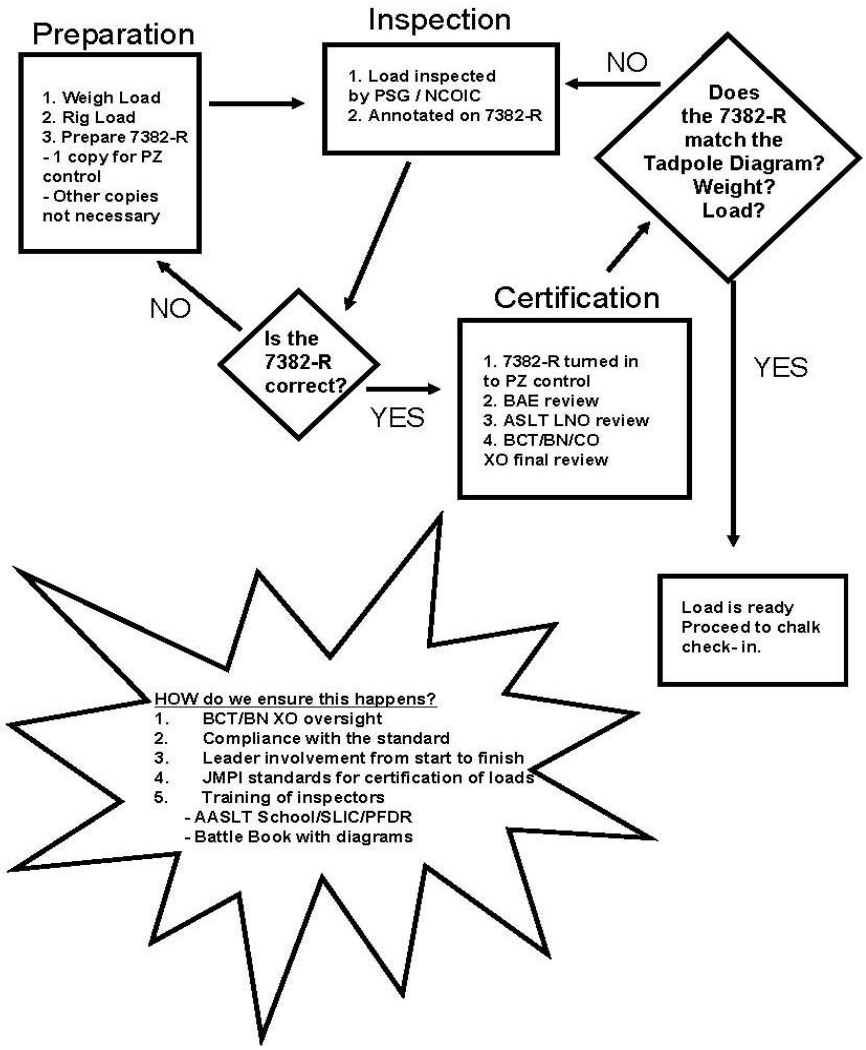


Figure 5- 14: External Load Rigging Process

1. Responsibilities for sling load operations:

a. Supported Unit. Unit conducting the air assault is responsible for:

(1) Inspecting all air items quarterly, and/or before and after an air assault operation for serviceability IAW FM 4-20.197.

(2) Ensuring PZ check-in time is met as briefed in the AMB and PZ rehearsal.

(3) Corrects all deficiencies on vehicle loads and air items at the frustration area.

b. Supporting Unit. Unit tasked to run the light and heavy pickup zones are responsible for:

(1) The overall success of a PZ. They have absolute authority in all matters concerning matters on the PZ.

(2) Ensuring all loads as air worthy and maintaining copies of the Sling Load Inspection Record (DA Form 7382-R, dated JUL 05).

(3) Controls movement of personnel and equipment on the PZ.

(4) Reports the status and activities to the Brigade Aviation Support Officer (PZ Control) on all serials and lifts.

2. Slingset Inspection Procedures

(Reference: TM 10-1670-295-23&P and FM 4-20.197)

a. Inspect all metal components for the following:

Proper Operation	Rust	Corrosion	Cracks
Bends	Distortion	Burrs	Sharp Edges
Grease	Oil	Acid	Foreign Matter

(1) If bends, cracks, distortions, or other damages are present, the sling cannot be used until you have compared the damage with the damage criteria chart.

(2) Replace any components that are damaged beyond the allowable limit.

b. DETERMINING SERVICABILITY OF THE SLINGLEGS: This is the most difficult and important part of inspecting the sling set. Serious damage or weakening of

sling legs can occur without visual damage to the fibers.

(1) Ropes that are known to have been severely overloaded or shock loaded, such as the remaining legs of a sling set after one leg has broken, should be removed from service.

(2) Ropes with rust stains or stains of unknown origin should be removed from service, as ropes can be severely weakened by exposure to certain chemicals.

(3) Each sling leg should be individually inspected for cuts, snags, or worn strands.

(4) Work pulled strands back into the rope.

(5) The outer core is constructed of 24 strands to which a certain amount of damage is allowable (see table).

(6) No damage to the inner core is permissible.

(7) Fuzziness on the outer core is normal. However, if the surface roughness increases or nylon slivers or splinters are present, remove the leg from service.

(8) Environmental conditions during storage can result in considerable shrinkage in the rope assembly length. Much shrinkage is temporary and the specified length should be restored with use. To ensure proper load distribution, the variation in length of the rope legs used in a sling assembly should not exceed 6 inches.

c. Chain Inspection:

(1) Each link of the chain should be inspected for damage such as denting, bending, and stretching. If any link is damaged, the complete chain section must be replaced.

(2) Link damage will normally occur where the links contacted the load provision or where the chain was inserted in the grabhook.

(3) Sling set chains must be between 8 feet and 8 feet 3 inches and contain between 110 to 115 links.

d. Sling Set Care and Storage:

(1) Unit personnel must perform maintenance on the 10K and 25K sling sets. The sling sets are inspected by the user before and after each use. At the present time, these sling sets have no predetermined service life. The six basic steps to prepare slings for storage at the organizational level are as follows:

(a) Wash off dirt and corrosive fluids with a mild detergent of hand soap.

(b) After washing, rinse thoroughly and then air dry the sling sets. Do not wring water out of the rope nor dry the legs in the sun.

(c) Remove corrosion from metal parts with a wire brush or emery cloth.

(d) Remove burrs or sharp edges from metal parts with a file. DO NOT USE PETROLEUM PRODUCTS (e.g. CLP)

(e) Replace any defective components.

(f) Store the sling sets in the aviator's kit bag that was issued with each sling set. Store the sling set in a dry area with good air circulation. Store the sling sets on wooden pallets, if possible, because air can circulate under and around the slings.

e. Common Sling Set Questions

APEX NUTS: Only the castellated nut with cotter pin is acceptable.

SLING KEEPERS: Only the bolt with a locking nut is acceptable (NO ROLL PINS)

SLING LEG LENGTH: Sling legs can vary up to 6" within a set. If one leg is too long / short, swap it out with another set. Length is not an indicator of serviceability. If it is possible to match sling leg length, use the longer legs on the forward lift points.

RUST PREVENTION: Once the chains are clean, they can be sprayed with dry film lubricant (NSN 9150-00-168-2000, 1 can) and left to air dry for 24 hours. DO NOT USE PETROLEUM PRODUCTS.

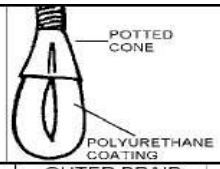
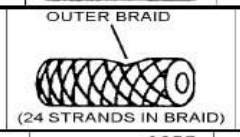
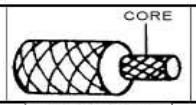
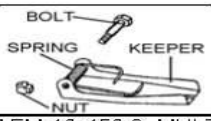
SLINGSET USE FOR VEHICLE EXTRACTION: Do not use sling sets in lieu of chains to extract stuck vehicles. This can overload the sling set and may cause sling leg failure.

f. SLING LOAD ITEMS NSNs

8305-00-268-2411	Webbing, ¼", 80lb breaking strength
8460-00-606-8366	Kit bag, flyers
4020-00-240-2146	Cord, nylon, type III, 550lb breaking strength
7510-00-266-5016	Tape, adhesive, pressure sensitive, 2 inch wide, green

1. Sling Set Inspection Checklist

Sling Set Damage Criteria

	Cuts or rubs in polyurethane coating.	No set amount or distance of cut. This tubing is meant to keep the eye clean.	Inspect closely for damage to rope.
	Rubs or frayed strand.	Strands 50% worn thru on each yarn thickness over 3" on 10K or 5" on 25K sling leg.	Replace if damage exceeds this criteria
	Cuts on external braided rope.	Not exceeding 3 strands cut through.	Replace if damage exceeds criteria.
	Deep cut thru outer braid into core.	No allowable damage if any cut goes thru to the core.	Replace the nylon leg.
	Spreading of the chain hook.	None	Replace grabhook.
	Bending the chain hook.	None	Replace grabhook.
	Bent.	None	Replace.
	Burrs.	1/8 inch maximum depth.	File small burrs smooth. If burrs exceed 1/8 inch replace apex.
	Bent or burrs.	None	Replace or file burrs
	Bolt bent or broken.	None	Replace.
	Nut missing.	None	Replace.
	Cotter pin missing or broken.	None	Replace.
	Broken or bent.	None	Replace.
	Not fully seated.	None	Replace.
	Pin loose or burrs.	None	Replace
	Locking spring broken.	None	Replace.
	Dent.	1/8 inch	Replace chain.
	Bent link.	None	Replace chain.
	Burrs.	Outside of link only.	File burrs.
	Wear.	1/16 inch	Replace chain.
	Stretch.	If chain length exceeds 8 foot 3 inches.	Replace chain.
	Roll pin.	None	Replace with nut ar bolt.
	Keeper bent or broken.	None	Straighten or replace.

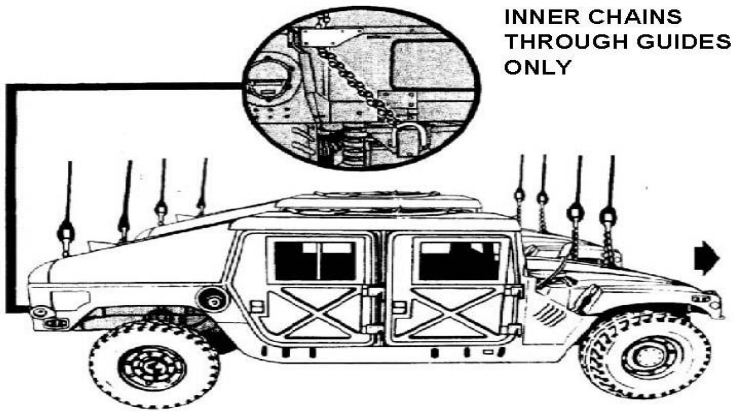
FROM FM 10-450-3: MULTISERVICE HELICOPTER SLING LOAD: BASIC OPERATIONS AND EQUIPMENT

2. Shotgun HMMWV Checklist

MATERIALS
Sling set, 10000 lb. Capacity, 2 ea.
Tape, adhesive, pressure-sensitive, 2 inch roll
Cord, nylon, type III, 550 lb. breaking strength
Webbing, cotton, 1/4", 80-pound breaking strength
Strap, tie-down, CGU-1B, 2 ea.

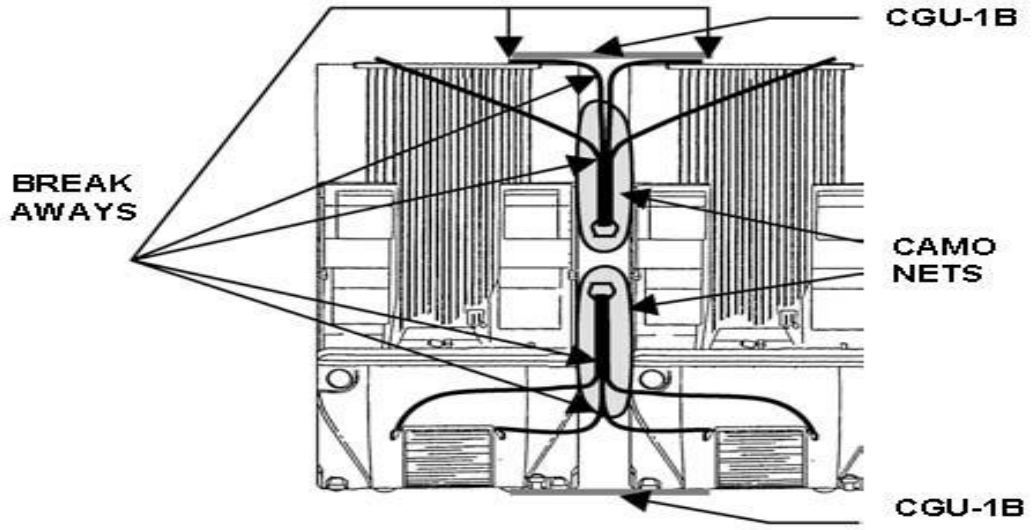
PERSONNEL
Four personnel can prepare and rig this load in 15 min.

RIGGING
1. Tie one camouflage net on each vehicle with type III nylon. Center one over the gas cap. The second net will be hung from the forward portion of the door under the windshield.
2. Drive the vehicles side-by-side as close together as possible, ensuring the bumpers are lined up.
3. Hook one sling set up to the front lifting provisions on each HMMWV, putting outer legs to outer lifting provisions, inner to inner. Use link counts of 30, 50, 50, 30. Wrap and secure all excess chain with type III nylon.
4. Tie two breakaways on the front sling set: One keeping the two innermost sling legs tight together in a "T" and a second one wrapping all four legs 3 feet from the apex.
5. Rotate the inner two towing shackles skyward and route a CGU-1B strap through both of them, keeping it twist free and hand tight with the ratchet on the outside. Fold and tape the excess 12-18" away from the ratchet.
6. Hook the second sling set to the rear lifting provisions, outer to outer, inner to inner. Do not route the outer sling legs through the sling guides. Use a link count of 3, 7, 7, 3.
7. Tie the outer chains to the outer sling guides using breakaway. On troop carrier HMMWVs, tie the outer chains to the troop strap retainer using breakaway. On all other HMMWVs, tie the innermost sling legs tight together in a "T". Tie the four sling legs together three feet from the apex with breakaway
8. Repeat step 5 for the rear lifting provisions with the second CGU-1B strap.



Shotgun Load Checklist

1	Mirrors taped and tied together with type III nylon/windshield taped
2	Electrical switches off
3	Fuel lever under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Seat belt rolled, taped, and tucked (M996: buckled through doors)
6	Hand brake on
7	Transmission in neutral
8	Engine access panel secured and latched taped
9	Excess radio cables secured
10	Battery box latched and taped
11	Hood latched and taped
12	Wheels straight
13	Front link counts 30, 50, 50, 30
14	Rear link counts, 3, 7, 7, 3
15	Breakaway 3 feet from apex and on inner two sling legs on front sling set
16	Sling legs attached to apex in correct order (outer, inner, inner, outer)
17	Apex has slotted nut with cotter pin
18	Both CGU-1B straps tight, excess taped, ratchet on outside with no twists
19	Only inner chains on the rear sling set run through the sling guides
20	Breakaway 3 feet from apex on rear slingset
21	Breakaway on outer sling guides, inner two sling legs, and 3 feet from apex on rear sling set
22	Towing pintle secured with cotter pin and tape
23	Electrical connector spring loaded or taped
24	Tailgate secured with hooks and chains and hooks secured with type III nylon
25	Troop seats secured with cotter pins or type III nylon
26	Fuel cap is hand tight



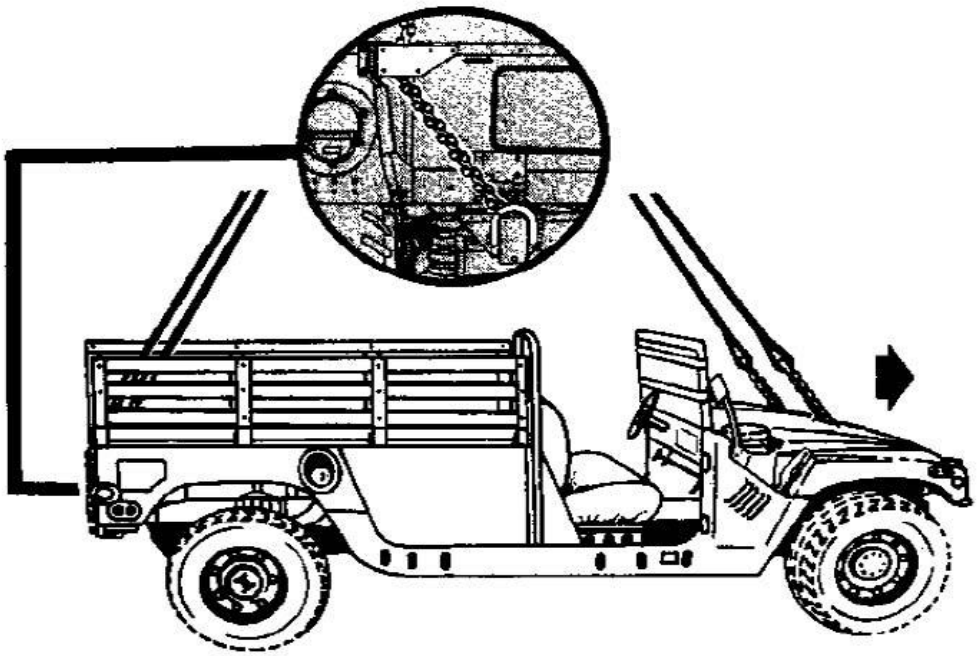
3. Single Point HMMWV Checklist

MATERIALS Sling set, 10000 lb. Capacity, 1 ea. Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength

PERSONNEL Two personnel can prepare and rig this load in 15 minutes.

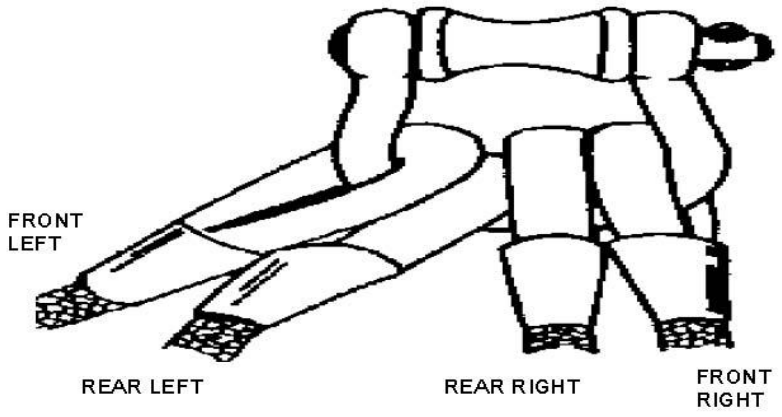
RIGGING

1. Route the 10K sling set on the load with the inner two sling legs routed to the rear of the vehicle and the outer two sling legs routed to the front of the vehicle. Ensure the sling legs are routed over the 'B' pillar (roll bar).
2. Secure the front two chains to the front two lift provisions using a link count of 80. Secure the excess chain using type III nylon.
3. At the rear of the vehicle, route 1 chain through each of the sling guides on the tailgate. Bring it through the rear lift provision and secure the chain in the grabhook with a link count of 3.
4. Pull all slack from the sling legs to the rear of the vehicle.
5. Tie a breakaway centered the 'B' pillar to the two front sling legs.
6. IF EQUIPED WITH TROOP SEATS: Tie a breakaway on each of the rear two sling legs to the troop strap retainer ring.
7. WITHOUT TROOP SEATS: Pull the two rear grabhook assemblies as tight together as possible. Tie them together in a tight "T" through one of the following four authorized positions: the sling legs, through the potted eye, through the eye portion of the grabhook assembly, or routed through all four lifting chains.



Single Point HMMWV Checklist

1	Mirrors taped and tied together with type III nylon
2	Electrical switches off
3	Fuel level under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Seat belts rolled taped, and tucked
6	Hand brake on
7	Transmission in neutral
8	Engine access panel secured and latches taped
9	Excess radio cables secured
10	Battery box latched and taped
11	Hood latched and taped
12	Wheels straight
13	Front link count of 80
14	Rear link count of 3
15	Breakaway securing front two sling legs to ‘ B ’ pillar
16	Sling legs attached to apex in correct order (both front sling legs to the outside or both rear sling legs to the outside)
17	Apex has slotted nut with cotter p in
18	Both rear chain s run through the sling guides
19	Breakaway attaching rear two sling legs to troop strap retainer ring (with troop seats) or tied in a tight “ T ” (without troop seats)
20	Towing pintle secured with cotter pin and tape
21	Electrical connector spring loaded or taped
22	Tailgate secured with hooks and chain s and hooks secured with type III nylon
23	Troop seats secured with cotter pins or two pieces type III nylon
24	Fuel cap is hand tight



4. HMMWV with M101A2 Checklist

MATERIALS:
Sling set, 10000 lb. Capacity, 2 ea. Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength Strap, tie-down, CGU-1B, 2 ea.
PERSONNEL
Two personnel can prepare and rig this load in 15 minutes.

RIGGING:

-RIGGING THE HMMWV

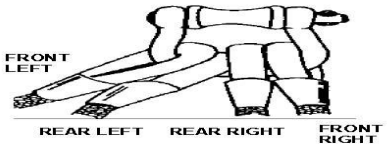
1. Route the 10K sling set on the load with the inner two sling legs to the rear of the vehicle and the outer two sling legs to the front of the vehicle, over the 'B' pillar (roll bar).
2. Secure the front two chains to the front two lift provisions using a link count of 79. Secure the excess chain using type III nylon.
3. At the rear of the vehicle, route 1 chain through each of the sling guides on the tailgate. Bring it through the rear lift provision and secure the chain in the grabhook with a link count of 3.
4. Pull all slack from the sling legs to the rear of the vehicle.
5. Tie a breakaway centered the 'B' pillar to the two front sling legs.
6. IF EQUIPED WITH TROOP SEATS: Tie a breakaway on each of the rear two sling legs to the troop strap retainer ring.
7. WITHOUT TROOP SEATS: Pull the two rear grabhook assemblies as tight together as possible. Tie them together in a tight "T" through one of the following four authorized positions: the sling legs, through the potted eye, through the eye portion of the grabhook assembly, or routed through all four lifting chains.

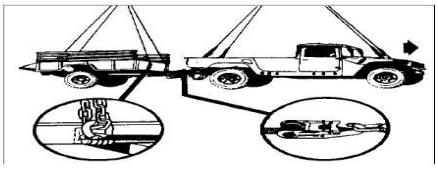
-RIGGING THE TRAILER

1. Place the trailer lunette into the towing pintle of the HMMWV. Secure with the cotter pin.
2. Connect the safety chains on the trailer to the holes by the towing pintle and secure with type III nylon. Wrap the light cable around the frame and secure with 2 inch tape in the "U" holder. Remove the front rack on the trailer.
3. Route one CGU-1B on each side around the front lift point of the trailer and the rear lift point of the HMMWV. Ensure ratchet portion is facing up and tighten both simultaneously. Secure excess strap with 2 inch tape.
4. Secure the tailgate in the open position with the hooks and chains. Secure the hooks with type III nylon.
5. Route the front two chains through the front lifting points and secure in the grabhook with a link count of 59. Secure excess with type III nylon. 6. Route the rear two chains between the tailgate and the trailer and through the rear lifting points. Secure in the grabhook with a link count of 36. Secure excess with type III nylon. 7. Tie 3 breakaways: one on each side through the tailgate securing holes and through the sling leg chains and one cluster breakaway around all four sling legs 2 feet below the apex.

HMMWV with M101A2 Trailer Checklist

1	Mirrors taped and tied together with type III nylon
2	Electrical switches off
3	Fuel level under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Seat belts rolled, taped, and tucked
6	Hand brake on in both the HMMWV and the trailer
7	Transmission in neutral
8	Engine access panel secured and latches taped
9	Excess radio cables secured
10	Battery box latched and taped
11	Hood latched and taped
12	Wheels straight
13	Front link count of 79 on the HMMWV and 59 on the trailer
14	Rear link count of 3 on the HMMWV and 36 on the trailer
15	Breakaway securing front two sling legs to ‘ B ’ pillar
16	Sling legs attached to both apexes in correct order (both front sling legs to the outside or both rear sling legs to the outside)
17	Both apexes have slotted nut with cotter pin
18	Both rear chains run through the sling guides
19	Breakaway attaching rear two sling legs to troop strap retainer ring (with troop seats) or tied in a tight “ T ” (without troop seats)
20	Towing pintle with trailer lunette secured with cotter pin and tape
21	Electrical connector spring loaded or taped
22	HMMWV tailgate secured with hooks and chains in the closed position and hooks secured with type III nylon
23	Troop seats secured with cotter pins or two pieces type III nylon
24	Fuel cap is hand tight
25	Trailer safety chains secure with type III nylon and light cable wrapped around frame and secured in “ U ” holder
26	CGU-1Bs are routed through trailer and HMMWV lift points with ratchet facing up and excess secured with 2 inch tape
27	Support leg of the trailer locked up and secured with type III nylon
28	Breakaway on the trailer on the rear two sling legs to the tailgate hook holes and one breakaway 2 feet from the apex on all four sling legs
29	Trailer tailgate in the open position, supported by the hooks and chains with hooks secured with type III nylon





5. LMTV Checklist

MATERIALS Sling set, 25000 lb. Capacity Additional apex with two extra lifting chains Spreader bar assembly, 2 ea. Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength

PERSONNEL Two personnel can prepare and rig this load in 20 minutes.

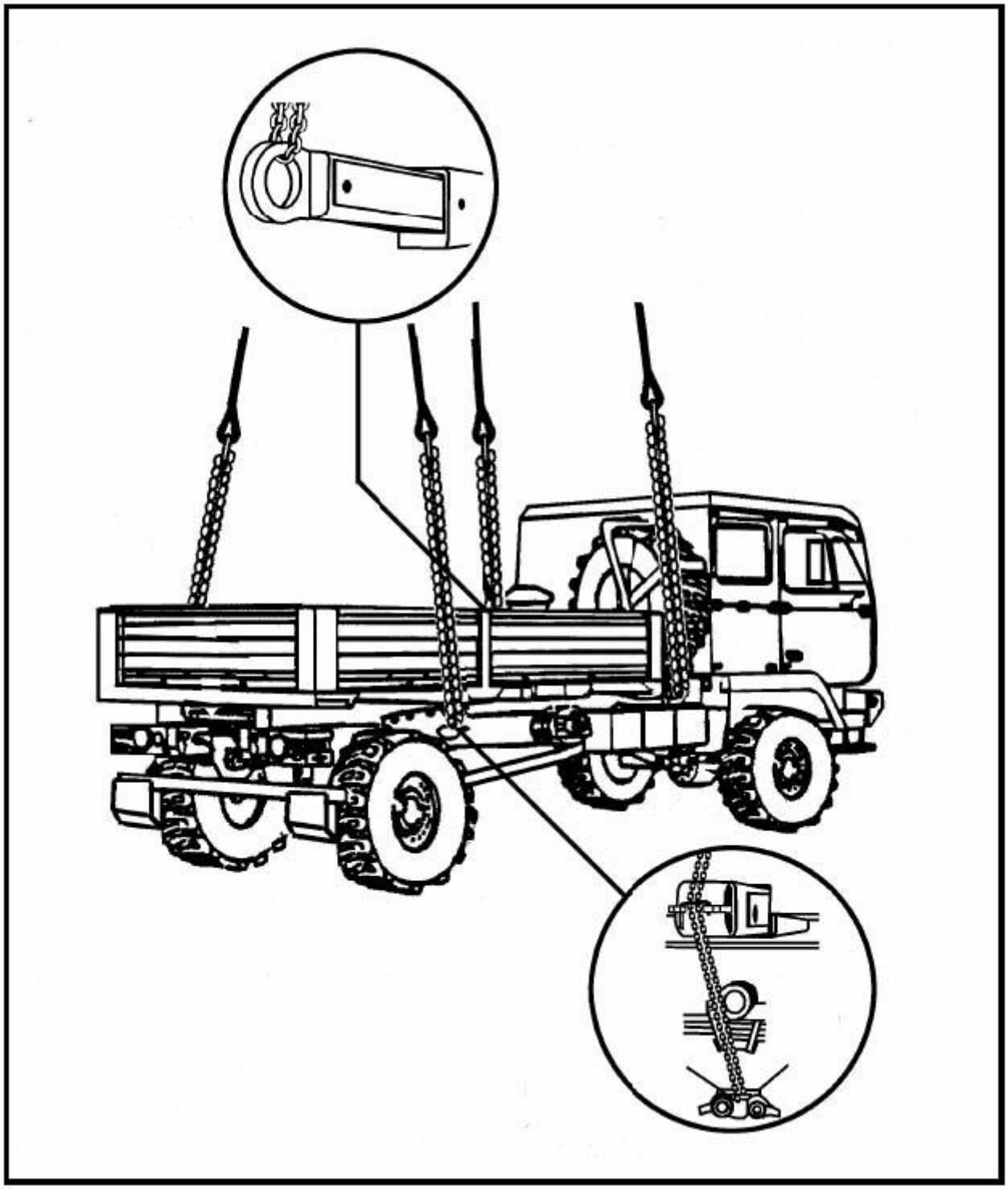
Preparation & Rigging

1. Fold the cab sides up and fasten the roof to the cab if the cab is in the stowed/airdrop position.
2. Extend the front lift provisions and the rear load spreaders and lock in place using the attached pin and safety pin.
3. Roll up the windows in the cab.
4. Fasten all seat belts.
5. Tape all windows using the X configuration. Also tape all lights, and reflectors.
6. Ensure that all electrical switches are in the OFF position.
7. Ensure that the vehicle fuel is at 75% or less. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation and secure with 2" tape.
8. Ensure that the vehicle parking brakes are engaged and that the transmission is in neutral.
9. Remove the air intake cowling by loosening the clamp and twisting off. The air intake stack can be covered with 2" tape or a t-shirt taped over it. Secure to the passenger seat using the seat belt.
10. Ensure that the front wheels are pointed straight ahead. Tie down the steering wheel using the Type III nylon.
11. Fold the side view mirrors back and secure with Type III nylon to the inside door handle.
12. Safety the cargo bed walls securing clips in the secured position with tape.
13. Stow mud flaps by bending and hooking on the mud flap hooks.
14. Tape the filler pipes behind the cab on the driver's side with 2" tape to prevent the sling legs from entangling.
15. Secure any cargo, vehicle canvases, and bows in the bed of the vehicle.
16. Ensure that the tailgate is in the UP position.and secured with the latches provided and additionally with 2"tape. Also the ladder will be stored under the bed of the vehicle.
17. Attach the additional lifting chains to the lifting chains already attached to the sling leg. Place the 2 sling legs on a 25K apex and secure with the bolt, castellated nut, and cotter pin. Place the apex in the bed of the vehicle and route the sling legs over the troop seats above the load spreader.
18. Route the free running end through the load spreader and through the lift point located under the bed of the vehicle and back through the load spreader with a total of two chains in the load spreader guide.
19. Secure the chain link into the grabhook keeper with a link count of twenty. Wrap the excess and secure with Type III nylon.

20. Secure the remaining two sling legs on the remaining apex. Place the apex in the front bed of the vehicle.
21. Route the right sling leg over the spare tire and the left sling leg between the air intake stack and the cab of the vehicle. Misrouting will cause damage to the air intake.
22. Route the lifting chains through the extended lifting provision only one time. Secure with a link count of thirty. Wrap the excess and secure with type III nylon.
23. There are two mandatory breakaways for the LMTV and requires two personnel to tie them, one to pull all slack skyward and the other to tie the breakaways. Use ¼ in cotton webbing for the breakaways. The rear breakaway should be tied in a figure 8 around both sling legs. The front will be tied around both sling legs and to the spare tire retainer.

CHECKLIST

Wheels straight & Steering wheel secured
Glass and plastics shatter proofed
Mud flaps up
Load spreader extended & secured with Pin and Safety pin
Sling leg routed with a link count of 20 in the rear with breakaway
Lift point extended
Sling legs routed over spare tire & Link count 30 in the front with Breakaway to spare tire bar
Excess chains secured with Type III nylon
cargo bed latches secure
Fuel cap secured
Air intake cowling secured
Parking brake engaged
Electrical connector secured with 2” tape
Mirrors secured
Filler pipes padded
Slave receptacle cap secured
Trailer electrical connect secured
Towing pintle secured
Troop seats secured
Apex secured



6. John Deere M-Gator

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
John Deere M-Gator (Empty) (Model # VGM6X01001)	1,400	10K	3/30	90
John Deere M-Gator (with load) (Model # VGM6X01001)	2,450	10K	3/40	90

Materials.

(I) Sling set (10,000-pound capacity).

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

Personnel. Two persons can prepare and rig this load in 10 minutes.

Procedures. The following procedures apply to this load:

1 Preparation. Prepare the load using the following steps:

(a) Secure the gas cap, tailgate, fire extinguisher, and all equipment and cargo inside the vehicle with tape, nylon cord, or lashings.

(b) Place tape on all the lights.

(c) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

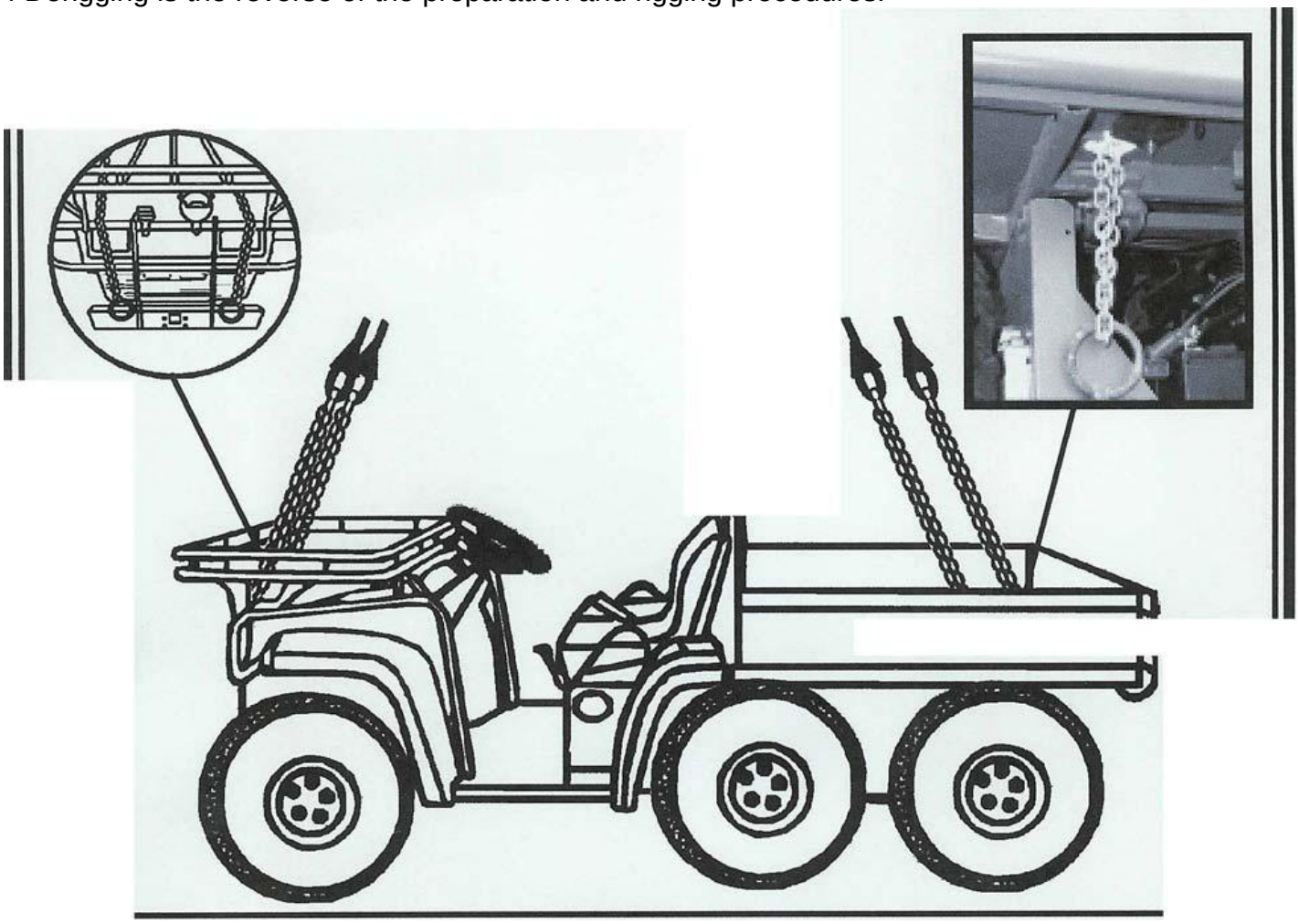
(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard or type III nylon cord.

2 Rigging. Rig the load according to the steps below.

3 Hookup. The hookup team stands on the vehicle. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting on the cargo hook. The hookup team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

4 Derigging is the reverse of the preparation and rigging procedures.



Rigging Steps

1. Position the apex fitting on top of the vehicle. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Route the chain end of sling leg 1 through the litter carrier and over the brush bar to the left front lift provision. Loop the chain through the lift provision and follow the chain

routing back to the grab link. Place the correct link from the above Table in the grab hook. Repeat with sling leg 2 through the right front lift provision.

3. Slide the black circular hole covers, located in the vehicle bed, to the side. Route the chain end of sling leg 3 through the left exposed hole and the left rear lift provision. Place the correct link from above Table in the grab hook. Repeat with sling leg 4 through the right exposed hole and right rear lift provision.

4. Secure all excess chain with tape or Type III nylon cord.

5. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

GATOR Inspection Checklist

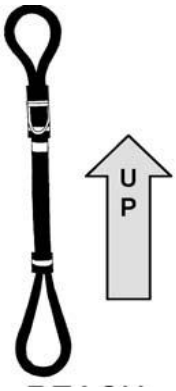
1. Proper and serviceable (10,000lb)
2. gas cap secure
3. tailgate secure
4. cargo and equipment is secure
5. fire extinguisher secure
6. 2” tape on all glass and plastics
7. full tank 3/4 or less on fuel
8. parking brake on
9. transmission in neutral
10. front wheels straight
11. steering wheel secure
12. apex order (outer sling legs to the front, inner to the rear)
13. front sling legs- lifting chain routed through litter carrier and over the brush bar (repeat for both sling legs)
14. front sling legs- correct link count to the front **(link count 3)**
15. back sling legs- lifting chain through holes in vehicle bed and through rear lift provision (repeat for both sling legs)
16. back sling legs- correct ling count to the rear **(link count 30 empty or 40 with load)**
17. excess chain to the rear secure
18. breakaway- one cluster around all four sling legs

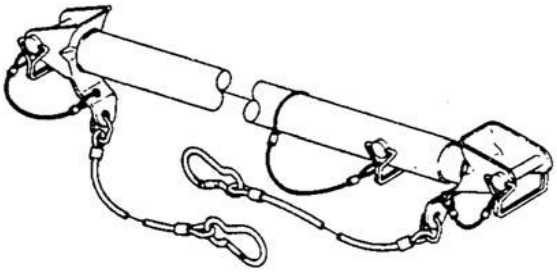
7. Dual Point M966 FLA Checklist

MATERIALS
Sling set, 10000 lb. capacity with additional apex
Tape, adhesive, pressure-sensitive, 2 inch roll
Cord, nylon, type III, 550 lb. breaking strength
Webbing, cotton, 1/4", 80-pound breaking strength
Spreader bar assembly

Personnel
Two personnel can prepare and rig this load in 15 minutes.

Rigging
1. Break the sling set into two sling sets, each with two legs. 2. Connect the sling legs of the front sling set to the lift provisions on the hood and insert link 80 in the grab hook. Secure excess chain with type III nylon. 3. Position the second sling set apex on the roof of the vehicle 4. Lay the spreader bar on the roof of the vehicle. 5. Route the nylon rope through the guides on the ends of the spreader bar. Attach the spreader bar guide retainer pins and keepers. 6. Attach the spreader bar check cables to the eyebolts located on the aft exterior side wall of the vehicle. Ensure the sling legs are behind the check cable eyebolts. 7. Route the chains through the rear lift provisions located on the outer ends of the rear bumper (not through the rear tie-down provisions). Insert link 45 in the grab hook. Wrap and secure excess chain with type III nylon. 8. Cluster the front sling legs three feet from the apex and secure with one wrap of breakaway. 9. Pull the rear sling legs together in a tight "T" on the roof and secure with one wrap of breakaway. 10Ah hd bhhf d



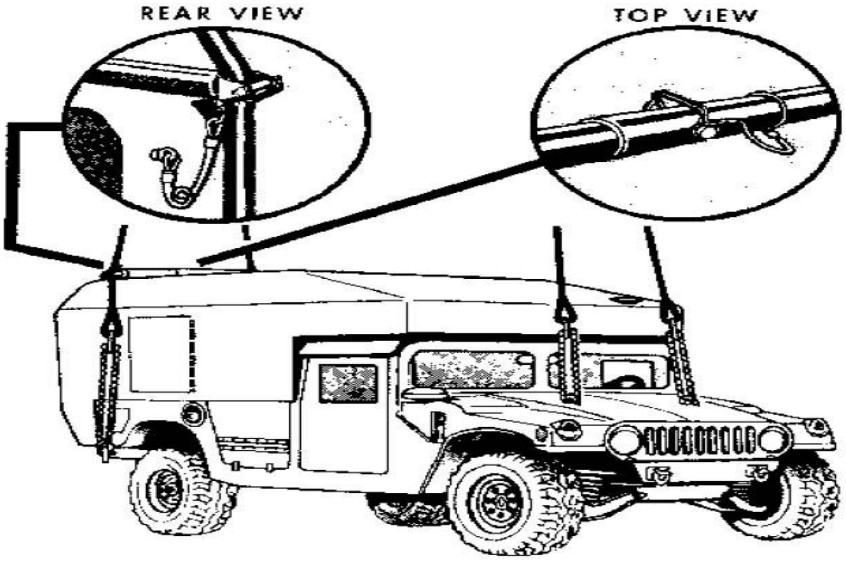


SPREADER BAR

ASSEMBLY
REACH
PENDANT

Dual Point M996 FLA Checklist

1	Mirrors taped and tied together with type III nylon
2	Electrical switches off
3	Fuel level under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Seat belts routed through the doors and secured
6	Hand brake on
7	Transmission in neutral
8	Engine access panel secured and latches taped (tape only if no radio)
9	Excess radio cables secured
10	Battery box latched and taped
11	All equipment in rear compartment secured with tape, type III nylon, and / or lashings
12	Rear doors secured
13	Hood latched and taped
14	Wheels straight
15	Red Cross insignia covers secured in the closed position
16	Front link count of 80, excess chain secured
17	Rear link count of 45, excess chain secured
18	Apex has slotted nut with cotter pin
19	Breakaway tied on rear sling legs in tight " T "
20	Breakaway tied three feet from apex on front sling set
21	Towing pintle secured with cotter pin and tape
22	Electrical connector spring loaded or taped
23	Fuel cap is hand tight
24	Reach pendants attached to both apexes and right side up



8. M1037 Shelter Carrier & M101A2 Trailer Checklist

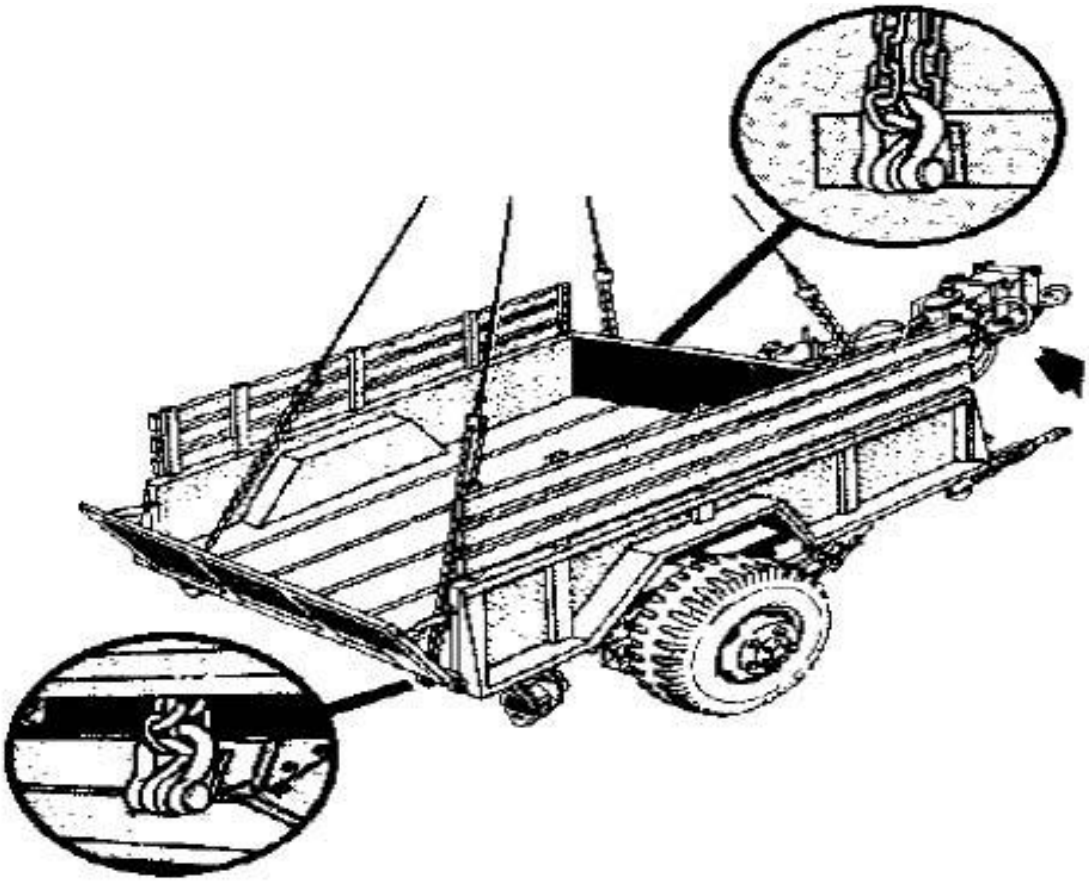
Materials
Sling set, 10000 lb. Capacity, 2 ea.
Tape, adhesive, pressure-sensitive, 2 inch roll
Cord, nylon, type III, 550 lb. breaking strength
Webbing, cotton, 1/4", 80-pound breaking strength
Strap, tie-down, CGU-1B, 2 ea
.
Personnel
Two personnel can prepare and rig this load in 15 minutes.

