

**FMFM 3-3**

# **HELICOPTERBORNE OPERATIONS**



**U.S. MARINE CORPS**

**PCN 139 000200 00**

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DEPARTMENT OF THE NAVY  
HEADQUARTERS UNITED STATES MARINE CORPS  
WASHINGTON, D.C. 20380

12 July 1972

FOREWORD

1. PURPOSE

This publication, FMFM 3-3, Helicopterborne Operations, sets forth the doctrine, tactics, and techniques to be employed in helicopterborne operations and training within the Fleet Marine Forces.

2. SCOPE

This manual covers the organization and principles of employment of helicopter and helicopterborne units. It discusses the command relationships, air-ground operations, coordinating and planning techniques, and the introduction into combat of helicopterborne forces and the attendant support required. Special considerations affecting the employment of helicopters in amphibious operations are discussed.

3. SUPERSESSION

FMFM 3-3, Helicopterborne Operations, of 23 November 1966, with change 1 dated March 1965 and change 2 dated May 1967.

4. CHANGES

Recommendations for improving this manual are invited from commands as well as directly from individuals. The attached User Suggestion Form should be utilized by individuals and forwarded to Commanding General, Marine Corps Development and Education Command (Director, Development Center), Quantico, Virginia 22134.

5. CERTIFICATION

Reviewed and approved this date.



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Lieutenant General, U.S. Marine Corps  
Chief of Staff

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USER SUGGESTION FORM

From: .  
To: Commanding General, Marine Corps Development and Education Command  
(Director, Development Center), Quantico, Virginia 22134

Subj: FMFM 3-3, Helicopterborne Operations; recommendation(s) concerning

1. In accordance with the Foreword to FMFM 3-3, which invites individuals to submit suggestions concerning this FMFM directly to the above addressee, the following unclassified recommendation(s) is(are) forwarded:

a. ITEM #1 (May be handwritten; if more space is required, use additional sheets and envelope.)

(1) Portion of Manual: (Cite by paragraph and/or page number.)

(2) Comment: (Explain in sufficient detail to identify the points of the suggestion.)

(3) Recommendation: (State the exact wording desired to be inserted into the manual.)

b. ITEM #2

(1)

(2)

(3)



c. ITEM #3 (etc.)

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## HELICOPTERBORNE OPERATIONS

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## CHAPTER 1

## INTRODUCTION

## 1001. GENERAL

a. The concept of extreme mobility through the extensive use of helicopters in tactical operations is an important part of Marine Corps doctrine today. The use of helicopters allows Marines to operate well removed from their rear bases for extended periods of time. New helicopters with greater load-carrying capability have made the advanced fire support base concept a reality. The use of helicopters to insert and extract long-range reconnaissance teams gives us a highly effective intelligence capability. Troops can be regularly resupplied by helicopter, thereby reducing the weight the troops must carry and their dependence on advanced supply points. The helicopter affords the commander additional means for locating the enemy. Its speed and mobility provide the freedom of rapid maneuver to fix the enemy and mass sufficient combat power to destroy him over distances heretofore impossible to traverse with rapidity.

b. A helicopterborne operation is an operation wherein the movement of troops, supplies, and/or equipment is accomplished by helicopters. It is characterized by the unique influence it exerts on the commander's combat potential in terms of increased mobility and freedom of action. The increase in mobility and freedom of action provides the commander a multitude of options in most tactical situations which were never available in the past. Although the tactics and techniques of offensive and defensive combat expressed in the appropriate FMFM series are applicable to helicopterborne forces, the flexibility and versatility of the helicopter permit the ground commander to reduce time and space limitations normally encountered in movement of assault forces. The helicopter enables an assault force to cross terrain obstacles, bypass hostile areas, and attack, destroy, and/or seize objectives deep in hostile areas. Helicopters enable the commander to concentrate the necessary combat power at the decisive time and place and, once the desired result has been attained, to rapidly redeploy his forces as necessary.

c. Helicopterborne operations require detailed planning and coordination with the helicopter and helicopterborne units, air control agencies, and fire support agencies. See section II, chapter 3, for a detailed discussion.

d. This manual discusses helicopterborne operations as a part of the amphibious operation (part I) and also as they relate to subsequent operations ashore (part II). It includes command relationships, planning considerations, and execution. Separate coverage is given each type of helicopterborne operation to facilitate the use of this manual as a ready reference and to highlight the differences and peculiarities involved.

#### 1002. MISSION

The mission of Marine Corps helicopter units is to transport cargo and personnel, to provide utility combat support, and to provide other air support as may be directed. These services are provided for the landing force during the ship-to-shore movement and within the objective area during subsequent operations ashore. These operations are a part of the assault support function provided by a Marine aircraft wing. During the conduct of helicopterborne operations, helicopters will be employed in both tactical and administrative/logistic missions. Tactical missions may consist of helicopterborne assaults to seize critical terrain, to isolate pockets of enemy resistance, to attack the enemy's flanks and/or rear, to conduct raids, or to conduct patrols. Administrative/logistic missions include supply/resupply missions, movement of equipment, nontactical movement of troops, casualty evacuation, messenger and liaison service, and prisoner-of-war evacuation.

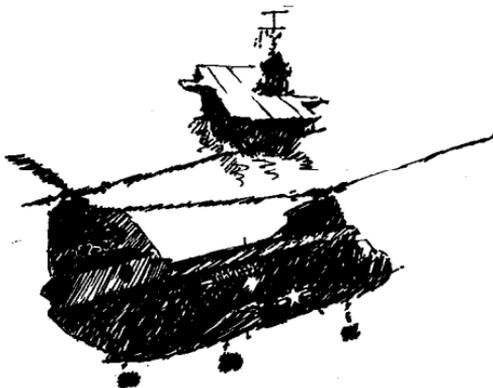
#### 1003. ORGANIZATION

Marine Corps doctrine emphasizes the close integration of air and ground operations. A Marine air-ground task force with a separate air-ground headquarters is normally formed for combat operations in which substantial combat forces of both attack aviation and ground units participate. The assignment of helicopters in support of a ground combat force, or the assignment of ground combat elements to an aviation organization for security or logistic support, does not necessarily require the formation of an air-ground task force headquarters. It may be necessary, however, to provide specialized augmentation for the headquarters of the commander who has primary responsibility for accomplishment of the prescribed mission.

PART I

HELICOPTERBORNE OPERATIONS IN AMPHIBIOUS OPERATIONS





## CHAPTER 2

### ORGANIZATION AND COMMAND

#### 2001. GENERAL

An amphibious operation is an attack launched from the sea by naval and landing forces, embarked in ships, craft, or helicopters, involving a landing on a hostile shore. The amphibious operation is a complete operation within itself. As an entity, it includes planning; embarkation of troops and equipment; rehearsals; movement to the objective area; final preparation of the objective; assault landing of troops, supplies, and equipment; and support of the landing force until termination of the amphibious operation. The essential usefulness of the amphibious operation stems from mobility and flexibility; i.e., the ability to concentrate balanced forces and to strike with great strength a selected point in the hostile defense system. The helicopterborne ship-to-shore movement is the salient feature of the amphibious operation and is the major contributor to its flexibility.

#### 2002. RELATIONSHIP OF THE HELICOPTERBORNE OPERATION TO THE AMPHIBIOUS OPERATION

The Marine Corps concept of amphibious assault places primary emphasis on helicopterborne assault techniques complemented as required by surface assault utilizing amphibious vehicles and landing craft. Helicopterborne operations enable the landing force commander to achieve a rapid buildup of combat power ashore by expeditiously landing assault elements with their equipment and supplies. Additionally, resupply, MEDEVAC, and recovery of crews and passengers of downed helicopters must be accomplished during the initial assault period. Helicopterborne elements of the landing force are rapidly projected into landing zones (LZ's) to achieve surprise, to avoid obstacles or defenses, to add depth to the assault, or to achieve other tactical purposes. Utilizing a varying quantity and type of helicopters and helicopter platforms, operating from many different types of

amphibious ships, the helicopter ship-to-shore movement possesses the capability for immediate response to high priority requests. A multideck operation refers to an amphibious operation in which helicopters are operated from more than one flight deck or platform. The complexity of this operation varies with the size of the force employed. As many as 20 decks/platforms could be required in an amphibious assault where major portions of a Marine amphibious force were to be landed by helicopter. Helicopters are also used to move troops already ashore, whether landed by helicopter or surface means, when the situation requires it. Helicopterborne units are light forces without organic armor. Their employment in amphibious operations is therefore normally coordinated with the surface assault elements for early linkup and support. However, the feasibility of a rapid buildup ashore of available firepower allows vertical envelopment operations in many combat environments without a tactical requirement for early linkup.

### 2003. ORGANIZATION OF THE LANDING FORCE

The organization of landing force helicopterborne and helicopter units will be governed by the scope of the operation. Normally, helicopter units are tasked to support ground units for the assault. Planning for the assault requires a high degree of coordination between these units and parallel naval forces. In the case of an extensive multideck helicopterborne assault, a special subordinate landing force task organization may be required. When established, this organization will be designated a helicopter assault force and will consist of a headquarters, ground units, helicopter units, and combat service support units necessary to accomplish the mission. Such an organization remains within the overall structure of the landing force in the same manner as the surface landed elements of the landing force. The parallel naval organization is the helicopter transport group/unit which includes the ships in which the helicopters and the helicopterborne units with their supplies and equipment are embarked.

### 2004. ORGANIZATION OF HELICOPTER UNIT

During the ship-to-shore movement, no special organizational changes are required for the helicopter unit. While it is desirable to operate a squadron from one ship, fragmentation may allow the commander more flexibility. No command changes are required, but the overall control of helicopters during the ship-to-shore phase is accomplished through the helicopter direction center (HDC), normally embarked aboard the flagship of the helicopter transport group/unit commander. For control procedures, see NWIP 22-3( ), Ship-to-Shore Movement.

### 2005. COMMAND RELATIONSHIPS

The relationship between naval and landing force tasks during the planning and execution of an amphibious operation requires the establishment of a parallel chain of command at all levels of the amphibious task force organization. Except during the planning phase, the amphibious task force commander is responsible for the operation and exercises that degree of authority over the entire force necessary to ensure success of the operation. The amphibious task force and landing force commanders are on a corresponding level of command with regard to their respective components. Corresponding commanders are established at each subordinate level of both naval and landing force elements. Matters of command which affect only the landing forces are dealt with by the landing force commander through the landing force chain of command.

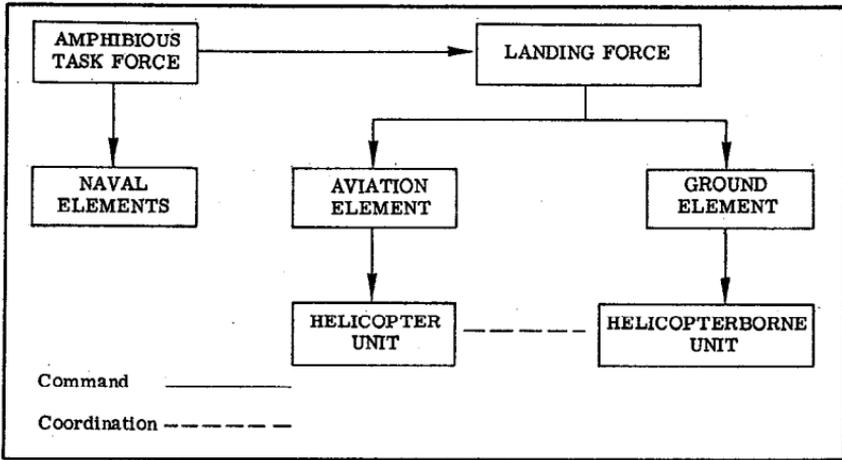


Figure 1.--Command Relationships Between Amphibious Task Force/  
Landing Force and Within the Landing Force.

a. Within the Amphibious Task Force.--The employment of helicopter and helicopterborne units in an amphibious operation does not require a change in the normal command relations between the naval and landing force units. (See fig. 1.) The helicopter and helicopterborne units are component parts of the landing force and are under the command of the landing force commander. The amphibious task force commander exercises command authority of these units through the landing force commander.

b. Within the Landing Force.--The landing force operation order prescribes the command relations which will exist between the helicopter and helicopterborne units. All or part of the helicopter unit may be tasked to support the helicopterborne unit for a specified duration; i.e., H-hour to H+90 minutes, D-day to 1200 D+1. At the completion of this time period, the helicopters would then revert to the support of the entire landing force. When helicopter units are directed to support a helicopterborne unit, the helicopter unit commander establishes liaison with the helicopterborne unit commander and concurrent and parallel planning is conducted by the two commanders. Command of the helicopter unit remains with the parent aviation unit.



## CHAPTER 3

## PLANNING FOR HELICOPTERBORNE OPERATIONS

## Section I. INTELLIGENCE PLANNING

## 3101. GENERAL

At the beginning of the planning phase, component commanders of the amphibious task force report for planning purposes to the amphibious task force commander. He has the responsibility for the preparation of the overall plan for the amphibious operation. The amphibious task force commander serves as the coordinating authority for the conduct of planning. Since immediate responsibility for the conduct of landing force operations ashore is vested in the landing force commander, the planning and execution of the landing and assault are primarily his concern. The planning for helicopterborne operations includes intelligence, operational, communication, and logistics planning.

## 3102. INTELLIGENCE PLANNING

Intelligence planning commences with the receipt of planning memoranda from higher headquarters and continues throughout the operation. A preliminary intelligence estimate is prepared to furnish the commander with sufficient intelligence to formulate basic decisions and to assist him in issuing planning guidance. The principal intelligence collecting agencies available in an amphibious operation are unified and specified command intelligence centers and facilities; the intelligence sections and centers of Army, Navy, and Air Force component commanders; fleet intelligence centers; and the intelligence sections of the amphibious task force commander and other operating forces. Within the framework of these collection agencies will be found communication and electronic reconnaissance elements; special intelligence units; and aerial, submarine, surface, and ground reconnaissance elements. In planning for a helicopterborne operation,

sufficient intelligence must be collected to meet all operational and logistic planning requirements of the helicopter and helicopterborne units.

### 3103. ENEMY CAPABILITIES

When planning a helicopterborne operation, special emphasis is placed on enemy capabilities to:

- a. Employ nuclear, biological, or chemical warfare means.
- b. Redispose forces in the objective area prior to the assault, with particular emphasis on his armor and air defense.
- c. Attack helicopterborne units during their landing and reorganization.
- d. Reinforce his forces.
- e. Employ electronic countermeasures to include jamming and deception.
- f. Employ civilians and quasi-military forces to interfere with the landings.
- g. Employ mines or similar hazards emplaced in landing zones and not readily detectable by aerial imagery.
- h. Bring mortar or artillery fire to bear on helicopters and helicopterborne units in the landing zone.
- i. Bring fire to bear on helicopters en route to and from the landing zone.
- j. Identify suitable landing zones and make specific provisions for their surveillance and subsequent attack.
- k. Formulate a plan of supporting fires which will provide flexible defensive support of critical areas against helicopterborne operations.
- l. Evaluate the characteristics of helicopterborne operations in order to minimize their advantages and to exploit their weaknesses.

### 3104. WEATHER

- a. Early in planning, a study must be made of the weather conditions likely to prevail during the proposed operation. Data are obtained by analyses of climatological studies, long- and short-range forecasts, and weather reconnaissance. The study includes an analysis of the possible effects of the forecast weather on all phases of the contemplated operation and will indicate the overall feasibility of the operation from the weather viewpoint. Weather is a primary consideration in the selection of the date and hour of landing.
- b. Weather conditions have a significant effect on the conduct of helicopterborne operations, the delivery of observed fires, and other air support operations. Air operations may be curtailed by adverse effects of temperature, precipitation, visibility, cloud cover, surface wind velocity,

and humidity. Adverse weather reduces both ground and air mobility but does offer increased concealment for our forces. In any case, the use of helicopters places increased emphasis on the requirement for accurate and detailed weather predictions.

c. Helicopters are capable of operating visually under substantially lower ceilings and less visibility than fixed-wing aircraft. However, the helicopter becomes increasingly vulnerable to ground fire as it is forced to fly lower and slower as weather conditions deteriorate. When weather conditions preclude the use of fixed-wing escorts, the employment of helicopters must be weighed against the increased risk. If the urgency of the mission requires, transport helicopters may be directed to proceed with only helicopter gunship escort. The planning for a low altitude, low visibility flight must be done carefully. The lane selected must provide the best terrain aids to navigation even if the overall distance is greater. Although helicopters are capable of single plane flight under instrument conditions, they must be able to descend to the LZ either through visual flight conditions or by utilizing electronic terminal guidance.

d. During the planning and execution phases, adverse weather may cause delays or modification of flight altitudes and formations, approach and retirement lanes, escort plans, LZ's, and fire support plans. Weather minimums must be established early in the planning phase to prescribe the conditions that the landing force commander will accept to mount the operation. Because of the variety of helicopter support provided during combat conditions, it is not feasible to establish specific weather minimums for all situations. Factors such as type of support, mission precedence, number and type of helicopters and fixed-wing aircraft employed, aircraft capabilities, pilot experience and capabilities, ordnance available, the nature of the weather, and enemy situation all combine to dictate weather requirements for completion of the mission. Although one or two helicopters might be able to accomplish an emergency MEDEVAC or resupply mission under extremely adverse weather conditions, larger scale operations normally would require a significantly better weather in order to afford sufficient airspace for the maneuver of a large number of aircraft.

e. In the event that adverse weather conditions may arise, a pre-planned weather reconnaissance should be flown in sufficient time so that timely actual weather information can be made available to the helicopter unit, helicopterborne unit, and the controlling agency. If weather precludes fixed-wing support, a decision must be made as to whether to commence the helicopterborne assault supported by helicopter gunship escort and accept the risks of increased losses and slower buildup or to delay or cancel the operation. If a hold or cancellation of the helicopterborne operation is deemed necessary, all participants must receive timely notification.

### 3105. TERRAIN

a. Terrain in the objective area influences the selection and number of suitable landing zones and assignment of missions to subordinate units. Adequate terrain intelligence is needed to permit selection of landing and assembly areas, to plan operations to seize and defend objectives, and to plan reconnaissance of and routes to objectives, assembly areas, or other positions. The nature and extent of obstacles to enemy movement, particularly armor, must be evaluated before preparation of barrier plans. The effects of terrain on the employment of nuclear weapons by either side must be analyzed.

b. Terrain intelligence is disseminated as available. It should include maps, small- and large-scale aerial photographs of the objective area, imagery interpretation reports covering enemy installations within and near the objective area, aerial reconnaissance reports, terrain studies, descriptions of obstacles, defensive works, navigational hindrances, and LZ's as well as large-scale terrain models.

c. Information of a general nature concerning potential LZ's may be found in the amphibious objective studies. LZ data which must be obtained to support planning and operations includes the items listed below:

(1) The location of each LZ must be determined in terms of either geographic or universal transverse mercator grid coordinates as directed.

(2) Altitude of an LZ is determined by map inspection or by reconnaissance personnel use of an altimeter or barometer.

(3) The directional orientation of the LZ and its immediate approaches, with respect to dominating terrain.

(4) Descriptions of prominent terrain, unusual natural or man-made formations, bodies of water, structures, or other landmarks that would tend to help in orientation of helicopter pilots and disembarking troops.

(5) All physical factors of each LZ affecting either helicopter or ground operations will be obtained as outlined below:

(a) Size.--Appropriate size is determined by the number and type of helicopters to be accommodated. Even though the landing gear of the helicopter will rest on a relatively small plot of ground, a larger area clear of obstructions is still required to provide necessary rotor clearance. In addition, the landing of a helicopter in a small or restricted area is of necessity a slow, delicate process, exposing both the aircraft and passengers to enemy observation and fire. Depending on the height of obstructions in proximity to the landing zone, individual landing points should be separated by distances equal to two to four times the rotor diameter. The size of the LZ should be stated in terms of physical dimensions; i.e., 40 by 200 meters.

(b) Concealment.--For most effective helicopter operations, LZ's and helicopter lanes should be shielded from enemy observation, either by masking terrain or wooded areas. If it is impossible to conceal helicopter activity with these natural terrain features, it may be necessary to place smoke between the LZ and possible enemy positions.

(c) Location.--LZ's should be located as close to objectives as possible consistent with the requirements for surprise and security. LZ's that are used primarily for supply and resupply should be located in proximity to desirable storage or dump areas to minimize movement of cargo after delivery.

(d) Approaches and Exits.--It is undesirable to establish LZ's in locations that require vertical ascent or descent by helicopters operating from them. Helicopters require a large amount of reserve power to climb vertically after takeoff or to control a vertical descent; this decreases the allowable payload. To permit more effective use of

helicopters, the approaches to and exits from LZ's must be clear of communication wire and all other obstacles. Since helicopters can take off and hover with less power (hence more allowable payload) when they are headed into the wind, LZ's should be selected that provide adequate space for helicopter pilots to maneuver into the wind.

(e) Surface Material and Soil Trafficability.--Information should be obtained concerning surface materials and soil trafficability within the LZ's. The former should be considered in regard to possible rotor wash effect; the latter for vehicular, troop, and logistic mobility. Loose debris can cause clogging of engine intakes, temporary loss of visibility, possible bodily injury to troops, or damage to the helicopters and may reveal helicopter activity to the enemy. The following specific surface considerations should be studied prior to zone selection:

1 Grass and vegetation from newly mowed fields can clog engine intakes.

2 Loose dirt and sand can cause damage to engine and rotor blades, temporary loss of pilot visibility, and temporary blinding of troops.

