

# Chapter 1

## Introduction to Helicopterborne Operations

### 1001. Doctrinal Foundation

**a.** Helicopterborne operations are those operations in which assault forces (combat, combat support [CS], and combat service support [CSS]), using the firepower, mobility, and total integration of helicopter assets, maneuver on the battlefield under the direction of the assigned commander to engage and destroy enemy forces or to seize key terrain. The most common helicopterborne operation is a helicopterborne assault. A helicopterborne assault is a landing of helicopterborne forces within or adjacent to an objective area for the purpose of occupying and controlling the helicopterborne objective area and positioning units for action against hostile forces.

**b.** Helicopterborne operations are tactical movements by helicopter to support the ground tactical plan. They should not be considered merely movements of Marines, weapons, and materiel by helicopter units. Helicopterborne operations are deliberate, precisely planned and vigorously executed combat operations designed to allow friendly forces to strike over extended distances and terrain barriers to attack the enemy when and where he is most vulnerable. In essence, helicopterborne operations promote versatility of infantry forces in multiple operations.

**c.** Helicopterborne operations promote the combined arms concept through coordination and planning between the air and ground commanders. (See par. 1006b.) This manual describes how infantry and aviation units plan and conduct helicopterborne operations according to the ground tactical plan for subsequent operations ashore. It

emphasizes the coordination necessary between ground combat, CS, and air organizations concerning the planning sequence and tactical employment of ground and aviation elements. This manual is written primarily for infantry and aviation units and is applicable to combat, CS, and CSS units with a need to plan for and use helicopter support.

**NOTE:** Air movement operations are those operations involving the use of Marine or Air Force airlift assets for other than helicopterborne operations. These operations are used to move troops and equipment, to emplace artillery and other CS assets, and to transport ammunition, fuel, and supplies. The same general plans used for helicopterborne operations may need to be prepared for large scale air movement operations. In these operations, aviation is not task organized with other members of the combined arms team to engage enemy forces. When an airlift is completed, the air movement operation is terminated, and, unless otherwise specified in the order, aviation units are released to return to their parent units. To take advantage of the opportunities offered by a helicopterborne task force, commanders and leaders must develop an insight into the principles governing their development (organization) and employment.

**d.** This manual supersedes FMFM 3-3 which addressed ship-to-shore operations. Helicopterborne operations in amphibious operations are sufficiently discussed in NWP 22-3, NWP 55-9-ASH, and Joint Pub 3-02.1. FMFM 6-21, *Tactical Fundamentals of Helicopterborne Operations*, is written to show the versatility of helicopterborne operations and explains the tactical fundamentals of helicopterborne operations for ground-based operations once ashore.

FMFM 6-21 is compatible with U.S. Army and NATO doctrine as expressed in FM 90-4, *Air Assault Operations*.

The significant difference from previous publications are in the following areas:

(1) The manual explains and emphasizes the need for ground and air units to plan, coordinate, and execute tactically from the supported unit's assembly area through the final objective. (See chapter 7.)

(2) The manual distinguishes between a pickup zone (PZ) and a landing zone (LZ). Previous publications only discussed the LZ. This FMFM defines the PZ, explains the considerations involved in selecting and establishing the PZ, discusses ground and helicopter movement from the assembly areas to PZs, and explains how to use and operate a PZ. Moving from an assembly area to a PZ on land is vastly different than moving from troop spaces to a flight deck aboard ship. This manual lays out tactical considerations for both ground and air elements in moving to, securing, and operating a PZ.

## 1002. Helicopterborne Operations

a. A helicopterborne operation is a tactical operation normally in support of the ground tactical plan wherein the movement of troops, supplies, and/or equipment is accomplished by helicopters. Helicopterborne operations allow the commander to maneuver rapidly to achieve tactical surprise and mass his forces, regardless of terrain obstacles and without dependence on ground lines of communication.

b. The fundamental characteristic of helicopterborne operations is the use of helicopters to improve the tactical mobility of a ground force. The speed and mobility of helicopters can provide freedom of rapid maneuver. Freedom of rapid maneuver can then fix the enemy and mass

sufficient combat power to destroy him over distances which would otherwise be impossible to traverse so quickly. The flexibility and versatility of the helicopter may permit the ground commander to reduce time and distance limitations normally encountered in the movement of troops.

c. A helicopterborne operation generally takes place in the following sequence of phases —

- Planning.
- Loading.
- Air movement.
- Landing.
- Tactical ground operation.

## 1003. Tactical Considerations for Helicopterborne Operations

Generally, the fundamentals of ground combat apply to helicopterborne operations. However, there are considerations that only apply to helicopterborne operations. These considerations are as follows:

a. Because helicopterborne forces, once they have landed, lack tactical mobility and heavy weapons, it is important that the forces be landed on or near the objective. Successful accomplishment of the mission can be threatened if a force is landed a short distance further from the objective than planned, particularly if the enemy has superior ground mobility. Consequently, the landing of a helicopterborne force in any location other than the designated LZ is justified only when landing in the designated zone poses a threat to the survival of the force.

b. Helicopterborne forces may operate in conjunction with other ground forces or independently. Helicopterborne forces enable the commander to react quickly over the entire depth and width of his area of responsibility. If used

properly, helicopterborne operations become an integral part of the ground battle.

**c.** As with an amphibious assault, a prime concern for the commander is the rapid build-up of combat power on the ground. Fully one-third of the assault elements of a helicopterborne force should be landed in the initial wave; for a battalion landing, a minimum of one company should be landed in the first wave, and for a company landing, a minimum of one platoon.

**d.** If the enemy situation prevents the use of helicopters to land assault troops, helicopters may be employed to displace the reserve and supporting weapons forward to the objective once it has been secured by ground attack. Helicopters may also be used to reposition forces laterally on the battlefield, out of the range of most enemy air defense weapons.

**e.** In most conflicts, the loss of helicopters during helicopterborne operations will be due to enemy action. The acceptable level of aircraft losses depends on the situation and the nature of the conflict.

**f.** Helicopters are an excellent means of tactical deception. When possible, helicopters may be used to make demonstration landings in several different zones during one flight to deceive the enemy as to the true objective of an operation.

**g.** When possible, helicopterborne attacks are launched against undefended or lightly defended objectives. When attacking a well defended objective, care must be taken to select nearby LZs in which the force can be landed safely, to provide sufficient fire support, and to adequately suppress enemy air defenses.

**h.** Helicopterborne forces are vulnerable to attack helicopters, fixed-wing aircraft, and surface-to-air missiles. To counter this vulnerability, friendly

attack helicopters escort the helicopterborne forces during air movement, and indirect fires are used to suppress or neutralize enemy air defenses. At the time of landing, helicopterborne forces are especially vulnerable and may be disorganized for a short time. Air defense weapons are employed to counter this vulnerability in the PZs as well as in the LZs.