Rigging The HMMWV and Shelter
1. Ensure that the shelter is secured to the truck using the wire rope or tie-down assemblies. Secure loose equipment inside the shelter and secure the shelter doors.
2. Place the apex on top of the vehicle, with the inner two slinglegs going to the rear lift provisions (located on the ends of the bumper) and the outer two to the front of the vehicle.
3. Loop the chain ends of the outer two sling legs through the front lift provisions and secure in the grabhook with a link count of 80. Secure the excess chain using type III nylon.
4. At the rear of the vehicle, route the chains from the inner sling legs through the lift provisions located on the sides of the rear bumper. Insert link 30 into the grabhook and secure excess chain with type III nylon.
5. Ensure the rear sling legs are kept to the side of the vehicle. Pull the sling legs together and tie one piece of breakaway around all sling legs three feet from the apex.
6. Attach a reach pendant to the apex. Reattach the securing pin with a slotted nut, bolt, and cotter pin.

Rigging the Trailer
1. Place trailer lunette into the towing pintle of the HMMWV. Secure with the cotter pin.
2. Connect the safety chains on the trailer to the holes by the towing pintle and secure with type III nylon. Wrap the light cable around the frame and secure with 2 inch tape in the "U" holder. Remove the front rack on the trailer.
3. Route one CGU-1B on each side around the front lift point of the trailer and the rear tie down provision (not the lift provision) of the HMMWV. Ensure ratchet portion is facing up and tighten both simultaneously. Secure excess strap with 2 inch tape.
4. Secure the tailgate in the open position with the hooks and chains. Secure the hooks with type III nylon.
5. Route the chains from the front two sling legs (the outer two) through the front lifting points and secure in the grabhook with a link count of 90. Secure excess with type III nylon.

6. Route the rear two chains (from the inner two sling rear lifting points. Secure in the grabhook with a link count of 70. Secure excess with type III nylon.

7. Tie 3 breakaways: one on each side through the one cluster breakaway around all four sling legs 2 feet below the apex.
8. Attach a reach pendant to the apex. Reattach the securing pin with a slotted nut, bolt, and cotter pin.



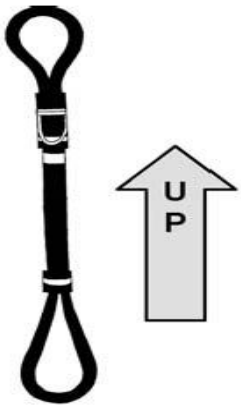
M1037 Shelter Carrier & M101A2 Trailer Checklist

1	Mirrors taped and tied together with type III nylon
2	Electrical switches off
3	Fuel level under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Seat belts rolled, taped and tucked
6	Hand brake on in both the HMMWV and the trailer
7	Transmission in neutral
8	Engine access panel secured and latches taped
9	Excess radio cables secured
10	Battery box latched and taped
11	Hood latched and taped
12	Wheels straight
13	Equipment in shelter and shelter door secured
14	Front link count of 80 on the HMMWV and 90 on the trailer
15	Rear link count of 30 on the HMMWV and 70 on the trailer
16	Rear chains on HMMWV going through lift provisions on the outside of the bumper
17	Reach pendants attached right side up to both apexes
18	Sling legs attached to both apexes in correct order (outer sling legs are the front sling legs on both trailer and HMMWV)
19	Both apexes have slotted nut with cotter pin
20	Both rear sling legs on the HMMWV routed to the sides of the shelter
21	Breakaway tied three feet from apex around all slinglegs on the HMMWV
22	Towing pintle with trailer lunette secured with cotter pin and tape
23	Electrical connector spring loaded or taped
24	Fuel cap is hand tight
25	Front rack of the trailer is removed
26	Trailer safety chains secure with type III nylon and light cable wrapped around frame and secure in “U” holder
27	CGU-1Bs are routed through trailer lift points and HMMWV tie down points with ratchet facing up and excess secured with 2 inch tape
28	Support leg of the trailer is locked up and secured with type III nylon
29	Breakaway on the trailer on the rear two sling legs to the tailgate hook holes and one breakaway 2 feet from the apex on all four sling legs
30	Trailer tailgate in the open position, supported by the hooks and chains with hooks secured with type III nylon

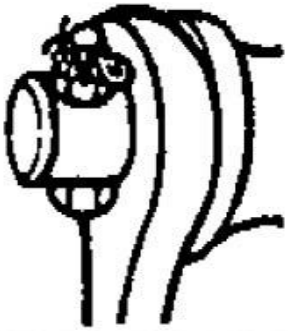
9. Dual Point M1037 Shelter Carrier Checklist

Materials Sling set, 10000 lb. capacity with additional apex Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength

Personnel Two personnel can prepare and rig this load in 15 minutes.
Rigging
1. Ensure that the shelter is secured to the truck using the wire rope or tie-down assemblies.
2. Break the sling set into two sling sets, each with two legs.
3. Connect the sling legs of the front sling set to the lift provisions on the hood and insert link 80 in the grab hook. Secure excess chain with type III nylon.
4. Position the second sling set apex on the top of the shelter.
5. Route the chains through the rear lift provisions located on the outer ends of the rear bumper (not through the rear tie-down provisions). Insert link 45 in the grab hook. Wrap and secure excess chain with type III nylon.
6. Cluster the front sling legs three feet from the apex and secure with one wrap of breakaway.
7. Pull the rear sling legs together on the roof of the shelter and secure with one wrap of breakaway.
8. Attach reach pendants to both the front and rear apexes. Reattach both securing pins with a slotted nut, bolt, and cotter pin.



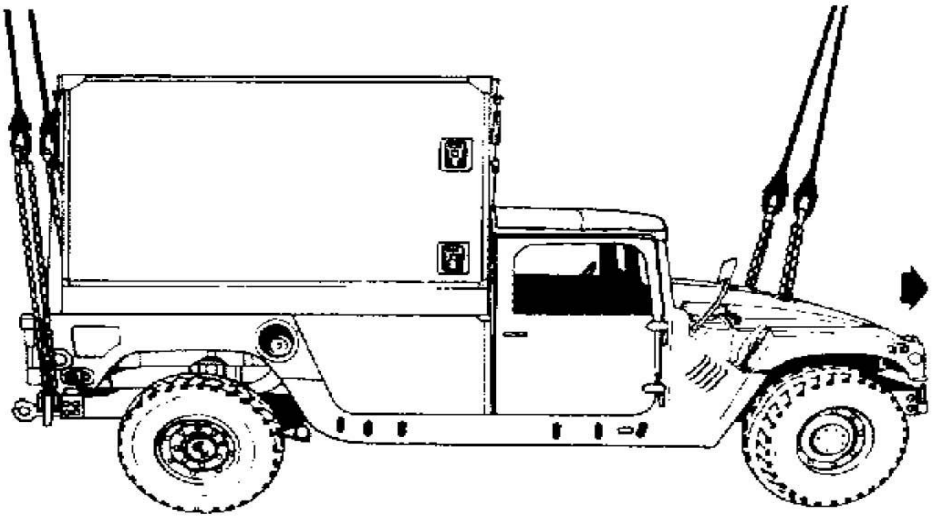
REACH PENDANT



SECURING PIN
SLOTTED NUT
DRILLED BOLT

Dual Point M1037 Shelter Carrier Checklist

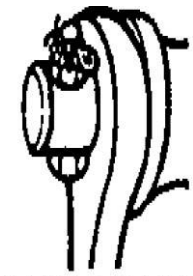
1	Mirrors taped and tied together with type III nylon
2	Electrical switches off
3	Fuel level under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Hand brake on
6	Transmission in neutral
7	Engine access panel secured and latches taped (tape only if no radio)
8	Excess radio cable secured
9	Battery box latched and taped
10	All equipment in shelter secured with tape, type III nylon, and / or lashings
11	Rear door to shelter secured
12	Ensure shelter is attached to the truck using wire rope or tie-down assemblies
13	Hood latched and taped
14	Wheels straight
15	Front link count of 80, excess chain secured
16	Rear link count of 45, excess chain secured
17	Both apexes have slotted nut with cotter pin
18	Breakaway tied on rear sling legs on roof of shelter
19	Breakaway tied three feet from apex on front sling set
20	Towing pintle secured with cotter pin and tape
21	Electrical connector spring loaded or taped
22	Fuel cap is hand tight
23	Reach pendants attached to both apexes and right side up



10. Small Emplacement Excavator (SEE) Checklist

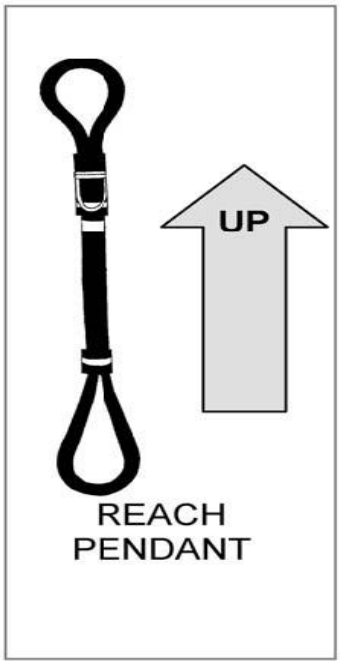
Materials Sling set, 25000 lb capacity with additional apex Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength Felt padding
Personnel
Two personnel can prepare and rig this load in 30 minutes.

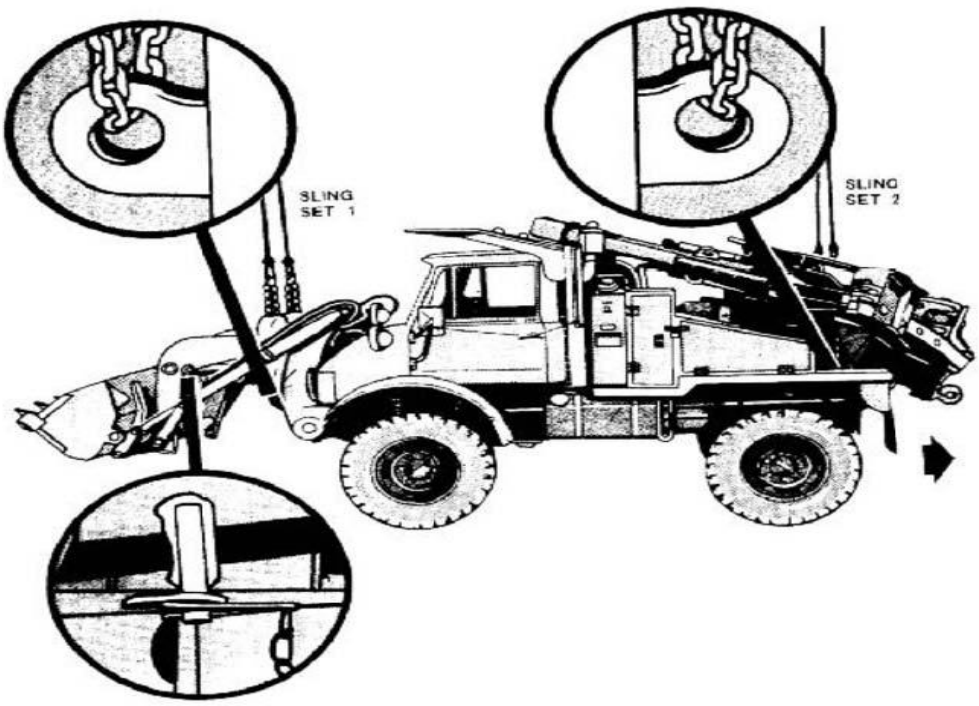
Rigging
1. Elevate the bucket halfway and tilt toward the rear. Ensure that the front end loader assembly travel locks located at the ends of both front end loader boom cylinders are properly pinned in place.
2. Tie or tape hydraulic lines and hoses in close proximity to the forward lift provisions to prevent possible entanglement during hookup.
3. Tie or tape engine compartment hood securely to prevent damage during flight.
4. Break the sling set into two sling sets, each with two legs.
5. Position the first apex fitting on top of the forward part of the falling objects protection structure (FOPS). Loop the chain end of the left and right sling legs through their respective lift provisions located on the front bumper inboard of the front end loader support arms. Insert link 3 in the grabhook. Secure excess chain with type III nylon.
6. Position the second apex fitting on top of the aft part of the FOPS. Loop the chain end of the left sling leg through the left lift provision (closest to the back hoe operator's seat) located at the top left between the left rear wheel and frame. Insert link 5 in the grabhook. Secure excess chain with type III nylon.
8. Form the felt padding into a tube around the chain end of each sling leg and secure with tape or nylon cord to protect chains and the hydraulic levers. 9. Cluster all sling legs in each sling set on top of the FOPS to prevent entanglement during hookup and lift-off and secure with breakaway.



Small Emplacement Excavator Checklist

1	Mirrors taped and tied to sides of the vehicle with type III nylon
2	Electrical switches off
3	Steering wheel secured with type III nylon
4	Hand brake on
5	Transmission in neutral
6	Windshield wipers taped to windshield
7	All equipment secured with tape, type III nylon, and/or lashings
8	Hood latched and taped
9	W heels straight
10	Bucket elevated halfway and tilted towards the rear
11	Front end loader assembly travel locks properly pinned in place
12	Hydraulic lines and hoses in close proximity to the front lift provisions tied or taped out of the way
13	Front link count of 3, excess chain secured with type III nylon
14	Left rear link count of 5, excess chain secured with type III nylon
15	Right rear link count of 10, excess chain secured with type III nylon
16	Felt padding form ed around chains to protect chains and hydraulic levers
17	Fuel cap is hand tight
18	Both apexes have slotted nut with cotter pin
19	Breakaway tied on both sling legs on top of FOP S.
20	Reach pendants attached to both apexes and right side up





11. M1025/M1026, M1151 HMMWV

MATERIALS

(1) Sling set (10,000-pound capacity, 25,000-pound capacity, or 40,000-pound capacity). Or Multi-leg sling set (15,000-pound).
(2) Chain length, from a 15,000-pound capacity sling set (4 each) (used on M1043A2 with MAK).
(3) Coupling link, from a 15,000-pound sling set (4 each) (used on M1043A2 with MAK).
(4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
(5) Cord, nylon, Type III, 550-pound breaking strength.
(6) Webbing, cotton, 1/4-inch, 80-pound breaking strength.
(7) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

NOTE: For vehicle weights up to 7,300 pounds, the recommended maximum airspeed for the UH-60 is 100 knots. For loads weighing above 7,300 pounds, the recommended maximum airspeed is 70 knots. Coordinate closely with the aviation unit as to the vehicle weight including all gear carried on the vehicle.

PERSONNEL

Two personnel can prepare and rig this load in 15 minutes.

PREPARATION

1. Extend the sling leg chains by connecting one additional chain length to each chain on a 15,000-pound capacity sling set with a coupling link (used on M1043A2 with MAK).
2. Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. Tape the windshield in an X formation from corner to corner.
3. Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Remove antennas and stow inside vehicle.
4. Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery Cap for proper installation.
5. Engage the vehicle parking brake and put the transmission in neutral.

RIGGING

1. Position apex fitting on the roof of the vehicle.
2. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
3. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood.
4. Place the correct link from Table 2-2 in the grab hook. Repeat with sling leg 2 and the right front lift provision.
5. Secure excess chain with tape or Type III nylon cord.
6. Route the chain end of sling leg 3 through the eyelet opening in the upper left corner

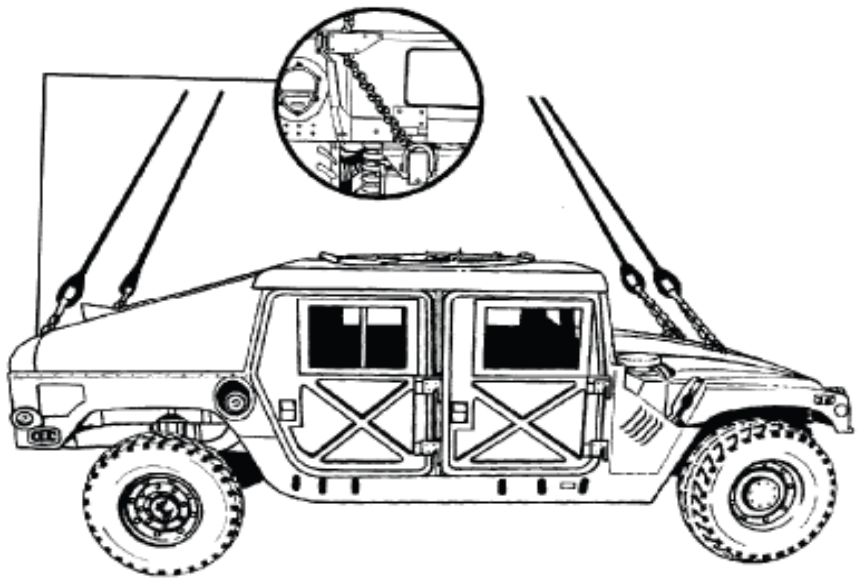
of the tailgate.
7. Loop the chain end through the left lift provision on the bumper and thread back through the eyelet opening in the tailgate. Place the correct link from Table 2-2 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. See insert above.
8. Wrap rear chains with padding where they contact the shell back.
9. Cluster and tie (breakaway technique) all sling legs together on top of the vehicle to prevent entanglement during hookup and lift-off.

HOOKUP PROCEDURES

1. The hookup team stands on the roof of the vehicle.
2. The static wand person discharges the static electricity with the static wand.
3. The hookup person places the apex fitting onto the aircraft cargo hook.
4. The hookup team then carefully dismounts the vehicle and immediately moves to the assembly area
5. When successful hookup is assured, the hookup team gives a “thumbs” up to the signal person.
6. The signal person then gives the hand and arm signal for hook-up complete.

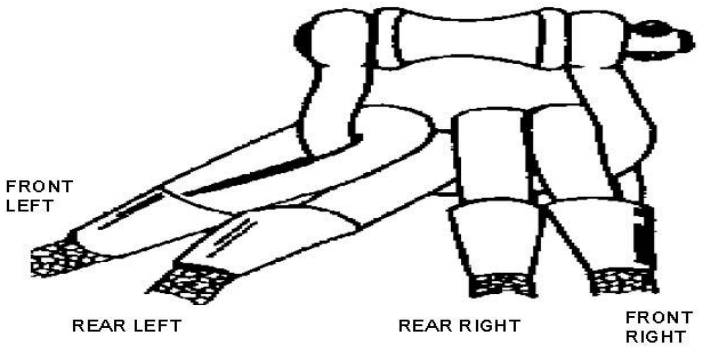
LINK COUNT CHART

Vehicle	Max Weight	Sling Set	Link Count Front/Rear
M1025/M1026	Varies by Model	10K	80/3
		15K	60/3
		40K	53/3
M1151 (Loaded)	11,500 lbs.	15K	20/3
		25K	20/3



Armament Carrier, HMMWV, M1025/M1026, Armament Carrier, HMMWV, M1151 Checklist

1	Mirrors tied together with type III nylon and excess secured with 2” tape
2	Electrical switches off
3	Fuel level under ¾
4	Steering wheel secured in two locations with type III nylon
5	Seat belts buckled as worn
6	Hand brake on
7	Transmission in neutral
8	Engine access panel secured and latches taped
9	Excess radio cables secured
10	Battery box latched and taped
11	Hood latched and or taped
12	Wheels straight
13	Front link count in accordance with link count chart
14	Rear link count in accordance with link count chart
15	Breakaway attaching front two sling legs to ‘ B ’ pillar
16	Sling legs attached to apex in correct order (both front sling legs to the outside)
17	Apex has castellated nut with cotter pin
18	Both rear chains run through the sling guides only once.
19	Breakaway attaching rear two sling legs in a tight “ T ”
20	Towing pintle secured with cotter pin or tape
21	Electrical connector spring loaded or taped
22	Tailgate secured with hooks and chains and hooks pointed outward and secured with type III nylon
24	Fuel cap is hand tight
25	Shatterproof windshield with 2” tape in an X formation from corner to corner



12. M1114 Up-Armored HMMWV

NOTE: The dual point rigging procedures for an M1151 are the same as the rigging procedures described below.

Materials Sling set, 25000 lb. Capacity, 1 ea. Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength, and one additional Apex for sling set being used.

Personnel Two personnel can prepare and rig this load in 15 minutes.

Rigging

1. Route the 25K sling set to apex fitting number 1. Position the apex fitting on top of the hood.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place a 60 link count in the grab hook.
3**.** Connect 2 sling legs to apex fitting number
2. Position the apex fitting on the roof of the vehicle.
4. Loop the chain end of the sling legs through their respective eyelet openings in the upper corner of the tail gate. Loop the chain end through the lift shackle on the rear bumper and thread back through the eyelet opening in the tailgate. Place a 30 link count in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

M1114 Up-Armored HMMWV Checklist

1	Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.
2	Extend the sling leg chains by connecting two additional chain lengths to each chain on the 15,000-pound multileg sling set chain with coupling links.
3	Fuel level under ¾
4	Steering wheel secured with two pieces of type III nylon
5	Seat belts rolled taped, and tucked
6	Hand brake on
7	Transmission in neutral
8	Engine access panel secured and latches taped
9	Excess radio cables secured
10	Battery box latched and taped
11	Hood latched and taped
12	Wheels straight
13	Front link count of 80
14	Rear link count of 3
15	Breakaway securing front two sling legs to ‘ B ’ pillar
16	Sling legs attached to apex in correct order (both front sling legs to the outside or both rear sling legs to the outside)
17	Apex has slotted nut with cotter p in
18	Both rear chain s run through the sling guides
19	Breakaway attaching rear two sling legs to troop strap retainer ring (with troop seats) or tied in a tight “ T ” (without troop seats)
20	Towing pintle secured with cotter pin and tape
21	Electrical connector spring loaded or taped
22	Tailgate secured with hooks and chain s and hooks secured with type III nylon
23	Troop seats secured with cotter pins or two pieces type III nylon
24	Fuel cap is hand tight

13. M1097/M1097A2 TRUCK, CARGO, 1 1/4-TON (HMMWV)

M1097/A2 HMMWV
EMPTY WEIGHT 5,900 lbs
ACL 4,400 lbs
TOTAL COMBINED WEIGHT 10,300 lbs
LINK COUNT, 60 FRONT / 10 REAR
Certified by US Army NATICK for CH-47 helicopter at airspeeds up to and including 90 knots.

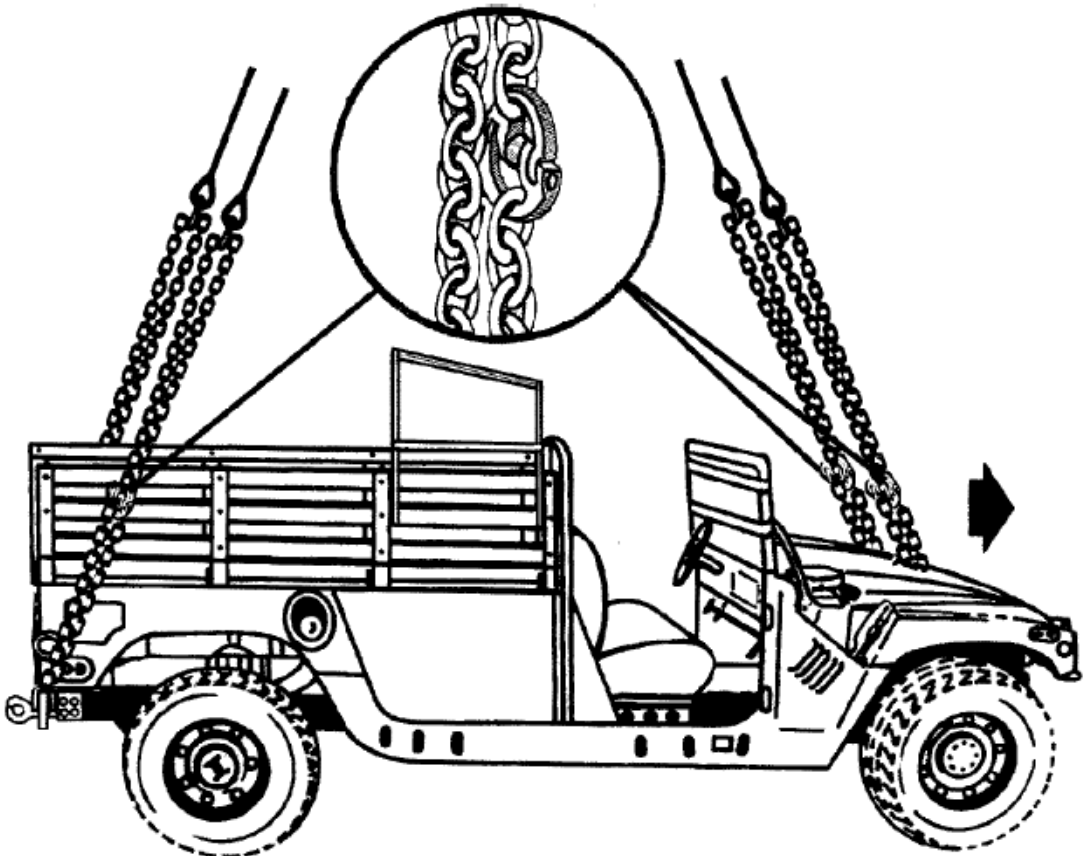
NOTE: This vehicle cannot be flown by a UH-60 when ACL exceeds 4,100 pounds.

Materials: Sling set, 25000 lb. Capacity with extended legs, 1 ea. Tape, adhesive, pressure-sensitive, 2 inch roll Cord, nylon, type III, 550 lb. breaking strength Webbing, cotton, 1/4", 80-pound breaking strength, and one additional Apex for sling set being used.

Personnel Two personnel can prepare and rig this load in 15 minutes.

Rigging:

1. Route the 25K sling set to apex fitting number 1. Position the apex fitting on top of the hood.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place a 60 link count in the grab hook.
3**.** Connect 2 sling legs to apex fitting number
2. Position the apex fitting on the roof of the vehicle.
4. Loop the chain end of the sling legs through their respective eyelet openings in the upper corner of the tail gate. Loop the chain end through the lift shackle on the rear bumper and thread back through the eyelet opening in the tailgate. Place a 30 link count in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.



M1097 HMMWV Single Configuration

Inspection Sequence

1. PASSENGER SIDE WINDSHIELD W/2” TAPE
2. MIRROR
3. HOOD LATCH
4. FRONT WHEEL – PASSENGER SIDE
5. GLASS & PLASTIC SHATTERPROOFED W/ 2” TAPE
6. HOOD LATCH – DRIVER SIDE
7. FRONT WHEEL – DRIVER SIDE
8. MIRROR
9. WINDSHIELD – DRIVER SIDE
10. ENGINE ACCESS PANEL
11. TRANSMISSION SELECTOR LEVER IN NEUTRAL
12. HAND BREAK
13. STEERING WHEEL
14. ELECTRICAL AND IGNITI0N SWITCHES
15. FUEL LEVEL
16. TROOP SEAT – SECURED IN 2 PLACES
17. REAR LINK COUNT 3
18. BREAKAWAY UPPER BOW BRACKED (ABOVE REAR WHEEL)
19. HOOKS AND CHAINS, SECURED
20. GLASS AND PLASTIC SHATTERPROOFED W/ 2” TAPE
21. LIFT POINT
22. TOWING PINTLE
23. ELECTRICAL CONNECTOR
24. LIFT POINT
25. GLASS AND PLASTIC SHATTERPROOFED W/ 2” TAPE
26. HOOKS AND CHAINS, SECURED
27. BREAKAWAY UPPER BOW BRACKED (ABOVE REAR WHEEL)
28. REAR LINK COUNT 3
29. TROOP SEAT – SECURED IN 2 PLACES
30. FUEL CAP
31. SEATBELT – PASSENGER SIDE
32. BATTERY BOX
33. BREAKAWAY - ROLLBAR
34. FRONT LINK COUNT 60, SECURE
35. APEX PIN SECURE
36. APEX ORDER
37. BREAKAWAY - CLUSTER

14. M119/M119A2 105-MM Howitzer, Forward/Firing Position

Note: The M119/M119A2 105-MM Howitzer has a maximum weight of 4,400 lbs. If rigging with an accompanying load the maximum weight is 7,400 lbs. When slinging howitzer without an accompanying load use the 10K sling set, use the 25k sling set when rigging with an accompanying load.

MATERIALS

(1) Sling set (10,000-pound capacity) (without accompanying load).
(2) Sling set (25,000-pound capacity) (with an accompanying load).
(3) Reach pendant (11,000 or 25,000-pound capacity).
(4) Tape, adhesive, pressure-sensitive, 2" tape.
(5) Cord, nylon, Type III, 550-pound breaking strength.
(6) Webbing, cotton, 1/4-inch, 80-pound breaking strength.
(7) Sling set chain safety clamp.
(8) Webbing, nylon, tubular, 1/2-inch (as required).
(9) Line, multi loop, Type XXVI, 4-loop, 3-foot (for accompanying load).
(10) Clevis, suspension, medium (2 each) (for accompanying load).
(11) Bag, cargo A-22 or net, cargo (5,000- or 10,000-pound capacity).
(12) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (1each) (for accompanying load).
(13) Coupling link, part number 664241, from a 25,000-pound capacity sling set (1 each) (for accompanying load).
(14) Strap, cargo, tie down, CGU-1/B (as required).

PERSONNEL

Two persons can prepare and rig this load in 30 minutes

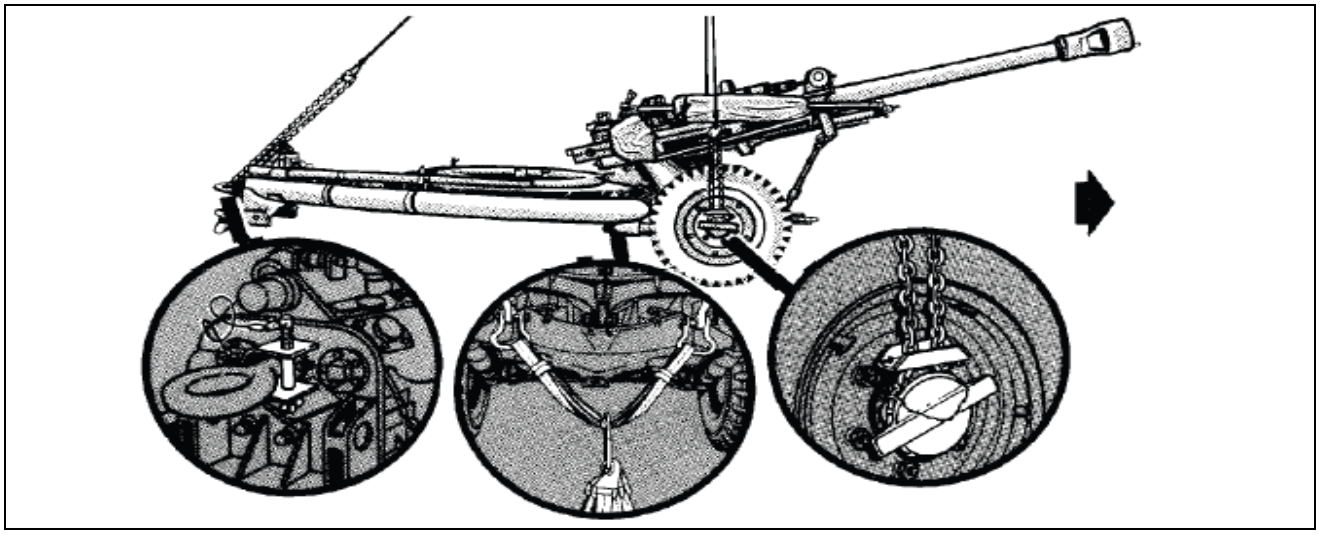
PREPARATION AND RIGGING

Place the howitzer in the forward/firing position.
*If the firing platform is to be carried in the down position, follow these steps:
Mark the wheel hubs at the center of gravity (CG) with tape. The CG is located 6 inches behind (towards the lunette) the center of the hub.
1. Mark the center of the firing platform with tape. Roll the howitzer onto the firing Platform, aligning the tape strips. The wheel knock-off hub must be horizontal.
2. Engage both parking brakes.
3. Connect the firing platform to the weapon and add an additional CGU-1/B tie down.
4. When the firing platform is carried on top of the trails ensure the wheel knock-off hub is horizontal.
5. Engage the right wheel parking brakes.
6. Secure the sight cover to the dial sight with tape or Type III nylon cord.
7. Secure the firing platform (if carried), hand spike, and jack to the trail assembly with Type III nylon cord.

8. Ensure the lunette is in the extended position. Install the towing eye stop (C-clamp) on the lunette and secure in place with its retaining pins, when applicable.
9. The sling set chain safety clamp is an additional authorized item. Refer to TM 9-1015-252-10 for NSN and installation information.
10. When the detachable field spade is attached to the permanent spades, ensure the two locking pins are installed and locked. Route and tie a length of Type III nylon cord through the key ring of the cable and around the end of the locking pin.
11. When moving the howitzer without an accompanying load, extend the chain on sling leg 3 by removing the chain length and coupling link from sling leg 4 and attaching them to the end of the chain on sling leg 3.
12. When moving the howitzer with an accompanying load and using sling leg 4 on the accompanying load, extend the chain on sling leg 3 by adding an additional length of chain with a coupling link from a 25,000-pound capacity sling set.

RIGGING

1. Attach a reach pendant on the sling set apex fitting.
2. Position the apex fitting and the reach pendant on the breech assembly. Route outer sling legs 1 and 2 to the wheel hubs.
3. Route inner sling leg 3 to the lunette.
4. Route the chain end of sling leg 1 around the left wheel hub.
5. Place link **55** (when using the 10,000-pound capacity sling set) or link **45** (when using the 25,000-pound capacity sling set) in the grab hook.
6. Pull the chain taut and ensure the chain is centered on the hub.
7. Install the sling set chain safety clamp on the two chain links closest to the top of the wheel hub. If the sling set chain safety clamp is unavailable or if the 25,000-pound capacity sling set is being used, tie the two chain links together with 1/2-inch tubular nylon webbing.
8. Repeat with sling leg 2 on the right wheel hub. Place link **50** (when using the 10,000-pound capacity sling set) or link **40** (when using the 25,000-pound capacity sling set) in the grab hook.
9. Secure the excess chain with Type III nylon cord.
10. Route the chain end of the extended sling leg 3 through the lunette. Place link **35** (when using the 10,000-pound capacity sling set) or link **28** (when using the 25,000-pound capacity sling set) in the grab hook.
11. Secure the excess chain with Type III nylon cord
12. Cluster and tie or tape (breakaway technique) the sling legs together on top of the howitzers to prevent entanglement during hookup and lift-off.
13. Attach the accompanying load (if required) by routing the 3-foot, 4-loop, Type XXVI multi loop line through the eye of the sling leg attached to an A-22 or the apex fitting of a cargo net.
14. Place a medium suspension clevis through the loop on each end of the multi loop line and attach to the provisions located under the howitzer carriage and inboard of the wheels.



M119/M119A2 105mm Howitzer Forward/Firing Position

15. M777/M777A1/M777A2, 155-mm, Lightweight Howitzer

Nomenclature	*Max Weight (Pounds)*	*Sling Set*	*Link Count Front/Rear*
M777, 155-mm, Lightweight Howitzer	9,300	15K 25K	80/3 80/3
M777A1, 155-mm, Lightweight Howitzer	9,800	15K 25K	80/3 80/3
M777A2, 155-mm, Lightweight Howitzer	9,920	15K 25K	80/3 80/3

MATERIALS

(1) Sling set (15,000-pound capacity) with one additional web ring.
(2) Chain length, part number 34080-4, from a 15,000-pound capacity sling set (4 each).
(3) Coupling link, part number 31611, from a 15,000-pound capacity sling set (4 each).

OR

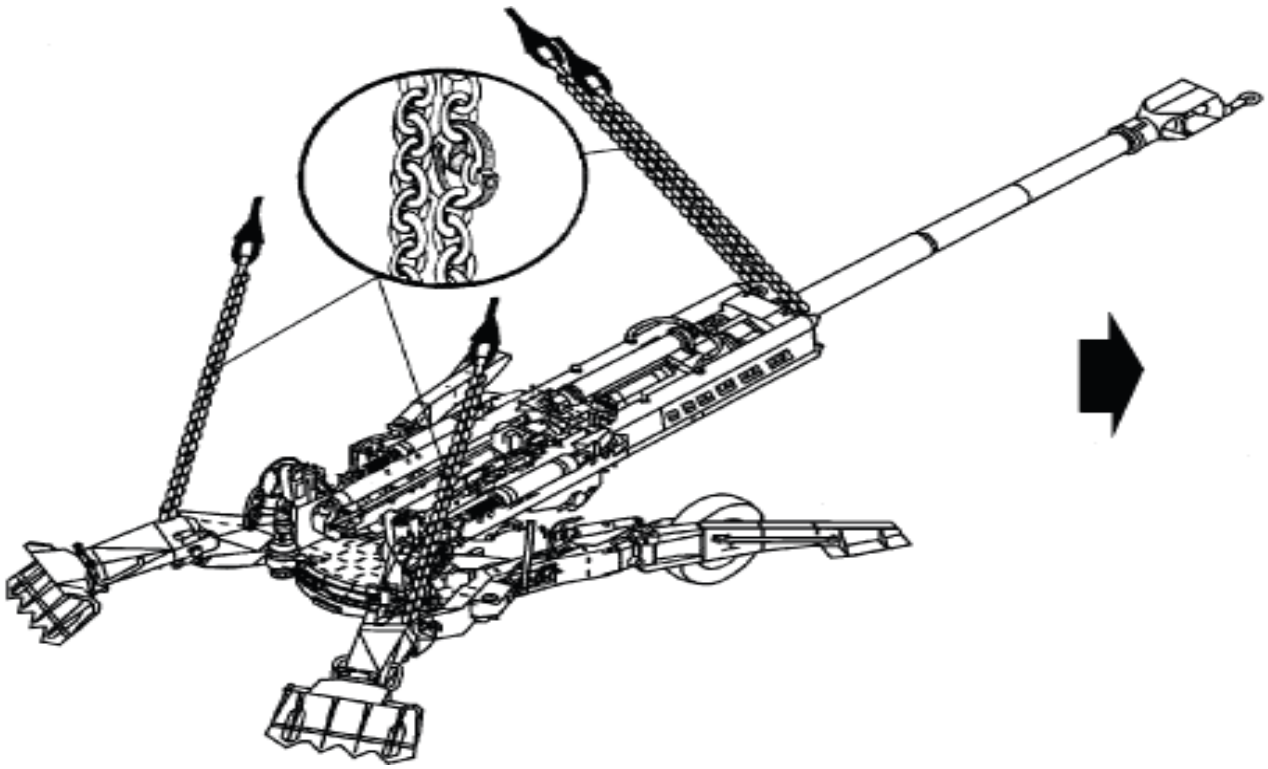
(4) Sling set (25,000-pound capacity).
(5) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).
(6) Coupling link, part number 577-0615, from a 25,000-pound sling set (4 each).
(7) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
(8) Cord, nylon, Type III, 550-pound breaking strength.
(9) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

PERSONNEL

Two persons can prepare and rig this load in 20 minutes

PREPARATION AND RIGGING

1. Ensure the stabilizers are in the firing position.
2. The spades may be in the up (stowed position) or down (firing position).
3. Secure air hoses and electrical cable to the supporting structure with Type III nylon.
4. Stow and secure all equipment with tape or Type III nylon cord.
5. Ensure the barrel is in the firing position.
6. Extend the sling leg chains by connecting one additional chain length to each chain on the sling set with coupling links.
7. Position the web ring on top of the forward end of the breech. Route outer sling legs 1 and 2 to the front of the howitzer and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
8. Loop the chain end of sling leg 1 through the left front lift provision located on the left side of the barrel. Place the correct link from Table 6-13 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure all excess chain with tape or Type III nylon cord.
9. Loop the chain end of sling leg 3 through the left rear lift provision located on the left side of the supporting frame near the left spade. Place the correct link from Table 6-13 in the grab hook. Repeat with sling leg 4 through the right rear lift provision.
10. Cluster and tie (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.



16. Certified Dual-Point Rigging Procedures for Liquid Containers

NOTE: Reach Pendants may be used on dual point loads. Place a Reach Pendant on each apex fitting. A static discharge person is not required when using a Reach Pendant.

A. Two Storage Modules, Fuel/Water (Side by Side) Figure 5-9

Applicability
The following items in Table below are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Materials
Sling set (15,000-pound capacity) (2 each) or Sling set (40,000-pound capacity) with one additional apex fitting.
Tape, adhesive, pressure-sensitive, 2-inch wide roll.
Cord, nylon, Type III, 550-pound breaking strength.
Webbing, cotton, 1/4-inch, 80-pound breaking strength.

Personnel
Two persons can prepare and rig this load in 15 minutes.

Rigging
Connect the two modules together side by side using the horizontal connectors. Ensure the connectors are properly secured.
Ensure the modules are in one of the configurations shown in Table 5-1.
Secure all hatches, hose valves, and loose equipment with tape or Type III nylon cord.

NOTE: When using the 15,000-pound capacity multileg sling set, tie or tape the inner sling legs to the outer sling legs.