3 Snow is not recommended as an LZ surface without prior reconnaissance because the underlying surface may be unsatisfactory.

4 Dry grasslands represent a fire hazard when exposed to hot exhaust gases.

5 Flooded rice fields often contain mire and water of greater depth than anticipated, both of which will greatly hinder troop movement.

6 Tall grass or brush which appear relatively smooth from the air may conceal humps, boulders, or terrain faults which could damage a landing helicopter.

(f) Obstacles (Natural and Manmade).--Obstacles in the LZ must be evaluated. In order to evaluate obstacles effectively, familiarity with helicopter landing and takeoff characteristics is essential. Although some obstacles may not prevent helicopter landings, they may be of great significance to disembarked troops. For example, a line of trees or powerlines in the area may prevent helicopter landings while not materially affecting troop activities. Conversely, a deep, precipitous ravine or extensive, swampy border area may not influence helicopter landings, but would constitute a barrier to ground units.

(g) Topography.--Although helicopters can "touchdown hover" (a procedure whereby one or more wheels are placed on the ground but the full landing is not executed) on any gradient which provides the necessary rotor clearance on the uphill side, preselected landing sites should be as level as possible. Terrain sloping more than 14 percent (8 degrees) is usually considered too steep for helicopter landings, although a touchdown hover may be used in emergencies.

(h) Cultivated Features.--Cultivated areas in use by natives of the region (type cultivation, etc.) must be noted. Vegetative cover can be a restricting factor in the landing of helicopters, particularly in mass landings. High trees at the edge of an LZ are restrictive.

Scattered trees within a potential LZ may be locally restrictive, but may not rule out the use of the LZ as a whole. Brush, if over 3 feet high, is usually considered restrictive to landing helicopters because of likely damage to fuselage and tail rotors. The following specific vegetative types should be evaluated as suggested:

1 Field crops are generally not restrictive except in cases where the crops have supports, such as vineyards. Newly plowed fields are usable but not desirable because of their uneven surface. Corn fields are not restrictive; however, bamboo and like grasses are restrictive due to their concealment of obstacles.

2 Ricefields are generally well suited for use as LZ's. The elevated dikes are usually the only obstacles present. During the flooded stage of the crop season, however, water and mire depth will cause trafficability problems.

3 Grasslands are generally desirable unless associated with meadow marsh, scattered rocks, or broken surface.

(i) Adjacent Terrain and Exits.--Adjacent terrain and exits must be studied in light of the relief, drainage, vegetation, cultural features, communications, lanes of approach, observation, visibility, cover, and concealment. The nature and size of exits from the LZ, both natural and manmade, existing routes of communications, and general area trafficability can then be evaluated.

(j) Other Pertinent Factors.--In response to the requirements of the situation, or as directed by specific EEI's, it may be necessary to obtain other information.

#### 3106. PRELANDING RECONNAISSANCE

Obstacles to helicopter landings may be emplaced by the enemy very quickly, and local weather conditions may not be as forecast. Therefore, it is essential that last minute confirmation of earlier reports on LZ's and approach lanes be obtained. This may be accomplished by aerial or ground reconnaissance activities or initial terminal guidance teams. Care must be taken not to divulge tentative LZ's and approach lanes to the enemy.

## Section II. OPERATIONAL PLANNING

## 3201. PRELIMINARY PLANNING

a. Development of the landing force concept of operations precedes detailed planning of the helicopterborne amphibious assault. The landing force commander's initial concept of operations ashore is developed during the analysis and comparison of broad sources of action and during the basic decisions concerning the selection of the beachhead and landing area. The concept, although general in nature during preliminary planning, is continually refined as detailed planning progresses and eventually becomes part of the operation plan.

b. The modern amphibious operation places primary emphasis on the helicopterborne ship-to-shore movement. Consequently, the availability of helicopters exerts considerable influence upon the determination of landing force objectives and the selection of the beachhead and landing areas. Further, an important consideration in the development of the landing force commander's concept of operations is the ship-to-shore movement means. Helicopter availability is of prime importance to this consideration.

c. Closely allied to evaluation of the basic decisions is the determination of requirements, the allocation of means, and the reconciliation of the means available with the requirements of the force as a whole. Concurrently with the rendering of decisions relative to the concept of operations ashore, requirements in terms of shipping, landing means, and fire support are determined. A tentative allocation of means is made to subordinate units in consonance with their prospective missions. Reconciliation of these factors is continuous throughout the planning cycle. Reconciliation normally involves procuring additional means or reducing requirements in excess of the means available, with consequent modification of the basic decisions.

d. A concept of operations which can be supported by naval and air elements is a prerequisite to preparation of detailed plans. It is the principal medium for coordination with other component commanders to ensure supportability. When the initial concept has been concurred in, the landing force commander issues the concept as an outline plan for guidance to his staff and subordinate commanders.

## 3202. PLAN OF ATTACK

a. General Considerations.--The plan of attack for the helicopterborne amphibious assault consists of the scheme of maneuver, the plan of supporting fires, and the landing plan. These three elements are interdependent and are considered in concert during planning. Integration of supporting arms plans with the plan for the ship-to-shore movement is of particular concern. The helicopterborne unit commander is concerned that his subordinate units are:

(1) Vulnerable and present concentrated targets while airborne and cannot fight to protect them.

(2) Vulnerable at the time of landing and may be disorganized for a short period of time.

(3) Weakest at the start of the attack and become stronger as the attack develops.

(4) Initially weak in heavy arms and transportation.

(5) Limited in logistic support to the ability of helicopters to effect resupply.

b. Scheme of Maneuver.--The scheme of maneuver is the plan for the execution of a tactical course of action. It includes the objectives, types of offensive maneuver to be employed, distribution of forces, and adequate tactical control measures. In formulating the scheme of maneuver for a helicopterborne amphibious operation, the principles of ground combat are valid. Variation in their application may be necessitated in consideration of the amphibious character of the attack.

c. Landing Plan.--The landing plan is essentially the plan for the ship-to-shore movement of the landing force. It provides the basis for initiation of the scheme of maneuver ashore. Formulation of the landing plan is governed by the following:

(1) Elements of the landing force are habitually landed in the formations dictated by the requirement for initiating combat ashore.

(2) Mobility of the landing force is exploited to the utmost.

(3) The landing plan and the scheme of maneuver are totally interdependent and are the integrated plan for maneuver for the amphibious assault.

(4) Effective employment of air and naval gunfire support in coordination with the ship-to-shore movement.

(5) The rapid buildup of combat power ashore.

(6) Flexibility in the echelonment and landing of reserves and supporting arms.

d. Plan of Supporting Fires.--The fire support means available and the capabilities of these means are carefully considered in developing the plan of attack. Until artillery can be landed, naval gunfire support ships and aircraft provide preparation fires and fires in support of the attack. This requires integration of the available supporting fires with the ship-to-shore movement and with the maneuver of ground elements. As artillery is phased ashore, artillery fires augment other fires in accordance with a preconceived plan. The fire support plan ensures the compatibility of close and continuous fire support of the maneuver elements with the uninterrupted continuation of the ship-to-shore movement.

### 3203. SELECTION OF HELICOPTER LZ'S

a. An LZ is a specified ground area for landing assault helicopters to embark or disembark troops and/or cargo. The landing force commander selects the LZ's based on the recommendations of the helicopterborne and helicopter unit commanders and advises the amphibious task force commander. In reviewing these selections, the amphibious task force commander considers the ability of his forces to support the proposed assault landings therein.

There is a continuing need for concurrent and parallel planning at all command echelons involved in the helicopterborne operation. Coordination is necessary between helicopterborne units and helicopter units, with the helicopter transport group, between the senior aviation and ground units, and at the amphibious task force and landing force level. The selection of LZ's and helicopter lanes is of interest to all of these echelons. Therefore, their recommendations and requirements are considered in making these selections. The principal factors in the selection of helicopter LZ's are:

- (1) The landing force concept of operations ashore.
- (2) Enemy capabilities and dispositions, particularly the location, type, and density of enemy anti-aircraft installations.
- (3) Nature of the terrain over which the helicopterborne units contemplate maneuvering after landing and proximity to initial objectives.
- (4) Requirements for logistic support.
- (5) Requirements for air, naval gunfire, and artillery support.
- (6) Available helicopter lanes to and from the LZ and their restrictive effects on the employment of air, naval gunfire, artillery, and the fire support of other forces.
- (7) Ease of identification from the air.
- (8) Suitability and capacity for the landing and takeoff of helicopters.

b. An LZ may include any number of landing sites and landing points. Landing sites within a zone are used by the helicopterborne unit as a tactical control measure to land certain subordinate units in specific locations. These units are usually given specific missions; i.e., land and secure the east side of the LZ. When separation of units is not required, the helicopter wave or flight leaders should be given the prerogative to land where safety and flight characteristics are paramount. A landing point is a specific point where one helicopter can land. Landing points are usually used for placement of artillery or supply positioning. LZ's are designated by a compatible series of code names, landing sites by color, and landing points by two-digit numbers. (See fig. 2.)

c. The number of LZ's utilized depends on the plan of attack and is directly related to the availability of suitable terrain and to the size of the force lifted. Terrain may dictate landing in a one- or two-helicopter size LZ; landing could be made in an unrestricted open field with 40 or more helicopters in a single flight.

d. Size of the LZ required is dependent upon the height of obstacles surrounding the zone and the type of helicopter being utilized. (See fig. 3.) Other LZ requirements are:

- (1) Slope not to exceed 14 percent or 8 degrees.
- (2) Surface clear of all debris, stumps, rocks, holes, and trenches that exceed 10 inches in height or depth.

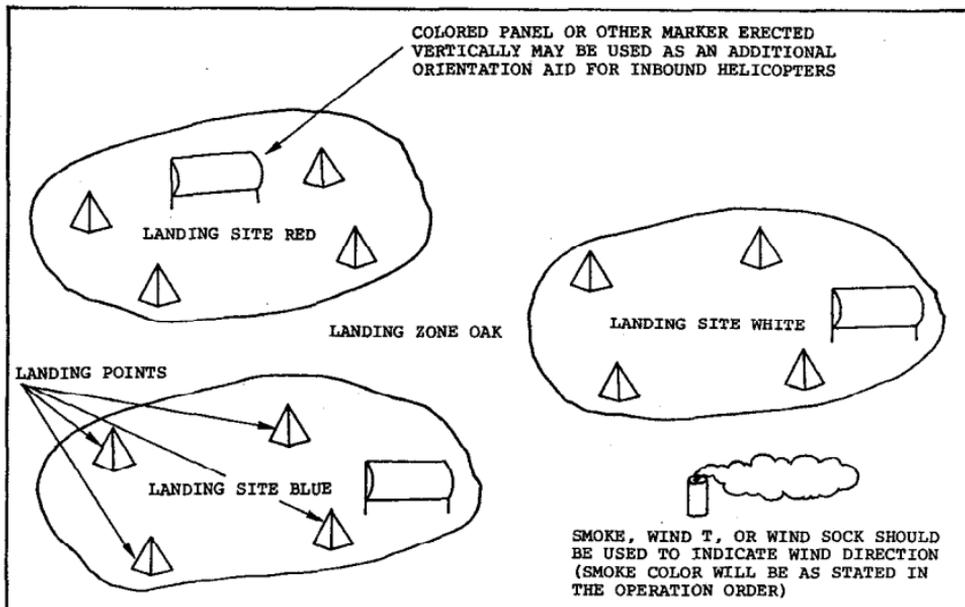


Figure 2.--Helicopter Landing Zone.

(3) Mark zone on-call with smoke so the pilot can identify LZ and wind direction.

e. The LZ selected must be constantly evaluated against one major factor--the mission assigned. Each time an LZ is selected, an alternate zone is also designated in the event the primary zone is not usable. The criteria for selection of an alternate LZ are exactly the same as for the primary. Selection of alternate zones is a joint consideration of the

TYPE HELO	OBSTRUCTION HEIGHT (FEET)		
	5-40	40-80	80-
UH-1	100	150	200
AH-1	100	150	200
CH-46	175	250	350
CH-53	175	250	350

Figure 3.--Recommended Landing Zone Diameter (Feet).

helicopter unit and helicopterborne unit commanders. Alternate LZ's must facilitate the accomplishment of the mission.

#### 3204. SELECTION OF HELICOPTER APPROACH AND RETIREMENT LANES

a. A helicopter approach and retirement lane is an air corridor in which helicopters fly to and from their destination during helicopter operations. Lanes should be selected simultaneously with the selection of LZ's. These lanes are used to ensure fire support coordination along the path that the helicopters cover over the ground and as a means for the air control agency to coordinate the movement of the helicopters. Lanes are selected by the senior helicopter unit commander; however, they must be coordinated with the helicopterborne unit commander, the air control agency, and the fire support agency. Final approval is made by the landing force and amphibious task force commanders. In amphibious operations, these lanes are portrayed in the landing diagram and include air control points, altitude, and width. The dimensions will vary with each operation and will be determined by the number of lanes designated, aircraft formation, type of aircraft, terrain, weather (ceiling and visibility), and navigational aids. Supporting fires in, across, or near a lane must be closely controlled and coordinated in detail with helicopter movements. Coordination provides for maximum availability of fire support without unduly hazarding the helicopters.

#### b. Major considerations in selecting lanes are:

(1) Enemy Capabilities.--A study of enemy location and capabilities influences the selection of lanes. Ideally, lanes are selected which permit the helicopters to avoid enemy occupied locations. Where occupied locations must be traversed, lanes are selected which permit the helicopters to fly over the most lightly defended portions of the area. Helicopters may take advantage of reverse slopes and terrain irregularities to avoid enemy observation or fire. Enemy radar coverage is analyzed to determine best routes and altitudes to use in avoiding early detection.

(2) Fire Support.--The use of all fire support available should be considered to provide fire suppression and protection for the helicopters en route to and/or while approaching the LZ. Care is taken to avoid restricting the fires of ground units overflown en route. Lanes selected should avoid overflying ground tactical units where possible. Complicated maneuvers or flight paths should be avoided.

(3) Ease of Navigation.--It is desirable that the lanes follow terrain which facilitates navigation to and from the LZ. To facilitate navigation over water, areas without prominent terrain, or during night or adverse weather, a greater reliance must be placed on radar vectoring or electronic navigational aids. Well defined terrain is especially important when the helicopters are flying at very low level.

(4) Requirement for Control.--To ensure movement control of the helicopters, various control points are established at course changes, rendezvous points, and in the final LZ approaches. A control point should be either an easily recognizable terrain feature or located as a fixed bearing and distance from an electronic navigational aid. (See par. 5106f.)

(a) Wave Rendezvous Point (RP).--Wave rendezvous point is a position designated for assembling loaded helicopters. This point is located at a given altitude and position relative to the departure point.

(b) Departure Point (DP).--Departure point is an air control point at the seaward end of the helicopter approach route system from which helicopter waves are dispatched along the selected approach route to the initial point.

(c) Control Point (CP).--Control point is a position marked by a buoy, ship or craft, aircraft electronic device, or conspicuous terrain feature which is used as an aid to navigation and control of helicopters en route.

(d) Penetration Control Point (PCP).--Penetration control point is the point where helicopter waves penetrate a hostile coastline.

(e) Initial Point (IP).--Initial point is the final control point in the vicinity of an LZ from which individual flights are directed to their prescribed landing sites.

(f) Breakup Point (BP).--Breakup point is an air control point at which helicopters returning from an LZ break formation and are released to return to individual ship(s) or are dispatched for other employment. The breakup point may be at the same point, geographically, as the departure point.

c. Alternate lanes are selected during planning. Considerations pertinent to the selection of the primary also apply in the selection of the alternate lane. Complete information concerning alternate lanes is provided all pilots and troop unit leaders. A means of directing waves into alternate lanes is also planned. Since helicopter waves cannot be diverted effectively without ample warning, existing control points may be used to facilitate the shift of helicopter waves from one lane to another. Upon arrival at these points, helicopters may be directed to orbit pending instructions, or to proceed on an alternate lane from a specified control point. Instructions must be issued promptly so that limited helicopter flight duration will not become a factor which might impede the possible course of action.

d. Vertical and oblique aerial photographs of proposed lanes and LZ's greatly assist in the final selection of such lanes and zones. Photographs should cover the area from the penetration control point to the LZ's and areas immediately adjacent thereto. Such photographs are not only a valuable assistance in the final selection of proposed lanes and zones, but are valuable to the helicopter unit and helicopterborne force for detailed planning, to the helicopter coordinator (airborne) (HC(A)), and to air units providing helicopter cover and support. Requirements for such photographs must be made early in the planning phase, preferably on a scheduled basis. Last minute photographs of such areas are taken whenever possible. A timely method of delivery of last minute photographs to the user must be provided.

### 3205. CHANGING LANDING ZONES AND APPROACH AND RETIREMENT LANES

a. It may become necessary during the helicopterborne operation to shift from primary to alternate LZ's or to alter the course of helicopter flights. Shifting LZ's or lanes usually will present different problems and probably will affect other aspects of the overall operation.

b. The authority to change to the alternate LZ must be clearly established as soon as LZ's are selected. When the use of either LZ will not

affect the scheme of maneuver or plan of supporting fire of adjacent or higher troop units, the helicopterborne unit commander in coordination with the HC(A) may be delegated the authority to change from the primary zone to the alternate zone(s) to exploit a tactical advantage or to improve a ground situation. If the use of any selected zone will affect adjacent or higher level troop units, this authority cannot be delegated below the highest level troop unit affected, or that level which is able to effect the necessary coordination. Where a change in LZ involves a major route change, or where it involves complex problems of coordination, it will be necessary for the decision to be made at a higher level.

c. Each primary and alternate LZ and the helicopter transport area are connected by primary and alternate approach and retirement lanes. These lanes constitute no-fire/restricted fire areas while in use. When the plan of supporting fires permit both the alternate and primary lanes to be designated no-fire/restricted fire areas even when not in use, the authority to shift lanes may be delegated to the helicopter direction center or the HC(A). When the use of other than preselected lanes will not affect the scheme of maneuver or plan of supporting fire of adjacent or higher troop units, the HC(A) controlling may select lanes to accomplish the mission as required. If the use of any lane will affect adjacent or higher troop units, this authority cannot be delegated below the highest level troop unit affected, or that level which is able to effect the necessary coordination. If the decision to utilize a lane other than the lane in use requires the institution of a restrictive fire plan, then authority to change cannot be delegated below the amphibious task force tactical air officer.

d. Delegation of authority to subordinate units allows them to exercise the maximum flexibility. This authority includes, but is not limited to, changing from primary to alternate LZ's and approach and retirement lanes. The authority that is delegated must be clearly delineated in the operation plan. The requirement for coordination of helicopter flights with other aircraft, supporting fires, troop maneuvers, and maneuvers of adjacent troop units requires careful consideration before delegating the authority to make changes. The operation plans must also establish:

(1) The conditions under which such changes may be effected.

(2) Any limitations beyond which changes may not be made without approval of higher authority.

(3) The details of reporting changes.

(4) Other actions required to ensure coordination of helicopter operations with fire support and other air operations.

e. In making the decision to change, consideration is given to coordination of fire support, adequate notification of the air control system, and helicopterborne troop units involved.

### 3206. FIRE SUPPORT PLANNING

a. Planning Principles.--Fire support planning for the helicopterborne assault follows the principles established for the surface assault. The preparatory steps of the plan of supporting fires are similar. Details of fire support planning are covered in FMFM 7-1, Fire Support Coordination;

FMFM 7-3, Air Support; and FMFM 7-4, Field Artillery Support This paragraph is limited to a general discussion of certain peculiarities involved in the preparation of plans for fire support of helicopterborne operations. These peculiarities stem from:

- (1) The rapidity of movement and increased capability for assault in depth which the helicopter provides.
- (2) Helicopter vulnerability to enemy air attack and to anti-aircraft fire.
- (3) Helicopter and troop vulnerability while landing and immediately thereafter.
- (4) Helicopter lift limitations, which deprive the helicopterborne unit of certain organic fire support means; e.g., heavy artillery waves.
- (5) The requirement for neutralization of approach and retirement lanes.
- (6) The possible requirement for all available fire support to be shifted to the helicopterborne unit immediately upon its landing.
- (7) The possibility of a reduced requirement for fire support stemming from the ability of the helicopter to avoid defenses, particularly fortified areas.
- (8) Major dependence upon air support and helicopter lifted artillery for continuous support when operations are deep. This requires a greater number of aircraft for a longer period of time, and larger amounts of aviation ordnance and artillery ammunition.

b. Selection of Fire Support Means.--Fire support for helicopter operations will normally include employment of one or more supporting arms.

- (1) Attack aircraft, naval gunfire, and artillery prepare the LZ's and approach and retirement lanes by destroying known enemy threats prior to arrival of the first helicopter wave.
- (2) Fixed-wing aircraft provide en route air defense when a threat of enemy fighter aircraft exists. Armed helicopters escort the transport helicopters en route to the LZ and provide protection against small arms fire during the approach and while in the vicinity of the LZ. In addition, close-in helicopter fire suppression may be provided the maneuver element following the landing and when fixed-wing air support is not on station.
- (3) Naval gunfire and artillery, to the limit of their ranges, provide on-call fire support for the helicopterborne units. They interdict enemy routes leading into the LZ's and approach and retirement lanes.
- (4) Artillery support includes that furnished by long-range artillery and by direct support artillery lifted by helicopter to the LZ or to fire support bases. It provides preplanned fires on enemy approach routes, on known or suspected anti-aircraft and automatic weapon positions along helicopter lanes, and on-call fires throughout the zone of action of the landing force.

c. Nuclear Support

(1) Planning for nuclear preparation of the initial LZ's and approaches, together with subsequent nuclear support, requires careful consideration of timing and nuclear effects. Withdrawal of helicopters to areas safe from nuclear detonation should be considered in fire support planning. When helicopters are to be airborne at the time of a nuclear detonation, easily recognized control points must be designated. Helicopters should not progress beyond these control points prior to the nuclear detonation.

