
UNITED STATES MARINE CORPS
THE BASIC SCHOOL
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CAMP BARRETT, VIRGINIA 22134-5019

HELICOPTER CAPABILITIES / OPERATIONS B2C3197

HELICOPTER CAPABILITIES / OPERATIONS

Introduction

The Marine Corps is an expeditionary force with the ability to utilize assault support and maneuver warfare to exploit the enemy in multiple MAGTF missions. This period of instruction concentrates on the conduct of a heliborne operation and the capabilities of Marine Corps assault support aviation.

Importance

The Marine Corps utilizes helicopters in a combat multiplier role that can avoid enemy surfaces, exploit gaps, and maintain flexibility and mobility during a MAGTF mission. In order to lead Marines during such a mission, one must understand how to properly utilize Marine Corps helicopter assets.

In This Lesson

This lesson will cover key personnel and the planning and execution phases of a heliborne operation and capabilities of Marine Corps helicopters.

This lesson covers the following topics:

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Learning Objectives

TLO: TBS-AVI-1001:

Given a mission, scheme of maneuver, and commanders intent, Identify Marine Corps Heliborne planning considerations, to support the ground scheme of maneuver and meet the commanders intent.

ELO: TBS-AVI-1001a:

Without the aid of reference, identify the five stages for planning a heliborne operation, without omission.

ELO: TBS-AVI-1001b:

Given a scenario, employ helicopter in support of the ground scheme of maneuver, to accomplish the mission.

ELO: TBS-AVI-1001c Without the aid of reference, identify capabilities and limitations of heliborne operations, without omission.

Helicopter Operations

Helicopterborne Operations

The foundation of vertical assault or helicopterborne operations lies in combat assault transport—one mission category of assault support. Helicopterborne operations are:

- Tactical movements of Marines, weapons, and material by helicopters to support the ground tactical plan.
- Deliberate, precisely planned and vigorously executed combat operations designed to allow friendly forces to strike over extended distances and terrain barriers to attack when and where the enemy is most vulnerable.
- Conducted with maximum speed, flexibility, and timeliness.

Considerations

When planning helicopterborne operations, you must consider the capabilities, limitations, and vulnerabilities of heliborne operations.

Capabilities

Helicopterborne operations allow Marines to:

- Attack enemy positions from any direction
- Overfly or bypass barriers and obstacles and strike objectives in otherwise inaccessible areas
- Conduct deep attacks and raids beyond the forward line of our own troops
- Rapidly concentrate, disperse, or redeploy to extend the area of influence
- Provide responsive reserves allowing commanders to commit a larger portion of their forces to action
- Conduct fast paced operations over extended distances
- Rapidly reinforce committed units
- Conduct night terrain flight with the use of night vision devices, which allows them to locate a landing zone and land without illumination

Limitations

These factors may negatively affect helicopterborne operations:

- Severe weather, extreme heat and cold, and other environmental conditions such as blowing snow and sand that limit flight operations, helicopter lift capability, or flight visibility
- Reliance on airborne communication
- Reduced ground mobility once inserted
- Limited accessibility to supporting arms, especially indirect fires

Helicopter Operations (Continued)

- Increased logistical considerations (fuel, maintenance, spare parts, facilities, and aircraft availability)

Vulnerabilities

Helicopterborne forces use helicopters to close with the enemy. Initial assault elements must be light and mobile. They are often separated from weapon systems, supporting arms, equipment, and material that provide protection and survivability on the battlefield. Thus, the helicopterborne force is particularly vulnerable to:

- Attack by enemy air defense weapons systems during the movement phase
- Attack by NBC systems, because of limited NBC protection and decontamination
- Attacks (ground, air, artillery) during the loading and unloading phases
- Electronic warfare (jamming), due to the heavy reliance on radio communications for command and control

Five Stages of Planning

1.) Ground Tactical Plan

The foundation for a successful helicopterborne operation is the ground commander's ground tactical plan. The ground tactical plan:

- Is developed first
- Is the basis from which other plans are derived
- Specifies actions in the objective area, which accomplish the mission
- Is constructed and conducted with all the elements of a typical infantry attack except that it capitalizes on the speed and mobility of the heliborne assault

The HUC must plan for and task-organize all assets available. The plan should include contingency plans and go/no-go criteria.

2.) Landing Plan

The landing plan in helicopterborne operations consists of the ground commander's guidance concerning the desired time, place, and sequence of arrival of units. Again, the landing plan must support the ground tactical plan taking a number of principles into consideration:

Five Stages of Planning (Continued)

- As a general rule, the smallest tactical unit to land in one wave in a landing zone should be a platoon. This provides a degree of combat power to secure the LZ for follow-on forces. Of course, in some cases, such as the insertion of combat patrols, the size will be smaller than a platoon and will not have to secure the zone for follow on forces.
- The helicopterborne force must land prepared to fight in any direction. The commander of the helicopterborne force must be concerned about security immediately upon landing.
- The number of helicopters in each wave depends on the:
 - Size of the helicopter force to be lifted including their equipment and supplies
 - Number of helicopters the ACE has available to support the insertion
 - Number of helicopters the LZ can accommodate
 - Ground commander's force requirements to accomplish initial objectives without delay
 - Amount of deck space/time available
- Troops are easily disoriented if the briefed landing direction changes and they are not kept informed. To prevent this, the stick leader needs to talk to the pilot on the intercommunications system (ICS) to keep abreast of any changes to the landing plan. The ICS cranial has a built-in headset and microphone to allow you to talk with the pilot and crew chief. The stick leader will be navigating from the jump seat located in the cockpit between the two pilots. The stick leader will need to do a thorough map study prior to flying to ensure navigation to the correct LZ.
- Aircraft should not be landed within direct fire range of enemy weapons because of their relative vulnerability and high value to the MAGTF.
- All members need to understand their mission immediately upon exiting the aircraft:
 - In what direction do I move?
 - For which portion of the LZ are we responsible?

Brief all members on where the *guide* should be located to help direct them into position. The guides will come from the first unit in the zone.

Landing plan preparation. The plan sequences elements into the area of operations so that units arrive at locations and times prepared to execute the ground tactical plan. The landing plan should plan for:

Five Stages of Planning (Continued)

- Prep fires, but they may not be used depending on the threat and the ground tactical plan. Prep fires should be short but intense in duration and should occur only minutes prior to L-Hour. Deception fires should be initiated in dummy LZs, followed by dummy landings.
- Preplanned "on call" targets for each phase of the operation—primarily for the LZ, movement to and in the objective, and movement to and in the pickup zone (PZ).
- All fire support assets available (ask for and plan for them):
 - Naval gunfire
 - Artillery
 - Fixed and rotary wing CAS
 - Mortars
 - Fast attack vehicles
- LZ selection. The HUC selects LZs based on the advice of the Assault Flight Leader (AFL). LZs are selected using the following criteria:
 - The ground commander's concept of operations.
 - Location. As close to the objective area as possible considering the need for surprise and security.
 - Capacity. The size determines how much combat power can be landed at one time. This also determines the need for additional LZs or separation between waves.
 - Size. The table below gives rules of thumb for determining LZ size if obstacles are on the perimeter of the LZ.