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Two Sixcon Storage Modules, Fuel/Water, TAMCN B2085/B2086 (Empty), Side by Side	5,500	15K	3/3	CH-53	120
Two Sixcon Storage Modules, Fuel/Water, TAMCN B2085/B2086 (Full), Side by Side	20,100	40K	3/3	CH-53	120
One Sixcon, Storage Module, Fuel/Water, TAMCN B2085/B2086 (Empty) and One Sixcon Pump Module, Fuel/Water, TAMCN B1580/B1581, Side by Side	5,100	15K	3/3	CH-53	120
Two Sixcon Pump Modules, Fuel/Water, TAMCN B1580/B1581, Side by Side	4,700	15K	3/3	CH-53	120

Figure 5- 15: Two Storage Modules

17. Palletized Loading System (PLS), M1077 Flatrack, Loaded

Applicability
The following item in Table 13-1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:
Table Below: Palletized Loading System (PLS), M1077 Flatrack, Loaded

Materials
Sling set (10,000-pound capacity) with one additional apex fitting or Sling set (25,000-pound capacity) with one additional apex fitting.
Tape, adhesive, pressure-sensitive, 2-inch wide roll.
Cord, nylon, Type III, 550-pound breaking strength.
Webbing, cotton, 1/4-inch, 80-pound breaking strength.
PLS operating manual.
Strap, cargo, tiedown, CGU-1/B (as required).

Personnel
Two persons can prepare and rig this load in 20 minutes.

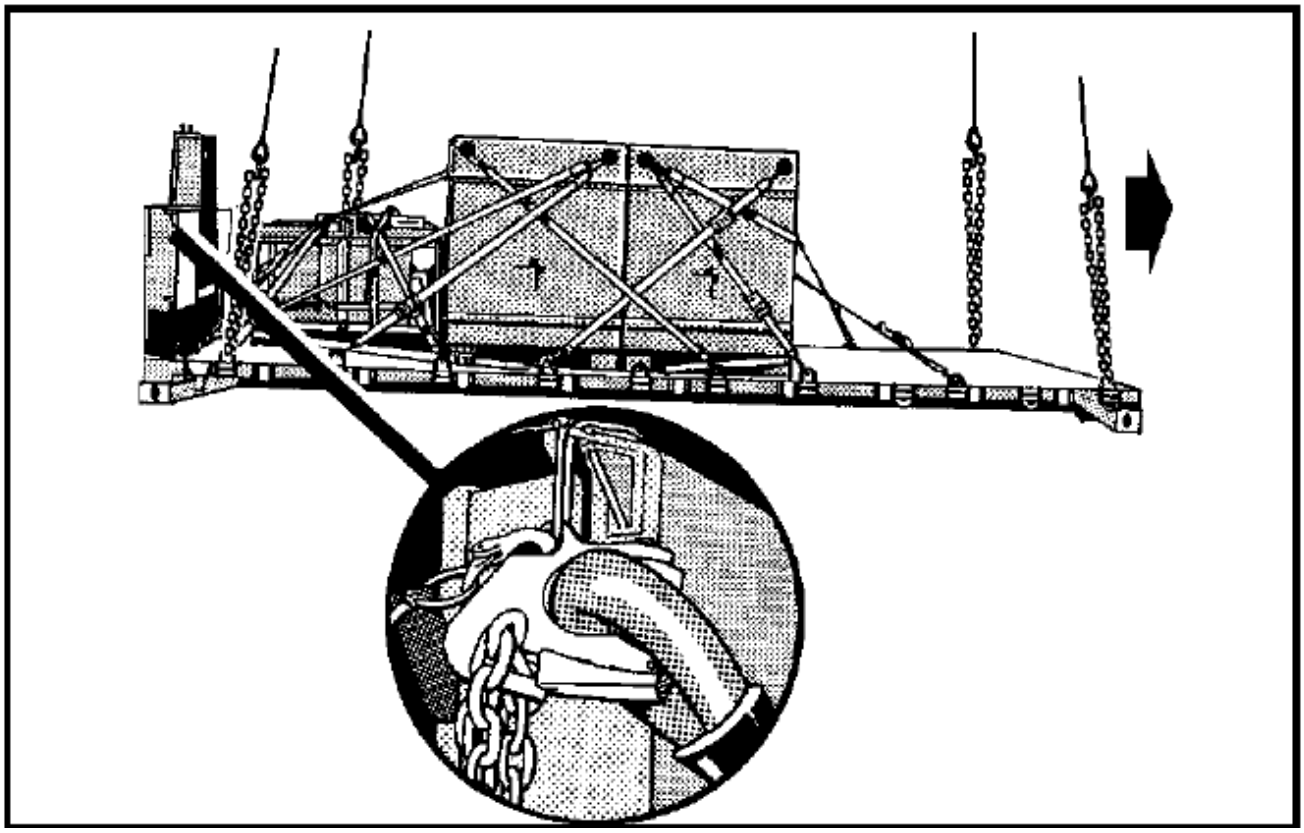
Preparation
NOTE: During the following steps, observe all CAUTIONS and WARNINGS noted in the Operating Manual.
Position the load on the Flatrack, distributing the weight as evenly as possible.
Restrain the cargo with CGU-1/B cargo tiedown straps.

NOMENCLATURE	**WEIGHT** (POUNDS)	**SLING** SET	**LINK** COUNT FRONT/ REAR	**TYPE** OF AIRCRAFT	**RECOMMENDED** AIRSPEED (KNOTS)
Palletized Loading System (PLS), M1077 Flatrack, Loaded	MIN: 6,500 MAX: 20,000	10K 25K	3/10 5/10	CH-47	120

NOTE: The A-frame end is considered the Aft end of the load.

Rigging
1. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the load (non A-frame end).
2. Loop the chain end of the left and right sling legs through their respective lift provision (tiedown ring closest to the end). Place the correct link from Table 13-1 in the grab hook.
3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on top of the load (A-frame end).
4. Loop the chain end of the left and right sling legs through their respective lift provision (tiedown ring closest to the end). Place the correct link from Table 13-1 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
5. Tie (breakaway technique) the rear grab hooks to the A-frame.

6. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.



18. Tractor (Dozer), Full-Tracked, Type III, JD450G
Applicability
The following items in Table 8-37 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

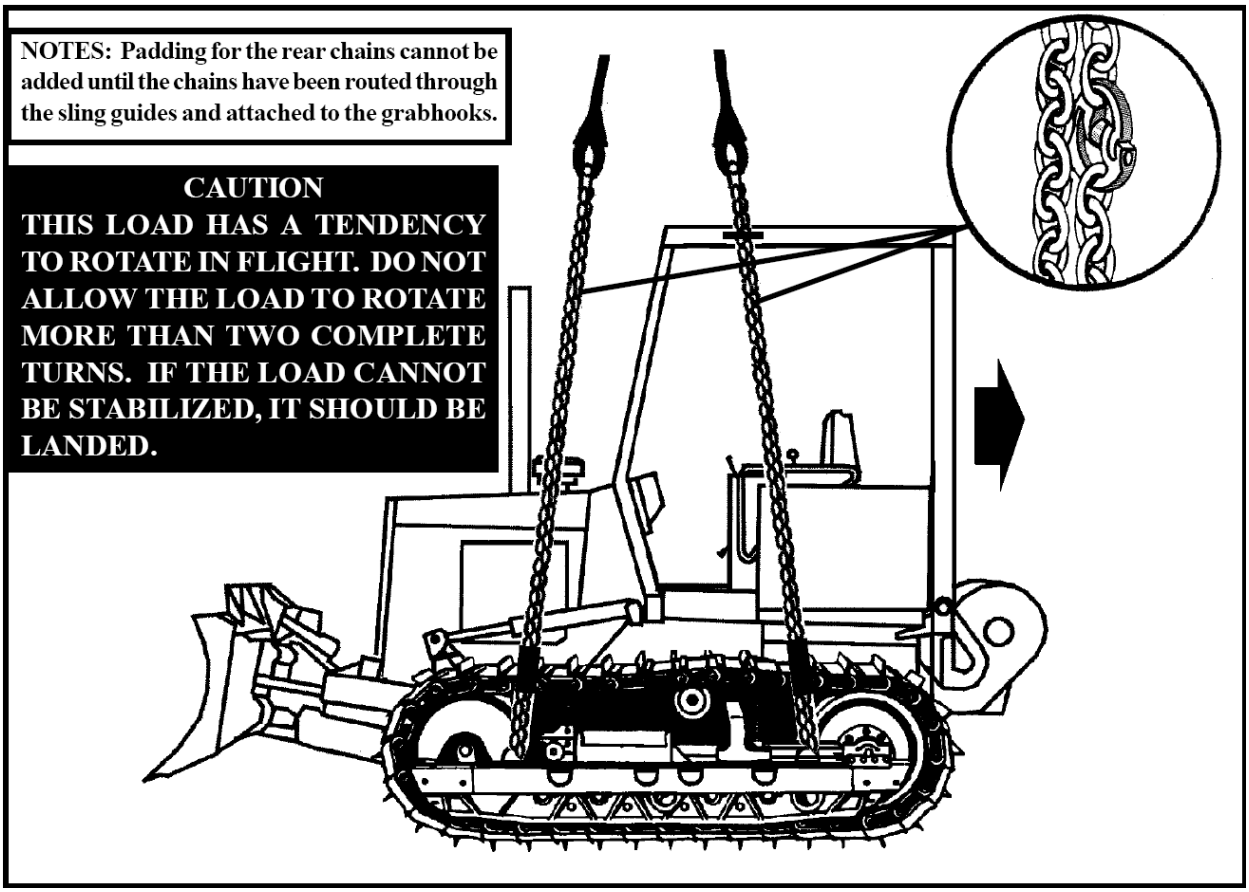
Tractor (Dozer), Full-Tracked, Type III, JD450G

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	RECOMMENDED AIRSPEED (KNOTS)
Tractor (Dozer), Full-Tracked, Type III, JD450G	18,400	25K	3/10	100
Tractor (Dozer), Full-Tracked, Type III, JD450G,without ROPS	17,700	25K	3/10	100
Tractor (Dozer), Full-Tracked, Type III, JD450G,without ROPS and Winch	16,160	25K	3/10	100

Materials
Sling set (25,000-pound capacity). Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each). Coupling link, part number 664241, from a 25,000- pound capacity sling set (4 each).
Tape, adhesive, pressure-sensitive, 2-inch wide roll.
Cord, nylon, Type III, 550-pound breaking strength.
Webbing, cotton, 1/4-inch, 80-pound breaking strength.
Heavy padding (1/4 section of a steel-belted tire or a length of fire hose or equivalent) (2 each).

Personnel
Two persons can prepare and rig this load in 15 minutes.

Rigging Steps
1. Position the apex fitting on top of the ROPS. Route outer sling legs 1and 2 to the front of the load. Route inner sling legs 3 and 4 to the rear of the load. Sling legs 1 and 3 must be on the left side of the load.
2. Route the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 8-37in the grab hook. Repeat with sling leg 2 and the right front lift provision.
3. Route the chain end of sling leg 3 through the left front sling guide on the ROPS, down through the left rear lift provision, and back through the same sling guide. Place the correct link from Table above in the grab hook. Repeat with sling leg 4 on the right rear lift provision. Secure the excess chain with tape or Type III nylon cord.
4. Heavy pad the sling legs where they make contact with the tracks.
5. Cluster and tie or tape (breakaway technique) the sling legs together on top of the ROPS to prevent entanglement during hookup and lift-off.


NOTES: Padding for the rear chains cannot be added until the chains have been routed through the sling guides and attached to the grabhooks.
CAUTION
THIS LOAD HAS A TENDENCY TO ROTATE IN FLIGHT. DO NOT ALLOW THE LOAD TO ROTATE MORE THAN TWO COMPLETE TURNS. IF THE LOAD CANNOT BE STABILIZED, IT SHOULD BE LANDED.

19. Truck, Forklift, MC-6000

Applicability
The following item in Table 8-23 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Truck, Forklift, MC-6000

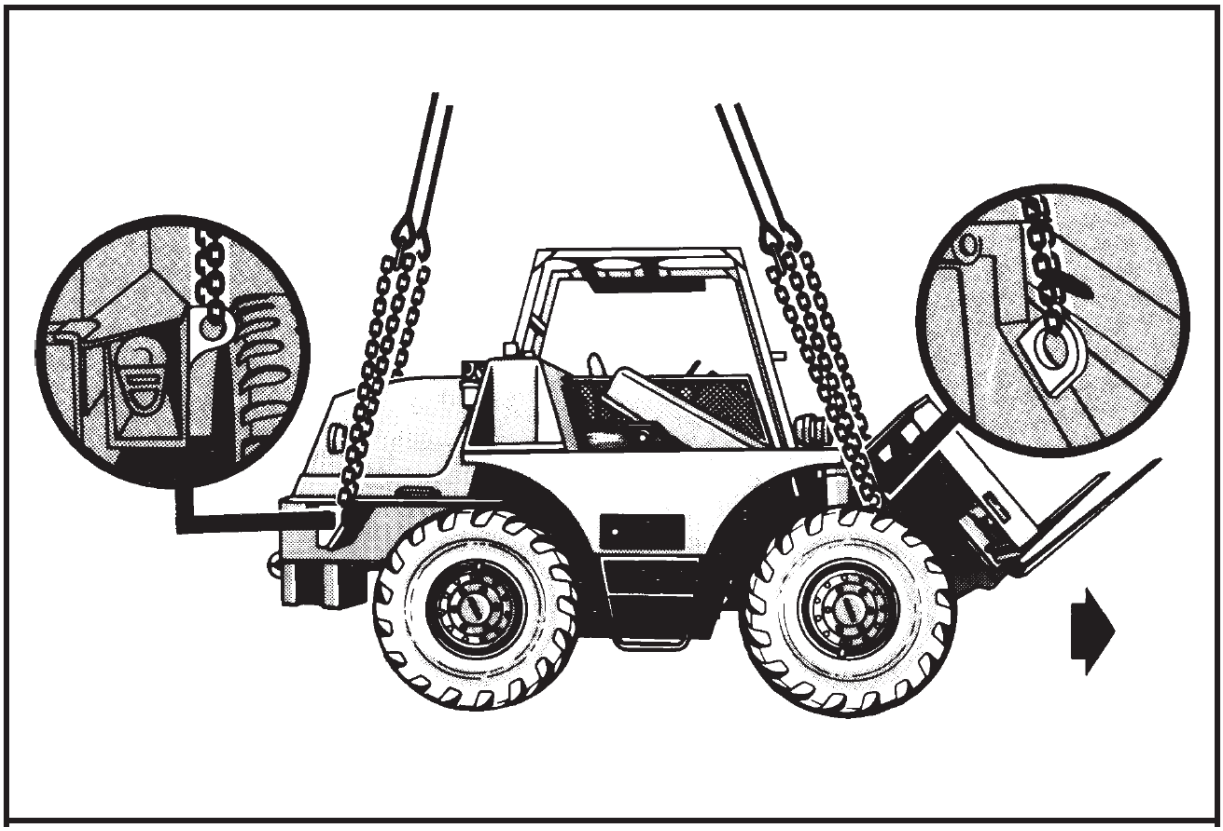
NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
MC-6000 Forklift	19,800	40K	3/16	85

Materials
Sling set (40,000-pound capacity).
Tape, adhesive, pressure-sensitive, 2-inch wide roll.
Cord, nylon, Type III, 550-pound breaking strength.
Webbing, cotton, 1/4-inch, 80-pound breaking strength.
Tie-down strap, CGU-1B (4 each).
Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

Personnel
Two persons can prepare and rig each load in 10 minutes.

Procedures
Prepare the load using the following steps:
Position the forks so they are sitting on the travel blocks and are tilted all the way aft. Ensure the fuel tank is less than 3/4 full. Place the transmission in neutral and engage the parking brake. Route two CGU-1/B cargo tie-down straps around the rear access doors. Route two CGU-1/B cargo tie-down straps around the engine access doors. Secure the tool box lid with tape or Type III nylon cord.

Rigging
1. Position apex fitting on top of the roll over protection system (ROPS). Route outer sling legs 1 and 2 to the frontof the forklift and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
2. Loop the chain end of sling leg 1 through the left front lift provision mounted on the frame inboard of the left front tire. Place the correct link from Table 8-23 in the grab hook. Repeat with sling leg 2 and the right front lift provision.
3. Loop the chain end of sling leg 3 through the left rear lift provision located on the frame aft of the left rear tire. Place the correct link from Table 8-23 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.
4. Lift the sling leg and tie or tape (breakaway technique) the grab hooks to the ROPS. Cluster and tie or tape (breakaway technique) all sling legs together on top of the forklift to prevent entanglement during hookup and lift-off.



20. Shipping/Storage Containers

Applicability
The following items in Table 11-2 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIR SPEED (KNOTS)
ISU-60 (Loaded)	11,650	25K	3/3	80
ISU-90 (Loaded)	11,900	25K	3/3	105
ISU-90 (Empty)	1,900	10K	3/3	65
ISU-60 with Jump Forward Arming and Refueling Point (FARP), Advanced Aviation Forward Area Refueling System (AAFARS)	4,000	10K	3/3	80

Materials
Sling set (10,000- or 25,000-pound capacity) (as required).
Tape, adhesive, pressure-sensitive, 2-inch wide roll.
Cord, nylon, Type III, 550-pound breaking strength.
Webbing, cotton, 1/4-inch, 80-pound breaking strength.

Personnel
Two persons can prepare and rig this load in 10 minutes.

Rigging
1. Position the apex fitting on the roof of the container. Route outer sling legs 1 and 2 to the front of the container and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table above in the grab hook. Repeat with sling leg 2 through the right front lift provision.
3. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table above in the grab hook. Repeat with sling leg 4 through the right rear lift provision.
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the container to prevent entanglement during hookup and lift-off.

21. 10K and 25K External Transport Sling Assembly Inspection

10 K LB AND 25 K LB EXTERNAL TRANSPORT SLING ASSEMBLY INSPECTION RECORD
TM 10-1670-295-23 & P AND FM 10-450-3

UNIT:	DATE:
SLING SET NUMBER:	SLING SET TYPE: (CIRCLE ONE) 10 K or 25 K

PART DESCRIPTION (QTY)	CONDITION	ACTION TAKEN
APEX FITTING ASSEMBLY GROUP 1 SHACKLE (1)		
PIN, STRAIGHT, HEAD (1)		
SPACER, APEX (1)		
BOLT, SHEAR, UOC (1)		
NUT, PLAIN, SLOTTED (1)		
COTTER PIN (1)		
SLING LEG- GROUP 2 ROPE (SLING LEGS) (4)		
GRABHOOK ASSEMBLY- GROUP 3 GRABHOOK (4)		
SPACER, SLING (4)		
KEEPER, GRABHOOK (4)		
PIN, GROVE, HEADED (4)		
RING, RETAINING (4)		
SPRING, HELICAL (4)		
BOLT, SHEAR (4)		
NUT, SELF-LOCKING (4)		
LINK, COUPLER (4)		
CHAIN, WELDED- GROUP 4 CHAIN, 8 FOOT LENGTH (4)		
STORAGE BAG- GROUP 5 KIT BAG, FLYERS (1)		

REMARKS:

SLINGS WILL BE INSPECTED AS AN ENTIRE SET
ANNOTATE INSPECTION ON USAGE LOG

INSPECTOR'S NAME AND RANK:	INSPECTOR'S SIGNATURE:

SEP 99

22. Air Items Usage Log

AIR ITEMS USAGE LOG

Each sling set consists of 4 sling legs, 1 apex complete, and 1 aviator's kit bag

DATE OF USAGE												
RIGGED (X)												
SLUNG (X)												
BUMPER #												
TYPE OF VEHICLE												
APPROX. WEIGHT												
10 K / 25 K LEGS												
10K / 25 K APEX												
SPACERS Y/N												
SINGLE (X)												
SHOTGUN (X)												
DUAL HOOKUP (X)												
AIRCRAFT TYPE												
DAY OR NIGHT												
TEMPERATURE												
DISTANCE FLOWN												
RIGGING INSPECTOR												
OTHER												

INSPECTIONS	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:
	INSPECTED BY:	INSPECTED BY:	INSPECTED BY:	INSPECTED BY:	INSPECTED BY:	INSPECTED BY:	INSPECTED BY:

5-48

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• ONE COPY OF THIS FORM WILL BE MAINTAINED WITH EVERY SLING SET
• SPECIFY ANY OTHER INFORMATION PERTAINING TO THE USE OF THE SLING SET(i.e., A22 CARGO BAG WAS SLUNG)

23. 5k and 10k Knotless Nylon Cord Cargo Nets

Load description: Cargo Net, 5,000 lbs and 10,000 lbs
- Characteristics: 5,000 lbs capacity
  - Weight—58 lbs
  - Size—15 ft x 15 ft
  - Load zone—5 ft
  - Mesh size—6 inch
  - Color—OD Green (when new)
- Characteristics: 10,000 lbs capacity
  - Weight—96 lbs
  - Size—18 ft x 18 ft
  - Load zone—6 ft
  - Mesh size—7 1/2 inch
  - Color—Black (when new)

MATERIALS

(8) Sling set with one to four sling legs depending on load weight.
(9) One 5,000 lbs or 10,000 lbs capacity cargo net
(10) Tape, adhesive, pressure-sensitive, two-inch wide roll
(11) Webbing, cotton, 1/4 inch, 80 lbs breaking strength
(12) Minimum of 12 feet, 7/16 inch nylon rope or an A7A strap

PERSONNEL

Four personnel can prepare and rig this load in five minutes.

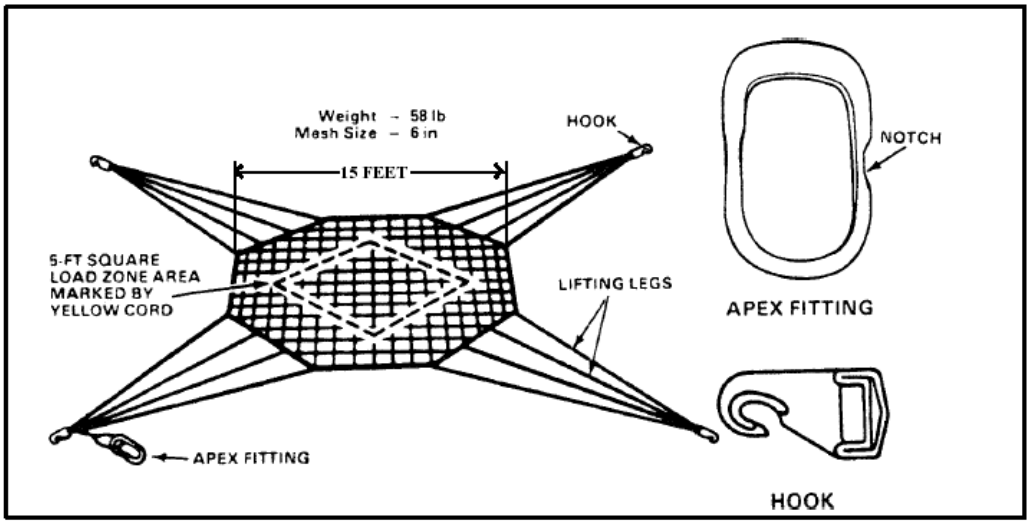
PREPARATION

1. To prepare the cargo net, lay it out flat on the ground. Then place the cargo in the net so that 75% or more of the cargo is inside of the yellow border cord. Ensure the load's minimum weight is 500 lbs or greater.
2. Pull the net up around the sides of the load ensuring all slack is pulled tight. Next, thread a piece of the 7/16 inch nylon or 3/8 inch hemp rope (or A7A strap) through the web portion of the net. Tighten the rope so that the hole created is smaller than the smallest object inside the net, and tie the rope in a secure knot. Tape all the excess rope with two-inch tape.
3. Place the hooks on the manufactured apex. The hooks are numbered in a clockwise or counter-clockwise direction, starting from the #1 hook. Remember, the #1 hook will have the manufactured apex tied to it with a piece of type III nylon. The hook sequence will be 1, 3, 4, 2 or 1, 3, 2, 4. The hook openings should be alternated on the manufactured apex. Place the #1 hook on the apex. Then go to the opposite side of the load and place the #3 hook on the apex. Move to either the left or the right side of the load and place either the #2 or the #4 hook on the apex. Finally, take a piece of two-inch tape and tape all the hooks so they will not come off the apex.

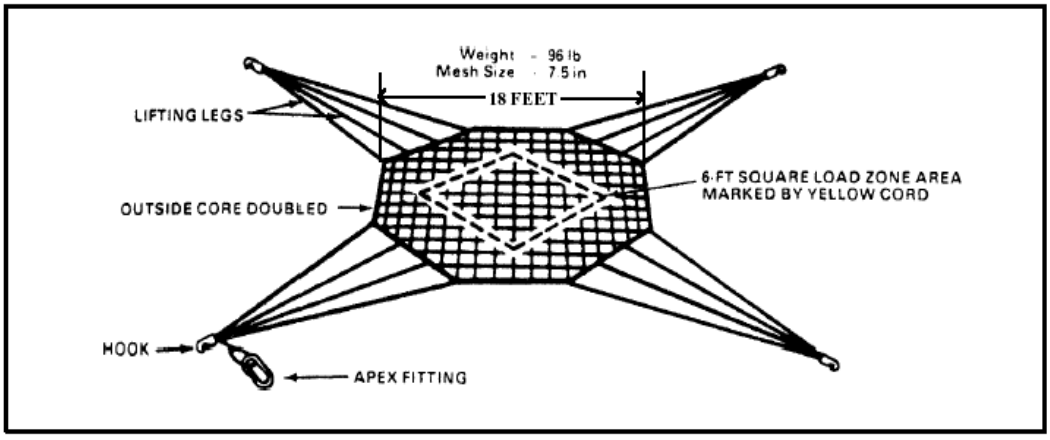
RIGGING

1. Use the appropriate number of sling legs for the weight in the cargo net. One sling leg of a 10K set has the rated capacity of 2,500 lbs. One sling leg of a 25K set has the rated capacity of 6,250 lbs. Take the free running end of the chain and route it through the manufactured apex and secure a link count of 3 by dropping the 3rd link into the keeper of the grab hook assembly.
2. Once the link is secure, tie three mandatory breakaways. You will take three pieces of 1/4 inch cotton webbing and tie them around the lifting legs on the cargo net approximately 3 feet apart.
3. The final step for rigging is to check the apex on the 10K sling set. If a UH-60 Blackhawk is coming to pick up the load, there must be an aluminum spacer on the pin portion of the apex. For a UH-1H, you need a donut ring or a basket hitch on the pin portion of the apex. A CH-47 does not need any additional equipment. Check the pin to ensure it has been secured with a bolt. The bolt has been secured with a castellated nut; it must have a cotter pin in the bolt.

CARGO NET HOOK SEQUENCE (before taping)



5,000 LBS CARGO NET



10,000 LBS CARGO NET

24. A-22 Cargo Bag

The A-22 cargo bag is an adjustable cotton duck cloth/nylon and nylon webbing container consisting of a sling assembly, cover, and four suspension webs . The bag is used to deliver palletized loads, loose cargo, ammunition, drums, and other general cargo. Maximum weight capacity is 2,200 pounds. The weight of the A-22 is 58 pounds. You may rig the cargo in the bag with or without the cover. Inspect the container for serviceability in accordance with Table 2-1, Preventive Maintenance Checks and Services, in TM 10-1670-298-20&P.

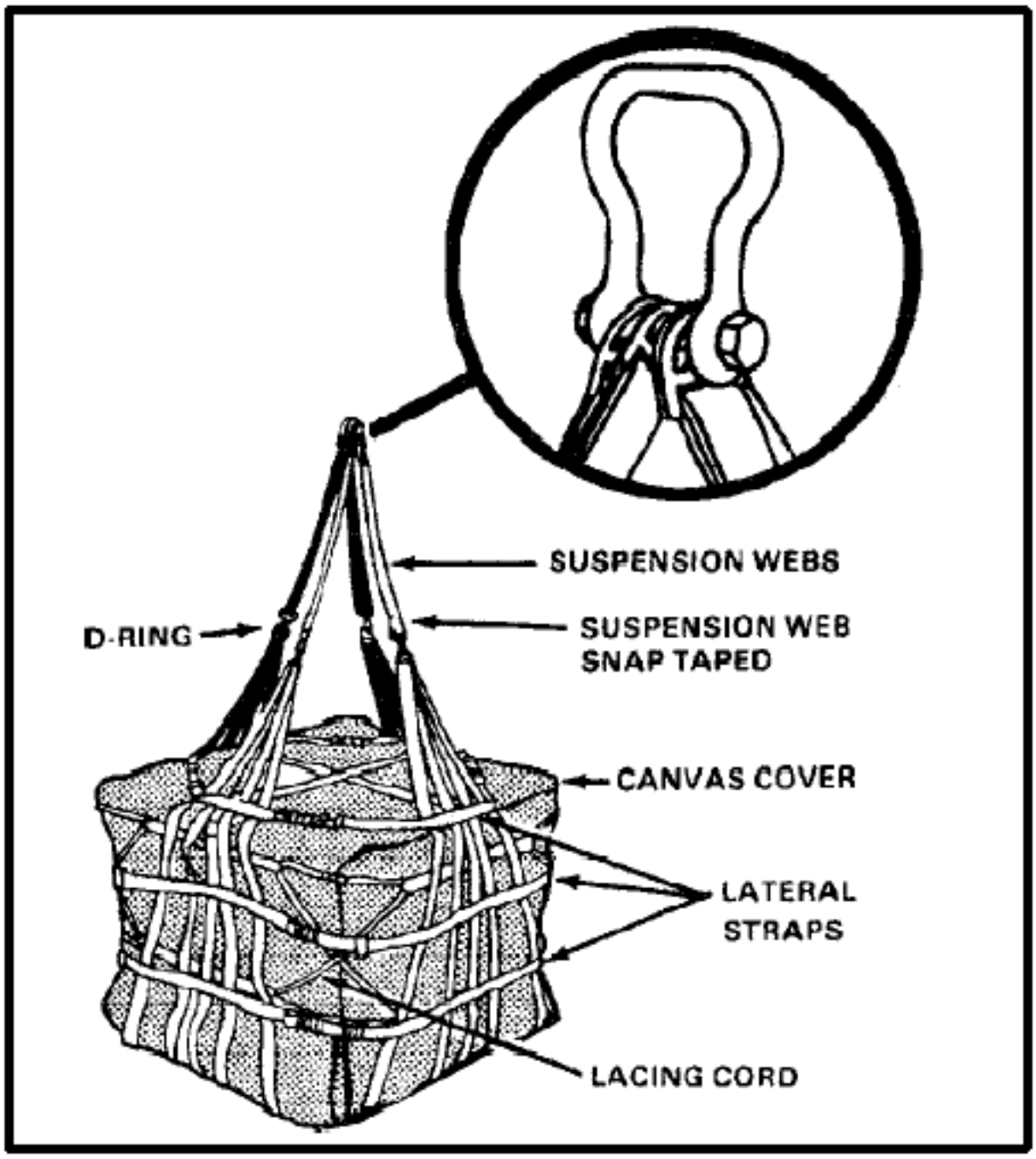
PREPARATION

1. Place the scuff pad on the ground with the over sewn portion facing down.
2. Place the canvas cover on top of the scuff pad assembly. Match up the rectangular portions.
3. Pull the canvas cover on top of the scuff pad assembly. Match up the rectangular portions.
4. Place the load on the rectangular portion of the canvas cover so that it is centered.

RIGGING

1. Fold the canvas cover the top of the load. Fold any excess cover material under the top flaps.
2. Secure the corners with the lacing types. To do this, route the lacing rope from ground-to-sky through the bottom two loops. Then form an “X” with the lacing rope and route the free running ends through the top two lacing loops from ground skyward. Secure the rope with a bow knot and tape the excess rope with two-inch tape.
3. Secure the 188 inch straps across the load so that they form a cross. Then locate the friction adapter buckle opposite of each strap. Route the 188 inch strap through the friction adapter and then tighten down. Do not incorporate any twists. Secure the excess strap with two-inch tape or 1/4 inch cotton webbing.
4. Route the lateral straps to their friction adapters. To tighten, start from the bottom and move to the top. Tighten down opposite corners at the same time. Then roll and tape all excess straps; do not incorporate any twists.
5. Place the suspension webbing straps onto the suspension webbing D-rings. To do this, hook the butterfly fasteners onto the D-rings with the hooks facing down toward the load and tape the hooks with two-inch tape.
6. Attach the D-rings of all four suspension webbing straps, to the bolt of the medium clevis in a clockwise or counter-clockwise sequence. Ensure that the straps are not twisted more than a half twist.
7. Secure the bolt with the nut and tape both ends of the bolt with two-inch tape.
8. Route the free running end of the chain from the sling leg through the medium clevis and place a chain link count of 3 into the keeper portion of the grab hook assembly for a 10K sling set or link count of 5 for 25K sling set.
9. Rig the apex of the sling leg for the type of aircraft that will be picking up the load. A UH-60 Blackhawk must have an aluminum spacer on it, and a UH-1H must have an

apex ring or a basket hitch. A CH-47 does not require any additional items on the apex. Check the nut on the apex. The castellated nut must have a cotter pin in it.



A-22 CARGO BAG

25. One to Four 500-Gallon Fuel Drums

One fuel drum is certified by the US Army NATICK for UH-60 and CH-53A/D/E helicopters at airspeeds up to and including 80 and 120 knots, respectively. One to four fuel drums is a suitable load for the CH-47 helicopter at airspeeds up to and including 80 knots.

Nomenclature	*Max Weight (Pounds)*	*Sling Set*	*Link Count Front/Rear*
Drum, Fabric, Fuel, 500-Gallon (1 each)	4,200	10K	3/3
Drum, Fabric, Fuel, 500-Gallon (2 each)	8,400	10K	3/3
Drum, Fabric, Fuel, 500-Gallon (3 each)	12,600	25K	3/55
Drum, Fabric, Fuel, 500-Gallon (4 each)	16,800	25K	3/3

MATERIALS

(1) Sling set (10,000 or 25,000-pound capacity).
(2) One drum, 2 x 10,000 lbs or 2 x 25,000 lbs capacity sling legs
(3) Two drums, 4 x 10,000 lbs or 4 x 25,000 lbs capacity sling legs
(4) Three drums, 4 x 25,000 lbs capacity sling legs
(5) Four drums, 4 x 25,000 lbs capacity sling legs
(6) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
(7) Cord, nylon, Type III, 550-pound breaking strength.
(8) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

PERSONNEL

Two persons can rig this load in 5-15 minutes

PREPARATION

1. Align the drums side by side in a row.
2. Ensure the lifting clevises are serviceable.
3. Rotate the drum hub so a clevis is in the top position

RIGGING

1. Install all fuel caps and ensure they are secured in the locked position with type III nylon.
2. If no dust cover is present, cover the fuel opening with two-inch tape.
3. Ensure screw pin clevises have cotter pins.
4. Rigging of the 500 gallon fuel blivets with 25,000 lbs sling set.

5. One fuel blivet

(1) Two sling legs with one apex
(2) Lift points rotated to the 12 o'clock position
(3) Link count 3 at each lift point
(4) Tie one mandatory breakaway with 1/4 inch cotton webbing

6. Two fuel blivets

(1) Four sling legs and apex
(2) Apex order as follows:
  (a) The center legs to the lightest fuel blivet
  (b) The outer legs to the heaviest fuel blivet
  (c) Link count of 3 at each lift point

NOTE: If a 10,000 lbs sling set is available, it may be slingloaded exactly the same way one and two fuel blivets are rigged with a 25,000 lbs sling set. However, two fuel blivets are the maximum that can be lifted on a 10,000 lbs sling set with four legs.

7. Two fuel blivets (pilot preferred method)

(1) Two fuel blivets rigged as a dual load on two sling legs.
(2) Rotate lift points to the 3-9 o'clock position.
(3) Route the free running end of the chain through the two inside lift points.

NOTE: When routing the chain lift points, go same direction on both (i.e. left to right through lift point at the 9 o'clock position).

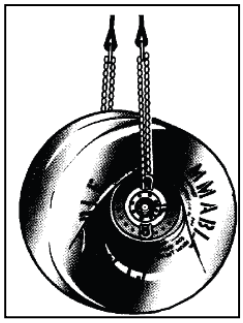
(4) Secure a link count of 3.
(5) Ensure you have no chain to chain contact on both lift points.
(6) Apex order is as follows:
  (a) The left sling leg to the left side of the blivets.
  (b) The right sling leg to the right side of the blivets.
(7) There is one mandatory breakaway in the center of the blivets.

8. Three fuel blivets

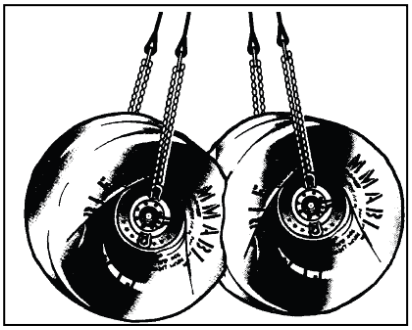
(1) Configuration: two blivets in the dual hook up mode (pilot preferred), and one blivet in the single hook up mode.
(2) Utilize four sling legs and apex to the 25,000 lbs sling set only.
(3) Apex order is as follows:
  (a) The inside sling legs to the single fuel blivet.
  (b) The outside sling legs to the pilot preferred blivets.
(4) There are two mandatory breakaways: one breakaway around one set of dual hook ups and one between the single hook up.

9. Four fuel blivets.

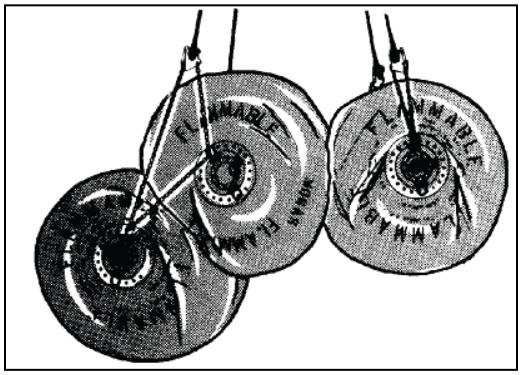
(1) Configuration: rig two pair in pilot preferred methods.
(2) Utilize four sling legs and apex to the 25,000 lbs sling set only.
(3) Apex order is as follows:
(a) The inside sling legs are routed to the lightest pilot preferred blivets.
(b) The outside sling legs are routed to the heaviest pilot preferred blivets.
(4) There are two mandatory breakaways: one between each pilot preferred method.



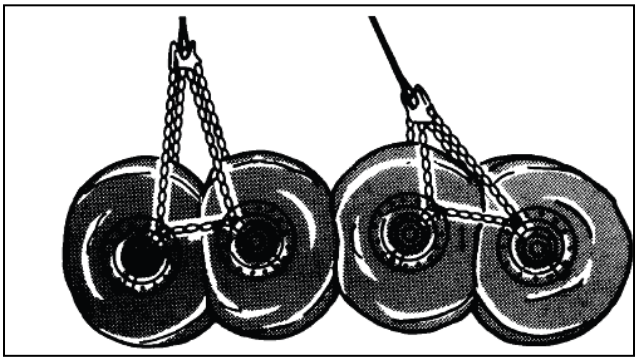
One-blivet configuration



Two Blivet configuration



Three-blivet configuration



Four-blivet configuration

SECTION G. SLING LOAD INSPECTION RECORD

1. INTRODUCTION

In order to improve sling load safety, all Army loads require an inspection by a qualified inspector prior to the arrival of the supporting aircraft using the Sling Load Inspection Record.

2. INSPECTOR QUALIFICATIONS

Inspectors must meet the following qualifications:

• Be in the grade of E4 or above AND
• Be a graduate of one of the following courses:
- Pathfinder.
- Air Assault.
- Sling Load Inspector Certification.

3. DISTRIBUTION OF THE SLING LOAD INSPECTION RECORD

The Sling Load Inspection Record requires three copies.
Distribute the form as follows:

• Copy One - To the supporting aviation unit.
• Copy Two - Securely taped or tied to the load.
• Copy Three - To the supported unit.

The Sling Load Inspection Record form may be reproduced locally pending official distribution.

4. COMPLETING THE SLING LOAD INSPECTION RECORD

Procedures for completing the Sling Load Inspection Record are as follows:

• Block 1 - Supported unit identification.
• Block 2 - Item description and serial/bumper number.
• Block 3 - Weight of load.
• Block 4 - Supporting aviation unit identification.
• Block 5 - Type of aircraft used.
• Block 6 - FM used to rig the load.
• Blocks 7 through 10 - Fill out only blocks that pertain to your load. Persons rigging and inspecting
the load must INITIAL the appropriate blocks.
• Block 11 - Identifies the supported unit person rigging the load and the date the load was rigged.
• Block 12 - Identifies the supported unit person inspecting the load and the date the load was inspected.
• Remarks - List any deficiencies found in the load.

SLING LOAD INSPECTION RECORD

For use of this form, see FM 10-450-3; the proponent agency is TRADOC

1. SUPPORTED UNIT	2. ITEM DESCRIPTION AND SERIAL/BUMPER NO.	3. WEIGHT

4. SUPPORTING AVIATION UNIT	5. TYPE AIRCRAFT	6. RIGGED IAW FM NO

INITIAL ONLY ITEMS APPLICABLE TO YOUR SPECIFIC LOAD	LOAD RIGGED BY	LOAD INSPECTED BY
7. VEHICLE OR LOAD		
A. CORRECTLY POSITIONED		
B. EMERGENCY BRAKE SERVICEABLE AND SET		
C. FUEL LEVEL NOT TO EXCEED 3/4 TANK		
D. PREPARED AND PADDED IAW THE APPROPRIATE FM		
8. SLING SET		
A. CORRECT NUMBER AND SIZE (10K OR 25K)		
B. INSPECTED FOR SERVICEABILITY IAW FM 10-450-3		
C. SLING LEGS PROPERLY ROUTED AND ATTACHED TO LIFT POIN		
D. CORRECT LINK COUNT FRONT AND REAR		
E. CHAIN SECURED IN GRAB LINK		
F. EXCESS CHAIN TIED OR TAPED (10 LINKS OR MORE)		
G. BREAKAWAY TIES INSTALLED		
H. APEX ATTACHED		
I. APEX SPACER INSTALLED IF REQUIRED		
J. REACH PENDANT INSTALLED IF REQUIRED		
9. A-22 CARGO BAG		
A. INSPECTED FOR SERVICEABILITY IAW FM 10-450-3		
B. RIGGED IAW FM 10-450-3		
C. SUSPENSION WEBS ATTACHED TO CONTAINER AND TAPED		
D. CLEVIS BOLT THROUGH SUSPENSION WEB D-RINGS (4 EACH)		
E. CORRECT SLING LEG ATTACHED		
F. APEX ATTACHED (CORRECT TYPE)		
G. APEX SPACER INSTALLED IF REQUIRED		
10. CARGO NETS		
A. CORRECT SIZE (5K OR 10K)		
B. INSPECTED FOR SERVICEABILITY IAW FM 10-450-3		
C. LOAD CORRECTLY POSITIONED		
D. LIFTING LEGS PROPERLY CONNECTED TO APEX FITTING		
E. HOOKS TAPED		
F. LIFTING LEGS TAPED OR TIED (BREAKAWAY)		
G. CORRECT NUMBER AND SIZE SLING LEGS		

REMARKS:

11. LOAD RIGGED BY:

UNIT (PRINT)	NAME (PRINT)	INITIALS	RANK

SIGNATURE	DATE

12. LOAD INSPECTED BY:

UNIT (PRINT)	NAME (PRINT)	INITIALS	RANK

SIGNATURE	DATE

DA FORM 7382-R, MAR 97

Chapter 6

Integrated Supporting Operations

GENERAL:

1. By their nature, air assault operations require combined arms integration. There are sub-operations considered in every air assault, in addition to the five major plans of an air assault (Ground Tactical Plan, Landing Plan, Air Movement Plan, Loading Plan, and Staging Plan). These following sub operations will assist in Air Assault planning:

Section A: FARP planning considerations
Section B: Attack/Reconnaissance Aviation Battalion Operations
Section C: Air Cavalry Operations
Section D: Aerial Supply Operations
Section E: Pathfinder Operations
Section F: RSTA and Infantry Battalion Scout Operations
Section G: Pathfinder/Scout Mission Planning
Section H: Personnel Recovery Operations
Section I: Air Assault Artillery Operations
Section J: MEDEVAC/CASEVAC Operations

SECTION A: FARP PLANNING CONSIDERATIONS

1. The combat service support structure available to support a high tempo air assault operation is austere. To meet the Division's requirements for fuel distribution and storage, the Division must synchronize the combined efforts of the Sustainment Brigade that is operating in support of the Division, and the Aviation Support Battalions.