(2) A tentative time of landing will be planned but normally will not be confirmed until delivery has been made. The requirement for poststrike analysis must be considered in assessing possible delay in the landing. To decrease the probability of delay, it is desirable to hold alternate nuclear delivery means ready to cover the possibility of failure by the primary delivery means.

(3) In arriving at the time of helicopter landing subsequent to nuclear preparation, particular consideration is given to residual radiation in the objective area and to the dust cloud. Wind direction is most important if a dust cloud of any proportion exists. To satisfy considerations and yet obtain the maximum neutralization up to the time of landing, the nuclear detonation may be followed by supplementary nonnuclear fires until such times as troops can land safely. Prior to the landing, monitoring teams lifted by helicopter should be utilized to check the amount of ground contamination in the LZ.

d. Employment of Smoke.--Smoke may be used to restrict the visibility of enemy ground units. The advisability of employing smoke and the method of employment will vary with the situation. When conditions are analyzed and reveal a risk of hindering helicopters, smoke is not employed. The use of smoke by terminal guidance teams, support aircraft, supporting arms, and the helicopter units must be preplanned, controlled, and coordinated.

e. Antimechanized Defense Plans.--Tanks and heavy self-propelled antitank weapons will rarely be available initially to support helicopterborne units. For this reason, every effort is made to ensure an adequate antitank capability. A detailed mechanized defense plan which ensures optimum employment of all available antitank weapons and supporting arms is prepared.

f. Fire Support Coordination

(1) Fire support is planned for all courses of action. The speed with which the helicopter can maneuver and the fact that it may be necessary to change approach lanes or from primary to alternate LZ's requires careful and detailed plans for the coordination of supporting arms.

(2) When only nonnuclear fires are employed, plans are made for artillery and naval gunfire to be shifted within the area without halting helicopterborne operations. The necessity for a restrictive fire plan or trajectory limitations across helicopter lanes will depend on each situation and is considered in planning fires with trajectories near the aircraft's flight path.

## 3207. LANDING PLAN

Planning for the helicopterborne ship-to-shore movement is conducted in accordance with amphibious planning procedures.

a. Obtaining Tactical Integrity Ashore.--Since only a relatively small number of troops can be lifted simultaneously from a single amphibious ship equipped with a helicopter platform, troops of a single tactical unit may have to be embarked in several ships (spread loaded). Thus, it may be necessary to sacrifice integrity of larger units while en route to the objective area in order to achieve tactical integrity while the unit is landing.

b. Landing Plan Documents

(1) In order to provide optimum distribution of assigned helicopters and to ensure landing of troops and equipment in accordance with requirements, certain landing documents are prepared for the helicopterborne amphibious assault. They are:

- (a) Helicopter availability table.
- (b) Helicopter employment and assault landing table.
- (c) Heliteam wave and serial assignment table.
- (d) Helicopter landing diagram.

(2) Not all of these documents may be required for an operation; some or all may be altered or consolidated to satisfy specific requirements and permit flexibility. Additional documents are devised if needed. See paragraph 5106 for a detailed discussion of the landing plan.

## 3208. PLANNING FOR LINKUP OF HELICOPTERBORNE AND SURFACE LANDED FORCES

a. During the course of an assault landing and subsequent operations, it may become necessary to effect a linkup between the surface landed forces and helicopterborne units. When approaching this linkup, the two forces must coordinate their efforts to neutralize the enemy opposition between them, while ensuring that supporting fires do not endanger either force.

b. To establish contact, prearranged plans are made for mutual recognition and identification of positions, coordination of fires, and tactical control. The use of restrictive fire plans, helicopters, liaison aircraft, artillery liaison officers, and communications to assist in the coordination of this linkup must be preplanned.

c. In planning the linkup, specific terrain features must be designated as linkup points and should be located along routes of communication and avenues of approach into the stationary unit's positions. These units should facilitate initial linkup on narrow fronts. Alternate points must also be designated to ensure the commander's freedom of action. During the attack, commanders must be prepared to further modify these points as necessary.

## Section III. COMMUNICATION PLANNING

## 3301. GENERAL

Communications are invaluable to the commander in exercising command and in controlling and coordinating the efforts of subordinate and supporting elements. The helicopterborne ship-to-shore movement demands the interaction of control agencies, helicopter units, helicopterborne units, and fire support elements working in concert with a common goal, the projection of combat power ashore. The speed of execution, distance from seaborne support, and the specific communication requirements of each participating element require detailed and closely coordinated communication planning at every echelon of command. The employment of standing operating procedures, prearranged plans, and operational codes will reduce lengthy orders and reports. However, command and staff liaison between units early in the planning phase will be the key factor in resolving problems encountered in attempting to satisfy all communication requirements. Availability of communication equipment installed within aircraft to support the helicopterborne unit commander's needs, restrictions upon the employment of portable communication equipment, control communication requirements imposed by higher headquarters, etc., must be discussed and resolved prior to commencement of the assault. This section will discuss the communication means, equipment, and the techniques peculiar to the helicopterborne amphibious assault. (See FMFM 10-1, Communications.)

## 3302. MEANS OF COMMUNICATION

a. Considerations.--Because of the sensitivity of electronic equipment to electronic countermeasures, every effort must be made both prior to and during the ship-to-shore movement to locate and destroy enemy electronic countermeasures capability. Communications with those helicopters which are to locate and identify LZ's must be carefully selected and timed to avoid the following hazards:

- (1) Premature identification of an LZ allowing the enemy time to react to its use.
- (2) Obscuring the LZ by employment of excessive or delayed smoke signals.
- (3) Employment of signaling devices which pose a threat to aircraft safety, particularly if the ordnance fails to ignite.
- (4) Blinding the pilot by sporadic or last-minute ignition of illumination devices at night.

b. Radio

- (1) The conditions inherent in helicopterborne assaults dictate a reliance upon radio and messenger service in establishing initial communications. Specifically, the earliest stage of a helicopterborne assault is characterized by a primary dependence upon radio.
- (2) Use of aircraft for retransmission of radio messages is especially applicable to helicopterborne operations wherein deep penetration is contemplated.

c. Messengers.--The limitations of radio may make it necessary to rely upon helicopter messengers for the transmission of maps, overlays, and long messages.

d. Wire-Multichannel Radio.--As the operation progresses, wire-multichannel radio is installed, replacing radio as the primary means of communication between RLT and BLT and between RLT and division. Wire has limited application in a helicopterborne operation. Where line distances are short and secure and time is available, locals and short trunks can be installed within the LZ, to include lines between landing sites.

e. Visual.--Limited visual means are available to provide supplementary communications if necessary. Lights, panels, smoke, mirrors, and flares are devices which have proved efficient for this purpose.

f. Techniques.--Electronic countermeasures (ECM) training for all radio operators can prove beneficial. Timely shifting to alternate secondary frequencies, short transmissions, and the inclusion of alternate secondary frequencies in the communication annex to the operation plan will assist overall communication support.

### 3303. COMMUNICATION EQUIPMENT

a. Airborne Communications.--All helicopters presently in the Marine Corps inventory possess at least one VHF frequency modulated radio set which can be used by the helicopterborne unit commander to enter infantry tactical nets as appropriate. However, prior arrangements must be made to ensure this radio's availability for use and coordination on frequency changes. Though no helicopters are presently designed as exclusive command and control vehicles, a command communication kit can be installed to provide direct access to two VHF and one UHF radio sets plus an interconnect cable to the installed HF radio set. Even without the command communication kit, the helicopterborne unit commander may gain access to the installed radio equipment by sitting in the copilot's seat or having the pilot pass messages to him over the intercommunication system.

b. Airborne Retransmission.--Any helicopter can act as a retransmission station as the pilot has direct access to one VHF, one UHF, and one HF radio set. This manual retransmission (MIDDLEMAN) is slow in that two transmissions of the same information are required before it arrives at the desired destination. Communication kits can be installed to provide automatic retransmission (AUTOCAT) wherein the transmitted message is passed on to the desired receiver automatically.

c. Voice Security.--Due to the inherent need for rapid reaction requiring voice communications, transmission security is mandatory. Helicopter and fixed-wing aircraft possess a capability for automatic voice encryption that is compatible with ground radio stations. Extreme care must be taken during planning to ensure that all units have correct, accurate, and timely crypto period information.

### 3304. COMMUNICATIONS FOR THE HELICOPTERBORNE ASSAULT

a. Radio Communications of Initial Terminal Guidance Teams.--Initial terminal guidance provides the required assistance to pilots of leading helicopter waves prior to the arrival and establishment of the landing zone control team (LZCT).

(1) The initial terminal guidance team communicates for the following purposes:

- (a) To pass information intrateam.
- (b) To report to external agencies the situation in the LZ.
- (c) To provide initial terminal guidance.

(2) The communication plan is not standard but must be based upon the particular situation. Contributing factors to be considered are as follows:

- (a) Team communications must provide the capability to accomplish the assigned mission.
- (b) The range and compatibility of team radios determine the communication capability.
- (c) The means of entry into the LZ limits the sizes and, consequently, the capabilities of team radios.
- (d) The information supplied by the team must ultimately reach the user. If radio capability precludes direct transmission, retransmission stations must be provided.

(3) Inasmuch as radio communications are tailored to satisfy the requirements of each situation, team members must be completely and thoroughly briefed on all aspects of the plan. The importance of rehearsals cannot be overemphasized.

b. Helicopter Control Elements of the Helicopter Support Team (HST)

(1) The helicopter control elements of the HST's are called LZCT's.

(2) LZCT's are normally landed early in the assault to provide for the control and direction of helicopters in the vicinity of each LZ. The helicopter unit can provide communication personnel to form the nuclei of four LZCT's. These teams can be subdivided to provide landing site controllers as required.

(3) Communications are required for the control of helicopters by LZCT's, among all landing sites, and between the landing zone controller and the HST commander.

(4) The landing zone control officer will have the capability to enter the UHF and HF helicopter direction nets to monitor the progress of helicopters en route. Upon arrival at the IP, the helicopters will be controlled by the landing zone control officer on the landing zone control net (UHF or VHF). The landing zone control officer will control and coordinate each landing site controller on the landing zone control party local net (VHF). The landing zone control officer will enter the landing zone control net (VHF) to coordinate logistic support lifts inbound or outbound. If the LZ is to be used for an extended period of time, wire is installed linking each landing site and the landing zone control officer to the HST commander.

c. Communication Support of the HST.--Elements from the shore party battalion, including communication equipment, are normally provided to form the nucleus of the HST. This allows the HST commander to communicate with supply dumps, LZCT's, and TAC-LOG. Whenever there is no logistics buildup in the LZ, the service platoon of the helicopterborne infantry battalion may assume the communication support augmented by the LZCT of the helicopter unit. In any event, a communication team is normally included in the HST.

(1) During the ship-to-shore movement, the HST commander enters the tactical net of the supported unit. This net allows the battalion to make logistic support requests directly to the HST. If the requested support is not available locally, the HST commander can make his request to the proper source of supply over the HST logistics net. This net connects the HST commanders with the helicopterborne TAC-LOG, landing force TAC-LOG, and landing force shore party. When the RLT command post is established, requests for logistic support are passed over the regimental command net for consolidation and coordination prior to submitting requests to TAC-LOG or landing force shore party on the HST logistics net.

(2) Communications between the HST commander and subordinate elements are established on the LZ local. This is a VHF voice net and will be guarded by the HST commander, landing zone control officer, and all supply dumps within the LZ.

(3) As soon as possible, wire lines should be installed from the HST commander to supply dumps in the LZ, the supported unit commander, and all landing sites. Wire connections are of particular importance if operations are expected to continue over an extended period. Once wire is operational, radio is placed on a standby status. Care must be taken when laying wire in or near LZ's due to the hazard to helicopters.

(4) See figure 4 for a sample diagram of HST communications. Wires must be on or near the ground and should be secured.

### 3305. HELICOPTER REQUESTS

The two types of helicopter mission requests are preplanned and immediate. For detailed discussion of helicopter support missions and request procedures, see appendix A. The preplanned request for helicopter support is submitted via the operational chain of command over the most expeditious means of communication available. However, immediate requests for helicopter support should go from the requestor directly to the control agency able to provide the support. As the helicopterborne unit is primarily dependent upon helicopter support until the assault is terminated, the helicopter request net will be used. In the event that surface landed units of the landing force require immediate helicopter support, the tactical air request net will be used. The controlling agency must be immediately notified by the requesting unit upon completion or cancellation of a helicopter mission.

a. Helicopter Request (HR) Net (HF).--This net is established by the TACC (and phased to the DASC) to receive requests for immediate helicopter support. Stations on this net are TACC, DASC when established ashore, HDC, and helicopterborne unit as required; the HC(A) may use this net on an as-required basis. If the scope of operations permits, helicopter and fixed-wing air requests may be transmitted over the TAR net.

b. Tactical Air Request (TAR) Net (HF).--This net is established by the TACC (and phased to the DASC) to receive requests for close air support

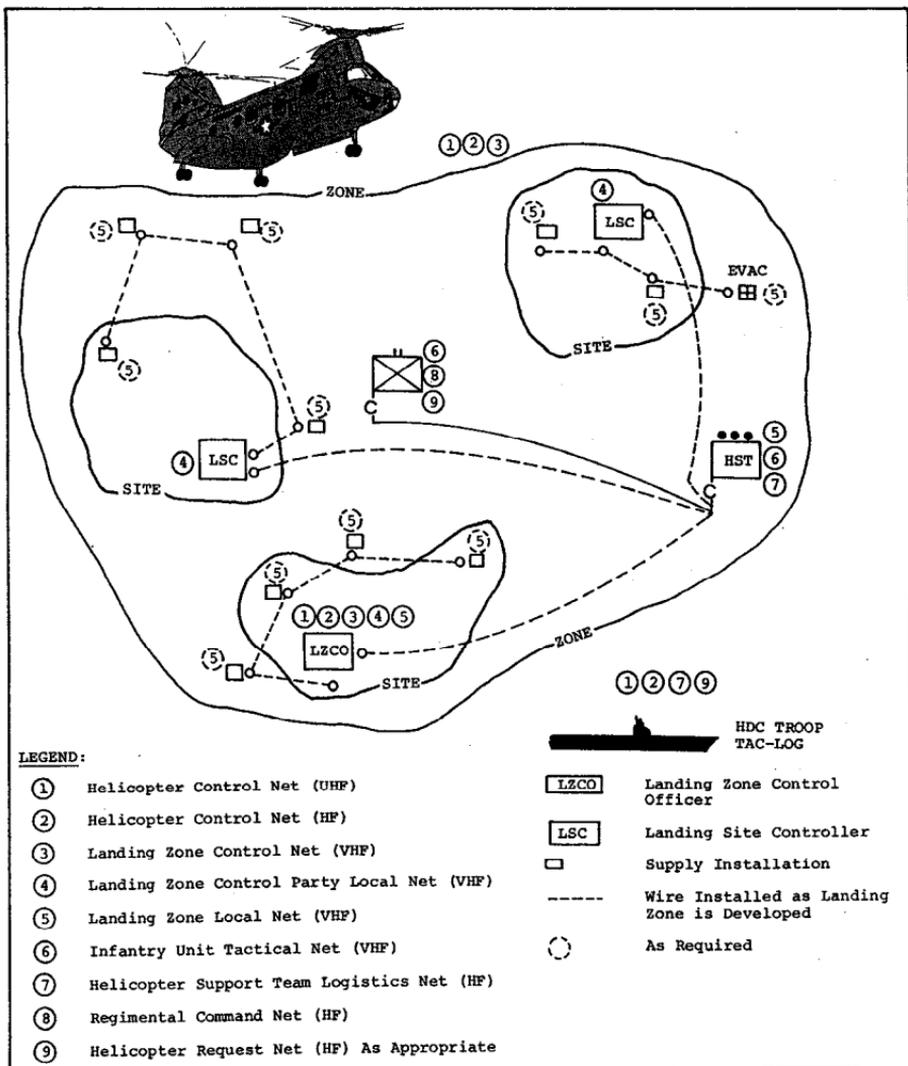


Figure 4.--Helicopter Support Team Landing Zone Communications.

missions. Surface landed units of the landing force may request immediate helicopter support missions on this net. Since the HDC does not enter this net, the TACC will pass the request to the HDC via Navy radio circuits. Stations on this net include DASC and TACP's. FSCC's monitor this net and enter it only to modify or cancel requests. Silence signifies approval.

### 3306. HELICOPTER CONTROL NETS

See NWIP 22-3( ), Ship-to-Shore Movement, for a detailed discussion of radio nets employed for control of the helicopterborne ship-to-shore movement.

a. Provisions must be made to ensure positive control and coordination of helicopter movements both off and on amphibious ships, direction to rendezvous point, control in flight to IP, landing and takeoff within an LZ, and control during return to breakup point.

b. The HDC is the primary control agency during the ship-to-shore movement, and the DASC is the primary control agency when control is passed ashore. Both agencies will establish a helicopter control net (UHF) and, when distance and terrain dictates, a helicopter control net (HF) to control helicopter movement in response to preplanned or immediate requests in conjunction with support coordination.

## Section IV. LOGISTICS PLANNING

## 3401. GENERAL

The basic principles, techniques, and procedures applicable to logistic planning for support of helicopterborne operations are the same as for other amphibious operations. This section considers only those logistic aspects which are peculiar to helicopterborne operations.

- a. The level of supplies carried must not impair mobility.
- b. Tactical and logistic plans must be closely and continually coordinated to ensure availability of helicopters for logistic support.
- c. Planning should provide an alternate means of logistic support. The use of fixed-wing aircraft for aerial delivery provides flexibility in executing logistic plans.
- d. Plans for logistic support must be coordinated and integrated with plans for the overall logistic support system. Plans must provide for shifting supply sources from amphibious shipping to shore-based installations. Such plans require that surface landed supplies be prepared in advance for helicopter delivery and that designated supply installations establish helicopter loading sites.

## 3402. CHARACTERISTICS OF THE LOGISTIC SUPPORT SYSTEM

- a. It is essential that the logistic system supporting helicopterborne units be responsive, flexible, and economical.
- b. Responsiveness is the key word in logistic support. Mobility is increased by limiting prescribed loads to those supplies and equipment that can be carried by individuals and/or transportation means organic to those units. The four essentials of a responsive logistic support system are:
  - (1) Rapid, reliable, and direct communications between support and supported units.
  - (2) Efficient packaging, material handling techniques, and equipment to ensure rapid assembly of supply requirements.
  - (3) Efficient and economical utilization of transportation means to ensure availability where and when support is required.
  - (4) Automatic flow from the supply source to the user of items which have uniform consumption rates.
- c. Flexibility in the logistic support system may be achieved by utilizing fixed-wing aircraft to provide an alternate means to resupply units. The use of fixed-wing aircraft for aerial delivery of supplies requires advance planning to ensure preparation of adequate quantities of prestaged supplies and equipment. To compensate for possible shipping losses or destruction of supply installations ashore, logistic support plans must provide for multiple supply sources. Amphibious ships equipped with helicopter platforms may be designated the primary supply source for a specified helicopterborne unit. Similarly, supply installations established

ashore by surface landed units should be located adjacent to terrain suitable for use as a helicopter supply loading zone.

#### 3403. HELICOPTER PLANNING CONSIDERATIONS

a. Plans must include allocation of helicopters to provide initial and continuing logistic support of the helicopterborne unit. All available helicopters may be employed initially for the landing of combat troops and their equipment. However, provisions must be made to provide early landing of supplies to build up and maintain desired supply levels ashore.

b. The type of delivery techniques are airlanded, freedrop, and aerial delivery by parachute.

(1) Helicopters generally land if carrying internal loads. External loads provide greater flexibility in the handling of bulk cargo and reduce the time required for loading and unloading. Inflight airspeed and maneuvering, especially during takeoff and landing, are reduced by external loading; however, the reduced time and exposure to enemy fire in the LZ may more than offset this disadvantage, since external loads permit much quicker pickup at the supply point and thus, particularly for short hauls, enhance rapid movement.

(2) Packaging requirements for freedrop from helicopters are less stringent than for freedrop from fixed-wing aircraft. In many instances, standard containers reinforced with steel strapping will withstand the shock of low altitude helicopter drops. Helicopters equipped with power hoists may be used for fragile loads; however, this method is slow and subject to weight limitations.

(3) Aerial delivery by parachute can be conducted by helicopters. This method of delivery is desirable when enemy action or the nature of the terrain precludes the landing of helicopters or the use of freedrop. This not only provides a resupply capability during darkness or inclement weather but, in addition, will reduce helicopter exposure to enemy fire. Parachute delivery is the least accurate of the three types of delivery techniques.

#### 3404. MEDICAL EVACUATIONS.

The use of helicopters for medical evacuation (MEDEVAC) has greatly increased the casualties' chances of survival. The timely treatment of wounds has resulted in a much lower death rate from wounds than previously occurred. Though the means of evacuation are rapid and efficient, there are certain inherent hazards involved in the conduct of such missions, even though the missions have been carefully planned and professionally executed. The planning considerations for ground and air elements involved in evacuating casualties by helicopter pertain to both helicopterborne amphibious assaults and subsequent helicopterborne movements ashore.

a. In the early stages of vertical envelopment/helicopterborne assault operations, evacuees may be removed from the battlefield in two ways: by transport helicopter returning to designated amphibious ships with helicopter platforms or to a pickup zone ashore, or by a preplanned medical evacuation helicopter accompanying the assault formation. There are a number of advantages as well as disadvantages in the use of either of these methods.