**i.** Ideally, helicopterborne forces should be employed to allow an early linkup with vehicular ground mobility and sustainability. Once there, it is advisable to use the helicopterborne force as the stationary force during the linkup because of their lack of mobility when on the ground. See chapter 4, paragraph 4306 for linkup operations.

**j.** The increased mobility of a helicopterborne force allows the commander to extend his area of influence. However, there is increased risk when employing helicopterborne forces against deep objectives. Risks which should be considered include—

- Greater exposure to enemy ground fire and enemy aircraft.
- Possible loss of surprise.
- Possible involvement with enemy reserves.
- Increased vulnerability to enemy counterattack pending linkup with ground forces.

The prerequisites for success in deep helicopterborne operations are the capability to move securely to the objective area, to operate without ground lines of communications, to provide CS and CSS, and to withdraw the force if or when required.

**k.** Due to the lack of vehicles and other support during the initial stages of the operation, Marines will be required to carry all the necessary supplies and equipment. Commanders must ensure that Marines are burdened with only those items that are **absolutely essential** to the accomplishment of the mission. As they depart the LZ, Marines carry only the gear necessary for them to perform their

mission. The commander ensures that other supplies and equipment are delivered at the earliest opportunity. For more on the individual load, see FMFM 6-1, *The Marine Division*, chapter 13, paragraph 13103.

I. Because of the need for coordination between the ground and helicopter units, rehearsals are an important part of a helicopterborne operation. At a minimum, actions in the PZs and LZs should be rehearsed.

## 1004. Air-Ground Team

Infantry and air units can be fully integrated with other members of the combined arms team to form powerful and flexible helicopterborne task forces (HTFs). These forces can project combat power throughout the entire depth, width, and breadth of the modern battlefield with little regard for terrain barriers. The unique versatility and strength of a HTF is achieved by combining the capabilities of helicopters — speed, agility, and firepower — with those of the infantry and other combat arms to form tactically tailored helicopterborne task forces that can be employed in low, mid, and high intensity environments.

## 1005. Helicopterborne Forces

**a. Organization.** Normally, the helicopterborne force, as a part of a Marine Air-Ground Task Force (MAGTF), is an integrated force tailored to a specific mission under the command of a single commander. Task organization is essential in the conduct of helicopterborne operations and is accomplished by employing an air-ground task force. The organization of forces may include some or all of the elements of the combined arms team.

### **b. Considerations for Task-Organizing Helicopterborne Forces**

(1) The availability of aviation assets is normally the major factor in determining helicopterborne task organization.

(2) The task organization is determined and announced early in the planning process. It may be included in the warning order.

(3) The helicopterborne force is organized with sufficient combat power to seize initial objectives and protect LZs, and with sufficient CSS and accompanying supplies, to sustain a rapid tempo until follow-on or linkup forces arrive, or until the mission is completed.

(4) The helicopterborne force should provide a mission specific balance of mobility, combat power, and staying (sustaining) power.

(5) The required combat power should be delivered to the objective area as soon as possible, consistent with aircraft and PZ capacities, to provide surprise and shock effect.

(6) To perform its mission, a helicopterborne force should arrive intact at the LZ. The force must be tailored to provide en route security and protection from the PZ, throughout the entire flight route(s), and at the LZ.

(7) An effective command and control (C<sup>2</sup>) system must be developed for all helicopterborne operations. The MAGTF commander considers his C<sup>2</sup> systems as he develops his task organization.

(8) CS elements are normally placed in direct support (DS) to the helicopterborne force to ensure close coordination and continuous, dedicated support throughout an operation.

**c. Capabilities.** A helicopterborne force provides commanders with truly unique capabilities. No other ground force on the battlefield can respond to a tactical situation and move considerable distances as quickly as a helicopterborne force. They can extend the battlefield, move with great agility, and rapidly concentrate combat power. Specifically, helicopterborne forces can —

- Attack enemy positions from any direction.
- Delay a much larger force without becoming decisively engaged.
- Overfly or bypass barriers and obstacles and strike objectives in otherwise inaccessible areas.
- Conduct deep attacks and raids beyond the forward line of own troops (FLOT) or point of contact, using helicopters to insert and extract forces.
- Rapidly concentrate, disperse, or redeploy to extend the area of influence.
- Provide responsive reserves allowing commanders to commit a larger portion of their forces to action.
- React rapidly to tactical opportunities and necessities; conduct exploitation and pursuit operations.
- Rapidly place forces at tactically decisive points in the battle area.
- Provide surveillance or screen over a wide area.
- React to rear area threats.
- Rapidly secure and defend key terrain such as crossing sites, road junctions, or bridges.
- Bypass enemy positions; achieve surprise.
- Conduct operations under adverse weather conditions and at night to facilitate deception and surprise.
- Conduct fast paced operations over extended distances.
- Conduct economy of force operations over a wide area.
- Rapidly reinforce committed units.

**d. Limitations.** A helicopterborne force is light, mobile, and relies on helicopter support throughout any helicopterborne operation. As such, they may be limited by—

- Severe weather, extreme heat and cold, and other environmental conditions such as blowing snow and sand that limit flight operations or helicopter lifting capability.

- Reliance on air lines of communications.
- Enemy aircraft, air defense, and electronic warfare action.
- Reduced ground mobility once inserted.
- Availability of suitable LZs and PZs.
- Available nuclear, biological, and chemical (NBC) protection and decontamination capability.
- Reduced vehicle mounted antitank weapon systems.
- Battlefield obscurity that limits helicopter flight.
- High fuel and ammunition consumption rates.
- Limited accessibility to supporting arms, especially indirect fires.

**e. Vulnerabilities.** Helicopterborne forces use the helicopter to move and close with the enemy. Initial assault elements must be light and mobile. They are often separated from weapon systems, supporting arms, equipment, and materiel that provide protection and survivability on the battlefield. Thus, a HTF is particularly vulnerable to—

- Attack by enemy air defense weapon systems during the movement phase.
- Attack by NBC systems, because of limited NBC protection and decontamination.
- Attacks (ground, air, or artillery) during the loading and unloading phases and at other times when the infantry is not dug in.
- Electronic warfare (jamming), due to the heavy reliance on radio communications for command and control.

## 1006. Helicopterborne Task Force

**a. General.** The helicopterborne force is a task-organized, tactically tailored, combined arms team consisting of combat, CS, and CSS under the

command of a single commander, who is supported by MAGTF aviation.