2. The Division supports the air assault with a combination of methods/means aimed at maximizing resources at the critical places and times. Aircraft fuel distribution is accomplished through two means: Rapid refuel points (RRPs) and forward arming and refuel points (FARPs).

3. RRPs are established to rapidly refuel large numbers of aircraft during surge periods, such as air assaults. They are generally long duration fueling operations that are time-consuming to establish and difficult to move, especially when they are established with 10,000, 20,000, or 50,000 gallon fuel bags. Five thousand gallon tankers and HEMTTs may also be used to store fuel at an RRP, increasing its mobility.

The bulk fuel storage and distribution capability an RRP can provide through its multiple points allows the air assault task force (AATF) to refuel a complete light and/or heavy serial simultaneously, minimizing ground time and enhancing the rapid buildup of combat power. They normally do not have a rearming capability, but may when augmented by attack battalion armament personnel and equipment. To maintain separation between heavy and light aircraft, it may be useful to separate the RRP into a "heavy" section and a "light" section. Although the total number of points at an RRP is METT-TC dependent, an RRP of 6 light points and 4 heavy points will provide adequate support for a BCT AATF. An RRP can be established by a combat aviation brigade (CAB), ASB, BSB, or requested assets from the sustainment brigade supporting the Division. When it is operated by more than one unit, it is known as a consolidated rapid refuel point (CRRP). Figure 6-1 is an example heavy RRP/CRRP.

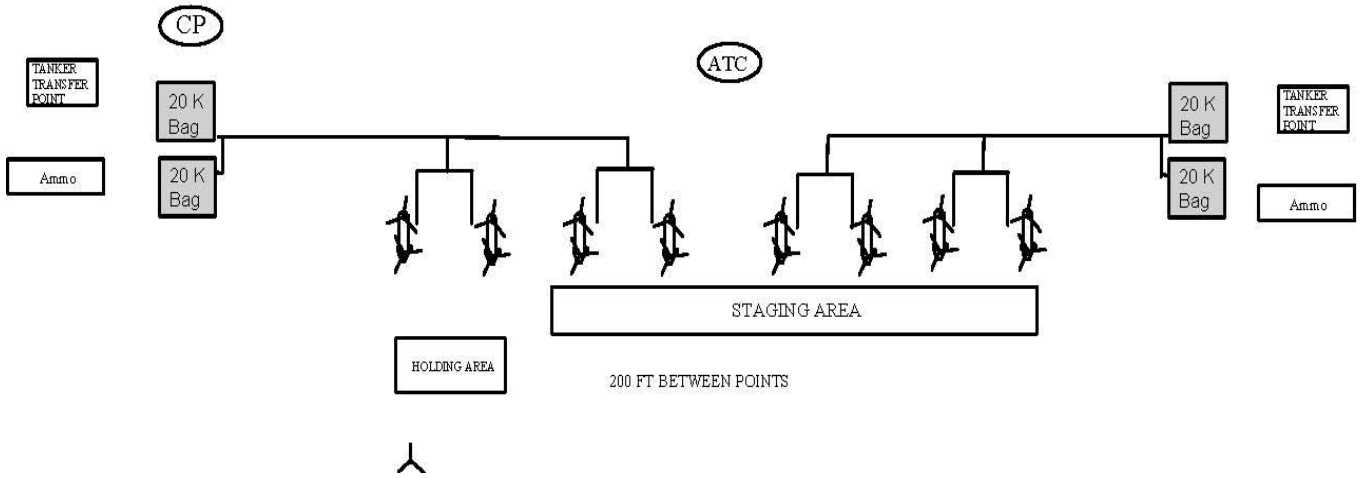


Figure 6- 1: Heavy RRP/CRRP

4. A FARP is an aircraft refuel site which is located in a tactical position forward of the Division tactical assembly area (TAA) which conducts both refueling and rearming operations. FARPs are normally established by aviation battalions, which are manned and equipped to refuel and rearm aircraft under combat conditions using various types and setups. HEMTT FARPs are most effective behind the forward line of troops (FLOT) or where a secure ground LOC exists. Forward of the FLOT, jump FARPs (JFARPs), consisting of sling loaded 500 gallon fuel drums, pumps, and hoses, and pre-configured ammunition loads, provide refuel/rearm capability for attack and cavalry aircraft. FATCOW FARPs consist of a CH-47 with an external pump to pump fuel from the aircraft's internal Robertson tanks (2400 gallons). WETHAWK FARPs consist of a UH-60 with a microfare pump capable of pumping fuel from an external tank (460 gallons). A FATHAWK is the same configuration but with ammunition for attack / cavalry aircraft as well. Fatcow and WETHAWK/FATHAWK FARPs are easy to establish but have limited capacity and lack security. Figure 6-2 is an example of a 6 Point AH-64 /OH-58 FARP.

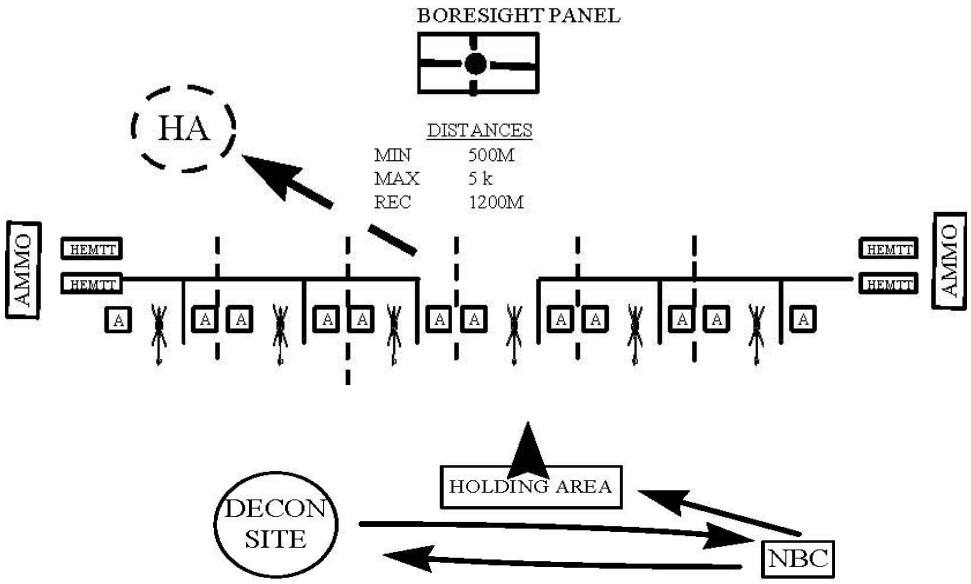


Figure 6- 2: 6 Point AH-64/OH-58 FARP

5. FARPs are sometimes established in a FARP zone. This is an area of terrain forward of the TAA and usually short of the FLOT which is set aside to support several FARP and/or RRP locations required to support deep air assaults or conditions setting. The size of the FARP zone is dependent on METT-TC analysis, but it may cover several hundred square kilometers. It is divided into several sectors, each of which is several kilometers square and suitable for supporting one or more FARP points. In open, relatively sparse areas, a FARP zone 60-70 km long by 20-40 km wide is feasible, with each sector roughly 5 x 5 km square. Other areas, such as mountainous, jungle, or close-compartmented terrain may require sectors to be widely separated in order to find enough suitable rearm/refuel locations. Figure 6-3 is an example FARP zone.

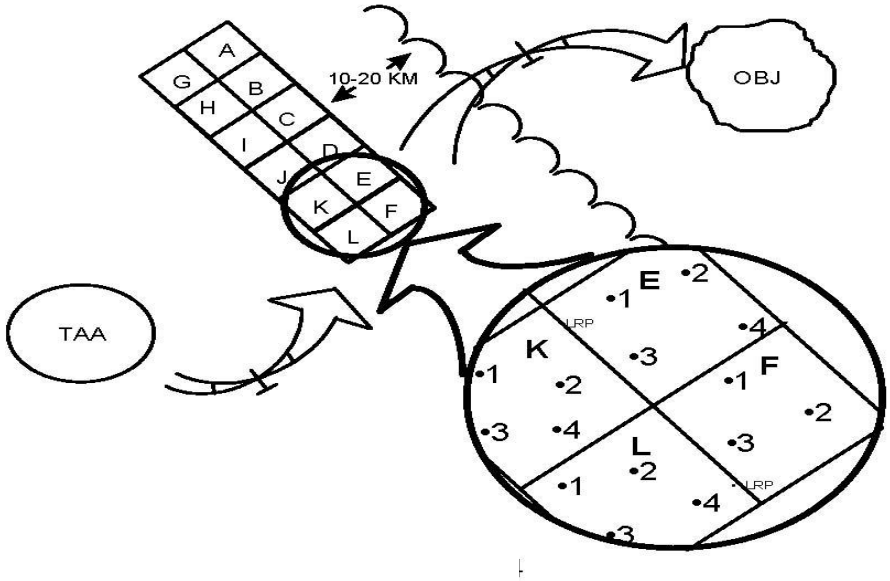


Figure 6- 3: 6 FARP Zone

6. One or more sectors will be declared active at any one time, based on mission requirements, threat analysis, and terrain. That information is provided to the aviation battalions, air traffic control, and FARP personnel. The CAB's HEMTT tankers will establish FARP points within the active sectors to provide rearm/refuel capability on a mission basis. To enhance force protection, the FARPs displace to other points within the active sector as required to support the mission. The amount of time a FARP may operate in one spot is METT-TC dependent, but FARP points are normally active for no more than four hours. Varying the active sectors and the locations of FARPs within those sectors, reduces the signature of aircraft refuel/rearm operations, offering increased protection from air, ground, and artillery attacks.

7. Establishment and protection of a FARP zone is a combined arms operation, with combat and combat support required to prepare and protect FARP zone emplacement, operations, and sustainment. Engineer support is required to prepare refuel/rearm points within each sector. Force protection may require air defense and infantry, chemical support for decontamination and smoke support. .

8. Employment in a brigade air assault.

a. While operating behind the FLOT in the TAA, fuel will be throughput to the Division by the Sustainment Brigade assets that have the area support mission to the Division or that have been designated to support the air assault operation by the Theater Support Command (TSC). This allows the Division to stage its equipment for air assault operations deep in the enemy's rear. Re-supply of consolidated rapid refuel points (CRRP) behind the FLOT will normally be by ground via Theater Sustainment throughput (either Army or host nation support).

b. As the Division assaults forward, the CAB or Aviation Task Force will plan, equip, man, and control the locations and operations of FARPs/RRPs outside the TAA, FLB, or FOB. The Sustainment Brigade that has been directed to provide support to the Air Assault Operation plans, coordinates, and executes with the CAB the re-supply of these FARPs/RRPs. These FARPs, along with the CRRP in the TAA, will be used to support condition setting and the initial air assault. They will normally be a mixture of HEMTT FARPs to the rear of the FLOT, Jump FARPs across the FLOT, and heavy assault FARPs as required by the tactical situation.

c. Immediately after the air assault the assault/attack aviation Class III-V platoons will establish RRP/FARPs in the objective area. The nucleus of fuel operations in the Forward Logistics Base (FLB) will be the Brigade Support Battalion's class III section. Using its organic assets, the BSB can set up a total of two ground and two air refueling points for a maximum of 12 hours of operation. Therefore, a CRRP will normally be established in the FLB using personnel and equipment from both the BSB and CAB. The BSB will provide C2. In the initial FLB, for security purposes, space for the CRRP will be limited and may only contain four to eight points. Figure 6-4 is an example fuel distribution system for seizing an objective.

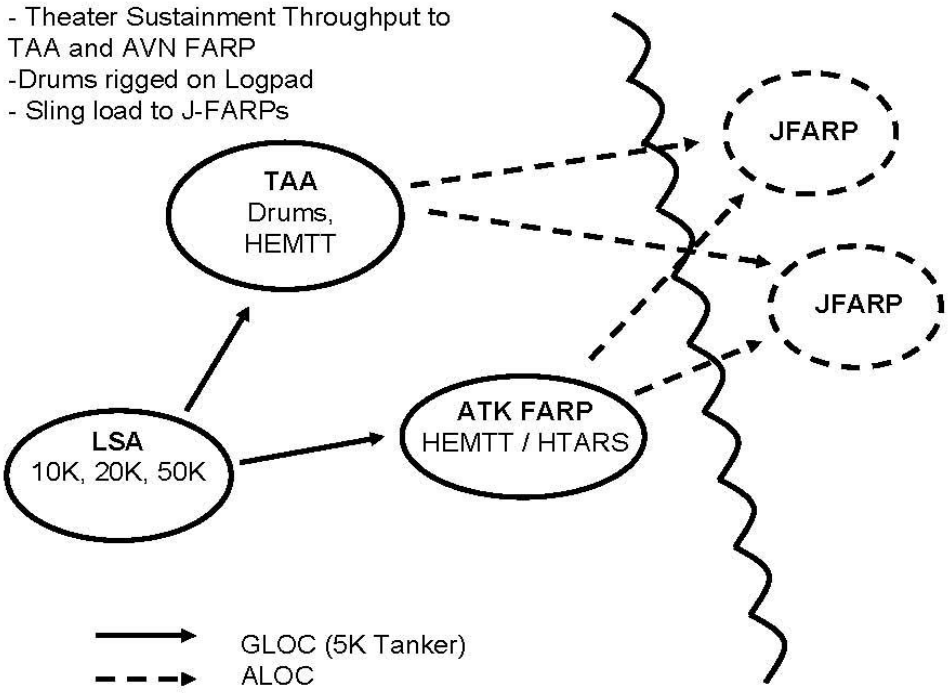


Figure 6- 4: Example Fuel Distribution System

d. As the FLB expands, more points may be added or (due to air traffic considerations) other FARP's or RRP's may be set up near the FLB. Also, the fuel system supply point (FSSP) may be slung forward to be operated by the BSB as a bulk fuel storage site to expand fuel capacity. The CABs will provide personnel and equipment to operate the aircraft fuel points. As the FLB expands, it will become the Brigade Support Area (BSA) for a BCT. If the FLB/BSA will become a staging area for future Division operations will be designated a forward operating base (FOB) and will receive additional assets, which includes Fuel Bags, and the Aerial Bulk Fuel Distribution System. Command and control of the FOB will normally transfer to one of the Division TACs based on METT-TC. Figure 6-5 is an example of fuel distribution system for expanding the lodgment and future operations.

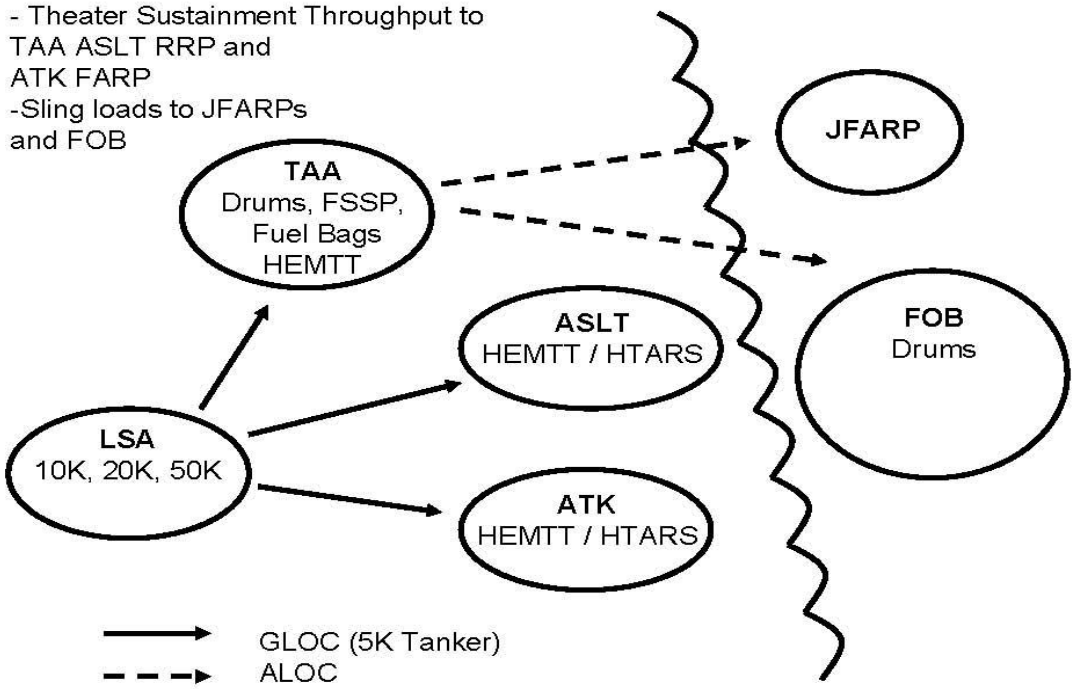


Figure 6- 5: Fuel Distribution System for Lodgement and Future Operations

e. As the FOB expands and the BSB goes into PZ posture for future air assaults, fuel handlers from other BSBs, ASBs, an Aviation Brigade, or assets of the Sustainment Brigade in direct support of the Division will echelon forward. These units will fall in on the equipment left by the BSB. The BSB takes equipment brought by these new units and either assists in expanding the operation or preparing for future operations at a new FLB/BSA/FOB. The Brigade Support Battalion Commander controls this allocation and handover of equipment. This requires support unit awareness of the operational plan in order to ensure that the required equipment is at the right place at the right time as units echelon forward and that redundant capabilities exist.

SECTION B: ATTACK/RECONNAISSANCE BATTALION OPERATIONS

1. Attack aviation, to include air cavalry operating in the attack role, brings firepower, speed, and shock effect to an air assault operation. The Division can employ these assets in mobile strike operations under command of either CAB in order to destroy enemy forces. Air assaults always include attack and/or cavalry aviation supporting the Air Assault Task Force.

2. Attack Aviation allocations.

a. Each CAB has the following attack and cavalry assets:

Unit	Assets	Companies / Troops	A/C Availability Planning Figures
Attack Helicopter BN (ATKHB)	24 AH-64Ds	3	18
Air Cavalry Squadron	30 OH-58Ds	3	24

Figure 6- 6: Attack Battalion and Cavalry Squadron Assets

The typical allocation of attack helicopters to a BCT-size air assault task force is one AH/OH Task Force. The normal command relationship is OPCON to the AATF. The AATF may assume OPCON of ATKHB or Air Cavalry Squadron TF as much as 96 hours prior to the air assault, but 24 hours to provide minimum planning and preparation prior to the operation. The cavalry squadron is also often task-organized to the BCT air assault operation either in addition to or in lieu of the attack helicopter battalion. For this discussion, cavalry fighting in the attack role will also be described as attack aviation.

b. The AATF should normally plan on employing attack aircraft in team (2 aircraft) or platoon (4) elements. Employing the AH-64 in company elements provides a good balance of capabilities in terms of aerial reconnaissance capability in the area of operations (AO), the ability to 'mass' Apache fires sufficient to destroy up to a battalion-sized mechanized force (or equivalent), the ability to conduct distributed attack helicopter operations in up to 3 separate locations and/or to maintain a continuous presence. The AH-64 is normally employed in as small an element as two-ship teams if the requirement for continuous presence outweighs the requirements for mass. The company, however, is the lowest level that plans/coordinates operations. During an air assault, the attack/cavalry elements are controlled by the AMC until the air assault is completed. Once ground forces are established in the LZ, ATK / CAV assets will establish communications with the Battalion / Company elements and prepare to provide security and execute CCA's as necessary.

3. Employment of attack aviation in air assault operations.

a. Typically, the ATKHB is employed in support of an air assault about 48 hours prior to H-hour (i.e. the night of D-2) in order to set conditions for the air assault. In order to better coordinate and orchestrate operations, the Division may consolidate all ATKHBs under one CAB during the conditions setting phase. Time sensitive or smaller than Battalion TF level air assault operations will have reduced conditions setting timelines, tasks, or may not require conditions setting at all based on METT-C.

b. Following the standard conditions setting template, the ATKHB conducts terrain oriented armed reconnaissance up to 48 hours (D-2) prior to H Hour. The purpose of this armed reconnaissance is to destroy high pay-off targets of opportunity, confirm or deny the suitability of flight routes and LZs, gain information on the ground routes from LZs to the objectives, and gain information on the objective area.

The ATKHB will begin to confirm or deny the enemy template and will destroy select high pay-off targets. The focus of D-2 operations is on armed reconnaissance and a shift to emphasize attack operations exclusively requires a deliberate decision by the commander; usually to destroy an enemy force of great criticality. Upon completion of the D-2 reconnaissance, the ATKHB provides its reconnaissance products to the AATFC (even if employed under a CAB).

c. D-1 operations are normally executed as a movement to contact with the purpose of setting the air defense, maneuver, fires, and intelligence conditions for the air assault. In its operations, the battalion refines the intelligence picture in the AO and attacks to destroy high pay-off targets in zone in order to set conditions for D-day operations. At the end of D-1 operations, enemy forces in the AO that can affect the air assault should be destroyed or located for targeting and attack prior to the air assault.

d. On D-day the focus of the ATKHB's operations is to finalize setting conditions for the air assault and then providing CCA fires and security for the air assault itself. After the initial lift is in, the focus of the attack battalion shifts to securing the airhead and/or providing supporting fires to the GTC. A typical pattern for attack helicopter operations on D-day begins with attacks to destroy located/templated forces that can affect the air assault in order to finalize setting conditions. This is normally a company operation. This stage ends with the LZs confirmed clear "Ice" and with AH-64s/OH-58s in overwatch prepared to deliver precision aerial fires IVO 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 GTC. The third company usually cycles in to extend the duration of the security zone mission and/or the supporting fires.

e. If the LZs are hot, the AATFC may decide to delay, divert, or abort the mission (see Chapter 1, Section G, abort criteria). Actions by the AATFC and attack /cavalry Aviation may be the only way to set conditions to "Ice". The aviation element will provide an estimate of the time and resources required to change the conditions. This will require close coordination between the AATFC and attack/cavalry Aviation to avoid fratricide and to minimize risk to the aircrews.

f. While the ATKHB/CAV Squadron TF can perform many tasks in support of air assault operations, it cannot perform all possible tasks. The AATFC must prioritize the tasks he needs to have accomplished and select those that are truly essential for the ATK/CAV elements to perform. Giving the ATKHB too many tasks will reduce the effectiveness of the AH-64s/ OH-58s by forcing a piecemeal commitment of the battalion. Additionally, "continuous presence" can only be maintained for about 24 hours and forces a sequential employment of teams of two aircraft. The result is that the ATK/CAV loses the flexibility to mass effects in time/space.

g. For planning purposes, an attack helicopter company can perform no more than one task at a time. Depending on the duration of a particular task, attack companies may be able to conduct two tasks sequentially as long as they are related efforts (*e.g.* transitioning from LZ overwatch to airhead security or close supporting fires). The limiting factor for conducting sequential tasks is crew endurance. Figure 6-7 below is an attack aviation employment task matrix.

Setting The Conditions
Basic Task: Force-oriented armed zone reconnaissance (under AATFC command while within BCT battlespace) Subtask 1. **Route reconnaissance** (purpose: validate air movement and landing schemes) Aviation Focus: flight routes, RPs, SPs, ACPs, proposed attack aviation positions, enemy ADA in range of flight routes and LZs Ground Focus: clear, usable routes to primary and alternate LZs
Subtask 2: **Area reconnaissance** (purpose: validate landing scheme) Aviation Focus: LZ viability, LZ obstacles, enemy ADA ranging LZs ground focus: LZ viability, enemy forces near LZ, enemy indirect fire units ranging LZ, enemy mobile reserves ranging LZ
Subtask 3: **Hasty attacks** (purpose: destroy selected enemy forces) Aviation Focus: enemy ADA ground focus: enemy forces defending or supporting defenses on or near LZs
Subtask 4: **Deliberate attacks** (purpose: destroy selected enemy forces) Aviation Focus: enemy ADA, artillery, and mechanized forces
Air Assault Security Operations
Basic Task: Protect air assault operations (under AMC command) Subtask 1: **LZ overwatch** (purpose: dominate LZs by fire and maneuver to permit unhindered landing operations) Aviation Focus: suppress all enemy ADA to permit unhindered ingress, landing, and egress Ground Focus: close combat attacks to destroy enemy forces
Subtask 2: **Screen** (purpose: detect and attrit enemy forces moving toward LZs) Aviation Focus: suppress all enemy ADA to permit air assault to continue Ground Focus: delay and disrupt enemy mobile reserves and indirect fire means to prevent them from influencing the operations of friendly ground forces
Subtask 3: **Close combat attacks** (CCA) (purpose: destroy designated enemy forces to permit ground forces to execute assigned tasks) Aviation Focus: employ discriminate fires to expedite ground force operations Ground Focus: employ attack aviation in direct fire attacks to destroy enemy forces
Subtask 4: **Escort** (purpose: ensure the safe landing or extraction of key assets) Aviation Focus: direct close support to a designated serial, suppressing all enemy enroute or at the LZ or PZ Ground Focus: none, unless CCA required

Figure 6- 7: Attack Aviation Employment Task Matrix

h. Air assault security. The air assault security force integrates into the scheme of maneuver for the conduct of reconnaissance, security, or overwatch operations during all phases of the air assault IOT protect lift and assault forces from the PZ to the LZ to preserve combat power. Air assault security is not an aerial escort mission as aerial escort missions are flown to locate enemy forces along the route ahead of escorted aircraft and does not necessarily apply to locating all enemy forces that can influence the PZ, the route, the LZ, and the objective area as done during air assault security.

(1) The first attack team departs in advance of the assault force and flies along the same route it will use. Subsequent teams use separate routes so as not to conflict with subsequent lifts.

(2) Team(s) initially conduct force-oriented reconnaissance in vicinity of the LZ.

(3) Priority of the reconnaissance effort is to identify any air defense artillery or direct fire weapons that could influence the air assault.

(4) At the set time listed on the execution checklist, (NLT RP plus 2 minutes), the attack element calls either “Cherry” or “Ice” for the LZ. If the element calls “Cherry” then the element makes an estimate of the assets required and how long it would take to turn the condition to “Ice”. (Also see Chapter 3, section E).

(5) Prior to the arrival of the assault force, priority of indirect fires are generally given to the attack element on station. Upon arrival at the LZ, the GTC generally assumes priority of fire.

(6) Attack / CAV aircraft provide security by integrating into the AC2 plan and respond to all encountered threats. Stationary SBF/ABF positions are not desirable for attack / CAV elements, and deliberate AC2 integration is required to ensure precision aerial fires are available during the assault.

SECTION C: AIR CAVALRY OPERATIONS

1. The fundamental purpose of the cavalry is to perform reconnaissance and to provide security. During air assault operations, the air cavalry is suited to perform the basic task of zone reconnaissance and close combat attacks for the AATFC. These missions help the AATFC determine how to allocate attack assets to destroy the enemy and assists in course of action development through the location and determination of suitability of landing zones. The reconnaissance products (videotapes and LZ sketches) also assist planning operations in and around the LZ(s). The air cavalry can conduct deliberate attacks and air assault escort; however, as with attack aviation performing reconnaissance, these missions do not maximize the use of aircraft capabilities.

2. Air cavalry allocations.

a. The cavalry squadron is organized into three troops of ten aircraft (eight for planning) each. The cavalry uses two-ship teams, troops, and/or the entire squadron to execute missions. Generally, a team can conduct any of the subtasks under the reconnaissance basic task. For security missions, it generally requires more than just one team per subtask.

b. Based on other mission requirements, the cavalry can support a BCT air assault with the entire squadron or any portion of troops, teams required. If the entire squadron supports the mission, a command and control element (TAC) will go forward with the air assault and/or the squadron commander or S-3 will ride in the C2 UH-60. To maximize aircraft capabilities and best serve the AATFC, a task-organization with both cavalry and attack assets provides the greatest versatility.

3. Employment of the air cavalry in air assault operations.

a. At H-48 (or earlier), the cavalry can conduct terrain-oriented reconnaissance of possible FARP sites, the objective, possible attack aviation positions, deception objectives, primary and alternate LZs, etc. to determine suitability. The cavalry also conducts route reconnaissance to validate air routes and determine if enemy ADA can influence movement along the routes. If any enemy is found, the cavalry will develop the situation and provide information for the commander. METT-TC determines whether the cavalry uses supporting deep fires (artillery, CAS), organic fires, or passes the target to attack aviation to destroy.

b. The cavalry next (approximately H-24) conducts force-oriented reconnaissance. This identifies remaining enemy elements that may influence the air assault. Reconnaissance assists the commander in determining if the conditions are set.

c. During the conduct of the air assault, the cavalry performs one or more of the following missions:

(1) Task: Air route reconnaissance. Purpose: Determine suitability of air routes into and out of the OBJ areas.

(2) Task: Air route security. Purpose: Prevent the enemy from influencing movement along the air route(s). This task may include establishing the forward passage lane for follow-on attack/lift assets, hasty attacks, etc..

(3) Task: Area or Zone Reconnaissance of LZs and OBJs. Purpose: Determine suitability of LZs and enemy disposition on OBJ areas as well as terrain that can influence LZs and OBJs.

(4) Task: Area security (objective). Purpose: Deny enemy the ability to influence friendly actions vicinity the LZ(s)/objective(s).

This task may include establishing OPs to overwatch the LZ(s), providing the "Cherry/Ice" call, establishing a screen, close combat attacks and reconnaissance of ground routes from LZ to objective. If indirect fires and SEAD fires are preplanned, then the timeline must allow sufficient time (min. of 10 minutes) for the aircraft on station to determine if the LZ is cherry or ice. Attack / CAV aircraft provide security by integrating into the A2C2 plan and respond to all encountered threat. Stationary SBF/ABF positions are not desirable for attack / CAV elements, and deliberate A2C2 integration is required to effectively ensure precision aerial fires are available during the assault.

(5) Task: Screen. Purpose: Prevent the enemy from surprising friendly forces vicinity the LZ(s)/objective(s). The security zone (where the screen operation will occur) may be established outside of the objective area to trigger attack assets or closer in to assist the ground maneuver elements.

d. The cavalry may also perform other missions during or immediately following the air assault. These missions include area security (FOB), reconnaissance of follow-on objectives, other security operations, conducting route reconnaissance/security (GLOC), etc. Throughout these missions, the cavalry is prepared to conduct target/battle hand-overs to attack aviation elements, CCAs, assist with command and control, and provide reconnaissance information and products.

SECTION D: AERIAL SUPPLY OPERATIONS

1. GENERAL. This section establishes standard procedures and coordination requirements for divisional sustainment operations. The Air Assault Division is unique in that it routinely operates deep across the FLOT. In such an environment, the doctrinal method of Division throughput via ground lines of communication is not feasible. Therefore, aerial re-supply must be employed, using both fix and rotary wing aircraft. For rotary winged aerial re-supply, the sustainment operations concept allows for the timely distribution of supplies while simultaneously maximizing both aircraft and unit support capabilities. The same concept of support applies to unit's that are deployed under the command of other Divisions. Units will coordinate with the sustainment brigade providing support on an area basis to the Division that provides area or general support to their specific area of operation. When units are operating at smaller outpost, which are supported by Battalion or Company level assets, the same rules apply.

2. CONCEPT OF OPERATIONS.

a. The sustainment brigade supporting the Division will execute sustainment operations where supplies are received from higher, rigged, and slung to forward operating bases (FOB). Each Brigade Support Battalion executes sustainment operations in their respective BCT support area to both receive and send loads. In preparation for sustainment operations, the sustainment brigade support operations section conducts an air mission coordination meeting within three days of any large Division operation.

This meeting is chaired by the Sustainment Brigade SPO and attendees include representatives from the support operations section of each brigade support battalion, all sustainment OICs, Commodity managers, transportation section, and Aviation Brigade representatives. Issues discussed at this conference include:

(1) Concept of sustainment operations/support.

(2) Task organization.

(3) Request for aviation support process.

(4) Communications.

(5) LNO identification/location.

(6) Proposed sustainment locations.

(7) Aviation Brigade concerns/issues.

(8) Sustainment Brigade concerns/issues.

b. In order to adequately support a Brigade Combat Team in the air assault, aircraft must be considered for apportionment for sustainment in sufficient numbers to support follow-on logistics requirements. The CAB's CH-47s will normally be planned to move supplies and equipment from the BCT sustainment area forward to the battalion combat trains or logistics resupply points. In some instances, or in the event of emergency resupply, supplies may be moved from the Division sustainment area directly to forward positions. Based on METT-TC, the Division commander will apportion the necessary number of assault and medium lift aircraft to the sustainment brigade for the aerial resupply effort. The sustainment brigade support operations section plans the effort of resupply to the BSB sustainment areas, working in conjunction with an Aviation Brigade LNO. For aerial distribution from the BSB sustainment area forward, mission planning and execution are the BSB SPO's responsibility, in close coordination with the supporting Aviation elements.

3. CONCEPT OF SUSTAINMENT OPERATIONS.

a. Brigade Combat Team Sustainment operations.

(1) Units will plan to air assault with supplies adequate for sustainment until additional logistics support can be established by air or ground. FLE composition and logistics aircraft apportionment within the Air Assault Task Force must take the factors of METT-TC and the follow-on resupply plan into account.

(2) At the beginning of sustainment operations, the BSB SPO receives support requirements from the BCT S4 during the logistics meeting that occurs the day prior to the actual re-supply operation. The BCT S4 is responsible for consolidating and prioritizing the support requirements from the subordinate battalion S4s. The battalion's S4 directs their support platoon leaders to prepare supplies for slingload operations on the BSB sustainment area based on the guidance from the BCT S4 and the SPO.

(3) The SPO plans re-supply missions for the entire TF based on input from the BCT S4. The SPO makes the ultimate decision on how best to re-supply units based on the situation.

(4) After support requirements have been identified, the SPO conducts an air mission coordination meeting (AMCM). See Chapter 1, section E.

(5) The night before the planned re-supply, the SPO conducts an AMB; attendees include: SPO, Aviation operations representatives (S3 or pilots), BCT S4, sustainment OIC, battalion S4s and forward support company commanders or XOs. See Chapter 1, section F. The sustainment OIC is responsible for developing the PZ diagram. The battalion S4s and forward support company commanders are responsible for developing the LZ diagrams and for coordinating and briefing the LZ security plans.

(6) Forward Support Company Commanders ensure that their re-supply loads are prepared in the BSB sustainment area using their respective unit's air items. When the re-supply aircraft arrive battalion S4s take control of the hooker crews and the support platoon leaders fly in the lead aircraft during the re-supply missions.

4. SUSTAINMENT OPERATIONS PREPARATION.

a. When possible, a rehearsal will be conducted of sustainment operations. This will consist of an actual hook up, load transport, and AAR. A fuel spill rehearsal will also be conducted consisting of a physical inventory of spill kits, a class on spill procedures, and rehearsal of these procedures.

b. The supporting Aviation unit provides aircraft and crews to conduct hooker training for personnel who comprise hook-up teams. The sustainment OICs are overall responsible for supervising this training.

c. The following items should be considered when establishing sustainment operations.

(1) Location-road networks to and from.
(2) Security.
(3) Size -enough usable space?
(4) Spill plan (POL), berm for BLIVET filling, spill kits.
(5) Can multiple loads be staged on each points?
(6) Aviation hazards in immediate vicinity (i.e. wires, poles/antennas, dust, etc.).

(7) Approach and departure headings (*e.g*. do not over-fly tents or TOC's).
(8) Trafficability of terrain in poor weather.

d. The tempo of re-supply operations can dramatically impact on combat operations. It is essential that aircraft utilization be optimized. The goal is to maximize the number of turns during each shift.

SECTION E: PATHFINDER OPERATIONS

1. References: FM 3-21.38 (APR 06), FM 7-92 (DEC 01), ARTEP 7-92 MTP (MAY 02),

2. Concept: The role of the Pathfinders in the Division has changed to provide additional capabilities in the current operating environment. The Pathfinder METL consists of Personnel Recovery, HLZ / DZ Operations, and Area Reconnaissance. Additionally, with commander approval and appropriate training and task organization, pathfinders may be employed in limited direct action operations such as ambush, small-scale raids, and aerial reaction forces.

3. Insertion plan: To accomplish their mission the pathfinders are ideally inserted 72-96 hours prior to H-hour (72 hours optimum) at a distance of 5 -10 kilometers away from the planned LZs. Pathfinders are capable of inserting in any of 3 ways: Air Assault Landing, Airborne Insertion, and FRIES Insertion. In the event of an Air Assault Landing, the aircraft package for insertion will normally consist of 3 x UH-60s and 2 x AH-64s, METT-TC dependent. The Assault Aviation Commander is the AMC for the insertion.

4. Actions after insertion: The pathfinders will infiltrate to the LZs and send back the conditions, suitability, and enemy situation on the LZs and continue to observe the primary LZs for changing situations. The primary and alternate LZs are confirmed for suitability and the information relayed back to the team sergeant in the Infantry BCT TOC (co-located with the BAE) not later than H-48 hours. The team sergeant will notify the BDE S2 and BAE as Intel is received. Prior to the brigade air assault the pathfinders will maintain surveillance on the LZ until approximately H-24 hours. At approximately H-24 hours the pathfinders will move to and mark the release point (3-5 km away from LZ), if the LZ is on or next to the objective. For LZs away from the objective, the pathfinders will provide terminal guidance to the assault aircraft. During the operation the pathfinders will establish 8 digit grid coordinate NFAs (200 meter radius) and locate in the NFAs when the AH-64 Apaches are on station. Communications is established with Apaches when on station in the AO via the BCT O/I Net. During the commo window prior to the arrival of the Apaches, the pathfinder team sergeant will inform the pathfinder team(s) of the time(s) the Apaches are on station. The Apaches will receive a commo check and real time SITREP from the pathfinders at the RP or LZ at approximately H-24 hours. Normally Apaches are on station for recons and condition setting at approximately H-48 and H-24 hours, and again from approximately H-5 to H-3 hours (recon by fire) dependent on METT-TC. It is imperative that the Apaches maintain

commo with the pathfinders in order to confirm the location and movements of the pathfinders on the ground. The pathfinders will monitor their internal net from H-6 to H-hour in order to give guidance and information to the assault aircraft. The assault aircraft will drop down to the pathfinder internal net and establish communications with the pathfinders to receive a real time SITREP. Prior to initial insertion coordination and link-up procedures between pathfinders on the ground and the assault force are established. Once the assault force is on the ground pathfinders execute link-up with the GTC and/or his S2 in order to brief the GTC on all activity and intelligence they have gathered on the ground prior to and during the air assault. Once this link-up and transfer of information has occurred pathfinders can be extracted from the LZ or conduct an exfiltration from the area on foot and conduct follow-on missions. Pathfinder link-up on the LZ with the GTC facilitates the transfer of critical intelligence and prevents any delay of information if the pathfinders were de-briefed through the assault aviation BN TOC. If the pathfinders are going to conduct follow-on missions, those missions are normally planned prior to the initial insertion, if possible.

5. Communications plan: The primary means of communication is Single Channel Tactical Satellite (S/C TACSAT), followed by FM, and finally HF. The primary FM net used for communication is the BCT O/I net. To keep radio transmissions to a minimum and to conserve battery power, the pathfinders use communications windows while on missions. The communications windows are every six hours for one hour beginning on the hour of the team(s) insertion. If more than one team is inserted at the same time, the order of windows is established in the OPORD. If three teams are inserted the communications windows are H+6, H+7, and H+8. The commo window is the opportunity for the inserted team(s) to send important information to the BCT TOC. This information can include: enemy activity, enemy contact, re-supply requests, etc. During the hour of a team's commo window, there are time blocks used in case of communications problems. For the first 30 minutes of the hour, radios are set to frequency hop/cypher text. For the next 15 minutes the radios are set to frequency hop/plain text. For the last 15 minutes of the hour, the radios are set to single channel/plain text. If communication is not made, the team will work on their communications problem throughout the commo window. If all fails, the team will wait until their next commo window and follow the above procedures again. If the team fails to make two consecutive communications windows, they will move to the coordinated no commo PZ where they will wait 24 hours for extraction. If a Pathfinder team fails to make a mandatory commo window, assault aviation supporting unit is alerted by the BAE to initiate preparations and planning for an emergency extraction. If the team misses its second consecutive commo window, the assault aviation unit is directed to initiate extraction. If they are not extracted within 24 hours, the pathfinders will initiate their ground Evasion Plan of Action. Due to the fact that missions may change after the pathfinder team(s) are inserted, the team(s) will monitor their radios for the first 10 minutes of every hour between 0900-2100 hours. No communications checks are made during this time. This time is used for the brigade to send important information to the team(s).

6. Extraction plan: Upon successful link-up and transfer of pertinent activity and intelligence to the GTC, pathfinders can be extracted from the area if they do not have

follow-on missions. If link-up with the GTC has occurred one technique for extraction is to extract the pathfinders at the LZ on the first aircraft of the last lift. Another available means of extraction for the pathfinder element is SPIES. When SPIES is conducted, the aircraft should fly the supported element to the closest LZ and touch down so the element can board the helicopter. Time suspended in the harness should be minimized due to weight of the Soldier with full kit.

7. Emergency extraction: Emergency extraction is initiated by the pathfinders in the event that they are compromised and cannot continue their mission. The pathfinders will notify their team sergeant that an emergency extraction is required, break contact and move to the LZ for extraction. The team sergeant will notify the Brigade Aviation Element that an emergency extraction is required. The BAE will notify the assault Aviation to initiate the extraction. Assault Aviation will conduct the extraction with two AH-64 Apaches and two UH-60s. A pre-planned SEAD mission is called by the BCT FSO to support the extraction mission. The extraction mission is commanded and controlled by assault Aviation. The aircraft makes communications with the pathfinders on the BCT O&I Net. After the extraction is complete, the aircraft with the pathfinders returns to assault Aviation TOC. The pathfinders are debriefed by the Aviation Brigade S2.

SECTION F: RSTA AND INFANTRY BATTALION SCOUT OPERATIONS

1. Concept: The objective of the scout insertion is to gain human intelligence and maintain surveillance of the objective and BCT (RSTA Scouts) or BN NAIs determined by the BCT/ BN S2/S3.

2. Insertion plan: To accomplish their mission the scouts are typically inserted between H-36 and H-24 hours in pre-planned LZs. The scouts receive the pathfinders' frequency, restricted area(s), and pathfinder area of operation prior to insertion. The aircraft package for dismounted Scout Platoon insertion consists of 3 - 6 x UH-60s and 2 x AH-64s. An unarmored mounted RSTA Scout platoon requires 2 - 3 X CH-47s and 2 X AH-64s. Assault Aviation provides the AMC for the insertion.

3. Actions after insertion: The scouts conduct operations IAW the BCT or Infantry battalion R&S collection plan and report back enemy activity IAW the R&S plan. The AH-64s may be on station for recons at approximately H-48 and H-24 Hours, and arrive on station at approximately H-5 to H-3 to conduct conditions setting of the objective and LZs. When the Apaches are on station it is critical that the scouts and Apaches coordinate on the BCT/BN O/I Net, and the Apaches know the location and movements of the scouts. To aid in the prevention of fratricide the scouts establish 8 digit grid coordinate NFAs (200 meter radius) for their locations in the objective area, and locate in the NFAs prior to conditions setting of the objective and air assault. The scouts coordinate their preplanned RFAs with their Battalion/Squadron FSO who ensures the NFAs are given to the BCT FSO. An alternate plan is to have the scouts move to an NFA away from the objective at approximately H-3, before the AH-64s arrive on station,

and conduct polar call for fire missions to vector the AH-64s to targets. If the scouts require close support from attack aviation they implement the attack helicopter close combat attack call for support.

4. Communications plan: The primary means of communication is FM, the alternate means is HF or S/C TACSAT. If commo windows are used for the scouts, the windows are established in the BCT OPORD.

5. Extraction plan: If the scouts do not have follow on missions and are extracted from the objective area they move to pre-planned PZs for an extraction after H-hour.

6. Emergency extraction: If a situation arises that requires emergency extraction of the scouts, communication and coordination is made through the BCT TOC. Dismounted scouts use the same procedures as for pathfinder emergency extraction, with the addition of 1-4 X UH-60s as required. If mounted scouts cannot extract by ground, 2 – 3 X CH-47s are required for each platoon. The net used for the extraction is the BCT/BN O/I net. All aircraft requirements are for up armored HMMWV – equipped units.