(1) The most rapid response is achieved by using a returning transport helicopter when the landing is conducted from amphibious ships with helicopter platforms, since they are the pickup points for additional assault waves and maintain a medical facility aboard.

(2) Medical assistance is not available on board the returning transport helicopter. Moreover, in a helicopter movement ashore, the transport will be required to return to a medical facility which may not be in the proximity of the pickup zone. In this case, the ground element will lose the assault lift capability of that transport for the time required to complete the evacuation.

(3) A helicopter attached to the assault formation, and assigned the specific task of medical evacuation during the initial assault landing, provides the best medical assistance. It will have the necessary medical personnel and equipment on board to ensure a high probability of evacuation success.

(4) When a helicopter is assigned the single task of medical evacuation during the initial stages of an assault, its lift potential is not available to assist ground unit maneuver.

b. The choice of either method in handling initial evacuation needs is a planning decision to be made by the helicopterborne commander. The method selected is contingent upon the expected initial enemy contact in the LZ and the desired employment of helicopter assets for the specific helicopterborne assault to be conducted.

c. After the initial helicopterborne assault, continuous helicopter medical evacuation is provided by deck or strip alert MEDEVAC crews available to all combat units on call. Effective use of these alert helicopters is dependent upon LZ organization and evacuation classification.

(1) The organization of evacuees in the pickup zone by ground element medical personnel will result in the most critical casualties being evacuated first and the less seriously wounded and KIA's being evacuated at a later time or in a second helicopter. Casualty placement in the pickup zone should be as close as possible to the desired point of pickup consistent with personnel safety.

(2) The helicopter should be directed to the pickup point by voice communications, hand signals, colored smoke, and/or colored panels during daylight missions and by voice communications and LZ identification lighting and illumination during night missions. LZ illumination is best provided by the helicopter landing light system or parachute type flares. Ground source illumination identifies a zone adequately but tends to blind the pilot. The enemy proximity may mitigate against the MEDEVAC helicopter utilizing its landing light, in which case the ground commander must have means available to define the LZ.

(3) MEDEVAC pickup zones cannot always be selected in favorable terrain, but mission success is largely dependent upon a pickup site that will accommodate the size of the helicopter employed. The site should not contain high obstacles or debris which will be blown by rotor wash, and should offer some measure of protection for the vulnerable helicopter from enemy direct fire weapons. This protection can be provided by terrain cover plus an effective base of suppressive fire during the critical

landing, loading, and departure phases of an evacuation conducted in forward battle areas. It may be more expeditious to move the MEDEVAC to an LZ large enough to accommodate a helicopter than to attempt the MEDEVAC via hoist from a confined or densely vegetated area. A specific situation briefing is necessary for successful execution of evacuation missions. This information is relayed to the MEDEVAC pilot by means of voice radio communications from the ground element and contains the following:

- (a) Location of the pickup zone.
- (b) Approximate size of the pickup zone (in established units of measurements; i.e., feet, meters, etc.).
- (c) Ground obstacles in the zone.
- (d) Wind direction across the zone (example, from the north).
- (e) Means to be used for zone marking.
- (f) Friendly positions in terms of direction and distance from the zone.
- (g) Enemy positions if known.
- (h) Direction the helicopter may draw fire from and type weapons if known.
- (i) Will the helicopter crew be cleared to return enemy fire?
- (j) Number and precedence (routine, priority, emergency) of casualties in the zone. Type of wound (head, stomach, leg, etc.).

d. The precedence (routine, priority, or emergency) assigned to battlefield casualties determines their sequence of evacuation. Casualties must be properly classified to ensure that the most seriously wounded are evacuated first. A casualty classified emergency will be evacuated before one classified priority even though the emergency mission may have been received later than the priority mission. Equally important to mission success is the proper classification of all casualties in order that true emergencies be lifted first, without regard to which ground unit has casualties to be moved.

#### 3405. HELICOPTER SUPPORT TEAM (HST)

The HST is a task organization which is formed and equipped for employment in an LZ to facilitate landing and movement of helicopterborne troops, equipment, and supplies, and to evacuate selected casualties and prisoners of war. An HST is normally attached to the helicopterborne unit. Its composition, organization, and equipment will be governed by the scope of the contemplated operation. It usually consists of a headquarters section, control element, and a landing zone platoon. For additional information, see FMFM 4-3, Shore Party and Helicopter Support Team Operations.

a. Composition of the HST.--The nucleus of an HST is provided by the shore party battalion if an extensive logistic support buildup is required.

When an extensive logistic buildup is not required, the HST may be formed by personnel of the service element of the helicopterborne unit. Control personnel of the HST may be provided by the helicopter unit conducting the lift.

b. Tasks Performed by the HST

(1) Tactical.--The HST must establish, operate, and maintain electronic and visual navigation aids to guide aircraft, communications to direct and control helicopter operations in the vicinity of the LZ, and participate in local security, as required.

(2) Logistic.--The HST develops the LZ for logistic support of helicopterborne units. HST tasks include selected casualty and prisoner-of-war evacuation; unloading and loading helicopters; operation of material-handling equipment; maintenance of records of supplies received, issued, and on hand; and preparation of supplies, equipment, and personnel for helicopter movements.

(3) Additional Tasks.--In addition, the HST keeps the TAC-LOG and the helicopterborne unit informed of the status of landing waves and serials.

3406. TACTICAL-LOGISTICAL (TAC-LOG) GROUPS

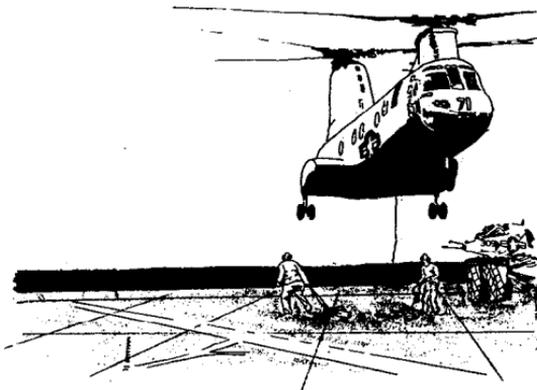
TAC-LOG groups are the principal advisors to the naval control organization during the ship-to-shore movement. They receive and process requests from helicopterborne units. The helicopterborne unit will form a TAC-LOG group aboard the flagship of the helicopter transport group/unit. TAC-LOG concurrently advises the HDC and helicopter logistics support center (HLSC) of requests initiated by the helicopterborne unit and establishes priorities for their movement. Coordination is effected with the HLSC for the preparation of troops, supplies, and equipment for movement from various ships.

3407. HELICOPTER LOGISTICS SUPPORT CENTER (HLSC)

a. The HLSC is formed by the helicopter transport group/unit commander and is located aboard his flagship in proximity to the HDC and TAC-LOG. The officer in charge is the helicopter logistics coordinator.

b. The mission of the HLSC is to coordinate the debarkation in accordance with the landing plan. Deviations from the landing plan, including the debarkation of on-call and nonscheduled serials, are coordinated by the HLSC in accordance with the priorities expressed by the helicopterborne unit.

c. The HLSC is concerned with the coordination of debarkation from individual ships of the helicopter transport group/unit. After receipt of a request, TAC-LOG concurrently advises both the HDC and HLSC in order for the HDC to allocate helicopters and HLSC to initiate notification of the specific ship of the impending requirement. After allocation of helicopters has been confirmed by the HDC, the HLSC provides the details of the planned lift to the debarkation control officer of the ship concerned.



## CHAPTER 4

## EMBARKATION, MOVEMENT, AND REHEARSAL

## 4001. EMBARKATION PLANNING

a. **Scope.**--Only those aspects of embarkation peculiar to helicopterborne amphibious operations are discussed.

b. **Factors in Embarkation Planning.**--The basic embarkation principles, techniques, and procedures are applicable to all amphibious operations and apply to helicopterborne assault forces. The amount of specialized amphibious shipping required for the helicopterborne amphibious assault depends upon the plan for landing, organization of the sea areas, and other factors peculiar to each operation. To maintain tactical integrity, it is desirable to embark a helicopterborne unit on one ship to permit control of the unit by its commander from embarkation to landing. However, if a large helicopterborne element is to be landed as a unit, it may have to be embarked in or transferred to several ships. The unit can then be lifted simultaneously from these ships, and tactical integrity maintained during the ship-to-shore movement. The organization for embarkation of the landing force must be compatible with the plan for the ship-to-shore movement which, in turn, must support the concept of operations ashore.

## 4002. EMBARKATION PROCEDURES

a. While embarkation of units aboard LPH's and LPD's is generally in accordance with principles and procedures employed when embarking aboard other amphibious ships, additional factors must be considered. It is necessary to establish liaison between helicopterborne units and helicopter units at the earliest practicable date so the overall requirements of the embarkation team can be determined. The embarkation officer for each embarkation team must prepare the loading plan for both air and ground units and ensure that high priority and emergency supplies are loaded for ready access.

b. Amphibious vessels usually associated with the helicopterborne ship-to-shore movements are the LPH and LPD, although any ship that has a landing platform could be utilized. Types of ships differ in the number of deck launch spots. A deck launch spot is an area on the flight deck where a helicopter can be parked, rotor blades spread/engaged, and operated without endangering other aircraft or material. The number of deck spots will determine the helicopter launch capability.

#### 4003. EMBARKATION FORMS

The standard forms, diagrams, and tables are required in the loading plans for helicopter and helicopterborne units embarking in carrier type shipping, just as they are for the embarkation of troops in other types of amphibious shipping. Examples and discussion of these forms are located in FMFM 4-2, Amphibious Embarkation.

#### 4004. SHIP'S PLATOON

a. Ship's platoons for the LPH/LPD are provided by elements of the embarkation team assigned to that ship. While working aboard the ship, they are under the immediate direction of the ship's embarkation officer. The ship's platoons are trained both to package and spot supplies for helicopter delivery ashore, and to load the helicopters. Upon completion of unloading, the ship's platoons' personnel revert to the control of their parent units. For additional discussion, see FMFM 4-3, Shore Party and Helicopter Support Team Operations.

b. Upon completion of unloading, personnel of the ship's platoon are landed to join their assigned organization or to augment the HST ashore.

#### 4005. MOVEMENT TO THE OBJECTIVE AREA

a. Amphibious operations are planned in great detail and the majority of the planning is done concurrently; i.e., all participants plan simultaneously. By the time the troops, equipment, and supplies are loaded, and the helicopters come aboard, the plan for the amphibious operation is substantially completed. However, during the en route phase, added refinement can be made to the plan. While on the LPH's, all personnel involved in the operation are collocated. At this point, it is possible for all personnel to become extremely familiar with the plan and to establish a better knowledge of the overall plan.

b. During the movement to the objective area, all personnel participating in the operation are instructed in pertinent details. Instructions emphasize enplanements and ship-to-shore movement; location and means of communication with helicopter command, liaison, and control personnel during the assault; nature of the landing zone, obstacles, terrain, and approach and retirement lanes; details of alternate landing plans; and details of the attack.

c. Enplanement drills are conducted by helicopter crews and heli-teams to enable them to move from assembly areas to assigned helicopters in minimum time. The movement to assembly areas and to assigned helicopters is rehearsed until it can be executed expeditiously.

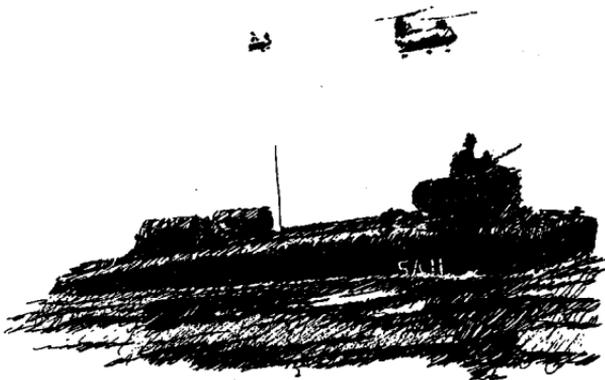
## 4006. REHEARSAL

a. Rehearsal is the period during which the prospective operation is rehearsed for the purpose of:

- (1) Testing adequacy of plans, timing of detailed operations, and combat readiness of participating forces.
- (2) Ensuring that all echelons are familiar with plans.
- (3) Testing communications.

b. The decision to conduct an integrated rehearsal involving the major elements of the amphibious task force rests with the amphibious task force commander. This decision is made early in the planning phase. In the event that integrated rehearsals with naval elements are not possible, the landing force commander usually requires a staff rehearsal as a minimum. This is done to check the communication system and staff functioning of all assault elements, combat support, and combat service support units. Integrated rehearsals involving all troops are desirable. The echelonment of units into the objective area or other compelling reasons may dictate that subordinate assault elements (RLT/BLT) conduct independent or separate rehearsals.

c. During rehearsals, conditions are made as realistic as practicable. However, flight distances may be reduced and other measures taken to minimize helicopter operating time in order to ensure maximum helicopter availability for the actual assault. Rehearsals of control agencies and coordination with supporting arms is of the utmost importance.



## CHAPTER 5

## SHIP-TO-SHORE MOVEMENT

## Section I. PLANNING

## 5101. GENERAL

a. The ship-to-shore movement is that portion of the assault phase of an amphibious operation which includes the deployment of the landing force from the assault shipping to designated landing areas. This movement is designed to ensure the landing of troops, equipment, and supplies at the prescribed times and places and in the formation required by the landing force concept of operations. The movement may be executed by waterborne means (landing ships, landing craft, and amphibious vehicles), by helicopters, or by a combination of the two.

b. Although the ship-to-shore movement is only part of the assault phase, it is the most critical part. The achievement of the requisite coordination and control of the many diversified naval and landing force elements participating in the ship-to-shore movement imposes tasks which are unparalleled in scope by any other military operation. Ship-to-shore movement planning reflects to a preeminent degree the requirement for concurrent and parallel planning at all naval and landing force echelons. The landing plan, consisting of a variety of documents, must leave no doubt as to what is intended.

c. The ship-to-shore movement commences on order of the amphibious task force commander and is brought to a close when unloading of assault shipping is completed. It may be divided into two periods;

(1) The assault and initial unloading period, which is primarily tactical in character and must be instantly responsive to landing force requirements ashore.

(2) The general unloading period, which is primarily logistic in character and emphasizes speed and volume of unloading operations.

#### 5102. RELATION TO OTHER PLANNING

Detailed planning for the ship-to-shore movement can begin only after the concept of operations ashore is determined. Ship-to-shore movement planning culminates in preparation of the landing plan and must be substantially completed before embarkation planning can begin. This plan must be carefully integrated with the plan for supporting fires, and must provide for the requisite logistic support of the forces ashore. This plan is an annex to the amphibious task force plan or order. Appropriate helicopter tables and landing diagrams are included in the landing force landing plan.

#### 5103. RESPONSIBILITY FOR SHIP-TO-SHORE MOVEMENT PLANNING

a. Ship-to-shore movement planning is a corporate effort produced by parallel Navy and landing force chains of command. It reflects the doctrine of concurrent, coordinated, and detailed planning.

b. The amphibious task force commander is responsible for the preparation of the overall plan for landing as well as execution of the ship-to-shore movement. His responsibility includes the landing and subsequent support of both helicopterborne and waterborne elements of the landing force in accordance with landing force plans.

c. The landing force commander has the following responsibilities:

(1) To determine the landing force requirements for the ship-to-shore movement and to present them to the amphibious task force commander.

(2) To ensure the preparation of landing plans by appropriate landing force echelons.

(3) To ensure the availability of landing force helicopters.

#### 5104. SHIP-TO-SHORE MOVEMENT PLANNING CONSIDERATIONS

Considerations which influence helicopterborne ship-to-shore movement planning include:

a. The necessity for timely satisfaction of requirements of the initial assault operations to include maintenance of tactical integrity of the landing force. The organization for landing must assure adequate control upon landing with a rapid achievement of overall tactical control by commanders at each echelon. Maintenance of tactical integrity is accomplished by proper combat loading of assault shipping and by proper assignment of troops to helicopters in the landing plan.

b. The required degree of dispersion of assault shipping.

c. The composition of available assault shipping and the type and quantity of helicopters.

d. The need to maintain sufficient flexibility to exploit weaknesses in enemy defenses when discovered.

e. The availability and planned utilization of supporting arms.

f. The need for speed and positive control.

g. The need for establishing a refueling/rearming cycle for armed helicopters. This requires facilitating deck handling of skid configured helicopters and the reservation of sufficient deck space for refueling and rearming them. Amphibious ships assigned the refueling/rearming function operate as close to the shoreline as the situation permits in order to minimize helicopter en route time and thereby improve their mission effectiveness.

h. The requirement for refueling assault and assault support helicopters. Refueling is scheduled to ensure the availability of the type and number of helicopters required to meet the demands of the ship-to-shore movement throughout its duration.

i. The number of troops and quantity of equipment and supplies to be landed by helicopters. For this purpose, the average weight of a combat-equipped Marine is 240 pounds.

j. Helicopter time factors and time differentials. In the amphibious operation, deck space limitations govern the number of helicopters which can be launched and recovered simultaneously. This requires consideration of takeoff, rendezvous, and recovery time for each helicopter wave. Additionally, the differences in the deck characteristics of various amphibious ships imposes a timing problem in helicopter wave rendezvous as launch and recovery times may differ from ship to ship. (See fig. 5.)

#### 5105. LANDING CATEGORIES

The helicopterborne ship-to-shore movement normally continues throughout general unloading. Once the helicopterborne assault is completed, the helicopters are employed to support landing force tactical and logistic requirements ashore and to support general unloading of assault shipping. Landing categories in the helicopterborne ship-to-shore movement include:

a. Scheduled Waves.--This category consists of those assault elements of the landing force together with their initial combat supplies, to be landed by helicopter for which time, place, and formation for landing have been determined. Landing of this category proceeds in accordance with the helicopter employment and assault landing table without change except in emergency. The landing of scheduled waves usually begins at H-hour or other specified time and continues until all elements in this category are landed.

b. On-Call Waves.--This category consists of those helicopterborne units with their initial combat supplies or emergency supplies which may suddenly be needed ashore. The time or place of employment cannot be predicted. These units with their equipment, or specially selected supplies, may be requested for possible augmentation, replacement, or exploitation as the situation ashore requires. Because of the urgency that may be attendant upon landing, elements or items in other landing categories may be interrupted to permit on-call landing. The number of on-call units or items must be kept to a minimum if their high priority status is to be preserved. On-call elements to be landed by helicopter are held in readiness aboard ship. These elements are listed in the helicopter employment and assault landing table following the scheduled waves. They are landed at the request of the appropriate troop unit commander.

	UH-1	CH46	CH53
<b>LPH HELICOPTER LAUNCH INTERVALS</b>			
1. Using Flight Deck Packed Helos (ea flt - max of 8)	10	10	10
2. Using Hangar Deck Helos (ea flt - max of 8)	16	16	16
<b>TAKEOFF AND FLIGHT RENDEZVOUS</b> (For Ship-to-Shore Movements)	4	4	4
<b>FLIGHT TO LZ (Miles Per Minute)</b>	1.5	2.0	2.5
<b>FLIGHT TO LZ (Miles Per Minute) External Load</b>		1.7	1.7
<b>LZ MANEUVER TIME (ea flt)</b>			
1. Breakup	1	1	1
2. Approach and Land	1	1	1
3. Unload Troops/Cargo*	1	2	2
<b>FLIGHT TO LPH/LOADING ZONE</b> (Miles Per Minute)	1.5	2.0	2.5
<b>LPH RECOVERY TIME (ea flt - max of 8)</b>	4	5	6
<b>REFUEL (HOT) LOAD TROOPS</b>	2	2	2
<b>REFUEL (HOT) LOAD INTERNAL CARGO*</b>	2	4	8
<b>LOAD EXTERNAL</b>	0	1	1
*Palletized or Wheeled Vehicles Only			

Figure 5.--Time Factors for Wave Planning.

c. Nonscheduled Units.--The nonscheduled category consists of all troops and supplies that were not in the scheduled or on-call categories but which are to be lifted ashore. The landing of this category commences on order. Once started, the landing of nonscheduled units may be interrupted to handle missions of higher priority.

#### 5106. LANDING PLAN DOCUMENTS

a. General.--Landing plan documents normally employed in a helicopterborne operation are discussed in subsequent paragraphs. All of these documents may not be required, and only those documents which serve a useful purpose should be utilized. The existing documents may be altered or consolidated to meet specific requirements, and additional documents may be devised if needed. In any case, these landing documents must remain flexible because once the operation commences, it must be expected that:

(1) Helicopter availability may change.

(2) Waves may not necessarily maintain a constant number of aircraft throughout the lift.