Type of Aircraft	If obstacles around the perimeter of the LZ are....		
	5 to 40 feet	40 to 80 feet	80+ feet
	Then the recommended LZ diameters (in feet) per single aircraft are....		
UH-1	100	150	200
CH-46	175	250	350
CH-53	175	250	350
MV-22	175	250	350

- Alternates. An alternate LZ should be planned for each primary LZ selected to ensure flexibility.
- Enemy disposition and capability. Enemy troop concentrations, air defenses, and their capability to react to a helicopterborne force landing nearby are considered when selecting LZs.

Five Stages of Planning (Continued)

- Cover and concealment. LZs are selected which deny enemy observation and acquisition of friendly ground and air elements.
- Obstacles (natural and manmade). If possible, the helicopter force should land on the enemy side of obstacles when attacking and use obstacles to protect LZs from the enemy at other times. LZs must be free of obstacles.
- Identification from the air. LZs should be readily identifiable from the air.
- Requirements for logistics support (e.g., Forward Arming and Refueling Points).
- Surface material and soil trafficability. Free of loose material and firm ground conditions preferred. Brush over three feet tall is usually considered restrictive to landing helicopters.

Landing formations. Aircraft formations in the LZ should facilitate off-loading and deployment for the operation. The number and type of aircraft and the configuration and size of the LZ may dictate the formation. Because contact should be anticipated in the LZ, elements are landed ready to employ fire and maneuver.

3.) Air Movement Plan

The air movement plan

- Is based on the ground tactical plan and the landing plan
- Specifies when and how troops, equipment, and supplies will be transported from PZs to LZs
- Provides coordinating instructions pertaining to
 - Ingress and egress routes
 - Air control points
 - Aircraft speeds, altitudes, and formations, which are decided by the Air Mission Commander (AMC)

4.) Loading Plan

The loading plan is designed to:

- Establish, organize, and control activities in the PZ or aboard ship
- Plan for the movement of troops and equipment to the PZ or flight deck
- Establish priority of loading units

Five Stages of Planning (Continued)

Correct helicopter loading is essential in maintaining mobility. Helicopters must be loaded in a manner and sequence that allows immediate assumption of the mission upon landing. The loading plans will either be administrative or tactical in nature depending on the situation.

Formulating the plan. In planning a helicopter operation, the platoon commander or company commander must complete several tasks:

- Review the total *number* (by type) of assault support aircraft available
- Review the number of aircraft by *type* allocated to each wave

NOTE: Helicopter capacity. For planning purposes, the

- CH-46E can lift 12 combat loaded troops
- CH-53D/E can lift 24 combat loaded troops
- MV-22 can lift 24 combat loaded troops

These numbers will change based on METT-TC (hot weather decreases aircraft performance; longer range requires more fuel; etc.).

- Determine *heli-team* (or “stick”) organization—a heli-team is the tactical unit, equipment, and supplies lifted in one helicopter. Each heli-team is identified by an assigned serial number, which also identifies its helicopter flight or wave. When forming heli-teams consider the following:
 - Unit integrity. Fire teams and squads are maintained and loaded on the same aircraft; likewise, platoons are in the same wave.
 - Tactical spread loading. An essential consideration, as loads should be planned so that all leaders or all similar weapon systems are *not* loaded on the same aircraft. Thus, if an aircraft is lost, the mission is not seriously hampered. For example, loading the platoon commander, platoon sergeants, and all squad leaders on the same helicopter or loading more than one machine gun team on the same aircraft violates tactical spread loading principles.
 - Employ the heli-team leader. The senior member of the heli-team has several responsibilities that exist in both the administrative and tactical environments. These responsibilities don't change and include:
 - Mustering and organizing the heli-team in the assigned assembly area
 - Inspecting each individual for proper uniform, equipment, and proper adjustment of equipment while in the assembly area

Five Stages of Planning (Continued)

- Ensuring the equipment assigned to the heli-team is properly staged before the team is called to the holding area or pickup zone
- Preparing the manifest for the heli-team. A passenger manifest needs to be made for each heli-team containing the name, rank, service number, and blood type of each individual. Don't carry your own manifest of your "stick;" leave it with the marshalling area control officer (MACO).
- Leading the heli-team from the assembly area to the holding area, pickup zone, and loading point for administrative lifts. For tactical lifts, you will lead the heli-team from your tactical position out to the aircraft.
- Supervising enplaning of the heli-team to include such things as counting heads, being the last one in, and coordination with the crew chief. Supervising deplaning of heli-team personnel and equipment at the landing site and turning control back over to tactical unit leaders. This includes directing members of the heli-team to an assigned sector/portion of the LZ, ensuring all gear and supplies are taken from the helicopter, etc.
 - Establish a bump plan so that essential personnel and equipment are not unnecessarily delayed in case of aircraft complications. If all personnel within the load cannot be lifted, individuals must know who is to off load and in what sequence or priority to ensure that key personnel are not bumped arbitrarily. Also, the bump plan defines when each aircraft "stick" will subsequently be loaded in the event an aircraft cannot fly. The unit leader establishes the bump plan in advance; it should be rehearsed prior to execution.

Loading Procedures

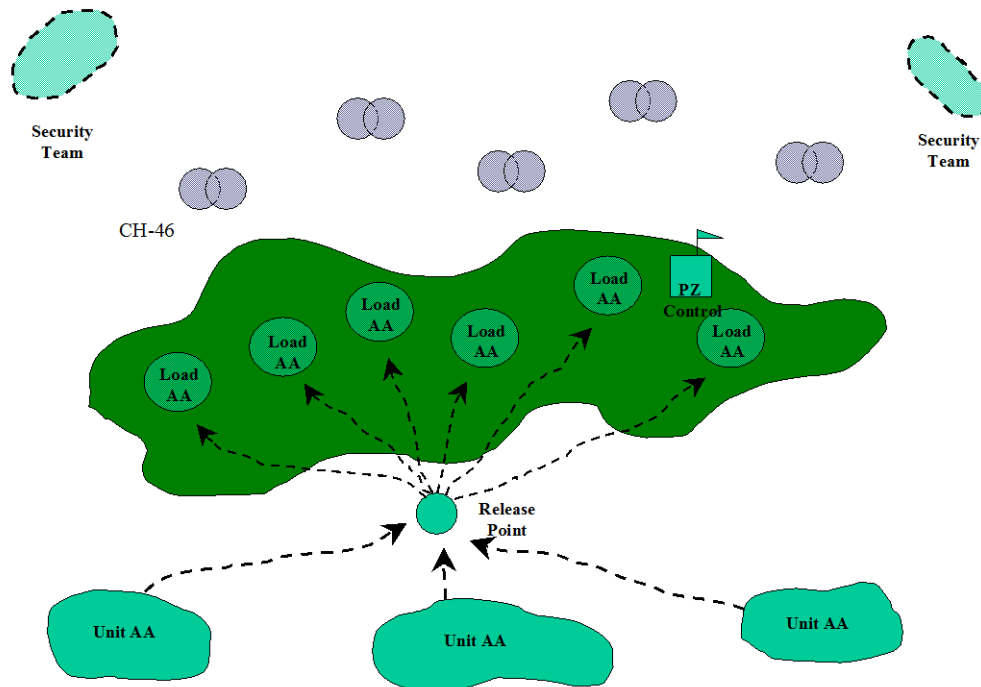
Again, these will be administrative or tactical in nature depending on the situation. Regardless of the tactical situation, completing accurate manifests is a priority for accountability. Manifests do not accompany the heli-team on the helicopter. They are maintained by the MACO and are used in case of an aircraft accident.