**b. Unity of Command.** When an HTF is formed, the most important fundamental consideration of combined arms for the force is unity of command (effort). Unity of command promotes coordinated action toward a common goal which is required by an HTF to complete its mission. Commanders in a helicopterborne operation must develop in their staffs and subordinates the desire to cooperate, not only among themselves but with other elements of the command.

### c. Communications

**(1) Command and Control.** Command and control within the HTF is executed with a variety of communications means to span the full spectrum of assault support operations. The UH-1 may be tasked as a C<sup>2</sup> element for a helicopterborne operation. The helicopterborne unit commander and helicopter coordinator (airborne) (HC[A]) may embark in the same aircraft for coordination and making of timely decisions. To support a helicopterborne force over a widely dispersed area, emphasis is placed on compact, lightweight, airtransportable, and long-range equipment. A heavy reliance is placed on single channel communications such as very high frequency (VHF)/frequency modulation (FM), high frequency (HF)/single side band (SSB), and satellite communications (SATCOM).

**(a)** Real time C<sup>2</sup> capabilities will be constrained by the availability of portable, reliable, and secure communications. The HTF must depend largely on a single channel radio because of its flexibility, range, and speed of set up.

**(b)** Subordinate elements in the task force may range beyond multichannel capabilities and radio transmissions, and transmissions may be unintelligible due to enemy electronic countermeasures (ECM). As a result,

subordinate commanders of the task force will be required to make decisions sometimes without being in contact with the MAGTF commander.

**(c)** As the HTF fights the battle and the distances become extended, communications for C<sup>2</sup> become less sophisticated. The task force must make extensive use of airborne or unattended FM retransmission, amplitude modulation capabilities, and SATCOM. Ground or air messengers should be used when possible.

**(2) Radio Nets.** A dynamic mix of air-to-air, air-to-ground, and ground-to-ground radio nets are used to provide the necessary responsiveness and flexibility for helicopterborne C<sup>2</sup>. Appendix B of FMFM 3-30, *Communications*, provides a description of MAGTF nets which can be selectively used to meet the communications requirements for C<sup>2</sup> of helicopterborne operations. In addition to commonly employed doctrinal nets, internal radio links may be established to meet specific unit requirements.

## 1007. Employment of Helicopterborne Operations

**a. General.** Helicopterborne operations are high risk, high payoff operations, that can, when properly planned and vigorously executed, drastically extend a commander's area of operation. This extension of a commander's area of operation enables the commander to execute operations in areas ranging beyond the capability of ground forces.

**b. Coordination Between Ground and Aviation Commanders.** Helicopterborne operations require close coordination between the commander of the ground unit to be lifted and the HC(A). The HC(A) is an experienced naval aviator operating from an aircraft to direct airborne coordination and control of helicopterborne operations. When no HC(A) has been designated, the helicopter transport commander performs this function within capabilities.

(1) Coordination should begin at the earliest opportunity in the planning phase of the operation.

(2) When possible the two commanders should be collocated during the air movement and the initial stages of the landing. This can often be best accomplished through the use of a C<sup>2</sup> helicopter. (See chapter 2, par. 2005c.)

(3) The primary responsibility of the HC(A) is to coordinate the air movement of personnel and equipment into designated LZs. The HC(A) supports the ground commander's concept of operations.

(4) While the air movement phase is primarily the HC(A)'s responsibility, the ground commander must be prepared to recommend primary and alternate approach and retirement lanes and assist in navigation. The ground commander must confirm the proper LZ.

(5) In coordination with the ground commander, the HC(A) has the authority to switch to the alternate LZ if enemy actions indicate that serious helicopter losses will result from using the primary zone. The HC(A) does not have the authority to land the wave anywhere other than the primary or alternate LZs. If both commanders agree that landings in neither are tactically possible, the commanders must agree on another suitable zone.

## 1008. Tactical Employment of a Helicopterborne Task Force

**a. General.** The tactical employment of a HTF is different from other types of infantry operations. An HTF is employed judiciously and on missions that require—

- Massing or shifting combat power rapidly.
- Using surprise.
- Using flexibility, mobility, and speed.

- Gaining and maintaining the initiative.
- Extending the depth, width, or breadth of the battlefield.

**b. Operational Guidelines.** An HTF is normally a highly tailored force specifically designed to hit fast and hard. They are best employed in situations that provide the force a calculated advantage due to surprise, terrain, threat, or mobility. The principles of tactical employment of helicopterborne operations are basic guidelines that govern the planning and execution of helicopterborne operations. They are as follows:

(1) The HTF should normally be assigned missions that take advantage of their superior mobility and should not be employed in roles requiring deliberate operations over an extended period of time.

(2) The helicopterborne force fights as a combined arms team.

(3) The availability of critical aviation assets is a major factor in any operation.

(4) Operation planning must be centralized and precise; execution must be aggressive and decentralized.

(5) The helicopterborne operation may be conducted at night or during adverse weather, but requires more planning and preparation time in those cases.

(6) Unit tactical integrity should be maintained throughout a helicopterborne operation. When planning loads, squads are normally loaded intact on the same helicopter, with platoons in the same wave. This ensures fighting unit integrity upon loading and unloading.

(7) Fire support planning must provide for suppressive fires along flight routes and in the vicinity of landing zones. Priority for fires must be to the suppression of enemy air defense (SEAD) systems.

**(8) Infantry operations are not fundamentally changed by integrating aviation units with infantry; time and distances are dramatically changed, however.**

**(9) Helicopterborne forces are most effectively employed in environments where limited lines**

**of communications are available to the enemy and where he lacks air superiority and effective air defense systems.**

# Chapter 7

## Conduct of a Helicopterborne Operation

### Section I. Overview

The following sequence demonstrates the HTF movement from the assembly area to the PZ and on to the LZ. The helicopterborne operation, during subsequent operations ashore, normally begins at an assembly area. See section III for Helicopterborne Practical Exercise I: Example of a helicopterborne operation in a counterinsurgency situation and section IV for Helicopterborne Practical Exercise II: Illustration of the planning process involved in a linkup with a mechanized force.

#### 7101. Movement From the Assembly Area to the Landing Zone

a. At the prescribed time, units move from the assembly area to the holding area, via a route designated by the HUC. A holding area must be—

- Covered and concealed.
- Sufficient size for the helicopterborne force.
- Close to primary and alternate PZs.

b. Each unit commander notifies the PZCO upon his unit's arrival in the holding area. In this area, unit leaders separate the unit into loads (sticks) according to the loading plan. Heavy loads and external loads should not be programmed in initial waves. Offloading heavy internal loads is time consuming and slows troop buildup. (See fig. 7-1.)

c. Each load (stick) includes a designated heliteam leader. He is usually the senior Marine in the heliteam and is responsible for briefing his troops and inspecting the load. He ensures the load is organized and ready to be loaded as planned. The PZ

TIME (minutes)	ACTION
H-20	Air recon completed. <sup>1</sup>
H-20 to H-5	Close air strike. <sup>2</sup>
H-5 to H-2	Artillery preparation.
H-2 to H-hour	Artillery shifts fires; attack helicopter suppression.
H-hour	First wave lands.
H-hour to H+30	Attack helicopters. <sup>3</sup>
H-hour to H+120	Artillery. <sup>4</sup>

- 1 Conduct route reconnaissance from PZ to LZ. At H-20 move to alternate LZs and continue reconnaissance.
- 2 Artillery and close air may engage simultaneously if sufficient ammunition is available.
- 3 On station for targets of opportunity in the vicinity of the LZ.
- 4 On-call suppressive fires and counterbattery fires.