(3) Wave interval may not always remain as planned.

b. Operations Without Formal Documents.--When time does not permit detailed planning, a spontaneous helicopter lift may be executed without any formal documents other than manifests. This is done by placing all personnel within a given unit in a loading line in accordance with the priority in which they are to be landed. Personnel are not assigned to any specific heliteam until actually loaded aboard the helicopter. As the helicopter lands, the pilot signals to the controller how many personnel he can lift. The controller at the head of the line counts off the proper number of personnel, who then become a heliteam for the first time (tactical integrity being maintained as much as possible). A guide leads the men to the plane, collects the passenger tags from the men as they load, staples them together, and marks them with the aircraft number. (See par. 7205.) Initial flights launch at a scheduled time, and subsequent flights launch as soon as loaded. Variations can be made on this procedure. Loads can be standardized at a certain number of men, in which case the heliteam can be counted off prior to reaching the actual loading point. This procedure is inherently wasteful in that a helicopter's lift capability increases as fuel is consumed. Helicopters may be fueled with minimum fuel for each lift and may be hot refueled during the loading phase of each subsequent wave. This procedure is efficient and is common practice for helicopters with closed fuel systems while operating off LPH's.

c. Helicopter Availability Table

(1) This document (see fig. 6) is prepared early in the planning phase to provide the landing force and helicopterborne unit commanders with the basic information with which to determine the employment of available helicopters. It lists the helicopter units, the projected number of helicopters available for first and subsequent lifts, their tentative load capacity, and the ships on which the helicopters are transported. These availability figures pertain only to D-day operations and are an estimate of expected losses to helicopter availability caused by maintenance factors and enemy action. Based on these factors, the number of projected helicopters available may vary for each operation.

HELICOPTER UNIT AND DESIGNATION	NUMBER OF A/C	A/C AVAILABLE NUMBER		MODEL	CARRIER	DECK LAUNCH CAPACITY	TENTATIVE LOAD PER A/C		REMARKS
		FIRST TRIP, 90 PERCENT	OTHER TRIPS, 75 PERCENT				TROOPS	CARGO	
HMM-163 (Ridge-runner)	21	18	14	CH-46	LPH-1	7	*18	4,000	All external lift capable.
HMH-463 (Bomber)	18	16	13	CH-53	LPH-2	5	35	8,000	Equipped with aircraft recovery slings.
HML-267 (Deadlock)	24	22	18	UH-1	LPH-3	10	4	1,000	10 armed.
* Flight Radius 30 NM									

Figure 6.--Helicopter Availability Table.

(2) This document is originally prepared by the senior helicopter unit commander and submitted to the landing force commander for inclusion in the landing plan.

d. Heliteam Wave and Serial Assignment Table

(1) This table (see fig. 7) describes the tactical units, equipment, and supplies that are to be loaded into each helicopter. The table identifies each heliteam with its assigned serial number, and the serial number with the flight and wave.

(2) All landing categories are included in the heliteam wave and serial assignment table. The scheduled waves will be organized into helicopter waves and listed in numerical sequence. On-call and nonscheduled serials will be listed in the planned sequence of landing following the scheduled waves. If necessary, prepackaged supplies may also be serialized and included.

WAVE	HELITEAM FLIGHT SERIAL	PERSONNEL		SUPPLIES & EQUIPMENT	WEIGHT (4,250# MAX)		
		TROOP UNIT	NO.		PERS	EQUIP	TOTAL
1	ANVIL 101 100-1	1st Sqd, 1st Plat, Co A	14	1 Rkt Lchr (14#) Rkt Lchr Ammo (105#)	4,080	119	4,199
		Asslt Tm, 1st Asslt Sqd, Wpns Plat	3 17				
	ANVIL 102 100-2	2d Sqd, 1st Plat, Co A	14	1 Rkt Lchr (14#) Rkt Lchr Ammo (105#)	4,080	119	4,199
		Asslt Tm, 1st Asslt Sqd, Wpns Plat	3 17				
ANVIL 103 100-3	Plat Cdr, 1st Plat, Co A	Msrgr	1-0	1 AN/PRC-25 (26#) 1 MG (24#) MG Ammo (80#)	4,080	130	4,210
		3d Sqd (-) Corpsman Sqd Ldr, 1st MG Sqd MG Tm, 1st MG Sqd, Wpns Plat	1 9 1 1 4 1-16				
ANVIL 104 100-4	Elms 3d Sqd, 1st Plat, Co A	MG Tm, 1st MG Sqd, Wpns Plat	5	1 MG (24#) MG Ammo (80#) 1 AN/PRC-25 (26#)	4,080	130	4,210
		LS Ctl Tm (RED) Plat Sgt, 1st Plat, Co A Msrgr Plat Guide, 1st Plat, Co A Corpsman Sqd Ldr, 1st Asslt Sqd Wpns Plat	4 3 1 1 1 1 1 1 17				

NOTE: 1. The Heliteam Flight Serial is as follows:

Anvil: Squadron Radio Call Sign

1 Heliteam Wave Number.

0

1 Heliteam Position in the Wave.

1

0 Troop Unit Serial Number.

0

1

1 Troop Unit Heliteam Number.

Figure 7.--Heliteam Wave and Serial Assignment Table.

(3) Preparation of this table is necessary to determine effective utilization of helicopters, to detail lift requirements, and to develop a planned sequence of debarkation and serialization of the units involved. It is prepared by the helicopterborne unit commander in coordination with the helicopter unit commander.

#### e. Helicopter Employment and Assault Landing Table

(1) The helicopter employment and assault landing table (see fig. 8) is prepared jointly by the helicopter and helicopterborne unit commanders in coordination with the ship's commander and the HDC. It includes detailed plans for the movement of helicopterborne troops, equipment, and supplies. In addition, it is not only the landing timetable for the helicopter movement uniting scheduled units with numbered flights and waves, but it also provides the basis for the helicopter unit's flight schedule and is used by the appropriate air control agency to control the helicopter movement.

(2) The table, containing a listing of on-call and nonscheduled serials in the probable sequence of landing following the scheduled waves, provides a consolidated reference to all troop elements involved in the helicopterborne ship-to-shore movement. Figure 8 is a sample helicopter employment and assault landing table.

WAVE	HELICOPTER UNIT & FLIGHT NO.	NO./MODEL A/C	FROM CARRIER (ORIGIN)	TO		TIME		DESTINATION		TROOP UNIT, EQUIPMENT, AND SERIAL EXTERNAL LOADS *
				REPORT	LOAD	LAUNCH	LND	LZ	LS	
1st	ANVIL-1	10 CH46	LPH-5	LPH-5	Pre-load	H-26	H-hr	Code name	Color	Co A(-) (Rein) Ser 100
	BOMBER-1	7 CH46	LPH-4	LPH-4	Pre-load	H-26	H-hr	Code name	Color	3d Plat (Rein) Elms Co A Ser 101
2d	ANVIL-2	12 CH46	LPH-5	LPH-5	H-18	H-16	H+10	Code name	Color	Co B(-) (Rein) Ser 105
3d	BOMBER-2	7 CH46	LPH-4	LPH-5	H-12	H-10	H+10	Code name	Color	3d Plat (Rein) Elms Co B Ser 106  Recon Pty Btry A 1 AN/MRC 109 1 M151 Ser 451
REMAINING SCHEDULED WAVES										
On Call	As designated	5 CH46	---	LPH-5		On Order		Code name	Color	Elms Btry A *2 105 How 4 Pallets Ammo Ser 452
NONSCHEDULED UNITS										

Figure 8.--Helicopter Employment and Assault Landing Table.

#### f. Helicopter Landing Diagram

(1) The helicopter landing diagram (see fig. 9) is a graphic depiction of the approach and retirement lanes from the helicopter transport area to the landing zones and includes the control measures established to

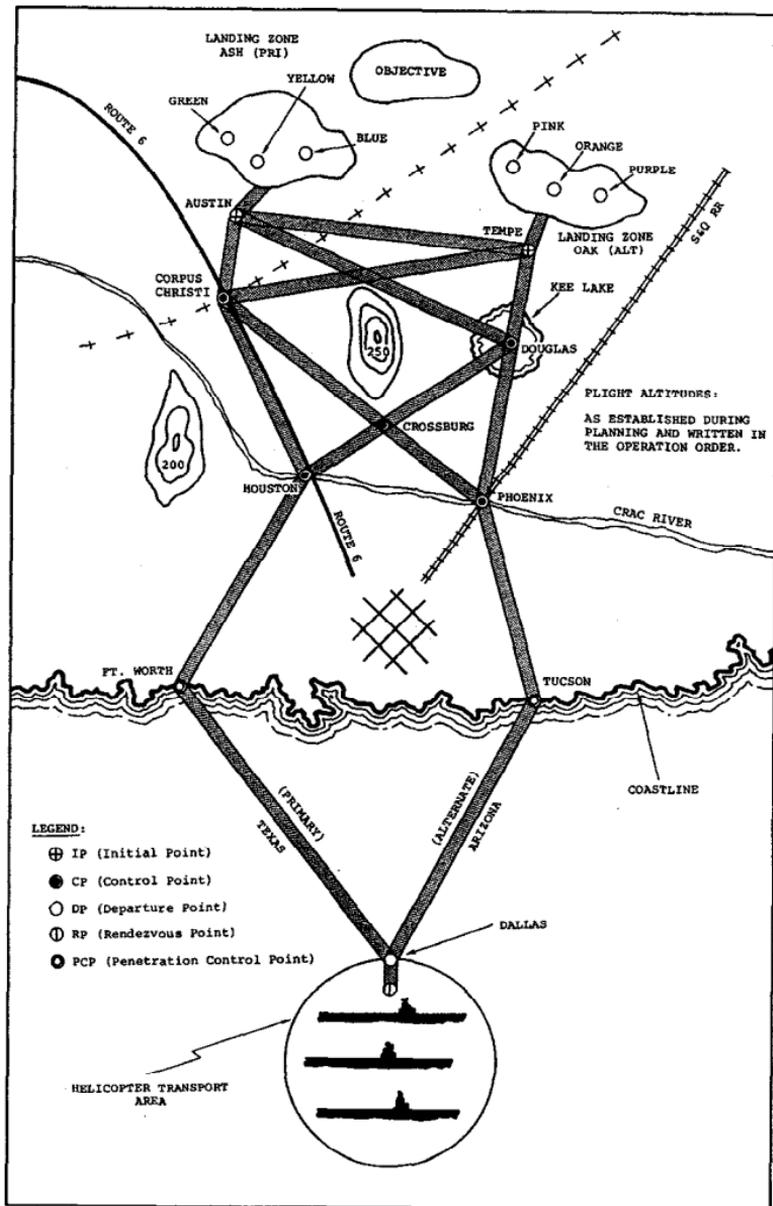


Figure 9.--Helicopter Landing Diagram.

control the helicopter movement. Such details and remarks as are necessary will also be shown; i.e., flight altitudes, width of lanes, etc.

(2) Although the senior helicopter unit commander prepares the document, it must be coordinated with the helicopter transport group/unit commander, the helicopter direction center, the TACC, and the supporting arms coordination center. The helicopter landing diagram is then submitted through the chain of command to the amphibious task force commander for approval and to ensure coordination with planned supporting fires and overall air control. Figure 9 is a sample helicopter landing diagram.

## Section II. EXECUTION

## 5201. CENTRALIZATION OF CONTROL

a. The amphibious task force commander is responsible for the coordination of helicopter movements with other aircraft and supporting arms during the amphibious operation. Complete centralization of control of the helicopter ship-to-shore movement at the amphibious task force level, however, would severely limit subordinate commanders in reacting quickly to changing situations. Full decentralization on the other hand would compound the problems of coordinating supporting arms and would deprive the landing force commander of his ability to influence the situation by employment of his available helicopter assets. Therefore, a compromise between full centralization and decentralization must be achieved.

b. During the amphibious assault, the amphibious task force commander exercises control of helicopters through his tactical air officer and helicopter transport group commander until the control of helicopters is passed ashore.

(1) The tactical air officer monitors the actions of the helicopter coordination section of the TACC and HDC to ensure a rapid response to both planning and execution of the helicopterborne movement.

(2) The helicopter transport group/unit commander is responsible for the use of helicopters in debarkation of troops, supplies, and equipment from assault shipping in those matters relating to availability, location, employment for approved missions, and flight control of helicopters. The helicopter direction center and the helicopter logistics support center operate under the helicopter transport group commander for these purposes.

c. The system for the control of the ship-to-shore movement is governed by the landing plan of the landing force. The maximum area over which effective centralized control of the ship-to-shore movement may be exercised varies in each situation and is, in large part, governed by communication capabilities. The control system must provide the means for rapid fulfillment of landing force requirements during the ship-to-shore movement.

## 5202. CONTROL ORGANIZATION

a. General.--A control organization for the helicopter ship-to-shore movement will be established. (See fig. 10.) This control organization will be virtually the same for all helicopter ship-to-shore movements regardless of size; however, certain control agencies will have to be augmented for large-scale, multideck helicopter operations.

b. Tactical Air Control Center (TACC).--This agency is embarked in the amphibious task force flagship and is organized and equipped to exercise overall control of all aircraft in the amphibious objective area. Its functions in the helicopter ship-to-shore movement are to employ and exercise control over all helicopters, coordinate their movements with supporting arms and other air operations, and maintain current status of helicopters, landing platforms, and the progress of the helicopterborne

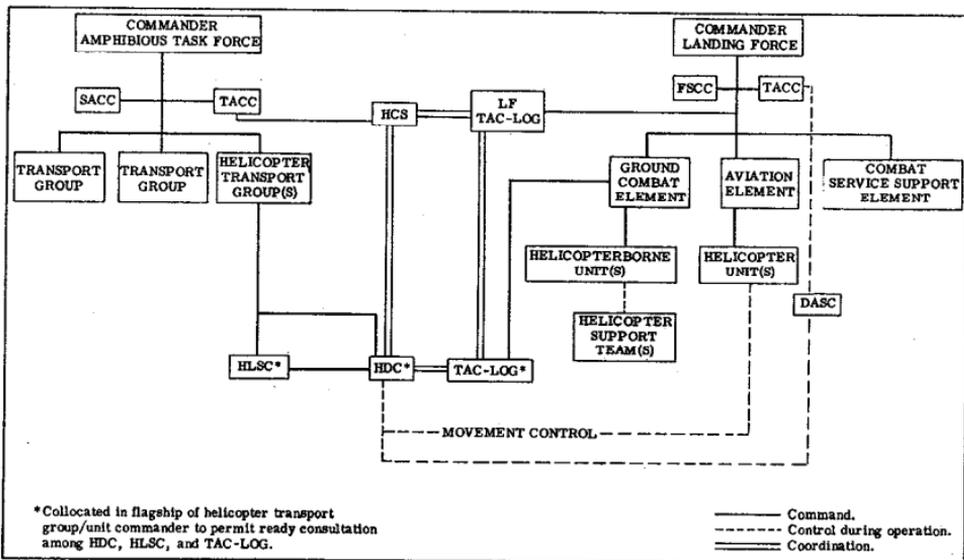


Figure 10.--Command Organization--Helicopterborne Operations.

assault. The tactical air officer controls and coordinates airborne tactical aircraft and helicopter operations with supporting arms and other air operations through the TACC (until control is passed ashore). The tactical air officer should be a naval aviator experienced with all types of aircraft including the experience equivalent of a designated helicopter flight leader.

### c. Helicopter Coordination Section (HCS)

(1) In multideck operations, a helicopter coordination section (HCS) will be formed as an integral part of the TACC. The purpose of the HCS is to provide a central agency for helicopter employment and to coordinate all helicopter operations conducted by subordinate helicopter direction centers. The HCS will have two major subdivisions: the helicopter control unit and the helicopter advisory unit. (See fig. 11.) The control unit is concerned with the actual employment and control of the helicopters. The advisory unit is concerned with maintaining current data on the status of helicopters available, fueling requirements, available deck space, helicopter locations, helicopter armament, and the progress of the assault. This data will be passed to the control unit to assist in helicopter employment decisions and actions. As part of the TACC, the HCS will have the following functions:

(a) Coordinate helicopter movements with supporting arms and air traffic in the objective area.

(b) Assign sectors, lanes, landing platforms, and specific point-to-point control to each HDC when not covered (or when changes occur) in the operations order.

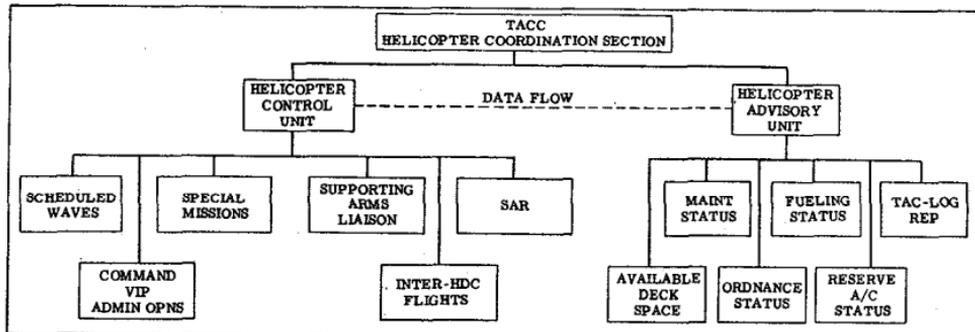


Figure 11.--Typical Helicopter Coordination Section Organization--MAF Size Operation.

- of the HDC's.
- (c) Monitor the conduct of helicopter operations by each
  - (d) Maintain current data on helicopters.
  - (e) Maintain current data on all landing platforms.
  - (f) Act on requests for additional helicopter support.
  - (g) Reallocate and direct the movement of helicopters or flights of helicopters when required.
  - (h) Monitor all search and rescue (SAR) operations.

(2) The helicopter coordination section normally is augmented early in the planning phase by personnel from the aviation element of the landing force. The personnel assigned must be knowledgeable of and responsive to the landing force commander's requirements.

#### d. Helicopter Direction Center (HDC)

(1) The HDC is the primary control agency for the helicopter transport group/unit commander and is normally embarked aboard his flagship. After control of helicopters has been passed ashore, the HDC will assist the direct air support center (DASC) in controlling helicopters between ships and shore and further be prepared to reassume control, as required.

(2) The functions and mission of the HDC are to:

- (a) Operate under the overall direction of the TACC and under the operational control of the helicopter transport group/unit commander.
- (b) Control the movement of all helicopters operating within its assigned control area in accordance with the operation plan.
- (c) Control escort aircraft when directed by the TACC.

(d) Maintain a continuous radar plot of all aircraft operating within its assigned control area.

(e) Receive requests for helicopter employment and implement response within the limits specified by operation orders or as directed by TACC.

(f) Maintain and report to TACC the status and location of assigned helicopters.

(g) Advise TACC on all matters pertaining to the movement of helicopters within its assigned control area which may require coordination with supporting arms.

(h) Monitor the operations of the helicopter coordinator (airborne) (HC(A)).

(i) Coordinate all changes to the helicopter employment and assault landing table, (HEALT) with the helicopter logistics support center (HLSC).

(3) The embarked helicopter unit shall provide advice to the HDC on employment and availability of the unit's aircraft and crews.

(4) The HDC is manned by personnel from the ship in which the HDC is established.

e. Helicopter Coordinator (Airborne) (HC(A))

(1) The HC(A) will be an experienced naval aviator knowledgeable in all aspects of helicopter operations. An HC(A) will be assigned for the initial assault and will be airborne over the objective area in a command and control (C&C) helicopter. The transport helicopter flight leader will act as HC(A) when an HC(A) has not been assigned.

(2) It is imperative that the HC(A) be a participant in the planning phase and be thoroughly knowledgeable in every facet of the operation.

(3) During the preparation phase, the HC(A) will exercise control of assigned observation and tactical support aircraft through the DASC and appropriate TAC(A)'s.

(4) During the execution phase, the HC(A) and the helicopter-borne unit commander will be airborne in the same (C&C) helicopter for the purpose of arriving at timely and coordinated decisions such as:

(a) Final selection of landing zones.

(b) Selection of landing zones for succeeding waves, if required.

(5) The HC(A) is responsible for execution of the following functions under cognizance of the TACC and HDC:

(a) Airborne coordination and control of helicopters while en route and within the objective area.

(b) Coordinating activities of the TAC(A)'s. The HC(A) will ensure that fixed-wing preparation strikes controlled by the TAC(A)'s are being accurately conducted and are timely and sufficient.

(c) Advising the TACC and HDC on the status of the landing to include any changes made in accordance with subparagraphs (4)(a) and (b) above.

(6) The HC(A) will provide information concerning:

(a) Weather along the approach and retirement routes and in the landing zones.

(b) Enemy operations observed along the approach and retirement routes.

(c) Alternations to the helicopter routes.

(d) Employment of supporting arms, including TAC(A) activities.

f. Tactical Air Coordinator (Airborne) (TAC(A))

(1) During an amphibious helicopterborne assault, the TAC(A) controls close air support strikes in the vicinity of the landing zones and assists the HC(A) in airborne coordination and control of helicopters. He is an experienced aviator who is familiar with all types of aircraft that he will be controlling and weaponry that is available. A TAC(A) should be designated for each landing zone. The TAC(A) may utilize fixed- or rotary-wing assets in performing his mission. Tasks that may be assigned are:

(a) Control landing zone preparation.

(b) Detection and timely engagement of targets so as to neutralize or destroy them.

(c) Control close air support missions.

(d) Control armed helicopter fire suppression missions.

(e) Control artillery and naval gunfire missions when required.

(f) Report intelligence information.

(g) Mark landing zones and control approach, landing, and departure of the transport helicopters.

(h) Other as directed by the controlling HC(A).

(2) If armed escort is provided for the transport helicopters while traversing the approach and retirement lanes, an additional TAC(A) should be assigned with the following tasks:

(a) Detection and timely engagement of enemy targets so as to neutralize or destroy them.