Administrative loading. Marines are gathered into an assembly area(s) where they are broken down into heli-teams and prepare for the lift.

When directed, the heli-teams are moved to the holding area and are positioned for loading. The assembly area may also serve as the holding area. Just prior to the helicopters' arrival for an administrative lift, a number of heli-teams equal to the number of pickup zone points is summoned from the assembly area and

Five Stages of Planning (Continued)

reports to the holding area. Heli-team manifest can be collected here. The pickup zone is the zone from which you will be extracted (see diagram below).



Pickup Zone Operation - Administrative

From the holding area, heli-teams are moved to a pickup point within the pickup zone. The pickup zone points are alert points from which heli-teams are called for loading. In small unit lifts and when control means are adequate, pickup zone points may be dispensed with.

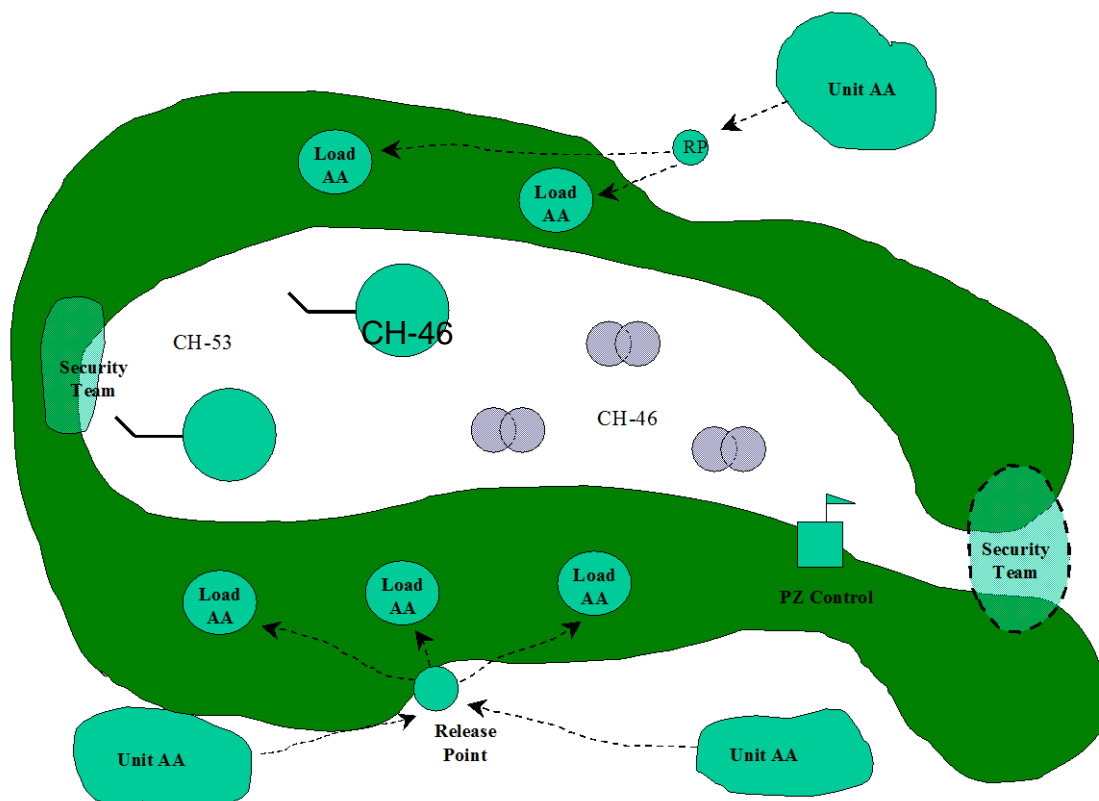
Tactical Loading

A helicopterborne operation can be conducted any number of ways. Unit SOPs will and should be developed over time to refine these procedures. Some general concerns for any tactical pickup include:

- Securing the zone. Once again, the inherent vulnerability of helicopters *on the ground* requires providing necessary amount of security to preserve the force. For larger zones, securing the zone with a portion of the force (while the remainder stages in an assembly/holding area) may work. If the zone is small, securing the entire perimeter with the force may suffice.
- Designating a pickup zone coordinator. One individual should be in charge of coordinating the movement of the unit, collecting manifests, etc. Normally this would be the company gunnery sergeant (company), platoon sergeant (platoon), or assistant patrol leader (APL) (small unit patrol).

Five Stages of Planning (Continued)

- Units are to remain covered and concealed as long as possible. The only Marines that should be exposed in the LZ will be the LZ control team.
- Conducting a rehearsal. Like any other tactical operation, practice makes perfect. By rehearsing, units identify routes to their designated pickup points, understand the signal to commence the extract, and plan for scenarios involving *enemy contact* at anytime throughout the operation.
- For tactical loading, the heli-teams will head for the release point when directed. Here they will quickly turn in their passenger manifest and head directly onto their designated aircraft. If the manifest cards are collected prior to the helicopters' arrival, units may bypass the release points and, on signal, head directly for their assigned aircraft. The units must allow for shrinking security as the subordinate elements are pulled out. The last units to be extracted will be the security units (see diagram below).