Figure 7-1. Notional Preparatory Fire Sequence.

control party briefing includes the loading point for primary and alternate PZs and the routes to those points. The heliteam leader briefs his heliteam members on the following information:

- Loading procedures.
- Bump plan (for individual and/or load bumps).

- Use of safety belts.
- Preflight safety inspection of Marines.
- Inflight procedures.
- Downed aircraft procedures.
- Offloading procedures.
- Movement from the LZ.
- Any other essential information.

## 7102. Procedures in the Pickup Zone

**a. Organization of the Pickup Zone.** To the maximum extent possible, the PZCO lays out the PZ as directed in the plan. For example, if the plan calls for landing to the west in a staggered trail formation with the lead aircraft landing on a spot marked by a smoke grenade, or panel markers, the PZ is laid out that way.

To minimize confusion during landing, aviation elements arrive at the PZ in the formation directed in the plan. Then, the PZCO, or HST personnel, assist in loading by ensuring helicopters and personnel are in the proper location and formation at the correct time. If an aircraft (scheduled for the lift) is unable to complete its mission due to mechanical failure, the PZCO informs the unit commander, who implements the bump plan.

**b. Infantry Movement to Pickup Zone.** The PZCO coordinates the arrival of aircraft and troops so that the troops arrive at their respective loading points just before the helicopters land. This prevents congestion, facilitates security, and reduces vulnerability to enemy actions during PZ operations.

On the PZCO's signal, loads (sticks) move by designated routes from their holding areas to their loading points in the PZ. The PZCO may use schedules, messengers, arm-and-hand signals, light signals, or (as a last resort) radio to order loads to move to the PZ.

**c. Helicopter Movement to Pickup Zone.** Aircraft begin movement to arrive in the PZ at the scheduled time. The PZCO contacts the aviation

element if there is a PZ change. If there has been a change in allowable lift/load, number of aircraft, or formation, the MC must contact the PZCO.

(1) During air movement to the PZ, enemy antiaircraft or other fire may be encountered. Therefore, air reconnaissance may be used to locate and suppress enemy positions prior to the arrival of the helicopterborne lift aircraft. Attack helicopters will not normally land in the PZ. When the lift helicopters are to be on the ground for extended periods, the attack helicopters may occupy holding areas nearby or return to FARP sites. The C<sup>2</sup> helicopter is positioned where the command group can see and control critical events.

(2) Strict radio discipline is maintained throughout the operation; radio silence should not be broken unless absolutely necessary. Radio calls between aircraft are permitted only as a last resort when other signals are not appropriate.

(3) The helicopters should use terrain flying techniques en route to the PZ.

**d. Lift-Off From the Pickup Zone.** When the aircraft are loaded and ready for lift-off, the PZCO signals the flight leader using arm-and-hand or light signals. The flight leader may signal other aircraft by turning on (or off) his navigation lights. For example, upon landing, the lights are turned on, and when they are turned off, the flight lifts off. Members of the PZ control group may also relay the alert to lift-off to aircraft in the rear of the formation, or the flight leader simply lifts off and the others follow.

Lift-off should be at the time prescribed in the plan. However, the aircraft will not loiter in the PZ. If they are early they lift-off and alter speed so as to arrive at designated locations at appropriate times. This should place the first aircraft of the first lift in the LZ at H-hour.

Lift-off may be by single aircraft or by wave. Under some conditions (dusty PZ, restricted PZ, or high density altitude and no wind), it is best to break

waves into smaller increments. When possible, simultaneous lift-off is best for the following reasons:

- It is easier for the attack helicopter unit commander to plan his scheme of maneuver and provide security en route for aircraft.
- OPCON is easier.
- It reduces the enemy's time to fire at the aircraft.

The flight leader adjusts the flight's speed and rate of climb so all elements form into the en route flight formation at the required altitude.

### 7103. En Route to the Landing Zone

**a.** The MC predetermines the en route flight speed and the flight leader paces the flight to ensure the flight crosses the start point on time.

**b.** Radio silence is paramount; however, if directed in the order, flight leaders report to the MC on passing each checkpoint. Checkpoint information must be passed to the heliteam leader. En route radio calls are made only if the flight is late or if it is required to deviate from the plan.

**c.** Ground commanders, heliteam leaders, and aircraft crew members must remain oriented throughout the flight. They do this by following and verifying the flight route using terrain observation, maps, aircraft compass, and aircraft speed.

**d.** When a threat is encountered along the flight route, such as heavy enemy fire, the HTC gives the order for the HC(A) or MC to modify or switch to an alternate flight route. If the LZ needs to be changed, the HUC makes the decision and informs the HC(A) or MC. It is recommended that the HUC or an S-3 representative fly with the MC or the HC(A) to facilitate C<sup>2</sup>.

### 7104. Security

**a.** Attack helicopters provide security for downed aircraft, route reconnaissance, and other assistance

en route as directed by the ACE commander. The ACE commander develops the plan for TRAP.

**b.** Fixed-wing aircraft (when assigned this role) may work with attack helicopters to provide security to the flanks, front, and rear of the helicopter formation(s). When performing this role in a medium-to-high threat environment, specially equipped aircraft suppress or destroy surface-to-air missile sites and radar-directed guns. Other fixed-wing aircraft may be used to selectively jam enemy radar and communication signals using jamming transmitters or other methods.

**c.** Indirect fire weapons provide suppressive fires along the flight routes as planned or as necessary, when available.

### 7105. Landing Operations

**a.** Napalm and other incendiary ordnance are not normally used on the LZ and its immediate vicinity (just prior to landing), because foliage fire and smoke could endanger aircraft or hamper the mission. Wind direction, speed, and enemy air defense must be considered along with friendly indirect fire support.

**b.** Attack helicopters can be employed in various roles during landing operations. They may—

- Precede the lift element into the LZ (by a few minutes) for reconnaissance and/or to provide suppressive fires to prevent a time gap in LZ fires (provided by other support elements).
- Recommend last-minute changes regarding aircraft landing instructions.
- Provide area cover and neutralize known enemy positions, or provide security for lift aircraft while in the LZ area.
- Observe ground approaches to the LZ for possible enemy attacks.