- (b) Diversion of enemy fire from the transport aircraft.
- (c) Reporting of intelligence information.

g. Initial Terminal Guidance Teams

(1) Initial terminal guidance teams of force reconnaissance company or reconnaissance battalion, Marine division, have the inherent capability to provide terminal guidance for initial helicopter waves in the landing zones. The teams are composed of personnel who are inserted into the landing zone in advance of the landing zone control team (LZCT). They execute prelanding reconnaissance tasks and establish and operate signal devices for guiding the initial helicopter waves from the initial point to the landing zone. The initial terminal guidance teams may be the first elements to make contact with the enemy. It is of the utmost importance that they promptly report any enemy activity which may counter the landing. The use of initial terminal guidance teams may increase the difficulty or even prevent the use of landing zone preparation fires due to the presence of friendly troops in or around the landing zone. Duties of the team may include:

- (a) Determining if there are obstructions in the landing zone, including radiological hazards.
- (b) Giving advance notice of enemy position.
- (c) Establishing homing and guidance devices.
- (d) Recommending action to be taken by following waves.

(2) If LZ preparation precludes use of initial terminal guidance teams, a homing device may be placed in the zone by an aerial drop immediately after the preparation is concluded.

5203. PREPARATION FOR THE ASSAULT

a. Detailed procedures for enplanement of personnel and the stowage and handling of aircraft vary according to the characteristics of each ship and the procedures established aboard that ship. There will be a variety of deck and troop space configurations even among ships of the same class. For this reason, no ship's characteristics are presented in this discussion, which is designed to provide a general understanding of the factors involved in preparation for the assault.

b. Helicopters receive last minute maintenance and preflight checks to ensure readiness for the coming missions. Radios are checked and adjusted, fuel tanks are filled to proper levels, and initial wave aircraft are spotted on the flight deck for launching. Prior to the assault, ammunition, vehicles, fuel pods, and other cargo must be palletized, spotted, and fitted with slings, as necessary. Forklifts must be serviced and trained operators standing by to use them.

c. Enplanement of the helicopterborne unit is under the overall control of the ship's officers, assigned by the troop unit, and the ship's company personnel.

(1) The primary flight control (PriFly) is the control center of the ship during flight operations. It is staffed by the ship's air officer. All flight operations incident to launching and recovering helicopters are controlled from primary flight control.

(2) The flight deck and hangar deck officers are in charge of operations on their respective decks, assist the air officer in the control of helicopter launch and recovery operations on the flight deck, support operations on the hangar deck, and control the operation of the elevators.

(3) The troop debarkation officer is a troop unit officer whose mission is to control and expedite heliteams from the time they are assembled until they report to the control point for enplanement. He must also monitor progress of the troop lift and make progress reports to higher authority. He will require assistance on the hangar deck and flight deck to ensure an orderly flow of troops from assembly area to aircraft.

(4) The combat cargo loading officer is a ship's officer who controls movement of personnel and cargo to the flight deck for helicopter lift. His duties require close coordination with the troop debarkation officer, the flight deck officer, and the hangar deck officer. He maintains a record of all troops and cargo lifted by helicopter and advises appropriate ship's officers on the status of the lift.

(5) The flight deck guides are ship's company personnel responsible for safely leading heliteams from control point to loading point.

#### d. Enplanement Procedures

(1) Troops are initially alerted in an assembly area located on the hangar deck. Heliteams are assembled, passenger manifests prepared, life preservers buckled on, and all personnel readied for the enplanement.

(2) From the assembly area, heliteams move to a control point, normally adjacent to the flight deck. It should be large enough to accommodate sufficient personnel for one complete deck launch. Coordination of troop movements from the assembly area to a control point is an important function of the troop debarkation officer and the combat cargo loading officer.

(3) From the control points, troops are led by flight deck guides to their respective helicopter loading points where they enplane under the supervision of the helicopter loading supervisor. The guides will pick up passenger manifests from the heliteam commander at the control point.

(4) During enplaning, consideration must be given to the safety of personnel and helicopters. Radio antennas which could become entangled in rotors must be dismantled or extreme caution used. Troop equipment such as weapons, entrenching tools, or other equipment attached to packs may damage the aircraft during the loading, en route, and unloading phases.

#### 5204. CONDUCT OF THE LANDING

a. General.--The helicopterborne landing is conducted by executing the plans prepared jointly by the helicopterborne unit, the helicopter unit, and the other responsible units discussed herein.

b. Ship-to-Shore Sequence

(1) When directed, helicopters comprising the first assault waves are readied and spotted on the flight decks of the assault ships. On signal, troops enplane, and the helicopters are launched.

(2) Flights of helicopters rendezvous about their parent ship and proceed as waves to the landing zone or to a previously designated wave rendezvous point where flights from several ships rendezvous to form a single wave.

(3) At the designated control points, the helicopter wave leader reports his wave to the appropriate air control agency. The wave proceeds via the designated approach route to the landing zone. En route attack and/or helicopter gunship aircraft cover the helicopter waves and provide protection from enemy ground fire. An HC(A) or TAC(A) may assist in guiding and controlling the wave to its destination.

(4) When helicopters report to HC(A) for control, they should be briefed on any changes to the prebriefed landing zone situation to include the following:

- (a) Wind direction and velocity.
- (b) Physical obstructions in the landing zone.
- (c) Friendly and enemy positions.
- (d) Methods by which the landing zone will be marked.
- (e) Other matters of special interest.

(5) During the initial phase of a landing before the landing zone control party (LZCP) is established in the landing zone and in the absence of initial terminal guidance teams, the HC(A) will control helicopters from the initial point (IP) to the LZ on the helicopter control (HC) net. Upon establishing the LZCP in the LZ, the landing zone control officer will control helicopters from the IP to the LZ on the landing zone control net, primary (UHF), secondary (VHF).

(6) On approach to the landing zone and immediately prior to landing, the pilot shall inform the heliteam leader of the direction in which the helicopter will be heading when landed.

(7) Upon reaching the landing zone, troops deplane and helicopter waves return to the ships to refuel and enplane subsequent troop serials. Subsequent waves follow the same general procedure.

5205. ASSAULT

a. General.--The action of the helicopterborne troops ashore is usually executed in two phases: the initial assault and the exploitation. The initial assault involves seizing and establishing landing zones which may be used as a base of operations ashore. The second task involves an aggressive exploitation of the initial advantage attained by conducting further ground or helicopterborne operations ashore. These two tasks are not separate and distinct, for the success of the initial assault is vital

to accomplishing subsequent tasks of the unit. When the situation permits, and it is apparent that the initial assault will be successful, exploitation should begin immediately. Such exploitation may be the execution of pre-planned deeper landings and may involve redirecting elements scheduled to land after the initial assault waves.

b. Securing the Landing Zone.--The first and most vital task of the helicopterborne unit is seizing the landing zone and destroying the enemy therein. Ground action is initiated immediately after landing of the first wave and is continued until the landing zone is secure. Plans for initial action to secure the landing zone must be prearranged in detail and each unit commander must thoroughly understand his mission and how the tasks of his unit fit into the overall plan. All leaders must make continuous estimates of the situation from the beginning of the operation until the assigned mission is accomplished.

c. Technique of Assault

(1) When nuclear preparation has preceded the landing, the size of the unit initially employed may be small. When the preparation is accomplished by nonnuclear fires, and when the defending enemy forces are found to be strong or are rapidly reinforced, the employment of additional elements will be required to secure the landing zone.

(2) The initial helicopter waves are composed mainly of infantry elements organized to provide a concentration of automatic weapons and anti-tank capability. Following heavy preparatory fires, these units clear the landing zones of enemy elements, taking full advantage of the surprise and shock action.

(3) Each rifle squad of the first wave is assigned a subsector of responsibility. Upon deplaning, squads destroy any enemy located in their subsectors. Platoon control is established as rapidly as possible.

(4) As control is more firmly established, units attack to seize designated objectives. When the desired area is seized, the infantry elements set up a hasty defense to ensure initial landing zone security. Contact is established with friendly units and preparations are made for further action.

(5) Units landed in succeeding waves are employed as necessary to ensure seizure of the landing zone. If they are not committed, they proceed directly to previously designated assembly areas and prepare for offensive action to accomplish assigned missions.

(6) Tactical air control parties (TACP's) provide the means for ensuring prompt air support for the helicopterborne unit. Until the TACP's are established ashore, the support is requested and controlled by the HC(A) or TAC(A).

(7) Light antitank weapons are included in early helicopter waves to provide antitank and direct assault weapon capability.

(8) Artillery forward observers and reconnaissance parties are landed with early waves to ensure prompt artillery support. Artillery units follow assault infantry into the landing zone and land at previously selected positions.

(9) Engineer personnel are landed with infantry units, as required, to provide necessary pioneer support in the landing zone such as landing zone clearance and enlargement, removal of obstacles, installation of hasty minefields, etc.

(10) Landing zone control personnel will be landed early to provide electronic and visual aids to identify landing zones and to control helicopters. Helicopter support team service personnel land in succeeding waves and establish logistic facilities to support helicopterborne unit operations. Early reconnaissance is undertaken and distributing points are established rapidly so that incoming supplies may be processed immediately upon arrival.

(11) Medical personnel are landed early to establish adequate aid stations and casualty evacuation facilities.

(12) Headquarters personnel are echeloned into landing zones, as required, to coordinate and control operations. Tentative command post locations are designated in advance and headquarters personnel assemble in these areas.

#### 5206. COMMAND AND CONTROL (C&C) HELICOPTER

a. The helicopterborne unit commander and the HC(A) will be airborne in a command and control helicopter. This will allow the helicopterborne unit commander to communicate with his subordinate unit commanders and permit him to arrive at timely decisions in coordination with the HC(A).

b. The command and control helicopter will provide the helicopterborne unit commander and the HC(A) with the means to accomplish the following:

(1) Observe the landing zones and change them if so authorized, or recommend changes to higher echelons.

(2) Observe initial helicopter waves landing.

(3) Coordinate and influence the attack of subordinate units in the landing zone.

c. In an operation with multiple landing zones, subordinate commanders may require command and control helicopters to control and coordinate their maneuver elements.

#### 5207. DOWNED HELICOPTER RECOVERY OPERATIONS

a. Successful helicopter recovery operations, in the event an aircraft is forced down due to mechanical failure or enemy fire, are primarily dependent upon the expeditious and coordinated actions of the maintenance recovery team, the security element, and the recovery vehicle.

b. Plans will be established for recovery of each type helicopter employed and should include as a minimum:

(1) Organization by job assignment of type aircraft maintenance recovery teams.

(2) Designated security elements that will be immediately available for employment.

(3) Equipment requirements by type aircraft.

(4) Designated recovery vehicles, call signs, and frequencies.

(5) Depending upon the location of the downed helicopter and the enemy situation, a TAC(A) and standby attack aircraft may be desired.

#### 5208. SEQUENCE OF LOGISTIC OPERATIONS

Logistic support for helicopterborne operations normally follows this sequence:

a. The advance party of the helicopter support team (HST) lands in designated landing zones with assault troops in early scheduled waves. These advance party personnel improve landing zones and select helicopter support team installation locations.

b. The remainder of the HST lands in succeeding waves; establishes and marks dump sites, supply landing points, and casualty evacuation stations; and prepares to receive and distribute supplies. In addition to supply, some of the principal logistic support functions such as maintenance, medical service, evacuation, and salvage may be performed by the HST. These functions will eventually be consolidated ashore under designated combat service support agencies of the landing force.

c. Supplies and equipment are landed in a predetermined sequence except as modified by troop unit requirements ashore.

(1) Initial combat supplies and equipment are landed with assault troops.

(2) Emergency supply requests are filled from stocks of critical supply items (ammunition/rations/water) prepositioned aboard ships. HST's are advised when emergency supplies are en route and prepare to expedite delivery to the requesting units.

(3) Landing force supplies, consisting of those supplies remaining in assault shipping after initial combat supplies and emergency supplies have been unloaded, are landed selectively in accordance with the requirements of the helicopterborne unit until the situation ashore permits inception of general unloading.

d. When linkup with surface landed forces is planned, resupply of helicopterborne units may be effected overland by surface means. The resupply of isolated units and delivery of emergency resupplies, however, may continue to be effected by helicopter.

e. When linkup with surface landed forces is not contemplated, plans will provide for increased supply levels in selected landing zone(s).

## Section III. PASSAGE OF CONTROL

## 5301. PASSAGE OF CONTROL ASHORE

a. General.--Transfer of any portion of air control to the landing force commander is executed at a time mutually agreed upon by him and the amphibious task force commander. This may occur at any time after the requisite facilities for coordination of supporting fire and air support are established ashore. To control helicopters and coordinate their operations with supporting fire, the landing force establishes the direct air support center (DASC) and the fire support coordination center (FSCC) ashore. When control of helicopters is passed ashore, the landing force commander exercises control through his tactical air commander and DASC.

b. Control of Helicopters Ashore/Helicopters Based Afloat

(1) As long as helicopter units are based afloat, HDC continues to function. It then operates under the immediate direction of DASC. HDC is prepared to resume control of helicopters in the event of casualty of the DASC.

(2) Upon receipt of approved helicopter missions, DASC coordinates the mission with supporting arms through FSCC and TACC as appropriate. In accordance with the operation schedule, frag orders, or operational parameters published by the tactical air commander, DASC issues orders and instructions to HDC to provide helicopters. HDC will issue orders to the helicopter unit and ship concerned for launching of helicopters for missions assigned by DASC, and will control them in flight from rendezvous to control points specified by DASC. At arrival over control points, DASC assumes control of helicopters and directs the mission. Close liaison and coordination is maintained between HDC and DASC in order that each may be cognizant of helicopter availability and employment.

## 5302. SHIFT OF CONTROL RESPONSIBILITY

Air control facilities are established ashore that parallel those of the amphibious task force commander. The elements of the tactical air command center are initially in a standby status monitoring all air control circuits. When ashore control facilities are complete, the amphibious task force commander will at his discretion pass control of air operations in the amphibious objective area to the landing force commander or to an appropriate commander ashore who has the capability to control such operations. To facilitate an orderly passage of control, specific control functions may be progressively passed as control facilities ashore become operational. After passage of control ashore, the afloat control center continues to monitor air circuits in a standby status, ready to assume control in the event of an emergency ashore.

## Section IV. HELICOPTER DISPLACEMENT

## 5401. DISPLACEMENT ASHORE OF HELICOPTER UNITS

a. Helicopter units are displaced ashore at a time calculated to cause minimum interference with other landing operations and yet be compatible with landing force requirements. The establishment of helicopter operating bases ashore and the severing of dependence upon shipborne bases is a progressive process. Initially, flights of helicopters may operate from roughly prepared sites, receiving limited logistic support ashore. Aircraft maintenance during this period is accomplished aboard ship or at other developed bases in the area. The personnel and equipment necessary to service and perform maintenance for helicopters are transported ashore early. This may be accomplished by the organic aircraft of the helicopter unit or by landing craft.

b. Helicopter units which operate ashore for extended periods require establishment of intermediate level maintenance and supply facilities ashore. During the interim period, flight elements of the helicopter unit generally operate from locations ashore for limited periods, returning to ships for intermediate level maintenance with a gradual lessening of dependence on their shipborne bases, until intermediate level maintenance facilities are operating ashore.

## Section V. TERMINATION OF THE AMPHIBIOUS OPERATION

## 5501. GENERAL

a. The termination of the amphibious operation is predicated on the accomplishment of the mission of the amphibious task force in accordance with the specific conditions contained in the governing instructions set forth in the initiating directive. The firm establishment of the landing force ashore is usually specified as one of these conditions.

b. The landing force is regarded as firmly established ashore when in the opinion of the landing force commander:

(1) The force beachhead has been secured.

(2) Sufficient tactical and supporting forces have been established ashore to ensure the continuous landing of troops and material requisite for subsequent operations.

(3) Command, communication, and supporting arms coordination facilities have been established ashore.

(4) The landing force commander has stated that he is ready to assume full responsibility for subsequent operations.

c. When the amphibious task force commander and the landing force commander are satisfied that these conditions have been met, the amphibious task force commander will report these facts to the higher authority designated in the initiating directive. This authority will then terminate the amphibious operation, dissolve the amphibious task force, and provide additional instructions as required, to include command arrangements and disposition of forces to be thereupon effective.

PART II

HELICOPTERBORNE OPERATIONS IN SUBSEQUENT  
OPERATIONS ASHORE



## CHAPTER 6

## ORGANIZATION, COMMAND, AND CONTROL

## Section I. BACKGROUND

## 6101. GENERAL

Upon the termination of the amphibious operation, elements of, or the entire landing force, may be required to remain ashore as a Marine air-ground task force (MAGTF) and engage in what is essentially land combat. This part will address helicopterborne operations in such subsequent operations ashore. Inasmuch as it is readily apparent that the techniques used to obtain tactical mobility of maneuver elements through the airspace over the ground are almost identical to those used during the amphibious operation, this part will point out the differences between the two.

b. The amphibious operation is an entity complete within itself; sustained operations ashore are not. They are a series of continuous day-to-day operations. The tactical mobility provided by the helicopter may be employed to support multiple and concurrent operations conducted by the MAGTF ashore. These operations may employ units from platoon to multi-regimental size. These helicopterborne operations may project maneuver elements onto otherwise inaccessible terrain, overfly natural obstacles or enemy defenses, rapidly exploit a tactical situation, or expand the area which the landing force is capable of controlling against enemy forces.

c. In the land warfare environment, the helicopters perform other tasks; e.g., courier, logistics, MEDEVAC, observation/reconnaissance, as well as providing mobility for helicopterborne units. Efficient use of helicopters requires careful management at the highest echelon to determine priorities, allocate assets, and still retain the capability to rapidly deploy and maintain helicopterborne units as the tactical situation dictates. In some situations, when helicopter availability is low, the MAGTF commander's priority of tasks may severely curtail the helicopterborne operational lift capability.

Section II. ORGANIZATION AND COMMAND

6201. GENERAL

a. Once established ashore, and upon the termination of the amphibious operation, the MAGTF, as an organization of balanced arms, has the capability to conduct sustained operations. However, when separated from the sea environment, the MAGTF may be required to make certain modifications to its organizational structure. The modifications include assumption of control of air; establishment and protection of land bases, especially helicopter airfields; and an increased logistics and maintenance requirement.

b. In subsequent operations ashore, the landing force commander, as the MAGTF commander, continues to exercise command over both the ground and aviation units. However, the close affinity of helicopter and the helicopterborne units usually requires specific command relationships between them for the execution of helicopterborne operations.

6202. ORGANIZATION AND COMMAND RELATIONSHIPS FOR VERTICAL ENVELOPMENT/ HELICOPTERBORNE ASSAULT OPERATIONS

To ensure unity of command, a task organized force, consisting of appropriate ground and air elements will be formed for all vertical envelopment/helicopterborne assault operations ashore. The MAGTF commander or the commander having control of both ground combat and helicopter elements

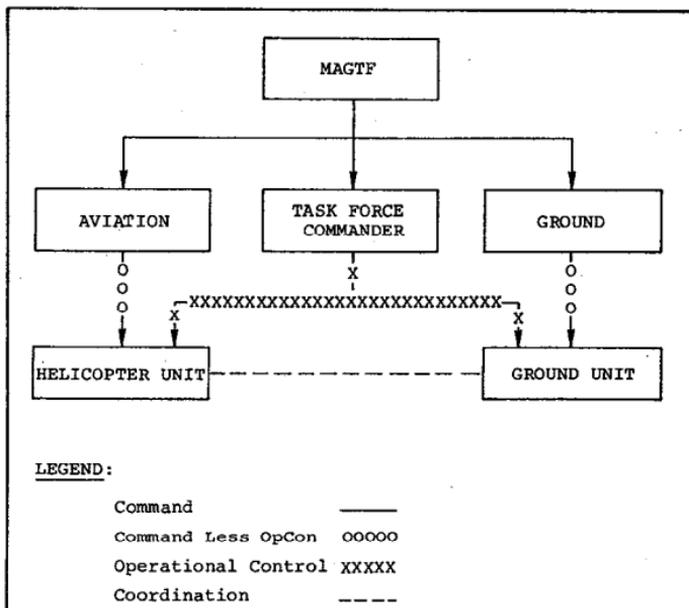


Figure 12.--Command Relationships for the Conduct of Vertical Employment/ Helicopterborne Assault Operations During Subsequent Operations Ashore.

will designate the participating forces and also designate an officer as the task force commander. Further, in view of the continuing problem of limited helicopter assets, the MAGTF commander's initiating directive should include positive instructions governing the earliest possible reversion of the tasked air elements to a direct or general support role, normally at the completion of the initial assault (see fig. 12).

6203. ORGANIZATION AND COMMAND RELATIONSHIPS FOR OTHER HELICOPTERBORNE OPERATIONS

For all other operations in which helicopter support is provided; e.g., logistic support, patrol insertion, etc., helicopter forces may be assigned in direct support or general support.

a. In a direct support relationship, a supporting helicopter force will coordinate its activities with the supported unit as necessary. The missions of the helicopter force will be assigned by the supported unit commander, but the helicopter force remains under the command of the parent aviation unit. The helicopter force commander is responsible for tactical employment of his force to accomplish assigned missions and maintains logistic and administrative responsibility. This relationship provides a direct mission request channel between the units.

b. When helicopter forces are assigned in general support, they will provide support to the supported organization as a whole and not to any particular element thereof. Mission requests will be submitted by the supported units and support will be provided in accordance with the priorities established by the MAGTF commander.