Pickup Zone Operation - Tactical

Loading Sequence

Loading is conducted with the maximum speed commensurate with safety. Specific procedures for loading, by type of aircraft and according to the situation, will be prescribed in unit SOPs. To assist in loading, the following procedures may be used as guides:

Five Stages of Planning (Continued)

- Heli-team leader initiates movement once the aircraft has *landed*.
- Heli-team moves to the aircraft in file with the heli-team leader leading the file and the assistant heli-team leader bringing up the rear.
- Heli-team leader should:
 - Ensure all personnel know which aircraft and which position to load.
 - Ensure that all personnel unsling their weapons and the equipment is held properly before dispatching troops to their loading points in administrative lifts. Unit SOPs will dictate which way to carry gear onto the aircraft. As a general rule, point muzzles on all weapons down when enplaning helicopters. Usually packs will be carried on slung over one shoulder.
 - Notify the crew chief when all heli-team members are on board and ready for takeoff. A technique to signal you are ready is to give a thumbs-up to your heli-team leader and hold it until everyone is ready.
 - Report to the pilot and answer any questions the pilot may have, utilizing the aircraft ICS. The heli-team leader needs to pass all pertinent information for landing, including the name of the landing zone and its grid coordinate along with the desired direction of landing and the landing point. One technique is to have all the information prepared on a card and ready to give to the pilot prior to enplaning.
 - Ensure, upon landing, that all personnel exit the aircraft and quickly move to designated positions in the LZ and continue the ground tactical plan.

5.) Staging Plan

The staging plan is based on the loading plan and prescribes the arrival time of ground units (troops, equipment, and supplies) at the PZ in the proper order for movement. Loads must be ready before aircraft arrive at the PZ; usually, ground units are expected to be in the PZ 15 minutes before aircraft arrival.

Tactical Extractions

Tactical extractions use the same principles as tactical insertions except in reverse. The PZ must first be secured, occupying key terrain, avenues of approach, etc.

Units then occupy the PZ tying in with each other. The PZCO initiates action to prepare the unit for extract, including preparing manifest and prepping internal and external loads.

As the initial wave departs the PZ, remaining units begin to “shrink” the zone. As each wave departs, the zone becomes smaller. The security element will be the last to be extracted.

Five Stages of Planning (Continued)

Upon departure, supporting fires should be planned and executed to cover the egress.

For hot tactical LZ/PZ contingencies,

- Conduct immediate action and initiate your fire support plan
- Gain a foothold in the zone, consolidate, and reorganize
- Execute a contingency plan:
 - If the mission is still tenable, move to the objective via an alternate route.
 - Move to an alternate LZ/PZ (if only part of your unit was able to get into the zone and the remainder is landing in an alternate; initiate a link-up). Likewise, if the PZ becomes hot, movement to an alternate may have to be executed.
 - Conduct an emergency extract from a hot PZ. If this is the option, ensure that fire support assets are available to give adequate suppression and extract the wounded first.

Helicopterborne Operations Key Personnel

Mission Commander

The mission commander's presence and role ensures a unity of command throughout the operation. He must determine where he can maintain communications with his subordinate commanders. Elements of the ground combat element (GCE), ACE, and combat service support element (CSSE) that form the helicopterborne task force will be placed under the mission commander's direct command. The MAGTF commander may be the mission commander depending on the scope of the helicopterborne operation.

Air Mission Commander (AMC)

The AMC is the senior Marine aviator designated commander of the aviation unit tasked to support a helicopterborne operation. Depending on the size and scope of the MAGTF, he may also be the ACE commander. The AMC is responsible for:

- Planning and executing all aviation functions relative to the assigned helicopterborne mission

Helicopterborne Operations Key Personnel (Continued)

- Establishing liaison with the helicopterborne unit commander (HUC) (the commander responsible for the ground tactical plan) to conduct concurrent and parallel planning

The AMC shall assume the duties of the Assault Support Coordinator (Airborne) for missions when no ASC (A) is assigned. The AMC is subordinate to the mission commander and is co-equal to the HUC in planning. During execution, specific authority will be delegated from the mission commander to the AMC.

Helicopterborne Unit Commander (HUC)

The HUC is the ground officer who has been designated commander of the helicopterborne force and is charged with execution and accomplishment of the ground tactical plan.

His unit comprises the helicopter landing force. Depending on the size and scope of the MAGTF, the HUC may also be the GCE commander. Normally, only one GCE is in a helicopterborne ground unit although there may be multiple lifts and landings.

The ground unit commander is responsible for execution of the ground tactical plan. As in any operation, the HUC must move where he can see the battlefield and where he can control the operation. In situations where the enemy allows, he would be airborne during the movement and insertion phases. At other times, he fights the battle from a tactical command post (CP) deployed well forward. The HUC is subordinate to the mission commander and is equal to the AMC in planning. During execution specific authority will be delegated from the mission commander to the HUC.

Assault Support Flight Leader (AFL)

The AFL is an experienced aviator in command of the assault support flight. The AFL reports to the AMC and assists in the planning of flight routes, LZs, and all other facets of the helicopterborne mission that directly involve assault support aircraft. The AFL is subordinate to the AMC and is equal to the escort flight leader (EFL) in planning. During execution specific authority will be delegated from the AMC to the AFL.

Escort Flight Leader (EFL)

The EFL is an experienced aviator in command of the escort (attack) flight and reports to the AMC. He assists in the planning of LZ preparation, threat mitigation, and all other facets of the helicopterborne mission that directly involve attack aircraft. The EFL is subordinate to the AMC and is co-equal to the AFL in planning. During execution specific authority will be delegated from the AMC to the EFL.

Helicopterborne Operations Key Personnel (Continued)

In summary, the HUC is the ground officer who has been designated to be the commander of the helicopterborne force and who is charged with the accomplishment of the ground mission. The AMC is responsible for the air mission and is appointed by the ACE or the aviation unit commander. The AMC is responsible for determining aviation assets necessary and their application to effectively and safely complete the air aspect of the mission. In a helicopterborne operation, the AMC is responsible for making initial liaison with the HUC. The AFL is an experienced aviator in command of the transport helicopters taking part in a helicopterborne mission.

Command Relationships

Coordination between the ground commander (HUC) and the AMC should begin at the earliest opportunity in the planning phase of the operation. During the initial planning stages, the AMC will give the HUC and his staff planning data relative to the numbers and types of helicopters available for the lift. Although the HUC and the AMC must plan together, the HUC's concept of operations on the ground must drive all planning for the helicopterborne operation.