**NOTE:** After the initial pass, attack helicopters may enter an overwatch flight pattern around the LZ.

## 7106. Command and Control Helicopter

At the initial point (IP), the C<sup>2</sup> helicopter moves into position (employing terrain flying) to observe and communicate with forward elements. To avoid enemy weapons, the pilot uses popup techniques to observe activity. The HUC will determine where he can best influence the action by remaining on the aircraft or joining the ground forces.

## 7107. Landing Zone Preparatory Fires

Preparatory fires should be planned for all primary and alternate LZs. The decision to initiate LZ preparatory fires is made by the LZ if he is in a position to effect such a decision. If he is not, the decision is made by the operations officer or FSC, whichever is appropriate. The FSC should travel with the ground commander to expedite fires and changes to preplanned fires. Fires are planned along all routes leading to the LZ, to the maximum extent possible. Planned fires should be intense. Fires shift or lift shortly before the first elements land. See figure 7-1 for a preparatory fire sequence.

a. In the development and sequencing of fire plans, the following are considered:

- (1) **Deception.** False preparations may be fired in areas other than the objective area.
- (2) **Loss of Surprise.** A preparation of long duration may reduce the possibility of surprise.
- (3) **Availability of Fire Support.** The FSC considers the assets that can fire preparations and coordinates the arrangements with the artillery. Preparations by fixed-wing aircraft are requested through the FAC(A).
- (4) **Significant Targets.** A known or suspected enemy force located in the vicinity of the LZ, regardless of size, warrants LZ preparation, if the LZ is to be used.

(5) **Shifting Fires.** Artillery fire continues throughout the assault phase, shifting from the LZ to known or suspected targets.

(6) **Obstacles to Landing and Maneuver.** Various types of ordnance used in a preparation can cause craters, tree blow-down, fires, smoke, and poor visibility on and near the LZ.

(7) **Positive Control Measures.** Control measures must be established for lifting or shifting fires; for example, RFL or restrictive fire area (RFA).

(8) **Ammunition.** Basic load and resupply limitations.

b. Because CAS station time is limited by fuel and enemy air defenses, the sequencing of supporting fires are carefully controlled by the FSC to obtain maximum, continuous support. To ensure that all fire support assets are utilized at the correct time, the FSC must be constantly informed as to the status of the flight. This allows him to orchestrate fires to coincide with the actual arrival of landing helicopters at the LZ. (See fig. 7-2.)

c. Another method of continuing fire support is to shift indirect fires to one flank, conduct a simultaneous airstrike on another flank, and use the attack helicopters to orient on the approach and retirement lanes. This technique requires precise timing and helicopter formation navigation to avoid flight paths of other aircraft and gun-target lines of indirect fire weapons.

## 7108. Landing Techniques

a. The HTF should land as planned unless last minute changes in the tactical situation force the commander to abort or alter the landing. The air crew must make every effort to keep the troops in their aircraft informed of the situation, especially of any changes to the original plan.

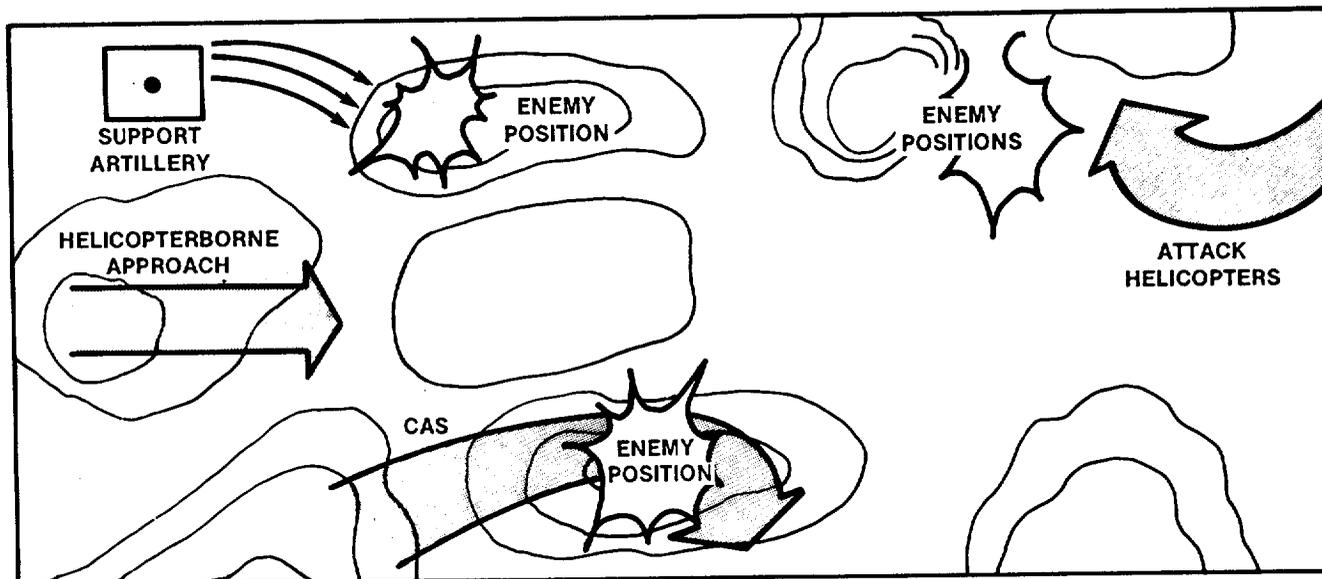


Figure 7-2. Supporting Arms in LZ.

**b.** A simultaneous landing is desired so as to place the maximum number of troops on the ground, in a given area, in the shortest possible time. Individual aircraft touchdown points are planned to disembark troops as close as possible to their initial positions.

**c.** In most operations, if the situation permits, the operation is accomplished with a minimum number of lifts, each with the maximum number of aircraft the LZ will accommodate. This reduces the exposure time of the aircraft, maintains unit integrity, provides maximum combat power, and gives the enemy less time to react. When separate element landings are dictated because of LZ size, time intervals between elements are kept as short as possible. Ideal timing has an aircraft element landing immediately after the preceding element lifts off.

**d.** Troops are most vulnerable during landing; they disembark rapidly and deploy to carry out assigned missions.

**e.** An air evacuation location is designated, normally at the approach end of the LZ. This permits continuation of the lift and prompt evacuation of the wounded.