## Section III. CONTROL

## 6301. DIRECT AIR SUPPORT CENTER (DASC)

a. General.--The tactical air command center (TACC) is the principal air control agency of the MAGTF. As such, it is the facility from which all aircraft and control of air operations in the objective area is coordinated. The DASC with its air support radar teams (ASRT's) is the principal air control agency subordinate to the TACC for the control of close air support and helicopter operations. A helicopter director is responsible for the coordination and control of helicopters operating under control of the DASC. This control is exercised through voice radio and the radar equipment of the ASRT. The DASC is always collocated with the MAGTF fire support coordination center (FSCC) or the FSCC of the Marine ground combat command element. A detailed discussion of the control and coordination of helicopter movement is covered in paragraph 7204.

b. DASC Functions.--In support of the MAGTF, the DASC performs the following:

- (1) Receives and takes appropriate action on requests for helicopter support from the tactical air control party (TACP) when helicopters are under their control for immediate missions.
- (2) Coordinates approved requests for helicopter support with the appropriate FSCC and determines the best helicopter approach and retirement lanes.
- (3) Briefs helicopter pilots regarding assigned missions.
- (4) Delegates authority to control agencies such as the ASRT, TACP, air liaison officer, HC(A), or TAC(A) to direct specific missions.
- (5) Provides helicopters with current save-a-plane information and coordinates restrictive fire plans (when required) with the appropriate FSCC.
- (6) Provides the requesting unit with periodic, timely, and accurate reports of the status of the mission request.

## 6302. AIR SUPPORT RADAR TEAM (ASRT)

a. The ASRT provides a capability for the control of helicopters during conditions of low ceiling and reduced visibility. The ASRT's may be employed to accurately position helicopters over a precise point on the earth's surface without visual reference. They are organized as highly mobile air control facilities to operate with ground elements under control of the DASC. Each ASRT is helicopter transportable and is equipped with a radar course directing control central.

b. The DASC maintains continuous communications with the ASRT's and can pass control of helicopters to them. When emplaced in a surveyed location, the ASRT can control helicopters under all conditions of weather and visibility.

## 6303. HELICOPTER COORDINATOR (AIRBORNE) (HC(A))

The HC(A) assists the DASC in the coordination and control of helicopters. He performs the same duties as those listed in paragraph 5202. The HC(A) may also be designated specific authority over certain facets of the helicopterborne operation.

## 6304. TACTICAL AIR COORDINATOR (AIRBORNE) (TAC(A))

The TAC(A) assists the DASC and HC(A). He will check the LZ at the completion of the preparation fires and/or strikes to determine the condition of the LZ prior to the helicopter landing. If the TAC(A) determines that the LZ has not been satisfactorily neutralized, he will so inform and make recommendations to the HC(A) or the transport commander. As the transport flight approaches the LZ, he will mark the zone if requested.

## 6305. HELICOPTER TRANSPORT COMMANDER

The transport commander is the commander of the transport helicopters taking part in a helicopterborne operation. He will perform the functions of the HC(A) during operations where no HC(A) is designated. As soon as the transport flight has rendezvoused, the transport commander will establish radio contact with the HC(A), and will request such pertinent information as wind direction, enemy situation, etc., at the LZ.



## CHAPTER 7

## PLANNING FOR THE HELICOPTERBORNE OPERATION

## Section I. BACKGROUND

## 7101. GENERAL

a. The key to a successful helicopterborne operation is concurrent planning by the helicopter and helicopterborne units that are actually going to execute the operation. This requires earliest liaison at the executing echelons and subsequent followthrough on integrated planning until the completion of the operation. Often the time available for planning will not be ideal. Therefore, the use of SOP's for routine procedures; e.g., personnel loading, communications, including that available to the helicopterborne unit commander while airborne; standard serialization and packaging of resupply loads; medical evacuation procedures; etc., is desirable. By having SOP's, the limited time available may be devoted to the planning of such variables as scheme of maneuver, selection of helicopter LZ's and routes, and fire support coordination. Where possible, the same helicopter units will support the same helicopterborne units.

b. Since successful accomplishment of the vertical envelopment/helicopterborne assault operation is the fundamental responsibility of the designated commander of the task force formed to conduct the particular operation, he will exercise immediate authority over all aspects of planning and execution. Both the helicopter and helicopterborne unit commanders are responsible for the conduct of detailed, coordinated planning and efficient employment of their respective forces in order to successfully execute the vertical envelopment/helicopterborne assault operation. The assignment of a liaison operations team by the helicopter unit to the support unit will ensure optimum air response and coordination.

c. For all other types of operations for which helicopter support is provided, both the helicopter and helicopterborne unit commanders are fundamentally responsible for those aspects of planning and execution of an operation as are applicable to their respective units.

## Section II. INTELLIGENCE PLANNING

## 7201. GENERAL

Intelligence planning for helicopterborne operations is a continuing process. Inasmuch as the landing force is ashore and in an area of operations, certain intelligence about the enemy and terrain has been acquired. For example, enemy installations and order of battle are not as undefined as in the amphibious operation; continuing aerial and ground reconnaissance will have located and defined possible landing zones, and general familiarity with the terrain and situation will be part of the knowledge of the intelligence planners. Aside from the foregoing, procedures for intelligence planning of the helicopterborne operation in a land warfare environment are identical to those in the amphibious operation.

## 7202. SELECTION OF APPROACH AND RETIREMENT LANES

a. The control and coordination of the helicopter movement through the establishment of helicopter approach and retirement lanes is not normally as formalized during subsequent operations ashore. This does not mean that control and coordination of helicopter movement is not equally as important as in the amphibious assault. In some instances, it may be practical to designate specific lanes with the fire support restrictions that would be imposed on tactical ground units which are being overflown. When these are designated, the same considerations discussed in paragraph 3204 pertain. In other instances, this may be impractical. This is especially true where several ground units in separate operations are involved.

b. Because of possible restrictions to ground elements, decentralized control and coordination may be required. This is done by passing control to the HC(A) who is airborne over the area to assist the DASC. The HC(A) must remain in contact with DASC and provide en route movement control. The DASC, after coordinating with the FSCC, would provide continuous information allowing the passage of helicopters through an area. Subordinate FSCC's can provide the same information to the HC(A) or transport commander when the coordination at the DASC/FSCC level cannot adequately provide the desired control. If possible and feasible, the helicopters are maneuvered around areas that require fire support coordination.

c. Save-a-plane is a safety measure for friendly aircraft which establishes danger areas covered by artillery, naval gunfire, and air-strikes. This provides information to the helicopters of areas to avoid. The FSCC can pass the save-a-plane information to the DASC for transmission to appropriate helicopter flights, or the information can be provided by subordinate FSCC's to helicopters traversing their area. The details and a discussion of the coordination required between the air control agency, landing force FSCC, subordinate FSCC's, and air liaison officers is covered in FMFM 7-1, Fire Support Coordination.

## 7203. LANDING PLAN

a. The landing plan documents associated with the amphibious assault are not usually required. This is because of the limited planning time available and the fact that the degree of control and coordination required

by the air control and fire support coordination agencies is not as great. However, the same information must be made available through staff briefings, liaison, and utilization of SOP's. Through these methods, the helicopterborne unit can program the utilization of the assigned helicopters. A payload can be computed, and a timetable can be developed with a sequence of landing. The control and coordination of the helicopter movement can be accomplished.

b. One system of passenger manifesting utilizes passenger tags. (See fig. 13.) They are prepared in the assembly area by the heliteam and given by the heliteam commander to the troop loading assistant at the ready circle. In certain operations, such as an extraction under fire, even this may not be possible.

NAME
RANK
SER. NO.
ORG.
AIRCRAFT NO.

Figure 13.--Passenger Tag.

#### 7204. NIGHT OPERATIONS

a. Helicopterborne operations may be conducted at night. It will often be advantageous to conduct certain helicopterborne operations during such periods because of the surprise and concealment which results. However, the necessity for positive control, visual identification, and caution on the part of both pilots and troops complicates such operations. For safety reasons, it will be necessary to utilize smaller helicopter waves, with greater time intervals between waves, since the time required for loading, rendezvous, approach to landing zones, landing, and unloading will be increased.

b. Considerations governing the employment of helicopters at night include the availability of prominent landmarks easily recognizable under conditions of limited visibility or the familiarity of the pilots with the area. In the timing of the operations, consideration must be given to utilization of periods of sufficient visibility for the initial approach and landing. Once the landing zone is secured, navigational aids can be installed to facilitate continued operations.

c. The use of electronic or visual aids to navigation is a requirement for successful night operations, except in rare cases where a combination of good visibility and easily recognizable terrain features exist. Greater emphasis is placed on terrain characteristics when selecting landing zones, and helicopter lanes are as direct as possible for ease in navigation. Initial terminal guidance teams install the necessary navigational aids to permit landing of the main body. It must be remembered that

helicopters will have to use external navigational and position lights when flying in formation at night.

d. It is desirable to employ helicopters under cover of darkness to position troops in attack positions near easily recognizable terrain features. Once the objective has been secured and the necessary landing zones cleared and marked, helicopters may be employed to move reserves and supporting weapons directly to the objective.

e. A slower rate of activity must be accepted in night operations. Fewer helicopter landing points may be used, and loading and unloading times are increased. Only dim or red-tinted lights may be used in the vicinity of the loading and landing zones. Bright lights destroy night visual adaptation and may disclose activity to the enemy.

f. The loading zone is organized the same as in daytime, except as follows:

(1) Helicopter loading sites (points) must be suitably marked with lights. The helicopter unit is responsible for the provision and installation of lights.

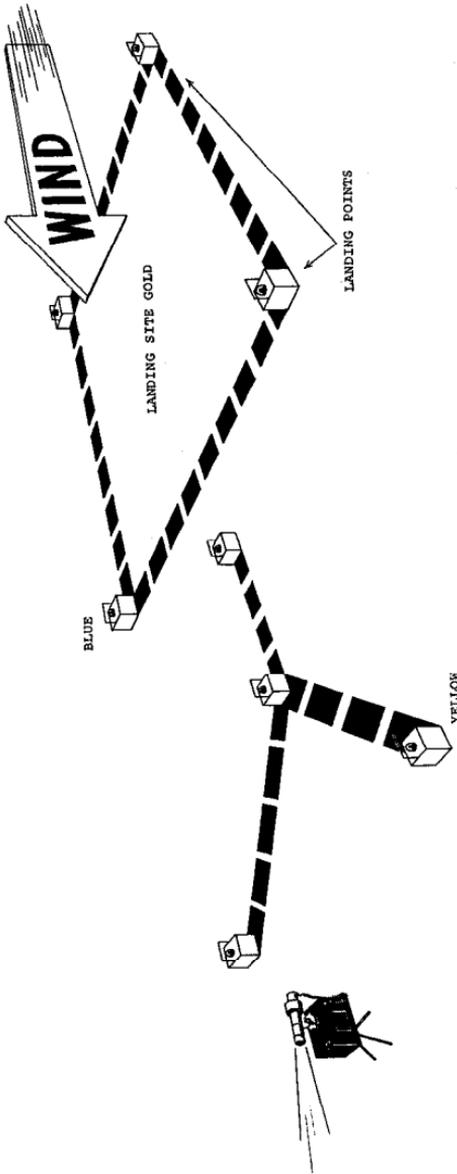
(2) Routes from assembly site to control point and ready point must be as short as possible and marked by the troop unit with tape or other suitable identification.

(3) The ready point is located further away from the loading point than in daytime and the loading supervisor must be prepared to lead heliteams to the helicopters.

(4) The red passenger compartment light should be turned on during enplanement if the tactical situation permits. Troops, however, should be trained to enplane in complete darkness.

g. The landing zone (site) is organized similarly as for daytime operations, except that landing sites (points) must be marked with lights by initial terminal guidance teams.

(1) Whenever unit size and the terrain and situation permit, the glide angle indicator light (GAIL) system should be utilized. The GAIL should be placed so as to project its beam along the preferred direction of approach. The angle of the glide slope must provide clearance over the highest obstacle along the avenue of approach. Angles of glide slope from 3 to 10 degrees are common and acceptable. However, glide slope angles greater than 10 degrees cause increased difficulty in maintaining the aircraft on the glide slope. The relatively narrow beam width of the GAIL makes its unaided, visual acquisition difficult. To aid the pilot in acquiring the GAIL, additional lights should be placed as indicated in figure 14. The preferred direction of approach is into the wind; however, when the zone is so small that the glide slope angle will exceed 10 degrees in order to clear obstacles, the approach path should be along that axis closest to the windline that will permit a glide slope angle of 10 degrees or less. Approach azimuth and glide slope angle information should be transmitted to the pilot in the zone briefing. When units without a GAIL system require helicopter support at night, one of the expeditionary light patterns depicted in figure 15 should be displayed to assist the pilots in locating and landing in the zone.



JACKET NO. 477-490 CRUISE NO. 2/c

Width 18 1/2 Depth 28

Sq. Rt.  Line  Board  Pontoon

Dual Test  Rescreen

58 ft

Figure 14. --Glide Angle Indicator Lighting System in Helicopter Landing Site.

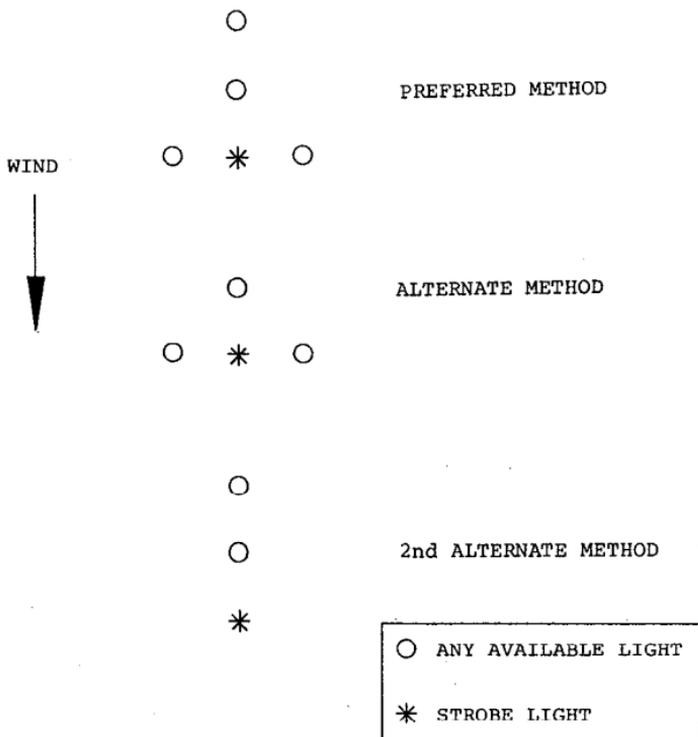


Figure 15.--Night LZ Marking With Expeditionary Lights.

(2) Heliteams deplane by prearranged signals. During night operations, it will be necessary to lead heliteams from the helicopter to assembly areas. This function will be performed by pathfinder or helicopter support team personnel.

(3) After deplaning, heliteam members must clear the landing zone immediately and be led to a designated assembly area.

h. The planning must be more detailed between the helicopter and helicopterborne units; therefore, decentralized planning and execution under centralized supervision and control become increasingly important.

i. In tactical situations when the use of helicopter landing lights is not desired and/or night landing zone lighting, including glide slope, is not available, night operations can be accomplished with the aid of flares or an airborne illumination system.

j. Night resupply operations are essentially the same as those conducted during daylight; however, the tempo must be reduced. An essential

element of night resupply is the movement of incoming cargo away from the LZ. The ground unit commander must perform this function in the absence of a helicopter support team, or aid the HST personnel, should resupply operations dictate. The accumulation of equipment and supplies in the LZ presents a serious hazard to safe night operations.

#### 7205. RETRACTION PLANNING

Undoubtedly, the retraction phase of helicopterborne operations is one of the more delicate aspects. Planning must be just as complete and detailed as in the assault phase, because it is a time when disaster may strike. In many respects, a retraction is very similar to a vertical envelopment/helicopterborne assault operation. The tentative plan for retraction of troops should be accomplished as a part of the planning for the assault. The final planning should be as detailed and as well coordinated as the planning for the assault. In planning a retraction, there are certain special factors that must be considered.

a. All known intelligence on the enemy situation must be provided to the units planning or participating in a retraction. This should include gun positions, hit reports, enemy capabilities, and ability to place direct or indirect fire in the landing zone.

b. The selection of a large, suitable area is of paramount importance. The approach lane should not be over terrain that will offer concealment for an enemy force. The landing zone should not be near dominating terrain unless that terrain is occupied by friendly forces.

c. All aspects of the loading phase for an assault also apply for the retraction, the important differences being that the lift is from a relatively unsecured area, the element of surprise is lost, and the lack of personal contact with the helicopter unit until just prior to the commencement of the lift. By prior planning, some of these can be handled early. The enemy may know a retraction is going to take place but does not know when it will commence. As in the assault phase, the zone must be secured. This is no time to receive any surprises, and accordingly, everyone except those leaving in the initial wave is assigned security responsibilities.

d. Fire support representatives; i.e., FO's, spotters, and FAC's, should be left for the last lift in order to retain some means of calling and adjusting fires until all the troops are out.

## Section III. OPERATIONAL PLANNING

## 7301. GENERAL

Operational planning for helicopterborne operations differs from that of the amphibious operation in two specific areas.

a. The conceptual as well as the detailed planning and execution is usually done at lower echelons; e.g., battalion and regimental level vice landing force level.

b. The actual available time between planning and execution may be considerably compressed. However, there may be instances in a land warfare environment wherein large-scale deliberately planned operations with long lead time are executed. Since this latter case is almost identical with the planning for amphibious operations, only the former case will be addressed here. See chapter 3 for a discussion of planning for an amphibious helicopterborne assault operation.

## 7302. INITIATION OF THE HELICOPTERBORNE OPERATION

The initiation of a helicopterborne operation may be of two broad types:

a. The echelon having control of both helicopter and ground combat elements assigns a mission to a subordinate ground combat element commander. The mission assigned may obviously require helicopters, or the executing commander determines that the mission can best be accomplished by employing the inherent mobility of a helicopterborne operation. In these instances, it is incumbent on the higher commander to provide the necessary helicopter assets and arrange suitable command relationships for the accomplishment of the mission assigned. Conversely, it is incumbent upon the subordinate ground combat element commander to determine (in conjunction with the helicopter unit commander) if sufficient assets are allocated to accomplish their mission.

b. A subordinate ground combat element commander, who does not have control of helicopter assets, determines that a requirement exists for him to conduct a helicopterborne operation. Through the operational chain of command, he then initiates a request to conduct the operation. The request should contain the type, scope, and anticipated duration of the operation and initial determination of helicopter assets required. Once the MAGTF commander approves the operation, he will assign the ground combat and helicopter elements and establish appropriate command relationships for the accomplishment of the mission. The commanders designated to conduct the operation will review the initial determination of assets required and submit revisions, if necessary, to the MAGTF commander. It is incumbent upon the MAGTF commander to make an immediate evaluation and advise the commander involved of the approval or disapproval of such revisions.

## 7303. SELECTION OF HELICOPTER LANDING ZONE

a. In vertical envelopment/helicopterborne assault operations, the final selection of landing zones must be made by the commander of the task organized force based upon the recommendations of the helicopter and

helicopterborne element commanders. In all other helicopterborne operations, the ground combat element commander will select the landing zones based upon the advice and recommendation of the supporting helicopter unit commander. This can be accomplished by staff briefing when sufficient time is available or through liaison.

b. Prior to a helicopterborne operation, it may be highly beneficial if a common aerial reconnaissance is made of the landing zones by the task force commander, if designated, the HC(A), the TAC(A), the helicopterborne unit commander, and the transport helicopter flight leader.

#### 7304. CHANGING OF LANDING ZONES AND ABORTING THE MISSION

a. In vertical envelopment/helicopterborne assault operations, the designated task force commander is responsible for all decisions including diversion from primary to alternate LZ's and aborting the mission. The authority to abort a mission will not be delegated. The MAGTF commander can delegate the authority for diversion from primary to designated alternate LZ's to the HC(A) in those cases where the helicopterborne unit commander and the HC(A) are in agreement. He will not delegate authority to divert to designated alternate LZ's in cases where agreement has not been reached between the helicopterborne unit commander and the HC(A). In these cases, a definite and timely recommendation to the designated task force commander is the responsibility of the HC(A). This responsibility of the HC(A) in no way abrogates or relieves the helicopterborne unit commander of his responsibility to communicate his professional judgment of the situation to the designated task force commander.

b. For all other operations in which helicopter support is provided; e.g., logistic support, liaison, patrol insertion, etc., the HC(A), or the helicopter flight leader, when designated, will render on-site decisions regarding abort or diversion from the primary LZ after consultation with the ground unit commander present. In such cases where there is not agreement between the ground unit commander and the HC(A), the matter will be referred to the MAGTF commander or his designated representative for timely resolution.

## Section IV. COMMUNICATION PLANNING

## 7401. GENERAL

Communication requirements do not change during helicopterborne operations ashore; however, special attention must be given to the following areas:

- a. Close coordination of supporting arms to ensure safe passage of helicopters in flight.
- b. Provision of positive command and control communications for the embarked helicopterborne unit commander.
- c. Provision of logistic support communications direct from LZ to loading zone.
- d. Positive communication circuits from DASC to helicopterborne unit, helicopter unit, FSCC, and designated logistics support agency.
- e. The landing zone control team of the helicopter unit must be landed as early as possible to provide effective control of helicopters into and out of the LZ.

## 7402. MEANS OF COMMUNICATION

- a. Radio and messenger will continue to be the primary means of communication in the initial phases of any helicopterborne operation. However, visual signals may be of extreme significance for marking specific landing sites, wind direction, etc.
- b. Multichannel radio terminals should be installed as soon as possible within the designated command post and wire laid to all staff sections. If the LZ is to be used over an extended period of time, wire will be laid within the zone as soon as possible.