SECTION G: PATHFINDER/SCOUT MISSION PLANNING

1. In order to conduct a successful mission, a concerted effort is coordinated between the BCT S3, Assault TF S3, BAE, Attack Aviation LNO, ALO, BCT FSO, pathfinders, RSTA SQDN/Infantry battalion S3/S2, scouts, and the aviators. This planning process begins immediately after receiving the mission.

2. Warning order received: When the warning order is received, immediate planning is initiated for the identification of proposed landing zones for the BCT air assault so a coordinated scout/pathfinder insertion can be accomplished. Proposed landing zones are identified by the BCT S3, BCTS2, and BAE using all available intelligence such as map recon, satellite imagery (Space Support Element can assist in obtaining), UAV, and Apache gun tapes if available.

a. Insertion coordination meeting: Depending on enemy situation and time constraints, a coordination meeting is conducted at the BCT TOC. The attendees for this meeting are: BCT S3, BN S3s from Attack Aviation and Assault Aviation, BCT S2, BCT SIGO, BCT FSO, BAE, attack Aviation LNO, ALO, flight lead(s), the pathfinder team leader, a representative of the RSTA SQDN or IN BN staff (BN S2), and the scout platoon leader(s). These personnel will make-up the BCT planning cell. At the meeting the following agenda is covered:

(1) BCT S3/BAE/AS3 PLANS
- (a) Friendly situation.
- (b) Higher mission and intent.
- (c) Brigade mission and intent.
- (d) Concept of the operation.
- (e) Proposed landing zones.
- (f) Communication plan/reporting information (window, required information).
- (g) False insertions/fire false LZs/ (No predictable pattern).
- (h) Rehearsal (primary) BCT TOC, (Alternate) assault aviation TOC.

(2) BCT S2.
- (a) Weather and light data from insertion to extraction + 24 hours.
- (b) Terrain analysis (obstacles, key terrain, routes, LZs). Imagery will be reviewed if available.
- (c) Recent enemy/civilian activity in the area.
- (d) Expected enemy activity during insertion through extraction.
- (e) Enemy capabilities (intelligence collection assets, weapons capabilities, etc.).
- (f) Review of draft R&S plan, PIR (NAIs, SIRs, SORs indicators, times).

(3) BAE: aircraft package and time separation (3-6 X UH-60s & 2 X AH-64s for dismounted or 2-3 X CH-47s per mounted Platoon).

(4) BCT FSO.
- (a) SEAD plan.
- (b) Fire support assets available.
- (c) Fire base requirements (fire base commander).
- (d) Fire base location.
- (e) HPTs, NFAs (if used).

(5) ALO.
- (a) Pre-planned fix-wing sorties (CAS).
- (b) Fix-wing assets available.
- (c) J-SEAD.

b. The following is a checklist that is used to plan and coordinate the insertion of pathfinders and scouts:

Topic	Remarks
Command and Control	Controlling Headquarters for -Insertion / Extraction -Emergency Extraction -Reporting
Aircraft Package	Based on # PAXs and availability of A/C
Commo Plan	Primary Means: FM, HF, S/C TACSAT -Pathfinder Frequency: RSTA Scout Frequency: BN Scout Frequency: Alternate Means: Pathfinder Frequency: RSTA Scout Frequency: BN Scout Frequency: Commo 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
Enroute Security Plan	Developed by the Attack BN Flight Leads
SEAD Plan/False LZ Prep	Developed by the BCT FSO
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 OBJ's 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 PFDRs/ Scouts to be in RP/NFAs	H
Attack Aviation Station Times	Time Frames
Topic	**Remarks**
Planned Extraction Points	Grids: -Pathfinders: -Scouts: -Scouts:
Emergency Extraction Points	Grids: -Pathfinders: -Scouts: -Scouts:
No Commo PZ	Grid: Signal:
PZ Posture Plan	Time: Grid to PZ Location:

Figure 6- 8: Pathfinder, RSTA Scout and BN Scout Insertion Checklist

SECTION H: PERSONNEL RECOVERY OPERATIONS

(For additional reference see Division Personnel Recovery SOP)

1. General.

a. Personnel Recovery is an implied mission for all Army units. Unit commanders at each level are responsible for recovery of their own Isolated, Missing, Displaced, or Captured (IMDC) personnel.

Unit commanders must be prepared, based on inherent capabilities, to launch dedicated and augmenting PR assets to support their own operations or provide mutual PR support to other units. PR support should be concurrently planned with ongoing operations while accounting for the capabilities of other units. All PR requirements should be forwarded through established channels to the RCC (Rescue Coordination Center).

Note: by doctrine, each service is responsible for recovering its own downed aircrews although the Air Force maintains a CSAR mission for the theater.

2. Concept.
   a. General. The preferred method of recovering personnel from any IMDC incident is self-recovery by the unit conducting the mission. This immediate pick-up is normally predicated on quick response by the owning unit or others operating in the area of operations. In all cases, the conditions must be set for recovery and suitable forces available for support. Additionally, the recovery should not be initiated until the location is verified and the identity of the isolated personnel can be positively authenticated. Personnel Recovery operations involve five basic tasks:

      (1) The first task (Report) involves the reporting of an IMDC incident and the passing of pertinent elements of information through command channels to the Personnel Recovery Coordination Center (PRCC). This is done with the Search and Rescue Incident Report (SARIR) format.

      (2) The second task (Locate) involves all actions taken to locate the IMDC and to pass the resulting information to the appropriate organizations to act on.

      (3) The third task (Support) involves supporting the IMDC personnel once they are located. The support includes maintaining communication with the IMDC person and providing morale-building support using all available means.

      (4) The fourth task (Recovery) involves all efforts to recover the IMDC person using any of the capabilities available and acceptable to the Command.

      (5) The fifth and final task (Repatriate) involves all efforts to provide care, custody and safeguards for the returnee, including all required healthcare and protection. Individuals that have been returned from any situation other than an immediate pick-up will be handled IAW Joint Publication 3-50.3 Appendix A, and Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3270.01 (S), Personnel Recovery within the Department of Defense, 1 July 1998.

b. Organization. Once the PRCC has been notified of an IMDC incident and the owning unit cannot perform the recovery themselves, the CAB will be notified to form a Personnel Recovery Task Force (PRTF). The PRTF will consist of three primary components: 1) the Recovery Element (2x UH-60/ CH-47), 2) the Rescue Escort Element (2x AH-64s) and 3) the Security Element (Pathfinder Team). The execution of a recovery operation without attack helicopter or other armed escort should be limited to the most benign environments. Personnel recovery is always a seats-out operation and the Recovery Element will be configured for SPIES/FRIES as well.

c. Employment. The force package must be ready to respond within the REDCON requirements listed in paragraph e below. Once the CAB is notified that a recovery is necessary, CAB (PRTF) members will immediately begin coordination and the PRTF AMC will begin final planning.

d. Reporting Requirements. Reports will be processed IAW the 101st Division PR SOP for all IMDC incidents. These reports are required even when a unit conducts a successful immediate pick-up with its own assets.

e. Readiness Conditions. All PRTF elements will maintain one of the following conditions as directed by higher headquarters:

(1) REDCON 3: 30 minute standby for emergency personnel recovery mission (aircraft pre-rigged).

(2) REDCON 2: 5-minute standby. Aircraft on APU, ready to start engines. Pathfinder element in aircraft with equipment on and communications established with supported unit; ready to react to a downed aircraft.

(3) REDCON 1: Personnel Recovery aircraft ready to takeoff with pathfinder element and ready to react to a downed aircraft scenario immediately.

3. Responsibilities.

a. CJTF Commander – Retains launch authority for all PR missions, which may be delegated to a CAB Commander.

b. G2/S2. Consolidate intelligence products to support formulation of PR mission planning.

c. G3/S3. Coordinate recovery operations within the Unit's Area of Operations.

d. CAB Commander.

(1) Determines lift aircraft package for the mission.

(2) Provides Pathfinder Team(s) for Security Element.

(3) Determines attack aircraft package for Rescue Escort (RESCORT).

(4) Retains launch authority for PRTF missions.

e. Subordinate unit Commanders.

(1) Develop procedures to ensure that PRO-File Surveys are properly prepared, classified, updated as required, not to exceed six months, and reviewed prior to each mission. PRO-File will be prepared for all soldiers. PRO-File surveys are maintained in PRMS on SIPRNET. Each BDE sized element and separate MSCs will have a PR Manager with access to this site. When deployed, individual/unit evasive plans of actions (EPAs) will be prepared and reviewed prior to each mission.

(2) Ensure all unit personnel are familiar with their duties and responsibilities during a PR incident.

(3) Report all PR situations via Search and Rescue Incident Report (SARIR).

f. PRTF AMC.

(1) Receives the mission.

(2) Conducts initial mission analysis and develops the actions on the objective plan.

(3) Controls Attack Helicopters and requests CAS through the JFARN (Joint Fires Air Request Net), as well as direct and indirect fires during the actions on the objective portion of the mission.

(4) Responsible for the Security Team's operations, equipment, recovery of personnel, and destruction of COMSEC.

g. Pathfinder Element Leader: Coordinates with the AMC and makes recommendations for the mission.

h. Aircraft Team Leader: Responsible for ensuring establishment of CCP, extracting/stabilizing all casualties, and recovering/zeroing all sensitive items.

4. Personnel Recovery Operational Organization

a. Figure 6-10 shows the PR Organization within the CAB. Reports of isolated or missing personnel are sent to the next higher cell immediately. Initial reports may be sent by any secure means.

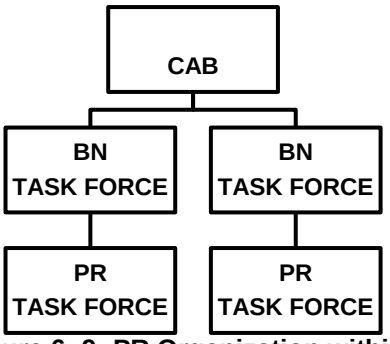


Figure 6- 9: PR Organization within CAB

b. Figure 6-11 depicts the organization of the PRTF. The AMC is designated by the Battalion Task Force Commander. Mission launch authority rests with the CAB Commander.

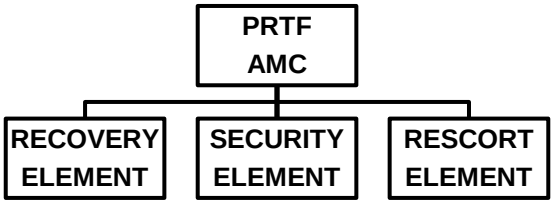


Figure 6- 10: PR Task Force

5. Employment Matrix. Use the following decision matrix when an isolated personnel event occurs.

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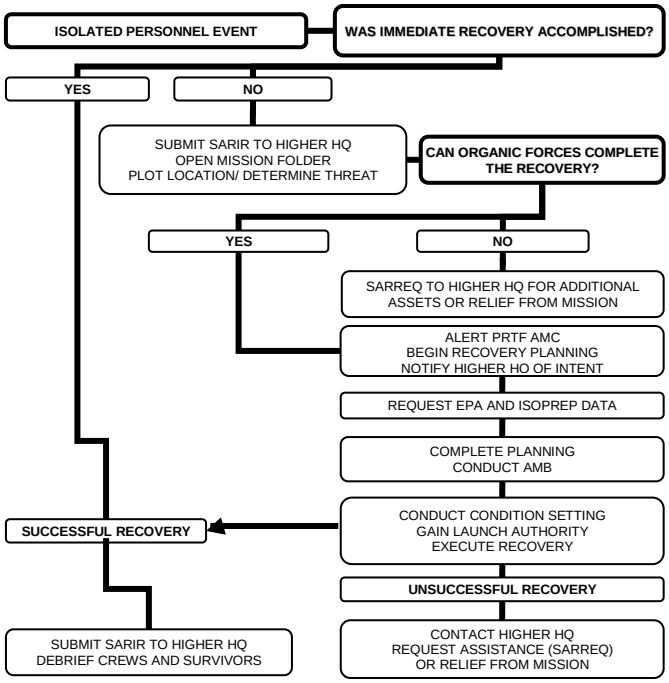


Figure 6- 11: Isolated Personnel Event Matrix

6. Reports

SEARCH AND RESCUE INCIDENT REPORT (SARIR)

LINE 1	**EVENT DTG**
LINE 2	**TYPE, NUMBER, CALL-SIGN AND RADIO FREQUENCY OF AIRCRAFT, OR GROUND UNIT IN DISTRESS**
LINE 3	**LAST LOCATION KNOWN, INTENDED COURSE OR ROUTE**
LINE 4	**NUMBER OF PERSONNEL**
LINE 5	**TYPE AND AMOUNT OF SURVIVAL EQUIPMENT**
LINE 6	**EVASION PLAN OF ACTION OF INDIVIDUALS**
LINE 7	**ENEMY ACTIVITY THAT CAUSED INCIDENT, CURRENT THREAT**
LINE 8	**DTG OF LAST SIGHTING AND/OR CONTACT. RESCUE ATTEMPTS IF ANY**
LINE 9	**ADDITIONAL INFORMATION THAT MAY ASSIST RESCUE FORCES**
LINE 10	**ISOPREP INFORMATION**

SEARCH and RESCUE REQUEST (SARREQ)

LINE 1	**REQUEST**
LINE 2	**PRIORITY**
LINE 3	**TYPE SEARCH AND RESCUE**
LINE 4	**ON TIME**
LINE 5	**OFF TIME**
LINE 6	**NUMBER AND TYPE**
LINE 7	**LOCATION**
LINE 8	**NARRATIVE**
LINE 9	**TIME**
LINE 10	**AUTHENTICATION**

SEARCH and RESCUE SITUATION REPORT (SARSIT)

LINE 1	**MISSION NUMBER**
LINE 2	**STATUS**
LINE 3	**CALL SIGN**
LINE 4	**AIRCRAFT TYPE or UNIT**
LINE 5	**LOCATION**
LINE 6	**NUMBER of PERSONNEL**
LINE 7	**PERSONNEL STATUS**
LINE 8	**NARRATIVE**

7. Division Isolated, Missing, Detained, or Captured (IMDC) Personnel Event Checklist

a. BATTLE MAJOR: Start event log.

b. BATTLE MAJOR: Gather “Five W” information.

c. BATTLE MAJOR: Ensure the following personnel are notified:

(1) G3 CHOPS.

(2) Ground Sector Commander.

(3) CDR of Isolated personnel.

(4) G2.

(5) DCG(O) & DCG(S).

(6) CG & DCSM

(7) G3

(8) CAB CDR.

(9) MEDEVAC Planner.

(10) FECC/ADAM Cell

(11) Chaplain.

(12) G6.

d. G3: Determine whether additional combat power is required to secure event site and reports to the Commander.

e. G2: Analyze enemy activity in the event area.

f. G3: Alert AF WX (obtain update).

g. G3: Analyze friendly activity in the event area.

h. G2: Request UAS surveillance.

i. G2: Request updated imagery from CJTF.

j. G-3 AVN: Coordinate with AMD Cell to establish NFA/ ROZ over event site.

k. G-3 AVN: Prepare SARIR.

l. G-3 AVN: Establish RCC

m. MEDEVAC PLANNER: Prepare 9-line MEDEVAC REQUEST and alert MEDEVAC element.

n. PRTF AMC: Conduct pre-mission planning.

o. BN TF CDR: Determine whether organic forces can complete the recovery and notify Higher CDR.

p. BCT/CAB CDR: Direct SARREQ be submitted for additional forces or request relief from mission.

q. CAB CDR: Notify higher HQ of intent to execute PRTF launch. Await authorization.

r. CAB CDR: Issue launch command upon receipt of launch authority from higher HQ.

s. BDE SURGEON: Provide assistance as requested

t. G2: Debrief PR forces, uninjured survivors, and casualties as they become available.

u. BATTLE MAJOR: Brief CG/G3 as required.

v. BDE CHAPLAIN: Provide assistance to counsel appropriate personnel.

BATTLE MAJOR: Submit closure report to RCC when mission completed.

SECTION I: AIR ASSAULT ARTILLERY OPERATIONS

1. Responsive, lethal indirect fires for air assault operations depend heavily on the use of towed 105mm and 155mm howitzers. Because of the depths at which most air assault operations take place, the only organic all-weather fire support assets that can normally provide close supporting fires, effective counter-fires, or lengthy suppressive fires are 105mm or 155mm towed howitzers that are air assaulted to within range of the targets.

2. The minimum adequate artillery for a committed infantry BCT is normally the Fires Battalion assigned to the BCT. Because a BCT AATF normally flows into an AO as tasked organized battalion AATF elements, the Fires battalion's batteries/platoons normally air assault in conjunction with a battalion AATF. Other Fires battalion assets such as the Q-36, battalion C2 and survey may be tasked organized with a battery/platoon or the battalion AATF for movement into the AO. Similarly, reinforcing assets from higher (a Fires BDE) such as 155mm towed units, metro or Q-37 radar can be tasked organized with a BCT or battalion AATF for movement into the AO. While the exact composition of artillery assets air assaulted in support of a BCT or battalion AATF depends on METT-TC analysis, there are some considerations to use when planning air assault artillery operations.

a. A Fires BN consists of 2 x Fires batteries, and depending on METT-TC, a Fires platoon of 1-4 x M119A2s, or a Fires battery of 1-8 x M119A2s may be task organized with a infantry battalion AATF. When one or more batteries are to air assault into an AO, a Fires battalion C2 element will air assault to provide command and control. The battalion's Q-36 will normally air assault attached to a firing battery for movement and support, but TACON to the Fires battalion. While the M119A2 can be lifted by a UH-60, the use of a CH-47 allows the prime mover (HMMWV) to be lifted as well. The addition of the prime mover provides mobility to the firing unit, increased survivability, additional ammunition capability, and increased internal sustainability.

b. Higher level artillery assets such as 155-mm units or the Q-37 may be attached for movement only to a BCT AASLT TF based on METT-TC. The support relationship may be reinforcing (R) to the Fires BN, general support reinforcing (GSR) to the Fires battalion or general support (GS) (to the division). The 155 artillery provides increased range, lethality and ammunition options. Because 155mm artillery and Q-37 radar air assault without prime movers, they require dedicated PZs that are adequately reconnoitered and prepared by ADVONS. Once on the PZ, they are largely immobile until their prime movers link-up by ground convoy and are more vulnerable to enemy artillery, air or ground attacks until ground link-up.

c. A firing battery/platoon without artillery ammunition provides little combat power to the AATF commander. The planning factors for artillery air assaults outlined below provide for a specific, minimal quantity of ammunition. Additional aircraft may be required to sling in artillery ammunition with the initial assault, or planned into the follow on logistic flow depending on METT-TC analysis. A 105mm Fires battalion basic load is approximately 3700 rounds, with the155mm battery basic load approximately 1500 rounds. While a complete basic load is not always required to support an air assault operation, these numbers provide a starting point for artillery ammunition planning.

3. There are three primary techniques used when employing air assault artillery, each used for different missions or scenarios. The three techniques are:
• *Offset Firing Unit* (Deliberate AASLT)
• *Accompanying Firing Unit* (Deliberate AASLT)
• *Artillery Raid*

Each technique offers distinct advantages and disadvantages outlined below. In any given air assault operation one or more of these techniques may be employed. For example, an Artillery Raid may be used prior to the BCT air assault, in conjunction with the attack aviation condition setting to neutralize an enemy ADA site that impacts on the attack aviation scheme of maneuver. An offset firing unit might then be used to provide preparatory fires on the air assault objective and close support to the first lifts into the objective. The remainder of the Fires battalion (-) uses the accompanying firing unit technique to provide close support to the BCT AATF as it secures the airhead and expands the lodgment.

4. The **Offset Firing Unit** technique consists of a deliberate air assault of a firing battery into a position offset or away from the objective or target area, normally before arrival of the main force. This technique is used when fire support will be needed in the target area or objective for an extended period of time, and available prior to or immediately at the start of an operation.

Offset Firing Unit Technique Offset Battery Technique

Advantages	Disadvantages	Considerations
• SEAD targets near objective are able to be attacked prior to aircraft arrival • Close support fires and counter-fire immediately available at the objective • Properly resourced, battery can provide support for extended periods	• Higher risk of mission compromise and loss • Early insertion before H-hour, generally 1-2 hours prior to first planned mission,affects aircraft availability & aircrew endurance • Additional security force needed, PLT sized at a minimum, larger sized force needed if high value assets (radars) are inserted • Engineer dig assets may be required for survivability, especially important for radars	Firing unit should be inserted within planning range of the objective, rule of thumb within 2/3 to 3/4 of the max range for the mission's predominant ammunition • Long range commo assets required • Addition of Q-36 adds significant counter-fire capability • Prime movers may not be needed immediately, be will be needed within 36-48 hours, sooner if survivability moves required • Clear delineation of command and responsibilities is required between the security force and the artillery unit commander

Figure 6- 12: Offset Firing Unit/Battery Technique

Aircraft Requirements	
(105mm Battery-8 howitzers):	**(155mm plt-4 howitzers):**
OPTION A: (Mixed Serials) (preferred) 2 -8 x UH-60 for advance party and security platoon, ammo A/C (METT-TC dependent) 10 x CH-47 to lift howitzers w/ prime movers (22-40 rounds each), FDC, C2,	2 -8 x UH-60 for advance party and security platoon, ammo A/C (METT-T dependent) 8 x CH-47 to lift 4 howitzers (w/ 80 rds) + 3 x ammo A/C (max 480 rounds) FDC, C2
OPTION B: (UH-60 Pure) 2 -8 x UH-60 for advance party and security platoon (METT-TC dependent) 12 x UH-60 to lift 8 howitzers, FDC, C2, & 3 x ammo (total 288 rounds)	Not feasible for 155mm.
Additional Ammunition Air Craft (A/C) CH-47 Ammo A/C: 288 rounds 105mm each UH-60 Ammo A/C: 96 rounds 105mm each	Additional Ammunition Air Craft (A/C) CH-47 Ammo A/C: 144 rounds each external CH-47 Ammo A/C: 160 rounds 155mm each internal UH-60 Ammo A/C: 60 rounds 155mm each
Q-36 Radar 2 x CH-47 to lift Q-36	Q-37 Radar 4 x CH-47 to lift Q-37 (10T crane required to lift Antenna Group from trailer on PZ and to replace on trailer on the PZ prior to ground movement)

Figure 6- 13: Aircraft Requirements for 105mm/155mm Howitzers

a. The larger the inserted element becomes, the more difficult it becomes to control. One technique is to insert a small C2 element from the Fires battalion (possibly based out of a radio-equipped HMMWV) with the battery to coordinate security, engineers, and any other attached elements (ADA, etc.). The C2 element will coordinate with the higher HQs, thus allowing the battery commander to focus on firing battery operations.

b. The decision to air assault the 105mm battery/platoon with or without prime movers is important. While METT-TC analysis will dictate, having prime movers provides additional flexibility and sustainment and is generally preferred. Lack of CH-47 aircraft and /or the assessment that the potential need to move the battery is low dictates the use of option B. The unit will need to link up with its prime movers within 36-48 hours or sooner if survivability moves are required.

5. The **accompanying firing unit** technique consists of a deliberate air assault of one

or more firing batteries/platoons simultaneously with the arrival of the main force. This technique is used when fire support is needed in the target area or objective for an extended period of time, and other assets can provide immediate fire support for the assault force until the battery is established.

Advantages	Disadvantages	Considerations
• No early insertion of battery reduces risk of loss or mission compromise • Insertion with assault force places no additional strains on crews or aircraft • Battery can secure itself since assault echelon forces are nearby • Properly resourced, battery can provide support for extended periods	• SEAD targets vic objective may not be suppressed when aircraft arrive • Counter-fires not readily available until Q-36 & battery established • Until the battery is established, the assault force has only mortars for close support fires • Engineer dig assets may be required for survivability, especially important for radars	• Prime movers should be AASLTed with howitzers to facilitate positioning flexibility IOT best support maneuver • Addition of Q-36 adds significant counter-fire capability • Q-36 may be attached to a firing battery for security • As additional batteries flow into the lodgment or objective area, a small Fires Battalion C2 element (TAC) must also be inserted

Figure 6- 14: Accompanying Firing Unit Technique

Aircraft Requirements	
(105mm Battery-8 howitzers):	**(155mm plt-4 howitzers):**
OPTION A: (Mixed Serials) (preferred) 2 -8 x UH-60 for advance party and security platoon, ammo A/C (METT-TC dependent) 10 x CH-47 to lift howitzers w/ prime movers (22-40 rounds each), FDC, C2,	2 -8 x UH-60 for advance party and security platoon, ammo A/C (METT-TC dependent) 8 x CH-47 to lift 4 howitzers (w/ 80 rds) + 3 x ammo A/C (max 480 rounds) FDC, C2
OPTION B: (UH-60 Pure) 2 -8 x UH-60 for advance party and security platoon (METT-TC dependent) 12 x UH-60 to lift 6 howitzers, FDC, C2, & 3 x ammo (total 288 rounds)	Not feasible for 155mm.
Additional Ammunition Air Craft (A/C) CH-47 Ammo A/C: 288 rounds each UH-60 Ammo A/C: 96 rounds each	Additional Ammunition Air Craft (A/C) CH-47 Ammo A/C: 144 rounds each external CH-47 Ammo A/C: 160 rounds each internal UH-60 Ammo A/C: 60 rounds each
Q-36 Radar 2 x CH-47 to lift Q-36	Q-37 Radar 4 x CH-47 to lift Q-37 (10T crane required to lift Antenna Group from trailer on PZ and to replace on trailer on the PZ prior to ground movement)

Figure 6- 15: Aircraft Requirements for 105mm/155mm Howitzers

6. The **artillery raid** technique is discussed in Chapter 9.

Artillery Raid Technique

Advantages	Disadvantages	Considerations
• Provides the element of surprise • Minimizes exposure of high value assets to risk; no permanent footprint established • Security forces may also be able to participate in main air assault • When performed separate from a maneuver AASLT, may not detract from aircraft and crew availability for main AASLT	• Risk of loss and mission compromise • Additional security force required • Nature of mission does not allow for large amounts of ammunition to be taken in. • Minimal number of targets may be attacked • Ammunition amounts restrict effects against certain targets and limits duration of attacks	• Observation of target is Required • Useful in SEAD and condition-setting missions • Can be used as a diversionary tactic • Pathfinder support may enhance security, speed position selection, and hasten insertion and extraction

Figure 6- 16: Artillery Raid Technique

Aircraft Requirements	
Aircraft requirements (105mm): 2-6 x UH-60 for advance party and security platoon Target analysis and METT-TC will determine number of howitzers, amount of ammunition and the optimum aircraft type(s) and load configurations required for the raid.	**Aircraft requirements (155mm plt-4 howitzers):** 2-6 x UH-60 for advance party and security platoon Target analysis and METT-TC will determine number of howitzers, amount of ammunition and the optimum aircraft type(s) and load configurations required for the raid

Figure 6- 17: Aircraft Requirements for 105mm/155mm Howitzers

a. When using the artillery raid technique a thorough mission analysis must be performed. Some of the elements to consider include:

-Is the target suitable for attack by FA?

-Can the target be attacked by other FS means?

-Is the amount of howitzers and ammunition required feasible for an AASLT raid?

-Can the force sustain the commitment of artillery, ammunition, and aircraft?

-Will the target(s) be observed? (If not, we may be risking assets that will have had no effect on the target.)

b. For planning, allow 20-30 minutes from the time of last main-body aircraft take off from LZ until first round down range. Allow 20 minutes from last round fired until element is ready for extraction. Suitable laager sites for aircraft must be considered to provide adequate security and communication with the raid battery.

c. Firing element advance party and security force will prepare and secure the LZ. These elements also serve as the extraction hook-up crew and are the last elements extracted.

SECTION J: MEDEVAC/CASEVAC OPERATIONS

1. General. Medical evacuation (MEDEVAC) uses purpose-built, specially manned, unarmed aircraft. Casualty evacuation (CASEVAC) uses standard mission aircraft to move the wounded. Both evacuation methods are planned for during air assault operations. There are several standards used to employ these assets:

a. MEDEVAC Planning:

(1) The MEDEVAC company is assigned to the GSAB of each Combat Aviation Brigade. The crews are available for air assault orders, rehearsals, and, preparations.

(2) As the supporting commander, the Combat Aviation Brigade (CAB) allocates MEDEVAC assets to the supported Brigade Combat Team (BCT) for the duration of the Air Assault. However, the size and distance of the planned air assault dictate the duration of MEDEVAC support to the AATF Commander. As a general rule, the supporting commander should provide MEDEVAC assets to the supported commander until either a Ground LOC is established or Air Force Aeromedical Evacuation Squadron (AES) platforms become available.

(3) The Forward Support MEDEVAC Team (FSMT) leader does all MEDEVAC planning for air assaults and sustained operations in coordination with the BCT S-1, BAE, Assault TF S-3, BCT Surgeon Cell and forward support medical company commander.

(4) FSMT LDR will brief the MEDEVAC plan at the AMCM's, the AMB's and the Health Service Support rehearsal.

(5) BCT S1 casualty estimate provides planning guidance for the number of required MEDEVAC aircraft to support the air assault.

(6) MEDEVAC aircraft will be staged to support the Air Assault at the latest possible time in order to maximize the support provided by the MEDEVAC aircraft.

(7) Use ROZ's or stage at the FARP to expedite pickup of casualties in long distance air assaults (METT–TC).

(8) Support short distance air assaults (flight time from PZ-Casualty Collection Point-Level II/III less than 30 minutes) from the PZ or BSA.

(9) Ensure FARP support is available throughout MEDEVAC/CASEVAC operations. Often MEDEVAC support continues significantly longer than other aircraft operations supporting the Air Assault.

(10) Plan MEDEVAC routes to level II or III health care and ensure the routes are briefed to all aircrews participating in the air assault.

(11) Casualty collection point (CCP) locations are briefed during the Division or Brigade rehearsal for the AASLT.

4 litter configuration		**6 litter configuration**	
4 1	Litter Ambulatory	6 1	Litter Ambulatory
2 4	Litter Ambulatory	3 4	Litter Ambulatory
7	Ambulatory	7	Ambulatory

Figure 6- 18: UH-60A MEDEVAC capabilities

(12) The CH-47, in the CASEVAC role can be configured with either 24 litters or with a combination of 12 litter casualties and seats for 14 ambulatory casualties. The CH-47 in the Mass Casualty (MASCAL) role can carry 28 casualties with the seats in or up to 64 with seats out.

b. MEDEVAC and CASEVAC C2:

(1) Aircraft are OPCON to the AMC during air assault operations.

(2) MEDEVAC crews receive all air assault operation orders and aviation support from the AMC.

(3) Normally, the AMC has launch authority, although the AATFC can retain this authority himself. When the AATFC retains launch authority, the AMC remains responsible for MEDEVAC execution, clearing all MEDEVAC/CASEVAC aircraft movements, to include launch and landings, using ABN.

(4) An Evacuation OIC (BCT Med Ops Officer) will be on the C2 aircraft to control and prioritize evacuation mission requests and will forward this information to the AMC for launch.

(5) At every phase of the AASLT Operation, ensure there are three redundant means (ABN, CAN1, BLUFORCE TRACKER, HF) of communication with the supporting MEDEVAC assets. Establish pre-briefed patient movement control to maximize the effectiveness of the MEDEVAC Aircraft (i.e. all ROUTINE patients move on last lift of CASEVAC).

(6) The Commanding General is the release authority of MEDEVAC aircraft into a Chemical, Biological, Radiological/Nuclear, and Explosive Incidents (CBRNE) contaminated zone.

c. Execution:

(1) Units request MEDEVAC/CASEVAC over CAN 1 for the duration of the Air Assault, using an abbreviated 5-line format. This ensures good coordination of fires and airspace. If CBRNE contamination is either confirmed or suspected, include line #9 (NBC Contamination)

(2) Commitment of MEDEVAC and CASEVAC aircraft involves combined arms combat operations. The following are keys to a successful MEDEVAC/CASEVAC:

a. De-conflict airspace through the AMC.

b. Use lethal and non-lethal SEAD.

c. Integrate attack aviation escort and/or PZ overwatch.

d. Ensure PZ security.

e. Ensure terminal guidance into the PZ.

f. Plan CCPs at each LZ and annotate CCP graphics on the AMB's LZ Diagrams.

g. Don't put MEDEVAC aircraft into the ROZ too early (wastes NVG time).

h. If the Division Personnel Recovery (PR) aircraft are unavailable, MEDEVAC can be called for the extraction of injured downed aircrews. See Chapter 6 Section H for more details.

i. Allocate UH-60 air ambulances for MEDEVAC and stretcher-configured CH-47s for CASEVAC. The number of aircraft depends on the scale of the air assault (brigade, battalion or company) and the casualty estimate.

k. Consider ground evacuation means.

l. Echelon aid stations and ATLS teams to sustain life during evacuation. Ideally, ATLS capability must be at both PZ and LZ, with medics aboard all MEDEVAC/CASEVAC helicopters.

m. The medical company providing area support provides medics in support of CASEVAC. Minimum of two flight/ground medics will fly on each CASEVAC CH-47.

n. The Medical Company Commander must be actively involved in directing the efficient control of MEDEVAC/CASEVAC operations.

d. LZ operations:

(1) Select LZs that are level and clear of debris (commo wire, engineer tape, loose equipment) for a 50 meter radius.

(2) Preferred methods of marking LZs:

- Day = smoke (do not pop until instructed), panel marker
- Night = strobe, swinging IR chemlight (chemlights, specifically blue and green are difficult to see under NVGs).

(3) Keep vehicles and personnel, except signalman, clear of area until instructed otherwise by the aircrew. A well marked LZ with an inexperienced signalman is better than a poorly marked LZ with an experienced signalman.

(4) Keep all other light sources away from LZ (light will inhibit aviators' NVGs) unless instructed otherwise by aircrew.

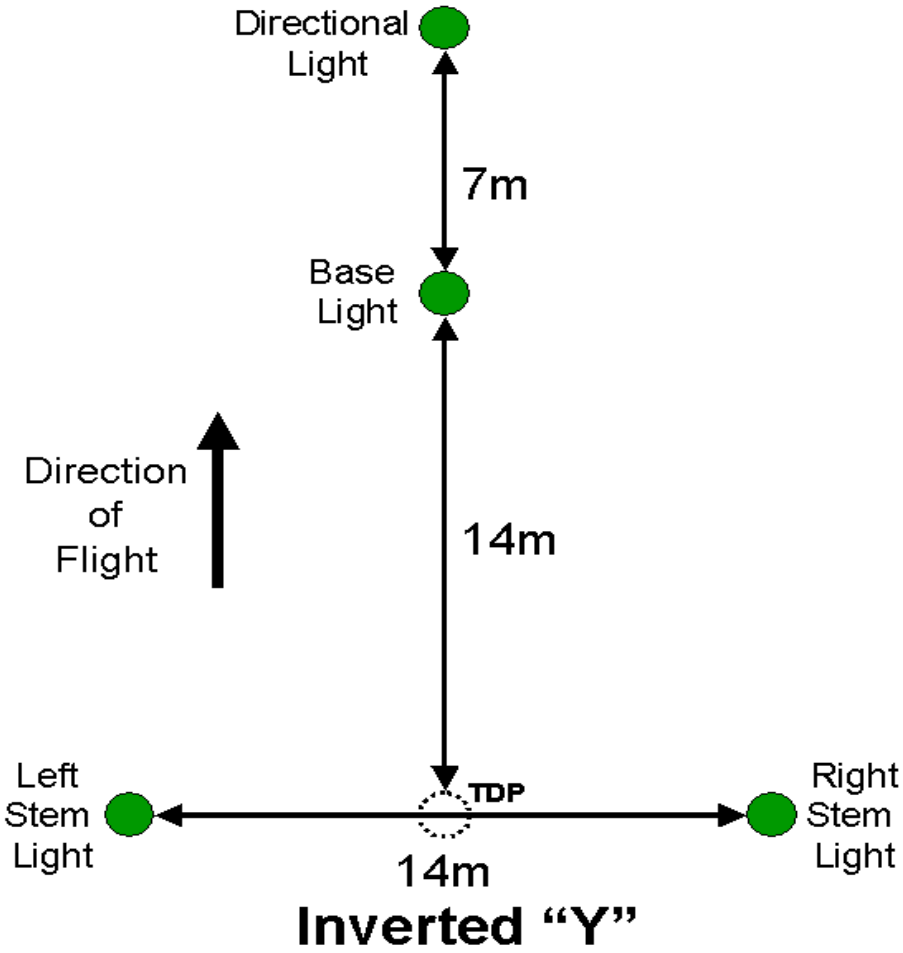


Figure 6- 19: Properly marked LZ

(5) Once aircraft is inbound, expect an estimated time of arrival call from the crew. The person on the radio at the site must have visual on the LZ to confirm signal, if required, or to assist crew in positioning.

(6) Once landed, keep personnel away from the aircraft, the flight medic will come to the patient. The litter detail will take all commands from the flight medic.

(7) Ambulatory patients will be evacuated with their LBE and ACH if possible. Weapons and explosives will not be loaded on MEDEVAC aircraft, all sensitive items will remain with the casualty's chain of command.

(8) CAUTION!!! Aircraft rotors produce high velocity winds that can cause injury to personnel or damage equipment. Protect your eyes and your patient's eyes.

e. Contingency Backhaul planning:

(1) Backhauling is the use of lift aircraft for casualty evacuation from landing zones.

(2) Backhauls will likely cause delays in the Air Movement Table execution, unless spare aircraft are committed to replace back haul aircraft to prevent delays of follow-on lifts. Commitment of spare aircraft will limit the effect on insertion forces seeing wounded soldiers and bloodstains in aircraft.

(3) Backhaul must be controlled and planned to minimize the disruption of the AASLT.

(4) All casualties will still go to the LZ CCP.

(5) Backhaul primarily moves priority and routine casualties.

(6) Call goes to C2 aircraft on CAN1, Evac OIC relays the request to AATFC. If the request is approved, the AMC directs designated aircraft (typically the last UH-60 in a light serial), after dropping off their soldiers to relocate to the LZ CCP to pick up casualties.

(7) All casualties from back haul are taken back to the PZ or FARP.

(8) Backhaul aircraft with casualties will notify PZ control or FARP control that they are inbound with casualties.

(9) The last serial of the final lift may be directed to pick up casualties as required before the conclusion of the air assault.

f. Sustainment between the end of the Air Assault and establishment of other casualty evacuation methods:

(1) Many options exist for positioning MEDEVAC assets to sustain BCT long term operations:

- MEDEVAC/CASEVAC aircraft are OPCON to the BCT.
- Position MEDEVAC/CASEVAC aircraft in an area support role.
- MEDEVAC/CASEVAC requests come from the BCT to the Combat Aviation Brigade.

2. The MEDEVAC request: Figure 6-21 is the 9-line MEDEVAC request format. The 5-line format uses only lines 1, 2, 3, 5, and 6.

Figure 6- 20: 9-Line MEDEVAC Request

	LINE ITEM	EXPLANATION	WHERE/HOW OBTAINED	WHO PROVIDES	REASON
1	**Location**	Transmit the grid coordinates of the pickup site	From map	Unit leader; check with GPS PLGR	Required so aircrew knows where to pickup casualty. Also so that unit Coordinating the mission can approve and clear the route for the MEDEVAC/CASEVAC aircraft.
2	**Radio frequency, call sign and suffix**	Transmit the freq of the radio at the pickup site (not a relay freq). The call sign of person to be contacted at the pickup site may be transmitted in the clear.	From SOI	RTO	Required so aircraft can contact requesting unit while enroute.
3	**Number of casualties by precedence**	Report only applicable information and the brevity codes. A = urgent B = urgent-surgical C = priority D = routine E = convenience If two or more categories must be used in the same request, insert the word “break” between each category	From assessment of casualties	Medic, combat life saver, or unit leader	Required by commander controlling the aircraft to assist in prioritizing missions.
4	**Special equipment**	Send the applicable brevity codes. A = none B = hoist C = extraction equipment (jaws of life) D = ventilator	From senior medic or combat lifesaver	Medic, combat life saver, or unit leader	Required so that the equipment can be placed on board the aircraft prior to takeoff.
5	**Number of casualties by type**	Report only applicable information and send the brevity code. If requesting MEDEVAC for both types, insert the word “break” between the	From assessment of casualties	Medic, combat life saver, or unit leader	Required so that the appropriate number of appropriately configured aircraft may be dispatched to the PZ.

	LINE ITEM	EXPLANATION	WHERE/HOW OBTAINED	WHO PROVIDES	REASON
6	Security of pickup zone (Wartime mission)	N = no enemy troops in area. P = possible enemy troops in area. E = enemy troops in area. X = enemy troops in area; PZ under fire. (request armed escort)	From evaluation of situation	Unit leader	Required to orient and protect inbound aircrews..
6	Number and type of wounded, injury or illness (Peacetime lifesaving)	Specific information regarding casualty wounds by type. Report serious bleeding, along with patient blood type, if known	From assessment of casualties	Medic, combat life saver, or unit leader	Required to permit more rapid and effective treatment of casualties.
7	Method of marking PZ	Send brevity codes: A = VS-17 panels. B = pyrotechnic signal. C = smoke signal. D = none. E = other (then describe).	Based on situation SOP, and availability of materials	Unit leader	Required to assist aircrew on final approach to PZ. Do not transmit color of panels, smoke, or pyro; make inbound aircrew identify the color on final approach.
8	Patient nationality and status	The number of casualties in each category need not be transmitted. Send only the applicable brevity codes. A = US military B = US civilian C = Non-US military D = Non-US civilian E = EPW	From assessment of casualties	Medic, combat life saver, or unit leader	Required to alert destination aid stations and hospitals of inbound patient load, and to alert guards for EPWs. Ensure at least one rep at the PZ speaks English.
9	NBC contamination (wartime mission)	Include this line only when applicable. Send the applicable brevity codes. N = nuclear B = biological C = chemical	From evaluation of situation	Unit leader	Required to protect and orient inbound aircrews.
9	Detailed terrain description (Peacetime lifesaving)	Include details of terrain features in and around LZ. If possible, describe relationship of site to prominent terrain feature (lake, tower, mountain, road	From evaluation of situation	Unit leader	Required to reduce risks on final approach,. especially if hoist will be used.

Note: Mission items are normally used in hostile-fire situations, training for the same with simulated casualties, or any case where mission accomplishment takes priority over preserving life, limb, or eyesight. Lifesaving lines are used when conditions are not hostile and priority goes to savings life, limb and eyesight rather than mission accomplishment.

3. Health Service Support Rehearsal.

a. Health Service Support (HHS) requires its own distinct rehearsal to get it right. This is distinct from the CSS rehearsal. The brigade XO runs the HHS rehearsal. Brigade participants include:

Brigade S1 (OIC)
Brigade Surgeon
Brigade Asst S3 (PZ Control representative)
Brigade BAE
Brigade FSE representative or FA Battalion XO/S1/S4
Medium Lift Aviation Company LNO
Assault Aviation LNO
Attack or Cavalry LNO
BSB Logistics Operations Officer
BSB Health Services Support Officer
BSB Medical Company Commander
BSB S2
BSB Ground Ambulance Platoon Leaders
MEDEVAC Company Air Ambulance Platoon Leader
Division Surgeon's Office Representative (for BCT)
Infantry Battalion S1s
Infantry Battalion Medical Platoon Leaders

b. The rehearsal of the HHS plan includes review of the enemy and friendly situation and command and control relationships. It rehearses communications, casualty collection, casualty treatment, evacuation, and the use and manning of MEDEVAC and CASEVAC aircraft for each phase of the air assault operation using the Brigade Air Assault Execution Checklist. Specific points that will be covered include:

(1) A walk through of casualty collection from point of injury to CCPs.

(2) Locations and markings of CCPs.

(3) Insertion of medical treatment teams (ATLS).

(4) Proposed changeover codeword and timing for MEDEVAC requests to shift from the CAN1 to the BCT evacuation net. This is planned for the conclusion of the air assault, but may have to occur earlier if METT-TC demands. It is always addressed at the rehearsal.

(5) Transmission of 5-line MEDEVAC request format.

(6) Process of tracking casualties and MEDEVAC/CASEVAC missions from the point of injury to the treatment facilities. A technique is to add either the BDE S1 or NCOIC to the MED heavy FLE composition to assist in casualty tracking and personnel replacement operations.