**f.** At the LZ, leaders at all levels account for personnel and equipment and submit appropriate reports to higher headquarters. Key personnel killed, wounded, or missing are replaced according to unit SOP; key weapons missing or out of action may require the force to reorganize. After the unit completes its consolidation of the LZ, it reorganizes as necessary to carry out the ground tactical plan. Ground combat operations are not significantly different from those conducted by other infantry units.

## 7109. Completion of the Landing Zone Operation

**a.** When the LZ operation is finished, aviation elements return by preselected routes to complete subsequent lifts or to conduct other operations or, if prescribed in the order, move to a laager site.

**b.** If subsequent lifts are required in the same operation, the procedures described above are repeated. Planning starts from the assembly area and progresses through the final objective. If an extraction is required, PZ(s) in the vicinity of the objective are selected during the initial planning phase. The HUC must know the purpose of the ground tactical plan so he can formulate plans subsequent to accomplishment of the initial mission.

## Section II. Sequence of Actions for Helicopterborne Operations

The following lists provide a sequence of action taken by the HTF commander, his staff, and subordinate unit commanders in planning a helicopterborne operation. The list is not all inclusive. Certain actions may be omitted for some operations.

### Helicopterborne GCE commander takes the following actions:

- Receives warning order.
- Conducts mission analysis.
- Receives initial information from the air mission commander.
- Gives warning order to staff and subordinates.
- Receives personnel status report from S-1.
- Receives equipment status report from S-4.
- Receives enemy situation briefing from S-2.
- Receives friendly forces information briefing from S-3.
- Continues analysis of mission, enemy, terrain (and weather), troops, and time available.
- Receives higher headquarters operation order.
- Begins development of commander's estimate.
- Provides guidance to staff as needed.
- Receives staff estimates.
- Obtains data from staff as needed.
- Announces concept.
- Supervises development of operation order.
- Receives air movement information. Coordinates air movement matters with ACE.
- Receives air loading plan from S-3.
- Receives copy of operation order from S-3.
- Approves or modifies and approves operation order.
- Issues or oversees issuance of operation order.
- Conducts or oversees conducting of operation order brief.

### ACE or air mission commander takes the following actions:

- Receives warning order.
- Conducts mission analysis.
- Gives initial planning information to GCE and staff.
- Receives GCE warning order.
- Receives friendly forces information briefing from S-3.
- Provides technical advice to GCE XO and S-2 for PZ and LZ identification.
- Coordinates with supported unit staff.
- Provides information to aviation unit on ground unit operation.
- Provides advice to GCE S-3 on PZ selection.
- Provides flight route information to GCE S-2.
- Assists XO in PZ control plan.
- Assists GCE AO with flight route computations.
- Provides advice to GCE S-3 on LZ and flight route selection.
- Obtains PZ and/or LZ, flight routes, and aircraft allocation from GCE AO.
- Obtains PZ control plan from GCE XO (PZCO).
- Aids GCE S-4 in selecting logistic PZ(s).
- Coordinates aircraft internal and sling equipment loads with GCE S-4.
- Obtains air movement plan from GCE S-3.
- Briefs aviation unit on operation.
- Inspects PZ(s) with GCE XO.
- Receives GCE operation order.

**Helicopterborne force, XO takes the following actions:**

- Receives warning order.
- Receives personnel status report from S-1.
- Receives equipment status report from S-4.
- Receives enemy situation briefing from S-2.
- Receives air mission commander (AMC) initial information.
- Receives friendly forces information from S-3.
- Determines available PZs. Obtains advice from AMC.
- Submits PZs to S-3.
- Coordinates staff planning.
- Obtains PZ from S-3.
- Develops PZ control plan.
- Coordinates PZ operations with AMC and/or terminal controller(s).
- Receives GCE commander's concept.
- Obtains PZs, LZs, flight routes, and aircraft allocation from S-3.
- Coordinates PZ operations with S-1. Completes bump and straggler control plan.
- Inspects PZs with PZCO(s).
- Briefs PZ control plan to subordinate PZCO(s).
- Obtains air movement plan from S-3.
- Obtains airloading plan from S-3.
- Obtains sequence of bump from subordinate units. Annotates air movement plan with sequence of bump.
- Completes PZ control plan. Submits to S-3.
- Inspects PZs with MC.
- Receives operation order.

**Helicopterborne force, S-1, takes the following actions:**

- Receives operation notification.
- Assembles personnel data.
- Receives helicopterborne warning order.

- Reports personnel status to commander and staff.
- Receives MC initial information.
- Receives friendly forces information briefing from S-3.
- Begins mission analysis from personnel standpoint.
- Begins preparation of staff appraisal (personnel).
- Provides S-3 with staff appraisal (personnel).
- Receives commander's concept.
- Coordinates PZ operations with battalion XO. Develops straggler control plan.
- Briefs subordinate unit personnel on straggler control plan.
- Receives CP's general location from S-3.
- Coordinates prisoner of war (POW), civilian control plan with S-2.
- Completes POW, civilian control plan. Coordinates with S-4.
- Completes S-1 portion of paragraph 4, operation order. Gives to S-4.
- Receives air loading plan from S-3.
- Coordinates with headquarters commandant. Develops plan for CP displacement and security.
- Coordinates CP displacement plan with S-3.
- Plans for recovery and evacuation of the dead, coordinates with S-3 and S-4.
- Receives operation order.

**Helicopterborne force, S-2, takes the following actions:**

- Receives operation notification.
- Requests any needed maps through higher headquarters.
- Assembles intelligence data.
- Requests weather forecast.
- Distributes maps.