## 7403. RADIO NET EMPLOYMENT

- a. Initial terminal guidance in the form of reconnaissance teams may or may not be employed depending upon the scheme of maneuver, the terrain conditions, and expected enemy resistance. If utilized, the team must be able to communicate with the initial wave of helicopters on the HD (UHF) net.
- b. The HST upon arrival will organize dump sites within the LZ and coordinate all logistics support. The HST logistics net or the regimental command net will be used for requesting logistics support external to the LZ.
- c. The helicopterborne unit commander must be located in a command and control configured helicopter with the minimum capability of entering his own unit's tactical net and the tactical net of the next senior headquarters.
- d. As all battalion TACP's possess one VHF, one UHF, and one HF radio, requests for and control of helicopters below battalion level should

be made over the TAR and HC nets respectively. At battalion level, the air liaison officer (ALO) monitors the TAR net and can enter the HR net to request immediate helicopter support missions. Since all helicopters possess a VHF radio set, the capability for direct contact between helicopters and lower level units may be established in an emergency. The use of the TAR net for helicopter requests ensures coordination of all FSCC's in their control of supporting fires as helicopters are flown over their respective areas of responsibility.

## Section V. LOGISTIC PLANNING

## 7501. GENERAL

The principles and procedures for logistic support by helicopters in helicopterborne operations or during extended operations ashore are the same as those in amphibious operations except that operations are conducted from bases ashore rather than afloat. This section considers only those logistical aspects which differ from those covered in section IV, chapter 3, of this manual.

## 7502. LOGISTIC SUPPORT AREA (LSA) OPERATIONS

During extended land operations or during helicopterborne operations, where deployed infantry and artillery units down to company/battery level must be logistically supported by helicopter, development of supporting combat bases or logistic support areas is necessary. The basic function of an LSA may be similar to that of amphibious ships logistically supporting an amphibious operation. The LSA provides a source of supply in one or more of the four logistic functional areas (supply, medical, transportation, and service). Normally, each LSA has some degree of capability in all four logistic functional areas. LSA's are established as follows:

a. Whenever possible, units will be supported from an LSA established and operated by the logistic support group (LSG). In the event the helicopter support operations are widespread or at an uneconomical distance from the LSG, additional LSA's may be established nearer the operating units. The remaining discussion will be concerned with LSA's established to support specific combat operations rather than central LSA's operated by the LSG.

b. The LSA will be established initially by elements of the shore party battalion, augmented as required by personnel and equipment from the LSG, medical battalion, etc., to provide the logistic support desired for the operation. The size of the LSA, shore party, LSG support, medical support elements, etc., will be determined by the scope, duration, and mission of the supported forces. In small operations of limited duration, the supported unit may establish and man the LSA with organic forces.

c. In major operations, where all combat service support functions are to be performed by the LSA, where the duration of the support from an LSA is to be lengthy, or where the magnitude of supplies and services at the LSA is large, the LSG may assume responsibility for operation of the LSA. The SP detachment then operates the LZ within the LSA for the LSG.

d. Experience has shown that establishment of a logistic control agency similar to the TAC-LOG in amphibious operations may prove beneficial during larger operations. When more than one unit of battalion size is being logistically supported by helicopters, a logistic operations center composed of a logistics representative from each deployed battalion and from the senior headquarters is established. The unit representatives receive and pass on logistic support requirements from their units. The senior command's logistic representative coordinates the efforts of the unit representatives, establishes and consolidates delivery priorities, determines logistic helicopter requirements, and coordinates their employment. Where multiple LSA's are supporting a single operation, the logistic

operations center may also coordinate helicopter support from the various LSA's.

#### 7503. LSA LANDING ZONE OPERATIONS

a. A shore party helicopter support element of appropriate size is responsible for the actual LZ operation. This includes material handling support, proper rigging and hookup of loads, and control of aircraft operating in the LZ. A shore party helicopter support element, normally a helicopter support group made up of a task organized shore party company, is capable of operating one LSA landing zone in support of a reinforced infantry regiment with supporting artillery.

b. The helicopter support element is responsible for the following:

(1) Preparation, maintenance, and marking of the LSA within capabilities. In addition, the helicopter support element assigns sectors of the LZ to each supported unit for staging of its supplies and equipment prior to helilift.

(2) Material handling and coordination of the actual staging of cargo, supplies, and equipment. Rough terrain forklifts, as required, will be assigned to each LSA landing zone.

(3) The rigging and hookup of external helicopter loads. The helicopter support elements provide the requisite nets, slings, cables, and other lifting devices to support the tactical and logistical operations.

(4) Providing LZ communication personnel and equipment for local control and briefing of helicopters conducting lifts to and from the LZ.

(5) Management of passenger control facilities for administrative troop lifts.

(6) Providing helicopter support elements to company and battery level when required.

## Section VI. LOADING PHASE

## 7601. LOADING CONSIDERATIONS

a. The size of the LZ in terms of the number of helicopters that can be landed safely therein is critical to the success of the entire operation. The loading zone helicopter capacity should be at least as great as the capacity of the LZ. This will save time required to rendezvous several flights to form waves and will allow a continuous flow of helicopters throughout the lift. The loading zone should be reasonably free of obstacles and organized to allow a continuous flow of helicopters loading troops, supplies, and equipment. To expedite the lift, separate loading zones or areas may be required for troops, supplies, and equipment.

b. The loading zone will normally be organized with landing points for each of the helicopters which constitute one wave, with designated ready points for the troop heliteam formations located abeam the helicopter landing points, and with specific areas for staged cargo. Some flexibility in setting up the zone must be allowed in the event of a major shift in wind direction.

c. The key personnel in the loading zone are the loadmasters from the helicopterborne and the helicopter unit, who must be thoroughly knowledgeable concerning the loading plan. The loading plan should be designed to provide the loading sequence that supports the ground scheme of maneuver, provides troop unit integrity, and maintains or provides for flight integrity of the helicopter formations. A conference between the loadmasters prior to the start of loading is advisable. One of the biggest problems in maintaining the sequence of loading is that the final troop count and amount of cargo may differ considerably from the planning figures. The loadmasters must keep the transport commander advised on the status of the lift so that the plan can be revised in a timely manner as the lift progresses. They should establish the necessary control measures required such as: troop assembly areas, loading sites or points, assigning heliteams, etc. However, these measures should be used to expedite the lift and not hinder it.

d. Many last minute problems in loading can be resolved by providing the loadmaster with a radio capability for communications with the transport commander. This frequency should not be the same frequency used in the LZ. Use of this frequency by the helicopter pilots to report discrepancies in loading, to report when ready for takeoff, etc., will expedite the loading operation.

e. Whenever possible and the tactical situation permits, transport helicopters should be loaded for maximum efficiency by taking advantage of the integral systems using palletized cargo. The support units must be made aware of the advantages whenever possible.

f. If the loading zone is a fixed location utilized by the ground combat unit to land and load troops and supplies, the area should be improved by expanding it where possible and clearing the approach and takeoff areas. Radio antennas and associated equipment, bivouacs, and entrenchments should be well away from the loading zone. Trash and supplies can accumulate, and are hazards to both the helicopter and ground troops.

## Section VII. EN ROUTE PHASE

## 7701. MOVEMENT CONTROL

a. If the loading zone will accommodate the entire flight of helicopters, the flight will usually hold in the loading zone until the precalculated takeoff time in order to arrive at the LZ precisely at L-hour without making any delaying turns or orbits. If the loading zone is in an area that is not secure, the helicopters will normally orbit over safe areas until directed to proceed to the LZ.

b. After the helicopter flights have effected a rendezvous and are en route, the transport commander will establish communications with the HC(A) at a predesignated control point (CP) in order to receive such pertinent information as the weather and enemy situation along the approach route and in the LZ.

c. At the predesignated initial point (IP), the transport commander will report arrival to the HC(A) in order to receive a final brief of the situation at the LZ and to confirm LZ marking procedures. Timely marking of the LZ is critical. If the TAC(A) has been delegated responsibility for marking the zone, it is essential that he participate in the final brief. A late mark caused by the TAC(A) being out of position can cause unnecessary delay and orbits of large formations of helicopters at an inopportune time. If it is planned for the HC(A) or the TAC(A) to lead the flight into the LZ, the helicopters should follow at a distance which allows them to plan and fly their own approaches.

d. Frequently, the LZ terrain will dictate the exact landing points. If there are no terrain restrictions, the helicopters normally land in regular flight formation with comfortable lateral separation with the lead helicopter landing well forward in the LZ.

e. Normally, troop debarkation occurs quickly and all helicopters are taking off within a few seconds in proper order. It is beneficial for the first wave to place high visibility panels in the LZ as markings for subsequent helicopter waves.

## APPENDIX A

## CATEGORIES OF HELICOPTER SUPPORT MISSIONS AND REQUEST PROCEDURES

## 1. CATEGORIES OF HELICOPTER SUPPORT MISSIONS

Helicopter support missions are divided into two categories: preplanned and immediate.

a. Preplanned Missions.--In order to effectively utilize the helicopter assets on a day-to-day basis, the landing force/MAGTF commander must program this utilization throughout the landing force/MAGTF. Preplanned missions provide by far the most efficient and most economical utilization of helicopters. Preplanned missions may include helicopterborne assaults, programmed resupply, reconnaissance, air observer (AO) spotting, reconnaissance insertions and retractions, liaison, or courier. Preplanned missions are requested in sufficient time that detailed and coordinated planning can be accomplished between the requestor, the helicopter unit, and fire support and air control agencies. These missions may be requested hours or even days ahead and allow planning to be accomplished down to the individual pilots.

b. Immediate Missions.--Immediate missions are those which arise suddenly and which by their nature cannot be planned in advance. This could include such support as MEDEVAC, emergency resupply, or reaction force. These missions are usually responsive to the entire landing force/MAGTF, not necessarily a specific ground combat unit. The landing force/MAGTF commander will allocate some of his helicopter assets to provide immediate response for support, or through the DASC will divert airborne helicopters from missions of lower priorities. These helicopter assets are assigned to the air control agency to provide more rapid response for the requestor. Normally, very little detailed planning can be accomplished in advance. Therefore, the request received by the air control agency must include the information provided in a preplanned request.

## 2. REQUESTS FOR HELICOPTER SUPPORT

a. Preplanned Missions

(1) All units submit requests for preplanned helicopter support through their operational chain of command to the landing force/MAGTF. As requests proceed up the operational chain of command, each intervening commander should determine the feasibility of the requests, consolidate the requests if possible, establish a priority, and forward them. When these requests reach the landing force level, they are then matched against the assets that are available. When the requests do not exceed the number and type of helicopters available, the requests are approved and submitted to the helicopter unit for execution. If the requests exceed the assets, then the landing force/MAGTF commander must determine which requests will be cancelled, consolidated, or times changed. The modified requests are then submitted to the helicopter unit for execution. When the disposition of the requests has been made, the requestor must be notified through his chain of command. During an amphibious operation, these missions are then scheduled in the landing plan.

(2) The means of communication to be employed in submitting requests should be prescribed in appropriate SOP's.

(3) Requests for helicopter support for a helicopterborne assault should be submitted immediately up the operational chain of command. As soon as possible, assets should be allocated so that the planned utilization of the helicopters can be accomplished by the helicopter and helicopterborne units.

b. Immediate Missions

(1) The nature of immediate helicopter support missions requires that they be transmitted by the most rapid and effective means of communication available.

(2) Requests for immediate missions during the amphibious operation are submitted by the helicopterborne unit directly to the HDC, on the HR net, or by the HST to the TAC-LOG who then gives the request to HDC. Surface landed units submit requests on the TAR net, which are then forwarded by the TACC to HDC via Navy nets. The HDC supplies helicopters dependent on the tactical situation and the availability of helicopters. During subsequent operations ashore, the requests are submitted to the DASC on the TAR or HR net(s) as appropriate. Requests via these nets are monitored by senior commands who give approval by remaining silent.

3. MISSION PRECEDENCE

Mission precedence of routine, priority, or emergency is assigned by the unit commander requesting the mission. Mission precedence of mandatory will only be assigned by the landing force/MAGTF commander or his designated representative.

a. Routine

(1) Administrative or tactical transport of personnel, material, or equipment, where time is not a critical factor and delay would not endanger lives or loss of material.

(2) Helicopter evacuation of deceased personnel or of a patient with a minor illness or requiring routine transfer from one medical facility to another for further treatment.

b. Priority

(1) Tactical movement of personnel, material, or equipment where excessive delay would jeopardize successful accomplishment of the mission. This includes logistic operations where delays would result in excessive material loss through spilage or seizure by the enemy.

(2) Helicopter evacuation of seriously wounded, injured, or ill personnel who require early hospitalization, but whose immediate evacuation is not a matter of life or death.

c. Emergency

(1) Missions involving safety of US or other friendly lives or missions requiring immediate transport of vital supplies or equipment.

(2) Evacuation of critically wounded, injured, or ill personnel whose immediate evacuation is a matter of life or death.

(3) Resupply of units under attack with ammunition or medical supplies is an example of an emergency mission.

d. Mandatory.--Missions involving possible loss of human life or national prestige to the extent that normally unacceptable risks will be taken in their accomplishment.

#### 4. ASSAULT SUPPORT REQUEST FORM

Either type of mission request may originate at any echelon of the landing force/MAGTF. The requestor will use the assault support request form (see fig. 16) to submit a request for helicopter support.

a. When initiating a preplanned mission request, the request form will be completed in its entirety and forwarded through the requestor's channels to the landing force/MAGTF.

b. To expedite an immediate mission, only the following mandatory items on the request form, which are necessary for decision and execution, need to be completed and forwarded to the air control agency:

- (1) Requestor's identification.
- (2) Mission precedence.
- (3) Type of mission.
- (4) Mission description.
- (5) LZ coordinates.
- (6) LZ communications.

c. The requestor should be ready to provide the following upon initial contact with the helicopter pilot:

- (1) LZ description, especially enemy positions.
- (2) LZ marking.
- (3) Direction from which the helicopter should approach the LZ.
- (4) Possible obstacles in the approach path.
- (5) Direction from which enemy fire is most likely.
- (6) When enemy fire was last received.
- (8) Positions of any suspected heavy caliber automatic weapons.
- (9) Directions in which aircraft is cleared to fire if enemy fire is received.
- (10) Location of nearest friendly positions (direction north, south, etc.) and distance from LZ.

INSTRUCTIONS FOR USE OF THE ASSAULT SUPPORT REQUEST FORM	
(Unit Called)	
Line 1. Action Addressee a. This Is (Call Sign) b. Request No.	1. Identifies the unit called by unit designation/call sign. Identifies the request originator by unit designation/call sign. Indicates the originator's request number in series.
Line 2. Request For	2. Indicates whether request is for helicopter fixed-wing transport/OV support.
Line 3. Mission Precedence	3. Precedence established by requestor based on precedence criteria.
Line 4. Type of Mission a. Tactical or Administrative	4. Indicates type of mission. a. Indicates whether contact with enemy is expected or whether mission is in a secure area.
Line 5. Mission Description	5. Provides description of troops and cargo to be lifted.
Line 6. Instructions	6. Identifies pickup zone coordinates, time of pickup, LZ coordinates, and time of landing.
Line 7. LZ Description a. Size b. Obstacles c. Wind Direction d. Friendly Position e. Secure/Insecure f. Enemy Position and Type Weapons	7. Provides detailed information to helicopter planners. a. Identifies size in meters and shape of LZ. b. Describes obstacles in LZ such as trees, trenches, stumps, etc. c. Describes wind direction on the ground (N, S, E, W). d. Identifies friendly position in relation to landing coordinates (200 meters SE). e. Describes tactical situation, considered insecure if troops cannot stand in LZ. f. Identifies enemy position in relation to landing coordinates and type of weapons identified.
Line 8. LZ Will Be Unmarked/Marked a. Type of Marking	8. Defines if LZ will be marked for positive location and identification. a. Defined to ensure positive verification of LZ coordinates.
Line 9. Communications	9. Lists all FM/UHF radio frequencies and call signs in pickup/landing zone to ensure positive radio contact.
Line 10. Local Date/Time	10. Identifies time and date support requested by requestor.

Figure 16.--Assault Support Request Form.

ASSAULT SUPPORT REQUEST FORM				
1.	ACTION ADDRESSEE	THE # (Call #)sg	REQUEST NO. _____	
2.	REQUEST FOR	<input type="checkbox"/> HELICOPTER	<input type="checkbox"/> FIXED-WING TRANSPORT	<input type="checkbox"/> OV-10
3.	MISSION PRECEDENCE	<input type="checkbox"/> EMERGENCY	<input type="checkbox"/> PRIORITY	<input type="checkbox"/> ROUTINE
4.	TYPE OF MISSION - TACTICAL OR ADMINISTRATIVE			
	<input type="checkbox"/> TROOP LIFT	<input type="checkbox"/> BAR	<input type="checkbox"/> RETRACTION	
	<input type="checkbox"/> LOGISTIC	<input type="checkbox"/> VIP CODE _____	<input type="checkbox"/> PHOTO	
	<input type="checkbox"/> RECON INSERT	<input type="checkbox"/> SPOT/OBS	<input type="checkbox"/> UNIT COMDR	
	<input type="checkbox"/> MEDEVAC	<input type="checkbox"/> LIAISON	<input type="checkbox"/> OTHER _____	
5.	MISSION DESCRIPTION NUMBER OF TROOPS _____ INTERNAL CARGO: WEIGHT/CUBE _____ LARGEST ITEM (LxWxH) _____ x _____ x _____ EXTERNAL CARGO: WEIGHT _____			
6.	INSTRUCTIONS			
	PICK UP TIME	COORDINATES	LZ TIME	COORDINATES
A.	_____	_____	_____	_____
B.	_____	_____	_____	_____
C.	_____	_____	_____	_____
D.	_____	_____	_____	_____
7.	LZ DESCRIPTION			
	SIZE _____	OBSTACLES _____		TYPE WEAPONS _____
	WIND DIRECTION _____	FRIENDLY POSITION _____		
	SECURE/INSECURE _____	ENEMY POSITION _____		
	LZ WILL BE			
	<input type="checkbox"/> UNMARKED	<input type="checkbox"/> PANELS	<input type="checkbox"/> FLARES	
	<input type="checkbox"/> MARKED WITH _____ (Color)	<input type="checkbox"/> SMOKE	<input type="checkbox"/> LIGHTS	
	<input type="checkbox"/> OTHER _____			
8.	COMMUNICATIONS (For Aircraft and LSCP/TACP)			
	P/U ZONE CALL SIGN CHANNEL	FM / UHF	FREQ. _____	
	LZ CALL SIGN CHANNEL	FM / UHF	FREQ. _____	
	(Do not give freq. unless no color code designated. If possible, provide both primary and alternate channels).			
9.	LOCAL DATE/TIME		AUTHENTICATION	
	FOR USE BY TACC/TADC/DIC/DASC/SACC/PSCC			
11.	RESTRICTIVE PLAN			
	LOCAL TIME _____	TO _____	TYPE _____	
	COORDINATES (SHACKLE) _____	TO _____	(UNSHACKLED)	
	COORD (Hexcode/Code) _____	TO _____	(Meters)	
	WIDE FROM CENTER LINE TO EACH SIDE _____	TO _____	(Feet)	
	ALTITUDE FROM _____	TO _____		
12.	ESCORT		NO. /TYPE A/C _____	
	<input type="checkbox"/> REQUESTED	<input type="checkbox"/> COMMUNICATIONS		_____
	<input type="checkbox"/> ASSIGNED	<input type="checkbox"/> ARMAMENT CODE		_____
13.	BASIC MISSION ASSIGNED TO _____		NO. /TYPE A/C _____	
	(Unit/Call #)sg		COMMUNICATIONS _____	
14.	MISSION CANCELLED <input type="checkbox"/>		BY WHOM _____	
	WHY _____			
15.	MISSION REQUEST SENT TO _____			
	RECD BY _____			
16.	TERMINATE REQUEST			
	A. IF UNABLE TO COMPLETE BY: DTG _____			
	B. WHEN COMPLETED _____			
17.	MISSION RESULTS COMPLETED _____			
	OTHER _____			
	(Include pilot reports. Use back of this form when necessary.)			

Figure 16.--Assault Support Request Form (Continued).

(11) Size of the defensive perimeter from the LZ.

#### 5. ACTION OF AIR CONTROL AGENCIES

a. The degree of control of helicopter movements exercised through the air control system varies extensively. Large preplanned tactical troop movements demand precise and positive control. At the opposite end of the spectrum, the control of immediate single aircraft missions is limited to that necessary to ensure the safety of the aircraft and its occupants. Throughout the entire spectrum, the degree of control is determined by an analysis of the mission; the magnitude of the operation; terrain and weather; enemy activity, particularly air; and operations of friendly forces, particularly friendly aircraft.

b. Immediately upon the commander's approval of a helicopter support request, the necessary agencies of the air control system complete their portions of the plans.

c. After necessary fire support coordination has been effected, pertinent instructions are issued to the helicopter unit by the HDC or the DASC. Necessary liaison is established and coordinated planning between the ground combat and helicopter units is conducted. The helicopter unit then provides the helicopters required to accomplish the mission.

d. The TACC monitors the tactical air command (TAC) and tactical air administrative (TAA) nets and receives information of the mission as it is passed to the helicopter unit by the HDC or DASC. The TACC enters the net only for coordination and emergency considerations. (Example: (1) provide and control escort aircraft; (2) impending enemy air attack.)

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