(7) Procedures for contacting, manning, and calling forward MEDEVAC/CASEVAC aircraft, to include link-up of aviation escort and/or LZ overwatch.

(8) Airspace control, to include PZs, LZs, routes, and SEAD plans. If a Restricted Operating Zone (ROZ) orbit is planned, it will be discussed at the rehearsal.

(9) Planned location and day & night marking of the MEDEVAC pad located near the Brigade Support Medical Company.

(10) Post-air assault MEDEVAC/CASEVAC procedures.

(11) Communications exercise plan triggers and decision points. MEDEVAC/CASEVAC communications will be rehearsed using actual means.

(12) Litter exchange.

(13) Class VIII and emergency resupply.

4. Medical pad. The Brigade Support Medical Company commander ensures the MEDEVAC pad is appropriately marked for day and night MEDEVAC/CASEVAC operations. Once the BSB establishes a dedicated MEDEVAC pad, the location of the pad will be disseminated throughout the brigade TF and relayed to the Division Surgeon's Office. The Brigade Support Battalion Medical Company commander will have a PZ control node running the medical pad and tracking all MEDEVAC/CASEVAC missions.

Chapter 7

Air Assault Planning Tools

Figure 7-1 displays the standard terms used to describe groupings of aircraft in space and time.

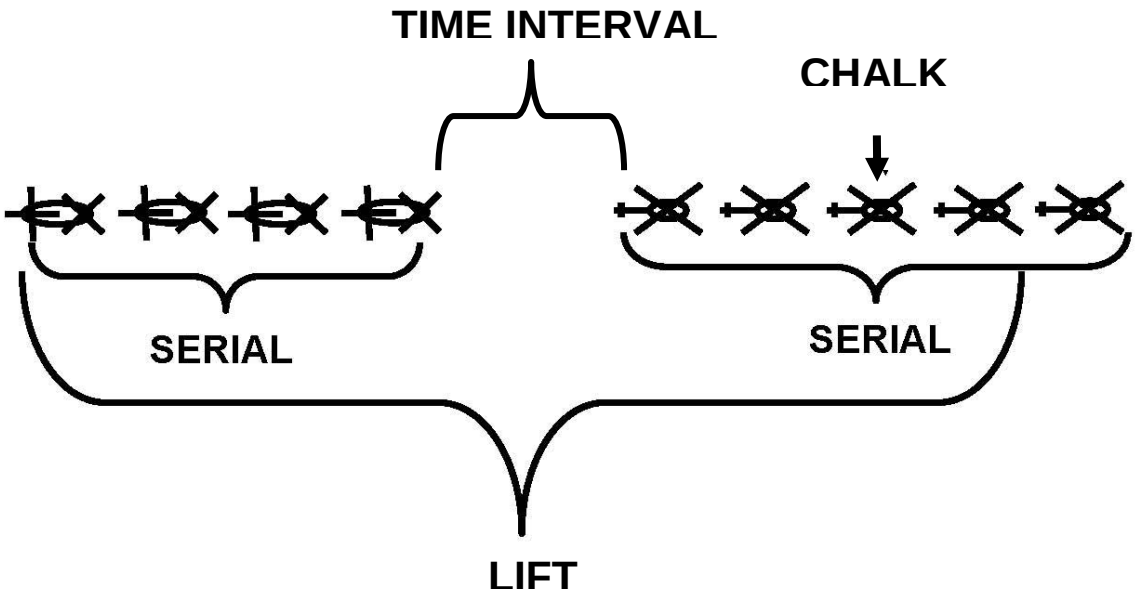


Figure 7- 1: Lift, Chalks, and Serials

SECTION A: AIRCRAFT ALLOCATION GUIDE

1. Air assault planning must be based on realistic assumptions about aircraft availability. Figure 7-2 reflects planning factors based on the expected Operational Readiness (OR) of 80%. In the Aviation Brigade example, this assumes massing of aircraft from both Aviation Brigades.

Base Organization	Assault Aviation Battalion TF	Aviation Brigade TF
AMC	Assault Aviation Battalion Commander	Aviation Brigade Commander
Lift Aircraft		
Light Lift (# UH-60L/M)	20	40
Heavy Lift (# CH-47D/F)	8	16[π]
Support Aircraft		
Light Spares (# UH 60L/M)	2	4
Heavy Spares (# CH 47F)	2	2
C2 (# UH-60C2)	2	2
DART (# UH-60L/M)	2	4
MEDEVAC (# UH 60A/A)	3	9
CASEVAC (# CH-47D/F)	(spares serve role)	(spares serve role)
TOTAL UH-60A/L	29	59
TOTAL CH-47D/F	10	18[π]
TOTAL (# Combined)	41	77

Figure 7- 2: Planning Factors

Notes:

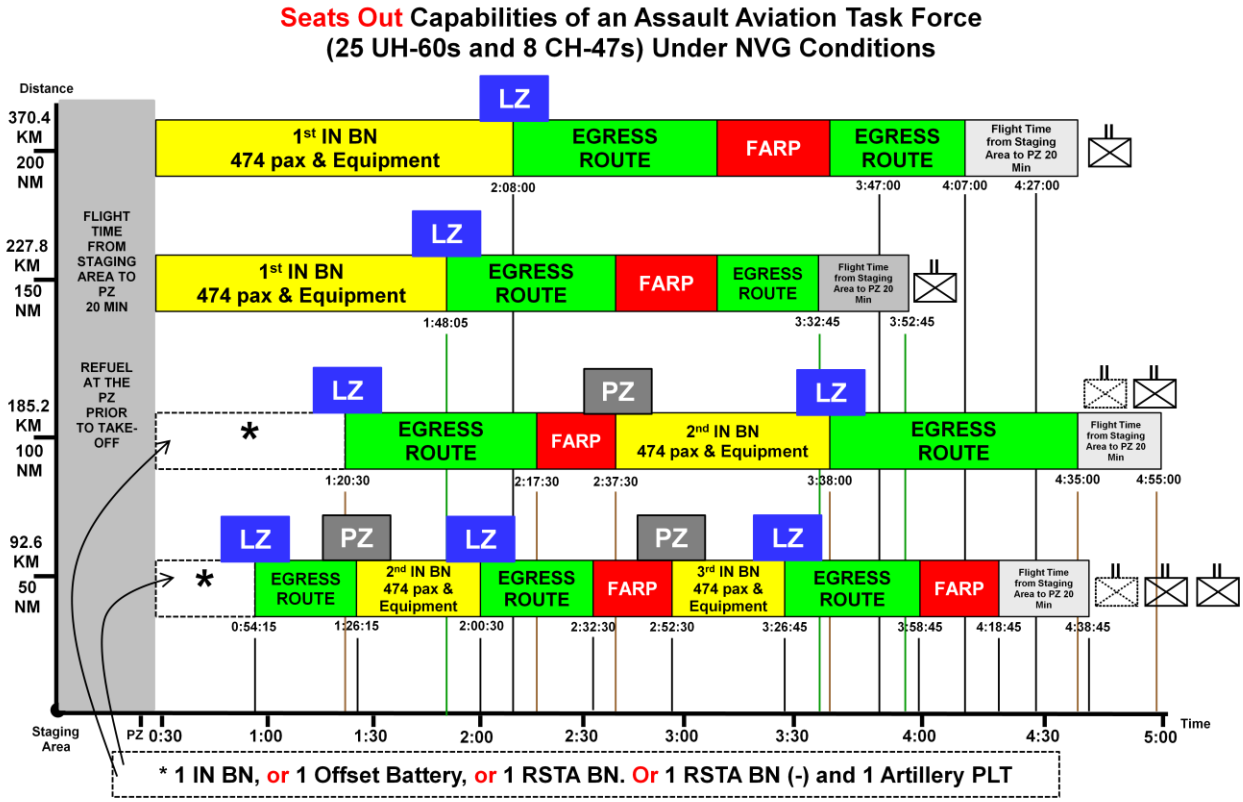
1. These figures are valid for the initial entry air assault only and assume no other aircraft will be available for operations immediately following the air assault.
2. Mission requirements prior and subsequent to this air assault will reduce the size of the force package.
3. In addition to initial operational readiness assumptions (80% FMC), other factors affecting the ability to regenerate aircraft for subsequent operations include: movement of aviation unit assembly areas, changes to task organization, combat losses, and other mission requirements.
4. Minimum downtime for regeneration is eight hours for pre-planned missions.

Note[π] Aviation Brigades have only one company of CH-47s = 12 aircraft on-hand. A BCT Air Assault would require the CH-47s from both Aviation Brigades.

SECTION B: IMPACTS ON THE SIZE OF THE LIFTED FORCE

1. Because the duration of air assaults are limited by flight crew endurance, there are two primary factors that impact the size of the force that can be lifted in one night. The first is the distance from the PZ to the LZ; the shorter the distance, the more turns that the aircraft can fly before exhausting the flight hours restricted by fighter management provisions (see Section D in this chapter). The second primary factor is the decision whether to operate with seats out, which impacts the ACL. Additional factors are less central, but do have an impact. These include temperature, humidity, air density, and altitude.

2. The tables located on the following pages take the number of aircraft allocated to Assault AVN TF (from the previous chart – less Spares and DART a/c) and break them down over time into the number of loads available given a distance. These tables allow the BAO to determine assault echelon allocations given the number of loads available and number of units requested. These calculations assume a standard light serial = 5 x UH-60L/M, and a heavy serial = 4 x CH-47D/F.



Note: Assumes a PZ time of 10 minutes, FARP time of 20 minutes, 100 kts ground speed on ingress, 60 knots to the SP and RP inbound, adding one minute for each segment and two minutes LZ time and 120 kts ground speed on egress. Seats out ACL is 18 for UH-60, and 50 for CH-47.

Figure 7- 3: Seats Out Capabilities of an Air Assault Aviation TF under NVGs

NOTE: Seats out operations require CG approval.

Seats out Combat Power Moved 50 NM / 92.6 KM by ASLT AVN TF

- 3 IN BNs
  - Total Pax = 1422
  - Total Equipment = 63 x M998, 27 x 60MM, 12 x 81MM
- 2 IN BNs and 1 Offset Battery
  - Total Pax = 1006
  - Total Equipment = 50 x M998, 8 x M119, 4 x A2 Bag 18 x 60MM, 8 x 81MM
- 2 IN BNs and 1 RSTA BN
  - Total Pax = 1225
  - Total Equipment = 18 x M1025, 42 x M998, 18 x 60MM, 8 x 81MM
- 2 IN BNs and 1 RSTA BN(-) and 1 Artillery PLT
  - Total Pax = 1263
  - Total Equipment = 46 x M998, 12 x M1025, 4 x M119, 4 x A2 Bag, 18 x 60MM, 8 x 81MM

Figure 7- 4: Seats Out Capabilities

Seats Out Combat Power Moved 100 NM / 185.2 KM by ASLT AVN TF

- 2 IN BNs
  - Total Pax = 948
  - Total Equipment = 42 x M998, 12 x 60MM, 8 x 81MM
- 1 IN BN and 1 Offset Battery
  - Total Pax = 532
  - Total Equipment = 29 x M998, 8 x M119, 4 x A2 Bag 6 x 60MM, 8 x 81MM
- 1 IN BN and 1 RSTA BN
  - Total Pax = 751
  - Total Equipment = 18 x M1025, 21 x M998, 6 x 60MM, 4 x 81MM
- 1 IN BN and 1 RSTA BN(-) and 1 Artillery PLT
  - Total Pax = 789
  - Total Equipment = 25 x M998, 12 x M1025, 4 x M119, 4 x A2 Bag, 6 x 60MM, 4 x 81MM

Figure 7- 5: Seats Out Capabilities

Seats Out Combat Power Moved 150 NM / 227.8 KM by ASLT AVN TF

- 1 IN BN
  - Total Pax = 474
  - Total Equipment = 21 x M998, 6 x 60MM, 4 x 81MM

Seats Out Combat Power Moved 200 NM / 370.4 KM by ASLT AVN TF

- 1 IN BN
  - Total Pax = 474
  - Total Equipment = 21 x M998, 6 x 60MM, 4 x 81MM

Figure 7- 6: Seats Out Capabilities

Seats In Capabilities of an Assault Aviation Task Force
(25 UH-60s and 8 CH-47s)
Chart depicts Air Assault of Light Infantry BN under NVG conditions

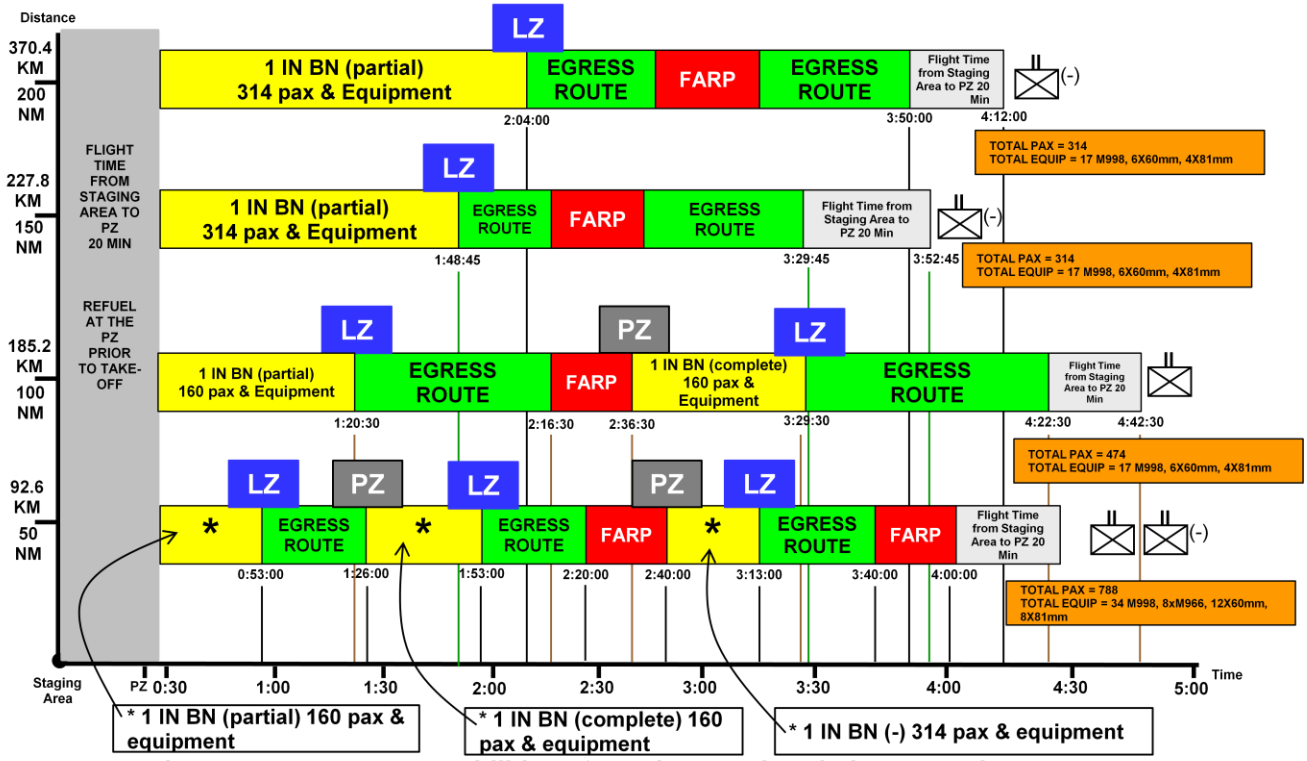


Figure 7- 7: Seats In Capabilities of an Air Assault Aviation TF under NVGs

SECTION C: ECHELONS FOR AIR ASSAULTS

1. Air assault operations typically consist of three distinct echelons: assault, follow-on, and rear. Only the first of these echelons air assaults.

a. Assault echelon. Combined arms forced entry element. Prioritization of units, personnel, and equipment in the assault echelon is a METT-TC decision. The surest indication that the force composition is right is if it consists of true combined arms task forces. In some missions, the assault echelon may include vehicle mounted elements that arrive prior to or simultaneously with the forces arriving by helicopter. Tasks for these ground forces include isolating the objective or establishing ambushes on escape routes.

b. Follow on Echelons. Those elements arriving after the completion of the air assault by USAF airlift and/or Army aviation. The composition includes assault echelons unable to air assault due to aircraft limitations, C2 expansion, forward logistics elements, and vehicles (HMMWVs).

c. Rear Echelons. Those elements arriving by tactical road march. Typical elements include brigade support area forces and supplies, aviation battalion/brigade ground elements (AVUM, III/V, HQ), and outsized vehicles.

SECTION D: FIGHTER MANAGEMENT

1. GENERAL.

a. Fighter management policy governs the length of time that aircrews and supporting personnel may perform their duties without rest to ensure their performance is not degraded by fatigue. Supporting personnel include those performing or supervising aircraft maintenance and/or armament/POL servicing. Fighter management is a critical planning consideration for all air assault operations.

b. CAB Commanders have responsibility for establishing, maintaining, and enforcing fighter management policy IAW AR 95-1 (12 Nov 08), CAM Reg 95-1 (1 Sep 08), and CAM Reg 385-4 (23 Apr 07). For a complete description, see these regulations and the 101 CAB and 159 CAB Standardization SOPs.

c. Supported units should contact their supporting aviation unit to verify current fighter management policy prior to planning Air Assault missions.

SECTION E: UH-60L CAPABILITIES

Note: ACL is variable based on temperature and altitude. Consult assault planners.

UH-60L
Assumptions: Are based off the current CENTCOM theatre of operations.

Combat Aircraft: 17,000 lbs, crew 4, door guns installed, 2,100 lbs fuel
Environmental: + 1000 PA, + 30 degrees C
Mission: Cruise 110 kts, 30 min fuel reserve

UH-60L Avionics: AN/ARC-164 UHF – (Have Quick II)
AN/ARC-186 VHF
AN/ARC-201D FM – SINCGARS (Two Each)
Two-Way Blue Force Tracker
AN/ARC 220 HF- Over the horizon communications

Range: 201 NM / 365 Km
Planning Speed: 110 Kts / 202 Km/Hr
Endurance: 1+50 hours (2+20 total -30 min reserve)
Fuel Capacity: 360 US gallons / 2412 pounds

ACL

	Seats Out	Seats In
With Ruck Sacks (300lbs ea)	16	11
Without Ruck Sacks (240lbs ea)	20	11

Figure 7- 8: UH-60 ACL

1. ACL with external loads is based on the weight of the specific load, not to exceed a total of 5,000 lbs (including passengers and internal load). To exceed this may reduce the ability of the aircraft to meet range requirements.
2. The CG is the approval authority for “seats out” in training and in combat.
3. Detainees can be placed on the floor during seats-in missions based on temperatures and Division commander approval. This will be treated as a seats out mission.

WEIGHT		FUEL FLOW	RANGE
Load	Take Off	Enroute	Range
16 PAX: 4800 lbs	21,800 lbs	1090 lbs 162 gals	170 nm 315 km

Figure 7- 9: UH-60 Load / Range Combinations

UH-60M

Combat Aircraft: 17,300lbs includes: crew of 4, door guns installed, BAPS installed, 2150 fuel onboard.
Environmental: +6600 PA, +30 C
Mission: 110kts G/S +20 minute reserve

Avionics: AN/ARC 231 Multi-Band radio (VHF, UHF, VHF-FM, SATCOM)
AN/ARC 201D FM
AN/APX-118 Transponder-IFF
Blue Force Tracker with Multi-Function Display tracking
Integrated Digital Moving Map

Range: 178NM w/o Reserve
Planning Speed: 110kts G/S
Endurance: 1+37 @1100 lbs/hr. +20 minute reserve for total of: 1+57
Fuel Capacity: 360 US gallons/ 2412 lbs.

ACL

	Seats Out	Seats In
With Ruck Sacks (300lbs ea)	16	11
W/O Ruck Sack (240lbs ea)	20	11

1. ACL with external loads is based on the weight of the specific load, not to exceed a total of 2,600 lbs (including passengers and internal load). This places the aircraft at its MAX GROSS WEIGHT OGE at these conditions.
2. The CG is the approval authority for “seats out” in training AND IN COMBAT.

3. Detainees can be placed on the floor during seats-in missions based on temperatures and Division Commander approval. This will be treated as a seats out mission.

WEIGHT		FUEL FLOW	RANGE
Load	Takeoff	Enroute	Range
11 PAX: 3,300 lbs	20, 600lbs	1081 lbs/hr	178NM

PA	TEMPERATURE							
	-5C/23F	0C/32F	5C/41F	15C/59F	20C/68F	25C/77F	30C/86F	35C/95F
12,000	16,800	16,600	16,400	15,900	15,600	15,400	N/A	N/A
11,000	17,500	17,300	17,000	16,500	16,300	16,000	N/A	N/A
10,000	18,200	18,000	17,300	17,200	17,000	16,700	16,300	N/A
9,000	19,000	18,700	18,400	17,900	17,700	17,400	17,100	N/A
8,000	19,700	19,400	19,200	18,600	18,400	18,100	17,800	17,300
6,000	21,300	21,000	20,700	20,200	19,900	19,600	19,200	18,800
4,000	22,000	22,000	22,000	21,700	21,500	21,200	20,800	20,300
2,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	21,900

MAX GROSS WEIGHT

Figure 7- 10: UH-60 Max Gross Weight for Out of Ground Effect Hover Pressure Altitude and Temperature Effects

SECTION F: CH-47F CAPABILITIES

Note: ACL is variable based on temperature and altitude. Consult assault planners. .

Assumptions: Are based off the current CENTCOM theatre of operations.

Combat Aircraft: 33,000 lbs, crew 5, door guns installed, 6,000 lbs fuel
Environmental: + 1000 PA, + 30 degrees C
Mission: Cruise 110 kts, 30 min fuel reserve

Avionics:
AN/ARC-164 UHF – (Have Quick II)
AN/ARC-186 VHF
AN/ARC-201D FM – SINCGARS
Two-Way Blue Force Tracker
AN/ARC 220 HF- Over the horizon communications
AN/ARC 231 VHF/UHF/LOS and DAMA SATCOM
Tactical Data Link (Tactical data messaging)
Integrated digital Moving Map

Range: 325 NM / 602 Km
Planning Speed: 120 Kts / 220 Km/Hr
Endurance: 1+45 hours (2+15 total - 30 min reserve)
Fuel Capacity: 1028 US gallons / 6,800 pounds

ACL

	Seats Out	Seats In
With Ruck Sacks (300lbs ea)	50	30
Without Ruck Sacks (240lbs ea)	60	30

Figure 7- 11: CH-47 ACL

1. ACL with external loads is based on the weight of the specific load, not to exceed a total of 50,000 lbs (including passengers, internal load, and slingloads). To exceed this may reduce the ability of the aircraft to meet range requirements (require fuel to be consumed before takeoff).
2. The CG is the approval authority for “seats out” in training and in combat.
3. Detainees can be placed on the floor during seats-in missions based on temperatures and Division commander approval. This will be treated as a seats out mission.

CH47F PLANNING WEIGHT / PASSENGER CAPACITY																	
PA	TEMPERATURE																
	ALLOWABLE LOAD / PAX	-20 C/-4F	-15 C/5F	-10 C/14F	-5 C/23F	0 C/32F	5 C/41F	10 C/50F	15 C/59F	20 C/68F	25 C/77F	30 C/86F	35 C/95F	40 C/104F	45 C/113F	50 C/122F
14000		3000 / 10	3000 / 10	2000 / 6	1500 / 5	1000 / 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13000		5000 / 16	4500 / 15	4000 / 13	2500 / 8	2000 / 6	1500 / 5	1000 / 3	NA	NA	NA	NA	NA	NA	NA	NA
12000		7000 / 23	6500 / 21	5500 / 18	5000 / 16	4000 / 13	3000 / 10	2500 / 8	2000 / 6	1000 / 3	NA	NA	NA	NA	NA	NA
11000		8500 / 28	8000 / 26	7500 / 25	6500 / 21	5500 / 18	4500 / 15	4000 / 13	3500 / 11	2500 / 8	1500 / 5	500 / 1	NA	NA	NA	NA
10000		10500 / 31	10500 / 31	9500 / 31	8500 / 28	7500 / 25	6500 / 21	6000 / 20	5000 / 16	4500 / 15	3000 / 10	2000 / 6	NA	NA	NA	NA
9000		12500 / 31	12000 / 31	11500 / 31	10500 / 31	9500 / 31	8000 / 26	7500 / 25	6500 / 21	6000 / 20	4500 / 15	3500 / 11	2500 / 8	NA	NA	NA
8000		14000 / 31	14000 / 31	14000 / 31	12500 / 31	11500 / 31	10500 / 31	9500 / 31	8500 / 28	8000 / 26	6500 / 21	5500 / 18	4000 / 13	NA	NA	NA
7000		15000 / 31	15000 / 31	15000 / 31	15000 / 31	13500 / 31	12500 / 31	11500 / 31	10500 / 31	9500 / 31	8000 / 26	7000 / 23	5500 / 18	4000 / 13	NA	NA
6000		15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	14000 / 31	13000 / 31	12000 / 31	10000 / 31	9000 / 30	7000 / 23	6000 / 20	6000 / 20	NA
5000		15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	13500 / 31	12000 / 31	11000 / 31	9500 / 31	8500 / 28	6500 / 21	NA
4000		15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	14000 / 31	12500 / 31	10500 / 31	9000 / 30	8000 / 26	NA
3000		15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	12500 / 31	11000 / 31	10000 / 31	8000 / 26
2000		15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	15000 / 31	13000 / 31	11500 / 31	10000 / 31

A/C MISSION WEIGHT 35000 LBS.

Figure 7- 12: CH-47 Planning Weight / Passenger Capacity

SECTION G: COMMON LOAD WEIGHTS

Equipment	GW
RSTA or TOW HMMWV w/2 PAX	8500
M1114	12,500
M1151	16,000
Unarmored HMMWV	7500
Cargo Net	3500
500 Gallon Fuel Blivet of JP8	3750
200 Gallon Water Blivet	2125
M119 Howitzer w/3 PAX	4900
Water Buffalo (400 Gallons)	6320

Figure 7- 13: Gross Weight Table

SECTION H: OH-58D CAPABILITIES

Avionics: AN/ARC-164 UHF – (Have Quick II)
AN/ARC-186 VHF
AN/ARC-201D FM – SINCGARS (Two Each)
Two-Way Blue Force Tracker
Improved Data Modem (304) (Digital Communications)

Range: 225 NM / 417 Km
Planning Speed: 80-90 Kts / 148-167 Km/Hr
Endurance: 2.5 hours (280 Pounds/Hour or 42 Gallons/Hour)
Fuel Capacity: 112 US gallons / 17 pounds

PA in ft	Temperature in Degrees Celsius														
	-15C 5F	-10C 14F	-5C 23F	0C 32F	5C 41F	10C 50F	15C 59F	20C 68F	25C 77F	30C 86F	35C 95F	40C 104F	45C 113F	50C 122F	55C 131F
12,000															
11,000															
10,000															
9,000															
8,000															
7,000															
6,000															
5,000															
4,000															
3,000															
2,000															
1,000															
0															

= Mission No-Go
= Mission Degradation
= No Mission Impact

Figure 7- 14: OH-58 Pressure Altitude and Temperature Effects

Optics

	Detect	Recognize	Identify
MMS / TVS	8 Km	6-8 Km	3-5 Km
MMS / TISU	8 Km	5-7 Km	2-4 Km

Figure 7- 15: OH-58 Optics

Armament

System	Range	Capacity	Danger close	Legend
.50 Cal MG	2000 m	500 rounds	35m	
2.75 FFAR	7600m	Up to 14	200m HE 300m MPSM	
Hellfire Missile	8000 m	Up to 4	120m	
Stinger Missile	Classified	Up to 4	NA	

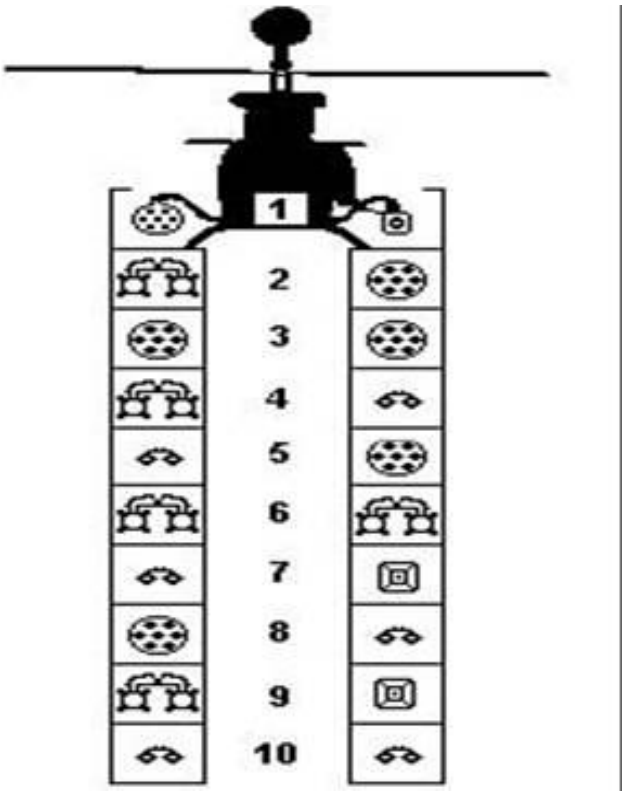


Figure 7- 16: Ten Authorized OH-58D Armament Configurations

SECTION I: AH-64D CAPABILITIES

Avionics: AN/ARC-164 UHF – (Have Quick II)
AN/ARC-186 VHF
AN/ARC-201D FM – SINCGARS (Two Each)
Blue Force Tracker
Improved Data Modem (304) (Digital Communications)
SATCOM

Range: Radius

Without Internal Aux Tank	With Internal Roby Tank
110 NM	185 NM
204 KM	340 KM

Planning Speed: 110 Kts / 204 Km/Hr
Endurance: 3 hours (1000 pounds/Hour or 134 Gallons/Hour)
Fuel Capacity: 375 US gallons (+ 100 gallons Robbie Tank)

PA in ft	Temperature in Degrees Celsius							
	-20C/-4F	-10C/14F	0C/32F	10C/50F	20C/68F	30C/86F	40C/114F	50C/132F
12,000								
10,000								
8,000								
6,000								
4,000								
2,000								
0								

= Mission No-Go
= Mission Degradation
= No Mission Impact

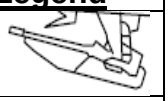
Figure 7- 17: Pressure Altitude and Temperature Effects AH-64D

Optics

	Detect	Recognize	Identify
TADS / DTV	10+ Km	8-10 Km	5-7 Km
TADS / FLIR	8-10 Km	3-5 Km	1-3 Km

Figure 7- 18: AH-64D Optics

Armament

System	Range	Capacity	Danger Close	Legend
30 mm	4200m	300 rounds	75 meters	
2.75 FFAR:	varies	Up to 76 rkts		
Flechette	800-1200m		300 meters	
High Explosive (HE)	7500m		305 meters	
MPSM (9 submunitions)	7000m		----------	
Hellfire Missile	8 km	Up to 16	120 meters	

*MPSM not recommended for CCAs due to dispersal pattern and potential for duds in the target area.

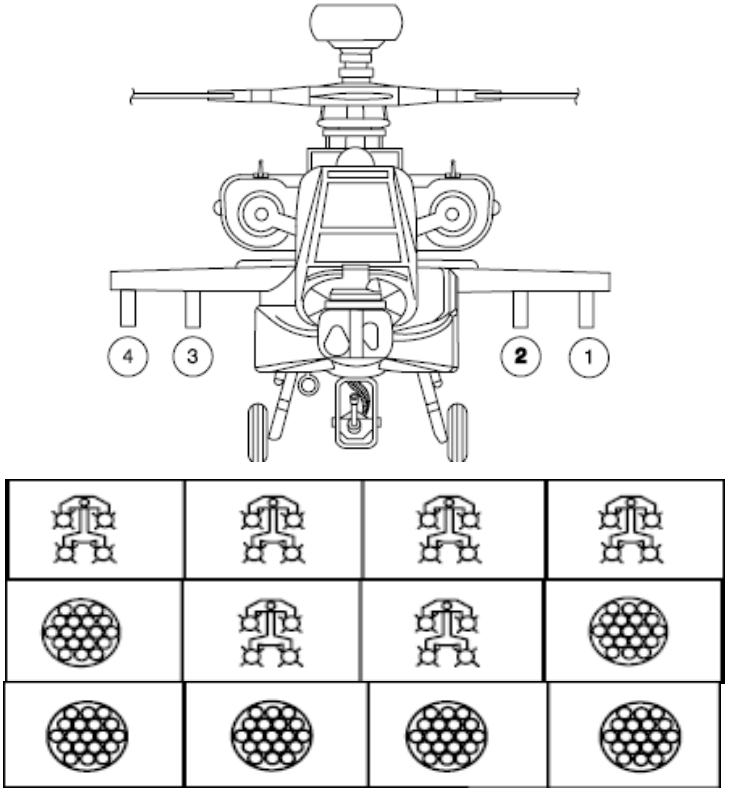


Figure 7- 19: AH-64D Weapon Pylon Configurations

SECTION J: READINESS CONDITION (REDCON) STATUS

Purpose: This section provides standard terms and definitions used in the division for planning and executing deep attacks and air assault operations.

REDCON/Mission/Aircraft Summary

LVL	RESPONSE TIME	AIRCRAFT	ENGINES	APU	AVIONICS	WEAPONS	COMMO	AIRCRAFT PREPARATION
1	IMMEDIATE RESPONSE	OH-58 AH-64/UH-60/ CH-47	100% RPM 100% RPM	NA NA	ALL ON ALL ON	STANDBY INITIALIZED	INTERNAL INTERNAL	NA NA
2	FIFTEEN (15) MINUTES	OH-58 AH-64/UH-60/ CH-47	SET FOR START SET FOR START	NA ON	OFF ALL ON	OFF OFF	PRC 119/112 INTERNAL	PILOTS AT AIRCRAFT
3	THIRTY (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 W/ RTO
4	ONE (1) HOUR	OH-58 AH-64/UH-60/ CH-47	NA NA	NA OFF	OFF OFF	OFF OFF	UNIT SOP UNIT SOP	A/C THRUFLIGHT, CREWS BRIEFED
5	TWO (2) HOURS	OH-58 AH-64/UH-60/ CH-47	NA NA	NA OFF	OFF OFF	OFF OFF	UNIT SOP UNIT SOP	A/C THRUFLIGHT, CREWS BRIEFED
6	MORE THAN TWO (2) HRS	OH-58 AH-64/UH-60/ CH-47	NA NA	NA OFF	OFF OFF	OFF OFF	UNIT SOP UNIT SOP	A/C THRUFLIGHT, MSN PLANNING

Figure 7- 20: REDCON Aircraft Summary

NOTE 1: Response times refer to departure from the 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

SECTION K: DEPLOYABILITY

Aircraft	C-130	C-17	C-5
UH-60	1	3	6
CH-47	0	1	2
OH-58	2	8	12
AH-64	0	3	6

Figure 7- 21: Aircraft Deployability

SECTION L: COMMON MEASURMENT CONVERSION TABLES

1 Gallon JP8 = 6.75lbs
1 Gallon Water = 8.345lbs

C = (F-32) / 1.8
F= (C x 1.8) + 32

Figure 7- 22: Temperature Conversion Factors

1 Nautical Mile =	1.151 Miles	1.852 Km
1 Mile =	0.869 Nautical Mile	1.609 Km
1 Km =	0.540 Nautical Mile	.0621 Mile

Figure 7- 23: Distance Conversion Factors

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Chapter 8

Airspace Command and Control

SECTION A: ROLES AND RESPONSIBILITIES

1. Air Assault Task Force Commander (normally the Infantry BCT in which case the BAE serves as the Commander's representative)

a. Responsible for all airspace within his boundaries from the surface up to the coordinating altitude.

b. Responsible for clearance of fires within his boundaries.

c. Ensure the Aviation Brigade(s) and / or OPCON Aviation units have situational awareness of fire support assets within its boundaries.

d. Coordinate with the Division AC2 /TAC AC2 element for submission of Airspace Control Means Requests (ACMRs) for any operation or activity that may affect aviation safety. Operations include but are not limited to indirect fire areas, small arms ranges, weather balloon releases, RAID and JLENS balloons and UAS operations. Coordination with the Division AC2 shall be conducted through the use of TAIS or WEB ACMR on SiprNet connections IAW Division AC2 SOP.

e. Responsible for ensuring any UAS assets are reported by tail number, type, location, and unit to Division AC2 for inclusion on the Air Tasking Order (ATO).

f. Submit Notice to Airmen (NOTAM) requests to Division AC2 for any activities that affect safety of flight.

2. Aviation Brigade

a. Submit requests for Airspace Coordination Measures (e.g. routes, ROZs) to Division AC2 / TAC AC2 via TAIS WEB ACMR IAW Division AC2 SOP.

b. Ensure aircrews are aware of and comply with established Airspace Control Measures (ACMs) as published in the Airspace Control Order (ACO).

c. Ensure the Division AC2 / TAC AC2 is notified when ACMs are no longer necessary so they can be removed from the ACO.

d. Ensure all aviation assets by tail number, type, location, and unit are reported to Division AC2 for inclusion on the Army ATO.

e. Submit Notice to Airmen (NOTAM) requests to Division AC2 element for any activities that affect safety of flight.

3. Division AC2 / TAC AC2

a. Receive TAIS WEB ACMR inputs from supported units and coordinate approval through higher headquarters (as applicable).

b. Ensure that approved ACMRs appear on the ACO.

c. Ensure that all aircraft missions are submitted to higher and ultimately included in the Air Tasking Order, and that all aircraft receive valid transponder code assignments.

d. Act as primary coordinator with CJFLCC/JFLCC Rescue Coordination Center (RCC) for utilization of coalition/joint assets in downed aircraft and crew recovery operations. (When deployed separately from Division Headquarters)

e. Ensure TAIS connectivity with all ABCS systems (AFATDS, AMDWS, ASAS, etc.) to provide Common Operating Picture to commander.

f. Ensure TAIS connectivity with higher headquarters, JSTARS, AWACS, and ATC radar to provide theater-level Common Operating Picture to commander.

g. Process and update all classified and unclassified Notices to Airmen (NOTAMS) requests from supported units IAW Division AC2 SOP.

h. Request development of Terminal Instrument Approach Procedures (TERPS) and Instrument Flight Rules (IFR) certification of Navigational Aids (NAVAIDS) at all supported airfields IAW Division A2C2 SOP.

i. De-conflict airspace requests and fire-support coordination measures to deter fratricide events and maximize fire support capability.

j. Coordinate with G2 for integration of intelligence collection assets into ATO and ACO production (as applicable).

k. Coordinate with G5 Plans for future mission AC2 planning, and G3 Operations for current operations ACO/ATO execution.

l. Provide updated airfield, LZ, PZ, DZ, FARP/RRP, and air traffic service status to higher headquarters.

m. Create and maintain operational overlay of air graphics (manually and/or electronically).

n. Receive and monitor status of all training ranges and areas to ensure deconfliction with air assets and ACMs listed on current day's ACO.

o. Coordinate with FSCOORD to ensure all indirect fire areas are included in

TAIS ACMR inputs to the current day's ACO.

4. Division AC2 (MAIN)

a. Functions of the Division AC2 mirror that of the TAC AC2 when deployed as a Division level headquarters.

NOTE: WHEN DIVISION AC2 IS DEPLOYED AS A CJFLCC/JFLCC HEADQUARTERS THE FOLLOWING RESPONSIBILITIES APPLY IN ADDITION TO THOSE LISTED IN PARAGRAPHS C1 THROUGH C14 ABOVE.

b. De-conflict and approve all TAIS WEB ACMR requests within CJFLCC/JFLCC airspace at or below the coordinating altitude.

c. Coordinate and request approval for all TAIS WEB ACMRs with the Battlefield Coordination Detachment (BCD) at the Air Operations Center (CAOC/JAOC) for requests above the coordinating altitude.

NOTE: THE BCD IS THE ARFOR LIAISON ELEMENT TO THE COMBINED/JOINT FORCES AIR COMPONENT COMMANDER (CFACC/JFACC). THE BCD IS CO-LOCATED WITH THE AIR COMPONENT COMMANDERS AIR OPERATIONS CENTER (AOC).

d. Compile and Organize data from all subordinate units and submit data to the AOC for inclusion to Army ATO.

5. Fire Support Coordinator (FSCOORD)

a. Coordinate with the TAC AC2 /Division AC2 for input of airspace coordination measures into TAIS.

b. Ensure that appropriate airspace coordination measures are both activated and de-activated in a timely manner in AFATDS and TAIS.

c. Ensure all contingency firing requests are coordinated with the TAC AC2 /Division AC2 to de-conflict airspace for aviation safety. (Coordination with TACP and/or ALO only provides immediate safety of flight alerts to fixed-wing assets.)

d. Ensure coordination measures are in effect for all firing units for all immediate (enemy suppression etc.) missions to de-conflict airspace at airfields, heliports, and high-density air traffic areas with local air traffic assets.

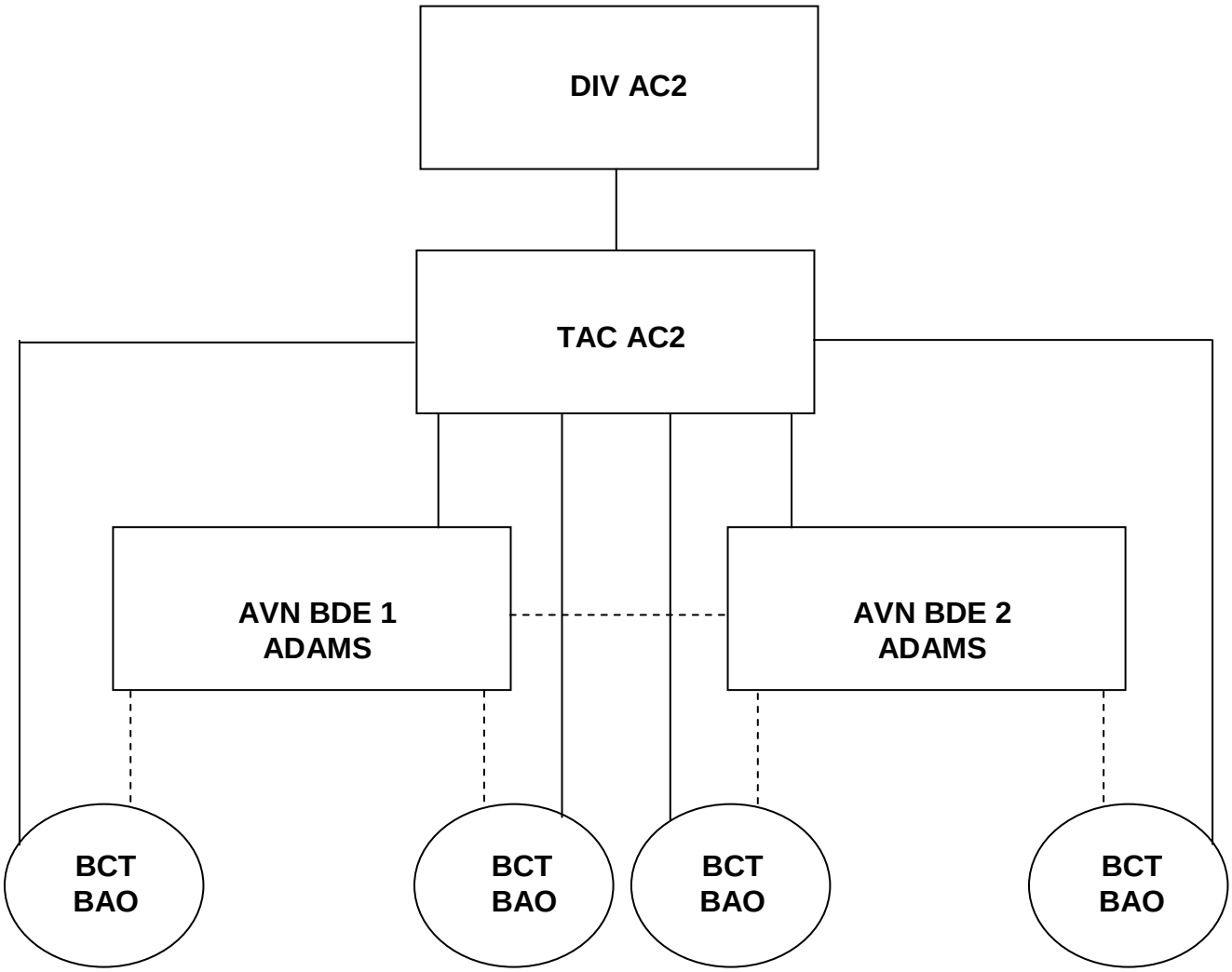

Figure 8- 1: An Example of AC2 Organization within the Division

SECTION B: TYPES OF AIRSPACE CONTROL

1. Positive Control. A method of airspace control that relies on positive identification, tracking, and direction of aircraft within an airspace, conducted with electronic means (i.e. Radar contact, radio communication) by assigned ATS assets. For Army rotary wing operations, positive control is not used as often as procedural control. A notable exception may be the direction of rotary wing assets returning to the TAA by the ATS unit to comply with certain procedures due to UAS launch or recovery operations.