- Briefs commander, staff, and subordinate unit commanders on enemy situation.
  - Obtains advice concerning LZs from ACE (MC) or SRIG.
  - Determines available LZs.
  - Submits LZ list to S-3.
  - Analyzes weather forecast.
  - Obtains advice concerning flight routes from AO and MC.
  - Determines available flight routes.
  - Provides available flight routes to S-3 (AO).
  - Recommends priority intelligence requirements and information requirements.
  - Develops intelligence collection plan.
  - Requests aviation reconnaissance and/or aerial photographs of routes, LZ(s), and objectives.
  - Begins preparation of staff appraisal (intelligence).
  - Provides intelligence data to commanders and staffs.
  - Processes intelligence data gathered.
  - Completes staff appraisal (intelligence).
  - Provides S-3 with staff appraisal (intelligence).
  - Continues processing intelligence data; provides to commanders and staff.
  - Recommends employment of ground surveillance radar or STA platoon to S-3.
  - Recommends targets to FSC through S-3.
  - Completes paragraph 1 (enemy forces) of operation order and submits to S-3.
  - Continues processing intelligence data; provides to commanders and staffs.
  - Coordinates development of POW and civilian control plan with S-1.
  - Provides all intelligence data to commanders and staffs as it becomes available (aerial photographs, reconnaissance mission results).
  - Updates intelligence map as needed.
  - Assembles data on friendly elements.
  - Receives MC initial information through the AO.
  - Receives warning order.
  - Receives personnel status from S-1.
  - Receives equipment status from S-4.
  - Receives enemy situation from S-2.
  - Briefs MC's initial information.
  - Briefs friendly forces disposition and location.
  - Begins development of courses of action.
  - Obtains input on SRIG employment.
  - Receives list of available LZs from S-2; available PZs from XO.
  - Receives higher headquarter's operation order.
  - Begins preparation of staff estimates for operations.
  - Selects PZs. Briefs XO and AO on PZ selection.
  - Obtains available flight routes from MC through AO.
  - Consolidates staff information.
  - Recommends LZs and flight routes.
  - Determines need for indirect fire preparations.
  - Determines need for EW support.
  - Provides staff estimate of supportability to commander.
  - Receives commander's decision.
  - Begins preparation of operation order.
  - Provides XO and AO with PZs and aircraft allocation.
  - Selects general location for CP. Provides information to staff.
  - Receives S-2 input to operation order. Receives administrative-logistical portion of order from S-4.
  - Completes operation order paragraphs 1, 2, and 3, to include concept and major subordinate unit paragraphs.
  - Receives air movement plan from AO.
  - Receives fire plan from FSC.
  - Receives EW support plan from CommO.
  - Obtains airloading plan from AO.
- Helicopterborne force GCE, S-3, takes the following actions:**
- Receives warning order.

- Receives paragraph 4 of the operation order from S-4.
- Completes paragraph 5 of the operation order.
- Completes operation overlay.
- Coordinates CP displacement with Headquarters Commandant.
- Obtains PZ control plan from XO.
- Completes operation order with annexes. Submits to commander for approval.
- Receives operation order from the commander.
- Issues operation order, when directed by the commander.

**Helicopterborne force GCE, S-3 (AO), takes the following actions:**

- Receives operation notification.
- Receives helicopterborne warning order.
- Receives personnel status from S-1.
- Receives equipment status from S-4.
- Receives enemy situation briefing from S-2.
- Receives MC initial information.
- Analyzes MC's initial information for available assets.
- Assists S-3 in preparation of air movement plan.
- Recommends air requests to S-3 and processes air requests from S-3.
- Obtains PZs from S-3; provides PZs to FSC and staff as needed.
- Establishes necessary liaison with the tactical air control party (TACPs) and coordinates pre-planned air support.
- Receives available flight routes from S-2.
- Computes flight route time and distance.
- Provides available flight route information to S-3.
- Receives helicopterborne commander's concept.
- Obtains LZs, flight routes, and aircraft allocation from S-3. Provides data to MC, FSC, subordinate unit commanders, and staff, as needed.

- Obtains any additional tactical air requirements from FSC.
- Initiates requests for air support of all types. (Submits Assault Support Request.)
- Obtains logistic PZs from S-4.
- Completes air movement plan, submits to S-3 for approval.
- Distributes air movement plan.
- Obtains subordinate air loading plan.
- Consolidates air loading plans; provides to helicopterborne commander, S-3, XO, and S-1.
- Receives operation order.

**Helicopterborne force GCE, S-4, takes the following actions:**

- Receives operation notification.
- Obtains maps requested by S-2.
- Assembles equipment data.
- Receives helicopterborne warning order.
- Receives personnel status from S-1.
- Reports equipment status to commander and staff.
- Receives enemy situation briefing from S-2.
- Receives MC's initial information.
- Receives friendly forces information from S-3.
- Begins mission analysis to determine requirements.
- Receives initial supply requirements from subordinate units.
- Begins preparation of staff appraisal (logistics).
- Determines effects of ammunition supply rate on operation. Submits ammunition supply rate to FSC.
- Compiles material usage data for operation. Obtains PZs from S-3 (AO).
- Compares usage data to materiel available.
- Requests materiel as needed.
- Coordinates with MC on establishing FARP.
- Provides S-3 with staff appraisal (logistics).
- Receives helicopterborne commander's concept.

- Begins development of support plan for operation. Obtains LZs and flight routes from S-3.
- Selects logistics PZs; provides to S-3 (AO).
- Plans aircraft loads (internal and external) for mission support. Coordinates pickup points with MC and/or S-3 AO.
- Coordinates plans for evacuation of enemy materiel with S-2.
- Receives operation order.

Helicopterborne force GCE, FSC, takes the following actions:

- Receives operation notification.
- Begins mission analysis to determine available and needed means of fire support.
- Plots locations and capabilities (range fans) for all indirect fire support systems supporting the force.
- Estimates fire support needed.
- Obtains ammunition supply rate from S-4 and S-3 of artillery unit. Determines effects of ammunition supply rate on operation. Gathers information for development of fire support plan.
- Obtains PZs from S-3.
- Continues to gather information for development of fire support plan.
- Coordinates fire support requirements with S-3.
- Provides S-3 with available fire support recommendation for indirect fire preparations.
- Obtains LZs and flight routes from S-3 (AO).
- Obtains recommended targets from S-2. Develops air requests to support ground tactical plan.

- Completes fire support plan.
- Submits fire support plan to S-3 for commander's approval; on approval, distributes.

NOTE: Subordinate units will develop their fire support plans. FSC will coordinate and consolidate them into the helicopterborne plan.

- Receives operation order.

The subordinate unit commander takes the following actions:

- Receives operation notification.
- Gathers personnel and equipment data.
- Reports personnel and equipment to battalion staff. Receives maps.
- Receives battalion warning order.
- Issues company warning order.
- Determines initial supply requirements.
- Subunits initial supply requirements to S-4.
- Begins preparation of air loading plans.
- Continues mission preparation.
- Obtains appropriate PZs, LZs, flight routes, and aircraft allocation from S-3.
- Continues mission planning.
- Obtains air movement plan from S-3.
- Completes air loading plan.
- Submits air loading plan to S-3.
- Receives operation order.
- Analyze mission.
- Develop fire support plan.
- Develop ground tactical plan.
- Prepare operation order.

## Section III. Action of the Helicopterborne Force Commander

### 7301. Planning Sequence

The commander carefully analyzes the tasks and elements that are required to accomplish his assigned mission. As indicated in chapter 1, paragraph 1005b, when planning unit tasks, the commander is careful to maintain unit integrity.

- a. As indicated in chapter 3, the commander will consider the five basic plans that comprise the helicopterborne force operation. These plans—the ground tactical plan, the landing plan, the air movement plan, the loading plan, and the staging plan—are developed concurrently.
- b. The ground tactical plan is driven by the assigned mission and is, therefore, developed first. Consequently, it forms the basis from which the other plans are derived.