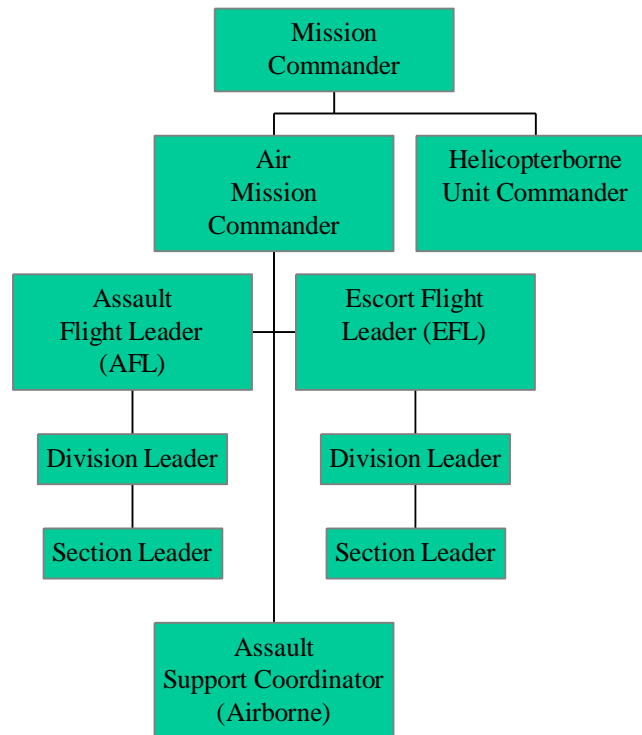
A central consideration for the HUC and AMC in planning a helicopterborne operation is the enemy air defense situation. Sortie rates and aircraft types, availability, and capabilities are also central factors in planning.

To achieve the necessary rapid build up of combat power, a helicopterborne operation requires a massing of helicopters. As a planning figure, a minimum of one-third of the ground unit should be landed in the zone in the first wave.

The basis for planning the timing of the operation is L-Hour. L-Hour is the time when the first helicopter in the first lift is to touch down in the LZ.

The commanders accomplish this by directing subordinate units to form the helicopterborne force (see diagram on next page).

Helicopterborne Operations Key Personnel (Continued)



Command Relationship of a Helicopterborne Force

Execution of the Helicopterborne Assault

Conduct of the Landing

The landing is executed with maximum speed. Following the ceasing of prep fires, the initial wave lands and establishes security for follow-on waves. To ensure security, the initial wave will seize key terrain and cover likely avenues of approach.

As subsequent waves arrive in zone, the LZ is enlarged. With guides provided by the initial wave, units arriving in the LZ are joined with their respective squads/platoons, immediately occupying their respective sectors. While waiting for subsequent waves to arrive, units will:

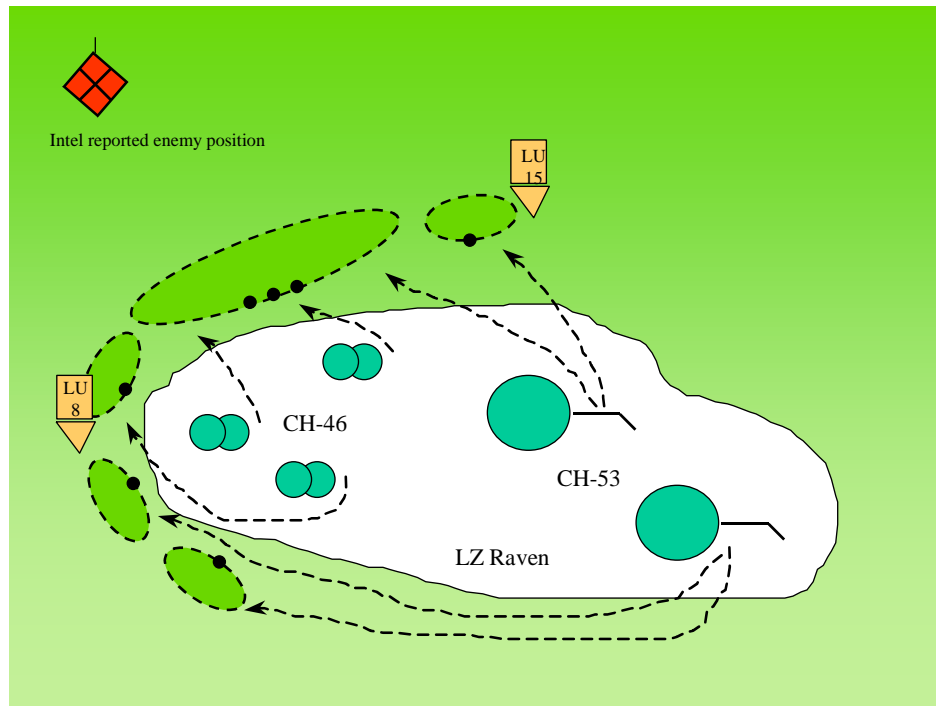
- Tie-in physically or by fire
- Conduct hasty reorganization/consolidation
- Prepare to move

Follow-on waves will continue to enlarge the zone; once the last wave has arrived and tied-in, movement out of the LZ should be quick and deliberate.

Execution of the Helicopterborne Assault (Continued)

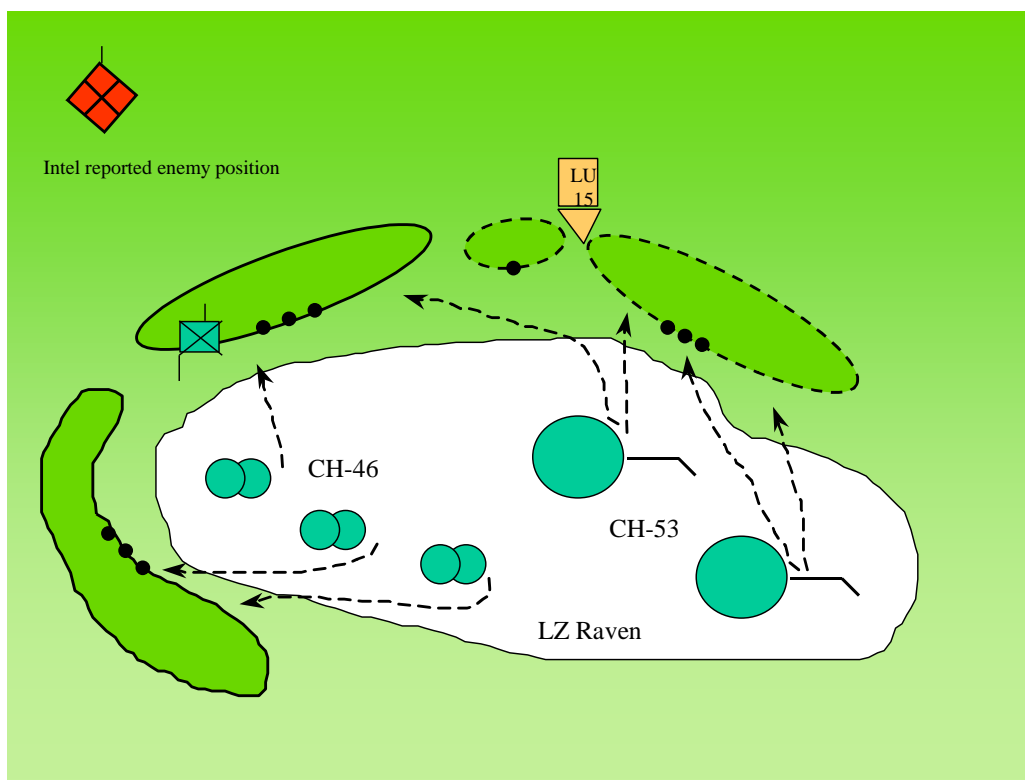
Initial Ground Actions

1. Initial Assault. The initial assault involves seizing and establishing landing sites. The initial wave is composed mainly of assault rifle units, reinforced as necessary to provide the combat power required for clearing the landing sites and the landing zone of enemy elements. Although the scheme of maneuver depends upon many other factors, the initial assault forces are normally assigned responsibility for clearing sectors of the landing zone (see diagrams below).