2. Procedural Control. A method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures. The ACO is a commonly used example of procedural control. Procedural controls are common methods, used by all airspace users (to include indirect fire assets) to de-conflict airspace. Procedural control is generally used for Army rotary wing operations.

SECTION C: COMMON PROCEDURAL AIRSPACE COORDINATION MEASURES USED DURING AIR ASSAULTS

1. Air route. An air route is a restricted area of travel that defines a specific path an aircraft will use. Air routes are used by Division and lower level assets and, if approved, are listed on the current ACO. Direction of travel can be dictated as one direction or two-way traffic.

2. Air corridor. An Air Corridor mirrors an air route in functionality, but is designated at Corps/Division or higher level. It is generally wider than an air route.

3. Restricted Operations Zone (ROZ). A ROZ is airspace of defined dimensions created in response to specific operational situations or requirements within which the operation of one or more airspace users is restricted. The Division uses ROZ's to procedurally de-conflict any area where prior coordination enhances aviation safety, for example: for the launch and recovery area of UASs, orbit locations for C2 and MEDEVAC aircraft, and indirect fires.

4. Coordinating Altitude. The coordinating altitude is used to separate fixed and rotary wing traffic and limits the ceiling of fire support operations without prior coordination with the AOC. The establishment of a coordinating altitude determines the altitude below which fixed wing aircraft will normally not fly and the altitude above which rotary wing aircraft will normally not fly. The coordinating altitude is established by the Joint Forces Air Component Commander (JFACC) and is published in the Airspace Coordination Order (ACO).

5. Airspace Coordination Area (ACA). An ACA is a three-dimensional block of airspace in a target area, established by the appropriate ground commander in which friendly aircraft are reasonably safe from friendly surface fires. The Division uses ACAs on the objective area to help de-conflict indirect fires, Attack Aviation, Air Cavalry assets and UAV traffic.

6. Position Area Hazard (PAH). A type of ROZ established over the firing position of indirect fire support assets to enhance aviation safety.

7. Target Area Hazard (TAH). A type of ROZ established over the surface target for indirect fires to enhance aviation safety.

SECTION D: TACTICS, TECNIQUES, AND PROCEDURES FOR AIRSPACE CONTROL DURING AN AIR ASSAULT

1. Air Route planning.

a. When developing a Course of Action, the ground maneuver unit should plan an Air Axis of Advance. This provides the general concept to the Aviation planners who will further refine it into routes, while providing enough guidance as to what direction the Commander wants to approach from. The developed axis of advance is not submitted to Division AC2.

b. Upon receipt of the COA, the Aviation unit (LNO) plans the air routes within the air axis of advance. The aviation unit will normally plan multiple routes within the axis of advance because the air defense picture may not be clear yet. The Division will always plan one way routes. The BAE can (and should) assist in route planning but the supporting Aviation unit is responsible for completing the routes and submitting to Division AC2 for inclusion on the ACO.

2. ROZ planning

a. Any unit with organic UAVs is responsible for planning their own ROZs for UAS launch and recovery. All elements operating UASs in a BCT will submit their request through the BAE for de-confliction prior to it being submitted to the TAC/Division AC2.

b. UAS launch and recovery ROZs should typically be 3Km radius, surface to coordinating altitude, but may be tailored to meet operational requirements. Due to their size, UAS launch and recovery ROZs should not be planned near either indirect fire assets or supporting Aviation unit Assembly Areas and / or FARPs if possible.

c. The supporting Aviation Brigade will submit ROZ locations for C2 and MEDEVAC aircraft to Division AC2.

d. C2 and MEDEVAC aircraft ROZs should be a minimum of 3km x 3km in size. The Aviation Brigade will plan both a primary and alternate ROZ for each aircraft. This

enables for control of the battle as it moves forward as well as providing a ROZ if needed for the Division Mobile Command Group (MCG).

e. Fire support assets can utilize ROZs to assist in the deconfliction of airspace between firing locations and target locations.

3. Objective Area Deconfliction. The Division uses three methods to de-conflict airspace between attack/cavalry assets and assault aircraft on the objective during an air assault based on METT-TC.

a. Grid-line or terrain feature separation method. This is the most restrictive but easiest method. With this method a specific code-word on the execution checklist will trigger the attack and / or cavalry assets to clear the airspace for inbound assault assets by moving out of the way. A subsequent code word indicates when the attack/cavalry assets can maneuver freely again in and around the objective area. While simple to use, this method is highly restrictive and may not allow the attack and / or cavalry assets to engage targets in the close combat attack role during the air assault. This method is appropriate when prior planning was not possible or extremely limited and / or it is being conducted with non-habitually aligned units.

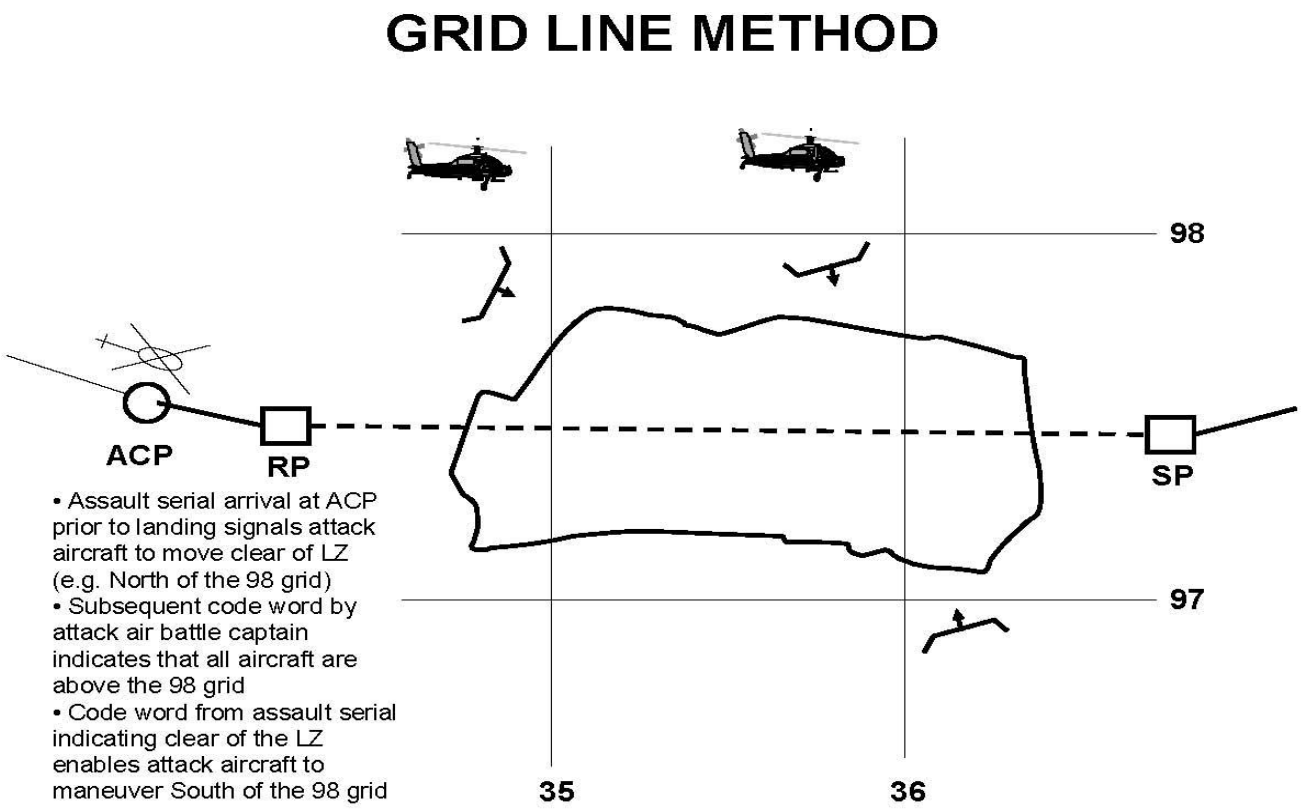

Figure 8- 2: Grid Line Method

b. Attack by Fire positioning method. This is the preferred method as it allows attack / cavalry aircraft the greatest flexibility to engage targets during the air assault in support of the ground tactical commander. A specific code word on the execution checklist from the attack / cavalry unit indicates to the AMC that the attack / cavalry assets are set in the vicinity of the known ABFs. This does not restrict the attack / cavalry assets to the specific grid of the ABF(s), but to its general vicinity. This method does require the attack / cavalry assets to ensure they stay clear of the LZ and not cross the center line of the direction of flight. Using this technique requires the attack / cavalry aircraft to have increased situational awareness. This technique is best used when all elements have time to rehearse the plan and it is conducted with habitually associated ground, assault and attack / cavalry units.

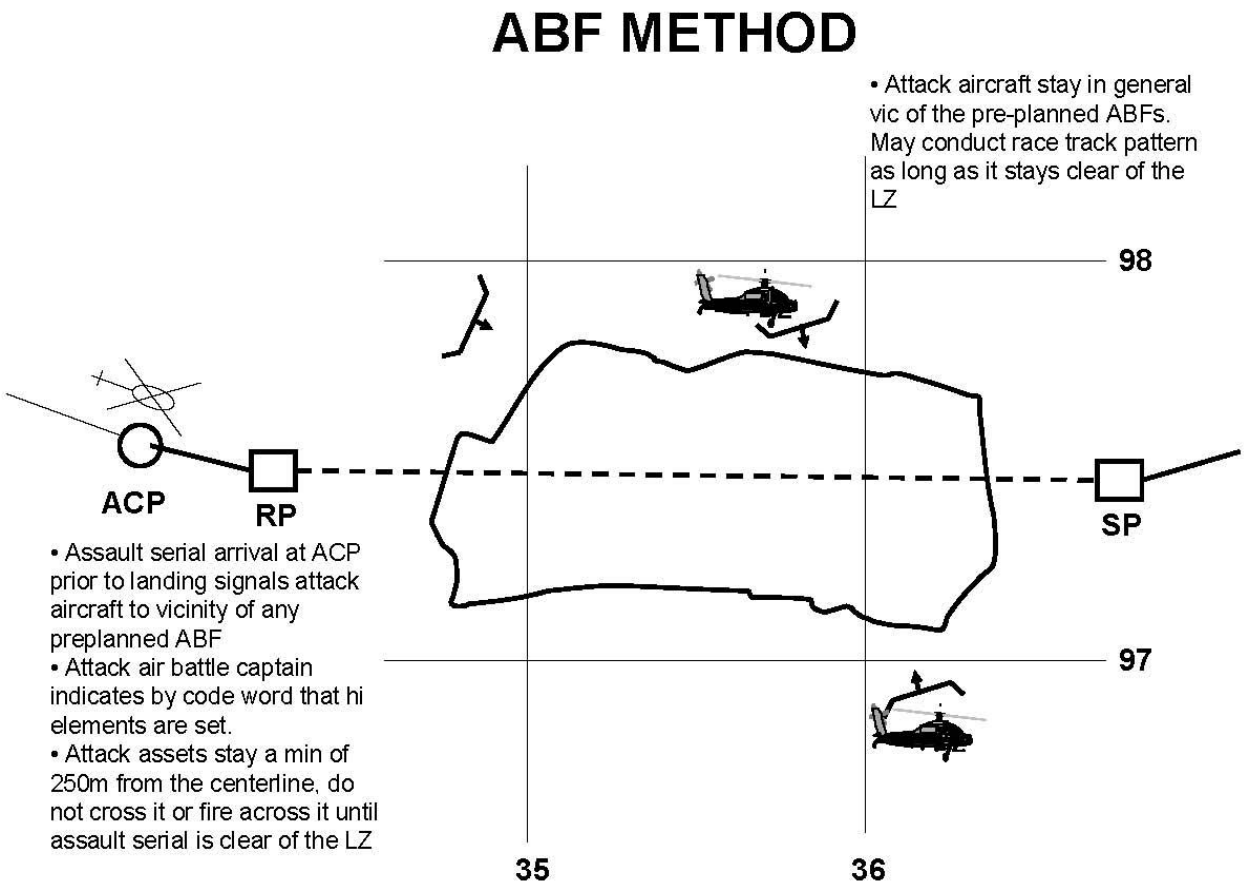

Figure 8- 3: ABF Method

c. Call clear method. This method is used in contingency circumstances when there are few assault or other aircraft (e.g. MEDEVAC, C2 aircraft) inbound to the objective area. This method is initiated with an inbound call of the assault or other aircraft to the LZ, and a response of clear from the attack / cavalry air battle captain indicating that all elements are clear of the LZ and the flight path to it from the RP. This method should not be used during the main air assault itself due to congestion on the air battle net.

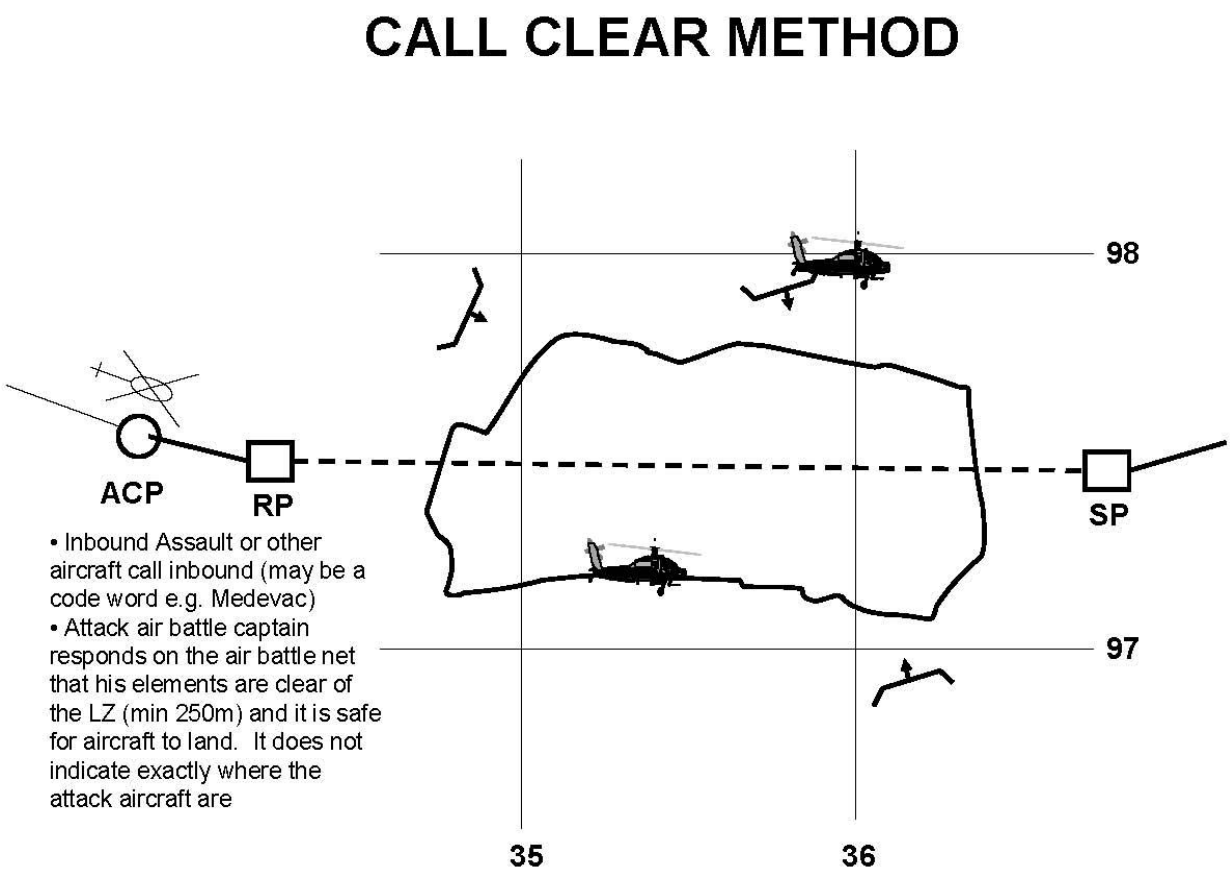

Figure 8- 4: Call Clear Method

SECTION E: CLEARANCE OF FIRES

1. During an air assault with numerous aircraft in the vicinity of the LZ, it is critical that procedures are in place to de-conflict airspace between aircraft and indirect fires.

2. Tactics, Techniques and Procedures to de-conflict airspace

a. Ensure that aircrews have the planned indirect fire positions (including mortars) prior to the mission.

b. Do not plan any fire support position (including mortars actually on the LZ so as not to conflict with any subsequent serials.

c. Ensure that at least one of the Aviation team members monitors the fire support net for situational awareness.

d. Advise the Aviation element if the location of indirect fire assets changes from that planned.

e. The Ground Tactical Commander can establish an informal ACA. For example, he can designate that for a specific period of time, all indirect fires will be south of the 97 grid and all aviation will stay north of the 97. This is one effective method of de-conflicting airspace while both indirect fires and attack Aviation can still attack the same target. The Ground Tactical Commander can then deactivate the informal ACA when the situation permits.

f. The ground Tactical Commander should develop a Fire Contact List to ensure all fire support, aviation, ATS, and ADA assets do not conflict with responsive mission needs.

g. Ensure all participating units are briefed daily on current ACO/ATO changes and updates that may affect air mission planning and execution.

h. Ensure all units update firing unit locations, firing point origins, and final protective fire lines as they change for inclusion in current ACO.

SECTION F: Sentinel Section Operations in support of Airspace Command and Control

1. General. In an environment lacking a Fixed Wing (FW), Rotary Wing (RW), and Unmanned Aerial System (UAS) threat, the Divisional Sentinel Radar Section (2 x Sentinel Radars) may be employed to assist in conducting Airspace Command and Control by providing situational awareness of friendly aircraft within a local area. The Sentinel Section may be retained at Division and data-linked to the Division AMD Cell Forward Area Air Defense Command and Control (FAADC2) system or Task Organized to a BCT and data-linked to the BCT ADAM Cell FAADC2 system. The FAADC2 system sends the Sentinel Radar air picture to the Air Defense System Integrator (ADSI), which provides the combined air picture to subordinate, adjacent and higher headquarters, and other Army Battlefield Command System (ABCS) platforms in the Division, such as Air & Missile Defense Workstation (AMDWS), Advanced Field Artillery Tactical Data System (AFATDS), Command Post of the Future (CPOF), and Tactical Airspace Integration System (TAIS).

2. Sentinel Radar capabilities. The Sentinel Radar has a 360 degree, Line of Sight detection capability with a range in excess of 40 KM. Aircraft detected by the Sentinel Radar can be cross-referenced by using Mode 3 IFF Codes against data provided in the Air Tasking Order (ATO) in order to determine aircraft type, call sign and tail number. Aircraft not able to be cross-referenced on the ATO are classified as FW or RW based on their speed and flight characteristics.

Chapter 9

TACTICS, TECHNIQUES, AND PROCEDURES (TTPs)

Purpose: This chapter provides several tactics, techniques, and procedures (TTPs) used by units in the Division for critical operations that support or are part of task force level air assault operations.

SECTION A: AIR ASSAULT OPERATIONS IN A DESERT ENVIRONMENT

STAGING AND LOADING

1. Daylight staging is desired for hookup teams, PZ controls, and personnel. If possible, aircraft should be staged during daylight as well. In the desert, there are no visual references (such as hardball roads, defined tree lines, etc) to guide either loads or aircraft to the PZ. To plan for loads to arrive at night ensures friction. Because aircraft are flying off GPS grids, the PZ can call in updated lead touchdown points to PZ control, which forwards the updated grids to the aviation elements.

2. Aircraft serials coming into a PZ for the first time should be sequenced in five minute intervals. Usually aircraft are finding the PZ using GPS, and there may be two touchdown points marked on a PZ. By sequencing in the serials, staging problems can be solved before too many aircraft are on the ground. There is no rush to enter into the PZ. Take ample time to sequence in.

3. Serials should work the same PZ. The goal is to keep the operation as simple as possible. Flying into the same PZ every time accomplishes this goal.

4. The PZ control officer must maintain the ability to reconfigure the PZ at short notice in response to wind changes and terrain wearing. Contingency PZ set-up plans should address anticipated seasonal or cardinal direction wind changes. Pilots must also be prepared to adjust headings based on wind direction when picking up loads.

5. Separation in PZs (minimal distances): Due to blowing dust and sand, aircraft separation must be increased. 150m for UH-60 in staggered/echelon formation, and 250m for CH-47 external loads.

6. ACLs: Ensure that altitude constraints on weight are considered and briefed. (it is not unusual for a UH-60 to fly only 6500 lb. and a CH-47 only 16,500 lb.) Also load times must be adjusted: 3 min for personnel on load for UH-60, 10 min hookup from final approach for external load UH-60 or CH-47.

7. Crisis action teams (CAT): No less than one CAT per every two loads is standard, due to the distance between loads and the transit time involved. CATs are the decisive factor in PZ operations. They need to send timely, accurate spot reports, know the layout of the PZ, and act quickly to solve any problems. They and the hook up teams must see the PZ during the daylight.

8. Slingload considerations: Use of extended slings for CH-47s is only recommended during extreme dust or white out conditions. Normal slingloads can be accomplished during 0% illumination (in a non-mountainous environment) with a slightly dusty PZ or LZ. Similarly, secondary loads (i.e. cargo nets below gun tubes) are not recommended. However, Commander's must carefully assess the risk to their equipment during slingload operations, especially at night under goggles. Lastly, PZ recons must be done early by aviation crews to check and confirm suitability.

9. Light PZ: The multiple touchdown points technique allows two serials to pick-up simultaneously. Also, incoming serials do not need to wait for dust to settle on the PZ, (as with normal one touchdown point PZs), because of the separation of the two touchdown points. This technique allows units to mass within a short amount of time.

10. Recommended enroute airspeed and altitude is no more than 80 knots and 80 feet at night due to loss of contrast and visual references.

11. PZ planning factors:

a. PZ control in a desert environment is more difficult due to increased distances.
b. Wind changes must be planned for in contingency PZ layouts.
c. PZ rehearsals are critical.
d. The AMT needs to allow longer pick-up times and exit times.
e. Blowing sand and dust will obscure PZ activity; plan on time between serials to allow dust to settle.
f. Alternate LZs have an increased likelihood of execution due to difficulties of terrain selection without ground reconnaissance.
g. IR lighting is preferred for PZ marking.

LANDING

1. Time separation: 1 minute between serials at different touchdown points within the same LZ grouping. 5-8 minute between serials at the same touchdown points. Offload times (UH-60/CH-47): 1 min with external load, 5 minutes with external load and pax.

2. Minimize internal loads as much as possible. Difficulty loading and unloading increases time on the ground and dust effects.

3. LZ groupings and branches allow for flexibility. Multiple touchdown points put forces on the ground quickly in the same AO while avoiding brown-out conditions. Multiple touchdown points also throw off mobile anti-landing forces.

REFUEL

1. Aerial and ground reconnaissance of FARP/RRP locations is essential in determining size, environmental suitability, and landing directions.

2. Distances. As with the PZ and LZ operations, landing distances will be increased at the FARP. An additional 50 feet between each refuel point is recommended. Time separation: 20 minutes for UH-60 serials, 25 minutes for CH-47 serials.

3. Equipment should be maintained using plastic bags and 100 mph tape around hose joints and connections to reduce the effect of sand in creating fuel leaks. Hoses should be inspected following every refuel operation.

CCAs

TTPs for CCAs do not change very much for desert operations. However, one consideration that should be taken into account is the effect of high temperatures. Ground commanders must realize that high temperatures can reduce the weapons load and/or fuel an aircraft can bring to the fight. This must be incorporated into the ground tactical plan as aircraft may have less station time and require additional FARP rotations.

SECTION B: AIR ASSAULT ARTILLERY RAIDS

1. General. The **artillery raid** technique consists of air assaulting a firing element forward to fire a specific mission, and then extracting the element via helicopter immediately after the mission is completed. This is usually done as a mission separate from a maneuver air assault but may be used as an alternative to the offset firing unit technique based on METT-TC. The artillery raid technique is used when a stationary, high value target requires attack by indirect fires, the fires are needed for a short time only, and adequate observation of the target is provided. Quick and timely execution ('in and out") is of the essence. Target analysis will determine the number of howitzers and the amount of ammunition required for the raid. Figures 9-3, 9-5, and 9-6 illustrate planning factors for a 8 gun battery raid. Actual equipment and personnel required will be based upon METT-TC.

a. References.

(1) FM 90-4 Air Assault Operations dtd March 1987.

(2) FM 6-50, 23 Dec 96, The Field Artillery Battery

(3) FM 4-20.197 (FM 10-450-3) Multiservice Helicopter Sling Load: Basic Operations and Equipment, July 2006

(4) FM 4-20.198 (FM 10-450-4) Multiservice Helicopter Sling Load: Single-Point Load Rigging Procedures, 20 February 2009

(5) ARTEP 6-037-30-MTP dtd FEB 97, Mission Training Plan Field Artillery Cannon (Consolidated) Firing Battery Task 06-05 -44002.

(6) TM 9-1015-252-10, dated AUG 2006, Operator's Manual for Howitzer, Light, Towed; 105mm, M119A2.

b. Training Objective

SUBTASK	TIMING	STANDARD
Establish PZ	Start: 1st Load Positioned on PZ (Upon order to rig if current position is PZ) Stop: Battery in PZ Posture	30 minutes
Battery RTF (A-frame, baseplate on, assumes all howitzers arrive in 1 serial)	Start: 1st Load on LZ Stop: Battery IPRTF	10 min (Day) 20 minutes (Night) (Add 2 min for stowed configuration and /or 2 min for baseplate stowed)
Extraction	Start: EOM (command to march order) Stop: Battery in PZ Posture	17 minutes (day) 19 minutes (night)

Figure 9- 1: Artillery Raid Training Objectives

c. Considerations.

(1) General. The air assault artillery raid is a high-risk, short duration operation used to allow the attack of high payoff targets located beyond the range of friendly artillery positioned behind the FLOT and / or targets tactically "out of reach" of other available fire support 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. Like all air assault operations, the ground tactical plan (GTP) drives the mission planning.

(2) Raid Configurations. Both the M119 (105mm), the M198 (155mm), and the M777 (155mm) can be used to conduct an air assault artillery raid. The M119 can

be raided as an external load or internal load, and the M198 and the M777 can be raided externally. The configurations and their advantages and disadvantages are described in the table below. 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 S-3 and the Air Mission Commander.

WEAPON	CONFIGURATION	AIRCRAFT	ADVANTAGES	DISADVANTAGES
M119A2	A-Frame Baseplate Down	UH-60 L/M CH-47	• Fast RTF time • Better for wet or muddy LZ • Aircraft exposure on the LZ is minimized	• Requires more pilot skill-can not "drag" load, must hit LZ load touchdown points. • Requires more rigging materials and time to rig • Requires ADVON to mark flat touchdown points on LZ
M119A2	A-Frame baseplate stowed	UH-60 L/M CH-47	• Less pilot skill required (no drag issue, crew can reposition on LZ) • Slightly faster rigging time than baseplate down • Aircraft exposure on the LZ is minimized	• Requires gun crew to man-handle on to baseplate • Slower RTF on wet or muddy ground • Longer extraction preparation
M119A2	Folded baseplate stowed	UH-60 L/M CH-47	• Better aerodynamics • Requires minimal rigging expendables • OPSEC in flight	• Longer PZ and LZ equipment prep (must fold) • Longer RTF • Difficult in poor weather and terrain

M119A2	Internal Load	CH-47	• Better OPSEC in air • A/C speed and maneuverability better • Faster total mission time- aircraft are cross-FLOT less time • No A/C laager site needed	• Requires special equipment (tie down and spade tires) • Requires working A/C winch • Longer PZ times • Longer A/C exposure on LZ • Increased noise on LZ
M119A2	External with Prime mover (**Non-standard** raid mission used when LZ is not firing position and or vehicle FM radio range required)	CH-47	• Battery mobility and survivability • Better organic logistics • Better comms (FM) • Best in inclement weather	• Longer rig times • More expendables required • Longer RTF • Longer re-rig times
M198	External	CH-47	(Compared to M119A1) • Longer range then M119 from LZ • Greater lethality • More munitions options	(Compared to M119A1) • Max Load for aircraft • Requires additional A/C for ammo
M777	External	CH-47	(Compared to M198) • 7000lbs lighter • Same range • Same munitions options	(Compared to M119A1) • Max Load for aircraft • Requires additional A/C for ammo

Figure 9- 2: Artillery Raid

2. RESPONSIBILITIES

a. Fires battalion. (For a platoon raid (4 Guns) the battery commander (BC) can do these tasks and his PL can do the BC tasks.

(1) Plan operation.

(2) PZ control/organization.

(3) Air mission coordination (AMC).

(4) Air mission brief (AMB).

(5) Logistic support, to include additional ammunition, as required.

b. Battery commander.

(1) Act as AATF commander (if senior ground force commander).

(2) Plan and execute actions on the LZ.

(3) Delivery of fires.

c. Aviation Support.

(1) Designate the air mission commander (AMC).

(2) Conduct air crew brief (ACB).

(3) Construct air movement table (AMT).

(4) Plan air routes.

(5) Synchronize aviation assets to support raid.

3. PLANNING.

a. Air assault artillery raid planning begins immediately upon receipt of a mission. Artillery raid missions may originate from Division or from BCT/ Fires battalion. Division planners should conduct continuous coordination with the BCT S3 if artillery assets will conduct the raid. The target is likely to be perishable, therefore the planning phase must be short. The initial steps in the planning process follow:

(1) Receipt of Mission. The Fires battalion S3 normally receives the mission to conduct an air assault artillery raid from the Maneuver BCT. The information to begin planning must be specific.

(a) Warning order. The Fires battalion S3 issues a warning order (WARNORD) to the battery commander(s) as soon as possible. The WARNORD contains the following:

1. Type mission.

2. Number/type of aircraft for the mission.
3. PZ location and time.
4. LZ location and time.
5. Ammunition required.
6. Time and location of AMCM.
7. Units attending AMCM.
8. Azimuth of fire/target location/ target type/ disposition.
9. Special instructions.
10. Additional Aviation resources available (AH-64, OH-58).
11. Attachments/detachments.

(b) Only the information available is included. As a minimum the initial WARNORD should provide the anticipated mission, ammunition requirements, mission aircraft and timeline.

(2) Mission analysis. The mission is planned using the reverse planning sequence and addresses the five air assault phases. The options available include a Platoon raid of 4 guns or a battery raid of 8 guns, however the actual number of howitzers to be used in the raid is determined by target analysis, joint munitions effects manual (JMEM), the commander's attack criteria, and aircraft availability. Abort criteria and required conditions must be determined early and applied throughout the operation (final condition checks and decision points).

(a) Lift Requirements

(b) Communications. Aerial retransmission, high frequency (HF) radios and/or tactical satellite (TACSAT) communications may be required due to the range of the operation. Digital communications may not be possible due to extreme distances. FM communications is normally used for battery internal communication and to communicate with the supporting Aviation unit. If included in the raid, the FDC vehicles are usually equipped with BFT for long range communications.

(c) Logistics**.** Because the artillery raid is relatively short duration, logistical support is minimal.

ELEMENT	AIRCRAFT	LOADS	AMMO	PURPOSE
ADVON	2-6 x UH-60 or 2 x CH-47 # of A/C depends on size of security force)	Battery Advance Party (11 PAX) Infantry Security (if attached) (11-33 PAX)	METT-TC Can sling A-22 or net under ADVON (W/less ACL) or use additional aircraft	Est./Mark LZ Orient Circles Survey Est. FDC Est. COMMO Provide security
AASLT SECURITY	2 x AH-64			Route RECON / AASLT Security/ CCA ALT Observer
MAIN BODY	8 UH-60 or 8 CH-47 (1per Howitzer)	8 x M119 W/ Crews Battery leaders (8 x M1097 if w/ Prime Movers)	A22 Bag 40 RDS 10K Net 96 DS 5K Net 86 DS	Position/ RTF Deliver fires/extract
Pathfinders	As required			Identify, recon and mark LZ

Figure 9- 3: Artillery Raid Planning

1. Class I: Each soldier carries two one quart canteens and one two quart canteen is stored in the rucksack. Each soldier stores two MREs in the rucksack.

2. Class III: The aviation unit determines the amount of fuel that would be used based on total mission time. Establishment of a FARP may be necessary to conduct the operation.

3. Class II and IX: No requirement.

4 Class V: Artillery, AH-64 and small arms ammunition required.

5 Class IV: Internal loads have dunnage, shoring and tie-down requirements. The amount of Class IV necessary for each load will vary.

6 A qualified combat medic is tasked internally. Aeromedevac may be positioned in the laager site and remain on station for the duration of the mission.

(d) H-hour sequence.

H-12	Fires BN receives mission, conducts mission analysis and develops: Ground tactical plan. Landing plan. Air movement plan (tentative). Staging plan. Requests fire support (SEAD) based on the ADA threat and friendly assets available.
H-11	Fires BN issues warning order to battery: Number/type of aircraft. Primary and alternate PZ and LZ location and time. Ammunition required IAW JMEMs and Cdr's criteria Time, location, attendees for AMC and AMB. AZ of fire. Target location and description. Number of aim points / targets.
H-10	Produces PZ/LZ sketches. Battery begins Pre-Combat Checks.
H-6	AMCM / AMB.(May be conducted later on the PZ)
H-4	Conduct rehearsals.
H-3	PZ is operational. -PZ control established by Fires BN -Guides ready to stage loads.
H-1	Battery assumes PZ posture. -Loads staged, rigged, and inspected. -PAX/equipment staged. -Hook-up teams ready.
H-:40	Attack aviation conducts final sweep of LZ and provides overwatch.
H-:30	ADVON arrives at LZ. ADVON A/C move to laager site. AP sweeps, secures, and marks LZ (If pathfinder team is not used). Pathfinder or BC establishes terminal guidance. AP emplaces aiming circles or GLPS, FDC in order Communication with forward observers and aircraft established.
H-HOUR	Main body arrives. Main body A/C move to laager site.(external raids only)
H+ : 15	Battery achieves "Ready to Fire." (10 min internal) Deliver fires.
EOM + :17 min	Re-Rig loads and call for extraction. (external raids only)
Extract call + aircraft movement + LOAD + Hook-up.	EXTRACT (Note: ADVON provides Hooker teams and extracts last)
EOM + : 10 min	Load and tie down howitzers / extract (internal raid only)

Figure 9- 4: H-Hour Sequence

b. Preparation and coordination.

(1) PCCs. Upon recept of mission, batteries immediately conduct PCCs for air assault operations and begin section rehearsals. Partial pre-rigging loads (without losing firing capability or mobility) is recommended. (Firing data is prepared prior to execution.)

(2) Reconnaissance. The Fires Battalion S3, battery commander and the air mission commander (AMC) may conduct an aerial recon, based on METT-TC and the distance to the area of operations. If an aerial recon is not feasible, a detailed map and photo-reconnaissance is conducted. The use of AH-64 gun cameras or a UAV data or satellite imagery may provide an opportunity to view the area of operations. The reconnaissance results in:

(a) PZ selection:

1. Large enough to support the mission.
2. Free of obstructions.
3. Trafficable.
4. Defensible / provides for concealment.

(b) LZ selection:

1. Large enough to support the mission.
2. Free of enemy and high speed avenues of approach.
3. Free of obstructions.
4. Allows for rapid extraction.
5. Makes use of highest charge possible (maximizes standoff range).
6. Suitable terrain for howitzers.

(3) Air mission coordination meeting (AMCM). The purpose of the AMCM is to complete coordination between the artillery unit and the aviation unit to ensure the GTP is adequately supported. This meeting follows the development of the GTP. At the AMCM, the battery commander briefs the GTP; specifically, the composition of personnel and equipment to be delivered (air assault) and the location of the LZs/FPs. Attendees include: Fires BN S3, S2, BC(s)/PL(s), the BAE (or representative), the air mission commander (AMC), the forward observers (FA and AVN), and other staff officers as required. The air movement table, an updated timeline specifying the schedule of events, and all information needed for the AMB are produced at the conclusion of the AMCM. The air mission coordination meeting (AMCM) coordinates based on the GTP:

(a) Number of aircraft by type.

(b) Tentative lift and serial composition.
(c) Suitable PZs, LZs, FARP location, and aircraft laager sites.

(d) Air routes (if confirmed).

(e) LZ/Firing Point (FP) imagery (if available).

(f) Aviation scheme of maneuver and radio net structure.

(g) Size of security forces and plan of execution.

(4) Air mission brief (AMB). The AMB is an operations order to the air assault artillery raid TF elements. The term “AMB” means both the written product and the briefing itself. All units involved in the air assault should attend the AMB and receive a copy of the order.

NOTE: If reduced planning is in effect and time is critical, the AMB may be done “plane side" at the PZ. However, more time on the PZ must be allocated to allow the necessary information to be disseminated to both the aviation and artillery unit.

(5) The air crew brief (ACB). The ACB provides aviation unit leaders with an operation order specific to aviators. The Fires BN S3 or S3 Air should attend to act as the artillery unit representative. The ACB may be combined with the AMB to save time and expedite preparations.

(6) Artillery advance party (AP).

PERSONNEL	EQUIPMENT
BATTERY COMMANDER	TACSAT*, RT 1523, Map, Chemlites, Strobe, Compass, Pyro, VS-17 Panel, XO Handbook, NVGs, PLGR, CONE FLASHLIGHT, IMBTR, M2 Compass
FDC CHIEF COMPUTER	UHF, Raid Chart w/equip, GFTs/TFTs, RDPs, AFATDS, CENTAUR, PLGR
FDC SPECIALIST x 2	RT 1523, OE-254, Map, Poncho
MEDIC	Aid Bag
GUNNERY SERGEANT	1 GLPS/1 M2A2 A/C, Chemlites, VS-17, Cone flashlight, Map, PLGR, NVGs, XO Handbook
SECURITY: 8 x GUN GUIDES, INF SQUAD	1 -M-240B MG, Flashlights, NVGs/NODs, 8 x compass, (INF w/equip per SOP)
COMMO MAN (X 2 w/ TACSAT)*	1 GLPS Battery, Extra handset, Lay Data Card

Figure 9- 5: Artillery Advance Party

NOTE: If two or more ADVON aircraft are used, add FDO to 2d aircraft with the commo man and additional security. FDO will bring in a CENTAUR and GFT/TFT. Consider using a NBC NCO with a M-8 alarm and/or CAM if the NBC threat warrants. The AP personnel must also have air assault expendables when they act as hook-up teams for the extraction.

(7) Artillery main body.

PERSONNEL	EQUIPMENT
PLATOON LEADER (PL)	1 A/C, Map, Flashlight, XO Handbook
CFB	PLGR, Compass, 1 x A/C, CENTAUR
FDO	PLGR, Compass, GFTs/TFTs
FDC SPECIALIST x 2	1 RT 1523, OE-254, Raid Chart w/equip, RDPs, Poncho
HOWITZER SECTIONS	
CHIEF	Gunner's Quadrant, RT 1523, Extra firing pin
GUNNER	Sight Box, Flashlight (Lens per SOP), Reckoning Tool, Extractor
NUMBER ONE MAN	Collimator
NUMBER TWO MAN	Fuse Wrench, 4513s

Figure 9- 6: Artillery Raid Main Body

NOTE: 3d Section will carry ramming staff and bell rammer and PLGR. Personnel designated to hook-up loads during extraction must have goggles, gloves, and static probe (if a reach pendant is not used).

(8) Rehearsals.

(a) Ground tactical rehearsal. The ground tactical rehearsal begins with the air movement and landing plan, then covers the GTP and extraction plan . It is designed to ensure synchronization of all efforts. This is a full, detailed rehearsal with all key personnel in attendance. A terrain model of the area of operations is required. The batteries conduct internal rehearsals prior to the ground tactical rehearsal.

(b) Commex. The Commex should mirror the signal requirements of the mission. Ensuring assignment of nets, equipment capabilities, range, retrans requirements, test of the PACE communications plan, and COMSEC requirements. All elements participating in the mission participate in the commex, to include the aeromedevac. The commex is normally conducted prior to the PZ rehearsal. The use of a TF COMMCARD is highly recommended and allows for a quick reference guide to frequencies and call signs.

(c) PZ rehearsal. The BN XO presides over the PZ rehearsal. All pilots flying the mission, the PZ NCOIC, and the battery commander(s) attend. The staging, loading, and air movement plans are rehearsed in detail. The rehearsal includes the pilots' actions in and around the PZ. A terrain model of the PZs with a depiction of the aircraft and loads is recommended.

(d) Conditions check. Prior to execution, the BCT CDR, BCT S3 and G3 makes a final analysis of the mission and existing conditions and the decision is made to continue with or abort the mission. Conditions are established early, using each BOS component, and reviewed continuously during the military decision-making process (MDMP).

(e) The PZ update brief/ final conditions checks. The PZ update brief is the final assembly of key leaders prior to conducting the air assault. The purpose of the brief is to disseminate the most current operational and intelligence information. It is conducted on the PZ after the A/C arrive so pilots can attend. The following are reviewed: enemy situation update, operations update (target location), commo update, time hack, commander's comments. At the conclusion of the brief, division HQs is contacted for the final decision to proceed or abort the mission.

c. Execution.

(1) PZ operations.

(a) General. The HHB element provides PZ support to the air assaulting battery, establishing PZ control, marking the PZ, and providing PZ NCOIC and hook-up personnel.

(b) Actions on the PZ.

1. Establish security.
2. Mark PZ IAW AMB/Establish PZ control.
3. Move to PZ in load order to facilitate occupation. Position loads.
4. Rig loads for sling operations/load aircraft internally.
5. Inspect loads.

(c) Personnel organization.

1. PZ OIC/NCOIC.
2. Advance party.
3. Main body.
4. Hook up teams.

(d) Communications.

1. The Aviation and Fires battalion SIGOs coordinate the fill, HF frequencies, and TACSAT. They establish frequencies for the air battle net (ABN), command and control, the FARP, fires control net, and PZ control net. It is important that the PZ control net is free of unnecessary traffic. The same frequency that is used on the initial PZ should be used on the extraction PZ. Once frequencies and call-words are determined, the SIGOs create a TF commo card and disseminate it to the TF at the AMB.

2. Call-signs are in accordance with the commo card. At a minimum it will include:

a. PZ Control
b. LZ control (GTC or his representative)
c. AMC
d. AATFC
e. FDC
f. GTC
g. Aviation leads (lift and attack assets)
h. FARP (if used)

(e) PZ execution.

1. Staging. Loads are staged IAW with the AMB, normally in TRAIL, or STAGGERED TRAIL. When practical, the PZ should mirror the LZ since the LZ becomes the PZ for extraction. This provides a "free" rehearsal and alleviates confusion during hours of low visibility. Loads will be separated in line (50 m daylight or 75 m limited visibility) and 50 m laterally. Whenever possible, chalks will stage on their loads and move from their loads to the aircraft for loading. During night operations, each gun attaches a chemlight to the tube. Each chalk leader (normally the section chief) provides a 3x5 card with LOAD = (load type), LZ NAME, and LZ GRID on one side, and PAX manifest on the other to the crew chief upon entering the aircraft.