### 7302. Time Schedule

Planning for the helicopterborne force operation requires time—time to plan, time to prepare, and time to brief. The planning will be as detailed as time will permit.

The HTC, Commanding Officer, 3d Battalion, \_\_\_\_\_ Marines, received the MEB warning order at 0900. He determined that his force would be ready to land, L-hour, at 0600 the next morning. At 0945, he met with his staff and officers at the battalion CP and issues his warning order. Using the reverse planning sequence, the HTC outlined the following schedule:

0600	L-hour
0530	1st assault wave departs PZ
0515	En route from assembly area to PZ
0500	Units arrive assembly/staging areas
0415	Reveille
2100	Bn XO's brief
2000	Status update from Bn staff
1800	Evening meal
1700	Issue operations order X-9X (JUSTSAYNO)
1600	Receive S-2 intelligence brief
1500	Receive S-4 equipment and logistical brief
1400	Receive S-1 personnel status brief
1300	Receive S-3 brief
1200	Noon meal
1100	Complete issuance of warning order
0945	Issue warning order

### 7303. Ground Tactical Plan

1. As indicated in chapter 3, paragraph 3303, all planning evolves around the ground tactical plan. The plan specifies actions in the objective area which ultimately accomplish the mission. In this situation, the battalion commander is literally faced with three (3) primary objectives.

- a. Primary Objective Number 1: LZ SNOWBIRD.
- b. Primary Objective Number 2: Objective Z, the Ande Municipal Airport.
- c. Primary Objective Number 3: Link up with the mechanized force.

2. The battalion commander is determined to keep the operation as simple as possible. Therefore, he assigned one mission to each of his rifle companies.

- a. Company I (reinforced) would secure Primary Objective Number 1, LZ SNOWBIRD. Company I would provide security at the LZ and guidance to all incoming assets. The company commander would exercise control over the LZ, provide guides for the incoming units, and maintain security to preclude paramilitary forces from disrupting the landing plan. Once Company L had arrived, Company I would become the battalion reserve.
- b. Company K (reinforced) would follow Company I into LZ SNOWBIRD and immediately deploy to seize Objective Z, the Ande Municipal Airport. Company K would continue operations until it had secured complete control of the air facility. This control would be established to allow \_\_\_\_\_ MEF and the government of Grande to operate from the air strip and use the buildings.
- c. Company L (reinforced) would initially act as the reserve unit. Company L would help the

designated PZCO, CO, H&S Company. Company L would provide security for the PZ and personnel as needed to assist units moving from the staging/assembly areas to the PZ, as well as, help load materiel into aircraft as needed. On order, Company L would load at the PZ, land in LZ SNOWBIRD, and conduct the linkup operation.

3. A warning order was given to the battalion staff and company commanders at the 0945 meeting.

## 7304. Landing Plan

1. **General.** As indicated in chapter 3, paragraph 3304, the landing plan must support the ground tactical plan. Consequently, the commander examined the following:

a. Helicopter assets were available to enable two reinforced companies to be airlifted simultaneously. The battalion commander decided to lift Company I (reinforced) en masse. They would land in LZ SNOWBIRD at 0600 and secure it. Fifteen (15) minutes later, Company K (reinforced) would land in a single wave.

b. Once Company K had departed the LZ, the rest of the battalion could commence air movement. Initially, the battalion CP would land with Company K and set up in the vicinity of LZ SNOWBIRD. On signal, the battalion CP would establish itself in the vicinity of the Ande Municipal Airport.

c. At the conclusion of landing operations, Company I would remain in the areas adjacent LZ SNOWBIRD.

### 2. Special

a. The landing plan will sequence elements into the AO to ensure that elements arrive at the designated location at the designated time to execute the ground tactical plan.

b. As indicated in chapter 3, paragraph 3304, The following considerations were examined and decisions were made.

(1) Size and location of LZ.

(2) Forces we anticipate encountering in and around the LZ.

(3) Unit tactical integrity.

(4) Ensuring all Marines are briefed and oriented.

(5) Ensuring Company I is sufficiently task-organized and equipped to destroy the enemy in the area and secure the LZ.

(6) Ensuring the landing plan offers flexibility in the event circumstances require it.

(7) Planning supporting fires in and around the LZ.

(a) Plan fires for air movement.

(b) Plan fires for the landing.

(c) Plan fires for subsequent operations.

(8) Ensuring plans are made for resupply and MEDEVAC.

## 7305. Air Movement Plan

1. The air movement plan is based on the ground tactical plan and the landing plan. It specifies the schedule and provides instructions for air movement of troops, equipment, and supplies. Furthermore, it provides coordinating instructions regarding air routes, control points, speeds, altitudes, and formations. The planned use of air fire support, security, and linkup operations should be included.

2. Air movement for this operation will be developed by the AO in coordination with the ACE.

3. Tentative flight routes were selected by the HTC.
4. The air movement plan is prepared jointly by the GCE and the ACE.
  - a. The air movement plan contains the aircraft allocations, designates the number and type of aircraft for each wave of the operation, and specifies the departure points, the routes to and from the PZ and LZ, and the loading, liftoff, and landing times.
  - b. The air movement plan ensures that all required personnel and materiel are accounted for in the movement and that each aircraft is properly loaded, correctly positioned, and directed to the LZ.

### 7306. Loading Plan

1. As indicated in chapter 3, paragraph 3306, the loading plan is based on the air movement plan. It ensures troops, equipment, and supplies are loaded on to the correct aircraft. Unit integrity is essential; however, personnel weapons, and equipment may be cross-loaded so that C<sup>2</sup> assets, combat power, and an appropriate weapons mix arrive in the LZ ready for combat.
2. A bump plan ensures that essential personnel and equipment are loaded ahead of less critical loads in case there are aircraft breakdowns or delays. The loading plan for 3d Battalion, \_\_\_\_\_

Marines was contained in the battalion SOP for helicopterborne operations.

3. Load plans are carefully coordinated with the aviation elements and verified by the embarkation officer and the AO.
4. The loading plan will control the movement of troops, supplies, and equipment at the PZ, designate unit loading sites, and control the arrival, loading, and departure of all aircraft.
5. 3d Battalion, \_\_\_\_\_ Marines SOP was detailed, well-planned, and well-rehearsed.
6. The PZ was selected by the battalion commander and the headquarters commandant was designated the PZCO.

### 7307. Staging Plan

1. The staging plan was based on the loading plan and was covered in the battalion SOP for helicopterborne operations. It prescribed the arrival times of units at the PZ in the proper order for movement.
2. Loads stand by at the PZ ready for the arrival of the aircraft. The staging plan restates the PZ organization, defines routes to the PZ, and provides instructions for linking up with the aircraft.