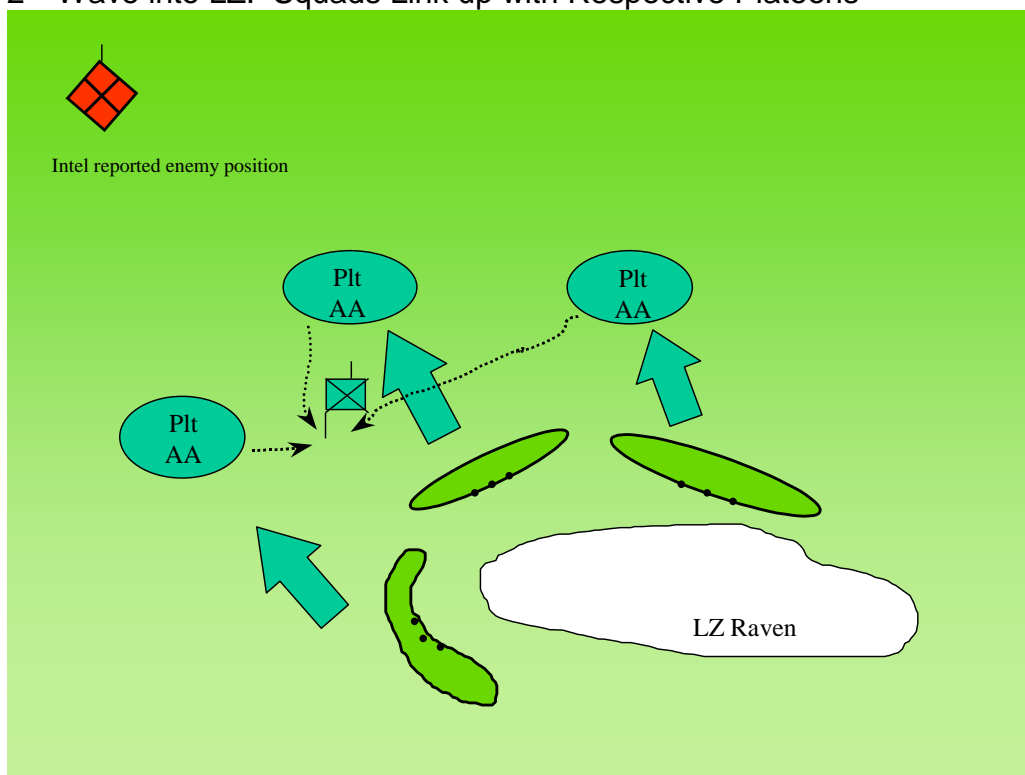


Initial Wave into LZ (Should be at Least 1/3 Combat Power)

Execution of the Helicopterborne Assault (Continued)



2nd Wave into LZ. Squads Link up with Respective Platoons



Platoons Move into Assembly Areas and Coordinate Final Planning at Company CP

Execution of the Helicopterborne Assault (Continued)

2. Assault Rifle Platoon. The assault rifle platoon effort initially consists of separate squad actions in assigned portions of the platoon sector to establish control and clear the sector of enemy resistance.

The platoon sector is divided into squad sectors; each squad is responsible for clearing its sector. Initially, control of the platoon is decentralized to the squad leaders. Consequently, aggressiveness, initiative, and rehearsal at the small unit level are heavily emphasized.

The seizure of objectives on or beyond the landing site perimeter permits the platoon to dominate avenues of approach into the site from that direction. Control of these objectives also prevents enemy small arms interdiction of the landing.

3. Assault Rifle Company. The assault rifle company:

- Lands in its assigned landing site in one or more waves
- Clears the landing site of enemy resistance
- Seizes terrain objectives which control the site

Based upon the formation for landing, the company commander usually lands in a wave, which allows him to gain control of at least two rifle platoons in their ground actions. The PZ coordinator is usually left in charge of loading and lands with one of the last heliteams in the company. The primary concern of the company commander is to rapidly gain control of the situation without causing loss of momentum in the attack.

Landing Zone Brief

Landing Zone (LZ) Brief

The information contained in the LZ brief is the basis for the information that should be passed to the transport helicopter prior to landing in the zone. The table below describes the content for each paragraph of the LZ brief. The LZ brief is the primary method of informing the pilot of conditions on the ground.

Paragraph Number and Title	Description of Contents
1. Mission number	<ul style="list-style-type: none"> • Typically, a two-part, hyphenated number that the air tasking order (ATO) or an air agency assigns • Example: 28-3, where 28 is the day of the month and 3 is the third mission assigned

2. Location	<ul style="list-style-type: none"> • Also typically supplied to the aircrew <ul style="list-style-type: none"> ○ Prior to launch ○ En route, in case of a divert mission • May only be general information; aircrew expects a location update upon contact with the supported unit <ul style="list-style-type: none"> ○ Use of LZ code names from the OORDER simplifies the task of passing locations over an open net ○ If the LZ is not named, the grid should be passed covered ○ Grid locations of LZ are passed as <ul style="list-style-type: none"> ▪ Six digits ▪ Center mass for a small LZ or the side you intend to use for a large LZ
3. Unit call sign	<ul style="list-style-type: none"> • Must be provided to the aircrew prior to them attempting to contact the supported unit • Normally the ATO or an air agency passes
4. Frequency	<ul style="list-style-type: none"> • An air agency provides to the aircrew • If supported unit has alternate frequencies or a different working frequency, pass it on contact
5. LZ marking	<ul style="list-style-type: none"> • Describes the method(s) used to mark the LZ • For smoke, do <i>not</i> pass smoke color; it can be used as an informal authentication method. If someone is monitoring the net, it prevents them from luring the helicopter into an ambush • Smoke is preferred method of marking LZ in daylight because it also provides wind direction • At night, mark LZ with chemical lights, preferably infrared type
6. Wind direction and velocity	<ul style="list-style-type: none"> • Wind direction <ul style="list-style-type: none"> ○ Determined by the direction the wind is blowing <i>from</i> (not to) ○ Is more important than velocity • Velocity <ul style="list-style-type: none"> ○ During day conditions, aircrew can judge wind velocity by observing vegetation ○ Pass your best guess on wind velocity; it may be quite different at your location than the pilot expects due to wind gusts. If: <ul style="list-style-type: none"> ▪ You have to lean into it and debris is blowing around, wind is in excess of 20-25 knots ▪ There is a distinct breeze, wind is around 8-10 knots ▪ There is just a puff of air, wind is 5 knots or less ▪ Wind is so light that it is tough to tell direction, call it either calm or light and variable
7. Elevation/size	<ul style="list-style-type: none"> • Pass elevation to the nearest 50 feet (no need to be incredibly precise, so do not waste a lot of time) <ul style="list-style-type: none"> ○ If you have a metric map, convert to feet using the conversion scale on the map (aircraft altimeters read in feet; doing this is a courtesy to a busy aircrew and prevents possible misunderstandings) • Pass size in meters, with length and width of the usable part of the zone required information <ul style="list-style-type: none"> ○ For irregular shaped LZs, eyeball what looks to be the usable part of the zone (absolute precision is not required; simply your best guess)