2. Marking. Lead touchdown point is marked IAW the AMB, normally with an inverted Y and each subsequent point with a single light for limited visibility operations. In daylight, the lead touchdown point is marked with a VS-17 panel. Normally, aircraft will land left of and slightly to the rear of the load.

3. Hook-up. Hook-up teams require two men per hook, one to hook and one to stabilize the hook-up man. A third, static probe man must be used for any load not using a reach pendant. The teams wear helmet, goggles, and gloves (one team member wears NVGs during nighttime operations) and face the aircraft at all times. A red chem light may be used to mark the load for sequence of hook-up and on the reach pendant to facilitate hook-up. Once the load is hooked, the team will move outside the rotor danger area, but will continue to observe the load for misrouted legs/entanglements until the load lifts. Each team must have the knowledge and equipment to repair a frustrated load.

(2) Advance party operations.

(a) Standards. Prior to execution, each AP man will inventory required advanced party equipment to ensure it is present. The 1SG and/or GSG will check AP equipment and brief all personnel on the following prior to AP SP:

1. Enemy situation.

2. AZ of fire.
3. LZ landing plan.
4. Position formation/layout.
5. Challenge/password.
6. Nonstandard conditions/actions.

(b) Personnel. The AP battle drill starts when they land on the LZ and it stops when the gun lands. The drill is to be completed in order, until the main body arrives. The AP man will complete remaining tasks after leading his section into position.

(3) Howitzer advance party drill.

(a) Secure immediate area. If required, a mine sweeper is employed by COMMO AP man.

(b) Sweep LZ. 1SG or designated NCO leads AP sweeps using fire team wedges. A M-240B MG may be emplaced in overwatch. BC conducts hasty recon and directs aiming circle location to GSG. As the area is secured, the GSG erects aiming circles (legs should be sandbagged, if possible, to prevent rotor wash displacement). After the sweep the AP gets the equipment and moves to the aiming circle (aircraft).

(c) Select position. BC selects and orients gun positions. AP Man will check for level ground, crests, and visibility to aiming circle.

(d) Mark Load Touchdown Point. The AP uses a single red chemlight. Each howitzer point is marked with a chemlight beside the first touchdown point, which is marked with an inverted Y.

(e) Communication. Conduct radio check.

(f) Initial DF, VA (If refinement data is determined). AP stands behind touchdown point, and the GSG uses the GLPS to obtain initial deflection and grid for the howitzer. The AP man records the initial DF.

(g) Provide terminal guidance for lead aircraft. All others move to assembly point until load is cut and aircraft has departed the LZ and then move to load and begin derigging.

(4) Howitzer AP battle drill (night). Drill is modified at night as follows:

(a) Communication. Use strict noise and light discipline.
(b) Initial DF, VA (If needed). AP Man stands with a chemlight at chest level as a point of reference for the GSG.

(5) FDC AP battle drill.

(a) Secure immediate area. Same as howitzer AP.

(b) Sweep position area. Same as howitzer AP.

(c) Select Position. Position OE-254 or other antennas. Ensure they will not affect LZ operations.

(d) Establish Communications.

(e) Prepare firing charts/CENTAUR using initial lay data.

(f) Position improvement. Provide security.

(g) PLGR each

(6) Commo AP drill.

(a) Sweep. Use mine detector if required.

(b) Communication. Set up BC radio and TACSAT and establish comms with main body aircraft and Main CP. If erected, use OE-254.

(c) INT DF/SUB/ VA: COMMO act as alternate to record data on lay data card. Assist FDC #2 transmit data to FDC. Gun position to initialize the HTU/CENTAUR.

(7) Main body occupation.

(a) Aircraft cut sling loads after placing load on marked touchdown point. Aircraft then land left of the load and the crew exits through the right door towards the load.

(b) The crew de-rigs only what is required to put the gun in action and executes a hasty occupation.

(c) The occupation is normally conducted using hand held FM radios.

(d) Upon EOM and "march order", the section secures all dunnage to ensures no debris is on the extraction PZ and re-rigs the howitzer for extraction.

(e) The commander calls for extraction once all loads are rigged, checked and personnel are in PZ posture.

(f) The advanced party acts as hook-up teams for the main body extraction and then loads the AP aircraft and departs.

SECTION C: AVN ISO Route Clearance / IED Reduction Mission

1. Route Clearance and IED Reduction missions are commonplace on today's battlefield. The Engineer Force is most often tasked to conduct this mission, but with aviation support the route clearance and IED reduction mission is greatly enhanced. aviation assets may be tasked to support the Engineers during route clearance mission by performing aerial convoy security or aerial area recons.

2. Purpose. Aviation assets provide security, observation, and firepower to disrupt, deter, and destroy IED emplacers; provide greater observation platforms to discover caches, IEDs, triggermen and locations, and escape routes for IED emplacers. Provide firepower to destroy the IED emplacers as they set-up an IED or following the detention of an IED; provide security and long range communication for Troops in Contact. Aviation platforms should observe for disturbed earth in fields, tree stands, and along waterways as possible cache locations; road surfaces for new asphalt, concrete, gravel, large potholes, and pressure plates/wire across the road; checkpoints for unusual activity or large groups of personnel; vehicles stopped along the road with personnel around them; abandoned vehicles along the road and at chokepoints; local populace traffic patterns (are they using the main road or diverting to secondary roads); villages normally crowded with local populace that are now empty; groups of locale populace observing a particular piece of the roadway; vehicles speeding towards or away from the ground route clearance team. As part of the mission brief discuss recent enemy TTPs for IED emplacement and trigger methods.

3. Planning Considerations:

a. Current situation: what is the current IED threat level, most common IED types and configurations (visual indicators), review of last 10 days of IED activity.

b. Operations: conduct face to face coordination with Engineer Route Clearance OIC/NCOIC. Conduct mission brief with Engineer ground unit. Coordinate actions on contact and IED discoveries. Coordinate aviation time-on-station and aviation battle hand-off on long duration route clearance missions. Coordinate route and Tier 1 IED "hot spots" (likely enemy contact). Coordinate hasty medical evac. Coordinate actions if aviation assets go down (mechanical or hostile fire). Coordinate call for QRF and link-up for both ground and aviation assets. Coordinate aviation location during the route clearance mission (aviation in front of route clearance team and then circle back to check portion of route already cleared to protect against re-seeding of IEDs)

c. CREW and Communications: Coordinate CREW and Radio compatibility to

de-conflict interference. Ensure alternate frequencies are selected and rehearsed.

SECTION D: Fast Rope Insertion/Extraction System

1. General: Fast Roping is employed to rapidly insert forces into small or restrictive landing zones where aircraft cannot land. Due to the hazards involved, the Commanding General is the approval authority for all Fast Rope Insertion/Extraction System (FRIES) operations. For more information on FRIES see the 101st Airborne Division Fast Rope SOP dated 01 February 2008.

2. Designated ground units: Pathfinder units, Dismounted Reconnaissance Companies of Reconnaissance Surveillance Target Acquisition (RSTA) Squadrons, Infantry Battalion Scout Platoons, and Infantry Rifle Companies. IAW USSOCOM Manual 350-6, The Sabalauski Air Assault School has an approved program of instruction and is authorized by the Commanding General, 101st Airborne Division, to conduct FRIES training at Ft. Campbell, KY.

3. Designated aviation units. Aviation units assigned to the 101st Airborne Division equipped with UH-60 and CH-47 aircraft will fly missions in support of designated ground units conducting FRIES training and operations. Crews will be fully trained and qualified to fly fast rope insertion missions IAW established training standards. Currently, the CH-47F model aircraft is incapable of conducting FRIES operations. The airframe does not have the proper provisions to install the FRIES equipment.

DEPARTMENT OF THE ARMY
HEADQUARTERS, 101ST AIRBORNE DIVISION (AIR ASSAULT)
2700 INDIANA AVENUE
FORT CAMPBELL, KENTUCKY 42223-5000

AFZB-CG

OCT 2 6 2009

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Approval authority to Execute Fast Rope Insertion / Extraction (FRIES) System Training and Operations for Units assigned to the 101st Airborne Division (AASLT)

1. This memorandum establishes approval authorities to conduct FRIES training in preparation for combat operations for ground units within the 101st Airborne Division (Air Assault). This specifically includes Pathfinder units, Dismounted Reconnaissance Companies of Reconnaissance Surveillance Target Acquisition (RSTA) Squadrons, Infantry Battalion Scout Platoons, and Infantry Rifle Companies.

2. IAW United States Special Operations Command (USSOCOM) Manual 350-6, the Sabalauski Air Assault School (TSAAS) already has an approved program of instruction (POI) and is authorized by the Commanding General, 101st Airborne Division (Air Assault) to conduct FRIES training on Fort Campbell, Kentucky.

3. While conducting training and operations using FRIES is a specialized task and considered HIGH risk, the current operational environment may require ground units to conduct FRIES in support of combat operations.

4. IAW CAM Regulation 95-1 and CAM Regulation 385-5, unit requests to conduct FRIES training in a garrison environment will be approved by the Brigade Commander. Additionally, all TSAAS requests to conduct FRIES training as a part of the POI will be approved by the Division G3. When the command group is deployed, TSAAS FRIES requests will be approved by the FTCKY Senior Commander. All FRIES training and operations will be conducted in accordance with the standards set forth in the 101st Airborne Division (Air Assault) Gold Book. Approval authority for seats out operations will be retained with the Division Commander IAW the FORSCOM supplement to AR 95-1.

5. The POC for this memorandum is the Assistant Chief of Staff, G3/5/7, LTC Mike Getchell at 270-798-6103.

JOHN F. CAMPBELL
MG, USA
Commanding General

DISTRIBUTION:
A

Figure 9- 7: FRIES Approval Authority Memorandum

SECTION E: Aerial Reaction Force (ARF) and Aerial Weapons Platform (AWP) Operations

1. General. The Aerial Reaction Force is a flexible aerial platform that provides an immediate Quick Reaction Force (QRF) capable of interdicting both personnel and vehicles that flee a target during an Air Assault operation. The Aerial Weapons Platform

(AWP) is a flexible aerial platform that provides flexible precision fires against selected targets or disables vehicles enabling an aerial or ground interdiction. The AWP may be integrated into the ARF package for deliberate or hasty vehicle interdiction missions. The ARF-AWP package can be configured based on METT-TC or ground force requirements. Figure 9-6 illustrate the standard and specific ARF-AWP packages.

a. References

(1) FM 3-21.8 THE INFANTRY RIFLE PLATOON AND SQUAD
(2) FM 3-21.38 PATHFINDER OPERATIONS
(3) FM 90-4 AIR ASSAULT OPERATIONS
(4) 159TH PATHFINDER COMPANY TACSOP

b. Configurations of the ARF-AWP

CONFIGUARTION	PAX-AC	CAPABILITES	LIMITATIONS
Standard ARF	 2x UH 16-22 PFDRs (ACL)	Pax Interdiction Airborne C2 Immediate QRF Flex Blocking Position Flex Isolation Force Snap TCP	No Precision Fires
ARF-AWP Team	 2x UH 12 PFDRs 1x Sniper Team	Vehicle Interdiction Isolated Pax Interdiction Airborne C2 Immediate QRF Flex Blocking Force	Cannot interdict larger numbers Cannot run Flex TCP
AWP Pure	1x UH  1x Sniper Team	Precision Fires Airborne C2	Cannot Physically Interdict

Figure 9- 8: Configurations of the ARF / AWP

2. Operational Considerations

a. The Aerial Reaction Force and Aerial Weapons Platform are used to interdict highly dynamic individual targets, counter the mobility advantage of enemy fighters, and to provide escalation of precision fires to disable or destroy targets while reducing the risk of collateral damage significantly. The ARF can be utilized in many different operations as part of the Air Assault Task Force (AATF) or as a standalone element.

b. The ARF-AWP package to operation relationship is described below in Figure 9-9.

PACKAGE	Operation	Task	Purpose	Insertion Authority
2CH-2UH-2AH	Deliberate or Hasty Air Assault	T1: Interdict T2: Follow and Support	Prevent enemy from escaping OBJ Area	AATFC
2CH-2UH- OH	Deliberate or Hasty Air Assault	T1: Interdict T2: Follow and Support	Prevent enemy from escaping OBJ Area	AATFC
ARF Standalone Patrol	Counter IED-IDF Counter Smuggling	T1: Reconnoiter T2: Interdict	Deny enemy freedom of fires and prevent emplacement of IED's	BN TOC
ARF Standalone Special Mission	Personnel Recovery CSAR	T: CSAR	Prevent US personnel from becoming captured	AMC (BN TOC initiates movement)

Figure 9- 9: ARF/AWP Operational Relationship

3. Tactical Employment

a. Depending on the tactical situation, the configuration of the ARF-AWP, and the overall Air Assault Package, several battle drills can be performed by the ARF-AWP in order to interdict or engage the enemy. In general the employment of the ARF occurs in five phases. Phase I begins when an individual or vehicle leaves an objective. ISR assets positively identify the individual or vehicle and report it as CCIR. Phase II begins when the AATF or AMC commits the ARF to interdict the mover. Phase III begins when the ARF has the target isolated. During Phase IV, the ARF detains or engages the enemy depending on the situation. Phase V of ARF employment begins with the exploitation of the mover, hand off to GFC, and extraction of the ARF. Critical to successful employment of the ARF is the execution of key leader and communication rehearsals and the detailed rehearsal of movement techniques/formations and actions on contact.

b. Interdiction- Offset. The offset interdiction of personnel by the ARF is best used at night, when a target is static and is presumed armed. It allows the ARF commander to develop the situation and maintain flexibility. Figure 9-9 illustrates the ARF interdiction of enemy personnel by phase.

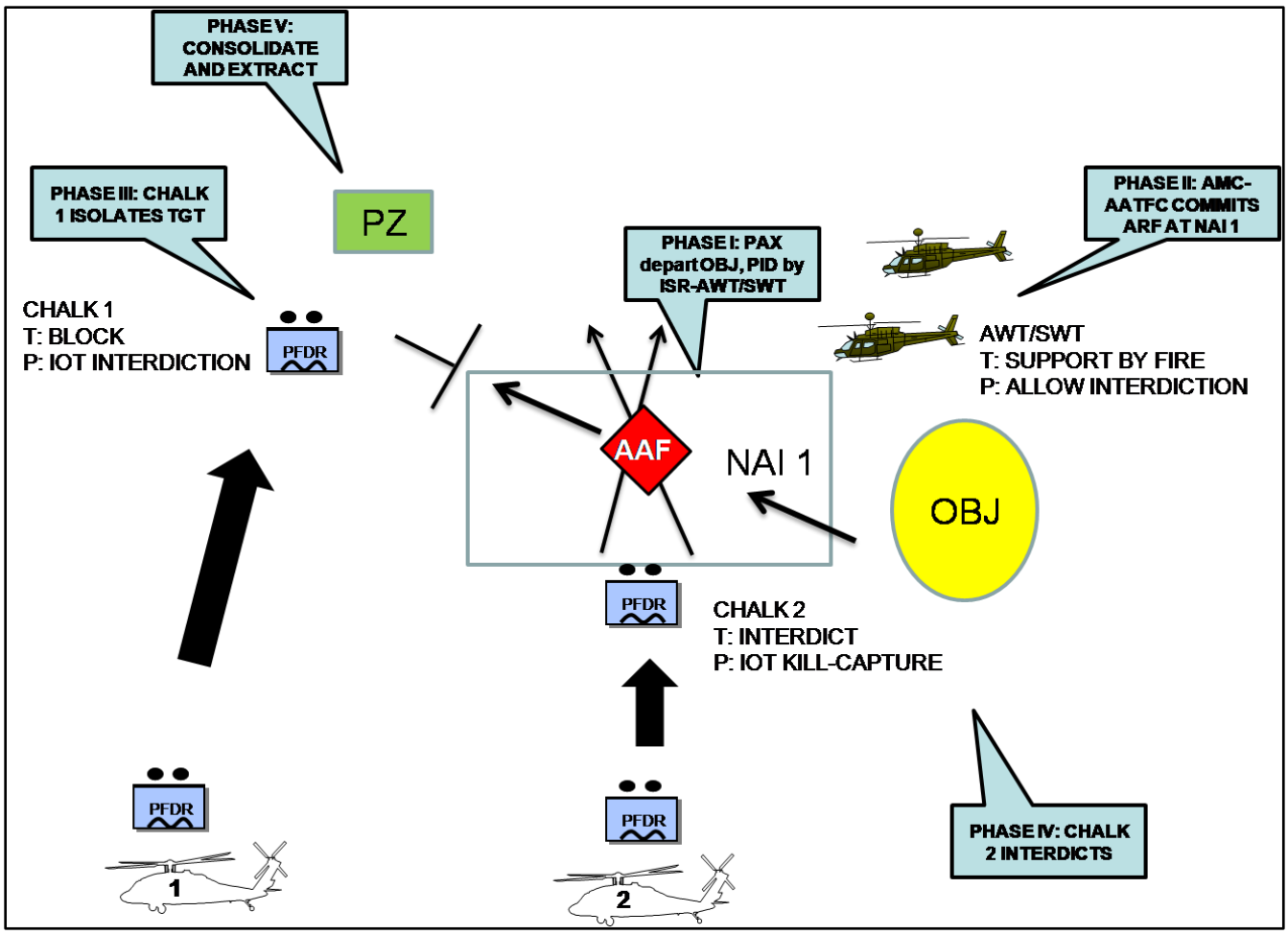

Figure 9- 10: ARF Interdiction Off-set

c. Interdiction- Close In. The Close in interdiction of personnel by the ARF is best used at night, and when a target remains dynamic. It is also used to interdict vehicles and motor bikes. It requires an escalation of force from the aircraft in order to force a target to stop. Close in interdictions are dangerous in that they may become kinetic engagements at any point during the interdiction. Figure 9-10 illustrates the ARF interdiction of a vehicle by phase.

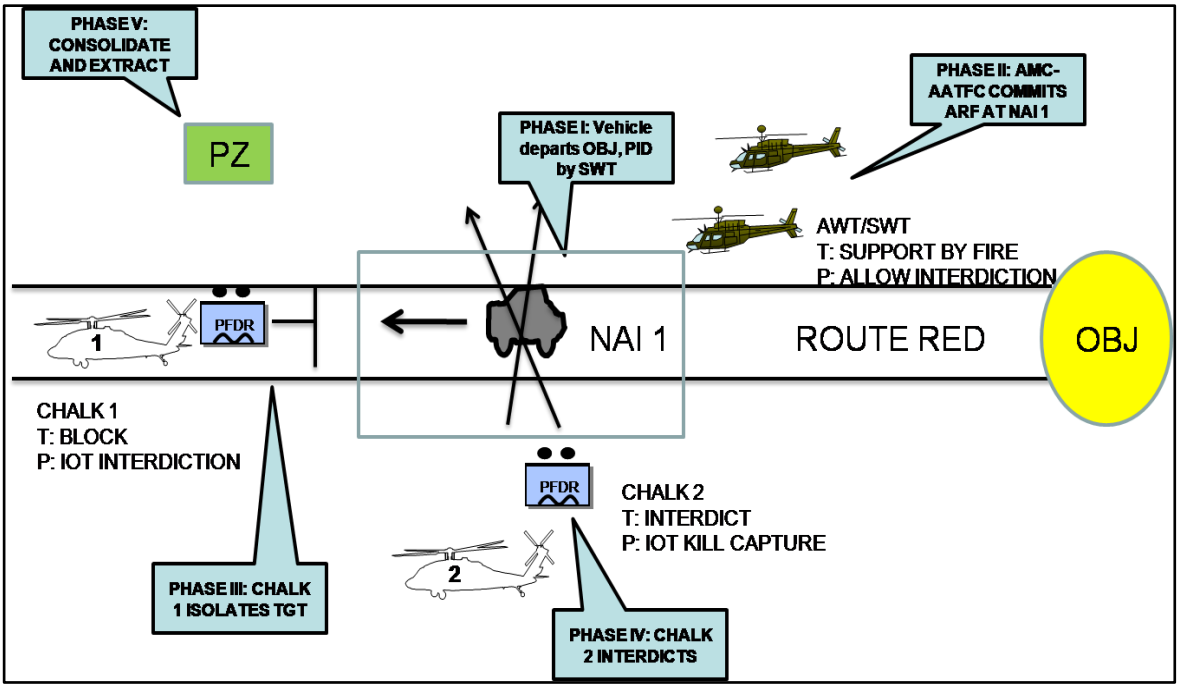

Figure 9- 11: ARF Interdiction Close-in

d. Stand-off Precision Fires. The Aerial Weapons Platform is best used in an urban environment when the risk of collateral damage from other platforms is high. It can be used in conjunction with an ARF package to disable vehicles or as a standalone platform to provide precision fires from standoff. Figure 9-11 Illustrates the configuration and use of the AWP to provide precision fires.

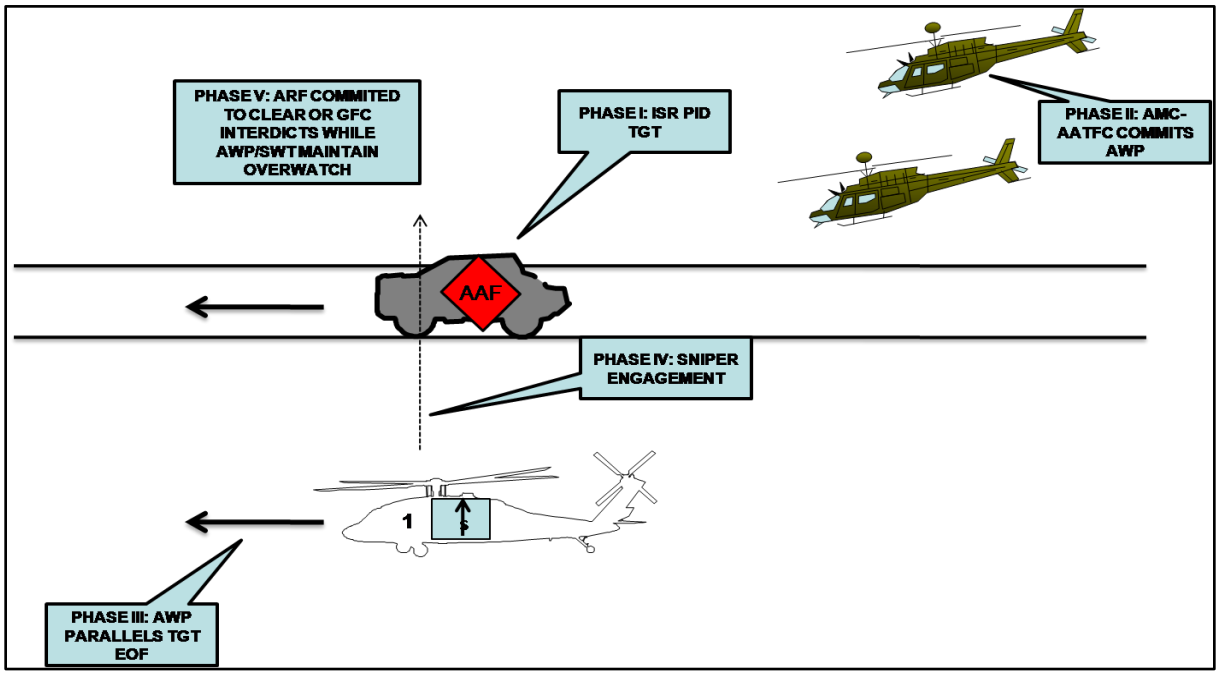

Figure 9- 12: AWP Stand-off Precision Fires

4. Responsibilities

a. Ground Force Commander (Supported Unit)
(1) Request ARF-AWP Support
(2) Assist in Planning ARF Screen line
(3) Accept Hand off of Detainees

b. AATF Commander
(1) Approve Use of ARF-AWP
(2) Commit ARF
(3) Approve AWP for precision fires

c. Aviation Planning Staff
(1) Designate the Air Mission Commander
(2) Conduct Air Crew Brief
(3) Plan Likely Escape Routes and ARF Screen line
(4) Establish NAIs, TAIs, and Routes for Interdiction
(5) S2 publishes Be on Look Out for List (BOLO) and list of High Value Targets in the Area of Operations

d. ARF Team Leader
(1) Help Plan NAIs, TAIs, and Routes for Interdiction
(2) Monitor communications in Trail AC
(3) Command and Control ARF on the ground
(4) Act as Sniper Emplacement Officer (SEO) in AWP

5. Planning

a. ARF-AWP mission planning begins immediately upon receipt of a request for ARF-AWP support. If the ARF is included in the Aviation Battalion's Air Assault Plan, then planning begins along with the planning staff. Detailed planning, effective command and control, and extensive training, and rehearsals (key leader, communications, movement techniques/formations, actions on contact, positioning of the ARF to support fire and maneuver, marking procedures, and integration of interpreters) are the key to its success. Like all air assault operations, the ground tactical plan (GTP) drives the mission planning.

b. An ARF-AWT mission requires a unique annex to the AMCM and ACB. The ARF-AWT annex contains the following:
(1) Type of Mission (ARF-AWP-Vehicle-Pax)

(2) Number of AC and Number of Pax per ACL

(3) Establishment of Out of Bounds Box (OOB)

a. The OOB is a graphic control measure that prevents the ARF from inserting out of mutually supportive distance from the ground force.

b. Considerations for the OOB can be but are not limited to: CAS and ISR play time, AWT/SWT availability, bingo time on UH, etc.

(4) Establishment of NAI's and TAI's for likely interdiction insertion LZ's and likely areas of enemy departure.

(5) Identification of Likely Escape Routes

a. Escape Routes are high speed avenues of approach that can be used by enemy personnel departing the objective on foot or by vehicle.

b. Naming these routes and including them in a Ground Reference Grid (GRG) will help identify targets escaping and orient ARF aircraft and the ARF team.

(6) Interdiction Priority

a. Priority of interdiction will narrow the AATFC's focus on where to commit the ARF.

b. Intelligence should drive the priority based on number of personnel on the objective, specific descriptions of High Value Targets (HVTs), or specific vehicles or formations of vehicles. (such as a PSD surrounding a vehicle)

c. Routes, NAIs, and TAI's should be prioritized in the event multiple personnel escape in multiple areas.

(7) Targets of Opportunity- Be on the Look Out List (BOLO)

a. Based on recent intelligence a list of HVT's and vehicles in the area identified hostile or of interest should be briefed.

b. Due to the flexible nature of the ARF-AWP, it is uniquely positioned and should expect to be dynamically re-tasked to interdict any vehicles or targeted personnel in the area.

(8) Engagement Criteria for snipers and Escalation of Force

(9) Detainee Plan

a. The ARF will either hand off detainees to the GFC or move them to a detention facility upon extraction.

b. Prior co-ordination with the GFC is critical to ensuring proper custody of detainees.

6. Scenario/Application.

a. Typical use of the ARF in Afghanistan against a suspected high value target included a 2xAH/OH, 2xUH, and 2xCH aircraft task organization. With 60 infantry loaded on the CH-47s as the assault, blocking, and C2 forces landing to at least three HLZs and 16 pathfinders on the UH-60s as the ARF, isolation can be attained and clear maneuver C2 is maintained.

b. Infil: If UAS/ISR is available prior to the air assault, it is critical to leverage the asset to build situational awareness and determine if the objective building/location has any movement and/or if the HLZs are clear of enemy personnel. Without the UAS, the AWT or SWT will spend more time in the vicinity conducting reconnaissance (potentially alerting the target). Five minutes prior to H-hour (wheels down), regardless of illumination conditions, it is a good practice to have the UAS “sparkle” the target with its IR spotlight. This flashing spot light is a great way to orient aircraft and assault forces. Rapid flash IR marking on the objective keeps the pilots oriented and facilitates infantry maneuver as the dust cloud settles after the aircraft depart.

c. After the Air Assault: The ARF is critical from approximately H-00+05 to H+00+05. Target individuals hear the aircraft on approach or decide to flee the objective within the first 5-10 minutes of an air assault. During this period, it is paramount to maintain visual contact from the UAS platform and continue IR spotlighting their movement. Communication between the AMC and the UAS operator further enhances the coordinate between sensors and facilitates orienting the ARF. The spotlight allows the UH-60s to land outside of small arms effective range and in an advantageous location for the pathfinders to close with and detain the enemy.

d. Employment of the ARF: With a designated key leader collocated on the UH-60s with the ARF (Chalk 2), the decision to employ the ARF is carefully made and takes into consideration: less than 3 enemy personnel, no PKMs or larger, not in the vicinity of urban sprawl or multiple Qalat structures, and the landing terrain is suitable for the

environmental conditions. Landing the ARF in an advantageous manner to facilitate the ARF's maneuver is the goal. The AMC quickly takes into account the enemy's direction of travel and obstacles. Once the decision is made, chalk1 (UH-60) sets the course and lands allowing the pathfinders to exit and close on the enemy.

e. Actions after landing: The assault aircraft depart the HLZs and orbits within visual range to provide overwatch or loiters approximately two kilometers away from the ARF in order to maintain communications and extract the force on order. AWT/SWT provides security for the pathfinders and further assists marking the individual with laser capabilities and grid locations. After the ARF detains the individual, it is the goal of the ARF to link up with other ground forces, pass off the detainee, and prepare for pick up by the assault aircraft. The ARF mission is complete once isolation is attained on the objective and no additional personnel are seen leaving the objective.

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Chapter 10

Unit Training

SECTION A: AIR ASSAULT TRAINING

1. General. The ability to successfully conduct air assaults is essential to the Division's war time mission.

2. Individual Air Assault Standards. Graduation from The Sabalauski Air Assault School (TSAAS) should be stressed by units. The Division's standard for Air Assault qualification within a unit is 70%. Companies with qualification rates of 80% will receive a black streamer. Companies with 90% will receive a gold streamer.

a. The BCT/BDE level commander is the approval authority.

b. The award remains valid as long as the receiving unit remains at the recognized percentage of air assault qualified personnel. The battalion S3 will monitor qualification levels and remove the streamer if the subordinate company falls below the percentage level.

c. Unit Air Assault Training. Competency in Air Assault Operations defines the 101st ABN Division (AASLT). Units must utilize refresher training as often as possible to ensure their skills are up to date. Based on unit assessments of proficiency, directed missions, anticipated requirements for deployment conditions, and available resources (time, aviation assets, etc) the goal for all units in the Intensive Training Phase of ARFORGEN or RESET will be for:

(1) Each maneuver battalion commander to command and control an air assault (as an Air Assault Task Force Commander) using a command and control console aircraft.
(2) Each maneuver company to participate in at least one air assault operation.
(3) Each artillery firing battery to conduct at least one air assault raid.
(4) Each unit to conduct hooker training in support of the BCT (see Section B below).

d. Seats-out Air Assaults:

(1) The Commanding General of the 101st Airborne Division (Air Assault) must approve seats-out air assault operations. Obtain initial concept approval to conduct seats-out air assault operations as part of the ITP brief or other appropriate forum. At this point, commanders must be prepared to identify training objectives, concept of operation, and known hazards and controls that can be managed in the planning phase. After initial mission approval, the AATF must seek and receive final confirmation from the Commanding General for the seats-out air assault no earlier than 24-hours prior to H-Hour. If approved, the brigade commander will re-check conditions no earlier than

four hours prior to H-hour to ensure conditions have not changed.

(2) LZs will be assessed for suitability using reconnaissance elements. No hazards will be emplaced on the LZ after completing the area recon.
(3) To minimize mission risk, the designated serial flight lead pilots-in-command must perform an eyes-on reconnaissance of LZs to be used during seats-out operations.
(4) The chain of command will complete a thorough risk analysis prior to each training event.
(5) Conduct static load/unload training prior to all seats-out operations.

SECTION B: AIR ASSAULT LEADER TRAINING

1. The Air Assault Leader Training Program has a two-fold purpose. First, the program is designed to familiarize newly assigned leaders with execution techniques for BN/BCT level air assaults. Second, the program serves as a mechanism to sustain perishable skills in leaders.

2. All Division, BCT, and Supporting Brigade Leaders (Company level commanders and up) must be tactically and technically proficient at executing air assault operations in accordance with the Gold Book prior to conducting collective training.

3. The Division proponent (Chief, G5 Plans) is responsible for maintaining training content IAW current doctrine and TTPs. If changes are required, contact the Chief, G5 Plans for review prior to teaching or distributing. The training reinforces standardization of air assault operations between BCTs habitually associated with the 101st ABN Division (AASLT).

4. The Air Assault Leader Training Program represents the minimum standards for unit leader training. The program is designed as a centralized training event with decentralized execution by Brigade Combat Teams. BCT commanders may modify the training but should meet the minimum standards described below. The Air Assault Leader Training Plan consists of four phases, capable of being accomplished within one week:

a. Phase I: Academic Instruction
b. Phase II: Mission Planning
c. Phase III: Tactical Exercise Without Troops (TEWT)
d. Phase IV: AAR

5. Phase I-Academics

a. Academic Training is conducted on Day 1. Classes focus on MDMP, C2, Reconnaissance, Close Combat Attack procedures, Fires, AC2, Mobile Strike, MEDEVAC/CASEVAC procedures and Sustainment operations. Attendees should include Commanders, XOs, S3s, SPOs, FSOs, S4s, and the BAO.

b. Classes are designed to be 45 minutes in length but are taught to standard, not time.

c. BCT or Supporting Brigade staff officers teach the classes but the Division Staff or functional proponent is available to assist as required.

6. Phase II-Mission Planning

a. BCT and BN staffs will execute the MDMP for planning an air assault IAW the Gold Book for a mission executed as a TEWT. While the ground tactical plan (step 5 in air assault planning) is always the focus of the air assault, the intent of this program is to focus on steps 1-4 of the air assault. If resources permit, both the BCT and BN TF staffs should go through the same planning sequence for execution during phase III (TEWT).

b. Concurrent to the planning process, units conduct two hands on training periods:

(1) C2 Aircraft Orientation – All members of the AATF that will operate from the C2 aircraft will receive a general orientation to the aircraft in order to familiarize those individuals with its configuration and operation. The supporting aviation brigade will provide the C2 aircraft and cover Intercom Communication System (ICS) / consoled operations and safety considerations.

(2) Log Pad Demonstration: The Brigade Support Battalion sets up a log pad (with rigged loads) to provide an example to the BCT XOs and S4s. The supporting aviation brigade will provide a medium lift CH-47 pilot and flight engineer to cover location planning considerations, subject to availability.

7. Phase III-Exercise

a. The TEWT will be conducted using the H-hour sequence developed by the BCT staff during phase II. If resources permit, the Infantry battalions will conduct the air assault using the H-hour sequence. For Air Assault Leader Training, the TEWT will only be conducted during daylight hours with seats in. Upon landing in the LZ, there are two training objectives that company level commanders will execute: Call in Close Combat Attack and Call for MEDEVAC. If sufficient training ammunition is available, the aviation brigade should coordinate with the BCT to conduct the CCAs on a live fire range. If resources are not available or if there is a weather day, Commanders should consider utilizing the BCTC to simulate the air assault.

8. Phase IV-AAR. The final day is the BCT After Action Review, organized and conducted by the unit. If the unit was able to conduct BN TF air assaults as well as the BCT air assault, the BN TFs also complete the AAR.

SECTION C: SLING LOAD / HOOKER TRAINING / SLING LOAD MASTER QUALIFICATION

1. Sling Load and Hooker Training is conducted prior to any tactical air assault mission. It is set up and executed by the BCT/BDE conducting the mission. All units conducting air assault operations will participate. Commanders ensure that Soldiers used to rig, inspect, and hook up loads participate in hooker training.

a. Initial certification of hook-up Soldiers and riggers includes: graduation from air assault school, participation in hooker training conducted by the unit, other specialized training where loads are actually lifted after rigging and inspection (Note: training must involve a hook-up under turning rotors).

b. Initial certification of load inspectors includes: grade of E-4 or above and a graduate of Air Assault School, Pathfinder School, or the Sling Load Inspector Course

c. Proficiency – unit commanders are responsible for maintaining records on pick-up officers, rigging, hook-up teams and crisis action teams.

2. Sling Load Master Qualifications

a. Every Division company, troop, and battery will have at least one sling load master proficient on the rigging of all sling loads unique to that organization. Certification as a sling load master is obtained by successfully completing training conducted at battalion or separate company level. Units will maintain records of sling load masters, qualifications, and currency date.

b. The training program will cover: Heavy LZ/PZ selection factors, Day and Nighttime marking of Heavy PZs, Duties of the PZCO and PZ control group, familiarization with sling load equipment common to the unit, inspection of sling sets and other air items, sling load hand and arm signals, preparation and rigging of loads common to the unit, sling load inspection and use of the DA Form 7382-R.

c. The sling load master will serve as the unit POC on all sling load matters. Should a rigging issue arise the sling load master cannot resolve by referencing current manuals, they will contact TSAAS for resolution.

3. References.

a. FM 4-20.197, July 2006, Multi-Service Helicopter Sling Load; Basic Operations and Equipment.

b. FM 4-20.198, February 2009, Multiservice Helicopter Sling Load: Single-Point Load Rigging Procedures.

c. FM 4-20.199, February 2009, Multiservice Helicopter Sling Load: Dual Point Load Rigging Procedures.

d. FM 3-97.4, March 1987, Air Assault Operations.
e. FM 3-21.28, May 2006, Pathfinder Operations
f. The Sabalauski Air Assault School Handbook, Chapter 2, July 2006.

Chapter 11

Glossary of Doctrinal Terms

PURPOSE: This section standardizes the definitions of doctrinal terms routinely used in orders and operations within the division. The source documents used to establish these definitions were FM 1-02 and the 101st ABN DIV (AASLT) TACSOP.

A

air assault— Operations in which air assault forces (combat, combat support (CS), and combat service support (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 his forces. (FM 1-02)

air assault task force commander (AATFC): Normally the Infantry Brigade or Battalion Commander whose own unit(s) form the nucleus or predominance of forces in the AATF. He commands the Air Assault Operation and is responsible for its overall planning and execution. He controls all units assigned, attached, or under operational control (OPCON) to the AATF, and establishes mission priorities for those units in DS or GS of the AATF. In situations where the enemy allows, he will probably be airborne in a C2 helicopter during the movement and insertion phases of an Air Assault. At other times, he fights the battle from a tactical command post (TAC CP) deployed well forward. (101st TACSOP)

air battle net (ABN). Radio Net dedicated to air-to-air coordination during AASLT operations. (101st TACSOP)

air corridor — A restricted air route of travel specified for use by friendly aircraft and established to prevent friendly aircraft from being fired on by friendly forces. (Army) Used to de-conflict artillery firing positions with aviation traffic, including unmanned aerial vehicles. (FM 1-02)

air mission commander (AMC) — Operations of aviation elements providing air assault support are controlled by the commander of the largest supporting aviation unit. He is designated the AMC (FM 1-02). The air mission commander is designated by the supporting aviation brigade or battalion commander and is subordinated to the AATFC. He controls all Army aviation assets in support of the AATF, ensures that aviation operations are conducted according to the AATFC's directives, serves as the AATFC's primary advisor on aviation matters, and assists the AATF with planning.

air movement operations— Operations using airlift assets, primarily helicopters, to move combat, combat support (CS), and combat service support (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 landing zones (LZs). It is published usually as an annex to the operation plan (OPLAN). (See also ground tactical plan; landing plan; marshaling plan.) (FM 1-02)

airspace coordination area (ACA)— 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 task force (TF) level. (FM 1-02)

air traffic service (ATS) - Units that promote safe, flexible, and efficient use of airspace, and enhance air operations for ground force initiatives. In addition, they serve as a combat multiplier for the maneuver commander.

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.

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)

airspace command and control (AC2) element— An army element within the corps AC2 element, the division AC2 element, and the separate brigade AC2 element tactical operations centers (TOCs) responsible for the coordination, integration, and regulation of all joint airspace within the organization’s area of 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 climax of an attack, closing with the enemy in hand to hand fighting. 2. To make a short, violent, but well-ordered attack against a local objective, such as a gun emplacement or fortified area. 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. (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. (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 command post (ACP)— 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 DMAIN role if necessary for short duration without augmentation (72-96 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. (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)

B

brigade aviation element (BAE)— Aviation unit personnel assigned to provide liaison to the AATFC and his staff; including the brigade S3/S2, and the brigade S3 Air. (101st TACSOP)

brigade aviation officer (BAO)- The BAO is the special staff officer responsible for coordinating Army aviation assets within the Brigade Combat Team (BCT)

C

command aviation net (CAN). The radio net dedicated to air-to-ground coordination during AASLT operations. (101st TACSOP)

coordinated fire line (CFL)— 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)

crisis action team (CAT)— A team of soldiers designated to assist the PZ Control Officer in an manner to facilitate PZ operations. These tasks often include assistance with all frustrated loads.

D

drop zone (DZ) — 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

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 close air support (CAS). Fire support may also be provided by tanks, air defense artillery, and Army aviation. (FM 1-02)

fire support coordination line (FSCL)— A fire support coordinating measure that is established and adjusted by appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. Fire support coordination lines (FSCLs) facilitate the expeditious attack of surface targets of opportunity beyond the coordinating measure. (FM 1-02)

flight lead— Senior Pilot (lead) guiding a flight/formation, from which all other aircraft cover down on to assume proper flight or landing formations.

forward arming and refueling point (FARP)— 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 combat service support (CSS) area. It provides fuel and ammunition necessary for the employment of helicopter units in combat. (FM 1-02)

forward operational base (FOB)— 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 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 (SFOB).) (FM 1-02)

free fire area (FFA)— A specific designated area into which any weapon system may fire without additional coordination with the establishing headquarters. (FM 1-02)

G

ground tactical commander (GTC): The GTC is the commander of the largest ground maneuver task force inserted during the air assault. He is usually an AATFC subordinate maneuver commander and flies on one of the first serials into the objective

area. He maintains communications with the AATFC during the flight. (FM 90-4)

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

high density airspace control zone (HIDACZ)— 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)

holding area— 1. A site located between assembly areas or forward area refueling points (FARPs) and battle positions (BPs) that may be occupied for short periods of time by attack helicopters while coordination is being made for movement into BPs. It should provide good cover and concealment and an area for the aircraft to hover or land. 2. Nearest covered and concealed position to the pickup zone (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 air strike or reconnaissance mission that by its nature could not be identified sufficiently in advance to permit detailed mission consideration and planning. (FM 1-02)

insertion—1. Placement of troops and equipment into an operational area in air assault operations. 2. The placement of observation posts (OPs), patrols, or raiding parties either by helicopter or parachute. (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.

J

joint air attack team (JAAT)— A combination of US Army attack and scout aircraft and US Air Force close air support (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)

K

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 (LZ)— A specified zone within an objective area used for landing aircraft. (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)

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

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)

N

N-hour: Notification time for a mission. (101st TACSOP)

named areas of interest (NAI)— 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)

no-fire area (NFA)— An area in which no fires or effects of fires are allowed. Two exceptions are (1) when establishing headquarters approves fires temporarily within the 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 his force. (FM 1-02)

O

objective—1. The physical object of the action taken (for example, 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 towards 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)

operational control (OPCON) — Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. (FM 1-02)

P

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)

pickup zone (PZ)— 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)

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)

pickup zone (PZ) — A geographic area used to pick up troops or equipment by helicopter. (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 his installations. It ends with a planned withdrawal upon completion of the assigned mission. (FM 1-02)

reconnaissance (recon)— 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 meteorological, hydrographic, or geographic characteristics of a particular area. (FM 1-02)

release point— 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)

restrictive fire line (RFL)— 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)

restricted operating zone (ROZ). 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, etc. (FM 1-02)

rules of engagement—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)

S

screen— See security operations. (FM 1-02)

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)

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)

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 thereof 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 lines of communication (LOC). Also refer-red to as intermediate staging area or intermediate staging base. (FM 1-02)

start point (SP)— 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 (SEAD) — That activity that neutralizes, destroys, or temporarily degrades enemy air defense systems in a specific area by physical attack and/or electronic warfare (EW) to enable tactical air operations to be successfully conducted. Joint sup-pression of enemy air defenses (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

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)

task force (TF)—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)

U

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 airlanded, 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)

W

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.

Y

Z

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"We have A Rendezvous...

...With Destiny!"