	<ul style="list-style-type: none"> • Flight leader uses this information to decide <ul style="list-style-type: none"> ○ How many aircraft to bring into the zone at one time ○ If aircraft can use a normal approach pattern or will require some sort of precision approach
8. Obstacles	<ul style="list-style-type: none"> • Hazards to aircraft on ingress or egress; things in the LZ that will hamper a normal landing • Trees around the zone are not generally considered obstacles; they define the limits of the LZ more than obstruct the approach • Things such as <ul style="list-style-type: none"> ○ Wires, which are difficult to see (almost impossible to see at night) <ul style="list-style-type: none"> • Communication wire • Barbed wire • Concertina ○ Things in the zone itself <ul style="list-style-type: none"> • Fence posts • Stumps • Flooded areas • Tell the pilot what to be looking for so there are no surprises on short final • Example <ul style="list-style-type: none"> ○ There is a line of concertina 50 meters in and parallel to the eastern tree line ○ There are numerous engineer stakes in the zone
9. Friendly positions: direction and distance	<ul style="list-style-type: none"> • Passed to help the pilot land near the troops to be picked up • If troops are all around the zone, tell pilot where the loading points are • Example: Halfway down the zone on the eastern side
10. Enemy positions: direction and distance	<ul style="list-style-type: none"> • An intelligence update for the aircrew, so they can plan their ingress and egress away from the threat • Directions are passed in semi-cardinal headings • Distance is given in meters
11. Last fire received: time and type	<ul style="list-style-type: none"> • Type is much more critical than time <ul style="list-style-type: none"> ○ Avoiding the threat of indirect fire weapons is difficult • Time is less significant but will give the aircrew some idea where the enemy might be <ul style="list-style-type: none"> ○ If you took fire from rifles 10 minutes ago, the aircrew will probably conclude they are still in the area
12. Direction of fire / distance	<ul style="list-style-type: none"> • An intelligence update • Direction is a semi-cardinal heading • Distance is more significant than direction; it is a guide to possible effectiveness of the fire • Rifle fire received from the hilltop 1000m away will be less significant than the fire received from 400m away
13. Clearance to fire: direction and distance	<ul style="list-style-type: none"> • Allows the helicopter the widest latitude possible to fire, consistent with troop safety • Generally passed as <ul style="list-style-type: none"> ○ "Cleared to fire to the east side of the zone beyond 50m into the tree

	<p>line”</p> <ul style="list-style-type: none"> ○ “Cleared to fire except for the southern side of the zone” ● If friendly troop location is in doubt, be restrictive, but do not necessarily limit a good resource
14. Approach / retirement: (recommended)	<ul style="list-style-type: none"> ● Give your best guess which way the helicopters should ingress and egress, realizing that helicopters prefer to <ul style="list-style-type: none"> ○ Land and take off into the wind ○ Avoid overflying the enemy ● Flight leader makes the ultimate decision; do not be upset if his priorities are different from yours ● If there is a specific reason to avoid an ingress or egress direction, pass it to the aircrew
15. Personnel / equipment	<ul style="list-style-type: none"> ● Pass personnel as number of sticks (heliteams) because it is easier for pilots to determine the number of lifts required (vice stating “I have 255 pax”) <ul style="list-style-type: none"> ○ Example: “I have 17 sticks of 15.” ● Mention equipment, which the individual Marine does not carry, such as pallets of cargo, water bulls, etc. ● Each Marine is figured to weigh 240 pounds for planning purposes, which includes his personal gear <p>NOTE: For MEDEVAC briefs, pass the number and precedence (routine, priority, and urgent) of the casualties to be evacuated, along with the type and number of wounds. Aircrew will call the direct air support center (DASC) or helicopter direction center (HDC) to alert the medical agencies to expect that number and type of casualties to expedite their triage priorities</p>
16. Other	<ul style="list-style-type: none"> ● Anything that does not fit conveniently in another line ● Examples <ul style="list-style-type: none"> ○ Other helicopters using the zone ○ Condition of the zone (“mud knee deep,” “zone has 6 feet of loose powdery snow,” “two loads of pax and then we have 7 loads of ammo rigged as externals”

The LZ brief is passed in plain language covering only the pertinent items using the line titles. An LZ brief is passed as follows:

Step	Action	Example
1	The helicopters will establish initial radio contact on the way into the LZ.	<i>"A1Z this is Nighthawk 22, flight of two 46s, 5 minutes out"</i>
2	Give the helicopters a courtesy call to give the aircrew the opportunity to get their pencils out.	<i>"Nighthawk 22 this is A1Z, are you ready to copy zone brief?"</i>
3	The zone brief follows.	<i>"Nighthawk 22, A1Z, pickup LZ is sparrow. LZ is marked with a NATO "Y", winds are light and variable. LZ is 150 meters by 250 meters, oriented north to south. There are several engineer stakes in the NE corner."</i>

LZ Brief Format. Here is a sample LZ brief format you can use.

LZ BRIEF

1. MISSION NUMBER _____
2. LOCATION _____
3. UNIT CALL SIGN _____
4. FREQUENCY FM _____ UHF _____
5. LZ MARKING _____
6. WIND DIR./VELOCITY _____ / _____
7. ELEVATION/SIZE _____ / _____
8. OBSTACLES _____
9. FRIENDLY POSITIONS DIR _____ DIST _____
10. ENEMY POSITIONS DIR _____ DIST _____
11. LAST FIRE TIME _____ TYPE _____
12. LAST FIRE DIR _____ DIST _____
13. CLEARANCE TO FIRE DIR _____ DIST _____
14. APPROACH/RETIREMENT _____ / _____
15. PERSONNEL/EQUIPMENT _____ / _____
16. OTHER _____

Zone Inspection, Planning, Preparing and Operation (ZIPPO) Brief

ZIPPO Brief

The ZIPPO brief is a face-to-face conference with the helicopterborne unit commander, the assault flight leader, and key staff members who jointly plan a helicopterborne operation in which their units are participating. The ZIPPO brief will also discuss all items found in the sample below, including aircraft performance in relation to anticipated tactics, threats, and load factors.

ZIPPO Brief Format

Here is a sample ZIPPO brief format you can use.

ZIPPO BRIEF

1. Mission Number
2. Unit/Callsign
3. AirO Callsign
4. HC(A) Callsign
5. TAC(A)/FAC(A) Callsign
6. Asslt Flt Cdr Callsign
7. Escort Flt Lead Callsign
8. F/W Coord. Callsign
9. Number/Type Helos
10. Pickup Coord
LZ Description
11. Drop Coordinates
DZ Description
12. Approach/Retire Rtes
13. Total Troops/Heliteam Size

14. Int Cargo Load: Type/Wt

15. Ext Cargo Load: Type/Wt

16. Freqs:

- Asslt FM Pri _____ Sec _____
- Asslt UHF Pri _____ Sec _____
- LZ Ctrl Pri _____ Sec _____
- FW Ctrl Pri _____ Sec _____

WX Mins/Alt Plan

Pick-up Time/Latest Acceptable

L-Hour/Latest Acceptable

Arty Prep Time/End of Mission

F/W Flt/TOS/Ord

F/W CAP/TOS/Ord

ROE/CInc to Fire

Intel

Fuel Plan

Medevac (Priority/Precedence)

Resupply:

Internal Sorties _____ Wt _____ Lifts

External Sorties _____ Wt _____ Lifts

RTF Procedures

Penetration Checklist

MEZ Procedures

MRRs/Alts/Freqs/IFF

Helicopter Capabilities

This ready reference of MAGTF aircraft may be utilized for initial operational planning only. Aircraft performance is affected by many variables such as temperature, density altitude, humidity, wind, aircraft configuration, and mission requirements. Specific performance parameters are calculated for every mission. Detailed mission planning requires close liaison with the ACE and use of appropriate operations and tactical manuals.

CH-46E

Dimensions	
Height	16 feet 8 inches
Weight	
Empty	16,500 pounds
Maximum gross wt	24,300 pounds
Rotor diameter	51 feet
Length	84 feet 4 inches
Airspeed	
Max endurance	70 KIAS
Maximum range	110 to 130 KIAS
Maximum airspeed	145 KIAS
Fuel Capacity	
Pounds / Gallons	4488 / 660
Endurance	
Payloads	4300 pounds - 12 pax
Endurance	2 + 55 hours
Weapons Systems	
Guns	2 X 50 caliber XM 218
Other Systems	
GPS navigation	Miniature Airborne GPS Receiver (MAGR) System
Communications Equipment	
HF	1 X AN/ARC-94
VHF/UHF	1 X AN/ARC-182 w/KY-58 encryption device
UHF	1 X AN/ARC-51A w/KY-58 encryption device
VHF/UHF	1 X AN/ARC-210 w/KY-58 encryption device (CNCS configured A/C only)
Aircraft Survivability Equipment	
RWR	AN/APR-39(V)1 radar warning receiver
IRCW	AN/ALQ-157 infrared jammer
Expendables	AN/ALE-39 countermeasures dispenser
Missile warning	AN/AAR-47 missile warning system

CH-53D

Dimensions	
Height	24 feet 11 inches
Weight	
Empty	27,000 pounds
Maximum gross	42,000 pounds
Rotor diameter	72 feet 3 inches
Length	88 feet 6 inches
Airspeed	
Maximum endurance	70 KIAS
Maximum airspeed	130 KIAS
Fuel Capacity	
Pounds/Gallons	13,178/1938
Endurance	
Payloads	24 pax/8000 pounds internal cargo
Typical	3 + 00 hours
Best case	5 + 30 hours
Weapons Systems	
Guns	2 x XM-218 .50 caliber, 1 x M-3M .50 caliber ramp gun (optional)
Other Systems	
GPS Navigation	Miniature Airborne GPS Receiver (MAGR) System
Communications Equipment	
HF	1 X AN/ARC-94 or AN/ARC-174
UHF/VHF	2 X AN/ARC-182 w/KY-58 encryption device <i>or</i> 2 X AN/ARC-210 w/KY-58 encryption device
Aircraft Survivability Equipment	
RWR	AN/APR-39(V)1 radar warning receiver
IRCM	AN/ALQ-157
Missile warning	AN/AAR-47 missile warning system
Expendables	AN/ALE-47 countermeasures dispenser

CH-53E

Dimensions	
Height	28 feet 4 inches
Weight	
Empty	36,000 pounds
Maximum gross weight	73,500 pounds
Rotor diameter	79 feet
Length	99 feet ½ inch
Airspeed	
Maximum endurance	75 KIAS
Maximum airspeed	150 KIAS
Fuel Capacity	
Pounds/Gallons	15,000/2277
Endurance	
Payloads	24 pax 20,000 pounds internal
Typical	4 + 00 hours
Best case	Indefinite with Aerial Refueling
Weapons Systems	
Guns	2 x XM-218 .50 caliber, 1 x M-3M .50 caliber ramp gun (optional)
Other Systems	
FLIR	AN/AAQ-16B
GPS Navigation	Miniature Airborne GPS Receiver (MAGR) System
Communications Equipment	
Same as CH-53D	
Aircraft Survivability Equipment	
RWR	AN/APR-39(v)1 radar warning receiver
IRCWM	None
Missile warning	AN/ALE-47(v)2 missile warning system
Expendables	AN/ALE-47 countermeasures dispenser

MV-22

Dimensions	
Height	22 feet 7 inches
Width	84 feet 10 inches
Empty Length	60 feet 9 inches
Weight	
Max gross weight	60,500 pounds
Empty	33,500 pounds
Airspeed	
Maximum endurance	150 KCAS
Maximum airspeed	280 KCAS
Fuel Capacity	
Pounds/Gallons	11,300/1724
Endurance	
Payloads	24 pax 15,000 pounds internal/10,000 pounds external
Typical	3 + 00 hours
Best case	Indefinite with Aerial Refueling
Weapons Systems	
Guns	M240 ramp gun (optional)
Other Systems	
GPS Navigation	Miniature Airborne GPS Receiver (MAGR) System
Communications Equipment	
VHF/UHF/FM/SATCOM/SINGGARS/HAVEQUICK	
Aircraft Survivability Equipment	
RWR	AN/APR-39(v)1 radar warning receiver
Missile warning	AAR-47 missile warning system
Expendables	AN/ALE-47 countermeasures dispenser
Other	AVR-2 Laser Detecting Set

References

Reference Number/Author	Reference Title
FMFM 5-30	Assault Support
FMFM 5-35	Assault Support Helicopter Tactical Manual
	THULS
MCWP 3-11.4	Helicopterborne Operations

Notes
